

OTAGO REGIONAL COUNCIL

Agenda for a meeting of the Communications Committee to be held in the Council Chamber, 70 Stafford Street, Dunedin on Wednesday 13 September 2017, following the Regulatory Committee

Membership:

- Cr Michael Deaker** (Chairperson)
- Cr Carmen Hope** (Deputy Chairperson)
- Cr Graeme Bell**
- Cr Doug Brown**
- Cr Trevor Kempton**
- Cr Michael Laws**
- Cr Ella Lawton**
- Cr Sam Neill**
- Cr Andrew Noone**
- Cr Gretchen Robertson**
- Cr Bryan Scott**
- Cr Stephen Woodhead**

Apologies:

Leave of Absence:

In attendance:

Please note that there is an embargo on agenda items until 08:30am on Monday 11 September 2017

CONFIRMATION OF AGENDA

CONFLICT OF INTEREST

PUBLIC FORUM

MINUTES

The minutes of the meeting held on 2 August 2017, having been circulated, for adoption.

ACTIONS

(Status report on the resolutions of the Communications Committee)

No current actions to be reported.

PART A – ITEMS FOR NOTING

Item 1

2017/0991 **Stakeholder Engagement Report.** Acting DSE, 14/07/2017

Reporting on the community, stakeholder and staff engagement activities carried out by Stakeholder Engagement directorate staff for the period 15 July to 25 August 2017.

The ORC Calender of Events (as of 25 August 2017) is appended with the report.

Item 2

2017/1030 **Curious Minds South Dunedin – What lies beneath
Investigation into the changing enviornment in South Dunedin.**
DSE, 14/07/2017

The report outlines the work undertaken by ORC scientists with 48 school students from King's and Bayfield High Schools to investigate the changing nature of the phusical environment in South Dunedin as part of the Government-funded Curious Minds Programme.

OTAGO REGIONAL COUNCIL

Minutes of a meeting of the Communications Committee held in the Council Chamber, 70 Stafford Street, Dunedin on Wednesday 2 August 2017, commencing at 9:00am

Membership:

Cr Michael Deaker (Chairperson)
 Cr Carmen Hope (Deputy Chairperson)
 Cr Graeme Bell
 Cr Doug Brown
 Cr Trevor Kempton
 Cr Michael Laws
 Cr Ella Lawton
 Cr Sam Neill
 Cr Andrew Noone
 Cr Gretchen Robertson
 Cr Bryan Scott
 Cr Stephen Woodhead

Apologies:

Cr Noone, Cr Laws
 Apologies accepted on the motion of Crs Hope and Woodhead.
Carried.

Leave of Absence:

Cr Neill

In attendance:

Peter Bodeker (CEO)
 Nick Donnelly (DCS)
 Michele Poole (acting DSHE)
 Scott MacLean (DEMO)
 Fraser McRae (DPPRM)
 Lauren McDonald (Committee Secretary)
 Eleanor Ross
 Suzanne Watt

CONFIRMATION OF AGENDA

Agenda confirmed as circulated.

CONFLICT OF INTEREST

No conflicts of interest were advised.

PUBLIC FORUM

No public forum held.

MINUTES

The minutes of the meeting held on 14 June 2017, having been circulated, were adopted on the motion of Crs Robertson and Bell. Carried. (Cr Lawton abstained from the vote)

ACTIONS

Status report on the resolutions of the Communications Committee.

Report No.	Meeting	Resolution	Status
2017/0848 Waiwera River Catchment Water Quality Study	14/6/17 Technical Committee	<i>That a stakeholder engagement proposal is brought to the next Communications round.</i>	CLOSED. Item 1 of the agenda.

PART A – ITEMS FOR NOTING

Item 1

2017/0906 **Stakeholder Engagement Report.** Acting DSE, 14/07/2017

The report outlined the community, stakeholder and staff engagement activities carried out by Stakeholder Engagement directorate staff for the period 27 May to 14 July 2017

Three appendices to the report, attached with the agenda:

1. Upcoming events the Stakeholder Engagement directorate are involved in, as at 14 July 2017.
2. The report “*Our Lakes – How the Communities of Queenstown and Wanaka use and value their lakes*”
3. The Otago Regional Council’s “*Waiwera Water Quality Community Engagement Plan*”

It was confirmed that the Clutha Development Trust and the Pomahaka Water Care group would attend Council workshop on 16 August 2017, to provide an update on achievements to date and assistance being sought from Council.

Water Quality - Mrs Watt responded to questions from councillors and advised that it was not intended to complete another awareness survey in the 2017/18. She confirmed there was a high level of consultation work scheduled for the current financial year and that an updated survey would be completed in the 2018/19 year, on the level of understanding and actions.

Enviroschools – Ms Poole confirmed the Enviroschools regional co-ordinator had met with the Waitaki District Council to follow up on interest expressed by schools in the Waitaki district for the Enviroschools programme. An update is being provided to the Mayoral Forum on 11 August.

General awareness activity – Air Quality

A question was raised on the level of air quality monitoring and compliance being undertaken, particularly in Arrowtown for smoky chimney emissions.

