Otago Regional Council

Our Ref A610586

Committee meetings Thursday 24 July 2014

Following are the agendas for the Committee meetings to be held on Thursday 24 July commencing at 8.30 am. The venue is the Council Chamber, 70 Stafford Street, Dunedin. Members of the public are welcome to attend.

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OTAGO REGIONAL COUNCIL

Agenda for a meeting of the Finance and Corporate Committee to be held in the Council Chamber, 70 Stafford Street, Dunedin on Thursday 24 July 2014 commencing at 8.30 am

Membership:

Cr David Shepherd (Chairperson)
Cr Gary Kelliher (Deputy Chairperson)
Cr Graeme Bell
Cr Doug Brown
Cr Louise Croot MNZM
Cr Michael Deaker
Cr Gerrard Eckhoff
Cr Trevor Kempton
Cr Sam Neill
Cr Gretchen Robertson
Cr Bryan Scott
Cr Stephen Woodhead

Apologies: **Cr Gretchen Robertson**

Leave of absence:

In attendance:

Please note that there is an embargo on agenda items until 8.30 am on Tuesday 22 July.

CONFIRMATION OF AGENDA

PUBLIC FORUM

MINUTES

The minutes of the meeting held on 4 June 2014, having been circulated, for adoption

Matters arising from minutes

Otago Regional Council

PART A – PRESENTATION

Item 1 **Port Otago Ltd – presentation of Draft Statement of Corporate Intent for the three year period to 30 June 2017.**

PART B - RECOMMENDATIONS

Item 2
2014/0995 **Port Otago Ltd – Draft Statement of Corporate Intent**. DCS, 9/7/14

The Draft Statement of Corporate Intent for Port Otago Limited, including its subsidiaries and associates, for the three year period to 30 June 2017 has been received from the company and is presented for endorsement.

Item 3
2014/0937 **Electoral Systems.** DCS, 1/7/14

The report explains that any decision to change the voting system for the next local body elections must be made by 12 September 2014; and if Council wishes to establish one or more Maori constituencies, a decision must be made no later than 23 November 2014.

Item 4
2014/0959 **Executive Report on Progress**. DCS, 4/7/14

The report describes significant activities carried out by the Finance and Corporate sections since the last meeting of the Committee.

PART C – ITEMS FOR NOTING

Item 5
2014/1004 **Transport Operations – Update July 2014.** DCS, 11/1/14

The report provides a summary of the agreed variations to several Dunedin City contracts, and advises of the completion for distribution of the reformatted timetable book.

Item 6
2014/0994 **Insurance Renewals 2014/15.** DCS, 9/7/14

The report notes that the Council's insurances have been reviewed for the 2014/15 year.

PART D - EXCLUSION OF PUBLIC

That the public be excluded from the following part of the proceedings of the meeting.

The general subject of the matters to be discussed while the public is excluded, the reason for passing this resolution in relation to the matter, and the specific grounds under Section 48(1)(a) of the Local Government Information and Meetings Act 1987 for the passing of this resolution are as follows:

	General subjects to be considered	Reason under LGOIMA for passing this resolution	Grounds under S.48 for the passing of this resolution
Item 7	Claim Resolution	To protect information which is subject to an obligation of confidence (S7(2)(c)	S.48(1)(a)(i)

This resolution is made in reliance on Section 48(1)(a) of the Local Government Official Information and Meetings Act 1987 and the particular interest or interests protected by Section 6 or Section 7 of that Act or Section 6 or Section 7 or Section 9 of the Official Information Act 1982 as the case may require, which would be prejudiced by the holding of the whole or the relevant part of the proceedings of the meeting in public are as shown above with respect to each item.

OTAGO REGIONAL COUNCIL

Minutes of a meeting of the Finance and Corporate Committee held in the Council Chamber, 70 Stafford Street, Dunedin on Wednesday 4 June 2014 commencing at 1.08 pm

Present:
Cr David Shepherd (Chairperson)
Cr Gary Kelliher (Deputy Chairperson)
Cr Graeme Bell
Cr Doug Brown
Cr Louise Croot MNZM
Cr Michael Deaker
Cr Gerrard Eckhoff
Cr Trevor Kempton
Cr Gretchen Robertson
Cr Bryan Scott
Cr Stephen Woodhead

Leave of absence: **Cr Sam Neill**

In attendance:
Wayne Scott
Jeff Donaldson
Fraser McRae
Gavin Palmer
Sharon de Vries (for Item 1)
Janet Favel

CONFIRMATION OF AGENDA

It was noted that there were no in committee items to be considered. There were no changes to the agenda.

MINUTES

The minutes of the meeting held on 16 April 2014, having been circulated, were adopted on the motion of Crs Kempton and Kelliher.

Matters arising from minutes

There were no matters arising from the minutes.

Otago Regional Council

PART A - RECOMMENDATIONS

Item 1
2014/0842 **2014/15 Annual Plan – Recommendations from Hearing Committee.**
DCS, 21/5/14

The report presented the Hearing Committee's recommendations in respect of the Draft Annual Plan.

Enviroschools
Cr Deaker noted the submission from the DCC relating to funding for Enviroschools. He was surprised that the hearing committee recommended the submission be declined because not enough information was provided, and noted discussion at previous annual plan hearings on this matter. Cr Deaker indicated that he would put forward an addendum to the recommendations 'that relevant staff at ORC and DCC enter discussions with a view to the regional co-ordinator function and employment being phased into the ORC structure by 2015, rather than decline the request.'

Cr Shepherd explained that the hearings committee understood that a lot of the work carried out under the umbrella of the DCC was teaching teachers, and questioned whether this was a regional responsibility. Cr Robertson considered that the report reflected the decision but did not correctly reflect the discussion, and pointed out that the application did not directly request that the ORC take on the regional co-ordinator's role within Otago. She pointed out that if this was to happen, two positions were needed - the regional co-ordination role within the ORC, and provision within the DCC for teaching for teachers.

Cr Scott noted that at last year's annual plan hearings, it was suggested that Enviroschools and ORC consider how they could work together. He was frustrated that this had not happened, and felt that now was the time to explore this opportunity.

Cr Croot noted that an ORC regional co-ordination position would have to work within the Enviroschools structure, and pointed out that staff, particularly Mr Taylor, had worked with the group, supporting them with time and knowledge. She also commented that not all schools were involved in Enviroschools, and a different proposal would be needed to include them. Cr Croot supported the establishment of an environmental education position within the ORC, but whether this was with Enviroschools would have to be decided.

Cr Deaker moved
Cr Kempton seconded

That Recommendation 2 be amended to read:

> *That the recommendations of the hearing committee be endorsed and in the case of point 3.7.6 that the staff of ORC and DCC meet during 2014 to negotiate the transfer of the Enviroschools regional co-*

ordination role and the meeting of its funding needs from the DCC to the ORC in time for the 2015 school year.

It was agreed that the phrase "in time for the 2015 school year" be deleted.

After discussion, the mover and seconder agreed to amend the proposed recommendation and it was to be added as Recommendation 5.

Cr Deaker moved
Cr Kempton seconded

That a new Recommendation 5 be added:

That the appropriate staff of Otago Regional Council and Dunedin City Council meet during 2014 to negotiate the transfer of the Enviroschools Regional Co-ordinator role and the meeting of its funding needs from the DCC to the ORC.

Motion carried

Biodiversity
Cr Robertson considered that the report did not reflect the hearings committee's discussion on this matter. Cr Shepherd understood that the intention was for a stocktake to be undertaken of Council's biodiversity work, following which a decision would be made on how to proceed. Cr Woodhead agreed, noting that this could flow on into development of a biodiversity strategy. There was discussion about whether the work to be undertaken was a review of existing/completed biodiversity projects or preparation of a strategy. It was noted that there would have to be public consultation on a strategy document.

Item 3.2 of the report was to be amended to read: "The Hearing Committee notes that the purpose of the ~~strategy~~ review is to draw together all of the biodiversity work currently being undertaken by Council, and to assist with planning its own role in biodiversity in the future."

Mr McRae commented that the stocktake of each council's biodiversity work would feed into the RPS. ORC was carrying out a number of tasks that had a biodiversity function and these needed to be identified and collated. He stated that it was not the ORC's role to identify biodiversity work being carried out by other councils.

Mr Scott suggested that for clarification, the word review instead of strategy be used to refer to the biodiversity project in the Annual Plan.

General Rates
The following figures were to be added to the report:

2014/15	
General Rates ($000s)	$5,027.00
Uniform Annual general charge (incl GST)	$13.76

Cr Woodhead moved
Cr Deaker seconded

1. *That the report be received.*

2. *That the recommendations of the Hearing Committee be endorsed.*

3. *That the 2014/15 Annual Plan incorporating the recommendations from the Hearing Committee be placed before the June Council meeting for adoption.*

4. *That the 2014/15 Rates Resolution be placed before the June Council meeting for adoption.*

5. *That the appropriate staff of Otago Regional Council and Dunedin City Council meet during 2014 to negotiate the transfer of the Enviroschools Regional Co-ordinator role and the meeting of its funding needs from the DCC to the ORC.*

Motion carried

Item 2
2014/0861 **Passenger Transport Operations Update May 2014.** DCS, 25/5/14

The report provided an update on transport operational matters, and the following points were discussed:

- GoBus brand – the suggestion that an agreement be entered into with Go Bus Transport Ltd for the surrender of Council's GoBus trademark seemed to be the most pragmatic approach.
- Student concession trial – Ritchies wished to continue with the concession, but GoBus did not consider that the data supported retaining the concession. This matter was under discussion with both companies.
- Contracts – it was likely that current contracts would be extended to the end of July.
- Route changes - potential route changes would need to be publicised.
- Queenstown network – would be discussed once the negotiations with the DCC over responsibility for public transport were concluded.
- Journey planner – now live on the ORC's website.

Cr Woodhead moved
Cr Deaker seconded

(1) That the report be received.

(2) That:
   i. Council withdraw from the use of GoBus as its network brand, and
   ii. An agreement be entered into with Go Bus Transport Limited for the surrender of Council's GoBus trademark.

Motion carried

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PART B – ITEMS FOR NOTING

Item 3
2014/0863 **Executive Report on Progress**. DCS, 26/5/14

The report described significant activities carried out by the Finance and Corporate sections since the last meeting of the Committee.

Cr Croot moved
Cr Woodhead seconded

(1) That the report be received.

(2) That the payments and investments summarised in the table above and detailed in the tabled schedule totalling $3,432,957.26.

Motion carried

Cr Shepherd noted that Duncan Butcher, former councillor and chair of the Finance and Corporate Committee, had been awarded the ONZM in the Queen's Birthday honours, in recognition of his 33 years of service to local authority.

The meeting closed at 2.32 pm.

Chairperson

REPORT

Document Id: A650547

Report Number: 2014/0995
Prepared For: Finance and Corporate
Prepared By: Director Corporate Services
Date: 9 July 2014

Subject: **Port Otago Limited - Draft Statement of Corporate Intent**

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1. Précis

A Draft Statement of Corporate Intent for Port Otago Limited, including its subsidiaries and associates, for the three year period to 30 June 2017 has been received from the company. The document is attached.

2. Background

Port Otago Limited is required each year to provide for the comment of Council as shareholder, a Draft Statement of Corporate Intent for a three year period. The Draft Statement for the period to June 2017 has now been received from the Board.

3. Draft Statement of Corporate Intent

The Draft Statement of Corporate Intent sets out the objectives of the group, and the intended nature and scope of activities for the three year period to 30 June 2017. The three year scenario covered by the Draft Statement is reviewed annually on a rolling basis. A copy of the Draft Statement received from Port Otago is attached. A working copy with tracked changes to the previous year's document is separately distributed.

The Statement of Corporate Intent process is the formal opportunity for the Council as 100% shareholder of the Port Otago Group to have input into the intended activities of the companies.

Key aspects of the objectives include:

- Quality service.
- Continuous customer service improvement.
- Appropriate return on assets.
- Recognition of environmental sensitivity of the Otago harbour and impact on local communities.
- A safe and satisfying working environment.
- Good corporate citizenship.
- Communication.
- Active property management.

Specific activities for the year ending 30 June 2015 include:

- Actively review activities to focus on customer service and optimum utilisation of resources.
- Identify likely infrastructural improvements needed for efficient handling of higher trade volumes.
- Actively seek shipping and port related business development opportunities.
- Actively promote a positive and safe working environment with continuous improvement in health and safety performance.
- Further refine the timing and strategy for the commencement of channel deepening dredging work.
- Take delivery of the tug Taiaroa in July 2014, and successfully integrate into the port towage operation.
- Consider and evaluate additional warehousing opportunities for Sawyers Bay.
- Hard pave the log storage area within the Fryatt Street yard.
- Continue the property acoustic treatment programme, and continue to measure and monitor noise and implement where possible, new initiatives to minimise the effect of port noise on the community.
- Work constructively with the community through the Port Environment / Liaison Committee. Maintain the landscaped areas at Flagstaff Hill, Black Beach and Boiler Point.
- Continue the ongoing programme of identifying business and environmental risks faced by the Group and review the effectiveness of policies and procedures in place to minimise and manage the risk.
- Continuation of dredging in the harbour to facilitate safe access of ships to berths.
- Continue to hold the shareholding in LPC while pursuing any potential sale opportunities which may arise.
- Continue to evaluate and take up opportunities for property disposal, investment and development to improve asset quality, rates of return and portfolio growth potential.
- Consider any sales opportunities of Dunedin leasehold land, particularly where any sale advances economic development within Dunedin city.
- Complete the development of the Sturdee Street, Dunedin investment property.
- Continue with the development and realisation of the property in Hamilton and for the successful conclusion of the Joint Venture Project.

4. Performance Targets

Performance targets in relation to trade volume environmental, health and safety, and financial measurement and performance are also set out in the document.

Otago Regional Council

5. Dividend Policy

The Draft Statement of Corporate Intent provides for an amendment to the current policy of 70-80% of the Group's operating surplus after tax for ordinary dividends to a range of 50-70%, with a stated $7 million dividend payment intention, plus provision to consider special dividends if they can be met within the financial parameters.

6. Shareholders' Funds

The expected level of shareholders' funds as at June 2015 is $355 million.

7. Recommendation

That the attached Draft Statement of Corporate Intent for Port Otago Limited and its subsidiaries and associates for the three years to 30 June 2017, be endorsed.

Wayne Scott
Director Corporate Services

Encl: (1) Draft Statement of Corporate Intent for Port Otago Limited for the three year period to 30 June 2017

PORT OTAGO LIMITED

Draft Statement of Corporate Intent

for the three years to 30 June 2017

Port Otago Limited

Statement of Corporate Intent

This statement is presented by the Directors of Port Otago Limited in accordance with the requirements of Section 9 of the Port Companies Act 1988 and reflects the intentions of Port Otago Limited, its subsidiaries and associates ("the Group") for the three years of the Company's operations from July 2014 to June 2017.

(a) Objectives of the Group

1. To provide a quality service to cargo owners and shipping lines by way of a competitive choice in the supply chain.

2. To continue to review activities and services focusing on continuous customer service improvements and optimum utilisation of staff and resources to meet the demands of changing trade patterns.

3. To implement pricing and cost management strategies so that long term profits are earned to give shareholders an appropriate return on the port infrastructure and to provide funds for future development of the Group.

4. To recognise in all aspects of the Group's activities the environmental sensitivity of the Otago Harbour and the impact on local communities.

5. To provide staff with secure employment, a safe working environment, satisfying rewards and opportunities and training for increased responsibilities and advancement within the Group.

6. To conduct itself as a good corporate citizen consulting on matters of public interest.

7. To communicate the Company's plans and achievements to staff, shareholders and the wider community and to be receptive to constructive comment.

8. To manage the investment property portfolio through active acquisition, development and, at times, divestment to produce a diversified portfolio by property type and location. To manage investment property holdings to achieve the best long-term value gain while limiting exposure to undeveloped land.

(b) Nature and scope of activities

(I) The activities of the Company, its subsidiaries and associates are to comprise generally:

1. The efficient operation and promotion of the Port of Otago.

2. Provision of integrated container and cargo handling, warehousing and container depot services.

3. Provide pilotage and towage services to facilitate the safe navigation of commercial shipping requiring pilotage within the Otago Harbour and Fiordland.

4. Grow the investment property portfolio, evaluate and take up new investment and development opportunities to improve asset values, and rates of return.

5. Sales of leasehold land will be considered where a sale advances development and employment opportunities in Dunedin.

6. Evaluate opportunities considered likely to add value to, or enhance the competitiveness of, the Company.

7. Such other actions that may be required to meet the objectives of the Company recorded under item (a) above.

(II) The following table details the company's trading subsidiaries and joint ventures:

Name	Percentage owned	Principal Activity
Subsidiaries		
Chalmers Properties Limited	100%	Property investment
Perpetual Property Limited	100%	Property investment
Fiordland Pilot Services Limited	100%	Shipping services
Joint ventures and associates		
HarbourCold Dunedin	50%	Cold store operation
Icon Logistics Ltd	50%	Transport company
Hamilton Joint Ventures	50%	Property investment
Hamilton Porter Joint Venture	33.3%	Property investment

(III) The specific activities of the Group for the three years under review to June 2017 are expected to include the following:

Year ending June 2015

Port Otago – port operations

1.1 Actively review activities to focus on customer service and optimum utilisation of staff and resources to meet the demands of changing trade patterns. Review pricing to ensure service charges provide an appropriate return on the port infrastructure.

1.2 Actively promote a positive and safe working environment for staff through a team focus, providing opportunities for career advancement and emphasising safety in all activities. Seek continuous improvement in health and safety performance.

1.3 Actively seek shipping and port related business development opportunities. Continue to evaluate opportunities to expand the Group's warehousing, transport and logistics services.

1.4 Consider and evaluate trends in container trade growth and the world-wide move to larger vessel sizes. Identify the improvements to port infrastructure and the changes to port operations needed in order to efficiently handle higher volumes of trade through the port.

1.5 Further refine the timing and strategy for channel deepening.

1.6 Complete New Zealand registration and take delivery of the tug Taiaroa in July 2014 and successfully integrate into the port towage operation.

1.7 Consider and evaluate additional warehousing opportunities for Sawyers Bay.

1.8 Hard pave the log storage area within the Fryatt Street yard, Dunedin and continue with upgrading the remaining pavement within the yard area.

1.9 Continue with the acoustic treatment programme within the Blue (60 dBA to 65 dBA) and Yellow (55 dBA to 60 dBA) noise zones at Port Chalmers. Actively progress, as approached by property owners, acoustic treatment applications for properties situated within the noise zones.

Continue to measure and monitor noise and implement, where possible, new initiatives to minimise the effect of port noise on the community.

1.10 Work constructively with the community through the Port Environment/Liaison Committee by continuing to update and implement the Port Environment Plans. Maintain the landscaped areas at Flagstaff Hill, Back Beach and Boiler Point.

1.11 Continue the ongoing programme of identifying business and environmental risks faced by the Group and review the effectiveness of policies and procedures in place to minimise and manage the risk.

1.12 Continuation of dredging in the harbour to facilitate safe access of ships to berths.

Investment in Lyttelton Port Company (LPC)

1.13 Continue to hold the shareholding in LPC while pursuing any potential sale opportunities which may arise.

Chalmers Properties Limited, subsidiary and joint ventures

1.15 Continue to evaluate and take up opportunities for property disposal, investment and development thereby improving the asset quality, values, rates of return and portfolio growth potential.

1.16 Consider any sales opportunities of Dunedin leasehold land, particularly where any sale advances economic development within Dunedin city.

1.17 Complete the redevelopment of the Sturdee Street, Dunedin investment property.

1.18 Continue with the development and realisation of the Rotokauri property in Hamilton and for the successful conclusion of the Joint Venture project.

Year ending June 2016

Port Otago – port operations

2.1 Review the port and port related activities to focus on customer service and optimum utilisation of resources to address changing trade patterns.

2.2 Continue to provide staff with a positive, safe and rewarding working environment.

2.3 Continue to seek new shipping opportunities and continue to evaluate opportunities to expand the Group's warehousing, transport and logistics services.

2.4 Monitor shipping trends and continue planning to prepare the port for the next generation of container vessels.

2.5 Take delivery of two new diesel electric straddle carriers.

2.6 Make application for the renewal of the dredge disposal consents.

2.7 Continue ongoing programme of identifying business and environmental risks faced by the Group and review the effectiveness of policies and procedures in place to minimise and manage the risk.

2.8 In consultation with the community review Environment Plans, and continue to monitor and implement the plans. Continue to review the Noise Management Plan and where possible achieve further improvements to noise abatement procedures. Continue to monitor total port noise.

2.9 Continuation of dredging in the harbour to facilitate the safe access of ships to berths.

Chalmers Properties Limited, subsidiary and joint ventures

2.10 Continue to implement the strategy for enhancement of the property portfolio.

2.11 Continue to implement strategies for sale of leasehold land.

2.12 Continue with the realisation of the Rotokauri property development and the successful conclusion of the Joint Venture project.

Year ending June 2017

Port Otago – port operations

3.1 Continue to review the port, warehousing and related activities to focus on customer service and optimum utilisation of resources to address changing trade patterns.

3.2 Continue to provide staff with a positive, safe and rewarding working environment.

3.3 Continue to manage and monitor total port noise.

3.4 Complete the design of the Multi-Purpose wharf extension and Boiler Point fishing wharf at Port Chalmers.

3.5 Commence the redevelopment of the container depot at Strathallan Street, Dunedin.

3.6 Commence planning for the development of the container hub site at Odlins Place in Mosgiel.

3.7 Continue programme of business and environmental risk, evaluation and management.

3.8 In consultation with the community review Environment Plans, and continue to implement the plans.

3.9 Continue planning and, if required, commence physical works to prepare the port for larger container vessels.

3.10 Continuation of dredging in the harbour to facilitate the safe access of ships to berths.

Chalmers Properties Limited, subsidiary and joint ventures

3.11 Continue to implement an active property investment and management strategy.

3.12 Continue with the realisation of the Rotokauri property development and the successful conclusion of the Joint Venture project.

(c) Ratio of Consolidated Equity to Total Assets

Financial Year ending 30 June	Actual or estimate	Consolidated Shareholders funds	Total assets	Ratio of Shareholders Funds to Total Assets
2013	Actual	$314m	$443m	71%
2014	Estimate	$346m	$495m	70%
2015	Estimate	$355m	$510m	70%
2016	Estimate	$365m	$525m	70%
2017	Estimate	$375m	$540m	69%

Equity comprises the issued and paid up capital together with retained earnings, the property revaluation reserve and any other reserves. Total assets represent all assets of the Group determined in accordance with the accounting policies as set out in the 2013 Annual Report.

The preferred range over time for the equity ratio is between 65% and 75%. The timing of capital expenditure, the income yields on Company investments and prevailing market conditions may mean it is prudent for the Company to operate outside the preferred equity ratio range for periods of time.

(d) Accounting Policies

The Company's accounting policies are detailed in the 2013 Annual Report which is available from the Company's website located at http://www.portotago.co.nz

(e) Performance Targets

The performance of the Company in relation to its objectives may be judged by comparing actual results with budgeted targets of the following nature:

Trade
Port Otago's 2015 financial year budgeted container throughput is 192,500 twenty foot equivalent units (TEU) and the budgeted conventional cargo throughput is 1.3 million tonnes.

The expected number of vessel arrivals in the year to 30 June 2015 is 525 vessels.

Container terminal productivity

The Company aims to achieve gross container crane productivity for the year ending 30 June 2015 of 28.1 lifts per crane hour, a 5% increase. This compares with a crane rate of 26.8 for the year to 30 June 2014.

Environmental	**Performance target**
Incidents leading to pollution of Harbour	- Nil
Full compliance with all resource consent conditions	- Nil breaches of resource consent conditions

Health & Safety

The Company has a Zero Harm strategy in place and it endeavours to be an industry leader in setting new standards of safety. With the involvement of every team member it is planned, through a process of continuous improvement, to progressively improve health and safety performance.
The performance measures to be used are:
- maintain Workplace Safety Management Practice (WSMP) tertiary status;
- maintain compliance with the Australian and New Zealand health and safety standard AS/NZS 4804:2001

The frequency rate (per 100,000 work hours) target for the year to June 2015 is:

	Performance target	**Last year**
Lost time injuries (LTIs)	Nil	1.1
Medical treated injuries (MTIs)	2.0	2.2

Financial measurement and performance

The performance measures to be used are:

Earnings before interest and taxation (EBIT) return on average total assets.

Return on equity - Profit, including unrealised fair value movements, divided by average shareholders' equity.

Equity ratio - The percentage that shareholders' funds represent of total assets with the target range between 65% and 75%.

Debt servicing ratio - The number of times interest is covered by the profit before tax, interest, unrealised fair value movements and unrealised impairment charges. Unrealised fair value movements include investment property revaluations, changes in the value of interest rate swaps and changes in the value of foreign exchange contracts.

The budgeted targets for Port Operations, Chalmers Properties Ltd (excluding property revaluations) and the Port Otago Group for the year ending 30 June 2015 are:

	Port Operations
EBIT return on assets	7.3%
Return on equity	9.7%
Equity ratio at 30 June 2014	63%
Debt servicing ratio	3.9 times

	Chalmers Properties Ltd
EBIT return on assets	5.0%
Return on equity	3.7%
Equity ratio at 30 June 2014	82%
Debt servicing ratio	5.8 times
(Property revaluations not included)	

	Port Otago Group
EBIT return on assets	6.1%
Return on equity	5.0%
Equity ratio at 30 June 2014	73%
Debt servicing ratio	4.6 times

(f) Dividend Policy

1. The return to the shareholders from shares held in Port Otago Limited will include dividends from trading profits earned.

2. The intention is to maintain ordinary dividends at least at $7 million, increasing over time to within the range of 50% to 70% of the group's operating surplus after tax.

3. The company may pay special dividends if, after taking into account forecast levels of capital expenditure, the company will remain within the preferred range for the consolidated equity ratio.

(g) Information for Shareholders

Sufficient information will be made available to the Company's shareholders so that they may properly assess the value of their investment in the Company, in particular any change in value.

An Interim Report covering the six months to 31 December of each year shall be provided by 28 February. The report shall include a commentary on activities and unaudited financial statements for the period.

The Annual Report for each year ending 30 June shall be provided by 30 September of each year. The annual report shall include a commentary on activities, a comparison with performance targets set out in the Statement of Corporate Intent and audited financial statements for the year.

In conjunction with the Interim and Annual Reports the Company shall report to the shareholder on progress with implementing the Objectives and the Specific Activities set out in the Statement of Corporate Intent.

(h) Procedures for business acquisition

The Group will only invest in shares of another company or business if the acquisition will produce shareholder added value over the longer term.

If any Company within the Group intends to subscribe for or otherwise acquire a financial interest in any company or business where the cost of that interest or

acquisition exceeds 10% of Group shareholders funds it will have prior consultation with its shareholders.

(i) Activities subject to Compensation

The Company will provide the following services for the Otago Regional Council for which the company expects to be remunerated or reimbursed by the Regional Council:

a) Assistance in matters of good navigation and safety on Otago Harbour.
b) Provision of such services as may be requested by the Regional Council.

Otago Regional Council

REPORT

Document Id: A647809

Report Number: 2014/0937
Prepared For: Finance and Corporate
Prepared By: Corporate Analyst
Date: 1 July 2014

Subject: **Electoral Systems**

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1. Précis

The Local Electoral Act 2001 is the legislation under which local elections and polls are held. This legislation sets out the voting systems that may be used, and the processes under which a local authority may change its systems. The Otago Regional Council currently uses the First Past the Post system. If it was of a mind to change to the Single Transferable Vote system for the 2016 elections, such a decision must be made by 12 September 2014.

The Local Electoral Act 2001 also makes provision for establishing Maori constituencies. Should Council choose to establish one or more Maori constituencies, it will need to make such a decision no later than 23 November 2014.

2. Electoral Systems

Section 27 of the Local Electoral Act 2001 requires local authorities to make a decision no later than 12 September, if they wish to change the electoral system for the 2016 triennial election. Council does not however, have to make a decision on its electoral system, and where no decision is made, the current system will continue to apply (unless changed as a result of a poll of electors). If no decision is made, Council must still give public notice, by 19 September, of the right of electors to demand a poll on the electoral system to be used at the next two triennial general elections of that Council, i.e., 2016 and 2019.

Note is made that in 2011, Council made a decision to retain the First Past the Post electoral system for the 2013 and 2016 elections. The Local Electoral Act however, still requires notice to be given of the Council's position.

Two electoral systems are available for use in the local government elections, First Past the Post and Single Transferable Vote. A brief explanation of each system is provided below:

First Past the Post ("FPP")
Under FPP, each voter has one vote for each vacancy to be filled. The candidate who wins the most votes, regardless of his or her share of the total valid votes cast, wins the position.

Single Transferable Vote ("STV")
Under STV, each voter has one vote, which is exercised by ranking candidates in order of preference. Voters may rank as many or as few candidates as they wish, so long as they indicate just one first preference and consecutively rank other candidates.

Otago Regional Council

3. Changing Electoral Systems

There are three ways in which the electoral system used by a local authority may change, and these are as follows:

By a Resolution of Council

Section 27 of the Local Electoral Act 2001 provides that a council **may** resolve to change its system, with the resolution having to be made by 12 September 2014. If council does resolve to change the system from FPP to STV, then that system would be in place for two elections, i.e., 2016 and 2019. This is the option resolved on before the 2013 elections.

Elector Demand for Poll

Council must give public notice no later than 19 September 2014, of the right of electors to demand a poll on the electoral system to be used, whether or not a resolution under Section 27 has been passed.

If a resolution has been passed, the public notice must include notice of the resolution, the electoral system to be used and that a poll would be required to countermand the resolution made by Council.

To be successful, a demand for a poll must be signed by at least 5% of the electors enrolled to vote at the previous triennial election. If a valid poll is received prior to 28 February 2015, the poll must be held by 21 May 2015, and the results of the poll will be valid for the next two elections.

If a valid poll is received after 28 February 2015, the poll must be held after 21 May 2015. The results of the poll would then be effective for the 2019 and 2022 elections.

Poll Held on Initiative of Council

Council may resolve that a poll be held on a proposal that a specified electoral system be used for its next two triennial elections. Such a resolution must be made no later than 28 February 2015, and the poll must be held by 21 May 2015.

4. Legislative Timetable for Electoral Systems

Local authorities must comply with the following timeline when deciding which electoral system will be used:

By 12 September 2014	Council **may** resolve to change the current system
By 19 September 2014	Council **must** give public notice of the right of electors to demand a poll on the future system to be used for the next two triennial elections, and if a resolution has been made by Council to change the current system.
By 28 February 2015	Council **may** resolve to undertake a poll of electors on a proposal that a specified system be used for the next two elections.

By 21 May 2015	If a demand has been received to hold a poll prior to 28 February 2015, or resolution has been made to hold a poll, then a poll **must** be held within 82 days

5. Maori Constituencies

Section 19Z of the Local Electoral Act provides that any regional council may resolve that the region be divided into one or more Maori constituencies for electoral purposes. Such a resolution, if made no later than 23 November 2014, would take effect for the next two elections, 2016 and 2019.

If Council passes such a resolution, it must give public notice of the right to demand a poll on the matter. The public notice must include notice of the resolution, and a statement that a poll would be needed to countermand that resolution.

Note is made that electors may at any time demand that a poll be held on the question of Maori constituencies, and Council may at any time resolve that a poll be held.

6. Recommendations

1. That this report be received.

2. That Council give notice of the right of electors to demand a poll on the electoral system.

3. That no proposal be advanced in relation to the establishment of Maori constituencies.

Wayne Scott
Director Corporate Services

REPORT

Document Id: A649496

Report Number: 2014/0959
Prepared For: Finance and Corporate Committee
Prepared By: Director Corporate Services
Date: 4 July 2014

Subject: **Executive Report - June 2014**

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1. 2013/14 Annual Report

The Council's 2013/14 financial year closed on 30 June 2014, and the work involved with the preparation of the Annual Report and Financial Statements is now well in hand.

The auditors have been on site for their preliminary work programme, and the Annual Report will be presented to the 17 September 2014 Council meeting for adoption.

2. Regional Public Transport Plan

The Draft Regional Public Transport Plan (RPTA) was adopted by the Council on 25 June, and is being printed for distribution.

The agreed timetable is:

- 21 July to 22 August – public consultation
- 8-12 September – hearings
- 30 October – adoption of final document
- 29 November – effective date of implementation

Further components of the passenger transport activity include:

- Draft RPTP consultation.
- Further steps of the NZTA business case process.
- Further sensitivity analysis of the draft preferred fare structure.
- Procurement strategy.
- Planning for the expiring Southern Routes contract.
- Bus user survey.

3. Passenger Transport Governance

The Council continues to provide information to the Dunedin City Council project team tasked with undertaking due diligence in respect of this Council's offer to transport its passenger transport functions to the City.

4. Harbour Master Forum

The Director Corporate Services, a designated Harbour Master, attended the annual Harbour Masters forum in Wellington on 2/3 July.

Consideration is presently being given to the most appropriate Harbour Mastering model for Otago harbour.

5. Councillor Remuneration

The Remuneration Authority is gazetting revised elected member remuneration levels to be effective from 1 July 2014.

The levels proposed for this Council are noted as follows:

	Proposed $	**Present $**
Chairperson (plus vehicle)	114,076	112,626
Deputy Chairperson	62,020	60,620
Committee Chairperson	53,160	51,960
Councillor	44,300	43,300

The increases will be paid when the gazettal is notified.

6. Stadium Loan

The $10 million loan raised to part fund the Council's contribution to the Dunedin stadium was repaid as scheduled on 30 June.

7. Treasury Management Policy

The Investment Policy (incorporated within the Treasury Policy) provides the framework for Council's investments.

An inconsistency has been identified through a reference and linkage of Council's general funds with the Managed Fund operated through the "Statement of Investment Policy and Objectives" (SIPO) which is recommended be clarified.

The Treasury Policy refers to investments in the form of cash deposits held for longer than 365 days is managed as part of the Council's investment portfolio. Council's investment portfolio refers to our Managed Fund, currently being managed by the BNZ, and managed within the guidelines set out in the Statement of Investment Policy and Objectives, attached to the Treasury Policy.

Funds held for a period of 365 days or longer are not always part of the investment portfolio. Cash is held outside of the portfolio for many reasons including for working capital purposes. There can be benefits in term deposit terms greater than 365 days for cash assets. It is recommended that the policy be amended to remove from Section 4.6 the statement that *"cash held for longer than 365 days is managed as part of the Council's overall investment portfolio"*.

Otago Regional Council

8. Account Payments

Schedules of payments made are referred to the Finance and Corporate Committee for endorsement. The financial commitments and payment authorisation are made in accordance with Council's financial delegations and internal control procedures.

Payment Categories	May 2014 $	June 2014 $	Total $
Trade and general payments	2,629,391.82	12,653,427.08	15,282,818.90
Payroll	590,430.63	614,820.40	1,205,251.03
Investments		1,350,000.00	1,350,000.00
Total	**3,219,822.45**	**14,618,247.48**	**17,838,069.93**

Note: includes $10M stadium loan repayment

9. Recommendation

(1) That this report be received.

(2) That the payments and investments summarised in the table above and detailed in the tabled schedule, totalling $17,838,069.93 be endorsed.

(3) That the Treasury Policy be amended (Section 4.6) to remove the statement that *"cash held for longer than 365 days is managed as part of the Council's overall investment portfolio"*.

Wayne Scott
Director Corporate Services

Otago Regional Council

REPORT

Document Id: A651049

Report Number: 2014/1004
Prepared For: Finance and Corporate
Prepared By: Manager Support Services
Date: 11 July 2014

Subject: **Transport Operations - Update July 2014**

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1. Précis

This report provides Council with a summary of the agreed variations to Harbourside, City Routes 1, City Routes 3, and Palmerston Contracts. The variations have primarily come from the necessity to negotiate extensions to the contracts expiring 31 July because of the changes to the Land Transport Management Act, which came into force June 2013. The result of the agreed variations is a net increase in contract values of approximately $290,000 plus GST per annum. The increase will be shared equally with NZTA, with ORC's share being approximately $145,000.

In addition to the contract variations, a new format for the timetable book has been developed to make the booklet more user friendly. The new timetable books will be distributed during the week prior to the commencement of the service changes. On street timetables (where necessary) will also be updated prior to the commencement of the changes.

2. Contract Variations

Over the preceding months, staff have been negotiating with GoBus Transport Limited necessary extensions to the Harbourside (Peninsula, Port Chalmers, and Waverley) and City Routes 1 (Garden Village/Glenleith, Ocean Grove/Bay Cemetery, Maori Hill/Prospect Park/University and Bradford/Belleknowes/City Rise/University) contracts.

As previously advised the extensions are necessary to allow continuation of the services. Under the Land Transport Amendment Act Council is unable to seek tenders prior to the adoption of a new Regional Public Transport Plan (RPTP).

In addition to the contract extensions for Harbourside and City Routes 1, negotiations also included timetable and route changes to the Corstorphine/St Clair Park services, bus capacity issues for the Palmerston service, and the student concession.

Prior to the negotiations Council had endorsed changes to a number of services within the existing contracts, including Corstorphine/St Clair Park on the expectation that those changes would effectively be cost neutral. NZTA also approved the procurement process on that basis.

It became apparent during the negotiations that all the approved variations would not be able to be achieved on a cost neutral basis. In addition to the variations the operator reaffirmed earlier advice from its predecessor (Invercargill Passenger Transport Limited) that the Harbourside contract, in their view, was not sustainable at the current contract value, and that in order for it to continue, they were seeking realignment in the contract value which would be a substantial increase.

During negotiations consideration was given to the term of the contract extensions to assist with a staggered yet timely implementation of network units once the RPTP is adopted.

As a result of the negotiations, the following is a summary of the variations agreed.

Harbourside:

- Base contract value adjusted to a sustainable base increase $241,348 plus GST per annum.
- Peninsula an additional increase of $10,302 plus GST per annum.
    - Existing on request services to Harwood will always travel into to provide certainty to users.
    - New safe turning location confirmed for Portobello which will require additional kms.
- Waverley an additional increase of $26,054 plus GST per annum.
    - Weekday route change.
        - Musselburgh Rise in lieu of Portobello Road.
        - No link to Highcliff Road.
    - New Weekday timetable to alleviate timing issues (but without the need for additional peak buses).
- Contract extended for 17 months from 1 August 2014.
- All other services remain unchanged.

City Routes 1:

- Ross Creek (Garden Village)/Ocean Grove.
    - New Saturday services to Ross Creek (Garden Village).
    - An increase of $27,702 plus GST per annum.
- Contract extended 23 months from 1 August 2014.
- All other services remain unchanged.

City Routes 3:

- Corstorphine/St Clair Park reduction in contract cost $17,661 plus GST per annum.
    - New timetable similar to pre 1 July 2013.
    - Rationalise route extensions at Corstorphine and St Clair Park close to pre 1 July 2013.
    - Services to now terminate at the Centre City New World Terminus.
    - Removal of the Murray/Skibo/Lockerbie Street variations.

Palmerston:

- An increase in the contract cost of $2,500 plus GST per annum.
- GoBus will provide a vehicle for the service that provides better accessibility, along with appropriate (increased) capacity to be provided as soon as practicable. (Note this vehicle is programmed for mid-August).
- Change to the fare revenue sharing mechanism from 30% operator 70% Council, to 50% operator 50% Council. (Note the fare revenue sharing only applies to fare revenue above the contracts assessed gross value which has remained unchanged).
- Contract term now 17 months from 1 August 2014.

Bus users will be made aware of the proposed changes over the next three weeks.

Otago Regional Council

3. Lookout Point

As previously advised, changes to the Lookout Point service necessary to accommodate NZTA's SH1 Caversham Valley roading improvements project, are scheduled to commence 1 August 2014. Staff have been working closely with DCC and NZTA to ensure new bus stops are in place in time for the service change, which is effectively a reversal of the Lookout Point loop section of the route.

4. GoBus Trademark

In line with the agreement reached with GoBus Transport Limited, staff are undertaking the necessary steps to withdraw from our use of the GoBus trademark.

