

EnviroSouth



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Sumi - Our Grand Environment



environment
SOUTHLAND

Te Taiao Tonga

Value for money

During the past month there's been a steady stream of ratepayers coming into Environment Southland's offices to pay their annual rate accounts. And of course the rest of you have chosen from some of the many other payment options available.

The amount you're asked to pay is the direct result of the long and detailed Long-term Plan process which included extensive consultation with all the region's ratepayers on exactly what we should be doing, and how.

The rates that we pay to local Councils – and more importantly, the increases – are always a hot topic of debate, and rightly so. But local government can be an all-too-convenient “whipping boy” for cost of living increases and the same few tired old examples of Councils that have exercised woeful financial governance.

This is especially so this year with the Government proposing changes to the Local Government Act which are

supposed to result in rates being reduced because Councils will be sticking to their core business. Watch this space as to whether the actual outcomes will result in that. I doubt it.

But the debate on rates should actually focus on value for money. The major goal for Environment Southland is the drive for improved water quality. This is what our ratepayers have directed us to achieve and it's what we've committed to doing. This comes at a cost to develop the science-based plans and programmes that will get us to that goal of a 10 percent improvement in Southland's water quality by 2020.

And while we're focusing on that, the Council still has to carry on with all of the business-as-usual functions and services that legislation **requires** us to carry out – but never actually comes with any Central Government funding to do.

I'm thinking of jobs like flood protection and emergency management, biosecurity



Chairman Ali Timms

– keeping on top of the pests and weeds that would overwhelm our farms if regional councils didn't do their job – transport planning and navigational safety.

Local government is still the most effective mechanism for providing all of this in our community in the most cost-effective way.

Ali Timms
Chairman
Eastern-Dome Constituency
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In this issue

| | |
|--|---------|
| <i>Life in the floodplain</i> | 4 – 5 |
| <i>Water and Land 2020 update</i> | 6 |
| <i>The origins of groundwater</i> | 6 |
| <i>Environment inspires winning students</i> | 7 |
| <i>Keeping floodways clear</i> | 8 |
| <i>Burning issues</i> | 9 |
| <i>Weed workshops</i> | 10 |
| <i>Brucie's Buddies' Bulletin</i> | 11 - 16 |

Well done, Woodlands School

A three-year partnership between Woodlands School, local farmer Michael Knight and Environment Southland has become a talking point for the community as students create riparian plantings alongside the Waihopai River.

Earlier this month, 50 students from the school made short work of planting 150 native trees and shrubs in the second planting day the school has held on Mr Knight's property this year.

Mr Knight says their work has already attracted a lot of positive comment from people driving past the site, which is easily

visible from the road.

Living Streams Project Manager Pat Hoffman says that the piece of land Mr Knight has made available is in a great location to attract attention.

“People notice and comment and get ideas, and it helps change people's views about the Waihopai River,” Pat says.

Our cover shot shows Woodlands students Kate Loader, Angel Mian and Abby van der Straaten at work. Each plant is protected with a plastic sleeve and mesh to keep the rabbits out, and fertiliser tablets give the plants a boost.

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.

The next issue of Envirosouth will be published in March 2013.

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“We can’t do this on our own”

After three months in the job, Environment Southland’s new Chief Executive is focused on making sure that the Council’s resources are used effectively to meet the big challenge of improving water quality across the region.

Councillors have already confirmed that improving water quality is Environment Southland’s priority goal, with a target of a 10 percent improvement by 2020. That goal has been reinforced by the Government’s National Policy Statement on Fresh Water Management, which also requires an improvement in fresh water quality.

“We have a big challenge to improve water quality while recognising the importance of intensive farming to Southland’s future,” Rob Phillips says. “Therefore we need balance. We also know that times are tough so money is tight. We have to use our resources on the priority areas.”

With that in mind, Mr Phillips has begun reviewing business plans and processes to make sure that all areas of the Council are working efficiently and effectively. “I spent the first couple of months in the job coming up to speed with what

Environment Southland does and talking with people outside the organisation and now I’ve turned my attention internally.”

The Council’s compliance division is the first to be scrutinised, with the intention of making sure that staff concentrate on activities which will contribute most to the Council’s goal of improving water quality. The findings of the recently completed legal audit into compliance processes will obviously also help improve efficiency.

Without prejudging the outcome of the review, Mr Phillips says his intention is to ensure that staff focus on the priority areas and that the *modus operandi* is effective.

Mr Phillips says that since moving to Southland he has been impressed by the good relationships between the Council and other organisations, and particularly by the strong partnership with iwi. Environment Southland and Te Ao Marama Inc – Ngai Tahu’s resource management agency – are partners in several major environmental projects, including the response to the National Policy Statement on Fresh Water Management.

He is also keen to build bridges with the farming community, acknowledging that



what happens on individual farms has a huge impact on water quality, and that most farmers want to “do the right thing”.

