Integrated Water Management in the Lindis Catchment

Tonight:

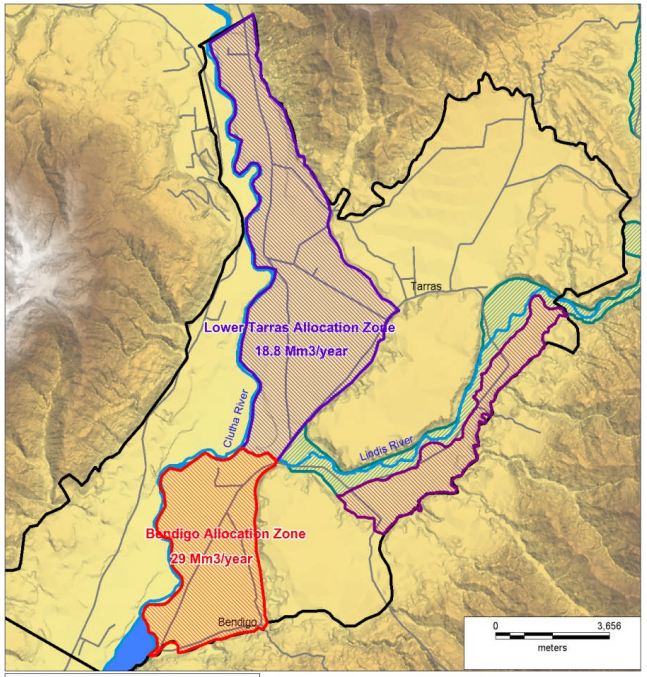
1. Welcome
2. Background / context
3. Minimum flow scenarios
4. Timeline / transitions
5. Question session
6. Where to from here...

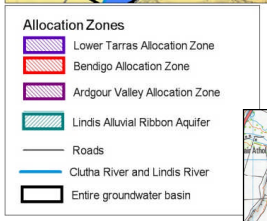
Background

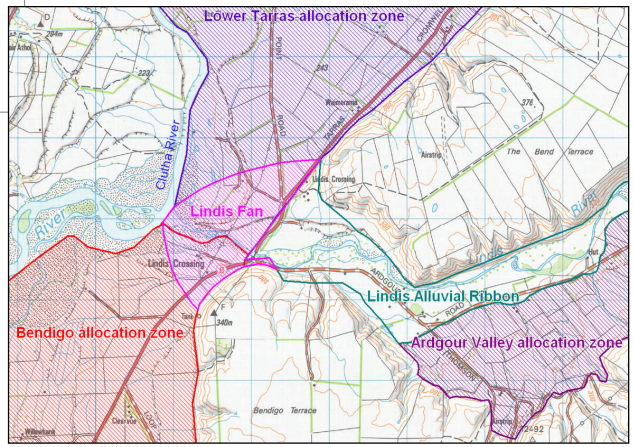
- Clear messages from community meetings
  - Last workshop held in March this year
  - Community values / ‘wants’
    - Survival of farming community
    - Protection in aquatic ecosystems
    - Recreational & aesthetics

Context

- Current sources of water:
  - Lindis River *(100% allocated)*
  - Lindis Alluvial Ribbon Aquifer *(100% allocated)*
  - Ardgour Valley groundwater *(case by case)*
  - Clutha River *(allocation available)*
  - Tarras aquifer *(12% allocated)*
  - Bendigo aquifer *(13% allocated)*
- Need to manage all these sources together – interconnected
- PC1C effective April 2010
  - Local water source / local use
  - Efficiency expected
  - Rate / timing / frequency







Implications for water takes?

