

EnviroSOUTH

December 2022

Award winners

Recognising our environmental champions

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Climate resilience

A fish-friendly solution

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environment
SOUTHLAND
REGIONAL COUNCIL

Te Taiao Tonga

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EnviroSOUTH

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Cover

« **The Environment Southland Community Awards 2022 were held recently at Ascot Park in Invercargill. The Waiau Rivercare Group's Children's Kaitiaki Project were winners of the Environmental Action in Education Award. Pictured from left are: Oli Abbot, Libby Anderson, Tomas Clark, Malakai Mangion, Maddi Norman and Alyssa Harding.**



Our environment awards are a wonderful celebration of community.

We always get high calibre nominees and this year was no exception.

It's an incredible showcase of Southlanders' mahi and innovation – from individuals, to schools, groups, farmers and businesses, big and small.

So often the people involved are going about their business, under the radar. Getting them involved in our awards isn't always easy, such is the humility of Southlanders, who so often tell us they're not doing anything special.

The truth is, they are our environmental champions, leaders in our community and they deserve all the recognition we can give them.

You'll find out a little about them in this issue, and even more on our website where there are short videos of all our nominees, which is great viewing.

Wilma Falconer, Chief Executive, Environment Southland

Nicol Horrell, Chairman, Environment Southland

It is an honour to lead the Council for another term.

Regional councils don't have a mayor. Instead, the incoming councillors vote for their chair. I was keen to continue in the role and the councillors backed me.

I have been the chairman since 2016 and on the regional council since 2007.

Councillor Jeremy McPhail is the new deputy chairman.

Of our 12 councillors, five are new, although, Maurice Rodway was previously on Council from 2007 to 2019.

Also new are Phil Morrison, Alastair Gibson, Paul Evans and Jon Pemberton.

Councillors were sworn in at our inaugural Council meeting on 28 October and we have been coming together regularly to get to know one another and to continue our work.

Environment Southland

A thriving Southland – te taurikura o Murihiku



▲ Lucas Paterson, 9, emerges from under his desk after the ShakeOut.

Riverton school students prepare for double threat during ShakeOut

Riverton is well-known for its beaches and surf, but when the ground moves residents also need to be prepared for what might happen when the shaking stops.

Riverton Primary School was one of many schools around Southland and New Zealand that took part in the ShakeOut national earthquake drill and tsunami hīkoi (walk) to higher ground on 27 October. Just after 9.30am, the school bell rang and students dived under their desks practising the Drop, Cover, Hold action.

Principal Tim Page says as Riverton was really close to the sea there was a fair

chance that a large earthquake could be followed by a tsunami.

“If there’s a tsunami we have to head to higher ground, which in our case, is the Riverton Racecourse.”

The Emergency Management Southland (EMS) team visited the school along with Aparima College, Riverton Kindergarten and Riverton Childcare during the ShakeOut.

In the hall afterwards, EMS community advisor Mallory Wood asked students if they had experienced an earthquake and almost every hand went up.

“New Zealand experienced about 20,000 earthquakes a year – and because of that everyone needed to be prepared,” Mallory says.

Students asked heaps of questions – many around what would happen if people were out fishing.

Year 6 student Kyla Tohiariki, 11, says she experienced a big earthquake in Blenheim.

“The bed was shaking and I waited for my aunty to come. It was scary, but I knew what to do.”

Her Year 6 classmate Georgia Eade, 10, has experienced both an earthquake at night at home and one while at school. “There was one at school where we could see the lights moving, and one in the middle of the night where the cat started meowing.”

Tim says knowing what to do in an earthquake was instinctively embedded in students’ heads.

“We’re pretty prepared here and having the support of EMS and the emergency services also really helps.”

For more information check out www.cdsouthland.nz

New wetlands considered to help Waituna

Constructing new wetlands is a key tool those working in the Waituna area hope will help to restore the mana of the lagoon and catchment.

The Whakamana te Waituna Trust was set up in February 2018 to coordinate the activities of key agencies and groups working in the Waituna catchment.

At that time, a successful application to the Ministry for the Environment's Freshwater Improvement Fund committed \$13.3 million in funding over five years. Whakamana te Waituna's programme was established to address the pressures on, and ensure the long-term resilience of, the Waituna community, catchment and lagoon.

Fonterra senior partnerships manager Cain Duncan leads the project's contaminant reduction work programme, which is currently trialling constructed wetlands in the catchment. Other trials include creating sediment traps to enable farmers to clear out sediment that was previously clogging waterways; and on-farm planting designed to keep stock from waterways and provide a natural sediment filtering system.

"The Trust has been keen to explore what could be done across the wider catchment to improve water quality," Cain says.

Whakamana te Waituna partners

The Whakamana te Waituna partners are Te Rūnanga o Awarua/Te Rūnanga o Ngāi Tahu; Department of Conservation; Environment Southland; Southland District Council; and Fonterra (joint Living Water programme with DOC).



▲ Cain Duncan (Fonterra) talking with Jane Bowen (DOC) at Waituna Creek.