“Collaboration is the key,” Mr Phillips says. “We can’t do this work on our own.”

Forum confirms regional councils’ major role in managing water

Findings by the Land and Water Forum effectively endorse the collaborative approach that Environment Southland has already decided to take in addressing water quality issues in the region, Chairman Ali Timms says.

The forum has recently released its report, recommending integrated decision-making in catchments, continuous improvement of management practices and clearer rights to take and use water within set limits.

“The report makes it clear that regional

councils have a significant role to play in managing freshwater resources,” Chairman Timms says.

“In Southland, we have already established a partnership with iwi through Te Ao Marama Inc, and the farming, conservation and environmental representatives on the Water and Land 2020 steering group are working to find consensus on how we can improve water quality while enabling farming to continue to be the powerhouse of the local economy.”

True partnerships take time to develop,

particularly when people have different needs and perspectives, but with trust and good will on all sides, it’s possible to come together and get results that work for everyone.

“Environment Southland has already achieved effective plans through our own style of collaboration, without recourse to the Environment Court,” Chairman Timms says. “That’s local decision-making involving local people.”

Being prepared for floods: a

After three generations of farming alongside the Mataura River, the Dodds family know a thing or two about coping with floods.

Doug and Josephine live just outside Mataura and the couple can recite the list of big floods on the river without having to think about it: They start with the legendary flood of 1913, which hit his grandfather just two years after he settled the farm. But in Doug's own lifetime alone there have been major floods in 1968, 1972, 1978, 1980, 1987 and 1999.

Two to three times a year there are smaller events which mean shifting the herd from riverside paddocks to higher ground. "There have been years when it seemed to be every weekend," he says.

With about 90 percent of his farm floodable, Doug has learned that the key to farming in a floodplain is to know your topography, understand how to apply Environment Southland's floodwarning information to your own situation, and think ahead.

"The first principle is whatever was the biggest flood in history is not necessarily going to be the biggest flood we ever have," Doug says. "There could be one that tops it."

The next principle is to know what's happening upstream, because in a catchment like the Mataura River, the Dodds farm can be flooded without a drop of rain falling locally.

Like his father and grandfather before him, Doug farms with one eye on the river, and thought carefully about where to put his milking shed, silage pits and baleage. All the farm buildings and silage pits are on the terrace above projected flood levels, and Doug says he would never store baleage in the floodplain. "A lot of people put it in the crop paddock but I would never do that because you wouldn't have time to shift it."

"In our situation, in the mid reaches of the Mataura, we get quite a lot of warning so I look at the flood peaks from the Waikaia and the Upper Mataura to see

what's happening." Farmers further up the catchment, or with land on relatively short rivers, would have much less time to act when floods threatened.

Doug says like most farmers he knows, he relies on the information about river levels and rainfall on the Environment Southland website to decide when to move his stock. "Most farmers would be using it now," he says. "I look at the height of the river above normal at Gore and from that I have worked out what height it will reach here on our farm. Even small floods can be quite a concern if we have stock in the low lying areas."

Depending on the size and speed of the approaching flood, Doug may put his herd into his riverside paddocks so they can eat off the grass before the water rises. This makes the post-flood recovery easier, because each flood leaves a layer of clay on his paddocks and if the grass is short, new growth comes through quickly. "The cows will eat a certain amount of grass with clay on it and we supplement that with silage," he says. "People always



Farmer Doug Dodds (left) and Advisor Craig Sinclair from Emergency Management Southland, discuss the floods which regularly affect Doug and Josephine's farm beside the Mataura River.

lifetime by the Mataura River

say what you need is a good shower of rain to wash the silt off, but it doesn't wash off – it's clay. So graze what you can and mow the rest. It's no use leaving rank grass with clay on it. Once you get new growth coming through it's clean."

Another piece of practical advice Doug offers is to know where undulating ground can provide a refuge or become a death trap for stranded stock. "It's important for farmers to know which parts of their farm will become islands. Alluvial land is like a wrinkled blanket. There will be areas that don't get covered even if the water is right up to a terrace. Put a spirit level over your farm so you know which areas will be cut off at which water level so you don't get your stock trapped."

Doug recommends that farmers who are new to an area contact Environment Southland for advice about how past floods have affected their property, and also talk to neighbours about what happens. "If you're new to the area and you've never seen a flood, it's hard to believe how high the water could get. People forget quickly too."

From experience, farmers hit by a major flood will appreciate all the help they can get, Doug says. "Offers of help are a real morale booster. The fence damage is soul destroying – there will be fences down, wires down, and it's tedious work – you'll get driftwood, gorse, willow and grass all wrapped round the wires."

So why continue to farm in a floodplain? To Doug, the answer's a no-brainer. "In between floods, this is really good country."



Swamped: On 18 November 1999, most of the Dodds' farm was inundated by the Mataura River. This picture shows the Dodds' property, looking downstream towards Mataura.

