Coastal news

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Newsletter of the New Zealand Coastal Society
a Technical Group of IPENZ

Contents

New Zealand Coastal Society Seminar 2000 – an overview

"Coastal management in New Zealand: Theory vs Practice" was the theme for the Coastal Society Annual Seminar held in October 2000 at the National Maritime Museum in Auckland. The NZCS President Richard Reinin-Hamill welcomed about 100 participants who were presented with a keynote address by the Minister of Conservation, Hon. Sandra Lee.

The seminar took a critical look at how well coastal management and scientific theory is meshing at the beginning of the 21st century. The focus was on coastal development, coastal monitoring, and sea level and climate change. On day one, plenary speakers were used to set the scene and provide various perspectives on these issues. Evens Young of Hopper Developments provided a developers perspective. Megan Linwood of the Ministry for the Environment described the development of Environmental Performance Indicators for the marine environment. Derek Goring described the state of sea level monitoring and the impacts of climate change on sea levels about New Zealand. Hugh Leersnyder gave an overview of the coastal environment of the Auckland region and also the framework in which it is managed. Participants then went into the field and made site visits to a selection of "case studies" namely: Omaha Beach development and Pine Harbour marina. The following day facilitated workshop discussion groups considered the effects of these developments, the usefulness of coastal monitoring and its implementation, and how these developments would have been done today given our current coastal management practices and scientific theory and, of course, a fair dose of 20/20 hindsight. These discussions are reported in this Newsletter. Harvey Brookes of ARC wrapped up proceedings with some thoughts on integration in New Zealand's coastal management.

The Society Seminar was not all work. Participants had an extremely enjoyable evening at Mikano Restaurant on the Auckland waterfront, which saw highly vocal participants competing to dress and paint themselves in

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bizarre likenesses of 'scum-sucking marine invaders'. On the Friday Alan Moore of ARC led a tour of Viaduct Basin redevelopment. Delegates were privileged when Team New Zealand opened its doors and under Murray Taylor's guidance were able to see the new team settling in, and were given a fascinating account of the successful America's Cup campaign. The group was able to bask in the glory of their deeds and even touch that keel!

NZCS members pose as marine invaders

It was a great seminar. Many thanks must go to the sponsors, Auckland Regional Council, Beca Carter Hollings & Ferner Ltd, NIWA and Tonkin & Taylor. The Society is also grateful to the keynote and plenary speakers who were presented with copies of the book "A natural history of Auckland". The efforts of the NZCS committee members who contributed to the seminar's success were appreciated and special thanks must go to Stacey Devine and Hugh Leersnyder and his coastal team, who played a major role in organising and resourcing the event.

Terry Hume, NIWA

Further seminar reports appear on pages 5 and 8

Surveying the Coast by Airborne Laser

Background

Environment B·O·P has recently completed a trial of LIDAR technology to quantitatively map coastal dune systems. Light Detection and Ranging (LIDAR) is a scanning and ranging laser system that produces highly accurate topographic maps. The technology has been in existence for 20 years, but the commercial application for topographic mapping has only developed in the last five years. It has not been commercially available in NZ until last May, when OPUS International Ltd brought a LIDAR equipped airplane to New Zealand to demonstrate and trial the technology.

The basic components of a LIDAR system are a laser scanner, a Global Positioning System (GPS), and an Inertial Navigation System (INS). The laser scanner is mounted in an aircraft and emits infrared laser beams at a high frequency towards the ground. The scanner records the difference in time between the emission of the laser pulses and the reception of the reflected signal. A mirror is mounted in front of the laser. The mirror rotates and causes the laser pulses to sweep at an angle, back and forth along a line on the ground. The position and orientation of the aircraft is determined using differential GPS.

The round trip travel times of the laser pulses, from the aircraft to the ground, are measured and recorded along with the position and orientation of the aircraft at the time of the transmission of each pulse. The LIDAR emits 5000 laser pulses per second with approximately 64,000 points emitted for every 1km flown. After the flight the co-ordinates of each ground point are calculated. Figure 1 shows the main components of an airborne LIDAR mapping system.

LIDAR has many potential end uses. However the application of most relevance to coastal management is the development of detailed topographic models of dunes and the foreshore at lower cost than traditional techniques. This information can then be used for other purposes such as coastal hazard assessment and monitoring. Further information on LIDAR applications can be found at www.airborne1.com, www.lasermap.com, and www.sam.usace.army.mil/op/shoals.

Trials

During May 2000, a number of New Zealand LIDAR trials were undertaken. Environment B·O·P was one of a number of agencies that participated in trials. Three trials were undertaken in the Bay of Plenty by Environment B·O·P. Two of these trials were on the coast. One of the coastal trials was a 600 m wide strip of coastline from Pukehina to Opape (88 km). The other coastal trial was a 300 metre wide strip across the middle of Ohiwa Harbour.

The purpose of the trials was to test the accuracy

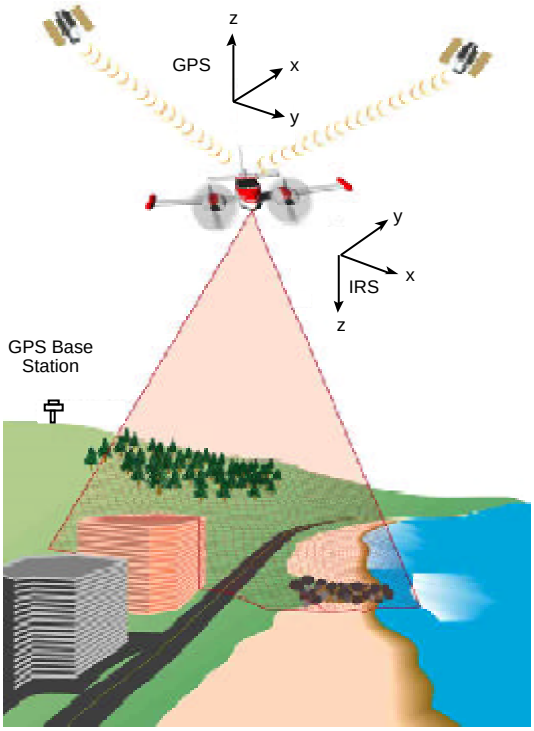

Figure 1: Main components of an airborne LIDAR mapping system

and cost effectiveness of the LIDAR topographic mapping technique. Ground surveys were carried out at selected sites to verify the accuracy of the LIDAR survey. In addition, aerial photographs were taken at the same time.

