

Thriving Southland [00:00:04]:

Catchment Convos with Thriving Southland, your link to Southland Catchment Groups and their impactful projects. Each episode, we'll dive into grassroot effort by local farmers and communities that are driving change and sustainability in our regions. Listen in for inspiring stories and insight. Real people, real change, the Southland way.

Rachael Halder [00:00:26]:

Welcome back to Catchment Convos, your go to podcast for all things Southland Catchment Groups. I'm your host, Rachael Halder. And today, we're spotlighting a newly formed group making waves in Southland, the Edendale Aquifer Group. This group is taking action by putting science directly in the hands of farmers to lead the charge for change. Today, I'm joined by local farmer and the chairperson of the Edendale Aquifer Group, Tim McRae, as well as Birgit Pemberton, local farmer and the newly appointed Edendale Aquifer Group project coordinator. Together, we're going to discuss the forming of the group, a new project focused on understanding nutrient movement and the interactions in the aquifer. From utilizing LiDAR data for high resolution hydrology analysis to construct and pilot wetlands for nutrient reduction, the Edendale Aquifer Group has paved in the way for a sustainable farmer led solution that could model for communities everywhere.

Rachael Halder [00:01:24]:

Welcome Tim, welcome Birgit, good to have you guys on the podcast today. And, as we've sort of discussed earlier, we're all a bit new to this whole podcasting journey. So we'll have a bit of fun and, keep our listeners informed with what we're up to. But, Tim, hey, so can you just start us off today? And, you know, we're talking about the Edendale Aquifer Group. So where are we in Southland? What's the catchment like? You know, what sort of funds have we got in Edendale? Can you, can you give us some facts and some figures on that?

Tim McRae [00:01:51]:

Yeah. Well, thanks for that introduction, Rachel. So the Edendale Aquifer Group is a sub catchment of what was originally started out as the 3 Rivers catchment group, which was at that stage, it was primarily located around Wyndham and encompass, sort of the Lower Mataura, the Mimihau, the Mokoreta, and the Glenham area. Just sort of since being split up a little bit, and the Edendale Aquifer Group was formed at the start of this year. So we're primarily located on the western side of the Mataura River of Wyndham there and sort of around the Edendale township. We start just south of Mataura and finish basically at Seaward Downs. And we're doing up a little bit of eastern sort of the river, sort of up through the Tukurau area in there. So all up we have about 24,000 hectares of predominantly flat sort of fertile soils.

Tim McRae [00:02:44]:

We've got a 42 kilometre terrace that basically runs the length of our catchment north to south, and that sort of goes from what we call the Edendale Plains here. That that terrace then leads down onto the Mataura River Flats, I suppose. So, yeah, we start if you're driving from Invercargill to Edendale, we sort of start when you come down that passing lane there in Edendale. That's sort of the westernmost boundary. And then, yeah, as I said, the Mataura River for the majority is at eastern boundaries. So.

Rachael Halder [00:03:14]:

Yeah. Wow. So relatively intensive catchment, what you say? Mostly sort of dairy?

Tim McRae [00:03:20]:

Yeah. I think we were 75 to 80% dairy. Birgit might correct me on that, but predominantly dairy. We also have Fonterra as one of the larger land owners in our catchment where they irrigate wastewater from the plant. And then we've also got a couple other unique smaller industries with 2 tulip growing outfits and also a couple of nurseries as well. So.

Rachael Halder [00:03:47]:

Yeah. Well, you guys really do have anything and, and everything can mean our aquifer group there. So yes. And, they get here with us as well. Do you sort of I wanna just answer that wonderful question of we we haven't got an aquifer group apart from you guys. So the naming of the group, you know, you didn't want to be the Edendale catchment group. Yeah. You want them to be something else.

Birgit Pemberton [00:04:08]:

Yeah. We just like to be a little bit different, of course. But, all jokes aside, we formed this group because we felt that the aquifer underlying that Edendale area had some really unique challenges. So especially around nitrogen and nitrates, historically, there have been spikes all over the place. And we formed the group having in mind some projects to really help understand the movement of nitrogen through the catchment and through the aquifer.