Environment Southland can help

If you're new to a farm, or considering buying land, Environment Southland can provide useful information about the property.

Senior Planner Dallas Bradley specialises in hazard mitigation and says the Council has years of records to draw on, so free advice is just a phone call away.

"We can give an idea of the flood history of a property, the standard of protection provided by any works that have been done and the area that we consider to be potentially floodprone, which is probably bigger than what has flooded in the past.

"We have a good set of aerial photographs so chances are we will have

a photo of most properties in a flood, if they're in one of the major catchments," Dallas says.

"We can explain how to use the floodwarning network and we also talk about the history of any river control works along any watercourse – erosion control, rock works, willow planting or willow removal – and that applies to drainage works as well, on all the main rivers and their tributaries."

Dallas says some people look for advice on flooding before they buy a property, but many don't. "Some people are super diligent but there are an awful lot of people we never see before they buy."

It's best to think ahead and be prepared

If you live in a floodplain, Emergency Management Southland has practical advice on how to prepare for the inevitable day when you will be affected by a flood:

Things to think about:

- Will access to your farm be compromised, and how will that affect you, your family and your workers?
- What are your vulnerable assets and could you move them? Think about stock, plant, pumps, electric motors and machinery.
- Could you carry on your normal business if your farm or access was affected by a flood?

- Could you milk your cows, and if you couldn't, what's "Plan B"?
- Could the milk tanker get through to collect your milk?
- Where could you put your stock if you had to relocate them, and if you have to move them off farm, how would you get them there?
- Could your home or your staff accommodation be affected by floodwater?

Think about the answers to those questions, and plan ahead for the safety of your family and your staff.

Water and Land 2020 Update

Water quality the primary focus

Environment Southland has taken the first steps towards setting limits on the amount of nutrients and sediments that can be discharged into waterways across the region, to meet the requirements of the Government's National Policy Statement for Freshwater Management.

The Council has approved a step-by-step approach which builds on the Water and Land 2020 project and uses existing scientific knowledge to set interim limits by 2015. The first priority will be to maintain current water quality and achieve a 10 percent improvement in degraded areas by 2020. A team has begun looking at the water quality in zones – lowlands, inland basins, hill country and natural state – and because lowlands are already known to have the poorest water quality, they will be the initial target for

improvement. This is on top of existing work in the Waituna catchment and other areas, to identify the factors that have an impact on water quality and help bring about change.

At the same time, a more comprehensive programme stretching out to 2023 will develop new policies based on more sophisticated scientific monitoring to address water quality issues across the region. This will include setting limits for each catchment.

As well as water quality, the Council will also be looking at the availability of water for a variety of uses.

Resource Planning Manager Ken Swinney says that the new policies and limits will be developed collaboratively with the community. Members of the Water and Land 2020 Steering Group are already involved in the Hill Country Development

focus area, and will broaden their work to include Nutrients and Winter Grazing. The steering group members include farming representatives, iwi, recreational water users and the Department of Conservation.

Environment Southland and iwi are full partners in Water and Land 2020.

Because water quality is influenced by a wide range of factors, including industrial and urban stormwater discharges, Environment Southland will also involve local councils in setting overall limits for the amount of contaminants that waterways can cope with.

You'll find more about Water and Land 2020 and the work Environment Southland will be doing to meet the National Policy Statement requirements, on our website www.es.govt.nz

Grant for groundwater study

Work to identify the source of contaminants in Southland's aquifers has received a huge boost with \$21,000 in funding from Geological & Nuclear Sciences (GNS).

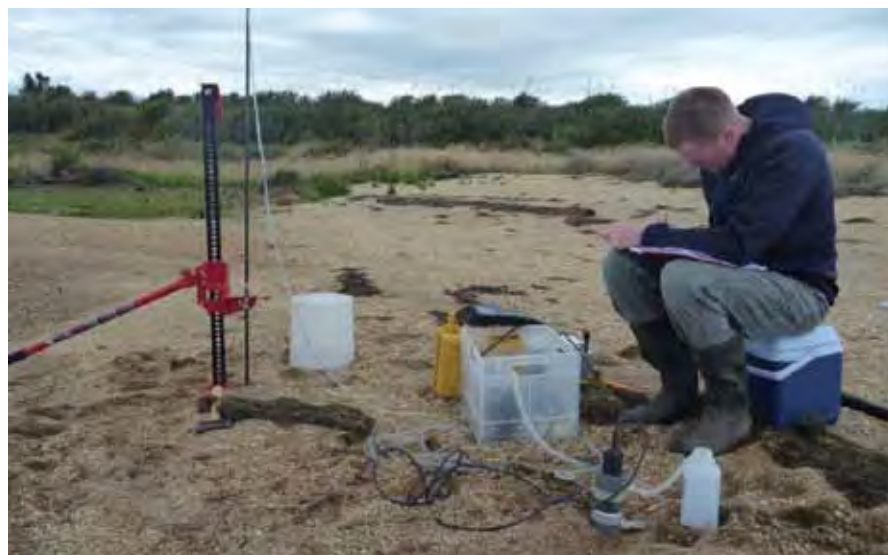
Groundwater scientist Clint Rissmann says the funding for the Contaminant Source Tracking Project will allow for much more isotope analysis of the region's groundwater, to trace contaminants to their source. "It's kind of like environmental forensics," he says.