Processed LIDAR data has met or exceeded the provider's claims for accuracy. The costs work out to approximately $290 per linear km. Alternative traditional topographic mapping techniques cost considerably more, with approximately 4 person weeks required to map 1km of beach at the same level of detail. Figure 2 shows an example of the data at the Whakatane river mouth. An aerial photograph of the same area is included for comparison as Figure 3.

Applications

A number of products can be derived from the

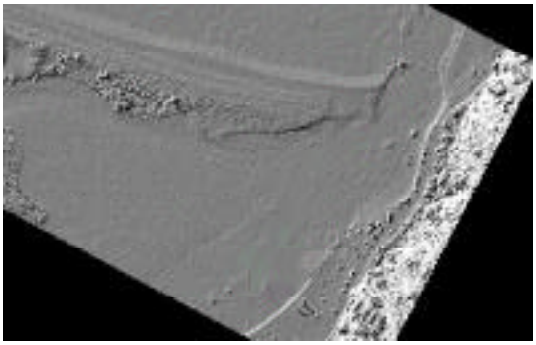

Figure 2: LIDAR data at the Whakatane river mouth

Figure 3: Aerial photograph of the area shown in Figure 2

LIDAR data. These include:

- a Digital Terrain Model (DTM) of the land surface;
- a DTM of the land surface with vegetation and structures removed;
- a difference model showing only the vegetation and structures;
- surface models showing 1 m contours; and
- volume estimates by comparing data from different time periods.

In addition, the data can also be used for applications such as developing topographic maps of dunes to estimate the extent of erosion, wave and tsunami hazards.

In the longer term the topographic record of the coast can be integrated into the existing coastal profile-monitoring program to provide a more complete picture of trends in coastal processes and coastal hazards. However, Environment B·O·P is continuing to evaluate LIDAR and other new technologies for monitoring the coastal environment.

The trial LIDAR mapping information can be made available to the public and it is expected that other agencies or individuals may make use of the LIDAR mapping information, e.g. for planning of new developments.

Chris Turbott, Senior Resource Planner, Environment B.O.P

Back Issues of *Coastal News*

Back issues of *Coastal News* (from Issue 6 (April 1996)) to date are available on the NZCS website. The address is www.cae.canterbury.ac.nz/nzcs/publications.htm

New Zealand Coastal Society — Chairman's Report

Our coastal society is continuing to mature and I believe it is working toward developing an identity and focus that will allow the society to develop well into the future.

It is important to note that IPENZ, our parent body, is going through significant change to ensure that it meets the needs of its members and we are having input into this process. I am convinced that our group, and groups like ours, will become the main interface of IPENZ to engineers and other practitioners in specialist areas.

Committee

The strength of the society is dependent on the enthusiasm and energy of the members and we are very fortunate to have a committed and motivated committee. I would personally like to thank all the committee and especially Fred Smits and Sharyn Westlake who, after years of service, are stepping down from Treasurer and Secretary respectively to allow fresh blood into these two very important areas. John Duder has also stepped down from the committee after many years of excellent service and boundless enthusiasm and deserves words of praise for his efforts.

Ewen Henderson has also done excellent work in the development of banners and brochures and John Lumsden has championed our web site that I am hopeful will become a focus point for our activities.

We welcome two new members to the committee, Lucy Brake and Paul Baunton, both from the sunny Bay of Plenty. I am sure they will both add a new dimension to our committee and hopefully raise the profile of the society in the BOP area.

Membership

Membership stands at 272 individual members (student and full) and 12 corporate members.

Milestones in 2000

The following is a brief list of the major achievements in 2000:

- Completion of the Development Plan;
- Annual Seminar;
- Sponsorship of ICS 2000 ($3,000);
- Sponsorship of 3 students to attend conferences ($500 each);
- Two Auckland Branch meetings;
- Christchurch Branch meeting (1);
- 3 Issues of *Coastal News;*
- Submission on MfE Indicators; and
- Website development.

Work In Progress

- Coastal Society Archives;
- Guidelines for Sustainable Management Project;
- Sponsorship of book on NZ coasts; and
- Investigation into profile raising including student competitions, etc.

Future Directions

We will be keeping to the development plan goals as much as possible. I believe we will be seeking to maximize the use of the web and electronic communication, such as electronic news, etc.

Richard Reinen-Hamill, Chairman

Application for funding for Coastal Guidelines gets knocked back

We are sorry to have to announce that the Sustainable Management Fund declined to fund the project aimed at producing "*Guidelines for the Sustainable Management of the New Zealand Coastline*". The Ministry for the Environment cited low priority as the reason. Only around 35 applications out of 155 were invited to submit full proposals.

Such matters as water quality, urban issues (waste minimisation, landfills, hazardous waste), climate change and biodiversity all currently rank higher with MfE at the present time.

