

## Attachment 1

# **Overview of written comments on the Consultation Draft of Proposed Plan Change 5A (Lindis: Integrated Water Management)**



#	Date received	Name/Organisation
1a	7 May 2014	Bruce Lambie
1b	12 May 2014	Bruce Lambie
2a	19 April 2014	Wayne & Billee Marsh
2b	17 May 2014	Wayne & Billee Marsh
3a	29 April 2014	Bruce Jolly
3b	20 May 2014	Bruce Jolly
4a	30 April 2014	Gordon Lucas
4b	25 May 2014	Gordon Lucas
5	29 April 2014	John Davis
6	30 April 2014	James W.C. Lucas
7	30 April 2014	Lesley Lucas
8	1 May 2014	Tim Davis
9	14 April 2014	Alastair Rutherford
10	24 April 2014	N.G. Trevathan
11	22 May 2014	Peter Jolly
12	22 May 2014	Upper Clutha Angling Club
13	22 May 2014	Matthew Sole
14	22 May 2014	Matt McCaughan
15	22 May 2014	Lindis Catchment Group
16	23 May 2014	Lindis Downs Ltd. (Angus and Rebecca Chapman Cohen)
17	23 May 2014	Jayne Rive
18	23 May 2014	Forrest range Ltd (R Emmerson)
19	23 May 2014	Lindis Peak Station (Barb Annan)
20	23 May 2014	Otago Fish and Game
21	28 May 2014	Federated Farmers
22	30 May 2014	KTKO
23	23 May 2014	Tim Ritchie
24	16 March 2015	James Hanan





**Tom De Pelsemaeker**

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**From:** Bruce Lambie <Bruce.Lambie@southerndhb.govt.nz>  
**Sent:** Wednesday, 7 May 2014 1:04 p.m.  
**To:** Emma Spalding  
**Subject:** RE: Regional Plan: Water for Otago - Consultation Draft of Proposed Plan Change 5A (Lindis: Integrated Water Management)

Hello Emma

I have read the Proposed Plan Change 5A( Lindis:Integrated Water Management ) and I strongly support option 3 , ie Flow Continuity to the Clutha Confluence all year round.

I own the property at Rapid 136 Oliver Road, which is very close to the Clutha Confluence of the Lindis River. When I bought this property there were no pivot irrigators in the area at all. Over the past 5 years these pivot irrigators have been installed in large number( approx 50 in the Upper Clutha Basin). These are to support Dairy farming and supplementary feed for dairy farming. This is a totally inappropriate use of water( vast amounts) in one of the driest areas of NZ !

To maintain a viable ecosystem the Lindis River should allowed to flow in its entire length all year round. In addition to maintaining a viable ecosystem it will allow free passage of fish into and out of the Lindis catchment( Which is the main spawning tributary for Lake Dunstan- a very popular trout fishery)

The Lindis River is a very popular for camping in the summer and for family activities. It is the only safe river for recreation for children in the area. It needs to be maintained with a suitable flow all year round. In this way it is available to all New Zealanders to enjoy, rather than being permitted to run dry almost every summer so a few wealthy farming syndicates can prosper!

I believe that the ORC needs to be consistent with its mission statement " supporting sustainable development" and so should be promoting option 3 , of Flow in the entire Lindis River to its Clutha confluence all year round.

Kind regards

Bruce Lambie

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**From:** Emma Spalding [mailto:Emma.Spalding@orc.govt.nz]  
**Sent:** Tuesday, 29 April 2014 15:44  
**To:** Bruce Lambie  
**Subject:** RE: Regional Plan: Water for Otago - Consultation Draft of Proposed Plan Change 5A (Lindis: Integrated Water Management)

Hi Bruce,

No special form is required – an email will be fine.

Kind regards,  
 Emma

**Emma Spalding** | Policy Analyst | Otago Regional Council  
 70 Stafford St, Private Bag 1954, Dunedin 9054, New Zealand  
 Telephone: (03) 474 0827 | Facsimile: (03) 479 0015 | Email: [emma.spalding@orc.govt.nz](mailto:emma.spalding@orc.govt.nz)  
 Website: [www.orc.govt.nz](http://www.orc.govt.nz)

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**From:** Bruce Lambie [mailto:Bruce.Lambie@southerndhb.govt.nz]  
**Sent:** Tuesday, April 29, 2014 1:55 PM  
**To:** Emma Spalding  
**Subject:** RE: Regional Plan: Water for Otago - Consultation Draft of Proposed Plan Change 5A (Lindis: Integrated Water Management)

Hello Emma

I would like to make comment on the Lindis Water Management Plan. Does this require a special form or is it ok to reply by return email?

Bruce Lambie

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**From:** Emma Spalding [mailto:Emma.Spalding@orc.govt.nz]  
**Sent:** Monday, 28 April 2014 09:40  
**To:** 'thepoint@xtra.co.nz'; 'armadillos@xtra.co.nz'; 'jenny@statham.com'; 'lindisdowns@farmside.co.nz'; 'trevathan@xtra.co.nz'; 'blake.holgate@andersonlloyd.co.nz'; 'Fgaud@doc.govt.nz'; 'bruce.jolly@xtra.co.nz'; Bruce Lambie; 'cpirie@mactodd.co.nz'; 'shepherds.creek@xtra.co.nz'; 'dnsraeshap@xtra.co.nz'; 'power.line@xtra.co.nz'; 'demmeron@xtra.co.nz'; 'di@lucas-associates.co.nz'; 'info@lindisriver.co.nz'; 'iancole@xtra.co.nz'; 'raytarras@gmail.com'; 'longacre15@gmail.com'; 'jaynerive@hotmail.com'; 'geordiehill@xtra.co.nz'; 'jdmorrison@xtra.co.nz'; 'mandjbarlow@gmail.com'; 'helen.john.davis@xtra.co.nz'; 'johnctempleton@xtra.co.nz'; 'jonnyt@farmside.co.nz'; 'tuiandjustin@farmside.co.nz'; 'kreilly@fedfarm.org.nz'; 'lhume@fedfarm.org.nz'; 'Louise.VanderVoort@codc.govt.nz'; 'lukejthompson@hotmail.com'; 'info@flyinn.co.nz'; 'hyndman@ihug.co.nz'; 'mike.floate@xtra.co.nz'; 'mike.kelly@opus.co.nz'; 'mneilson@doc.govt.nz'; 'n.watson@fish-game.org.nz'; 'nigelormrod@xtra.co.nz'; 'p.pholder@slighshot.co.nz'; 'pwjolly@ihug.co.nz'; 'pravenscroft@doc.govt.nz'; 'peter.dymock@pppgroup.co.nz'; 'raytarras@gmail.com'; 'rboyd@ihug.co.nz'; 'malverndowns@gmail.com'; 'ninemile@farmside.co.nz'; 'info@bendigo.co.nz'; 'longacre@gmail.com'; 'anny.tussock@xtra.co.nz'; 'billee@paradise.net.nz'  
**Subject:** Regional Plan: Water for Otago – Consultation Draft of Proposed Plan Change 5A (Lindis: Integrated Water Management)

### **Regional Plan: Water for Otago – Consultation Draft of Proposed Plan Change 5A (Lindis: Integrated Water Management)**

The Otago Regional Council is releasing the consultation draft for Proposed Plan Change 5A (Lindis: Integrated Water Management) to the Regional Plan: Water for Otago (the Water Plan). In summary, Proposed Plan Change 5A seeks to:

1. Set allocation limits and minimum flows for the Lindis River;
2. Set maximum allocation volumes for the aquifers in the Bendigo-Tarras Basin; and
3. Amend the Water Plan Maps to show the boundaries of the Lindis catchment and the aquifers of the Bendigo-Tarras Basin.

We invite all those who take an interest in the management of the water resources of the Lindis catchment and the Bendigo-Tarras Basin to provide us with comments or preliminary feedback on the proposed changes by **5pm, Friday 23 May 2014**.

Comments received during this consultation process will help finalise the proposed plan change, which we expect to formally notify in July 2014. We will contact you again when we notify.

The consultation draft and a draft Section 32 evaluation report discussing alternatives, benefits and costs are available on the ORC website, <http://www.orc.govt.nz/Publications-and-Reports/Regional-Policies-and-Plans/Regional-Plan-Water/Proposed-Plan-Change-5A-Lindis-Integrated-Water-Management/>


Copies are available for viewing at ORC offices in Dunedin, Alexandra and Queenstown, and CDs of the consultation draft documents are available upon request.

If you would like to discuss the proposed plan change with us, or need more information, please contact the policy team on freephone 0800 474 082 or (03) 474 0827, or email [policy@orc.govt.nz](mailto:policy@orc.govt.nz).

We look forward to receiving your comments.

Kind regards,  
Emma

**Emma Spalding** | Policy Analyst | Otago Regional Council  
70 Stafford St, Private Bag 1954, Dunedin 9054, New Zealand  
Telephone: (03) 474 0827 | Facsimile: (03) 479 0015 | Email: [emma.spalding@orc.govt.nz](mailto:emma.spalding@orc.govt.nz)  
Website: [www.orc.govt.nz](http://www.orc.govt.nz)

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**Tom De Pelsemaeker**

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**From:** Emma Spalding  
**Sent:** Monday, 12 May 2014 9:54 a.m.  
**To:** 'Bruce Lambie'  
**Cc:** Tom De Pelsemaeker  
**Subject:** RE: Regional Plan: Water for Otago - Consultation Draft of Proposed Plan Change 5A (Lindis: Integrated Water Management)

Thanks Bruce, I have passed your email on to Tom De Pelsemaeker. He is back in the office today and will be collating all the comments.

Kind regards  
 Emma

**Emma Spalding** | Policy Analyst | Otago Regional Council  
 70 Stafford St, Private Bag 1954, Dunedin 9054, New Zealand  
 Telephone: (03) 474 0827 | Facsimile: (03) 479 0015 | Email: [emma.spalding@orc.govt.nz](mailto:emma.spalding@orc.govt.nz)  
 Website: [www.orc.govt.nz](http://www.orc.govt.nz)

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**From:** Bruce Lambie [<mailto:Bruce.Lambie@southerndhb.govt.nz>]  
**Sent:** Monday, May 12, 2014 9:12 AM  
**To:** Emma Spalding  
**Subject:** RE: Regional Plan: Water for Otago - Consultation Draft of Proposed Plan Change 5A (Lindis: Integrated Water Management)

Hello Emma

I would like to add one further comment to my recent feedback on the Lindis: Integrated Water Management Plan.

As already stated I would definitely like to see the Lindis River flowing to the Clutha confluence at all times. In addition I think that the minimum flow should be set at 1.0 cumecs, not the proposed 0.45 cumecs as in the proposed plan. The proposed flow of 0.45 cumecs is too low and very likely to leave fish as well as invertebrates stranded in certain pools. This river needs to have a constant and reasonable flow at all times. The local farmers should be farming to the conditions of a very dry area as is the Upper Clutha Basin, NOT installing large numbers of pivot irrigators in order to farm dairy cows and produce feed for dairy cows, while running the Lindis River virtually dry in summer months due to excessive water extraction to support these farming practises!

I would be grateful if you could add these comments to my email sent last week

Kind regards

Bruce Lambie

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**From:** Emma Spalding [<mailto:Emma.Spalding@orc.govt.nz>]  
**Sent:** Monday, 28 April 2014 09:40  
**To:** 'thepoint@xtra.co.nz'; 'armadillos@xtra.co.nz'; 'jenny@statham.com'; 'lindisdowns@farmside.co.nz'; 'trevathan@xtra.co.nz'; 'blake.holgate@andersonlloyd.co.nz'; 'Fgaud@doc.govt.nz'; 'bruce.jolly@xtra.co.nz'; Bruce Lambie; 'cpirie@mactodd.co.nz'; 'shepherds.creek@xtra.co.nz'; 'dnsraeshap@xtra.co.nz'; 'power.line@xtra.co.nz'; 'demmeron@xtra.co.nz'; 'di@lucas-associates.co.nz'; 'info@lindisriver.co.nz'; 'iancole@xtra.co.nz'; 'raytarras@gmail.com'; 'longacre15@gmail.com'; 'jaynerive@hotmail.com'; 'geordiehill@xtra.co.nz'; 'jdmorrison@xtra.co.nz'; 'mandjbarlow@gmail.com'; 'helen.john.davis@xtra.co.nz'; 'johnctempleton@xtra.co.nz'; 'jonnyt@farmside.co.nz'; 'tuiandjustin@farmside.co.nz'; 'kreilly@fedfarm.org.nz'; 'lhume@fedfarm.org.nz'; 'Louise.VanderVoort@codc.govt.nz'; 'lukejthompson@hotmail.com'; 'info@flyinn.co.nz'; 'hyndman@ihug.co.nz';

'mike.floate@xtra.co.nz'; 'mike.kelly@opus.co.nz'; 'mneilson@doc.govt.nz'; 'n.watson@fish-game.org.nz';  
'nigelormrod@xtra.co.nz'; 'p.pholder@slighshot.co.nz'; 'pwjolly@ihug.co.nz'; 'pravenscroft@doc.govt.nz';  
'peter.dymock@pppgroup.co.nz'; 'raytarras@gmail.com'; 'rboyd@ihug.co.nz'; 'malverndowns@gmail.com';  
'ninemile@farmside.co.nz'; 'info@bendigo.co.nz'; 'longacre@gmail.com'; 'anny.tussock@xtra.co.nz';  
'billee@paradise.net.nz'

**Subject:** Regional Plan: Water for Otago – Consultation Draft of Proposed Plan Change 5A (Lindis: Integrated Water Management)

## **Regional Plan: Water for Otago – Consultation Draft of Proposed Plan Change 5A (Lindis: Integrated Water Management)**

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1. Set allocation limits and minimum flows for the Lindis River;
2. Set maximum allocation volumes for the aquifers in the Bendigo-Tarras Basin; and
3. Amend the Water Plan Maps to show the boundaries of the Lindis catchment and the aquifers of the Bendigo-Tarras Basin.

We invite all those who take an interest in the management of the water resources of the Lindis catchment and the Bendigo-Tarras Basin to provide us with comments or preliminary feedback on the proposed changes by **5pm, Friday 23 May 2014**.

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We look forward to receiving your comments.

Kind regards,  
Emma

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Telephone: (03) 474 0827 | Facsimile: (03) 479 0015 | Email: [emma.spalding@orc.govt.nz](mailto:emma.spalding@orc.govt.nz)  
Website: [www.orc.govt.nz](http://www.orc.govt.nz)



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**Tom De Pelsemaeker**

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**From:** Billee Marsh <billee@paradise.net.nz>  
**Sent:** Saturday, 19 April 2014 1:10 a.m.  
**To:** Policy Reply  
**Subject:** FEEDBACK FORM

## LINDIS CATCHMENT & BENDIGO TARRAS BASIN WATER MANAGEMENT REGIME

Name: *Wayne & Billee Marsh*

Email: [waynebillee@hotmail.com](mailto:waynebillee@hotmail.com)

Address: *165 Maori Point Road, Lindis Crossing, Tarras.*

### Comments:

\*Our property is beside the Lindis River where it flows into the Clutha and we have had 18 years of recreational enjoyment of the Lindis River.

\*It has been a safe river for our children to swim in when they were young.

\*When the water flows under the SH8 bridge, we frequently see people parked beside the river to enjoy the water.

It has easy and safe access for vehicles.

The flow is suitable for children to paddle, or swim in the deeper pools.

People stop on a journey to give their dogs a break at the river. We have seen horses released from a horse float to stretch their legs!

\*Every summer there are many campers who return year after year to camp beside the river, in the area close to SH8 bridge.

In years past there were large numbers of campers near the mouth of the Lindis. However as the water stopped flowing on a regular basis, they left for good.

This year it was wonderful to see campers return to this spot once more.

When the water stops flowing the campers leave.

We would like to speak for all these campers and travellers who are unaware of the Water Management Regime and therefore will be silent on this issue.

\*A dry river bed gives a very poor impression of our environmental management to tourists and New Zealanders.

\*We disagree with Council's proposal to let the river flow to the SH8 bridge then, on occasion, allow it to dry up and not flow into the Clutha. The Lindis river needs to be

considered as an entire body and remain healthy in all its parts. Council is letting the public see a river flowing under the SH8 bridge but keeping the dirty secret of a dry riverbed out of public view!

\*We think Council should require farmers to give up their Lindis River water rights when they are given consents to take from the Clutha.

\*At the meeting we were deeply concerned to hear Lindis Irrigation Company ask Council for more time before minimum flows were introduced. The expiry of Mining Rights in 2021 and the introduction of minimum flows have been known for some time. It is worrying that LIC has not been planning for this sooner.

\*It is also of concern that some farmers are rushing to make substantial capital investments by installing pivot irrigators and yet have no guarantee of water supply. The tone at the meeting implied that because of this investment that Council should ensure continuity of water supply.

\*At the meeting we listened respectfully while the Lindis irrigators spoke of their concerns. They were given a long and fair hearing. We were disappointed that they did not show the same respect for the opinions of other interest groups. It will be impossible to reach consensus on minimum flows if this attitude prevails.

The Lindis River is not there for the sole benefit of the Lindis Irrigation Company. It is there for all people to enjoy!



**Tom De Pelsemaeker**

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**From:** Wayne <waynebillee@hotmail.com>  
**Sent:** Saturday, 17 May 2014 12:34 a.m.  
**To:** Policy Reply  
**Subject:** Feedback/Lindis River Minimum Flow

In 1995 when we bought our property near the mouth of the Lindis River we would take our three young daughters swimming and paddling in the river. As the level of irrigation increased the river disappeared and became a dry, stoney bed. Our children lost their safe swimming river. This amenity we had so valued, was taken from us. The campers also left and have never returned.

In 2021 the mining privileges will expire and the Lindis River will flow once again. I have already waited for 20 years and it is a wonderful prospect to know only 7 years left to wait!

The flow of the Lindis River must be restored to its natural flow to ensure a healthy ecosystem, and we can once again have the amenity and aesthetic values we so value.

Option 3, where the Lindis River has flow continuity to the Clutha confluence, is the best of the proposed options, but its proposed minimum flow still needs to be higher.

The Lindis River is a major stakeholder in the setting of minimum flows. It has no voice, is unable to advocate or negotiate, and yet it holds the strongest position in this debate.

I hope that many people, like myself, will speak out and give the Lindis River its voice.

Council must begin to advocate for the Lindis River, and give it a better deal than what is proposed.

Regards,  
Billee Marsh  
165 Maori Point Road,  
Lindis Crossing.

\*The minimum flow was to be set higher if the Tarras Water Ltd irrigation scheme went ahead.

The failed TWL has been transformed into a new private irrigation scheme involving the major shareholders of TWL.

Ten bores have been drilled and will have received Bore Consents from ORC.

My guess is that the Water Consents are being processed by ORC at this moment.

Council is therefore aware of this scheme and cannot ignore its effect on the Lindis River catchment.

If Council set a higher flow for TWL and this new scheme is replacing TWL, then the minimum flow must be set higher as this scheme is just as significant as TWL.