The science is complex, but Clint says the naturally occurring isotopes often retain the signature of their origins. Essentially, they can help fingerprint and distinguish between sources of nitrate and other contaminants.

"It's a scientific method that is used around the world and it can be applied to Southland's groundwater, surface water and estuaries," Clint says.

The Contaminant Source Tracking Programme is part of the scientific investigation that underpins the Water & Land 2020 project aimed at improving Southland's water quality.

Clint says the \$21,000, to be paid out



Groundwater scientist Clint Rissmann sampling groundwater.

over three years, will effectively double the budget for the isotope component of the tracking programme. As well, the programme has secured a \$5,000 Envirolink grant, which will be used to have GNS look at Environment Southland's regional data and come up with a good sampling plan.

Dr Troy Baisden, head of Isotope Biogeoscience at GNS, and Dr Travis Horton, Isotope Scientist at the University

of Canterbury, will visit Southland before Christmas to discuss the use of isotopes here. "This programme is pretty significant for Southland and they think it's significant for New Zealand as well," Clint says

The situation in Southland could be quite complex given its variety of historic land uses. He says that the plan for the isotope analysis will be reviewed by scientists who are world leaders in the field.

Waituna platform proves its worth



Environmental Technical Officer Stacey Vreugdenhil checks equipment on the Waituna monitoring platform

It's early days, but the monitoring platform anchored out on the Waituna Lagoon in June is already delivering valuable data in real time – that means immediately. In the longer term, it will show trends over time and seasonal trends, which will help to inform decisions.

Principal Environmental Technical Officer Karl Erikson says data probes on the platform measure water level and water quality parameters – dissolved oxygen, electrical conductivity, turbidity, chlorophyll A and water temperature. "It's a nifty set up we've got."

The platform has two multi-parameter data probes, which are housed on floats that slide up and down a vertical pole as the water level fluctuates. This means that the sensors always measure the water level at the same height within the water column.

Data from the platform is being used to develop plans to improve the water quality in the lagoon. Real time monitoring also provides valuable information if any of the parameters reach critical thresholds. When the lagoon is opened to relieve flooding of nearby farms, scientists can monitor the effects on water quality as the lagoon empties to the sea.

The next step will be to attach a webcam to the platform, which will be linked to the Environment Southland website, where it will be updated hourly. Karl says this will provide images of algal blooms and the effect of lagoon openings on the landscape. He believes the webcam will also be of interest to recreational lagoon users such as fishermen. "They might find it useful to see what the weather's like and how much wind's on the lagoon." The webcam should be operational this summer.

Winning students inspired by the environment

When a group of Southland Girls' High School students began brainstorming the value of ultra-fast broadband, the benefits for the environment were high on their list.

And their imaginative ideas on how remote sensors could be used to monitor water quality so impressed the judges of the Telecom Amazing Ideas Search that they awarded the students a total of \$4000 in prize money.

The girls won with two videos, both with a strong environmental theme, after taking up the challenge to envisage the benefits of ultra-fast broadband as part of their "Minds Alive" class, which encouraged them to look for new perspectives on global issues.

In "The Fish Story", Ellice Soper, Meg Hodgson and Jennifer Forrest used animation to show how scientists could employ ultra-fast broadband to monitor water quality and respond quickly to changes threatening fish and their habitat. Jennifer said the inspiration for the quirky video came from thinking about how Environment Southland's scientists might use new technology.

The second winning entry, "The Future Awaits", predicted that ultra-fast broadband would help civil defence warn the community of impending emergencies and improve disaster response – an angle which the girls said was influenced by thinking about Emergency Management Southland's work – as well as bringing benefits

for environmental monitoring and biodiversity programmes.

"The Future Awaits" was made by Ashley Beaton, Mary Betham, Greer Collinson, Jennifer Forrest, Bayley Gibson, Keegan Manson, Meghan Pink, Ana Salesa-Henry, Chanelle Scarlett-Hammond, Zoe Smith and Ellice Soper.



With iPads in hand and ultra-fast broadband at the gate, Southland Girls' High School students look outside the classroom for their winning ideas. From left, Zoe Smith, Sarah Allan, Ashley Beaton, Ellice Soper, Meg Hodgson and Meghan Pink were part of the teams which won \$4000 for the school in the Telecom Great Ideas Competition.

