Ep 8 - Orauea Catchment Group - Hill country erosion

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Rachael Halder: 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.

Welcome back to Catchment Convos. I'm Rachael Halder, your host, and today I'm chatting with Jacqui Chamberlain, a passionate farmer, local farm consultant, and leader of the Orauea River Catchment Group. We're talking about the great work being done by the group to address some of the unique challenges in their area.

Jacqui and the Catchment Group have been hard at work over the last couple of years, on the 'Understanding the Geology, Prioritizing and Defining Solutions to Sediment and E. coli in the Orauea River' Project, a project funded by Thriving Southland. This [00:01:00] initiative is focused on understanding how the unusual presence of mudstone rock in the catchments landscape interacts with water and impacts their water quality.

With the help of local business Land and Water Science, the project has gathered high resolution environmental data, created a catchment prioritisation map, and provided farmers with more tools and knowledge to better understand and mitigate sediment and E. coli losses. Following the success of the project, the Catchment Group were able to build on this work by launching the Hill Country Erosion Project with Environment Southland.

Together, they're trialling mitigation methods to help address some of the hill country erosion in the catchment, poplar planting being a big part of this. In today's episode, we'll talk with Jacqui about these two projects, how they came

about, what they've achieved so far, and what next for the Orauea River Catchment Group. Jackie great to have you on the podcast today. How are you?

Jacqui Chamberlain: I'm good. [00:02:00] Thank you.

Rachael Halder: Wicked. So hey, we are here today talking about your spare time, and how you give it to the Orauea catchment group.

So for those people who don't know, can you talk us through where is Orauea and, what is your catchment group boundary?

Jacqui Chamberlain: Yeah, so I think roughly the catchment group's about 48, 000 hectares, so the north kind of boundaries of the catchment is Ohai Township, and it kind of cuts around the bottom of the Takies (Takitumu) around Mount Linton and then pretty much borders the Wairaki, well, just inland from the Wairaki River, then down through Eastern Bush past us, right down to the, I guess the Orawia Township, Happy Valley, Pukemaori area, and then pretty much cuts a straight line back up, the Longwoods, essentially.

So it's kind of a narrow long catchment in a way.

Rachael Halder: So do you have quite a lot of landholders in your catchment group, do you know?

Jacqui Chamberlain: I would say forestry is probably a reasonably big land [00:03:00] hold, but then it's probably a very traditional sheep and beef catchment, um, there is definitely pockets of dairy farms, probably more on the flatter parts , but yeah, it's kind of rolling hill country. It's not a steep hill country, but it's pretty good farming land. We've been here for four generations, so it can't be all bad.

Rachael Halder: You guys are right in the heart of the catchment.

Jacqui Chamberlain: Yeah, half our farm falls directly into Orauea and then the other half of our farm, goes by the Merton Creek, which starts on our place to the Waiau.

We're all greatly, wider part of the Waiau catchment group, and then the Orauea is just the sub catchment that eventually flows into Waiau

Rachael Halder: cool and so talking about catchment groups, has the Orauea catchment group got much of a history, or are you guys pretty new to the catchment group game?

Jacqui Chamberlain: Yeah, fairly new to the scene, what would it be, 20, 2021 perhaps?, I mean there've been meetings in the past, it might have been happened yearly, that we kind of had a bit of a catch up [00:04:00] um, not a lot was achieved really, so it kind of came to a head that we needed to, Probably create a group, a positive, atmosphere, and actually try and find out what is causing the issues in the Orauea River, really.

Rachael Halder: And so yourself and a couple of other people started pulling together a couple of meetings? Is that how you guys cracked into it?

Jacqui Chamberlain: I didn't actually go to the original meeting. I think someone had organized Clint Rissman to come out and talk to the group, and that's when kind of Clint mentioned that perhaps it wasn't a land use issue, it was a landscape issue.

Rachael Halder: Ah, so you're saying, catchment group issues can you elaborate maybe a little bit about what you're referring to?

Jacqui Chamberlain: So essentially, the Orauea River was seeing quite elevated levels of E. coli,, especially after heavy rainfall events. There [00:05:00] is a monitoring station right at the end of it. It was basically redlining a bit more than it should have. So yeah, when Clint came out , He kind of gave a real brief summary that perhaps it was the actual geology and the rock types, i. e. mudstone which, naturally holds a natural form of E. coli and then, after a heavy rainfall event, the water's kind of eroding the sides of the banks and it's disturbing all this natural E. coli, which has been peaking the levels, so. I guess, it was quite a wee light bulb moment for the group that perhaps we need to do something about slowing the water down before it hits the Orauea, so that that doesn't erode as much.

