

EnviroSouth



environment
SOUTHLAND

Te Taiao Tonga

Community consultation at the heart of 2014

Last month one of our scientists finished up with Environment Southland and in his leaving speech he said that our scientists were working at the vanguard of science nationally – and he’s right. Environment Southland’s scientists are leading the way in many areas. The work being done at Waituna is being closely watched by other regions, as is our innovative groundwater mapping work.

But it’s not just in science that we are leading the way. Our working relationships with Te Ao Mārama and local iwi are unmatched anywhere in the country and our approach to river vegetation management is receiving national accolades.

In December our catchment and biosecurity teams led a workshop with our River Liaison Chairs and representatives from DOC, LINZ, iwi, Fish and Game and commercial contractors to discuss a concept plan for

managing vegetation in our major river systems. This approach has never been attempted by any other regional council in New Zealand.

For once, all of those with a representative interest in our river systems were in one room, sharing their wealth of experience and knowledge and hearing everyone’s point of view. The plan is long-term – 12-15 years, and takes a holistic view of the way we manage river systems – particularly vegetation associated with recreational activities, flood control and floodway management. At the workshop, it was unanimously endorsed and will soon move to wider consultation.

The workshop also looked back at some of the issues that we saw during an Aparima catchment field trip last year. There was a real focus on the wider catchment, not just on drains and rivers. It was great to see everyone looking ahead, listening and hearing each other and acknowledging the



Ali Timms – Chairman, Environment Southland

role we each have to play in improving our region’s water quality.

Community consultation needs to be founded on good science and we are leading the way.

In this issue...

<i>Protecting Fiordland’s waters</i>	3
<i>A day or two in the life of a flood warning duty officer</i>	4
<i>Bankers battle barberry</i>	6
<i>Good neighbours keep ragwort to themselves</i>	6
<i>Stewart Island – birds, beaches and ...Norwegians?</i>	7
<i>Join us at the Southern Field Days</i>	8
<i>Boating info at your fingertips</i>	9
<i>Protecting farming for the future</i>	10
<i>Tips to protect water quality on your farm</i>	11
<i>Ki Uta Ki Tai – from the mountains to the sea</i>	12
<i>How well is your well?</i>	13
<i>Clifford Creek... and why it’s neat!</i>	14
<i>Right mate, let’s talk whitebait!</i>	15
<i>Whitebait spawning</i>	15
<i>Not your average 9 to 5!</i>	16
<i>Is this your year to be an environmental superstar?</i>	17
<i>The EnviroSchools Programme</i>	18
<i>Out In The Field...</i>	20

Cover

Stunning fish

Electrofishing is being used by Environment Southland to monitor fish numbers and species as part of its State of the Environment reporting responsibilities.

Sixty sites across Southland are being monitored as part of the programme on a five-year cycle. Fish are temporarily stunned by an electric current, counted, measured and returned to their natural habitat.

Freshwater and marine scientist James Dare said electrofishing was commonly used across New Zealand and in other countries as an effective way of measuring wildlife in streams. “The data collected will provide a greater picture of freshwater habitats in Southland,” he says.

Cover photo – Summer student Bjorn Leith with an eel near Haldane Estuary.

Protecting *Fiordland's* waters

The waters of Fiordland are pristine; keeping them that way is an ever-present challenge. Fiordland is home to New Zealand's most intact, native ecosystem. This outdoor wonderland, right here on our doorstep, is economically important to the national tourism sector and ours to enjoy at any time.

Back in 2010 the Department of Conservation (DOC) made a devastating find: *Undaria pinnatifida*, an invasive Asian seaweed now common in most New Zealand ports, was discovered in Sunday Cove, Breaksea Sound, Fiordland.

A joint-agency response was swiftly launched by Environment Southland, DOC, and the Ministry for Primary Industries (MPI) with support from the Fiordland Marine Guardians.

Hundreds of juvenile *Undaria* plants were found at Sunday Cove, but none were detected elsewhere. A multi-method approach was put into action and is expected to continue until at least 2015. It includes an intensive removal programme by teams of divers. So far, 1887 *Undaria* plants have been removed.

The response's effectiveness to date is such that there is cautious optimism that *Undaria* can be eradicated from the area. Eradication would be a stunning world-first, but keeping Fiordland's waters free from *Undaria* requires a preventative approach. This is where boaties and yachties have a role to play because *Undaria*, like many marine pests, easily spreads by attaching itself to the hulls of vessels or mooring lines and equipment.

"We don't want to be in the business of cure, we want to be in the business of prevention. So we really need the support of vessel owners to ensure they don't bring *Undaria* in from infected ports – Auckland, Marlborough, Lyttleton, Port Chalmers, Bluff, you name it," says Environment Southland Biosecurity manager Richard Bowman.

In a bold move never attempted elsewhere, some 35,000 kina were collected from nearby Fiordland waters in June 2011 and transferred to Sunday Cove to act as bio-control agents. Kina are native sea urchins that graze on seaweed. Response manager Derek Richards says the kina did what they hoped they would – cleared existing growth to make it easier for the dive teams to spot *Undaria*.

"The success of the response is in the joint-agency, multi-method approach and while the role of kina is hard to quantify, it shouldn't be underplayed," he says. "*Undaria* is palatable to kina and it's likely they've also consumed the early microscopic stage, which can remain in the marine environment for up to two-and-a-half years."

Since the transfer of the kina to Sunday Cove the amount of *Undaria* has reduced significantly. In 2012, one mature plant and 137 juveniles were detected; in 2013 only three juvenile plants were found.



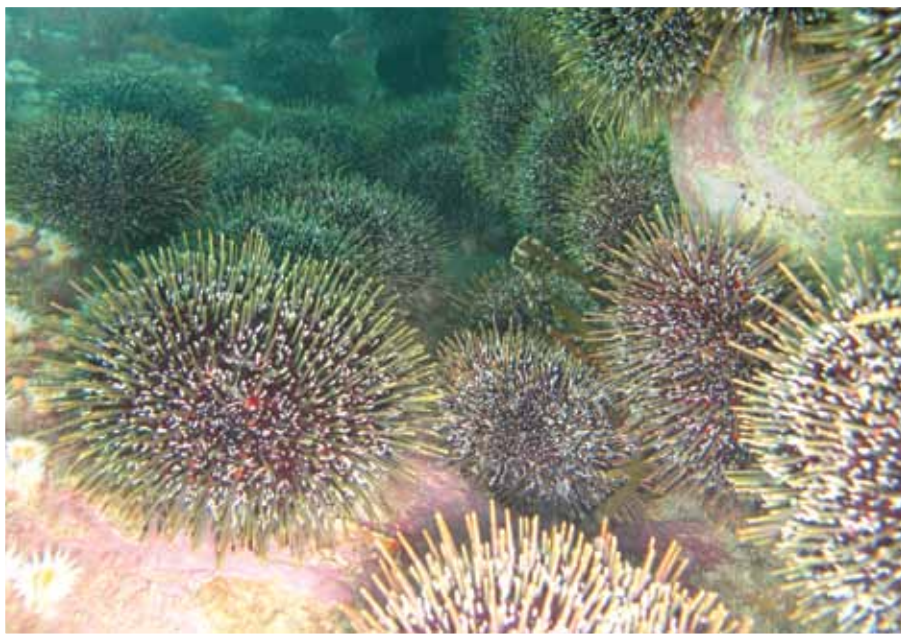
Undaria attached to a rope. Photo – DOC.