Rachael Halder [00:04:45]:

And so the Indow aquifer group, as Tim sort of said earlier, was sort of originally a part of the greater 3 Rivers group, but now has sort of gone into a more of a sub catchment of 3 Rivers. Is that sort of correct, Birgit?

Birgit Pemberton [00:05:00]:

Yes. Yes. That's correct. We just thought that, 3 Rivers catchment group, encompassed quite a few different landscapes and a few different issues and challenges. And, it was really hard to sort of find that common ground where we could all work together on a project. So we're sort of a little bit more localized now, and we've just identified them. Maybe, you know, nitrate nitrogen is what this our little catchment could really work with and advance on in terms of knowledge and in terms of finding mitigations.

Rachael Halder [00:05:37]:

It's really cool. And, and as Tim said that, big terrace is quite a unique attribute of the catchment and something that's really got you guys interested. So, Tim, you know, since you guys started earlier, what, this this year, what is the aquifer group been up to, or what have you guys been or what have you done?

Tim McRae [00:05:54]:

So it was all sort of a setup. And then as we were getting it set up, we were approached to put an application into Thriving Southland to maybe scale up some of this work. And it all sort of happened at once. We went from not having a kitchen group to having this relatively big project on the go. And so what we're doing there is trying to understand how nitrogen moves through our aquifer. And to pick up on Birgit's point there before, I guess, we thought aquifer was more fitting because there's a lot of farms in their catchment that don't actually have a watercourse on it. You know, they're flat. They've got no creeks.

Tim McRae [00:06:35]:

So to try and include those people where they say, well, we don't feed you know, if farms don't feed into a creek, well, no. They don't, but they probably feed more down into the aquifer and then pop out that water then pops out along this terrace. So yes. What we're going to do is understand how that nitrogen what we're putting in on top, how that filters down through the soil and with the soil profile. And then also, you know, with the likes of edge of this terrace with wetlands and plantings and bits and pieces, how we can use that, how we can best use resources there to try and reduce the nitrate nitrogen before it then leads into material reversal. I think I've answered it.

Rachael Halder [00:07:18]:

Yeah. In a 100%. That's a that's a big topic, and it's incredibly topical, I guess you could say for a lot of people in Southland and, you know, across New Zealand. And so we get you where the lucky candidate. And so you put your hand up and you said you wanted to manage this project for the group. Can you kind of maybe give us a bit of an overview as to the project's outcomes or, you know, what the objectives are the group's looking to achieve with it?

Birgit Pemberton [00:07:45]:

Well, the main objective is to gain an understanding of how the contaminants move through the aquifer or, you know, through the catchment and then, have community engagement alongside that and have, like, equip people with knowledge and with tools to mitigate nitrates and nitrogen losses.

Rachael Halder [00:08:09]:

Cool. And so how between the 2 of you, how have you guys found engagement so far with the with the aquifer group and with the project from the the wider Edendale community?

Tim McRae [00:08:19]:

Yeah. We had a community meeting in June, which was sort of our first one. We found it pretty good. We would always like more. I guess as we get going with some of this work and start producing some results, hopefully, that will then give us more community buy in after listening to a guy, Beliebras, from Canterbury come down and speak to us, which was quite interesting, actually, because we could draw a lot of similarities from Canterbury to air catchment, particularly with in terms of aquifer and that. But so what we got out of him was they their catchment purchased the nitrogen metre or nitrate metre for measuring nitrogen in the water. So we purchased one of them, and we're hoping that's gonna help with community engagement because people better bring water samples along and get it tested and find out, you know, if they've got any hot spots on their farm or if some mitigations are put in place they're working currently. Hopefully, not a competition as such, but just make them more interested because it's their own water quality results coming through.

Tim McRae [00:09:21]:

So, yeah, once we get up and going, once calving's out of the road, we're really hoping that's gonna help drive the community involvement, even more.

