Climate for Change – 20 Years On

Terry Hume, John Duder, John Lumsden

NEW ZEALAND COASTAL SOCIETY
Te Hunga Takutai o Aotearoa

Life at the beach before the Coastal Society

- Legacy
- Hazards
- Development
- Disciplines

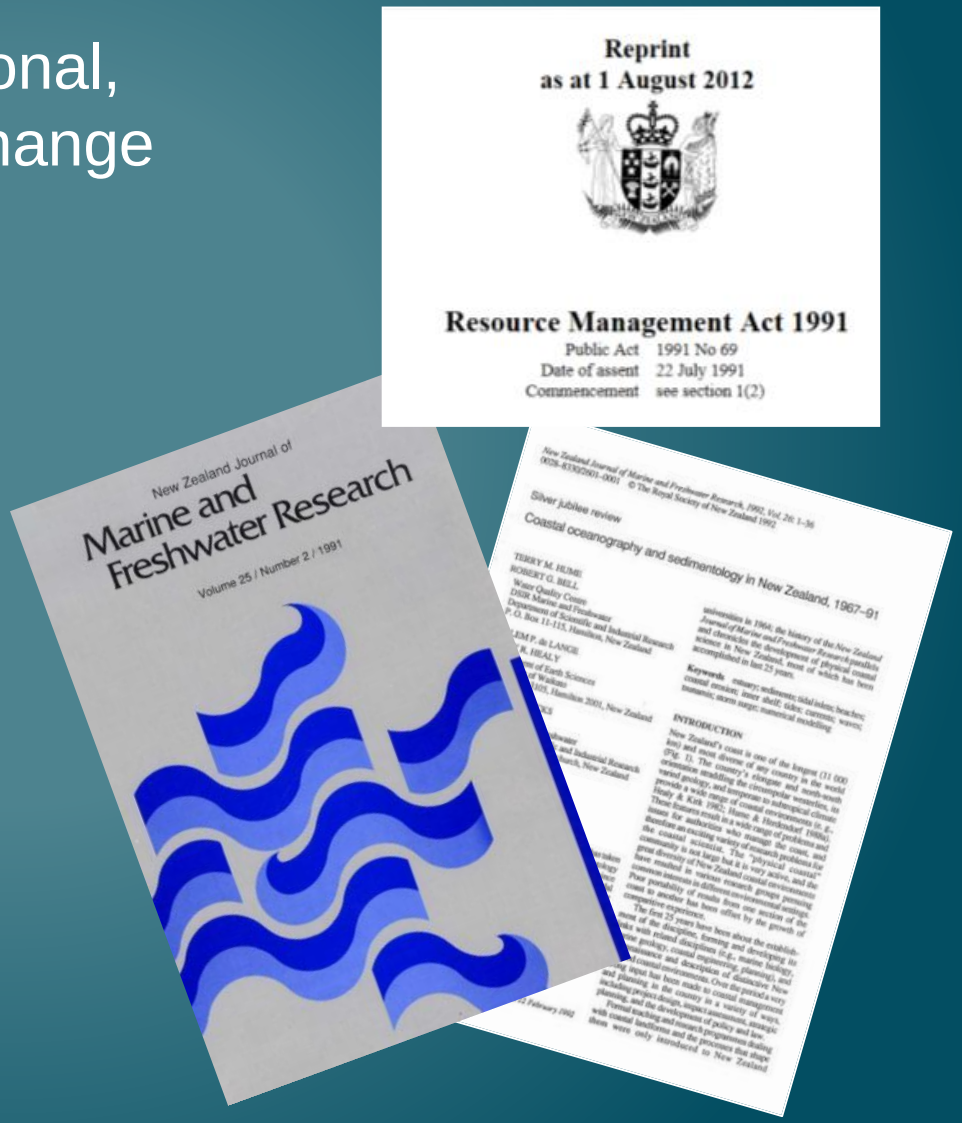
The New Zealand Coastal Society was formed in 1992 to … *promote and advance knowledge and understanding of the coastal zone.* It provides a forum for those with an interest in the coastal zone to communicate amongst themselves and to the public.

NEW ZEALAND COASTAL SOCIETY

Te Hunga Takutai o Aotearoa

The early days

- Born at a time of organisational, policy and environmental change
- RMA 1991
- CRI's replaced DSIR, MAF, MetServ
- Silver Jubilee of NZJMFR



The early days

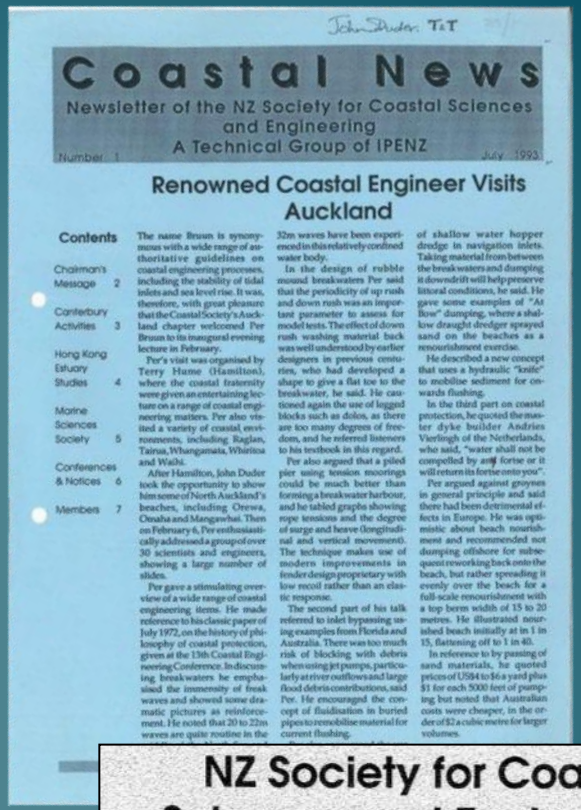
- 1985 7th Australasian Conference on Coastal and Ocean Engineering in Christchurch - a first
- 1991 ACCOE in Auckland – *Climate for change* theme
- Meeting at ACCOE to discuss formation of a National Coastal Group – OWS, NZMSS, CCRG
- Inaugural meeting of the Steering Committee Mar 1992 – John Lumsden (chair), Chris Battershill, John Duder, Robin Falconer, Terry Hume, Andrew Laing, Hamish Rennie
- Named - *NZ Society for Coastal Sciences and Engineering*

The early days

- Became Technical Group of IPENZ in Sept 1992 – advice NZCP-SLR, ASBPA
- Inaugural AGM in Hamilton Feb 1993
- Merger with Ocean Waves Society in 1994

The early days

- 83 members
- Coastal News #1 published in July 1993
- First ‘seminar’ in May 1994 in Wellington – *The role of science and engineering in coastal planning*



John Dudon T&T

Coastal News

Newsletter of the NZ Society for Coastal Sciences and Engineering
A Technical Group of IPENZ

Number 1 July 1993

Renowned Coastal Engineer Visits Auckland

Contents

The name Bruun is synonymous with a wide range of authoritative guidelines on coastal engineering processes, including the stability of tidal inlets and sea level rise. It was, therefore, with great pleasure that the Coastal Society's Auckland chapter welcomed Per Bruun to its inaugural evening lecture in February.

Per's visit was organised by Terry Hume (Hamilton), where the coastal fraternity were given an entertaining lecture on a range of coastal engineering matters. Per also visited a variety of coastal environments, including Raglan, Tairua, Whangamata, Whitiroa and Waihi.

After Hamilton, John Duder took the opportunity to show him some of North Auckland's beaches, including Orewa, Omaha and Mangawhai. Then on February 6, Per enthusiastically addressed a group of over 30 scientists and engineers, showing a large number of slides.

Per gave a stimulating overview of a wide range of coastal engineering items. He made reference to his classic paper of July 1972, on the history of philosophy of coastal protection, given at the 13th Coastal Engineering Conference. In discussing breakwaters he emphasised the immensity of freak waves and showed some dramatic pictures as reinforcement. He noted that 20 to 22m waves are quite routine in the 32m waves have been experienced in this relatively confined water body.

In the design of rubble mound breakwaters Per said that the periodicity of up rush and down rush was an important parameter to assess for model tests. The effect of down rush washing material back was well understood by earlier designers in previous centuries, who had developed a shape to give a flat toe to the breakwater, he said. He cautioned again the use of legged blocks such as dolos, as there are too many degrees of freedom, and he referred listeners to his textbook in this regard.