\*In 2021 the mining privileges expire

In seven years the holders of the deemed permits will no longer be able to take water without restriction.

The holders of the deemed permits have only had a right to take water until 2021, then all rights cease.

In law, this does not translate to ownership, there is no legal obligation to replace the permits with resource consents.

\* Litigation

*(NPSFM)-Freshwater objectives and limits may be subject to litigation that imposes additional costs and delays and often transfers decisions about freshwater objectives and limits to the courts.*

At the meeting at Tarras, Jack Davis, speaking for the Irrigators, made a veiled threat of a legal challenge.

In order to avoid litigation it would be prudent to wait until 2021 when the mining rights expire, along with such bullying tactics.

Equally, the threat of litigation is more likely to come from environmental and other interests groups.

\*Investment or significant investment

Council notes that '*Option 2 requires investment in efficient irrigation methods and water storage.*'

*'Option 3 ...provided significant investments are made in the use of efficient irrigation methods and water storage.'*

The huge dairy support units that line SH8 from Bendigo to Tarras to Luggate, all required significant investment, and it is what makes them worth millions of dollars!

The level of investment is a decision to be made by each Irrigator, but significant investment will result in significant profit and significant increases in land value ! It is not a loss for the Irrigator.

Significant investment gives a significant outcome for the Irrigators and the Lindis River.

Note:

At the Tarras Meeting, Jack Davis argued that the minimum flow would not support the pivot irrigator he had recently installed. Mr Davis has been fully aware of the implications of the 2021 expiry of miners privileges and the setting of minimum flows. This type of investment is foolhardy.

Significant investment in schemes that bring water from other sources, or store water, is what is required.

\*The Lindis River is not the only available water source for the Irrigators.

Council states that there is irrigation water available from the Clutha River and the Bendigo Aquifer.

The afore mentioned private water scheme has ten bores accessing Clutha water, and will

irrigate much of the failed Tarras Water Ltd command area.

The Ardour Valley Irrigators have even closer access to the Clutha and Bendigo Aquifer.

The Irrigators have access to other water sources. The Lindis River does not!

\*\*The objectives and spirit of the National Policy Statement for Freshwater Management strongly supports the health of rivers and the setting of a high minimum flow.

\*Objective B2

*"To avoid any further over-allocation of fresh water and phase out existing over-allocation." (NPSFM) "OVER ALLOCATION" the resource is being used to a point where a freshwater objective is no longer being met.(Objective A2)*

The NPSFM requires Councils to address over-allocation.

A dry river bed below SH8 Bridge is proof that Council has not addressed the issue of over allocation.

\*Policy A1- *"ensure the plans must give regard for the connection between water bodies"*

\*Policy B1-*".....to give effect to the objectives in this National Policy Statement, having regard to at least the following:*

*a) the reasonably foreseeable impacts of climate change*

*b) the connection between water bodies*

*the connection between freshwater bodies and coastal water*

\*Policy B2

*"By every Regional Council making or changing regional plans to the extent needed to provide for the efficient allocation of fresh water to activities, within the limits set to give effect to Policy B1"*

When allocating water the ORC must give regard to Policy B1.

The water of the Lindis River must connect with the water of the Clutha River.

\*Objective B1

*"To safeguard the life-supporting capacity, ecosystem process and indigenous species including their associated ecosystems of fresh water, in sustainably managing the taking, using, damming, or diverting of fresh water,"*

*(NPSFM) "All councils cited difficulties with 'defining life-supporting capacity'."*

The dry river bed of Option 2 does not meet the objective and indicates ORC has ongoing difficulties in defining life-supporting capacity.

The objective of the policy will only be met if the minimum flow allows water to always flow and support a healthy ecosystem.

**\*Policy B7**

*2.b "any taking of fresh water which is likely to result in any more than minor adverse change in the natural variability of flows or level of any freshwater. "*

*(ORC)-"Research suggests that without water taking the river would typically flow the entire way to the Clutha River."*

In Option 2, the natural flowing Lindis River will become a ephemeral water body, resulting in a more than minor adverse change!

A minimum flow must be set to ensure minor adverse change in the natural variability of flows.

\*The NPSFM provides for Compulsory National Values for ecosystem health.

The primary focus of the NPSFM is to protect ecosystems and water health.

\*NPSFM requires Councils to *"protect amenity and natural characters of rivers"*

Only Option 3 goes some way to protect the ecosystem and character of the river.

\*Flow means 'to flow'

(NPSFM) *'Environmental flows for rivers and streams must include an allocation plan limit and a minimum flow'.*

*'to ensure sufficient variability and quantity of water flowing in rivers,'*

Option 3 supports a minimum flow because the river water flows from headwaters to mouth.

Option 2 does not achieve a minimum flow, because, in summer, the river below the bridge will not flow.

What exactly does the ORC not understand about the word "flow" ?

\*\*\*Why Council supports options that favour economic values, and provides insufficient protection for environmental values.

Council is a vested interest.

By ensuring the private profit of the irrigators the trickle down economics will turn into higher rates revenues for Council.

Council finds it is easier to measure economic values

Conservation, recreation, biodiversity and landscape aesthetics are all harder to measure than money

and are therefore given a lesser value.

In negotiations no-one is advocating for the River

*(ORC)-"The minimum flow will not apply until after a collective review of consents in the Lindis Catchment is undertaken. This will occur before 2021 if there is agreement by the holders of the deemed permits to adhere to minimum flows, or on expiry of the deemed permits on 2nd October, 2021."*

The Irrigators and Council, both vested interests, are negotiating a collective review where economic interest will have the strongest voice. The outcome will favour economic outcomes.

\*The ORC objectives have been purposefully written to support their preference of Option 2.  
(ORC) *'The aim of the regime proposed under Option 2 is to protect aquatic ecosystems in the Lindis River, maintain the river's natural character at prominent and accessible viewpoints, and ensure tangible improvements to the river's cultural and recreational values, while ensuring ongoing community prosperity.'*

*'while ensuring ongoing community prosperity.'*  
The ORC places economic value higher than any other value because, by measuring monetary value, it supports the vested interests of Council.

*'maintain the river's natural character at prominent and accessible viewpoints'*  
Meaning, "if an unsightly, dry, stoney riverbed is hidden from public view, then the river's natural character does not need to be maintained."

Unfortunately for Council, the dry riverbed 500m immediately upstream from the Clutha confluence can be viewed from the prominent viewpoint of the adjoining QE11 Trust Reserve and the SH8 Bridge!  
It is also easily accessed by, and viewed from, a well used track that gives access to the Clutha confluence.

There are many kilometres of the Lindis River that do not have 'prominent and accessible viewpoints', perhaps Council would prefer to turn these areas into dry river bed.

\*The ratepayer/taxpayer will provide

The Irrigators have known for years and years that in 2021 their mining privileges will cease. From a business perspective it is incredulous that they have done nothing to secure a future water source earlier.

A history of subsidies and benevolent support from councils has led to the attitude of "the taxpayer/ratepayer will provide"

Remember that the ORC was keen to get the Tarras Water Ltd scheme underway by investing public funds and a rates increase for ratepayers.

As seen at the Tarras Meeting, the Irrigators have a perception of ownership, that something they own is being taken away.

The mining privileges do not give ownership, and to prove this point, they lose the rights in 2021.

If there is a perception of ownership, it is not backed by the law.

When ORC did not invest in TWL, the majority shareholders have since set up their own scheme.

A higher minimum flow will encourage the holders of the mining privileges to invest in efficient irrigation methods and water storage, and there is an alternative water source from the Clutha.

The holders of the mining privileges have other water sources, the Lindis River does not. They can choose to invest significantly in bringing water from the Clutha or store water.

This investment will see the value of their land increase significantly.  
The Tarras Irrigators are "focusing on the loses while hiding the gains."

Tuesday, 29 April 2014  
8:12 p.m.

Lindis River water management workshop – April 2014

**LINDIS CATCHMENT & BENDIGO TARRAS BASIN  
WATER MANAGEMENT REGIME**

**FEEDBACK FORM**

**Contact Details (optional)**

Name: BruceJolly

Email: Ubjolly@gmail.com

Address: 135 Morris Road, R.D.2, Wanaka 9382

Comments:

- I neither support or oppose the proposed minimum flow of 450l/s from December to May
- But still going through a process of evaluation to make a decision.
- I certainly would not like to see the minimum flow at a higher rate than 450l/s

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[www.orc.govt.nz](http://www.orc.govt.nz)





Bruce Jolly  
135 Morris Road  
R.D.2  
Wanaka 9382  
20/5/2014

Otago Regional Council  
Private Bag 1954  
Dunedin 9054

Comments on

Proposed Plan Change 5A  
(Lindis: Integrated Water Management)

I would like to highlight particular pieces from the NPSFM

#### 2.1. The NPS Freshwater Management 2011

The National Policy Statement on Freshwater Management 2011 (NPSFM) requires Council to reduce and prevent further over-allocation and safeguard the life-supporting capacity of fresh water bodies, by establishing environmental flows and/or levels for all water bodies in the region and making sure the freshwater objectives within the Water Plan give effect to the NPSFM objectives. The NPSFM also calls for Council to provide plan provisions that maximise the efficient allocation and efficient use of water.

The Water Plan Objectives give effect to the NPSFM by recognising the need to protect the natural and human use values, which include cultural values, amenity and natural character of rivers, while enabling the sustainable and efficient use of this resource to the benefit of Otago's industries and communities. The Water Plan achieves this by: setting minimum flows and allocation limits for surface water bodies; establishing maximum allocation volumes and aquifer restriction levels for groundwater resources; and promoting the efficient use and sharing of the water resource.

I support the introduction of minimum flows and primary allocation limits being set on Otago's rivers but care needs to be taken that the process is well balance and the wellbeing of the directly affected community is given more waiting.

If some of the objective outcomes of the NPSFM can be achieved without a minimum flow, but through an existing compliance mechanism then do not use the minimum flow argument to achieve it.

If you want efficient water use you have the ability at consent renewal to put on the conditions required to have that outcome.

With the above in mind I will comment

Here is an out come with the Status Quo after 2021 with the ORC using existing regulations.

1. All water being used outside the catchment does not get consent renewed.

2. All water users get their allocation reduced to 0.5 or 0.6l/s/ha irrigated if they are not already there. This would be a large reduction of the primary allocation from over 4cumecs to about 1.3cumecs
3. Most of that water would be used through sprinklers and have a nutrient management requirement.
4. The periods of the year when the river was below 450l/s at the Ardgour monitoring site would be very small and for most of the irrigation season the flow would be significantly higher than it is now at the corresponding time of year.

Now with that outcome we look at **4.2 Analysis of options**

#### Option 1, Status Quo

There will be about 4km of dry river bed for short periods.

There was never going to be a reduced habitat for aquatic species just status quo.

There was never going to be a loss of recreational value just status quo. Some of the values for recreation are reduced with improved river flows. Most of the people that come to the lower river now are there for the warmer water for swimming and the low flow safe for young children.

Not sure what cultural values are threatened in lower Lindis.

This statement is totally flawed.

Option 1 allows for current water abstraction and irrigation practices to continue, but has a damaging effect on the lower Lindis River's health and natural character and the diverse cultural, ecological, and recreational values that were traditionally supported by this resource.

Irrigators will not be able to extract current water come 2021 and what is its natural character when the river has been managed for the last 85 years as it is now. The traditional recreational and ecological values are what they are now and who is to say a dry river bed at times is unhealthy. Irrigation and water abstraction has been a cultural part of the permanent population here since first settled.

#### Option 2 Flow past SH8 Bridge

The recruitment of trout to the Upper Clutha is already adequate and being an introduced species should not really hold any weight in the argument to implement change to improve a fishery. Water abstraction from the Lindis has been going on long before the trout were introduced and seems to have adapted well to the way the river is currently managed.

There will be a negative effect on the balance of the ecosystem as the predator wading bird such as shags and herons will have a feeding resource reduced as the pools they traditionally feed from over summer will not happen at a time they are nesting and needing a larger feed requirement.

There will be some improvement in some recreational opportunities but will diminish in others.

The improvement in cultural health will happen in 2021 with the status quo between the bridges.

The drop in water availability with the status quo consent renewal in 2021 will force the capital investment not a minimum flow setting, and the same with the investment into alternative water source as is happening now without a minimum flow. There will be gains in productivity for those that have access to alternate source but not the majority of families that will be affected by the minimum flow.

#### Option 2 statement

Option 2 results in substantial improvements to the natural character, ecosystem, recreational and cultural values associated with the Lindis River at and upstream from the SH8 Bridge, while allowing

water users to remain economically viable if they would choose to pursue more efficient irrigation practices.

The first part of that statement is mostly achieved without the need to introduce the minimum flow and just new consent conditions, and the second part about remaining economically viable is very naive of the author of that statement as the economic efficient irrigation practices requires reliable water at an affordable capital investment.

### Option 3

Flow continuity to Clutha confluence

Fish habitat over the entire river will not improve. The first water actually abstracted from the Lindis is over half way down from the head waters.

Not all water recreational activities are improved with increased flows.

The current flows are already suitable for thriving native fish.

An increased minimum flow will be detrimental to the cultural values of the resident population.

The investment in efficient irrigation systems and of alternate supply will be totally out of reach of most existing consent holders both physically and economically due to isolation from alternate supply or the reliability of Lindis water will be so low commercial banks are very unlikely to lend the money for the investment.

### Option 3 Statement

Option 3 provides for significant improvements to the natural character, ecosystem, recreational and cultural values over the entire river length. However, in order for productive land uses to remain economically viable under Option 3 significant investments in the use of efficient irrigation systems and alternative water sources are required. This option would be the preferred option with a water supply scheme in the lower catchment, substituting water currently sourced from the Lindis with water from an alternative source.

This statement is flawed as well.

The current state of the river for the last 85 years is its natural healthy ecosystem that is meeting the cultural values of its residents so what are the significant improvements that 2021 consent renewals will not archive. The investment into efficient or alternate water use under this option would require significant public investment to avoid making total farming units uneconomic or significant drop in the capital value of the properties reflecting the drop in production.

### Conclusion

I support most of the recommendations of option 2

Primary allocation 1000l/s

Minimum flow June September 1600l/s

May 750l/s

October November I think it should be 600l/s to allow for higher rates of water harvesting

December – April I think it should be 350l/s. The combination of consent conditions come 2021 will mean that most of the time the river will be above 450l/s apart from a small period in February. Because the lower part of the river will be a falling reach for a shorter period the lower min flow should stay flowing under the bridge.

Supplementary allocation

Agree with option 2 for this entirely but is pretty irrelevant as the nature of the geography of the Lindis catchment does not lend itself to large water storage during the winter and would be confined to small on farm storage of a few weeks water supply or days.

Option 3 I believe is not an option at all unless there is a serious compensation deal to supply water from alternate sources or remuneration for loss of capital value due to production loss.

This also would mean a loss for the greater region with lost production meaning lower employment and reduced secondary processing.

The benefits that are perceived are very minimal and benefit very few. Are those wanting it prepared to open their wallets or do they think someone else should pay.

Most of the reference to alternate sources of water and more efficient use for economic gain are not relevant to the minimum flow debate. The market economy is seeing that happen already without minimum flow. Any gains in efficient use of water in this situation is related to using less water at greater cost to achieve the same margin/ha but with more risk if the reliability is low.

The requirements under section 32 Resource Management Act can be met through the consent renewal process and going through the minimum flow process does not speed it up as it will not come into effect until the mining privileges are obsolete.

I hope after reading this the final Evaluation Report is more balanced about the status quo option and takes into consideration the changes that will happen even without a minimum flow being implemented. Also this will have a larger effect on option 2 than stated.

Yours faithfully

Bruce Jolly

Chairman Lindis Irrigation

Chairman Lindis Catchment Group

# LINDIS CATCHMENT & BENDIGO TARRAS BASIN WATER MANAGEMENT REGIME

## FEEDBACK FORM

OTAGO REGIONAL COUNCIL RECEIVED DUNEDIN
30 APR 2014
FILE No. FA11156
DIR TO Emma S

### Contact Details (optional)

Name: Gordon Lucas

Email: ninemile@farmside.co.nz

Address: Nine Mile  
Box 16  
Tarras

### Comments:

It is extremely difficult for me to get my head around the fact that you propose to let 450 liters a second of extremely valuable water flow to complete waste.

I would support O.R.C. at this level and also support the Lindis Catchment Committee in its endeavours.

*Gordon Lucas*

Continue overleaf





# Lindis Catchment and Bendigo Tarras Basin Water Management Regime

## FeedBack Form

Name: Gordon Lucas

Email: [ninemile@farmside.co.nz](mailto:ninemile@farmside.co.nz)

Address: Nine Mile Station  
Private Bag 16  
Tarras 9347

### Comments:

Our property is Nine Mile Station which is situated in the Lindis Valley near Elliotts bridge on SH8. We hold the following water permits;

95928 - Nine Mile Ck

3916 - Eight Mile Ck

2009.300 - Lindis River – Gallery take.

We don't agree with the imposition of a minimum flow regime on the upper Lindis River for the following reasons;

1. Loss of productivity on our property
2. No alternative source of water supply for irrigation in the upper Lindis Valley
3. The amount of storage required to cover minimum flow periods may not be economically viable.
4. We question whether the gains from the proposed minimum flow regime are realistic?
5. In the longer term, the new ORC policies on efficient use of water and use of alternative water supplies should have the effect of increasing the summer flows in the Lindis River without having to impose a minimum flow.

#### 1. Loss of Productivity

Based on the 8 years of flow data 2005 to 2012 the average number of days when the flow would be less than 450 l/s and water could not be used for irrigation is 57 days. This is a significant number of days and would mean a large loss in production during the hot summer months due to restrictions on irrigation. (December to March is 120 days and is the period when the minimum flow restrictions are most likely to take effect. The average number of 57 days below the minimum flow is 50% of this production period in which the requirement for irrigation is crucial because of the hot dry conditions).

#### 2. No alternative source of water supply for irrigation in the upper Lindis Valley.

In the ORC Summary Sheet for the "Management Regime for the Lindis River and Bendigo Tarras Basin", one of the outcomes for the "Economic" value states;-  
*"Availability of alternative water sources provides scope for further productivity gains through improved reliability of supply and expansion of land under*

*irrigation*". We note that this may be true for farm properties in the Tarras area where there is a potential to gain an alternative supply from the Clutha River or ground water (although this has proved to be an expensive option). However in the Lindis Valley, upstream of Cluden Hill, there is no alternative water supply available. The shallow aquifer on the Lindis River flats (Lindis Alluvial Ribbon aquifer) has been determined by the ORC to be directly connected to surface water and therefore subject to Lindis River minimum flow restrictions.

We understand that around 70% of the water taken for irrigation in the Lindis catchment is taken downstream of Cluden Creek and used in the Tarras – Ardgour area and we query if the ORC has considered the option of applying the minimum flow to the water permits in this area where there are alternative sources and not applying the minimum flow to the upstream water permits where there are no alternatives sources.