Actions:

- Air quality compliance and monitoring information for Milton and Arrowtown townships to be included in the Chief Executive’s Report to Council on 16 August 2017.
- An update on the clean heat clean air project funding held in reserve and the criteria for Air Zone 1 clean heating subsidy applications by householders.

Moved Cr Deaker
Seconded Cr Lawton

That the report be noted.

Motion carried

ORC events calendar

A request was made for a more regular update of events that governance may wish to attend, in addition to the details provided with the Director's six weekly report.

Action: Provision of the Council Events calendar details to councillors' individual Council calendars with the events identified as official Council business or optional attendance.

Discussion was held on the Catchments Otago report "*Our Lakes: How the communities of Queenstown and Wanaka use and value their lakes.*" Mr Bodeker confirmed feedback had been provided to Catchments Otago on the report.

Item 2

2017/0958 **Communications Committee – New Website, July 2017.** Acting DSE,
14/07/2017

The report highlighted the redevelopment progress of the ORC's website to improve the user experience and allow for more self-service when engaging with ORC online.

A question was raised on making individual reports (items) easier to search on the website. Ms Poole confirmed that a review of search options was being undertaken for the new website.

Moved Cr Deaker
Seconded Cr Hope

That the report be noted.

Motion carried

The meeting was declared closed at 9:52am.

Chairperson

REPORT

Document ID: A1026031
Report Number: 2017/0991
Prepared For: Communications Committee
Prepared By: Stakeholder Engagement Directorate
Date: 25 August 2017

Subject: Communications Committee – Activity Report September 2017

This report records stakeholder engagement activity between 15 July 2017 and 25 August 2017.

1. IMPLEMENTATION OF RURAL WATER QUALITY

Our staff have undertaken engagement activities and events with a range of stakeholders under the council's rural water quality programme (W3). The specific objective for stakeholder engagement activity, as outlined in the 2016-17 Annual Plan, is to achieve 90 percent landholder awareness of the rules. This is measured using a stakeholder survey and was achieved at 91%.

1.1. Field days, workshops, and presentations

1.1.1. Industry-led activities

i. Forestry – Milton post-harvest inspection – 20 July

Liaison specialists accompanied an officer from the environmental monitoring team for this inspection, during which the landowner had a good awareness of working around waterways, and acceptable forestry harvest practices. It was noted that there has been positive council interactions and discussion about poplar and willows.

ii. Ara Institute of Canterbury – 26 July

Liaison staff presented to students of an agri-business course run by the Ara Institute of Canterbury. ORC staff were asked to present as half of students are Otago-based and will go on to work within Otago. The presentation was centred around water quality, the Water Plan and sustainability. The students asked some very insightful questions and enjoyed learning about the different approaches to managing water quality between Otago and Canterbury.

iii. DairyNZ flood meetings Milton, Henley, and Balclutha 25-26 July

• Milton: 25 July

Liaison staff attended this meeting – one of three organised by DairyNZ for 25 and 26 July – to discuss the aftereffects of the recent flood event and ideal land management strategies as affected farms dry out. While there was a good turnout of rural professionals, only three farmers attended. Attendees questioned ORC staff about mending structures such as culverts which had been blocked or washed out in the high flows and staff outlines the Water Plan rules in relation to these activities.

- **Henley: 25 July**

Liaison staff members accompanied ORC executive staff to this meeting where directors updated the status of the flood protection scheme and compliance strategies and answered questions.

- **Balclutha: 26 July**

ORC liaison staff attended this meeting along with 22 farmers and rural professionals. Farmers in Inch Clutha were particularly affected, and questions for staff included effluent management and the management of the mouth of the Clutha River.

iv. Land Environment Plan (LEP) Level 1, Wedderburn – 9 August

Thirteen landowners attended an LEP workshop at Wedderburn. Liaison staff presented on the Water Plan, including recommended approaches for meeting water quality standards and rules. Enquiries arising related to State of Environment (SOE) water quality data, minimising the risk of sediment runoff greenfeed crops, clarity regarding the stock access to water rule in relation to national standards, and installation of culverts.

At the end of the workshop participants were asked what actions they had identified on the action plan templates. The most common actions were around establishing the status of their instream water compared to the limits in the plan, the commitment to ongoing fencing of waterways, and installing culverts where stock transfers were more frequent.

v. LEP 2 – Tapanui – 14 August

Liaison specialists attended the Tapanui Level 2 Land and Environment planning workshop completed by 12 ANZCO supplier farmers. Questions were addressed relating to permitted activities around the recent flood event and the removal of willows from waterways.

vi. Whitebait meeting – 14 August

Liaison staff accompanied councillors to a whitebait meeting in Balclutha organised by DoC. Cr Woodhead reiterated council messaging around rules relating to whitebait in the water plan.

vii. LEP 1 and 2 – Balclutha – 15 August

Liaison specialists attended the Balclutha Land Environment Planning Level 1 and 2 workshop attended by approximately 15 ANZCO supplier farmers. Liaison staff presented on the key Water Plan requirements and answered questions about recording requirements for OVERSEER and OVERSEER compliance, whole farm consents for waterway disturbance, and permitted activity rules in relation to flood disturbances.

viii. Rotary Club of Taieri talk – 16 August

Liaison staff were invited by the Rotary Club of Taieri to be a guest speaker at their weekly meeting. A presentation was given to approximately 20 members on the rural water quality provisions in the water plan and some projects recently undertaken by council. A series of lively questions after the presentation

referenced lakes water quality, 1080 residue after the recent flood, urban water quality, sediment discharge from natural events, and consented versus permitted approaches of regional councils.