Rachael Halder: And so you guys chatted, and you thought, right, we want to know some more about this, and is that basically how your project started?

Jacqui Chamberlain: Yeah, pretty much. We just kind of created a wee [00:06:00] working group. There was probably only seven or eight of us, and that's when Thriving Southland got on board too kind of helped us form the group and set a bit of a guideline, a bit of a plan on what a group might look like and what we can do. And then the project was pitched to us that, perhaps we should be looking at , the landscape susceptibility of the whole catchment.

Rachael Halder: And so what were the key outcomes or the key objectives that you guys were looking for when you started this project?

Jacqui Chamberlain: It was basically to identify and, I guess, prioritize sites that would have the potential risk to have put the most contaminants into the river. So like there was a lot of maps. It was kind of, figuring out the rock types, the soil types, the different types of topography. And then basically the contaminants that go with it. So yeah, E. coli, nitrogen, phosphorus,, well sediment kind of risks associated with the topography, rock type and soil type. So [00:07:00] there was quite a bit to it and so land use had nothing to do with it. Um, didn't matter if you were a sheep farmer, dairy farmer, pig farmer. It was all about what was, under the ground pretty much. So that was really good. It probably cleared the slate a wee bit, and the fact that it was actually no one's fault. What, well, you know, what you were doing. It didn't matter what farm use you were. It would just have to do with old mother nature put underneath ya.

Rachael Halder: And so, when you talk about all of this, you talk about the nutrients, you talk about the prioritization sites, what has the project done to help you find those, or how have you found those, who have you worked with to get this information?

Jacqui Chamberlain: All the scientific stuff, And identifying all the rock types, soil types, was done by Clint and the Land and Water Science team. So they had a lot of, maps. They kind of had a lot of, I'm not sure if it was radio [00:08:00] metrics, but it was kind of something along those lines. It was already available, for the Orauea Catchment Group. So they were able to do all

the maps, internally within Land and Water Science, and then, they essentially created a big story map for us from physiographic zones, soil types, rock types, and then once they got those maps, they broke them down into erosion susceptibility. So that was probably like the, probably the main map that made any sense to a lot of us for a start. But essentially it rated and it kind of came up with all the watersheds in the group and it, I think there was, I can't remember off the top of my head now, but there was close to 3000 watersheds I think and it ranked those watersheds from one to 3000, say,, and then it had a color coordination of, I guess naturally you think red is kind of the highest risk and green being the least amount of risk. So you [00:09:00] can pretty much identify, look at the red areas and then click on it and it would give you a rating of one to two thousand and kind of its erosion susceptibility rating as well. It was really good for us then going forward to kind of pick out, say, a dozen sites and go and look at them based on their erosion susceptibility based on landscape, instead of land use. So yeah, it's quite interesting actually.

Rachael Halder: So, for those of you who are listening, a story map is effectively like, an online journal or an online research paper that is interactive and you can click in and see stuff, so it's very cool for the group, it's easy for those people who interact with the story map to update it, so it's not like a static document It can be updated and how have you found that Jacqui? Has that been like easy for the farmers? Easy for the group to work with? Is it a good way to look at information?

Jacqui Chamberlain: Yeah, I [00:10:00] think it is. It's way better than a piece of paper. The benefit of the maps is that you can actually zoom right into your farm. I mean, most people will see a map and be like, oh yeah, cool, but the fact that every farm in the group can zoom in on their farm and have a look, that's kind of what gets the engagement a bit better, that they can actually see what, how it affects them.

Rachael Halder: . So you have all this information, I'm sure it was probably a bit overwhelming at the start. How did you guys go with getting farmers engaged? How did you go with interactions with it?

Jacqui Chamberlain: Yeah, so once we kind of got all the story map back and everyone had a chance to look at it, a few of us sat down and, went back to

those 12 sites I talked about before,, so we just chose a dozen sites, and then we, had two field days. Where we actually went out on farms and looked at [00:11:00] these so called highest erosion susceptibility sites.

Rachael Halder: And what did they look like? You know, from obviously the map saying these places were hotspots for erosion. ,

Jacqui Chamberlain: some places were kind of already, well they're like native bush on people's places, or they're just like a small gully. Um, in a paddock kind of thing. Yeah, it was all, all very different, like they weren't all the same types. Some were steeper than others. You wouldn't have thought that would have been a highly ranked area, just looking at it.