Rachael Halder [00:09:30]:

Yeah. That is really cool. Physical, tangible stuff that, you know, gives you instant results. It's always been a great great hook for engagement. And and we get how you know, we were talking about the project. You've obviously started. You've been successful in getting some funding. Is that correct?

Birgit Pemberton [00:09:46]:

Yes. We've been very successful in getting funding. Obviously, Thriving Southland is a big funder. And then, we were also really lucky. The reimagining Matura funds, there was some money there for us for some capital work towards wetlands. Fonterra's Hapori Fund had some money for us and, the Environment Southland Catchment Group fund has come through. And then for the nitrate metre, we actually did a ring around some businesses in the community and managed to fully fund the purchase of that nitrate metre as well.

Rachael Halder [00:10:24]:

Wow.

Birgit Pemberton [00:10:25]:

And it's very exciting. We're, you know, we're working on acknowledging all the businesses that was advertising material that that have helped us so far to, yeah, get to where we are.

Rachael Halder [00:10:36]:

Wow. You guys have got like loads of different businesses involved. And so so for those people who are sort of listening and and watching from afar a little bit, can you give a little bit of an overview of what your sort of maybe next 6 months or next 12 months looks like and what sort of things you guys are are doing?

Birgit Pemberton [00:10:52]:

Yep. Definitely. So currently, we're waiting we're, we're, we've contracted Land and Water Science to do some information gathering and processing out of Environment Southland on water quality and hotspots. And we're hoping that we will have something tangible to present mid October, and then it's sort of the first the first part of the project is pretty much science gathering. And then, you know, the more information we have, obviously, the better. And then, come the new year, February, March, we're hoping into cranking into a really big community event where we can pull all the information together and then sort of hopefully get to a stop and go point where we have a little bit of leeway in deciding what next or do we need anything else or have we got enough science behind us to make some informed decisions? And also alongside it, obviously, we're working on building some pilot wetlands. It's a process we're having to go through all the right steps, of course, with design and with consents, but we're tracking really nicely. When I'm catching up with all the stakeholders, everyone is making some really good progress, so I'm confident that we will be hitting the timelines that we have anticipated.

Rachael Halder [00:12:16]:

Oh, cool. No. It's, like, exciting. And so, Tim, you've, you've put your hand up and you'll find out to have a pilot constructed at your place. So can you kind of give a little bit of content to or context around that?

Tim McRae [00:12:31]:

Yeah. So we're on the northeast corner of that property under the terrace. We've got a well, a small duct on there at the moment. It's literally just fills out of a terrace. There's no actual creek runs into it. Water just fills it up. So we've seen that as a perfect opportunity to, yeah, obviously, run this pilot. And we've had some really good input from Fish and Game, John Skender and Darian Ziv.

Tim McRae [00:12:56]:

Just on how we can make that more effective for I wanna use the term low cost, but just modifying the existing wetland to make it more effective at soaking up some of this nitrogen. So it's just around water depth. You know, do we have some wood chip or carbon there to help soak up some of this nitrogen and then just plant things around it? So we're just working through that at the moment as to sort of what that looks like. Yes. I guess that's one of the wetlands we're doing. And then Fonterra are also looking at doing a wetland on one of their properties, with an air catchment. And the nature of that one, that's probably gonna be a not quite so simple one. I think it's gonna require a consent, and they're probably gonna have, you know, like the which bioreactor in there and other bits and pieces.

Tim McRae [00:13:46]:

So I guess we've got 2 contrasting wetlands, and then we'll start measuring the effectiveness of them. Fonterra very commonly redeployed a couple of water testing kits from the North Island down to us. So in the Fonterra wetland, we're hoping to be able to measure water in, water out, and that should be on a daily basis, I think. So we're gonna see how effective that wetland is. And I guess once we know how effective these wetlands are, then hopefully, further through the project, we'll then start being able to realize that and oversee a war, whatever that program is for the Musarian Officer.

Rachael Halder [00:14:24]:

Wow. This is very like, it sounds like an incredibly big big project for a brand new group. How like, how's morale? How's everyone feeling about this? Are you guys excitedly nervous or or nervously excited?