- Main stem takes

  - minimum flow & rationing

- Lindis Alluvial Ribbon Aquifer

  - managed as primary surface water takes

  - minimum flow & rationing

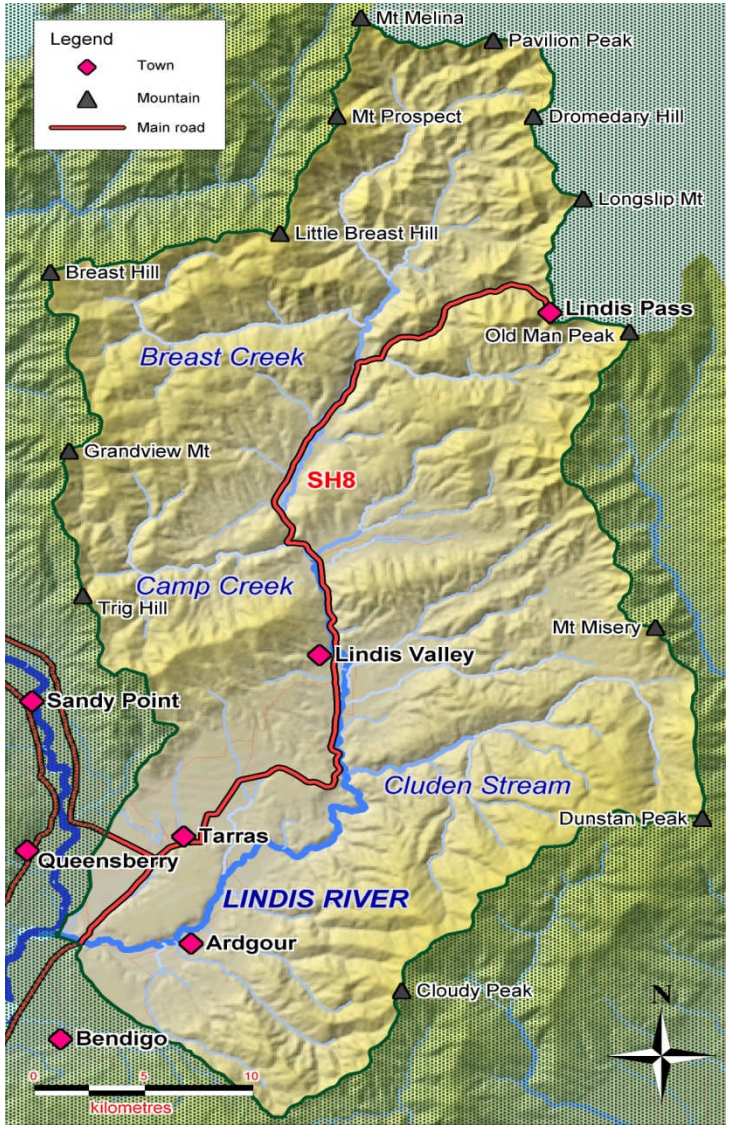
- Tributaries

  - connected tributaries *(naturally flows to main stem)* – minimum flow & residual flows & rationing

  - unconnected tributaries *(naturally disconnects from the main stem)* – residual flows if in-stream values exist

