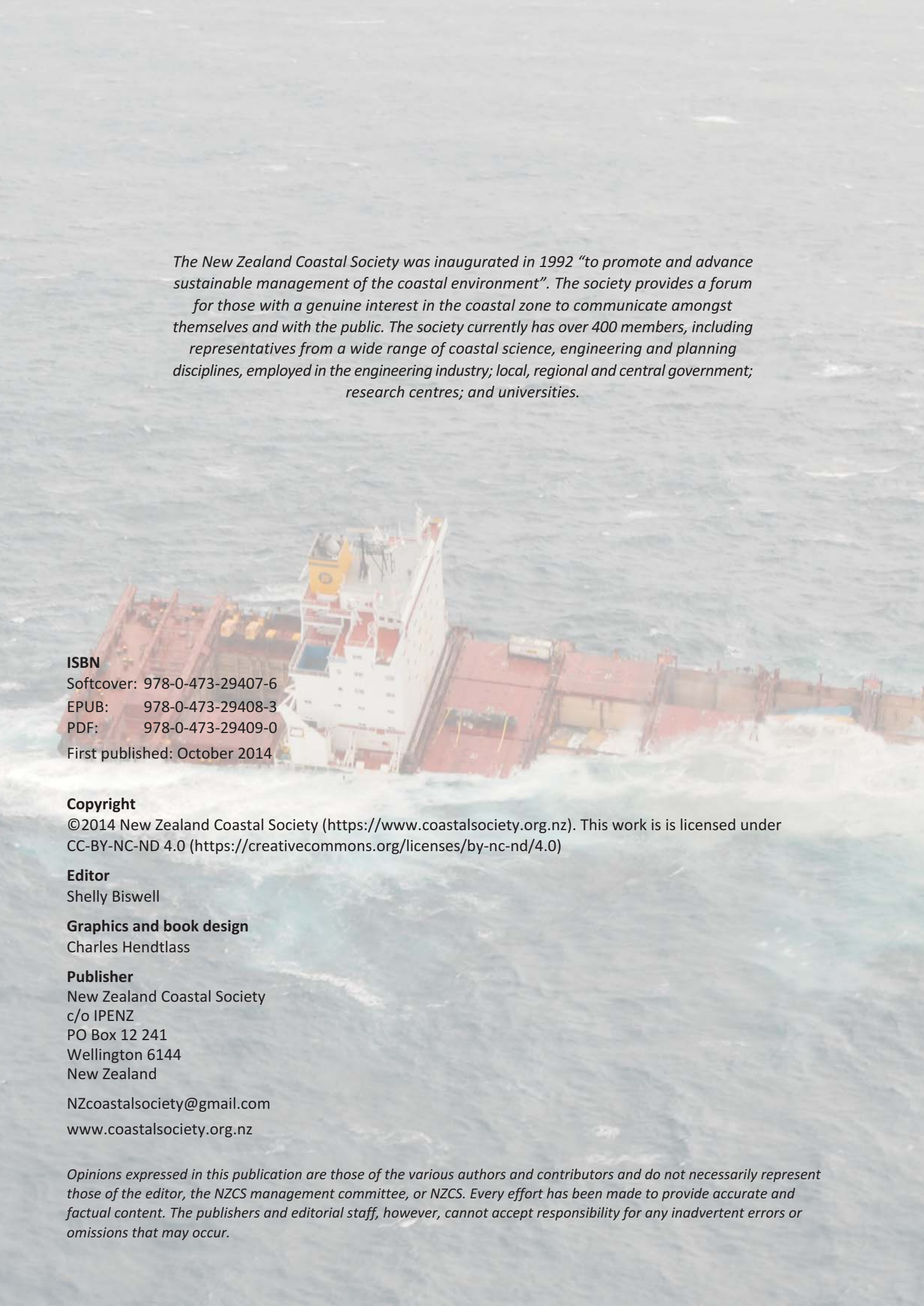




Rena: Lessons Learned

October 2014



The New Zealand Coastal Society was inaugurated in 1992 “to promote and advance sustainable management of the coastal environment”. The society provides a forum for those with a genuine interest in the coastal zone to communicate amongst themselves and with the public. The society currently 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.

ISBN

Softcover: 978-0-473-29407-6

EPUB: 978-0-473-29408-3

PDF: 978-0-473-29409-0

First published: October 2014

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Foreword

By Rick Liewing, NZCS Chair

At 2.20 am on 5 October 2011 the 37,000-tonne cargo ship MV *Rena* grounded on Astrolabe Reef in the Bay of Plenty. When it grounded, the *Rena* had 1368 containers and over 1700 tonnes of oil on board. Following the incident, Maritime New Zealand declared a Tier 3 response and mobilised the National Response Team.

Since the first hours of the *Rena*'s grounding, New Zealand Coastal Society (NZCS) members have been involved in nearly every aspect of the response, recovery and environmental monitoring work programme – from serving on the National Response Team, to providing technical support following the wreck, to leading much of the environmental monitoring work, to organising thousands of volunteers as part of the clean-up efforts.

The NZCS committee would like to acknowledge the commitment of members and others who have been involved in this work. As you will read in the following pages, one of the strengths of the recovery effort, as noted by independent reviewer Simon Murdoch in his report, was that overall the National Response Team was a strong and effective team that worked closely with the local community. This ability to work together as a multidisciplinary team is to be commended and is the cornerstone of effective coastal planning and management.

As part of our work to promote and advance knowledge and understanding of the coastal zone, in this publication we discuss some of the lessons learnt through the response and recovery process. We also include a thorough discussion by Marianne Mackintosh and Bevan Marten on the legal implications of the *Rena*.

This publication is meant to complement the growing knowledge base on oil responses in New Zealand, including the *Independent Review of Maritime New Zealand's Response* by independent reviewer Simon Murdoch and the *Rena Environmental Recovery Monitoring Programme 2011-2013* report that were both released 3 December 2013.

The findings of the *Rena Environmental Recovery Monitoring Programme*, which was led by NZCS member and University of Waikato Professor Chris Battershill, are encouraging in that there appear to be few long-lasting impacts on Bay of Plenty maritime habitats. However, it's crucial that we learn from this incident to ensure we are well prepared in case of future events.

The NZCS will continue to promote discussions on this topic and support an evidence-based approach in planning and preparing for oil responses.



The Rena eight days after grounding on the Astrolabe Reef. Photo: New Zealand Defence Force (released under Creative Commons 2.0 licence, <https://creativecommons.org/licenses/by/2.0/>).

Rena – an update

By Shelly Biswell, Editor

To date salvors have recovered over three-quarters of the containers and much of the fuel and oils from the *Rena*, with the exception of about one tonne that remains as clingage on the wreck.

The bow section has been cut down so that it's approximately one metre below lowest astronomical tide. The top levels of the ship's accommodation block (down to D deck) have also been removed. Several sections of the vessel still lie on the Astrolabe Reef, however, and a debris field surrounds the wreckage area.

The Astrolabe Community Trust was formed by the *Rena*'s owner (Daina Shipping Co) and insurer (The Swedish Club). Following a consultation process, the trust has lodged an application to leave the remains of the wreck on the Astrolabe Reef. Consent is being sought to leave:

- the reduced bow section, which is now in several pieces;
- the aft section, including what remains of the accommodation block, engine and machinery rooms, as well as degraded containers of cargo that remain within the holds; and
- the debris field following further clearance which will focus on removing, where practicable, plastic beads, TCCA canisters, aluminium ingots, other inorganic material, and entanglement and other diver hazards to a depth of LAT -30 m.

A discharge consent is also being sought for any future release of contaminants from the remaining parts of the wreck and cargo.

The consents are sought for a 10-year period and will be subject to conditions that include:

- an environmental monitoring programme, including sampling and testing sediments and marine species at the reef and surrounding area;
- monitoring of the condition of the wreck over time and after major storms;
- monitoring and reporting on the cultural effects through a Kaitiakitanga Reference Group, to be made up of representatives from Motiti Island, Maketu and Tauranga Moana iwi;
- a Wreck Access Plan to educate and inform visitors to the reef;
- a Shoreline Debris Management Plan to respond to and recover any debris from the *Rena* that washes up on the shoreline; and
- restoration and mitigation measures for the communities of the Bay of Plenty to address adverse effects of leaving the wreck.

The application was publicly notified on 13 June 2014. Once the submission period closed, the applicant exercised the option to make a request to the Bay of Plenty Regional Council that the application be referred to the Environment Court to be determined as opposed to being determined by the Regional Council Hearing Panel. On 5 September 2014, the Bay of Plenty Regional Council announced that the council had decided to refer the application for resource consent to the Environment Court.

Rena Recovery Plan project continues on reduced scale

By Bruce Fraser, *Rena Recovery Manager*

The \$2.4m government-funded *Rena* Recovery Plan project is now in its third and final year. The environmental monitoring programme was completed and reported on in early December 2013. The basic conclusions were that, although the environment has not recovered fully to its pre-*Rena* state, fears that the oil would have long-lasting and negative impacts on beaches, reefs and fisheries "can for the most part be put to rest".

The vessel owner, Bay of Plenty Regional Council and the University of Waikato are continuing to monitor the impacts on the Bay of Plenty environment.

NIWA completed its surveys of Tauranga Harbour, Mauao area, Otaiti (Astrolabe Reef) and Motiti and concluded that none of the invasive organisms brought in by vessels to help with the response have been found.

The three major ongoing projects include the wildlife work, a mauri assessment and a Maturanga project. The Department of Conservation is contracted to monitor threatened species and support community groups in their efforts to restore habitat for species like penguins and dotterels.

Ngāti Makino Heritage Trust is undertaking two important pieces of work: the first is an assessment of the mauri of the Maketu area. This aligns strongly with the goal of the Recovery Plan and the work is mostly completed. The second is the application of a traditional Māori ecological approach to the western science reports to see where common areas or differences might exist. This work is due for completion in April 2015.

The Governance Group met in March 2014 to monitor and overview the project, but won't now meet again until the end of the project in June 2015 unless required.

Similarly the Steering Group, which provides more direct overview of the implementation, met in June 2014 and won't reconvene until June 2015. Project and financial management of the project is continuing, but on a reduced scale as the work winds down to its scheduled completion at the end of June 2015.

This article appeared in the Rena Recovery newsletter, Issue 18, September 2014. The newsletter is available at www.renarecovery.org.nz.

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The *Rena* response

By Sophie Hazelhurst



Photo: NZDF.

In the early hours of 5 October 2011, the 236-metre cargo ship *Rena* ran aground on the Astrolabe Reef, 12 nautical miles off Tauranga.

The 21-year-old Liberian-flagged vessel was travelling at around 17 knots when it struck, leaving its bow section wedged hard on the reef, and its stern section afloat.