Per also argued that a piled pier using tension moorings could be much better than forming a breakwater harbour, and he tabled graphs showing rope tensions and the degree of surge and heave (longitudinal and vertical movement). The technique makes use of modern improvements in fender design proprietary with low recoil rather than an elastic response.

The second part of his talk referred to inlet bypassing using examples from Florida and Australia. There was too much risk of blocking with debris when using jet pumps, particularly at river outflows and large flood debris contributions, said Per. He encouraged the concept of fluidisation in buried pipes to remobilise material for current flushing.

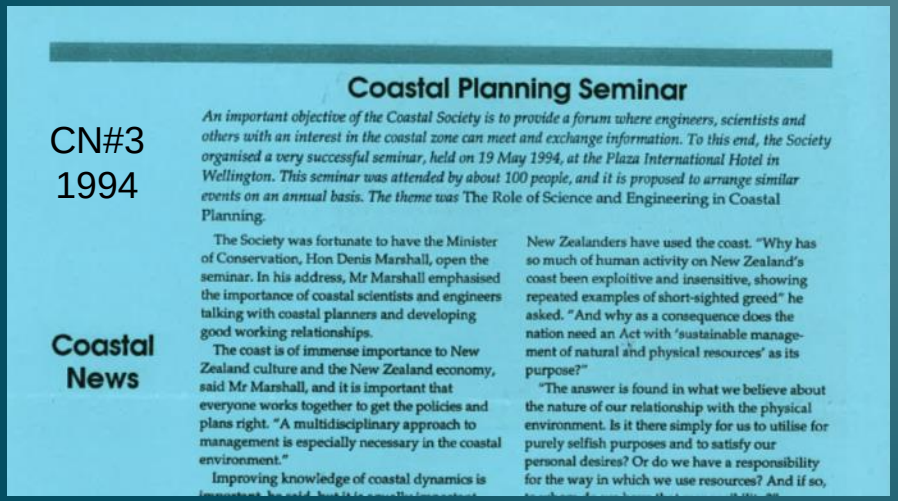
of shallow water hopper dredge in navigation inlets. Taking material from between the breakwaters and dumping it downdrift will help preserve littoral conditions, he said. He gave some examples of "At Bow" dumping, where a shallow draught dredger sprayed sand on the beaches as a renourishment exercise.

He described a new concept that uses a hydraulic "knife" to mobilise sediment for onwards flushing.

In the third part on coastal protection, he quoted the master dyke builder Andries Vierlingh of the Netherlands, who said, "water shall not be compelled by any force or it will return its force onto you".

Per argued against groynes in general principle and said there had been detrimental effects in Europe. He was optimistic about beach nourishment and recommended not dumping offshore for subsequent reworking back onto the beach, but rather spreading it evenly over the beach for a full-scale renourishment with a top berm width of 15 to 20 metres. He illustrated nourished beach initially at in 1 in 15, flattening off to 1 in 40.

In reference to by passing of sand materials, he quoted prices of US$4 to $6 a yard plus $1 for each 5000 feet of pumping but noted that Australian costs were cheaper, in the order of $2 a cubic metre for larger volumes.



CN#3
1994

Coastal News

Coastal Planning Seminar

An important objective of the Coastal Society is to provide a forum where engineers, scientists and others with an interest in the coastal zone can meet and exchange information. To this end, the Society organised a very successful seminar, held on 19 May 1994, at the Plaza International Hotel in Wellington. This seminar was attended by about 100 people, and it is proposed to arrange similar events on an annual basis. The theme was The Role of Science and Engineering in Coastal Planning.

The Society was fortunate to have the Minister of Conservation, Hon Denis Marshall, open the seminar. In his address, Mr Marshall emphasised the importance of coastal scientists and engineers talking with coastal planners and developing good working relationships.

The coast is of immense importance to New Zealand culture and the New Zealand economy, said Mr Marshall, and it is important that everyone works together to get the policies and plans right. "A multidisciplinary approach to management is especially necessary in the coastal environment."

Improving knowledge of coastal dynamics is

New Zealanders have used the coast. "Why has so much of human activity on New Zealand's coast been exploitive and insensitive, showing repeated examples of short-sighted greed" he asked. "And why as a consequence does the nation need an Act with 'sustainable management of natural and physical resources' as its purpose?"

"The answer is found in what we believe about the nature of our relationship with the physical environment. Is it there simply for us to utilise for purely selfish purposes and to satisfy our personal desires? Or do we have a responsibility for the way in which we use resources? And if so,

NZ Society for Coastal Sciences and Engineering Members

Coastal News

Name	Affiliation
Ms Wendy Bailey	EG&G Geos
Mr Rene Bakx	Waimakariri District Council/Private Consultant
Mr Alan Betts Alan Betts	Consulting Engineer
Mr Peter Bolton	Base Consulting Engineers
Mr Barrie Cameron	
Mr R J Carter	Port of Wellington Ltd
Dr Stephen Chiswell	NIWA Oceanographic
Dr Collin Christian	Dept of Civil Engineering University of Auckland
Dr Brian Coffey	Brian T Coffey and Associates Ltd
Mr Nicholas Collins	EG&G Geos
Ms Michelle Creamer	Massey University (graduate student)
Mr Allen Crosby	Principal KRTA Ltd
Mr Gordon Cuthbert	Fraser Thomas Partners Cons. Engineers
Mr John de Bueger	Global Engineering
Dr Willem de Lange	Dept of Earth Sciences University of Waikato
Mr Malcolm Douglass	Porirua City Council
Mr Alistair Dryden	
Mr John Duder	Director Tonkin and Taylor
Mr Robert Duncan	Retired
Mr Jim Eade	SOPAC (South Pacific Applied Geoscience Commission)
Dr Robin Falconer	GeoResearch Associates

The early days

Name change in 1995 to…

New Zealand Coastal Society

To reflect the name in common usage and better represent the interests of a growing number of members and potential members who were neither scientist nor engineers

RIP

- Ralph Simpson
- David Wilkinson
- Terry Healy
- Alastair Senior
- Matti Skellen
- Ann Sheridan

Management and membership

1993

NZSCE Management Committee

John Lumsden	CAE University of Canterbury (Chairman)	Ph (03) 364 2219
John Duder	Tonkin and Taylor Ltd, Auckland (Secretary)	Ph (09) 377 1865
Ken Grange	NIWA Oceanographic, Wellington	Ph (04) 386 1189
Bob Kirk	Geography Department, University of Canterbury	Ph (03) 364 2893
Terry Hume	NIWA Water Quality Centre, Hamilton	Ph (07) 856 7026
Andrew Laing	NIWA Oceanographic, Wellington	Ph (04) 386 1189
Robin Falconer	GeoResearch, Waikanae	Ph (04) 293 4659
Hamish Raine	Department of Conservation	Ph (04) 471 0726

2012

NZCS Management Committee

Chairperson:	Deirdre Hart	deirdre.hart@canterbury.ac.nz
Deputy Chairperson/IPENZ Coordinator:	Rick Liefting	rliefting@tonkin.co.nz
Treasurer:	Eric Verstappen	eric.verstappen@tasman.govt.nz
Deputy Treasurer:	Andrew Swales	a.swales@niwa.co.nz
Membership & Partners Liaison:	Harley Spence	harley@coastline.co.nz
Regional Coordinators:	Rick Liefting Jose Borrero	rliefting@tonkin.co.nz jose@ecoast.co.nz
Conference Coordinator:	Hugh Leersnyder	hugh.leersnyder@beca.com
Education & University Coordinator:	Christopher Gomez	christopher.gomez@canterbury.ac.nz
Central Government Coordinators:	Sarah McRae Paul Creswell	smcrae@doc.govt.nz paul.creswell@mpi.govt.nz
Coastal News Coordinators:	Amy Robinson Christopher Gomez	amy.robinson@waikatoregion.govt.nz christopher.gomez@canterbury.ac.nz
Other NZCS Contacts		
Administrator and Digest Coordinator:	Renee Foster	nzcoastalsociety@gmail.com
Coastal News Editor:	Shelly Biswell	shelly@biswell.net

