

Explanation of criteria used to categorise water permit applications

Colour - RED	Criteria used to categorise
<p>Taking account of the high level of uncertainty about potential cumulative adverse effects, the water permit applications should not be granted.</p>	<ol style="list-style-type: none"><li data-bbox="546 454 1812 658">1. Additional nutrients to rivers already exceeding ANZECC criteria: Omarama Stream, Stony River, & Willow Burn<li data-bbox="546 682 1812 958">2. Additional nutrients to allow 25% periphyton biomass increase over modelled amount: property basis, from applicant spreadsheet calculations<li data-bbox="546 982 1856 1258">3. New or 'not developed' irrigation proposal in Ahuriri Arm catchment (more information may clarify the appropriate maximum nutrient loads)

Explanation of criteria used to categorise water permit applications

Colour - AMBER	Criteria used to categorise
<p>Significant uncertainties about potential adverse effects on cumulative water quality. Could be granted, provided that either more information is obtained to reduce the uncertainties and/or subject to strict comprehensive monitoring and response conditions.</p>	<ol style="list-style-type: none"><li data-bbox="774 454 1870 658">1. Potential for significant adverse effects on Wairepo Creek and Wairepo Arm<li data-bbox="774 679 1870 883">2. Uncertainties and 25% periphyton biomass increase over modelled amount: Tekapo/Pukaki catchments<li data-bbox="774 905 1870 1109">3. Straight replacement for fully operational water permit in Ahuriri Arm catchment<li data-bbox="774 1130 1870 1268">4. Haldon Station – new & replacement, otherwise very close to Haldon Arm

Explanation of criteria used to categorise water permit applications

Colour - GREEN	Criteria used to categorise
<p>A high level of certainty that the actual or potential cumulative adverse effects on water quality are, or will be, less than minor, on the basis of cumulative water quality effects, and subject to appropriate conditions, the water permit applications can be granted.</p>	<p>Relative scale of receiving water prevents significant cumulative adverse water quality effects.</p>

Drivers, NDA & Overseer[®]