John Lumsden, who headed the bid, considers that the Coastal Society should not be put off by this set back as the proposal is important. The coastal project received good support at council level and other sources of funding are being considered. If you wish to comment or offer support, contact John at (03) 364 2219 or e-mail j.lumsden@cae.canterbury.ac.nz

Seminar Highlights - 1

Coastal subdivision and site visit to Omaha Beach

The second facilitated discussion at last year's annual seminar focused on appropriate use and development of the coast, particularly coastal subdivision. A site visit to Omaha helped focus discussion, providing a useful contrast between early (North Omaha) and more recent (South Omaha) coastal subdivision.

Discussion centred on the factors that shaped coastal subdivision in the 50s, 60s and 70s, leading on to consideration of what has changed and whether or not we are now doing better.

Many factors were identified as being relevant in shaping early coastal subdivision, including an inadequate understanding of the relevant human and physical systems involved, a less developed / sophisticated planning system, central government subsidies, societal demand and good prices (particularly for beach-front sections too close to the sea!), a widespread assumption that (any) development was a good thing, and the lack of good examples.

It was agreed that some of these factors are no longer relevant (e.g. central government subsidies!). Many others have changed. For instance, significant improvement has been made in understanding physical coastal systems and our planning system is now more sophisticated. Now that the true cost of adequately servicing many early developments is becoming evident, Councils are also increasingly less inclined to believe that any development is good development.

However, many other factors remain as relevant as ever, not the least being societal demand for coastal real estate. Our understanding of the human and ecological aspects of coastal development are also little improved.

And are we doing better in managing coastal development?

In the management of coastal hazards, there was a yes for greenfield sites — with more adequate buffer zones typical of new developments (e.g. South Omaha). However, there has been less significant improvement in hazard management at many existing coastal settlements — with continued emphasis on managing coastal rather than human behaviour, and also ongoing intensification of use within areas of hazard risk. In these areas, coastal margins are generally being degraded and hazard risk is increasing.

In preserving the natural character of the coastline, it was generally agreed that any improvements in performance were negligible. Undeveloped beaches are now a seriously threatened "species" along the east coast of the North Island and we seem less, rather than better, able to protect those that remain (apart from the few reserves, largely set aside by previous generations). And at existing developed sites, little serious consideration is given to restoring or enhancing natural character – with emphasis rather on intensification of use and the built environment.

It was agreed there remains a general reluctance to implement s6a (RMA). Also, a widespread lack of awareness of existing trends, and problems with definition and measurement.

In terms of public access, some good examples were noted — but also subtle and concerning trends, particularly the increasing loss of informal access.

Overall, most would probably agree that recent greenfield developments like South Omaha are generally much better than earlier examples like North Omaha.

However, it also appears that as we have moved on, so have the challenges. Preservation of the few remaining, undeveloped east coast beaches now appears as the central challenge — rather than improved development of such areas. The challenge for development

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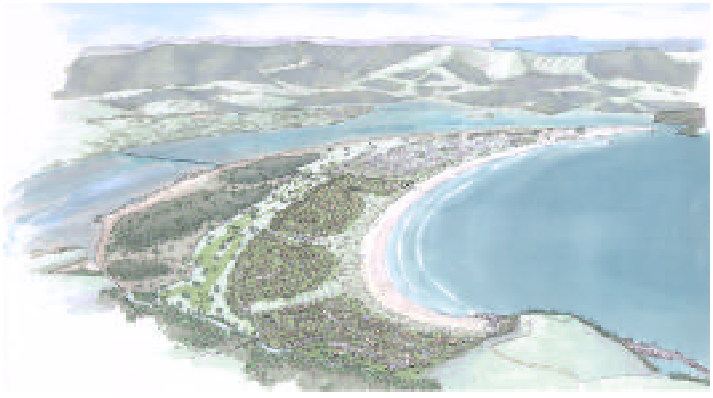

Figure 1: Artists sketch of Whangateau Harbour and Omaha Beach looking north towards Ti Point showing the layout of the 'Greenfields' subdivision that is currently under construction (sketch supplied by Boffa Miskell).

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appears rather to lie with arresting trends for environmental degradation and increased hazard exposure within the innumerable beaches we have already subdivided.

So, are we doing better with managing coastal development? If we are to measure our performance in terms of the challenges relevant to our time, as opposed to those of 30 years ago, probably not.

Jim Dahm, Coastline Consultants Ltd

Figure 2: Aerial photograph of Omaha Beach looking south showing the original subdivision in the left foreground. The coastal strip to the south of this is the site where Omaha Beach Ltd is constructing a Greenfield's subdivision.

National Beach Care Day 2000

The 4th National Beach Care Day hosted by Coast Care BOP has been a huge success. Over 120 coasties hit the beach at Papamoa on Sunday 15th October to discuss ways and means of maintaining and enhancing our beaches and coastal ecosystems.

Volunteers came from all over the North Island, including Oakura and Great Barrier Island, to learn more about the coastal environment and to share ideas on problem solving. Coastal management agency representatives from afar a field as Wellington, Gisborne and Auckland were keen to share success stories and discuss ways to resolve issues. Industry representatives and scientists were also on hand to assist with questions.

Among the highlights were a passionate welcome by Jim Dahm, Coastline Consultants, an entertaining speech by Sandy Garland, Mount Maunganui Coast Care, on the evolution of a beach care group and a high-tech presentation by Dr Karin Bryan, NIWA on how Cam-Era is being used to monitor costal changes and the benefits this tool can provide to local community groups. A leisurely dune walk around the Papamoa coast showed visitors a range of coastal environments from highly modified urban to peaceful dunes of scenic reserve quality. There was much interest in the Papamoa Coastal Arboretum with a wide range of native coastal dune plants to be seen, as well as the Leaf Plots for which the Bay of Plenty is so famous, and the new interpretation panel.