There were no injuries to the 25 crew on board, but the damage to the ship was severe – two of its cargo holds were flooded and pieces of the hull had been ripped off by the reef.

Rena was carrying 1368 containers and 1733 tonnes of heavy fuel oil (HFO) at the time of grounding.

Maritime New Zealand (MNZ) was informed of the grounding shortly after impact and quickly launched a response to the unfolding maritime emergency. While no oil had been detected leaking from the vessel at this stage, a Tier 3, or national level, oil spill response was activated, due to the potential for a major spill.

Oil spill responders from MNZ and around the country began travelling to Tauranga within hours of the grounding, congregating at the first incident command centre, established at the Bay of Plenty Regional Council buildings.

At first light on 5 October, aerial observations of the stricken vessel found only a light sheen of diesel around the ship. However, just before midnight, the captain contacted the National On-Scene Commander and confirmed a leak had been detected.

While this initial leak was minimal, bad weather on 11 October resulted in the loss of an estimated 350 tonnes of oil from *Rena* and the loss of 86 containers overboard. Much of this oil reached the shores of the Bay of Plenty and Motiti

and Matakana islands. More containers and smaller amounts of oil were washed into the sea from the vessel during periods of bad weather over the following months.

The salvage company Svitzer was appointed by the vessel's owners and insurers on 6 October. Svitzer's team of salvors began working around the clock to secure the vessel and make preparations for the complex task of pumping the heavy fuel oil off. Pumping began on 9 October, and continued until 15 November, when salvors declared all of the accessible oil removed. Svitzer remained as salvor until June 2012 when the last of the accessible containers was removed from the ship.

The US salvage company Resolve Fire and Salvage was appointed in August 2012 to undertake wreck removal and recover material from the seabed around the reef.

Specialist container recovery company Braemar Howells was engaged by the vessel's owners to recover and process all containers and cargo onshore.

New Zealand's oil spill response system

New Zealand's oil response capability is maintained through partnerships between MNZ, regional councils, the oil industry, and overseas agencies.

The response system is made up of three tiers. Those responsible for each tier are required to prepare contingency plans and a response capability to manage their respective levels of responsibility. A Tier 1 spill is one that can be handled at the spill site by the ship or onshore/offshore oil transfer site responsible for the spill. Tier 2 spills are managed by regional councils and can range from a few litres of oil spilt off a vessel through to relatively large spills that are still manageable with the resources held at a regional level. Tier 3, or spills requiring a nationally coordinated response,

are the least common and are managed by MNZ, with assistance from overseas if required.

The system is designed to allow spill responses to be escalated to the next tier as and when required.

MNZ is responsible for training all oil spill response personnel and runs a training programme ensuring all regions in New Zealand have enough trained personnel to respond to Tier 2 spill responses in their area. These trained personnel form a pool of around 400 responders that MNZ can call upon in the event of a Tier 3 spill. Most of these people work in regional councils, MNZ's key partners in oil spill response.

MNZ also maintains a National Response Team (NRT) of around 50 specialist responders, again primarily from regional councils, whose role it is to lead the various sections (logistics, planning, operations) of an oil spill response. While a large-scale spill response will require many more people than this, it is intended that the 50 NRT members will lead the Tier 3 oil spill response team, while the 400 trained responders will provide the backbone of the wider response.

The National Oiled Wildlife Response Team is led by a team from Massey University, under contract to MNZ. This team leads a network of veterinarians, specialists and volunteers from around the country who are trained in oiled wildlife response.

How the response worked

The response to the *Rena* grounding was declared a Tier 3 oil spill response early on 5 October. Around 30 responders were in the incident command centre (ICC) by the evening of 5 October, with many more arriving that night and the next day. These responders were primarily made up of Bay of Plenty Regional Council staff and NRT members.

These initial responders were just the first representatives of what would wind up a mammoth response involving personnel from a wide range of central and local government agencies, volunteers and oil spill response professionals from throughout New Zealand and the world.

At the height of the response, around 200 people were working in the ICC, with many hundreds more on beaches cleaning oil and collecting wildlife.



A New Zealand Defence Force team cleans oil off a beach.
Photo: MNZ.

Within a few days, the majority of MNZ's staff were either based in Tauranga or providing back-up support to the frontline team from Wellington, in advisory, administrative and liaison roles. Many of these roles transferred to Tauranga as the incident command centre grew.

Regional councils from around the country provided staff on rotation to populate the logistics, planning, operation, media and administrative teams within the ICC. The Bay of Plenty Regional Council, along with Tauranga City Council and Western Bay of Plenty District Council all provided personnel, while the NZ Defence Force made hundreds of people available for beach clean-up work.

The National Oiled Wildlife Response Team set up an extensive wildlife facility for treating oiled birds and worked closely with the Department of Conservation and volunteers who assisted in locating and collecting affected wildlife, both alive and dead.

Things that went well, not so well and lessons for the future

While the response from MNZ was immediate and comprehensive, one aspect that could have been better was the organisation's engagement with the local community. MNZ's initial communications effort was focused on media, rather than those living and working in the Bay of Plenty community, many of whom were unaware of the extensive work being done "behind the scenes" to protect and clean their coastline.

In the face of rising community anger, and about a week after *Rena* ran aground, MNZ hosted a series of public meetings, to explain what was happening and to listen to the public's concern. The clear message from the Bay of Plenty community was that these were their beaches and they wanted to help clean them up.

A Volunteer Engagement Team was formed, and Operation Beach Clean was developed to harness the volunteer energy effectively, positively and safely. Health and safety of responders was paramount and all volunteers were issued with protective gear and provided with clear briefings and supervision.

The response from the public surpassed all expectations, with volunteers registering on the team website at an average of four per minute over the first few days. In total, around 8000 volunteers registered with the response, contributing 18,360 hours of work.

Regular communication was an important component of the programme. Daily text, website and email messages ensured people always knew what was happening. Regular updates allowed volunteers to make decisions about how and where they could participate.

For MNZ, this was the first time volunteers had been used in beach-cleaning operations. The success of the programme, both in terms of oiled waste collected and the goodwill it created with the local community, means engaging volunteer support, where possible, will now be a key part of any future Tier 3 oil spill response.

The Director of MNZ, Keith Manch, says it had been a valuable lesson for the organisation.

"What MNZ saw at those public meetings was a community



Salvors on board *Rena* to remove accessible containers.
Photo: MNZ.

experiencing real grief at the sight of their oiled beaches and struggling wildlife. The volunteers who worked on the *Rena* response not only made a very tangible and important contribution to the overall clean-up effort but the feedback we received was that in volunteering, they were able to gain something positive out of the experience.

“What we have taken from this is the lesson that we need to have the systems and plans in place to ensure we are ready to work with volunteers and do that as safely and effectively as possible in any future Tier 3 response.”

Manch says the organisation has also learned a valuable lesson about community engagement.

“We realised at those community meetings that we needed to get out and talk to people as directly as possible, as early as possible.

“The community meetings began on around Day 5 of the response – ideally we should have been having these meetings from about Day 2. We had been focused on getting information on our website and through the media, but the people of the Bay of Plenty wanted the chance to see us in person and ask questions and really get to grips with what was going on. Once they had the opportunity to do that, most people were relatively happy.

“For some people, it was important they had an ongoing line of communication with the response team – whether that was via regular meetings, or email, or phone calls. The community meetings enabled us to identify these sorts of ongoing requirements from different sectors of the community. The lesson for us was to ensure we get in front of the community as early as practicable in any future Tier 3 event.”

One of the success stories of the response was the wildlife response, which has been hailed by international wildlife experts as one of the best they have seen. The National Oiled Wildlife Response Team collected and treated hundreds of oiled birds, including more than 375 little blue penguins. Details of where each bird had been caught had to be recorded so they could be released into the same area. The team also preemptively caught and cared for 60 rare New Zealand dotterels to prevent them becoming oiled.

Manch says one of the features of New Zealand’s oil spill response system is that the wildlife response is integrated into the wider response.

“In some countries any wildlife response is coordinated and managed entirely separately from the oil spill response team. This can potentially cause difficulties as the two teams try and work together during a response with no knowledge of how the other team works, or their requirements.

“In New Zealand, the wildlife team works with our oil spill response team in all aspects of the planning and training for oil spill responses, meaning when we had to put our plans into action, the two teams were able to integrate really easily. We were really pleased with how this played out during the *Rena* response.”

Rena review

An independent review of MNZ’s response to the *Rena* grounding was conducted by former Secretary of Foreign Affairs and Trade, Simon Murdoch.

The review was reported to the Chair of MNZ, the Chief Executive of the Ministry of Transport and the Director of MNZ. The report was released on 3 December 2013.

Keith Manch says the review was comprehensive.

“The review looked at all aspects of the *Rena* response with a view to finding improvements that can be made to our planning and preparedness. The *Rena* response was unprecedented in its scale and complexity and therefore we would expect a number of recommendations or observations that will assist us in ensuring we are better prepared in the future.”

He says MNZ and its support agencies had contributed to the review process with different sections of the response team holding debriefs and workshops to ensure all lessons from the *Rena* experience were captured.

“As a response agency, it is important to have a culture of debriefing and taking lessons from the incidents we are involved with.

“We have done a lot of work looking at our response to the *Rena* grounding to ensure we learn from it and our preparedness has already been improved as a result. The review has provided us with a set of recommendations or observations that are now informing our planning, training and development.”

That work has already included:

- improving interagency information-sharing and reporting on maritime response activity
- undertaking a comprehensive review of the National Response Team (NRT) – a group of trained oil spill responders from around the country who form the core response team for a Tier 3 oil spill incident

- appointing an exercise leader and additional technical support staff at MNZ's Maritime Pollution Response Service
- reviewing MNZ's internal international support arrangements for oil spill response – both government and specialist commercial support
- developing additional specialist support arrangements in areas such as well control and hazardous and noxious substances
- working with the Department of Conservation to create a memorandum of understanding to develop a wider response policy framework to address non-oil pollution and natural resource protection in its marine jurisdiction and coastline
- reviewing the wildlife response contract to ensure better integration of this area of the response into the NRT
- undertaking training for MNZ staff on the International Oil Pollution Compensation Fund and International Tanker Owners Pollution Federation to improve understanding of how financial claims for oil pollution incidents should be compiled.

MNZ is currently reviewing the national Oil Spill Response Strategy. It is also reviewing its purchasing system to improve financial management during the peak of a response.

Ongoing commitment

Keith Manch says it is important to remember that the *Rena* response is still underway in the Bay of Plenty.

"Some clearance continues on the debris field and there are still decisions to be made, in accordance with appropriate legal requirements, on how far that operation has to go.

"There is a monitoring programme led by the Bay of Plenty Regional Council examining the long-term impacts of the oil and all the clean-up efforts – this includes ongoing monitoring of the treated wildlife that were released back into the environment.

