



# Coastal News

*Te Hunga Takutai o Aotearoa*

Issue 52 • March 2013

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Rakaia River and surrounding farmland. Photo: DOC.

## Championing our Coasts

by Shelly Biswell, Editor

NZCS is pleased to announce our Coastal Champions for 2013. In its inaugural year, the Coastal Champions programme recognises individuals who have shown a commitment to the sustainable management of our coastal environment and have made a difference within their community.

Our national Coastal Champion is Bill Southward of Canterbury for his work on the river and coastal systems of the Rakaia River.

Regional champions include:

- Waikato – Barry Turk for his leadership on dune restoration through Onemana Beachcare on the Coromandel Peninsula.
- Bay of Plenty – Pim de Monchy, Senior Land Management Officer, Bay of Plenty Regional Council, for his efforts to organise thousands of volunteers as part of the *Rena* oil spill clean-up.

Champions were nominated by NZCS members within their regions. Their nominations have been confirmed by the NZCS management committee. Each champion will receive a certificate of appreciation for their work and the national coastal champion will also receive NZ\$1000.

### Champion close-ups

#### Bill Southward – National and Canterbury

A second generation resident of the coastal settlement Little Rakaia Huts, Bill has been a stalwart advocate for the Rakaia system. His

nominators describe him as a “one-man catalyst for change in the way we approach the effects of water resource use on coastal lagoons in Canterbury”.

In 2008, Bill became acutely aware that certain lagoon processes and morphologies in the Rakaia system were different to the patterns he’d seen over decades of fishing and jet-boating. Bill began to seek answers. Over the course of his investigations, he contacted nearly every hydrologist, geomorphologist, coast and river researcher, planner and politician in Canterbury about the sustainable management of the Rakaia system. While heightening the profile of lagoon health in local and national media, he also brought professional practitioners together to discuss lagoon issues, management and research. He’s also been behind a number of scientific initiatives to better understand hapua.

The Rakaia rivermouth is a typical hapua, the kind of coastal lagoon that forms where mixed sand and gravel beaches meet rivers. Rarely studied internationally, hapua occur throughout New Zealand’s coarse coastal environments – in Canterbury, the North Island’s east coast, Otago, Southland, and the west coast. Compared to estuaries, little work has been done on these dynamic coastal environments.

Bill’s work has highlighted the need for river flows to be gauged in coastal reaches to monitor and manage the effects of water resource use on



*Field study on the river (from l to r): Clive Howard-Williams, NIWA; Graeme Horrell, NIWA; Bryan Jenkins, at the time of the photo Environment Canterbury and now Canterbury University; and Coastal Champion Bill Southward.*



*Rakaia River, Canterbury. Photo: Dick Veitch, DOC.*

coastal environments. With his boots-and-all attitude, Bill has spent countless hours collating historical and contemporary photographs, taking his own photo and video observations of rivermouth and coastal processes, measuring beach barrier height and width, and observing and measuring rivermouth migration. He has even chartered aircraft to take aerial photographs.

His nominators state, “He is a community-minded person, unwaveringly driven to improve and stem the degradation of the coastal environment he grew up in. In doing so, he has captured the attention and minds of a wide variety of resource management practitioners and scientists who, through Bill’s efforts, now collaborate and cooperate on a much better level than they ever did before. This result is unparalleled in our experience in Canterbury. And Bill’s work continues.”

When Bill first started his scientific and advocacy work, the effects of catchment change on hapua represented a knowledge gap in a country undergoing rapid human-induced river changes. By calling for science-based management of the Rakaia system, Bill has raised awareness and the need for a better understanding of one of New Zealand’s most pressing coastal issues.

### **Barry Turk – Waikato**

Barry first became aware of the need for dune restoration at Onemana on the Coromandel Peninsula in 2005. He was walking the beach with his



*Barry Turk. Photo: Waikato Regional Council.*



*Onemana Beachcare and one of the many planting days they held. Photo: Waikato Regional Council.*

landscape architect son, who pointed out various issues, such as exotic plants and wind erosion. For many, that would have been just a nice walk and an interesting conversation. But Barry believes in addressing issues. Within a few weeks he’d had various conversations and meetings with the local and regional councils, and by May 2006 a well-attended community meeting saw the launch of Onemana Beachcare.

Over the years, hundreds of volunteers have been involved with Onemana Beachcare and more than 30,000 plants have been planted. Volunteers have also created pedestrian accessways to limit damage to dune plants, managed pests, and improved drainage.

All that work has transformed the area. Total spinifex cover has been restored on the frontal dune, along with a good subcomponent of pingao. Previously, the zone had only two or three isolated bushes of the native knobby club-rush. The zone is now backed by a wide band of these bushes, and at the southern end a huge area of native pohuehue has replaced grass and weeds.

With the return of native vegetation and natural dune function restored, it is expected the area will now be relatively self-sustaining, although the Onemana Beachcare volunteers will continue to give nature a helping hand when required.

### **Pim de Monchy – Bay of Plenty**

On 5 October 2011, the *Rena* grounded on Astrolabe Reef. Oil spilled from the wrecked ship and coated many of the beaches in the region.





*Pim de Monchy. Photo: Bay of Plenty Regional Council.*

As his nominators explained in their submission, “In his role as Volunteer Coordinator on secondment to Maritime New Zealand, Pim stepped up when his community needed him most and led an army of volunteers to clean up the beaches in the Bay of Plenty, including Mt Maunganui, Papamoa Motiti, Matakana Islands, and further afield. Within the first month of the *Rena* grounding, over 3000 volunteers were organised by Pim and his colleagues to remove the oil and restore our beautiful beaches and also our coastal identity.”

Over the course of the next few months, over 6700 volunteers would register to assist with clean-ups. Pim was responsible for logistics, working with the



*Volunteers cleaning Papamoa Beach on 6 November 2011, in the 100th volunteer clean-up operation held since *Rena* grounded on Astrolabe Reef. Photo: Maritime New Zealand.*

volunteers, and also communicating clean-up efforts to the wider community.

On top of this monumental task, he maintained the core functions of the Coast Care community partnership programme. A huge coordination job in its own right; there are 25 community groups of Coast Care volunteers throughout the Bay of Plenty.

For more information about the Coastal Champion awards, or to find out how you can nominate a champion in your region, email Renee Foster at [nzcoastalsociety@gmail.com](mailto:nzcoastalsociety@gmail.com).



## NZCS Management Committee

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## Coastal News

### Coastal News now delivered in PDF format

Unless otherwise requested, *Coastal News* is delivered to members via email as a PDF. When registering with NZCS, members have the option to have print copies of *Coastal News* delivered, however, if this option is not selected members will only receive the environmentally friendly PDF version.

### Contributions

We always welcome contributions for forthcoming issues of *Coastal News*. Please contact the Editor, Shelly Biswell, at [shelly@biswell.net](mailto:shelly@biswell.net) if you'd like to submit a newsbrief, article, or have content suggestions.