▲ **Cain Duncan (Fonterra senior partnerships manager)**

Cain was born in Lumsden and grew up on a small sheep farm at Rimu. He works with Southland's rural community as part of his day job and was recently a member of the Southland Regional Forum.

“As a Trust, we’ve looked at ways to prevent contaminants from flowing down into Waituna Lagoon. You can undertake measures on-farm such as using nutrients more efficiently or capturing contaminants before they leave the farm boundary.”

Wetlands are an important tool because they act as a filter, trapping sediment and improving water quality. They can also provide a buffer against erosion, prevent nutrients from leaching into waterways, reduce the impact of flooding and provide native habitats and recreational opportunities.

“With a trial to construct a wetland, we’ll learn about how much it costs to construct it, what are the best ways in these peaty soils to get water into the wetlands. You can have large wetlands where you take water off the creek, go through the wetlands and come back out; or you can have wetlands where the water soaks in like groundwater.”

Investigations into the site location and scale of constructed wetlands are now underway, with potential for at least one wetland to be created on land purchased recently.

Whakamana te Waituna Trust co-chair and Environment Southland chairman Nicol Horrell says land bought for the Whakamana te Waituna project is a valuable addition to work underway to clean up the Waituna Lagoon.

“Some 150 hectares of land in two large parcels, plus a few smaller strips, has been strategically purchased because the land is flood-prone, and has been difficult for previous owners.

“Being able to use the land in this way means we’ll be able to learn more about the tools available to us to reduce contaminants reaching waterways, and this will hopefully be useful for other parts of our region.”

Cain says the Trust engaged consultants to look at potential wetland options based on the previous research undertaken in the Waituna catchment and throughout New Zealand.

“There are two scenarios to test and understand – building a whole lot of small structures, or building a larger scale, catchment wetland.

“The disadvantage of building numerous small structures across the catchment is the maintenance – if you’ve got 200 little structures you’re trying to manage as a project, it’s very difficult and quite costly to get around and maintain all those and make sure they’re working. For this type of project, it’s clear it will be more efficient to have a small number of larger-scale interventions.”

Five separate wetland sites were identified and the feasibility of the best sites will be decided in the next few months.

“We still have a way to go before the decision is made to proceed, but hopefully that can happen by early next year. If this trial is successful, the next stage would be to look at a large-scale 100-hectare-plus constructed wetland on the western side of the catchment where Waituna Creek flows down.”

Waituna Lagoon

Waituna Lagoon features a very diverse ecological habitat, a unique aquatic plant community, internationally important birdlife, and large areas of relatively unmodified wetland and terrestrial vegetation, resulting in a number of nationally significant ecosystems.

In addition, the lagoon is highly valued for its aesthetic appeal, its rich biodiversity, duck shooting, fishing (for brown trout primarily), boating, walking and scientific values.

To find out more go to www.waituna.org.nz





Championing sustainability with every pour

▲ Black Shag owners Sylvie Chasteau and Dion Milanesi.

Invercargill café Black Shag co-owner Sylvie Chasteau believes running the business as environmentally aware as possible has led to its success.

When Sylvie Chasteau and Dion Milanesi first started the café they wanted to do it in a way that left as soft a footprint as possible. So, they designed their business from the ground up with that in mind.

A lot of those key decisions were to do with reducing waste going to landfill.

Early on, the Black Shag team also began making their own alternative milks and sought out a local milk supplier, further reducing their environmental footprint.

When the country went into lockdown in 2020, they decided they would pursue their interest in gardening and started a project

in the back garden. The idea was simple – to grow produce for the café that would reduce their costs going out, something that was essential during that time.

“COVID made us deconstruct everything we were doing and how we were spending our labour and other budgets. The interesting thing that came from the garden was the opportunity that collaboration presents. At one stage we got a Government subsidy for someone to take on the garden, which enabled us to make heaps of progress.”

Sylvie says having a garden has become a great way of connecting with people.

“Our social media presence has been enhanced by showcasing our sustainable way of running a business. So we are using that as a tool to build that community more and show the benefits that come with it.”

In the last few years, Environment Southland has also taken steps to understand the impacts of climate change and how, together as a community, we can respond.

Environment Southland climate change sub-committee chair Lyndal Ludlow says the council has made good progress, signaled intent, initiated conversations with neighbouring councils and continues to focus on working with others to understand and tackle Southland’s challenges.

“With more businesses like the Black Shag making these sorts of environmental decisions, our region will strengthen its resilience and be better able to adapt to our changing climate.”

Putting in the effort to reduce their impact seemed obvious to Sylvie.

“If you have a choice between a low impact way of operating and the opposite, then the decision was a no brainer. Why wouldn’t we?”

“The biggest challenge is the work that needs to go into it. But what we have tried to prove is that it is not as much work as you may think and you can become more profitable. The beds in the garden do take a lot of time – but the other actions we take save time, so it balances out in a roundabout way.”

ENVIRONMENT SOUTHLAND COMMUNITY AWARDS 2022

CELEBRATING OUR
ENVIRONMENTAL
CHAMPIONS

The 2022 Environment Southland Community Awards celebrated our environmental champions on Thursday 10 November at the Ascot Park Hotel in Invercargill. The awards showcased the incredible work being done by the Southland community to improve our environment. Congratulations to all the amazing nominees and the very special winners.