"There are still occasional reports of small amounts of oil resurfacing in the sand – the regional council is dealing with these now, but it really emphasises the point that for an event of this scale, it is a marathon not a sprint."

The *Independent Review of Maritime New Zealand's Response to the MV Rena Incident on 5 October 2011* report is available on MNZ's *Rena* response page at:

www.maritimenz.govt.nz/Environmental/Responding-to-spills-and-pollution/Past-spillresponses/Rena-response.asp.

Sophie Hazelhurst is a Senior Media Advisor at Maritime New Zealand.



Bow of the Rena wedged on the Astrolabe Reef. Photo: MNZ.

Modelling an oil spill

by Shelly Biswell



Photo: MNZ.

Shortly after the *Rena* grounded, Maritime New Zealand (MNZ) declared a Tier 3 response and mobilised the National Response Team. Over the coming hours, days and weeks, as the team ascertained the loss of oil from the vessel, Brett Beamsley and a group of scientists from MetOcean Solutions modelled the oil spill trajectory in an official capacity for the National Response Team.

“Dispersion modelling can be a useful tool to determine how and where oil will spread,” says Beamsley. “For predictive purposes it requires accurate metocean forecast data, including wind and current data at a suitable spatial and temporal resolution, to predict the fate of the oil within the receiving environment. Particle tracking using these data allows transport pathways to be determined, irrespective of the quantity of oil released. With enough information on the chemical composition of the oil and the receiving environment, weathering of released oil can be simulated.”

While MNZ maintains and operates an oil spill trajectory model; during the *Rena* event an Emergency Response Interface developed by MetOcean Solutions, as part of the work they undertake for the offshore oil and gas industry in New Zealand, was used to serve high-resolution wind and current data fields that helped to predict the fate of oil released from the *Rena*. The atmospheric model Weather Research and Forecast (WRF) was used to provide wind guidance, while an implementation of the Princeton Ocean Model (POM) at the Bay of Plenty scale, nested within a New Zealand domain, was used to provide current fields.

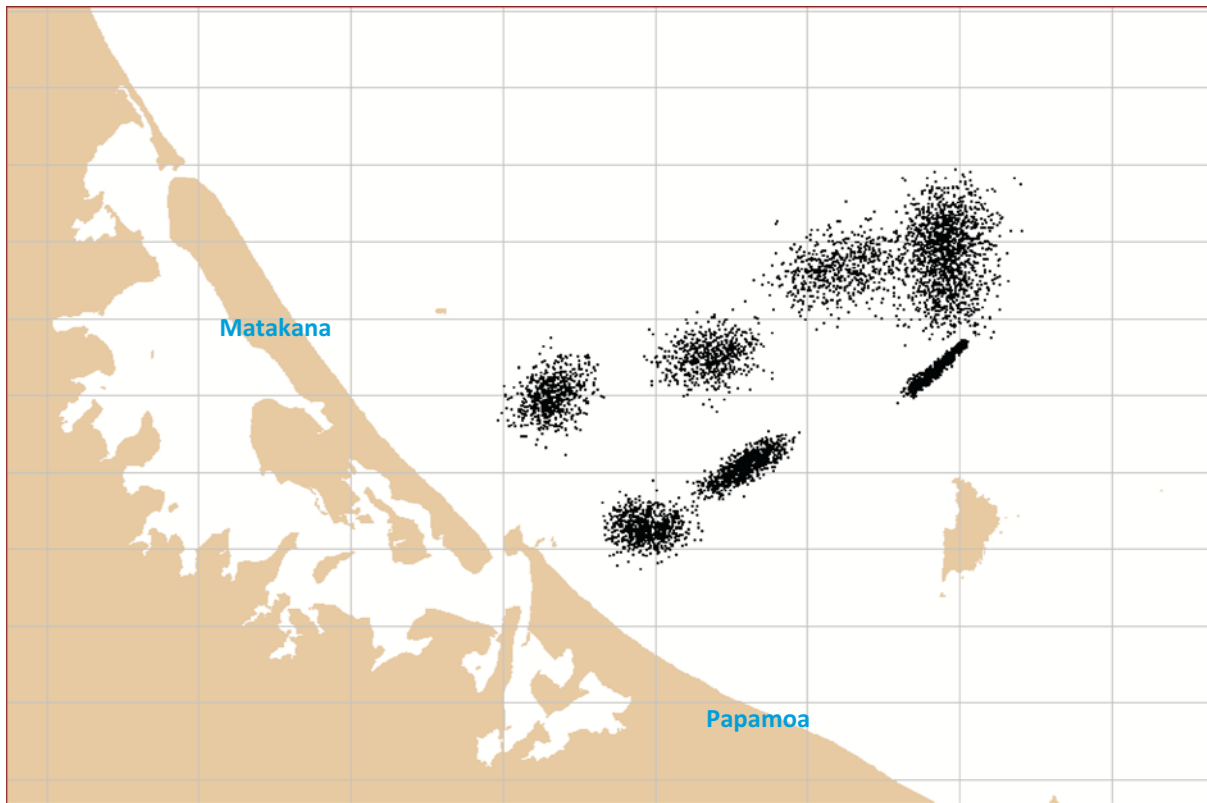
The same numerical models, in conjunction with a Bay of Plenty SWAN wave model domain, were used to provide accurate site-specific marine forecasts for the salvage operators both over the timeframe of the initial response and during subsequent salvage operations.

The trajectory of the oil was predicted using an industry standard oil trajectory model called GNOME (General NOAA Operational Modelling Environment), which is a freely available oil trajectory model developed by the US National Oceanic and Atmospheric Administration (NOAA); as used during the 2010 Gulf of Mexico oil spill. GNOME predicts how winds, currents and diffusion might move and spread oil within a receiving environment using well-defined numerical equations.

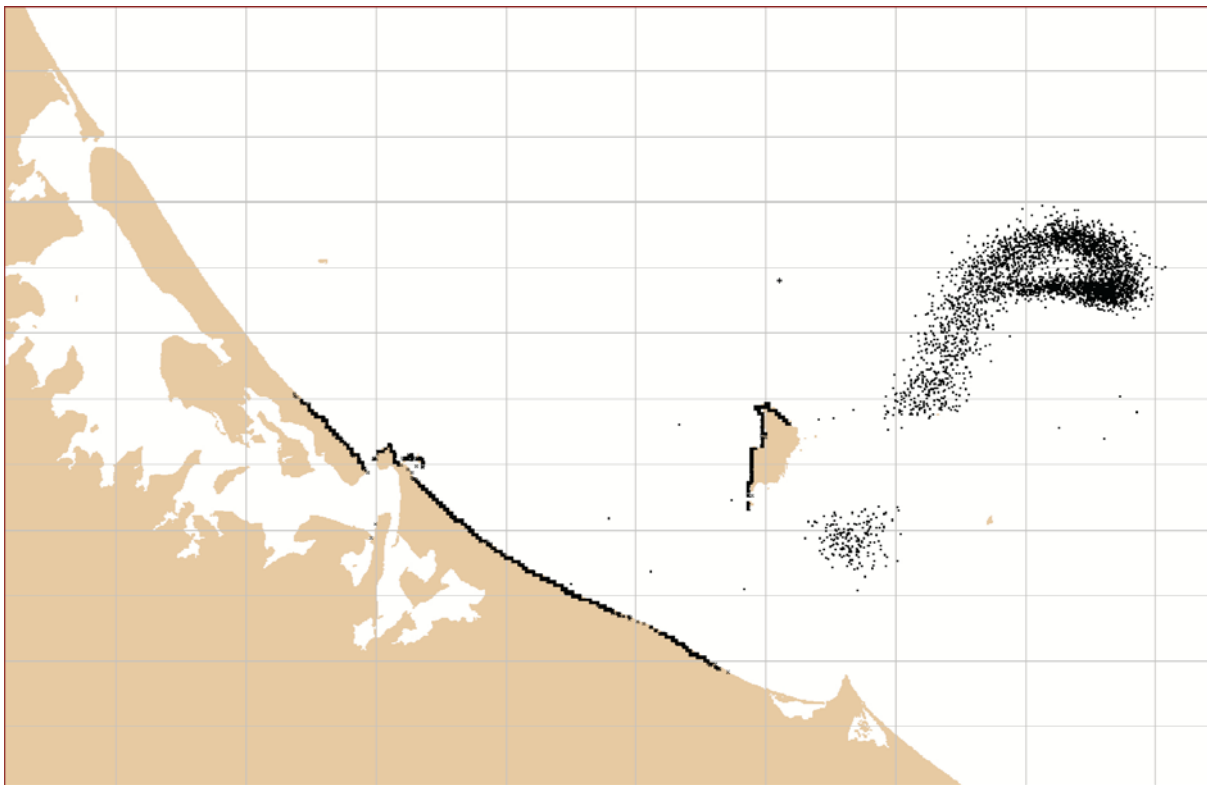
The key to providing good guidance on the potential fate of a spill is the underlying metocean data (winds and currents) – accurate predictions of oil spill trajectories cannot be made without accurate forecast data at a suitable temporal and spatial resolution. The “spin-up” time for getting these types of numerical models up and running with appropriate bathymetry and boundary conditions means that from an emergency response perspective, it is necessary that the models providing these data are operationalised and running before an event occurs.

Currently there is no national directive to have these higher resolution model data available at a New Zealand scale, and we as a country rely on relatively coarse global datasets which do not always accurately characterise the wind and current fields around New Zealand’s complex coastline. However, this capacity exists within private companies and organisations within New Zealand.

While the GNOME model can take into account basic weathering of the spilled product, actual weathering will be highly specific to the chemical composition of the oil and dependant on the physical environment of the receiving water, such as water temperature and wave actions. During events such as the *Rena*, while it might be important from a public relations perspective to convey released volume



During the initial stages of the event, oil was being released around each low tide, so simulations of a staggered release were undertaken. As the weather worsened the release became constant. The above image shows the individual spills from each low tide and the beginning of the constant release of oil moving within a high-resolution spatially and temporally variable wind and current field, simulated by the GNOME model. Credit: MetOcean Solutions.



As the event continued, oil began to be transported offshore. In the above screen grab from GNOME the highest concentrations of oil are seen to extend from the southern end of Matakana through to Maketu, with Papamoa experiencing the greatest beaching, while oil still to be beached begins to move offshore. Credit: MetOcean Solutions.



Expected oil coverage, zoomed in on the Papamoa/Mount/Matakana area overlain on top of an aerial image. Oil was also expected to enter Tauranga Harbour and beaches at specific areas. This was verified by field observations. Credit: MetOcean Solutions.

and weathering information, neither of these impact the actual transport pathways of the spilled oil or where the oil is likely to beach, and hence where to send first responders. In fact, during emergency events such as the *Rena* it is unlikely that exact released volumes, let alone actual chemical composition and therefore weathering characteristics of the spilled oil will be known.