Boaties – how you can help?

By doing your bit to stop the spread of marine pests into Fiordland's pristine environment, you become part of the success story.

- Clean your vessel's hull and marine equipment.
- Check your antifouling paint is thoroughly applied and effective.
- Use the check, clean and dry method on any mooring lines and buoys, kayaks and other marine equipment before use.
- Rinse and soak dive gear in fresh water. Let it dry for a few days if possible.
- Look out for any unusual marine life or events such as mass deaths of fish. Report it to MPI (0800 80 99 66) and take a sample if you can.
- Don't remove the kina or shellfish from Sunday Cove as it may have been infected with *Undaria* spores and will spread. The kina is a key part of the eradication programme and we need them to stay put.

For more information please visit: www.biosecurity.govt.nz/fiordland or www.es.govt.nz/environment/pests/marine



Kina in Breaksea Sound. Photo – Chris Hepburn, Otago University

A day or two in the life of a flood

Andrew Kirk was at work when his phone went off at 1.33 pm on Tuesday, 10 September 2013. The text-alarm alerted him to 'high rainfall' in the headwaters of the Aparima catchment. Some 21mm of rain had fallen within four hours.

When it rains hard enough up in the headwaters of Southland's rivers to threaten flooding, it triggers an alarm and the flood warning duty officer at Environment Southland swings into action, no matter what the time – day or night.

The 24-hour, on-call flood duty roster is made up of full-time environmental technical staff, many of whom are responsible for securing samples and checking Southland's water and air monitoring sites.

On this occasion the high intensity rainfall continued and more was forecast. The headwaters of all the major rivers began rising. At 2.05pm Andrew activated the Environment Southland flood warning notification system.

It was the beginning of an exhausting stint of two nights' interrupted sleep for Andrew as he monitored the rivers, answered queries and responded to persistent alarms as the floodwaters made their way down through the catchments.

Once the flood warning notification system is activated, data from Environment Southland's monitoring network of rain gauges and water level/flow recorders is updated every 15 minutes and made available via two automated systems: the Environmental Data Information (EDI) telephone system; and the Environment Southland website. Civil Defence is notified, and radio broadcasts are transmitted to alert people to the situation.

The incoming data helps the flood warning duty officer to understand when the floodwaters have peaked at each monitoring site, what level they peaked at, and what this might mean for property owners and population centres further downstream.

Estimating the impact is a highly technical process that takes into account weather forecasts, actual rainfall and scientific models that help to predict the outcomes.

"There are some serious hydrological calculations going on in the background," says Andrew. "We're lucky our senior hydrologist is very skilled and regularly makes updates to our flood warning models."

The service is particularly valuable to farmers, who tend to be the first affected by floodwaters. They need to be able to gauge the likely impacts and make decisions about



Environmental Technical Officer, Andrew Kirk

whether to move stock and how to manage any issues around access to their properties.

It can take up to 24 hours for the floodwaters to make their way down through the catchments, which gives people time to make arrangements.

"The system works really well, but it's never going to give you one-hundred per cent of what is going to happen, because we don't measure every stream," says Andrew. "Those one-off variables can give you some pretty scary surprises sometimes."

By Wednesday morning – nearly 20 hours in – Andrew could see a picture emerging: This was not a major flood event; it was an intense and widespread one, characterised by rapidly rising rivers.

Overnight, the rain eased, but a short, isolated burst of high-intensity rainfall (33 mm) just before midnight had a sharp impact on the Pourakino River.

By noon on Thursday, the pressure was off and Andrew's stint was nearing an end. Some 50–60mm of rain had fallen in the headwaters and nearly all rivers had peaked throughout the catchments. Morning coastal rain caused some widespread surface flooding due to the already saturated condition of the ground.

At 4.10pm the flood warning notification system was switched OFF.

Flood Log Summary

*10 September 2013, 1.33pm –
12 September 2013, 4.10pm*

*Alarms: 28 – warning of high
rainfall and high river levels*

*Enquiries: 9 – from agencies,
media and farmers*

warning duty officer

Managing the flood risk

Riverton dairy farmer John White is a regular user of Environment Southland's river level/flow monitoring service and flood warning system.

His property lies alongside the Aparima River and since he and his family arrived in June last year they've experienced four flood events. The farm has a 50ha top terrace, and 85ha of low terrace flats.

"Thirty-five hectares is over the stop bank and that goes fully under water; so a quarter of the farm," explains John. "The stop banks are in place and that's huge because they protect the rest of the flats. They're doing a good job," he says.

When the September flood hit, John was in the middle of the calving. After checking Environment Southland's river information online first thing in the morning, he had stock shifted from the river flats by 9am. They flooded that afternoon and overnight. By the next morning the floodwaters had receded.

John did his homework before buying the farm and says he knew the flood risk. To

stay on top of things he keeps an eye on the weather reports, listens to the radio and regularly checks Environment Southland's river monitoring information online. "The

monitoring is brilliant, you couldn't ask for better," he says. "It's definitely a good forum."



John and Renee White with their daughter Esther (2) among a herd on their dairy farm bordering the Aparima River in the lower catchment.

River information

Environment Southland has a monitoring network of rain gauges and water level recorders, some of which also record water flow, throughout the region. Data from these sites is updated at least hourly, and every 15 minutes in the headwaters of Southland's major river catchments.

During a flood all sites are updated every 15 minutes. The EDI (Environmental Data Information) telephone system is directly connected to the telemetry system, making it more up-to-date than the website, which is updated at half hourly intervals.

For the latest information:

- Telephone the EDI phone system – 03 211 5010
- Go online – www.es.govt.nz



Catchment information

Get a copy of the brochure with the flood warning information specific to your catchment. They're available online at www.es.govt.nz

Bankers battle barberry

Who said they could only crunch numbers? SBS AgriBankers got stuck in at Omaui recently and proved they were made of tougher stuff than the thick branches of Darwin's barberry they were helping to remove.