1.1.2. Community-led activity

i. Farm visit for Otago Girls' High School students – 25 July

Liaison specialists and communications staff were invited to attend a visit by 12 Year 13 economics students to Duncan and Anne-Marie Wells' Outram dairy farm. They were there to learn about how dairy farming could be achieved while looking after the environment. ORC staff were there to answer queries about the Water Plan. Students asked questions about water quality, nutrient budgeting and application, water use, and effluent management. An article on the visit will be in the spring issue of Waterlines.

ii. Pomahaka Water Care Group – Waikoikoi catchment meeting – 10 August

The Pomahaka Watercare Group held a meeting in the Waikoikoi catchment to present findings from the last years sampling regime. There was also discussion around working as a sub-catchment to learn more about the water quality in the Waikoikoi in particular. The meeting was attended by 18 farmers and ORC liaison staff.

1.2. Media and promotion for rural water programmes

1.2.1. Irrigation NZ Magazine

We are now preparing for the spring issue. Articles will include a case study of irrigation in South Otago, updates on developing a plan change for residual flows, the Arrow River/Wakatipu Basin minimum flow consultations, and a general update on work ORC has been doing. The spring issue is due to be printed in mid-September.

1.2.2. Waterlines

We are currently writing articles for the spring issue, which is due to be distributed in October. Articles will include: an update on the effectiveness of broom gall mite at two release sites, a flow-chart of ORC's enforcement process, a case study on good soil management, a reminder of the offal pit rules, a case study on irrigation in South Otago, and an article about a dairy farm on the Taieri that hosted school students.

1.2.3. 'Good Water in Otago – ORC' Facebook page

There are currently 630 'likes', and we post approximately twice a week. Total reach from 15 July to 17 August was 5311, which is an increase of 46% on the last reporting period.

1.2.4. On-Stream

The ninth issue was emailed to 347 subscribers on 18 August. It included a summary of the recent flooding, an update on slink collection in Otago and a reminder of the offal pit rules, as well as the regular summaries from the four liaison specialists.

2. WATER MANAGEMENT GROUPS

We have led several engagement activities and events with a range of stakeholders under the council's Water and Deemed Permit renewal project (W4) in the last month. The objective for this activity is to support permit holders to form groups to manage water availability at a local level.

2.1. Water and deemed permit renewal project

i. Water user group meetings

The following meetings with groups have been held or are scheduled:

Meetings held	
Federated Farmers	17 July
Shepherds Creek, Taieri catchment	14 August
Statutory bodies	22 August

Upcoming meetings	
Planning consultants	Mid-September
Manuherikia tributaries	4 meetings Early-October TBC
Round 3 meeting with groups	November/December

ii. Fish protocol and fish surveys for tributaries with deemed permits

The Otago community has been asking ORC staff what fish data is needed as part of an application to replace a deemed permit. To support the community and provide clarity around their questions, representatives of iwi, Department of Conservation, Fish and Game, and Federated Farmers worked with ORC staff to develop a draft fish survey protocol and table.

The protocol ensures that, in the supply of fish information as part of a surface water application, quality standards will be met and there will be consistency amongst fish survey professionals. The supporting table produced in conjunction with the protocol lists the number of fish surveys that would reasonably be required for surface water permit applications on tributaries (focussed on deemed permit locations).

While Council has initiated the protocol it should not be viewed as a Council document but a Memorandum of understanding protocol amongst organisations that have an interest in the deemed permit replacement programme.

2.2. Media and promotion for water management group programmes

2.2.1. Retiring deemed permits forum follow-up survey

In follow-up to March's Retiring Deemed Permits Forum, attendees and others are being invited to complete an online survey to find out more about their experience at the forum and what ORC can do to help them with their transition to a new RMA water permit.

A letter outlining where to find information from the forum, as well as inviting participation of the survey, was to be sent in late July so this did not conflict with information about the Clarifying Residual Flows consultation, which took place in early August.

3. REGIONAL PLAN: WATER QUALITY

We have one major engagement activity with a range of stakeholders under the council's Regional Plan: Water project (W1) in the last month. The objective for this activity is to undertake a series of strategies, audits, and plan changes to ensure the Regional Plan: Water for Otago meets community expectations and statutory requirements for water management.

3.1. Urban Water Quality workshop – 23 August

The workshop held in Alexandra brought together participants from political, managerial, and operational levels at the five district and city councils, NZTA, Southern District Health Board, and Iwi. There were 40 attendees.

The workshop sought feedback from these parties on the draft Urban Water Quality Strategy and explored how we might all work together best to ensure implementation of the strategy is successful.

An outcome of the workshop was clear agreement on the need to better manage urban water quality into the future, and to work together better to do so. This working together included sharing resources and supporting each other where needed to achieve the common goal.