Lunch at the Blue Biyou restaurant, whilst looking out over the spectacular coastal ecosystem we had just walked around, was enthusiastically enjoyed. Mark Dean, Naturally Native N.Z. Plants Ltd., gave an inspiring discussion on coastal plants and how we should be encouraging coastal residents to plant some of these beautiful native species in their gardens. Diana Gainsford covered the role of the Coastal Dune Vegetation Network (CDVN) in coastal management, and many volunteers were able to see where all the scientific basis for our plantings comes from. Jamie Hutt, from Waikato University, was able to dispel many of the rumours about the Tay St Artificial Surf Reef with his informative presentation. The final field trip was by bus to view some of the variety of coastal environments around the Mount Maunganui and Papamoa Coast.

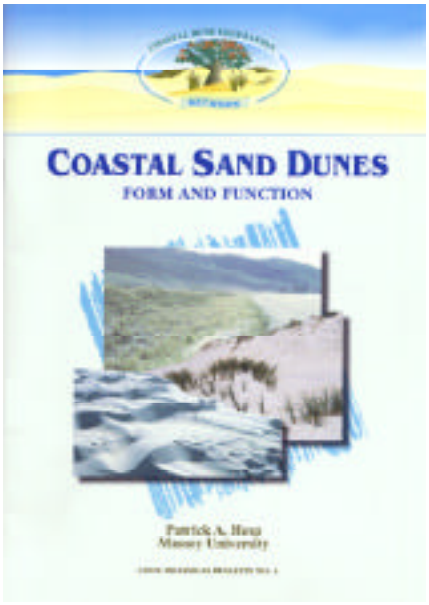
For myself, the highlight of the day was to see and meet such a variety of people from all walks of coastal life, and from many areas around New Zealand. For the volunteers, it was a fantastic opportunity to see the support available nationally, and to see how well our partnership between the Regional and District Councils works in practice. Thanks to everyone involved in an excellent day.

Lucy Brake, Coast Care BOP Programme

A Wonderfully Illustrated Bulletin on Coastal Dunes

This bulletin has been written by Associate Professor Patrick Hesp of Massey University for the Coastal Dune Vegetation Network (CDVN).

Coastal dune environments and associated wetlands have been, and are still being, severely modified and / or degraded in New Zealand by farming, forestry, recreational use, housing development, drainage, and the introduction and spread of exotic weeds and pests. While the RMA stresses the need to preserve the natural character of New Zealand landforms and ecosystems, little has been done to conserve, protect and manage coastal dune systems. Public knowledge and understanding of coastal dune ecosystems is also relatively poor.



"Coastal Dunes – Form and Function" has been written to provide the public with a wide range of information on the initiation, development, processes, dynamics and landforms of coastal dunes and on the value and importance of coastal dune ecosystems. It is the first bulletin of its kind in NZ and one of the few available on coastal dunes in the world. Dr Hesp says that there are only a few unaltered, largely unmodified or natural dune areas left in NZ. "If we do not start to value our coastal dune ecosystems, provide support to conduct research on the functioning of dune systems, their animals and plant life, we will soon have little left to conduct research on" he says.

Three other bulletins have been produced by the CDVN – *Pingao on Coastal Dunes*, *Spinifex on Coastal Dunes*, and *Sand Tussock on Coastal Dunes*. These have been funded by the Sustainable Management Fund from the Ministry for the Environment and by members of the CDVN, which is run out of Forest Research. The latest bulletin has been primarily funded by the CDVN.

The CDVN is one of the most successful cross-sectoral umbrella networks operating in NZ. It conducts research on coastal dune rehabilitation techniques, growing techniques and revegetation to native species, dune dynamics and dune management. It combines the resources of Regional, District and City Councils all over NZ, Iwi, beach and dune care community groups, government agencies (Dept of Conservation), nurseries, consultants and university academics. Much of the research and writing work is provided free.

The four CDVN Bulletins can be purchased from FRI for a cost of $58.60.

Contact pauline.newman@forestresearch.co.nz.

Just what are the latest sea level rise projections by IPCC?

Every five years or so, the Intergovernmental Panel on Climate Change (IPCC) produces an assessment report on the state of climate change and future projections, including sea-level rise. Two previous assessment reports were produced in 1990 and 1995. A draft of the Third Assessment Report (TAR) was recently released in Shanghai on 20 January 2001 (see Web site: http: / / www.ipcc.ch /).

Mid-range projections for sea-level rise have been revised down slightly by about 5 cm on projections published in the Second Assessment Report (SAR) in 1995. These revised values are largely due to the use of improved climate / ocean models, which indicate a smaller contribution from the melting of glaciers and ice sheets.

In the latest IPCC assessment, the mid-range projection is for a sea-level rise of +0.15 m by 2050 and around +0.43 m by 2100. The latter projection was +0.49 m in the 1995 SAR. The worst-case scenario with very high economic growth and continued reliance on fossil fuels, together with the upper range of climate / ice variables suggests an upper limit sea-level rise of +0.88 m by 2100 (compared with +0.94 m in the earlier 1995 assessment). Likewise, the lower limit on the projected rise for 2100 has been reduced from +0.13 m in the 1995 SAR to +0.09 m in the 2001 TAR. Final projections will be confirmed in the published version of the TAR.

Rob Bell, NIWA

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Seminar Highlights - 2

Coastal Plans and the Government's New Oceans Policy

Keynote address by Hon. Sandra Lee, the Minister of Conservation

The Minister of Conservation has an important role in coastal management because the majority of New Zealand's coastal marine area is in Crown ownership, there is a need for someone to represent the national community interest, and many issues and processes in the coastal marine area cross regional boundaries.