The submission deadline for the next issue is 31 May 2013.

# The 2013 Solomon Islands Tsunami in New Zealand

by Jose Borrero, eCoast Ltd

## Coastal News



On 6 February 2013, an 8.1 magnitude earthquake struck the Solomon Islands. The undersea earthquake's epicentre was about 75 km west of Lata on Nendo Island, the largest of the Santa Cruz Islands group in the Temotu province of the Solomon Islands. The earthquake occurred on the interface where the Australian plate subducts beneath the Pacific plate.

Following the earthquake, the Pacific Tsunami Warning Centre put many of the countries in the southwest Pacific on a tsunami alert. The Solomons, Papua New Guinea, Vanuatu, Fiji and several other islands were under a tsunami warning, while Australia, New Zealand, and eastern Indonesia were under a tsunami watch.

The earthquake generated a tsunami which was measured on tide gauges throughout the region. At Lata, the tsunami was measured with a maximum peak-to-trough wave height of more than 1.8 m. Video footage taken during and after the tsunami showed damage and inundation suggestive of runup heights of at least 3 to 5 m – values later confirmed by tsunami researchers who visited the area. Smaller tsunami surges also affected parts of Vanuatu and New Caledonia.

In all, 13 people were reported killed and five people remain listed as missing with thousands made homeless after hundreds of homes and buildings were washed away or badly damaged.

Here in New Zealand, members of the New Zealand Tsunami Experts Panel (TEP) monitored the situation and provided technical support to New Zealand Civil Defence throughout the event. Based on the size and location of the earthquake, it was clear that no large-scale threat existed for the New Zealand coast. The possibility of a potential marine and beach threat was discussed, however, and the TEP suggested that late arriving surges and associated currents should be expected, particularly along the west coast between Taranaki and Milford Sound.

Computer simulations conducted as the tsunami was en route from the source region to New Zealand also suggested relatively small wave heights, as shown in Figure 1. This was confirmed as tsunami waves first arrived in the evening (~8:30 pm NZDT) of

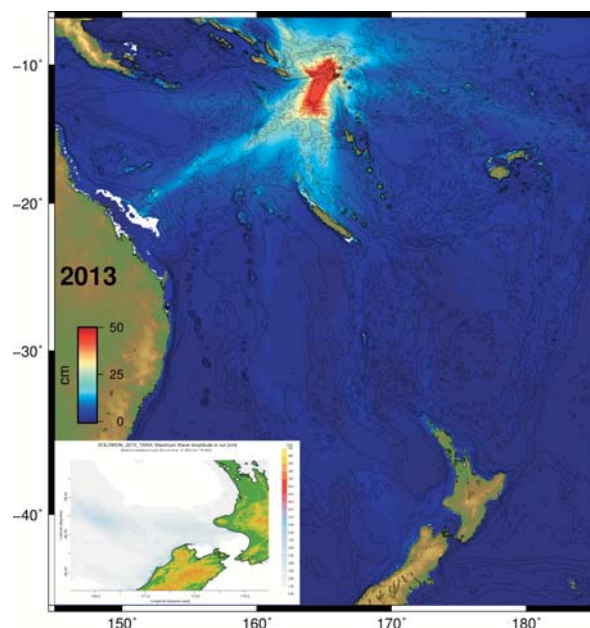


Figure 1: Maximum computed wave heights across the southwest Pacific and Tasman Sea resulting from the 6 February 2013 earthquake in the Solomon Islands. Inset map shows computed wave heights off the west coast of New Zealand (Modelling done by Jose Borrero, eCoast Ltd).

6 February and peaked in the early morning hours of 7 February (Figure 2). At Port Taranaki, the largest waves had peak-to-trough heights of ~0.28 m (Rob Bell, NIWA, pers. comm.). The tsunami signal was also monitored in real time by Mulgor Consulting ([www.mulgor.co.nz/LWNZPorts/](http://www.mulgor.co.nz/LWNZPorts/)), which clearly shows the tsunami energy arriving at levels well above background noise at both Port Taranaki and Port Nelson.

Looking back at Figure 1, note that most of the tsunami wave energy is directed into northern New Caledonia and mostly blocked from the Tasman Sea with a secondary lobe of energy directed towards the Great Barrier Reef. This is different to what occurred in 2007, when a similarly sized earthquake struck about 500 km further west in the Solomon Islands, near Gizo.

The 2007 event (Figure 3) was positioned such that more energy was pushed southwards into the Tasman Sea, eventually causing maximum wave heights at Port Taranaki approximately twice as large (0.60 m) as those during the 2013 event and was greatest at Charleston near Westport (1.1 m). This is due partly to the focusing of the wave energy along the relatively shallow bathymetric feature known as the Lord Howe Rise which runs from the Coral Sea into the west coast of New Zealand (Figure 4).

This phenomenon – where wave energy is concentrated along a bathymetric feature – is called “wave guiding” and is important in trans-oceanic tsunami propagation. Wave guides are a major factor in why places like Crescent



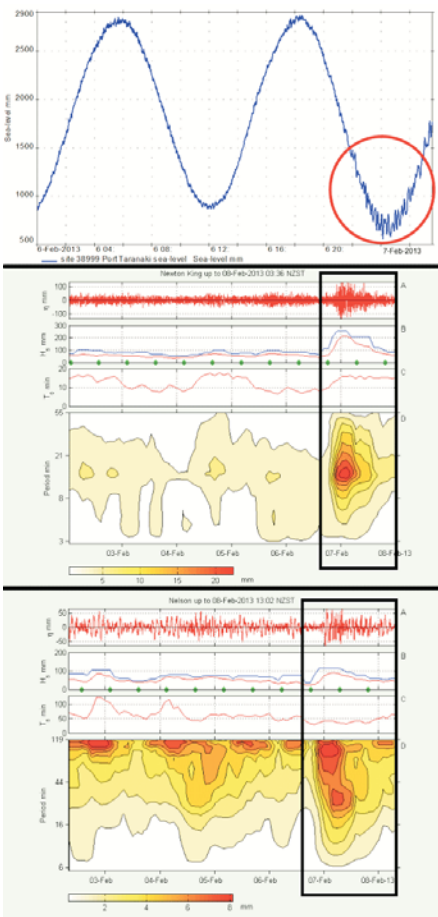


Figure 2: (top) Tide gauge record from the Port of Taranaki for the 2013 tsunami (time in d hh: NZST). The red circle indicates the tsunami signal. Peak wave heights occurred just after midnight on 7 February and coincided with low tide. Data provided by Port Taranaki Ltd and analysed by Rob Bell, NIWA. Long wave records from Port Taranaki (middle) and Port Nelson (bottom) clearly show the arrival of the tsunami. Data provided by Port Taranaki Ltd and Port Nelson Ltd and analysed by Derek Goring, Mulgor Ltd.

City, California are more likely to be affected by tsunamis.