Maintaining the floodways

A vital programme designed to keep Southland's major river floodways clear of unwanted vegetation is underway for another year and river management staff can't stress enough just how important it is.

Within the next four months between 500 and 600km of Southland's rivers will be sprayed as part of the floodway vegetation control programme. Environment Southland Senior Catchment Officer Ken McGraw says it is part of a continued bid to protect the riverside land.

"It is about keeping the floodways clear of

weeds that may impede the free passage of flood flows through the river system to the sea," he explains.

"The work is carried out using a combination of aerial methods with helicopters and ground-based spraying operators using tractors. It is intensive, extensive, expensive – and vital.

"If the rivers aren't maintained, woody vegetation will invade and block the floodways causing floodwaters to flow out onto the pastures and flood farms."

Historical flooding issues caused by crack willow, gorse, broom and other woody weeds blocking the floodways,

caused repeated problems for agricultural production throughout Southland.

In the early 1980s the then Southland Catchment Board undertook a series of major contract projects to completely clear all of the region's major river floodways of infestations of crack willow, gorse and broom. Since then, that work has been maintained on an annual basis.

Every year different sections of the river systems are targeted so that within a two year period every part is inspected and maintenance control programmes initiated. This year the Council will be working on sections of the Mataura, Waikaia, Oreti, Aparima, Waiau, Wairaki, Mararoa, Upukerora and Whitestone rivers.

Spraying will stop on December 21 and won't restart until January 10, to avoid having an impact on people enjoying the rivers during the summer holidays.

Ken says the spraying contractors work within a very detailed and rigid set of specifications. "There is no spraying directly over the water, only over targeted plants."

"It is weather dependant so there will be a lot of days where contractors won't be able to spray, but we anticipate covering all of the targeted areas by the end of March. If the contractors are spraying and come across recreational river users, they will talk to them and if necessary they will shift their operation for a while."

"It is an expensive programme – between \$800,000 and \$900,000 – but it is just so vital to make sure our river corridors and the capacity of the region's extensive flood protection systems are maintained."



An aerial survey of the Upukerora River shows areas which need to be sprayed to keep the floodway clear to ensure flood flows can pass.

Congratulations to the latest silver Enviroschool

Lochiel School has become the third Southland school to attain Silver Enviroschools status, after a successful day of reflection.

Students from every year level took part in the reflection, where they looked back at their achievements, compared them with the five guiding Enviroschools principles, and thought about the next steps that they wanted to take.

Environment Southland's Environmental

Education Coordinator Nikki Tarbutt said the students shared the evidence of their activities since Lochiel first became an Enviroschool. These included establishing a vegetable garden and amenity plantings, murals, a "Why Wai" inquiry into water consumption, and ongoing involvement with the Forest Hill Trust.

The school is committed to continuing its Enviroschools journey, with the ultimate aim of achieving Green-Gold status in the future.

The principles of Enviroschools are:

- Maori perspective
- Respect for the diversity of people and cultures
- Sustainable communities
- Learning for sustainability
- Empowered students

You'll find more about Southland Enviroschools on www.es.govt.nz.



This backyard bonfire smoked out the neighbourhood, causing several complaints, and was extinguished by the Fire Service.

Consider the neighbours

Think before you burn. That's the message Environment Southland Pollution Prevention Officer Leonie Grace is spreading this summer as she looks to offer some clarity over best practice for burning waste.

"One of the main messages is not to create a smoke nuisance and don't burn things that release toxic fumes into the air," she says.

"Don't burn green or wet hedge clippings – wait until they are dry, even if you have to wait a whole year. Burning when it is wet creates too much smoke and doesn't burn cleanly.

"Before you light up check the wind direction and the strength of the wind and make sure it is not blowing towards your neighbour's property."

The effects of burning waste can be far reaching. Burning rubbish can cause unpleasant smells, tainted roof water, blemished crops and soiled washing and surfaces, while smoke can cause air pollution and ill health.

Burning plastics, treated timber and hazardous substances creates smoke and fumes that release carcinogenic, poisonous chemicals into the air.

"People need to respect their neighbours and understand the harm they can cause when burning waste. Think about whether you really need to burn or not because there are a lot of alternatives – take it to the transfer station, compost it, recycle it, hire a mini skip – there are many other ways of getting rid of waste," Leonie says.

You need to know:

Your activity must not affect people, plants or animals outside of your property boundary.

You must not cause odour problems, health or safety risks or damage to other peoples' property.

You must manage any discharges that will carry in the air, such as smells, smoke dust or light material.

If you do burn then make small piles that can burn quickly, always tend your fire, keep water handy and keep piles away from fences and hedges so they don't catch fire. If needed get a fire permit and don't burn when a fire ban is on.