The Minister highlighted some key issues and developments in coastal plans and management policy. She felt there was too little regard for the New Zealand National Coastal Policy Statement in many resource consent applications. To date only four regional coastal plans have been approved. However, despite these delays in completing plans, some councils are moving into the next phase of plan implementation. This requires a shift in mindsets and resources. In particular, we need to be moving towards non-regulatory methods for implementing coastal plans. The minister sees implementation of plans as key evidence of their success. Meanwhile, DoC is moving into monitoring the effectiveness of the New Zealand Coastal Policy Statement. This includes identifying policy gaps, having input into coastal state of the environment indicators, and consulting stakeholders to determine their views on the effectiveness of policies.

The Minister also gave some background on the government's new ocean policy. The government agreed to the development of a comprehensive and co-ordinated legal and policy regime by which to manage New Zealand's marine environment. We manage the marine environment in the face of competition between users including commercial and recreational fishers, tourism operators, shippers, miners, and land uses that cause sedimentary run-off or pollution. This policy is to provide an over-arching framework guiding decisions and to provide ways to successfully mange the impact of human activity on the marine environment.

Karen Baverstock, ARC

Integration in New Zealand's Coastal Management - Rough at the Edges

Harvey Brookes, Executive Project Leader, Auckland Regional Council

Harvey Brookes closed the seminar with a provocative presentation and review of coastal management in the year 2000. Almost 10 years have passed since the introduction of the Resource Management Act 1991. The Act established a new system for coastal management, which was designed to remedy the many problems and limitations of the previous systems and administrations. The two principal foundations of the RMA are the promotion of sustainable management and the achievement of integrated management. Despite a decade of debate and evolution on the idea of sustainable coastal management, little if no real progress has been made in respect of integration. Many of the issues that are currently of concern, are those that were debated in the early 1970s. Harvey noted while there are many facets to Integrated Coastal Zone Management (ICM), it is essential to integrate the point of view of physical coastal processes. This perspective allows an understanding of the true spatial and temporal nature of coastal systems, thereby reinforcing the need and urgency for integration of our coastal management systems. It also focuses our attention on the "beach" — one of the most prized and valued components of the coastal environment.

Harvey described three main aspects of current coastal management that are hindering integration. The first is the question of how much coastal development is appropriate, and secondly is there anything left to integrate? Lastly, Harvey led the group through a discussion about the lack of jurisdictional integration across the Mean High Water Springs boundary and how this limitation is a major cause and an important symptom of the current dysfunctional approach in many areas of coastal management.

To summarise, Harvey presented some new ideas and possible solutions for achieving integrated coastal zone management. Some of these initiatives are already occurring in the form of CoastCare groups, and indicate a movement away from regulatory and statutory processes to achieving collaborative outcomes.

Stacey Devine, ARC

A Developer's Perspective of Coastal Development

Evens Young, Hopper Developments

Evens presented a developers or commercial view of coastal development in New Zealand. It centred on the theme that "*In our coastal zone, the standard of development and resultant environmental outcomes has*

improved as applicants challenge regulatory authorities' inherent conservatism".

Hopper developments is a small- to medium-sized private land development company well known for its developments on the Hibiscus coast, canal housing at Pauanui and Whitianga, and sewage treatment system design at Pauanui and Cooks Beach. Evens contended that developments like Pauanui in the early 1960s challenged conventional wisdom by providing building setbacks on the ocean beach, reuse of treated wastewater to protect and prevent leakage of a potable groundwater resource, and green engineering practices to collect treat and dispose of storm water. Today such innovations are the norm in the new green-field style of urban coastal development.

Even's feels that future large-scale green-field coastal development will only occur in response to political direction through a combination of statutory and non-statutory planning and policy documents. Also, because the electorate is better informed on resource matters and the need for reserves, there will be development trade-offs where, as development progresses, areas will be set aside for reserves.

A major cost facing coastal developers in general is the cost of the consenting process. Even though new development in the coastal zone is extremely high risk-high cost and generally low demand, the culture is such that in New Zealand there will always be a demand for coastal property. However, most large-scale coastal development is, and will be, redevelopment of existing sites, or consolidation on existing infrastructure. The Viaduct Basin redevelopment is an example of this. There will be few green-fields developments.

Developers are alarmed at emerging trends of dual standards that they feel apply in applications where, when a public body makes an application, it

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Viaduct Basin trip

Committee News

The last NZCS Committee Meeting was held in Wellington in December. New members Lucy Brake of Environment BOP, and Paul Baunton of Tauranga District Council, were welcomed on to the committee.

The NZCS Committee have been discussing possible ways to raise the profile of the technical group. Ideas were covered such as email groups with Pacific Societies and individuals, a free section in IPENZ magazine, IEAUST links, letters to be sent to TLAs, Regional Councils and corporates regarding corporate membership and to continue to include links to other interesting web sites on our web page.

Examples of the work the Coastal Society undertakes will continue to be displayed at conferences. The next display will be at the Coastal Dune Vegetation Network conference in Auckland in February 2001.

Discussion at the Committee Meeting focused on the next NZCS Conference. The committee decided on a more engineering/science focus this year with the title being "Caught between a rock and a wet place". A venue and date will be in the next edition of *Coastal News* although we can tell you it will be held in the South Island.

IPENZ has provided primarily administrative rather than strategic support to technical groups in the past, and it may look at changing this. Currently, the support IPENZ provides for technical groups is funded $^{1}/_{3}$ by the technical groups and $^{2}/_{3}$ by individual members. IPENZ are currently reviewing this. We will keep you updated.

Marina Standards are currently under review. The NZCS will provide $500 towards the costs of producing the Marina Standards subject to acknowledgement and subsidised access to the completed standards for members. This offer will be made to Standards Association of New Zealand.