Chairpersons

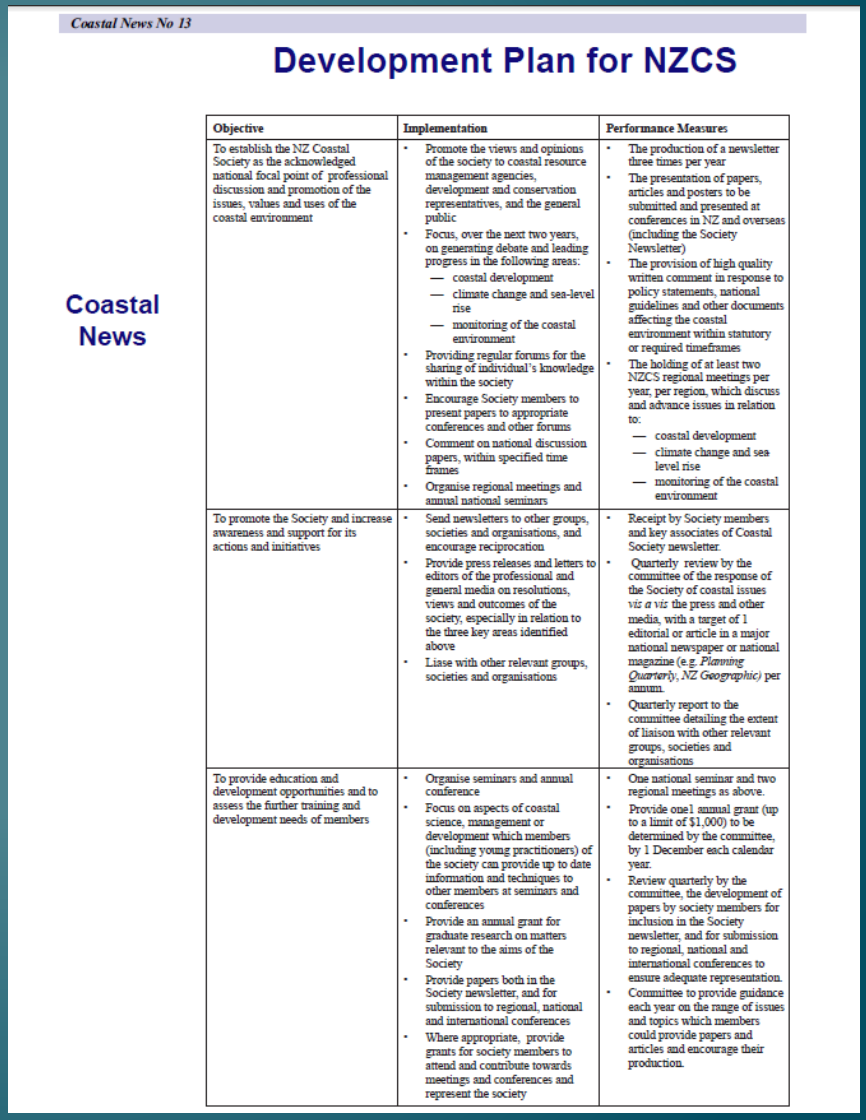
John Lumsden
John Duder
Victoria Casely
Richard Reinen-Hamill
Harvey Brooks
Lucy Brake
David Phizacklea
Deirdre Hart

Membership

1993 – 83
1995 – 150
1999 – 285
2003 – 300
2008 – 349
2012 – over 400

1999 development plan

- To establish the NZ Coastal Society as the acknowledged national focal point of professional discussion and promotion of the issues, values and uses of the coastal environment
- To promote the Society and increase awareness and support for its actions and initiatives
- To provide education and development opportunities and to assess the further training and development needs of members



Coastal News No 13

Development Plan for NZCS

Coastal News

Objective	Implementation	Performance Measures
To establish the NZ Coastal Society as the acknowledged national focal point of professional discussion and promotion of the issues, values and uses of the coastal environment	• Promote the views and opinions of the society to coastal resource management agencies, development and conservation representatives, and the general public • Focus, over the next two years, on generating debate and leading progress in the following areas: — coastal development — climate change and sea-level rise — monitoring of the coastal environment • Providing regular forums for the sharing of individual's knowledge within the society • Encourage Society members to present papers to appropriate conferences and other forums • Comment on national discussion papers, within specified time frames • Organise regional meetings and annual national seminars	• The production of a newsletter three times per year • The presentation of papers, articles and posters to be submitted and presented at conferences in NZ and overseas (including the Society Newsletter) • The provision of high quality written comment in response to policy statements, national guidelines and other documents affecting the coastal environment within statutory or required timeframes • The holding of at least two NZCS regional meetings per year, per region, which discuss and advance issues in relation to: — coastal development — climate change and sea level rise — monitoring of the coastal environment
To promote the Society and increase awareness and support for its actions and initiatives	• Send newsletters to other groups, societies and organisations, and encourage reciprocation • Provide press releases and letters to editors of the professional and general media on resolutions, views and outcomes of the society, especially in relation to the three key areas identified above • Liase with other relevant groups, societies and organisations	• Receipt by Society members and key associates of Coastal Society newsletter. • Quarterly review by the committee of the response of the Society of coastal issues *vis a vis* the press and other media, with a target of 1 editorial or article in a major national newspaper or national magazine (e.g. *Planning Quarterly*, *NZ Geographic*) per annum. • Quarterly report to the committee detailing the extent of liaison with other relevant groups, societies and organisations
To provide education and development opportunities and to assess the further training and development needs of members	• Organise seminars and annual conference • Focus on aspects of coastal science, management or development which members (including young practitioners) of the society can provide up to date information and techniques to other members at seminars and conferences • Provide an annual grant for graduate research on matters relevant to the aims of the Society • Provide papers both in the Society newsletter, and for submission to regional, national and international conferences • Where appropriate, provide grants for society members to attend and contribute towards meetings and conferences and represent the society	• One national seminar and two regional meetings as above. • Provide one1 annual grant (up to a limit of $1,000) to be determined by the committee, by 1 December each calendar year. • Review quarterly by the committee, the development of papers by society members for inclusion in the Society newsletter, and for submission to regional, national and international conferences to ensure adequate representation. • Committee to provide guidance each year on the range of issues and topics which members could provide papers and articles and encourage their production.

Financial viability

Supports societies operations – CNews, CS admin., website

- 1991 ACCOE
- 1994 Ocean Waves Society
- Fees
- Conferences
- Corporate members
- Volunteer effort – committee, regional reps, newsletter, members, conferences
- In-kind support from employers

OCEAN WAVE SOCIETY
THE NEW ZEALAND OCEAN WAVE SOCIETY INCORPORATED

The New Zealand Coastal Society would like to acknowledge our corporate members for their support:

Beca
CPG
ocel
Environment Canterbury
Waikato Regional Council
MACCAFERRI
ENGINEERED ENVIRONMENTAL SOLUTIONS
NIWA
Taihoro Nukurangi
Northland Regional Council
Taranaki Regional Council
Tonkin & Taylor

Financial viability

Provides sponsorships

- Regional events
- Student scholarships - MSc and PhD merit awards and recipients conference grants
- Travel of visiting academics
- NZ Coast book

NZCS Student Research Scholarship

Current and predicted pressures pose significant challenges for managers and planners seeking to provide sustainable futures for coastal environments and communities. The New Zealand Coastal Society (NZCS) was inaugurated in 1992 to promote and advance sustainable management of the coastal environment. This includes fostering coastal research and capacity building.