- Unconnected groundwater

  - maximum allocation volume



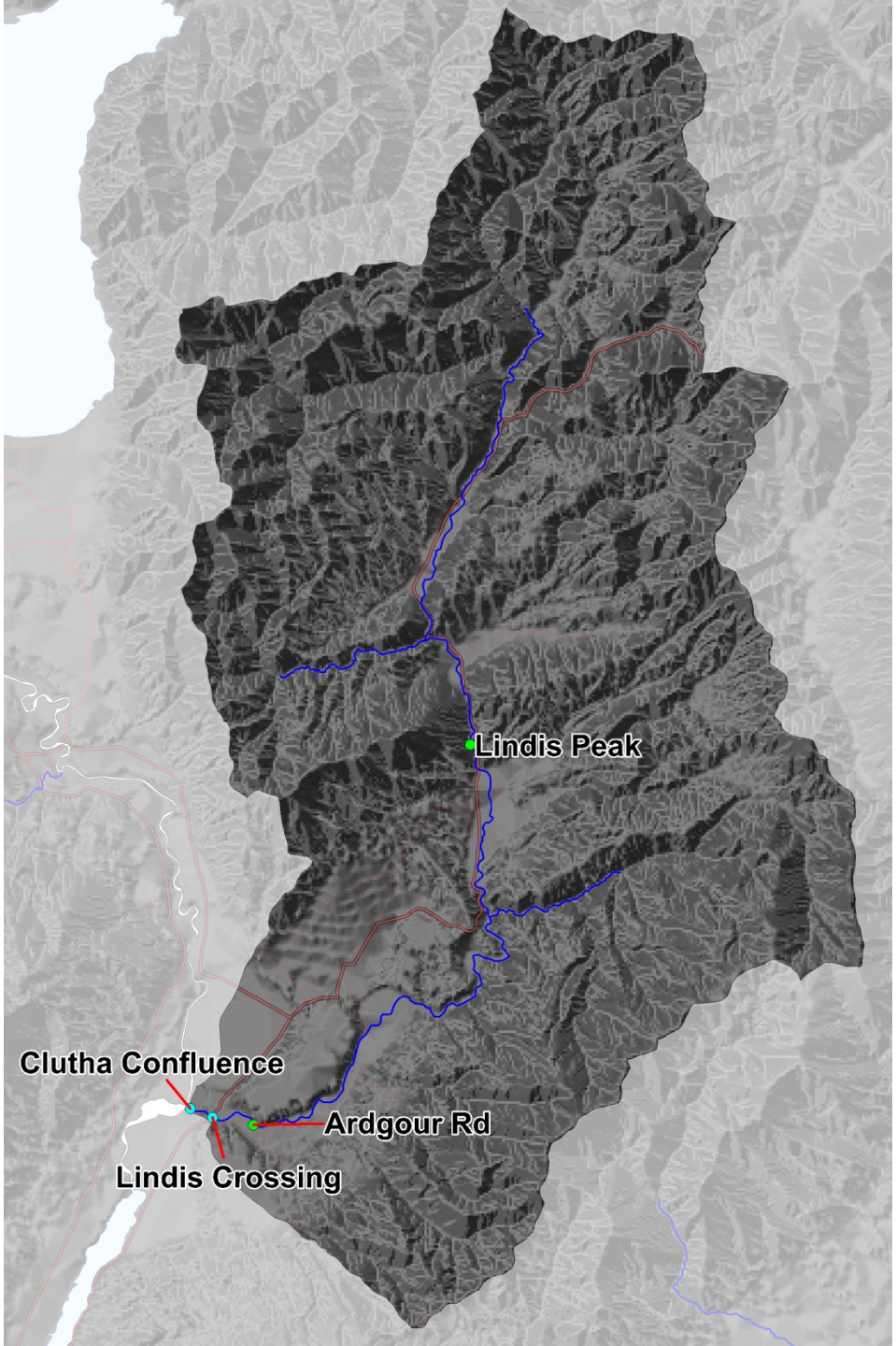
Where are we now...

- Two minimum flow scenarios developed around community 'wants' for discussion...