4. MINIMUM FLOWS AND ALLOCATION LIMITS

We have one major engagement activity with a range of stakeholders under the council's Minimum flows and allocations limits project (W6) in the last month. The objective for this activity is to give effect to the National Policy Statement for Freshwater Management and manage water quantity. This is to include the setting of minimum flows, levels and allocation limits on rivers and aquifers.

4.1. Residual flows roadshow – 7-11 August

ORC staff ran roadshows to clarify planned changes to residual flows throughout the region in August. The roadshow was all about helping our community understand why ORC should develop a change to the Water Plan in relation to residual flows.

The sessions were designed to identify current issues, and show potential benefits if changes are adopted to the provisions for setting residual flows. Sessions were held in Tapanui, Roxburgh, Wanaka, Omakau (twice), Ranfurly, Middlemarch (twice), Outram, and Maheno, with many people taking the opportunity to find out more about the plan change, which will affect surface water takes.

5. ENVIROSCHOOLS

As set out in the Annual Plan 2017-18, ORC provides the regional coordination of the Enviroschools programme in Otago.

5.1. Enviroschools Community Engagement

The Enviroschools coordinator is fielding an increasing number of requests from the wider community for information on the Enviroschools programme.

- At the end of June Enviroschools hosted public screenings of the film *Thin Ice: The inside story of climate change* in Dunedin, Alexandra and Queenstown. Panel discussions were held after each screening. Panellists included Emeritus Professor Peter Barrett, the executive producer, Councillor Aaron Hawkins, Associate Professor Karen Nairn, Richard McKenzie (NIWA) and Greg Bodeker (Bodeker Scientific). Victoria University has developed teaching resources to support this film, which Enviroschools facilitators are now using with teachers.
- Dr Zink presented to third-year nutrition students at the University of Otago. Many of these students will work in schools so it is important students understand other programmes in schools.
- Dr Zink will present on the tools used by Enviroschools to engage students to take action on sustainability issues at the *Active Living and Environment Symposium* at the University of Otago at the end of August.

5.2. Local Government engagement

Dr Zink presented to the Waitaki District Council and to the Otago Mayoral Forum on the Enviroschools programme.

5.3. Fish on drains

Enviroschools has been working with the DCC to develop an education resource to raise awareness of stormwater and where it goes. This includes a stencil of a fish students can use to paint a fish by stormwater grates in their area. This resource will be made available to all Otago schools

5.4. School projects

All Enviroschools work on managing and minimising waste in their schools. Clutha Valley Primary School recently undertook a waste audit and found 95% of the material that went into their skip is recyclable. Their community is not on kerbside recycling so the senior students surveyed residents to gauge the level of support for this. There has been enough interest for the Clutha District Council to ask the students to develop a more detailed case for recycling which they will present to the Clutha District Council in October. The students are also developing in-school systems to separate out the recycling.

6. PUBLIC TRANSPORT

6.1. Communications in the lead-up to Dunedin's 18 September route and timetable changes

With the third and largest round of route and timetable changes under the Regional Public Transport Plan 2014 (RPTP) rolling out on 18 September, a comprehensive suite of communications is underway

- A video summarising the key changes in the context of the RPTP has been shared on social media
- Print timetables will arrive in mailboxes in the last week of August
- 'Bus ambassadors' will interact with people on the buses for two weeks prior to the changes and one week subsequent
- Flyers and posters will also be on-bus during this period two weeks prior to the changes and one week subsequent

- A weekly advertorial column has been running in the Star (community weekly paper) for six weeks so far and will continue
- Print and radio advertising campaign focused on the two weeks prior to the changes and week subsequent
- Media releases and social media posts have been scheduled
- Localised articles have been appearing in community newsletters (Valley Voice, South Dunedin Lowdown, Mornington Messenger, Caversham Connect, Age Concern, Broad Bay newsletter, Greater Green Island Informer, Rothesay News).

Engagement with stakeholders and key user groups is also underway:

- Meetings and presentations with community and user groups (Chamber of Commerce, BusGo Advocacy Group, VICTA (Visual Impairment Charitable Trust Aotearoa, OUSA, OPSA, Accessible Transport Forum organised by Disabled Persons Assembly and targeted towards disabled people and their families, as well as agencies in this space)
- Direct engagement with identified schools where there's a change that may be directly relevant to travel arrangements for their pupils (Arthur Street School, Logan Park High School, John McGlashan College, Rudolf Steiner School and Balmacewen Intermediate).

6.2. Future communications for the Dunedin and Queenstown services

With the planned bus hub expected in the medium term, and a new ticketing system coming in April 2018 changes to the Dunedin service will be ongoing over a sustained period. Given this the intended approach is sustained communications that continue to emphasise the big picture, and detailed information sharing and engagement with those who are dependent on the bus service as well as identified potential growth user groups.

With the launch of the subsidised service in Queenstown planned for 20 November, we are working towards a new name and brand identity for the service. The intention is to launch this with the Queenstown subsidised service, and subsequently begin integrating it into the Dunedin service, with full integration across communications collateral with the launch of the new ticketing system. Alongside this we are reviewing our approach to printed timetable collateral for both services.