During the *Rena* event, the first oil arrived on Mt Maunganui Beach on the morning of 10 October and by midday there were long lines of stranded oil. Later that evening, there were reports of oil reaching as far south as Papamoa. Feedback from onsite responders suggest that the predicted timing and location for the beaching of the plume was highly accurate and provided respondents with confidence both in the oil trajectory model predictions and in the response management teams decisions. As the event unfolded and

the oil plume was tracked further afield, scientists back at the MetOcean offices were able to operationalise the three-dimensional baroclinic model Regional Ocean Modelling System (ROMS).

“Each model has its strengths, so analysing the results of several models helps to create a more accurate picture, especially as baroclinic currents became more important in determining the oil transport pathways. As time went on, we were able to determine which modelling package was most reliable in a given situation,” Beamsley says.

MetOcean now runs both forecast ROMS and POM operationally within New Zealand and at various locations around the world.

Lessons learned

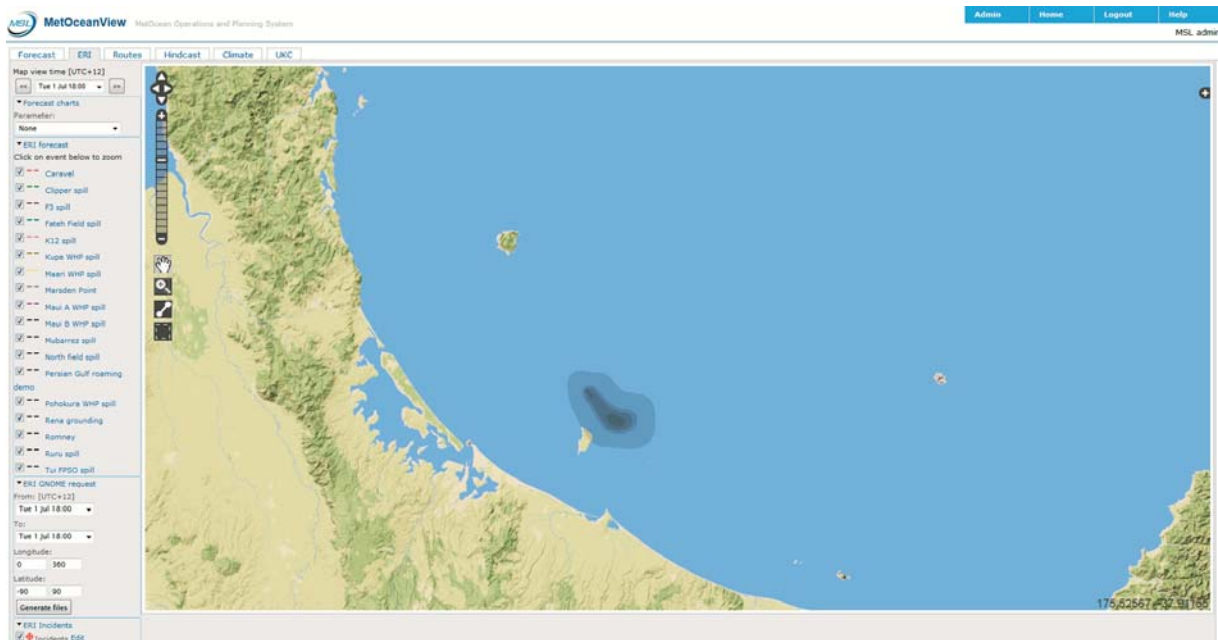
Beamsley says one of the positive lessons learned from the *Rena* grounding is that the National Response Team approach works. “We went from about 20 to 25 people on the team in the first 48 hours to about 200 team members. That transition was extremely well organised and focused. A key aspect to a response like that is the ability to prioritise and I think that’s something the team leaders did extremely well.”

He adds that to be effective and sustainable, a response requires a coordinated effort beyond just the assigned National Response Team. “They were pulling in experts from around the country and the world for the response. While I might have been at the front of the modelling work, for example, there was an extremely competent and dedicated team behind the scenes.”

One of the other lessons learned is that the approach to modelling needs to be nationally coordinated. “At a national level, we’re still relying on global data for much of the country’s response modelling. We need to move to more accurate high-resolution data to respond to these types of incidents,” Beamsley says.



The tanker Awanui operating near the stricken cargo vessel Rena, 10 October 2011. Photo: MNZ.



One of the lessons learned during the *Rena* event was that global datasets are not high enough resolution to accurately forecast the trajectory of objects/oil near the New Zealand coast. While MetOcean Solutions have (and had at the time of the *Rena* event) forecast metocean data for emergency response for commercial clients, there is no national directive to have these datasets available. Above is the interface available to clients, with the ability to download the metocean data in GNOME format for immediate digestion into the model. MetOcean now operates a system that continually simulates oil spills from all major offshore installations around New Zealand, updated four times daily; so that if an event does occur the predicted trajectories are immediately available to their clients without having to engage specific modelling. This enables the streamlining of incident response. Credit: MetOcean Solutions.

Developing new applications

In 2013, MetOcean, Cawthron Institute and the Ministry for Primary Industries (MPI) joined together to develop an application within a GIS platform to allow scientists and researchers with minimal numerical modelling experience to create simulations. Beyond oil spills, the project will benefit New Zealand's biosecurity work.

The application is based on a continuous 10-year hindcast of the ocean currents around New Zealand, including all the major ports and harbours.

"By creating a long-term database which includes a range of climatic signals, we can undertake multi-year simulations of trajectory that provide robust statistics on things like connectivity and seasonality," MetOcean's Dr David Johnson said when the collaborative project was announced.

Beamsley says projects like this are an indirect result of the *Rena* event, which helped raise national awareness about the benefits of modelling. "Accurate modelling allows people to make much better decisions – both in prevention and responses. Since the *Rena*, I think there's been a greater public awareness about the need to incorporate modelling into resource management and planning work."



Oil washing up on the shoreline of Tauranga, 12 October 2011. Photo: Mark Alen.

Operation Beach Clean – volunteers, communities and lessons learned

by Kathy Ombler



When Rena's oil washed up onto the Western Bay of Plenty beaches, troops of volunteers advanced to clean it off. Such was their success; the result of impassioned community effort mixed with multi-agency logistical organisation, Maritime New Zealand (MNZ) is now developing national guidelines to manage volunteer response for future incidents, based on the Rena example. Writer Kathy Ombler reports.

First the facts. "Operation Beach Clean", the volunteer response to *Rena's* oil spill, cleaned about 350 tonnes of oiled sand from the beaches of the Bay of Plenty. Just four weeks after the call for volunteers, access restrictions to most beaches were lifted.

The operation involved a staggering 8000 registered volunteers, offers of labour from 40 corporate and community groups, 57 voluntary caterers, vehicles and equipment loaned from several companies and a total 24,000 hours of volunteer effort. The massive organisational logistics to achieve all this were coordinated by a Volunteer Engagement Team set up by Bruce Fraser who was contracted by MNZ. Pim de Monchy from the Bay of Plenty Regional Council (BOPRC) was part of the initial team and stepped into the Volunteer Coordinator role in late October 2011, with Bruce Fraser continuing to serve in the role on weekends so that there was full coverage. They worked closely with the *Rena* Incident Command Centre (ICC), marine pollution experts, health and safety officials, the New Zealand Defence Force, tangata whenua and community groups.

Typical of the volunteers were Papamoa residents, mother and daughter, Gwen and Kate Ombler (who are related to writer). They spent hours on their knees, crawling along the sand, shoulder to shoulder with fellow helpers, in search of

beads of poisonous oil that kept arriving once the major spill had been cleared.

"Little bits kept on washing up and needed to be removed otherwise people walked on them and they were toxic and would end up everywhere. We were given all the protective gear; gloves and overalls, so we wouldn't come into direct contact with the oil," says Gwen Ombler.

"The couple crawling next to us had driven from Auckland. We were all motivated by the wish to preserve our gorgeous beach and lifestyle. The beach is a big part of many people's everyday lives, for some their livelihoods, and they were angry about what happened and wanted to do something. It was a real community response."

It didn't start out so well, however.

Gwen Ombler recalls the initial frustration of locals who wanted to get cleaning immediately, but were told to stay off the beaches and wait for the official response to be organised. In retrospect, she realises how the right safeguards needed to be in place to deal with such toxic oil.

Volunteer Coordinator Pim de Monchy understands the frustration. "The most valuable lesson for agencies coming into disaster areas is to learn about the local context and tap into existing community networks and resources rather than automatically imposing authoritarian top-down models."

Meeting community demands

Initially, the Marine Pollution Response Service and Defence Force were planning the beach clean-up. However, in response to public frustration and anger after being told to stay off the beaches, de Monchy says feedback was sought through a series of community meetings. "The message

from the public was clear: These are our beaches and we will help to look after them.” Thus the Volunteer Engagement Team was formed and Operation Beach Clean established to harness the volunteer energy effectively, positively and safely.

“We went from public frustration to high levels of engagement within a week,” says Bruce Fraser.

Volunteer numbers swelled (website registrations averaged four per minute in the first few days) and the programme became one of the prime clean-up strategies. Trained oil spill responders provided instruction and protective equipment, while systems were put in place to manage the safe and appropriate disposal of oily waste.

As the effort progressed, Pim de Monchy says the Volunteer Engagement Team always came back to asking three questions: “Can we do this safely? Can we do this effectively? Will this have a positive outcome, both social and environmental?”

Communicating information

If community inclusion was the first lesson learned in the *Rena* response, communication was the second, says Bruce Fraser. “The importance of good quality, two-way information, listening, providing information and keeping the volunteers informed was paramount.”



Volunteers cleaning Papamoa Beach in the 100th volunteer clean-up operation post *Rena*. Photo: MNZ.



Small particles of oil removed from the beach during the clean-up. Photo: MNZ.



Volunteer Coordinator Pim de Monchy. Photo: BOPRC.

A BOPRC report on the *Rena* Volunteer Programme noted that keeping people informed regularly and frequently was one of two elements that contributed most strongly to public buy-in to the programme.

MNZ, which also reviewed the *Rena* response, confirmed that regular communication was a critical part of the volunteer programme. “Daily text, website and email messages ensured people knew what was happening. Regular updates allowed volunteers to make decisions about how, when and where they could participate.”

According to an online survey of registered volunteers, completed by Waikato University and Bay of Plenty Polytechnic social researchers, email and text messaging were their preferred means of communication.

Counting on good systems

Effective organisation of so many volunteers, a mix of local individuals, groups and concerned people arriving from further afield, called for good systems, says Fraser. “Ensuring that our team roles, systems and processes were clearly defined and implemented was high on the list of important things we learned.”