5. Timetable Production

Production of the new bus timetable book, which includes the variations scheduled to commence 1 August, is well in hand and will be distributed to letterboxes throughout Dunedin the week prior to the commencement of the services.

The design of the timetable has been reformatted taking on board discussion and comment received on the old timetable booklet from users and representatives from:

- BusGo.
- Disability Information Service.
- Disabled Persons Assembly.
- VICTA – Visual Impairment Charitable Trust.

There are 140 on street timetables that require updating. This will occur on the days immediately preceding the change of services.

6. Recommendation

That this report be received

Wayne Scott
Director Corporate Services

REPORT

Document Id: A650485

Report No: 2014/0994
Prepared for: Finance and Corporate Committee
Prepared by: Manager Support Services
Date: 09 July 2014

Subject: Insurance Renewals 2014/15

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1. Précis

The Council's insurances have been reviewed through our broker and finalised for the 2014/15 year. An overall decrease of 2.7% in insurance premiums for the 2014/2015 year has occurred. The effect of an increase in cover sought for harbour master and wreck removal cover has been offset by a decrease in the cost of premiums for vehicle and fidelity cover.

2. Background

Council's insurances are reviewed and renewed annually.

Council's brokers have managed to obtain comprehensive cover for all property and assets previously covered in the 2013/14 year.

There is a decrease in the cost of Council's vehicle fleet insurance and fidelity cover.

The insurance categories and premiums for the period 1 July 2013 to 30 June 2014 are scheduled below along with a comparison from 2012/13 premiums.

3. Summary of Cover

Cover	Premium		
	Excess $	2013/14 $ excl. GST	2014/15 $ excl. GST
Material Damage (property, contents)	See note i	76,652	78,560
Business Interruption	5,000	4,882	4,664
Motor Vehicle	1,000	27,319	23,470
Fidelity Guarantee	25,000	12,619	7,950
Personal Accident	Nil	5,471	4,128
Marine Hull	500	927	927
Liability Insurance (RiskPool)	5,000/10,000	34,608	38,470
Total		**162,478**	**158,169**

Notes:

i) The excess of Material Damage claims are as follows:

Subsidence and Landslip:	$50,000
Natural Disasters (as defined in the policy):	5-10% of the Material Damage site sum insured minimum $5,000
All other claims:	$5,000 per claim

ii) Fidelity - the level of cover has been increased from $1,000,000 to $2,000,000.

iii) Public Liability and Professional Indemnity Limits have been maintained by RiskPool at $200,000,000.

3. RiskPool

Harbour master and wreck removal cover has been increased from $7.5m to $20m which has resulted in a corresponding increase in premium from RiskPool.

4. Recommendation

That this report be received.

Wayne Scott
Director Corporate Services

OTAGO REGIONAL COUNCIL

Agenda for a meeting of the Technical Committee to be held in the Council Chamber, 70 Stafford Street, Dunedin on Thursday 24 July 2014 following the Finance and Corporate Committee meeting

Membership:

Cr Bryan Scott (Chairperson)
Cr Doug Brown (Deputy Chairperson)
Cr Graeme Bell
Cr Louise Croot MNZM
Cr Michael Deaker
Cr Gerrard Eckhoff
Cr Gary Kelliher
Cr Trevor Kempton
Cr Sam Neill
Cr Gretchen Robertson
Cr David Shepherd
Cr Stephen Woodhead

Apologies: **Cr Gretchen Robertson**

Leave of Absence:

In attendance:

Please note that there is an embargo on agenda items until 8.30 am on Tuesday 22 July.

CONFIRMATION OF AGENDA

PUBLIC FORUM

MINUTES

The minutes of the meeting held on 4 June 2014, having been circulated, for adoption.

Matters arising from minutes

Otago Regional Council

ITEMS FOR NOTING

Item 1
2014/0983 **Air quality in Otago – Issues and Considerations.** DEHS, 10/7/14

The report examines the issue of wood burner use in Otago, and also reviews the current air quality management strategy and re-frames the air quality issue in light of what has been learned over the past 10 years.

Item 2
2014/0993 **Lindis River Catchment Residual Flows.** DEHS, 9/7/14

Reporting on a study carried out to monitor flows at six sites in tributaries of the Lindis River to gain an understanding of hydrological characteristics at the sub-catchment level and to calculate a naturalised flow for the entire Lindis Catchment.

Item 3
2014/0992 **Pisa Range Residual Flows.** DEHS, 9/7/14

Reporting on a study carried out to better understand the spatial and temporal distribution of water within the Pisa Range tributaries.

Item 4
2014/0981 **Coastal Morphology of South Otago: Nugget Point to Chrystalls Beach.** DEHS, 10/7/14

An analysis of recent and historic changes in the onshore and offshore coastal environment has been undertaken to help inform one of the conditions of Contact Energy Ltd's consent for Roxburgh Dam. The work is described in the report 'Coastal morphology of South Otago: Nugget Point to Chrystalls Beach' which is circulated separately with the agenda.

Item 5
2014/0957 **Update on South Dunedin Groundwater monitoring and sea level rise.** DEHS, 8/7/14

The report presents an update on ORC's groundwater monitoring, incorporating observations made subsequent to that reporting.

Item 6
2014/0941 **Director's Report on Progress.** DEHS, 9/7/14

The report describes progress with Council's flood protection, land drainage and river management programmes, and the management of natural hazards and civil defence and emergency management, and provides an overview of significant activities undertaken by the Resource Science Unit.

OTAGO REGIONAL COUNCIL

Minutes of a meeting of the Technical Committee held in the Council Chamber, 70 Stafford Street, Dunedin on Wednesday 4 June 2014 commencing at 10.46 am

Present:
Cr Bryan Scott (Chairperson)
Cr Doug Brown (Deputy Chairperson)
Cr Graeme Bell
Cr Louise Croot MNZM
Cr Michael Deaker
Cr Gerrard Eckhoff
Cr Gary Kelliher
Cr Trevor Kempton
Cr Gretchen Robertson
Cr David Shepherd
Cr Stephen Woodhead

Leave of Absence: **Cr Sam Neill**

In attendance:
Wayne Scott
Jeff Donaldson
Fraser McRae
Gavin Palmer
Matt Hickey
Deborah Mills (for Item 1)
Janet Favel

CONFIRMATION OF AGENDA

There were no changes to the agenda.

MINUTES

The minutes of the meeting held on 16 April 2014, having been circulated, were adopted on the motion of Crs Scott and Eckhoff.

Matters arising from minutes

There were no matters arising from the minutes.

Otago Regional Council

PART A – RECOMMENDATIONS

Item 1
2014/0824 **Spatial study of air quality in Arrowtown and Wanaka.**
DEHS, 26/5/14

The report summarised spatial air quality studies carried out in Arrowtown and Wanaka during winter 2013. Results from the studies provided additional information regarding air quality in the Arrowtown and Wanaka airsheds which would assist in the development of a larger monitoring strategy.

A question was raised as to whether moving monitoring sites could confuse long term records. Ms Mills explained that changing sites was not ideal but in the case of Arrowtown the monitor had to be moved quickly. The monitor was now in the worst part of town, so it was expected that the readings would be higher.

It was noted that in Arrowtown air quality appeared to be worse in the morning when people lit their fires, but in Wanaka the late afternoon/ early evening period was worse, probably because of restaurants starting up. Dr Palmer advised that some local education programmes had been carried out, and future programmes would be developed. Interaction with TLAs and developers was suggested to ensure air quality issues were taken into account in new residential areas.

Ms Mills advised in response to a question that the current monitors were not able to determine the source of residue collected.

The location of air quality monitoring sites was discussed, and Ms Mills advised that the spatial studies done to date confirmed those monitors were in the best locations being locations with the highest concentrations of PM_{10}. The Alexandra and Cromwell sites would be investigated this year to ensure they too were in the best locations.

Rapid development in some Air Zone 2 areas was noted, and comment was made that while these areas currently had to meet the national woodburner standard of 1.5 $\mu g/m^3$, consideration should be given to developing policy to advocate for 0.7 $\mu g/m^3$ in Air Zone 2.

It was suggested publicity was needed to clarify that PM_{10} was particle size, not a fuel component, as some people seemed to think.

Cr Kelliher moved
Cr Robertson seconded

1. *That the results from this report be used to inform the monitoring component of the air quality management strategy being developed this year.*

2. *That the results be shared with the communities.*

3. *That this report be noted.*

Motion carried

Item 2
2014/0832 **Assessment of liquefaction hazard in the Dunedin City district.**
DEHS, 26/5/14

The susceptibility of land to earthquake-induced liquefaction in the Dunedin City District had been assessed for ORC by GNS Science. The GNS report was circulated separately.

Dr Palmer noted a correction to Item 3 of the committee report, to read "..... the permanent population of land classified as Domains B or C is approximately 32,620 ~~55,856~~ (27% of Dunedin's total) ….."

Comment was made on the statement in the report that while activity intervals on Akatore and Titree were long compared with more active faults, the location of other fault lines was not known. It was suggested that this reference be highlighted to the DCC.

It was noted that South Dunedin and the Upper Harbour were identified as key areas with the greatest population. How to highlight this to the community would be discussed through the DCC's District Plan process.

Cr Deaker moved
Cr Robertson seconded

That:

1. *The report is noted.*
2. *The report "Assessment of liquefaction hazards in the Dunedin City District" and its associated GIS dataset is uploaded to the Otago Natural Hazards Database, and provided to the Dunedin City Council.*

Motion carried

Item 3
2014/0826 **Natural Hazards technical reports to inform the Dunedin City District Plan.** DEHS, 26/5/14

The report explained that a series of six technical reports had been created to help inform the review of the natural hazard provisions of the Dunedin City District Plan. Reports covering the characteristics and likely geographical extent of a range of natural hazards, including Coastal Communities, Taieri Flood Hazard, and Urban streams flood hazard, were circulated separately.

Dr Palmer noted that the report included new information on the Kaikorai Valley flood hazard; refining of information on the North Taieri, Tirohanga Road and Wyllies Crossing areas; and adjustment to Water of Leith/Lindsay Creek maps. There were some rating implications where adjustment to benefit zones was needed, and this would be addressed during preparation of the 2015-25 Long Term Plan.

In response to a question Dr Palmer confirmed that the ORC had sufficient resources to be able to work with TLA staff on their district plans, and noted that to date discussions had also been held with WDC and CDC.

In response to a question Dr Palmer explained that natural hazards information was contained in the hazard register, which was a dynamic document and could be updated as new information became available. The next generation of the database would increase capacity and make it easier to use.

Cr Woodhead moved
Cr Croot seconded

That:

1. *This report be received, and*
2. *The series of six technical reports outlined above be noted, endorsed, and provided to the Dunedin City Council to inform the review of the natural hazards provisions of the Dunedin City District Plan.*

Motion carried

PART B - ITEMS FOR NOTING

Item 4
2014/0822 **Shag River/Waihemo Catchment: Water Quality Study.**
DEHS, 9/5/14

The committee report summarised the full report "Shag River/Waihemo Catchment: Water Quality Study" (circulated separately) which presented the results of long-term State of the Environment monitoring at two sites in the Shag River/Waihemo catchment, intensive water quality monitoring in 2012-2013, and ecological surveys carried out in 2012-2013.

Cr Brown moved
Cr Kelliher seconded

That this report and the technical report "Shag River/Waihemo Catchment: Water Quality Study" be received and noted.

Motion carried

Item 5
2014/0788 **Water quality of Lake Tuakitoto catchment.** DEHS, 26/5/14

The Committee report summarised the full report "Water quality and ecosystem health in the Lake Tuakitoto catchment" (circulated separately).

In response to a question Dr Palmer advised that work was under way to establish an operating regime which would create a balance between land drainage and ecosystems. Changes had also been made to operational staffing and decision making. It was anticipated that within 6 to 12 months all the arrangements for improved water level management would be in place.

Comment was made that because of similar soil types and rainfall, similar water quality issues had been experienced throughout South and West Otago for a long time. There would be ongoing issues with Lake Tuakitoto, in part because it was shallow, and just above sea level.

Mr Hickey commented that the standards in Schedule 15 of Plan Change 6A were targets, not limits. He noted that there was a lot of sediment in the lake, which could not be disposed of quickly. The location of the lake also had an effect, with wind stirring up the sediment. Factors included NNN, which was common across South Otago, leaching, and *e.coli*, partly from the large number of birds. The establishment of a management regime was critical, and staff were working with DoC, Fish and Game, and landowners.

Note was made of a comment from the National Chair of Federated Farmers that farmers would have to get used to the idea that higher stocking rates in some areas could not continue, and that too much fertiliser was being applied.

Cr Deaker moved
Cr Shepherd seconded

That this report and the technical report "Water quality and ecological health in the Lake Tuakitoto catchment" be received and noted.

Motion carried

Item 6
2014/0854 **Management flows for Tuapeka River ecosystems.** DEHS, 20/5/14

The Committee report presented the management flow report "Management Flows for Aquatic Ecosystems in the Tuapeka River" (full report circulated separately).

In response to a comment about maintaining the native fish population, Mr Hickey explained that some species could survive depradation by trout, others, for example galaxiid, could not. The consenting process could allow a flow to prevent trout migration upstream, and most native populations lived in the upper levels of rivers above the minimum flow.

Cr Croot moved
Cr Kempton seconded

That this report and the technical report 'Management flows for Aquatic Ecosystems in the Tuapeka River" be received and noted.

Motion carried

Item 7
2014/0825 **Director's Report on Progress.** DEHS, 21/5/14

The report described progress with Council's flood protection, land drainage and river management programmes, and the management of natural hazards and civil defence and emergency management, and provided an overview of significant activities undertaken by the Resource Science Unit.

It was noted that there was a lot of frustration over perceived slow progress with Kakanui River issues, and farms had suffered significant damage. Arriving at a community solution through the consultation process would take time, and a solution to immediate problems was needed. Dr Palmer advised that once terms of engagement had been

signed with a person to lead the development of the Kakanui/Kauru river management plan, that person would be able to start work. He advised that in the meantime staff were working on localised gravel issues to deal with river alignment.

Cr Croot moved
Cr Kelliher seconded

That the report be noted.

Motion carried

The meeting closed at 12.02 pm.

Chairperson

REPORT

Document Id: A650281

Report Number: 2014/0983
Prepared For: Technical Committee
Prepared By: Deborah Mills, Air Quality Scientist
Date: 10 July 2014

Subject: **Air quality in Otago - Issues and Considerations**

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1. Précis

The challenges to attaining good air quality year-round in parts of Otago and meeting the National Environmental Standard for Air Quality are many and varied. At the core of the challenge in Otago is the fact that air temperatures are some of the lowest in the country and residents rely on solid-fuel burners to provide adequate levels of warmth in their homes.

The community has, over the last 10 years, made some improvements in air quality mainly by upgrading or replacing burners in their homes and altering their behaviour. The Otago Regional Council has helped facilitate this change by imposing strict limits on wood burner emissions, assisting communities with burner upgrades, and publishing information on the state of air quality in the region. However, a review of that strategy indicates that even with strict emission limits in place, it is unlikely that the NESAQ will be met in many of our towns.

Improving the air quality will require actions by numerous stakeholders, not just the ORC. In addition to regional council, these include Central government ministries, territorial authorities, health boards, research bodies and, most importantly, our communities.

In this paper, the issue of wood burner use is examined within a larger contextual framework that includes the condition of our housing stock, energy costs and surety of supply, and the health effects due to the indoor thermal environment. This paper also reviews the current air quality management strategy and re-frames the air quality issue in light of what has been learned over the past 10 years.

2. Introduction

This year New Zealand marks 10 years of the National Environmental Standards for Air Quality[1] (NESAQ), a standard designed to provide adequate public health protection from pollutants commonly found in the atmosphere. Over the past 10 years, the Otago Regional Council has developed and implemented a multi-faceted strategy to manage air quality for Otago residents and visitors with the aim of meeting the NESAQ. After a decade of work it

[1]Ministry for the Environment (2011), *Resource Management (National Environmental Standards for Air Quality) Regulations 2004*, Wellington, New Zealand: Ministry for the Environment

is timely to review our progress, reassess our goals, and re-state our commitment to improving air quality in our communities.

The pollutant of concern in Otago is PM_{10}, a designation based on size alone. PM_{10} are all particles smaller than 10 micrometres in diameter suspended in the atmosphere. The sources of PM_{10} are varied; they include both natural (such as sea salt, pollens, etc.) and anthropogenic sources (usually the result of incomplete fuel combustion). Studies[2] show that once inhaled, these particles are associated with numerous adverse health effects, particularly for the elderly, the very young and those with existing respiratory conditions.

Due to the wide variety of PM_{10} sources, councils around the country need to tailor their strategies to address their specific issues. For instance, vehicle emissions are a significant contributor to PM_{10} emissions in Auckland whereas in Northland, entrained road dust is a concern. In Otago, the major source of PM_{10} is emissions from domestic solid-fuel burners (SFBs) used to heat homes. Most of the year air quality in Otago is very good, but in winter when chimney emissions and PM_{10} concentrations peak, ambient (outdoor) air quality is often degraded to sub-standard levels.

Recently, work was undertaken to assess the effectiveness of Council's current air quality management strategy. As reported to Council earlier this year[3], progress in improving air quality has been uneven across the region. Despite reductions in PM_{10} emissions and concentrations in some Otago towns/cities, it seems likely that air quality in several towns will not meet the NESAQ. Based on that assessment, a new strategy document is programmed for development and adoption in the 2014/15 Annual Plan.

The challenges to meeting national standards in many of our communities are complex and multi-layered. This paper provides some framework for these issues, both in a regional and a national context. In addition, it offers options for developing a reasoned approach to the next five-to-ten years of air quality management.

3. National and regional trends

3.1 National trends

New Zealand's NESAQ, introduced in 2004, was designed to set a guaranteed minimum level of health protection. Standards for daily PM_{10} levels, considered to be short-term exposure, are based on World Health Organisation (WHO) guidelines[4] which recommend no more than one day a year over the threshold concentration of $50\mu g/m^3$. Originally meant to be accomplished by 2013, the New Zealand standards were revised in 2009 to push the final compliance deadline out to 2020.

[2] Pope CA, & Dockery, DW (2006), *Health Effects of Find Particulate Air Pollution: Lines that Connect*. Journal of Air & Waste Management Association, 56:6, 709-742

[3] Otago Regional Council, Technical Committee Report No. 2013/1105, *2013 Air Quality Results*

[4] World Health Organisation (2006), *Air Quality Guidelines, Global Update 2005, Particulate matter, ozone, nitrogen dioxide and sulphur dioxide,* Copenhagen Denmark: WHO Regional Office for Europe

For protection against long-term exposure to PM_{10}, the WHO guidelines recommend an annual average no greater than 20µg/m^3. Currently, New Zealand regulations do not include this recommendation despite the fact that both short- and long-term exposures are associated with adverse health outcomes.

The recent release of the 2014 Air domain report by the Ministry of the Environment (MfE) and Statistics New Zealand[5] notes that improvements in New Zealand air quality have been made in both short- and long-term (daily and annual average) concentrations over the past five years.

In terms of short-term exposure, the number of New Zealand airsheds[6] reporting exceedances of the daily standard has dropped from a high of 26 airsheds (in 2008) to 19 airsheds (in 2012). As for long-term exposure figures, from 2006 to 2012 the national annual average PM_{10} concentration fell 8% with only seven official sites exceeding the WHO annual guideline; Alexandra is one of those sites exceeding the guideline.

On the world stage, the improvements across the country have resulted in New Zealand being ranked by the WHO as having 7th lowest PM_{10} concentrations of all countries reporting annual PM_{10}[7]. The population-weighted average for the entire country from 2008-2013 was 16µg/m^3.

3.2 Otago trends

The Otago Regional Council monitors and reports to the Ministry for the Environment results from the three (out of nine) sites that operate year-round. They are Alexandra (representing Airshed 1), Mosgiel (Airshed 2), and Central Dunedin (Airshed 3).

From 2008-2013, the three Otago airsheds have shown improvement. Figures in Table 1 show the trends in both short-term and long-term exposure levels from 2008 to 2013.

Table 1. Number of days exceeding the NES and annual PM_{10} averages for Otago airsheds 2008-2013.

Monitoring Site	MfE Airshed	Number of NESAQ Exceedances (short-term exposure)		Annual Average – µg/m^3 (long-term exposure)	
		2008	2013	2008	2013
Alexandra	1	74	47	29	25
Mosgiel	2	9	5	18	20
Central Dunedin	3	9	0	24	18

[5] Ministry for the Environment & Statistics New Zealand (2014), *New Zealand's Environmental Reporting Series: 2014 Air domain report,* Wellington, New Zealand

[6] An airshed is defined by the regulations as "an area designated by a regional council for the purposes of managing air quality and gazetted by the Minister".

[7] http://gamapserver.who.int/gho/interactive_charts/phe/oap_exposure/atlas.html

Since 2008, long-term exposure (annual) has dropped by 14% in Alexandra and 25% in Central Dunedin. Mosgiel has shown a slight increase in annual averages, yet it remains within the WHO guideline.

Some airsheds have shown improvement in short-term exposures as well. Dunedin has had no exceedances of the NESAQ during the past two years. Mosgiel figures have also come down but it is unclear if that is a permanent, significant trend.

In Alexandra, 2008 was an outlier with an unusually large number of exceedances due to the very early seasonal start of sub-zero temperatures. Discounting that year, exceedances numbers have stayed about the same in Alexandra, but the highest daily figures have dropped from around 150µg/m^3 to about 130µg/m^3, a 14% reduction. Currently, for Central Otago towns, the trend in maximum daily PM_{10}, as opposed to exceedances, is considered the best indicator of change.

4. The current Otago strategy

The Resource Management Act (RMA) allocates regional councils the principal role of managing outdoor (ambient) air quality. Results of early monitoring of the NESAQ's five ambient air pollutants[8] combined with 2005 Emissions Inventories[9] indicated that of those five pollutants, only PM_{10} is of concern in Otago and that its major source is emission from domestic solid-fuel burners. As required by the NESAQ, towns where PM_{10} might exceed the standard were gazetted (see Appendix 1 for a complete listing of Otago airshed designations).

To manage air quality in these towns, the Otago Regional Council developed and adopted a strategy[10] to serve from 2007 through 2013. The goals of the strategy were to:

- meet the NESAQ by 2013,
- improve the health of Otago's residents by reducing PM_{10} concentrations, and
- improve the visual appearance and odour of the air.

The strategy formed a multi-faceted approach to air quality management and included elements of regulation, education/communication, financial incentives, and monitoring/review.

The Regional Plan: Air (Air Plan) provides the appropriate regulatory framework for implementing the overall strategy of improving air quality, as expressed in the Regional

[8] The NESAQ sets standards for carbon monoxide, nitrogen dioxide, ozone, sulphur dioxide, and PM_{10}.

[9] Wilton, E (2005a) *Air Emission Inventory – Dunedin, Mosgiel and Alexandra 2005*, Prepared for the Otago Regional Council

Wilton, E (2005b), *Warm Homes Technical Report: Home Heating Methods and Fuels in New Zealand*, prepared for the Ministry of the Environment, Wellington

[10] Otago Regional Council, Policy and Resource Planning Committee Report No. 2007/451, *Otago Regional Council Air Quality Strategy: 2007-2013*

Policy Statement for Air. For management purposes the Air Plan groups 22 Otago towns into three air zones. (See Appendix 1 for air zone designations).

Air zone 1 comprises Alexandra, Arrowtown, Clyde and Cromwell; these are the towns that require the most improvement to meet the NESAQ. These towns routinely exceed the NESAQ more than 10 days a year and commonly exceed on well over 30 days a year. Air zone 2 towns exceed between one and ten days a year. Areas in Air zone 3 are, for the most part, rural and are expected to have good air quality year-round.

4.1 Air zone 1 management

Regulation for Air zone 1 took an *active* approach to solid fuel burner replacements, requiring all new solid-fuel appliances to have emission rates of no more than 0.7g/kg with heating efficiencies of at least 65%. (NB: This was stricter than the 2005 NESAQ which requires emission rates of 1.5g/kg for new wood burner installations). Newly installed burners must also be on the list of burners approved by the Ministry for the Environment. In addition to these requirements for newly-installed burners, as of 1 January 2012, the rules state that emissions from any appliance are to be less than 1.5g/kg.

These rules promote a reduction of PM_{10} emissions in two ways:

1. They phased out (as of 1 January 2012) the operation of older, higher-emitting burners that do not meet the low-emission standard, and
2. The use of higher-emission coal is essentially eliminated because coal and multi-fuel burners do not currently meet the required emission standards.

To help speed the transition from older burners to new, compliant burners, the ORC offers substantial financial incentives in the form of subsidies through the Clean Heat Clean Air (CHCA) programme[11]. Community expos have been held every winter to encourage take-up of Council's CHCA programme.

In addition to rules and incentives, Council has published and delivered the Airzone publication to every Air zone 1 household over seven winters. This publication was designed to promote awareness of air quality issues and provide relevant educational information to residents.

In Air Zone 1, PM_{10} monitoring currently takes place in Alexandra, Arrowtown, Clyde and Cromwell; daily pollution levels during winter are routinely reported to all interested stakeholders, including the media, and are available on the council website on a real-time basis.

4.2 Air zone 2 management

Regulation in Air zone 2 took a *passive* approach towards solid-fuel burners, the assumption being that PM_{10} concentrations will lower enough to meet the NESAQ through the natural attrition rate of burners as householders replace older SFBs with either newer,

[11] In general, subsidies have been around $2000 for the general public and $2500 for Community Services Card holders. In total over $5 million has been spent in the CHCA programme.

lower-emitting burners or by completely converting to 'clean' heat (e.g. heat pumps). While existing burners are allowed in Air zone 2 towns, any newly-installed burner must meet the 1.5g/kg emission rate standard.

PM_{10} monitoring currently takes place in Central Dunedin, Mosgiel, Balclutha, Milton, and Palmerston and, as in Central Otago, results are reported on a routine basis.

4.3 Complying with the NESAQ

The strategy for Air zone 1 over the past ten years has resulted in improvements in air quality in most Central Otago towns, and in fact, more improvement is possible. However, it is unlikely that, under the current strategy setting, air quality will improve enough to meet the NESAQ.

For Air zone 2 towns, it seems more likely that the current strategy will result in compliance with the NESAQ. Milton is an exception to this since the town exhibits levels of pollution close to those of Central Otago towns.

4.4 Consequences of non-compliance with NESAQ targets

In 2011, MfE required all Councils to designate their airsheds as "polluted" or "unpolluted" based on the previous five years' monitoring data. In Otago, our three airsheds (Alexandra, Central Dunedin, and Mosgiel) were all designated as "polluted". The consequence of that designation is a potential constraint on new and renewing consents for industrial discharges to air.

In the event that Otago airsheds do not meet the NESAQ targets (3 exceedances per year by 2016; 1 exceedance per year by 2020), these consequences for industry remain. In addition, the Minister for the Environment may invoke his/her right under the Resource Management Act to intervene in Council activities. This action is seen as a last resort, taken only if a Council fails to show reasonable progress in implementing the standard[12]. The main component of showing reasonable progress is to provide data and relevant action plans to the Ministry upon request. ORC has fulfilled these obligations.

5. PM_{10} reduction scenario for Air zone 1

5.1 Original Projection

It was originally predicted that in Alexandra, a reduction of approximately 70% in daily emissions was required in order to meet the NESAQ. This was based on modelled concentration-reduction projections for Alexandra employing data from available emissions inventories (Wilton 2005a,b) and the conventional assumptions on burner emission rates at the time.

Table 2 lists key figures for the Alexandra projections. To achieve compliance with the NESAQ, the second highest day must have PM_{10} levels no greater than 50µg/m^3. It was

[12] MfE, *clean Healthy Air for All New Zealanders: The National Air Quality Compliance Strategy to Meet the PM_{10} Standard*, Section 6.

thought that a reduction in daily PM_{10} emissions from 380kg to approximately 115kg would result in meeting that target.

Table 2. Original PM_{10} projection figures for Alexandra.

	Daily Emissions (wintertime)	**2nd highest PM_{10} concentration**
Actual 2005 data	380kg	150µg/m^3
Projected targets for 2013	115kg	50µg/m^3

To achieve the necessary emission reduction, the continued use of SFBs was authorised, but strict rules around their allowable emissions were introduced. Scenario modelling showed that if, by 2013, the majority of all SFBs had been upgraded to 0.7g/kg burners (with a small minority still using 1.5g/kg burners), that the NESAQ was achievable.

5.2 Current Status

A curved-line path (CLP) was developed for Alexandra depicting annual targets for the 2nd highest PM_{10} value. The downward trend reflected the reductions in concentrations that were expected due to burner upgrades.

A comparison of the curved-line path (shown in blue) to the actual monitored values of the 2nd highest PM_{10} is shown in Figure 1.

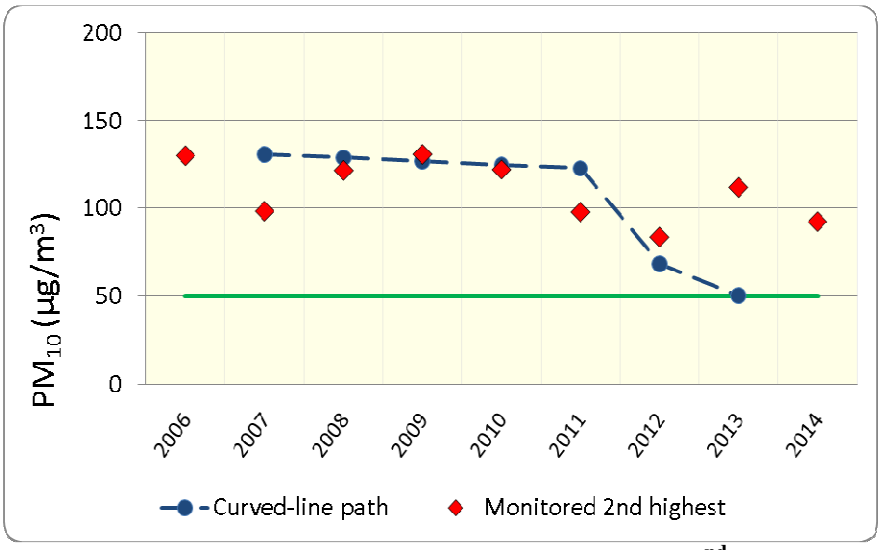

Figure 1. The curved-line path versus the actual monitored 2nd highest values.

5.3 Revised Projections

This year, trends in emissions and concentrations in Alexandra were reviewed using data from the Central Otago District Council's building database and PM_{10} data from 2005-2013. The original set of assumptions about fuel use, burner emission rates, and emission-

to-concentration ratios were used to estimate the expected emission reductions and compare that to observed concentration reductions.

Data from the *Warm Homes Technical Report* (Wilton, 2005b) indicated that approximately 1200 SFBs were in use in Otago in 2005. The Central Otago District Council's consent database indicates that from 2005-2013, approximately 760 consents were issued for the installation of SFBs in existing houses in Alexandra. Assuming that burners from 2005 onwards are NES-compliant, this means that 60% of SFBs in Alexandra are rated at either 0.7g/kg or 1.5g/kg. This would theoretically result in a daily reduction of emissions of about 35% (down to about 250kg).

Figure 2 is a graph depicting the modelled concentrations based on those estimated reductions in emissions (blue line) versus the monitored 2nd highest PM_{10} value. Adding in the trend of the monitored data (shown in red dashed line), it indicates that concentrations have not come down at the same rate as emissions, as was expected.

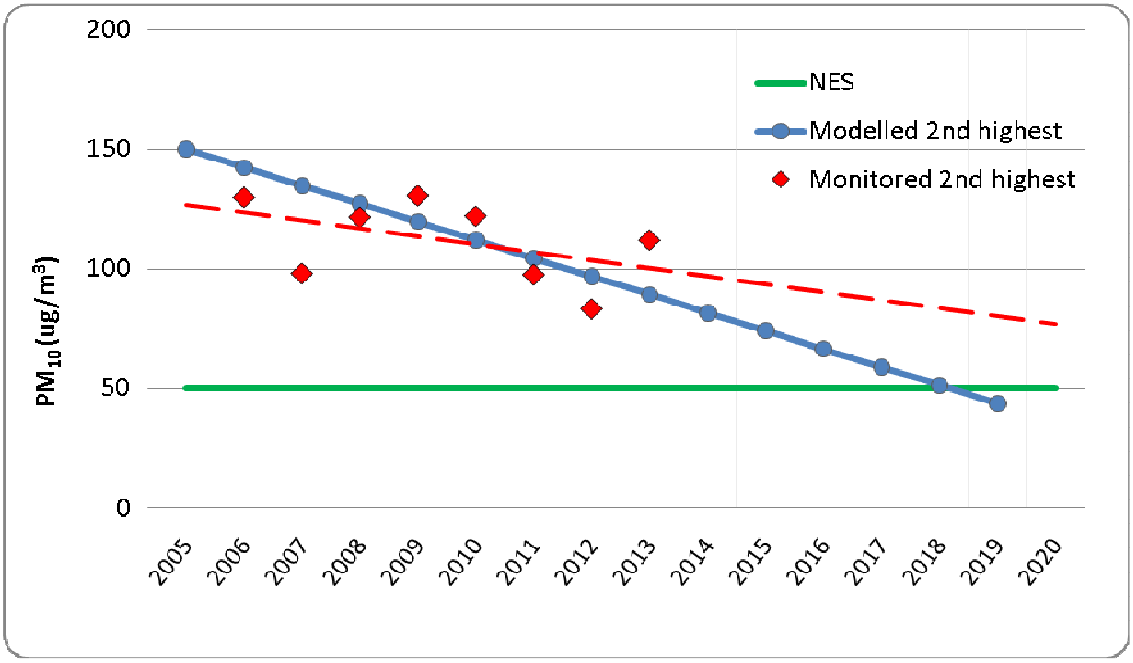

Figure 2. Trends in modelled versus monitored concentrations.

Given that not all burners appear to be compliant at this point, this raises critical questions:

- What is the current configuration of burners in Alexandra?
- What are realistic emission rates for compliant burners?, and
- What are the implications for the future of air quality management?

Further examination reveals some of what has been learned over the past 10 years and what remains to be understood:

1. Laboratory-tested emission rates: Real-life SFB emissions are *not* the same as laboratory-tested emissions but quantifying real-life emissions is complex, time-consuming and expensive. Research over the past eight years reveals that real-life emissions are highly variable and that 'compliant' (0.7g/kg and 1.5g/kg) burners are capable of emitting as much PM_{10} as older, non-compliant burners depending on several variables. User behaviour is now understood to be a critical factor in SFB performance, along with wood moisture[13].

2. Emission Inventory methodology: The current inventory methodology uses a static approach to determining typical daily emissions which may miss some important parameters. As an example, SFB emission rates are determined as a single value of grams of PM_{10} for every kilogram of fuel burnt. However, we now know that banking down at night causes high emission rates (due to incomplete combustion); however, these are not accounted for in the original inventories. Therefore, original emission estimates may be underestimated, skewing the projections.

3. Emission Inventory burner figures: Limitations of the methodology notwithstanding, an up-to-date inventory would provide the necessary level of detail to quantify the number and age of burners still in operation. Those data enable more robust modelled emission estimates. Building consent data have limitations for use as surrogate burner number data.

4. Relating emissions to concentrations: There is an incomplete understanding of the relationship between emissions and concentrations; this constrains our ability to build robust reduction projections and scenario modelling. This is especially true in areas with severe temperature inversions when emissions are squeezed into smaller-than-usual volumes, thereby raising concentrations. This common and regular occurrence in Central Otago towns presents an added challenge in reducing concentrations.

These above factors mean that there is a fairly wide band of uncertainty in any projections that are made. However, new scenarios have been developed for Alexandra using the best information currently available and conservatively applying new information regarding real-life emissions. Table 3 describes these scenarios and indicates the likelihood that Alexandra would meet the NESAQ using them.

[13] Smith J, et al, (2008), *In home testing of particulate emissions from NES-authorised woodburners: Nelson, Rotorua and Taumarunui 2007,* NIWA Client Report: CHC2008-092

Table 3. Possible emission scenarios for Alexandra.

Scenario	Conditions	Issues	Likelihood of meeting NESAQ
A	Current compliment of SFBs all 0.7 and 1.5g/kg and optimally operated*	This was the original projection. Optimal operation depends heavily on human behaviour, fuel supply and requires ongoing education/enforcement	Possible; not probable
B	SFBs like 'A' (above) but with current rate of emissions	Based on current operation and fuel supply issues	Low
C	Require all SFBs to be pellet fires	Eliminates human behaviour element; but there is resistance to their use. Would likely require another 15-year timeframe.	High
D	Require conversion of all SFBs to no-emission appliances	With no possibility of domestic emissions, reductions would be achieved, but there is resistance to dependence on electricity/gas.	High

* requires dry, seasoned wood with moisture content less than 25%, started properly, not damped down

If almost all burners were compliant and fairly well operated (scenario between **A** and **B** above), it is estimated that we could expect another 35% reduction in emissions with an accompanying reduction of NESAQ exceedances. This may bring the average number of exceedances down to 20 a year (from 40) and the highest daily PM_{10} figures down under $100\mu g/m^3$ (from $150\mu g/m^3$).

As long as solid-fuel burners, in their current technological state, are at the centre of home heating and insofar as human behaviour is critical to their operation, it appears unrealistic that the NESAQ can be met with our current strategy.

6. Heating and health – The issues

The SFB has long been the staple of home heating throughout the country, with only about 5% of NZ homes using centralised heating (MfE, 2005). The SFB is embedded into the social and cultural makeup of the home as it is a relatively inexpensive and effective appliance, with a high degree of familiarity. In colder, southern New Zealand it is generally considered the best method of ensuring a house is warm enough during winter at an affordable price[14].

In Otago, the importance of residents' access to domestic wood burners was confirmed in the development and adoption of the original air quality strategy and as such, wood burners are allowed in all existing – and new – houses.

6.1 Heating Requirements

According to the last Census, 34% of households nationally use SFBs for heating; Otago has a higher-than-average use (54%). This is not surprising given a number of factors:

- winters are extremely cold in Central Otago, resulting in
- high heating demand, and
- Central Otago has some of the highest electricity prices in the country.[15]

The climatological concept of heating-degree days (HDD) is often used as a surrogate measure for building heating requirements. HDD is an index that reflects the length and severity of mean air temperatures below a set reference temperature. Due to longer and colder winters, Otago (particularly Central Otago) has one of the country's highest demands for energy to heat houses.

Table 4 lists selected HDD values published by the New Zealand Meteorological Service[16] for selected cities across the country to meet the World Health Organisation's recommended minimum temperature of 18 degrees C. The higher the number, the greater the need for heating. Alexandra has the highest demand in the country during July and second highest over the year.

[14] Isaacs et al, (2010), *Energy Use in New Zealand Households, final Report on the Household Energy End-use Project (HEEP),* Funded by BRANZ

[15] Ministry of Business, Innovation and Employment, *Quarterly Survey of Domestic Electricity Prices*, Prices to 15 February 2014

[16] New Zealand Meteorological Service (1978), *Average Degree-Day Tables Selected New Zealand Stations*, Wellington

Table 4. Heating degree days (HDD) with reference to 18 deg C for selected NZ towns.

Location	July	Annual
Auckland	220	1151
Nelson	360	2241
Ashburton	404	2580
Alexandra	**481**	2821
Invercargill	407	**3059**

These data are corroborated by the fact that in Auckland 17kg of wood is burnt on a winter's day whereas in Alexandra, it's reported that almost 30kg is burnt (Wilton, 2005b). Even with increased fuel use, Otago bedroom temperatures during winter are the coldest in the country (13 degrees). Winter lounge temperatures are equitable to other regions, due to longer heating times and the use of more effective heating appliances (Isaacs, 2010).

6.2 Building Standards

Not only do outdoor temperatures influence indoor heating requirements, but the thermal envelope (particularly insulation, but also heating, ventilation, and dampness) of a house does as well; these parameters are controlled by the Building Act in New Zealand.