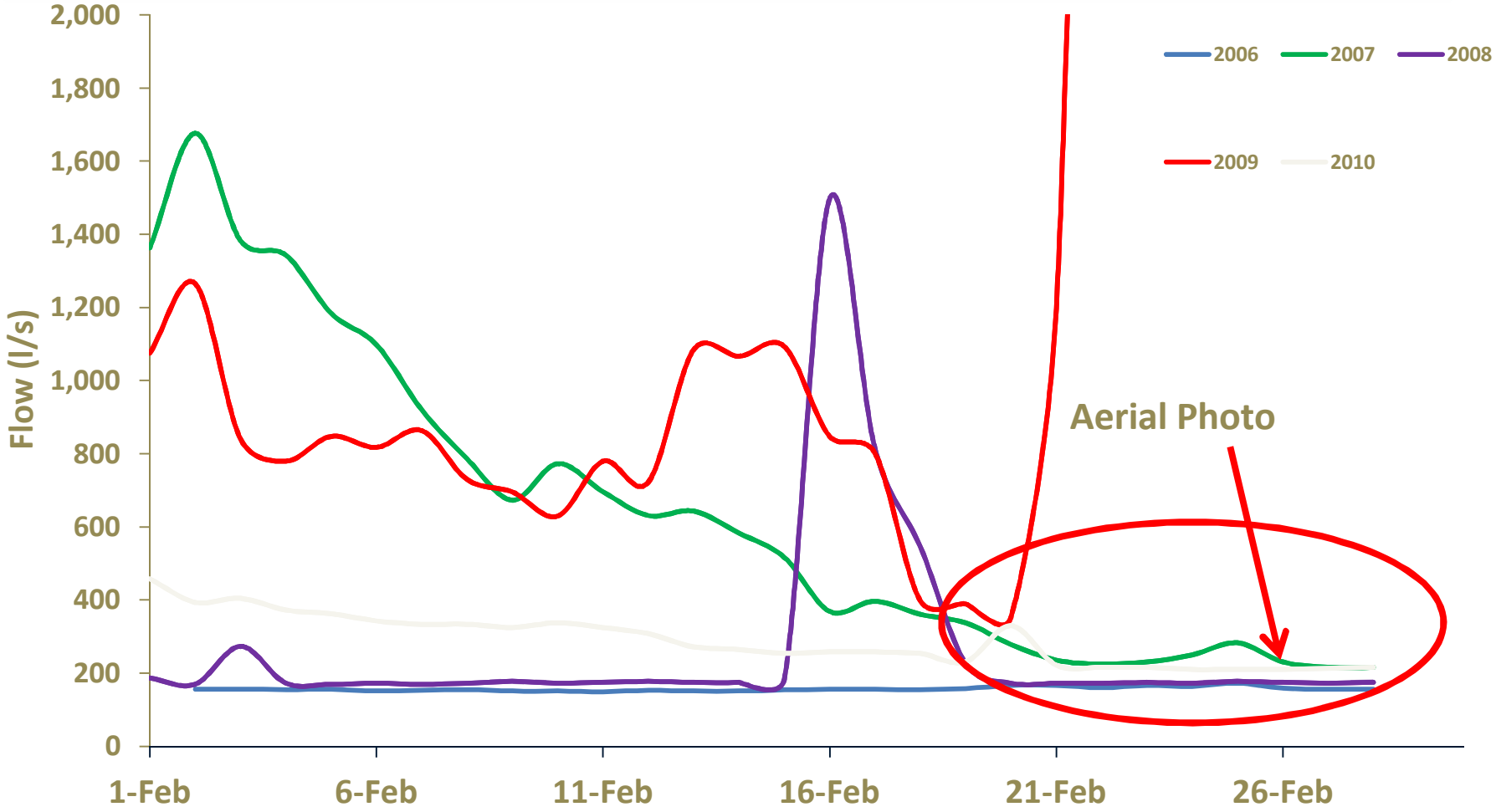
Scenario 1			Scenario 2	
October – November	750 l/s		October – May	750 l/s
December – April	450			
May	750			
June – September	1600		June - September	1600