Committee Member Profiles

Stacey Devine

Stacey Devine (BSoc Sci REP and Geography), (MA, Geography) is a Coastal Resource Officer in the Coastal Management team at the Auckland Regional Council. She has been involved in a range of coastal projects, including supporting and facilitating Coast Care in the Auckland region, assisting with the implementation of the Coastal Erosion Management manual and processing coastal consents.

Stacey has been an active member of the NZCS since 1996 and has recently co-convened the Society's annual Coastal Conference in Auckland.

She is interested in the impacts of coastal development, partnerships with coastal communities and innovative solutions and approaches to sustainable management of the coastal environment.

Eric Verstappen

Eric Verstappen (ME, MIPENZ, RegEng) is a Resource Scientist (Rivers & Coast) with the Tasman District Council, a Unitary Authority blessed with wild rivers and superb coastline. Eric has been working in the Regional Govt sector since 1986, having graduated from the former MWD.

Eric has specialist interests in river and coastal processes, investigations, hazard assessment and resource management processes and planning. He is particularly interested in furthering the knowledge and understanding of the coastal system and the impacts of human development, and champions the sustainable and holistic management of river and coastal environments.

Eric is Treasurer of the New Zealand Coastal Society.

John Lumsden

John Lumsden is a civil engineering graduate from the University of Canterbury. Following almost 10 years working as a structural engineer in Vancouver, Canada, he returned to New Zealand in 1974 to join a consultancy specialising in off-shore engineering and coastal management.

After earlier experience involving most facets of ocean and coastal projects including: port entrances, river mouth stability, coastal processes, ocean outfalls, off-shore cooling water systems, and oil and gas production platforms, most of John's recent assignments have been for regional councils and territorial authorities in the field of coastal management, and also as a resource consent hearings commissioner. Since 1989, John has practised on his own account in conjunction with his role as Projects Director at the Centre for Advanced Engineering, University of Canterbury.

John was the founder chairman of the New Zealand Coastal Society and remains a member of the Management Committee. He has authored or co-authored over 40 reports and technical papers.

Conference Announcements

Coasts & Ports Conference 2001

25-28 September 2001

Presentations are being called for the Coasts and Ports 2001 Conference to be held at the Marriott Resort, City of Gold Coast, Queensland, Australia.

The city is the site of two sand bypassing systems, and an artificial surfing reef. This will be an excellent opportunity to see all the work being done along the Gold Coast in an attempt to revitalise these urban beaches of Eastern Australia and to exchange initiatives to improve the practice of coastal and port engineering and management.

The conference is organized by the National Committee on Coastal and Ocean Engineering (NCCOE) of the Institution of Engineers, Australia. The conference incorporates the 15th Australasian Coastal and Ocean Engineering Conference and the 8th Australasian Port and Harbour Conference. Abstracts are due by February 28, 2001 and should be sent to: coastsandports@icms.com.au The conference web page is http://www.icms.com.au/coastsandports/

Coastal Dune Vegetation Network conference: "Contrasting Coastlines"

28 Feb – 2 March 2001

Auckland's diverse coastline and coastal issues from around the country will be the focus of attention at the 2001 Coastal Dune Vegetation Network (CDVN) conference – *Contrasting Coastlines*. The CDVN was formed in 1997. It is quite a unique partnership between researchers, government agencies, nurseries, tertiary education institutes, private companies and community groups who have a mutual concern for the rehabilitation of degraded sand dunes, particularly using revegetation techniques incorporating indigenous coastal species.

The CDVN is currently undertaking a number of revegetation, fertiliser and restoration trials throughout New Zealand in conjunction with local BeachCare. The conference will incorporate technical sessions on these trials and an overview of CDVN research, as well as presentations from BeachCare groups, Education and Crown Research Institutes, and local government.

Themes for the conference include biodiversity, protection and enhancement of dune vegetation, CoastCare, restoration and management of urbanised beaches, coastal plant propagation and Project Crimson. Site visits will illustrate some of these key themes.

We are happy to announce that Olympic Windsurfer, Barbara Kendall, is the opening speaker of the conference. Dr Geoff Park is the keynote speaker. Dr Park is an independent researcher and writer on ecology and landscape history. He was formerly with the Department of Conservation and now works for Te Papa, New Zealand. He is planning a talk on the ecological history of coastal sand dunes and our relationship with them, and the bearing of this on the restoration of dune ecosystems. Other speakers include Dr Terry Hume - Contrasting Sand Systems; Dr Patrick Hesp - The Concept of Foredune Reshaping; Jim Dahm - Backdunes and Development: Concepts and Coromandel Trials; Colin Ogle - Biodiversity; and Debbie Teal - Project Crimson.

The conference will close with an optional field trip to Great Barrier Island from Friday March 2 to Sunday March 4 to view the coastal care work being carried out and hold discussions with those who work directly in the field.

There is a charge of $50 to attend the conference (which excludes the optional Great Barrier field trip) being held at Macleans College, Eastern Beach, Auckland. For more information contact Auckland Regional Council Enviroline on 0800 80 60 40 or CDVN Secretary, Forest Research Institute, Private Bag 3020, Rotorua (email greg.steward@forestresearch.co.nz).

Conference on Revitalization of Urban Shorelines

October 24-26, 2001

Over the past years, the US Army Corps of Engineers have taken on the ambitious task of combating erosion along New Jersey's shoreline by renourishing beaches. The work they are undertaking is costing billions of US dollars. Coastal scientists and managers from all over the world will be coming together to discuss where the future lies for restoration and protection of urban coastlines. The Northeast Chapter of the American Shore and Beach Preservation Association is holding the fourth annual conference of the NSBPA on October 24-26, 2001 at Stevens Institute of Technology, Hoboken, NJ.