In 1978, ceiling and under-floor insulation became mandatory for new houses. These rules provided for minimum levels of insulation and also recognised that South Island homes require more insulation than North Island homes. A study prepared for Beacon Pathways[17] noted that many post-1978 homes continue to have sub-standard insulation. For houses built later than 1990, results of their survey showed that 26% did not meet the Code level required in 1978.

As of 2004, the existing building stock was approximately 1.6 million houses; of these, just over 1 million were built prior to 1979. In 2007, insulation standards were raised and requirements for double-glazing for new homes were implemented.

The Energy Efficiency Conservation Agency (EECA) programme, Warm Up New Zealand: Heat Smart, began in July 2009. It provided co-funding to encourage retrofitting of insulation and clean heat to houses built before 2000. It's estimated that nearly 250,000 houses nationwide were retrofitted by the end of the programme[18]. EECA's Healthy Homes programme carries on this programme, with an additional 46,000 houses targeted for intervention.

Even with all of that work done, there are most likely still hundreds of thousands of houses with insufficient insulation.

[17] Amitrano, L., Kirk, N., Page, I. (2006), *Market segmentation of New Zealand's housing stock*

[18] Arthur Grimes, et.al, (2012) *Cost Benefit Analysis of the Warm Up New Zealand: Heat Smart Programme*, prepared for the Ministry of Economic Development, Final Report October 2001, Revised June 2012

6.3 Health- Indoor Heating

A significant issue is the tension of the competing interests (real or perceived) between clean air and warm homes. Just as there is a large body of evidence on the adverse health effects related to high ambient PM_{10} levels, there is a growing amount of literature linking poor indoor thermal quality (i.e. cold, damp houses) with adverse health effects. Failure to provide either clean air *or* warm homes is linked to similar health outcomes, e.g. increased rates of respiratory ailments, increased hospital admissions, premature mortality, and cardio-vascular events.

The WHO recommends an indoor temperature of 21degC in the main living area and 18degC in bedrooms; these are generally accepted heating regimes in much of the OECD. New Zealand homes, on average, fail to meet that level of warmth during winter. The national sample taken for the HEEP report (Isaacs, 2010) found that the average lounge evening winter temperature was 17.8degC and winter bedroom temperatures are 13.6degC (16deg and 13deg, respectively, in Otago).

The Isaacs study also noted that homes heated by wood burners had higher indoor temperatures than homes heated by gas or electricity (presumably electric bar type heaters), thus providing a disincentive to change heating types.

Revolving around the use of SFBs as primary heating are issues related not only to indoor temperature and comfort levels, household economics, energy supply, but to indoor health as well. Most of the indoor home health research in New Zealand has been done by a group of University of Otago Medical School researchers led by Dr. Philippa Howden-Chapman during the mid-2000s. Their work points to the fact that increases in adverse health outcomes during winter are likely to be linked to poor thermal indoor quality.

Key findings of indoor heating/health studies include:

- Hospitalisation rates in NZ are higher in winter (especially for the young and very old); rates are higher where populations are more deprived and for certain housing types[19].

- Excess Winter Mortality (EWM) rates are 18% higher in winter than non-winter; this relates to 1600 excess wintertime deaths. This is thought to be not just related to cold, but to house conditions[20]. This is due to the fact that EWM is not necessarily seen in colder climates such as Siberia where there are no excess winter deaths.

[19] Howden-Chapman, P, et al, (2009) *Warm homes: Drivers of the demand for heating in the residential sector in New Zealand*, Energy Policy, v37

[20] Davie, GS et al (2007), *Trends and determinants of excess winter mortality in New Zealand: 1980 to 2000*, BioMed Central Public Health 7:263

- Indoor factors that contribute to poor health outcomes include temperature, humidity, ventilation, and fuel poverty. The condition of New Zealand's housing stock is implicated.

In the University of Otago Insulation study[21] 1350 households had insulation installed and significant improvements in self-reported health outcomes were reported (less wheezing, school absenteeism, fewer GP visits, fewer hospital admissions). Installing insulation resulted in a 4:1 benefit to cost ratio.

This health benefit is corroborated in the group's evaluation (Grimes, 2012) of the Warm Up New Zealand: Heat Smart programme, the government programme that provided subsidies for insulation and clean heating appliances. Results of that assessment indicate that there was a net benefit of almost $1 billion, almost all of which is due to savings in health spending. Insulation was found to be the key to lowering health costs by increasing indoor temperatures and reducing humidity indoors.

6.4 Health – Outdoor Air Quality

There is a large body of research that poor ambient air quality is linked to adverse health effects including respiratory ailments, increased hospital admissions, and in extreme cases, premature death. Much of that work has traditionally been in the form of large, overseas epidemiological studies where PM_{10} exposure numbers are found to be correlated with certain adverse health outcomes.

The WHO guidelines for PM_{10} followed on from this work, most notably the early Pope and Dockery study done in 2002[22] which found, as one example, that each $10\mu g/m^3$ increase of fine particles is associated with a 6% increase risk of cardiopulmonary mortality. Several other large studies, including the recent European ESCAPE project[23], support these findings.

In New Zealand, the updated Health and Air Pollution in New Zealand study (HAPINZ)[24] attempted to quantify health effects on New Zealanders using exposure-response ratios from these large studies. In Otago, the total annual economic costs from the health impacts of outdoor air pollution are estimated (in 2010 NZD) as:

Domestic fires = $212M

[21] Howden-Chapman, P, et al, (2007) *Retrofitting houses with insulation to reduce health inequalities: results of a clustered, randomised trial in a community setting*, British Medical Journal 334, p460-464

[22] Pope et al, (2002), *Lung Cancer, Cardiopulmonary Mortality, and Long-term Exposure to Fine Particulate Air Pollution,* Journal of the American Medical Association, Vol 287, No. 9, p. 1132-1140

[23] Langrish, JP & Mills, NL (2014), *Air Pollution and mortality in Europe*, The Lancet Volume 383, Issue 9919, pp. 758-760

[24] Kushel et al (2012), *Updated Health and Air Pollution in New Zealand Study,* Prepared for Health Research Council of New Zealand, Ministry of Transport, Ministry for the Environment and New Zealand Transport Agency

Industry = $67M
Motor Vehicles = $41M

In addition to epidemiological studies, during the last 15 years much work has been done on PM_{10} toxicology and mechanisms; a paper by Simkhovich[25] provides a short review of these studies. It is generally accepted that the toxicological research provides the biological plausibility underpinning the epidemiological research.

6.5 Knowledge gaps

Even with the growing evidence on health, there are still knowledge gaps in the area of health research, particularly where indoor thermal quality and outdoor air quality intersect. High-pollution days outdoors routinely coincide with a home's coldest and dampest days and quantifying the individual effects of these two features has not been adequately addressed.

Additionally, while toxological evidence on the danger of wood smoke mounts, research on monitoring personal exposure and quantifying specific related health outcomes is limited.

Despite the gaps, it is apparent that indoor home heating and outdoor air quality both play an important role in health and that in solving one issue we must give consideration to the other.

7. Roles and responsibilities

Clearly, amongst many regional councils, the heart of the debate around future air quality management is the continued use of the SFB. Equally clear is the fact that SFB use sits in a much larger context related to housing, energy efficiencies, economics, and health issues that require action. This multi-layered issue requires a collaborative solution that will involve not only regional Council, but Central government, the territorial authorities, the public health sector, research bodies, as well as the public – all key stakeholders.

Figure 3 depicts some of the critical issues in meeting the NESAQ and indicates activities where solutions may come from external stakeholders (in orange boxes). Noted in blue boxes are areas where regional council has direct control of the activity.

[25] Simkhovich, et al, (2008), *Air Pollution and Cardiovascular Injury*, Journal of the American College of Cardiology, vol 52, No.9

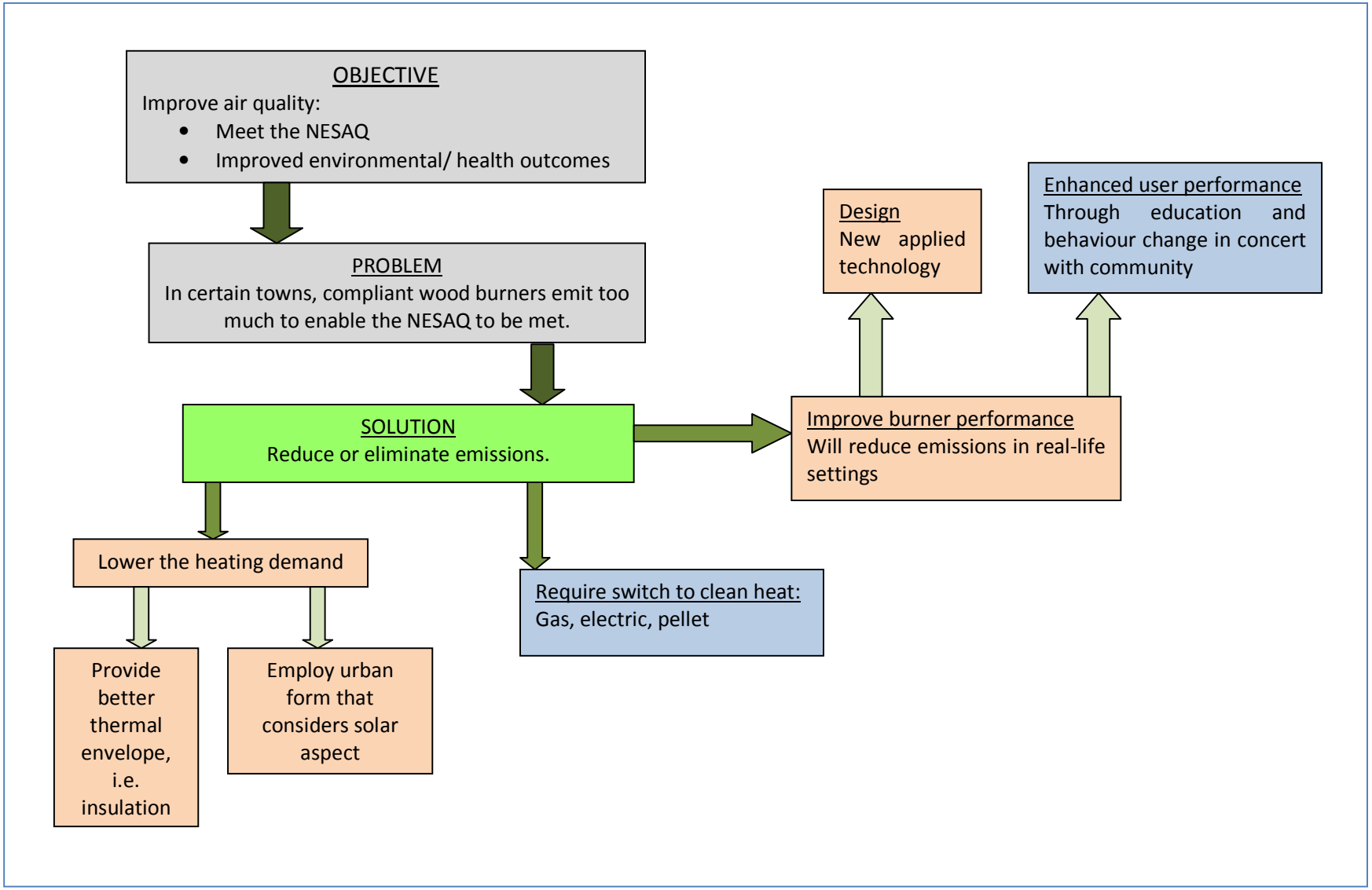

Figure 3. Key issues in air quality management. Orange indicates external controls; blue indicates regional council controls.

The ongoing review of the Regional Policy Statement provides the opportunity to coordinate the ORC's and the TA's efforts for dealing with such issues as quality of the housing stock, energy supply and surety, and emissions to air.

8. The future of air quality management in Otago – Issues and considerations

Considering the variety and depth of issues involved in meeting the NESAQ, and the context within which the regional council operates, elements of a reasoned approach to future air quality management could include:

1. Re-affirming our commitment to work with the community to improve air quality.
   - ORC should continue to identify appropriate avenues for improving air quality and advocate to relevant stakeholders for collaboration and action. This may result in a national 'call to action' in order to address significant external issues.

2. Collaborating with other authorities to develop/deliver a common message
   - In order to get public buy-in on any future initiatives, a clear and effective message on air quality is required; this work should be developed in collaboration with health officials, territorial authorities, and other key stakeholders.

3. Retaining the commitment to SFB in existing houses, <u>for the time being</u>
   - Until a truly affordable, sustainable, and acceptable alternative to the SFB is found we must ensure that households can maintain their current level of heating.

4. Considering higher levels of enforcement/education to ensure that current rules are followed
   - A programme of enforcement would be required to ensure the maximum benefit from the current rules. This could take the form of identifying non-compliant burners that are still in use and also of curtailing gross emissions. (See Appendix 2 for an example of an enforcement regime).

5. Promoting best practice burning using tested education/behaviour change programmes
   - If, in fact, SFBs are to be retained in the medium-term, one emerging national initiative is 'social marketing', a programme of behaviour/culture change. This is a relatively new area of work in New Zealand is being spearheaded by Environment Canterbury and we support their efforts. (Refer to Appendix 3 for examples of behaviour change programmes).

6. Actively investigating the use of new technologies/techniques for future development
   - We need to remain aware of advancements overseas, advocate for nationally-based research as needed, and participate in trials where relevant to our region (See Appendix 4 for examples of new technology).

7. Consider requiring the use of low- to no-emission heating in new houses

- New, better-built houses may well meet WHO indoor temperature guidelines with properly sized low- or no-emission heating.

8. Consideration be given to other PM_{10} issues
- Banning the use of coal in urban areas to lower PM_{10} and harmful emissions
- Regulating outdoor burning around polluted airsheds

Air quality regulation is relatively new in New Zealand as compared with several other OECD countries. As such, there is still much to be learned, developed and applied to our own regional context. Much has changed and improved over the past 10 years of the NESAQ, and it reasonably follows that the next decade will see yet more advances in lowering emissions and reducing the effect of poor air quality on the health of all Otago residents.

9. Recommendations

1. That Council receive this paper.

Gavin Palmer
Director Engineering, Hazards and Science

Otago Regional Council

Appendix 1. Gazetted airsheds and ORC air zones.

Designation	Gazetted Airsheds - MfE	Air Plan Zones – ORC
1	Alexandra	Alexandra
	Arrowtown	Arrowtown
	Clyde	Clyde
	Cromwell	Cromwell
	Naseby	
	Ranfurly	
	Roxburgh	
2	Palmerston	Balclutha
	Mosgiel	North Dunedin
	South Dunedin	Central Dunedin
	Green Island	South Dunedin
	Milton	Green Island
		Hawea
		Kingston
		Milton
		Mosgiel
		Naseby
		Oamaru
		Palmerston
		Port Chalmers
		Queenstown
		Ranfurly
		Roxburgh
		Waikouaiti
		Wanaka
3	Balclutha	Rest of Otago
	North Dunedin	
	Central Dunedin	
	Oamaru	
	Port Chalmers	
	Waikouaiti	
4	Hawea	Does Not Apply
	Kingston	
	Queenstown	
	Wanaka	

Appendix 2. Awareness and Enforcement Programmes

Awareness and enforcement programmes are designed around:

1. Identifying and reducing the number of phased-out burners that are still in use (Air Zone 1 only),

2. Targeting excessively smoky chimneys through the NODO rule (where smoke is considered noxious, offensive, dangerous, and objectionable).

Examples of such programmes currently in effect elsewhere are described below.

- **Example 1 - Identifying phased-out burners**

Environment Canterbury has launched a targeted programme in Christchurch to identify out-of-date burners (phased out through Air Plan rules) that are being illegally used.

The first step was to work with Christchurch authority databases to identify and map properties that have not had a consent issue for the installation of a new wood burner within a specified time. A patrol then circulates during evening hours to check if such an identified property is using a solid-fuel burner (which may be outdated). This is done with infrared sensing technology to check the heat of the flue/chimney. If an identified property is found to have an outdated chimney in use, a letter is dropped asking the resident to contact them. Follow-up is then provided with the potential for a $300 fine.

- **Example 2 - Smoky chimneys**

Since compliant burners can produce excessive smoke if operated incorrectly or with sub-standard fuel, this is a separate issue to burner phase-out rules. It involves invoking the so-called NODO rule in the Air Plan which prohibits "noxious, dangerous, offensive or objectionable at of beyond the boundary of the property". There is a difficulty in using this rule in that that identifying such smoke is subjective and depends on the person making the judgement.

A programme run in Launceston, Tasmania in 2002 used a template of visual cues to determine if smoke was excessive. This consisted of images of smoke considered to be "excessive", "moderate", and "acceptable". Two observations per chimney were made with 30-60 minutes between them to account for smoke due to re-fuelling. Observations were taken during the day (too difficult to see properly at night) and from several angles. If smoke was determined to be excessive, cards were left, inviting the resident to contact them for information and advice. A series of letters resulting in a fine were available for distribution.

Results of the programme[26] showed that when properties were re-visited for observation after council interaction with the resident, 83% (of a total of 2126 households) had improved burning behaviour. This was considered the behaviour change aspect of the programme; 27 households required a final warning letter before fines were possible.

[26] Ling, D., *Targeted education of woodheater users in Launceston*, International Clean Air and Environment Conference, Hobart, Australia, 4-6 May, 2005.

Appendix 3. Changing behaviour

Strategies to reduce emissions and improve air quality should include having people take responsibility for their own emissions to the best of their ability. Every burner in operation contributes to the overall PM_{10} load in the community and every user should have the knowledge and assume the responsibility to operate it properly, with minimal emission.

Example 1 – Social marketing campaign

An emerging initiative is the development of a national programme of behaviour change to reduce emissions. A coalition of Councils is currently in the process of developing a national behaviour change programme, which can be tailored to regional requirements, in an effort to reduce wood burner emissions. This two-year project, coordinated by Environment Canterbury (ECAN), would be supported mainly by MfE's Community Environment Fund. Jane Leahy, ORC Director of Stakeholder Engagement, is taking a seat on the project control board.

Example 2 – Community-based solutions

Any part of behaviour change requires buy-in from the community which, in turn, comes from being invested in the process. One example where this is already in progress is the Kakanui Community Catchment Project[27], a programme which aims to improve environmental stewardship, and promote uptake and implementation of best management practices on farms. Although this project is related to water-quality, the principles are transferable to air quality; by taking a community-based approach to an environmental problem, the community and individuals have more investment in the outcomes.

[27] Grant, C (2014), *Kakanui Catchment Project Behaviour Change Review*, prepared for the NZ Landcare Trust

Appendix 4. New Technology

In future, the use of newer heating technologies and techniques may provide a solution to Otago's air quality issues while giving equal consideration given to indoor health issues. Several such technologies are in use overseas and bear further investigation for the New Zealand context.

Example 1 - District Heating Systems

One such practice is the use of a district heating system (DHS), a centralised community-based system of providing reticulated heating to multiple users. Such systems are commonly in place in much of Europe and Scandinavia.

The advantages of a DHS replacing SFBs include:

- eliminating the use of inadequate/improper fuel (wet and/or treated wood, plastics, etc.),
- removing the influence of individual human behaviour, and
- having the ability to control emissions through industrial-style controls.

The DHS has not yet found a place in New Zealand's domestic household market. However, an example of a commercial system can be found in Central Dunedin's Energy for Industry, a DHS linked to numerous buildings including parts of the University of Otago and the Dunedin Hospital. This use of this system has provided significant benefits to Dunedin's air quality.

In 2012, the Bay of Plenty Regional Council commissioned a feasibility report[28] on using Rotorua's geothermal heat for domestic heating, with an option for multi-user systems; essentially, a district heating system. Their conclusion regarding a multi-user system (regardless of fuel type) is that the upfront capital costs are very high (approximately $20,000 per household) and that a multi-user system may require a high-density of users. Certainly, these costs are a major barrier to converting existing housing to a DHS. However, this may be a technology more suited to growth areas in Otago, such as the Queenstown Lakes area.

In 2009, the Parliament in Scotland (another country with a cold and damp climate) set very ambitious targets for climate change[29]. Folded into these de-carbonising goals are strategies to reduce fuel poverty and increase energy efficiencies. Emerging initiatives involve targeting *an additional* 40,000 homes for inclusion into district heating schemes. They are prioritising the development of these schemes by committing £8 million over the next two years.

Example 2 - Domestic heating innovations

Another technological development is the use of individual emission-reduction controls for SFBs. One such device is the electro-static precipitator (ESP) designed in Switzerland for the domestic chimney market. In essence, this is a domesticated (miniaturised) version of an industrial emission control. Industrial examples of ESPs

[28] Lind, L (2012), *Rotorua Geothermal Home Heat Investigation, GNS Science Consultancy Report* 2012/120. 55p

[29] The Scottish Government, (2014), *Towards Decarbonising Heat: Maximising the Opportunities for Scotland: Draft Heat generation policy statement for consultation*

can be found on the boilers in Wakari Hospital and the University of Otago's College of Education. Basically, they work by providing an electrical charge to the air column which causes particulates to become polarised and adhere to the flue.

These devices are not currently being utilised in New Zealand, but they are being tested in two Reefton houses this winter to assess their applicability and reliability. A report prepared for the West Coast Regional Council[30] reported an overall efficiency of 47-58% in removing PM_{10} particles from coal-burner emissions. They may be less effective on wood-burning units due to the different volatile makeup of coal versus wood emissions. More testing would be required to understand fully the requirements for use and the benefits in the New Zealand context.

It is likely that a more thorough investigation of international practices would reveal other technologies and techniques that may be applicable here.

Domestically, the SFB manufacturers responded to the challenge of meeting the NESAQ requirement of 1.5g/kg burners. A commitment to ongoing research and development is required to advance the state of the wood burner and the reduction of its emissions; incentives will need to come from Central government for such an initiative, prompted by advocacy from regional authorities.

[30] Wilton, E (2014), *Evaluation of the effectiveness of the OekoTube ESP in the management of PM10 in Reefton*, prepared for the West Coast Regional Council

Otago Regional Council

REPORT

Document Id: A650467

Report Number: 2014/0993
Prepared For: Technical Committee
Prepared By: Matt Dale, Water Resource Scientist
Date: 9 July 2014

Subject: **Lindis River Catchment Residual Flows**

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1. Précis

The water resources of the Lindis River catchment are amongst the most utilised in Otago, with a total primary allocation limit of 700 l/s and a consented primary allocation of 3,600 l/s. There is a need for a better understanding of the spatial and temporal distribution of water within the catchment. This knowledge will allow for improvements in both local and strategic water management, including water harvesting, water storage, and residual flows.

The aim of this study was to monitor flows at six sites in tributaries of the Lindis River to gain an understanding of hydrological characteristics at the sub-catchment level and to calculate a naturalised flow for the entire Lindis Catchment.

2. Discussion

Following consultation with landowners, flow recorders were installed in the following tributaries over the period November 2012 to April 2014: Coal Creek, Rocky Creek, Eight Mile Creek, Tim Burn, Cluden Stream and Wainui Creek.

The data collected was used to calculate low flow statistics and catchment yields for each tributary as well as the two permanent flow recorders on the main stem of the Lindis. The results of this study are contained within the attached factsheet "Lindis catchment water resource study".

The results will inform both the minimum flow process and the transition away from deemed permits. It can also be used to assist in the implementation of Plan Change 1C, including setting residual flows for specific tributary takes, to better understand the effect of a future minimum flow, and to assess the feasibility of on-farm water storage.

3. Recommendation

That this report and the factsheet "Lindis catchment water resource study" are received.

Gavin Palmer
Director Engineering, Hazards and Science

Lindis catchment water resource study

River flows, water use and flow statistics for the Lindis catchment October 2012 to April 2014

The Lindis River is situated in Central Otago and has a catchment area of 1,055 km², flowing into the Clutha River/Mata-Au approximately 6 km upstream of Lake Dunstan. The lower Lindis Catchment is one of the driest areas in New Zealand with very little rainfall throughout the summer months however the upper Lindis Catchment receives substantial rainfall during winter and spring.

Average low flows in the upper Lindis catchment have been measured at 1,550 l/s at Lindis Peak, while flows in the lower catchment at Ardgour Rd drop below 250 l/s most years. Due to moderate losses to groundwater and heavy water abstraction, the Lindis River is generally flows intermittently upstream of the Ardgour Rd flow recorder, and completely dry between the SH8 Bridge and the Clutha confluence from January through to the end of April. Historically, Lindis Peak has been used as a proxy for "natural" flows for the entire catchment

To better inform both the minimum flow process and the transition away from deemed permits, the ORC installed 6 temporary flow recorders in tributaries of the Lindis and these have been operating since 2012. The flow monitoring results have been used to calculate natural catchment yields, for both individual tributaries and the wider catchment. This information can also be used assist in setting residual flows for specific tributary takes, to better understand the effect of a future minimum flow, and to assess the feasibility of on-farm water storage which may allow irrigators to increase their access to water within the constraints set by minimum and residual flows.

The results from this monitoring for the 2013/14 irrigation season (Oct-April) are presented overleaf and represent what flows would be in an "average" season.

The Lindis River below the SH8 Bridge at a flow of 2,600 l/s at the Ardgour Rd recorder

The results of the tributary flow monitoring indicate that the smaller southern tributaries of the Lindis such as 8 Mile Creek, Tim Burn and Wainui Creek contribute very little to main stem of the Lindis during the latter parts of the irrigation season. With its larger catchment area and higher altitude, Cluden Stream contributes significantly more water to the lower Lindis than all of the other tributaries combined. Much of the base flow in Coal Creek is sourced from augmentation from Cluden Stream, and it is likely that without this contribution low flows in Coal Creek would be similar to those in the Tim Burn.

Table 1 provides a summary of flow statistics for the combined 2012/13 and 20013/14 irrigation season for both the measured and naturalised flow sites.

Table 1 Comparison of low flow statistics for the 2012/13 and 2013/14 irrigation season

Site	Term of record	Catchment area (km²)	MALF	2012-2014 7-day low flow	Catchment yield at 7-day low flow (l/s/km²)
Lindis at Lindis Peak	38	542	1,551	1,277	2.36
Lindis at Ardgour Road	9	1,045	262	236	0.23
Naturalised Lindis at Ardgour Road	2	1,045	1,864*	1,534	1.47
Rocky Creek	2	23	NA	30	1.30
Cluden Stream at Stock Yards	2	116	NA	120	1.03
Coal Creek at Gorge	2	27	NA	35	1.30
Tim Burn at Gorge	2	10	NA	8	0.75
8 Mile Creek at Irrigation intake u/s	2	6	NA	3	0.50
Wainui Creek South Branch at Hut	2	19	NA	16	0.84

*Calculated using the Lindis Peak 7-day low flow/MALF ratio

What is the natural flow of the Lindis River?

Using the flow records from the six tributaries that were monitored from 2012 to 2014, a naturalized flow has been estimated for the Lindis at Ardgour Rd flow recorder. All of the tributary flow recorders were located either upstream of known water takes, or in the case of Coal Creek and Cluden Stream, in a location that captured all flows before they were taken out of the sub-catchment (see previous page).

The flow sites used in this study cover around 70% of the Lindis catchment above the Ardgour Rd flow recorder however much of the area not captured by this study is relatively low yielding and does not contribute significantly to base flows.

The naturalized Ardgour Rd flow was calculated by adding 50 l/s to the Lindis Peak flow to account for upstream takes, and then summing together the flows from the six monitored tributaries. Although this is an improvement on historic MALF calculations, it still has several limitations. It does not account for water yields downstream of the tributary flow recorders, and it does not account for several small tributaries that were not monitored as part of this study. This may lead to a slight underestimation of natural flows, however this may be offset to some degree loss of some surface flow in the Lindis Alluvial Aquifer in the reach immediately above the Ardgour Rd flow recorder.

The flow records from 2012 to 2014 show that Cluden Stream and Coal creek contribute a significant amount of water to the middle reaches of the Lindis catchment. This is reflected in the naturalized MALF for Ardgour Rd, which is 16.5% greater than the previous MALF estimate of 1,600 l/s made in 2006. The calculation of a naturalized MALF for Ardgour Rd also gives an indication of the amount of water abstracted from the river, with the 2012-2014 7-day low flow at Ardgour Rd only 15% of naturalised low flow over this period.

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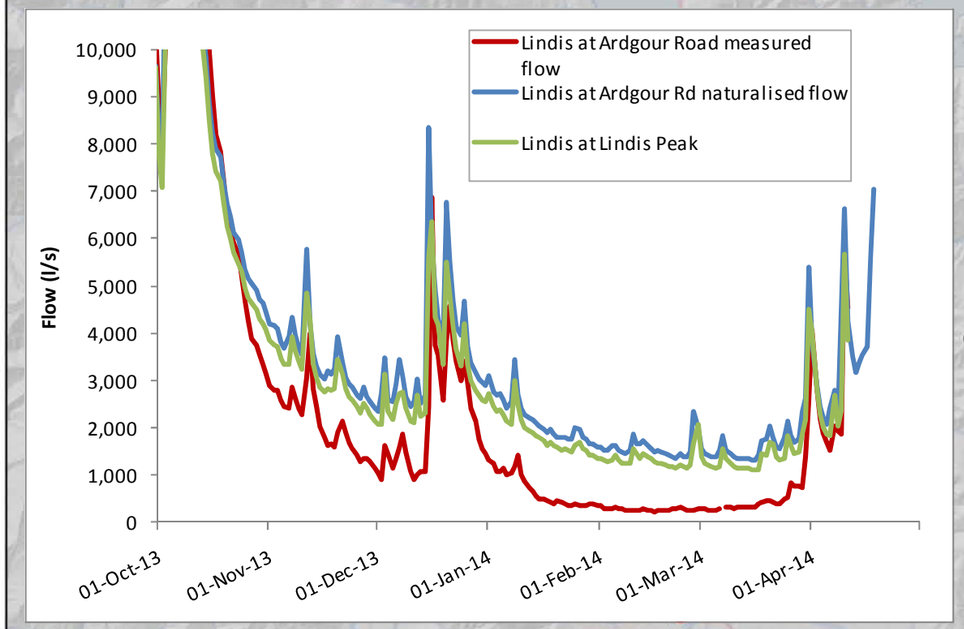
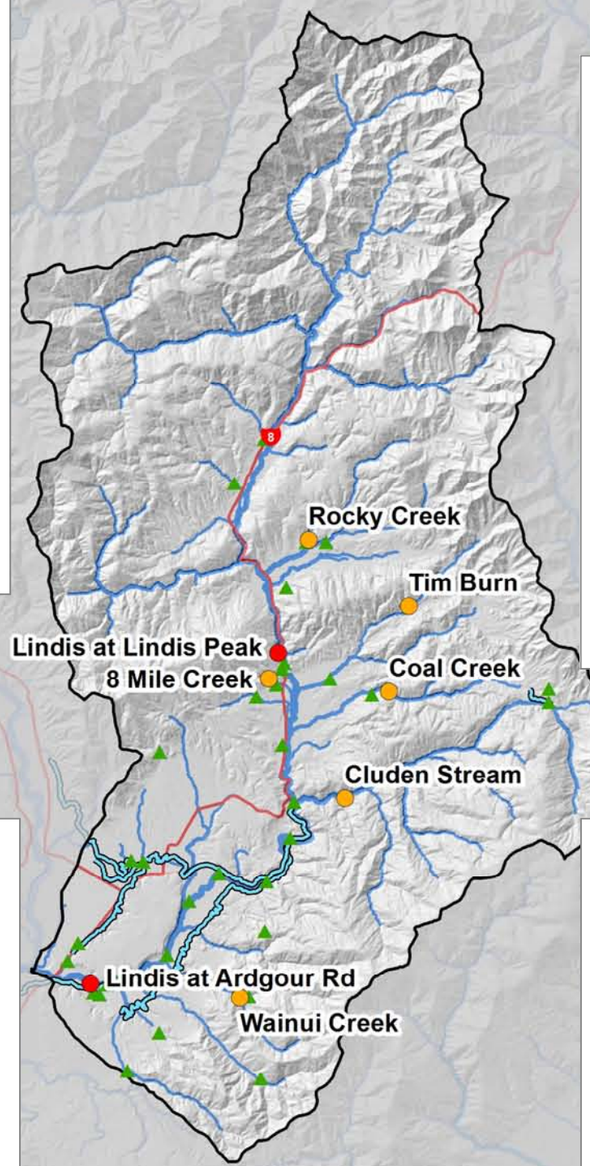
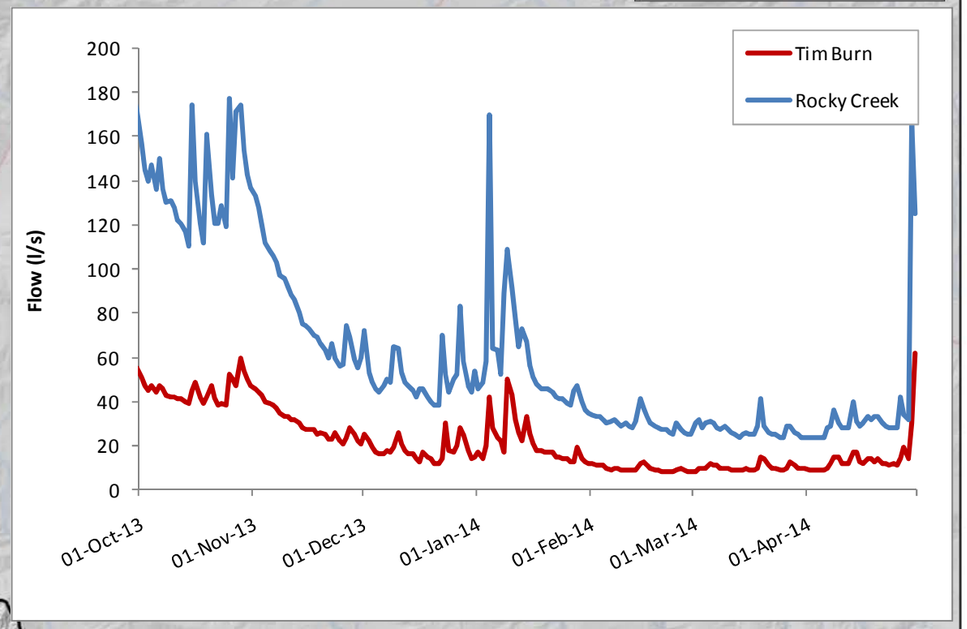
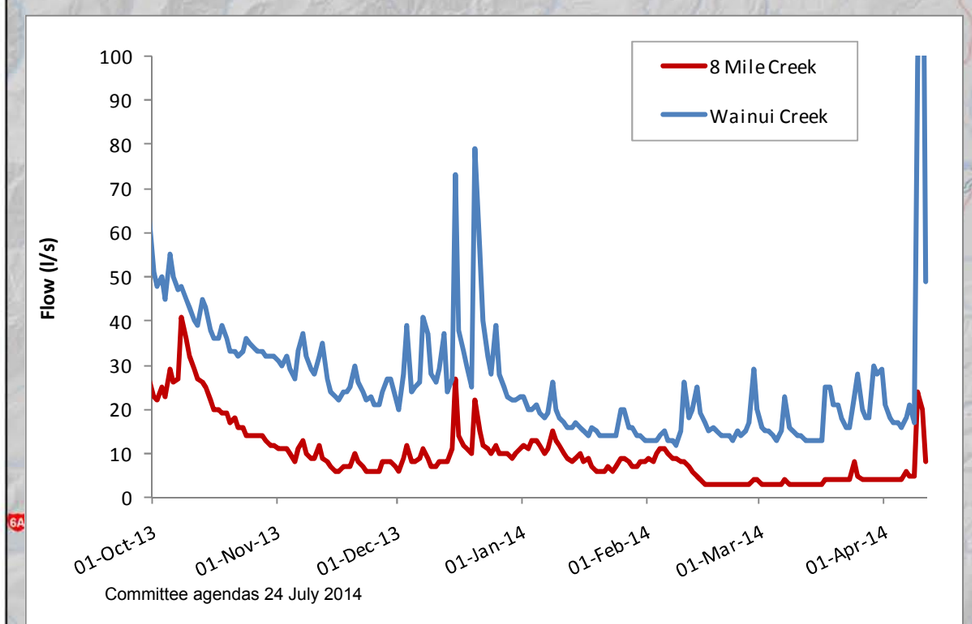
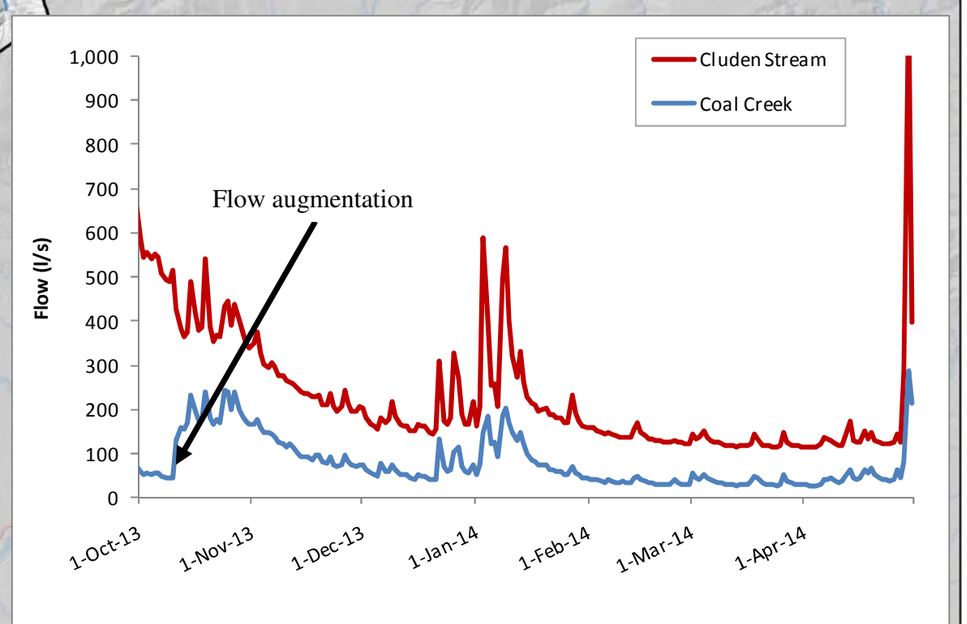
Flows in the Lindis catchment during the 2013/14 irrigation season











Otago Regional Council

REPORT

Document Id: A650465

Report Number: 2014/0992
Prepared For: Technical Committee
Prepared By: Matt Dale, Water Resource Scientist
Date: 15 July 2014

Subject: **Pisa Range Residual Flows**

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1. Précis

The surface water resources of the eastern faces of the Pisa Range consist of a series of relatively short creeks that flow into the upper Clutha River and Lake Dunstan. A network of private water takes and larger races move water between catchments, and there is a significant loss of surface water into the underlying gravels in the lower reaches of most of these creeks.

A need has been identified for a better understanding of the spatial and temporal distribution of water within the Pisa Range tributaries. This knowledge will allow for improvements in both local and strategic water management including, residual flows, water harvesting, water storage, and management flows.

2. Discussion

Flows were monitored at four sites on the Pisa Range (Low Burn, Amisfield Burn, Schoolhouse Creek, and Tinwald Burn (Wash Creek)). The flow sites were located in the upper reaches of the creeks (except in Low Burn) so that they are upstream of surface water takes and will give an indication of "natural flow".

The results of this study are contained within the attached factsheet "Pisa Range water resource study".

With the ongoing changes in land use and increasing utilization of water resources in the area, the information provided by this study can be used to assist in the implementation of Plan Change 1C, including setting of residual flows for specific tributary takes, to better understand the effect of future minimum/residual flows on instream values and water users, and to assess the feasibility of on-farm water storage.

3. Recommendation

That this report, and the factsheet "Pisa Range water resource study" are received.

Gavin Palmer
Director Engineering, Hazards and Science

The flow records for 2013/14 show that early season high flows are driven largely by snow-melt and that the higher altitude tributaries of the Pisa Range such as the Amisfield Burn and Tinwald Burn have relatively high base flows which is due largely to the prevalence of high water yielding tussock throughout their upper catchments. This is also shown by the high catchment yields at low flows (see Table 1), which is comparable with an earlier study that showed that the water yields in the upper Low Burn are around 6.4 l/s/km².

