Water Management in the OTOP Zone
### The plan for tonight

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:05pm</td>
<td>Orientation</td>
</tr>
<tr>
<td>7:10pm</td>
<td>Been there and done that</td>
</tr>
<tr>
<td></td>
<td>• Lisa Anderson</td>
</tr>
<tr>
<td></td>
<td>• Colin Hurst</td>
</tr>
<tr>
<td>7:40pm</td>
<td>Discussion – where we are now</td>
</tr>
<tr>
<td>7:50pm</td>
<td>Break</td>
</tr>
<tr>
<td>8:05pm</td>
<td>What we know – overview of the science</td>
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<tr>
<td>8:35pm</td>
<td>Some of the tools available</td>
</tr>
<tr>
<td>8:40pm</td>
<td>What’s our action plan?</td>
</tr>
<tr>
<td>9:00pm</td>
<td>Turning talk into next steps</td>
</tr>
</tbody>
</table>
Canterbury Water Management Strategy

Strategic Framework - November 2009
Target completion: July 2010
Canterbury Mayoral Forum
Discussion

• From what you’ve just heard, what are some ...
• Opportunities;
• Challenges;
• Ideas; and
• Questions
Healthy Catchments Project

OTOP technical work
Presented by Dan Clark (Environment Canterbury)
Study area

Based upon physical catchment boundaries and covers the existing flow plans for: Orari, Opihi, Pareora.

The Rangitata River catchment is excluded as it is covered by a water conservation order.
Community Outcomes

- Achieve ecosystem health and natural river mouth dynamics
- Protect and enhance the natural character and function of the zone’s braided rivers whilst providing a sufficient level of flood protection
- Safe and reliable drinking water for community and domestic supplies both now and in the future
• All surface water bodies safe for recreation and gathering mahinga kai
• Increase recreational opportunities in the zone by ensuring appropriate management of river flows
• Rectify loss and improve opportunities for mahinga kai gathering in the zone
• Protect and enhance sites of cultural significance
• Protect and enhance indigenous biodiversity Ki uta Ki Tai, particularly high naturalness areas, coastal lagoons, and wetlands and springs in the upper parts of the catchments

• Increase the reliability of current irrigation in the zone

• Increase the area of land irrigated in the zone

• Maintain and improve economic value in the zone and provide for community wellbeing
Reminder of scenarios

• **Current state**  - What have we observed so far?
• **Current pathway** - What will happen if we continue?
• **In zone gains**  - How can we manage what we have better?
• **New water**  - What could we do if there was more water?
Progress

- **Current state** - Completed and presented to community
- **Current pathway** - Completed and presented to community
- **In zone gains** - Underway
- **New water** - Underway
Technical assessment

• The assessment of scenarios is completed by the project technical team
• This includes:
  – Cultural
  – Biophysical
  – Social
  – Economic

The technical assessment is completed using a number of different analyses and models
OTOP Current state

Summary of where we are now, what we observe and how the current environment meets the communities desired outcomes

Opihi River

Waihi River
The change in allocations over time

Consented allocation

Groundwater allocation

Surface water allocation

<table>
<thead>
<tr>
<th>Year</th>
<th>Industry</th>
<th>Irrigation</th>
<th>Other</th>
<th>Public Supply</th>
<th>Stockwater</th>
<th>Total</th>
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<tbody>
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Approximately 54,000 ha of irrigation currently in place
Land use across the Healthy Catchments Project Study

Land use by area:
- Mixed Sheep and Beef farming
- Sheep farming
- Dairy cattle farming
- Beef cattle farming
- Arable cropping or seed production
- Deer farming
- Native Bush
- New Record - Unconfirmed Farm Type
- Grazing other peoples stock
- Forestry
- Lifestyle block
- Other
Trend in groundwater level

- Groundwater level generally follows climate variability
- However, some trends can be seen in recent observations
  - Most trends in groundwater level are decreasing
  - Increase in groundwater level observed near to RSIS
  - Decrease in Levels plains associated with change from border-dyke to spray
  - Decreases observed adjacent to a number of rivers (e.g. Pareora)
Groundwater Nitrate-N

Maximum Nitrate-N concentrations

Nitrate-N (mg/L) <20 m deep
- < 0.25
- 0.25 - 1.00
- 1.00 - 5.60
- 5.60 - 11.30
- > 11.30

Nitrate-N (mg/L) >20 m deep
- < 0.25
- 0.25 - 1.00
- 1.00 - 5.60
- 5.60 - 11.30
- > 11.30
Contact recreation monitoring
2015/2016 season