As part of an overall shift towards more proactive communications around the bus service, we are launching a bus-specific Facebook page.

6.3. International car-free day

We are in initial planning stages with the DCC and the NZ Transport Agency towards a shared promotion of International Car-free Day (22 September; the Friday after the route and timetable changes). This is an opportunity to foreground route and timetable changes while promoting the bus service in the context of connected journeys that may also include walking and cycling. Promotion will be targeted towards potential new bus users.

6.4. Solar shelters

ORC is collaborating with the Enviroschools, New Zealand International Science Festival and the Otago Polytechnic on a nation-wide competition for Enviroschools students to design solar powered user enhancements to bus shelters. It's intended that the successful designs would be prototyped and refined in association with the Otago Polytechnic, with the resulting technology installed in key Dunedin bus shelters.

7. ENVIRONMENTAL OPERATIONS

7.1. Pollution guidebook

A guidebook to promote 'Only drain rain' and give information for households and businesses has been written and is in the design phase. Due to time constraints on ORC's internal graphic designer this has now been outsourced. It outlines common urban activities (both household and workplace) that can pollute waterways if they enable contaminants to go into stormwater drains. This will be used Otago-wide and ORC communications staff are working closely with environmental monitoring staff and territorials, as well as Enviroschools.

7.2. Wetlands brochure

A brochure outlining the importance of wetlands and is currently being designed by an external agency. This will be used by environmental monitoring staff, and liaison specialist staff.

7.3. Dairy inspections

In light of the recent flooding, ORC liaison staff, communications staff, and environmental monitoring staff are working closely with dairy and farmer industry groups to ensure we do not start our annual dairy inspections until farmers are ready. They have given positive feedback about the approach ORC has taken.

7.4. Air quality

Following the comprehensive air quality campaign in July, ORC was represented at the 23 August Cosy Homes Trust Expo in Milton. The Clean Heat Clean Air subsidy was promoted directly to homeowners attending, as well as potential new contractors.

8. BIOSECURITY

8.1. Wallabies

Liaison staff are continuing to promote ORC's wallaby biosecurity response at appropriate opportunities and asking for members of the public to report sightings.

8.2. Wallaby meeting – 25 July

Liaison staff assisted Environmental Monitoring staff with a community meeting held in Duntroon focussed on the biosecurity threat of wallabies. This meeting was a collaboration between Environment Canterbury and Otago Regional Council.

There were approximately 12 members of the public attending – including a Federated Farmers representative who highlighted the importance of the role the community must play in assisting the Regional Council's in controlling the spread of wallabies.

8.3. Rabbits

We are writing a communications plan to deliver a pilot public information rabbit control campaign on the Otago Peninsula, with the plan to extend this to other areas around Otago. We will have further information about this soon.

9. GENERAL PUBLIC AWARENESS ACTIVITY

As set out in the 2017/18 annual plan, we are committed to promoting community knowledge and awareness of the council's activities, and encouraging community participation in both decision-making processes and projects that promote sustainable use of resources. The following outlines a range of activities that have been undertaken to support this target.

9.1. General media

Twenty media releases were distributed during the reporting period. ORC featured in 203 print media articles, and 22 broadcast media stories. Many of the stories related to the Taieri flood event, transport including free wifi on buses, and the residual flows roadshows.

9.2. Websites

i. www.orc.govt.nz

There have been 54,684 visits to the ORC website since the last committee report, down 5% on the same time last year

ii. www.lawa.org.nz

There have been 716 visits to the Otago section of the LAWA website, up 156% on the same time last year.

iii. www.otagocdem.govt.nz

There have been 7483 visits to the Otago CDEM website, up 2107% on the same time last year.

9.3. Social media

We had 2548 followers on our ORC Facebook account at the end of this reporting period. The reach during this reporting period was 174,227 people for the Otago Regional Council Facebook page. An Otago CDEM Facebook account has recently been set up, with 2495 followers at time of writing.

10. RECOMMENDATION

It is recommended that this report is noted.

Sian Sutton
Director Stakeholder Engagement

Annex: ORC Events Calendar (as at 25 August 2017)

ORC Event Calendar

These are events or activities being co-ordinated, undertaken, or attended by ORC staff. Events with times and locations are those open to the public.

September

- 18 **Public transport: Dunedin bus service route and timetable changes**
- 22 **Enviroschools: Central Otago and Queenstown Lakes teacher workshop**
- 22 **International car-free day**
- TBC **Deemed Permit replacement: Planning consultants meeting**

October

- TBC **Deemed Permit replacement: Manuherikia community meetings**
- 25-27 **Water Quantity: Arrow River and Wakatipu Basin aquifer minimum flow and water allocation limit setting consultation**
(details of date, venue and times TBC)
- 27 **Enviroschools: Dunedin City area primary school student hui**
- TBC **Biodiversity and Pest Management Forum**
(details of date, venue and times TBC)

November

- TBC **Waiwera water quality summary community engagement**
(details of date, venue and times TBC)

REPORT

Document Id: A1031062

Report Number: 2017/1030

Prepared For: Communications Committee

Prepared By: Ellyse Gore, Technical Support Officer
Andrea Crawford, Strategic Communications

Date: 7 September 2017

Subject: **Review of South Dunedin Project: What lies beneath – looking at the changing ground environment in South Dunedin**

1. Introduction

Otago Regional Council scientists recently worked with 48 school students to look at what lies beneath South Dunedin.