You can burn:

- Paper
- Cardboard
- Food wastes
- Untreated wood and vegetation

Don't burn:

- Batteries and materials containing heavy metals
- Pitch, paint or materials containing paint residues including paint containers, coated metals or painted iron or wooden fencing.
- Treated timber
- Rubber and tyres
- Hazardous materials from contaminates sites
- Waste oil and other waste petroleum products including sludge
- Agrichemicals or their plastic containers
- Tar and bitumen
- Components of motor vehicles
- Materials associated with the recovery of metals from cables
- Asbestos

Students will be safer in boats

Hundreds of school children from all over Southland will be safer on the water as a result of a boating safety programme Environment Southland has been running this summer.

Deputy Harbourmaster Lyndon Cleaver and Coastguard Tutor John Lucking have been taking lifejackets, blow-up dinghies and the Environment Southland patrol boat *Toroa* to 14 primary schools from Bluff to Garston, Te Anau to Te Tipua.

By the time they finish their rounds, Lyndon and John will have taught over 950 students how to wear a life jacket correctly, where to sit safely and why it's important to hold on tight in a boat.

Lyndon says that with each child taking the safety messages back to their own families and friends, the safe boating message will spread through the community. "If we can reach the children at a young age, the lessons will stay with them their whole lives," he says.

This is the first year that Environment Southland has offered the safe boating programme, and it proved so popular that at least six schools missed out. They will be first on the list for future programmes.



Jessica Morrison, aged 6, learned how to wear a lifejacket correctly when John Lucking visited the Southland Adventist Christian School with the boating safety programme.

Stewart Island weed workshop could be first of many

A weed identification workshop being held on Stewart Island on December 8 could be taken Southland-wide as Environment Southland looks to educate the public about garden and environmental weeds.

Biosecurity officer Amy Lagerstedt and environmental education co-ordinator Nicky Tarbutt will lead the workshop.

"We'll be teaching people how to identify weeds and equipping them with the tools to deal with them," Amy says. "We'll also be talking about what to do with the green waste after people have pulled weeds out or chopped them down, which is a really important part of it.

"I often find that once I have spoken to someone, or pointed out a weed, a week or so later they will get in touch and say 'I didn't realise it was everywhere...'" Amy says. "Part of that is about trying to make people more aware of their surroundings, so that they are not planting weeds and so that they understand the impact those weeds can have."

The free workshop will discuss both garden and environmental weeds from

Convolvulus to Old man's beard and will promote a booklet titled Plant Me Instead. The resource shows weed and non-weed species that look similar, so that gardeners can opt to plant the non-weed species.

The workshop is pitched at a basic level and is open to anyone interested in

improving their knowledge of weeds.

Depending on interest in the initial workshop, Amy is looking to take the sessions Southland-wide and says they are already looking at holding another in Bluff in the new year. Phone 03 211 5115 or email service@es.govt.nz for details.



It's a pest: Environment Southland Biosecurity Officer Amy Lagerstedt with a Cape honey flower plant found growing in a Bluff garden recently.

Restoration project planned for historic Riverton cottage

A group of passionate Southlanders is embarking on a project that will see an 175-year-old cottage in Riverton restored to its former glory.

Kohi Kohi Cottage is thought to be one of the oldest homes in New Zealand. It was built in 1837, when it was owned by Captain John Howell and his first wife Kohi Kohi and still stands today as a building of national significance, recognised by the Historic Places Trust.

The Southland Heritage Building Preservation Trust took ownership of the

property in 2006 and plans are now in place to return it to its original state.

Restoration project member Maureen Fox says a conservation report outlines a staged plan that will see the building restored in as true a state as possible.

"The report specifies the work required so, having got that, we will seek the funding for it and move forward from there," she says. "We won't rush it because we want to do it properly and we will be guided by the report and adhere to the plan as set out for us. The first stage is to do with

maintenance of the building and essential things that will need to be done.

"I think it is a tremendous challenge, but we are very fortunate to have the opportunity to do it and secure the long term future of the cottage," Maureen says.

Environment Southland councillor Marion Miller, who chairs the restoration committee, says the first step is to identify how much each stage of the project would cost before the committee applies for funding.

"We want to ensure it is as authentic as possible to its original state. We are getting some very positive feedback about it and have fantastic people involved including Murray Mouat, Russell Beck and Mike Heslin.

"If things are going to be done they are going to be done properly with this group. They have some great experience."

Kohi Kohi Cottage was inherited by Captain Howell's great, great grandson Neville Wilson, whose mother's wish was that the cottage always be preserved.



FACT OR FICTION?

There are lots of stories about groundwater – but are they really true? I asked Environment Southland Groundwater Quality Scientist Dr. Clint Rissmann to dispel or prove the myths. Here they are...