The implications of these tsunami events in the context of New Zealand suggests that a large earthquake (magnitude 8.5 or higher) occurring on the South Solomon Trench east of the 2007 earthquake's epicentre would be capable of producing significant surges, strong currents in harbours, and inundation of low-lying areas along the west coast of New Zealand.

Scenarios such as this are included in an ongoing research project funded through New Zealand's Natural Hazards Research Platform that looks specifically at tsunami effects in New Zealand ports and harbours. This study is being conducted by eCoast in conjunction with Mulgor Consulting, GNS Science and the University of Auckland and is due to be completed in 2015.

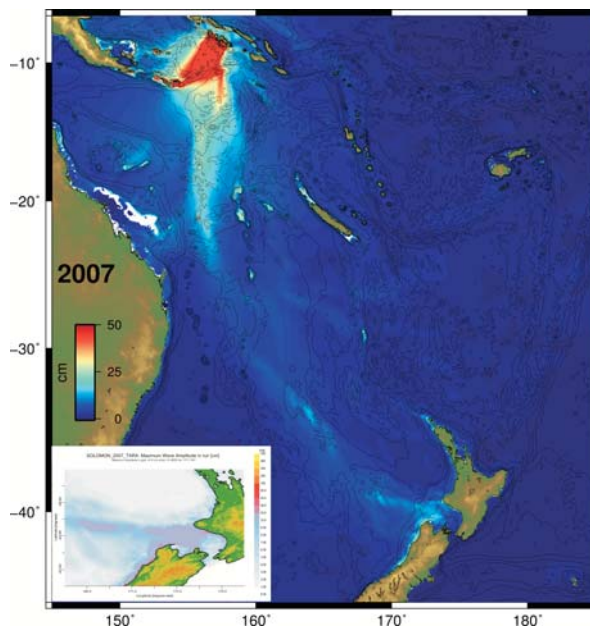


Figure 3: Maximum computed wave heights across the southwest Pacific and Tasman Sea resulting from the 1 April 2007 earthquake in the Solomon Islands. Inset map shows computed wave heights off the west coast of New Zealand (modelling done by Jose Borrero, eCoast Ltd).

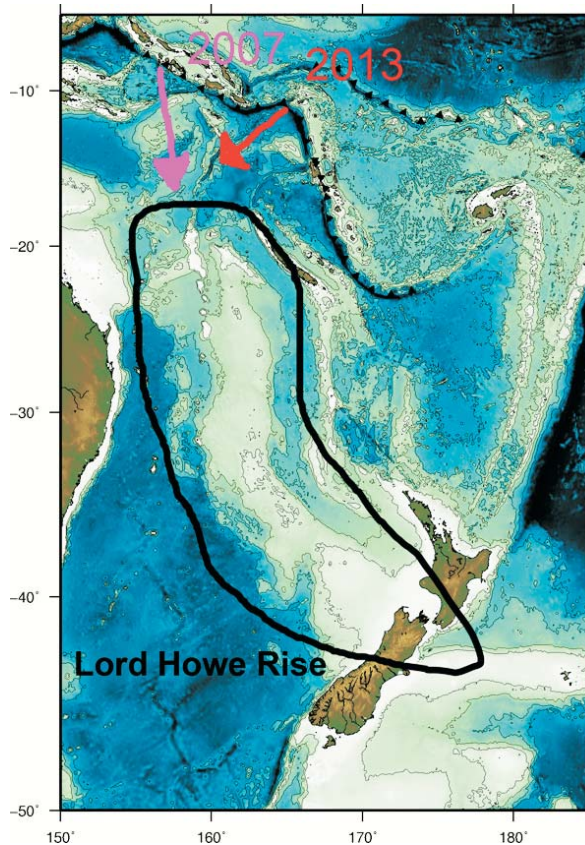


Figure 4: The bathymetry of the southwest Pacific and Tasman Sea showing the location of the 2007 and 2013 earthquakes relative to the Lord Howe Rise.

As Life Members John Duder, Terry Hume, and John Lumsden reminded us at the 20th annual conference:  
 “The cure for anything is salt water – sweat, tears, or the sea.”  
 – Isak Dinesen



# Fracking in a New Zealand Context

by Shelly Biswell, Editor

## Coastal News



Last November, the Parliamentary Commissioner for the Environment (PCE) Jan Wright released her interim report on the environmental impacts of fracking.

Most fracking in New Zealand has occurred in Taranaki, but oil and gas exploration in other regions, such as Hawke's Bay, have the potential to lead to additional fracking.

While many of the conclusions she came to through her investigations are "broadly consistent with the reviews of fracking that have been done elsewhere in the world ... that the environmental risks associated with fracking can be managed effectively provided, to quote the United Kingdom Royal Society, 'operational best practices are implemented and enforced through regulation'."

She notes, however, "at this stage I cannot be confident that operational best practices are actually being implemented and enforced in this country".

To address that concern, the PCE has undertaken a second phase to reviewing fracking with a focus on how well the environmental risks associated with fracking are being dealt with in New Zealand.

In the meantime, the PCE provided seven interim findings. Four of these findings are focused on oil and gas production:

- selection of drill sites;
- design and construction of the well;
- avoidance of spills and leaks on the surface; and
- disposing of waste.

She notes, "[A]ny one of these four managed poorly could lead to contaminants finding their way into groundwater" and adds, "when it comes to another major concern, the potential for triggering earthquakes, the same aspects of the process are critical".

She also has three interim findings about the current regulatory framework:

- oversight is complex and fragmented;
- regulation may be too light-handed; and
- a "social licence" to operate is yet to be earned.

Proponents on all sides of the issue commended the PCE for providing a "balanced and objective" interim report, but echoed her own declaration that her investigations are not complete.

As Dr Julie Rowland of the University of Auckland's School of Environment says, "I think the Commissioner touched on almost all aspects of the environmental effects of fracking that could be of interest to a broad range of stakeholders in the New Zealand context. The Commissioner presented facts, such as they are known, and, in the context of stakeholder concerns, drew what I think are reasonable conclusions."

But as Julie says, "The Commissioner concludes that 'the environmental risks associated with fracking can be managed effectively provided operational best practices are implemented and enforced through regulation. I am in complete agreement, but what is best practice?'"

Julie's interest and expertise centres on Interim Finding 1: selection of the well site.

"Regional and local-scale geological and geophysical studies to ascertain stratigraphy, structure and hydrology, particularly in the new target areas are crucial in site selection. This needs to include detailed studies of exhumed and subsurface fault zones, determining permeability structure, and comparing real observations of the geometry and permeability character of fault-fracture networks with models of subsurface structure determined from seismic reflection and constrained by often sparse drill-hole records of stratigraphy. Plenty of this type of work is undertaken elsewhere in the world, but it's still fledgling in New Zealand."

Julie cautions that an equally important area of knowledge that is not addressed in the PCE's report is the relationship between induced fluid pressure and fracture generation.