Despite the high yielding upper catchments, once these creeks move over the alluvial gravels there are significant losses of surface flows into the underlying aquifer. When combined with water abstraction, this ensures that the lower reaches of all of the Pisa tributaries (with the exception of the Low Burn) usually run dry upstream ofSH6.

The ORC is currently undertaking groundwater resources studies in the Pisa and Queensbury Goundwater Allocation Zones, both of which receive recharge from the eastern Pisa tributaries. The flow data from the flow sites used in this study will be used to calculate sustainable allocation volumes both of the Pisa and Queensbury Groundwater Allocation Zones in the near future.

Table 1 provides a summary of flow statistics for the 2013/14 irrigation season for four of the eastern tributaries of the Pisa Range. Note that the flows recorded in the Low Burn are heavily influenced by water abstraction while the remaining three sites are located above all known surface water takes and are representative of natural yields for these catchments

Table 1 Comparison of flow statistics for the 2013/14 irrigation season

Site	Catchment area (km²)	7-day low flow (l/s)	Catchment yield at 7-day low flow (l/s/km²)	Min (l/s)	Max (l/s)	Mean (l/s)	Median (l/s)
Amisfield Burn	6.8	74	10.88	68	1,757	151	100
Low Burn at Chinaman Gully	48.4	37	0.76	6	1,730	219	133
Schoolhouse Creek	4.2	12	2.75	10	71	21	19
Tinwald Burn	12.0	87	7.24	83	1,721	261	175

There is a long history of water use along the Pisa Range, with a series of historic races in the upper Low Burn and Park Burn. The more recent Pisa race takes water from the upper Clutha above Lake Dunstan and transports it along the flats to irrigate areas that do not have access to water from the Pisa tributaries. There is a total of 46 surface water take and a further 46 connected groundwater takes on the eastern faces of the Pisa Range.

The historic races in the upper Low Burn and surrounding catchments were damaged by a series of floods in the late 1990's, and much of this infrastructure has not been replaced. The conveyance and use of water in the catchment was altered significantly as a result, and has continued to change as a result of the expansion of viticulture, lifestyle blocks and residential development as well as more efficient pasture irrigation methods.

With the ongoing changes in land use and increasing utilization of water resources in the area, the information provided by this study can also be used assist in the setting of residual flows for specific tributary takes, to better understand the effect of future minimum/residual flows on instream values and water users, and to assess the feasibility of on-farm water storage which may allow irrigators to increase their access to water within the constraints set by minimum and residual flows.

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Pisa Range water resource study

River flows, water use and flow statistics for tributaries of the Pisa Range October 2012 to April 2014

The Pisa Range runs in a North to South direction and is bordered by the Criffel Range to the West and Lake Dunstan and the upper Clutha River to the East. The main tributaries of the eastern slopes of the Pisa Range include Schoolhouse Creek, Lochar Burn, Tinwald Burn, Amisfield Burn, Park Burn and Low Burn; all of which provide water to irrigate the flats between the foothills of the Pisa Range and the Clutha River/Lake Dunstan.

Throughout much of Central Otago, including the Pisa area, water users are in the process transitioning from "deemed permits" (mining privileges) to "water permits".

To better inform the setting of residual and minimum flows and to facilitate the transition away from deemed permits, the ORC installed 3 temporary flow recorders in tributaries of the Pisa Range in addition to the permanent site in the Low Burn which has been in place since 2010. The flow monitoring results have been used to calculate natural catchment yields for individual tributaries and can also be used to model flows in neighboring catchments.

The results from this monitoring for the 2013/14 irrigation season (Oct-April) are presented overleaf.

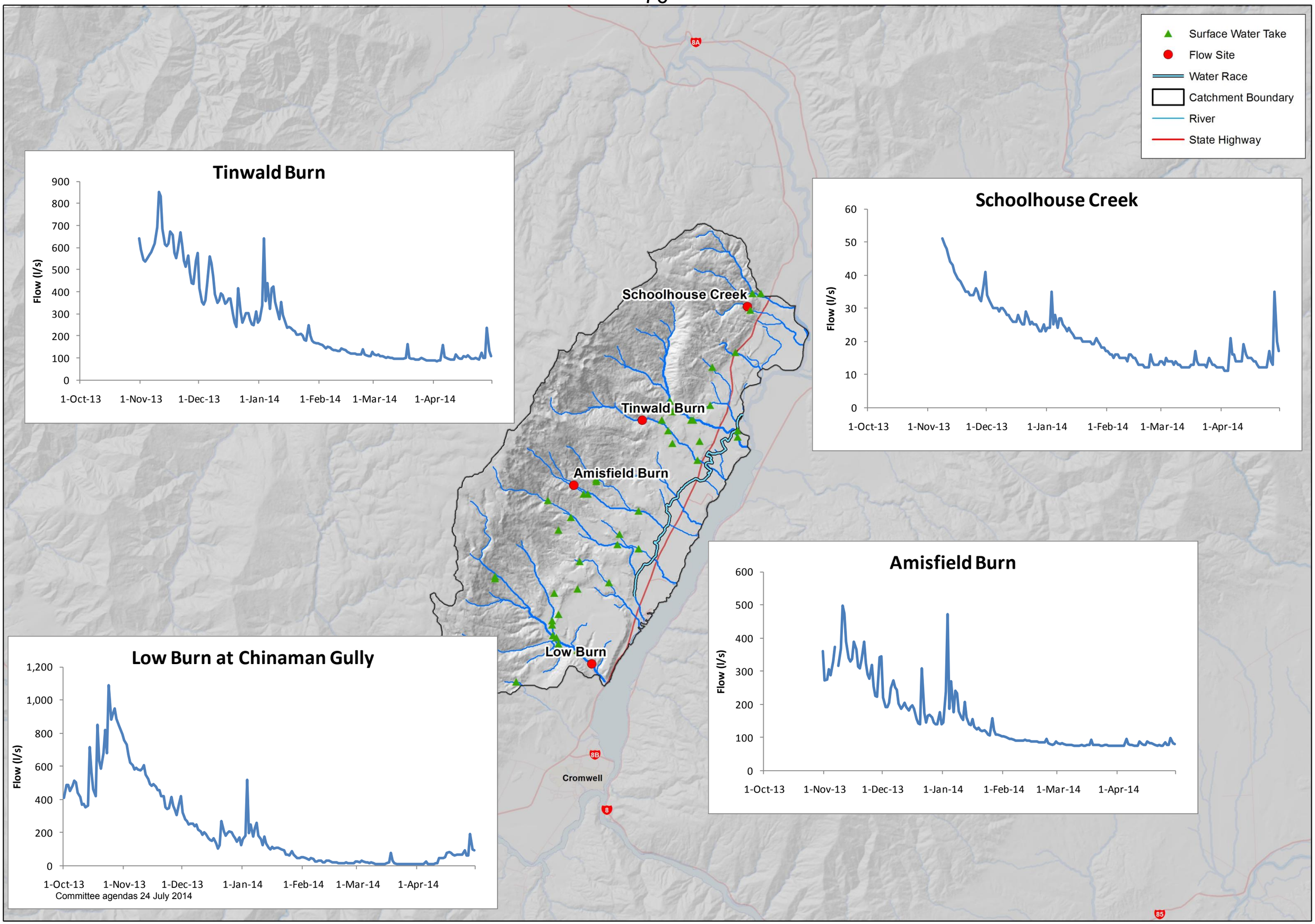
The upper reaches of Schoolhouse Creek, which support a healthy Population of the *nationally critical* Clutha flathead galaxias

Using low flows to manage threatened native fish

Although flow continuity and natural character are important values for the majority of rivers in Otago, there are some situations where having very low or no flow in the lower reaches of small tributaries may be beneficial to instream values.

Schoolhouse Creek is one of the northern-most tributaries of the Pisa Range and supports a population of Clutha flathead galaxias which are listed as *nationally critical*. The decline of this species and other non-migratory galaxiids in Otago can be attributed largely to predation by trout.

The combination of physical impediments, water abstraction and natural losses to groundwater provide important barriers to prevent trout invasion into tributaries such as Schoolhouse Creek that can provide refuge for high value native species. The setting of very low or no residual flows for takes in catchments such as this provides a useful tool for managing some of the rarest fish species in New Zealand.


Surface Water Take
Flow Site
Water Race
Catchment Boundary
River
State Highway
Tinwald Burn
Flow (l/s)
900
800
700
600
500
400
300
200
100
0
1-Oct-13
1-Nov-13
1-Dec-13
1-Jan-14
1-Feb-14
1-Mar-14
1-Apr-14
Schoolhouse Creek
Flow (l/s)
60
50
40
30
20
10
0
1-Oct-13
1-Nov-13
1-Dec-13
1-Jan-14
1-Feb-14
1-Mar-14
1-Apr-14
Schoolhouse Creek
Tinwald Burn
Amisfield Burn
Low Burn
Cromwell
8A
8B
8
85
Amisfield Burn
Flow (l/s)
600
500
400
300
200
100
0
1-Oct-13
1-Nov-13
1-Dec-13
1-Jan-14
1-Feb-14
1-Mar-14
1-Apr-14
Low Burn at Chinaman Gully
Flow (l/s)
1,200
1,000
800
600
400
200
0
1-Oct-13
1-Nov-13
1-Dec-13
1-Jan-14
1-Feb-14
1-Mar-14
1-Apr-14

Otago Regional Council

REPORT

Document Id: A650249

Report Number: 2014/0981
Prepared For: Technical Committee
Prepared By: Michael Goldsmith, Manager Natural Hazards
Date: 11 July 2014

Subject: **Coastal morphology of South Otago: Nugget Point to Chrystalls Beach**

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1. Précis

Historical changes in shoreline position between Nugget Point and Chrystalls Beach have been analysed. A survey of offshore bathymetry and onshore dune profiles was completed in February and April 2013 to set a baseline for future coastal monitoring. An analysis of recent and historic changes in the onshore and offshore coastal environment has been undertaken. This work has been undertaken to help inform one of the conditions of Contact Energy Ltd's consent for Roxburgh Dam. The work is described in the report 'Coastal morphology of South Otago: Nugget Point to Chrystalls Beach'.

2. Discussion

The extent to which Contact Energy Ltd's operation of the Roxburgh Dam contributes to coastal erosion was the subject of assessment during the hearing for the renewal of consents for the dam in 2001. Expert evidence presented at the hearing was in disagreement as to the primary cause of coastal erosion observed at Molyneux Bay. However, it was generally accepted by the resource consent hearing panel that the operation of the Roxburgh Dam at least partly contributes to coastal erosion due to trapping of sediment behind the dam. This has been recognised in Resource Consent 2001.394, condition 13 which states:

"The consent holder shall contribute 50% of the costs of an Otago Regional Council coastal management programme specifically addressing:

i) An analysis of historic shoreline positions using appropriate techniques at specific representative coastal sites that may be dependent on Clutha derived sediment.

ii) A comprehensive physical coastal monitoring programme at the representative sites, covering the near shore transport zone between the limits of the beach fore dune system and seaward limit of the near shore sand wedge between Nugget Point and Taieri Mouth."

ORC has therefore assessed changes in shoreline position between Nugget Point and Chrystalls Beach (near Toko Mouth) between 1946 and 2012 using historical aerial photographs and field observations. The report 'Coastal morphology of South Otago: Nugget Point to Chrystalls Beach' also describes additional work undertaken to provide a baseline for the future assessment of changes to the shoreline, dune system, and the offshore bathymetry of Molyneux Bay.

Between Kaka Point and the Koau Mouth of the Clutha River/Mata-Au, the vegetated foredune retreated at an average rate of 3.3m/yr between 1946 and 2012. The rate of retreat increased during that period, and at the current rate (observed between 2006 and 2012) floodbanks which form part of the Lower Clutha Flood Protection and Drainage Scheme could be affected by coastal erosion in less than three decades. This issue will be assessed as part of Scheme asset management planning. The average rate of erosion between the Koau and Matau mouths of the Clutha River/Mata-Au between 1946 and 2012 was 0.2m/yr, with net erosion occurring at the south-western end of this beach, and net accretion towards the north-east. At Measly and Chrystalls beaches (to the south and north of Toko Mouth) average rates of accretion between 1946 and 2006 were 2.3m/yr and 0.8m/yr respectively.

3. Recommendation

That this report is received, and noted.

Gavin Palmer
Director Engineering, Hazards and Science

Otago Regional Council

REPORT

Document Id: A649417

Report Number: 2014/0957
Prepared For: Technical Committee
Prepared By: Rebecca Morris, Groundwater Scientist
Michael Goldsmith, Manager Natural Hazards
Date: 11 July 2014

Subject: **Update on South Dunedin groundwater monitoring and sea level rise**

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1. Précis

Modelling reported by ORC in 2012 confirmed anecdotal reports that the South Dunedin water table is closely linked to the surrounding sea level at both the ocean and harbour margins. This report presents an update on ORC's groundwater monitoring, incorporating observations made subsequent to that reporting. The implications of the latest international and national guidance on predicted sea-level rise over the coming century are discussed. It is noted that the need for further and improved modelling, including additional ground investigations depends on the nature of the decisions to be made about the short-term and long-term future of South Dunedin.

2. Background

In 2012, ORC published the results of modelling investigations which confirmed anecdotal reports that the South Dunedin water table is closely linked to the surrounding sea level at both the ocean and harbour margins[1]. The report explored the impact of relatively modest increases in sea level (up to 0.4m), and found that this would result in ponding above the ground surface in parts of the South Dunedin urban area. The modelling was based on groundwater levels observed in three bores established by ORC in 2009 and on the rate of sea level rise observed at that time.

ORC has subsequently installed a fourth groundwater monitoring bore (at Culling Park). Further, the Intergovernmental Panel on Climate Change (IPCC) published the Fifth Assessment Report[2] in 2013. This report suggested that predicted sea level rise at a worst case will be 0.98 m by the year 2100.

The natural hazards provisions of the Dunedin City District Plan are being reviewed by Dunedin City Council (DCC), with assistance from ORC.[3] ORC is participating in the community meetings taking place across the city in which hazard information, potential

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[1] Otago Regional Council (ORC). 2012. The South Dunedin Coastal Aquifer & Effect of Sea Level Flucutations. ISBN 978 0 478 37648 7. October 2012.

[2] IPCC, 2013: Summary for Policymakers. In: Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change.

[3] ORC, 2014. Natural hazards technical reports to inform the Dunedin City District Plan. Report 2014/0826. Prepared for Technical Committee, Otago Regional Council, 26 May 2014.

hazard overlays and land use rules are being explained and community feedback sought. The meetings are part of the informal consultation DCC is undertaking ahead of preparing and notifying a plan change. The plan change is expected to be notified by early next year.

DCC has excluded South City ("South Dunedin") and Harbourside from the plan change and community consultation process that is underway at present. They have done so on the basis that the level of existing development and the nature of the hazards issues will require consideration of rules and zoning that are specific to those areas. DCC has advised that those rules and zoning will depend in part on the feasibility of engineering solutions. Notwithstanding that, ORC has provided DCC with information relating to the exposure of the South Dunedin area to natural hazards, including coastal inundation, surface ponding and liquefaction potential. The issues facing South Dunedin and how they are to be addressed in the District Plan have been raised by the public at the District Plan community meetings held elsewhere in the city.

This report presents an update on ORC's groundwater monitoring, incorporating the observations made subsequent to the report published in 2012. The implications of the latest international and national guidance on predicted sea-level rise over the coming century are discussed.

3. Update on groundwater monitoring

This section presents a summary of monitoring data from South Dunedin groundwater bores (Figure 1). Groundwater data has been plotted against rainfall recorded at Musselburgh Pumping Station.

Figure 1: Location of ORC monitoring bores, Musselburgh Pumping Station rain gauge and Green Island sea level recorder.

Bathgate Park groundwater bore

The Bathgate Park bore is situated approximately 1.5 km inland, and water levels have been continuously recorded by ORC since 13 October 2009 (Figure 2). Gaps in data occurred 2 times for a period of two days to two months. The groundwater level signature is similar to that of the rainfall, where groundwater levels display response to heavy rainfall or periods of extended low rainfall by rising and falling respectively. No significant change in average groundwater levels since 2009 can be identified.

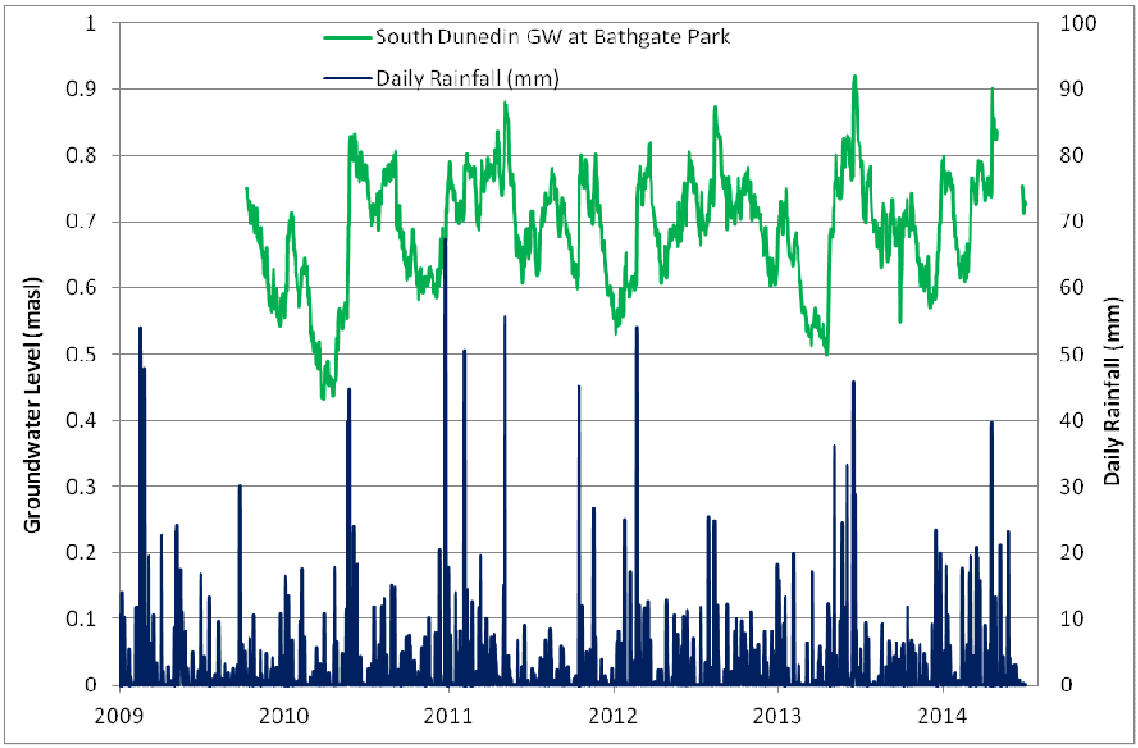

Figure 2: Bathgate Park continuous groundwater monitoring record (2009 - 2014). Ground level surveyed at 1.52 masl.

Tonga Park groundwater bore

The Tonga Park bore is situated approximately 1 km inland from the coast and 2 km from the upper Otago Harbour. Water levels have been continuously recorded since 13 October 2009 (Figure 3). Gaps in the data occurred eight times for periods between one hour and 1.5 months. The groundwater level signature is similar to that of the rainfall, where groundwater levels display response to heavy rainfall or periods of extended low rainfall by rising and falling respectively. In addition, a slight tidal fluctuation can be seen in the groundwater level record.

Since 2009 average groundwater levels have remained at relatively consistent levels. There appears to be an increasing trend in the maximum water levels observed since 2010. This may be due to an increase in the frequency of heavy rainfall events in 2012/2013, where groundwater levels do not have time to recover before a subsequent rainfall event. It should be noted that groundwater levels were recorded higher than ground level (i.e. surface ponding) for three days over the monitoring period (14-16 August 2012).

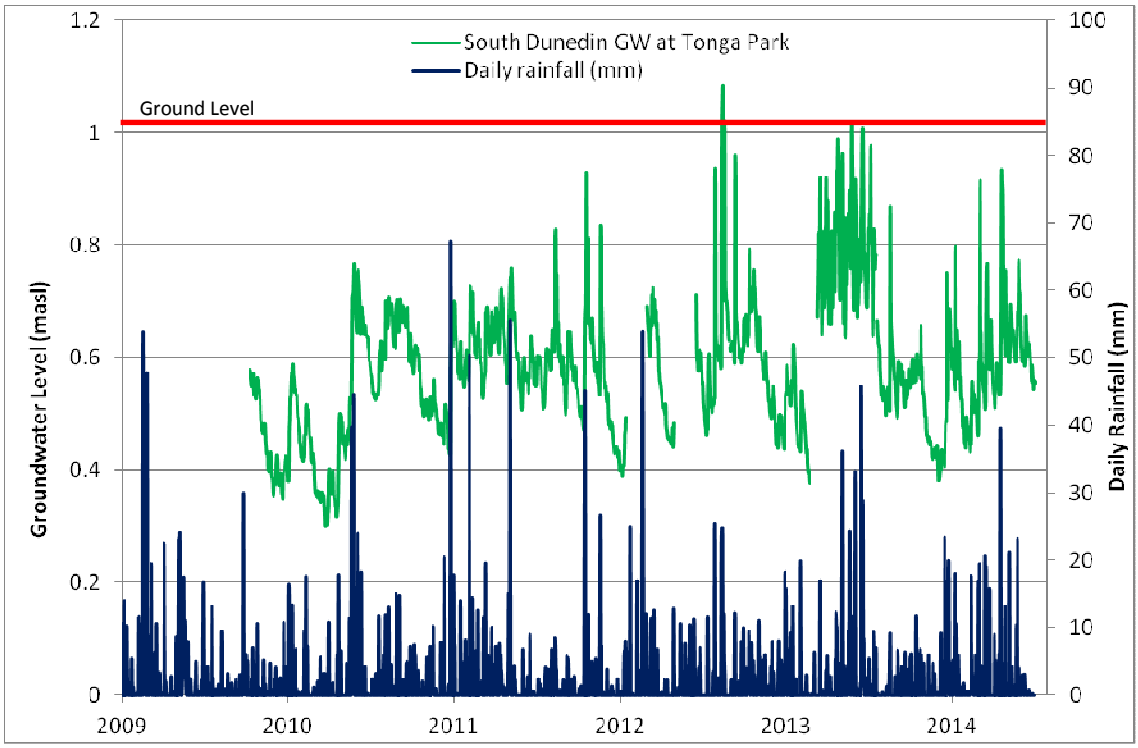

Figure 3: Tonga park continuous groundwater monitoring record (2009 - 2014). Ground level surveyed at 1.02 masl.

Kennedy Street groundwater bore

The Kennedy Street bore is situated approximately 115 m inland from the coast, and water levels have been continuously recorded since 13 October 2009 (Figure 4). There are two gaps in the data of one day and one month respectively. Water levels display a diurnal pattern, suggesting that there is tidal influence on water levels at this bore. The strong relationship between these two parameters is shown in Figure 5. This shows changes in sea level at Green Island due to normal astronomical tides, and changes in the water table at the Kennedy Street bore during a typical month (February 2014). The largest fluctuations in groundwater occur when the tidal range is greater, and higher (spring) tides result in higher peaks in groundwater.

The rainfall signature can also be seen at the Kennedy Street bore, which is expected (Figure 4). The range of groundwater levels has remained relatively consistent since 2009.

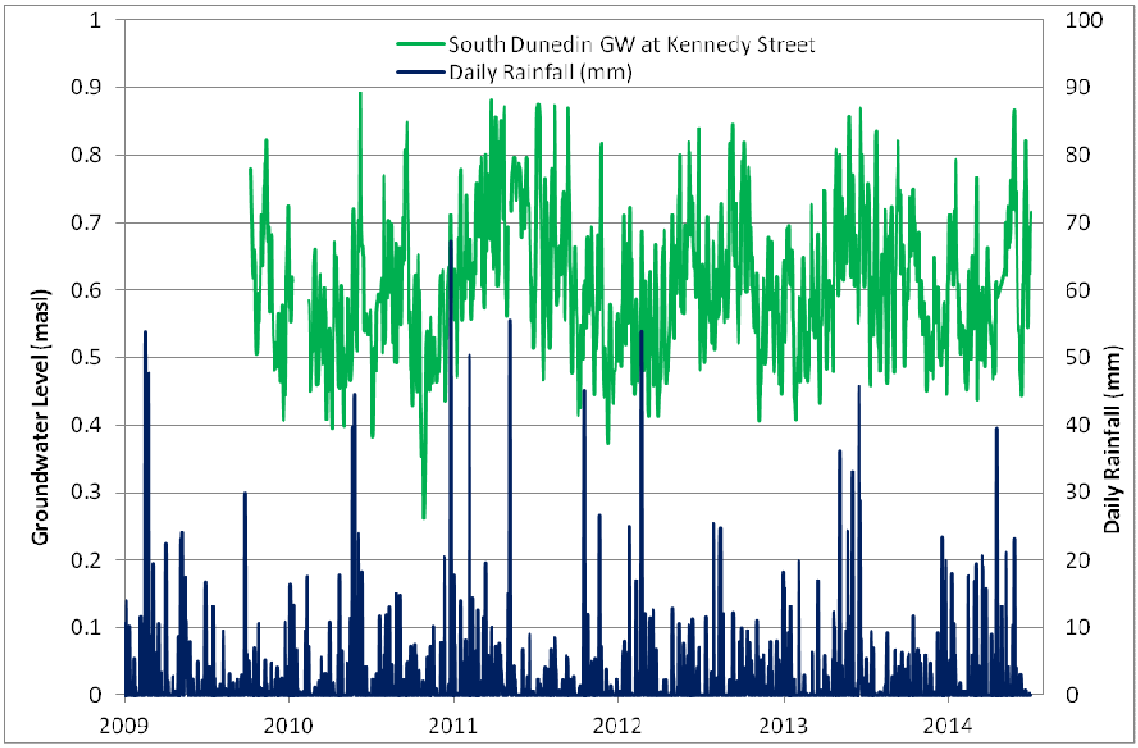

Figure 4: Kennedy Street bore continuous groundwater monitoring record (2009 - 2014). Ground level surveyed at 1.41 masl.

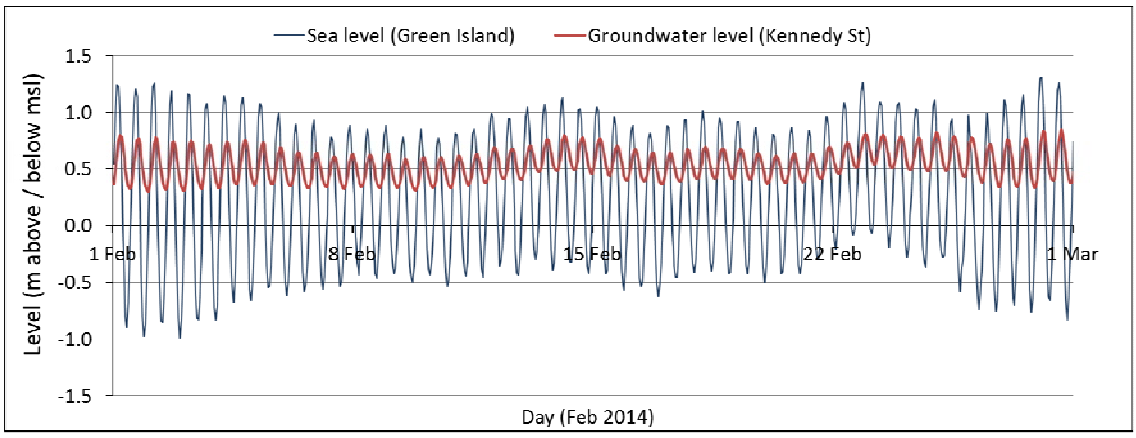

Figure 5: Typical variation in Green Island sea level and corresponding changes in groundwater level at Kennedy Street bore.

Culling Park groundwater bore

The Culling Park bore is situated approximately 650 m inland from the coast. This bore was installed on 31 March 2014, so as to improve the coverage of the monitoring network. Instrumention to continously monitor groundwater levels was installed on 2 May 2014. There is very little data to analyse for the Culling Park Bore however, as per the other monitoring bores in South Dunedin, it appears that the rainfall signature can be seen in the water levels (Figure 6).

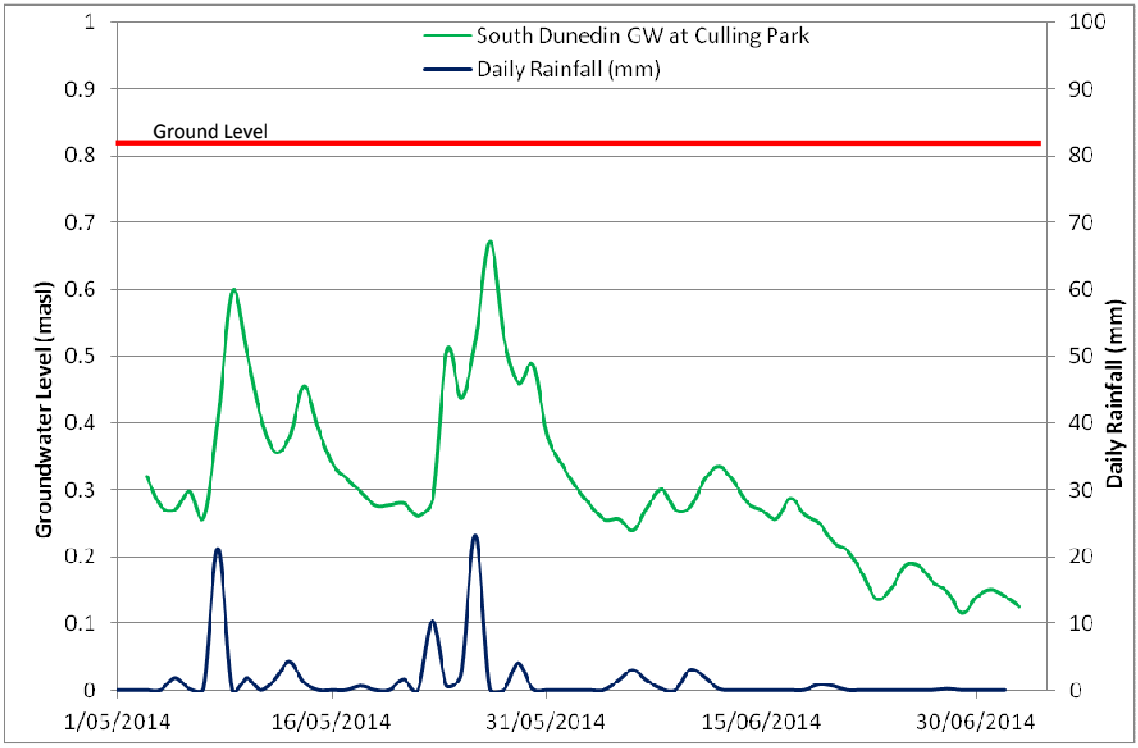

Figure 6: Culling Park bore continuous groundwater monitoring record (2014). Ground level surveyed at 0.83 masl.

Groundwater levels at Culling Park have been compared to groundwater levels at Tonga Park. Both bores exhibit the same pattern suggesting that groundwater across South Dunedin behaves in a similar way (Figure 7).

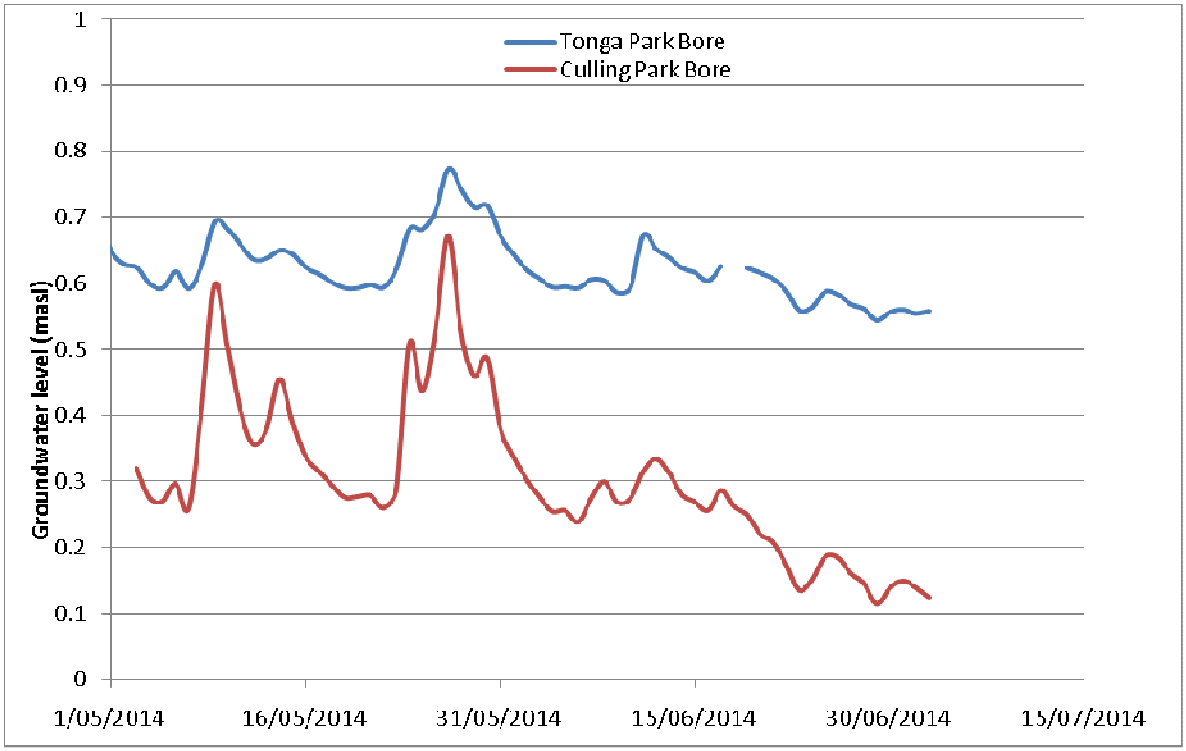

Figure 7: Comparison of groundwater levels at Culling Park and Tonga Park

4. Groundwater and sea level observations and future changes

Groundwater levels have remained relatively consistent since the 2012 study[4]. Whilst maximum water levels at the Tonga Park bore appear to be increasing, the water levels have not been recorded long enough to make an assumption that this is due to sea level rise. The water levels may recover to the 2010 levels as time goes on.

It is common knowledge that groundwater levels in South Dunedin are linked to sea level. During the 20th century, the average rate of sea-level rise recorded at New Zealand's major ports was approximately 1.7mm/yr, similar to the global rate of rise.[5;6] Sea level has been continuously monitored at Green Island since 2002 (Figure 1). Although this site has a short record for deriving long-term trends, the data is of high quality, with a frequent (1 minute) recording interval, and an instrument accuracy of ± 1mm. The average level of the sea at Green Island has increased at a reasonably consistent rate of 3.3mm/yr since 2002. This is consistent with the global average rate of sea-level rise observed over more than two decades since 1993,[7] although somewhat lower than the average rate for New Zealand since 1993 of between 4–5 mm/yr.[8]

[4] ibid.

[5] Bell, R., Goring, D. & de Lange, W. 2001 Advances in understanding sea level variability around New Zealand. In: *Coastal Engineering 2000,* Billy L Edge (ed), *Vol 2: 1490-1500, Proceedings of 27th International Conference on Coastal Engineering, Sydney,* American Society of Civil Engineers, New York.

[6] There is some local variation in the rate of relative sea-level rise (with respect to the land) across New Zealand. The lower rate of rise during the 20th century (0.94mm/yr) recorded at Dunedin is thought to be due to a lack of stability in the reclamation and wharf area where the tide gauge was situated.

[7] Church, J. & Whyte, N. *Sea-level rise from the Late 19th to the Early 21st Century.* Surveys in Geophysics, 2011, DOI 10.1007/s10712-011-9119-1.

[8] R. Bell, NIWA. Pers.comm, June 2014.

However, a number of factors will influence regional rates of rise over the medium (annual – decadal) term, including El Niño / La Niña cycles, and the Interdecadal Pacific Oscillation (IPO).[9] A much longer record from Green Island is therefore required before local long-term trends of sea-level rise and acceleration rates can be determined.

The Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report[10] projects that global sea-level rise by 2100 will likely be in the range of 0.26 to 0.98m (relative to the 1986-2005 period), with a caveat that a rise of a further several decimetres could occur if ice-sheet collapse accelerates. The most recently available guidance to local government in New Zealand regarding sea-level rise over the next 100 years (in line with the timeframe in the NZ Coastal Policy Statement) is from a NIWA guidance document *Pathways to Change* (Britton et al., 2011)[11]. This advises that a 1.0 m rise by 2115 relative to 1990 mean sea level should be considered for sea-level rise for New Zealand regions at this stage. This is equivalent to the 0.8m rise by the 2090s provided as one of the rises to be considered within a risk-assessment framework in the Ministry for the Environment 2008 guidance manual for local government[12] and in line with their guidance that sea-level rise will continue beyond the turn of the century at a rate of 10mm/yr.

Regardless of the uncertainty in the magnitude and rate of future sea level rise, groundwater levels in South Dunedin will be higher than they are now within the "planning period" for land use decisions. It is during (or immediately after, due to a lag effect) periods of elevated sea level that surface ponding in the lowest-lying parts of South Dunedin is more likely to occur, particularly if rainfall occurs at the same time. The initial effects of sea-level rise will be to increase the frequency at which the upper range of extreme sea levels is experienced. Surface ponding may therefore start to occur more often, and for longer periods. A shallow water table or continual surface ponding in the vicinity of schools and residential buildings has the potential to have health impacts.

5. Changes in ground levels due to tectonic movement

It is the proximity of ground level to sea level and the relativity of those levels that determine, in part, the risks for South Dunedin (e.g. Figures 3 and 6). Changes in ground level could therefore increase or decrease the vulnerability.

Numerous faults traverse the Dunedin City District and these have helped to form the landscape we see today - through horizontal displacement and vertical uplift of the land. The Akatore Fault is located to the southwest and it is possible that this fault extends into the southern margin of the Dunedin urban area. This fault has moved at least once and probably twice in the last 10,000 years (Holocene). The most recent rupture is estimated to have occurred between 1350 - 1370 AD. This event generated a vertical

[9] Hannah, J. and Bell, R. 2012. *Regional sea level trends in New Zealand.* Journal of Geophysical Research, Vol 117.

[10] ibid.

[11] Britton, R.; Dahm, J.; Rouse, H.; Bell, R.; Blackett, P. (2011). Coastal adaptation to climate change: Pathways to change. Externally peer-reviewed report prepared as part of the Coastal adaptation to climate change, NIWA publication. 106 p. http://www.niwa.co.nz/sites/default/files/pathways_to_change_nov2011.pdf

[12] MfE, 2009. *Preparing for coastal change.* A guide for local government in New Zealand

change along the fault line in the order of 2-4m.[13] Other offshore faults parallel with the Akatore Fault are also active and the 1974 Dunedin earthquake is considered to have resulted from movement of one of these faults. Despite the presence of these faults, the average long-term rate of vertical tectonic movement on the east coast of New Zealand, and in the Dunedin urban area is assessed as being very small.[14] This suggests that the effects of sea-level rise on South Dunedin are unlikely to be either exacerbated or alleviated by long-term tectonic movement unless a major local earthquake results in noticeable vertical movement.

6. Changes in liquefaction susceptibility due to sea level rise

As previously reported[15] South Dunedin is underlain by sediments that have a moderate to high likelihood of liquefaction-susceptible materials being present. It is likely that the ground shaking in South Dunedin during the 1974 Dunedin earthquake was close to the threshold for the onset of liquefaction of such materials (GNS, 2014).

As noted above, further sea level rise would result in a permanent increase in groundwater levels. An increase in groundwater level, if liquefiable materials are present in the newly saturated sediments, would increase the thickness, and therefore volume, of potentially liquefiable soils. If there are liquefaction-susceptible sediments present, there would be little if any measurable impact of groundwater rise, because any highly susceptible sediments that are present will, given sufficiently shaking, perform poorly in any case, in terms of liquefaction.