Myth **Fact**

| | |
|---|---|
| <p>Groundwater flows in rivers under the ground.</p> | <p>In Southland groundwater flows through cracks and pores between soil and rock particles.</p> |
| <p>Groundwater is always pure because soil filters out all pollution.</p> | <p>While bacteria in water may be filtered out by soil, many chemical pollutants are not changed and remain in the water.</p> |
| <p>Lake Wakatipu flows into the Mataura River.</p> | <p>The Mataura River and Lake Wakatipu are not connected underground (or over ground) at all.</p> |
| <p>If a well or bore reaches groundwater, an unlimited amount of water can be pumped out.</p> | <p>Groundwater is finite – this means it's not unlimited!</p> |
| <p>If water from a well or bore is stained it must be polluted.</p> | <p>Water can be stained without it being polluted. For example Iron sometimes can stain groundwater a brown colour.</p> |
| <p>Pouring small amounts of contaminants on the ground won't cause a problem.</p> | <p>Even small amounts of contaminants not disposed of properly can cause groundwater pollution.</p> |
| <p>Wells and Bores are the only way groundwater can become contaminated.</p> | <p>While contaminants can enter groundwater from wells and bores, when contaminants (like effluent, fertiliser, oil and hazardous waste) leak, spill or are carelessly used they can move through the soil to groundwater.</p> |

Dr. Rissmann also said that the biggest message is... **what we do on the land affects the groundwater!** So keep an eye on what you're putting onto the land.

MAKE YOUR OWN EDIBLE AQUIFER

Materials Needed

- Clear drinking cups
- Crushed ice
- Clear Lemonade
- Mini chocolate chips/crushed cookies/crackers
- Drinking straw
- Food colouring

What it represents

- Gravel
- Groundwater
- Soil layer
- A well that can 'pump' water out
- Contaminant

Method

1. Make your aquifer by filling a clear plastic cup 3/4 full with crushed ice.
2. Add enough lemonade to just cover the ice.
3. Add a layer of mini chips or crushed cookies on top of the ice. This represents the soil.
4. Add a couple of drops of food colouring to the top of the soil. This represents contamination.
5. Using a drinking straw, drill a "well" into the centre of your aquifer.
6. Slowly begin to pump the well by sucking on the straw. Watch the decline in the water table.
7. Watch as food colouring eventually enters the groundwater and diffuses.



This demonstrates how pollution can get into groundwater, how pumping can make the water table go down and how contaminants diffuse.



Bruce enjoys a day out with Dr. Clint Rissmann

- Run your dishwasher and washing machines only when they are full.
- Store drinking water in the refrigerator rather than letting the tap run every time you want a cool glass of water.
- Encourage your school to help develop and promote a water conservation ethic.
- Take shorter showers.
- Don't leave the water running when brushing your teeth.

- What we do on the land affects the groundwater, so be mindful of what you're putting or spreading on the ground.
- Use native plants in your garden. Native plants are adapted to our climate and pests, so there is a minimal need for water, fertilizer and pesticide applications.
- If you have a bore at home, make sure it's well protected. Check out *How Well is your Well?*, available from the Environment Southland website.
- If you're on a farm, keep an eye out when farm dairy effluent and fertiliser is being put on. Contact Environment Southland for more information.
- Use a hose with a shut-off nozzle for rinsing.
- Never put water down the drain when there may be another use for it such as watering a plant or the garden, or cleaning.

Use less

Keep it clean

There are so many things that you, and everyone else, can do for groundwater, and water conservation in general. I've grouped them into 'keep it clean' and 'use less'. We're coming into summer so it's also good to start thinking about how you can use less water.

HOW CAN YOU HELP?

CROSSWORD PUZZLE

Check out the groundwater crossword on Bruce's website – www.brucecgull.co.nz. You can use the clues listed on the website or the information about groundwater included in this bulletin (they're all **highlighted**!).

In most areas of Southland the groundwater is safe to drink. However, we are starting to see changes, and that the quality of the groundwater is getting worse. If **contaminants** like effluent and fertiliser are put on and seep through then they can make the groundwater unsafe.

Is the groundwater safe to drink?

In Southland people use groundwater for town supply water, to **irrigate** farms, to use in dairy sheds and to use in industry. Most People get groundwater by using a **well** or a **bore**. Are we taking too much groundwater in Southland? Environment Southland works hard to ensure that we aren't taking too much groundwater. However, in some areas we have **allocated** all the water. It is hard to know how much is too much when it comes to groundwater, because you can't see it like a lake or river.

How do we use groundwater?

WATER ALL AROUND... AND IN THE GROUND?

What is groundwater?

Groundwater is water that comes from the ground. Wow, that sounds pretty easy doesn't it? Not many people know about groundwater, where it comes from, what it's used for, what can harm it and how we can protect it.

So where does groundwater come from?

Groundwater comes from rain, snow, hail and sleet – any falling water... that soaks into the ground. The water moves down into the ground and through **particles** of soil, sand, rock and gravel until it can't travel anymore because the area is filled with water, or saturated. The top of this layer is called the **water table**. The organisation of sand and gravel where groundwater is stored is called an **aquifer**.