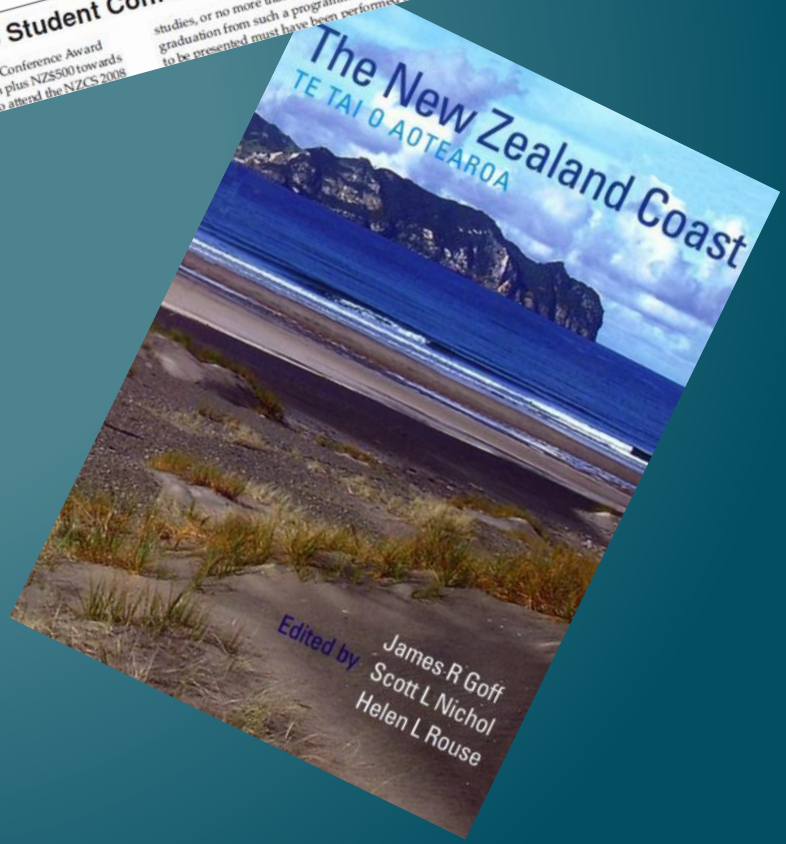
The society offers a NZ$5,000 scholarship annually to support a Masters or PhD student conducting research that has the potential to contribute towards the aims of the society.

The recipient must undertake the research project while enrolled for a Masters or PHD degree in a New Zealand institution. S/he may already be enrolled and conducting this research, for a Masters student up to 0.5 EFTS, or for a PhD candidate up to 2.0 EFTS, prior to the scholarship application deadline.

Application forms are available from supervisors or by contacting Hannah Hopkins (hannah.hopkins@ew.govt.nz). Applications close 5pm 22/8/08 and winners will be made at the annual conference which will be held 18-20 November in New Plymouth and is themed 'Coastal Co-existence: Industry, Culture and Environment'. For further information see www.coastalsociety.org.nz/ About.htm and /or contact David.Kennedy (david.kennedy@vuw.ac.nz).

NZCS Student Conference Award

The 2008 NZCS Student Conference Award includes free registration plus NZ$500 towards expenses for a student to attend the NZCS 2008 studies, or no more than one year post-graduation from such a programme. Research to be presented must have been performed in



2005 satisfaction survey

Members Satisfied with NZCS

A satisfaction survey was undertaken in November/December 2005 in order to determine how the New Zealand Coastal Society can provide improved services to its members. Survey forms were distributed to all attendees at the NZCS conference in Tutukaka and also emailed to all NZCS members after the conference. A total of 50 forms were received. The lucky respondent to win a copy of the book "The New Zealand Coast" was P. King from Whangarei.

Levels of satisfaction with the annual conference continue to remain high. Overall 92% of respondents were either satisfied or very satisfied with the annual conference. People noted the value of the conferences for networking, keeping up to date with new research, and hearing about multidisciplinary projects around New Zealand.

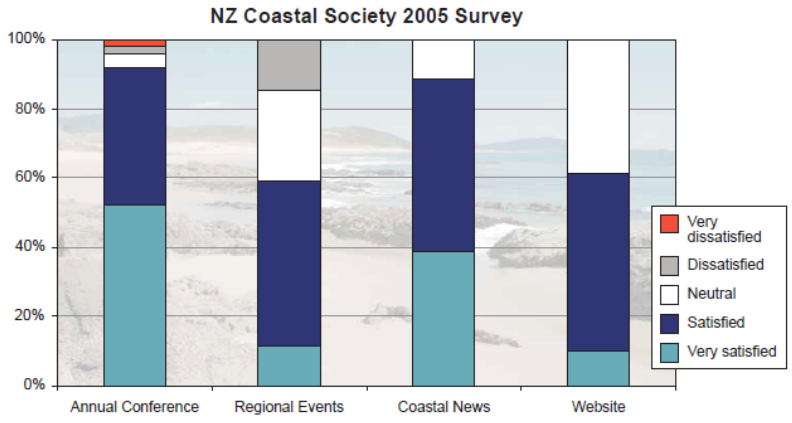
Suggestions for improvement included requests for more technical and social science presentations, less time pressure on presentations and shorter fieldtrips. These points have been taken into account in planning the Kaikoura conference.

Satisfaction with regional events was lower (59% very satisfied or satisfied), possibly reflecting the infrequent occurrence of such events in many regions.

Eighty seven percent of respondents said they 'always or often' read Coastal News. The NZCS website is accessed less frequently with 4% accessing it 'often', 65% 'sometimes' and 31% 'never'. Percentages of respondents who were satisfied or very satisfied were 98% for Coastal News and 62% for the website. Several suggestions were made regarding the website content and the NZCS Committee is following up on these.

A similar survey will be distributed at the end of 2006 to track our progress. Please give us your feedback and ideas for improvements. You might win a book!

Kath Coombes
NZCS Committee Member
kath.coombes@arc.govt.nz



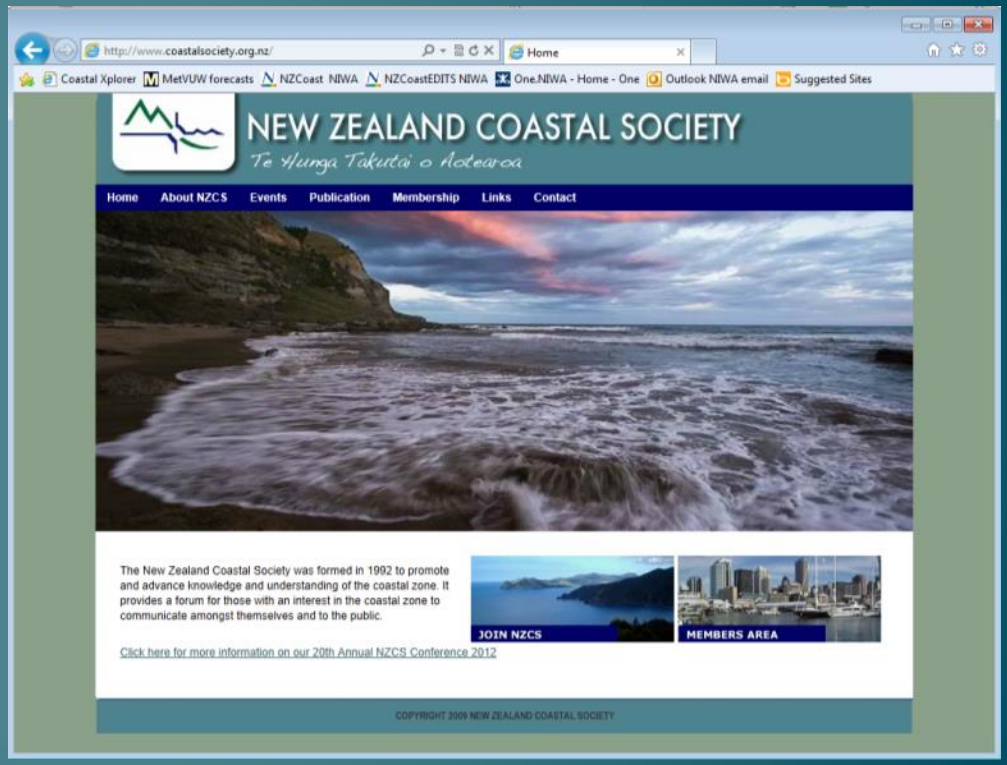
Coastal News

Annual conferences

- Keynote speakers – OE's
- Technical papers
- Workshops
- Field trips
- Social events
- Informality
- Joint ACCOE every 6 yrs

NZCS website

- Launched in 2001 in early days of websites
- Hosted by CAE - webmaster Charles Hendtlass
- Today a fundamental comms tool



Regional happenings

- Activity waxes and wanes
- Regional groups and coordinators – 7 NI & 4 SI
- Newsletter reports