Darwin's barberry is a pest plant found across much of Southland, and its spiny foliage has slowly made its way along the roadside

of the Omaui settlement. It produces numerous berries which are spread far and wide by birds. Cutting down the trees

before the berries ripen helps prevent further spreading.

To control it effectively, many hands are needed – and those are not always easy to come by. Luckily the SBS AgriBanking team called and asked whether Environment Southland could provide them with an opportunity to help out in the community for their annual team building event.

A team of 14 AgriBankers arrived from as far north as Hamilton and helped the Omaui Landcare Group and Environment Southland Pest Plant Officers remove as many barberry shrubs as possible in a single afternoon. The control work was physical and required the bankers to cut plants at the base and treat the stumps with herbicide before stacking the cut stems in a heap.

SBS Project Manager Clayre Watt says "It's primarily a team building exercise for us. We thought that this way we could also give something back to the community."

Omaui Landcare Group Chairman, John Collins says that when Environment Southland called, he jumped at the opportunity. "It's great for us, because otherwise this work just doesn't get done. We've known about the issue for a long time, but we're only a small group."

If you or your group would like to help Environment Southland to support the region's Landcare Groups with pest plant control, call us on 0800 76 88 45 or send an email to service@es.govt.nz.



SBS staff help clear Darwin's barberry at Omaui.

Good neighbours keep ragwort to themselves

The ragwort season is here again and stalks of the yellow-headed weed are making a prominent appearance across the region. If you find ragwort on your property, take action to stop it spreading to your neighbours.

Ragwort is one of Southland's hardest pest plants, and is not allowed to be within fifty metres of any property boundary or watercourse. Some 250,000 seeds are produced by a single plant so tackling the problem requires a strategic approach as well as on-going maintenance.

Senior Biosecurity Officer, Randall Milne says when it comes to controlling ragwort, mowing it simply won't cut it. "Yes, the yellow flowers will be gone from sight, but the problem is only made worse as next year's plants will grow back even more vigorously."

In addition, cut ragwort plants can be more palatable to stock, and can cause them serious harm as ragwort contains poison which affects cattle, horses and deer.

Luckily, Environment Southland has already done the background work into control options for ragwort for you, so all you need to do is call their Biosecurity team to find out what you can do, and the best time to do it.

If your neighbour's ragwort is creating a problem for you, have a chat to them first. Chances are you'll be lucky enough to strike a good neighbour who will something about it. If that's not the case, give us a call on 0800 76 88 45.

Ragwort is a suppression pest, which means it is widespread and abundant across Southland. Keeping property boundaries clear of ragwort is a landowner responsibility, and can be enforced if necessary.



Stewart Island – birds, beaches and ... *Norwegians?*

The last place you might expect to find historic Norwegian relics is a remote corner of Stewart Island. However a nearly forgotten part of Kiwi history bridges the 17,668 kilometres between the two countries in the form of a Norwegian whaling base hidden away at Price's Inlet, Stewart Island.

Run by the Rosshavet Whaling Company of Norway and abandoned in 1932, the base was used as a repair centre for chaser boats, which were responsible for catching and processing whales for oil before the end product was loaded onto a bigger factory vessel for shipping.

Just over 70 years after the base ceased production, New Zealand Historic Places Trust Regional archaeologist (Otago/Southland) and 'Project Njord' manager Dr Matthew Schmidt and his team are one step closer to getting the site the level of recognition and protection they believe it deserves.

The first stage was applying for a grant from the Southland Coastal Heritage Inventory Project (SCHIP) – a partnership between Environment Southland, the Department of Conservation, the New Zealand Archaeological Association, the New Zealand Historic Places Trust, Southland District Council and Te Aō Marama Incorporated on behalf of the Kaitiaki Rūnaka o Murihiku. Environment Southland also committed another \$10,000 to the project in October 2012.

This allowed the 'Project Njord' team to undertake an archaeological survey and document the remaining buildings and artefacts including the wreck of the *Orthello*, an old whaling ship that was used as a dry dock for the Norwegian chaser boats.

Matthew says the site is a snapshot into an important period of Stewart Island's heritage, when the Norwegian whaling boats would sail from the base into the Ross Sea off the coast of Antarctica on their hunt.

"It's a very special site in terms of European and our history from last century, in particular the connection between Antarctica, New Zealand and Norway," he says.

Having completed the surveying in late November 2013, the team is waiting to hear back from the New Zealand Historic Places Trust Board (NZHPT) on their application to have the base considered an archaeological site, which will offer it legal protection.

Under the Historic Places Act, post-1900 sites can only be considered an archaeological site if there is substantial evidence of cultural heritage.

"At the moment there's nothing legal in place stopping anyone from taking things away," Matthew says. "It's really quite a unique site as it's still in a highly intact state and this is a quick way of getting more protection."

The unique nature of the base is not just an insight into Stewart Island's heritage, he says, but a treasure of national significance.

"The protection [the application will allow] is significant. Only five 20th century sites have been declared archaeological sites by the Board of the NZHPT. This is the sixth and the first marine heritage site."