**3. The amount of storage required to cover the minimum flow periods may not be economically viable.**

We realise that storage of water to cover the minimum flow period is an option for us to consider. However storing water to cover the average 57 day period when a 450 l/s minimum flow restriction may be in place would require a large dam which may not be economically viable. Further with the higher minimum flows applied at other times of the year (750 l/s in the spring time and 1600 l/s in the winter) it may not be feasible to fill the dam during these periods. An analysis of the long term flow records of the Lindis River, a calculation of the amount of water to be stored at various risk levels is required to estimate the economic viability of storage and we have not had time to carry out this analysis. We request that the ORC could help with such analysis by supplying the flow records and analysis of the periods (days) of restriction under the proposed minimum flow regime. This should also include the description of a plan for water rationing that may be put in place by a Water Allocation Committee as the flow drops towards the minimum flow.

**4. We question whether the gains from the proposed minimum flow regime are realistic?**

We query whether the proposed gains from the minimum flow regime are realistic for the following reasons;

- a. The flows in the tributaries on our property do not reach the Lindis mainstream in dry periods.

We have water permits out of the Eight Mile and Nine Mile Creeks. The point of take for each of the water permits is at the location where the creeks run out of the foothills onto the Lindis Valley flats. The points of take are at this location as the flow in the creeks is lost to ground soakage on the Lindis flats and even when the water is not taken the flows do not extend to the Lindis River during the dry summer months. Hence a minimum flow restriction on these permits will not achieve an increase in flow in the Lindis River.

- b. Increased flows in the lower sections of the Lindis River are not likely to increase the recreational use of the river.



The current water use and flow regime in the Lindis River has been in place for over 100 years and the recreational use of the river (both general public and community) have adapted to this. The current predominant recreational use of the river occurs upstream of Cluden Stream where the flows are continuous through the summer months and there are many public access points to the river (ie. Cluden Hill Rd, Old Faithfull Rd - DoC area, SH8 rest areas, SH8 bridges). Where as in the lower sections of the River (downstream of Ardgour Rd) there are only a few public access points to the river and there are variable low flows or dry sections in the river. We contend that the proposed minimum flow regime will not significantly change the recreational use of the River as the summer flows in the Lindis River upstream of Cluden stream will not significantly change (most of the irrigation water is abstracted downstream) and although the flows in the lower sections will increase for some years, the flows will still be variable with no flow in the lower reaches near the Clutha in some years. The continued flow variability plus the lack of public access points, in our view will not promote any increases in recreational opportunities.

- c. Investment in more efficient irrigation systems is less likely with minimum flow restrictions.

Farmers are less likely to invest in efficient irrigation systems if the potential for restrictions on water use is 50% of the main irrigation period. Under the current regime the farmers in the upper valley have a fairly reliable access to water.

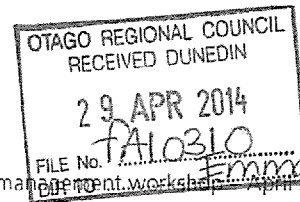
**5. In the longer term, the new ORC policies on efficient use of water and use of alternative water supplies should have the effect of increasing the summer flows in the Lindis River without having to impose a minimum flow.**

The ORC has recently introduced policy/ rules that will claw back the amount of water in a catchment being used for irrigation such as;

- Replacement permits will only be granted the amount of water that has been used over the 5 years before expiry of the permit.
- Cancellation of unused permits
- Setting primary allocation limits and sinking lid policy
- Promoting the use of alternative sources of water
- Requirement to convert to spray irrigation
- Requirement to measure all takes.

Most permits in the Lindis catchment will have to be replaced by 2021 and with the application of the new policies there should be a significant reduction in the amount of water abstracted from the river without needing to impose minimum flows. This may depend on how many permit holders are able to or required to use alternate water sources.





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Lindis River and Bendigo-Tarras Basin water management workshop April 2014

# LINDIS CATCHMENT & BENDIGO TARRAS BASIN WATER MANAGEMENT REGIME

## FEEDBACK FORM

### Contact Details (optional)

Name: John DAVIS

Email: longacre 15 @ gmail.com

Address: 143 Upton St  
WANAKA.

### Comments:

I do not agree "at this stage" with a 450 l/s minimum flow on the Lindis

1) The Tarras Community has had an irrigation system on the Lindis for 80-100 years and the flow regime under this system is really a "natural default" system. Water quality is excellent.

2) The present ecological system can be maintained as is.

3) If more trout inhabit the river, this will be to the detriment of the native galaxiids. D.O.C. went to great lengths to identify these during tenure reviews and built some structures to deny trout access to the headwaters of creeks where native galaxiids were identified.

Continue overleaf



4/ A low flow I believe will be worse than no flow as slimy weed will become more prevalent and unrightly in long periods of nil or low rainfall which often happens during dry summer months

5/ During times of low rainfall water temperatures will rise and have a detrimental effect on aquatic life. This aquatic life has evolved under the present regime and copes now with the river going dry

6/ Recreation activities under a low flow are severely limited, no fishing, no swimming, no canoeing etc. If the river goes dry people can make other arrangements for these activities, whereas the community and irrigators can't.

Water quality could be compromised with increase in weed

## 7) Irrigation

1) The figures ORC are using for irrigation analysis are out of date.

2) Many irrigation infrastructure investments are so expensive especially the most efficient ones that irrigators are either (a) putting these on completely new areas or (b) a combination of new areas and already irrigated areas – all from the Lindis takes. This has occurred and is snowballing since TARRAS WATER LIMITED's scheme was mooted and consequently failed. A new model needs to be looked at.

8) Cost of irrigation improvements is out of proportion to gains in recreational activities

Return to: Tom De Pelsemaeker, Policy Analyst, Otago Regional Council, Private Bag 1954, Dunedin  
or email: policy@orc.govt.nz

# LINDIS CATCHMENT & BENDIGO TARRAS BASIN WATER MANAGEMENT REGIME

## FEEDBACK FORM

OTAGO REGIONAL COUNCIL RECEIVED DUNEDIN
30 APR 2014
FILE No. FA1156
DIR TO Emma S.

### Contact Details (optional)

Name: James W.C. Lucas

Email: jwc.lucas@farmside.co.nz

Address: C/- New Mile  
PO Box 16  
Tarras 9347

### Comments:

I believe the minimum flow at Lindis Crossing should be no more than 200 c/s. This would be to maximise the benefit to farmers who are, by far the main industry of Tarras

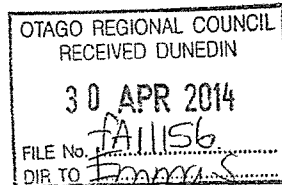
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# LINDIS CATCHMENT & BENDIGO TARRAS BASIN WATER MANAGEMENT REGIME

## FEEDBACK FORM

### Contact Details (optional)



Name: LESLEY LUCAS

Email: NINE MILE email-nine mile@farmside.co.nz

Address: P. B. 16, TARRAS, CENTRAL OTAGO

### Comments:

I believe the proposal for the lower level of 4501 cu for the Lindis River minimum flow can be achieved with input from the newly formed Lindis Catchment Management Group.

L. Lucas

Continue overleaf



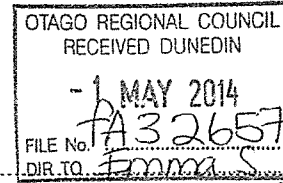


# LINDIS CATCHMENT & BENDIGO TARRAS BASIN WATER MANAGEMENT REGIME

## FEEDBACK FORM

### Contact Details (optional)

Name: Tim Davis



Email: longacre15@gmail.com

Address: 222 Timburn Rd  
Tarras 9347  
Central Otago

### Comments:

At present I don't support the recommended minimum flow regime, based on a number of issues. The primary issue being the model it is based on is flawed due to incorrect assumptions on current and future land under irrigation in the catchment.

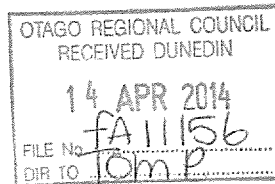
There needs to be more time allocated to the immediate community and water users to investigate the true effects and look at mitigating some of the councils concerns regarding low flows with other members of the community.

Continue overleaf



## LINDIS CATCHMENT & BENDIGO TARRAS BASIN WATER MANAGEMENT REGIME

### FEEDBACK FORM



Contact Details (optional)

Name: Alastair Ruthvenford

Email: thepoint@xtra.co.nz

Address: The Point RD 3 CROMWELL

Comments:

## Proposed Lindis Minimum Flow

I as a farmer and water right holder oppose the setting of the minimum flow above a flow of 200l/s at the Ardgor Flow gauge.

As farmers we feel we have had our equity eroded away by the phasing out of our mining privileges and now by the proposed minimum flow. We feel the rest of the so called community of river user will benefit at our expense.

So I propose any increase in the minimum flow above 200/s should be funded by these non right holders in the community that want a higher minimum flow. There are current water uses prepared to relinquish their rights for a fee which will help them get water from an alternate source.

As established at the meeting there are funds and groups that could contribute. I feel this would help to take the animosity out of the situation by sharing the cost of the minimum flow.

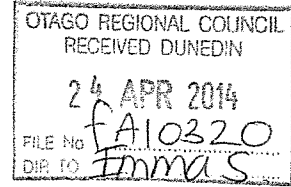
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## LINDIS CATCHMENT & BENDIGO TARRAS BASIN WATER MANAGEMENT REGIME

### FEEDBACK FORM



#### Contact Details (optional)

Name:

N.G. Trevathan

Email:

Trevathan@xtra-co.nz

Address:

Lindisvale No 3 RD  
Cremwell

#### Comments:

That First priority is to establish where is the Lindis catchment. Allocation of Primary Allocation is where surface water feeds directly to Lindis River.

That All aspects of environment are given equal consideration when considering efficient water use. Shelter, bird habitat, autumn colours, photographic opportunities have suffered at the expense of efficient water use. Increased infrastructure and operating costs demand more intensive land use which in turn adds greater discharge pressure on environment possibly increasing global warming.

The aquatic habitat is under greater threat through introduced problems than it is from water extraction. The money being

(Continue overleaf)

spent by one sector in the name of efficient water use is considerably greater than the cost of running a fish hatchery.

Recreational activities, priority consideration should be to those within walking distance of the river as anyone who has travelled by vehicle will have driven past a lot of water.

Cultural values should not outweigh the needs of families who have resided continuously, and been dependant on the Lindis ~~to~~ River for more than 100 years.

Changes are happening with local farm developments that have the potential to reduce the amount of water extracted from the Lindis River presently watering outside the Lindis Catchment. More of this will also influence the requirement of Lindis water to be the life blood of Tarras when "mining privilege's" expire. There is opportunity for environmental purchases of some allocations before expiry date.

I neither support or oppose the setting of a minimum flow rate while "mining privilege" conditions are still in place

Return to: Tom De Pelsemaeker, Policy Analyst, Otago Regional Council, Private Bag 1954, Dunedin  
or email: [policy@orc.govt.nz](mailto:policy@orc.govt.nz)

## Tom De Pelsemaeker

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**From:** peter <pwjolly@ihug.co.nz>  
**Sent:** Thursday, 22 May 2014 1:23 p.m.  
**To:** Policy Reply  
**Subject:** Lindis River

Comments on consultation draft.

1. Aquatic and eco-system have evolved to what they are today over the last 85 years, Fish and Game have stated that the Lindis is a major spawning ground for Lake Dunstan, this is happening now so clearly a 450 LPS minimum is more than adequate.

2. The RMA states that the social and economic wellbeing of a community must be given importance. For farming families and the Tarras community to survive a realistic minimum flow of no more than 450 LPS is imperative.

3. For farms to invest heavily in upgrading irrigation and building storage clarity/certainty is required around the actual available flows at certain river levels.

I raise the possibility, in extreme drought conditions, i.e. one in 10 to 15 years, the minimum flow may be able to be pro-rated down with water restrictions to allow farmers to go in to "survival mode", this would be in extreme circumstances and would be revoked as soon as possible.

4. To allow forward planning we need absolute clarity as to where the Bendigo and Clutha catchments are and what effect they will have on people in those areas who currently use Lindis water.

5. The minimum flow should be maxed at 450 LPS from October to April, a 750LPS for October and November achieves nothing for the river system and creates confusion and uncertainty for the water users, it makes the feasibility of building storage less attractive.

6. The measuring point should be solely gauged at Ardgour, the Lindis Peak point should be irrelevant.

7. The proposed options :

number one, this has worked successfully for the last 85 years number two, achievable with good will, consultation, and absolute clarity around points raised number three, unrealistic, unachievable and going by the RMA has absolute disregard for the social and economic wellbeing of the local community

8. General comments.

I totally refute the claim that under the present regime, up to 14kms of the river bed is left dry at times of low flow, I would suggest it is a maximum of 4 to 5kms at the most, to suggest 14kms is at best scare mongering.

4.3, paragraph 4, factually incorrect, the water will have the positive effect, not where it comes from.

5, traffic loadings on Selwyn river bridge, SH1, probably are 10 times greater than state highway 8 at the Lindis bridge, no one complains about that river bed, once again refer to the RMA (the social and economic wellbeing of the community is more relevant than the couple of people who commented on this at the April meeting in the Tarras Hall.

9. Recreation and tourism. Very doubtful that anything would change from what has been the status quo.

10. Economic.

1. Impacts hugely as consent and quota will very likely be reduced, the proposed primary allocation clearly sets the benchmark here.

2. Well in excess of 2,000 hectares - closer to 3,000 is presently being irrigated from the Lindis River, LIC presently irrigates about 2,000 hectares alone. I would suggest irrigated land from the Lindis is nearer 3,000 hectares, it is hard to see a reliability factor of much over 85% being achieved, without some incentive being given to encourage irrigators to invest in a much more expensive alternative source.

In conclusion, I believe a 450LPS minimum flow is achievable but at a large cost to the irrigators, so many parts of this consultation report are clearly incorrect, these and the issues that I have raised have to be addressed.

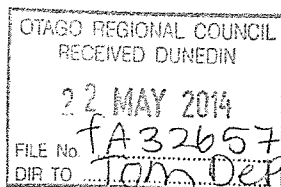
Peter Jolly

Primary right holder on Lindis river, shareholder in LIC





*for the aspiring angler*



1 Baker Grove  
Wanaka 9305

20 May 2014

Your reference A620462

Tom De Pelsemaeker  
Policy Analyst  
Otago Regional Council  
Private Bag 1954  
Dunedin 9054

Dear Tom

**Regional Plan: Water for Otago – Consultation Draft of Proposed Plan Change 5A  
(Lindis: Integrated Water Management)**

Thank you for the opportunity to provide our preliminary feedback on the consultation draft for Proposed Plan Change 5A to the Regional Plan.

The Upper Clutha Angling Club's Executive reviewed the draft before discussing it with the Club's members last week at the Club's most recent meeting on 13 May 2014.

The Club's preliminary comments are as follows:

- (a) The Club supports in principle the setting of allocation limits and minimum flows for the Lindis River as essential to safeguard the life supporting capacity of the River, and in particular to maintain a healthy aquatic ecosystem, including the fish populations that are reliant on this river system.
- (b) The Club's view is that any minimum flows proposed for the Lindis River must be demonstrated to be sufficient to protect its aquatic ecosystems and fish populations in a healthy state.
- (c) The Club believes there is insufficient evidence provided by the Regional Council to support the adequacy of the proposed minimum flows of 750 l/s for the October to November period and May, and the proposed minimum flow of 450 l/s for the December to April period to meet the minimum needs of a healthy aquatic ecosystem and fish populations in the Lindis River catchment.

Yours sincerely

Rick Boyd  
President  
Upper Clutha Angling Club



**M J Sole**

1936A Omakau-Chatto Creek Road  
RD 3  
ALEXANDRA 9393

Phone (03) 447 3336  
E-mail solem@tra.co.nz

23 June, 2015

Otago Regional Council  
Private Bag 1954  
Dunedin

Dear Sir or Madam:

**Re: Consultation Draft of Proposed Plan Change 5A (Lindis: Integrated Water Management)**

Background

I am self employed engaged in archaeological assessment consultancy and statutory land management contract work since 2008 to the present. Previously employed for MAF as an agricultural field officer 1982 – 1996. Employed by DOC as a programme manager in Recreation and Heritage and subsequently Community Relations involving RMA and Statutory Land Management, 1996 – 2006. Prior to private contracting I was engaged on fixed term contract with Central Otago District Council 2006 -2008 to complete feasibility studies on Cycling and Walking trails for Roxburgh to Lawrence and Alexandra via Roxburgh Gorge to Roxburgh, and drafting a Central Otago Outdoor Recreation Strategy.

In a voluntary capacity my partner and I are actively involved in weed control (wilding pine & brier) and shrub and tussock plant restoration projects via the Lindis Pass Conservation Group and Forest and Bird in the Lindis Conservation Area.

In a private capacity I am an active photographer and with my wife we are active in the outdoors – camping (backcountry remote) tramping, ski touring, fishing lakes & rivers; and kayaking.

Specific to the Lindis River we have camped at various locations - the Lindis Crossing; below Cluden Hill; Goodger Flat (Old Lindis Hotel) and just below the junction with Dip Creek. This has involved picnicking; camping where we have swum; built small dams; fished; walked exploring up and down the respective sections of the Lindis. This has spanned thirty odd years with and without family and is now involving grandchildren.

In my archaeological capacity I visited and explored the early Lindis Goldfield sites and the Lindis Hotel along with some of the early pastoral run heritage.

Submission

1. This submission is as private individual based on observations and experiences with the Lindis River on the consultation draft of proposed plan change 5A (Lindis: Integrated Water Management).

2. The Lindis River has a long history of over-allocated for over 100 years, as mining privileges are the primary legal means used to allocate water in the catchment. Mining privileges were allocated with no or little understanding of river systems and had no regard for instream values.
3. The current process and review is a chance with our better understanding to introduce environmental safeguards and restore meaningful river flows to the Lindis. The mechanism for the changes where water was allocated by mining privileges has been addressed through the introduction of the Resource Management Act (RMA) in 1991. It has been well signalled and now is the time to change our water extraction practises to reinstate meaningful natural flows. Critically a functioning braided river system through the Lindis Crossing and its junction with the Clutha.
4. One has to question the role of our land management practises with significant degradation of our upland tussock and inter tussock species and their natural water collection and holding systems and functions. This is a contributing factor to the quality and availability of water inflows and recharge.
5. The 450 l/s Option 2 at Ardgour Road from December to April fails to provide a functioning braided river system and protect the natural and human use values of the river.
6. A minimum flow of 1000 l/s at Ardgour Road from 1 October to 30 May is sought to maintain the braided river system through the lower reaches of the Lindis River.
7. The amenity experience of a river encounter is closely related to the level of flow within the river. For the Lindis, this means a functioning braided river system reflects our understanding of a healthy river – riffles, runs, pools, and its braided system in the lower reaches. Not dry stones and dewatered hollows and stressed riparian values. In no way a place to appreciate and recreate with for its healthy instream and amenity values.
8. As others have stated “bend our use and leave the bends in the river”

Yours sincerely,

Matthew Sole

**Tom De Pelsemaeker**

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**From:** Flyinn - New Zealand Adventure for Pilots <info@flyinn.co.nz>  
**Sent:** Thursday, 22 May 2014 10:08 p.m.  
**To:** Policy Reply  
**Cc:** 'Flyinn - New Zealand Adventure for Pilots'  
**Subject:** Submission on Plan Change 5A

**Submission Re Plan Change 5 A and Lindis River Minimum Flow**

For reasons outlined below, the council should not proceed further with this draft until more accurate information and assessment is done.