Coastal News

… a rich summary of the society activities and valuable archive resource

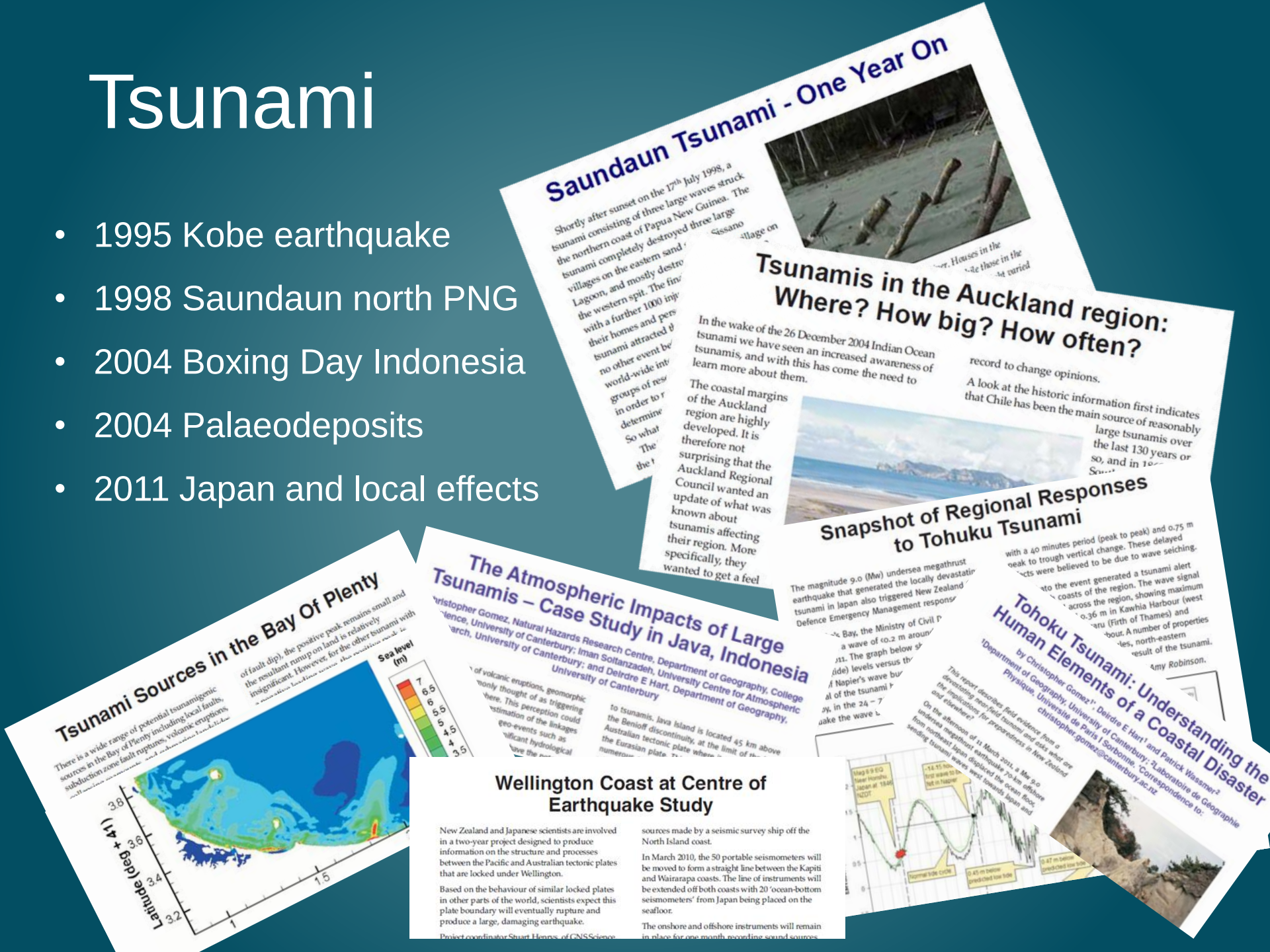
Coastal News

Wide range of issues covered in the 51 newsletters representative of the mission of the Coastal Society

- Growth of tsunami awareness
- Shipping
- Engineering
- Planning
- Regulatory issues, policy
- Technical advances
- Sea level rise and climate change
- Climate change and sea level rise
- Ecology
- Aquaculture
- Conservation
- Hazards
- Recreation and sports
- Community
- Land use impacts

Tsunami

- 1995 Kobe earthquake
- 1998 Saundaun north PNG
- 2004 Boxing Day Indonesia
- 2004 Palaeodeposits
- 2011 Japan and local effects



Shipping

- 1998 Don Wong – Stewart Island, stern trawler 1998, 400 tonnes of automotive gas oil spilled
- 2002 Tai Peng – bulk carrier with 9500 tonnes of urea fertiliser, Bluff, no spill
- 2002 Jody Millenium – Gisborne, log carrier, 25 tonnes of fuel oil spilled, long waves
- 2003 ferry wake issues in the Sounds
- Rena 2011 – Bay of Plenty, container vessel, 360 tonnes oil spilled, 2000 seabirds dead, containers lost

Engineering

Kohimara Beach Replenishment Project Earns Award

The creation of natural look
and Urban Soluti

Leadership, teamwork an
solutions earned Auckla

Kobe Earthquake Holds Important Lessons for New Zealand

Coastal News

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

New Zealand's First Marine Lock

Katoama Waters in Mooloolaba

As the demand for coastal property results in a shortage of land and inflated prices around the country a number of developers have come up with innovative ideas waterfront estates.

Hopper Developments Ltd have always been at the forefront of innovative waterfront development with examples such as Pauanui

Photo courtesy Bea.

Tauranga's Harbour Link Project

Bridging the Gap

The Western Bay of Plenty i
Zealand's fastest growing

Beach Scraping and Dune Repair at Whangapoua Beach

After storms in the winter of 2008 resulted in severe dune erosion and placed several houses at risk at Whangapoua Beach the community knew something had to be done. Amy Robinson, Environment Waikato, and Jim Dahm, Eco Nomos Ltd, report on the

recovery using beach scraping – aiming to restore the dune to pre-storm dimensions and so reinstate the natural protective buffer against erosion. In the longer term, existing setbacks will see the threatened dwellings relocated landward as they

Photo: Ports of Auckland.

Ports of Auckland – Fergusson Deepening Project

by Shelly Biswell, Editor

Fergusson Container Terminal is the centrepiece of Ports of Auckland (POAL). The 32-ha facility is

is not expected to be a port of call for these giants of the sea, in an increasingly globalised economy

Artificial Reefs Offer Coastal Protection

An artificial reef is scheduled to be built at Mount Maunganui this year to enhance the already popular surf

Love them or hate them artificial reefs are beginning to make waves in the area of coastal management in New Zealand and around the

geology and the wave climate is conducive, on a variety of scales. However, things have progressed significantly in the past decade,

Planning

CN #2
1994

Coastal Policy Statement Update

The Board of Inquiry on the NZ Coastal Policy Statement (NZCPS) has completed its public inquiry and presented the Minister of Conservation with its report and recommendations.

The Minister is considering the report and recommendations at present and will revise the NZCPS accordingly. He will then recommend approval of the NZCPS to the Governor General in Council. After approval, the Minister will issue the NZCPS by notice in the Gazette.

While gazettal is a matter of urgency in order that the NZCPS can guide the preparation of Regional Coastal Plans, the time frame is uncertain, as with all matters that must be considered first by the Minister and his colleagues.

The report and recommendations of the Board of Inquiry is available from the Department of Conservation.

Mike Jacobson, DOC

Preparing for Coastal Change: A Guide for Local Government in New Zealand

Preparing for Coastal Change was produced by the Ministry for the Environment in March 2009. It is a 30-page summary of the recent technical report *Coastal Hazards and Climate Change – A Guidance Manual for Local Government in New Zealand* (2nd ed) released in July 2008. The guide highlights the impacts that climate change is expected to have on coastal hazards. It details the climate change impacts that are expect... sea-lev... throug... and w...

Climate change effects are gradual, but have implications for many land-use planning decisions. They have long-term implications because of the long lifetime of structures (e.g., buildings, roads, network utilities, residential developments). Considering climate change is not only a requirement of the Resource Management Act 1991, it is also wise and good business practice.

This guide summarises a 130-page technical report, Coastal Hazards and Climate Change ('the source report').

The pu...

Natural Heritage Preservation – Taking An Innovative Approach

Otama (photo: John Barren)

...to preserving iconic... During the discussion of these two

A Vision/Moemoea for the Future of the Wairoa Coast

Wairoa District Cou...
preparing a coastal s...
With approximately...