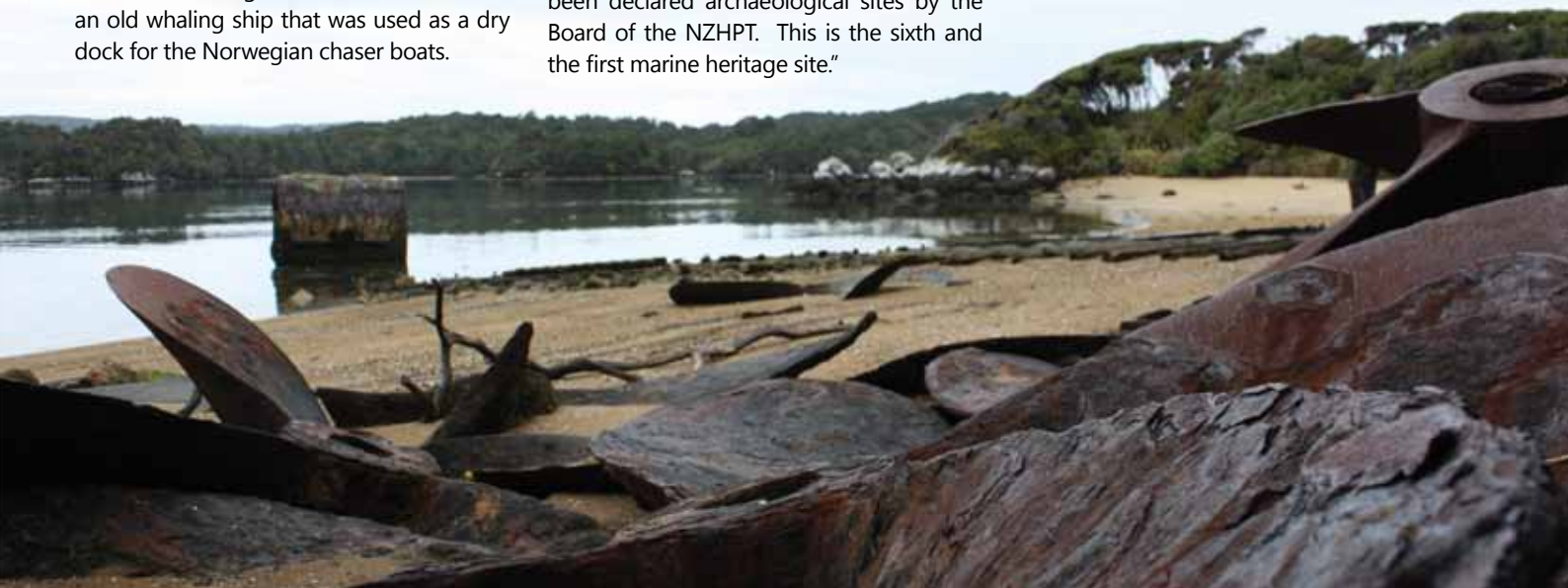
He says despite the far flung roots of the 38 Norwegians who worked at the base, they are still very much a part of Stewart Island history and the team's work at the base has had a lot of local support.

"The workers often went to Oban to mix with the locals; a few even married some of the local ladies, so it's a significant part of the island's heritage. Local support has been great; volunteers from the community have been helping clear the site of vegetation."

Matthew and his team hope to hear back from the NZHPT by the end of February and plan to continue to work with the Southland District Council and the site landowners to discover more of its secrets. He eventually hopes to have an interpretation panel erected with information for visitors about the base's history.

"A lot of people already visit, so we'll also look at working with the museum to get an information panel put in and have the vegetation managed from time to time when required. It's really special, because we'll get to show what people used to do and how they lived, it's great."

Below – Artefacts from the Norwegian whaling base at Price's Inlet. Photo – New Zealand Historic Places Trust, Otago/Southland Area Office.



Join us at the Southern Field Days

Environment Southland's will have staff from across the organisation at Waimumu during this year's Southern Field Days to answer your questions and to provide advice on areas that are of concern to you. Here are the thoughts from a few of them about the Field Days and what they are keen to talk to you about.

Russell Winter – Dairy Liaison Officer

We have friendly staff with many year's of experience and knowledge, so we can hopefully work with you to achieve good financial and environmental outcomes. I'm keen to talk to farmers who are considering converting their existing property to dairy as well as people looking at buying a farm for a dairy conversion.

I'm also available to talk to existing dairy farmers about their consents that are due for renewal. So if you are in need of guidance as to the current requirements for farm dairy effluent disposal, including effluent from wintering barns, feedlots, stand-off pads and silage pads, then look out for me at the field days.

Dave Burgess – Senior Biosecurity Officer (Pest Animals)

I really enjoy the general positivity of the field days. The weather is usually fine and sunny and the atmosphere is relaxed.

I'll be available during the field days to talk about the benefits and workings of the Possum Control Area programme and general pest control options. We'll have a range of pest control products available to look at and discuss. Drop into the Environment Southland tent and join us for a cuppa and a chat.

Leonie Grace – Senior Pollution Prevention Officer

I like to see people coming in for a chat at the field days, looking for new ideas and seeing what pollution prevention is all about.

I'm keen to offer advice on sustainable waste management and where to dispose of waste and hazardous materials responsibly including unwanted chemicals, oil and fuel. I can also help with contaminated land queries – especially old sheep dip sites and landfills.

Randall Milne – Senior Biosecurity Officer (Pest Animals)

The field days are a great opportunity to talk with a range of people about farming-related issues. Come along to the Environment Southland tent and talk to me about what's happening across the region with weeds, clover root weevil and dung beetles.

The tent is a one-stop shop for people to speak face-to-face with our friendly staff and councillors about their environment.

George Ledgard – Environmental Scientist (Land and Soil)

The field days are a great chance to talk to farmers off property in a relaxed, neutral environment. I'm available to talk about anything to do with nutrient and sediment transfers on and off farms and within the wider environment and how these affect water quality.

Government has asked councils to set freshwater quality limits. We are at the very beginning of this process so now's a great time to talk to us and get advice on what you can do to reduce nutrient losses. Understanding where losses are occurring and how to mitigate them today is the best way to future proof your farming operation.



Russell Winter



Dave Burgess



Leonie Grace



Randall Milne



George Ledgard



Sonya Nicol



Gary Morgan

Sonya Nicol – Senior Planner (Water and Land 2020 & Beyond)

I really enjoy getting out and talking to people that can make the difference on the ground, and explaining what we are doing in the water space.

I'm keen to talk to people about what the Water and Land 2020 & Beyond project is all about, how you and your property may be affected by any changes, and also how you can become involved in the discussions. Talk to me about our Focus Activity plan changes regarding riparian management, nutrient management, wintering and hill country development as well as what the next steps are for catchment limits.

Gary Morgan – Senior Land Sustainability Officer

I like to see the new products, innovations and ideas and taking part in promoting sustainable agriculture. I also like patting the alpacas!

I'm available at the field days to talk about trees on farms, soil mapping, soil health, riparian plantings, water quality, constructed wetlands, erosion, winter grazing practices, rules, and nutrient management. In fact, anything that's of concern to you and your farm.

Farmers need to make time and visit the Environment Southland tent so they can get ahead of the game and be prepared for catchment limit setting. They need to find out what the opportunities and potential risks might look like.



Clip this coupon, fill in your details and bring it along to the Environment Southland tent at the Southern Field Days to go in the draw to win a \$200 ILT voucher.

Name: _____

Address: _____

Telephone: _____

Boating info at your fingertips

If you are out boating in unfamiliar waters this summer, make sure you check out the free MarineMate smartphone app.

MarineMate combines all the latest information relevant to your current location, so you can practice safe boating wherever you decide to take your vessel.

The app provides up-to-date information on speed limits, mooring zones, towing access lanes, boat ramp locations, local area notices and tides.

Southland Deputy Harbourmaster Lyndon Cleaver has been involved in the development and says that although in its

early stages, the app will be useful for boaties and councils alike.