Minimum flow scenarios

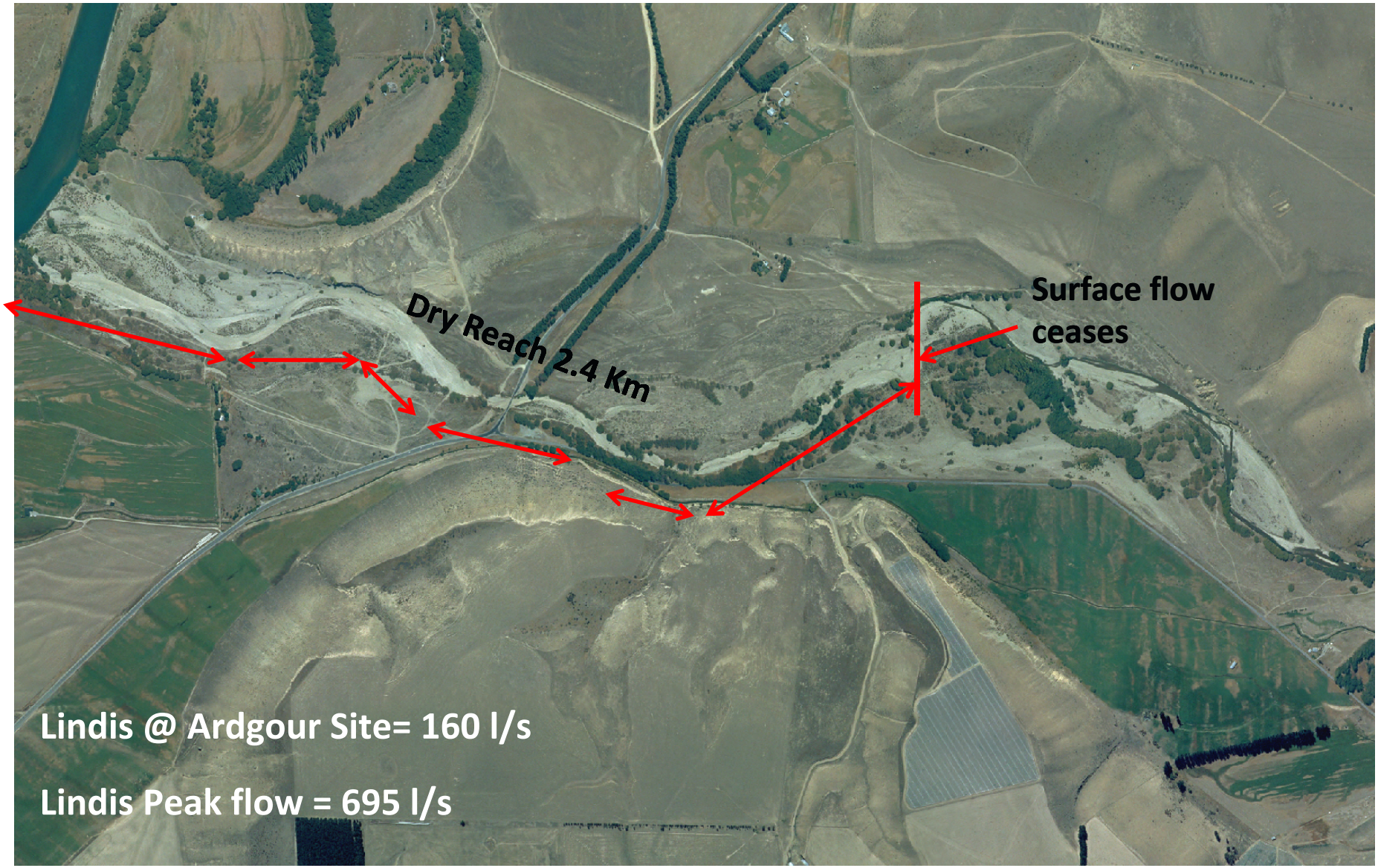
- Context
  - Existing regime
  - What it looks like
- Hydrology and fisheries investigation lower Lindis February 2007
  - What it showed
- Two minimum flow scenarios
  - Why we recommend them