The ‘What Lies Beneath’ project, part of the Government-funded Curious Minds Programme, paired King’s and Bayfield High School students with scientists to investigate the changing nature of the physical environment in South Dunedin. These schools were invited to participate because the environment they are in is being directly impacted by water levels.

The NZ International Science Festival, GNS Science, University of Otago and technology firm Van Walt Ltd also participated in the project.

The Curious Minds Programme recognises and celebrates the importance of science and technology in New Zealand. It was launched in 2014, following the creation of the National Sciences Challenges. The programme is guided by *A Nation of Curious Minds – He Whenua Hihiri i te Mahara, a National Strategic Plan for Science in Society*.

It incorporates a 10-year plan to encourage and support all New Zealanders to engage with science and technology. It works with communities, businesses and educators on new and existing initiatives. It is led and funded by the Ministry for Business, Innovation and Employment.

2. Background

Characteristics of South Dunedin such as low-lying topography, soil composition, proximity to the coast and shallow water table influences the response of groundwater to events such as sea level rise and the heavy rainfall during the 2015 flood event.

The community faces important decisions about the best way to adapt to the effects of climate change. They need knowledge to engage in the decision-making process. The knowledge and opinion of today’s school students will influence decision-making.

Aim of the project

This hands-on project aimed to facilitate students to look at the ground beneath their feet, schools, homes and community to give them a better understanding of South Dunedin's changing physical environment and its impacts on residents. With the support of scientists, they undertook research, collected and analysed data and presented their findings to their peers, families and wider community.

3. Project details

Over four weeks in June and July 2017, 48 students were given introductory talks on geology by GNS Science staff and on anthropogenic history, characteristics of groundwater and natural hazards in South Dunedin by ORC staff (Appendix 2). Students went on a field trip to relevant sites along the coast and in South Dunedin, looking at topography, human modification, assets of South Dunedin and the effects of sea level rise and groundwater on the community (Appendix 2). They watched a groundwater bore being installed at their schools and used hand augers to investigate the ground beneath their school (Appendix 2). They accessed new and existing groundwater bore data to compare, analyse and build an understanding of the nature of groundwater beneath their school and South Dunedin (Appendix 1).

A team from each school presented their findings to their peers, families and the community at a presentation evening on 5 July, with supporting displays and interactive scientific information from ORC, GNS Science, Van Walt Ltd and the Otago Museum (Appendix 3).

Otago Regional Council involvement

ORC natural hazards and groundwater scientists provided programme planning and teaching. They gave an introductory lesson on groundwater and natural hazards in South Dunedin¹ and took students on an interactive field trip around relevant locations to discuss their characteristics and vulnerabilities.

ORC also provided support for GNS during the groundwater bore hole and auger drilling day at the schools. At the presentation evening, the ORC awarded each presenting student with a prize, provided supporting interactive information on the South Dunedin environment and engaged in discussion with the public.

4. Discussion

The project was an overall success, with good engagement by the students who enjoyed visiting the South Dunedin locations and working on their school grounds. The students were excited about and interested in the drilling, and curious about what they found beneath the ground. They were surprised to learn how close the water table was to the surface – water was discovered 60cm below ground at King's High. The students said the project had given them a sense of how vulnerable the area was to flooding.

There was a reasonable turn out from the community at the presentation evening, the students presented well and there was good interaction with supporting information provided on the night.

¹ Otago Regional Council, 2016. *The Natural Hazards of South Dunedin*.

Given the high level of engagement and positive feedback from the teachers and students, there is potential for future projects around this topic. Furthermore, the project has provided a model for similar ventures in other subject areas.

5. Recommendations

1. This report be received and noted, and;
2. Opportunities for similar initiatives across ORC functions be developed and considered for incorporation into the 2018/28 Long-Term Plan.

