

EnvirosOUTH

December 2020

Protecting a lifeline

Upgrade for pump station

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People, Water and Land

Understanding our values for water

From page 10-17



environment
SOUTHLAND
REGIONAL COUNCIL

Te Taiao Tonga

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EnvirosOUTH

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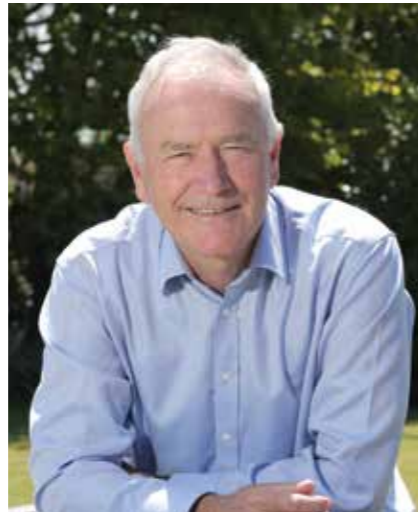
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Cover

Woodlands Full Primary School students Mackenzie Milne and Chloe Phiskie (both 10) hunt for macroinvertebrates during their day out at Waimumu Downs. See story page 4.



We want to see businesses and communities thrive as we work towards significantly improving water quality in our rivers and streams.

Our People, Water and Land programme is driving much of the work. This programme will ultimately lead us to setting limits (for discharges into and abstractions from waterways), and laying the pathway for how we're going to achieve them.

To do that, we need to understand what it is that our community wants to protect and restore, and we need to be clear about what the current state of our waterways is.

We'll be sharing more information about the environmental outcomes we're aiming for and the current water quality data over the next few months. Follow the conversation online, learn something new from our water story website (www.waterstory.es.govt.nz), or come along one of our events next year and have a chat.

Rob Phillips, Chief Executive, Environment Southland



Southland has been given a wonderful opportunity to fast track and upgrade some key flood protection infrastructure.

The Council was successful in obtaining 'shovel ready' funding from the Government to undertake flood protection projects totalling \$18.5 million, which will also create over 100 jobs.

This is a co-funding arrangement where the Government pays 75% of the costs and the Council contributes 25%. The projects are based in the Mataura and Waiau catchments and Invercargill.

For this financial year we will be drawing on up to \$1.5 million in reserves to pay for our share. A further \$3.1 million will be required and next year we'll consult on where we source that from.

We saw how well our stop banks stood up to the record floods in the Mataura catchment in February and we want to ensure greater resilience for the future.

Nicol Horrell, Chairman, Environment Southland



▲ South Roads foreman Mike Bell with Heritage Properties archaeologist Megan Lawrence at the site of the walkway.

Track end finally in sight

It's been a marathon, but the Invercargill to Bluff walking and cycling track is almost at the finish line.

The track is a joint project between Invercargill City Council and Environment Southland, with funding from Waka Kotahi New Zealand Transport Agency.

The first section of the Invercargill to Bluff track starts at the Stead Street Wharf and travels along the New River Estuary towards Awarua. At the moment, to complete the final section of the track, walkers and cyclists must travel along SH1 for 16kms.

The new section will take cyclists and walkers off SH1 and connect them to footpaths in the Bluff township.

Once finished, it will form part of the Te Araroa trail, a 3000km walking track spanning the length of New Zealand. For Te Araroa trail executive director Mark Weatherall, it's a win.

"At the moment, approximately 14 percent of the trail is on roads. Our single biggest goal is to reduce that to less than 10 percent, and this project will help us to achieve that.

"From our perspective, it will be so much safer and nicer for the walkers to walk this part of the trail off road. We're super appreciative to the parties who have been a part of making this happen."

Environment Southland lead transport planner Russell Hawkes says construction was delayed at the start of 2020 while an archaeological assessment was carried out.

The assessment shows the trail will follow the 1860s road and rail corridor along an earlier ara tawhito (traditional travel route).

Awarua is associated with coastal Māori occupation (such as Te kainga o Te Wera), with stone and kai moana resource use, and early post contact Māori and European settlements.

"The delays have been quite fortuitous," Russell says.

"We've not only found out that the area we are in is quite historically significant, but it's also given us time to get additional funding from Waka Kotahi approved to seal this final section of the track."

Construction of the final section started in October, and if no archaeological finds are discovered and the weather plays ball, it is expected to take six months.

Environment Southland

A thriving Southland – te taurikura o Murihiku



Children get hands-on with the environment at Waimumu

Nearly 400 children had the opportunity for an amazing outdoor learning experience in October, with the launch of the Waimumu Downs project.

Children enjoyed the opportunity to discover what macroinvertebrates live in the stream, find out more about water quality, plant a range of natives, understand pest control in the bush and construct their own rafts for some very competitive racing.

Landowners Chris and Desiree Giles have worked in conjunction with Environment Southland, Enviroschools, the Gore Catchment Group and the Hokonui Rūnanga to establish the on-site learning platform at Waimumu.

Having earned three 2020 Ballance Farm Environment Awards, Chris and Desiree purchased their property seven years ago, with some big goals in their long-term vision.

The couple, who have farmed from Northland to Southland, have varied backgrounds including Chris working on a vineyard, and relief teaching in England during his gap year. Meanwhile Desiree has worked for the Primary ITO (Industry Training Organisation) and Dairy NZ.

However, the merging of education and farming has always been a bit of a dream and the Waimumu Downs project is seeing that finally become a reality.

As a member of the Gore Catchment Group, Chris is a strong supporter of the Enviroschools programme and would like to see all the schools in Eastern Southland be part of the programme.

With their two children, Danielle (9) and Andrew (7), Chris and Desiree understand the value in having young people learning about water and land and how our environment is connected.

Launching the project was a joint effort, with many of the plants supplied by the Hokonui Rūnanga, while Environment Southland's education team coordinated

◆ Heddon Bush School students George Williams (7) and Micah Verkaik (8) check out their discovery during a stream study at Waimumu Downs.

the learning activities on the day. The Gore Catchment Group played an important role, sorting a barbecue lunch for all participants.

"It was really neat to see all the children coming into the place, then doing things like racing the boats they had created from sticks and flax and getting into the bush."