The conference is being held in conjunction with the Coastal Zone Foundation's one day Symposium on Urban Shorelines and is co-sponsored by the ASCE Coasts, Oceans, Ports and Rivers Institute (COPRI) and New Jersey Sea Grant.

Abstracts must be submitted by June 15, 2001. For more information see the conference announcement at http://attila.stevens-tech.edu/~therring/2001.html, or contact: Tom Herrington: therring@stevens-tech.edu

Seminar Highlights - continued

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is seen to be in the public good and effects are perceived as secondary to the use, whereas if a private application is made, the perception is of private gain at the public's expense and use is secondary to the effects. Developers are concerned about the way some private projects are 'fast-tracked' in support of a political agenda, how conditions imposed on resource consents require cash contributions as environmental mitigation, and about the value of monitoring conditions imposed on the consent. With respect to the latter there is concern that the increasing emphasis of our public bodies and research institutes to adopt a commercial model, or at least become self sufficient through cost recovery, threatens the provision of independent appraisal of developments. Another issue is that 'conservatism rules' when consents are granted, and if the applicant doesn't like it he can appeal. But with environment court delays running at 24-30 months and the cost of running and appeal in excess of $250,000 who can blame an applicant for folding and accepting the conservative decision.

Evens made the point that he thought both the Society and developers would benefit if the NZCS widened its circle of membership to include developers.

(A full copy of Evens's paper can be found in the Seminar handouts.)

Terry Hume, NIWA

An overview of the coastal environment and a management framework for the Auckland region

Hugh Leersnyder Manager of the Coastal Environments Section at ARC Environment

Hugh gave an overview of the coastal environment of the region and also the framework in which it is managed. He highlighted the contrast and diversity of the region's coastline, from the exposed, high energy, black sand west coast beaches to the lower energy lee shores and white sand east coast beaches. He also described some of the pressures on the coastal environment. The region has over 2000 km of coastline, it is the most populated area in the country and the fastest growing. With an excess of one million people now, this is expected to double over the next 50 years. Current issues include storm water on beaches, the cumulative impact of reclamations, sewage discharge, marine protected areas, natural character and public access, coastal hazards, ferry transport effects, sand extraction and aquaculture. The demand for recreational and industry use of the coastal marine area and the resultant pressures placed on it can only increase.

The 'Proposed Regional Plan: Coastal' provides a solid foundation for coastal management in the Auckland Region. However, until recently this has been the only tool in the kit. The development of the Coastal Hazard Strategy and the Coastal Erosion Management Manual represent significant steps forward for theory. The variety of coastlines and the pressures placed on the coastal environment of the region mean we're faced with an array of management issues – the pressure is really on to put theory into practice!

Karen Baverstock and Stacey Devine, ARC

Environmental Performance Indicators for the marine environment

Megan Linwood, Ministry for the Environment

Megan described MfE's development of Environmental Performance Indicators (EPI's) for the marine environment. Indicators are needed to measure how well the government's policies for the marine environment are working. The primary objectives of the programme are to systematically report on the state of New Zealand's environment, to systematically measure the performance of environmental policies and legislation and to better prioritise policy and improve decision-making. Indicators simplify and quantify and communicate trends in and impacts on ecosystems. They describe major trends and impacts on the environment, and help us with adjusting management policies and practices where necessary toward achieving better environmental outcomes. In the marine environment, indicators recognise the relationship between bio-physical elements of the environment, and human uses and values including the pressures that come into play from fishing and marine farming for instance.

MfE have worked with a range of scientists, resource managers and interest groups to come up with a draft marine indicators document. MfE have reviewed national databases relating to the marine environment, and have confirmed indicators in five areas of physical / chemical, habitats / communities /

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species, human health and values, fish stocks and fishing impacts. While the indicators are valuable at the national level, there are many more that could be developed and used at a local or regional level. However, EPI's do not provide a substitute for more detailed monitoring by management agencies. The next step in the programme is the implementation of the stage 1 indicators and selection of stage 2 indicators to commence development of the minimum monitoring and reporting requirements (MMRR).

In New Zealand, the EPI Programme has stimulated the development of classification systems to provide a context for monitoring and interpreting the national EPI's. Examples of this include the environmental domains approach to identify similar terrestrial environments, and the river environment classification to identify the properties of various types of rivers. Both of theses approaches use physical factors that drive environmental processes to define environments of a similar type. MfE would like to develop a similar classification for the marine environment. They have completed a review of classification systems and convened a steering group and working groups to investigate the best approach.

MfE see a busy time ahead with valuable partnerships developing between government departments, councils and other agencies with marine management responsibilities, and the need for pilot programmes to develop and test monitoring and reporting requirements.

Terry Hume, NIWA

Pine Harbour Marina

Field trip and Workshop

This field trip and workshop provided attendees with an insight into the complexity of some of the coastal management issues in the Auckland Region, particularly in relation to the suitability of development of the coastal marine area. The depth of the questions and discussions that took place underscores this.

It was accepted that having good information about both the coastal environment to be developed, as well as the interrelationship between this and communities and their social and economic wellbeing, was essential to achieving efficient sustainable management outcomes. This was physically demonstrated by the linking of some of the current problems faced by the marina to the lack of information and understanding in these areas at the time of the inception of the marina.

Part of the challenge in managing the current situation stemmed from the lack of full consideration of alternatives at the outset and throughout the existence of the marina. This also tied in with the approach of emphasising the mitigation of adverse effects rather than the full consideration of alternatives.

Pine Harbour Marina

Further difficulties were caused by the adversarial approach which appeared to be predicated by the application process in the past. Advocacy for two opposing views tended to focus on countering views put forth rather than pooling resources to identify the best alternative. It was felt that this may have led to a failure to identify better alternatives that could have met the requirements of all parties more efficiently.