The BOPRC report stated that good beach site supervisors, using consistent approaches, meant volunteer time was used effectively. “These people needed to be selected carefully and provided with basic training in the expectations and methods used.”

Not surprisingly, the report recommends a strong focus on systems for managing future incidents. Suggestions include setting up a volunteer coordination programme at the same time as other functions are established within the ICC and forming a volunteer team encompassing coordinator, operations, communications, corporate offers and volunteers. Including that team in the daily ICC planning meetings would ensure that clean-up areas are prioritised and allocated to contractors for difficult or hazardous areas with volunteers working on less hazardous sections of the beaches, the report added.

Seeking valuable knowledge and input from local groups was also recommended for future incidents. Surf lifesaving personnel, for example, provided critical support, resources and information, while organisations such as Sustainable Coastlines and Conservation Volunteers New Zealand were important contributors to the *Rena* programme, says Fraser.

A flexible approach

While systems needed to be robust, learning to adopt a flexible approach was also key, says Fraser. “Flexibility enabled us to incorporate and support various options, for example our formal beach clean-ups, iwi-led clean-ups and local neighbourhood clean-ups.”

Systems also needed to be able to respond to changing situations, according to the BOPRC report. “The success of the volunteer programme was largely due to the flexibility and agility of the operations, which contrasted to some extent with the very prescriptive and less flexible overall oil-spill response plan,” he says.

The report added that listening to community and volunteer feedback and making changes when needed meant the programme could be both flexible and meet community needs.

Developing national guidelines

Looking ahead, the report also notes strategies to prepare for future oil spills anywhere in New Zealand. These include establishing a national oil spill volunteer database, employing those critical to the *Rena* volunteer programme as advisors and helpers for future incidents, and appointing people with volunteer coordination skills within national and regional oil spill response teams.

In fact, MNZ has since engaged Bruce Fraser to develop national guidelines for volunteers and engagement with local communities, taking into account lessons learned from the *Rena*. This follows a recommendation from independent reviewer of the *Rena* incident, Simon Murdoch, that MNZ establish systems and practices to enable the managed engagement of volunteers from affected communities and other concerned citizens in the appropriate aspects of future Tier 3 response operations.

Fraser is certainly well equipped for the task. As he summarised in the *Rena* response: “We effectively started with a blank sheet of paper on October 12 and developed our programme based on best practice community engagement principles and a knowledge of the Bay of Plenty communities. Additionally we were prepared to listen and take notice. Once we had established the basic tenets of the programme we then had to advocate strongly for the credibility of the volunteers, as this was untested in this way in New Zealand.”

The success of Operation Beach Clean is a huge testimony to the ongoing commitment and hard work of so many volunteers, adds Pim de Monchy. “It was made possible by good interagency teamwork, which involved numerous government agency staff and private contractors, all prepared to work long hours to achieve the seemingly



Clean-up crews cleaning the shores on Papamoa Beach.
Photo: MNZ.



Volunteers clean oil off rocks near Kulim Park, at Harbour Drive, Tauranga. Photo: MNZ.

impossible. We were also amazed at the generosity of local businesses and individuals who prepared food and drinks for the volunteers when they came off the beach, as well as providing free goods and services.”

As for the volunteers, respondents to the online social research study overwhelmingly reported their volunteer experience had been positive and had helped them feel they belonged to their community, that the effort was well organised and they would be willing to volunteer again, for oil spill clean-ups or any other disaster activities.

Volunteer Gwen Ombler says she would definitely help again. “The whole thing ran smoothly, we felt thanked and appreciated, and of course felt very warm fuzzies from being good citizens and doing our bit.”



All photos: MNZ.

Public health and the *Rena*

by Liz Brown



For public health officials in the Bay of Plenty, the Rena incident broke new ground. Writer Liz Brown finds out what officials learned and how the incident served as the catalyst for forging stronger working relationships with iwi and across multiple agencies.

While the response operation following the grounding of the *Rena* was primarily focused on the environmental risks, the potential risks to public health also had to be considered and managed. That was the job of Toi Te Ora Public Health Service (Toi Te Ora), the public health unit of the Bay of Plenty District Health Board.

An oil spill was something public health officials in the region had never specifically trained for, although they had invested time and resources in general emergency planning. Toi Te Ora's Medical Officer of Health Dr Phil Shoemack says the general emergency principles were similar to responding to the *Rena* incident.

"You identify hazards and then eliminate, isolate or minimise the risk to the public – whether that be in response to a volcanic eruption, earthquake, or oil spill. Once the risk has been identified, from a public health perspective, the most important thing is then communicating that risk, along with giving practical advice" he says.

In terms of the *Rena*, the ship itself didn't pose a threat to the public. The greatest potential risk was related to the fuel and oil on board, which after two days, began washing up along the coast. As soon as that happened a no-go zone was established along a large swathe of beach between Mount Maunganui and Papamoa and as far east as Maketu. People were advised not to swim or gather shellfish.

Communicating the risks

Shoemack says signs were quickly put up along the coast,

the media was used to keep people informed, and information was put up on the Toi Te Ora website, along with other websites.

In another initiative, all general practitioners (GPs) in the region were asked to report if any of their patients had health complaints which could have been related to oil contamination. Shoemack says through that initiative there were about a dozen reports and they were very minor.

"All in all, the communication and messaging seemed to work well."

One form of communication Toi Te Ora didn't use during the *Rena* incident that Shoemack and his team would consider for future emergencies is the use of social media and networks. Although Shoemack says he's not completely convinced it's the right tool for a *Rena*-type situation.

"Messaging on social media can become uncontrollable, in that it's difficult to keep track of and manage. That could cause problems, but it's certainly something we need to look at in the context of our response to any future events."

Taking action

The warning against recreational activities along the coast was lifted within a few weeks of the *Rena*'s grounding after thorough water sampling and testing.

"We had to be confident that the traces of oil and hydrocarbon levels in the sea were negligible so that we could also say the risk to the public was negligible," Shoemack says.

Dealing with the shellfish warning wasn't so easy and it remained in place for several months.

At the same time as officials were scrambling to deal with

the *Rena* grounding and the leaking oil, a toxic algal bloom was affecting a wide stretch of ocean and coastline, from Waihi to Whakatane.

Shoemack says that made the public health messages around the *Rena* a little more complicated.

“Ironically even if the *Rena* hadn’t happened there still would have been a shellfish warning in place that summer. It was a case of making sure both messages were getting out – one about shellfish toxins and one about potential shellfish contamination from the oil spill.”

Finding out what was in the more than 1000 containers on the stricken *Rena* was also a priority for Toi Te Ora. Many of the containers fell into the sea and some were breaking up and their contents washing up along the beaches. It was important to establish whether the containers and their contents posed a public health risk of any kind. To do this, databases had to be searched and information had to be traced.

Shoemack says that work was led by Maritime New Zealand which then shared the findings with other agencies.

Working together

Within 24 hours of the *Rena* hitting Astrolabe Reef, an emergency management office was set up with a range of agencies, including the Ministry for the Environment, Maritime New Zealand, Coastguard New Zealand, iwi, councils, New Zealand Police, New Zealand Fire Service, and Department of Conservation.



One of the public health signs put up along the beach warning people to stay away from the water and shoreline, October 2011. Photo: MNZ.



Scallop are one of a number of shellfish that are gathered in the Bay of Plenty. Photo: Katja May, mychillybin.co.nz.

“The *Rena* disaster brought together different agencies which had never really worked that closely together before.”

In fact, from Shoemack’s perspective, a silver lining of the *Rena* has been the links made between agencies and with iwi. Iwi leadership forums were set up as part of the *Rena* response and public health officials attended regular meetings with iwi in the months following the incident.

“It was important for us to ensure there was good communication with local iwi, both under the obligations of the Treaty of Waitangi and also in a practical sense in getting public health messages out to Māori, as the biggest consumers of shellfish.”

Looking to the future

Toi Te Ora is linked into the work being done by the Bay of Plenty Regional Council and Waikato University in ongoing water quality and shellfish monitoring following the incident to determine if there are any long-term effects on shellfish along the coast.

“That’s very practical from our point of view and will give us very good data and that type of sharing of information will benefit everyone,” Shoemack says.

The emotional toll

The grounding of the *Rena* and the risk it posed to the environment sparked anger in the community.

Phil Shoemack says while public health may not have been the top priority or concern in people’s minds, the *Rena* almost had more of an effect on people’s mental health.

“Events such as an oil spill can impact on the affected community’s emotional health. So many people felt it was an affront to our environment and that anger was made even worse when they found out the grounding could have been prevented.

“I’m aware anecdotally that there are many people who have ongoing concerns about the environment and a lot of leftover anger about what happened.”

Educating *Rena*: Lessons from oiled wildlife response shape best practice worldwide

by Jen Riches



Photo: MNZ.

This October marks the three-year anniversary of the Rena oil spill, but the process of learning from New Zealand's largest maritime disaster is far from over. Dr Kerri Morgan from Wildbase tells writer Jen Riches how lessons from the Rena are shaping not just New Zealand's approach to oil spills, but best practice internationally.

Dr Kerri Morgan is the Co-Director of Wildbase, the Massey University team contracted by Maritime New Zealand (MNZ) to cover oiled wildlife response. A wildlife vet, she was one of the oiled wildlife response managers during *Rena*. She reflects that while the experience brought some valuable lessons in handling oiled wildlife, it was the integration of oiled wildlife responses into the overall oil spill operations that was both key to their ability to function, and also the area where most was learned.

"We have been working with MNZ since 1998 to plan and prepare for an oil spill. In fact, we are one of the only countries in the world that has wildlife recovery integrated into the overall oil spill response. This is why, overall, it worked so well. It meant we had a trained National Oiled Wildlife Response Team (NOWRT), we had equipment and pre-identified facilities, we had plans set up – not everything went smoothly, but it meant overall the way that the animals were cared for and looked after was of a very high standard," she says.

"We learned a lot along the way about treating the animals during their rehabilitation, but most of the recommendations that came out of *Rena* debriefs were around human resources, processes, and stakeholder management."

Lessons learned

MNZ is leading the process for systematic improvements, including responding to the recommendations in the

independent review of the response to the *Rena* oil spill by Simon Murdoch. Maritime New Zealand spokesperson Renny vanderVelde says that learning how to further improve integration is a key focus across all areas.

"Work is underway to address the recommendations in the report, particularly the logistics involved in coordinating a large number of central and local government agencies, NGOs and volunteers. Any changes in terms of logistics relate to the response as a whole, not specifically oiled wildlife response, which the review indicates was handled very well during the *Rena* response."

Morgan says that while much was done well, there are lessons to learn. "The feedback from the people involved in the debrief was that the way the animals were cared for was done well. Internationally, it has been talked about as being a good example of oiled wildlife response. But for us, it's always going to be about constantly revising and improving."