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▲ Scott Waddell from Mataura Valley Milk (centre) receives the Councillors' Special Award from Environment Southland councillors Peter McDonald and Lyndal Ludlow.

COUNCILLORS' SPECIAL AWARD

WINNER – MATAURA VALLEY MILK

Mataura Valley Milk's 'Project Recharge' led by Scott Waddell is a New Zealand, and possibly a world first, where the business is tackling the ambitious goal of converting the plant to full electrification. Before deciding on the high-pressure electric boiler the plant is running with, there was a large amount of research done into alternative options, but for Mataura Valley Milk it was simple – it's about the big picture and achieving their own goals. Summed up by Scott, "it's better for the environment – it's better for everyone."

The high-pressure electric boiler will replace the current coal-fired boiler, removing the plant's reliance on lignite coal and reducing carbon emissions by approximately 22,000 tonnes of carbon dioxide equivalent per annum. The judges commented that Mataura Valley Milk was leading the way in the climate change space with 'Project Recharge' being, "the most significant thing happening nationwide in the climate change space at the moment. They have taken some big risks but are doing the right thing

environmentally, despite the costs and are an example of industry stepping up and making a significant change."

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▲ Waiau Rivercare Group's Children's Kaitiaki Project, winners of the Environmental Action in Education Award – from left: Oli Abbot, Libby Anderson, Tomas Clark, Malakai Mangion, Maddi Norman, Alyssa Harding, with John McCarroll, operations manager Department of Conservation.

ENVIRONMENTAL ACTION IN EDUCATION AWARD

WINNER – WAIAU RIVERCARE GROUP'S CHILDREN'S KAITIAKI PROJECT

What started as a t-shirt design competition for the tamariki (children) of the Waiau catchment to increase awareness about the unique regulatory circumstances impacting the Waiau River, quickly grew into something much more.

Tamariki from the two local schools, Hauroko Valley Primary and Waiau Area School, as well as tamariki from the wider community have been supported by the Waiau Rivercare Group to share the story of their river, taking it as far as the Environment Select Committee in Wellington. The project had the group

present on behalf of the community's petition to save the Waiau River and remove the hydro exemption from the National Policy Statement for Freshwater Management 2020.

For the tamariki involved in the project, it is simple – they want to be able to swim and fish in the river. "If we make a difference now, the next generation will come along and make a difference too." To the judges, it was clear Te Mana o te Wai was at the core of the Waiau Rivercare Group's Children's Kaitiaki Project and the tamariki are taking ownership of the work they are

doing to fight for their river. "Right from the start it was very evident about the culture of the schools with the focus on learning and educating them about their river."

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▲ John Whitehead (left), winner of the Individual Environmental Action or Leadership Award with Jeremy Winter, ANZ relationship manager.

INDIVIDUAL ENVIRONMENTAL ACTION OR LEADERSHIP AWARD

WINNER – JOHN WHITEHEAD

Passionate about native flora and fauna, John Whitehead has dedicated more than 30 years of his life to improving our region's environment. His love of the environment came from studying at Massey University and being a part of its Alpine Club. He remains invested in the area, a member of Nga Tamariki a Tane Society Inc, which owns a block of land in the Ruahine Range in the Manawatu.

A member of the Waiiau Working Party since 1990, he was a part of consent negotiations around the power scheme. John has also been a trustee of the

Waiiau Fisheries and Wildlife Habitat Enhancement Trust since its inception in 1997 and chair of the Pomona Island Charitable Trust since its inception in 2005.

Most recently, he has been a member of the Southland Conservation Board from 2011 until retirement this year and in his spare time – he farmed in the Te Anau basin for 40 years. John's passion for biodiversity saw him put in place the first QEII covenant in the basin. Pomona Island, though, is what John describes as his biggest challenge, sometimes spending 20 hours per week completing trust work. The

judges described John as someone who gets in and gets the work done, and who has developed in the leadership space over time. "John has made an outstanding individual contribution to Southland's biodiversity over a long period of time."

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▲ Waiiau Rivercare Group, (from left) Blayne de Vries, Eric McKenzie, Glenys Steel, Paul Marshall, Claire Jordan, Peter Horrell, Christina Vaughan, with WM Environmental representatives Fiona Walker and Renee Murrell.

ENVIRONMENTAL ACTION IN THE COMMUNITY AWARD

WINNER – WAIIAU RIVERCARE GROUP

The Waiiau Rivercare Group is facing a challenge like no other when it comes to trying to restore the hauora (healthy resilience) of the Waiiau River. Formed in 2017 with strong community support and incorporated it in 2019, the group is working hard to restore the health of the Waiiau River. Their goal is to get back the river the community once had.

The group has 425 members – the oldest member is 94 and still active and the youngest members are new entrants at the local primary schools. Working with

these schools, the Children's Kaitiaki Project was established, and the group has campaigned effectively to give the Waiiau River a voice on not only a regional platform, but also a national platform. For them, water quality and water quantity cannot be separated, with the vast majority of the Waiiau River's water being diverted through a large hydro scheme.