Rocky Lefts, Paora Rd. One of the 81 surf breaks identified in the Operative Taranaki Regional Policy Statement. Photo courtesy of Matt Skellern.

Reconsenting Coastal Structures in the Bay of Plenty

Environment Bay of Plenty estimates that more than 2000 of the region's older coastal structures, including slipways, seawalls and boat sheds, now require a resource consent.

Environment Bay of Plenty's "Regional Coastal Environment Plan" became operative on July 1 of this year. Under the new plan the transitional provisions set out in sections 418(6) and (7) of the Resource Management Act 1991, which allowed the continued approval of coastal structures installed prior to 1st October 1991, have ceased. As a result the Bay of Plenty Regional Council now requires that the owners of pre-1991 structures within the coastal marine area apply for resource consents before January 2004. If the owners of these structures do not apply, the structure concerned will subsequently be considered illegal

Planning Tools for Surf Breaks

by Bailey Peryman and Matt Skellern

Preservation of coastal areas valued for surf riding... Statement. More recently, the New Zealand Coastal

New Zealand Coastal Policy Statement 2010

by Sarah McRae, Department of Conservation

...w Zealand Coastal Policy Statement 2010 2010) was approved by the Minister of Conservation late last year. Its purpose is to state the policies in order to achieve the purpose of the Resource Management Act 1991 (RMA) in relation to the coastal environment of New Zealand.

A work programme is underway to support the implementation of the NZCPS 2010 with close support from councils through a Local Government – Department of Conservation (DOC) Implementation Steering Group. The local government members are:

- Dominic McCarthy, Auckland Regional Council;
- Campbell Larking, Tauranga City Council;
- Pere Hawes, Marlborough District Council; and
- Clare Wooding, Local Government New Zealand.

where national implementation advice and support would be beneficial.

4. Monitoring – to support monitoring and evaluation of the NZCPS 2010 implementation. The results of this work will be used to adjust implementation priorities as well as inform the future NZCPS reviews.

The current focus is on engagement, guidance and progressing work on natural character methodologies.

Two workshops have been held on approaches to natural character. Guidance development is currently underway on a range of policy areas including natural character, coastal hazards risk, water quality, aquaculture, biodiversity, characteristics of the coastal environment, tangata whenua and Maori heritage, historic heritage, public open space and access, and nationally significant surf breaks.

Submission by the NZCS on the New Zealand Oceans Policy

The NZCS made a submission to the Ministerial Advisory Committee on the NZ Oceans Policy. After canvassing opinions of members the key points of concern to the Society were that:

- The open book nature of the consultative process for the Oceans Policy has the potential to re-litigate matters well canvassed in the past, especially during the Resource Management Law Reform (RMLR) process in the late 1980's;
- This risk is amplified in the absence of a clear vision or intended outcome (other than the creation of a policy document) from central government. Such a 'blue skies' approach suggests that the outcome of the policy development process might be more procedural rather than substantive;
- Creation of the Oceans Policy carries a risk of creating more administrative complexity (a bureaucratic outcome only), and may gloss over the underlying reason for additional special legislation, especially within the limits of the territorial sea, which is a lack of physical, administrative/jurisdictional, time and process integration;
- When looked at objectively, there is a significant reduction in the scale and intensity of management issues once one goes further offshore than the 12 nautical mile limit. Any management system must reflect that reality in the construction of its policy and not apply unnecessary administrative frameworks to areas for issues, which may never arise in certain places.

For a full copy of the NZCS submission contact Harvey Brookes, Auckland Regional Council (hbrookes@arc.govt.nz).

2001

Coastal News

Technical advances

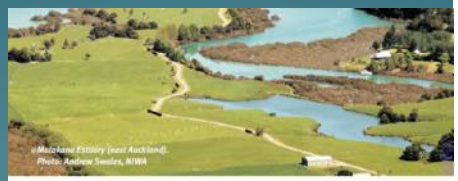
Monitoring Organic Enrichment of Coastal Sediment

Peter Wilson and Kay Vopel, Auckland University of Technology

Organic enrichment of coastal sediment is of interest to coastal managers worldwide. It results from excess supply of organic carbon to coastal waters from both natural and anthropogenic sources such as, terrestrial runoff, eutrophication, and aquaculture.

A large fraction of this carbon is mineralised by sulfate reduction, a bacterially mediated reaction that leads to the production of hydrogen sulfide (H_2S). This is the culprit for the 'rotten egg' smell you encounter when digging up estuarine sediments. H_2S readily reacts with sedimentary iron compounds to form iron sulfides that contribute to the distinct black colouration of organic-rich sediment.

In the laboratory, we can co
these iron sulfides back into
to the sediment and so indi
concentration of the acid vo
Although this concentration



A New Looking Glass – Unlocking Sediment Records to Understand the Past and Plan for the Future

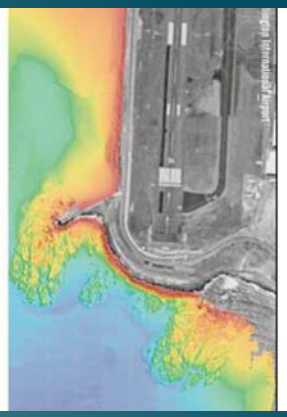
Shelly Biswell, Editor

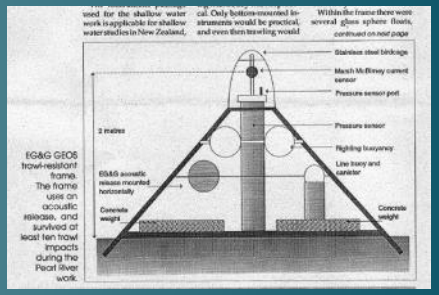
While relatively new, the NIWA-developed Compound Specific Stable Isotope (CSSI) dating method is already allowing scientists, planners,

use, firstly by Maori for root crops, such as kumara, and later the development of pastoral lands for dairy and dry-stock, and orchards and horticulture

NIWA's multibeam system for high resolution seabed mapping

- Coastal management
- Aquaculture
- Habitat mapping
- Biodiversity studies
- Time-series monitoring
- Hydrodynamic modelling
- Port work & engineering design





February 1998

Cam-Era — Computer Controlled Monitoring of the Coastal Environment

NIWA are spearheading a project that provides computer controlled video cameras to monitor the environment for data

Coastal News

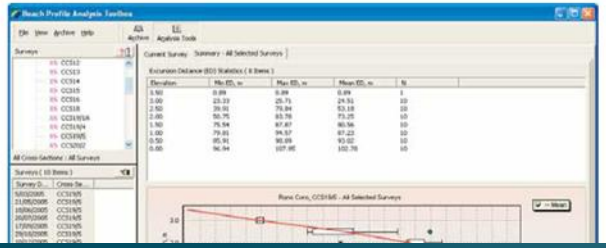
Beach Profile Analysis Toolbox (BPAT) available for download

NIWA's Beach Profile Analysis Toolbox (BPAT) is an easy to use, integrated package for the input, quality checking, analysis and archiving of beach profile related datasets.

The toolbox has been specifically developed to meet the needs of professionals and researchers involved with coastal hazard management,

engineering and science applications, to better understand variability and trends in beach and nearshore profile data.

Further information on BPAT and a fully functional demonstration version of the software is available for download from: www.naturalhazards.net.nz/tools/bpat



LIDAR – A New Tool for Mapping Coastal Change

ally, changes in coastal landscapes have
fficult to monitor in detail. This is due to
and expense required in obtaining
ntly dense and accurate data that show
sformations occurring over time. LIDAR
Detecting And Ranging) is a relatively new

remote-sensing technology which simplifies the process by providing a tool that produces a high-resolution DTM (Digital Terrain Model,) with a level of accuracy suitable for detecting fluctuations in the beach environment.