1 The actual river flow information is in doubt as the NIWA measuring site at Nine Mile has poor accuracy.

2 Council does not really know how much land is being irrigated presently and how much this is changing due to introduction of pivot irrigation.

3 Council has a lack of accurate knowledge of how minimum flows will affect reliability and supply of water to currently irrigated areas. (Unknown)

4 Council is required to assess the economic impact of any changes or rules introduced. This cannot be properly done without the information in 2 and 3 above. Lindis catchment group is currently working on this.

5 Council mentions storage and other expensive options. However making irrigation expensive has a negative economic impact in that it requires very much more intensive farming practices to pay for it. Reliable but less costly irrigation is more able to sustain the traditional sheep and beef enterprises which many people prefer to see

Matt McCaughan

Geordie Hill Station

PO Box 32

Tarras



This email is free from viruses and malware because [avast! Antivirus](#) protection is active.



**Tom De Pelsemaeker**

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**From:** Tim Davis <longacre15@gmail.com>  
**Sent:** Thursday, 22 May 2014 10:49 p.m.  
**To:** Policy Reply  
**Subject:** Lindis River Catchment Group submission

The Lindis River Catchment Group has been formed and elected by the majority of Lindis River water users following a public meeting at Tarras. The aim of the group is to manage the transition and subsequent implementation from the current irrigation system of mining privileges to RMA water rights after the mining privileges expire in 2021.

The group would like to provide feedback on the Otago Regional Council's (ORC) recommended option presented at the Tarras Hall on 1 April 2014.

As communicated at the above meeting, the ORC has made some assumptions that are inaccurate with regards to future required irrigation flow. The ORC base their assessment on 2000ha being irrigated by 1000l/s. Firstly the land under irrigation has increased over recent years as some landholders have switched to spray irrigation and used the resultant excess water from their water right to irrigate more land. This will be an ongoing occurrence as more efficient irrigation practices are developed and land owners update existing irrigation infrastructure. Secondly, the report assumes that all land is to be irrigated under spray irrigation at 5ml/ha/day. Again this assumption fails to reflect the reality of the situation where different land types will require different application rates and as has been communicated to the group, efficient use of water does not require all land to be spray irrigated. The group has contracted consultants to gain an understanding of the current land under irrigation, possible future land that will be irrigated and to model these against the proposed minimum flow (PMF). This work is currently being undertaken. It is only once we have this modeled can we understand the true effect of the PMF.

The report also fails to detail any economic modeling undertaken by the council. The economic effects haven't been presented at all, and only appear in summary that there will be a cost to upgrade infrastructure and that efficient water use will have economic spinoffs. The report also fails to link the PMF with increased investment, whereby a degree of reliability will be required to make any proposed investment decision. Again, only until we have an accurate model of the effects of the PMF on water allocation will we be able to attempt to quantify the economic impact.

It would seem that there is a stretch in the imagination to assign an economic benefit to tourism of continuous water flow under SH8 bridge. Has the council any supporting evidence?

The importance of the Lindis River to holiday makers and campers is acknowledged and landowners in the Lindis River catchment have generally been very welcoming to anyone who wishes to camp on their land. One area highlighted by the council is beside the SH8 bridge where campers have been coming for quite some time. These campers have been coming despite flows in the river being very low at times or even dry. The report makes the assumption that a permanent flow under the bridge will improve the camping experience for these campers. However, the report fails to identify why campers actually use this site even when flows are very low and not at alternative sites where flows are higher and more consistent such as the Cluden Creek confluence campsite and designated campsites at Faithfuls hotel. Having talked to one such camper, it was highlighted the lack of water was the primary reason for being there. His family included young children.

The importance of the Lindis River as a spawning habitat for the Upper Clutha fishery is not disputed at present as this is outside the scope of the catchment group at the present time. However, it has to be noted that the current water management regime has been in effect for over 100 years without a seemingly detrimental effect. It is also apparent from the report that there is direct competition between native fish and introduced sports fish in the river and increasing the permanent habitat for sports fish in the lower Lindis River may have a detrimental effect on native fish populations.

The importance of the River as an angling river can be argued as minor, especially given the reports evidence of the angler survey of 2001/2002 (Unwin and Image 2003) of 150 angler days compared to 5630 angler days in the Manuherikia Catchment. Regardless of this, any proposed minimum flow is unlikely to have any meaningful effect on the quality of the river as an angler destination as the distribution of willow trees remains unchanged and river flows in dry periods will still be limiting factors i.e. the status quo is largely preserved.

In conclusion, the information presented at the Lindis River catchment on 1 april was insufficient to be able to comment fully on the PMF due to the unknown effect that the PMF will have on the allocation of supply. Furthermore, some assumptions about amenity values of the river to other uses has at best been stretched.

The group would like the ORC to delay formal notification of the proposed plan change to enable the Lindis River Catchment Group to gather the required information and will then be able to make fully informed decisions. Once we have this information we will also be able to consult other interested parties to try to reach a mutually beneficial agreement on the PMF.



**Tom De Pelsemaeker**

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**From:** R & A Chapman-Cohen <lindisdowns@farmside.co.nz>  
**Sent:** Friday, 23 May 2014 9:23 a.m.  
**To:** Policy Reply  
**Subject:** Lindis Downs Ltd Lindis Min Flow Feedback to ORC.docx  
**Attachments:** header.htm

## **Lindis Catchment and Bendigo Tarras Basin Water Management Regime**

### **FeedBack Form**

Name: Angus & Rebecca Chapman-Cohen

Email: lindisdowns@farmside.co.nz

Address: Lindis Downs Ltd  
 PO Box 21  
 Tarras 9347

#### **Comments:**

Our property is Lindis Downs which is situated in the Lindis Valley just north of Cluden Hill. We hold water permit 2008.364 to take groundwater from the Lindis Alluvial Ribbon aquifer.

We don't agree with the imposition of a minimum flow on the upper Lindis River for the following reasons;

1. Loss of productivity on our property
2. No alternative source of water supply for irrigation in the upper Lindis Valley
3. The amount of storage required to cover minimum flow periods may not be economically viable.
4. We question whether the gains from the proposed minimum flow regime are realistic?
5. In the longer term, the new ORC policies on efficient use of water and use of alternative water supplies should have the effect of increasing the summer flows in the Lindis River without having to impose a minimum flow.
6. Economic impacts of reduced access to water

#### **1. Loss of Productivity**

Based on the 8 years of flow data 2005 to 2012 the average number of days when the flow would be less than 450 l/s and water could not be used for irrigation is 57 days. This is a significant number of days and would mean a large loss in production during the hot summer months due to restrictions on irrigation. (December to March is 120 days and is the period when the minimum flow restrictions are most likely to take effect. The average number of 57 days below the minimum flow is 50% of this production period in which the requirement for irrigation is crucial because of the hot dry conditions).

#### **2. No alternative source of water supply for irrigation in the upper Lindis Valley.**

In the ORC Summary Sheet for the “Management Regime for the Lindis River and Bendigo Tarras Basin”, one of the outcomes for the “Economic” value states;- “*Availability of alternative water sources provides scope for further productivity gains through improved reliability of supply and expansion of land under irrigation*”. We note that this may be true for farm properties in the Tarras area where there is a potential to gain an alternative supply from the Clutha River or ground water (although this has proved to be an expensive option). However in the Lindis Valley, upstream of Cluden Hill, there is no alternative water supply available. The shallow aquifer on the Lindis River flats (Lindis Alluvial Ribbon aquifer) has been determined by the ORC to be directly connected to surface water and therefore subject to Lindis River minimum flow restrictions.

We understand that around 70% of the water taken for irrigation in the Lindis catchment is taken downstream of Cluden Creek and used in the Tarras – Ardour area and we query if the ORC has considered the option of applying the minimum flow to the water permits in this area where there are alternative sources and not applying the minimum flow to the upstream water permits where there are no alternatives sources.

**3. The amount of storage required to cover the minimum flow periods may not be economically viable.**

We realise that storage of water to cover the minimum flow period is an option for us to consider. However storing water to cover the average 57 day period when a 450 l/s minimum flow restriction may be in place would require a large dam which may not be economically viable. Further with the higher minimum flows applied at other times of the year (750 l/s in the spring time and 1600 l/s in the winter) it may not be feasible to fill the dam during these periods. An analysis of the long term flow records of the Lindis River, a calculation of the amount of water to be stored at various risk levels is required to estimate the economic viability of storage and we have not had time to carry out this analysis. We request that the ORC could help with such analysis by supplying the flow records and analysis of the periods (days) of restriction under the proposed minimum flow regime.

**4. We question whether the gains from the proposed minimum flow regime are realistic?**

We query whether the proposed gains from the minimum flow regime are realistic for the following reasons;

- a. Due to the slow rate of flow in an aquifer we question whether the restriction of a groundwater take in the Lindis Alluvial aquifer will have any effect on the relatively short term of a minimum flow period. The flows in the tributaries on our property do not reach the Lindis mainstream in dry periods.

We have a water permit out of the Lindis Alluvial Ribbon aquifer and although the ORC states that the aquifer is connected to surface water we consider that there is a time lag involved before any abstraction from the aquifer affects the river flow and therefore to cease taking ground water when the river reaches a minimum flow level may not have the required effect of increasing the flow in the river.

- b. Increased flows in the lower sections of the Lindis River are not likely to increase the recreational use of the river.

The current water use and flow regime in the Lindis River has been in place for over 100 years and the recreational use of the river (both general public and community) have adapted to this. The current predominant recreational use of the river occurs upstream of Cluden Stream where the flows are continuous through the summer months and there are many public access points to the river (ie. Cluden Hill Rd, Old Faithfull Rd - DoC area, SH8 rest areas, SH8 bridges). Where as in the lower sections of the River (downstream of Ardgour Rd) there are only a few public access points to the river and there are variable low flows or dry sections in the river.

We contend that the proposed minimum flow regime will not significantly change the recreational use of the River as the summer flows in the Lindis River upstream of Cluden stream will not significantly change (most of the irrigation water is abstracted downstream) and although the flows in the lower sections will increase for some years, the flows will still be variable with no flow in the lower reaches near the Clutha in some years. The continued flow variability plus the lack of public access points, in our view will not promote any increases in recreational opportunities.

- c. Investment in more efficient irrigation systems is less likely with minimum flow restrictions.

Farmers are less likely to invest in efficient irrigation systems if the potential for restrictions on water use is 50% of the main irrigation period. Under the current regime the farmers in the upper valley have a fairly reliable access to water.

**5. In the longer term, the new ORC policies on efficient use of water and use of alternative water supplies should have the effect of increasing the summer flows in the Lindis River without having to impose a minimum flow.**

The ORC has recently introduced policy/ rules that will claw back the amount of water in a catchment being used for irrigation such as;

- Replacement permits will only be granted the amount of water that has been used over the 5 years before expiry of the permit.
- Cancellation of unused permits
- Setting primary allocation limits and sinking lid policy
- Promoting the use of alternative sources of water
- Requirement to convert to spray irrigation
- Requirement to measure all takes.

Most permits in the Lindis catchment will have to be replaced by 2021 and with the application of the new policies there should be a significant reduction in the amount of water abstracted from the river without needing to impose minimum flows. This may depend on how many permit holders are able to or required to use alternate water sources.

**6. Economic impacts of reduced access to water.**

We feel that the ORC has not looked into the economic impact at depth and how it will not only affect the individual farmers but the community as a whole.

These impacts when considered should carry far greater weight than apprising the tourist travelling over the Lindis Bridge and the aquatic life in the lower reaches of the Lindis River.



**Tom De Pelsemaeker**

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**From:** jaynerive@hotmail.com  
**Sent:** Friday, 23 May 2014 10:17 a.m.  
**To:** Info  
**Subject:** Lindis river Minumim flow

Name: Jayne Rive

Email Address: [jaynerive@hotmail.com](mailto:jaynerive@hotmail.com)

Telephone Number: 0275668068

Address: Cloudy Peak, 664 Ardgour RD, R D 3, Cromwell

Message: As an irrigator on the Lindis river I would like to support the Lindis catchment group decision to get all relevant data including the economic effects the PMF will have on our business, so we can make a fully informed decision.



**Tom De Pelsemaeker**

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**From:** R S & J Emmerson <rsemmerson@xtra.co.nz>  
**Sent:** Friday, 23 May 2014 10:08 a.m.  
**To:** Policy Reply  
**Subject:** Regional Plan - Water for Otago (Lindis: Integrated Water Management)

T De Pelsemaeker  
Policy Analyst  
Otago Regional Council  
Private Bag 1954  
DUNEDIN.

Your Reference: A620462

Dear Sir

**Regional Plan: Water for Otago – Consultation Draft of Proposed Plan Change 5A (Lindis: Integrated Water Management)**

In response to the above we wish to point out that although we have not been involved in the discussions and consultation around the proposed changes we wish Council to recognise that we have made significant contributions towards the water purity and harvesting potential of the Lindis River through our sustainable land management practices in the upper Lindis area since the 1970s.

Our substantial investments in Catchment Board Soil and Water Conservation programs should be recognised for the sustainable benefit of the properties involved.

Also although we have water rights to use water from Station Creek and Mckenzie Creek this option has not been utilised for over 30 years, making this volume available for irrigators down stream. This was largely utilised on a Tarras property that we recently sold.

Accordingly we seek reassurance from the Council that they will take these issues into account and give favourable consideration to any water use applications from the Lindis River or its tributaries that we may make in the future.

Thank you.

Yours sincerely

R S Emmerson, director  
Forest Range Ltd

P O Box 9  
Tarras 9347  
Central Otago  
New Zealand



[rsemmerson@xtra.co.nz](mailto:rsemmerson@xtra.co.nz)

[www.forestrange.co.nz](http://www.forestrange.co.nz)



# LINDIS CATCHMENT & BENDIGO TARRAS BASIN WATER MANAGEMENT REGIME

## FEEDBACK FORM

Name: Barbara Annan

Email: [barbannan@farmside.co.nz](mailto:barbannan@farmside.co.nz)

Address: Lindis Peaks Station  
PO Box 7  
Tarras 9347

### **Comments:**

Any future water permits to take water from Tarras Creek should be considered separate from the flow management regime proposed for the Lindis River catchment. Tarras Creek is not hydraulically connected to the Lindis River surface flow. This should be specifically stated in the proposed plan change.

We have had explanatory notes prepared by Opus to support this. Please refer to the attached comments.

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# Comments to Otago Regional Council on behalf of Lindis Peaks Station

## 1 Introduction

The Otago Regional Council has released a Consultation Draft for Proposed Plan 5A (Lindis: Integrated Water Management). Comments on the draft have been invited for incorporation into the proposed plan change.

Under the Proposed Plan Change, the Otago Regional Council is considering setting minimum flows and allocation limits for the Lindis River and maximum allocation volumes for the aquifers in the Bendigo-Tarras Basin in the Regional Plan: Water for Otago.

The following comments have been prepared for Lindis Peaks Station.

## 2 Context

Lindis Peaks Station is located to the north of Tarras Township, having land to the north and south of Deep Creek Road. It has been operated by the Annan family since 1940. The property is currently a dryland operation of 3759ha of hill country, rolling hills and flats. The introduction of irrigation on the lower flats has been under investigation since the now unlikely Tarras Water Limited proposals were mooted. Some of the flats will be irrigated under the proposed Terraces Irrigation Scheme that has been developed over the last eighteen months.

Tarras Creek passes through the property as far as Phillips Road and State Highway 8, where it enters Malvern Downs. Currently water is taken from Tarras Creek for stockwater use on Lindis Peaks and Malvern Downs. The current intake for the Malvern Downs stockwater supply is within Lindis Peaks Station as the surface water flow frequently disappears upstream of the SH8 crossing. Some preliminary investigations have been carried out to determine whether or not Tarras Creek has sufficient yield to supplement future irrigation on Lindis Peaks.

The owners of Lindis Peaks have been aware of the previous consultation around the future management of the Lindis River, but have not participated as they believed that Tarras Creek surface flow is not connected to the Lindis River and therefore not relevant to any change in the Lindis River management policy.

## 3 Tarras Creek

### 3.1 Background

The maps accompanying the Consultation Draft for PPC5A and the supporting documents on the ORC website appear to show Tarras Creek flowing north to south through Malvern Downs, then south across Cemetery Road and Ardgour Road before joining the Lindis River south of Ardgour Road (ORC Lindis Catchment Information Sheet, April 2014).



Figure 1: Section of Topo 50 map CB13

An examination of the topography at this location will establish that this flow pattern is, in fact, impossible. Cemetery Road at this location is higher than the Malvern Downs property and is crossed by the Lindis Irrigation Scheme Main Race flowing south to north. A visit to the site has established that there is no creek crossing of Cemetery Road from north to south.

### 3.2 Topo Maps and Aerial Photography

The depiction of Tarras Creek on topographical maps varies considerably downstream of the crossing of SH8. Figure 1 on the previous page shows the most recent being from the Topo 50 series map CB13. The previous series NZMS260 sheet G40 shows Tarras Creek as ceasing about 500m downstream of the SH8 crossing. Other on-line mapping sites show similar information for Tarras Creek.

Similarly examination of recent aerial photography of the area does not show any evidence of a surface watercourse downstream of the Malvern Downs Homestead.

There is no record of the historical course of Tarras Creek apart from that shown on DP plan 3509 from 1924 that shows the trace of Tarras Creek terminating within Malvern Downs north of Ardgour Road.

It is believed locally that for most of the year the creek discharges to shallow groundwater both upstream and downstream of SH8. When the Malvern Downs stockwater intake (at Deep Creek Road) is operating, there is seldom surface flow as far as Phillips Road. Summer flows in Tarras Creek at the SH8 culvert come from the stockwater race by-wash structure upstream of Phillips Road and discharge to groundwater downstream of the State highway.

This loss of flow to groundwater is also believed to occur from Deep Creek to the west. There are springs to the north of SH8 at the Ardgour Road corner at a similar elevation to the disappearance of Tarras and Deep Creeks. The springs are believed to be fed partly from Tarras Creek and from irrigation seepage. The springs are taken into the Lindis Irrigation Main Race under Deemed Permit 2001.808.

The flow patterns on the Tarras flats are another indication that Tarras Creek does not flow north to south into the Lindis River.

### 3.3 River Environments Classification

The River Environments Classification (REC) database classifies Tarras Creek as a third order catchment within the Lindis River system (14016023). Examination of the maps associated with the REC show a flow path that crosses Cemetery Road and Ardgour Road, as described in Section 3.1, above. This mapping system was supposed to have taken topography into account, but has clearly not been checked in this case and should be referred back to NIWA for reconsideration. As noted above, it is not topographically possible for Tarras Creek to flow from north to south as shown on the REC maps.