Nutrient limiting drivers

River WQ criteria

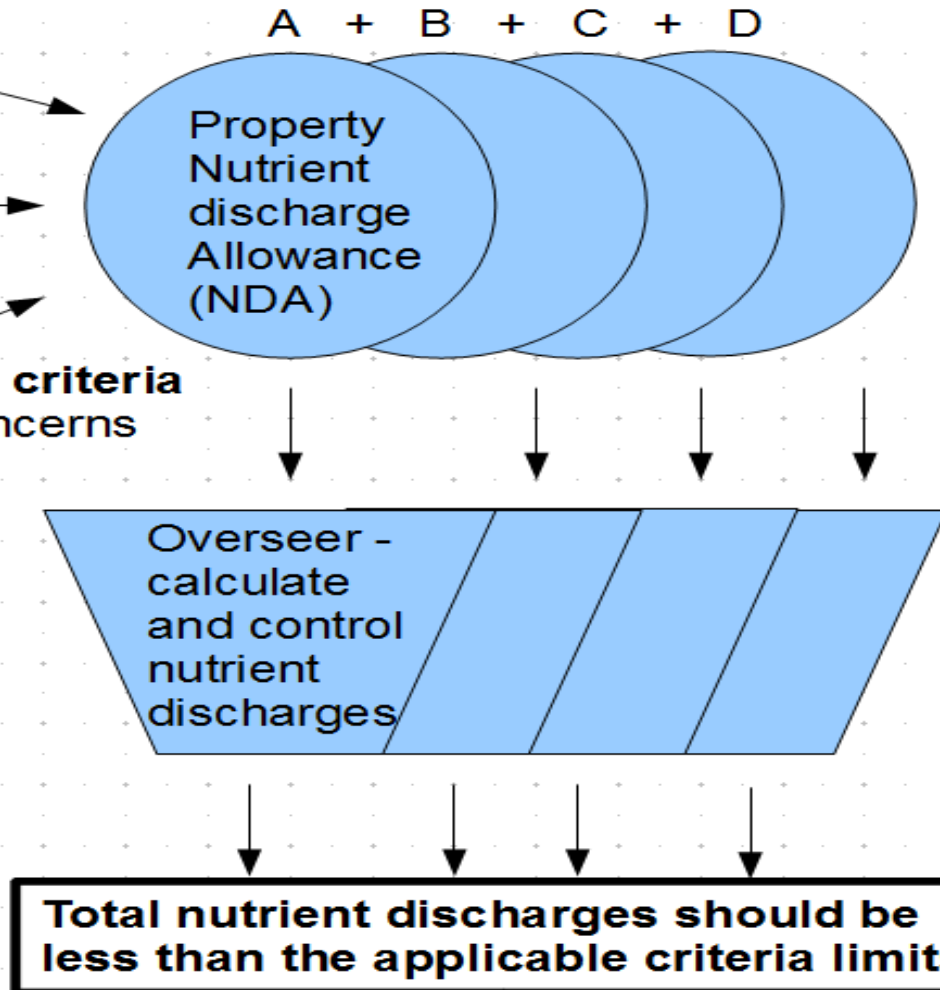
- Technical concerns
- Uncertainties

Lake WQ criteria

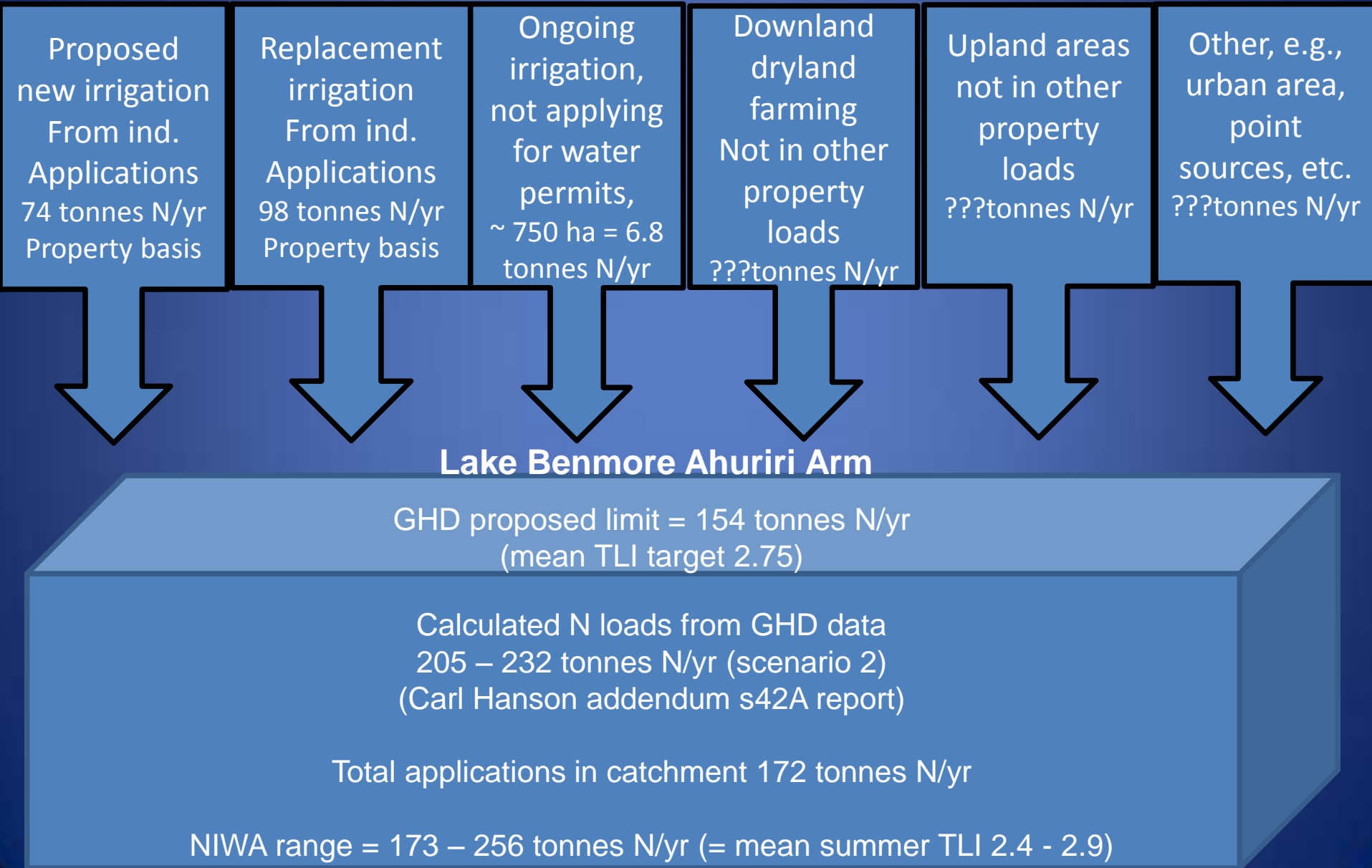
- Technical concerns
- Uncertainties

Groundwater quality criteria

- No sig. Technical concerns
- No sig. uncertainties



Nutrient loading to the Ahuriri Arm of Lake Benmore



Proposed new irrigation
From ind. Applications
74 tonnes N/yr
Property basis

Replacement irrigation
From ind. Applications
98 tonnes N/yr
Property basis

Ongoing irrigation,
not applying for water permits,
~ 750 ha = 6.8 tonnes N/yr

Downland dryland farming
Not in other property loads
???tonnes N/yr