LIDAR has been successfully used in both Europe

Hindcasting and Forecasting Ocean Conditions around New Zealand

amphidrome in Cook Strait, and the tidal current regime varies considerably from

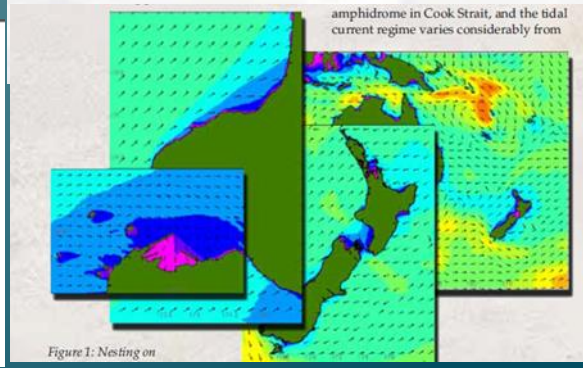


Figure 1: Nesting on

Climate change and SL rise

Changes in Sea Level

IPCC Second Scientific Assessment: Chapter 7 Summary

Lead authors: R A Warrick, C Le Provost, M F Meier, J Oerlemans and P L Woodworth

The purpose of this chapter is to assess the current state of knowledge regarding climate and sea level change, with special emphasis on scientific developments since IPCC (1990). The main focus is on changes that occur on the time-scale of a century. We thus look for evidence of sea level change during the last 100 years, examine the factors that could be responsible for such changes, and consider the possible changes in sea level during the next 100 years as a result of global

than that reported in IPCC (1990) (i.e. 10-20 cm). The higher estimate results largely from the use of geodynamic models for filtering out long-term vertical land movements, as well as from the greater reliance on the longest tide gauge records for estimating trends.

- There has been no detectable acceleration of sea level rise during this century. However, the average rise during the present century is significantly higher than the rate averaged over

What's Happening with Sea-level Rise?

After the hype a decade ago, what is happening with long-term sea-level rise? In 1989 John Hannah (now University of Otago) completed an analysis of long-term sea-level records from the four main ports (A

around northern New Zealand, sea-level rise has levelled off (Figure 1) since the climate regime shift in the mid-1970s (Salinger & Mullan, in press). The almost static trend in mean sea level

Point of View: Sea Level Rise – Predictions, Projections and Guesses

by Willem de Lange, Department of Earth and Ocean Sciences, School of Science and Engineering, University of Waikato

Sea level is of particular interest to coastal management, as most hazard analyses incorporate some component to account for future sea level rise. There are several different approaches to determining sea level in the future, which vary in rigour and reliability.

The most rigorous approach is of the underlying structure of trends, which forms the basis future sea level. This method all

analysis of the factors contributing to past sea level rise, and modelling of a range of scenarios representing estimates of future forcing conditions.

The Intergovernmental Panel on Climate Change (IPCC) has reviewed the published sea level

What's At Risk?

How to accommodate adequate sea-level rise allowance into development decision-making

Over the past year or so there has been a growing demand by councils for certainty and guidance on sea-level rise following the

level rise, in its Fourth Assessment Report (2007) stated:

Sea-level Rise and Australia's Coast

Ecology

Mangrove Issues in the Auckland Region

New Zealand's mangrove Avicennia marina subsp. australasica, known as "Manawa", is a native plant and it, or a very similar species, has been present in New Zealand for around 19 million years. Manawa is the most southerly growing mangrove species in the world, and can be found in the shallow intertidal margins of sheltered coastal and estuarine areas of the North Island. It grows north of about latitude 38° S; from Kawhia

Ohiwa Harbo

The value pla
the years. In

Land Use Impacts on Estuarine and Coastal Fish

New Zealand has more than 350 estuarine systems, ranging from small intermittently

but one of the more fundamental ones is to avoid being eaten by predators. For many

Seagrass Loss in the Bay of Plenty

Surveys by Environment BOP show a loss of seagrass in Tauranga and Ohiwa harbours in the last 40 years, and point to changes in catchment runoff as a contributing factor.

attributed to eutrophication and sediment runoff. Increased nutrient levels from sewage outfalls and land runoff encourage the excessive growth of microscopic algae suspended in the water above the plants, or the overgrowth of epiphytic algae

Within New Zealand ther
of seagrass, *Zostera novaz*

Limits of Acceptable Change

A stakeholder-collaborative framework for managing environmental performance of New Zealand marine farming

John Zeldis (NIWA), Malene Felsing (Environment Waikato) and John Wilson (John Wilson Consulting Ltd) present a report answering some of the questions associated with the management of marine farming in New Zealand.

Sustainable management of marine farming requires certainty for industry investment, while maintaining coastal ecosystem health and integrity.

Great Barrier Reef, but had never before been applied to aquaculture.

The framework is called 'Limits of Acceptable Change', or LAC. LAC is not a tool for determining resource usage levels that are 'ecologically sustainable' or that maintain a certain 'carrying capacity'. Rather, its goal is to provide an adaptive management framework by which significant adverse environmental

Sea Spurge (*Euphorbia paralias*): Floating New Zealand's way

0 years or so a number of exotic
een introduced to southeast
abilise active dune systems. Many
s, including Sea Wheat Grass
); Marram grass (*Ammophila*
Grass (*Ehrharta villosa*); and Bitou
themoides monilifera ssp. rotundata),
naturalized. Very few active dune
w free of exotic species and most,
ificant conservation areas, contain

hinterland plant communities, including native herb-fields (marsupial or coastal turf), shrubland, native grassland and agricultural pasture.

My concern that this species will establish in New Zealand stems from the history of dispersal of Sea Spurge in Australia and the significant impact this species has had on indigenous dune flora in Australia. The species may have little difficulty crossing the Tasman Sea and establishing in New Zealand. According to Petrus Heyligers, formerly

Coastal News

Conservation

Communities Caring for the Coast

Coast Care A Winner

Coast Care Bay of Plenty's fantastic work in restoring coastal dunes has been recognised by the New Zealand Plant Conservation Network

Marine Guardians, to advise the government and Environment Southland:

- a community-led sustainable management regime;
- eight new marine reserves totalling 9,520 hectares; and
- changes to fisheries management and coastal

An Improved Management Regime for Vehicles on Northland Beaches

The Issue

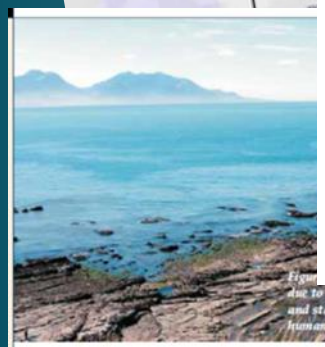
The use of vehicles on beaches during weekends and in holiday periods, and the lack of an effective management framework

Bylaw Development and Implementation

The proposed management approach required district councils to extend their

Garbage Survey Nets Interesting Results

In 2009, Maritime New Zealand undertook an extensive survey of fishing vessel operators to better understand the challenges they face in dealing with garbage on board their vessels and the realities of garbage management at sea. The vast majority of data on marine debris is based on the results of beach cleanups or underwater surveys, but this data does little to differentiate between land-sourced and vessel-sourced garbage or help with identifying ways to minimise vessel-



due to the plethora of natural features such as wave platforms and stacks that adorn Bats coast as well as due to the absence of human modification. (Photograph by Nicholas Key).

A Coastal Scenic Assessment of the North Canterbury Coast

New Zealand's coastal scenery is a significant r economicall Act (RMA management implementation in New

Classifying New Zealand's Estuaries and EEZ

Classification projects are underway in order to provide a framework for the assessment and management of New Zealand's estuarine and continental seas. The Estuarine Environment Classification (EEC) groups estuaries on the basis of their major controlling physical factors into domains of broadly similar physical and ecological properties and management implications. A complementary project, the Marine Environment Classification (MEC), is also underway.

Estuaries are difficult to define because they come in many shapes and sizes and are dynamic environments containing many different habitats. Confusing to the public is the fact that on maps they are named variously as: estuary, creek, firth, inlet, gulf,

of both runoff from the land and inflow from the sea." Importantly this definition recognises the role of catchment and ocean forcings in determining estuary properties. As such it includes drowned river and tectonic valleys, barrier-enclosed tidal lagoons, coastal lagoons, tidal rivers, coastal embayments, structurally and tectonically influenced estuaries, and glacially excavated valleys or fjords.

New Zealand has as broad a range of estuaries as any country in the world. There are about 350

continued on page 4

Coastal News

Inventory of New Zealand's Active Dunelands

The Inventory of New Zealand's Active Duneland's was published in late 2000 after three years of work. The idea for the project occurred to me during the process of drafting the New Zealand Coastal Policy Statement in late 1990.

At that time the coastal policy team was frustrated by the lack of regional and national data on the location and conservation status of remaining coastal dune systems (active, semi-vegetated *and* stable). Such data was needed to justify policy and formulate conservation and management strategies.