### 3.4 Relevant Reports

Some reports also suggest that Tarras Creek is a source of recharge to groundwater on the flat north of Tarras Township. The SKM report of November 2004, prepared for ORC, "Bendigo and

Tarras Groundwater Investigation” notes (p18) that “the potential exists for leakage from the stream to the aquifer, although monitoring data is currently not available to confirm this.”

Also: “Visual observations of Tarras Creek below the irrigation command area show that this creek continues to flow, even during winter, draining the upland irrigated terraces.” There is no indication of the course of this flow, but there are various channels that flow east to west towards the Clutha River.

Figure 10 of the report shows piezometric surface contours with the direction of flow towards the Clutha River.

The ORC report “Bendigo and Tarras Groundwater Allocation Study”, December 2010, has used data from previous reports to develop a model of the Bendigo and Tarras groundwater resource. Figure 3.6 of the report shows contoured water table surface from a December 2009 survey of groundwater levels. The groundwater flow from Tarras Creek is again shown as towards the Clutha River.

The Conservation Resources Report on the Tenure Review for Deep Creek Station (sourced from the LINZ website) notes that the creeks on this property (to the west of Lindis Peaks) are “unlikely to flow all the way to the Clutha/Mata-au River due to irrigation diversion structures and water extractions.” This implies that these creeks are also believed to be tributaries of the Clutha River.

## 4 Conclusion

The Topo 50 series mapping depicts a number of surface watercourse to the west of SH8, north of Tarras Township. On the basis of the statements above, and in the absence of any monitoring data to the contrary, it is impossible to link Tarras Creek to the surface water resource of the Lindis River. The creek enters the water table within a formation that would take it to the Clutha River as indicated on the aquifer contours within the SKM report.

We therefore request that any future applications to abstract water from Tarras Creek be considered in isolation of the flow management regime put in place by Proposed Plan Change 5A or any other plan change that proposes to link the Tarras Creek catchment to the Lindis River.



Otago Regional Council  
Private Bag 1954  
Dunedin

23/05/2014


Dear Sir / Madam

**Re: Consultation Draft of Proposed Plan Change 5A (Lindis: Integrated Water Management)**

1. This is a submission from the Otago Fish and Game Council on the consultation draft of proposed plan change 5A (Lindis: Integrated Water Management)
2. The Otago Fish and Game Council (Fish and Game) is the statutory manager of sports fish and gamebirds within the Lindis River catchment, a role it has performed since establishment in 1990. Previously, similar functions were performed by Department of Conservation in the Southern Lakes Acclimatisation District.

*Summary*

3. Whilst it is welcome to see that the ORC is moving to finally notify a plan change for the river and nearby aquifers to place a minimum flow and allocation limits on the water resource, the proposed minimum flow in Option 2 of 450 l/s at Ardgour road flow recorder from December to April is completely inadequate and fails to protect the natural and human use values of the river. The 750 l/s flow proposed from October to November and also in May is considered insufficient as well.
4. Instead of the 450 l/s summer minimum flow proposed currently, Otago Fish and Game seeks a minimum flow of 1000 l/s at Ardgour road flow recorder from 1 October to 30 May and an associated reduction in the primary allocation limit to make this minimum flow achievable. This flow removes the need for the spring and autumn minimum flows of 750 l/s. Given that the river naturally loses between of about 440 l/s to groundwater (depending on the aquifer conditions) below Ardgour road flow recorder, a flow of 1000 l/s would correspond to about 600 l/s flowing under the SH 8 road bridge and connecting to the Clutha. This would be sufficient to maintain the braided river character throughout the lower river reach

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5. It is noted that the naturalised 7 day MALF of the river (the mean annual low flow that would occur for a 7 day period without irrigation on the river) at the Ardgour road flow recorder flow recorder is assumed to be 1610 l/s (Otago Regional Council, 2008) and the minimum flow requested by Otago Fish and Game is 60% of MALF. It should be noted that this naturalised MALF calculation is largely based off the Lindis Peak flow recorder which is above most of the irrigation takes and may not take into account downstream tributary flows or any localised losses to groundwater.
  6. Given that the draft National Environmental Standard on Environmental Flow Setting (Ministry for the Environment, 2008) recommend the setting of minimum flows at no less than 90% of MALF for rivers less than 5 cumecs in mean flow, Otago Fish and Game's acceptance of a minimum flow of 60% of MALF is a recognition of the dry nature of the catchment and the need for some surface water abstraction to continue. However, the Lindis River is no different from any other medium sized river in New Zealand and its past history of over-allocation and the looming expiry of deemed permits warrants a thorough reconsideration of flows and the natural character of the river.
  7. It is noted that a minimum flow of 1000 l/s set at the Ardgour road flow recorder flow recording site will provide for a flow in the lower reaches of the Lindis River at about 150 l/s below the point of inflection which has been established by IFIM habitat preference curves for juvenile brown trout in this river.
  8. Otago Fish and Game considers that a substantial amount of further information about how the river behaves has been established since the original dual minimum flow of 450/750 l/s was developed by the ORC. This new information includes detail of fish behaviour in the river at low flow times, fish mortality, temperature data and specific reach-by-reach photography of the river's visual appearance during low flow times. This information justifies a higher minimum flow for the river.

### *Background*

9. Fish and Game has had a long standing and well-communicated concern about low and no flows within the Lindis River over the summer months and the over-allocation of surface water to irrigation, currently authorised by deemed permits. With a change to "efficient" irrigation practices, more intensive land use, and a move by irrigators to maximise the use of their deemed permits before they expire (based perhaps on an erroneous belief that proving water use will allow them to retain water after 2021), it appears that the situation with summer low flows in the river is worsening.



10. Fish and Game has previously indicated its opposition to the proposed 450 l/s flow regime and was supportive of the proposed Tarras Water Scheme, which if it had had wider support from irrigators within the catchment, would have provided a ready alternative water source and made it easier to place a meaningful minimum flow on the Lindis River. Fish and Game support for the TWS included assisting Tarras Water Limited with gaining the necessary resource consents that they required to build and operate the scheme.
11. Otago Fish and Game has always been critical of the Otago Regional Council's approach in making a meaningful minimum flow for the river dependent on an irrigation scheme. This flaw is apparent now, as a minimum flow of 450 l/s does not create a healthy instream environment. The dual flow proposal was in hindsight, a tactical mistake.
12. The Lindis River surface water resources have been heavily over-allocated for over 100 years, as mining privileges (treated as deemed permits under the RMA) are the primary legal means used to allocate surface water in the catchment. Mining privileges were issued with scant understanding of hydrology and no regard for instream values.
13. The historic lack of any environmental safeguards on Central Otago rivers where water was allocated by mining privileges was addressed through the introduction of the Resource Management Act (RMA) in 1991. That signalled with a 30 year lead in time, a rebalancing between private irrigation water and the public river. Therefore, this plan change and the subsequent phase out of deemed permits offer a once in a hundred year chance to restore a meaningful flow to a river that has suffered. The 2021 end date for deemed permits is well known and the need to reallocate water to meet the environmental needs of the river comes as no surprise.

*Practical implementations of minimum flows in the Lindis*

14. The setting of a minimum flow (regardless of level) on the Lindis River by a change to the regional plan: water is only one half of the challenge. The second half of the issue, which is not discussed at all in the minimum flow proposal, is the design of the allocation regime that covers the day to day management of the river between irrigators. This will enable irrigators to jointly and fairly meet the minimum flow requirements, to share available water during low flow times, and also to ensure there is still stock and domestic water if necessary. A flow management system is essential to any minimum flow regime, and shared/collective approaches to water management are encouraged by the regional plan. It is of particular relevance in catchments that are dominated by deemed permits, because the priority systems

that are currently used will need to be renegotiated or replaced, and then written down as the basis of a new system.

15. Within the Lindis River, there appears to be little sign that a collective approach to water management is emerging, although the basis for such a structure could emerge from the existing irrigation companies that share common infrastructure like raceways. It is imperative that efforts are made to establish an all of catchment irrigators group within the Lindis River so that practical discussions about replacing deemed permits and achieving future flows in the river can begin.
16. One practical option that emerges as a possibility for sustaining flows in the lower Lindis River is for all current surface water takes on the Beggs-Stacpoole race that have the ability to shift to groundwater takes from the Clutha-supplied aquifers, and for the approximately 9 heads, or 250 l/s of first-priority water allocated to the race (which takes from just above the Ardgour road flow recorder flow recorder) to be relinquished to the lower river in order to help achieve the minimum flow and to ensure continuity of flow at a meaningful level to the Clutha confluence.
17. All of the above requires active management by ORC to ensure that a group structure forms and that it develops the basics of a new flow management system for the river, to replace the priority system that currently exists.

#### Policy interpretation

18. The Regional Plan: Water provides objectives, policies, rules, and methods for managing water quantity. There appears to be some inconsistency in the section 32 report about the primary aims of this part of the water plan. The section 32 report (pg 8) uses the phrase *aquatic ecosystems and natural character*, and also refers to the National Policy Statement on Freshwater Management (NPSFM) and Water Plan objectives of “safeguarding life-supporting capacity, ecosystem processes, and indigenous species”. It refers this back to NPSFM value B1, Water Plan policies 5.3.1 and 6.3.1. However, the two water plan objectives are as follows:

*5.3.1 To maintain or enhance the natural and human use values, identified in Schedules 1A, 1B and 1C, that are supported by Otago’s lakes and rivers.*

*6.3.1 To retain flows in rivers sufficient to maintain their life-supporting capacity for aquatic ecosystems, and their natural character.*

These objectives are quite different from that portrayed in the s32 report.

Therefore, there is an inconsistency in the section 32 report which has occurred by trying to combine these three policy objectives that come from different contexts. There is also no mention in the existing water plan objectives of a preference for indigenous species only. The species values and cultural values that apply for the Lindis River are those identified in Schedule 1A, 1B, and 1C. Without being exhaustive, these values are as follows:

- *Pgravel – The most important substrate for biota is gravel*
- *Weedfree - Largely weed free*
- *Hspawn(t) – Significant trout spawning*
- *Hjuve(t) – Significant habitat for juvenile trout*
- *Eel – Significant presence of eels*
- *Trout - Significant presence of trout*

To this it would be appropriate to add significant presence of upland bully and wading birds as new values. This addition to Schedule 1A could form part of this plan change.

19. For flow setting itself, the water plan objectives and policies provide the following guidance, although it is noted that there are few specific objectives and policies within the plan that give an overall context to minimum flow setting. The particular significance of the objective or policy with respect to the Lindis has been added underneath each one in italics.

*5.3.1 - To maintain or enhance the natural and human use values, identified in Schedules 1A, 1B and 1C, that are supported by Otago's lakes and rivers.*

For the Lindis, the natural fishery values to maintain or enhance are trout, juvenile trout and eels, as identified in Schedule 1. This means providing meaningful flows that support these fish at their juvenile and adult life-stages. At the moment with the river going dry during summer months due to irrigation, killing significant numbers of native and introduced fish, it cannot be reasonably argued that the maintenance of existing values is sufficient or appropriate, and enhancement is required.

*5.3.2 - To maintain or enhance the spiritual and cultural beliefs, values and uses of significance to Kai Tahu, identified in Schedule 1D, as these relate to Otago's lakes and rivers.*

Otago Fish and Game supports Kai Tahu's values for the Lindis River, as both iwi and Fish and Game seek healthy rivers that are safe for food gathering, swimming, and recreation.

*5.3.3- To protect the natural character of Otago's lakes and rivers and their margins from inappropriate subdivision, use or development.*

This objective further defines natural character in the explanation as:

*“The natural character of Otago’s lakes and rivers and their margins is made up of a range of physical, ecological and cultural qualities. These relate to the lake’s or river’s topography, including the setting and bed form, natural flow and level characteristics, ecology, and the extent of development within the catchment. The degree of natural character and what is considered to be inappropriate subdivision, use and development, will vary from place to place.”*

Within the lower Lindis River, the morphology is that of a braided river, albeit with greatly reduced flow due to irrigation. A meaning flow is require to restore its braided character.

*5.3.4 - To maintain or enhance the amenity values associated with Otago’s lakes and rivers and their margins.*

The amenity of a river is closely related to the level of flow within the river. For the Lindis, this means establishing a continuous flow that resembles people’s perceptions of a healthy river – riffles, runs, pools, and its braided character in the lower reaches rather than a warm discontinuous trickle within a large area of dusty dry stones. It also means ensuring that landholders undertake appropriate riparian management.

*5.3.5 - To maintain or enhance public access to and along the margins of Otago’s lakes and rivers.*

Public access to the Lindis is highly important for public recreation including angling, gamebird hunting, and other recreational uses like camping and picnicking, but is not relevant to this plan change.

*5.3.6 - To provide for the sustainable use and development of Otago’s water bodies, and the beds and margins of Otago’s lakes and rivers.*

This is the objective that allows for the use/abstraction of water, however, this use/abstraction must be undertaken in a sustainable manner. Currently, the use of water from the Lindis is far from sustainable.

*5.3.7- To maintain the heritage values associated with Otago’s lakes and rivers, and their margins.*

There are no known heritage values that are affected by the minimum flow proposal for the Lindis River.

*5.3.8- To avoid the exacerbation of any natural hazard or the creation of a hazard associated with Otago's lakes and rivers.*

The minimum flow proposals will not exacerbate any natural hazard. In fact there is a chance that a higher minimum flow may result in more frequent bed movement which reduces the build up of silt and periphyton and can improve the safety aspects of the river channel. An example is the scour holes that are forming around the piles of the State Highway 8 bridge which would be filled in through bed load transport if sufficient flows were provided.

*Policy 5.4.2- In the management of any activity involving surface water, groundwater or the bed or margin of any lake or river, to give priority to avoiding, in preference to remedying or mitigating:*

*(1) Adverse effects on:*

- (a) Natural values identified in Schedule 1A;*
- (b) Water supply values identified in Schedule 1B;*
- (c) Registered historic places identified in Schedule 1C, or archaeological sites in, on, under or over the bed or margin of a lake or river;*
- (d) Spiritual and cultural beliefs, values and uses of significance to Kai Tahu identified in Schedule 1D;*
- (e) The natural character of any lake or river, or its margins;*
- (f) Amenity values supported by any water body; and*

*(2) Causing or exacerbating flooding, erosion, land instability, sedimentation or property damage.*

Within the Lindis, this provides further emphasis on the objectives in that priority must be given in flow setting to avoiding adverse effects on natural values, cultural values, natural character, and amenity. The preference to avoid means that a precautionary approach should be taken when setting minimum flows.

*5.4.9- To have particular regard to the following qualities or characteristics of lakes and rivers, and their margins, when considering adverse effects on amenity values:*

- (a) Aesthetic values associated with the lake or river; and*
- (b) Recreational opportunities provided by the lake or river, or its margins.*

This provides further emphasis that for flow setting, aesthetic values and recreational values must be considered. For the Lindis, this means providing for angling, swimming, and the natural character of a flowing river and its braided character in the lower reaches.

*5.5 Anticipated environmental results*

*5.5.1- Kai Tahu spiritual and cultural beliefs, values and uses associated with water or lakes and rivers are maintained or enhanced.*

This places a specific priority on ensuring that Ngai Tahu values for the Lindis River are maintained and enhanced, and not just acknowledged.

*5.5.2- Outstanding natural features and landscapes associated with lakes and rivers are protected from inappropriate use and development of water and land resources.*

This applies where the water feature sits within an outstanding natural landscape. For the lower Lindis River, this does not apply.

*5.5.3- Areas of significant indigenous vegetation, significant habitats of indigenous fauna, and significant habitats of trout and salmon are protected.*

The lower Lindis has significant habitats of trout and eels, as identified within Schedule 1A of this Plan.

*5.5.4- Aquatic community health and diversity in lakes and rivers are maintained or enhanced.*

At the moment with the river going dry due to abstraction there is no maintenance of aquatic community health or diversity, and so enhancement is necessary.

*5.5.5- People and communities can continue to access the resources of lakes and rivers and their margins.*

A dry river offers limited opportunities for people to access its recreational and food resources. Whilst 'resources' would include the abstraction of surface water, when this anticipated environmental result cannot be taken in isolation from the other results anticipated which all hinge on meaningful continuous flows in the river.

*5.5.6- Significant heritage values associated with the beds or margins of lakes and rivers are protected from inappropriate use and development of water and land resources.*

From the perspective of Otago Fish and Game, there are no known significant heritage values in the lower river.

*5.5.7- The natural character of Otago's lakes and rivers is protected from the inappropriate use and development of water and land resources.*

The current and proposed water allocation regime do not protect the natural character of the river. In fact the natural character is first degraded as flows drop over summer and then destroyed altogether in reaches where the flow ceases

*5.5.8- People and communities can continue to enjoy and appreciate the amenity values of Otago's lakes and rivers.*

The amenity of the lower Lindis River is severely compromised at present by abstraction for irrigation, and the proposal to establish a minimum flow of 450 l/s would do little to enhance this amenity. The only reasonable option to meet this anticipated environmental result is to establish a meaningful minimum flow that provides for a functioning healthy river ecosystem as well as amenity values. A flowing river is a clearly defined amenity value.

*5.5.9- Public access to and along Otago's lakes and rivers is maintained or enhanced.*

This is not currently an issue.

20. Chapter 6 of the Regional Plan: Water deals with the specifics of managing water quantity. Its objectives and policies should be read concurrently with the objectives and policies of chapter 5, although Chapter 6 appears to be more permissive in terms of supporting abstraction than Chapter 5.

*6.3.1- To retain flows in rivers sufficient to maintain their life-supporting capacity for aquatic ecosystems, and their natural character.*

There is a difference between “maintain life-supporting capacity for aquatic ecosystems, and their natural character” and the equivalent objective in 5.3.1 which is to “maintain and enhance natural and human use values”. The linkage may be in the concept of natural character, which for the lower Lindis River is that of a braided river that requires a continuous flow. The life supporting capacity for aquatic ecosystems is well defined for trout and eels, based on their physiology and habitat requirements, but this is not currently provided for in the lower Lindis, where there are wading birds that live and breed on the river bed and require river braids to provide protection from predators and also will not be provided for by the proposed summer minimum flow of 450 l/s.

*6.3.2- To provide for the water needs of Otago's primary and secondary industries, and community domestic water supplies.*

This objective is somewhat conflicted by the approach taken in Chapter 5 for the maintenance and enhancement of human use values, as the objective is not restricted by any reference to sustainability. It appears to place a priority on consumptive uses of water, rather than on the environmental flow needs of the river.

*6.3.2A- To maintain long term groundwater levels and water storage in Otago's aquifers.*

This is in contrast to objective 6.3.2 above in that the water plan appears to anticipate the need to set maximum allocation volumes in order to ensure the sustainability of Otago's groundwater resources. No similar objective appears to exist for surface water sustainability.