"Boating regulations differ between regions, so as well as finding out the boating rules in Southland you can check other regions too."

Lyndon says MarineMate will help councils in providing a safer boating environment. "We hope to get an idea about the types of vessels people are using and the safety equipment they have on board."



The MarineMate app is the brainchild of Waikato Regional Council's navigation safety programme manager, Nicole Botherway. It has been developed with funding from Maritime NZ, the ACC, Land Information NZ and regional council harbourmasters, with support from Water Safety New Zealand.

The MarineMate app is available for iPhone, iPad and Android devices. To download it free of charge, visit the iTunes store or find it on Google Play.



Protecting farming *for the future*

When Allan Baird walks down his hallway each day, he's reminded of his grandfather and the work he did for the community. Hanging on the wall is William Baird's CBE. A former chairman of the Southland County Council for 12 years, he was presented with it in 1969 for his services to local government.

Allan is a dairy farmer with 750 cows on 280ha at Benmore and a further 200ha at Dipton West. He's also the Vice President and Dairy Chairman of Southland Federated Farmers. His great grandfather bought the farm nearly 95 years ago.

Allan says it's a tradition to be involved in farming, but it was the actions of his grandfather that now motivates him to want to do more than just look after his own piece

of land. "I want to be involved and affect the community; wider than that, the province."

Allan completed an agri-commerce degree and post graduate diploma at Lincoln and spent 14 years working around the world in accounting and finance. In 2002, married with two young boys, he

moved his family back to rural Southland, where his father was willing to step back and let the next generation take over.

In 2008 Allan decided to convert their sheep and deer farm to dairy. He says the migration away from sheep farming

across Southland has brought about many changes. "Our challenge now is to allow the new land use to be fully engaged. To farm to the fullest of what the land can allow," he says. "Sheep farming is different. Stocking rates are different, grass growth requirements are different. Dairy farming actively encourages pastures to grow till conditions stop them."

Allan says a lot of farming is tradition. "It's what your father did." While it's important not to completely discard those practices, farmers are getting new information all the time, so it's about implementing those practices that are still beneficial for the farm and the environment.

"My dad was a good tree planter," Allan says. He and wife Helen have just planted a number of natives with consideration of the waterways and riparian margins. He says he likes having trees on his property, it adds to the aesthetics and they're good for the stock and nutrient filtering. "It takes a little longer in farming practice for that consciousness to develop. The first five years is about survival, then you can start to consider the wider aesthetics and what you want to leave behind," Allan says.

"I want to be involved and affect the community; wider than that, the province."



Allan Baird

Water and Land 2020 & Beyond

Allan believes that farmers do care about what they do and their effect on the environment, and that science is helping farmers to make better decisions. As a consequence he thinks, the next generation of farmers will be better prepared than the previous.

Allan is a lot more aware of issues like sediment flow, since having been involved with Federated Farmers, and Environment Southland through the Water and Land 2020 & Beyond steering group.

On his Dipton West property, which is predominantly hill country, he now considers the contours and runoff from activities like winter grazing, while on the Benmore property the mitigations are mostly around nutrients.

"It's been helpful that the council has been able to convene the Water and Land steering group particularly when we are looking at the challenging rule-setting requirements," Allan says. "It's really a think tank with a range of different views. There would be nothing worse than rushing something through that is impractical."

Allan says his involvement in issues wider than his farm is really borne out of wanting to ensure that farming remains attractive for the next generation. "It's a desire of mine that one or both of my boys go into farming."

He wants to try and ensure that when rules are created, there is a good reason for them and that they don't make it harder for future farming sons to come home.

Tips to protect water quality on your farm

The importance of water to the Southland way of life is undeniable, but what is more important is safeguarding the quality of our waterways for generations to come.

Environment Southland is encouraging the farming community to get behind good management practices, which make up the first part of the Water and Land 2020 & Beyond project, and to do their bit to help improve water quality.

"At the moment we're concentrating on good management practices, specifically implementing better riparian management, wintering practices and nutrient management," says Environment Southland senior resource planner Sonya Nicol.

The focus is on ensuring that farming activities that may affect water quality are following these good management practices.

Factsheets available on the Environment Southland website provide handy tips on how to make simple changes that will help protect water quality.

Wintering:

Paddocks used for this purpose are thought to contribute a significant amount to nutrient and sediment loss.

- Where possible, choose paddocks that have structurally sound soil types and are away from waterways to reduce nitrate loss.
- Provide transportable troughs for stock drinking water.

Riparian management:

Riparian zones act as buffer between water and land, so it's important to minimise any effect nearby activities on adjacent land could have.

- Fence riparian zones to exclude stock
- Plant appropriate species in the riparian zone suited to the condition of the site which can control erosion as well as filter sediment and help prevent pollution.

Nutrient management:

Implementing a nutrient management plan not only helps reduce losses to waterways but can also save you money. Benefits can include:

- Providing proof to outside organisations that you have instigated good management practices with respect to nutrients on your farm
- Saving money on fertiliser by using nutrients recycled through farm dairy effluent.



Ki Uta Ki Tai – *from the mountains to the sea*

Why the health of our waterways runs deeper than just improving water quality.

Fed by the Waihopai and Oreti rivers that wind through Southland, the New River Estuary is a tidal lagoon where sea water mixes with the river flow to create a dynamic environment that has sustained life in the region for hundreds of years.

From the early days of Māori settlement, when a rich supply of resources meant villages dotted its edges, to banks that are now dominated by farmland, the Koreti, or New River Estuary, has played a significant role in shaping Southland's history.

Over time, European settlement, land use change and reclamation have caused major problems for the delicate health of the estuary and its connecting waterways, something Iwi Policy Officer Ailsa Cain says has an effect on more than just wildlife.

"There's a fundamental relationship between Ngāi Tahu and the river, land and estuary" she says. "Our association with Koreti isn't just historical, it's a long established and continuing relationship that we want to preserve."

Te Ao Mārama Inc, the body responsible for representing iwi on resource management matters with councils, works in close partnership with Environment Southland

on many projects, including the Water and Land 2020 & Beyond initiative.

Southland's waterways are crucial from a cultural perspective says Ailsa. "There are reports coming through about Southland's deteriorating water quality, which not only affects access to traditional mahinga kai (food and gathering sites), but our kaitiakitanga – our responsibility to act as guardians to these resources."

Mō tātou, ā, mō kā uri ā muri ake nei – for all of us and the generations that follow – one of the core Ngāi Tahu values, is central to this relationship.

"For all of us and the generations that follow, it's about the responsibility we have to leave behind our environment in the same or better state for our children and their children. It's the underlying driver for

everything we do as kaitiaki (guardians). The management of our waterways is an important part of this."