The evaluation of the incident response that Wildbase has been involved in is extensive. In addition to MNZ's independent report and national team debrief, Wildbase ran an oiled wildlife debrief for the NOWRT over three days.

"There are three functions of an oiled wildlife response," Morgan says. "Everyone always thinks it's about cleaning the birds, but as well as the animal rehabilitation aspect, another part is the field response and the other part is the coordination and management of the response."

She says discussions about how wildlife will be structured in New Zealand's oil spill strategy in the future are ongoing.

"The response structure has an incident management structure, where wildlife will normally sit in under operations. But wildlife was such a huge part of the response to *Rena*,



Wildlife staff work on an oiled bird. Photo: MNZ.



The endangered New Zealand dotterel, whose favourite haunt is a sandy beach, was especially watched and cared for while there was a risk to its habitat. Photo: MNZ.

the National On-Scene Commander made the decision to pull wildlife out and have it as a separate section so we were part of the overall incident management team. That's something we're looking at with MNZ at the moment – what were the learnings from how it worked, and how are we going to be structured in the future."

Preemptive captures

The *Rena* response experience has informed oil spill response teams internationally, particularly the preemptive capture of endangered New Zealand dotterels to prevent them from becoming oiled. The Department of Conservation estimates there are only about 1700 New Zealand dotterels left in the wild.

"There's only been one other published incident of preemptive capture of animals during a response and this is the first case where animals had been preemptively captured and held until the risk of oil had diminished. I think there are lots of lessons we've learned out of that. The way we did it was quite different – the other preemptive capture example involved releasing the birds elsewhere – if we'd done that they would've flown straight back to the oiled area, so we held them until their habitat had been cleaned," Morgan says.

She says the preemptive capture is also informing processes in New Zealand. "We held the New Zealand dotterels for eight or nine weeks. They did fine for the first six weeks, but then we needed to start treating them for secondary infections that were associated with being in captivity.

"New Zealand dotterels are easily stressed and its best to get them back out to the wild as fast as possible. Our experience with the response to the *Rena* confirms that. At six weeks we had no clinical problems with New Zealand dotterels and then they started showing symptoms so we ended up losing a small number of the birds to fungal disease. It's good evidence to be able to use to say, these are the priority areas for being cleaned of oil, because we need to get these birds out within this timeframe. We have evidence which shows they get these disease issues if they're in there any longer."



An oiled wildlife washing facility container, designed by Bill Dwyer. Photo: MNZ.



Te Maunga Wildlife Response Centre – the penguin enclosures and swimming pools are at the centre of the picture. Photo: MNZ.

But she acknowledges that prioritisation is inherently difficult during the response to an oil spill.

“The response as a whole is dealing with a number of assets all at once – wildlife is just one of a number of issues. It was the environment advisor’s role during *Rena* to prioritise sites depending on their environmental sensitivities. The lesson is really to just make sure that we have a coordinated approach where we can recognise that a particular habitat needs to be cleaned quickly, so it should go up in the prioritisation because otherwise if we don’t, this is what happens.”

She says that an important part of the process is sharing the lessons from the team’s experiences with wildlife recovery teams in other parts of the world.

“We discussed this in international forums, and we’ve had one paper published on the preemptive capture of the dotterels, and there’ll be another one coming out in the near future. We probably didn’t quite appreciate it at the time, because we were too busy actually doing it, but this technique is not often done and this is being discussed internationally as an example of a response technique.”

Taking action

Alongside the process led by MNZ, Morgan and the team at Wildbase are currently acting on the findings of their evaluations.

“Before *Rena*, the NOWRT had gone around the country and looked at where we would set up an oiled wildlife facility in the event of a spill. The site out at Te Maunga was identified through this process. Now that we’ve had the *Rena* experience, we are going to go back out to all those sites to ensure they’re actually going to be fit for purpose.”

Morgan says the requirements for a site are significant, “It needs to be big enough, it needs to be not being used for anything else, it needs to be flat and have good access for trucks. It also needs to be close enough to amenities such as hotels so staff don’t need to drive an hour every day after their shift. Not every site will have all those features, but we need to carefully assess sites with those requirements in mind.”

Although the *Rena* is considered New Zealand’s worst maritime environmental disaster, Morgan says it is not the only experience to provide useful lessons.

“One of the key things is we’re always trying to constantly improve. We have a functional wildlife hospital at Massey University’s Veterinary Teaching Hospital, we are also part of an international community of oiled wildlife response organisations, and we’re a research institute so we’re continually helping develop new ways of doing things – even if sometimes they are just small lessons.

“Currently we are improving our animal care plans, and seeing if we can learn from other people’s experiences to improve our own practices.”



The first batch of cleaned penguins were released back into the wild at Mt Maunganui, 22 November 2011. Photo: MNZ.



Legal implications of the *Rena*

by Marianne Mackintosh and Bevan Marten



Photo: MNZ.

The CV *Rena* ran aground on the Astrolabe Reef at 2.14 am on 5 October 2011. The cause of the grounding was the negligent conduct of the captain and navigation officer who, in a rush to reach the Port of Tauranga, failed to navigate the ship adequately. It has been described as New Zealand's worst maritime environmental disaster, and one which has "highlighted the risks associated with shipping and commerce, and the exposure of the environment and the need for a community, when such events occur, to work together to reach a solution".¹

The following article provides an outline of the relevant environmental regulatory framework. It discusses the criminal proceedings that followed from the grounding of the *Rena*, as well as the private law issues that have arisen. Finally, it considers the legislative and regulatory initiatives that central and local government have undertaken to address the adequacy of the regulatory framework as it applies to shipping operations within New Zealand waters. The law that applies in this area is multifaceted, incorporating both national and international law. What emerges is that the *Rena* incident highlighted some shortcomings in New Zealand's legislative framework in force at the time which has prompted legislative change and the consideration of other regulatory responses which seek to reduce the risks of such an event occurring again in the future.

Protection of the marine environment: Regulatory framework

Maritime Transport Act 1994

The law in New Zealand relating to the protection of the marine environment from the effects of shipping is, for the most part, provided for in the Maritime Transport Act 1994 (MTA), and the maritime and marine protection rules that fall under that Act. The rules that are promulgated under

the MTA set out the detailed technical requirements for ships' construction, pollution prevention equipment, and their operation, as well as restricting the deliberate disposal of waste into the sea.² The MTA implements New Zealand's international obligations pursuant to various international maritime conventions and therefore its substance aligns with those conventions.³ It also complements those convention-based requirements by setting out domestic rules and procedures in relation to maritime transport and safety. In general terms, all participants in the maritime system of New Zealand must comply with the Act, the regulations made under it, maritime rules, and conditions attached to relevant maritime documents.⁴ Where provisions governing the protection of the marine environment are concerned this includes visiting foreign-flagged vessels like the *Rena*. Maritime New Zealand is the government agency responsible for monitoring and enforcing compliance with the MTA (as evidenced following the grounding of the *Rena*).⁵

Relevantly, Part 6 of the MTA sets out offences in relation to maritime activity, and Part 7 concerns the civil liability of shipowners and others (the question of liability will be discussed further below). Part 25 concerns civil liability for pollution of the marine environment, and sections 344 and 345 provide that the cost of the environmental clean-up for the damage caused by vessels like the *Rena* can be recovered from the owners of the vessel.⁶

Resource Management Act 1991

Discharges from ships and offshore installations within 12 nautical miles from shore are regulated by the Resource Management Act 1991 (RMA)⁷ and the Resource Management (Marine Pollution) Regulations 1998. Monitoring and enforcement is carried out by regional

councils. Possible enforcement actions pursuant to the RMA include criminal charges (section 338(1B) for a breach of section 15B); and an application for an enforcement order pursuant to section 316 (application for enforcement order), in accordance with section 314 (scope of enforcement order). Enforcement orders can be used in a variety of ways, for example to compel a shipowner to comply with its obligations under the RMA, avoid, remedy or mitigate adverse effects to the environment, or reimburse another party's expenditure. However, only the Minister or the Director of Maritime New Zealand (MNZ), or a local authority or consent authority can apply for an enforcement order to have a shipowner comply with or cease contravening section 15B.

Criminal proceedings following the grounding of the *Rena*

Both the master and navigation officer of the *Rena*, as well as the company that owned the vessel, faced criminal charges following the grounding. The two officers' breaches of the MTA and RMA related to their conduct prior to the grounding, and the subsequent pollution caused by that negligent conduct. The master was described as being "obsessed" with the need to arrive in Tauranga by 3.00 am (which would have saved 4.5 hours of the expected time for the journey) and he issued instructions to the navigation officer to take shortcuts. They then altered the ship's documents and computer system to make it look as though the accident that occurred was not as a result of poor navigation.⁸

The extent of the pollution and other consequences were described as follows:

- the discharge of hundreds of tonnes of oil from the wreck into the ocean, the major component of which was heavy fuel oil;
- the discharge of hundreds of containers and their content, including dangerous goods, into the ocean;
- the major pollution of island and mainland shorelines with oil, containers and all manner of other debris;
- significant consequences for wildlife;
- significant consequences for, and impact on, the community; and
- enormous expense to central and local government.⁹



A container off *Rena* washed ashore at Waihi beach. Photo: MNZ.



Debris starts to emerge from the submerged section of *Rena*, 10 January 2012. Photo: MNZ.



Oil being brought ashore on Papamoa Beach. Photo: New Zealand Defence Force (released under Creative Commons 2.0 licence, <https://creativecommons.org/licenses/by/2.0/>).

The ship's master and navigation officer were charged under the MTA in relation to the way in which the passage of the ship from Napier to Tauranga was conducted, and the poor navigation that led to the grounding of the ship on Astrolabe Reef ("operating a vessel in a manner causing unnecessary danger or risk"). They were charged under the RMA for "discharging a harmful substance from a ship", as they fell within the Act's broad definition of "owners" of the vessel and were therefore strictly liable.¹⁰ They also faced criminal charges under the Crimes Act 1961 for wilfully attempting to pervert the cause of justice by altering documentation and systems.

Both pleaded guilty and were sentenced to seven months' imprisonment in relation to the criminal and maritime safety charges, served concurrently. No sentence or fine was imposed in respect of the RMA charges.¹¹

The owner of the *Rena*, the Liberian-registered Daina Shipping Company, was charged under section 338(1B) of the RMA for breaching section 15B of the RMA, arising out of a spillage of oil as a result of the collision between the

Rena and Astrolabe Reef.¹² The charge was one of strict liability and, following a guilty plea, the Court imposed a fine of \$300,000.00 (the maximum fine being \$600,000.00). No enforcement orders were made. This was due to the extent of the cooperation between the ship's owners and its insurers in respect of the level of compensation that was agreed to be paid to the Government. This settlement was closely connected with issues of limited liability, and is discussed further below.