The existing liquefaction hazard is largely unchanged even if future rise in groundwater levels is prevented. Decisions on the future of South Dunedin need to take account of all known hazards and residual risks.

7. Further work

ORC will continue to monitor groundwater levels in South Dunedin and sea level at Green Island and to report on changes in the state of the environment. The additional groundwater monitoring data ORC has acquired over the past two years does not in itself justify updating the previously reported groundwater modelling at this point in time.

The 2012 ORC report acknowledged that the modelling undertaken for that work had a number of limitations. Based on the latest predictions of the IPCC the sea level rise scenarios modelled by ORC are indicative of short-term impacts rather than those that could be expected over the planning period.

A high-level assessment of some engineering options for controlling rise in groundwater levels was undertaken by consultants[16] for DCC last year and is to be considered by the Planning and Regulatory Committee when it meets on 24 July.

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[13] Litchfield, N.J. and Norris, R. (2000). Holocene motion on the Akatore Fault, south Otago coast, New Zealand. New Zealand Journal of Geology and Geophysics 43 (3): 481-497.

[14] Glassey, P., Barrell, D., Forsyth, J., Macleod, R. 2003. *The geology of Dunedin, New Zealand, and the management of geological hazards.* Institute of Geological and Nuclear Sciences Ltd, Dunedin, New Zealand.

[15] GNS, 2014. *Assessment of liquefaction hazards in the Dunedin City District.* Report prepared for the Otago Regional Council.

[16] Beca Ltd (Beca). 2013. *Options Report: The Impact of Sea Level Rise on Harbourside and South City.* Prepared for Dunedin City Council. 5 December 2013.

The need for further and improved modelling, including additional ground investigations depends on the nature of the decisions to be made about the short-term and long-term future of South Dunedin.

8. Recommendation

That this report is noted.

Gavin Palmer
Director, Engineering, Hazards and Science

Otago Regional Council

REPORT

Document Id: A647954

Report No: 2014/0941
Prepared For: Technical Committee
Prepared By: Director Engineering, Hazards and Science
Date: 15 July 2014

Subject: Director's Report

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1. Dunedin District Plan and Natural Hazards

ORC has been participating in Dunedin City Council's community consultation sessions on proposed changes to the natural hazards provisions of the District Plan. Sessions have been held as follows, with approximate numbers of members of the public attending each session shown bracketed: City Centre (15), Mosgiel (12 - with a second meeting scheduled for 23 July), Brighton/Ocean Grove (80+), North East Valley (4), Harwood (23), Aramoana (43), Waitati (50), Long Beach (31), Karitane (35) and Kaikorai Valley (14). Presentations have also been made to the Dunedin branch of the Institute of Surveyors and the Waikouaiti Coast Community Board. The public have until 1 September to provide feedback on the proposals. DCC has advised that they intend publicly notifying a Plan Change early next year.

2. Leith Flood Protection Scheme

Works to the St David Street to Union Street reach are continuing. Of note is the successful completion of modifications to the DCC water main attached to the St David footbridge, the demolition of the footbridge true right abutment and progress with constructing the new in-channel walls along the right (western) riverbank. Foundation work for the new supporting pier for the footbridge has been slower than the contractor (Downer NZ Ltd) envisaged and this along with high river flows and wet weather mean that the works are expected to be completed in September.

Design work associated with the next stage (Dundas Street to St David Street) has continued. The construction works involve channel widening and retaining wall construction, and removing much of Montgomery Avenue. Construction tenders are expected to be invited in September with the works expected to commence in November.

3. Kakanui/Kauru River Management

The community group formed by ORC to develop the Kakanui/ Kauru river management plan will meet on 29 July to confirm the terms of reference of the group and to scope the issues to be addressed in the plan. In the meantime a programme of selective and targeted river works involving vegetation spraying, willow pole planting and gravel removal is being implemented. The works will reduce the likelihood of further bank erosion at several locations.

4. Recommendation

That this report is noted.

Gavin Palmer
Director Engineering, Hazards and Science

OTAGO REGIONAL COUNCIL

Agenda for a meeting of the Communications Committee to be held in the Council Chamber, 70 Stafford Street, Dunedin on Thursday 24 July 2014 following the Technical Committee meeting

Membership:

Cr Trevor Kempton (Chairperson
Cr Graeme Bell (Deputy Chairperson**)**
Cr Doug Brown
Cr Louise Croot MNZM
Cr Michael Deaker
Cr Gerrard Eckhoff
Cr Gary Kelliher
Cr Sam Neill
Cr Gretchen Robertson
Cr Bryan Scott
Cr David Shepherd
Cr Stephen Woodhead

Apologies: **Cr Gretchen Robertson**

Leave of absence:

In attendance:

Please note that there is an embargo on agenda items until 8.30 am on Tuesday 22 July.

CONFIRMATION OF AGENDA

PUBLIC FORUM

MINUTES

The minutes of the meeting held on 4 June 2014, having been circulated, for adoption

Matters arising from minutes

Otago Regional Council

ITEMS FOR NOTING

Item 1
2014/0948 **Report on Community Liaison and Education.** DSE, 10/7/14

The report provides an update on Plan Change 6A implementation, catchment programmes, water quantity, and other activities..

Item 2
2014/0949 **Report on Communications and Media Activity.** DSE, 1/7/14

Providing an update on Council communications and media activity carried out during the period 16 May to 30 June.

Item 3
2014/1000 **Report on Customer Services Activity.** DSE, 10/7/14

Providing an update on Customer Services Activity for June 2014.

OTAGO REGIONAL COUNCIL

Minutes of a meeting of the Communications Committee held in the Council Chamber, 70 Stafford Street, Dunedin on Wednesday 4 June 2014 commencing at 12.05 pm

Present:	**Cr Trevor Kempton** (Chairperson **Cr Graeme Bell (**Deputy Chairperson**)** **Cr Doug Brown** **Cr Louise Croot MNZM** **Cr Michael Deaker** **Cr Gerrard Eckhoff** **Cr Gary Kelliher** **Cr Gretchen Robertson** **Cr Bryan Scott** **Cr David Shepherd** **Cr Stephen Woodhead**
Leave of absence:	**Cr Sam Neill**
In attendance:	**Wayne Scott** **Jeff Donaldson** **Fraser McRae** **Gavin Palmer** **Janet Favel**

CONFIRMATION OF AGENDA

There were no changes to the agenda.

MINUTES

The minutes of the meeting held on 16 April 2014, having been circulated, were adopted on the motion of Crs Bell and Deaker.

Matters arising from minutes

There were no matters arising from the minutes.

Otago Regional Council

ITEMS FOR NOTING

Item 1
2014/0851 **Report on Community Liaison and Education.** CE, 16/5/14

The report provided an update on Plan Change 6A implementation, catchment programmes, and annual plan target progress.

The question of the legal definition of a watercourse was raised. Mr McRae advised that the RMA defined a river as a permanently or intermittently flowing body of water, and did not refer to beds and banks. He noted that Plan Change 6A controlled water quality discharge to a river, which could be via a race or drain.

The Plan Change 6A launch was confirmed for 27 June, and Mr Taylor advised that key stakeholders had been invited. The purpose of the event was to launch the 6A implementation programme and to clarify rules and compliance. Establishment of a stakeholders' advisory group would reinforce the importance of people taking ownership of water. The roadshows planned for early July would provide a review of the water quality in each area, and clarification of the rules.

Cr Scott moved
Cr Croot seconded

That the report be received.

Motion carried

Item 2
2014/0840 **Report on Customer Services Activity.** CE, 19/5/14

The report provided an update on Customer Services Activity for May 2014.

Cr Bell moved
Cr Robertson seconded

That the report be received.

Motion carried

Item 3
2014/0844 **Report on Communications and Media Activity.** CE, 20/5/14

The report provided an update on Council communications and media activity carried out during the period 1 April to 16 May 2014.

Councillors were pleased to note:

- good public feedback on the RPS brochure;
- rating of the ORC website at 9th out of 78 sites assessed recently by the Local Government Information Managers group;
- inclusion of ORC science education capabilities in a database being created for use in schools by the Royal Society of NZ; and
- ORC involvement in the Dunedin International Science Festival and the Foreign Policy School.

Concern was raised about access to information on outdoor burning. Mr Taylor pointed out that there were a number of entries on the ORC website, and brochures and press releases were available. It was suggested that an information pack be provided to people moving into an area.

Councillors acknowledged the work done by staff at recent RPS public meetings and drop-in sessions, but were disappointed by the low public attendance. Alternative methods of encouraging public involvement were discussed, including attending existing local events, and the use of kiosks and drop-in sessions. The DCC's People's Panel was mentioned, where people could sign up for regular emails from the DCC and provide feedback, and electronic media could be used more.

Cr Deaker moved
Cr Shepherd seconded

That the report be received.

Motion carried

The meeting closed at 12.36 pm.

Chairperson

Otago Regional Council

REPORT

Document Id: A648965

Report Number: 2014/0948
Prepared For: Communications Committee
Prepared By: Community Liaison and Education (CLE) Team
Date: 15 July 2014

Subject: Report for Community Liaison and Education June 2014

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1. Water Quality: Plan Change 6A

Plan change 6A was officially launched in Dunedin on 27 June 2014. The event was attended by 130 stakeholders including farmers, advisors, and the media. This has been followed by fifteen road shows throughout the region designed to provide practical advice to farmers and advisors.

Several publications, such as guides and fact sheets, have been produced. These will be available to ORC staff for distribution to farmers and, more importantly, will be a resource for industry groups to use so that we will gain leverage from their field staff to educate land users on Plan Change 6A.

All ORC staff have received a minimum of a two hour introduction to 6A with additional training planned for those requiring a more in-depth knowledge.

We recognise that agencies such as Dairy NZ, Beef and Lamb, Federated Farmers and many others are key stakeholders in the implementation of Plan Change 6A. We held and initial meeting with representatives to start work on identifying how they can play an effective role in ensuring Plan Change 6A is delivered.

Meetings with Dairy NZ and North Otago Irrigation Company were held in May with CLE and Science staff to discuss the development of monitor farms in North and South Otago. Both these groups are keen to collaborate on the monitor farm projects and assist with disseminating the information to their shareholders.

The next period will focus on expanding the implementation plan using a strategic approach led by the Director, Stakeholder Engagement. The data gathered from the roadshows will be used to inform this process. Whilst the plan will be strategic in its approach, we anticipate that aspects of it will continue to evolve as we work with stakeholders and expand our knowledge.

2. Water Quality: Catchment Programmes

Nearly all the CLE team activities in the community are currently focused on Plan Change 6A as a result of intense interest and requests for information. Therefore,

most of the activities listed below focus on explaining 6A to individuals or stakeholder groups. In summary, these have included;

- Meeting with the Clutha Development Trust to discuss how ORC could work with them on their environmental programmes to facilitate environmental improvements within the Clutha district
- Joining Beef and Lamb to deliver one of their Land and Environment Plan (LEP) workshops in Tuakitoto with a view to upskilling their presenters so they can deliver effectively on workshops throughout Otago on Plan Change 6A
- Joining the Kakanui Community Landcare Trust project presentation to learn about the behavioural change study specific to their catchment
- Meeting with Aspiring Environmental to discuss nitrogen leaching rates for the Lakes District and associated farm structure measures that can be implemented to reduce contamination

3. Water Quantity

The CLE team has been fully focussed on water quality during this period. However, we expect to have filled our two team vacancies over the next two months, which will bring us back to a fully resourced team so we can start work on water quantity.

4. Other Activities

CLE staff attended a presentation from AgResearch scientists on about their latest research findings.

Two CLE staff visited Otakou Marae together with a wider council group as part of an ongoing up-skilling of staff around Maori culture, values and protocol.

Staff provided feedback to Planning on the Land/Soil section of the Issues and Options step for the RPS review.

5. Recommendation

That this report is received

Jane Leahy
Director Stakeholder Engagement

Otago Regional Council

REPORT

Document Id: A649033

Report Number: 2014/0949
Prepared For: Communications Committee
Prepared By: Peter Taylor, Manager Communications
Date: 15 July 2014

Subject: Report on Communications and Media Activity

This report records communications and media activity between 16 May and 30 June.

Key highlights for the period were:

- Promotional activities attracted around 1000 stakeholders to the Plan Change 6A stakeholders forum and road shows
- The majority of attendees provided email contact that will increase the effectiveness and efficiency of future contact

The next period will focus on further development of the Plan Change 6A implementation plan as covered in the Community Liaison and Education report.

1. Media Activity

- Seven media releases were prepared and distributed.
- Otago Regional Council (ORC) activity has received 125 mentions in print media and four broadcast mentions.
- Three letters to the Editor of the Otago Daily Times (ODT) requiring responses were received.

2. Social Media

- Twelve items were posted on the ORC Facebook page and as at June 30 the page had attracted 58 likes, up from 41 for the previous month.
- Twenty-one messages were sent out on Twitter, and as at 30 June 154 people or organisations were following the ORC Twitter feed, up from 117 the previous month
- Subject examples of items posted on Facebook and sent out on Twitter included: Gypsy week, aerial surveillance, 6A workshops, vacancies, bus route changes.

3. Corporate Communications

- Communications staff produced the water quality stakeholder's forum, associated information and promotion. One hundred and thirty people representing a cross-section of stakeholders attended the forum.
- Communications staff managed the production of 16 water quality roadshows including print, radio and social media advertising, development and publication of associated material and PowerPoints, and event management.

- Staff coordinated and promoted a meeting with the Tomahawk community to present the findings of an ORC report on cyanobacteria levels in the lagoon. About 50 people attended the meeting, which was chaired by Cr Scott.
- Print media and social media publicity launched and promoted the Google Transit Planner.
- Print and social media publicity promoted changes to the Lookout Point Bus route.

4. Publications Produced and Distributed or in Production

- Booklet - Guide to water quality rules
- Booklet - Monitoring water quality on your farm
- Work is continuing on a suite of Water Quality Otago information sheets to assist farmers and foresters to understand and comply with the water quality rules.
- Otago Water Plan with latest plan and map updates is at print.
- SOE water quality reports are under production for North and Coastal, Taieri, and Clutha catchments.
- The 2014/15 Annual Plan is being produced
- The Otago Regional Passenger Transport Plan is in final edit and design stage
- The new format 2014/15 Dunedin bus timetable will be distributed in late July
- Revised version of the compliance fees and charges brochure was produced and distributed
- The following natural hazards reports were edited, designed and published for use at the combined DCC led public consultations on including hazards in the DCC district plan:
  - Review of Dunedin City District Plan: Natural hazards Project Overview
  - Flood Hazard on the Taieri Plan and Strath Taieri
  - Food Hazard of Dunedin's Urban Streams
  - Coastal Hazards of the Dunedin City District
  - The Hazard Significance of Landslides in and around Dunedin City
  - Assessment of Liquefaction Hazards in the Dunedin City District
  - Flyers, adverts, and posters were produced for the Maniototo groundwater meeting scheduled for 21 July
  - Flyers and posters were produced and distributed promoting the Tomahawk Lagoon community meeting
- A flyer promoting the 2015 NZ Biosecurity Conference in Dunedin was produced for distribution at this year's conference

5. Community Education Activity

- Liaison continued with the Dunedin International Science Festival to coordinate these ORC festival activities
  - A series of workshops (termed BioBlitz) exploring the biodiversity in the Dunedin Botanic Garden. ORC staff are taking a session on the ecology of the Lindsay Creek and Water of Leith.
  - Natural Hazards staff gave a lunch time seminar in Wall Street attended by 20-30 people
  - Matt Dale has led two biodiversity spotlighting tours in the Dunedin Botanic Garden attended by around 30 people
- Water Resource specialist Matt Dale gave talks on river health to George St Normal School and Otago Boys High School

- Natural Hazards staff have been supporting DCC at a series of meetings consulting on DCC's preferred options for managing development in hazard-prone areas. This is based on the ORC's technical assessment of Dunedin's vulnerability to natural hazards.

- Manager natural hazards Michael Goldsmith (above) gave a presentation on hazards to about 40 children at Port Chalmers School
- Air quality specialist Deborah Mills (below) presented to 35 Grants Braes school pupils on air quality and the atmosphere

6. Website Developments

- Set up and implementation of RSS feed for Otago CDEM website. The RSS feed is also designed to transfer emergency information through to the Ministry of Civil Defence & Emergency Management New Zealand website in the event of an emergency in the Otago Region.
- Natural Hazards publications and reports section updated and rearranged to display publications which are relevant to each of the five Otago districts.
- New page created for Water Quality Rules (Plan Change 6A). Explains the rules, along with guides and documents available for download.
- Proposed Plan Change 4B (Groundwater allocation) page update and further submissions online form set up
- Otago Regional Policy Statement Review page update and feedback page added for containing all feedback received.
- All water quality roadshow 2014 events added to the events section of website, intranet and also LAWA website. Catchment pages updated.
- Optimization is continuing of all PDFs on website to conform to accessibility standards.

7. Website Statistics

Website statistics for the period 31 May to 30 June.

- 26,827 visits
- 10,464 new visitors – 39% (stats below)
- 16,363 returning visitors – 61%

Country origins for visitors

- New Zealand – 25,122
- Australia – 488
- United States – 334

Visits from around NZ

- Dunedin – 11,834
- Auckland – 5,866
- Wellington – 2,590
- Christchurch – 1,752
- Queenstown - 587

Averages for visits in NZ

- 3.32 pages in our website viewed per visit

Analysis of pages viewed on the ORC website

- **Buses**
  Main bus page – 30,007 page views
  Bus Info page – 3,275 page views
  Route numbers – 1,582 page views
  Route – City to Mosgiel – 1,343 page views
  Route – Mosgiel to City – 1,230 page views

Route – Port Chalmers to City – 977 page views
Route – City to Port Chalmers – 921 page views

- **Information and Services**
  Natural Hazards pages – 1,825 page views
  Rates pages – 878 page views
  Resource Consent pages – 843 page views
  Air pages – 732 page views
  Water pages – 680 page views

- **Publications and Reports**
  Regional Policies and Plans – 3,194 page views
  Natural Hazards – 1,018 page views
  Research and Technical reports – 681 page views
  Farming and Land management – 422 page views

- **About us and the Region**
  Job vacancies – 1,852 page views
  Contact us – 1,427 page views
  About the ORC – 612 page views
  About the region – 327 page views

- **Other areas viewed**
  Regional Plan: Water – 690 page views
  Great Alpine Fault Earthquake page – 585 page views
  Council Meetings and Agendas – 377 page views
  Consultation and Events – 332 page views

Top two PDF downloads

- Bus timetable – 2,385 downloads
- Regional Plan: Water – 762 downloads

8. Recommendation

That this report is received.

Jane Leahy
Director Stakeholder Engagement

REPORT

Document Id: A650710

Report Number: 2014/1000
Prepared For: Communications Committee
Prepared By: Customer Services Team
Date: 15 July 2014

Subject: **Report on Customer Service Activity June 2014**

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1. Planning

Work has begun on a process to engage the customer services team in the development of a vision for what great customer service will look like for the Otago Regional Council (ORC). Once agreed, we will develop a recommendation and twelve month implementation plan for the executive management team (EMT) approval. This plan may result in changes to the current transition of subject areas (pods), as outlined below.

2. Subject Pods

We had previously reported on the transition of different subjects from within divisions to the customer services team. Whilst work is continuing on this transition, the twelve month plan may result in changes to the priorities. The current focus is on continuing to develop the team so they are more skilled in handling rates queries prior to the rates assessments going out in late August.

3. Recommendation

That this report is received

Jane Leahy
Director Stakeholder Engagement

OTAGO REGIONAL COUNCIL

Agenda for a meeting of the Policy Committee to be held in the Council Chamber, 70 Stafford Street, Dunedin on Thursday 24 July 2014 following the Communications Committee meeting

Membership:

Cr Gretchen Robertson (Chairperson)
Cr Michael Deaker (Deputy Chairperson)
Cr Graeme Bell
Cr Doug Brown
Cr Louise Croot MNZM
Cr Gerrard Eckhoff
Cr Gary Kelliher
Cr Trevor Kempton
Cr Sam Neill
Cr Bryan Scott
Cr David Shepherd
Cr Stephen Woodhead

Apologies: **Cr Gretchen Robertson**

Leave of absence:

In attendance:

Please note that there is an embargo on agenda items until 8.30 am on Tuesday 22 July.

CONFIRMATION OF AGENDA

PUBLIC FORUM

MINUTES

The minutes of the meeting held on 4 June 2014, having been circulated, for adoption

Matters arising from minutes

Otago Regional Council

PART A – RECOMMENDATIONS

Item 1

2014/0958 **Notification of Proposed Plan Change 3B (Pomahaka catchment minimum flow).** DPPRM, 4/7/14

The report presents a summary of comments received on the Consultation Draft of Proposed Plan Change 3B (Pomahaka catchment minimum flow), and recommends the notification of the Proposed Plan Change. The change seeks to include a minimum flow and allocation regime for the Pomahaka catchment into the Water Plan's Schedule 2 and to identify the Pomahaka Alluvial Ribbon Aquifer. The Plan Change and Section 32 report are circulated with the agenda.

Item 2

2014/0903 **Notification of Proposed Plan Change 4C (Groundwater management: Cromwell Terrace Aquifer)**. DPPRM, 1/7/14

Presenting a summary of the comments received on the Consultation Draft of Proposed Plan Change 4C (Groundwater management: Cromwell Terrace Aquifer) and recommending the notification of the Proposed Plan Change. The plan change seeks to set a maximum allocation volume for the Cromwell Terrace Aquifer. The proposed Plan Change and Section 32 report are circulated with the agenda.

PART B - ITEMS FOR NOTING

Item 3

2014/0942 **Director's Report on Progress.** DPPRM, 4/7/14

The report gives an overview of significant activities undertaken by the Policy and Consents sections.

OTAGO REGIONAL COUNCIL

Minutes of a meeting of the Policy Committee held in the Council Chamber, 70 Stafford Street, Dunedin on Wednesday 4 June 2014 commencing at 2.34 pm

Present:	**Cr Gretchen Robertson** (Chairperson) **Cr Michael Deaker** (Deputy Chairperson) **Cr Graeme Bell** **Cr Doug Brown** **Cr Louise Croot MNZM** **Cr Gerrard Eckhoff** **Cr Gary Kelliher** **Cr Trevor Kempton** **Cr Bryan Scott** **Cr David Shepherd** **Cr Stephen Woodhead**
Leave of absence:	**Cr Sam Neill**
In attendance:	**Wayne Scott** **Jeff Donaldson** **Fraser McRae** **Gavin Palmer** **Richard Pettinger** (for Item 2) **Janet Favel**

CONFIRMATION OF AGENDA

There were no changes to the agenda.

MINUTES

The minutes of the meeting held on 16 April 2014, having been circulated, were adopted on the motion of Crs Bell and Kelliher.

Matters arising from minutes

There were no matters arising from the minutes.

Otago Regional Council

PART A – RECOMMENDATIONS

Item 1

2014/0760 **Proposed Plan Change 4C (Groundwater management: Cromwell Terrace Aquifer – Consultation.** DPPRM, 25/5/14

The report presented for consideration a draft proposed plan change for the management of the Cromwell Terrace aquifer. The consultation draft and draft Section 32 report were circulated separately.

Mr McRae commented that generally communities did not perceive groundwater as having value unless there were concerns about an aquifer being over allocated.

Cr Kempton moved
Cr Deaker seconded

That the attached Consultation Draft of Proposed Plan Change 4C (Groundwater management: Cromwell Terrace Aquifer) and the accompanying draft Section 32 Evaluation Report is released for consultation in terms of clause 3, Schedule 1 of the Resource Management Act 1991.

Motion carried

Item 2

2014/0838 **Consultation Draft Proposed Plan Change 3B (Pomahaka minimum flow)**. DPPRM, 16/5/14

The report explained that the purpose of the proposed plan change was to establish a primary allocation limit, minimum flow, and supplementary allocation regime for the catchment. The draft plan change, and a draft S32 evaluation report were circulated separately with the agenda.

It was noted that the proposed Plan Change was based on a 2006 technical report, and a question was raised about the validity of a minimum flow based on 8 year old information in a rapidly changing landscape. Mr McRae advised that the values identified had not changed, and were reinforced during the community workshops. Current takes had not influenced the river but the community wanted to put minimum flows in place before anticipated changes occurred.

In response to a question about the proposed 1000 l/s minimum flow, Mr McRae advised that this met the current rate of take, but would not allow any additional primary allocations.

Cr Woodhead moved
Cr Deaker seconded

That the attached Consultation Draft of Proposed Plan Change 3B (Pomahaka catchment minimum flow) to the Regional Plan: Water for Otago and the accompanying draft Section 32 Evaluation Report are released for consultation in accordance with clause 3, Schedule 1 of the Resource Management Act 1991.

Motion carried

Item 3
2014/0836 **Local Government New Zealand Hazard Management Review.**
DPPRM, 22/5/14

The report explained that Local Government New Zealand (LGNZ) had initiated a discussion with local and central government and other stake holders in respect to taking a holistic review of how New Zealand managed natural hazard risks. It was suggested that ORC provide a written response to the LGNZ review of Natural Hazards Management in New Zealand.

Mr McRae noted that response to flooding risk in Otago ranged from Queenstown, where the community accepted the flood and designed to be resilient to flooding, through to physical responses, eg floodbanks. This range of response, as well as reference to other natural hazards, would be included in the response to LGNZ.

Cr Scott moved
Cr Croot seconded

That Council provide a written response to the LGNZ review of Natural Hazards Management in New Zealand.

Motion carried

PART B - ITEMS FOR NOTING

Item 4
2014/0831 **Director's Report on Progress.** DPPRM, 22/5/14

The report provided an overview of significant activities undertaken by the Policy, Consents and Transport Planning sections.

The incidences of crashes involving tourists were noted, and Mr McRae pointed out that foreign drivers were not disproportionately involved in serious crashes.

Mr McRae advised that a report on analysis of crash data was being prepared for the Committee. ACC and hospitalisation statistics, as well as motor vehicle crash statistics, were being used, and this analysis was of interest to NZTA and other agencies.

Cr Deaker moved
Cr Croot seconded

That the report be noted.

Motion carried

The meeting closed at 2.56 pm.

Chairperson

REPORT

Document Id: A650551

Report Number: 2014/0958
Prepared For: Policy Committee
Prepared By: Richard Pettinger, Senior Policy Analyst
Date: 04 July 2014

Subject: **Notification of Proposed Plan Change 3B (Pomahaka catchment minimum flow)**

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1. Précis

This report presents a summary of comments received on the Consultation Draft of Proposed Plan Change 3B (Pomahaka catchment minimum flow), and recommends the notification of the Proposed Plan Change. The change seeks to include a minimum flow and allocation regime for the Pomahaka catchment into the Water Plan's Schedule 2 and to identify the Pomahaka Alluvial Ribbon Aquifer.

2. Background

A Consultation Draft of the proposed plan change was released for comment under Clause 3 of the RMA Schedule 1, on Saturday 4 June 2014 (following Report 2014/0838). Council received 7 comments by email or letter by the due date of 23 June 2014. This consultation followed a series of four workshops held between 2010 and 2014. Staff met Otago Fish & Game Council to discuss their comments on 9 July 2014.

3. Comments overview

There was support for amending the Water Plan in the manner of this proposed plan change. All written comments are summarised in Appendix 1, and include:

- Support for the regime suggested in the consultation draft in full.
- Request for a lower summer minimum flow for primary allocation.
- Request for a higher summer minimum flow for primary allocation.
- Request to include a Waipahi community water supply recently established by Clutha District Council into Water Plan Schedule 1B.
- Advice to delete from Schedule 1B community water supplies no longer operating.
- Request to ensure the concerns expressed at the workshops are carefully considered.

4. Evaluation

No provisions warrant amendment as a result of the comments received. The request to add a recently established community water supply to Schedule 1B is beyond the scope.

Deletion of the inoperative community water supplies in Schedule 1B can occur as a minor correction.

The layout of Water Plan Maps B and C will be modified as a minor and consequential change.

5. Section 32 evaluation report

Before a plan change is notified, the Council must evaluate the alternatives, benefits and costs, as required by Section 32 of the RMA. Proposed Plan Change 3B (Pomahaka catchment minimum flow) is the preferred approach to achieve the sustainable management of water allocation in the catchment. The Section 32 Evaluation Report has been amended as a result of the comments and workshop feedback, and is attached as Appendix 2.

Otago Regional Council

6. Conclusion

The Proposed Plan Change, amended in response to comments, is attached as Appendix 3. The proposed changes should have immediate legal effect from notification, in accordance with Section 86B(3) of the Resource Management Act.

7. Next steps

The timeline below sets out the next steps in the plan change process:

Action	Date
Council approve public notification of Proposed Plan Change 3B (Pomahaka catchment minimum flow)	Wed 6 August 2014
Public notification of proposed plan change	Sat 16 August 2014
Submissions close	Friday 12 September 2014
Public notification of decisions requested and call for further submissions	October 2014
Further submissions close	October 2014
Hold hearings	December 2014
Council decision	Early 2015

8. Recommendations

1. That Proposed Plan Change 3B (Pomahaka catchment minimum flow) and its accompanying Section 32 Evaluation Report be approved for notification in accordance with clause 5, Schedule 1 of the RMA.
2. That Proposed Plan Change 3B (Pomahaka catchment minimum flow) be publicly notified on Saturday 16 August 2014.
3. That the Council establish a Hearing Committee to hear and make recommendations relating to Proposed Plan Change 3B (Pomahaka catchment minimum flow).
4. That Proposed Plan Change 3B (Pomahaka catchment minimum flow) will have immediate legal effect upon notification.

Fraser McRae
Director Policy Planning & Resource Management

Appendix 1

Overview of comments on the Consultation Draft of Proposed Plan Change 3B (Pomahaka catchment minimum flow)

Note: A number of comments were received on the 7 May 2014 Workshop feedback forms. These comments are reflected in the written ones below.

#	Date received	Medium	Name/Organisation	Provision	Comment Summary
1	20 June	Letter	Lyndsay Alderton Rosemerryn Kelso 5RD Gore	Minimum flow Allocation limit	Workshop comments do not reflect overall public opinion, as few farmers are present. Too much preference is given to the brown trout fishery, "an introduced species with little economic significance." A rural enterprise monoculture will result if preference is given to fishery over agriculture and NZ's economic wellbeing. Trout have survived historic low flows lower than 1000 l/s at Leithen Glen. Fifty-five days of "no water available" is a nonsense – should be 25 days to allow opportunities for crops, with modest water harvesting, given climate change may exacerbate wet/dry cycles. Water quality has more of an impact on fishery than flows. Set minimum flow for October – April no greater than 2500 l/s, and the primary allocation should be no greater than 1000 l/s, reducing as rights are relinquished.
2	20 June	Email	Rosemary Nelson Public Health South Southern District Health Board Private Bag 1921 Dunedin 9054	Schedule 1B	Supports intention to include the Pomahaka River in the existing minimum flow schedule. The registered Glenkenich Rural community drinking water supply intake at Telegraph Road, which is owned and operated by the CDC and serves a population of 705 people, be included in Plan Change 3B. The Resource Management (National Environmental Standards for Sources of Human Drinking Water) Regulations 2007 requires regional councils to consider the effects on drinking water supplies when granting water and discharge permits and when including or amending a rule in its regional plan to allow for a permitted activity. We consider that including the community drinking water supply would ensure it is identified for users of this plan and to enable the obligations to this regulation to be met. Wishes to be heard – meeting with Policy staff? *Follow-up email:* Glenkenich supply entry is now acknowledged as having been included in Schedule 1B all along. But note that the Pomahaka and Clinton Water supplies are still included as takes from the Pomahaka River. However this no longer applies as they now take water from bores located beside the Clutha River.
3	20 June	Email	Tim Vial Senior Planner Kai Tahu ki Otago Ltd	Minimum flow Allocation	Supports the proposed minimum flow and primary allocation limit, and the supplementary allocation regime, to support the cultural values,

#	Date received	Medium	Name/Organisation	Provision	Comment Summary
			Consultancy PO Box 446 Dunedin	limit	beliefs and uses for the Pomahaka River identified in the Water Plan. The precautionary flow and limit regime is consistent with the Kāi Tahu freshwater management principles, and the NES and should ensure there is strong continuity and variability of flow throughout the year.
4	23 June	Email	Peter Ross Projects Engineer Clutha District Council PO Box 25 Balclutha 9240	Schedule 1B	Schedule 1B which lists community surface water takes requires updating to reflect changes since the Water Plan became operative. In respect of the Pomahaka catchment, the following changes are requested: Delete: Site 52 Pomahaka and Clinton Water Supplies at G45: 342498 Site 56 Clydevale Water Supply at G45: 324622 Both of these takes have been abandoned and no longer operate. They have been replaced by a take adjacent to the Clutha River which is listed in Schedule 3B. Add: Waipahi Rural Stock Water Supply, consent no 2009.142 – from the Waipahi River This is a new community supply constructed in 2009.
5	23 June	Email	Ken Murray Department of Conservation PO Box 4715 Christchurch MC Christchurch 8140	Minimum flow Allocation limit	The proposed minimum flows, primary and supplementary blocks satisfy the Director-General's concerns with regard to freshwater fish habitats.
6	23 June	Letter	Niall Watson Chief Executive Otago Fish & Game PO Box 76 Dunedin 9054	Minimum flow Allocation limit	Qualified support for minimum flows and the allocation block size. Asking for consideration of a minimum flow October to April of 3800-3880 l/s to better reflect river's values, fishery, natural character and community support. Strongly support a Primary Allocation Limit of 1000 l/s. Pomahaka and tributaries especially the Waipahi catchment have very high fishery and amenity values. Plan change does not indicate how the minimum flow will be applied in the Waipahi catchment. Expect that takes from there will be subject to a residual flow of at least 84% of MALF, (the approach suggested by the Consultation Draft for the Pomahaka catchment at Burkes Ford). Need to support current efforts to restore strategically important Lower Clutha salmon run which depends on Pomahaka catchment. 1989 Local Water Conservation Notice recognised regional significance of fishery values and prohibited damming of surface water

#	Date received	Medium	Name/Organisation	Provision	Comment Summary
					bodies in catchment. Recent decreases in angler use is due to water quality degradation. Plan change is urgent due to allocation of 100 l/s being exceeded and there being a recent run on applications to take. Wishes to meet with Policy staff.
7	25 June	Email	Kim Reilly Regional Policy Manager South Island Federated Farmers of New Zealand PO Box 5242 Dunedin 9058	Minimum flow Allocation limit	Federated Farmers recommends • That Council ensures both (Section 32 report) Options 2 and 3 for irrigation-season takes are given full consideration. The resulting management options must reflect the community feedback obtained during the four community workshops; • That as option 2 results in constrained economic opportunities, that any indicated environmental benefits to the trout fisheries from taking this approach (over option 3) are more than insignificant, and are real and measurable. • That for winter-take options, that Council ensures the needs of the community are addressed and that resulting minimum flows reflect community feedback. It is unclear what additional measurable benefit to the brown trout fisheries will result from option 2, versus option 3. For these reasons, Federated Farmers considers option 3 (lower minimum flow) must be given serious consideration. • That the 13,000 l/s supplementary allocation reflects the needs of the community and feedback obtained during the four community workshops. Comment on S32 report - As no options other than those discussed or analysed within the evaluation report are considered, it is difficult for Federated Farmers to identify whether the suggested options appropriately reflect the community needs and desires.

Appendix 2

Proposed Plan Change 3B

(Pomahaka catchment minimum flow)

Section 32 Evaluation Report

Regional Plan: Water for Otago

This Section 32 Evaluation Report should be read in conjunction with Proposed Plan Change 3B (Pomahaka catchment minimum flow) to the Regional Plan: Water for Otago.

16 August 2014

Otago Regional Council

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Abbreviations used in this report

MALF	Mean annual low flow
ORC	Otago Regional Council
Proposed Plan Change 3B	Proposed Plan Change 3B (Pomahaka catchment minimum flow) to the Regional Plan: Water for Otago
RMA	Resource Management Act 1991
Water Plan	Regional Plan: Water for Otago (updated to 1 May 2014)

1 Introduction

Proposed Plan Change 3B (Pomahaka catchment minimum flow) seeks to improve the management of the Pomahaka catchment by identifying a primary allocation limit and minimum flow regime. It also addresses a supplementary minimum flow and allocation block size for the river.

The Pomahaka catchment has reliable rainfall and a low need for irrigation but, if climate and land use change, there may be increased demand for irrigation water which, without management, may put pressure on aquatic ecosystems, natural character and other instream values.

Section 32 of the RMA requires an evaluation of the realistically practicable options, assessing their effectiveness and efficiency and summarising the reasons for deciding on the proposed provisions. This report makes that assessment, and should be read in conjunction with the proposed plan change.

2 Background

2.1 The NPS for Freshwater Management 2011

The National Policy Statement on Freshwater Management 2011 (NPSFM) requires Council to prevent the over-allocation of water resources, by establishing environmental levels for all surface water bodies and aquifers in the region and ensuring the objectives within Otago's Water Plan give effect to the NPSFM objectives.

The Water Plan was made operative on 1 January 2004. Its objectives give effect to the NPSFM by recognising the need to provide for the water needs of Otago's communities and industries, while maintaining long-term water flows and levels in the region's water bodies. The `Plan achieves this by establishing primary allocation limits, supplementary blocks for surface water and aquifer maximum allocation limits for groundwater resources; with appropriate minimum flows and aquifer restriction levels. Catchments with primary allocation limit and minimum flow regimes are listed in Schedule 2A.

As the proposed plan change is intended to extend existing minimum flow arrangements to include the Pomahaka catchment, there will not be any evaluation of this Water Plan framework. This Section 32 evaluation reflects the implications of the plan change and evaluates the environmental, economic, social and cultural effects of the regime as applied to the Pomahaka catchment.

2.2 Pomahaka catchment flows and current allocation

The Pomahaka River catchment is located in Southwest Otago. It has a relatively high reliable rainfall, which reduces dependence on irrigation. Burkes Ford, the flow monitoring site in the lower Pomahaka has recorded the river having a mean flow of 26,800 l/s and a mean annual low flow (MALF) of 4,300 l/s.

Currently, the Pomahaka River is under-allocated in terms of Policy 6.4.2 of the Water Plan. The default primary allocation limit is 50% MALF under that policy, which equals 2,150 l/s. At present, 772 l/s is available for further primary allocation, as approximately 1,378 l/s is allocated in surface water take consents. Current allocation is approximately 30% of MALF, with further new applications being made occasionally. Therefore, it is considered that water taking is not yet having a significant adverse effect on instream values but, because this situation could change in the near future, there is community support for closing further primary allocation. Jowett and Hayes (2004) recommend that for rivers with greater than 30% of MALF allocated, more in-depth consideration is needed for the minimum flow.

Some current takes of groundwater are from alluvium connected to the river, so would be appropriately considered as primary allocation of surface water, as discussed in ORC Report 2014/0749. That report suggests these be considered as surface water in terms of Policy 6.4.1A(a).

2.3 Pomahaka catchment values

The Pomahaka River is recognised in Schedule 1A of the Water Plan as having a regionally significant presence of trout. This catchment and its Waipahi tributary are the only catchments identified for this in the Water Plan. Some consider the Pomahaka the most significant brown trout fishery in Otago. Schedule 1A recognises the catchment's significant trout and salmon spawning areas, and significant areas for development of juvenile fish, as well as its native fish and invertebrate diversity.

Consultation with iwi through Kai Tahu ki Otago and Te Ao Marama has helped identify cultural values of the river. Over recent years the ORC called a number of public workshops to identify the catchment values held by its community and by visitors. These values are described below. In addition, technical reports for this catchment have provided input to the process. The reports identify management flows to maintain habitat for adult brown trout and a number of other fish species.

The main community values identified were:

- The regionally significant brown trout fishery;
- Habitat for native fish including lamprey and longfin eels;
- Agricultural out-of-stream uses for stock drinking water and dairy shed supply;
- Recreational use;
- Amenity values;
- Irrigation for agricultural and horticultural purposes.