Birgit Pemberton [00:14:37]:

Well, you know the saying, if you want to eat an elephant, you have to do it one bite at a time. That's definitely what we're aiming for here because it is a huge project and it has got lots of fingers to it, like, you know, lots lots of different areas. But it's a fantastic opportunity for the catchment and, you know, for all the people involved and a lot of learnings to be made out of it. So we're we are super motivated and excited, and obviously we are busy coming at the moment, but rest assured, things are ticking along nicely.

Tim McRae [00:15:11]:

I think we're pretty lucky we've got a a committee also behind the staff and Birgit that are, helping out, as well, which makes it less intimidating, I suppose. Because when you sit down and look at it on paper, there's a lot that we are doing. But as so if we can just bite it break it down into bite sized chunks, it sort of becomes more manageable. And, yes, it was pretty overwhelming at the start when we had all of this up. But now that we're starting to get into the project and just doing it step by step, it's actually quite exciting to, you know, know that hopefully we're doing a way but to, help improve the water quality. So

Rachael Halder [00:15:47]:

Yeah. Awesome. And and like you said, you guys do have a lot of different people in there, and I imagine you guys are fielding a lot of requests and a lot of phone calls like us here and getting on this podcast.

Tim McRae [00:15:57]:

And also and also not to forget to have himself and to put through our catchment coordinator as well. Very good at keeping us on our on our toes to make sure we're cracking along and doing what it's supposed to be. So

Rachael Halder [00:16:07]:

Oh, I know. It's, it's all it's all our pleasure. But so yeah. Cool that you guys well, I guess I'm lucky you guys have got a big stakeholder with Frontier there. And so they're they're looking to work beside you and Yep. And put in some pretty big infrastructure. Is that sort of what I heard there, Tim, around that big wetland that they're doing with the bioreactor as well?

Tim McRae [00:16:28]:

Yes. So, obviously, I don't know how many hectares I've got within that caps, but they are a significant landholder. We're really lucky. You know, they've given us some money through that Hapori fund for the actual physical construction of wetlands. They're obviously looking at building a wetland on their place, which we'll use some of that money for. Also, they, Fonterra installed some live water quality monitoring kit down on the bottom end of their farm, which is at the bottom of the catchment, which is a live 24 hour monitoring of water. So they've also that's also information that our catchment group is able to draw on as well. So it's been really nice to have their support for the project, I suppose.

Rachael Halder [00:17:10]:

And so I also heard that you guys are recording this all together, and you guys have got some support on how you're documenting everything. Because that is, that true as well?

Birgit Pemberton [00:17:20]:

You guys seem to have everything. Yes. We, we had, Resolution Farming it come on board and they have kindly donated for us. Well, a subscription on a catchment level for us to record whatever we want to record for this project within Resolution Farming app. And obviously quite a few farmers within the catchment are already using Resolution. So, you know, it's not something new for some of us, but it will be new for others, which is really exciting also, but we're really thankful for that opportunity.

Rachael Halder [00:17:58]:

And so what do you guys are hoping to record on that, or what are you hoping to have in in that channel? Is there you know, are you looking to have things mapped out? Are you looking to just have it all documented with your timelines?

Birgit Pemberton [00:18:11]:

So at the moment, we have the outline of the catchment, and we've got a survey out pretty much requesting permission from people to put the farm boundaries in. Either, you know, if they're not using resolution to just put it in as it is. And then, if they are using resolution, it's quite an easy step to get it added. And then, we at the moment, you know, as a committee, we're using it to put in admin matters. We'll put in photos if we do a field visit. The other day, we were at Tim's and with John Scandrett and Kane Duncan, and we took some water samples and then tested them with our nitrate metre. And we did some, you know, like pond levels, and it was really good. You could just pretty much drop the pin and then just put the photos online and you have a time stamp in the record of this is what's been happening.

Birgit Pemberton [00:19:09]:

And it's it's a good place to store it. And it's it's, you know, a tidy sort of place to store it or a tidy way of storing it.