Although the Koreti is of great significance to iwi, it's not only a Ngāi Tahu issue.

Responsibility rests on everyone in the Southland region. In December last year, Water and Land 2020 & Beyond

steering group members, Te Ao Mārama representatives, Environment Southland councillors and staff, came together for a field day on the banks of the Waihopai to discuss the impacts of freshwater management.

"It was an opportunity to physically see how everything is interconnected and how this is a part of projects like Water and Land 2020," Ailsa says. "It showed what the problem looks like in real life, rather than just discussing it in a meeting."

Senior resource planner Fiona Young says the trip had been a success. "The idea behind it was to look at the connection between water quality and land use and look forward in terms of future generations. Big changes will have to be made, and we'll need to see how they'll affect the community and the challenges that come with it."

Ailsa agrees there is no quick fix to the multi-faceted issue of Southland's water quality, but is positive Te Ao Mārama's cohesive relationship with the council and their shared goal to revitalise the Koreti will be realised.

"It's a long process, but Ngāi Tahu and many other people feel a strong affinity with and a responsibility for the estuary. It's an ongoing connection we all have and we are all in it for the long term."

Waihopai River, Invercargill, circa 1906.

Muir & Moodie, reproduction from a black and white gelatin glass negative. Museum of New Zealand Te Papa Tongarewa. Registration: C.012842

*Mō tātou, ā, mō kā uri ā
muri ake nei –
for all of us and the
generations that follow*



How well is your well?

Got a problem with nitrate levels at your place? Is your well-water safe to drink? Bad management or bad luck – whose fault is it? Groundwater contamination can be a complex issue and consent monitoring can't provide you with the answers.

Groundwater is an important resource in Southland and it's vital we look after it, in terms of both quantity and quality. Principal Scientist Dr Clint Rissmann says nitrate contamination of groundwater is a key issue as it can impact on the health of people, our livestock and our broader environment.

Here in Southland the majority of our aquifers (natural areas of stored groundwater) are shallow, and most of the water contained in them ultimately comes from rainwater, which percolates down through the soil to the aquifer below. As the water moves through the soil it 'picks up' water soluble contaminants such as nitrate.

Environment Southland has an extensive groundwater quality monitoring programme. However, this doesn't replace your responsibility to check your own household supply, particularly if you have concerns. Clint says some people think that consent monitoring will protect them, notify them if there is an issue. "It doesn't work like that. A monitoring bore on an

adjacent property could be tapping a completely different water source to that of your domestic bore," he says. "It's up to the individual to protect their family and themselves."

Clint says households which use bores for their water supply should carry out regular testing. "I would recommend that landowners check their water quality once a year. There's no way to be sure without proper testing."

Testing your water is easy and for a fee of approximately \$40 - \$50 you can know your nitrate levels and whether bugs (*E.coli*) are present. "Call an accredited laboratory (found in the yellow pages) as it is a small price to pay. If you have any concerns about the health risks associated with high nitrates contact your GP or Public Health South."

Nitrate isn't an issue for you if you collect rainwater from your roof, but you could still be exposed to other bugs, so testing your water regularly is a good habit to start.

What can I do to protect my bore?

- Check the casing extends above the ground to prevent stormwater runoff.
- Ensure the top is securely sealed to prevent entry of foreign material.
- Keep the area free of chemicals and fertilisers.
- Fence off the bore to prevent stock access.
- Check the pipes, fittings and pump for leaks.
- Install a back-flow prevention device.
- Regular maintenance may help extend the life of the bore (usual lifespan is between 20-30 years).

Environmental Southland's Senior Technical Officer, Dianne Elliott, tests the water quality of a well as part of the Groundwater Quality Monitoring Programme.



Clifford Creek...

and why it's neat!

The small creek that runs past Jenny and Wayne Sheat's house on Hunter's Bush Estate in Morton Mains was never named, Jenny Sheat says. "We discovered it had never been named, so our son called it Clifford Creek after Wayne's father. It's also Wayne's middle name."

Wayne was born and raised on the sheep farm, with his grandfather knocking in the property's first fence post on land Wayne admits "was probably quite swampy," nearly 100 years ago.

Nearly 1000 native plants and an impressive amount of fencing later, the current Sheat's are leaving their own mark on the land with what Land Sustainability Officer Anastazia Raymond says is the perfect example of riparian planting.

"I think the Sheat's have done a fabulous job. They have incorporated all of our best practice recommendations. It's an example of exactly what to do," she says. "Excess sediment seems to be a major issue for the Waihopai, so riparian planting can really help control it."

Riparian planting refers to re-vegetating banks alongside waterways to help improve water quality, reducing erosion and filtering excess nutrients.

Late last year, the couple took advantage of Environment Southland's Living Streams programme, which aims to work alongside landowners to help improve water quality in their area.

Piloted in 2005, the programme tests water quality in a catchment and offers advice and financial incentives for landowners to look into helpful land management practices to protect water quality in their catchment.

Wayne and Jenny were fortunate to have some excellent help from businesses in their area. Cameron Contracting cleared the drains of nuisance weed and sediment build up and lightly contoured risky bank sections to prevent future slips. A strong stock-proof fence was constructed by Malcolm Wright Fencing, with varying riparian buffer widths to accommodate contours in the land and overland runoff paths.



Land Sustainability officer Anastazia Raymond (left) with Jenny and Wayne Sheat and their granddaughter Ruby Holland.

Finally, Oreti Nurseries provided plants from locally sourced seeds. They managed the whole planting project, which included spot spraying around the seedlings to reduce competition from pasture grasses, without exposing large patches of bare soil that can erode into the waterway. Sixteen varieties of native plants were selected for their suitability to soil, climate and location, and were given a fighting chance with the use of plant protectors to guard against the elements, pest animal grazing and spray drift during future weed control work. Oreti Nurseries will continue to monitor and maintain the plants over the critical first couple of years.

"Living Streams funding is available for projects which contribute to improved water quality" says Anastazia. "Currently funding is available for landowners in the Waihopai and Waikawa catchments."

Jenny says while some landowners might think implementing change is too difficult.

"Riparian planting and the like should be encouraged. People should try to find the balance between economy and the environment. We are the caretakers of the land so it's our job to make sure we look after it."



A perfect example of riparian planting.

Right mate, let's talk whitebait!

From mid-August, it's an age old Kiwi tradition to clean out the freezer and mix up some batter in preparation for the whitebait season.

Environment Southland Aquatic scientist Dr Andy Hicks says populations of whitebait are declining. "There are no definitive records on whitebait from 50 years ago, and obviously you have bad years and good years, but numbers are not what they used to be," he says.