Adult brown trout fishery values were considered of highest significance.

A technique known as instream flow incremental methodology (IFIM) analysis has determined flow requirements for a number of fish species found within the Pomahaka catchment. Table 1 outlines these flow requirements at the Burkes Ford flow monitoring site.

Table 1. Flow requirements for fish species at the Burkes Ford flow monitoring site.

Fish Species	Optimum Flow (l/s)	Flow below which habitat declines (l/s)
Adult brown trout	13,000	7,500
Yearling brown trout	6,400	2,500
Brown trout fry	6,000	2,500
Galaxiid sp.	2,200	1,000
Upland bully	2,600	-
Common bully	3,000	2,000
Longfin eel	3,000	1,500
Shortfin eel	3,000	500

The optimum flow and flow at which habitat declines sharply for adult brown trout are higher than MALF. Therefore, the natural low flows of the Pomahaka River are restricting habitat for adult brown trout, even though a regionally significant fishery persists. Jowett (2009) has explained this type of situation as not uncommon: provided the river flows are above 90% of MALF, adult trout will be sustained and, thus, it is expected the adult trout fishery will be maintained.

The flow requirements for fish species and historic take restrictions for consent holders were presented at community workshops in 2010-2011. The workshops built further on this information and allowed the community to identify a number of values important to them, and the flows required to meet these values.

3 Options overview

The following sections discuss the costs and benefits of the options considered and provide a detailed analysis of the preferred option as required by Section 32 of the RMA.

3.1 Irrigation season take management options

The following four options are considered in developing a primary allocation limit and minimum flow regime that protects the values of the Pomahaka River. These options are briefly:

OPTION 1: Maintain the status quo

Option 1 describes the current situation. This option relies on "default" provisions in the Water Plan: default primary allocation limit and no catchment-wide minimum flow; connected groundwater beyond 100 m from perennial surface water body excluded from take calculations.

OPTION 2: Adopt a suggested primary allocation limit and minimum flow regime for the brown trout fishery

Option 2 proposes to set a minimum flow of 3,600 l/s (summer, primary) and a primary allocation limit of 1,000 l/s.

OPTION 3: Easier economic development

Option 3 proposes to set a minimum flow lower than 3,600 l/s (summer, primary) and a higher primary allocation limit than 1,000 l/s.

OPTION 4: More natural river flows

Option 4 proposes to set a minimum flow higher than 3,600 l/s (summer, primary) and a lower primary allocation limit than 1,000 l/s.

In Options 2 to 4, any takes of connected groundwater that can be considered surface water are included, which allows for greater accuracy of the effects of taking.

Note that if those who have primary allocation status consents have been allocated more water than the primary allocation limit established by this plan change, there is no policy in the Water Plan to remove that status. In many Otago catchments, primary allocation exceeds the primary allocation limit set by the Plan, but holders of those consents may continue to benefit from that primary allocation status.

3.1.1 Analysis of options

Option 1	Maintain the status quo
BENEFITS:	• No plan change required. • More water can be taken as primary allocation, allowing for increased irrigation opportunity.
COSTS/RISKS:	• Administrative inefficiencies through assessment to impose individual minimum flows or residual flows on a case-by-case basis with every application to take water, resulting in increased consent processing costs for applicants. • No encouragement for collaboration among those taking water when there is no whole-catchment minimum flow in place. • No certainty for maintaining aquatic ecosystem or natural character values when there is no environmental bottom-line set. • Default primary allocation limit allows for more water to be taken, without specific investigation of its sustainability. • Any increased taking will lead to low flows, including any minimum flow, being reached more quickly and frequently. This can lead to "flat-lining" where the river can stay at a particular flow for lengthy periods while all available water above that flow is taken.

Option 2	Adopt a suggested primary allocation limit and minimum flow regime for the brown trout fishery
BENEFITS:	• Little change in certainty and reliability of supply to current consent holders. • Reasonable economic opportunities based on taking water remain, with potential for employment in industries based on water takes. • Reasonable level of maintenance of aquatic ecosystem and natural character values. • Reduced potential for "flat-lining" of the river flow. • All existing primary allocation consent holders retain primary allocation

	status.
COSTS/RISKS:	• Constraints on taking water in a dry year may require some investment in water storage. • Fewer economic opportunities for new takers. • Some need to reduce current allocation to the primary allocation limit (which happens over time through attrition) before any further allocation to primary can be anticipated. • For consent renewal, primary allocation consent holders will be limited to no more water than they have historically taken (Policy 6.4.2A). • Plan change required.

Option 3	**Easier economic development**
BENEFITS:	• Economic opportunities based on taking water enhanced, with potential for employment in industries based on water takes or supporting industries; new employment opportunities provided to new takers. • Reduced need for investment in water storage. • Little need to reduce current allocation to the primary allocation limit, before any further allocation to primary can be anticipated. • All existing primary allocation consent holders retain primary allocation status. • If the new primary allocation limit is set higher than the current primary allocation, primary allocation consent holders can apply, upon consent renewal. for more water than they have historically taken (Policy 6.4.2A).
COSTS/RISKS:	• Lower level of maintenance of aquatic ecosystem and natural character values. • Reduction in economic opportunities to current consent holders, from lower certainty and reliability of supply, as more new primary consents could be granted, and more rationing would be required during low river flows. • Increases potential for "flat-lining" of the river flow. • Plan change required.

Option 4	**More natural river flows**
BENEFITS:	• Greater reduction in the potential for "flat-lining" of the river flow. • Higher level of maintenance of aquatic ecosystem and natural character values. • Increase in certainty and reliability of supply to current consent holders as fewer new primary consents granted. • All existing primary allocation consent holders retain primary allocation status.
COSTS/RISKS:	• Economic opportunities based on taking water constrained, with potential for no growth in, or reduction in, employment in industries

	based on water takes; fewer economic opportunities for new takers. • Increased constraints on taking water in a dry year requiring significant investment in water storage. • Reduces the amount of water available for out-of-stream uses during low flow periods. • Greater need to reduce current allocation to the primary allocation limit, before any further allocation to primary can be anticipated. • For consent renewal, primary allocation consent holders will be limited to no more water than they have historically taken (Policy 6.4.2A). • Plan change required.

3.2 Winter season take management options

The following two options are considered in developing a primary allocation minimum flow regime for the values of the Pomahaka River over the winter period. These options are briefly:

OPTION 1: Maintain the status quo

Option 1 describes the current situation. This option relies on "default" provisions in the Water Plan: no catchment-wide minimum flow; connected groundwater beyond 100 m from perennial surface water body excluded from take calculations.

OPTION 2: Adopt a suggested primary minimum flow for winter to provide for spawning requirements of the brown trout fishery

Option 2 proposes to set a minimum flow of 7,000 l/s (from May to September, for primary allocation). Any takes of connected groundwater that can be considered surface water are included, which allows for greater accuracy of the effects of taking.

3.2.1 Analysis of options

Option 1	**Maintain the status quo**
BENEFITS:	• No plan change required.
COSTS/RISKS:	• Administrative inefficiencies through assessment to impose individual minimum flows or residual flows on a case-by-case basis with every application to take water, resulting in increased consent processing costs for applicants. • No encouragement for collaboration among those taking water when there is no whole-catchment minimum flow in place. • No certainty for maintaining aquatic ecosystem or natural character values when there is no environmental bottom-line set. • Minimum flow on some consents could allow taking that degrades habitat for spawning brown trout..

Option 2	**Adopt a suggested primary minimum flow for winter to provide for spawning requirements of the brown trout fishery**
BENEFITS:	• Little change in certainty and reliability of supply to current consent

	holders. • Retention of economic opportunities based on taking water, with potential for employment in industries based on water takes. • Maintenance of aquatic ecosystem and natural character values. • Near-optimum conditions maintained for brown trout spawning.
COSTS/RISKS:	• A single minimum flow throughout the year for primary allocation takes would provide ease in administration but no environmental benefits. • Plan change required.

3.3 Supplementary allocation management options

The following two options are considered in developing a year-round supplementary allocation block and minimum flow regime in the Pomahaka River. One is the status quo, the other is a suggested supplementary allocation block with an associated minimum flow. These options are briefly:

OPTION 1: Maintain the status quo

Option 1 describes the current situation. This option relies on the "default" minimum flow provisions in Policy 6.4.9(a) of the Water Plan if water is applied for in excess of the primary allocation limit; connected groundwater beyond 100 m from perennial surface water body excluded from take calculations.

OPTION 2: Establish a minimum flow for supplementary allocation of 13,000 l/s with a block size established by the existing Water Plan provision

Option 2 proposes to set a supplementary minimum flow of 13,000 l/s (all year). Any takes of connected groundwater that can be considered surface water are included, which allows for greater accuracy of the effects of taking.

3.3.1 Analysis of options

Option 1	**Maintain the status quo (use of default minimum flow under Policy 6.4.9(a)**
BENEFITS:	• No plan change required.
COSTS/RISKS:	• In a catchment not significantly over-allocated, the default supplementary allocation and minimum flow arrangements in Water Plan Policy 6.4.9(a) provide an inequitable minimum flow, potentially lower than that for primary allocation, which is contrary to the logical implementation of the Plan's framework. • This would create administrative difficulty and costs if applicants relinquish primary allocation in favour of supplementary allocation. • Any such minimum flow would be calculated on a case-by-case basis for every application to take supplementary water, resulting in increased consent processing costs for applicants, and possible litigation.

Option 2	Establish a minimum flow for supplementary allocation of 13,000 l/s with a block size established by the existing Water Plan provision
BENEFITS:	• Reasonable economic opportunities based on taking water remain, with potential for employment in industries based on water takes. • Maintenance of natural flow variability and the aquatic ecosystem and natural character values supported by that variability. • Optimum flow for adult brown trout fishery is not reduced by supplementary allocation takes. • Flow requirements of native fish is not reduced by supplementary allocation takes.
COSTS/RISKS:	• Constraints on new takes of water in a dry year requires investment in water storage to supply all irrigation needs. • New takes may have no water availability for 58% of a typical year. • Plan change required.

4 Preferred options: Maintaining a brown trout fishery while enabling economic wellbeing

The following regime is recommended to provide for the habitat of the regionally significant adult brown trout fishery, while enabling an appropriate level of access to water for economic uses. The preferred options above are those that provide the most sustainable balance between instream and out-of-stream benefits and costs.

Minimum flow monitoring site	Burkes Ford
Primary minimum flows	3,600 l/s (October to April)
	7,000 l/s (May to September)
Primary allocation limit	1,000 l/s
Supplementary minimum flow (Block 1)	13,000 l/s
Supplementary allocation (Block 1)	500 l/s

4.1 Detailed assessment

Primary minimum flow

The summer minimum flow of 3,600 l/s proposed is the flow recommended for the habitat of the regionally significant adult brown trout fishery. It will protect the instream values from taking when the river is naturally flowing low. This minimum flow is also in the flow range for maintaining habitat for native fish species present in the river.

The summer minimum flow gives a reasonable surety of supply to current consent holders.

A minimum flow higher than the catchment's MALF of 4,300 l/s would be unlikely to be exceeded naturally throughout most of the irrigation season. Such a minimum flow would be

extremely restrictive to consent holders while having insignificant environmental benefit and is thus not considered to provide sustainable management of the water resource.

The winter minimum flow of 7,000 l/s is proposed to provide for adult trout habitat during the winter high flow period. This will provide a reasonable surety of supply to consent holders during the winter period.

Primary allocation limit and the effects of its associated minimum flows on taking

If primary allocation is greater than 1,000 l/s the river could reach the minimum flow more quickly and frequently. This will impact on aquatic ecosystems and other instream values, including recreational and amenity values. The suggested primary allocation limit will provide a reasonable reliability of supply to current consent holders.

Tables 2 and 3 show the effect of the proposed minimum flows over the period of record since 1962, assuming that the actual take from the catchment had been 1,000 l/s. The columns "Number of days for rationing" indicate on how many days there was less than an allocated 1,000 l/s available above the minimum flow, and thus rationing would have been required.

Where primary allocation exceeds the proposed limit of 1000 l/s, and taking reflects the greater allocation, river flows would be reduced and so the number of days without full availability would be greater than the figures in these tables and in Appendix A. Appendix A draws on 50 years of hydrograph records, to show historic water availability.

The table columns "Number of days no water is available" indicate the number of days where flows were less than the minimum flows of 3,600 l/s (Oct-Apr) or 7,000 l/s (May-Sept), so that no water would have been available for taking. The columns of "Greatest number of continuous days" shows for how long the longest stretch of no water availability lasted throughout a year in the period 1962 to the present.

Table 2: The effect of the proposed minimum flow and allocation limit on historic water availability in the Pomahaka River (Oct-Apr, minimum flow of 3,600 l/s)

	Number of days for rationing (Oct-Apr)	Number of days no water is available (Oct-Apr)	Greatest number of continuous days when no water available (Oct-Apr)
Average	**12.6**	**13.1**	**7.4**
Minimum	**0**	**0**	**0**
Maximum	**57**	**65**	**50**

Table 3: The effect of the proposed minimum flow and allocation limit on historic water availability in the Pomahaka River (May-Sept, minimum flow of 7000 l/s)

	Number of days for rationing (May-Sept)	Number of days no water is available (May-Sept)	Greatest number of continuous days when no water available (May-Sep)
Average	**2.1**	**3.4**	**2.4**
Minimum	**0**	**0**	**0**
Maximum	**19**	**19**	**17**

As can be seen in Table 2, under a Burkes Ford minimum flow of 3,600 l/s and 1,000 l/s being taken, water rationing would be required for 12.6 days in an average irrigation season, and 13.1 days where no water would be available at all to consented takes. Since records

began, the greatest number of irrigation season days when takes may have needed rationing was 57 in 1989/90. In 1972/3 no water would have been available for 65 days in total as the flow was below this minimum flow. These data are presented in Appendix A attached, which shows that the longest *continuous* period with no water would have been in that 1972/3 season with no water available for taking under consents for 50 of those 65 days. The next longest continuous periods would have been 42 days in 1977/8, 23 days in 1970/1, 22 days in both 1967/8 and 1998/9; then 21 days in the 2012/3 irrigation season. In those five decades the average continuous length of days with no water is estimated to have been 7.4 days and, of the last decade, in 8 years that length was 0 to 7 days.

Appendix A also shows the number of days in past irrigation seasons when rationing would have been necessary and there was water available, assuming no more than 1000 l/s is taken in total.

Table 3 summarises the situation outside the irrigation season, if a minimum flow of 7000 l/s had been applied during the period of record. In an average year, less than 4 days of low (or no) water availability occur in that period for primary allocation, and in the driest winter on record (1995) there would have been 19 days with no water available to consented takes, with a continuous stretch of 17 days. It is unlikely that more than 1000 l/s would be taken at any time outside the irrigation season, so the number of days without full availability would be fewer than the figures in Table 3

Note the numbers in Tables 2 and 3 are revised from those presented in Table 2 in the Consultation Draft version of this report, using a more sophisticated statistical method.

A single minimum flow across the catchment applying to all those in primary allocation provides the opportunity for collaboration within a water allocation committee. This arrangement can assist in rationing, which is intended to avoid a minimum flow being reached. Rationing in a collaborative arrangement can take into consideration unique requirements for water by, for example a small seasonal crop. The ORC may instigate its own rationing regime if a catchment-wide water allocation committee is not set up (Policies 6.4.12B - 6.4.13)

Note that while community water supply takes are within primary allocation, they are not currently subject to a catchment-wide minimum flow, but are normally subjected to a "residual flow" to prevent large portions of the flow of a river being taken at the point of take.

Supplementary regime

A supplementary allocation block size is proposed in accordance with Method 15.8.1A of the Water Plan. The associated minimum flow gives a reasonable surety of access to water for future consent holders, who will need to store taken water to ensure a guaranteed supply. It is adequate to ensure supplementary taking does not impact on the adult brown trout fishery.

This form of allocation helps protect availability of water for primary allocation consent holders while the system of subsequent blocks ensures 50:50 flow-sharing between supplementary takes and the river. It is intended to reflect the community concerns, and will leave more water in the river than the quantity that can be taken under supplementary status consents.

Groundwater

In all cases, takes of groundwater connected to the river's surface water are to be considered as effectively surface water, in terms of Policy 6.4.1A(a). This requires mapping of the ribbon aquifers associated with the river's surface water, and inclusion within Schedule 2C.

Socio-economic impact

It is considered that employment opportunities and other economic measures for activities based on taking water are provided for adequately by the preferred options. Those relying on existing consents will continue to have access to water where the water is used efficiently, and new developments will be able to take into consideration effects on the wider catchment values.

4.2 Summary of evaluation

The recommended regime is seen as the most effective and efficient option as it:

- Provides further water for future users as supplementary allocation;
- Will have minimal adverse effects on instream values and will avoid further degradation;
- Maintains the instream values as far as practicable in a dry year;
- Avoids the loss of natural flow variability, avoiding "flat-lining";
- Provides a reasonable surety of supply to primary allocation consent holders;
- Provides for recreational and amenity values, especially that dependent on brown trout.

Groundwater in the ribbon aquifers is treated as surface water. It is important to consider these as surface water in terms of Policy 6.4.1A(a) and subject them to the same allocation and minimum flow regimes as the surface water takes that are more directly affecting river flows. This way all takes are subject to the same management and can collaborate to avoid adverse effects on river flows.

It is considered that the proposed changes to the Water Plan will promote sustainable management of taking water within the Pomahaka catchment.

5 Consultation

Four community workshops were held to identify community values for the catchment, consider options and assess the effects of the options. Workshops were held in Tapanui, hosted by the ORC, on 20 April 2010 (20 attendees), 19 July 2010 (15 attendees), 5 May 2011 (15 attendees) and 6 May 2014 (31 attendees).

A Consultation Draft for the Plan Change was released from 4 June to 23 June 2014, with 7 written responses received. Many responses were positive, while one sought a higher primary minimum flow for October to April, and another sought a lower one for that minimum flow. A request that was beyond the intended scope of the Plan Change was made, and another request was for a minor correction. A meeting was held to discuss comments made by the Otago Fish and Game Council on 9 July 2014.

6 Conclusion

The purpose of the RMA is to promote the sustainable management of natural and physical resources. It is considered that Proposed Plan Change 3B (Pomahaka catchment minimum flow) enables the ORC to better manage the water resources of the Pomahaka catchment, now and for the future, with particular focus on the regionally significant brown trout fishery, while enabling water taking for economic development.

7 Supporting information and references

National Policy Statement on Freshwater Management 2011

Resource Management Act 1991

ORC Regional Plan: Water for Otago (updated to 1 May 2014)

ORC Reports to committee or Council:

2014/0749: South Otago basin aquifers

2014/0838: Consultation Draft Proposed Plan Change 3B (Pomahaka catchment minimum flow)

2014/0958: Notification of Proposed Plan Change 3B (Pomahaka catchment minimum flow)

ORC Technical Reports:

- *Management Flows for Aquatic Ecosystems in the Pomahaka River*, August 2006
- *The Water Resources of the Pomahaka and Waiwera Rivers*, June 2007
- *Groundwater resource management review of the South Otago Basins*, April 2014

Other reference material:

Jowett, I., 2009. Instream habitat and minimum flow requirements in the middle and lower Oreti River. Prepared for Environment Southland, Ian Jowett Consulting, Client Report IJ0903.

Jowett, I & Hayes, J. 2004. Review of methods for setting water quantity conditions in the Environment Southland draft Regional Water Plan. Prepared for Environment Southland, NIWA Client Report HAM2004-018.

ORC Pomahaka catchment information sheet, July 2010

ORC Pomahaka community workshop notes, 2010-2011

ORC Pomahaka catchment information sheet, May 2014

ORC Pomahaka community workshop notes and feedback forms, May 2014

Appendix A

Pomahaka catchment:

Analysis of hydrograph 1962–present, showing historic water availability

Irrigation season	No. days rationing (3,600 – 4,600 l/s)	No. days of no water (<3,600 l/s)	Max continuous days of no water (<3,600 l/s)
1962/63	13	28	10
1963/64	22	24	9
1964/65	0	3	1
1965/66	15	16	13
1966/67	25	2	1
1967/68	22	35	22
1968/69	17	13	3
1969/70	0	4	1
1970/71	17	42	23
1971/72	7	11	6
1972/73	14	65	50
1973/74	17	17	9
1974/75	17	21	15
1975/76	15	57	18
1976/77	23	28	13
1977/78	16	50	42
1978/79	0	0	0
1979/80	0	0	0
1980/81	32	18	10
1981/82	11	0	0
1982/83	0	0	0
1983/84	0	0	0
1984/85	9	0	0
1985/86	16	10	4
1986/87	0	0	0
1987/88	0	0	0
1988/89	9	0	0
1989/90	57	9	5
1990/91	0	0	0
1991/92	0	1	1
1992/93	0	0	0
1993/94	0	0	0
1994/95	34	19	8
1995/96	19	7	4
1996/97	0	0	0
1997/98	7	0	0
1998/99	28	27	22

1999/00	2	0	0
2000/01	31	12	10
2001/02	5	0	0
2002/03	19	14	14
2003/04	15	36	20
2004/05	0	0	0
2005/06	0	0	0
2006/07	8	3	3
2007/08	41	30	7
2008/09	17	10	5
2009/10	21	6	6
2010/11	6	0	0
2011/12	7	3	3
2012/13	11	48	21
Average	12.6	13.1	7.4
Minimum	0	0	0
Maximum	57	65	50

Appendix 3

Proposed Plan Change 3B (Pomahaka catchment minimum flow)

Regional Plan: Water for Otago

ISBN 978-0-478-37688-3

Otago Regional Council

16 AUGUST 2014

Introduction

The Otago Regional Council has prepared Proposed Plan Change 3B (Pomahaka catchment minimum flow) to the Regional Plan: Water for Otago. It proposes to establish minimum flows, allocation limits, and monitoring sites for the Pomahaka River. It will also establish an alluvial ribbon aquifer for the Pomahaka catchment and delete references to a Pomahaka Basin Aquifer.

This document should be read in conjunction with:
- Section 32 Evaluation Report; and
- The Regional Plan: Water for Otago operative as at 1 May 2014.

Amendments to the Regional Plan: Water as a result of Proposed Plan Change 3B are shown as follows: (additions underlined, deletions ~~struck out~~).

Any person may make submissions on this proposed plan. You may do so by Friday 12 September 2014.

Post to	Otago Regional Council Private Bag 1954 Dunedin 9054		
Fax to	(03) 479 0015		
Email to	policy@orc.govt.nz		
Deliver to	Otago Regional Council		
	70 Stafford Street Dunedin	William Fraser Building Dunorling Street Alexandra	The Station, First Floor Cnr Shotover and Camp Streets Queenstown

Submissions will be received until 5 pm, Friday 12 September 2014.

Table of Contents

Chapter, schedule and map headings relate to those in the operative Regional Plan: Water for Otago as at 1 May 2014

Proposed additions to the Plan are shown as <u>underlined</u> and proposed deletions are shown as ~~struck out~~.

6
Water Quantity

6.4 Policies applying to the taking of water

…

6.4.5 The minimum flows established by Policies 6.4.3, 6.4.4, 6.4.6, 6.4.9 and 6.4.10 will apply to resource consents for the taking of water, as follows:

(a) In the case of new takes applied for after 28 February 1998, upon granting of the consent; and

(b) In the case of any resource consent to take surface water from within the Taieri above Paerau and between Sutton and Outram, Shag, Kakanui, Water of Leith, Lake Hayes, Waitahuna, Trotters, Waianakarua, <u>Pomahaka,</u> and Lake Tuakitoto catchment areas as defined in Schedule 2A, subject to the review of consent conditions under Sections 128 to 132 of the Resource Management Act; and

(c) In the case of any existing resource consent to take surface water from the Luggate catchment area, Manuherikia catchment area (upstream of Ophir) and the Taieri catchment areas Paerau to Waipiata, Waipiata to Tiroiti and Tiroiti to Sutton, as defined in Schedule 2A, upon collective review of consent conditions within those catchments under Sections 128 to 132 of the Resource Management Act; and

(d) …

Explanation

This policy provides for the application of minimum flows to consents as follows:

1. New takes are subject to minimum flow provisions when the consent is granted.
2. For resource consents to take from rivers within catchments specified in Schedule 2A, except for the Luggate, Manuherikia (upstream of Ophir) and the Taieri between Paerau and Sutton, the minimum flow provisions apply, subject to the review of consent conditions under Sections 128 to 132 of the RMA..
3. …

12

Rules: Water Take, Use and Management

12.1 The taking of surface water

12.1.4.2 Taking of surface water as primary allocation in the following Schedule 2A catchment areas:
Lake Hayes (Map B1),
Shag (Map B3),
Trotters (Map B3),
Waianakarua (Map B3),
Taieri Catchment upstream of Paerau (Map B4),
Taieri Catchment Sutton to Outram (Maps B4 and B5),
Water of Leith (Map B5),
Waitahuna (Map B5),
Pomahaka (Maps B11, B13 and B15), and
Lake Tuakitoto (Map B5):
…

20
Schedules

2 Schedule of specified restrictions on the exercise of permits to take surface water

…

2A Schedule of specific minimum flows for primary allocation takes in accordance with Policy 6.4.3, and primary allocation limits in accordance with Policy 6.4.2(a) and 6.4.1A

The following schedule:

…

Catchment See Maps B1-B5	Monitoring Site (with MS number) See Maps B1-B5	Minimum flow (litres per second – instantaneous flow)	Primary Allocation Limits in accord with Policy 6.4.2(a) (litres per second – instantaneous flow)
Pomahaka catchment	Burkes Ford (MS 15)	3600 (October to April) 7000 (May to September)	1000 *Pomahaka catchment from confluence with Clutha/Mata-Au to headwaters*

2B Schedule of supplementary allocation blocks and specific minimum flows in accordance with Policy 6.4.9(c)

Catchment (See Maps B1–B5) & Supplementary Block Number	Minimum Flow (litres per second – instantaneous flow) at the monitoring site(s) (See Maps B1–B5)	Supplementary Allocation Block (litres per second – instantaneous flow)
Pomahaka catchment (first supplementary allocation block)	13000 At Burkes Ford (MS 15)	500

2C Schedule of aquifers where groundwater takes are to be considered as primary allocation, and subject to minimum flows of specified catchments in accordance with Policy 6.4.1A

Aquifer Name	Map Reference	Catchment to which primary or supplementary allocation limits apply, and minimum flows may apply*
Pomahaka Alluvial Ribbon Aquifer	C22 & C23	Pomahaka catchment**

* as given in Schedules 2A and 2B.

** as provided for by Policies 6.4.2, 6.4.3 and 6.4.9.

Table of minor and consequential changes

<table>
<tr><th>Plan Provision</th><th>Detail of proposed change</th></tr>
<tr><td>Page numbers</td><td>Update page numbers.</td></tr>
<tr><td>Footers</td><td>Change footer to read "Regional Plan: Water for Otago (Updated to <date to be inserted>)".</td></tr>
<tr><td>Title page</td><td>Change the date to read "Updated to <date to be inserted>".</td></tr>
<tr><td>ISBN number</td><td>Obtain new ISBN numbers for Regional Plan: Water for Otago.</td></tr>
<tr><td>Chronicle of key events</td><td>Add the following to the end of table:
<table>
<tr><th>Key event</th><th>Date notified</th><th>Date decisions released</th><th>Date operative</th></tr>
<tr><td>Plan Change 3B (Pomahaka catchment minimum flow) to the Regional Plan: Water</td><td>16 August 2014</td><td><Date to be inserted></td><td><Date to be inserted></td></tr>
</table></td></tr>
<tr><td>Table of contents [on page viii]</td><td>Update page numbers.</td></tr>
<tr><td>section 1.4</td><td>Proposed Plan Change 6A…

Proposed Plan Change 3B (Pomahaka catchment minimum flow) was notified on 16 August 2014, to introduce a minimum flow and allocation regime with monitoring site and a map of the Pomahaka Alluvial Ribbon Aquifer for the Pomahaka catchment. A total of ... submissions and … further submissions were received. Following the hearing, decisions on submissions received were released on … . Plan Change 3B was made operative on … .
…</td></tr>
<tr><td>Schedule 2A: Catchments of Welcome Creek, Luggate, Manuherikia, Waitahuna, Lake Tuakitoto</td><td>Amend fourth column entries as follows: "…catchment from ~~mouth~~ confluence with [Waitaki or Clutha/Mata-Au] River to headwaters."</td></tr>
<tr><td>Map numbers (B series)</td><td>Update and rationalise numbering of B series maps and index, as necessary. Correct all references to B series maps within Plan.</td></tr>
<tr><td>Map numbers (C series)</td><td>Update and rationalise numbering of C series maps and index, as necessary. Correct all references to C series maps within Plan.</td></tr>
<tr><td>Plan Maps: Maps C13 & C14</td><td>Delete reference to Pomahaka Basin Aquifer. There is no aquifer at this location. Replace with maps for Pomahaka Alluvial Ribbon Aquifer</td></tr>
</table>

Plan Provision	Detail of proposed change
Plan Maps: Map Index for C series	Amend "Map C Index – Aquifers, Groundwater Zones, Groundwater Protection Zones and Seawater Intrusion Risk Zones" to amend depiction of former maps C13 and C14, and delete former map C16 (Kuriwao Aquifer – *There is no aquifer at this location*.) Show all zones. Update references to Plan provisions in line with operative Plan Change 6A.

Proposed Maps are attached as follows:

Map B Index: Minimum Flow Catchment Boundaries and Monitoring Sites

B11
B13
B15

(adding new maps which show Pomahaka catchment)

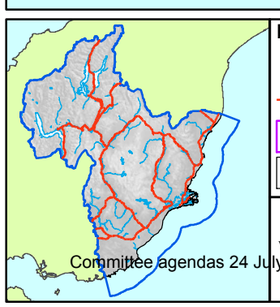
Map C Index: Aquifers, Groundwater Zones, Groundwater Protection Zones and Seawater Intrusion Risk Zones

C22 Pomahaka Alluvial Ribbon Aquifer *(northern part)*
C23 Pomahaka Alluvial Ribbon Aquifer *(southern part)*

(to replace former maps C13 and C14)

B1
B2
B3
B4
B5
B6
B7
B8
B9
B10
B11
B12
B13
B14
B15
B16

Wanaka
Lindis Catchment
Luggate Catchment
Arrowtown
Lake Hayes Catchment
Queenstown
Manuherikia Catchment Upstream of Ophir
Clyde
Alexandra
Ranfurly
Taieri Catchment Waipiata to Tiroiti
Welcome Creek
Oamaru
Kakanui Catchment
Taieri catchment Tiroiti to Sutton
Waianakarua Catchment
Trotters Catchment
Palmerston
Waikouaiti
Taieri Catchment Upstream of Paerau
Taieri Catchment Sutton to Outram
Chalmers
Water of Leith Catchment
Mosgiel
Brighton
Lawrence
Pomahaka Catchment
Waitahuna Catchment
Waihola
Milton
Lake Tuakitoto Catchment
Waiwera Catchment
Balcluth
Kaitangata



Key

- Towns
- StateHighway
- Otago TLA boundaries
- Regional Boundary

N W E S

20 10 0 20 40

Kilometres

Basemap: Land Information New Zealand Topo50 Maps

Minimum Flow Catchment Boundaries and Monitoring Sites Map B Index

Proposed Plan Change 3B (Pomahaka catchment minimum flow), 16 August 2014

Otago Regional Council

Manuherikia Catchment Upstream of Ophir

Taieri Catchment Paerau to Waipiata

Taieri at Paerau - MS5a

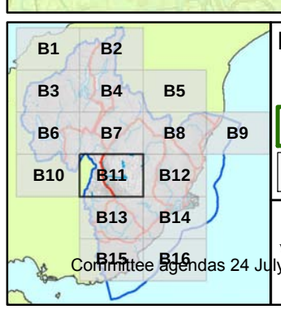
Taieri catchment Tiroiti to Sutton

Taieri Catchment Upstream of Paerau

Taieri Catchment Sutton to Outram

Pomahaka Catchment

Roxburgh



Key

- MinFlowMonitoringSites
- Catchment Boundary
- Otago Regional Boundary

N W E S

5 2.5 0 5 10

Kilometres

Minimum Flow Catchment Boundaries and Monitoring Sites Map B11

Proposed Plan Change 3B (Pomahaka catchment minimum flow), 16 August 2014

Otago Regional Council

Taieri Catchment Upstream of Paerau

Taieri Catchment Sutton to Outram

Pomahaka Catchment

Waitahuna Catchment

Waiwera Catchment

Lake Tuakitoto Catchment

Pomahaka at Burkes Ford - MS15

Waitahuna at Tweeds Bridge - MS9

Waiwera at Maws Farm - MS16

Lovells Creek at SH1 - MS10

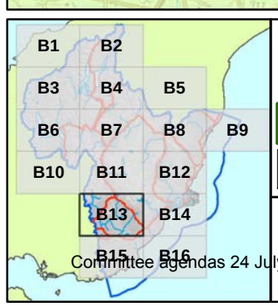
Beaumont

Heriot

Lawrence

Milton

Balclutha



Committee agendas 24 July 2014

Key

- MinFlowMonitoringSites
- Catchment Boundary
- Otago Regional Boundary

N W E S

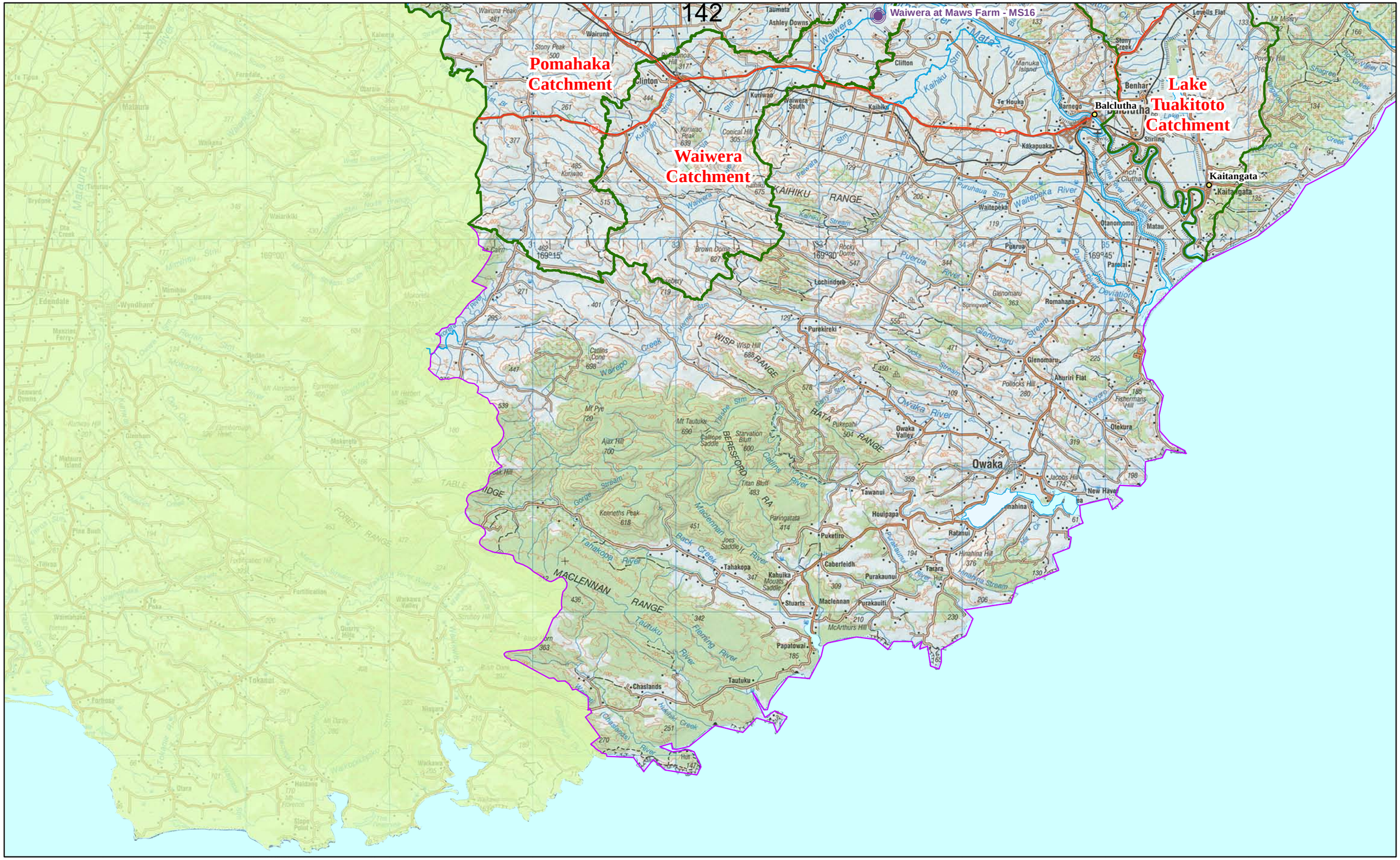
5 2.5 0 5 10

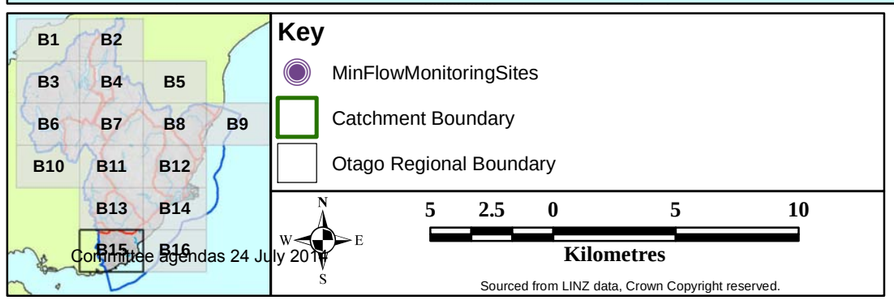
Kilometres

Minimum Flow Catchment Boundaries and Monitoring Sites Map B13

Proposed Plan Change 3B (Pomahaka catchment minimum flow), 16 August 2014

Otago Regional Council





Committee agendas 24 July 2014

Key

- MinFlowMonitoringSites
- Catchment Boundary
- Otago Regional Boundary

N
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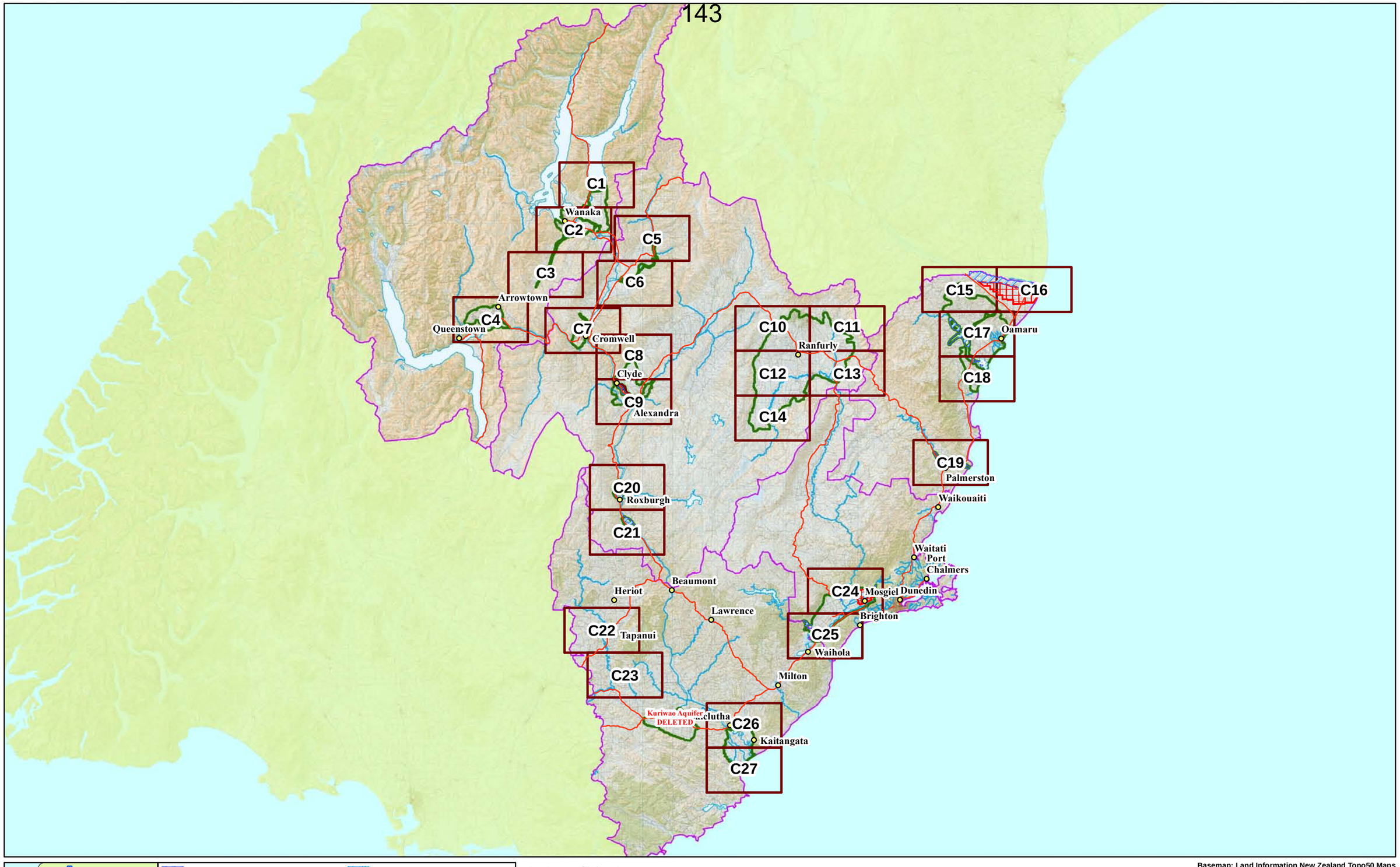
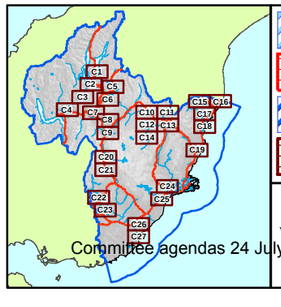
Basemap: Land Information New Zealand Topo50 Maps