The Sand Dune and Beach Vegetation Inventory of New Zealand subsequently identified priority dune systems and their botanical values. In addition, the Protected Natural Areas Programme (PNAP) generated some very detailed

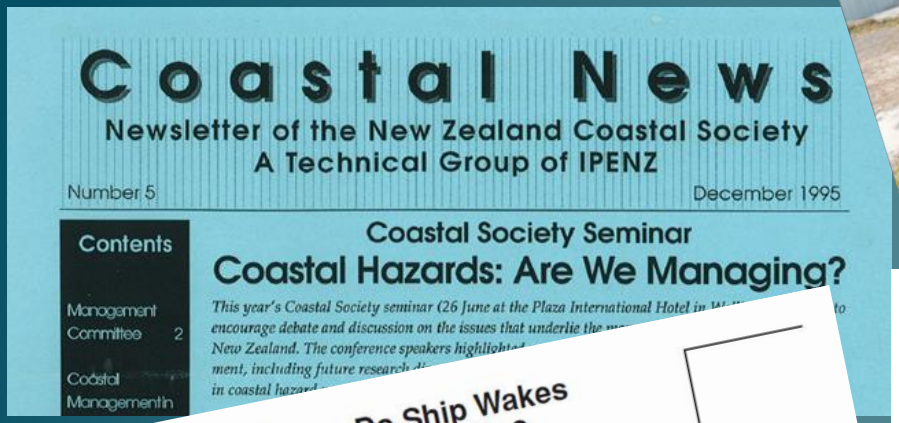
The most recent maps (1990s) are the most accurate, in large part because of the generous assistance and feedback received from regional council, DoC Conservancy and district council staff. Many thanks.

Key findings:

1. Active dunelands were present in all regions following World War II, though they were most extensive along the west coasts of the three main

Coastal News

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

Number 5 December 1995

Contents

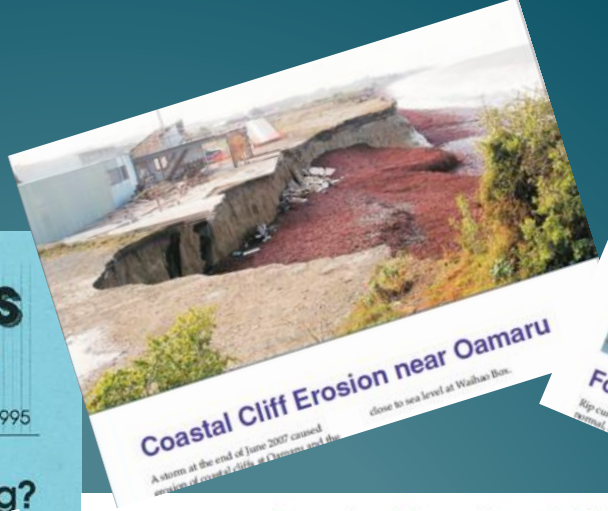
Managament Committee 2

Coastal Managementin

Coastal Society Seminar

Coastal Hazards: Are We Managing?

This year's Coastal Society seminar (26 June at the Plaza International Hotel in W... to encourage debate and discussion on the issues that underlie the ... New Zealand. The conference speakers highlight... ment, including future research ... in coastal hazard...


Coastal Cliff Erosion near Oamaru

A storm at the end of June 2007 caused ... close to sea level at Waihao Box.


Forecasting Currents Could Save Lives

Over 100 people drown in New Zealand waters each year. Photo: Kim Hayes

Rip currents are approximately shore-normal, wave and ... directed jets that originate ... with hindcast waves. The probability ... matrices were used to calculate the ...

Coastal and Storm Hazards Workshop:
25-26 March 2002 in Hamilton

NIWA are facilitating a workshop on building understanding of hazards and risks to coastal environments and communities.

Attendees will have the opportunity to contribute in workshop sessions designed to tease out the long-term strategy needed to build coastal knowledge

storms, cyclones, damaging waves, sea-level rise, climate change, storm surge and flooding, tsunami, tides, strong currents, maritime operations, oil/pollutant spills, surf conditions, and rips.

The workshop is aimed at regional council and TLA staff, engineers, planners, scientists and Government

Coastal News

Rogue Waves: Do Ship Wakes Strike Back or Help Us?

...igh and steep (freak, monster, or ...the sea surface are observed ... than might be expected ... Many properties of ...d the catastrophic ...t in time and ...umon

intersection point is very steep: its slope may be 8 times as large as the slope of the counterparts [3].

The physics of waves is exactly the same for identical waves of any origin. Therefore extremely high and steep waves may easily occur when two systems of long-crested waves cross each other, no matter whether its swell or ship-generated solitonic waves. Also, much more devastation compared with simple overtopping of a seawall ...eakwater may be caused by an analogous

Coastal News

Extension of controls for development in coastal hazard zones

A recent Environment Court ruling has extended controls on building developments in coastal hazards zones at Waihi Beach and Pukehina Beach in the Bay of Plenty.

Western Bay of Plenty District Council's decision

will be controlled under the District Plan. Properties that are located within the high... risk area (prin... risk zone) ... beach ... co...

Development of coastal hazard risk indicators for the Bay of Plenty Region

Why the need for coastal hazard risk indicators?

Just over 74 % of the Bay of Plenty (BOP) coastline is soft sandy coast and like most open sandy coasts in New Zeal... ...e BOP is not alone in being vulne... ...l hazards. The coastal ha... in the BOP region ...y of development to ...al communities. ...en further ...easing desire for ...as resulted in a ... kiwi holiday ...idences.

...has an ...nent Plan ...f ...hazards ...fective: ...coastal

Figure 1: C... – Bay of P...

Managing Coastal Hazard Risk in Tokelau

Our coastline continues to be enjoyed by an increasing number of people, be it through coastal development or increased access to water-related opportunities.

Social commentators suggest there is an increase in 'family' orientated leisure pursuits and a day at the beach is accessible, offers a range of activities,

1. People drown because of a lack of knowledge or a disregard/misunderstanding of hazards

Surf Life Saving must aim to educate and inform by increasing knowledge through quality public education and awareness. This increase in knowledge will assist the beach going public of New Zealand participating wisely and safely in

Maori


A Vision/Moemoea for the Future of the Wairoa Coast
Nga Waihotanga Iho – the Estuary Monitoring Toolkit for Iwi

Making waves for the next 20 years

Shift happens - Global

- Worlds population increased by 1.5 billion since 1992 up 26%
- Relative natural hazard for world outside China is increasing – population growth and move to hazard prone areas
- <1% of agricultural land managed under certified ecological practices
- In the last ½ century phosphorus in marine and fresh waters has increased 50%
- Aquaculture increased by 260% from 1992-2009, now equals ½ total wild fish catch
- 90% of disaster displacement in 2010 due to climate-related disasters
- Climate is changing and SL rising at 2.5 mm/yr globally

Shift happens - NZ

Official Statistics, New Zealand, 2025	2025	Current
Population	**5.3 million - Auck**	4.4 million
No. of cows	**10 million**	5.9 million
Aquaculture exports	**$1 billion**	$0.3 billion
Minerals exports	**$14 billion – 50%seabed**	$3.6 billion
Oil production	**290 petajoules**	160 petajoules
Maori business %GDP	**18%**	6%

Wake-up calls

People attitudes towards hazards depends on specific events and anecdotal evidence

- Boxing day 2004 tsunami – 275,000 dead, $5 billion repair bill
- Japanese tsunami 2011 – 19,000 people killed or remain missing, 325,000 people remain displaced 18 months later, $190 billion repair bill
- Super storm Sandy 2012 – 100+ dead, $30-50 billion repair bill
- Auckland storm surge 2011 – $20 million damage
- Rena grounding 2011 – >$50 million clean-up cost

Keep making waves

- NZCS Mission … “To undertake a leading role in facilitating robust discussion and nationally coordinated interactions to better mange and learn about our coastal and marine environment”
- Maintain the balance/involve - planning, science and engineering, community, industry, local and central Government
- Coastal News - a rich summary of the society activities and valuable archive resource
- Special projects
- Members must continue to volunteer their time and employers their financial and in-kind support

NEW ZEALAND COASTAL SOCIETY
Te Hunga Takutai o Aotearoa