Although the weather provided some hurdles in the lead-up to the week of activities, the sun shone to create a near-perfect environment and to be fair, Chris has some pretty good insight into the forecasts.

"There's a MetService weather station on the property so that's helpful, but I still can't order up the weather."

With a number of other agencies, including Plant and Food Research and Wrightson Seeds, also on site, the property lends itself to trying new things and Chris has many ideas for the future.

"I love scheming and coming up with new ideas – and our farm is so close to town that it easily lends itself to being used for community initiatives," Chris says.

Hokonui Rūnanga spokesperson Jo Brand says the Waimumu Downs project is a concept the community has been requesting for some time but the vision and ability to deliver a completed experience is the part that not all ideas get to.

"We are rapt to support the mahi of Chris and Desiree and their whānau, Megan and the Enviroschools team and our own representative Rodney Trainor. Mō tātou, ā, mō kā uri, ā muri ake nei – For us and our children after us."

Environment Southland Enviroschools coordinator Megan Bates says partnerships with the community are essential to a really strong Enviroschools programme.

"Looking for opportunities like this one across our region will really strengthen our chance of meeting the Southland goals for water and biodiversity."

She says this project was a huge undertaking, but the children had a fantastic experience and were able to take part in activities they may not have before.

"The children learn so much from hands-on experiences and take that knowledge home to their wider families, so the benefits of a project like this cannot be underestimated."



◆ Chris Giles



◆ Gore Main School students Addison McGarry and Regan Gillan (both 10) take part in the stream study.



◆ Children from the Funshine Early Learning Centre enjoy a snack between activities.

Protecting Southland's lifeline from floods

Driving down Stead Street, you'd be forgiven for missing the small green building on the airport side of the road.

The unassuming 60-year-old building holds an essential piece of infrastructure for the Southland region – the Lake Hawkins pump facility.

The pump is the only protection from flooding for Invercargill Airport and its

surrounding area, and it's due for a much-needed upgrade worth \$2.25million.

Built in the late 1950s, the pump drains an area of 1556 hectares in an area formerly known as Lake Hawkins – within a boundary of Currans Road, Bay Road, Stead Street and the Waihopai River. Lake Hawkins was reclaimed in the early 20th century and used to form part of the boys' borstal farm.

Original efforts to drain the land into the estuary with floodgates were hampered by silt and plant build-up, leading to the need for the pump station.

"The pump station is well past its use-by date," says Environment Southland catchment manager Paddy Haynes.

"It's that old, we can't get parts for the pumps anymore – we have to get them manufactured.

"It is very critical, not only for Invercargill, but also for the wider Southland region. The airport is a key connection to the rest of New Zealand so we need to make sure it is protected."

The new pump will be built alongside the old one so there's no interruption of

service during the build. It will be more cost-effective to run and maintain, with a similar capacity for pumping water.

Sitting on low-lying land, the airport has its own drainage network, which includes stop banks, ring drains and a two-pump station that drains the immediate airport land into the surrounding Lake Hawkins area.

During the February 2020 floods that affected the entire region, Southland essentially became an island. Invercargill Airport general manager Nigel Finnerty says: "During the February floods, we were

almost a lifeline for Southland. Our flights were full because that was the only way people could get in or out.

"We also had the military flying in, we had several evacuating aircraft, and we were directing people to welfare centres on arrival because they didn't have anywhere to go. For a number of hours, we were it.

"It's good to know that we have got robust infrastructure looking after our systems. The stop banks, particularly along Stead Street, and the pump station are critical to the success of our whole drainage network."

The pump station is just one piece of Southland's flood protection defence. Environment Southland owns and maintains more than 450kms of stop banks across the region to protect people, property and livelihoods.

The Government's 'shovel ready' funding is paying 75 percent of the costs to upgrade the pump station and other flood infrastructure. This includes raising the stop banks in Invercargill (a joint project with Invercargill City Council), upgrading the stop banks on the Mataura River, and repairing flood damage on the Waiau River. The projects are expected to create more than 100 jobs over three years.

"With the Government funding, we're able to fast track improvements to our flood defences," Paddy says.

"We know that Southland needs to be prepared for the impacts of climate change, and soon. This is an investment that's essential for our communities, and that's been shown by how well the stop banks performed during the floods across the region in February."

Invercargill City Council manager - engineering services Jeremy Rees says raising the Stead Street stop banks is going to be a big job. The plan is to drive steel piles into the current Stead Street walkway, and raise it by about one metre to align with 2070 sea level rise predictions.

Environment Southland will then raise the banks of the Waihopai River and Otepunui and Kingwell creeks to match.

"The airport is a key connection to the rest of New Zealand so we need to make sure it is protected."

PADDY HAYNES



"Our stop banks work hand-in-hand, so there is no point raising one and not the other," Jeremy says.

"Raising all of the stop banks in the city means that we have a consistent and coherent flood protection network in Invercargill."

The Stead Street stop banks will look significantly different, and the Invercargill City Council is aiming to incorporate the heritage and culture of the area into the final design.

Keep up to date on the shovel-ready projects in the Mataura and Waiau catchments and Invercargill at www.es.govt.nz/floodschemes

♦ Invercargill City Council manager - engineering services Jeremy Rees and Environment Southland catchment manager Paddy Haynes discuss the upgrade to the Stead Street pump station and stop banks.

Farmers keen to make a difference with practical solutions

An opportunity to share some 'good, practical solutions'. That was the main reason for upper Aparima farmer Paul Turner and Otapiri Gorge farmer Dan Frew to put their hands up to join the Southland winter grazing advisory group.

Winter grazing rules developed by central Government were announced in August as part of a new National Environmental Standard for Freshwater, and it was met with some frustration. Many farmers in particular are concerned about the rules and are keen to offer alternative solutions. As Paul says, his family has a strong connection to their waterways not only for the farm but also for their recreation, and 'we want to protect them as much as anybody else does'.

When Ministers David Parker and Damien O'Connor left the 'door ajar for feedback

on the rules' Paul and Dan took the opportunity to be involved.