Sian Sutton
Director Stakeholder Engagement

Appendix 1 – Data Samples

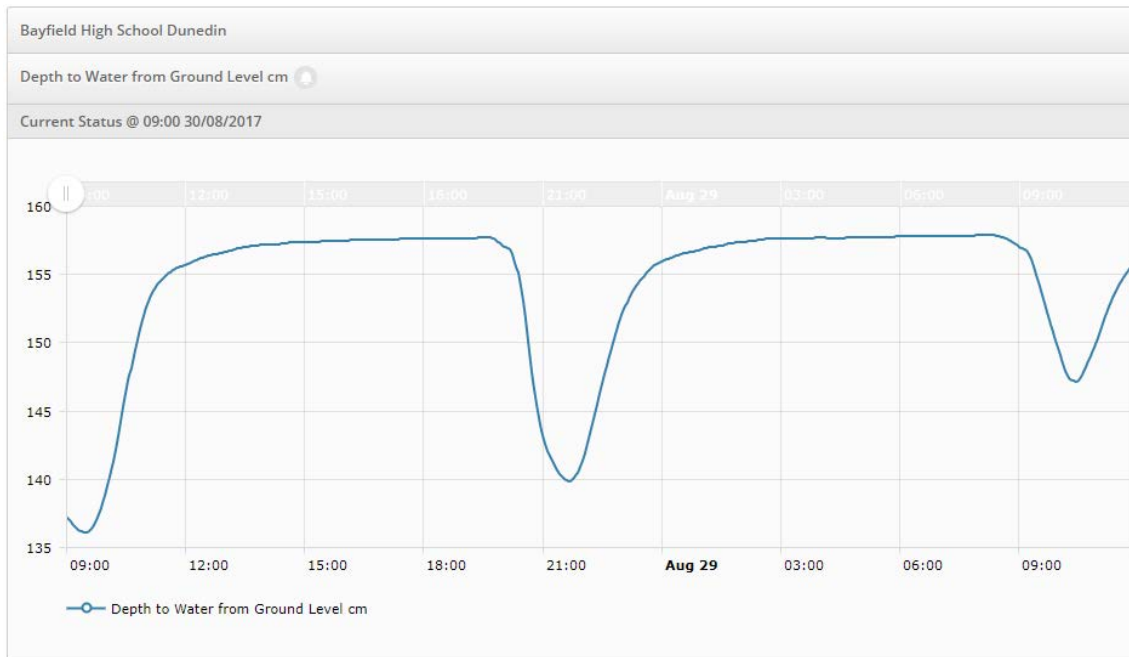


Figure 1. An example of the data available from Van Walt for the students, from the newly installed bore at Bayfield High School.

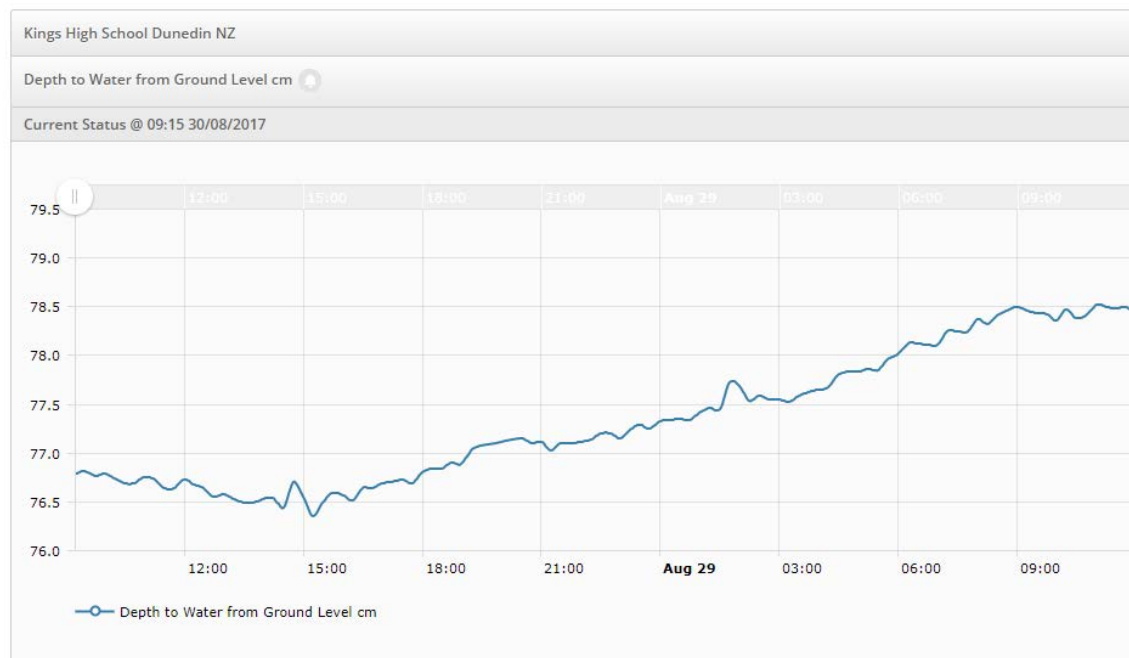


Figure 2. An example of the data available from Van Walt for the students, from the newly installed bore at Kings High School.