Contact recreation grades 2015/16
- Very good
- Good
- Fair
- Poor
- Very poor
Cyanobacteria Monitoring of popular recreational sites

<table>
<thead>
<tr>
<th>Sites monitored weekly during summer</th>
<th>Max seasonal cover (%)</th>
<th>Public heath warning over past 5 years</th>
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</thead>
<tbody>
<tr>
<td>Orari Gorge</td>
<td>&lt;20</td>
<td>N</td>
</tr>
<tr>
<td>Te Moana Gorge</td>
<td>&lt;20</td>
<td>N</td>
</tr>
<tr>
<td>Waihi Gorge</td>
<td>&lt;20</td>
<td>N</td>
</tr>
<tr>
<td>Waihi at Winchester</td>
<td>27</td>
<td>Y</td>
</tr>
<tr>
<td>Waihi at SH72 Geraldine</td>
<td>35</td>
<td>Y</td>
</tr>
<tr>
<td>Waihi at Subway Geraldine</td>
<td>35</td>
<td>Y</td>
</tr>
<tr>
<td>Temuka R at Manse Bridge</td>
<td>39</td>
<td>Y</td>
</tr>
<tr>
<td>Temuka River at SH1</td>
<td>38</td>
<td>Y</td>
</tr>
<tr>
<td>Opihi River at Waipopo</td>
<td>54</td>
<td>Y</td>
</tr>
<tr>
<td>Opihi River at Saleyards Bridge</td>
<td>52</td>
<td>Y</td>
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<tr>
<td>Opihi River at SH1</td>
<td>70</td>
<td>Y</td>
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<tr>
<td>Te Ngawai at Te Ngawai</td>
<td>23</td>
<td>Y</td>
</tr>
<tr>
<td>Pareora River at Evans Crossing</td>
<td>22</td>
<td>Y</td>
</tr>
<tr>
<td>Pareora River at Huts</td>
<td>40</td>
<td>Y</td>
</tr>
<tr>
<td>Pareora River at SH1</td>
<td>63</td>
<td>Y</td>
</tr>
</tbody>
</table>
Current state key findings

- Over allocation of groundwater in Pareora and Rangitata-Orton
- Nitrates exceed drinking water standard in GW in Ashwick Flats, Lower Orari and Levels Plains
- Streams exceed Nitrate national bottom lines in Lower Orari
Current state key findings

• There are issues with low river flows

• Increasing nitrate trends in GW in Ashwick flat

• Increasing GW level and decreasing nitrate in GW below Rangitata South Irrigation scheme

• Decreasing GW levels in much of the zone
What is the ‘Current Pathway’ Scenario?

What the future might look like if the regional plans & other initiatives were fully implemented

- 3 regional plans
- PC5
- On the ground actions in the catchments

Starting point for comparison against the next two scenarios.
Current pathway key findings

• The current pathways maintains water quality in areas where it is currently good and provides some improvement at some sites that are poor

• Reliability of supply reduces in the Orari and Pareora with the introduction of higher minimum flows

• Groundwater levels and stream flows are likely to continue to reduce in some areas which remain over allocated
Current pathway key findings

• The current pathways do not bring all allocations down to the limits which have been set

• Areas of irrigation and land use activities remain unchanged

• Local on the ground actions have the opportunity to provide some improvement in water quality
In zone gains

Key components:

• Reduce over allocation of groundwater
• Reduce catchment loads to meet in-stream NPS requirements
• Reduce catchment loads to meet drinking water standards in groundwater
• OEFRAG recommendations for Opihi flow regime
New water

Key components:

• Two sub-scenarios: small scale and large scale new water
• Replacement of groundwater or surface water in some areas
• Additional areas of irrigation
• Both of these have different consequences on water quality and quantity
• Land use intensification to take advantage of new irrigation areas
How can you be involved in the OTOP Healthy Catchments Project?

Put your name and details on the register at the door

Attend the Zone Committees public workshops and provide feedback

Join a catchment group

Place feedback on our website www.ecan.govt.nz/healthy catchments
Where can I find out more?

www.ecan.govt.nz/healthycatchments

Check out our Facebook page by searching OTOP Healthy Catchments Project

Contact Details:
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Community Lead
alexia.foster-bohm@ecan.govt.nz
027 537 9278

Technical reports, overview summaries, workshop presentations and maps are available on our project website.
• From the thoughts you collected in our last discussion...

• what actions can you take to influence ZIP addendum and resulting sub-regional plan

• What tools/ support do you need
Turning our talk into action

• We will summarise your ideas and play them back to you - email

• Those who want to be involved - meet again to refine action plan and delegate tasks

• What happens is up to you – we’re here to help, you but you have to drive this bus!
More information

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