"This is at the heart of the fracking process. It is poorly understood, and it doesn't get a mention. Research that could inform this includes: identification of background seismicity in areas of future fracking potential (for example, the North Island's east coast), selecting appropriate case study areas, and deploying a high-resolution borehole seismic network capable of capturing microseismicity. This research is in everyone's interest – if we do not know the background level of seismicity at an appropriate range of magnitudes we cannot judge whether induced seismicity in a subsequent fracking development is out of scale."

The capabilities do exist in New Zealand. GNS Science, University of Auckland including the Institute of Earth Science and Engineering, Victoria University Wellington, University of Canterbury, and Otago University, to name just a few, have capabilities for conducting quality research that could inform best practice in fracking.

Julie adds, "We are always learning. If we didn't drive cars until we invent one that doesn't impact adversely on the environment we wouldn't get anywhere. We are already fracking. I concur with the Commissioner that there is no need for a moratorium. However, we need to develop our concept of 'best practice' and ensure that it is continually informed by research. I look forward to the final report, which I hope will expand on this point."

To view the full report visit: [www.pce.parliament.nz](http://www.pce.parliament.nz).



## Aquaculture Planning Fund – 2013/2014 round now open

The Ministry for Primary Industries' 2013/14 funding round for the Aquaculture Planning Fund is now open. The fund has been set up to support regional councils with the costs of coastal planning for aquaculture in accordance with the Resource Management Act 1991 (RMA) and Policy 8 of the New Zealand Coastal Policy Statement 2010.

The fund supports improvements to regional coastal plans that deal with the allocation of space, creation of zones for new consent applications, provisions for new species, provisions dealing with environmental impacts, research on information and advice that supports decision-making and improves re-consenting provisions and processes.



Photo: Phil Kirk, MPI.

All applications are assessed by an independent panel which then recommends which applications should be funded and which applications should not. The Ministry for Primary Industries then makes a decision on the panel's recommendations. Following this decision, the ministry will enter into a contract with all successful applicants for the delivery of the projects.

Deadline for applications is 4.00 pm on 19 April 2013. Visit the [www.fish.govt.nz](http://www.fish.govt.nz) website's Commercial – Aquaculture section to download the application form and guidelines.

## Operation Patiki

The final survey in the year-long Operation Patiki survey of the Clive River was carried out late in 2012. The survey was the idea of Tom McGuire from Kohupatiki Marae who wanted to better understand the existing population of patiki or black flounder in the river.

"We are very pleased with the science and outcome of the surveys, and will write up our data shortly. In 2013, we plan to do a comparison on the Tukituki or the Tutaekuri rivers which may have better habitats for patiki," he says.

For the final survey, nets were set in the evening on the Clive River (which local marae still refer to as the Ngaruroro as it is the former or tawhito bed of that river) to survey the endemic flatfish that is

primarily found in coastal freshwater lakes. The nets were lifted early the following morning and data collected on the fish which were then tagged and released. Hawke's Bay Regional Council scientists Adam Uytendaal and Oliver Wade took part with the Operation Patiki team of Tom McGuire, Ani McGuire and Tawhana Chadwick. Three primary students from Flaxmere Primary School joined the team – Jack and Jesse Thomson and Ibanez Hau.

"Hastings Intermediate wants to get some of their students involved in the survey in 2013," says Tom.

The surveys have combined the Maturanga Maori traditional knowledge of fishing by the moon with science methodology of observation and data collection.

The project has the support of Nga Kaitiaki o te Awa a Ngaruroro, Hawke's Bay District Health Board, Hawke's Bay Regional Council, Ministry for Primary Industries, Fish & Game Hawke's Bay, Department of Conservation, Nga Whenua Rahui, Ngati Kahungunu Iwi Incorporated, Guardians of Hawke Bay Fisheries, and others.



Operation Patiki bringing in flounder nets.

## West Coast Marine Reserves a step closer

Minister of Conservation Nick Smith has approved five marine reserves totalling 17,500 hectares on the West Coast. The Department of Conservation publicly notified the new marine reserves in 2012 after they were agreed to by the West Coast Marine Forum. A total of 159 submissions were received on the proposals – 155 in favour with four objections.

Per the Marine Reserves Act, the Minister of Conservation's decision to proceed means the process now goes to the final stage of seeking the concurrence of the Minister of Primary Industries and the Minister of Transport to enable the reserves to be surveyed and gazetted later this year.



# Word from the Chair

by Deirdre Hart

Coastal  
News



Welcome to the first *Coastal News* of 2013, and potentially one of the few remaining years when we officially call our time Holocene. Whether or not we now inhabit the Anthropocene, we are living in a country where swimming at our ocean and riverside beaches is

becoming an increasingly hazardous recreation option (and I'm not talking sharks), albeit one that is 10 times more popular than heading for the bush-clad interior. The 48% Pure debate that raged this summer strikes at the core of the "mountains to sea" philosophy the NZCS logo is based on, along with our stated vision of "*sustainable management of New Zealand's coastal and marine environment underpinned by sound science, engineering and policy practice, comprehensive monitoring, involved communities and effective national networks*".

Pre-summer, evidence from a number of excellent member presentations, plenaries and Life Member reflection pieces at the 20th annual conference in Auckland last year clearly pointed to the need in New Zealand for a strong, active and engaged Coastal Society. Life members John Duder, John Lumsden and Terry Hume summarised the feelings of many when they challenged NZCS and its members, over the next 20 years, to engage more with iwi, and with New Zealand communities outside of our technical group membership; to upskill in and debate coastal best practice; and to capitalise on in-house people, resources and expertise.

In tune with this call to action, the NZCS executive committee announced the 2013 launch of several planned new initiatives, including the Coastal Champion Awards, the Professional Development Award, and the new NZCS financial structure designed to support ongoing NZCS functions and new member initiatives. By the end of the conference, a renewed focus on best practice and a pilot NZCS coastal professional mentoring scheme had been added to the wish list.

## Coastal champions

This year opened with our first NZCS Coastal Champion Award nomination round. Three inspiring and positive role models have been recognised. Regional champions are: Waikato's Barry Turk and Bay of Plenty's Pim de Monchy. This year's national champion is Canterbury's Bill Southward. I have to admit that reading the nomination letters and learning about these outstanding coastal "Good Sorts" has been a memorable highlight amongst my years of involvement with NZCS. For a dose of

coastal feel good and motivation vitamins, I recommend you read their stories in this issue.

## New initiatives

Around mid-year, applications will close for the Professional Development Award, which will offer significant financial support to successful NZCS member applicants to pursue coastal learning or up-skilling opportunities with demonstrable potential to contribute to the vision of NZCS. Keep a look out for application forms in the Digest and on the new-look NZCS website, which is due to appear in place of our old and slightly tired version within the next two months.

Later in the year, the NZCS committee will get down to the detailed planning of the proposed coastal mentor programme, which we hope to begin at the annual conference in November. If you have particular background or skills in mentoring, or wish to participate in the pilot as a mentor or mentee, email me at [deirdre.hart@canterbury.ac.nz](mailto:deirdre.hart@canterbury.ac.nz).