"I felt quite strongly about some of the rules that have been put in place," Paul says. "They couldn't be applied practically, and I felt there were some better solutions that would have better outcomes that I was happy to be part of."

Environment Southland hosted a hui attended by the ministers and around 30 farmers. One of the outcomes from the hui was to establish a winter grazing advisory group which would include farmers, council

staff, rural sector representatives and representatives from Fish and Game and iwi.

Paul says it was an opportunity to put their case forward.

"We all want the same things - we just need to work together to get them."

DAN FREW

Paul, wife Kayleen and their four children run a 1200 hectare dairy farm in the Opio area in the upper Aparima catchment. They have around 1900 milking cows, and winter graze around 3000 cattle. He thought his experience farming sheep, beef and deer before turning his hand to dairy farming would mean he could have some good, practical input.

Dan farms in the Otapiri Gorge area on a 1050 hectare sheep farm. It's very much a family affair with fiancée Steph and their three children, brother Brett and his family, as well as their parents all involved in the running of the property.

"I saw this as an opportunity to help share our evidence and experience with others, learning from what we've done here," Dan says. "Lots of the rules are actually impractical and that might drive the wrong choices to get around the rules."

That's a concern shared by Paul who agrees that some of the rules could lead to unintended consequences.

"That's why I think it's important to get the rules right, so that people aren't dancing around trying to solve an unworkable rule. If we're dealing with practical solutions that can be implemented on farm, that have a benefit to waterways and the animals, well that's a good thing," Paul says.

Both believe that being involved in this group, and sharing the improvements they're making is a step in the right direction.

Paul's farm has large native buffers along the creeks, 27kms of fencing along all his waterways and new native plantings where willows were damaging water flow and bank stability.

They have just completed their second year of wintering their cows on grass and baleage rather than crop. "We've substituted around 100 hectares of fodder beet. It means we have a lot less exposed soil in the winter time. Cows are on more suitable country and we can target where we are feeding. It's still very much a work in progress but we're pleased with the results so far."

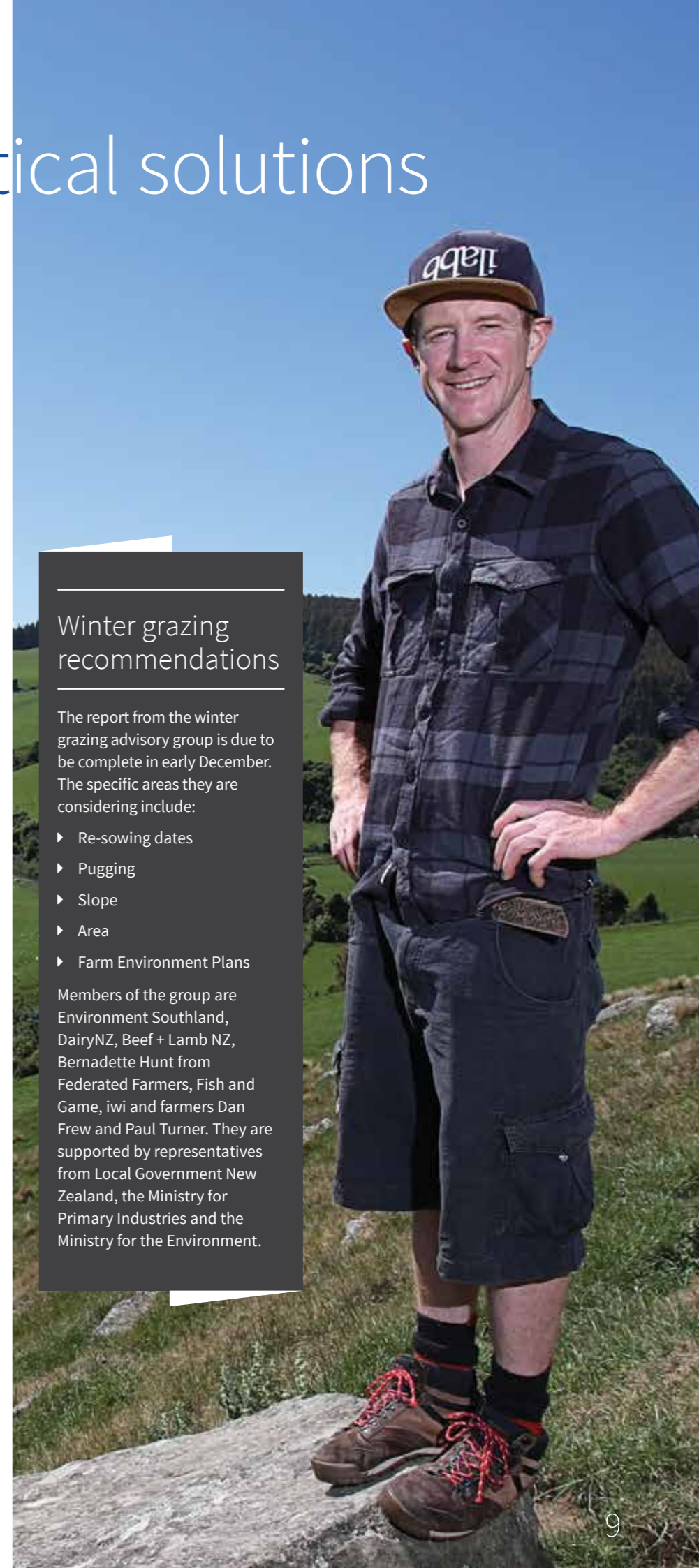
Recognising that they're susceptible to thunder storms and heavy spring rains, Dan has also made changes to his winter cropping programme in the last couple of years.

"We've always been careful about critical source areas and had wide buffers. We've used direct drilling for our crop, but more recently we've started coming in behind the sheep after grazing with the direct drill to resow quickly. This helps to manage the risk of bare soil and sediment loss. We put in swedes and kale, intermingled with a mix of Italian rye grass and plantain. It's beneficial to the animals and the environment, and by minimising cultivation it means there are less tractor hours and less cost."

Dan wants to see everyone working together. "That's central government, local government, contractors and farmers. There's good that can come from this, and we need to share and support each other to get the best outcome. We all want the same things - we just need to work together to get them."