Ground Water Level at Kennedy St

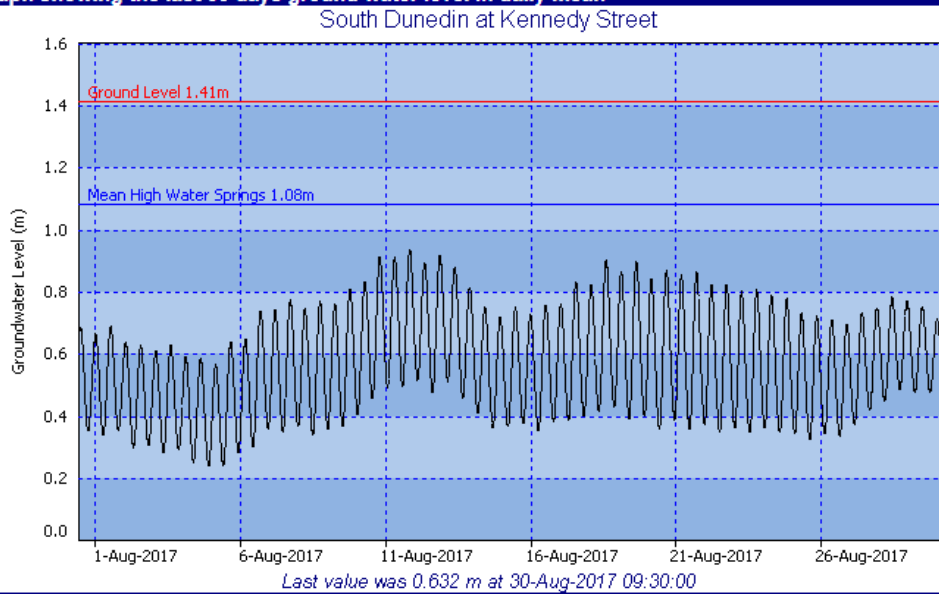
Graph showing the last 30 days ground water level in daily mean

Figure 3. An example of the data available on the ORC website for the students to compare to the data from their own schools.

Appendix 2 - Photos from the project



Figure 4. *Rebecca Morris from the ORC answers questions from Kings High School Year 10 Geography students about the influencing factors on South Dunedin's groundwater.*



Figure 5. *Year 10 Geography students from Kings High School discuss content from the ORC 'Natural Hazards of South Dunedin' report.*



Figure 6. Hugo Bloor from the ORC talks to Year 10 students from Bayfield High School about the effects of sea level rise on South Dunedin.



Figure 7. Year 10 Geography students from Bayfield High School using a hand auger to dig beneath the surface of their school.

Appendix 3 - Photos from the presentation evening

Figure 8. Rob Smillie (Head of Department for Regional Geology) from GNS looks at the core from beneath the Edgar Centre.

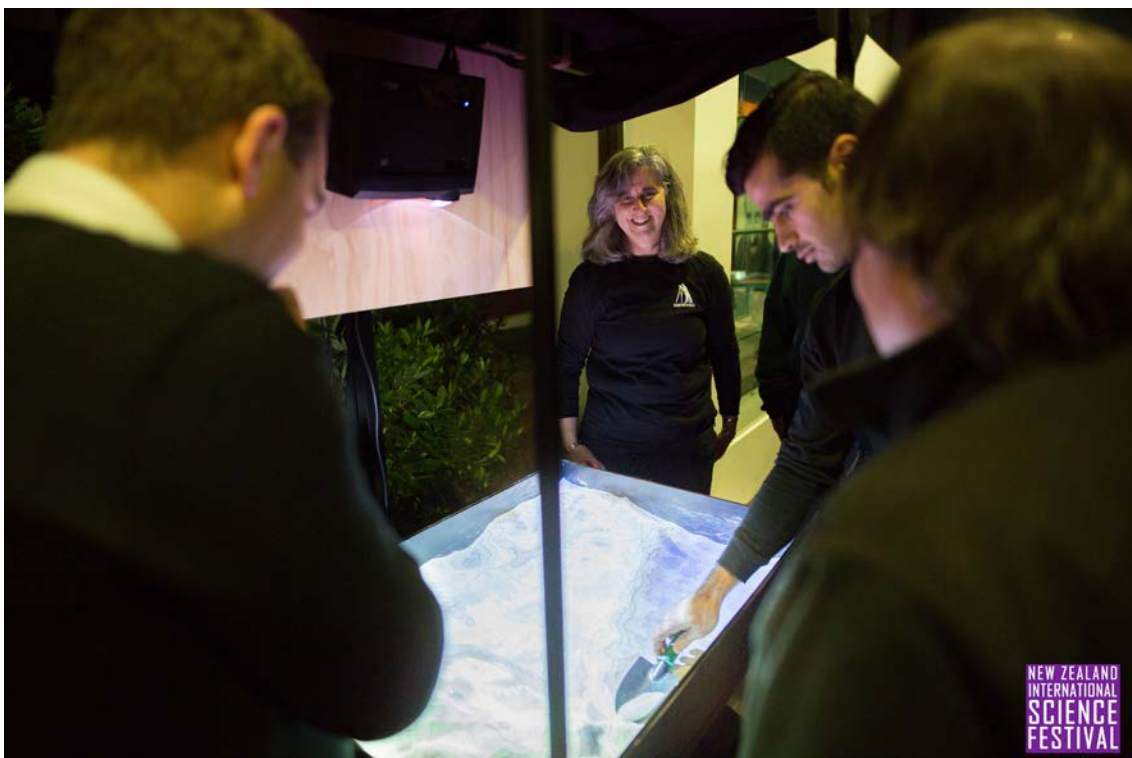


Figure 9. The public interact with the sandbox model from the museum.



Figure 10. *Meg O’Conner, Holly Taylor and Phoebe Whittam from Bayfield High school present their findings on groundwater and the changing nature of south Dunedin.*



Figure 11. *Ellyse Gore from the ORC talks to members of the public about the groundwater bores and natural characteristics of south Dunedin.*