To find out how the tradition is faring in the Southland region, Environment Southland sent a survey out to whitebait stand owners alongside license renewals, to collect this valuable information.

In an effort to better understand whitebaiting in the Southland region and what can be done to improve it, the questionnaire was sent out to tap into the knowledge of local whitebaiters.

The survey included questions such as how often stand holders went fishing, the size

of their catch, whether they noticed any negative environmental symptoms and whether they wanted to see any changes.

Andy says feedback so far has been encouraging, with 54.5% of respondents believed low numbers of whitebait was an issue that could be addressed, 47.5% highlighted water quality as an area for improvement, and 23.2% said no change was necessary.

"Excessive nutrients fuel prolific algal growth, which smothers habitat and can be a nuisance for whitebaiters. If water quality gets very bad, it can be toxic to fish," he says.

Whitebait and other native fish try to avoid dirty water. When there is a lot of dirt, weed and algae floating in the water column it can rapidly clog a net, which detracts from the fishing experience.

Several respondents were also happy to share their records of catches over the years, which Andy says will be extremely useful for addressing issues identified by the whitebaiting community, a large portion of whom had been fishing for 10-30 years.

"The survey is a good opportunity to gather data from people who collect information on whitebait runs," Andy says. "We may

Whitebait spawning

In autumn, female Inanga (the most commonly caught whitebait species) lay their eggs in the vegetation around the high tide mark of tidal estuaries, on a very high spring tide. The eggs are then left above the water mark for a number of weeks to develop until the next spring tide. When the spring tide again reaches the rushes and grasses in which the eggs were laid, it causes the larvae to hatch and carries them out to sea as it recedes.

then be able to use this information as part of our State of the Environment fisheries monitoring reporting in terms of any noticeable trends in whitebait numbers that could be linked to the environment."

He says due to the specialised nature of whitebait's reproductive strategy, a proactive step towards improving numbers would include identifying and protecting whitebait spawning areas.

"We are using a variety of methods to improve water quality as part of our Water and Land 2020 & Beyond project. Among other things, this includes promoting better riparian management," he says.

Andy and his team have identified several locations on council-owned land that could be potential Inanga spawning sites and discussions are now underway for promoting their protection.

"We have identified probable spawning areas in a number of systems around Southland, some of which are owned and managed by the council. By protecting the riparian zones in these spawning areas, and allowing more water to move to and fro with the tide, we should be able to both improve the survival of whitebait eggs and also increase nutrient uptake."



Environmental assistant Bjorn Leigh searches in the high tide area for Inanga eggs (right).



Summer jobs – not your average 9 to 5!

Tired of working dead-end jobs over the summer break? Thought there wouldn't be a summer job for you where you could get out and about, get paid, help the environment and it would still look good on your CV? Think again!

Each summer Environment Southland employs a number of students across the organisation to do some pretty far-out jobs – all in the name of the environment.

Biosecurity Officer Amy Lagerstedt says summer is one of the biosecurity team's busiest times, as pest plants are flowering and can be identified easily. Having a few extra hands available during this short window of opportunity is really helpful. She says "students are essential to the success of this programme; we just couldn't do it without them."

"All of the students we have employed have been really useful, and continue to make a tremendous difference to our work," Amy says. "It's a great experience – students gain specialised software knowledge, learn about council processes, and gain heaps of practical skills."

For six years, biosecurity staff have carried out a regional weed survey over summer

to determine what weeds grow where in Southland. "It is important to find any new incursions so that we can make informed decisions about where our focus should be. Eventually we hope to have enough data to see trends and patterns in weed movement across the Southland landscape," Amy says.

Identifying weeds can be challenging, which is why Amy was excited when Sarah Davidson applied to help out this summer. Sarah currently studies Environmental Management at SIT and is passionate about weeds.

"I'm really interested in weeds and I want to do more to build up my experience," says Sarah. Together with fellow student Andrew Wilson, she has been out in the field assessing sites for the presence or absence of weeds. "This is the first time in five years that someone has gone back to re-visit the original sites, which is very exciting," she says.

Andrew is in his fourth year, studying towards a Bachelor of Applied Science, double majoring in Environmental Management and GIS at Otago University. He says it's good to get experience in the industry that you're potentially going to work in before you finish your degree.

He has already had experience working for Environment Southland as a summer student, and came back for more this year. "I knew that these opportunities were coming up, and made sure I was in early," Andrew says.



Andrew Wilson

The practical experience Andrew has gained through these summer jobs has helped him to decide where he wants to take his studies. "It's good to see how it is to be out in the field, and the work is really interesting," he says.

The harsh weather conditions of this particularly wet summer haven't discouraged Andrew and Sarah, who have travelled all over Southland. "While it wasn't nice to be out in the rain, I learned a lot and hope it will give me an edge with future employers," Sarah says.

Fifteen students are working for Environment Southland this summer, employed on various projects right across the council. If your field of study fits with what we do, there is a good chance we will be interested in hearing from you. Keep your eyes peeled for our job advertisements which appear around mid-September and are posted on our website and other job websites.



Sarah Davidson

2014 – Is this your year to be an *environmental* superstar?

With 25 years of experience in sheep and beef farming under their belts, you could say Roger and Alison Thomas are old hands at the farming game. However there's always been something a little different in the way they run things, a kind of philosophy that's been with them since the first fence post – to do their bit to look after the land around them.

"Sustainability, it's been with us ever since we've been farming," says Alison. "It just seemed like the right thing to do."

The couple's property at Clifden is evidence of their dedication, and won them the top spot in the Farming category at the 2013 Southland Environment and Conservation Awards.

Over the years, Roger and Alison have progressively fenced off all the gullies on the property and left them to natural vegetation. They've excluded stock from all waterways, introduced extensive tree plantations and even had a QEII covenant put in place to protect a stand of native bush.

Despite all their hard work, Alison says the recognition was wholly unexpected. "It was such a surprise, just such a thrill," she says.

What she liked most about the awards was the opportunity to see the hard work of others. "It was a chance to see across the province what is being done for the environment, especially in a commercial sense."

And commercial sense is what drives the couple to continue their work to promote a more sustainable practice of farming.

"To remain farming, we have to remain commercially viable and at the moment farming practices are unsustainable. It just seemed like the right way to keep ourselves, our stock and the environment healthy. It just makes our farm a better place to live and work."

Alison encourages others to enter the 2014 awards, not only for the recognition but because they provide a great platform for like-minded Southlanders to get together and collaborate ideas.

"There's always more to learn. Even though we've been doing this for twenty five years, our knowledge is growing as we learn more about our farm's environment, and it's the same for anyone. We need to learn how to work with the environment, not against it."