▲ Paul and Kayleen Turner with their children (left-right) Bonnie (12), Holly (6), Isla (10) and Jack (8).



Winter grazing recommendations

The report from the winter grazing advisory group is due to be complete in early December. The specific areas they are considering include:

- ▶ Re-sowing dates
- ▶ Pugging
- ▶ Slope
- ▶ Area
- ▶ Farm Environment Plans

Members of the group are Environment Southland, DairyNZ, Beef + Lamb NZ, Bernadette Hunt from Federated Farmers, Fish and Game, iwi and farmers Dan Frew and Paul Turner. They are supported by representatives from Local Government New Zealand, the Ministry for Primary Industries and the Ministry for the Environment.

Dan Frew ▶

Improving our water and land for generations to come

Southland's journey to improve our water quality started many years ago and we've been making progress but there's still a long way to go, says Environment Southland chairman Nicol Horrell.

Many of Environment Southland's work programmes are designed to support this, and our People, Water and Land programme is driving much of this work.

Within that programme, we set out to confirm what Southlanders value about our waterways. There are 18 previously identified values from different planning documents. "We needed to know if these were still relevant – and if there were any others that need to be considered."

Following conversations with people from across Southland, the 18 values were confirmed and two new local values for freshwater have emerged.

"Through the Share Your Wai engagement campaign we learned that *community wellbeing and connectedness* and *amenity and recreation* near waterways are important to Southlanders."

In 2019, Environment Southland staff and councillors set up shop at over 40 markets, A&P shows, events and supermarkets across the region to find out more about your aspirations for our waterways.

"Discovering these two new values was surprising and, with these new values in

particular, demonstrates just how much our lives are connected to our lakes, estuaries, rivers and streams," Chairman Horrell says.

These new values join our waterways with our spiritual wellbeing; that sense of place from being near a waterway.

Confirming these values is one of the first steps in the process outlined in the National Policy Statement for Freshwater Management, which we are required to meet. The process ultimately leads to setting limits (for discharges into and abstractions from waterways), and outlining how we're going to achieve those limits to improve our waterways.

"We must restore and protect what we have to ensure there is something we can be proud to leave to future generations of Southlanders," he says.

Environment Southland has a responsibility to manage Southland's natural resources in a sustainable way, and we take this seriously. We also have a responsibility to meet the requirements of national legislation as well as our own communities' values and aspirations for water.

Environment Southland has a vision of maintaining a thriving Southland. "Our region has shown it can manage change and step up to challenges using innovation, and an understanding of our land and how to manage it."

Go to page 12 for a full list of the what Southlanders value about our waterways. You can read more about how we gathered these values and what they are on our website – waterstory.es.govt.nz.



▲ People from around Southland took part in the Share Your Wai engagement campaign, telling us about their favourite spots and aspirations for our waterways.

What is the People, Water and Land programme?

The programme is about taking the next steps to improve Southland's water and land. It is a partnership with Te Ao Marama Inc. (as the environmental arm of Ngāi Tahu ki Murihiku) and takes a 'mountains to the sea' approach: ki uta ki tai. The programme's vision is, 'inspiring change to improve Southland's water and land'.

Read a thought provoking column from Te Ao Marama Board chairman Stewart Bull on page 16.

What work is underway in the programme?

The programme has three main workstreams (Values and Objectives; Action on the ground; Regional Forum) with each being supported by science, economics and matauranga Māori. A significant programme is underway to assist with setting the draft environmental outcomes (goals we want to reach for freshwater), to assess the current state of water quality in Southland and what this means for the reductions needed in contaminants entering our waterways.

Read more about the co-lead for this science Ned Norton on page 14.

What is the Regional Forum and what's its role?

The Regional Forum is a community-based group that will advise Environment Southland's council and Te Ao Marama board members on how to achieve the communities' aspirations for freshwater. Forum members will consider the specific policies as well as the on-ground initiatives required to make change and improve Southland's water and land for generations to come. Those considerations must include the limits (e.g. water quality and quantity), targets, methods, impacts and policy context.

It's an important role. The forum will play a key part in shaping how Southland's water resources are managed in the future. So far, the forum has learned about the values and aspirations the Southland community hold for water. They are now beginning to identify the regulatory and non regulatory methods to achieve the communities' values and objectives. Check the website for opportunities to engage with the forum, and provide your feedback and ideas. Go to www.waterandland.es.govt.nz

Read more about the forum's deputy chair Phil Morrison on page 17.

Highlights this year

- ▶ Regional Forum workshops and public sessions in Invercargill, Riverton, Riversdale
- ▶ Community and iwi values for freshwater shared
- ▶ State of the environment information released
- ▶ First report to Council and Te Ao Marama Board from Regional Forum



▲ A Regional Forum workshop in July 2020.

Watch this space in 2021

- ▶ Draft environmental outcomes (our long-term goals for water quality)
- ▶ Science information on how much contaminant reduction will be required
- ▶ Opportunities to give the Regional Forum your feedback as they start looking at options to meet the environmental outcomes

Southlanders' values for freshwater

Ecosystem health

There are five biophysical factors that contribute to freshwater ecosystem health, and it is necessary that all of them are managed. They are water quality, water quantity, habitat, aquatic life, ecological processes.

In a healthy freshwater ecosystem, all five biophysical components are suitable to sustain the indigenous aquatic life expected in the absence of human disturbance or alteration (before providing for other values).

Human health for recreation

Our waterways support people being able to connect with the water through a range of activities such as swimming, waka, boating, fishing, mahinga kai, and water skiing, in a range of different flows or levels.

Amenity and recreation

We value recreational activities that do not involve direct water immersion, but instead take place adjacent to waterways. Amenity and recreation generally refers to the role that water quality and quantity, and the natural characteristics that water provides in making our waterways desirable, as well as amenable to recreational activities indirectly incorporating water. This value was identified through the Share Your Wai survey responses.

Mahinga kai - Kai are safe to harvest and eat

Mahinga kai generally refers to freshwater species that have traditionally been used as food, tools, or other resources. It also refers to the places those species are found and to the act of catching or harvesting them. For this value, kai would be safe to harvest and eat. Transfer of knowledge is able to occur about the preparation, storage and cooking of kai.