Minimum Flow Catchment Boundaries and Monitoring Sites Map B15

Proposed Plan Change 3B
(Pomahaka catchment minimum flow),
16 August 2014

Otago Regional Council





Ground water protection zone A
Ground water protection zone B
Groundwater Zone A
Groundwater Zone B
Seawater Intrusion Risk Zone
Aquifers
Regional Boundary

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Map C index
Aquifers, Groundwater Zones, Groundwater Protection Zones, and Seawater Intrusion Risk Zones

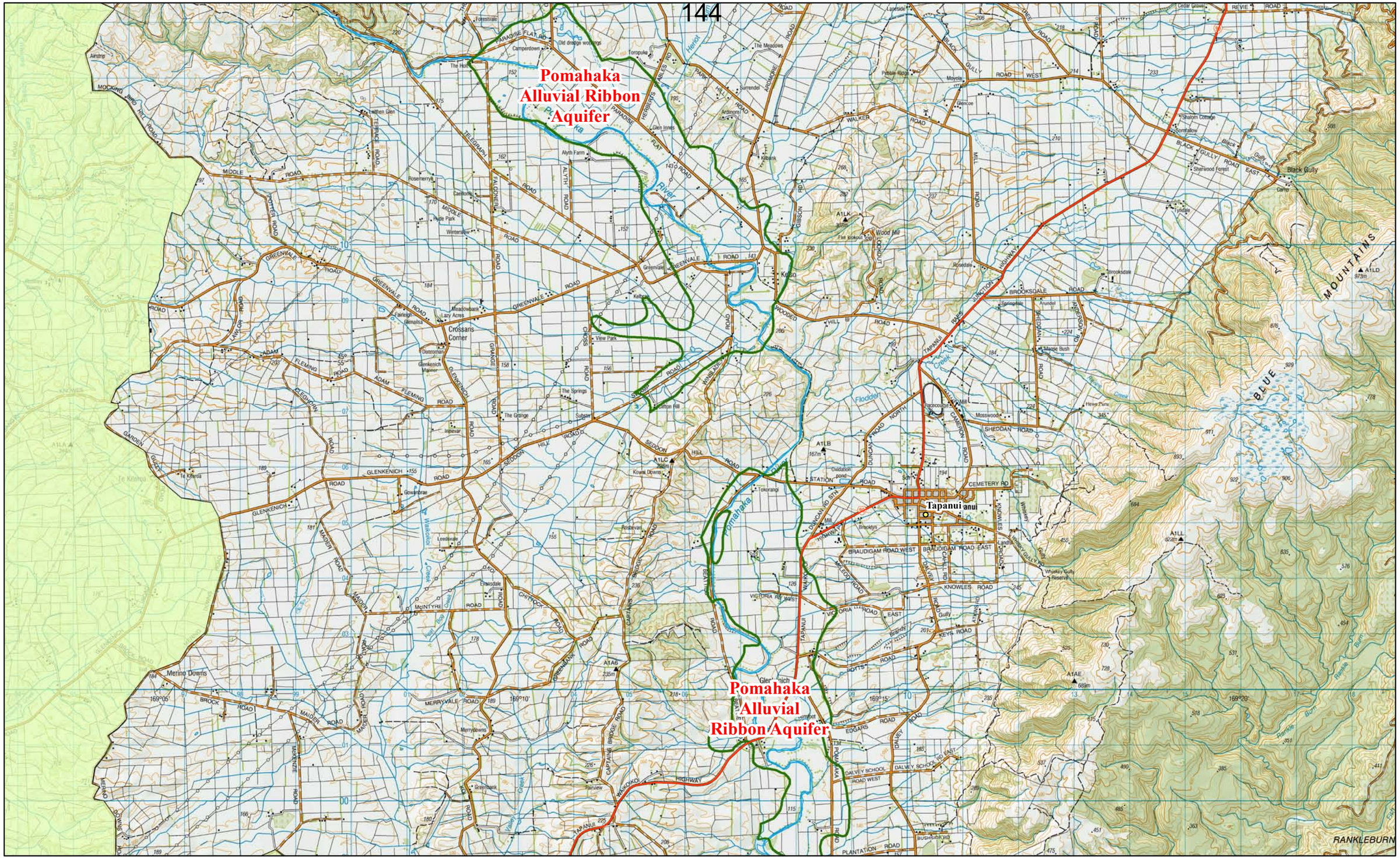
Refer to:

- **Schedules 2C and 3A**
- **Rules in 12.2, 12.A and 14.2**
- **Policies 6.4.1A, 6.4.10A, 6.4.10A1, 8.6.5, 9.4.1 and 9.4.18 – 20**

Basemap: Land Information New Zealand Topo50 Maps

Proposed Plan Change 3B
(Pomahaka catchment minimum flow),
16 August 2014

Otago Regional Council



Groundwater Protection Zone A
Groundwater Protection Zone B
Groundwater Zone A
Groundwater Zone B
Seawater Intrusion Risk Zone
Aquifer Boundary
Regional Boundary

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Map C22
Aquifers, Groundwater Zones, Groundwater Protection Zones, and Seawater Intrusion Risk Zones

Refer to:
- **Schedules 2C and 3A**
- **Rules in 12.2, 12.A and 14.2**
- **Policies 6.4.1A, 6.4.10A, 6.4.10A1, 8.6.5, 9.4.1 and 9.4.18 – 20**

Basemap: Land Information New Zealand Topo50 Maps

Proposed Plan Change 3B
(Pomahaka catchment minimum flow),
16 August 2014

Otago Regional Council

Pomahaka Alluvial Ribbon Aquifer

Pomahaka Alluvial Ribbon Aquifer

Pomahaka Alluvial Ribbon Aquifer

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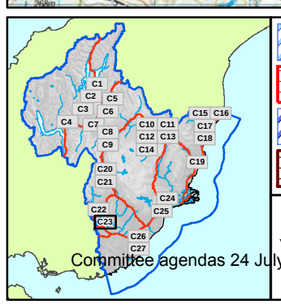

Committee agendas 24 July 2014

Groundwater Protection Zone A

Groundwater Protection Zone B

Groundwater Zone A

Groundwater Zone B

Seawater Intrusion Risk Zone

Aquifer Boundary

Regional Boundary

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Kilometres

Map C23
Aquifers, Groundwater Zones, Groundwater Protection Zones, and Seawater Intrusion Risk Zones

Refer to:

- Schedules 2C and 3A
- Rules in 12.2, 12.A and 14.2
- Policies 6.4.1A, 6.4.10A, 6.4.10A1, 8.6.5, 9.4.1 and 9.4.18 – 20

Basemap: Land Information New Zealand Topo50 Maps

Proposed Plan Change 3B
(Pomahaka catchment minimum flow),
16 August 2014

Otago Regional Council

REPORT

Document Id: A639821

Report Number: 2014/0903
Prepared For: Policy
Prepared By: Tom De Pelsemaeker, Policy Analyst
Date: 1 July 2014

Subject: **Notification of Proposed Plan Change 4C (Groundwater management: Cromwell Terrace Aquifer)**

1. Précis

This report presents a summary of the comments received on the Consultation Draft of Proposed Plan Change 4C (Groundwater management: Cromwell Terrace Aquifer) and recommends the notification of the Proposed Plan Change. The plan change seeks to set a maximum allocation volume for the Cromwell Terrace Aquifer.

2. Background

A Consultation Draft of the proposed plan change was released for comment under Clause 3 of the RMA Schedule 1, on Saturday 7 June 2014 (following Report 2014/0760). Council received 5 comments by email or letter by the due date of 23 June 2014.

3. Comments overview

There was general support for setting a maximum allocation limit of 4.0 Mm^3/yr for the Cromwell Terrace Aquifer in Schedule 4A of the Water Plan. All written comments are summarised in Appendix 1, and include the following requests:

- Amend Plan Change 4C by setting aquifer restriction levels for the Cromwell Terrace Aquifer in Schedule 4B of the Water Plan.
- Amend Plan Change 4C by imposing restrictions for consumptive groundwater takes from the Cromwell Terrace Aquifer in order to protect the operation of Lake Dunstan and Contact Energy Ltd's hydro-electric operations.

4. Evaluation

All the comments on the Consultation Draft of Proposed Plan Change 4C were given consideration. Further discussions were held with Contact Energy Ltd in order to clarify the proposal and explain any potential impacts of the proposal on Contact's hydro-electric operations.

None of the provisions have been amended given the generally positive responses to the proposal and the lack of benefit from setting restriction levels for the Cromwell Terrace Aquifer in Schedule 4B of the Water Plan.

5. Section 32 evaluation report

Before a plan change is notified, the Council must evaluate the alternatives, benefits and costs, as required by Section 32 of the RMA. Proposed Plan Change 4C (Groundwater management: Cromwell Terrace Aquifer) is the preferred approach to sustainably manage this water resource, while also providing for the local community's well-being. The Section 32 Evaluation Report has been amended to provide more clarity about the actual and perceived impacts and risks of the proposal and is attached as Appendix 2.

6. Conclusion

The Proposed Plan Change is attached as Appendix 3. The proposed changes should have immediate legal effect from notification, in accordance with Section 86B(3) of the Resource Management Act.

7. Next steps

The timeline below sets out the next steps in the plan change process:

Action	Date
Council approve public notification of Proposed Plan Change 4C (Groundwater management: Cromwell Terrace Aquifer)	Wed 6 August 2014
Public notification of proposed plan change	Sat 16 August 2014
Submissions close	Friday 12 September 2014
Public notification of decisions requested and call for further submissions	October 2014
Further submissions close	October 2014
Hold hearings	November 2014
Council decision	December 2014

8. Recommendations

1. That Proposed Plan Change 4C (Groundwater management: Cromwell Terrace Aquifer) and its accompanying Section 32 Evaluation Report be approved for notification in accordance with clause 5, Schedule 1 of the RMA.
2. That Proposed Plan Change 4C (Groundwater management: Cromwell Terrace Aquifer) be publicly notified on Saturday 16 August 2014.
3. That the Council establish a Hearing Committee to hear and make recommendations relating to Proposed Plan Change 4C (Groundwater management: Cromwell Terrace Aquifer).
4. That Proposed Plan Change 4C (Groundwater management: Cromwell Terrace Aquifer) will have immediate legal effect upon notification.

Fraser McRae
Director Policy Planning & Resource Management

Appendix 1

Overview of comments on the Consultation Draft of Proposed Plan Change 4C

#	Date received	Name/ Organisation	Position	Summary of reasons/comments
1	19 June 2014	Grant Richards Land & Water Ltd on behalf of Leyser Brothers Ltd 23 Ethereal Crescent Pisa Moorings RD3 Cromwell	Supports setting a maximum allocation volume of 4.0 Mm3/yr in Schedule 4A	• The current regime disregards input to the aquifer from the Kawarau Arm and Clutha Arm of Lake Dunstan. • Piezometer bore F41/02747 has a standing water level (SWL) close to the proposed cut off level which raises the question of relativity, accuracy of restriction level data at the piezometer and location of a ORC monitor bore and SWL at that site. • The aquifer with its significant available recharge and under allocation is unlikely to require monitoring. • If monitoring were to occur the SWL datum at the proposed monitor bore should be better understood by water users.
2	20 June 2014	Tim Vial Senior Planner Kai Tahu ki Otago Ltd Consultancy PO Box 446 Dunedin	Supports setting a maximum allocation volume of 4.0 Mm3/yr in Schedule 4A, subject to the setting of aquifer restriction levels in Schedule 4B.	• Kai Tahu acknowledge that the risk of permanent damage to the Cromwell Terrace Aquifer from the proposed increase in allocation is low. • The setting of aquifer restriction levels establishes a precautionary baseline for the allocation of groundwater resources.
3	20 June 2014	Jean Tilleyshort Director Sustainability, Central Otago Campus Manager Otago Polytechnic	Supports setting a maximum allocation volume of 4.0 Mm3/yr in Schedule 4A	• The proposal maintains the potential for economic development and community wellbeing. • The proposal provides clarity. • The proposal is unlikely to increase pressure on treated water supplies and infrastructure.
4	20 June 2014	Kim Reilly Regional Policy Manager South Island Federated Farmers of New Zealand PO Box 5242 Dunedin 9058	Supports setting a maximum allocation volume of 4.0 Mm3/yr in Schedule 4A, but only if this reflects the feedback from the consultation and the needs of local landholders	• The proposal enables socio-economic and cultural wellbeing of those within the catchment and the wider region, while ensuring reliable access to the resource.

5	23 June 2014	Daniel Druce Environmental Advisor Land, Environment and Consenting Contact Energy Ltd PO Box 25, Clyde 9341 Fruitgrowers Road, Clyde 9341	Amend Plan Change 4C to detail aquifer restrictions for new consumptive groundwater takes and replacement of consumptive groundwater takes from the Cromwell Terrace Aquifer.	• The proposal does not adequately consider effects on Contact Energy Ltd's hydro-electric operations. • Resource consent hearings for resource consents applications upstream of the Clyde Dam have considered the effect of groundwater takes with high degree of hydraulic connection to the Clutha River on the resource consents of Contact. In all cases ORC decision makers or Hearing Commissioners have considered that it is appropriate to place restrictions on new applications for consumptive takes of water to protect the operation of Contact Energy Ltd's hydro-electric operations. • The amendments requested by Contact Energy Ltd will provide a degree of protection for the operation of Lake Dunstan and Contact Energy Ltd's hydro-electric operations.

Appendix 2

Proposed Plan Change 4C (Groundwater management: Cromwell Terrace Aquifer)

Section 32 Evaluation Report

Regional Plan: Water for Otago

This Section 32 Report should be read in conjunction with the Consultation Draft of Proposed Plan Change 4C (Groundwater management: Cromwell Terrace Aquifer) to the Regional Plan: Water for Otago.

16 August 2014

Otago Regional Council

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Abbreviations used in this report

Clutha	Clutha River/Mata-Au
Council	Otago Regional Council
Mm^3/yr	Million cubic metres per year
NPSFM	National Policy Statement for Freshwater Management 2011
Proposed plan change / plan change	Proposed Plan Change 4C (Groundwater management for the Cromwell Terrace Aquifer)
RMA	Resource Management Act 1991
Water Plan	Regional Plan: Water for Otago (as at 1 May 2014)

Under the operative Water Plan, a *"maximum allocation volume"* was established for every aquifer in Otago. The *"maximum allocation volume"* defines the volume of water that is available for taking from an aquifer in the Water Plan. This quantity is a "maximum allocation limit" in terms of the National Policy Statement on Freshwater Management. Plan Change 4B (Groundwater Allocation), which was notified on 17 May 2014, proposes to replace the term *"maximum allocation volume"* with the term "*maximum allocation limit*".

This report will use the term *"maximum allocation limit"* when referring to the volume of water that is available for taking from an aquifer in the Water Plan.

1. Introduction

Proposed Plan Change 4C (Groundwater management: Cromwell Terrace Aquifer) builds on existing provisions of the operative Regional Plan: Water for Otago (Water Plan) for managing groundwater by setting a maximum allocation limit for the Cromwell Terrace Aquifer.

This report assesses the appropriateness of Proposed Plan Change 4C, as required by Section 32 of the RMA, and should be read in conjunction with the proposed plan change.

2. Background

2.1 The NPS Freshwater Management 2011

The National Policy Statement for Freshwater Management 2011 (NPSFM) requires Council to prevent the over-allocation of groundwater resources, by establishing environmental levels for all aquifers in the region and making sure the freshwater objectives within the Water Plan give effect to the NPSFM objectives.

The Water Plan Objectives give effect to the NPSFM by recognising the need to provide for the water needs of Otago's communities and industries, while maintaining long term groundwater levels and water storage in the region's aquifers. The Water Plan achieves this by establishing maximum allocation limits for groundwater resources and, where considered appropriate, setting aquifer restriction levels.

2.2 Groundwater management and allocation under the Water Plan

The maximum allocation limit defines the volume of water that can be taken annually from an aquifer by consents. When the combined yearly volume of consented takes equals the aquifer's maximum allocation limit, the aquifer is considered fully allocated and consents for new groundwater takes can no longer be granted.

The maximum allocation limit is set to maintain long term groundwater levels and avoid aquifer compaction. The maximum allocation limit for specified aquifers is set in Schedule 4A of the Water Plan. When no volume is set in Schedule 4A, the maximum allocation limit is determined as 50% of the mean annual recharge of the aquifer.

In addition, for some aquifers, restriction levels have been set in Schedule 4B of the Water Plan. These control the taking of groundwater during extended periods of low recharge.

3. Cromwell Terrace Aquifer

3.1. Current management regime and allocation

No maximum allocation limit in Schedule 4A has been set for the Cromwell Terrace Aquifer. Therefore, the maximum allocation limit for this aquifer is currently determined by the default as 50% of mean annual recharge or 1.2 Mm^3/yr. The combined annual volume of groundwater allocated in existing resource consents is estimated to be around 1.7 Mm^3/yr and no further groundwater can be allocated from the aquifer.

No restriction levels for this aquifer are currently set in Schedule 4B of the Water Plan.

3.2. Aquifer hydrology

In 2012 ORC carried out a review of the Cromwell Terrace Aquifer's hydrology and monitoring data. The study report concludes that the aquifer is currently receiving a modest volume of infiltration from irrigation, rainfall and inflow from the Kawarau arm of Lake Dunstan and discharging the bulk of any excess back into the Lake as groundwater seepage.

Groundwater modelling shows that the aquifer is in dynamic equilibrium with Lake Dunstan and compensates for increased groundwater extraction with increased infiltration of lake water. Therefore, the study report suggests that it is appropriate to set a tailored maximum allocation limit of 4 Mm^3/yr in Schedule 4A.

The 2012 study report also recommends setting aquifer restriction levels. Some stakeholders advocating for a precautionary approach to the management of the aquifer, have expressed a preference for a change to the Water Plan provisions to that effect. However, further investigation has shown that the setting of aquifer restriction levels is not necessary, as the risk of water table decline and permanent aquifer damage (e.g. aquifer compaction) is negligible.

Drawdown effects are not expected to occur for the following reasons:

1. The aquifer's high transmissivity and permeability allow groundwater levels to be consistently maintained across the aquifer; and
2. Under Contact Energy Ltd's current consent to dam the Clutha River at Clyde Dam, the operating level of Lake Dunstan must be maintained between 193.5 m above datum and 194.5 m above datum based on a 3 hour rolling average.[1]

The potential of localised or generalised water table decline is further mitigated in the following manner through the consent decision process:

1. Under the provisions of Schedule 5B of the Water Plan Council can adequately address the potential for localised water table decline and ensure that existing groundwater takes in areas of high demand are not being affected by bore interference.

[1] Consent No: 2001.385.V2 – Water permit to dam the Clutha River approximately 1.5 kilometres upstream from Clyde

2. Under the operative Water Plan provisions Council can also place conditions that restrict the taking of water during periods of low surface flows in the Upper Clutha catchment on any permit for a water take with a high degree of hydraulic connection to the Clutha or Kawarau Rivers (stream depletion effect of 5 litres per second or more). These consent conditions will assist with easing the pressure from water abstraction on the Cromwell Terrace Aquifer and connected surface waters bodies during periods of low recharge.

Despite the existence of large number of bores located across the aquifer, there are currently no known issues with generalised or localised water table decline. The setting of an aquifer restriction level would therefore only be recommended under the following circumstances:

1. A change to Contact Energy Ltd's obligation to maintain the operating level of Lake Dunstan must be maintained between 193.5 m above datum and 194.5 m above datum; or
2. Reliable information indicating a generalised or localised water table decline.

3.3. Important uses and values

Through stakeholder consultation, critical review of publications and further research the following values and uses were identified as being important to the local and wider community:

- ***Availability of water for taking***

  Twenty-two groundwater takes from the aquifer have been granted consent under the RMA, 19 of which are managed as groundwater takes and 3 of which are managed as surface water due to their proximity to Lake Dunstan.

  Consented groundwater takes provide for the irrigation of about 100 ha on the terrace, most of which has been developed as orchards and vineyards. Other activities reliant on consented groundwater takes include bottled water for export, frost fighting and supply to a community water scheme.

  In addition to these consented groundwater takes, approximately 40 bores are also operating under permitted activity rules, supplying domestic water and stock water to properties on the terrace.

  Groundwater supply on the Cromwell Terrace currently meets local demand. However, feedback from local community members indicates there is scope for further expansion of the land under irrigation, while changing market conditions could also drive the conversion of land into productive uses that require higher irrigation inputs. Stakeholder consultation indicates that there is general support for increasing the availability of more groundwater for a variety of uses on the Terrace as long as there would be no adverse impact on existing uses or known values supported by the Cromwell Terrace Aquifer.

- ***Hydro-electricity generation on the Clutha***

  The Cromwell Terrace Aquifer is characterised by a strong hydrological connection to the Clutha and Kawarau arms of Lake Dunstan. Lake Dunstan plays an important role in Contact Energy Ltd's hydro-electricity generation scheme on the Clutha, which generates 3,750 gigawatt-hours (GWh) of electricity per annum (nearly 9% of the New Zealand's annual generation). The lake levels are managed by Contact Energy Ltd to ensure constant water supply to the hydro-electric power stations at Clyde and Roxburgh.

- ***Natural, cultural and recreational values***

  No natural, cultural or recreational values are known to be dependant on the groundwater resources of the Cromwell Terrace.

  Lake Dunstan is widely recognised as an important recreational asset and various features in the surrounding area are well-known for their aesthetic and amenity values. Schedules 1A and 1D of the Water Plan also identify various ecosystem values and cultural values that are associated with nearby surface water bodies, such as the Low Burn, the Kawarau River and the Clutha River/Mata-Au (Clutha). However, flow/lake levels in these surface water bodies are not significantly influenced by inflows from the aquifer, nor are they susceptible to any significant surface flow loss due to water infiltration to the aquifer.

4. Section 32 evaluation

Section 32 of the RMA requires the consideration of alternatives and an assessment of the costs and benefits of adopting any objective, policy, rule, or method in the Water Plan. The following sections discuss the costs and benefits of the options considered and provide a detailed analysis of the preferred option.

4.1. Options overview

The following options were considered in developing the proposed plan change:

OPTION 1: MAINTAIN THE STATUS QUO

Option 1 describes the current situation. This option relies on the "default" maximum allocation limit provided for by the Water Plan.

OPTION 2: ADOPT A TAILORED GROUNDWATER MANAGEMENT REGIME

Option 2 proposes to set a maximum allocation limit of 4 Mm^3/yr in the Water Plan.

OPTION 3: MANAGE GROUNDWATER TAKES AS SURFACE WATER TAKES

Option 3 proposes to identify the Cromwell Terrace Aquifer in Schedule 2C of the Water Plan and seeks to manage all groundwater takes from the aquifer as surface water takes from the Kawarau River.

4.2. Analysis of Options

Table 1 summarises the costs and benefits of the three options described above.

Option 1	Maintain the status quo
BENEFITS:	• **Financial benefit** - No plan change required.
COSTS/RISKS:	• **Social & Economic Cost**– Does not allow for the further allocation of groundwater through resource consents and seeks to reduce the current allocation. This may result in the local community being unable to capitalise on future economic opportunities and improve their wellbeing. The productive use of land is restricted by the limited availability of groundwater and the need to supply water from alternative sources may increase water supply infrastructure costs. • **No benefit for natural, cultural or recreational values** – Despite its restrictive nature, option 1 is not expected to have any tangible benefit for the natural or cultural values present on the terrace or any values associated with nearby surface water bodies. • **Lack of clarity and certainty –** Using 50% of mean annual recharge as a measure to calculate the maximum allocation limit may fail to provide certainty, because of the risk in inconsistencies in calculating the mean annual recharge.
EVALUATION SUMMARY	No scope exists for further growth in economic sectors and activities reliant on the availability of groundwater and allocation from the aquifer is likely to be reduced over time as consents are renewed.

Option 2	Adopt a tailored groundwater management regime
BENEFITS:	• **Social & Economic Benefit** – Allows for further groundwater to be allocated from the aquifer. The local community is in a better position to pursue economic opportunities as the further allocation of locally available groundwater enables more productive land-uses to occur and minimises the cost of water transport infrastructure. Likely spin-off effects for the local and wider community include job creation in the local primary sector and ancillary industries. • **Greater clarity and certainty for plan users** – Having the maximum allocation limit stated in the Water Plan, provides more clarity and greater certainty by making the maximum allocation limit less susceptible to challenge. • **Promotes efficient resource use** – The recommended maximum allocation limit allows for various types of irrigation-dependant land-uses to take place on the terrace, provided the irrigation water is efficiently applied.
COSTS/RISKS:	• **Financial cost** - Plan change required.
EVALUATION SUMMARY	This option allows the local community to provide for their wellbeing, while scope exists for further growth in economic sectors and activities reliant on the availability of groundwater on the Cromwell Terrace.

Option 3	Manage groundwater takes as surface water takes
BENEFITS:	• **Social & Economic Benefit** – Allows for further water from the aquifer to be allocated as surface water from the Kawarau River. The local community can pursue economic opportunities as further allocation of locally available groundwater enables more productive land-uses to occur and minimises the cost of water transport infrastructure.
COSTS/RISKS:	• **Financial cost** - Plan change required. • **Limited clarity and certainty for plan users** – The aquifer would be subject to a more complex management regime than under Option 2. Plan users need to be aware of management regime and allocation status of connected surface water bodies under the Water Plan, in order to understand how the Cromwell Terrace Aquifer is being managed. Although the Water Plan currently states that no allocation limit or minimum flow apply to takes from the main stem of the Kawarau River, future changes to the management of this river may change how water from the aquifer is being allocated.
EVALUATION SUMMARY	This option allows the local community to provide for their wellbeing and enables future growth, but is more difficult to administer.

4.3. Recommendation

Option 2 - Adopt a tailored groundwater management regime is recommended for the following reasons:

- Option 2 is an appropriate and effective way of better achieving the objectives of the Water Plan and those outlined in the NPSFM
- By taking into account local conditions Option 2 should bring about a positive impact on the diverse social and economic values supported with the Cromwell Terrace Aquifer, while avoiding any adverse impact on the aquifer's long term health.
- Option 2 provides the greatest level of clarity and certainty for plan users and ensures consistency in plan administration.
- There is currently no need for setting aquifer restriction levels in Schedule 4B of the Water Plan, as there are currently no known issues with generalised or localised water table decline and the water levels of Lake Dunstan, the aquifer's dominant recharge source, are artificially maintained and only vary by up to one metre. The risk of existing groundwater takes being affected by bore interference in localised areas of high demand can be appropriately dealt with by Council by considering Schedule 5B of the Water Plan when new applications to take groundwater are received. This may result in limits being placed through consent conditions on new groundwater permits.

Council will continue monitoring groundwater levels across the aquifer and initiate a new future plan change to set aquifer restriction levels if further monitoring data would indicate a water table decline.

5. Consultation

Prior to preparing Proposed Plan Change 4C, a public workshop was organised in Cromwell on 18 March 2014. During the workshop Council staff presented local community members and interest groups with recent aquifer study results and discussed with them various options for the future management of the Cromwell Terrace Aquifer.

A Consultation Draft was released for comments on 7 June 2014. Five comments were received by 23 June 2014 and were summarised for ORC Committee Report 2014/0903.

The option of setting a tailored maximum allocation limit of 4 Mm3/yr in Schedule 4A of the Water Plan was widely endorsed by the people attending the workshop, as well as those that made comment on the Consultation Draft.

Feedback received during these processes also indicates that surety of supply for existing takes is a key concern. While some community members expressed support for setting restriction levels, others acknowledged that there were no known issues with water table decline and advised that further investigation is required before a monitoring bore is installed and restriction levels are included in the Schedule 4B of the Water Plan.

6. Conclusion

The purpose of the RMA is to promote the sustainable management of natural and physical resources. It is considered that Proposed Plan Change 4C (Groundwater management: Cromwell Terrace Aquifer) enables the ORC to better manage the groundwater resources of the Cromwell Terrace, now and for the future.

This report identifies that the preferred option is to undertake Option 2: Adopt a tailored groundwater management regime. This option meets the requirements of Section 32 of the Resource Management Act 1991, being an efficient means to achieve the improved, more focused management of groundwater takes from the Cromwell Terrace Aquifer with the greatest benefit, and insignificant risk.

7. Supporting information

National Policy Statement on Freshwater Management 2011

Resource Management Act 1991

ORC, Regional Plan: Water for Otago

ORC Reports to Committee or Council:

- 2012/0759: Groundwater Allocation of the Cromwell Terrace Aquifer, Central Otago
- 2014/0760: Proposed Plan Change 4C (Groundwater management: Cromwell Terrace Aquifer) - Consultation
- 2014/0903: Notification of Proposed Plan Change 4C (Groundwater management: Cromwell Terrace Aquifer)

ORC Technical Report:

- Cromwell Terrace Aquifer Study, 2012

Other material:

- ORC, Cromwell Aquifer Draft Information Sheet, 2014
- ORC, Cromwell Terrace Aquifer (Presentation to community meeting), 2014 (Available online www.orc.govt.nz)
- Consent No: 2001.385.V2 – Water permit to dam the Clutha River approximately 1.5 kilometres upstream from Clyde

Appendix 3

Proposed Plan Change 4C (Groundwater management: Cromwell Terrace Aquifer)

Regional Plan: Water for Otago

Otago Regional Council

16 August 2014
ISBN: 978-0-478-37686-9

Introduction

The Otago Regional Council has prepared Proposed Plan Change 4C (Groundwater management: Cromwell Terrace Aquifer) to the Regional Plan: Water for Otago. Proposed Plan Change 4C seeks to set a maximum allocation limit for the groundwater resources of the Cromwell Terrace Aquifer.

This document should be read in conjunction with:
- Draft Section 32 – Evaluation Report; and
- The Regional Plan: Water for Otago operative as at 1 May 2014.

On Amendments to the Regional Plan: Water as a result of Proposed Plan Change 4C (Groundwater management: Cromwell Terrace Aquifer) are shown as follows: (additions underlined, deletions ~~struck out~~).

On 17 May 2014, Proposed Plan Change 4B (Groundwater allocation) to the Regional Plan: Water for Otago was notified. Changes to the provisions of the Water Plan that are proposed under Plan Change 4B (Groundwater allocation) are shown in this document in *blue italics*.

Proposed Plan Change 4C will have legal effect from 16 August 2014 in accordance with Section 86B(3) of the Resource Management Act 1991.

Any person may make submissions on this proposed plan change. You may do so by sending written submissions to the Otago Regional Council. The submission must use the form provided, as required by clause 6, Schedule 1 of the Resource Management Act 1991. Copies of this form are available by phoning the Council on 0800 474 082, or can be found on the ORC website www.orc.govt.nz.

In your submission, please clearly state the provision(s) you are submitting on.

On-line at	www.orc.govt.nz follow links to Proposed Plan Change 4B		
Email to	policy@orc.govt.nz		
Post to	Otago Regional Council Private Bag 1954 Dunedin 9054		
Fax to	(03) 479 0015		
Deliver to	Otago Regional Council,		
	70 Stafford Street Dunedin	William Fraser Building Dunorling Street Alexandra	The Station, First Floor Cnr Shotover and Camp Streets Queenstown

Proposed Plan Change 4C (Groundwater management: Cromwell Terrace Aquifer)
to the Regional Plan: Water for Otago

August 2014

If you have any questions concerning this process:
Telephone (03) 474 0827;
0800 474 082

Submissions close at 5pm on Friday 12 September 2014.

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4. Schedule of specified restrictions on the exercise of permits to take groundwater

This schedule sets out restrictions that apply to the taking of groundwater from certain aquifers in Otago.

Schedule 4A identifies *maximum allocation limits* for the taking of groundwater from aquifers indentified in the C-series maps, in accordance with Policy 6.4.10A(a)(i) of this Plan. Schedule 4B identifies water levels at which the taking of groundwater will be restricted in accordance with Policy 6.4.10A(b) of this Plan. Schedule 4C identifies matters to be considered when making additions to these schedules through a plan change.

4A *Maximum allocation limits* for groundwater takes from aquifers

Aquifer Name	Map Reference	*Maximum Allocation Limit* (million cubic metres per year)
Cromwell Terrace Aquifer	C3	4
North Otago Volcanic Aquifer	C10	7

4B *[Unchanged]*

Table of minor and consequential changes

<table>
<tr><th>Plan Provision</th><th>Detail of proposed change</th></tr>
<tr><td>Page numbers</td><td>Update page numbers.</td></tr>
<tr><td>Footers</td><td>Change footer to read “Regional Plan: Water for Otago (Updated to <date to be inserted>)”.</td></tr>
<tr><td>Title page</td><td>Change the date to read “Updated to <date to be inserted>”.</td></tr>
<tr><td>ISBN number</td><td>Obtain new ISBN numbers for Regional Plan: Water for Otago.</td></tr>
<tr><td>Chronicle of key events</td><td>Add the following to the end of table:
<table>
<tr><th>Key event</th><th>Date notified</th><th>Date decisions released</th><th>Date operative</th></tr>
<tr><td>Plan Change 4C (Groundwater management: Cromwell Terrace Aquifer) to the Regional Plan: Water</td><td><Date to be inserted></td><td><Date to be inserted></td><td><Date to be inserted></td></tr>
</table></td></tr>
<tr><td>section 1.4</td><td>Proposed Plan Change 4C (Groundwater management: Cromwell Terrace Aquifer) sets a maximum allocation limit for the Cromwell Terrace Aquifer. It was notified on …, and a total of ... submissions and … further submissions were received. Following the hearing, decisions on submissions received were released on … . Plan Change 4C was made operative on … .</td></tr>
<tr><td>Schedule 4B</td><td>Replace the words “(m above mean sea level)” with “(metres above datum)” under the heading “Restriction levels” as follows:
<table>
<tr><th rowspan="2">Aquifer
See Maps D1–D4</th><th rowspan="2">Aquifer Reference Bore
See Maps D1–D4</th><th rowspan="2">Aquifer maximum height (metres above datum)</th><th colspan="3">Restriction levels (metres above datum ~~above mean sea level~~)</th></tr>
<tr><th>25% restriction or response in terms of Council recognised rationing regime*</th><th>50% ~~R~~restriction</th><th>100% restriction</th></tr>
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Otago Regional Council

REPORT

Document Id: A648116

Report Number: 2014/0942
Prepared For: Policy Committee
Prepared By: Policy and Transport Teams
Date: 4 July 2014

Subject: **Director's Report on Progress**

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1. Policy

1.1 Responses – National Policies, Strategies and Plans

In the seven weeks ending 4 July 2014, the following were received:

Agency	Number Received	Details
Ministry of Business, Innovation and Employment	1	National Statement on Science Investment
Local Government New Zealand (LGNZ)	1	National Monitoring System Priority Information

National Monitoring System Priority Information
In June 2014, the Ministry for the Environment (Mfe) announced that it was progressing the National Monitoring System with a staged approach. The MfE has determined priority information to be provided over the 2014/2015 in respect to various council based activities. This information will replace the RMA Survey of Local Authorities. Staff assessed the priority information requirements for 2014/2015 and identified that greater information is required for planning based work. This has required ORC to adapt its financial accounting for staff time and costs.

As a result of the MfE progressing with the NMS, councils were invited to provide LGNZ with feedback how the progress of the NMS has been received. LGNZ will make a further submission to the MfE based on the feedback it receives.

The following responses were made over the seven week period:

Document	Response Type	Details
National Monitoring System Priority Information	feedback	Feedback was provided to LGNZ confirming the concerns ORC raised in its submission to the MfE still stood and that ORC had made the necessary adaption to comply with the information requirements for 2014/2015

Otago Regional Council

1.2 Responses - Territorial Authority and Regional Authority Plan Changes and Resource Consent Applications

In the seven weeks ending 4 July 2014, the following were received:

Document	Number Received	Details
Consent applications	2	Queenstown Lakes District Council
Plan Change 49 – Earthworks	1	Queenstown Lakes District Council
Consent applications	2	Central Otago District Council
Consent applications	3	Dunedin City Council
Proposed Plan Change – Waitaki Catchment Water Allocation Regional Plan	1	Environment Canterbury

The following responses were made over the seven week period:

Proposal	Response Type	Issues
DCC – CJ Wilson [Subdivision and building platform establishment]	Submission – Oppose	Requested the application provide more information to the consent authority on natural hazards, particularly assessing flooding risk and provision for wastewater disposal.

1.3 National Policy Statement for Freshwater Management 2014

The National Policy Statement for Freshwater Management 2014 (NPSFM 2014) was released on 4 July 2014 by the Ministry for the Environment. It is largely unchanged from the proposed amendment which was released at the end of 2013. A plan change will be required to align the Water Plan with the new National Objectives Framework, and some changes need to be made to State of the Environment monitoring and resource consenting for point source discharges.

2. Resource Management Act: Policy Plans and Strategies

2.1 Review of Regional Policy Statement for Otago

As part of the first round of community consultation on the review, a discussion paper, Otago's Future, was distributed to all Otago households in early May. Over the two

weeks 19-29 May 2014, a series of public meetings and drop-in sessions were held in Queenstown, Alexandra, Dunedin, Balclutha and Oamaru.

Consultation comments closed on 20 June 2014, with 114 people and organisations completing comments forms. This information is now being collated and will be used to inform development of the draft RPS.

Key stakeholder consultation is ongoing and a manawhenua group meeting was held on 16 June 2014.

2.2 Regional Plan: Water for Otago

Proposed Plan Change 4B (Groundwater Allocation)
The proposed plan change was notified on Saturday 17 May 2014. Submissions closed on Tuesday 17 June 2014, with 14 submissions received in time, and 2 late submissions. The Summary of Decisions Requested and Call for Further Submissions was publicly notified on Saturday 28 June 2014, with further submissions closing on Friday 11 July 2014. One further submission has been received already. A Hearing Committee must now be established for the hearing of submitters.