Rachael Halder: Though some of it wasn't obvious, like you couldn't see the obvious signs of erosion or anything on some sites.

Jacqui Chamberlain: No, no, um. I guess it didn't take into account what was already on top, so like, if it already had native trees or, um, it was just pasture or that kind of thing. So that was really interesting, actually, because we kind of went to all these sites and we'd have a bit of a [00:12:00] yarn about why is it potentially high in erosion susceptibility. And then you'd kind of talk about what you would do if you were to put some mitigations in place. And we actually looked at two places on our property. One was ranked about six or seven, and then we had an orangey colored spot on the map that was ranked 120, 130. And we actually decided that the orange spot on the map that was ranked 130 odd, we thought was actually a more risk of erosion than what the one that was ranked like six or seven. Um, one was quite a big watershed and we'd already seen, well we went there not long after a rainfall event, and you could see that all the water had come down the I guess the wee swales in the paddock, and actually eroded out where it entered the creek at the bottom. Versus , the higher ranked one that was coming out of a little native bush, going through a wee bit of a [00:13:00] swale, then back into native. So there was really nothing you could, you know, you can't do any extra.

Rachael Halder: Did you run that past Clint in Land and Water Science? ,

Jacqui Chamberlain: Clint was actually there the day we, were looking at it and I guess it was, quite good in the fact that, it was a form of ground truthing, the science. And Clint said that himself It's all good him kind of doing all the mapping, but, and Clint's a big advocate for farmers, farmers know their farm and, are, the best source of information.

So I guess it's putting the farmer's information and Clint's science information together and kind of making a real accurate kind of map for the group. So it was, yeah, it was really good actually having a look at quite a few different sites and we were able to give it a wee change around.

Rachael Halder: And so farmers properties has anyone sort of embarked on any mitigations or taking up some of these sites that were high risk?

Jacqui Chamberlain: Yeah, , so I guess that kind of [00:14:00] flowed into what was next for the group. Environment Southland approached us because they knew that we'd done this project and they wanted to do a hill country erosion fund pilot study. There was some funding available and so we're like, yep, we'll get on board with this because we had identified all these sites that would go good for some mitigation.

So we got five farms from the catchment, so pretty much from right out the back of Ohai, um, right down to basically Orawia, so pretty good spread over the group. And, it consisted of people planting natives. , planting poplar poles and putting in, sediment trap detainment bund kind of thing.

So it was a really good opportunity because it was obviously, a fair bit of funding available for this. It was about up to kind of 70 percent funded and then [00:15:00] the remainder was kind of farmer input. The incentives do it makes it a bit better because it can be a reasonably costly exercise if farmers are doing it themselves. So on our place, we planted 400 poplar poles and 400 native plants. Yeah, so it gave it a pretty good whack.

Rachael Halder: Tell us more about the poplars, because that's probably something that we haven't done a hell of a lot of down here in Southland yet.

Jacqui Chamberlain: I can't remember the actual names of them, but there was a couple willows in there as well. I think it was like a tan willow or something like that. And then you just poplar poles as well. So Environment Southland source them. Over, Mataura way, I think. Um, but he's been growing poplar poles and so it was his first harvest. And they kind of brought them all over here and we soaked them all for a week and yeah, our place, we actually, had a slip a couple years ago, [00:16:00] the hill's always been on the move and, a couple years ago it actually finally slipped and our neighbours, they also had a slip as well, so we were both able to go in and plant poles in those areas, I think they were planted about Um, 15 to 20 meters apart, I think we covered about five, just under five hectares on a reasonably steep hill face.

Rachael Halder: The Regional Council and Keith Finlayson is probably our expert, if anyone wants to talk about it, but can you give us the technical, a little bit more about the technical side of poplar planting, Jacqui? Is there any, kind of rhyme or reason behind that whole 15 metres?

Jacqui Chamberlain: I think , 15 to 20 metres is about as far as you want to go when planting poplar poles. So when the poles kind of get their root system, they kind of grow along the ground. They grow laterally, so the idea is that if you've got them close enough together that the roots can kind of [00:17:00] interjoin and then that's what creates the stability for the hill. The idea is that it stops the hill from continuing to move by having those roots kind of, holding the ground up essentially.

Rachael Halder: Does that mean you guys have just retired another five hectares of land or can you actually graze that still?