The group continues to advocate for the river through various means and working with various groups and organisations. The judges were impressed by the group's drive

and well-thought-out campaign with very clear objectives. "It is impressive how they have approached it, their partnerships are strong, and they're punching well above their weight to engage at a high level."

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▲ Freedom Acres, winners of the Environmental Leadership in Farming Award. From left - Jack Bennett, Sheree Ditchfield, Dylan Ditchfield, Tika Ram Rai and Mike Doesburg (Wynn Williams).

ENVIRONMENTAL LEADERSHIP IN FARMING AWARD

WINNER – FREEDOM ACRES

Dylan and Sheree Ditchfield have farmed in Murihiku Southland since 1997. The couple has progressed from sharemilking, to equity partnerships, to sole farm ownership and now regard themselves as being guardians of the whenua they are responsible for, which includes their 176ha farm they call 'Freedom Acres'.

Freedom Acres is currently involved in a wintering trial around bale grazing, which is seeing a great reduction in nitrogen leaching, improved soil health and pasture regeneration. The process takes about five years and the paddocks effectively

regenerate themselves, which is playing a part in their overall focus of lowering the farm's environmental footprint. The farm team very much operate as a collective with son Blake, Tika Ram Rai and Jack and Megan Bennett all invested in the farm's purpose and goals.

The Ditchfields also founded and run a farming to freedom course, which is a business, life and leadership course. The judges said the Ditchfields were inspirational and real leaders in the farming sector, with their whole philosophy and approach of people being

at the core of their operation. "If you want a definition of sustainability in farming this is about as close as you could get – it's good for the cows, good for the soil, good for the water and good for the people."

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WYNNWILLIAMS

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▲ Aparima Pestbusters, winners of the Environmental Action in Biodiversity And Biosecurity Award, from left – Don Goodhue, Craig Wylie, Roger Baillie and Paddy O'Brien, ILT president.

ENVIRONMENTAL ACTION IN BIODIVERSITY AND BIOSECURITY AWARD

WINNER – APARIMA PESTBUSTERS

Aparima Pestbusters is a volunteer group that undertakes pest control in the Riverton area, particularly in Mores Scenic Reserve. The group's mission is to maintain habitats of native and endemic flora and fauna in the Aparima area to protect them from introduced pests.

The group has been operating since 2008. Today, the core focus is on possum, rat and feral cat control with a network of 500 bait stations. This year, 430 bait stations have been replaced and the group has adopted

the use of the TrapNZ app to manage the bait stations. Aparima Pestbusters has 20 active volunteers involved in managing bait stations.

Last year, they developed and signed a memorandum of understanding with the Southland District Council, which sets out the respective responsibilities of the parties.

The judges were impressed with what the group has achieved and the leadership the group is showing. "They have had a

collaborative approach right from the start and the group's focus has been to bring people on board first, and then tackle the work they want to complete."

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▲ Between the Domes Catchment Group co-chairs Laurie Selbie and Jim Andrew, winners of the Environmental Action in Water Quality Improvement Award.

ENVIRONMENTAL ACTION IN WATER QUALITY IMPROVEMENT AWARD

WINNER – BETWEEN THE DOMES CATCHMENT GROUP

Established in 2017, the Between the Domes Catchment Group covers Mossburn, Five Rivers, Lumsden, Lintley, Castlerock and everywhere in between.

Uniquely, the group operates with three chairs – Jim Andrew, Laurie Selbie and Daniel Jones. Jim is a dairy farmer in the catchment, Laurie a sheep and beef farmer and Daniel owns the nursery in Lumsden. The group has been leading four major projects in the catchment, supported by Thriving Southland – a bale wrap recovery scheme, a catchment-wide survey on farm

data, a mental wellness focus through various events, and lastly the construction of three major wetlands in the catchment.

The survey has shown that some impressive actions to improve water quality are being undertaken in the environment to better protect the environment. For example, 67% of respondents planted natives between the value of \$1000 and \$200,000 in the last three years, and 62% of respondents were planning additional planting in the next five years.

Judges commented it was one of the few projects they had seen with a long-term focus. “It’s clear to the group, even though they are at the top of the catchment, they have an important role to play.”

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▲ Tom O'Brien from Welcome Rock, winner of the Environmental Leadership and Innovation in Business Award, with Aon representative Graham Wilden.

ENVIRONMENTAL LEADERSHIP AND INNOVATION IN BUSINESS AWARD

WINNER – WELCOME ROCK

Tom O'Brien is a big picture thinker and it is this thinking that has seen his family's once traditional high country station transform into the Welcome Rock experience.

Named after the prominent rock that sits on the skyline above the homestead, Tom and a team of volunteers built the entire 27 km walking and mountain biking loop track by hand, and in December 2014 the trail was officially opened. It took a total of two years and 5,500 hours to build the track by pick and shovel with Tom and his

army of volunteers building between five and 150 metres a day.

The business has now further expanded with Welcome Rock also hosting The Revenant – New Zealand's most gruelling ultra-adventure run, where the majority of competitors do not cross the finish line.