## 21<sup>st</sup> annual conference

Planning is well underway for the 21<sup>st</sup> annual conference in Hokitika, 20 to 22 November 2013, with a central theme, "The Coast: Rough around the Edges". A very experienced and dynamic conference committee, chaired by the Department of Conservation's Don Neale, is drafting plans for a mixed event of invited plenaries, submitted oral presentations and mini poster talks, and two in-depth participatory workshops examining issues such as current trends and best practices in coastal monitoring. Watch the Digest for more details, including information on the spectacular field-trips (coast-to-coast across the South Island, from Hokitika north to Punakaiki, and south to the glaciers) and on the beach-front accommodation and venues.

## Executive committee update

Last but not least, you have hard-working, diverse and experienced teams of professionals representing your interests on the NZCS executive committee and publications team this year. At our meeting in February, we discussed the NZCS Strategic Plan, which will be overhauled in 2013. We also discussed the need for committee succession planning. I have agreed to chair the society for a third year and am very pleased to announce that the hugely capable Rick Liefing from Tonkin & Taylor, current NZCS Deputy Chair and IPENZ liaison, is willing to step into the role in 2014.

If you are interested in getting more involved with NZCS in any capacity, please don't hesitate to contact any of the committee members.



# Coastal Explorer Maps Coastal Sensitivity for New Zealand

by Terry Hume, Nigel Goodhue, Helen Rouse, Doug Ramsay, Rob Bell, and Murray Hicks of NIWA

Coastal sensitivity to future climate change has been mapped for the New Zealand coast and can be viewed online via the Coastal Explorer web tool <http://wrenz.niwa.co.nz/webmodel/coastal>.

Coastal Vulnerability Index (CVI) and Coastal Sensitivity Index (CSI) systems have been developed as a method for characterising the relative vulnerability of coasts to hazards. In hazards and disaster management, vulnerability is the extent to which communities and environmental systems are predisposed to being adversely affected by hazards and climate change. Because the index shown in Coastal Explorer only displays the physical (and not the social and economic) variables of coastal inundation and coastal erosion, it is termed a sensitivity index.

Coastal Explorer is a GIS-based database of classifications for the New Zealand coast. Coastal Explorer currently has directories called Coast, Estuary, Tides-Surge-Waves, and Sensitivity Index. This web tool allows you to explore layers of coastal information as maps, data and images, which show different physical environments along the coast, with descriptions of how they work and their associated hazards. The CSI allows you to map the relative sensitivity of open coast soft shores to inundation (coastal flooding from the sea) and coastal change (erosion and accretion) in response to climate change.

The CSI is mapped as coloured line segments around the New Zealand coast. Each of the 1800-

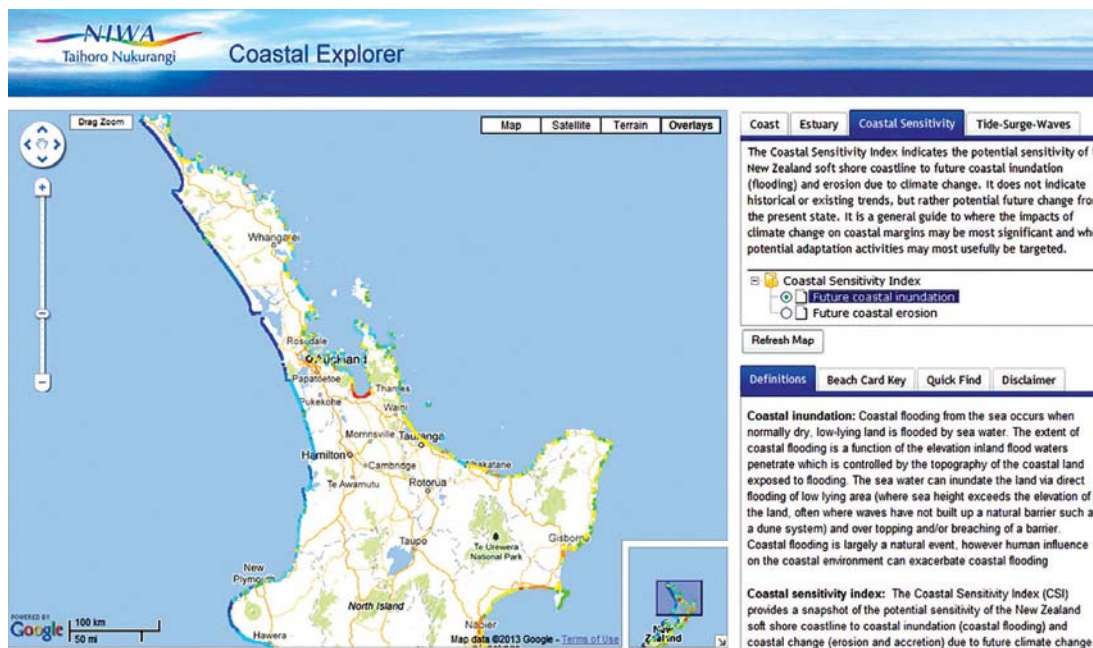
line segments corresponds to a unique combination of geomorphic (landform) and oceanographic attributes that reflect that part of the coast's sensitivity to future climate change. In Coastal Explorer this is shown as a band of changing colour around the coast. The colours graduate through blue, green, yellow and red: where blue indicates lower; yellow indicates moderate; and red indicates higher sensitivity to coastal inundation and erosion. The information can be overlaid on Google maps, satellite images, or terrain.

Although care has been taken to ensure the CSI information is as correct and accurate as possible, it is limited by the scale of the mapping and certain assumptions. Its application should be limited to providing a high-level scoping and comparison of the relative sensitivity to climate change of one part of the coast to another.

There is a full description of the CSI and how it was developed and limitations on its use, on the New Zealand coast website: [www.niwa.co.nz/coasts-and-oceans/nz-coast/coastal-explorer/sensitivity-index](http://www.niwa.co.nz/coasts-and-oceans/nz-coast/coastal-explorer/sensitivity-index).

The CSI was developed as part of the Coastal Adaptation to Climate Change project. This four-year project, funded by the Ministry of Business, Innovation and Employment (MBIE contract C01X0802) was intended to create the necessary information and tools to enable adaptation by central and local government and communities to the impacts of climate-induced change on the coastal environment.

Coastal News



NIWA's web tool Coastal Explorer provides information about New Zealand's shoreline and beaches.

# Marine Metre Squared

## Developing community tools for marine monitoring

During Seaweek, Marine Metre Squared ([www.mm2.net.nz](http://www.mm2.net.nz)) was launched to encourage individuals and communities to get involved in monitoring the marine environment. Developed by the New Zealand Marine Studies Centre, the data collected through the programme will allow communities to assess changes to their local shoreline and encourage stewardship and restoration projects.