Mahinga kai - Kei te ora te mauri (the mauri of the place is intact)

Customary resources are available for use, customary practices are able to be exercised to the extent desired, and tikanga and preferred methods are able to be practised.

Wai tapu

Wai tapu represent the places where rituals and ceremonies are performed, or where there is special significance to tangata whenua. In providing for this value, the wai tapu are free from human and animal waste, contaminants and excess sediment, with valued features and unique properties of the wai protected.

Education

Education represents the need for increasing awareness and availability of accessible knowledge surrounding freshwater. This considers the natural, environmental, economic and social impacts related to freshwater. Specifically, the potential degradation of our freshwater is highlighted, acknowledging how education can enable communities to consider the impacts upon various water related activities that people value and engage in.

Birds and marine mammals

We value birdlife and wildlife in freshwater, estuarine, and related coastal environments. This value generally considers the required natural habitats, water quality and quantity to support specific birdlife, wildlife and marine life that are valued by the community. There may be freshwater management units with exceptional, natural, and iconic aesthetic features that provide for birds, wildlife and marine mammals.

Fishing

In waterways valued for fishing, the numbers of fish are sufficient and suitable for human consumption. In some areas, fish abundance and diversity provide a range in species and size of fish, and algal growth, water clarity and safety are satisfactory for fishers. Attributes will need to be specific to fish species such as salmon, trout, tuna, lamprey, or whitebait.

Irrigation, cultivation and food production

Water quality and quantity is suitable for irrigation needs, including supporting the cultivation of food crops, the production of food from farmed animals, non-food crops such as fibre and timber, pasture, sports fields and recreational areas.

Animal drinking water

Water quality and quantity meets the needs of farmed animals, including whether it is palatable and safe.

Water supply

Water quality and quantity is sufficient for water to be taken and used for drinking water supply.

Commercial and industrial use

Water quality and quantity can provide for commercial and industrial activities. Attributes will need to be specific to commercial or industrial requirements.

Hydro-electric power generation

Water quality and quantity and the physical qualities of the waterways, including hydraulic gradient and flow rate, can provide for hydro-electric power generation.

Transport and tauranga waka

Transport and tauranga waka generally refers to places to launch waka and water craft, and appropriate places for waka to land (tauranga waka).

Natural form and character

Natural qualities may include exceptional, natural, or iconic aesthetic features. These may include the natural location of a waterway and course of a river, the relative dominance of indigenous flora and fauna, the presence of culturally significant species, the colour of the water etc.

Coastal landforms and associated processes

We value the preservation of natural coastal characteristics and landforms where our freshwater connect to coastal waters. Managing our coast, particularly our estuaries is an important part of meeting the National Policy Statement for Freshwater Management. How water quality, quantity and flow can provide for recreational activities specific to coastal and estuarine environments are also encapsulated in this value.

Heritage and archaeological values

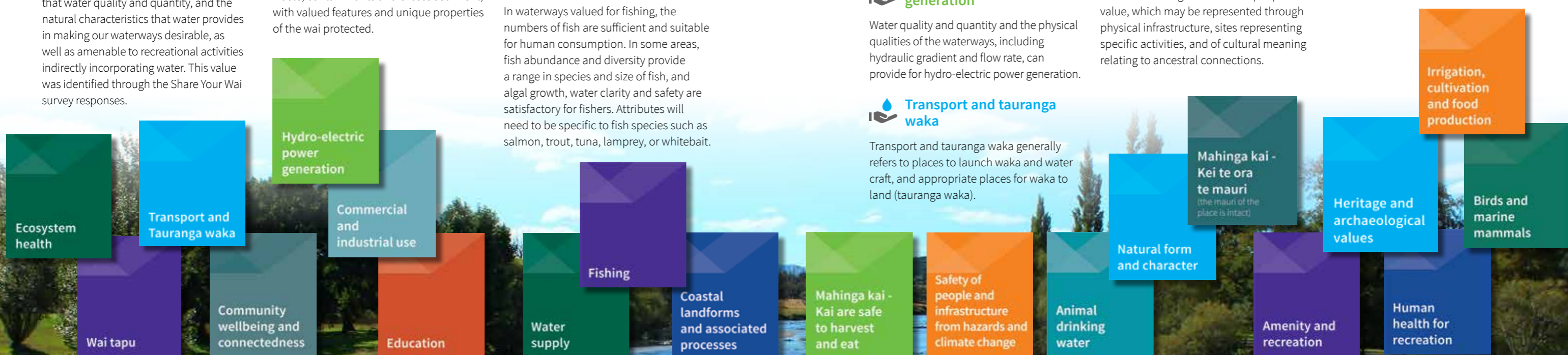
This value acknowledges the historical importance placed on sites of cultural and historical significance that people value, which may be represented through physical infrastructure, sites representing specific activities, and of cultural meaning relating to ancestral connections.

Safety of people and infrastructure from hazards and climate change

This value takes into account emerging changes in climate related to water quality and quantity from a safety perspective. Infrastructural preparedness relating to flood protection are important, alongside other natural freshwater management unit-specific issues of exceptional nature. The things we will measure to ensure this value is protected (attributes) will need to be specific to health and safety concerns.

Community wellbeing and connectedness

This generally considers how our waterways can provide for people's social values, including: mental and spiritual wellbeing; the importance of family relationships and their ties to certain waterways and natural locations; social engagements and interactions around water spaces; domestic related activities; and overall human health and wellbeing. This value was identified through the Share Your Wai survey responses.



Ned takes the fear out of uncertainty

Often uncertainty is scary and not something people want to talk about, but for science communication specialist Ned Norton, acknowledging the uncertainty is the key to making progress.

Such an expert is Ned on communicating uncertainty, that he's been quietly named the "Ashley Bloomfield of Uncertainty" within the walls of Environment Southland, as he helps the People, Water and Land programme team and the Regional Forum, navigate the challenges of improving water quality. Ned plays a key role within the technical team for the People, Water and Land programme as the co-lead for the science.