Jacqui Chamberlain: It's kind of always been semi retired, but we can still put sheep in there. We put wee plastic guards on them, for the first probably three or four years now. They have, like a wee tear line, so that when the trunk gets big enough, it'll just naturally tear it itself.

Rachael Halder: And have they all struck?

Jacqui Chamberlain: Yep, pretty much. Yep. There's a few we have to go straighten up, because the old eastern bush winds, got a hold of some of them. They're a wee bit on the angle, but, yeah they've all struck really good actually.

Rachael Halder: And so what, like, what a cool opportunity for the catchment group to have that hill country erosion come on alongside your prioritization mapping, because like you said, it's all very well and good identifying all these sites and it's all very well and good trying to do something with [00:18:00] them all, but, it's a costly exercise.

Jacqui Chamberlain: Yeah and we kind of, we, we got through the project and got our kind of prioritization map all sorted and, it was the question, of what's next because obviously we've been quite busy in this project for probably 18 months and had quite a bit going on and then it kind of just stopped and we're like, oh well what are we going to do now?

So yeah, it was probably perfect timing,, Environment Southland approaching us and then that kind of, I guess made the project that kind of lasted about a year from start to finish.

Rachael Halder: So what, looking back at the project, looking back how it's all played out, when the group reflects, what do they sort of think are some of the highlights or some of the big wins they've had?

Jacqui Chamberlain: I think, Just the understanding of why E. coli levels peak in the Orauea. The Orauea has quite a unique kind of catchment, like it's not really similar to many others in Southland and the [00:19:00] fact that the soil, we're obviously quite clay heavy soils over here, and there's a lot of mudstone and the fact that this type of mudstone has natural forms of E. coli so that when it's disturbed, peaks that. So I think it was just the understanding of ,the why I mean, farmers know where their most erosion prone areas are, but I guess it was having the science to back it up . And it's been quite good to kind of talk as a group of farmers as to what we can do, what options are out there. I mean, a lot of farmers have done a lot of work already, like there's a lot of farmers in the group that have done their own plantings in poplar poles, so yeah, it's just, I guess it's good for the farmers that perhaps haven't been sure to kind of just

confirm and go, yep, right Let's do some mitigations on some small areas and see how it goes, really.

Rachael Halder: And so, a million dollar question. Have you seen a positive [00:20:00] trend downwards in your regional council water testing site?

Jacqui Chamberlain: Yeah,, I think it's probably just decreasing, the frequency of the spikes. Yeah

Rachael Halder: it sounds really awesome and it's so cool to see that you can, like all your farmers, have been able to understand and go on this journey, together to gain a better understanding . And so now you guys have actually got some kind of information and some tools to help you make decisions when you get the opportunity to. So, last question for you, Jacqui, before I let you go back out farming, what's next for the catchment group?

Jacqui Chamberlain: Well, that's probably the million dollar question, actually. We're just, trying to get a bit more engagement. We've got a reasonably good core group, of farmers. They've probably been ones that have been involved in the projects and the pilot study. we're kind of thinking about Perhaps doing just some more kind of group community events, more so than focusing on a [00:21:00] project. I know there's kind of been talk about doing just some stream walks, stream health tests, and perhaps maybe looking at some, eDNA tests as well. Because that's obviously quite handy for the FAP plus side of that for farmers as well and probably trying to get the kids involved because I reckon if we can get kids involved to play in the creeks and stuff like that I reckon it'll bring a lot more parents along.

Rachael Halder: Very cool. Hey, thank you so much for your time, Jacqui. It's been awesome to talk to you. If anyone would like to read more or see more about the Orauea River Catchment Group or their project, check out the Thriving Southland website.

Jacqui Chamberlain: There is also a bit of a project summary and kind of cost breakdown on the ES website too for the Hill Country Erosion Fund.

Rachael Halder: Yeah that's wicked, great resource and awesome to have those figures thank you very much, until next time.

And that's a wrap for another episode of Catchment Convos brought to you [00:22:00] by Thriving Southland, a big thanks to our guests for being a part of the conversation on today's episode. And for you guys for tuning in, we appreciate your support. Don't forget to like subscribe and follow us wherever you get your podcasts from.

So you can stay up to date with all the latest episodes as they're released. For more information on this episode, check out the show notes or head to the Thriving Southland website, where you can also learn more about the awesome work happening across the catchment groups here in Southland. And if you've got a project or an idea you want to share, don't be shy, reach out.

So until next time, keep up the good work out there on the land, and as always, stay connected and keep driving those changes for a thriving Southland.