The programme's interactive website allows participants to upload, map, and graph their data for comparison over time, between regions and between species. The initiative will focus on the



Otago Boys' High School students conducting a seashore survey. Photo: NZ Marine Studies Centre.

rocky shore environment in 2013 and will be extended to the intertidal habitats of the surf beach and estuary/mudflat in 2014.

The programme has been designed to provide meaningful, valid environmental baseline data across the whole of New Zealand. There are two ways to get involved in the programme.

- 1) Marine Metre Squared – for individuals, families, and community groups who commit to monitoring a one metre by one metre square patch of their local rocky shore once every season by recording the animals and plants that live there.
- 2) The NZ Seashore Survey – for secondary schools as part of an environmental science project that supports the intent of the revised New Zealand Curriculum and assessment for NCEA Biology.

Marine Metre Squared was developed by the New Zealand Marine Studies Centre, University of Otago. The programme has an advisory board made up of marine scientists, educators, teachers, conservationists, and local council representatives to provide technical expertise and guidance. The programme is supported by the Ministry for the Environment Community Environment Fund.

## Coastal News



## NZCS Regional Coordinators

Every region has a NZCS Regional Coordinator who is available to help you with any queries about NZCS activities or coastal issues in your local area.

### North Island

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## NZCS Mission Statement

The NZCS was inaugurated in 1992 "to promote and advance sustainable management of the coastal environment." It provides a forum for those with a genuine interest in the coastal zone to communicate amongst themselves and with the public. The society currently has over 400 members, including representatives from a wide range of coastal science, engineering and planning disciplines, employed in the engineering industry; local, regional and central government; research centres; and universities.

Applications for membership should be sent to NZCS Administrator  
Renee Foster (email: [nzcoastalsociety@gmail.com](mailto:nzcoastalsociety@gmail.com)).



# News from the Regions

## Northland Region

Michael Day and André Labonté, Regional Coordinators

### Tutukaka Harbour declared clear of marine nasties

by Michael Day, Northland Regional Council

A multi-agency dive team has declared Tutukaka Harbour pest free at the end of a five-day dive survey in Tutukaka Harbour checking for six of the worst marine pest threats identified by the Ministry for Primary Industries (MPI).

Northland Regional Council led the search with assistance from the Department of Conservation (DOC) and the National Institute of Water and Atmospheric Research (NIWA).

A similar search of the area in 2010, led by MPI, had not located any serious unwanted organisms; however, the regional council believed it was an environmentally high-value location which warranted repeating the survey.

As well as hunting for Mediterranean fanworm, which had been discovered in Whangarei Harbour in 2012, the search also checked for Asian clam, Caulerpa seaweed, Chinese mitten crab, European shore crab and Northern Pacific seastar. The team also looked for any other unusual or unknown marine species.

The survey covered the area from the marina out to the Tutukaka headland. The dive team spent a day searching the marina while other parts of the harbour were surveyed using crab traps and a benthic sledge. Overall, the results were pleasing.

Irene Middleton, one of the regional council's biosecurity officers, reported that the divers found one vessel had recently arrived with fanworm on

its hull. Finding this vessel prompted divers to investigate five other vessel hulls that had recently arrived – all were declared clear.

No other major marine pests were discovered and it appears previous work done by the regional council, DOC and NIWA to remove the sea squirt *Styela clava* from Tutukaka Harbour in 2008 was also successful with only one very unhealthy individual being found on this survey.

Irene says, "The early work to remove *Styela clava* has paid off and we are not seeing any further colonisation by the species. However, both the sea squirt and Mediterranean fanworm can be spread on vessel hulls and there is need for vessel owners to make sure their hulls are clean and regularly antifouled – this is critical if we are going to stop the spread of marine pests throughout Northland."

The survey team would be interested to hear from anyone who has seen any unwanted or unknown marine species in the area and assistance can be given to help identify and, if need be, to respond to any unwanted marine species.

For more information about marine pests, pest animals or plants contact the Northland Regional Council on 0800 002 004 and ask to speak to a biosecurity officer or visit [www.nrc.govt.nz/nasties](http://www.nrc.govt.nz/nasties).

## Auckland Region

Hugh Leersnyder, Regional Coordinator

### Plan for Tamaki Drive

The Orakei Local Board recently signed off on a 30-year vision for the Tamaki Drive area. Led by the board, the plan was developed with the support of local residents, business people and interest groups, Ngati Whatua o Orakei, and Auckland Council.

The purpose of the master plan is to consider issues facing Tamaki Drive in an integrated manner. As the plan notes in its introduction, previously, much of the planning for the area had been made on an ad-hoc basis.

"Historically in the absence of a clear planning framework, decisions have been made which compromise the quality of the place and lead to uncoordinated planning and design outcomes."

TĀMAKI DRIVE - A PLACE FOR PEOPLE  
A MASTERPLAN FOR THE FUTURE  
ORAKEI LOCAL BOARD  
December 2012



Cover of the Tamaki Drive Master Plan.

Coastal  
News



NRC worked with DOC and NIWA to conduct a survey of Tutukaka Harbour in late February. Photo: NRC.



A number of priority projects have been identified in the plan, subject to funding, to be implemented over the next five years. The projects include:

- providing more space for recreation and leisure along Tamaki Drive, including a new widened seawall promenade with opportunities to the water in key locations;
- improving quality of environment in local centres and seaside villages, including developing a 10-year parking plan for the area;
- providing a range of ways to get people to and around Tamaki Drive, including piloting the use of shuttle bus routes;
- consolidating events in key open spaces; and
- recognising the special status of Whenua Rangatirea, including supporting the implementation of the Orakei Catchment Ecological Restoration Plan.

It is proposed that the implementation of the master plan will be monitored and reviewed on an annual basis.

Submissions on the master plan as part of the Draft Auckland Plan closed on 25 February, but feedback as part of the Unitary Plan will be accepted from 15 March.

To view the master plan, visit the Orakei Local Board web pages on [www.aucklandcouncil.govt.nz](http://www.aucklandcouncil.govt.nz).

### **Multipurpose vessel joins Auckland Harbourmaster's fleet**

A new multipurpose vessel, which joins the Harbourmaster fleet in June this year, will boost capacity and be equipped to deal with significant oil spills. In addition to any oil spill emergency response work, the vessel will be used for regular maintenance tasks and support requests for assistance from, for example, the Police dive squad.

Mick Courtneil, Maritime Pollution Response Coordinator, says following involvement in the *Rena* clean-up, the team reviewed risks and options for a similar scenario in Auckland.

"Increasing marine traffic comes with many risks. In January alone, 19 million litres of fuel was transferred between ships and trucks in the harbour.

"Given the harbour is used increasingly for commerce and recreation, the new vessel will strengthen our capacity to be able to respond to any emergency."

The vessel is one of several initiatives to safeguard Auckland's harbours and coastlines from environmental risks. Electronic Virtual Aids to Navigation have been installed on hazards such as submerged reefs on approaches to Auckland to improve safe passage in and out of the region.