A modest man, somewhat daunted by the title he's been informally granted, Ned has a science background, originally

studying biochemistry and with a long career working for the former Department of Scientific and Industrial Research (DSIR), an engineering consultancy, NIWA and consulting to several ministries and regional councils.

He transitioned from pure science into looking at the application of science in policy development, because he saw there was a real gap for scientists in that space.

"Although I have a strong interest in pure science, I also have a really strong interest in people and the process of making

resource management decisions, and how people are involved in that process."

Ned says he views his role as something of a science interface and, now having had his own consulting company for eight years, he's been heavily involved in the challenge of managing land and water resources in several regions around the country.

"If there was a solution that gave everybody what they wanted, it would be done already and we wouldn't have a problem with water quality."

NED NORTON

"There are new challenges and new geography in every region, and you can't pull a solution from one region and just apply it to another. However, the challenge of the 'commons' is similar everywhere."

Ned refers to the challenge of the commons regularly – defining and identifying the capacity of the common resources (water and to an extent land) for use.

"There's different people and different personalities involved in coming up with the right solutions in each region, but the common challenge remains the same."

As for the challenge of uncertainty, this is where Ned has strong views. He says being really open and transparent about uncertainty is key to bridging the gap and coming to solutions.

"We know quite a lot, we know the direction we need to move in, we know the approximate size of the change required, but there are a whole lot of value judgements and choices to be made about how we get there. This all impacts

on people and although there's a role for governance to make those decisions, community opinions are key to that."

It's here where Ned is truly seeing the value of Southland's Regional Forum setup. As a firm believer in community collaborative processes, he sees the work being undertaken by the Regional Forum as crucial in finding solutions that will work for Southland.

"Unfortunately this isn't a case of everybody will get what they want, but we hope to come up with solutions that everybody can live with."

"If there was a solution that gave everybody what they wanted, it would be done already and we wouldn't have a problem with water quality."

Ned describes the management of water and land resources as a bit of a tangle of

complications, every time you pull one thread another unravels and he knows the region has some big hurdles to overcome.

"Like other parts of the country, Southland has quite a big challenge to achieve environmental outcomes, but I think you are following a good process and this has been reflected by the Council and Te Ao Marama board and the mature, respectful conversations being had."

"I also think the Iwi-Council relationship is pretty special here."

Meanwhile, Ned is also getting to enjoy some of what Southland has to offer and exploring the beauty of what he's working to help protect.

"I love the Southland environment, I really enjoy what the region offers geographically and I've definitely been getting out and about in it."



▲ Ned Norton with Regional Forum member Kelsi Hayes.



▲ The Nortons in Fiordland – Ned and his family, wife Tamsin and daughters Lena and Holly enjoyed a road camping trip around Southland last summer, including time in Fiordland.

Papatuanuku Te Matua O Te Tangata Mother Earth is man's parent

By Stewart Bull

All nations, all people give reference in one form or other to our planet as Mother Earth.

Is the reasoning we describe our planet as mother because we all recognise we are reliant on our mother to provide for us? When I talk about us, I give reference to all living flora and fauna.

Therefore, because we are reliant on Papatuanuku, (Mother Earth) to sustain us, then surely we must treat her with the reverence she deserves.

A person of right mind would never do any action that would compromise the health of their mother, as to do so would disable her ability to give her best to those reliant on her. As we all are!

This brings to mind the well-known proverb, 'you reap what you sow'. So the question we all need to ask ourselves is, "What are we sowing now and what is it that we will reap?" The consequences of that action will not be only for us to bear, but also for the future generations to also bear.

If one looks around, one will notice that Papatuanuku (Mother Earth) is being compromised at this time. Are we doing all the right things to address that pressure, to keep her in good health, to make sure the future generations have the ability to at least partake of the fruits of the Earth as we have had those opportunities? I would suggest not.

This is our watch team, our children and their children are relying on us to do the right thing.

As Sir Mick Jagger once said, "You can't always get what you want, but if you try, you can get what you need!"



▲ In 2018 Stewart Bull received his Queen's Service Medal for services to conservation and Māori from Governor General Dame Patsy Reddy.

STEWART BULL – QSM

Stewart Bull is a member of the Southland Conservation Board and represents the board on the Murihiku Kaitiaki Roopu. He is also chair of the Rakiura Titi Committee, as well as a member of Predator Free Rakiura and Predator Free Southland, Whenua Hou Committee, Fiordland Marine Guardians, the Rakiura Titi Island Administering Body and on the Cra8 Management Board.

Stewart has always had an interest and participated in environment and resource management and has always felt the concept of Kaitiakitanga/stewardship is a responsibility he has an absolute obligation to. Stewart has worked closely with the Department of Conservation and was an honorary fisheries officer.

In June 2018, he was the recipient of the QSM, for services to Maori Community and Environment.

Community aspirations at the table

The Regional Forum's work is pioneering in nature says deputy chair Phil Morrison.

Established in April 2019, the forum is a community-based group and its role is to advise Environment Southland and Te Ao Marama Inc (TAMI) on how to achieve the community's aspirations for freshwater as part of Te Mana o te Tangata, Te Wai, Te Whenua – the People, Water and Land programme.

"I'm optimistic about this process. The Regional Forum offers us an opportunity to accelerate our learning about freshwater management across Southland and find ways to improve collaboration."

The forum's early work focused on developing as a team and building knowledge to understand the issues Southland faces. Since then, it's been working to understand the community and iwi values and objectives for freshwater, and getting to grips with the current state of Southland's environment.

Now it's down to the business end – advising on the options available to achieve the community's values and freshwater objectives by considering the impacts, timing, targets, limits, methods, and policy context.

There's a lot to grapple with in reflecting the community's view when there's a complex web of national policies and regional plans to distil into action and real change.

But Phil sees the timing of the forum's work as fortuitous.

"There is a dynamic element to this. We are fortunate that we were midway through our work when the National Policy Statement for Freshwater Management was updated."

Continuing to bring the community's perspective to the table is critical to the forum's work.

"Community input in our next phase of work is essential. We'll be sharing ideas with the community and seeking feedback as we work towards solutions."

"Community input in our next phase of work is essential. We'll be sharing ideas with the community and seeking feedback as we work towards solutions."