Where does the water you drink water come from? Do you know? Some people collect water in rain tanks, for others it comes from the town or city supply (which in Southland come from both the rivers and the groundwater).

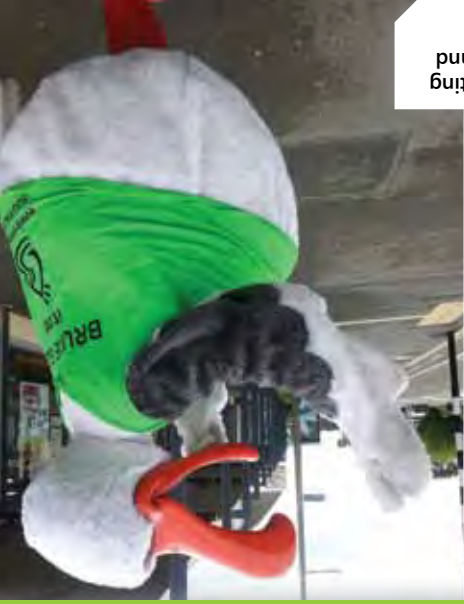
Groundwater sometimes trades places with surface water (rivers, streams, wetlands, lakes). Water from the ground can move into surface water and surface water can move into groundwater! Now that sounds way more complicated, and happens lots in Southland.



This model shows how groundwater is stored in between particles below the ground's surface. Notice how the river and the groundwater are inter-related where they come close together at the bottom right of the model.

Not sure what a highlighted word is? See if you can guess in the crossword on my website at www.brucecgull.co.nz

As well as caring for the environment, keeping in touch with my buddies and running my website, I've been getting out and about supporting community events. Here are some pictures of me at the Tokonui Community Parade and the South Alive Fruit and Nut BBQ.



WHAT'S BRUCIE BEEN UP TO?

Brucie



Best wishes,

got any questions; brucecgull@es.govt.nz

Enjoy reading and doing the activities, and don't forget to contact me if you've

groundwater.

Unfortunately some of our groundwater in Southland is becoming contaminated. This is because what people are putting on the land is going through the soil and into groundwater, contaminating it. (You can see how this can happen with the edible aquifer) So the big thing to remember is what we do on the land affects the

Fun making the model especially the edible aquifer! Yum yum
wonderful part of our environment. It's also been a bit of To some people groundwater is mysterious but to me it's a
I've decided to write about groundwater in this bulletin.
including the fish and insects that live in our rivers and streams.

WOW, summer is almost here! And from what my Environment Southland friends tell me we could be in for a hot and dry summer. That means it's a good idea to keep tabs on how much water you're using so there's enough for everyone...
Hello Buddies,



IT'S PARTY TIME!

BRUCIE'S BIRTHDAY BASH!!!

Brucie loves his birthday parties – he really looks forward to seeing his buddies. And next year we're planning another fabulous day. We're telling you about it first — Brucie doesn't know about the party yet, so if you see him around, be sure to keep the secret! His birthday party will be on **Saturday 23 February 2013 from 11am—1pm.**

There'll be fun activities for Brucie's buddies, and we'll do something good for the environment. We'll be in a great outdoors place, there'll be yummy food, and of course Brucie will be there to meet you all!

I need to know who's coming so I can organise the party. If you want to come, please fill in the form and send it back by Friday 1 February. After that I will let you know where the party is and what you need to bring.

See you at the party!

Nikki

P.S. If you're not part of Brucie's Buddies Club, you can sign up on our website: www.brucecgull.co.nz.

Cut this out and send it back by Friday 1 February to: **Brucie's Birthday List, Environment Southland, Private Bag 90116, Invercargill 9840.**

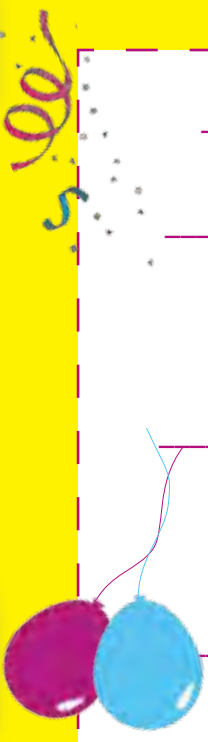


My name is _____
and I would love to come to Brucie's Party on Saturday 23 February 2013.
I am bringing _____ grown-ups. Their names are:

I am bringing _____ friends and/or siblings. Their names are:

My address is: _____

Phone: _____
My birthday is: _____
Not a Brucie's Buddy member but would like to be? Tick here:





What's Bruce been up to?
Activities
Groundwater myth busting!
Groundwater
Birthday bash invite

IN THIS ISSUE

BRUCIE'S BUDDIES BULLETIN
OFFICIAL NEWSLETTER FOR BRUCIE'S BUDDIES