Upland areas not in other property loads
???tonnes N/yr

Other, e.g., urban area, point sources, etc.
???tonnes N/yr

Lake Benmore Ahuriri Arm

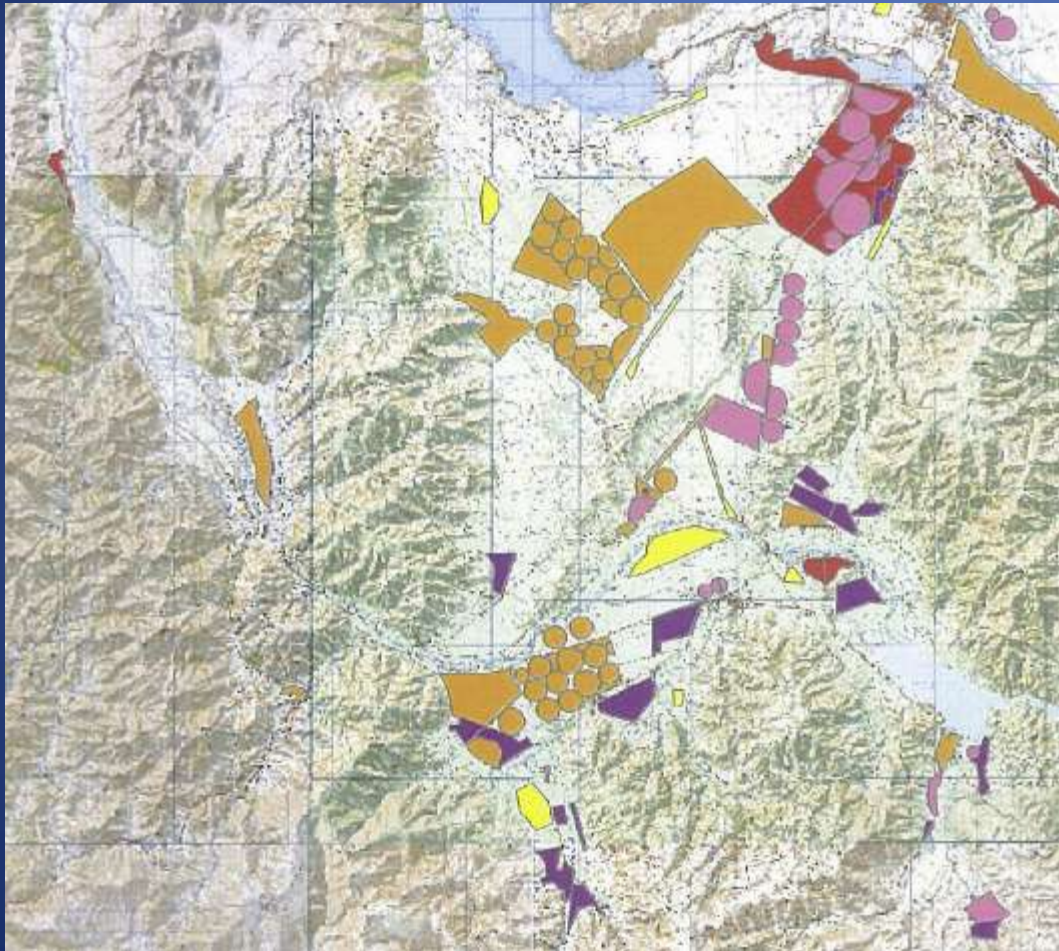
GHD proposed limit = 154 tonnes N/yr
(mean TLI target 2.75)

Calculated N loads from GHD data
205 – 232 tonnes N/yr (scenario 2)
(Carl Hanson addendum s42A report)

Total applications in catchment 172 tonnes N/yr

NIWA range = 173 – 256 tonnes N/yr (= mean summer TLI 2.4 - 2.9)

Irrigation in the Ahuriri Arm catchment



From GHD Rivers and Lakes report

Legend

Current Irrigation

- Surface
- Spray

Proposed Irrigation

- Surface
- Spray
- Tranching Irrigation
- Allocated Irrigation