Welcome Rock also has an organic garden and is offering unique experiences to groups and schools.

The judges were impressed with Tom's ability to build on ideas that align with his

values and the vision he has. "Everything is well considered and it is quite clear they are very good at what they do, which has a light touch on the environment, but has been a lot of hard work."

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▲ Jody and Blair Drysdale from Hopefield Hemp, highly commended in the Environmental Leadership and Innovation in Business Award.

ENVIRONMENTAL LEADERSHIP AND INNOVATION IN BUSINESS AWARD

HIGHLY COMMENDED – HOPEFIELD HEMP

Third-generation Balfour farmers Blair and Jody Drysdale had spent 15 years talking about producing something on their property that they could take directly to the consumer. When legislation changed around growing hemp in 2018, they identified their opportunity and with that Hopefield Hemp was born. The couple described starting with a leap of faith, which continues to expand as the business goes from strength to strength. The first year the Drysdale's planted four-and-a-half hectares in hemp, which has evolved into just shy of 12 hectares this year. The operation sees the Drysdales undertake the vast majority of the work from the paddock to the consumer on-farm. Along with growing their hemp, they also farm a

mixture of arable and sheep and beef. It's a simple 'why' for the Drysdale's – it's creating opportunities for their three children, who are also involved in Hopefield Hemp. The judges commented that the Drysdales were an impressive duo who have outstanding innovation and are not afraid to give things a go. "They're not only leading themselves, but paving the way for others."

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AWARDS FINALISTS

- ▶ APARIMA PESTBUSTERS
- ▶ BETWEEN THE DOMES CATCHMENT GROUP
- ▶ DAVAAR & CO
- ▶ FORK AND SPADE
- ▶ FREEDOM ACRES
- ▶ DOT AND GEOFF STEVENS
- ▶ GEOFF YOUNG
- ▶ GEORGIE GALLOWAY
- ▶ HOPEFIELD HEMP
- ▶ JOHN WHITEHEAD
- ▶ KIWIHARVEST
- ▶ MANGAPIRI DOWNS ORGANIC STUD FARM
- ▶ MATAURA VALLEY MILK
- ▶ MT CHOCOLATE
- ▶ NZ CONSERVATION SERVICES
- ▶ OMAUI TRACKS TRUST
- ▶ SOUTHERN FARMERS MARKET
- ▶ SGHS LEO CLUB
- ▶ WAIAU RIVERCARE GROUP
- ▶ WAIAU RIVERCARE GROUP – CHILDREN'S KAITIAKI PROJECT
- ▶ WAIKAKA WALKWAY
- ▶ WELCOME ROCK



▲ Environment Southland's Council Left to right: Cr. Phil Morrison, Cr. Neville Cook, Cr. Alastair Gibson, Chairman Nicol Horrell, Cr. Robert Guyton, Cr. Peter MacDonald, Cr. Maurice Rodway, Cr. Jon Pemberton, Cr. Eric Roy, Cr. Lyndal Ludlow, Cr. Paul Evans, Deputy Chairman Jeremy McPhail.

Nicol Horrell was re-elected as chairman for a third term by Environment Southland councillors at the inaugural meeting of council in October, following the 2022 local government elections.

Chairman Horrell says he looks forward to working with all the councillors to build a strong team.

There are five new councillors: Paul Evans for Fiordland constituency; Alastair Gibson for Eastern-Dome constituency; Jon Pemberton for Southern constituency; and Maurice Rodway and Phil Morrison for the Invercargill-Rakiura constituency.

Chairman Nicol Horrell was re-elected unopposed in the Western constituency.

The other councillors won contested seats: Deputy chairman Jeremy McPhail (Eastern-Dome); Peter McDonald (Hokonui); Eric Roy, Lyndal Ludlow, Neville Cook and Robert Guyton (Invercargill-Rakiura).

Farewells

Lloyd McCallum Southern Constituency

Lloyd represented the Southern constituency for three terms from 2013 until 2022. He was elected deputy chairman in his second and third terms and served on many committees, including chairing the Regional Transport Committee in his last term. Lloyd was not re-elected in 2022.

David Stephens Eastern-Dome Constituency

David represented the Eastern-Dome constituency for two terms from 2016, retiring in 2022. He was the chair of the South Port Sub-committee during his last term and also a judge of the Environment Southland Community Awards.

Allan Baird Fiordland Constituency

Allan represented the Fiordland constituency from 2019 until 2022. He was the deputy chair of the Regional Transport Committee and a member of several other committees – Strategy and Policy, Regulatory, and Organisational Performance and Audit. Allan was not re-elected in 2022.

Bonnie Mager Invercargill-Rakiura Constituency

Bonnie represented the Invercargill-Rakiura constituency for one term from 2019 and didn't seek re-election in 2022.

Lloyd Esler Invercargill-Rakiura Constituency

Lloyd represented the Invercargill-Rakiura constituency for one term from 2019 and didn't seek re-election in 2022.

Protecting communities

Flood warning systems are crucial in helping communities, emergency services and councils plan for, and respond to, flooding.

Southland's flood warning system has been in operation since 1948, first instituted by the Southland Catchment Board on the Oreti River upstream of Lumsden.