PHIL MORRISON

"We also see there is an opportunity to create a better understanding around Māori perspectives of freshwater

management. The fundamental concept of Te Mana o Te Wai shifts us to a slightly different space. We need to understand what it means to weave this into our work."

There's no shortage of things to be getting on with in a multi-layered, challenging environment.

The forum's diverse membership reflects a cross-section of Southland interests and knowledge.

Phil hails from a farming family who originally settled in the Waikaka Valley in 1875. He's spent most of his working life in the NZ Army before returning to Southland in 2015. He now contracts in leadership development, strategic change, innovation, and design thinking.

He says the forum is a worthwhile endeavour that's important for Southland.

"It excites me to have this opportunity to make a difference to water quality and biodiversity outcomes."



Phil Morrison ▶

What's in the air inside your home?

Wanting to understand what they are breathing inside their home was the driver behind Colin and Norma Anderson getting involved in an air quality project run by NIWA.

The indoor air sensor project, supported by Environment Southland and South Alive, is part of a bigger project involving a network of outdoor sensors measuring air quality across Invercargill city.

NIWA principal air quality scientist Ian Longley says members of the South Alive community group were keen to get involved in the project after he spoke to them earlier in the year, and three of the HauHau indoor sensors were provided to be shared among homes for two week periods.

In each of the homes, the sensors measure temperature, humidity, CO₂ and PM_{2.5} every minute. The goal is to provide some insight into how airtight or leaky the homes are; how much air pollution is being generated indoors and how much is coming in from outdoors.

Colin says after hearing Ian speak about the issues with air quality in the city and the implications this has for everybody's health, he was very keen to be involved in a project that would help provide information that could drive change to improve the situation.

"I was aware of air quality monitoring. As the former principal of St George School (now Fernworth), I knew we had an Environment Southland air quality monitoring station on the corner of Pomona Street and Tramway Road, close to the school grounds, but I didn't really know much more than that.

"However, as a founding member of South Alive, I'm very keen to see the housing stock in South Invercargill improved. There are lots of older homes with fires and for many it's still the best and most efficient

source of heat – especially if they have a good source of firewood, but it is worrying the damage poor air quality can do."

Colin was surprised to hear how much air pollution had been measured inside homes in previous studies, often homes which were much more airtight or even had ventilation systems installed.

"It's easy to measure what's in the environment outside, but more difficult to know what is happening inside people's homes. What you are breathing in when you are sitting in the lounge watching TV could be quite concerning – that's why we have the sensor here – to find out what is going on."

Colin says he's conscious of living a sustainable life, with an electric vehicle and solar panels on his home and being a



▲ South Alive member Colin Anderson with the indoor air quality sensor he had in his home as part of a NIWA study to measure indoor air pollution.

OUTDOOR AIR QUALITY

NIWA, in conjunction with Environment Southland, has this year fitted a network of ODINs to light poles throughout Invercargill, as part of a project to provide detailed data about smoke patterns.

The ODINs are compact devices that measure particulate matter every few minutes and feed the data back to NIWA who provide near real-time 24-hour animations on their website.

Animations and data from the Invercargill ODINs are available on the NIWA website - niwa.co.nz

◆ Environmental technical officer Grace Smith and air quality scientist Owen West fit an ODIN (outdoor dust information node) to a pole in Grasmere.



participant in a study is always interesting. In this case, he says it's been really easy. The relatively unobtrusive sensor only needs to be near a plug and sitting at about the height you would be breathing at most of the time in the room it is in.

The sensor has its own network setup and feeds data directly to NIWA who will provide an assessment back to the homeowner at the end of the study.

Colin says he's really looking forward to finding out the results.

"Particulates aren't visible so it will be interesting to measure them and see what is going on. I'm also looking forward to seeing if this project can be expanded next year."

Ian says once data is gathered from the sensors, it will be merged with data from the outdoor sensors to provide assessments of the individual homes and there will be a hui at South Alive to provide some feedback.

"There are lots of older homes with fires and for many it's still the best and most efficient source of heat – especially if they have a good source of firewood, but it is worrying the damage poor air quality can do."

COLIN ANDERSON

Meanwhile, South Alive community development and operations manager Julz Orr says South Alive took the opportunity to assist NIWA to connect with community volunteers as it fits well with their goals.

"Our South Invercargill community were keen to be part of this pilot study to monitor air quality within their homes. South Alive tackles issues through community-led development; we are keen to be involved as the project expands and identifies the air quality issues, as we are interested in the long term benefits that will help residents understand air quality issues, improve their health and reduce air pollution in South Invercargill."

Bluff foreshore gets a makeover

After seeing decades of neglect and invasion of weeds, the Bluff foreshore environment is being restored to its former glory through a multi-year partnership project with the local community.

Bluff's coast was once a thriving environment, full of native plants and birdlife. Over time, non-native plants and scrub took over the area, with brambles and weeds tangled up in amongst it.

One of those weeds is German ivy – a pest plant that needs to be eradicated from Southland under the Regional Pest Management Plan. It has the potential to cause significant damage as it's fast-growing and smothers our native vegetation, making room for more weeds.

Environment Southland biosecurity officer Becky Goodsell says when German ivy was first discovered along the Bluff foreshore in 2012, the approach was to spot-spray

individual plants. However the weed threatened to grow out of control, and it was clear that action had to come swiftly and effectively.

"German ivy is currently only found in Bluff so there's still an opportunity to completely eradicate it from the region. If we ignore German ivy now, then in ten years' time we will wish we could go back to today and do something about it."

To achieve complete eradication, an ambitious project was discussed with local community groups. The vegetation along the entire foreshore area that's harbouring the ivy would need to be removed, and then planted out to prevent the re-establishment of weeds.

"We needed to get the community on board for a number of reasons. First off it's a big job to plant out the entire area, and even more so the maintenance of it. It was also an opportunity to stop weed problems right at the source, by getting people to think about where they dump their garden waste," says Becky.

Estelle Pera-Leask from the Bluff Hill Motupohue Environment Trust says the local community seized the opportunity with both hands, to make a real difference.