In hindsight, it was agreed that any future resource management issues around the marina should be handled from a strongly co-operative approach, not using the RMA as a "big stick".

Hans van der wal, Coastal Environments, Auckland Regional Council

Sea level monitoring about New Zealand and the effects of climate on sea level

Derek Goring, NIWA

Derek gave a passionate address about the state of sea level monitoring about New Zealand. He made the point that the lack of long-term financial support for a National network of gauges, and the lack of appropriate equipment and poor data collection and management practices has left New Zealand with patchy sea level records and therefore impaired predictive capability.

He described research by Rob Bell and himself on 'Sea Level Change and Storm Surges in the Context of Climate Change' (see website for IPENZ Transactions 2000 www.ipenz.org.nz/frames/technical_papers.htm). In this work, sophisticated

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analytical methods were applied to some New Zealand records and comparisons made to overseas findings. The study indicates that medium-term inter-decadal fluctuations in climate patterns, commonly referred to as the Inter-Decadal Pacific Oscillation (IPO), have influenced the historical rate of sea level rise and the frequency and magnitude of storm surges. Sea level and climate records indicate that New Zealand has experienced significant shifts in the IPO during the late 1940s, the mid 1970s and probably again in 1999, although it is too early to be certain about this.

As a consequence, between the mid-1970s and 1998, the Bay of Plenty experienced less frequent and less severe storm surge, and a near static trend in sea level that is believed to have occurred as a result of a lengthy period of persistent and enhanced El Nino episodes. A similar pattern appears to occur on the west coast based on a shorter record from Port Taranaki. Hence, the regional El Nino response has masked any ongoing global rise in sea level caused by thermal expansion of seawater and ice melt.

This is in contrast to period 1948-1976 during which there was persistent sea level rise of approximately 1.7 mm.yr^{-1}, similar to the world average rate of rise. The authors suggest another climate regime shift of the IPO is expected in the next few years (if not already underway), which would cause regional sea levels to rise more rapidly as it did in the 1950s and may also increase the frequency and magnitude of storm surge in the region. This has implications for coastal hazard assessments and for planning coastal hazard setback distances.

Derek's take home message was that sea level information is vital to coastal planning and engineering design. We need to measure sea level accurately about New Zealand and carefully edit and archive the data as we go for it to be of use. NIWA's recently installed system of 11 state-of-the-art open coast gauges about New Zealand is only funded on a 2-year cycle.

It is imperative that Regional Councils and central government support this venture if it is to continue to provide records against which to monitor sea level change and make meaningful predictions about future sea level rise and its consequences for our coast.

(A full copy of the research paper can be found in the Seminar handouts.)

Louise Chick, ARC and Terry Hume, NIWA

NZCS Management Committee

Chairperson	Richard Reinen-Hamill – Tonkin and Taylor Ltd (reinenhamill@tonkin.co.nz)
Secretary	Victoria Caseley – Waimakariri District Council (Victoria@wmk.govt.nz)
Treasurer	Eric Verstappen – Tasman District Council (Eric@tdc.govt.nz))

Committee

Terry Hume	NIWA (Editor *Coastal News*) (t.hume@niwa.cri.nz)
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Website queries to Charles Hendtlass (c.hendtlass@cae.canterbury.ac.nz)

NZCS Mission Statement

"The New Zealand Coastal Society was inaugurated in 1992 to promote and advance sustainable management of the coastal environment. The Society provides a forum for those with a genuine interest in the coastal zone to communicate amongst themselves and with the public. The Society currently incorporates about 300 members. Members represent the wide range of coastal science, engineering and planning disciplines, and are employed in the engineering industry, local, regional and central government, research centres and universities."

Applications for membership should be sent to the Secretary (see above)

Test your Coastal Knowledge...

Question - given that the tide is about 2 km away, why is this net strung way up in the air?

Question - where is this part of the New Zealand coast?

(answers on page 16)

Coastal News

Whats Hot on the WWW

http://www.dfo-mpo.gc.ca/canoceans/

The Ocean Program Activity Tracking system (OPAT) is a dynamic Internet tool that provides geographic information and the latest facts on activities taking place under Canada's Ocean Act. OPAT is designed to increase national and international awareness of the Oceans Program activities of Fisheries and Oceans Canada.

http://www.dlwc.nsw.gov.au/care/water/estuaries/

NSW Department of Land and Water Conservation

The Estuaries of New South Wales inventory provides general information about estuaries and estuary management. More specific details and photographs are included for most of the 130 estuaries along our coast.

http://www.ecy.wa.gov/programs/sea/landslides/

Puget Sound Landslides is a new web site comprising information about how landslides occur, who to go to for help, and how to recognize landslides and reduce risks. The site is aimed primarily at coastal property owners, real estate professionals, shoreline consultants, and local governments. The site includes the Slope Stability maps from the Washington Coastal Zone Atlas.

http://www.aamsurveys.com.au/scanhoriz/aug2000/

Light Detection and Ranging (LIDAR) is a scanning and ranging laser system that produces highly accurate topographic maps. It has a wide variety of uses in the coastal environment. Find out more about this technique at the website.

http://www.cae.canterbury.ac.nz/nzcs/nzcs.htm

The Coastal Society website! This is still being developed, and we need more input from members as to the design and content of the site. Currently available are back issues of *Coastal News* — these are available as pdf files and are full colour. Send comments about the site to c.hendtlass@cae.canterbury.ac.nz

Answers to the photo quiz on page 15

Why is this net strung way up in the air? Answer: No, these are not nets set for beach volley ball. Here in the Bay of Fundy in Nova Scotia, the 16 m tide range allows fishermen to set very tall nets, even near the high tide mark. Where is this coastline? Answer: Taranaki.