Now, nearly 75 years later, even though there's been a quantum leap in technology, the primary objective remains the same.

Environment Southland's team leader hydrological response Chris Jenkins has worked for the council for 36 years. In that time, he's played a key role in establishing the monitoring network and has worked in a number of flood responses.

He says one of the things he enjoys most is learning and implementing new technology.

"When I first started we were just monitoring river levels and rainfall. Some of the water level recorders still had clockwork motors that were wound by batteries.

"In the late 1980s, we established our network with dataloggers that relayed information back via radio. Thanks to these dataloggers we now collect all types of data from water quality to climate. Implementing these new sensors into our network has made the role more interesting."

There's no 'flood season' as such, but Southland experiences twice as many floods during summer as other seasons and these tend to be of a higher magnitude, as warmer air can hold more water, which tends to create more intense rainfall. The community should however be prepared for flooding all year round.

Chris says the chief function of the team charged with flood warning duties is to first recognise the signs and then act to warn the community.

Floods don't keep a reliable timetable, but the team does usually get a few hints.

Flood warnings and river levels information

You can see instantly if Environment Southland is issuing flood warnings by checking the front page of our website, www.es.govt.nz. You can also see the monitoring information on a map and table by clicking through to our Maps and Data section.

You can check river levels in all the major river catchments at any time by looking at the Flood Warning page on the website, or calling the automated telephone service on (03) 211 5010.

In the event of flooding, Environment Southland will also push out notifications through the Antenna app. Download this from your app store.



MetService gives a 'heads-up' with its weather watches and warnings, delivering a window of opportunity for Chris and his team to check their equipment, making sure everything is ready to go.

Even in 'peace time' when there is no imminent threat, the Council monitors rivers across the region via telemetry devices that feed data back to the Environment Southland offices, electronically, every 10 minutes.

Before the age of recorders or telemetry, the Post and Telegraph staff would read river gauges every two hours and phone the information back to the Catchment Board.

◀ Environmental technical team members Tessa Scully, Chris Jenkins and Michael McDonald install flow recorder equipment at the Lill Burn monitoring site. This site uses a radar mounted on the bridge to measure the water level of the river.

ies since 1948



▲ Environmental technical officer Tessa Scully carries out high-flow gauging at the Makarewa River at Counsell Road monitoring site during the February 2020 flood.

Today, Environment Southland maintains and gathers river-level data from 51 flood warning sites. Nineteen sites are specifically for monitoring river levels and generating flood warnings.

The changes in technology have led to significant improvements in the availability and reliability of information, and in 2017 Environment Southland installed the first satellite site.

For the flood warning officers, as river levels rise to pre-determined trigger levels, an alarm alerts them and then a response springs into action.

Chris says once the alarm rings the frequency of monitoring increases, a flood warning message is posted on the Environment Southland website and Facebook page and the people that need to know – within the organisation and emergency services – are advised about what might lie ahead.

“The MetService provides us with predicted rainfall for the region based on three global computer models,” Chris says. “This data is fed into our flow runoff models. As this is

predicted rainfall, the forecast has a larger margin of error but gives us an idea of the potential magnitude of the event.”

While the rain is falling, the actual rainfall data is fed into the flow runoff models. These models provide more information about flood peak times and magnitudes, and have a lower margin of error than the forecast rainfall model.

With more certainty, staff can make more informed decisions about any actions that need to be taken.

As the intensity of a flood increases, so too does the need to advise the public that floodwaters may soon mean the community need to take action. Pre-recorded radio messages are broadcast on several local stations to alert the community.

Even with the telemetered monitoring equipment, staff are still sent into the field to measure floodwaters to ensure the data being fed into our systems is accurate.

Update on Mataura River stop banks

In August 2022, an evaluation of the Mataura River stop banks by specialist engineers was received that identified concerns about their capacity. The investigations highlighted that further work was required urgently, to better understand the capacity and integrity of the stop banks.

These investigations, now complete, included detailed geotechnical investigations. This information is currently being analysed and used to produce a 2D hydraulic model. This work will help determine the solutions to the stop bank capacity issues, and any changes to the ‘trigger’ levels for providing communities with flood warning information, and guidance on any evacuations that might be required.



From fisher to fish pas

Gerard Manshanden knows a lot about fish behaviour, applying his knowledge to provide safe fish passage at pump stations, worldwide – and soon, in Southland.

Gerard lives on the shores of Lake IJsselmeer, a closed-off inland bay in the central Netherlands covering 110,000 ha. Earlier this year, he travelled to New Zealand, visiting the Stead Street pump station site next to the Oreti New River Estuary (4,100 ha) in Invercargill, and the Mangawhero pump station in the Waikato.

Gerard is the co-founder and CEO of Fishflow Innovations, a company leading internationally in the design and build of fish-friendly pumps and fish protection solutions. Two of Gerard's pumps are being installed in the new Stead Street pump station, replacing the old pumps, which are more than 70 years old and, unlike the new pumps, do not provide safe passage for our native fish.