Rachael Halder [00:19:18]:

Yeah. That's awesome. Because as you guys have described, even in just the short conversation, you got a lot of different things happening, a lot of different moving parts. And I imagine keeping track of it all is gonna be, in the hard basket, which is why the group's lucky they've got you be get to, hopefully keep that project on track. So, Hey, I, am keen to know, like, so, you know, how can people follow what you guys are up to? You know, how could people find out a little bit more information if they wanted to or or even get involved? Any any thoughts on that?

Tim McRae [00:19:49]:

Yeah. That's something because we've been moving that fast, it's probably something we've now got to sit down and review. Because initially, we decided not to do anything. But now that we are actually starting to do stuff through just water quality testing. This month, starting to do some physical stuff to these wetlands that maybe that might be one way to help get some good community or community engagement, I suppose.

Rachael Halder [00:20:18]:

So It's always a tricky one, isn't it? Because you you want everybody to know what you're up to, but it's another job to add to the list. And so, you know, like, hey. It's and you guys have had such rapid growth that, hey. You're you're allowed to have a little area maybe where you're still working on it.

Tim McRae [00:20:33]:

Yeah.

Birgit Pemberton [00:20:34]:

Well, it's been a hissing, Rachel, and it's just grown so rapidly that we haven't gotten around to consider whether we need our own Facebook page. But in the meantime, Thriving Southland has been really awesome at promoting what we have had going on. And we have captured some attendees' email addresses on that launch evening. And, you know, we've sent out like a newsletter update and the survey via emails. And, you know, it's been a bit of door knocking and phone calls of the neighbors to get the word out. But we are looking, obviously, as we grow, we are looking to improve our communication to the outside world.

Rachael Halder [00:21:15]:

Cool. Cool. Now we're we're secretly, you know, watching and waiting in anticipation with what you guys do, and you've got loads of different people and expertise supporting you. So those channels are always available to to help you. But any sort of final comments that you guys wanted to make? Anything else that you sort of think we maybe haven't covered? I know you guys are just at the starting edge of your journey with this project and your aquifer group, but, hey, it's awesome to have you guys on. So, Tim, any, any final thoughts?

Tim McRae [00:21:46]:

Yeah. I suppose in terms of people's and their catchment are wanting to get involved. It's just reaching out and touching base. Obviously, there's multiple parts to this project, but one of the parts, I suppose, is looking at the on farm stuff, and this is where we've been lucky with DairyNZ. They've come on board through the both the plantain trial and the low end model. So they're actually helping us do some really neat work and being able to stack some of these mitigations. So if you do a whole different things with the wetlands, low nitrogen, stocking rate, plantain, there's a number of them. If you add them all up, does it help us get to I don't know.

Tim McRae [00:22:29]:

The magical figures are 30% reduction in the leaching that can help out there. And I guess what we're trying to do is describe what some of the stuff. We don't know what numbers are that we've got to get to yet. But, you know, through our catchment, if we can help put some science and numbers in behind some of these things, then hopefully, we get an outcome that we are all happy with further down the track. I think would be a way of putting it. So while not everyone can contribute, you know, within our catchment through a wetland, there are other ways that you can add value for our catchment. So, yeah, just reach out. And, obviously, we've got this water quality monitoring stuff popping up, which we're having to do once a week, Birgit, once a, for once a month.

Tim McRae [00:23:11]:

Yeah. Restart, wasn't it? Yeah. Yes. Like, you know, you might bring some water samples along to that and just have a chat to some of the committee and see what we're up to and if you're interested, you know, how we can sort of fit in or help out or things like that. So, yeah, I think that's it.

Birgit Pemberton [00:23:28]:

Yeah. Obviously, we're only on our foundation project and, you know, it leans itself to a lot of extension. Like Tim said, you might not be able to or not really interested in the nitrogen part, but there is lots of opportunity later on.