Private law impact

In addition to the environmental law issues raised by the *Rena* grounding, a major shipping incident of this kind invariably involves a significant private law element. In other words, who will pay for what? Some of these disputes may be resolved in the New Zealand courts, while others may be determined by confidential arbitrations, foreign courts, or will quietly settle behind closed doors. As with the regulatory framework outlined above, relevant laws will be found in both domestic legislation and under international conventions, while standard-form contracts used in the shipping industry will also play a significant role.

The operation of a vessel like the *Rena* often involves numerous parties from around the world. The *Rena* was owned by Greek interests, registered in Liberia, and under time charter to a major container shipping line, the Geneva-based Mediterranean Shipping Company (MSC). The vessel's owners had hull and machinery insurance as well as protection and indemnity (P&I) cover with The Swedish Club of Gothenburg.¹³ Added to this were numerous contracts relating to the carriage of the containers on board, and the owners of the cargo would – hopefully – have taken out cargo insurance. Even the containers themselves are valuable property, owned and hired out by various interests. When the vessel at the centre of this web of contracts gets into serious trouble, the task of determining who owes what begins.

Once the *Rena* was aground, but before the hopelessness of the situation became apparent, the law of salvage was engaged. The vessel's owners contracted with the salvage company Svitzer on a "Lloyd's Form" basis. This contract provides the standard terms of salvage, and its central tenet of "no cure, no pay" is well-known throughout the shipping world. Essentially it provides that the salvor will make an effort to rescue the vessel and its cargo, and will be paid for these services if successful. In a situation like the *Rena*, where parts of the ship and its cargo were salvaged, the payment is based on the salvaged value of this material. Even the ship's fuel is a valuable commodity which can be re-sold if retrieved in a useable state. Where the vessel itself is concerned salvage is generally paid by the hull insurer, while salvaged cargo is paid for by the cargo owner or their insurer.¹⁴

In the case of the *Rena* this contract was made with a Special Compensation P&I Clause (SCOPIC) in force. This clause has a close relationship with article 14 of the London Salvage Convention of 1989, which has the force of law in New Zealand,¹⁵ and involves an additional payment to the salvor where the vessel poses a threat to the environment and their actual expenses exceed the ordinary award of salvage. This sum is paid by the shipowner's liability insurers, the P&I Club. Without the SCOPIC clause a vessel like the *Rena* would be an unattractive proposition for salvors once it was

clear that the hull was doomed. Little of value could be taken off the vessel, and that only at great risk and expense. The SCOPIC clause makes the salvor's work worthwhile, and meets the public's interest in pollution control. The early invocation of the SCOPIC clause in relation to the *Rena* was one of the key reasons underlying the very high cost of salvage work.

Once it became clear that the *Rena* was going to break in two and would never be restored to a functioning state, the issue of wreck removal arose. This is a separate area of law, and at the time of the accident was governed by New Zealand's Local Government Act 1974 and the MTA. The relevant provisions permit New Zealand's maritime authorities to order an owner to remove a vessel that has become a hazard to navigation. The owner is obliged to meet these costs, and in the *Rena*'s case these are being met by the Swedish Club. Although there is scrap value to be recovered from the vessel's hull, the wreck removal element of the *Rena* disaster has been by far the most expensive, and will continue to grow, making the *Rena* one of the costliest marine insurance claims of all time.¹⁶

At the same time as salvage and wreck removal operations were underway, clean-up efforts began. These were partly paid for and organised directly by the shipping interests, the Swedish Club having contracted Braemar Howells/Unimar to perform such tasks, and partly by various government agencies. Although at the time of the disaster New Zealand law contained provisions on the recovery of clean-up costs, as noted above, it was debatable as to whether the government could have allowed the full recovery of such costs from the shipowner. This issue was not litigated, but instead became the subject of a commercial settlement between the *Rena*'s owners and various government agencies. The owners argued that their liability was limited to only \$11.5 million under the MTA, while costs to the taxpayer amounted to \$46 million. The parties agreed on a payment of \$27.6 million. This compromise was made necessary by the lack of clarity surrounding New Zealand's limitation of liability regime.¹⁷

Limitation of liability is a common feature of maritime law, and is largely based on uniform rules established under international agreements. The policy behind such regimes, which mean that shipowners, charterers, managers and



Rena separated into two pieces after being battered by 6 m waves on 7 January 2012. Photo: MNZ.

others can in most circumstances limit their liability in respect of certain maritime claims to a sum based on the tonnage of their vessel, is that the risks involved in shipping should be shared out rather than borne solely by ship operators and their insurers. The limits also assist insurers in keeping premiums at a lower level than would be the case if liability were unlimited. The downside for claimants, and in this case the New Zealand taxpayer, is that the existence of a limitation regime enabled the shipowner to argue that their maximum exposure based on the *Rena*'s tonnage was well below that of actual costs.

This level was based on the limits of liability agreed to in the Convention on the Limitation of Liability for Maritime Claims 1976 (1976 Convention), which inflation had long since rendered inadequate in the event of a major maritime disaster. Although these limits had been substantially increased by a Protocol to the Convention in 1996 (1996 Protocol), successive New Zealand governments had neglected to sign this, meaning New Zealand's limitation regime had grown increasingly out of date.¹⁸ Had the 1996 Protocol been implemented the liability cap for the *Rena* would have been approximately \$29 million. Another relevant international agreement that New Zealand had failed to sign was the International Convention on Civil Liability for Bunker Oil Pollution Damage 2001 ('Bunkers Convention'), which allows for direct claims against a vessel's insurers following a pollution event involving fuel oil¹⁹ (although still capped at the 1996 limits of liability under the 1976 Convention).

The 1996 limits were invoked in London by the *Rena*'s charterer, MSC, which will potentially have dealt with various claims from cargo owners, whose contracts may have been subject to English law with dispute resolution to take place in London (very little public information is available).²⁰ The GBP£13.7 million fund established in that jurisdiction may have gone towards settling those claims. However, as a local business discovered,²¹ maritime contracts of carriage generally favour the carrier and in most cases uninsured cargo owners will have recovered nothing. Counter-intuitive as it may sound, the "nautical fault" defence applicable to most maritime contracts of carriage in countries such as New Zealand and the United Kingdom means that a ship's

owner is excused any liability for the negligent navigation of a ship's crew.

The other parties connected with the *Rena* scenario are of course the local iwi, businesses, and other private persons affected by the disaster. At present, some 74 such parties argue that they have various claims arising from the *Rena* disaster relating to damage to the environment and lost business, among other claims.²² In anticipation of such claims the *Rena*'s owner, two related vessel management companies, and the Swedish Club applied for and were granted a decree of limitation of liability in the High Court at Tauranga in December 2012.²³ If the total amount claimed exceeds the amount of a limitation fund, the fund would be distributed on a pro rata basis. The preliminary aspects of this potentially drawn-out litigation are ongoing, with the High Court having denied the claimants' request for the disclosure of information from the shipowners.²⁴ To their credit the shipping interests have not argued that the payment made to the New Zealand government should be deducted from their potential liability to these local claimants.

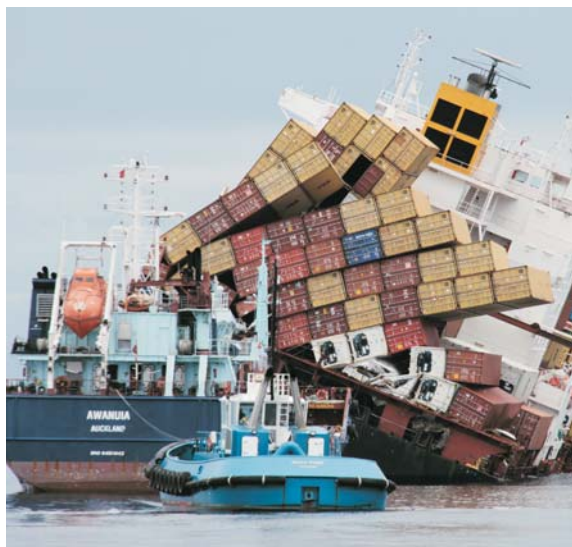
The *Rena* incident has also given rise to commercial disputes a step removed from the vessel itself, such as litigation between the salvage company Svitzer and the owners of an oil barge over the very high charter price paid by Svitzer (it was the only such barge in the area and time was of the essence).²⁵ As noted above, there will be other such disputes that are settled privately, so the total private law impact of the *Rena* will never be fully known. Nonetheless, this snapshot hopefully provides some indication of just how many different parties and areas of maritime law are engaged in the wake of a disaster of this magnitude. The Insurance Council of New Zealand has recorded that the *Rena* incident cost New Zealand insurers NZ\$24 million.²⁶

Legislative and regulatory developments following *Rena* disaster

The *Rena* incident highlighted the need for New Zealand to update its liability limitation regime for maritime claims, as well as implement several other international conventions to which it is not yet a party. At the local level, rules introducing greater control over vessel traffic in the Bay of Plenty region are being considered, and the fate of the wreck is yet to be decided.

Marine Legislation Bill

The Marine Legislation Bill was introduced to Parliament in August 2012, and has since been enacted in two parts as the Maritime Transport Amendment Act 2013 and the Exclusive Economic Zone and Continental Shelf (Environmental Effects) Amendment Act 2013. The priority given to this legislation stemmed from the *Rena*, but it also contained a range of amendments that had been waiting in the wings, in some cases for several years. Of particular relevance in the current context, the Bill enabled New Zealand to accede to three international maritime conventions, notably the 1996 Protocol to the 1976 Convention. It also enabled New Zealand to ratify the Bunkers Convention. This makes shipowners strictly liable for bunker oil spills, and provides a right of direct action against the vessel's insurer, but is tied to the 1996 Protocol limits of liability. The third agreement the Bill will see New Zealand accede to is the Protocol Relating to Intervention on the



The tanker ship Awanui and a Port of Auckland tug assist in operations to recover oil from the *Rena*, 17 October 2011. Photo: MNZ.

High Seas in Cases of Pollution by Substances other than Oil 1973, which relates to the consequences arising out of a shipping accident involving hazardous or noxious substances.

The Bill also implemented amendments to the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers 1978, establishing internationally applicable alcohol limits for merchant seafarers, and made changes to the MTA relating to port and harbour safety, including the transfer of provisions from the Local Government Act 1974 to the MTA regarding local regulation of navigation safety, the management of wrecks, and changes relating to the making of maritime and marine protection rules, as well as other miscellaneous matters. Many of the amendments contained within the Marine Legislation Bill were somewhat overdue, and it was unfortunate that it took New Zealand's worst maritime pollution disaster to drive these on to the Parliamentary agenda.