The story of how Gerard went from commercial fisher to innovator in the Netherlands will be relatable to many in Murihiku Southland. Both regions have an extensive coastline, large lakes, and expansive low-lying land areas susceptible to inundation from flooding, storm surge, and rising sea levels. Fishing and food gathering provide significant cultural, social and economic benefits to the communities and regions.

Gerard was the son of a commercial fisher, "I wanted to be a doctor, but after my father died when I was 16, I had to make money to live. So, I took over the company and became a fisherman instead."

"I fished eels, but I also fished bream for a lot of the year, and the fishery was good. So, I know a lot about fish and their behaviour."

"In the Netherlands, we were always taught that fish were not very smart. But they are much smarter than we think.

Right – One of the new fish-friendly pumps in transit to an Invercargill storage facility.

Bream swim in a school. "When I started to fish Lake IJsselmeer, I noticed that we caught fish that were 75-80 years old. These old fish must be very smart; otherwise, they would have been caught as much younger fish."

He explains that bream 'school for life', remaining in the same social group, and that their social behaviour is complex. As a diver, he observed some of the subtle ways bream communicate through touch when schooling.

Gerard made other valuable discoveries of fish behaviour when undertaking non-lethal monitoring studies of bream to help better manage the fishery. "When the population size was smaller, you might think the fish would start growing faster because there was more space and food. But they just got skinnier. They didn't do well in smaller groups."



▲ Gerard Manshanden, co-founder of Fishflow Innovations, supplier of Southland's new fish-friendly pumps

"I stopped commercial fishing in the early 2000s. In Holland (now the Netherlands) and the rest of Europe, the water quality had become so bad, particularly the organic pollution, and the fish stocks collapsed."



sage innovator

He then applied his knowledge to rebuilding the fisheries, focusing on fish passage and fish protection around pumpstations.

While water boards in the Netherlands used 'Archimedes' screw pumps, they were very inefficient to run and required a lot of maintenance and, therefore, ongoing costs. "Eighteen years ago, the water board where I lived gave me a screw pump to make the channel next to where I lived fish-friendly. When I started it up, the first thing I noticed was that it was very inefficient. So, I began to make improvements. I made a pipe around it. I changed the shape of the blades and made other refinements. Today our pumps are 100% efficient and economical to maintain and run over their lifetime, which exceeds 78 years."

After his initial tinkering with the pump next to his home, Gerard partnered with Marcel Klinge, a fish biologist at Witteveen+Bos Consulting Engineers. Marcel was looking for a solution for a fish passage to safely guide fish around the potentially lethal pumps of pumping stations. Their collaboration led to FishFlow Innovations.

The fish-friendly pumps designed and built by FishFlo Innovations offer many benefits over the conventional axial flow pumps widely used throughout New Zealand. Each pump is basically a screw fixed inside a cylinder. As the cylinder turns, the screw lifts water from the drain and discharges the water over the stop bank through the outlet pipe. Water, fish and vegetation spiral through the pump unimpeded. They are very light, so don't require a lot of power to operate and they are very simple, requiring much less maintenance. Another massive win is that they don't require a weed screen that needs regular clearing.

During Gerard's visit to the Waikato, he was able to see the first of his fish-friendly pumps supplied to New Zealand in action. "The eels like it! We started it up, the water below the pump was going down a bit, and perhaps the eels panicked. They were sitting in the long grass...and then in the middle of the day, they swam to the pump, and you saw them swimming out the top, and they would go back around and into it again, which was good to see."

Stead St Pump Station upgrade

Environment Southland is replacing the Stead Street pump station with a new facility housing two new fish-friendly pumps. The pumps will operate in tandem, are 16 metres long and weigh 22.5 tonnes each.

The pump station is a Resilient River Communities project, which is a joint initiative between Kānoa – the Regional Economic Development & Investment Unit, regional councils, and local authorities focused on developing and upgrading vital river management and flood protection schemes in Aotearoa New Zealand.

To find out more about our climate resilience projects, go to our website www.es.govt.nz.



Updates



DOWNLOAD TODAY

You can now get notifications and alerts directly to your phone from Environment Southland about places or topics you care about. You can also report pollution incidents or share your ideas or thoughts with us.

Antenno is a mobile app, free to download and use, and you can opt out of topics that aren't of interest to you. The app doesn't require personal information or login details, so it's a nice, easy way to stay informed.

Find out more at www.es.govt.nz and download the app from the Apple store or Google Play.



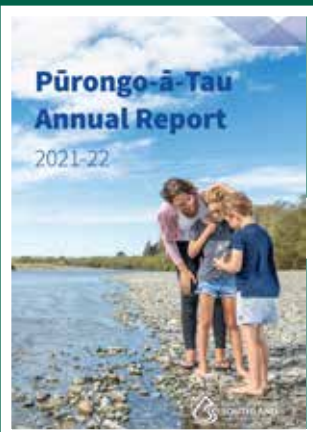
CHECK BEFORE YOU SWIM

Environment Southland checks for *E. coli* and faecal coliforms at our river and lake sites, and enterococci at our beach and estuaries through its summer water sampling programme. These bacteria can make people sick, so check the latest results on the Land, Air, Water Aotearoa (LAWA) website – www.lawa.org.nz – before diving in.