"The area had been unloved for such a long time, and it was an opportunity to bring back the native plants that used to be abundant here. This project brings us one step closer to restoring the korowai/

cloak to a thriving, species diverse forest/ ngahere around Motupohue."

The Invercargill City Council, Bluff Hill Motupohue Environment Trust, Bluff 2024, and Te Korowai Whakahou Native Plant Nursery all support the project, providing plants and hands to do the mahi.

In a series of volunteer planting events that will continue until at least 2022, the stretch of coast along Marine Parade is being rejuvenated in several stages. So far, over 820 eco-sourced plants have gone into the ground and been fitted with biodegradable plant guards.

"We hope the work will encourage penguins to come back, which we know used to visit

here, and would normally nest and thrive in those coastal habitats," says Estelle.

"Places where the forest meets the sea are very rare in Southland, so everything we can do to support the recovery of these coastal sites for seabirds that need this habitat is a win-win, and the Runanga support that strongly."

Becky says the project so far has had tremendously positive feedback.

"It's great to see how the project has been picked up and embraced by the community. What started out as weed control work ended up as this massive project with benefits for the environment and people."

Dumping garden waste spreads weeds

Did you know that three-quarters of New Zealand's weeds are garden escapees?

- ▶ Many pest plants in Southland have come as a result of dumped garden waste at reserves, beaches and rivers.
- ▶ A dump pile might be 99% grass clippings, but it only takes a couple of seeds or tiny pieces of a weed within the clippings, and once it's established it can be time consuming and expensive to rid.
- ▶ The right thing to do is to take your garden waste to an approved landfill.

To find out more about weeds and how to control them effectively, visit the Southland Pest Hub www.pesthub.es.govt.nz

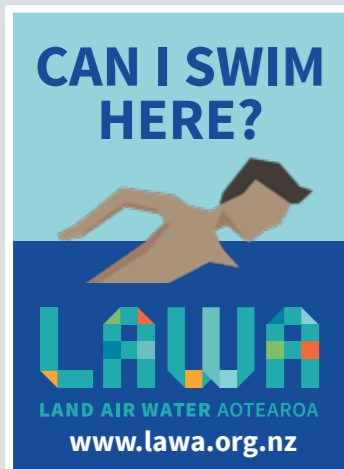


▲ German ivy is a difficult weed to control. Its vines can extend rapidly, running for several metres in darkness before breaking through to the light and leafing. Once established, it smothers native vegetation and opens areas up to more aggressive weed species.

◆ Local residents re-plant the Bluff foreshore area at a volunteer planting day in September. (PHOTO: Yvonne Pickford)

Many common garden weeds such as old man's beard grow from small fragments and are easily spread from dumped piles. ▶

Updates



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 make sure you 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.

Before you dive in, here are some handy tips:

- Think about the recent weather conditions. Avoid swimming when it's been raining the 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.



Proposed plan update

The proposed Southland Water and Land Plan appeals are currently moving through the formal Environment Court process, and are being heard by the Court in two parts – Topic A (the structure and background of the plan as well as the objectives and high-level policies) and Topic B (remaining policies and the rules).

The court released an interim decision on Topic A in December 2019, and further interim decisions in June and July. The matters within Topic A are coming to a close. These changes include the addition of an Interpretation Statement, some revised wording and re-ordering of the objectives and alterations to some of the policies.

We are currently preparing for the Topic B matters and are hoping to be able to commence some limited mediation before Christmas. Further next steps and timing will be determined by the court.

To stay up-to-date on this process, go to www.es.govt.nz/waterandland.



Annual Plan

Environment Southland approved its Annual Plan 2020-21 in June. Its focus is on striking a balance between meeting growing expectations to deliver on increasingly complex projects and recovering financially from COVID-19.

The annual plan forecasts a deficit of \$2.7 million and set the overall rates increase at 4.9 percent, which was lower than the 5.9 percent forecast in the Long-term Plan 2018-2028.

The deficit is due to a COVID-related reduction in income from marine fees paid by cruise ships to Fiordland, and from the Council's investment portfolio.

The Council has cut expenditure and has a strategy to return to a balanced budget by 2024-25.

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, be a good neighbour and 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 some traps around duck ponds, chicken coops, streams and bush areas.

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

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 percent 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 – The animals, not the rugby type, are capable of causing 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 team at Environment Southland.

On the farm



By **KARL ERIKSON**
Principal land sustainability officer

Recent announcements by central government have highlighted the importance of a farm environment plan. You might also know that the proposed Southland Water and Land Plan requires all farms over 20 hectares to have a Farm Environmental Plan (FEP) in place by now.

We know there is some uncertainty around this, but either way, farm plans are important.

You need an FEP that sets out priorities and actions to mitigate all of the farm's environmental risk points. Some of these risk points include: a fencing and planting programme for the farm's waterways, a carefully considered approach and plan for winter grazing, and identifying and planning how to manage critical source areas. Some of Southland's farmers will have such plans already in place. The question I would ask is, how many farmers are keeping their FEPs relevant to the farm and up to date?

Keeping the FEP relevant to the farm and up to date is as necessary as obtaining the farm plan in the first instance. It can be as easy as taking a photo of any good management practices, such as a newly fenced and planted riparian area or a series of photos showing how the winter crop was managed.

For more information contact our land sustainability team on 0800 76 88 45.

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



▲ While carrying out some routine work, our new boat Kewa was called on to help out this group on a boat that had some engine difficulties on Lake Manapouri in July.



▲ Citizen science coordinator Sam McLachlan during litter intelligence training at Monkey Island earlier this year. A group of Environment Southland staff took part in the training, designed to ensure a consistent approach to gathering data on the litter found on coastlines around the country.



▲ Biosecurity officer Tom Harding installs chew cards in Bluff. The small cards, stuffed with a non-toxic peanut butter lure, were placed in areas around to the town to monitor the presence of a number of pests. The pests chew on the cards and leave distinctive teeth prints unique to each species, which helps assist with planning pest control.



▲ Land sustainability officers Alex Loimaranta and Keith Finlayson demonstrate the planting process to a group of students from the James Hargest Junior Campus. The group took part in a planting project along a tributary of the Waihopai River, with plants supplied by the Hokonui Rūnanga and Otago Corrections.