Ships' routing

The question of the use of mandatory vessel routing and shipping lanes has been the subject of public comment since the grounding of the *Rena*. The Bay of Plenty Regional Council (BOPRC) has considered options for such systems through its Strategy, Policy and Planning Committee.²⁷ Whilst vessel routing can be managed at a regional, national or international level BOPRC officers have concluded that the best protection to the Bay of Plenty coastline would be afforded by the imposition of internationally recognised shipping routes by the IMO.²⁸ As at the time of writing it is understood that work is continuing on the development of a proposal between the BOPRC and MNZ.

Ships' routing systems have been established in a number of the major congested shipping areas in the world and this has led to a reduction of collisions and groundings.²⁹ The International Maritime Organisation (IMO) is the only international body for establishing compulsory ships' routing pursuant to SOLAS³⁰ Chapter V, Regulation 10. As stated in Regulation SOLAS V/10, such systems "contribute to the safety of life at sea, the safety and efficiency of navigation and/or the protection of the marine environment". Regulation 10 describes the process for preparing a proposal for the adoption of ships' routing systems. Any proposal for a compulsory system in the Bay of Plenty will need to follow IMO guidelines³¹ and would need to be presented to the IMO by central government (with the assistance of Maritime New Zealand, and the ministries of transport and foreign affairs).

The key issue for BOPRC in developing a proposal will be to collate evidence that shows that there is a vessel traffic problem and, if so, what the risks are. It is understood that the BOPRC has support from MNZ in its efforts to develop solutions to any vessel routing problem. However, whether or not the IMO process is considered to be the best option following consideration of the options available is yet to be determined.

Resource consent issue

One aspect of the settlement between the Government and the *Rena's* owners was that the latter would pay a further \$10.4 million if resource consent was granted to



Underwater wreckage, July 2014. Photo: Andy Belcher and Darryl Torkler, commissioned by Beca on behalf of the owner and insurer of the Rena.

leave the wreck on the Astrolabe Reef. This offer reflects the insurer's commercial interest in limiting costly wreck removal operations. The debate over the future of the wreck is ongoing, with a range of opinions being expressed by the Bay of Plenty community. Some would prefer to have the wreck completely removed at any cost, while others see potential for a dive sight. The vessel's owners and related parties engaged in a community consultation process. The application was publicly notified on 13 June 2014 and the formal consent process is underway.³²

Concluding remarks

There is an inherent tension between the provisions of the MTA (with its focus on limiting liability) and the RMA (which focuses on environmental protection). However, the extent of that tension was not openly confronted as a result of the *Rena* incident, apparently due to the degree of cooperation on the part of its owners and insurers in relation to clean-up efforts and in compensating the Government beyond the limits of liability that the MTA provided for. The *Rena's* owners and insurers are not a charity: they have made commercial decisions in their interests such as the settlement with the New Zealand Government, and the nature of mutual insurance arrangements means that they cannot simply throw money left and right in a manner that is contrary to the interests of their fellow P&I club members. However, it should be acknowledged that they have maintained a presence in New Zealand and have met, and in some cases exceeded, their legal obligations.

On another occasion with a different group of players there is little to stop an offshore shipping operator and their insurer from simply making a claim for limitation of liability and taking no further action – or even leaving the jurisdiction and waiting for New Zealand interests to chase them through court systems far less reliable than New Zealand's. Although certain of the Bay of Plenty claimants will feel no affection for the *Rena's* owners, from a legal perspective the shipping interests' response has made this incident less costly and agonising than it could have been.

The reality is that no amount of regulation can prevent human error. The critical question for New Zealand is how

to manage the risks associated with the potential for such errors and how to deal with their consequences. The recent amendments to the MTA and the BOPRC's efforts in relation to ships' routing systems are both positive developments in that regard. Nonetheless, New Zealand may at some stage need to revisit its position on liability following major pollution events, and think seriously about the kind of limitation regime that would best suit this country's environmental and commercial priorities. In the meantime an important concern is the maintenance of a healthy oil pollution fund, based on levies paid by visiting vessels, to cover the initial costs of pollution events,³³ and adequate vessels and equipment to conduct clean-up operations. The *Rena* provided a wake-up call to those responsible for New Zealand's maritime law, and further events³⁴ have shown that we need to remain vigilant.

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References

- 1 *Maritime New Zealand v Daina Shipping Company* DC TAU CRI-2012-070-001872 [26 October 2012], para 2.
- 2 The Maritime Rules relate to: ship operations; ships' personnel; design, construction and equipment; health, safety and welfare of ship's personnel; documentation; marine craft; pilotage; and navigation safety and water recreation. Marine protection rules relate to ship operations.
- 3 For example, the International Convention for the Safety of Life at Sea (SOLAS) 1974, as amended; the International Convention on the Prevention of Pollution from Ships (MARPOL) 1973/1978, as amended; the International Convention on Limitation of Liability for Maritime Claims 1976, as amended.
- 4 MTA section 17. Note that Part 3 of the MTA details a series of "Duties in relation to maritime activity".
- 5 See: www.maritimenz.govt.nz/rena.
- 6 The term "owner" is broadly defined to include charterers and ship operators, among others: MTA, s 222(2).
- 7 See RMA section 15B Discharge of harmful substances from ships or offshore installations. Equivalent provisions relating to New Zealand's 200 nautical mile Exclusive Economic Zone are found in the MTA.
- 8 *Maritime New Zealand v Balomaga* DC TAU CRI-2011-070-007734 [25 May 2012] at paras 5-10.
- 9 *Maritime New Zealand v Daina Shipping Company* DC TAU CRI-2012-070-001872 [26 October 2012] at footnote (ii) (Notes of Judge RP Wolff on sentencing).
- 10 Strict liability offences are those where the prosecution does not need to show that the defendant intended to cause the relevant harm, and only limited defences are available. In other words, they can encompass accidental situations such as the *Rena* disaster.
- 11 *Maritime New Zealand v Balomaga & Anor* DC TAU CRI-2011-070-007734 [25 May 2012], see paragraphs [35] and [36]. No sentence could be imposed because the Court was prevented from doing so in the absence of recklessness (which was not argued for).
- 12 *Maritime New Zealand v Daina Shipping Company* DC TAU CRI-2012-070-001872 [26 October 2012].
- 13 P&I Clubs are a form of mutual insurance used by shipowners to share their risks relating to matters such as pollution, collisions, personal injury and other liabilities. Clubs operate on a non-profit basis, with shipowners making an annual payment. Following a good year part of this may later be refunded, while in bad times a further call for funds may be required. The 13 clubs in the International Group of P&I Clubs (of which the Swedish Club is one) share claims in excess of US\$8 million between themselves to provide an additional layer of reinsurance.
- 14 In addition parties to maritime contracts frequently include a set of rules on "general average" which deals with the sharing of costs between the vessel's owner, cargo interests and other parties where certain expenditure (such as salvage costs) has been incurred by one party for the good of the undertaking as a whole.
- 15 See MTA, part 17.
- 16 The *Costa Concordia* disaster of January 2012 is currently regarded as the largest.
- 17 For a detailed discussion see Bevan Marten "Limitation of Liability in Maritime Law and Vessel-Source Pollution: A New Zealand Perspective" [2013] *NZ Law Review* 199.
- 18 See R. Makgill, J. Mossop and K. Scott 2011 "Liability and limits for the *Rena* pollution incident" *NZ Lawyer* 172: 16-17 (4 November 2011).
- 19 Pollution from oil tankers is dealt with under a separate, widely accepted international regime. See MTA, part 25.
- 20 In legal terms there is the potential to argue that a fund should be established in only one jurisdiction (such as only New Zealand or only the United Kingdom) and all claims settled there, but in practical terms this seems unlikely.
- 21 See *Resource New Zealand Ltd v Mediterranean Shipping Co SA* [2014] NZHC 292 where MSC successfully demanded payment of freight from Resource NZ for their shipment of timber aboard the *Rena*.
- 22 See *Daina Shipping Company v The MV Rena Claimants* [2013] NZHC 3450.
- 23 *Daina Shipping Co v Te Runanga o Ngati Awa* [2012] NZHC 3411.
- 24 *Daina Shipping Co v Te Runanga o Ngati Awa* (No 2) [2013] NZHC 500.
- 25 *Svitzer Salvage BV v Z Energy Ltd* [2013] NZHC 2584.
- 26 Insurance Council of New Zealand, Marine Insurance, <http://icnz.org.nz/for-consumers/commercial-insurance/disclosure/>.
- 27 The Regional Coastal Environment Plan Subcommittee discussed compulsory shipping lanes at a meeting on 12 November 2012 and a report was presented to the Strategy, Policy and Planning Committee at its meeting on 19 February 2013.
- 28 Report to Strategy, Policy and Planning Committee 19 February 2013 "Options for Vessel Routeing in coastal waters of the Bay of Plenty region", Executive Summary.
- 29 See: <http://www.imo.org/OurWork/Safety/Navigation/Pages/ShipsRouteing.aspx>.
- 30 International Convention for the Safety of Life at Sea (SOLAS), 1974, as amended.
- 31 See "Guidance Note on the Preparation of Proposals on Ships' Routeing Systems and Ship Reporting Systems for Submission to the Sub-Committee on Safety or Navigation" MSC/Circ. 1060 6 January 2003.
- 32 See: <http://www.renaproject.co.nz/>.
- 33 MTA, part 24.
- 34 "Diesel spill after ship damaged" *New Zealand Herald* (27 April 2013, online edition).

Rena – by the numbers

Information from Rena Recovery Long-Term Environmental Recovery Plan website unless otherwise noted. Some numbers are estimates only and are subject to change.

600 to 800	the number of people involved in the oil spill response team at the height of the response.
150	NZDF personnel with another 150 on short notice to respond as needed.
8000	volunteers joined the response.
24,000	hours contributed to the clean-up by volunteers (BOPRC).
350	approximate tonnage of oiled sands removed from the coastline by beach clean-up crews.
38,788	gross tonnage of the <i>MV Rena</i>
1700	tonnes of heavy fuel oil on board <i>Rena</i> when it grounded
350	tonnes of heavy fuel oil estimated to have been lost overboard in the first week.
1039	containers recovered from the 1368 listed on the original manifest (www.renaproject.co.nz).
407	birds in care at the wildlife treatment and rehabilitation facility at the peak of the response.
375	little blue penguins cleaned and released in a staged process from 22 November 2011.
60	endangered New Zealand dotterels caught to protect them from oil.
2410	dead birds collected, of which 1448 were oiled (www.renarecovery.org.nz).
20,000	birds thought to be affected by ecosystem and food source contamination (<i>New Zealand Herald</i> , 25/11/2011).
46,891,000	dollars, January 2013 Treasury estimate of cost to taxpayers of the <i>Rena</i> disaster.

Source: at www.renarecovery.org.nz/latest-news/maritime-nz-rena-update-rena-by-numbers-one-year-on.aspx



Large tomo in the reef.