Results of the sampling aren't available immediately and things can change quickly, so it's important to make your own decisions.

Here are some handy tips:

- Think about the recent weather conditions. Avoid swimming when it's been raining a day or two before.
- Get familiar with the area – know where any drains or other outlets might be, and keep them downstream of where you're swimming.
- Generally, if you are standing in knee deep water and can see your toes, you should be OK.



ANNUAL REPORT

The Council adopted the 2021/22 Annual Report and Annual summary in October.

The audited documents outline how well the Council had met its goals and budgets for the past financial year as per the Long-term Plan 2021-2031.

Overall, the Council had a good year with many projects achieved or well advanced. It ended with a surplus, largely due to unrealised income from its investment portfolio and Government funds tagged for economic recovery projects.

Some highlights from the year include Jobs for Nature biosecurity projects and climate resilience projects to help protect Southland from the impacts of climate change. The report and summary are available on our website or by calling 0800 76 88 45.

Time to think about...

DECEMBER

POTATO WART – If you're pulling up your spuds for Christmas lunch, keep an eye out for potato wart, a nasty looking fungus that turns potatoes to mush. It's important to contact us if you suspect you have potato wart in your crop, as it needs to be dealt with correctly to avoid jeopardising our lucrative commercial potato industry.

CHECK, CLEAN, DRY – Lots of us will be out enjoying Southland's rivers and lakes this summer, so remember to Check, Clean and Dry all your fishing and boating equipment to ensure you don't spread any unwanted freshwater pests.

NODDING THISTLE – This time of year nodding thistle is flowering and should be targeted for control. If you've got nodding thistle on your property, you should destroy all plants within 50 metres of a boundary.

JANUARY

MUSTELIDS (FERRETS AND STOATS) – These pests have just been through their annual spring/summer breeding season. They're a deadly menace to other wildlife, so now is a good time to set traps around duck ponds, chicken coops, streams and bush areas.

RAGWORT – At this time of year ragwort plants that have made it through to flowering should be targeted for control. Remember, all ragwort within 20 metres of a boundary where the adjoining property is carrying out cattle, deer or horse grazing, must be destroyed.

SILAGE – If you're starting to make silage, make sure your cut grass is properly wilted before chopping and storing. This will considerably reduce liquid leaching from the silage stack. Stacks need to be 50 metres from any waterways, wetlands or potable water. Silage should not be stored on land that can become wet from springs, seepage, high water tables, or stormwater run-off.

FEBRUARY

FIREWOOD – Summer is perfect for thinking about future firewood supplies. Get it in now and store it correctly to ensure it has less than 25% moisture content when it is time to burn it. Stack it in a crisscross pattern to allow for airflow between the wood to dry it effectively. Go to www.BreatheEasySouthland.co.nz for a list of Good Wood suppliers.

WALLABIES – These animals are capable of having huge impacts on Southland's biodiversity and economy if they get established here. This includes preventing regeneration of native bush, depletion of forest understorey and damage to tall tussock grasslands. They also compete heavily with livestock for pasture and crop. Wallabies are spreading out from their home range of South Canterbury and moving through Otago. If you happen to see or suspect a wallaby in Southland please report this immediately to the biosecurity pest animal team at Environment Southland.

On the farm



By **KARL ERIKSON**
Principal land sustainability officer

The landscapes of the Southland region are highly modified due to the dominance of pastoral farms – these have often been referred to as the 'green desert'. However, within each and every one of our farms there remains a biodiversity of plants, animals, fungi, and microorganisms.

Biodiversity is all the different kinds of life you'll find in one area. Each of these species and organisms work together in ecosystems, like an intricate web, to maintain balance and support life.

Though many of Southland's farms have lost most of their biodiversity values, it's not too late to preserve what remains and indeed, even build upon it. Biodiversity can be maintained by retiring bush blocks, riparian zones or wetlands on farm and can be promoted by planting and creating wetlands. Environment Southland has services and sources of funding available to help you with this, these include:

- Free ecological surveys of native areas on farm giving the land owner a comprehensive understanding of the species present
- Free biodiversity management plans
- We provide help with QE II applications
- Free riparian management plans that include discounted plants
- Funding is available for ecological enhancement projects that focus on improving existing biodiversity areas.

If you would like help to explore options to improve your biodiversity values on farm, then please give one of our land sustainability or biodiversity officers a call on 0800 76 88 45. We are keen to help.

To find out more about pest animals and weeds in Southland, including control advice and the latest rules, visit our Southland Pest Hub at www.pesthub.es.govt.nz

Out in the field



▲ Georgia Dillon, technical resource management officer and former deputy harbourmaster Ian Coard, aboard the 'Hoiho', checking whitebait stands during inspections in September.



▲ Polly Bulling, biodiversity team leader, installing a seedling protector during Bluff Hill Motupōhue Environment Trust's planting day during Conservation Week.



▲ Walter Fieldes, plants biosecurity officer, monitoring ragwort for flea beetles during Biosecurity Week.



▲ Crystal Dungca, technical resource management officer, cleaning up residual vehicle fluids following an accident.