*6.3.3- To minimise conflict among those taking water.*

This objective supports a holistic and integrated approach being taken when setting minimum flows. It is particularly important to ensure that there is coherence between the primary allocation limit and the minimum flow. It is also important to review all deemed permits on a catchment wide basis to minimise conflict if they were reviewed on an ad-hoc, first come, first served basis.

*6.3.4- To maximise the opportunity for diverse consumptive uses of water which is available for taking.*

Within the Lindis catchment itself it is not clear how this objective would be met, as almost all consumptive use is for irrigation on farms, plus a small amount of domestic water supply. However, the Lindis water has a downstream value for hydroelectricity generated in the Clyde and Roxburgh dams once this water reaches Lake Dunstan. Therefore, there is an easily-calculated economic value on a higher minimum flow in the river, because this water is available for downstream uses after it has passed through the Lindis catchment, rather than growing grass or fodder crops.

A Lindis minimum flow would also provide for further groundwater recharge, thus topping up the downstream aquifer for later use by irrigators.

*6.3.5- To minimise adverse effects on the quality of receiving water, including its ecology and mauri, where such water is subject to any new inter-catchment transfer of water.*

This is not relevant to the plan change from Fish and Game's perspective.

*6.3.6- To minimise any adverse downstream effect of managed flows.*

There are no large upstream sources of water in the Lindis which provide or augment flows, but the effects of the proposed minimum flows and allocation regime can have an adverse downstream effect if these are set too low and maintained at this low level for too long.



6.3.7- To minimise the adverse effects from fluctuations in the levels of controlled lakes.

Not applicable.

*Policy 6.4.0- To recognise the hydrological characteristics of Otago's water resources, including behaviour and trends in:*

- (a) The levels and flows of surface water bodies; and*
- (b) The levels and volumes of groundwater; and*
- (c) Any interrelationships between adjoining bodies of water, when managing the taking of water.*

This policy requires the hydrological characteristics of the Lindis River to be studied and recognised. While there are losing and gaining reaches within the river system with a marked loss to groundwater in the lower reaches of around 440 l/s, the river is not ephemeral and does not go dry naturally as some have claimed in the past.

#### Hydrology considerations of the catchment and gaps in knowledge

21. There appears to have been no real attempt made to calculate a naturalised MALF for the Ardgour road flow recorder site. The ORC management flow report for the Lindis River suggests that a naturalised MALF flow at Ardgour road flow recorder would be about 1610 l/s. However this flow is calculated from the flow recorded at the Lindis Peak flow recorder, which is above most significant water takes in the river. It is also not clear if this naturalised MALF includes contributions from tributary streams between Lindis Peak and the Ardgour road flow recorder flow recorder.
22. There have also been recent issues with inaccuracies at both the Lindis Peak and Ardgour road flow recorder flow recorders, due to floods changing the cross-section/stage relationship at the site. It is not clear how far back in the record these errors occur, and if the recorders have now been fixed.

#### Fishery values

##### *General*

23. The Lindis River is a major spawning and juvenile trout rearing stream that is important for juvenile trout recruitment to the nationally important Clutha River system and Lake Dunstan fisheries (Jellyman 1990, Jellyman & Bonnett 1992, ORC 2006). These waters together attract over 40,000 angler days each year (Unwin 2009a). The spawning and juvenile rearing value of the Lindis River is limited by

abstraction and ground water losses which can often result in complete dewatering of the lower river and fish stranding during the summer period (ORC 2006, Jellyman & Bonnett 1992).

24. The Upper Clutha was first identified as nationally important for angling in 1982 (Teirney *et al*, 1982). The national importance of Lake Dunstan and the Upper Clutha is also recognised by inclusion as a “Potential Water Bodies of National Importance for Recreation Value” (MfE, 2004), which was prepared as part of government’s ‘Water Programme of Action’.
25. The Lindis is also a locally important fishery in its own right.
26. In recent years the Upper Clutha and Hawea Rivers have experienced didymo algal blooms, which when combined with ramping river flows compromise juvenile trout habitat found in the shallows. The potential contribution of juvenile trout from the Cardrona River and the Lowburn are significantly reduced by abstraction for irrigation. Without a wide geographical distribution of productive spawning grounds flooding events can have a very adverse impact on annual recruitment levels.
27. Taking these matters into account, the importance of the Lindis River in maintaining the nationally important Lake Dunstan and Upper Clutha fisheries must be acknowledged.

#### *Recreational Angling Values*

28. Even in its currently state which is heavily impacted by abstraction the Lindis River has significance as a small stream fishery (Figure 1) accounting for some 330 angler visits during the seven month angling season (NIWA, 2009). From an angling pressure viewpoint it sustains similar levels of use to other small streams such as Dunstan Creek (360), Ida Burn (200), Kaiwera Stream (260), Waitahuna River (260), Deep Stream (210), Lee Stream (150) and Kye Burn (140) (NIWA, 2009). Small streams are an important component of the recreational opportunity spectrum in Otago (SFGMP 2003) and their value in catering for a particular experience should not be underestimated through comparison with the likes of the Clutha River or Lake Dunstan.
29. NIWA’s attributes survey (Unwin 2009b) assessed eight specific attributes for 63 named rivers and streams in Otago and assessed overall importance on a 1 to 5 scale. The key attributes that stood out were its proximity to holiday homes, its ease of access and its scenic beauty. Its anticipated catch rate and fishable area were both low which probably reflects the impact of overallocation. Angling values can be expected to increase with the restoration of reasonable summer flows in the river.

30. It is important to note Fish and Game's objective of maintaining and enhancing the spectrum of recreational angling opportunity within Otago. It is a mistake to rely too heavily on levels of angler use as the primary measure of angling value or to assume a lower level of fishery use deserves a lower level of protection.



*Figure 1: (Left) Adult trout like this one captured in January 2014 sustain the locally significant fishery; (Right) A junior learning to fish on the Lindis River (December 2014) – small rivers like the Lindis can be ideal for novice anglers and are an important part of the angling spectrum.*

#### Effects of low flows on Lindis River ecology

31. To assess the effects of low flows on the aquatic ecosystem in the Lindis River Fish and Game have conducted spotlighting and electrofishing surveys, instream habitat assessment, and have undertaken a tracking study of juvenile trout utilizing PIT (passive integrated transponder) tags.
32. As part of the current PIT tag research programme Fish & Game staff spent significant time on the Lindis over the summer of 2013/2014 observing the river as flows decreased and documenting changes in aquatic habitat and natural character under the current flow regime.
33. Flows during the irrigation season may be generally divided into three ecologically relevant flow periods, spring, early summer, and late summer/autumn. As spring progresses into summer (in the height of the abstraction season) flows decrease to very low levels and the river suffers significant ecological impacts.

*Spring – Variable flows*

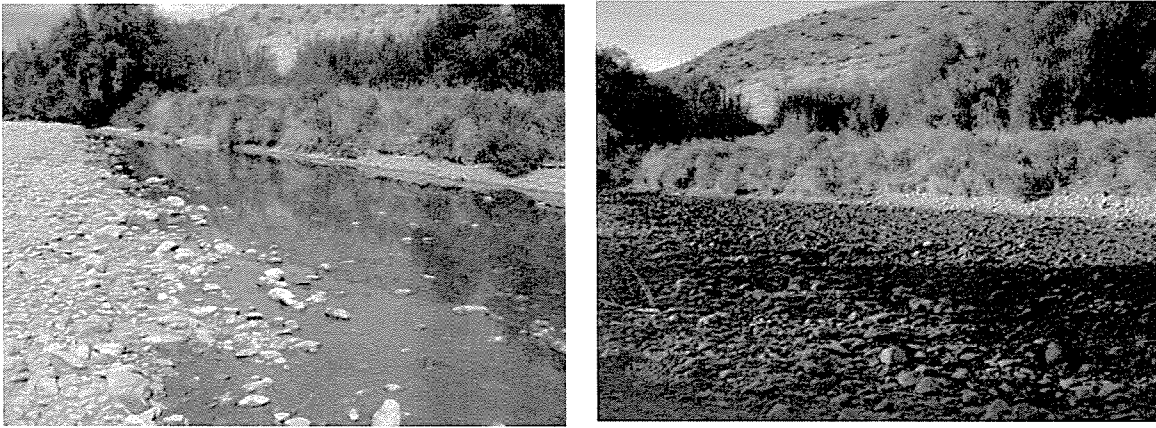
34. In spring residual snow melt clears, water levels trend down and water temperatures begin to rise. There is generally significant flow variability provided by small freshes.
35. Fish habitat is provided along the length of the river in pools, runs and riffles. Water temperatures are generally cool, oxygen levels high and algal cover levels low.

*Early Summer – Low flows*

36. Flows typically begin to drop more significantly in early summer. Water temperatures begin to rise and river levels decrease. Flow variability is reduced as abstraction increases and rainfall decreases. Surface connection is maintained.
37. Aquatic habitat begins to be compromised. Juvenile trout habitat is reduced significantly in area and in quality as water depth and cover is reduced. As water levels drop it becomes easier for predators such as shags and herons to target fish. During daylight hours juvenile 0+ (young of the year) trout are constrained to well oxygenated riffles. This is most likely due to predation avoidance (from larger trout, eels, shags and herons) and/or low oxygen levels in pools and runs, or a combination of the two. Water temperatures begin to rise and algal mass begins to increase.

*Summer/Early Autumn – Extreme low flows*

38. Flows at the Ardgour Flow recorder become very low and flat line for several weeks at a time. Surface water can diminish very quickly (Figure 2). Significant reaches of river dry up below the Lindis Crossing and upstream of the Adgour Road Bridge (over 5 km during summer 2014). In most open river areas surface flows become negligible and levels very low (Figure 2, Appendix 1). There is significant variation in ground/surface water interactions and surface water/flow along the lower 25 km of river. In places with ground water upwelling and willow cover (near the ORC Ardgour Flow recorder) pools are maintained, depending on the season.



*Figure 2: (Left) Lindis River approximately 200 m upstream from Lindis Crossing Bridge, early March 2014; (Right) The same reach on the next morning (6 March 2014) completely dewatered*

39. Aquatic habitat becomes non-existent in many reaches and is severely degraded elsewhere (Figure 2, Appendix 1). Where surface water remains flows are often negligible and in shallow open runs and pools there is little to no effective cover for fish life from predation and scavengers (shags, herons, cats etc). Life supporting capacity is extremely compromised due to reduced habitat area, high water temperatures and excessive periphyton growth, particularly in areas without ground water upwelling and cover (riparian vegetation and/or undercut banks).
40. Juvenile 0+ (young of year) trout become confined to remaining oxygenated riffle areas (where there is bubbly white water) during the heat of the day. This is probably to avoid predation from larger fish and birds, as well as heat stress and poorly oxygenated water. Whereas older (and larger, 1+) trout can be found in pools and runs. In this shallow habitat juvenile trout (0+ and 1+) (and bullies) are exposed to intense predation pressure. Fish become most vulnerable in open sections of river where there is no cover, particularly downstream of the Lindis Crossing Bridge to the Clutha River and upstream of the Ardgour Bridge (Appendix 1).
41. In open river bed areas water temperatures reach near lethal for trout. Temperatures of 23 degrees have been recorded near the Ardgour road flow recorder Bridge (CFT unpublished data). Mid-summer water temperatures of 22 to 25 degrees have been recorded on several occasions near the Lindis Crossing (Fish and Game unpublished data).
42. Hay et al. (2006) conclude that the productivity of a trout population (especially brown trout) will be negatively impacted as water temperature approaches and exceeds 19°C. Growth limits for brown trout are 4 - 19.5°C; upper limits for survival are between 25°C and 30°C depending upon acclimation temperature (Elliot 1994). Trout deaths have been reported in New Zealand rivers when temperatures have reached or exceeded 26°C (Jowett 1997). Sub-lethal high temperatures may affect

fish behaviour, growth rates, survival rates and population production (Hay et al., 2006).

43. Fish passage and outmigration is prevented not only when complete dewatering result in a loss of surface flow connectivity but also where flow decreased to low levels. A bare minimum of surface connection does not ensure fish passage is provided.
44. During January 2014 out-migrating yearling trout were documented congregated in the mouth of the Beggs Stacpoole raceway. A portion of these fish were PIT tagged and tracked. Some of these fish were able to migrate downstream to the Lindis Crossing but could not continue downstream as the riverbed was dry. The vast majority of these fish became stranded when the reach upstream dried, and all stranded fish perished (Figure 3).
45. Periphyton can smother much of the shallow areas especially in open river bed reaches (Figure 3) and downstream of irrigation overflow sites at lower flows. High periphyton cover can smother the stream bed, reducing invertebrate habitat (and fish food supply), as well as juvenile trout and bully habitat and oxygen levels.
46. In addition excessive periphyton growth is aesthetically unappealing and impacts general recreational amenity values and natural character values. Two key species of concern *Didymosphenia geminata* (didymo) and the cyanobacteria species *Phormidium* are both present in the Lindis River; under certain conditions the latter can produce toxins which pose risks to contact recreation, livestock and potable water supply.

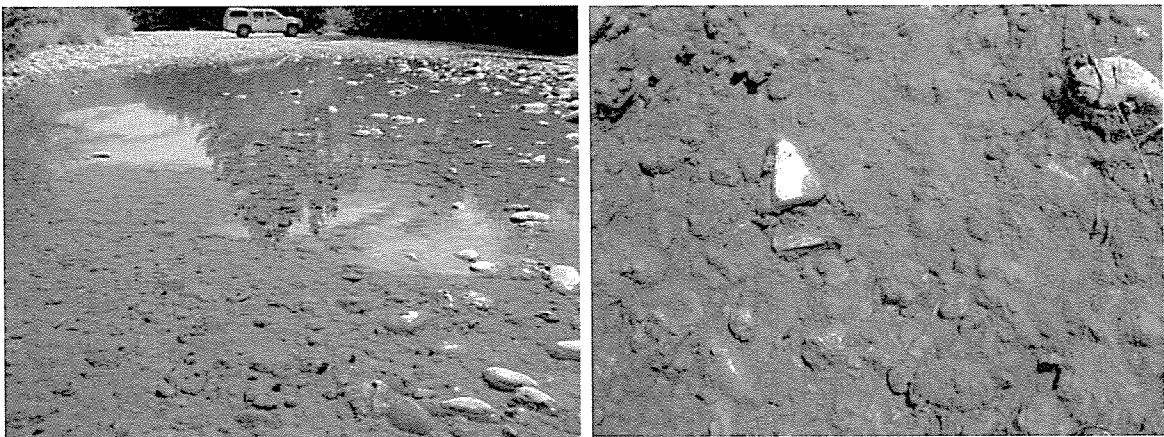


Figure 3: Algal (periphyton) growth smothering the river bed at Lindis Crossing, March 2



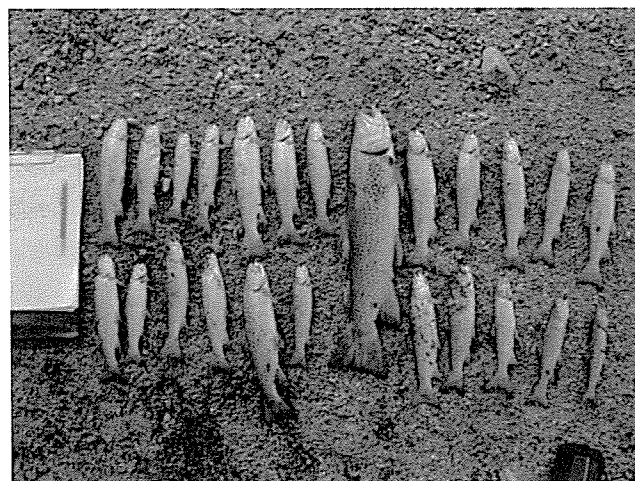
*Figure 4: Seven (well camouflaged) upland bullies found under a cobble of the dewatered reach early morning 6 March 2014. The embedded substrate prevented them from burrowing. Up to 50 bullies persquare metre were found in this reach.*

47. In reaches that are dewatered large numbers of upland bullies become stranded (Figure 4). Due to the embedded nature of the Lindis River bed gravels, high day time temperatures and very high numbers of scavengers the vast majority of these fish perish. Electrofishing surveys found very low numbers of bullies following reconnection of flows at Lindis Crossing in March 2014, where previous surveys prior to dewatering had found they were abundant (Fish & Game unpublished data).
48. When riffles in open river bed areas are completely dewatered any surviving 0+ trout may drop into pools as a last resort. These pools eventually become completely disconnected from surface flow during prolonged low flows.
49. The refuge pool theory postulated in the ORC's report on management flows for the Lindis (ORC 2006) does not work in practice for most of the lower river below the Lindis Crossing, and for several kilometres above the Ardgour road flow recorder Bridge due to a lack of cover from predation and heat stress.
50. Once stranded in 'refuge' pools trout are vulnerable to heat and oxygen stress which if prolonged result in mortalities (Figure 4) and juveniles are further exposed to very high levels of predation and scavenging (Figures 4 & 5). The mortalities observed from the refuge pools represent only a small proportion of the initial population, reduced first by predation and heat stress as the flows drop prior to stranding, and then by continued predation/scavenging once confined to these pools (Figure 3).

51. Of 78 0+ (young of year) and 4 1+ (yearling) trout PIT tagged near the Lindis Crossing prior to dewatering only around 10% were able to migrate upstream and avoid stranding before the lower river dried up; all others perished.
52. During mid-summer the adult trout and large long finned eels found in the lower Lindis River can only survive where pool habitat is maintained in willow lined reaches generally with ground water upwelling.



*Figure 5: Several year classes of brown trout stranded in a pool below Lindis Crossing bridge, summer 2007; some already perished from heat/oxygen stress.*



*Figure 6: Remnants of a school of 150 plus (mostly yearling) trout that were stranded in a pool by the Lindis Crossing bridge summer 2014. All of these fish exhibited predator strike markings indicating that they were attacked by predators (probably shags or herons) before they died from temperature stress. By the following day the fish shown above, which had been left on the river bank had been taken by scavengers (probably cats and ferrets etc).*

*Late Autumn – flow reconnection*

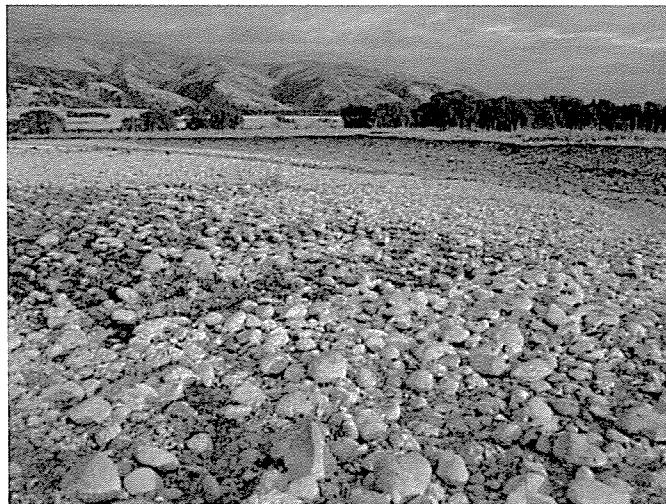


53. Reconnection of the river generally occurs in mid-late autumn when increased rainfall and reduced abstraction pressure result in increased and more variable river flows.