Additionally, new oil-recovery equipment has been provided by Maritime New Zealand to recover oil from water surfaces. The equipment is the first of its kind in New Zealand and is designed to be compatible with two harbourmaster vessels. Increased storage for surface oil clean-up has also been added.

There are 40 specially trained personnel from Auckland Council and Ports of Auckland, who are able to respond in the event of an oil spill, and work closely with Maritime New Zealand. In addition to regular exercises on the harbour, a practice scenario is planned this month, where emergency response services will complete a desktop exercise for a chemical spill to ensure their emergency response is robust.

### **Waikato Region**

*Christin Atchinson, Regional Coordinator*

#### **Hauraki Gulf Marine Spatial Plan**

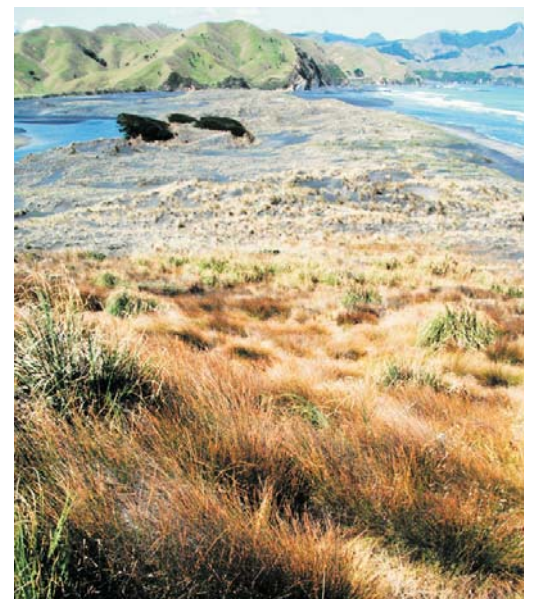
This is a joint-agency project involving Waikato Regional Council, Auckland Council, Department of Conservation, Ministry for Primary Industries and iwi. The Hauraki Gulf-wide spatial plan will be developed using a largely stakeholder driven process. It is anticipated that the project will take several years and cover many aspects of current and future use of the Hauraki, including impacts from the land. The spatial plan will be a strategic document and will be implemented through, for example, statutory plans and rule changes.

Currently data is being gathered or updated in anticipation of this project. Information being collected includes mapping surf breaks, areas used by birds, rocky reefs, coastline and low-tide lines, substrate types and bathymetry.

#### **Marokopa Beachcare**

Marokopa Beachcare was formed in 1998 in response to the damage being caused to the dune system on the Marokopa Spit from recreational users.

The spit is Maori land, but had become a hot spot for motorbike riders and a range of other recreational activities that were having a significant impact on the dune vegetation, biodiversity, and cultural values of the area. With the dune vegetation lost, the dunes lowered, and on a number of occasions the spit was overtopped by large waves that threatened to flood the township.



*Marokopa Spit. Photo: Waikato Regional Council.*





Marokopa Beachcare planting day. Photo: Waikato Regional Council.

Since the group's inception, they have restored the dune system along the length of the spit which is over 1 km long and up to 300 m wide in areas. This work has led to an increased dune height of up to 10 m and significantly reduced the risk to the township of coastal flooding.

Significant cultural values have also been protected and restored, with urupa (ancient burial grounds) that were being exposed by wind erosion now well protected by the restored dune system. The cultural resource of pingao (a threatened endemic dune plant highly valued by Maori as a weaving resource) has also been returned to the area.

The local marae is currently establishing a weaving programme that will incorporate the tikanga, or cultural practice, associated with the pingao resource by planting seedlings they have raised at the same time as harvesting the fibre from the older plants. The sustainable harvesting techniques developed by the Dune Restoration Trust of New Zealand are also being used to minimise any impact on the resource. It is hoped that this process could become a model for other coastal marae to follow and will help bring this endemic plant back from its current "gradual decline" status.

### East Coast Tsunami Strategy

The Waikato Regional Council and the Thames-Coromandel District Council have been jointly managing a project called the East Coast Tsunami Strategy since 2006 – the aim of which is to mitigate the risk to life and property in the face of a tsunami. Ongoing public education and engagement is an important aspect of this project.

To guide the location and timing of the strategy, the project team evaluated the likely risks to various communities along the east Coromandel coast. Factors which guided the rankings included aspects such as population, low-lying areas, infrastructure and access to high ground. Six communities were highlighted to be most at risk and have been prioritised for risk-management work.

To date, the main focus has been on Whitianga, due largely to the increased risk from the bathymetry of Mercury Bay. As this project nears completion, however, the team is beginning to work with the Tairua and Pauanui communities. The team's first priority is to develop in collaboration, emergency

plans which allow for the safe and timely evacuation of a community. Long-term planning strategies will be the next step, which aim to ensure critical building and infrastructure assets are located away from high-risk tsunami zones.

Overall, the community projects aim to build greater community resilience in the face of uncertainty.

For further information regarding the East Coast Tsunami Strategy, contact Adam Munro at Waikato Regional Council on 0800 800 401 or at adam.munro@waikatoregion.govt.nz.

### Bay of Plenty Region

Sharon De Luca and Mark Ivamy, Regional Coordinators

#### Rena – next steps

Bay of Plenty Regional Council's Chief Executive Mary-Anne Macleod has confirmed that any decision to leave the remaining structure of *Rena* on Astrolabe Reef will require a full resource consent process.

"Under the provisions of the regional council's coastal plan, a resource consent is required for any structure to occupy the seabed. A full and robust statutory process would be followed in accordance with the requirements of the Resource Management Act."

No consent application has yet been made, but recent announcements about the fate of the remaining *Rena* structure have raised questions about the process that would be followed if the owners applied for a consent to leave the wreck and any debris on the reef.

Any consent application for leaving the structure on the reef would be publicly notified, and she adds that the regional council would engage "the best available scientific and technical advice to ensure an informed decision could be made".

#### Managing shipping movements

The Bay of Plenty is further investigating options for managing shipping movements in Bay of Plenty waters. This announcement follows a report to the council's Strategy, Policy and Planning Committee Meeting in late February, where it was decided more work was needed to explore all options available to the council. The use of compulsory shipping lanes in the region has been a discussion topic for the council since the *Rena* grounding in October 2011.

As part of investigating options, council staff have been asked to work with Maritime New Zealand and the Ministry of Transport to ensure the council is taking an overarching view of the issue, especially where there may be implications broader than just the Bay of Plenty.

Currently the regional council has some responsibility for navigation safety within the region's waters, which extend to 12 nautical miles offshore. These responsibilities fall under the Bay of Plenty Navigation Safety Bylaws 2010 and include specific navigation requirements for vessels entering the Tauranga and





Whakatane harbours. The bylaws enable the council to establish exclusion zones, but do not include the establishment of compulsory shipping lanes.