Minimum flow and aquifer allocation proposals
Minimum flow and allocation regimes are being developed for a number of catchments and aquifers.

The following progress has been made over the past 7 weeks:

Catchment/Aquifer	Action
Waikouaiti River	The Consultation Draft is being finalised.
Waiwera River	The Consultation Draft is being prepared, and will be presented, after considering a request from the workshop for a slightly higher primary summer minimum flow.
Benger Burn and Ettrick Basin aquifer	No action has been taken over the past 7 weeks.
Lindis River and connected aquifers	The Consultation Draft closed for comments in terms of clause 3, Schedule 1 RMA on 23 May 2014. Comments were received from 24 people. As a result of feedback, the proposed minimum flow regime is being revised, and will be presented back to a Council workshop before a further public meeting is held. Notification has been deferred in the interim.
Pomahaka River and connected ribbon aquifer areas	The Consultation Draft was released under clause 3, Schedule 1 RMA, on 4 June 2014. Comments were received from 7 people. See report 2014/0958, which proposes that the plan change is notified in August.
Cardrona River and Wanaka Basin Cardrona Aquifer	No action has been taken over the past 7 weeks. A community workshop will be arranged later in 2014.

Manuherikia River and connected aquifers	No action has been taken over the past 7 weeks. The first workshop on community values will be organised once the Manuherikia Water Strategy group have indicated that they are ready to meet with the wider community.
Cromwell Terrace Aquifer	The Consultation Draft was released under clause 3, Schedule 1 RMA, on 4 June 2014. Comments were received from 5 people. See Report 2014/0903, which proposes that the plan change is notified in August.
Earnscleugh Aquifer	No action has been taken over the past 7 weeks.
Hawea Basin Aquifer	A community workshop is planned for August to discuss community values and aquifer modelling already undertaken.
Maniototo Aquifer	A community workshop will be held on 21 July 2014 to discuss aquifer values and seek involvement from the community in undertaking the scientific study of the aquifer over the coming months.
Pisa Aquifer	A community workshop is planned for August discuss aquifer values and seek involvement from the community in undertaking the scientific study of the aquifer over the coming months..
Roxburgh Aquifer	A community workshop is planned for August to discuss aquifer values and seek involvement from the community in undertaking the scientific study of the aquifer over the coming months.

4. Recommendation

That this report is noted.

Fraser McRae
Director Policy Planning and Resource Management

OTAGO REGIONAL COUNCIL

Agenda for a meeting of the Regulatory Committee to be held in the Council Chamber, 70 Stafford Street, Dunedin on Thursday 24 July 2014 following the Policy Committee meeting

Membership:

Cr Sam Neill (Chairperson)
Cr Gerrard Eckhoff (Deputy Chairperson)
Cr Graeme Bell
Cr Doug Brown
Cr Louise Croot MNZM
Cr Michael Deaker
Cr Gary Kelliher
Cr Trevor Kempton
Cr Gretchen Robertson
Cr Bryan Scott
Cr David Shepherd
Cr Stephen Woodhead

Apologies: **Cr Gretchen Robertson**

Leave of Absence:

In attendance:

Please note that there is an embargo on agenda items until 8.30 am on Thursday 22 July.

CONFIRMATION OF AGENDA

PUBLIC FORUM

MINUTES

The minutes of the meeting held on 4 June 2014, having been circulated, for adoption

Matters arising from minutes

Otago Regional Council

ITEMS FOR NOTING

Item 1
2014/0917 **Biosecurity and RMA Monitoring Report.** DEMO, 10/7/14

Reporting on water, air, pest, and contaminated site environmental monitoring and incidents for the period 1 May to 12 June 2014.

Item 2
2014/0945 **Consent processing, consent administration and Building Control Authority update.** DPPRM, 4/7/14

Detailing consent processing, consent administration and building control authority activity for the period 19 May to 30 June 2014.

Item 3
2014/0936 **RMA, Biosecurity Act and Building Act Enforcement Activities.** DPPRM, 3/7/14

Detailing Resource Management Act 1991, Biosecurity Act 1993 and Building Act 2004 enforcement activities undertaken by the Otago Regional Council for the period 14 May to 30 June 2014.

Item 4
2014/1005 **Objection hearing – Strath Taieri Irrigation Group (2007.310).** DPPRM, 11/1/14

Noting the outcome of the Objections Committee hearing of the objection on costs lodged by the Strath Taieri Irrigation Group.

OTAGO REGIONAL COUNCIL

Minutes of meeting of the Regulatory Committee held in the Council Chamber, 70 Stafford Street, Dunedin on Wednesday 4 June 2014 commencing at 10.00 am

Present: **Cr Gerrard Eckhoff** (Chairperson)
Cr Graeme Bell
Cr Doug Brown
Cr Louise Croot MNZM
Cr Michael Deaker
Cr Gary Kelliher
Cr Trevor Kempton
Cr Gretchen Robertson
Cr Bryan Scott
Cr David Shepherd
Cr Stephen Woodhead

One minute's silence was observed to note the passing of Suzanne Bodeker, wife of Chief Executive Peter Bodeker.

Cr Bell noted the passing of Mr Tommy Thompson, who had had long local government experience in Central Otago.

Leave of Absence: **Cr Sam Neill**

In attendance: **Wayne Scott**
Jeff Donaldson
Fraser McRae
Gavin Palmer
Janet Favel

CONFIRMATION OF AGENDA

There were no changes to the agenda.

MINUTES

The minutes of the meeting held on 16 April 2014, having been circulated, were adopted on the motion of Crs Croot and Robertson.

Matters arising from minutes

There were no matters arising from the minutes.

Otago Regional Council

ITEMS FOR NOTING

Item 1
2014/0819 **Biosecurity and RMA Monitoring Report.** DEMO, 22/5/14

The report detailed water, air, pest, and contaminated site monitoring and incidents for the period 22 March to 30 April 2014.

The following items were discussed:
1.1.2 Water metering
Mr Donaldson explained that abatement notices issued from 1 July would require consent holders who had not installed a water meter to cease taking water, and any breach would result in an instant fine. Abatement notices generated during June would require consent holders to cease and desist from taking water from the beginning of the next irrigation season, and this action had been publicised.

Delays caused by the paucity of installers were noted, but the importance of quality installation was also pointed out. Mr Donaldson agreed, but noted that to date consent holders had had two years to get meters installed. In response to a question about enforcement where stockwater was required, Mr Donaldson advised that animal welfare issues would be dealt with on a case by case basis.

3.1.1 Rabbits
There was concern that the Maximum Allowable Level (MAL) for rabbits was exceeded on almost 90% of properties inspected. Mr Donaldson explained the rabbit numbers were now at pre-virus levels. A number of property owners were carrying out control activities, but there were control problems particularly on properties surrounded by lifestyle blocks, and noted that a lot of lifestyle block owners did not understand the importance of rabbit-proof fences. Increased rabbit numbers could also result from where work was not carried out over the whole of the property, or where there were absentee landowners. Mr Donaldson advised that a number of rabbit-control workshops for lifestyle block owners had been run.

In response to a question Mr Donaldson explained that the South Island Pest Management Strategy would be used to remove the Otago middle step of requirement for a management plan, and go straight to a notice of direction, which would enable the ORC to proceed more quickly. There was concern that ORC did not have sufficient resources for this work. Mr Donaldson explained that there was both in-house and contractor resource. He also noted that the ORC made its carrot cutter available to contractors, and some were considering the use of 1080 pellets, which was the most effective treatment. However he noted concern that sublethal dosing had been applied.

A question was raised about appropriate conditions on subdivisions. Mr Donaldson explained that Council submitted on subdivision consent

applications seeking conditions be applied requiring the provision of rabbit-proof fencing.

3.1.2 Rook control
In response to a question Mr Donaldson explained that rooks were considered a pest because of their detrimental effect on new grass, and Canterbury and Southland Regions were also trying to contain them. He noted that poisoning of nests had worked well.

5. Operations
The opening of the bar at the mouth of the Clutha River/Mata-Au was noted. Mr Donaldson explained that this was carried out because the river was flooding back into Inchclutha and Kaitangata. The work was assisted by Contact Energy and Mr Scott also noted that this outlet was maintained as part of the flood control scheme.

Cr Croot moved
Cr Bell seconded

That the report be noted.

Motion carried

Item 2
2014/0858 **Consent processing, consent administration and Building Control Authority update.** DPPRM, 23/5/14

The report detailed consent processing, consent administration and building control authority activity for the period 3 April to 16 May 2014.

Cr Woodhead moved
Cr Scott seconded

That the report be noted.

Motion carried

Item 3
2014/0830 **RMA, Biosecurity Act and Building Act Enforcement Activities.** DPPRM, 14/5/14

The report detailed Resource Management Act 1991, Biosecurity Act 1993 and Building Act 2004 enforcement activities undertaken for the period 29 March to 13 May 2014.

Cr Croot moved
Cr Kelliher seconded

That the report be noted.

Motion carried

Item 4
2014/0843 **Appointment of hearing commissioners.** DPPRM, 20/5/14

The report listed hearing commissioners appointed for the period to 20 May 2014.

Cr Croot moved
Cr Shepherd seconded

That the report be noted.

Motion carried

A query was raised about appointment of ORC Councillors to hear ORC resource consent applications. It was explained that the majority of consent applications for non controversial work could be decided by a staff panel, however where these applications were lodged by the ORC they were heard by ORC Councillor commissioners to avoid perceptions of bias. Where the issue was controversial, external commissioners would be appointed. It was pointed out that ORC had followed this practice for about 20 years. Mr McRae commented that the Making Good Decisions training for hearing commissioners included a component on impartiality and openness.

The meeting closed at 10.44 am.

Chairperson

Otago Regional Council

REPORT

Document Id: A642254

Report Number: 2014/0917
Prepared For: Regulatory Committee
Prepared By: Martin King, Manager Environmental Services
Scott Maclean, Manager Operations
Sarah Ibbotson, Manager Environmental Data and Planning

Date: 10 July 2014

Subject: **Biosecurity & RMA Monitoring Report for the period 1 May to 12 June 2014**

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1. Water Quality and Quantity

1.1 Regional Plan: Water and Resource Consent Monitoring

1.1.1 Audit Monitoring

An audit was carried out on the Downer Asphalt Plant on Parry Street, Dunedin, on 5th June 2014 and the plant was given a Grade 3 due to particulate emission monitoring tests being overdue.

Audits were carried out on the Maniototo Irrigation Company Logan Burn Dam on 22nd May 2014. The work had been completed at the time and the site was left clean and tidy. Some further details have been supplied by the Consent Holder.

An Audit was carried out on Keep It Clean on 30th June 2014. Some information is to be forwarded but on the whole there were no concerns and the Audit Report is yet to be completed.

Audits were carried out on the Fulton Hogan Bitumen and Asphalt Plants on 1st July 2014. There were no major concerns.

1.1.2 Water Metering

Steady progress with water meter installation has occurred over this reporting period.

Council staff have issued formal warnings to 55 consent holders who have not contacted the Council to confirm that water measuring equipment has been installed. Following on from the formal warnings there have now been 34 Recommendations for Enforcement Action (REA) put forward, with the expectation of having an abatement notice issued specifying a date to comply. In addition the abatement notice states that no water can be abstracted until the consent is compliant. If the consent is still non-compliant by the date specified (in most cases 1 August 2014) further enforcement action will be considered. The REAs are being aimed at consent holders that haven't contacted Council.

There is an expectation that more installation forms will be received as water use data is sent to Council which is due by 31 July.

51 Consents are non-consumptive and are not subject to the regulations, however some of these do require measuring as a consent condition. The remaining 10% of consents are being researched as many of these have not been exercised for more than 5 years and may have lapsed or can be cancelled.

1.1.3 Oceana Gold (NZ) Ltd

A site visit was completed with the purpose of discussing on going performance monitoring requirements, viewing of the large slip which occurred in Frasers Pit in late April, and to view the newly commissioned Tailings Dam. All work in the open pit had ceased with efforts concentrated on re-establishing the access road adjacent to the underground mine. Frasers Underground was not affected by the slip. The new Tailings Dam is nearly completed to its consented height, with additional construction proposed for later in 2014 to raise the embankment further. Water management on site was discussed due to the recent North Otago flood event in late April.

The annual bond proposal has been reviewed by Damwatch Engineering Ltd and their recommendations submitted to ORC. Alongside the review of the bond sum there are dam performance criteria, lifespan and closure requirements to be discussed further internally by ORC and a policy developed on these matters.

The recently consented Coronation development is due to commence in late 2014, due to the slip in Frasers Pit halting mining in this location. It was confirmed during the site visit that the annual work programme and proposed five year mining plan will be reissued to ORC accordingly to reflect these changes.

1.2 State of Environment Monitoring

Periods of significant rain in the headwaters of the Southern Lakes during May caused Lake Wakatipu to reach 310.58m, 2cm below the first high water ORC internal alert. Flows in the Clutha River remained high through May peaking 1286 cumecs at Balclutha on 30th May. Taieri River at Outram reached first alarm level (170 cumecs) on 9th May.

Negotiations with NIWA are being finalised for ORC to take over the operation of Pomahaka at Burkes Ford, Cardrona at Mt Barker and Lindis at Lindis Peak hydrological stations as NIWA moves to divest its self from routine hydrological network operations.

Repairs to the Waianakarua at Browns flow station that were sustained during the Easter flood were completed 7th May.

2. Air Quality

2.1 State of the Environment Monitoring

A fault with the air quality monitor at Milton was unable to be repaired so the unit from Balclutha was shifted to Milton while the unit has been sent for repair. All other monitors were operational over the period.

2.2 Clean Heat Clean Air project

26 new clean heating appliances have been installed since April 2014 in Air Zone 1 towns of Alexandra, Clyde, Cromwell, Arrowtown and Milton.

The Clutha District Council has continued its funding support of the Clean Heat subsidy for the replacement of non compliant fires in the Milton township.

3. Pest Management Strategy Implementation and Biosecurity Compliance

3.1.1 Rabbits

Inspections for compliance with the Pest Management Strategy maximum allowable level (MAL) for rabbits have been ongoing.

Overall 8,700ha have been inspected covering 57 properties in the rabbit prone areas of Cromwell, Tarras, Roxburgh and Ettrick. Of the 57 properties inspected, 56 were identified as having areas that breached the MAL and only 1 was fully compliant, indicating there are still high levels of non-compliance in historic areas. This needs to be viewed in the light of the Council's inspection regime which actively focuses on properties that are rabbit prone. This equates to 1414ha of non compliant land with 7286ha being compliant, representing an area of non compliance of 19.4% over the total area inspected.

A total of 56 rabbit control programs have been requested, return rates have been good with 38 plans being returned and others still within the acceptable written requirement period. Of those returned there is generally a good standard of program being proposed by landholders. Staff have been actively following up overdue plans and working with some landholders where their program forms a key component within an area-wide program and have in some instances required negotiated adjustments of landholders' commitments to fit in with Council's objectives.

Winter poison programmes have commenced.

4. Operations

4.1 Contract Management

One TBfreeNZ contract (Teviot River) was completed during this reporting period and passed on the first performance monitor. Two others (Toko / Kaitangata and Silverpeaks) are nearing completion.

Regional Services was awarded a total of 7 possum control contracts for the 2014/15 financial year. They were: Bendigo, Tarras, Chatto Creek, Greenland, Locharburn - Input, Locharburn - Output and Adams / Milton Flats. These contracts are due to commence in August - September.

Staff have commenced rabbit control operations, predominantly in the Upper Clutha Basin.

4.2 Engineering Field Operations

In-stream works have been limited to debris dam removals during this reporting period due to the fish spawning season. Debris dams are removed where they pose a flooding hazard. Most of these have been in North Otago as identified during river inspections following the flood event in the previous reporting period.

5. Environmental Incident Response

5.1 Contaminated Sites

5.1.1. Remediation Projects

Soil removal at a Green Island residential property has been completed. Following confirmation that soil validation results meet the relevant criteria, the status of the site will be changed to 'remediated'.

5.1.2. Landfills

Following a review of historic aerial photographs provided by the Dunedin City Council, the spatial extent of the Montecillo Landfill on our database was refined. The landfill operated between 1953 and 1962, and occupies a portion of the Montecillo Park.

A historic landfill on a residential subdivision in Hawea has been identified following a review of the Queenstown Lakes District Council subdivision consent. The developer has undertaken to investigate this landfill and will report back to QLDC and has agreed to undertake remediation of the site, if necessary.

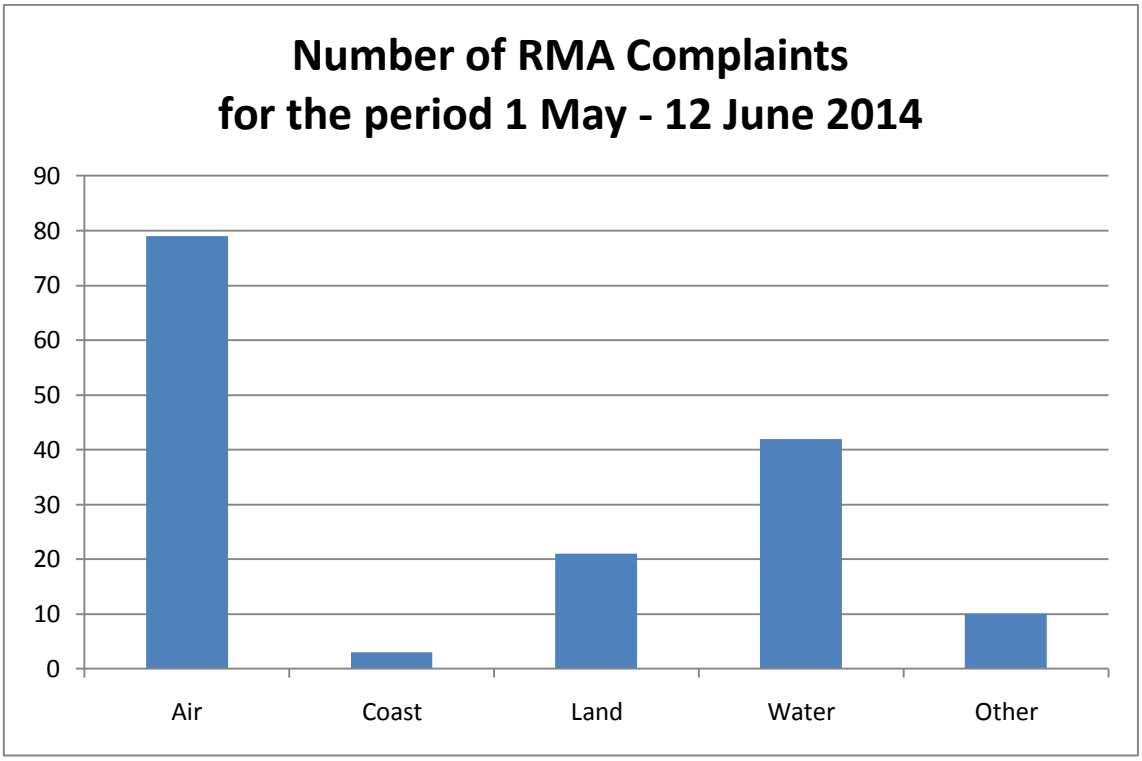
5.1.3. Other Actions

Forty public enquiries regarding the contamination status or land-use history of thirty-seven specific properties were received and responded to within ten working days.

Environmental Services is assisting with a project on national consistency in contaminated land data management. The objective of the review is to provide a 'road map' for achieving consistency in contaminated land data. This has been identified as a priority by the Ministry for the Environment and the Regional Sector Group. The timing of the review coincides with an upcoming review of our internal contaminated sites management strategy.

5.2 Environmental Incidents

A total of 157 incidents were reported for this period. The following is a summary of the incidents received by activity type.



The majority of the air incidents can be attributed to domestic chimneys. Odour complaints were the second most prevalent form of air pollution. The coastal incidents were in regard to marine pollution, and removal from the Coastal Marine Area. The majority of land incidents were from land disturbance followed by depositions. Concerns about fresh water pollution were the cause of the majority of water investigations. The other types of incidents were varied and included issues like pest plants, discharges onto land and rubbish on private land.

6. Recommendation

That this report be noted

Jeff Donaldson
Director Environmental Monitoring and Operations

Otago Regional Council

Summary of RMA Incident Complaints (General Location) *for the six weeks from 01-May-14 to 12-Jun-14*

General Location		AIR							COAST					LAND				WATER					OTHER		
	Summary Row	Backyard burning	Burning	Domestic chimneys	Dust	Industrial air discharge	Odour	Spray Drift	Coastal structures	Marine oil spill	Reclamation	Removal	Marine	Deposit	Disturbance	Land	Mining	Abstraction	Damming	Diversion	Freshwater pollution	Storm water	Noise	Other	Staff performance
Catlins	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Central Otago	24	0	4	5	0	0	5	0	0	0	0	0	0	0	0	1	0	1	0	0	6	0	0	2	0
Clutha Plains	9	3	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	2	1	0	1	0
Dn - Abbots/Green Is	6	0	0	2	0	0	2	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0
Dn - Coast North	5	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1	0	0	1	0
Dn - Coast South	2	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dn - Inner City	32	0	1	14	1	4	2	0	0	0	0	0	0	0	0	0	0	0	0	0	8	1	0	0	0
Dn - Mosgiel	10	2	2	0	0	0	3	0	0	0	0	0	0	1	0	0	0	0	0	0	2	0	0	0	0
Dn - Otago Harbour	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dn - Peninsula	6	0	0	3	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	1	0
Dn - West Harbour	4	0	0	1	0	1	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
East Otago Uplands	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lakes	28	0	1	7	0	1	1	0	0	0	0	0	0	1	0	1	0	0	0	0	10	2	0	4	0
Maniototo	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
North Otago	8	0	1	2	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	3	0	0	0	0
Roxburgh	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0	0	0	0	2	0	0	0	0
South West Otago	2	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0
Strath	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Taieri Plains	8	3	3	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0
TOTALS	157	8	13	35	1	6	15	1	0	0	1	0	2	4	0	17	0	1	0	0	37	4	0	10	0

Otago Regional Council

REPORT

Document Id: A648556

Report Number: 2014/0945
Prepared For: Regulatory Committee
Prepared By: Marian Weaver and Chris Shaw
Date: 4 July 2014

Subject: **Consent Processing, Admin and Building Permit Update Report 19 May to 30 June 2014**

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1. Project E.1 – Resource Consent Application Processing

1.1 Consent applications and objections where status has not changed since the last report are summarised in Appendix 1.

Applications

1.2 Publicly Notified Applications

RM13.474 Fulton Hogan Limited

To discharge contaminants, namely odour, to air for the purpose of operating a solar sludge drying facility 2 km from Luggate. The sludge is from the Wanaka sewage treatment plant. This is a joint process with the QLDC and the applicant requested public notification and it was notified on 26 March with submissions closing on 28 April. Eight submissions have been received; 7 in opposition and 1 in support. The application is on hold for further information requested by QLDC and ORC.

RM14.026 Lakes Marina Projects Limited

The applications are for the construction of a 195 berth marina, and are sought to: disturb, reclaim, remove and place structures and deposit material on, over or under the bed of Lake Wakatipu and Marina Creek; discharge sediment; and divert Marina Creek. The applications were jointly notified along with the QLDC application on February 19th. When submissions closed on March 19th, 36 submissions were received (32 in support and 4 in opposition) This is a joint process with the ORC as lead agency. The application is on hold for further information requested by the QLDC and ORC.

RM13.024 – Dunedin City Council

The applications are to reclaim part of the coastal marine area to widen Portobello Road and Harington Point Road along the Otago Peninsula, to complete the pedestrian and cycle path between Vauxhall and Harington Point. The application was notified Saturday 18th January 2014. The hearing was held on April 10 and 11. A decision to grant the applications subject to conditions was given on 28 May. The appeal period closed without any appeals being received.

1.3 Limited Notified Applications

RM14.001 – Clutha District Council

Application to discharge treated wastewater from the Kaitangata WWTP to the Clutha River/Mata-Au. Department of Conservation, Fish and Game, Kāi Tahu ki Otago, Public Health South (PHS) and adjoining neighbouring landowners were given limited notification at the applicant's request. Submissions closed 17 February 2014. One submission received in support from PHS. Staff granted the permit under delegations and there was no appeal.

RM12.095 – Clifford MacKay Blaikie
Application to discharge treated wastewater from the Dunstan Hotel to the Clutha River/Mata-Au. Public Health South and Kai Tahu Ki Otago were served the applications, as written approval could not be obtained from these parties. The submission period closed on Monday 3rd March. Public Health South opposes the application. A request for further information has been answered. The application is on hold for the draft report and consent document to be completed and circulated to the applicant and submitter for consideration.

RM14.043 Fish & Game *- to dam water on the Takitoa Swamp*
Fish and Game applied to place a structure and dam water on the Takitoa Swamp, which is a Schedule 9 Regionally Significant Wetland under Plan Change (PC) 2. Application was withdrawn and a new application lodged - RM14.043. Application limited notified to neighbouring landowners. No submissions received and consent will be processed shortly.

RM14.128 – John Charles Perriam
To take and use groundwater from the Bendigo-Tarras Aquifer and to take and use surface water from the Clutha River. Application has been limited notified to Contact Energy Ltd for consideration against effects on electrical generation. Submissions close 4th July.

1.4 Applications of Interest
North Otago Gravel Applications
Council has currently 9 applications received for the extraction of gravel from the dry bed of rivers located within the Waitaki District. Two applications are for the extraction from the Waianakarua River, two are from the Kauru River and the remaining five applications are to extract gravel from the Kakanui River. Seven of the applications have been made by Road Metals Ltd.

Though all are on hold, concerns have been raised regarding the actual time taken to process these applications. However concerns have been raised by Council staff regarding the overall volume of gravel available to be taken from these catchments and delays have occurred due to the lack of site specific geomorphological information provided by the applicants to support their applications.

Recent progress has been made regarding the processing of these applications: It is noted that one applicant has confirmed it will withdraw its application (2009.480 – Whitestone Ltd) due to the lack of gravel identified at their proposed extraction site. Council technical assessments have been made for three of the applications (RM11.114, RM13.357 and RM13.457 – Road Metals Ltd) and the applicant is now seeking written approval from affected parties. It is anticipated that decisions on these three applications will be made shortly.

Concerns with the gravel resource at three other locations have been identified. The applicant has requested that once a decision has been made on the three aforementioned applications, then a further review of these three applications (RM11.069, RM13.324, and RM13.341 – Road Metals Ltd) should be made, particularly due to the recent high flow events in these catchments.

The two other applications (RM13.471 - GPR Booth Ltd and RM14.109 – Road Metals Ltd) require further geomorphological information form the applicant.

2. Objections

2007.310 Strath Taieri Agricultural and Tourism Trust
This was an objection to the outstanding costs of processing a suite of consents for a proposed Strath Taieri water scheme. Strath Taieri Irrigation (STIG) is presenting the objection on behalf of the Trust. The objection was heard on 28 May 2014 by the Objections Committee in

Dunedin, and the objection declined. The appeal period closed on 4 July and no appeal was forthcoming

97544 Buchanan
The cancellation notice was revoked and the objection no longer stands. The permit relies mainly on irrigation recharge in summer, and expires in November 2017. The consent holder has 3 irrigation seasons in which to demonstrate use of the permit, otherwise it will not be replaced in 2017 under policy 6.4.2A of the Regional Plan: Water.

3. Appeals to Environment Court

RM13.299 – Pacific View Limited
To transfer the point of take and amalgamate two permits to take and use water from the Waikouaiti River. A hearing was held 14 February and the decision to grant was given. The applicant and Otago Fish and Game have appealed the decision and the Kati Huirapa Runaka ki Puketeraki has joined the appeal. Mediation with an Environment Court commissioner occurred on 4 June 2014 and there was agreement that the applicant would provide more information about the effects on their farm viability of various residual flows. Parties are currently considering whether to go back to mediation or seek a Court hearing.

RM13.452 – Oceana Gold Limited
Various consents associated with the Tipperary Freshwater Dam. Application was limited notified with no submissions. Consents granted 20 May 2014; applicant appealed the decision. A mediation meeting was held on 4 July 2014 and Oceana staff have undertaken to discuss ORC concerns further and report back by 11 July.

4. Consent Statistics

Table 1. Consents Statistics Summary

	Lodged			Rejected	Decision Given		
Reporting Period	Consents	Variations			Consents	Variations	
		Regular	Water reporting date			Regular	Water reporting date
2011/2012 Year Total	**501**	**70**	**N/A**	**51**	**419**	**21**	**N/A**
2012/2013 Year Total	**473**	**57**	**303**	**22**	**461**	**31**	**368**
8 July - 16 Aug 2013	50	4	7	3	36	4	11
19 Aug - 1 Nov 2013	104	1	24	1	62	5	26
3 Nov 13 –17 Jan 14	117	7	1	3	119	6	1
20 Jan - 21 Feb 14	54	2	3	0	38	5	4
24 Feb - 3 Apr 14	55	5	1	0	69	7	4
4 Apr – 20 May 14	35	5	0	2	38	11	0
19 May to 30 Jun 14	35	6	6	4	48	10	15
YTD 13/14	**450**	**30**	**42**	**13**	**410**	**48**	**61**

Applicants to change the date for reporting water use on existing water permits were invited to comply with the water measuring regulations.

5. Consent Administration

Table 2. Consent Administration Statistics

Reporting Period	Transfers Received	Transfers Issued	S417 Certs Received	S417 Certs Issued
2011/2012 Year Total	**141**	**189**	**8**	**4**
2012/2013 Year Total	**130**	**156**	**3**	**0**
8 July to 16 August 2013	12	36	3	1
19 Aug to 1 Nov 2013	41	34	0	0
3 Nov 2013 to 17 Jan 2014	17	12	5	0
20 Jan to 21 Feb 14	7	8	6	1
24 Feb to 3 Apr 14	17	10	0	1
4 Apr to 20 May 14	34	26	0	0
20 May to 30 June 14	28	57	2	0
Totals 13/14	**156**	**126**	**16**	**3**

6. Building Consent Authority (BCA) Administration

In Progress

Dam Building Consents	4
Code Compliance Certificates	6
PIM	0
Certificate of Acceptance	3

7. Public Enquiries

Appendix 2 shows that 157 enquiries were received by the Consents Units during the reporting period.

Table 3. Public Enquiries Statistics

Period	Number of Enquiries
2011/2012 year	**1866**
2012/2013 year	**1778**
8 July to 16 Aug 2013	191
19 Aug to 1 Nov 2013	329
3 Nov 13 to17 Jan 14	267
20 Jan to 21 Feb 14	128
24 Feb to 3 Apr 14	206
4 Apr to 18 May 2014	158
18 May to 30 June 2014	157
YTD 13/14	**1436**

8. Legislation

The amendment to the RMA that is to be enacted when there is an order in Council has not been enacted yet. Most of these amendments relate to consent processing. If there is no Order in Council the amendment is enacted in May 2015.

The Building Act dam safety scheme was expected to become operative on 1 July 2014 (having been delayed twice by the government). In March the Ministry of Business, Innovation and Employment (MBIE) advised that the scheme had been delayed until 31 March 2015 and then on 25 June advised it had been further delayed until 1 July 2015. MBIE has advised that this will provide time for further work on the dam safety regulations and has asked regional authorities to provide information on the role resource consents play in dam safety.

9. Recommendation

That this report is noted.

Fraser McRae
Director Policy Planning and Resource Management

Appendix 1: Summary of applications that have not changed since the last report to the Committee

Applications

RM13.215 - Queenstown Lakes District Council
The applications are for the discharge of odour to air, and treated effluent to the Shotover River and then later, to land from the Queenstown waste water treatment plant in the Shotover delta. QLDC already holds permits for these activities but wishes to change the timing and method of disposal to land. The applications were lodged on 17 May and publicly notified on 1 June 2013. When submissions closed on 28 June there were four submissions; one in support and three opposed. A hearing was set down for 28/29 August but has been postponed while the applicant continues to negotiate with submitters. The Hearing Panel did a site visit on 22 August 2013.

RM12.066 – Environment Canterbury - to undertake erosion protection works in the Lower Waitaki River.
Environment Canterbury has applied for consents to allow them to undertake erosion protection works in the Lower Waitaki River. Numerous erosion protection measures are proposed over a 3 km stretch of river. DoC, Iwi, Fish and Game and owners of land on which the works are to take place are all considered to be affected parties. The application is on hold while other affected parties are identified. A decision on notification is pending.

Pending Applications of Interest

RM13.423 – Manuherikia Catchment Water Strategy Group (MCWSG)
A working party has been established comprising MCWSG, Golder Associates and ORC staff. The aim of the working party is to develop a consenting strategy giving regard to existing mining privileges, individual water takes and irrigation options within the Manuherikia catchment.

RM13.428 – Dunedin City Council – Ocean Beach erosion protection
Pre-application discussions have been held with DCC and their consultants to discuss consent requirements for proposed coastal protection works and the potential disturbance of a contaminated site at Ocean Beach

Otago Regional Council

Appendix 2 Public Enquiries

Resource Consent Public Enquiry Report

For period from 19 May 2014 to 30 June 2014

Total Number of Enquiries 157

Enquiry Type	No.	% of Total
Current Consents	77	49 %
Mining Privileges	5	3.2 %
Other	10	6.4 %
Permitted Activities	40	25.5 %
Pre-application	11	7 %
Property Enquiries	10	6.4 %
Students	1	0.6 %
Transfers	3	1.9 %

Enquiry Location	No.	% of Total
Central Otago District Council	76	48.4 %
Clutha District Council	3	1.9 %
Dunedin City Council	23	14.6 %
Outside Otago	3	1.9 %
Queenstown Lakes District Council	14	8.9 %
Throughout Otago	3	1.9 %
Unspecified	28	17.8 %
Waitaki District Council	7	4.5 %

Enquiry Method	No.	% of Total
Counter	4	2.5 %
Email	71	45.2 %
Letter	2	1.3 %
Telephone	80	51 %

Otago Regional Council

REPORT

Document Id: A647789

Report Number: 2014/0936
Prepared For: Regulatory Committee
Prepared By: Peter Kelliher, Legal Counsel
Date: 3/07/2014

Subject: **Resource Management Act 1991, Biosecurity Act 1993 and Building Act 2004 Enforcement Activities from 14 May 2014 to 30 June 2014**

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1. Précis

This report details Resource Management Act 1991, Biosecurity Act 1993 and Building Act 2004 enforcement activities undertaken by the Otago Regional Council during the period 14 May 2014 to 30 June 2014.

2. Enforcement Action under the Resource Management Act 1991

a) Consent Auditing (Project C4)

No enforcement action taken.

b) Consent Performance Monitoring (Project C4)

Table 1. Abatement Notices

Details	Period – 14 May 2014 to 30 June 2014	Total – from 1 July 2013
To cease taking water in breach of resource consent	0	1
To cease taking water in breach of water meter regulations	4	7
TOTAL	4	8

c) Permitted Activity Rules - Inspections (Project C4)

Table 2. Infringement Notices

Details	Period – 14 May 2014 to 30 June 2014	Total – from 1 July 2013
Discharge of contaminants to land where it may enter water – effluent	0	1
Discharge of contaminants to land in breach of a regional rule	0	4
TOTAL	0	5

Table 3. Authorised Legal Proceedings

Details	Period – 14 May 2014 to 30 June 2014	Total – from 1 July 2013
Discharge of contaminants to land where it may enter water – effluent	0	6
TOTAL	0	6

d) Incidents (Project S5)

Table 4. Infringement Notices

Details	Period – 14 May 2014 to 30 June 2014	Total – from 1 July 2013
Discharge of contaminants to air – outdoor burning	0	12
Discharge of contaminants to air – burning prohibited materials	0	3
Failing to provide details as required by section 22 of the RMA	0	1
Occupation of the common marine and coastal area	0	1
Disturbing the bed of a river - pugging	0	1
Alteration of a Regionally Significant Wetland	0	1
Discharge of contaminants to land where it may enter water - diesel	0	2
Disturbing the bed of a river - mechanical excavation	1	1
Erecting a structure in the bed of a river	1	1
TOTAL	2	23

Table 5. Authorised Legal Proceedings

Details	Period – 14 May 2014 to 30 June 2014	Total – from 1 July 2013
Disturbing the bed of a river – mechanical excavation	0	2
Discharge of contaminants to air – burning prohibited materials	0	2
Discharge of contaminants to air – burning prohibited materials; and – burning at a landfill	0	1
Discharge of contaminants to land where it may enter water - effluent	0	2
TOTAL	0	7

Table 6. Abatement Notices

Details	Period – 14 May 2014 to 30 June 2014	Total – from 1 July 2013
To remove obstructions from a dam overflow inlet structure	0	1
To undertake remedial works on a dam	0	1
To cease the display of advertising signage in the common marine and coastal area	0	1
TOTAL	0	3

One Enforcement Order was authorised during the period concerning the discharge of contaminants to land where it may enter water.

e) Total Infringement and Authorised Legal Proceedings – 1 July 2013 – 30 June 2014

Table 7. Total Infringements Issued (Consents, Inspections and Incidents)

Details	Total – from 1 July 2013
DAIRY EFFLUENT	
Discharge of contaminants to land where it may enter water – effluent	1
Discharge of contaminants to land in breach of a regional rule	4
OTHER	
Discharge of contaminants to air – outdoor burning	12
Discharge of contaminants to air – burning prohibited materials	3
Failing to provide details as required by section 22 of the RMA	1
Occupation of the common marine and coastal area	1
Disturbing the bed of a river - pugging	1
Alteration of a Regionally Significant Wetland	1
Discharge of contaminants to land where it may enter water - diesel	2
Disturbing the bed of a river - mechanical excavation	1
Erecting a structure in the bed of a river	1
TOTAL	28

Table 8. Total Authorised Legal Proceedings (Consents, Inspections and Incidents)

Details	Total – from 1 July 2013
DAIRY EFFLUENT	
Discharge of contaminants to land where it may enter water – effluent	6
Discharge of contaminants to land where it may enter water - effluent	2
OTHER	
Disturbing the bed of a river – mechanical excavation	2
Discharge of contaminants to air – burning prohibited materials	2

Discharge of contaminants to air – burning prohibited materials; and – burning at a landfill	1
TOTAL	13

3. Biosecurity Act 1993

One Notice of Direction was issued during the period. The Notice required rabbits on the occupiers property be destroyed.

4. Building Act 2004

No enforcement action taken during the period.

5. Recommendation

That this report be noted.

Fraser McRae
Director Policy Planning and Resource Management

Otago Regional Council

REPORT

Document Id: A651115

Report Number: 2014/1005
Prepared For: Regulatory Committee
Prepared By: Marian Weaver, Resource Manager Procedures and Protocols
Janet Favel, Committee Secretary
Date: 11 July 2014

Subject: **Objection hearing - Strath Taieri Irrigation Group (2007.310)**

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1. Précis

Strath Taieri Irrigation Group (STIG) lodged an objection to the cost of processing their application for partial transfer of water takes.

2. Hearing

The hearing was held on 28 May 2014.

Present were:

Objections Committee:	Crs Louise Croot, Sam Neill, Bryan Scott, David Shepherd
STIG representatives:	Ben Graham, Don Henry, Andrew Templeton, Lynnore Templeton, Brian Wilson, Calum Wilson, Gordon Wilson, Kate Wilson
ORC staff:	Wayne Scott, Marian Weaver, Janet Favel (Committee Secretary)

Kate Wilson, Ben Graham, Gordon Wilson and Lynnore Templeton spoke on behalf of STIG. Mrs Weaver and Mr Scott responded to points raised by the STIG speakers.

3. Decision

The committee considered the staff report and submissions that had been presented.

The Committee decision was as follows:

1. That the objection by the Strath Taieri Irrigation Group to the cost of processing application 2007.310 be declined.
2. That the Committee recommends that the Chief Executive and the Strath Taieri Irrigation Group continue their dialogue as suggested in the CE's letter dated 20 December 2013.

A written decision was issued setting out a summary of the evidence heard and the reasons for the committee's decision. The decision has not been appealed.

3. Recommendation

That this report be noted.

Fraser McRae
Director Policy Planning and Resource Management