Like-minded community involvement was one of the driving forces behind 2013's Individual Award winner Adam Lilley's project too.

The former Aurora College head boy put together the 'Clean and Beautiful Kingswell Creek' programme, an initiative that has students from three different schools involved in cleaning up the South Invercargill waterway.

He says it was inspiring to see so many in the community being recognised for their efforts, as it tied in with the values he wanted to instil in the students involved in the Kingswell clean-up.

"I was looking for ways to build up community in the area and to have something for young people to be able to attach themselves to. I think it's really important for everyone to be a part of giving back to the community as well as being aware of plants and animals that live there."

Clifden farmers Roger and Alison Thomas.



Nominate a person, group, farmer, business

The 2014 Southland Environment and Conservation Awards are being held on Thursday 31 July, and nominations will be open from Monday 7 April until Friday 9 May.

Acting communications manager Adrienne Henderson hopes this year's nominees will be as impressive as the last.

"Last year was very successful. Because of the huge range of inspiring projects, the judges created two new awards to recognise projects they felt strongly about. We're hoping this year will be even better. The awards are great because they're an opportunity to showcase the good work individuals, businesses and groups are doing in our patch."

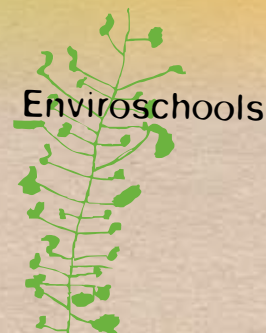
Nomination forms and more information about this year's awards will be available on the Environment Southland website in April.

The Enviroschools Programme

Enviroschools is a nationwide sustainable schools programme. In Southland we currently have 24 participating schools and kindergartens.

The programme is an action-based approach to education through which children and young people plan, design and implement sustainable projects and become catalysts for change in their schools, families and the wider community.

Schools participating in the programme receive on-going support from Environment Southland's trained Enviroschools facilitators. If you would like to find out more about how your school could join the Enviroschools programme visit www.enviroschools.org.nz and contact the education team at Environment Southland on education@es.govt.nz



The future's in good hands with these environmental champions

As part of the Enviroschools programme, schools regularly reflect on their environmental and sustainability learning and actions. Last year three schools carried out formal reflections and were recognised with Green-Gold and Silver Enviroschools status. Congratulations to all the students, teachers and parents of these schools.

Otama Primary School (Green-Gold)

Otama Primary School joined the Enviroschools programme in 2005 and environmental learning and action quickly became integrated throughout the school. The students and staff are deeply committed to environmental learning and sustainable practices and want to make a difference in their community.

Otama School is committed to reducing, recycling and reusing waste. It grows food in its raised vegetable gardens, tunnel house and orchard and sell the produce to raise money for environmental projects. The school is already looking ahead and has started on designs for a new garden, is thinking about establishing a food forest and has started building a chicken coop.

Otama School has been monitoring its local stream for several years and has contributed to planting of the mataitai on the Mataura River. In the future, it would like to put solar panels on the roof and build its own wind turbines.



Want to arrange a visit to your school or community group from one of our education team? Then phone 03 0800 76 88 45 or email education@es.govt.nz



Amy Lagerstedt – Leader



Mark Oster – Facilitator



Pat Hoffmann – Facilitator



Dipton Primary School (Silver)

Dipton School has come a long way since 2009 when the Year 6, 7 and 8 students went on a field trip to Castle Rock to help find bones of an extinct Pacific Island rat and moa egg shells. Since then, the the whole school has completed an inquiry into the environmental impacts of mining at Castle Rock. The school has had the support of many local businesses and families which has led to opportunities to help monitor and trap possums and stoats, plant native trees and monitor water quality.

Soon after joining the Enviroschools programme in 2011, Dipton School achieved Bronze status. They have continued their environmental learning in the school environment by tackling packaging from school lunches, planting native trees, fruit trees, tussocks and vegetable gardens. They have created a sustainable environmental vision for the school, developed composting systems, a worm farm and recently added a few new entrants to the school called Hazel and Raro, who live in the hen house!

At the silver reflection, the school clearly showed through both the on-going work and development of new ideas around sustainability that they are focused on the importance of learning about and carrying out sustainable practices in a genuine way that is integrated in all they do.



Gore Main Primary School (Silver)

Gore Main joined the Enviroschools programme in 2008. They have a strong, clear vision for the school and are committed to becoming more sustainable.

They have a flourishing vegetable garden and tunnelhouse and they give away or sell surplus produce and seedlings to the community. The students designed and planted a native garden and are learning the names and traditional uses of native plants.

They have an effective recycling system. The students in the Envirogroup have taken over management of the Milk in Schools programme, including ensuring that cartons are recycled properly. Food scraps are collected and fed to the worm farms which are producing abundant worm juice. Worm juice is collected and used in the garden or sold to raise funds for environmental projects.

They have lots of ideas for future projects and ways to become more sustainable.



Southland's Enviroschools Funding Partners

Thanks to our funders who financially contribute to the Enviroschools programme in Southland.



We are also grateful to Te Ao Marama Incorporated, Mother Earth and the Department of Conservation for their support of the Enviroschools programme.

OUT IN THE FIELD...

Our staff and contractors are no strangers to extraordinary situations. See what they've been up to lately as they go about looking after our region's natural resources.



Jordan Owen removes flux chambers from the Waituna Lagoon. The chambers have been in the lagoon for two years measuring the flow of groundwater into the lagoon. Chris invented the winch system to remove the chambers which were cemented into place.



Our scientists were out electrofishing to find out which native fish species are present in Southland's rivers and streams. Monitoring fish species and their populations is a useful way of assessing ecosystem health and is part of our on-going State of the Environment reporting.



Minimising the impact of pest animals within areas of high natural value is one of the key roles of our biosecurity team. At Mores Scenic Reserve in Riverton, biosecurity staff help the Aparima Pestbusters by maintaining two of their bait lines. These lines span the reserve and have been in place for nearly a decade.



Inside this little ball lives our secret weapon in the fight against broom. Broom gall mites make their home inside the buds of new broom stems and trick it into producing comfy galls for the mites to live in, instead of new growth. Since its introduction in 2009, this tiny bio control agent has shown it can successfully stunt the growth and even kill the pesky plant.



Follow us on Facebook to get updated on all the exciting things Environment Southland staff are doing in our region.

Envirosouth

Envirosouth is published four times a year by Environment Southland. It is delivered to every household in the region. We welcome your comments on anything published in this newsletter, as well as your suggestions for topics you would like to read about in future issues.

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