Tim McRae [00:23:44]:

I guess this is just the initial project that, catch my group's working on because we've seen that being the big or the loading approach, I suppose, that we can work on. But that's not to say that once this project's finished, which will be a few years, but not to say once this project's finished that that'll be the end of the catchment group. We'll have other things to work on. And as Barry had said, you know, maybe it might be riparian plantings or I don't know. Things are

changing that fast. So in 3 or 4 years time, we might have something else that's really topical and pressing that, people within our catchment would be keen to see us help them out and provide some expertise and science behind it.

Rachael Halder [00:24:24]:

Awesome. And surely you guys will have a bit of a Christmas barbecue or something like that as well in the pipeline, do you?

Tim McRae [00:24:29]:

We're gonna have to. I think.

Rachael Halder [00:24:33]:

Oh, it does. And now incredible hats off to you guys, especially, you know, you're all busy. You've all got things to do. And catchment groups, such a fabulous way that we've got a lot of questions out there, and there's a lot of uncertainty with loads of things to look into. So it's awesome that you guys are doing this together and trying to build a little bit of an information data set for yourselves and, you know, be a part of it together. So this project has a lot of support, a lot of stakeholders who are here on this project and on this journey with you, Tim, did you, you know, have, have some people that maybe you could mention for us that are that are helping?

Tim McRae [00:25:10]:

Yes. Obviously, the main one at the moment well, the main one's Thriving Southland, and it's given us the bulk of their funding. But, also, we've had some really good support from Fonterra, DairyNZ, FlowPath, Environment Southland, Land and Water Science. John Scandrett, who's a wetland designer, and Miranda Hunter is also doing some economic work on it as well. So their support has been really good, and I've actually brought a lot to the table when we have engaged with them. And, you know, given us some questions, make us think about what we're doing, and challenge us on some stuff, which has been really, really good. So.

Rachael Halder [00:25:47]:

Yeah. Wow. You guys have got some clever brains in a part of this project. You you got them all. Sounds like it. No. Fabulous. And that's what we wanna see.

Rachael Halder [00:25:55]:

We wanna see this collaboration stuff, don't we? And we wanna know that everybody is kinda working towards the same thing and, you know, not all operating in silos coming up with different ideas for the same problem as such. So cool that you've been able to manage well, manage to bring everybody together around the same table.

Tim McRae [00:26:11]:

Yeah.

Rachael Halder [00:26:13]:

So cool. So you guys have as you mentioned earlier, you have got some testing that you've got available. What what can you sort of mention that?

Tim McRae [00:26:21]:

Yes. So we have purchased a nitrate metre from Hydrometrics in Canterbury, and Outfit who specialize in well, they they build them, basically. So, yeah, we've been pretty lucky. Like, Hydrometrics obviously come to the party there. And we've also had input from or funding towards it from Fish and Game, Fonterra, Hurwitz Transport, Land and Water Science, Livestock Supplies, and Open Country, and Rabobank, one of their funds. Yeah. So the support of those all of those businesses has been really good because it's you know, as I said before, it gives us some tangible stuff that will help with community engagement. Yeah.

Rachael Halder [00:27:05]:

And actually getting stuff done, which is what you really guys wanna, you know, sit out and get done. So Yep. Now you guys you guys are a dangerous group. It sounds like it with, plenty plenty of milestones, plenty of ambition, which is you know, gets us kind of on the sidelines really excited. And we're here to support you a 100% of the way. So with

that, I will let you get back to your day jobs and, appreciate your time and, you know, looking to share what you guys are up to with those who are out there in the catchment community. But thank you, Tim. Thank you, Birgit.

Rachael Halder [00:27:37]:

And, you know, we are excited to watch what you guys do. So for anybody who does want to keep in touch with these guys, as they mentioned, the Thriving Southland Facebook page, the 3 Rivers Facebook page, and we will keep you updated on the website as well. If these guys come up with another platform that they would like to share with. So thanks guys. And, no doubt we'll, hear from you again in the future.

Tim McRae [00:28:01]:

Thank you very much.

Birgit Pemberton [00:28:02]:

Thanks, Rachael.