**Hawke’s Bay Regional Council**

*Neil Daykin, Regional Coordinator*

**New HAWQi buoy to improve coastal water information**

In December, the Hawke’s Bay Regional Council (HBRC) placed a permanent coastal monitoring buoy offshore of Whirinaki.

Known as HAWQi – Hawke’s Bay Water Quality Information – the buoy will provide baseline data on water quality, wind speed, wind direction, barometric pressure and temperature. It also communicates any changes to HBRC such as moving position or losing power.

HBRC Coastal Scientist Anna Madarasz-Smith says, “The data from the buoy increases our extensive climate network out to sea for the first time and will be as useful to fishermen wanting to check conditions before going on a fishing trip, as it will be to our long-term environmental monitoring programmes.”

The location of the buoy was carefully selected by HBRC scientists as it is away from wastewater outfalls, trawling areas, and shipping lanes and is a recreational fishing area so its data will have a wider use. After testing is completed, data from the buoy will be available on the council’s website ([www.hbrc.govt.nz](http://www.hbrc.govt.nz)).

The buoy was designed and built by Cawthron Institute in Nelson in collaboration with the California-based Monterey Bay Aquarium Research Institute (MBARI). The buoy is only the second of its type in New Zealand coastal waters, the first, known as the TASCAM, was placed in Tasman waters in 2011.

“The buoy will be a great help in increasing our understanding of the currents, water quality and other sea conditions in this popular part of the bay,” says Anna.

HAWQi was craned onto the fishing trawler *Nancy Glen* at West Quay, which took it out to sea and located it offshore of Tangoio. The buoy is secured to a one-tonne anchoring block with a three-quarter tonne anchoring chain.



*New HAWQi buoy. Photo: Hawke’s Bay Regional Council.*

**Clifton Motor Camp – Update**

Rapid erosion of the shoreline in front of Clifton Motor Camp following removal of an old, failing and non-consented seawall in November 2009 now seriously threatens the viability of this popular holiday camp. Note that this shoreline was eroding prior to the seawall removal.



*Rapid erosion of the shoreline in front of Clifton Motor Camp following removal of an old, failing and non-consented seawall in November 2009. Photos (top to bottom): Prior to November 2009; August 2012; prior to November 2009; January 2013 (note loss of row of trees and caravans visible in previous photo).*



## Wellington Region

Iain Dawe, Regional Coordinator

### “Only rain down the drain” education campaign kicks off

In late February, 200 street drains in Tawa and Churton Park received “Only rain down the drain” labels on them to remind people that only rain is supposed to go into the stormwater system. Local Rotarians, students from Tawa School, and a number of Wellington regional councillors helped glue the signs to the drains. The signs were placed along main streets, near schools and other community facilities.

The \$2000 educational campaign was run by the Porirua Harbour and Catchment Community Trust and funded by Wellington City Council. The labels were installed as part of the Porirua Harbour Strategy. The strategy aims to address pollution and degradation, and help restore the health of Porirua Harbour. There are about 1200 street drains in the Porirua Stream catchment (some 800 in Tawa and about 400 in Churton Park). It is intended that more of the labels will be installed on drains in the catchment and ultimately on more of the 12,000 drains across Wellington City.

## Otago Region

Mike Hilton, Regional Coordinator

### Spate of yellow-eyed penguin deaths devastating

by Andrea Crawford, Department of Conservation

The tally of dead yellow-eyed penguins seems to have stopped as Department of Conservation (DOC) staff, scientists and volunteers search for clues. As of 25 February, 60 yellow-eyed penguins had died on Otago Peninsula. In the last two weeks of February, only two were found compared to 56 dead penguins found between 21 January and 12 February.

DOC's Biodiversity Programme Manager David Agnew says with a population of about 450 breeding pairs on the Otago coast, and 181 breeding pairs on Otago Peninsula and surrounds, the deaths will have a significant effect on this endangered bird and it will take some breeding sites many years to recover.

“Although, on most of the beaches where guided tours operate, people will not notice any impact,” he adds.

The dead adult penguins, along with several dead juveniles and chicks, were found at 13 of the 15 breeding sites on the peninsula during routine end-of-season chick monitoring in late January and early February. Further discoveries by members of the public prompted extra searches at the sites to ensure as many dead penguins were collected as possible and sent to the Wildbase team at Massey University for post mortem.

The post-mortem results have been inconclusive, with all birds being in good condition which rules out food shortages. Additionally, toxicology results



Orphaned yellow-eyed penguin chicks being cared for by Penguin Place on Otago Peninsula.

Photo: DOC.

(of three birds) from the Cawthron Institute have come back negative for all toxins tested. The results, however, remain inconclusive. Further virology testing is being carried out by Ministry for Primary Industries, but there is no evidence from gross pathology to support the deaths being caused by avian malaria or other infectious diseases. Marine scientists took water and phytoplankton samples in late February and may widen the testing for other biotoxins. The deaths have similarities to an event in 1990 when 150 breeding yellow-eyed penguin adults were found dead. It is assumed this was caused by a marine biotoxin, but this was never confirmed.

Another blow is that the deaths have left many chicks without parents to feed them. Staff at Penguin Place are currently feeding orphaned chicks, along with weakened juveniles and adults. Thanks to a fish donation from a Bluff fishing company costs to the centre have been kept down. The penguins are being cared for at the centre until they are a healthy weight, ready to fledge, and can be released back into the wild (some have already been released). DOC is currently developing contingency plans for managing the situation if the deaths continue, but staff are hoping the crisis has passed with the return of cooler weather.

### Regional Coordinator Update

We would like to thank outgoing regional coordinators Reuben Fraser and Amy Robinson for their time and effort as regional representatives. Fortunately for NZCS, neither of them will be going far. Amy will continue to serve on the management committee and Reuben will still be involved at the regional level.

At the same time, we are pleased to welcome new coordinators: Christin Atchinson (Waikato), Sharon de Luca and Mark Ivamy (Bay of Plenty), and Nick Ward (Southland).

We encourage you to contact your regional coordinator if you have suggestions for events, or would like to be more involved with NZCS in your region. Or feel free to contact Hugh Leersnyder ([hugh.leersnyder@beca.com](mailto:hugh.leersnyder@beca.com)) for more information about NZCS in the regions.

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# NZCS Conference 2013

20 to 22 November – Hokitika

## The Coast: Rough around the Edges

This year, the NZCS conference will be held in the South Island's scenic and wild West Coast. Join us for three days that will include informative presentations, field-trips, round-table discussions, and in-depth workshops.

The conference organising committee is currently developing themes for this year's conference and will put out a call for

papers shortly, so check the Digest in the coming weeks for updates.

If you have a suggestion for the conference or would like to be involved in organising it, contact Don Neale at [dneale@doc.govt.nz](mailto:dneale@doc.govt.nz).

If your organisation is interested in sponsoring the conference, contact Graeme Jenner at [graeme.jenner@beca.com](mailto:graeme.jenner@beca.com).

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



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