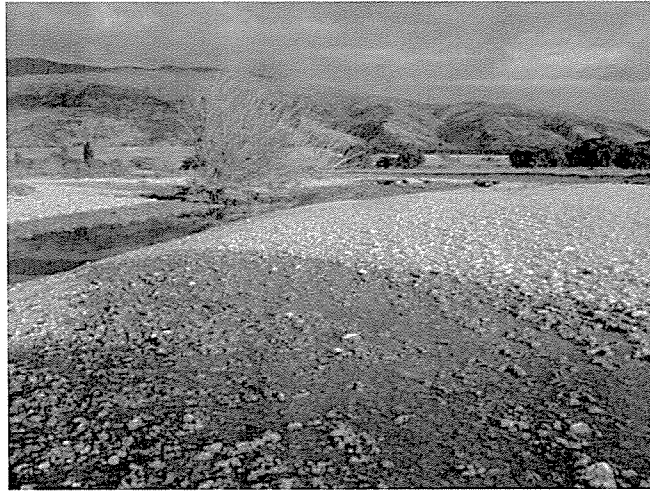
54. Fish habitat is once again found along the length of river throughout pools, runs and riffles. Freshes wash out the majority of algal blooms. Water temperatures cool and surviving trout can be found in runs and pools where there is cover (generally in the form of willow branches) during daylight hours.

#### Surface/ground water interactions

55. There is considerable variation in surface water levels and habitat availability in the lower 25 km of Lindis River when the Ardgour flow recorder is at or near 450 l/s (there is ground water upwelling at the flow recorder). In many open riverbed areas the riverbed is dry, or surface water levels are so low they provide little to no effective habitat for fish life. This is particularly apparent adjacent to and below the Lindis Crossing and above the Ardgour Bridge (figure 2, Appendix 1). While in other reaches that are willow lined and have ground water upwelling pool habitat remains. Making correlations between flow levels and available habitat is further complicated by significant malfunctions experienced with Lindis flow recorders (which at times were over estimating flows by up to one cumec over summer 2014) , as well as changes in ground water reserves, abstraction levels, irrigation overflow and points of take depending on the season.



*Figure 6: 05/02/2014. Lindis River downstream of Lindis Crossing. Most of the river bed below the Lindis Crossing was dry or de-watering. Estimated flow at ORC Ardgour recorder 460 l/s*



*Figure 7: 05/02/2014. Lindis River downstream of Lindis Crossing. The pool was becoming disconnected from surface flows and de-watering quickly. It contained no effective cover for fish life. Estimated flow at ORC Ardgour recorder 460 l/s*

Proposed minimum flow of 450 l/s

56. Otago Fish and Game consider that the proposed minimum flow of 450 l/s would not result in any meaningful change or ecological improvements. The river ecosystem would continue to drop to extreme low flows with significant ecological impacts on an annual basis resulting in loss of life supporting capacity, natural character, amenity and recreational values.
57. At or about 450 l/s river levels and flows are not sufficient to maintain migratory fish passage and cover from predation in areas of open river bed (Figures 6 & 7). This includes all of the river near and downstream of the Lindis Crossing and for many kilometers above the Ardgour road flow recorder bridge. The proposed minimum flow of 450 l/s will not result in a meaningful habitat gain for the Lindis River ecosystem. Large reaches of river will dry or have little to no effective habitat to sustain the ecology of the river on an annual basis.
58. There is a lack of evidence to support ORC's claims that recruitment to the Upper Clutha fishery will be improved. Fish passage at this flow is comprised. Flows are too low to enable fish passage particularly across wider open channels. At low flows fish have less cover and are more vulnerable to predation by birds.
59. At flows of 450 l/s increased periphyton growth was observed in late summer and early autumn 2014. With each passing week at this flow or below, periphyton growth became increasingly excessive over large reaches of the river. High levels of periphyton cover degrade life supporting capacity and aquatic ecosystem values as well as natural character and human use values.

60. IFIM results for the Lindis indicate the optimum flows for juvenile trout are 1400 l/s and the point of inflection (where habitat begins to decline sharply) is 750 l/s. The optimum is provided by the winter minimum flows proposed by the ORC. However, the proposed 450 l/s minimum flow at the Ardgour Flow recorder (where there is ground water upwelling) is well below this point meaning habitat availability for juvenile trout is significantly reduced at this level. For river reaches below the Lindis Crossing and above the Ardgour Bridge flows of 450 l/s at the flow recorder result in a de-watered river bed or shallow pools where fish face high temperatures, low oxygen and with no effective cover from predation.

#### Effects of the current water regime on other values in the catchment

##### *Human Use Values (Recreation)*

61. There has been no formal assessment of recreational values of the Lindis River as part of ORC's assessment of the river's minimum flow requirements. ORC's Lindis Catchment Information Sheet (ORC 2010) lists recreational uses as including trout angling, horse riding, eeling, hunting (ducks, quail, rabbits) motorbiking, four-wheel driving, swimming, kayaking, cycling, picnicking, camping and walking.

62. Fish and Game observations confirm that range of recreational activities occurs on or adjacent to the Lindis River. The river provides a sheltered and safe small stream setting for water based recreation and is conveniently located between Wanaka and Cromwell for short duration (day) visits from people in those centres however the dominant recreational use is camping.

##### *Camping and Picnicking*

63. In the course of fishery monitoring over the 2012/13 and 2013/4 summers a high level of recreational camping and picnicking was observed in the Lindis' middle and lower reaches. Campsites are established alongside the river by parties of freedom campers who stay for long periods (up to a week) between late December and February but with the biggest concentration through the Christmas holiday period to mid January.

64. This traditional summer holiday camping activity often involves family groups or clubs who have been camping in the same spot over long periods of time sometimes exceeding 20 years. Campers engage in a range of river based recreation including swimming, fishing and picnicking in a relatively safe location by comparison with the banks of the Clutha River or Lakes, Dunstan or Wanaka. It is common to see small dams constructed by children for paddling and swimming.

65. As an example two campervans and six tents were observed in one campsite on the true left towards the Clutha River confluence on 26<sup>th</sup> December 2013. There were more than 15 people present and others were observed fishing at the Clutha confluence.

66. During February swimmers and picnickers were regularly observed along the river upstream and downstream of the Lindis Crossing bridge. Key concentrations of campers are shown on the attached map.

67. Appendix 2 shows recorded campsites during the summer months, as noted by Clutha Fisheries Trust staff.

#### *Recreational fishing*

68. As stated before, the Lindis has local importance as a small stream trout fishery and recreational eeling is known to be a summertime activity, particularly for children.

#### *Waterfowl Hunting*

69. Hunting for mallards and paradise shelduck is known to occur along the river during the season from May to August each year. California quail occur around the river margins and along with rabbits provide hunting opportunity particularly below the State Highway bridge.

#### *Conclusion*

70. The Lindis River, particularly in the middle and lower reaches is an important recreation resource with significant camping and picnicking occurring over the summer holiday period. The river sustains a locally important small stream fishery and provides for recreational hunting as well as other activities

#### Wildlife Values

71. There has been no formal survey of wildlife values of the Lindis River as part of ORC's assessment of the river's minimum flow requirements. ORC's Lindis Catchment Information Sheet (ORC 2010) lists wildlife present within the catchment as including four skinks and four gecko species and twenty two bird species.

72. Water birds using the river as habitat have been observed by Fish and Game in the course of fishery monitoring over the 2012/13 and 2013/4 summers. They include mallard duck, paradise shelduck, pied stilt, South Island pied oystercatcher, black fronted turn, white faced heron, spur winged plover, black billed gull, black shag and little shag.

### *Wildlife Habitat*

73. The Lindis River is more confined and single thread in character upstream of the State Highway bridge and has a distinctly braided river character downstream of the state highway, with two or more channels. The river in the lower reach below SH6 is highly mobile and has an unstable gravel bed. Braided rivers in New Zealand provide habitat to many wading and shore bird species including several threatened and endangered species (Wilson 2001). Several waders are adapted to the unstable beds of South Island braided rivers.

### *River Upstream from SH6*

74. Wildlife observed by Fish and Game upstream of SH6 include mallard ducks, paradise shelduck, black shag little shag and white faced heron. Black shags were commonly sighted patrolling the river corridor and regularly seen feeding in the larger pools and also hunting small fish in the shallow faster runs where fish were living.

### *River Downstream from SH6 – braided reach*

75. Wildlife observed by Fish and Game downstream of SH6 include south island pied oystercatcher, spur winged plovers, white faced heron fishing along the river channel. Pied stilts and blackbirds were observed feeding on dying bullies and invertebrates in drying areas of the lower river.

76. Black fronted terns were concentrated in the river bed about 500 metres up from the confluence with commonly more than 6 flying above the river and dive bombing people coming within two hundred metres of them and others on the ground, suggesting a tern breeding colony was present. Black fronted terns are decreasing in numbers nationally and classified as endangered.

77. Black billed gulls were also observed in the area. DOC records show that terns, stilts and dotterels are reported to breed below the Lindis Crossing bridge. (G. Loh pers comm.)

### *Conclusion*

78. The Lindis River especially in its lower braided reach is a habitat for waterbirds including herons, gulls, waterfowl and wading birds. Black fronted terns appear to be breeding in the river bed. The species is endemic and its conservation status is nationally endangered.

79. The current river flow regime involving rapid reduction and then loss of surface flows means that feeding opportunities and habitat values are lost around mid summer.

Final conclusion

80. Fish and Game opposes the proposed 450 l/s minimum flow in plan change 5A.
81. Instead, it requests a minimum flow at Ardgour road flow recorder of at least 1000 l/s during the months from October to May and an appropriate associated primary allocation limit.
82. Fish and Game supports the proposed winter minimum flow.
83. Fish and Game wishes to meet with the ORC policy team to discuss our minimum flow proposal prior to the formal notification of plan change 5A.
84. Thank you for the opportunity to provide comment on this upcoming plan change. Otago Fish and Game is committed to restoring meaningful flows in the river for future generations to enjoy.

Yours sincerely,

Peter Wilson  
MPlan, BSc(Geog), Grad.NZPI, MRMLA  
Environmental Officer  
Otago Fish and Game Council

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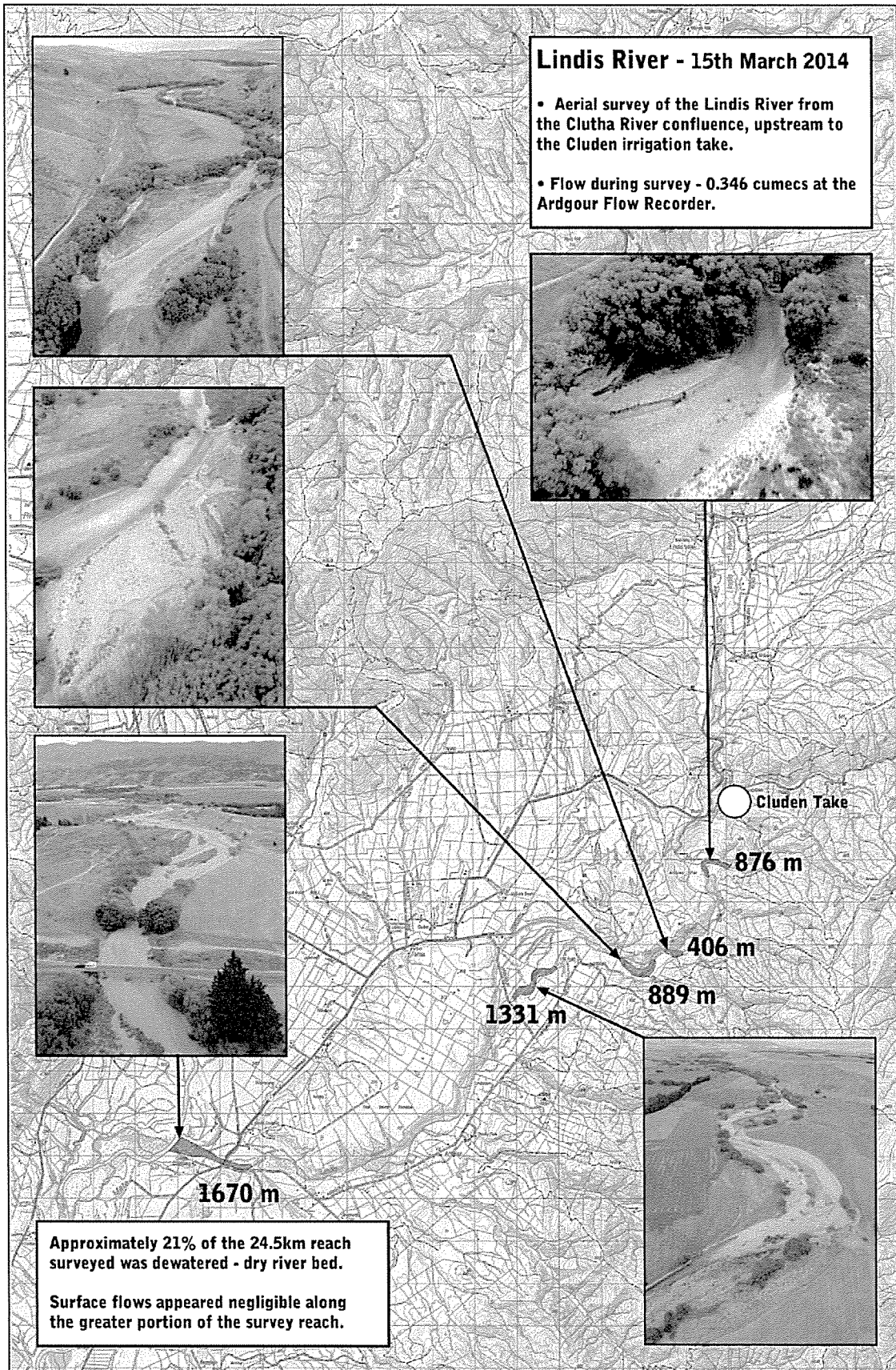
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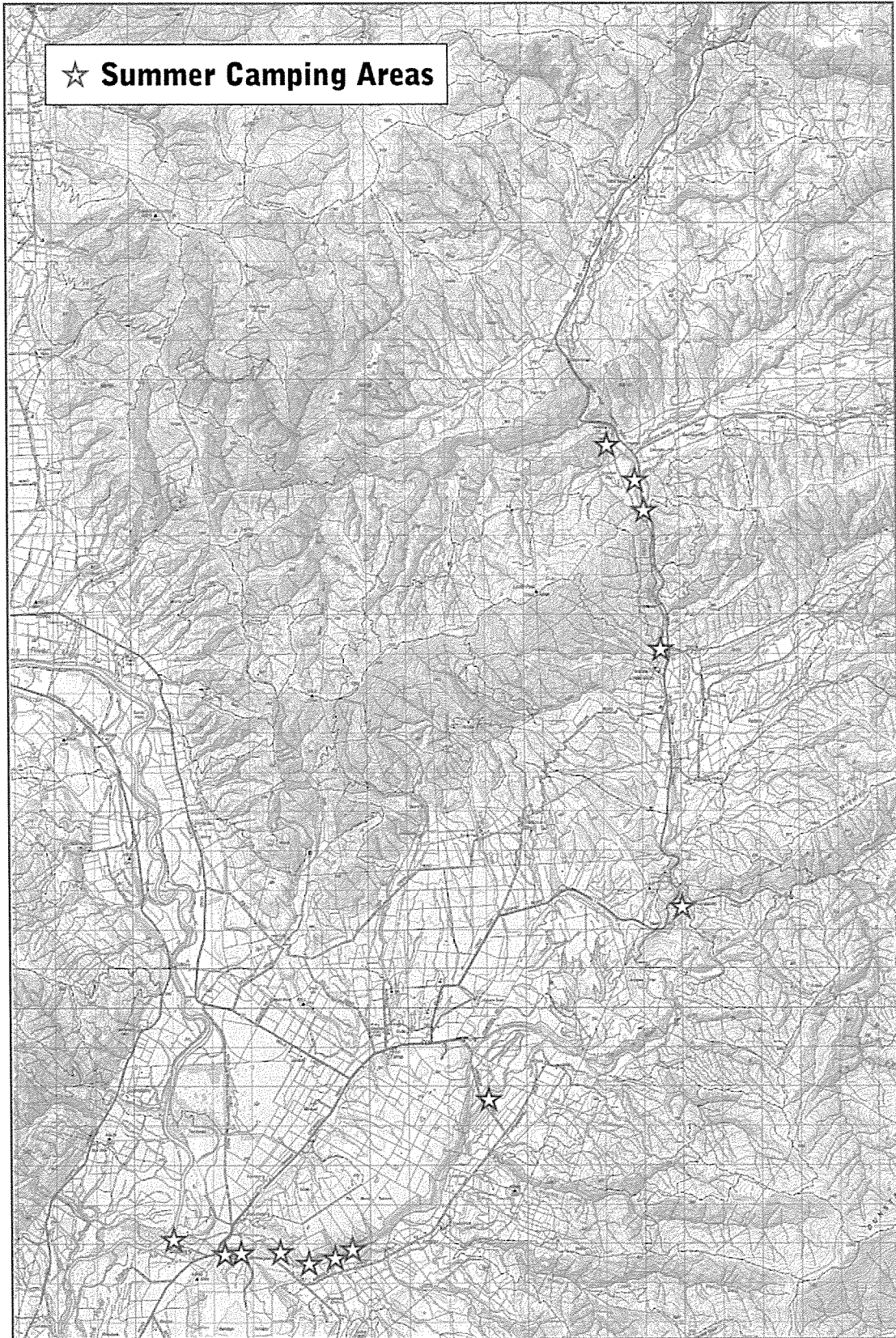
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# Appendix 1



Appendix 2 - Map of Summer Camping Areas



# FEEDBACK



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To: **Otago Regional Council**  
policy@orc.govt.nz

On: Proposed Plan Change 5A (Lindis: Integrated Water Management)  
Regional Plan: Water for Otago  
Consultation Draft

By: Federated Farmers of New Zealand

Date: 28 May 2014

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## **A. INTRODUCTION**

1. Federated Farmers of New Zealand (Inc) is a voluntary, primary sector organisation representing farming members and their families. Federated Farmers has a long history of representing the needs and interests of New Zealand's farming communities, primary producers and agricultural exporters.
2. The Federation aims to add value to its members' farming business by ensuring that New Zealand provides an economic and social environment within which our members may operate their business in a fair and flexible manner.
3. Our members strongly support a regional planning approach that recognises landowners play a principle role as managers (and financiers) of the regions natural and physical resources. They also support regional plans that are effects based and do not unnecessarily inhibit or impose constraints on farming activities, while ensuring that risks to the environment associated with farming are appropriately avoided or managed by landowners.
4. Otago farmers are proactive resource managers who rely heavily on their properties natural and physical resources for their farming business. It is entirely in their best interest to manage land and water resources sustainably.
5. Council will be well aware the Otago Region has an immense rural land area. This land area is hugely diverse in its geography, climate, soil types, land use, water use, water body type and land stability. It is very important that a regional planning framework provides the basis for each farmer to respond in a way that is appropriate for the receiving environment and their particular farming system.
6. We note that the intent of Proposed Plan Change 5A is to build on existing provisions of the Water Plan by managing surface water and groundwater through a set regime for surface water and connected groundwater in the Lindis Catchment, and to set maximum allocation volumes for specified aquifers within the Bendigo-Tarras Basin, along with associated mapping.

## **B GENERAL COMMENTS**

7. Council must appropriately address a range of matters when determining its planned management regime for surface water and ground water. The rights of existing users must be allowed for when setting allocation limits, to ensure the protection of existing infrastructure and investment, and to safeguard current productive capacity.
8. Council has noted that it has been involved in extensive rounds of community consultation throughout this plan change process. We understand that the local and wider communities identified a number of values and uses to be considered important.
9. Values and uses identified included the need for availability of water takes for irrigation, domestic and stock water supply and frost fighting, for trout and native fish habitats, for water-based recreation including fishing and swimming and for cultural values, natural character and amenity.

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10. In complying with the National Policy Statement for Freshwater management and the objectives of the Regional Water Plan, Council must provide for a fair, reasonable management regime for plan users. As part of this process, the values and uses the community has identified as important should be provided for in a fair and reasonable manner.
11. Federated Farmers support for Plan Change 5A is dependant on the workability and reasonableness of the resulting transition and implementation timelines. We note that under Policy 6.4.5 of the Water Plan, the minimum flows will only apply after a full collective review of all consents in the Lindis Catchment. We understand that this will occur on 2 October 2021 or earlier, with the full agreement of all permit holders.
12. We strongly support a reasonable and workable transition to ensure local consent holders and other stakeholders have the ability to investigate the feasibility of measures that mitigate the effect of minimum flow on water availability.
13. We consider there must be a catchment-wide water management group formed to both facilitate this process and work towards identifying additional water use sources and alternative irrigation practices. Landholders are key to this process and need to be involved throughout to ensure they have the buy-in necessary to make the process work.

**Recommendations:**

- **Council ensures the transition and implementation timelines are reasonable and workable;**
- **That minimum flows do not occur until after a full collective review of all consents in the catchment;**
- **That a catchment-wide water management group, including affected landowners, is formed to facilitate this process.**

**D. SPECIFIC FEEDBACK**

**14. Schedule 2A**

We understand that the Minimum Flows and Primary Allocation Limits have been set based on an extensive series of community consultations. Federated Farmers support in this area is provisional on these figures appropriately reflecting our members' input.

We support Council's comment within the s32 Evaluation Report, that these limits must enable socio-economic and cultural wellbeing, while ensuring reliable access to the resource.

**Recommendation**

- **That the Minimum Flows and Primary Allocation limits appropriately reflect the input from the community consultation process;**
- **That these limits enable socio-economic and cultural wellbeing of those within the catchment and the wider region, while ensuring reliable access to the resource.**

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## 11 Schedule 4A

Schedule 4A provides the maximum allocation volume (MAV) for specified aquifers. We understand that these MAV limits are set to maintain long-term groundwater levels and to avoid aquifer compaction.

Federated Farmers considers that the specified MAV should be shown with greater clarity, as per the methodology shown in Plan Change 4B. Particularly as MAV numbers will change along with changes to minimum flow, in that there will potentially be additional recharge with maintaining minimum flows to the Lindis River.

There is a need to set MAVs into the plan with a sound scientific basis. This enables a robust process to examine appropriate allocation levels and enables communities to determine desired outcomes, informed by that science.

For those volumes yet to be fully assessed as part of Schedule 4A, we support the *default* methodology being determined based on 50% of the calculated mean annual recharge.

### Recommendation

- **That the MAVs should be shown with greater clarity, as per the methodology within Plan Change 4B**
- **We support the default methodology being determined based on the 50% of the calculated mean annual recharge.**

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Otago Regional Council

Private Bag 1954

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30 May 2014

Tēnā koe Tom

**Re: Consultation Draft of Proposed Plan Change 5A (Lindis: Integrated Water Management)**

**Introduction**

1. Te Rūnanga o Moeraki, Kāti Huirapa Rūnaka ki Puketeraki, Te Rūnanga o Ōtākou, and Hokonui Rūnanga (collectively Kāi Tahu) are Manawhenua in the Lindis Catchment.
2. Kāi Tahu has received the draft variation to the Regional Plan: Water that sets allocation limits and minimum flows for the Lindis River and maximum allocation volumes for the Bendigo-Tarras Basin.<sup>1</sup> The Kāi Tahu response to this draft plan change is enclosed.
3. Kāi Tahu appreciates the challenges faced by the Otago Regional Council in managing fresh water in this catchment. The Lindis catchment is over-allocated and the land uses which rely on this over-allocation have been lawfully established.
4. Kāi Tahu is of the opinion that the proposed plan change and the phasing out of deemed permits offers an opportunity to address historical over-allocation of freshwater in this catchment and to restore a meaningful continuity of flow to the Lindis River.

**Kāi Tahu Position on Plan Change 5A (Lindis River)**

5. Kāi Tahu seeks a continuity of flow to the confluence of the Mata-au. The Kāi Tahu relationship with the Lindis River is inextricably linked to a continuity of flow over the entire length of the river.

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<sup>1</sup> As required by Schedule 1 clause 3(1) of the Resource Management Act 1991.

6. Kāi Tahu is of the opinion that the following minimum flows and primary allocation limit are required to provide for a continuity of flow to the confluence:

Lindis Catchment	
Primary Allocation (Schedule 2A)	
Minimum Flow at Ardgour Road monitoring site	Primary allocation limit
800 l/s (October to May ) (51% of MALF)	780 l/s (50% of MALF)
1,600 l/s (June to September)	

7. The preferred minimum flow of 800 l/s from October to May provides a meaningful continuity of flow over the entire length of the river after losses to groundwater. The lower Lindis River loses approximately 440 l/s to groundwater between Ardgour Road and the Clutha River/Mata-Au confluence. The preferred minimum flow supports a flow of 360 l/s over the losing reach of the river to the confluence.
8. The associated reduction in primary allocation to 780 l/s (50% of MALF) is sought to support the minimum flow from October to May and to provide for flow variability.

#### Kāi Tahu Association with the Lindis Catchment

9. The following cultural values, beliefs and uses for the Lindis River are identified in the Regional Plan: Water for Otago.<sup>2</sup>
- Wāhi Taoka: Treasured resources that reinforce and strengthen the special relationship Kāi Tahu have with inland Otago.
  - Trails: Sites and water bodies that formed part of traditional routes, including tauraka waka (landing place for mōkihi).
  - Cultural materials: Water bodies that are sources of traditional weaving materials (such as raupo and paru) and rongoa (medicines).

<sup>2</sup> Regional Plan: Water for Otago, Schedule 1D



10. The Central Otago area was accessed by a network of ara tawhito (old trails) that connected the coastal settlements with the inland lakes and rivers and the West Coast. Trails always followed food resources. Families stopped at places where eels were plentiful, weka easily caught or some other food obtainable.<sup>3</sup>
11. The Lindis Valley was part of a major inland route that led to and from the kaika (villages) and mahika kai resources in the area around Lakes Hawea and Wanaka over the Lindis Pass to the Waitaki. The Lindis River and its surrounds would have been an important source of mahika kai for travelers on the trail between the Waitaki River mouth settlements and the inland area.
12. It is emphasised that the cultural values, beliefs and uses identified for the Lindis River in the Regional Plan: Water reflect the currently limited opportunities for cultural use due to over allocation in this catchment. The ability of Kāi Tahu whānau to develop a meaningful relationship with the Lindis River is necessarily limited by a lack of continuity of flow over the entire length of the river throughout the year.

#### **Kāi Tahu ki Otago Freshwater Management**

13. The *Te Rūnanga o Ngāi Tahu Freshwater Policy* sets out the guiding freshwater management principles for Kāi Tahu ki Otago, respectively:
  - Water is central to all life. It is a taonga left by the ancestors to provide and sustain life. It is for the present generation as kaitiaki to ensure that the taonga is available for future generations.
  - Water plays a unique role in the traditional economy and culture of Kāi Tahu.
  - Water has an inherent value that should be recognised in the event of potentially competing uses.
  - Water is a holistic resource. The complexity and interdependency of different parts of the hydrological system should be considered when developing policy and managing the water resource.

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<sup>3</sup> Tipa et al (2002)

14. Kāi Tahu strongly advocates for holistic catchment management.<sup>4</sup> Accordingly, Kāi Tahu does not support a minimum flow option that only protects the aquatic ecosystems of the Lindis River upstream of the State Highway 88 Bridge. Kāi Tahu is of the opinion that an integrated management framework should be adopted for the Lindis River that provides for aquatic ecosystems over the entire length of the river.

### **Mahika Kai and Biodiversity**

15. Mahika kai practices remain at the heart of Kāi Tahu tribal identity. Protecting the habitats and the wider needs of mahika kai, taoka species and other species of importance is a fundamental objective for Kāi Tahu ki Otago.
16. Kāi Tahu recognises the pressures irrigation and other uses of fresh water have placed on mahika kai. Of the vast number of mahika kai areas and species utilised historically, few remain accessible today.<sup>5</sup>

17. Tipa and Nelson (2009) make the following observation:

*Irrigation in particular has contributed to the loss of mahinga kai because it has enabled the development of inland areas for farming and changed not only the land use but the intensity of that land use. These changes, together with the impact of damming, diverting and abstracting water, have directly impacted the habitat of mahinga kai species.*

18. The increasing loss of mahika kai areas and species has heightened the importance of retaining and protecting those that remain. The Lindis River contains tuna (long-fin eel), a recognised Taonga species for Kāi Tahu. The loss of tuna and tuna habitat in the Lindis would represent to Kāi Tahu the loss of a taonga species that forms a key component of tribal identity.
19. Kāi Tahu is of the opinion that a minimum flow of 450 l/s at the Ardgour Road flow recorder does not protect aquatic ecosystems. The lower Lindis River loses approximately 440 l/s to groundwater between Ardgour Road and the Mata-au confluence at low flows.

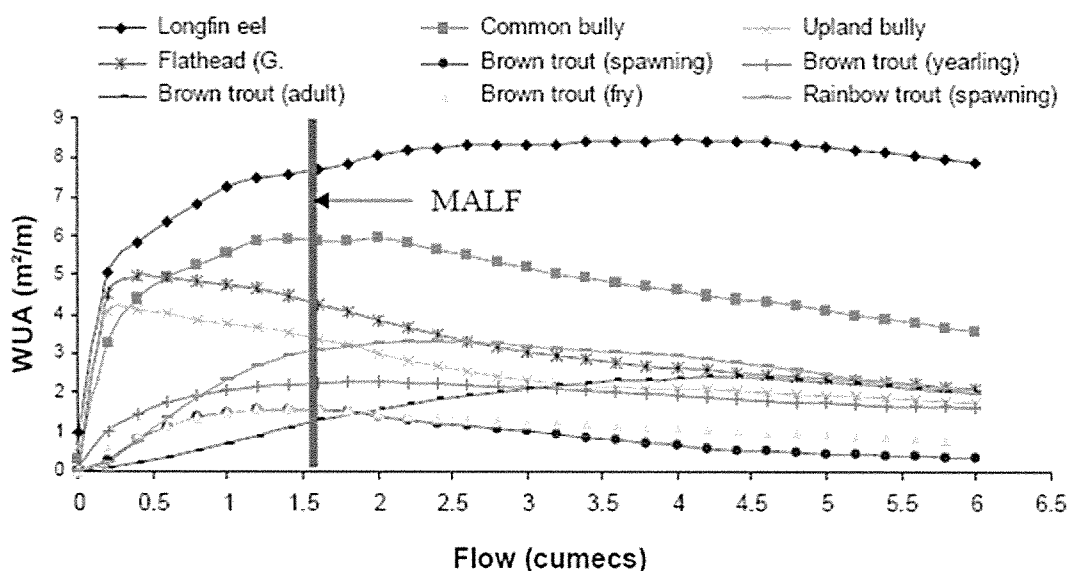
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<sup>4</sup> Tipa, G and Nelson, K (2009)

<sup>5</sup> Tipa, G and Nelson, K (2009)

Kāi Tahu is of the opinion that a minimum flow of 10 l/s over the lower reach of the Lindis River provides insufficient habitat for indigenous fauna.

20. The In-stream Flow Incremental Methodology (IFIM) modelling undertaken by the Otago Regional Council confirms that 10 l/s does not protect the habitats and the wider needs of mahika kai, taoka species and other species of importance in the Lower Lindis River.



21. Kāi Tahu notes that flows in the lower Lindis River incrementally cease between the State Highway 88 Bridge and the confluence when flows at Ardgour Road drop below 440 l/s, removing habitat for mahika kai, taoka species and other species of importance. The Lindis River was dry at the State Highway 88 Bridge on 1 April 2014 when flows at Ardgour Road were at 337l/s.<sup>6</sup>

#### Proposed National Environmental Standard on Ecological Flows and Water Levels

22. Kāi Tahu is of the opinion that the *Proposed National Environmental Standard on Ecological Flows and Water Levels (NES)* sets appropriate baseline benchmarks for assessing the minimum flow and primary allocation options for the Lindis River.

<sup>6</sup> Kāi Tahu ki Otago Ltd Staff observation

23. The NES interim limits for rivers and streams with mean flows greater than 5,000 l/s is a minimum flow of 80% of MALF and an allocation limit of 50% of MALF. The proposed summer minimum flow and the primary allocation for the Lindis River exceed these interim limits, respectively:

<b>MALF at Lindis Peak: 1,560 l/s</b>	<b>NES</b>	<b>Plan Change 5: Option 2</b>	
<b>Minimum Flow</b>	1,248 l/s - 80% MALF	<b>October to November</b>	750 l/s – 48% MALF
		<b>December to April</b>	450 l/s - 29% MALF
		<b>May</b>	750 l/s – 48% MALF
<b>Primary Allocation Limit</b>	780 l/s - 50 % MALF	1,000 l/s – 80% MALF	

24. The NES interim limits are based on historical flows and were intended to apply to rivers with a low degree of hydrological alteration and low in-stream values.<sup>7</sup> For rivers with a high degree of hydrological alteration and high in-stream values, including the Lindis River, it was proposed that the minimum flow and primary allocation limit be derived through modelling and analysis.
25. Kāi Tahu notes that the IFIM modelling undertaken by the Otago Regional Council does not support the proposed minimum flows. Kāi Tahu requires further information on the effects of a primary allocation limit of 780 l/s on the variability of flows and on in-stream values.

### Discussion

26. Kāi Tahu is not opposed to the use of water for farming or other purposes. Kāi Tahu whānau are farmers themselves and appreciate the need for healthy economies to support people and communities both in Otago and across the takiwā. However, for Kāi Tahu it is not a choice between a healthy economy and healthy waterways. Kāi Tahu believes that both outcomes must be achieved.

<sup>7</sup> NES on Ecological Flows and Water Levels – Discussion Document: Appendix 4: Executive Summary and Recommendations from: Draft Guidelines for the Selection of Methods to Determine Ecological Flows and Water Levels (Beca 2008), pp. 53 - 56

27. The proposed minimum flow of 450l/s from December to April (Option 2) does not ensure that there is a continuity of flow to the confluence of the Mata-au in dry years, after losses to groundwater. Therefore, Kāi Tahu is of the opinion that this minimum flow does not recognise and provide for their relationship with the Lindis River.
28. Kāi Tahu as kaitiaki for the Lindis River are of the opinion that a minimum flow is required that will provide for aquatic ecosystems, natural character, cultural and recreational values over the entire length of the river.
29. Kāi Tahu believes a minimum flow of 800 l/s (October to May) and a primary allocation limit of 780 l/s (50% of MALF) strikes an appropriate balance between the range of values supported by the Lindis River, respectively ecological, natural character, cultural, recreational and economic.
30. Kāi Tahu looks forward to discussing with you their preferences for a minimum flow and a primary allocation limit that supports their relationship with the Lindis River.

Nahaku noa, Na



**Chris Rosenbrock**  
Manager

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**Tom De Pelsemaeker**

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**From:** Emma Spalding  
**Sent:** Tuesday, 3 June 2014 9:05 a.m.  
**To:** Tom De Pelsemaeker  
**Subject:** FW: Comment on Consultation Draft of Proposed Plan Change A (Lindis: Integrated Water Management)

Emma Spalding | Policy Analyst | Otago Regional Council  
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Website: [www.orc.govt.nz](http://www.orc.govt.nz)

P Please consider the environment before printing this e-mail

-----Original Message-----

**From:** Tim Ritchie [<mailto:timritchie@fastmail.fm>]  
**Sent:** Friday, May 23, 2014 1:45 PM  
**To:** Emma Spalding  
**Subject:** Comment on Consultation Draft of Proposed Plan Change A (Lindis: Integrated Water Management)

Dear Emma,

I would like to comment on your Consultation Draft of Proposed Plan Change A (Lindis: Integrated Water Management). Primarily what I would like to say is that I support the seemingly novel concept that a river should run to its intended destination. Unfortunately it would appear that the option of having the pleasing cosmetic effect of a river running under the SH8 bridge (but no further) has already been predetermined for the standard reasons of 'productivity gains' and 'capital investment' etc., so I'm not holding my breath.

I can only hope that sanity prevails over industry.

Thank you,  
Tim Ritchie.

[Emma.Spalding@orc.govt.nz](mailto:Emma.Spalding@orc.govt.nz)

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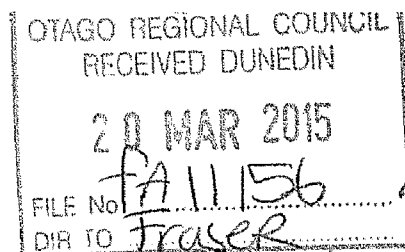
Tim Ritchie  
[timritchie@fastmail.fm](mailto:timritchie@fastmail.fm)

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Tim Ritchie  
[timritchie@fastmail.fm](mailto:timritchie@fastmail.fm)







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16. 3. 2015

Attention: Fraser McRae net Tom

Re: Lindis River Management, ref. A747468

- Thank you for your letter regarding the above.
- I have held property adjacent to the river for many years & have fairly definite views regarding the riparian rights of the flora & fauna of all rivers, and view, with dismay, humans dominance of the Earth for their own benefit.
- Thus, I would be all for a constant flow in the Lindis Rv. to maintain Natures balancing acts.
- However, where the livelihoods of the local people depend so much on a constant supply of water throughout the year (for some economic value to the country), my views would have to be secondary to that of the locals.
- I have been unable to attend your meetings, but hope you can get some balance between the various differing views, & that, as a Regional Council, its views are, or should be, to the general long term benefit of the land itself.

James Hanan