Lindis Peak
Clutha Confluence
Ardgour Rd
Lindis Crossing

Lindis @ Ardgour hydrograph
February 06, 07, 08, 09, 10



Lower Lindis River 26/02/2006



Lindis D/S Ardgour Bridge

1,189 l/s @ Lindis Peak flow site

198 l/s @ Ardgour flow site

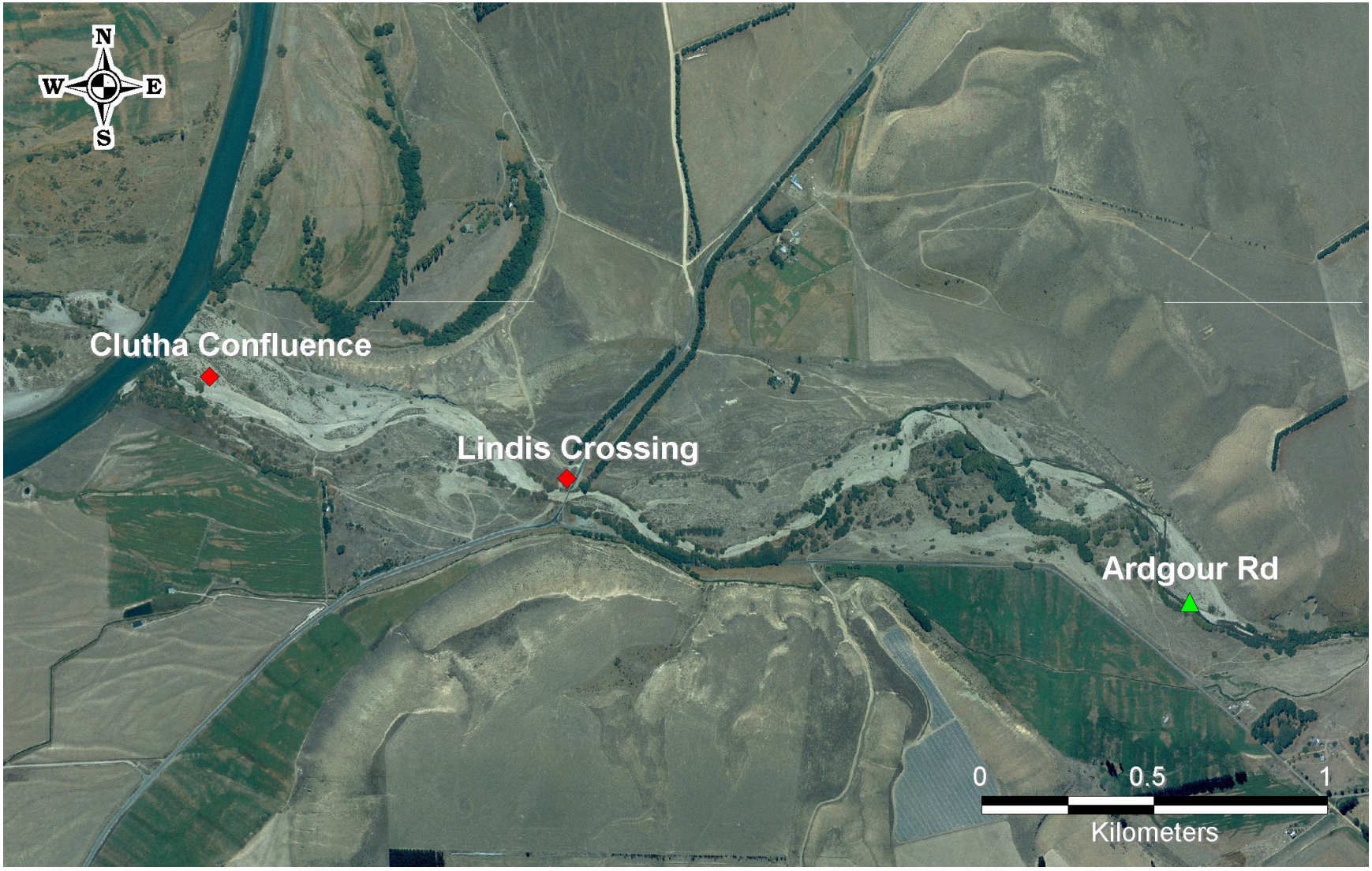
Lindis U/S Ardgour Bridge

1,189 l/s @ Lindis Peak flow site

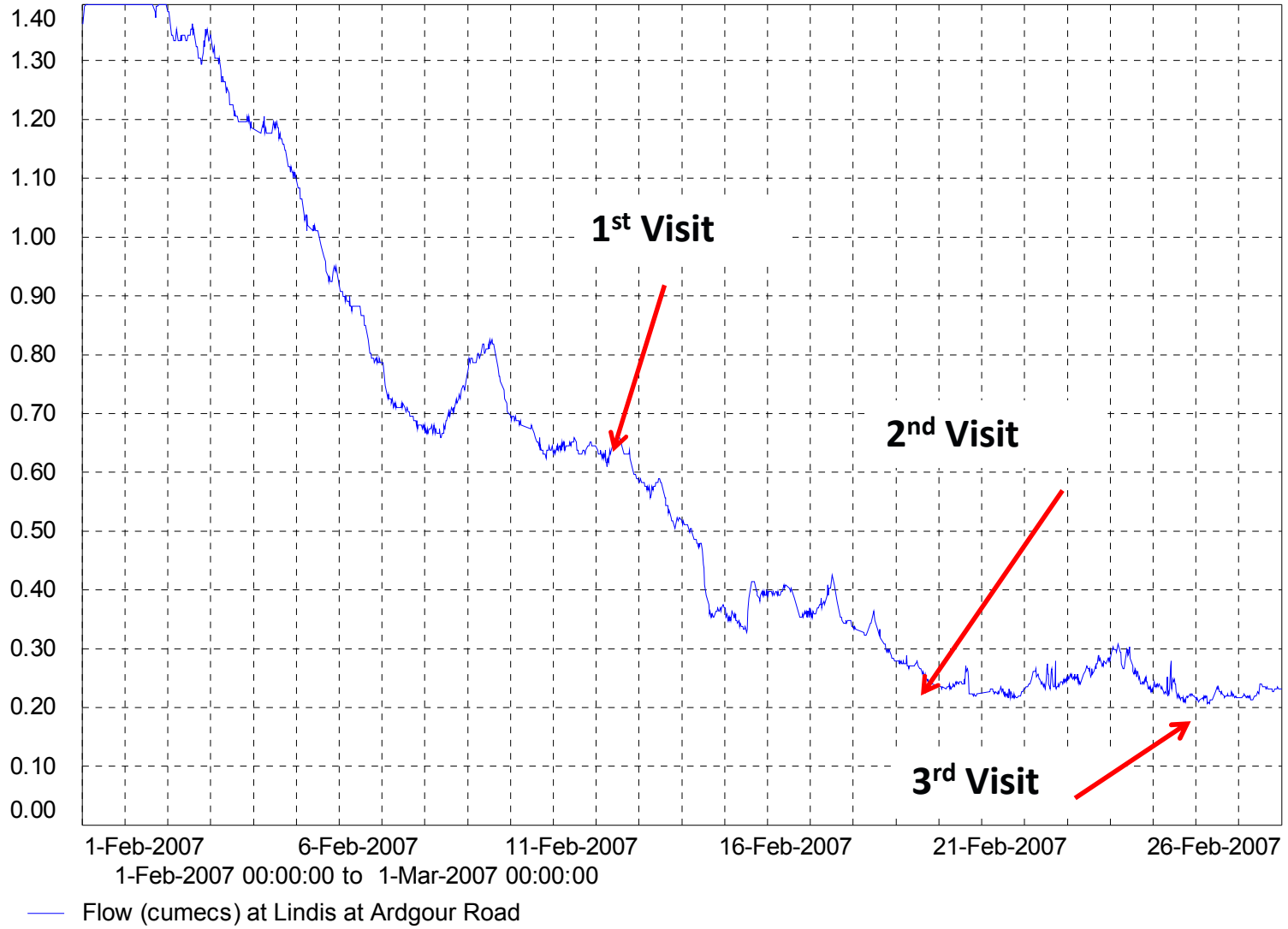
198 l/s @ Ardgour flow site

Lower Lindis River
Hydrology and fishery investigation
February 2007

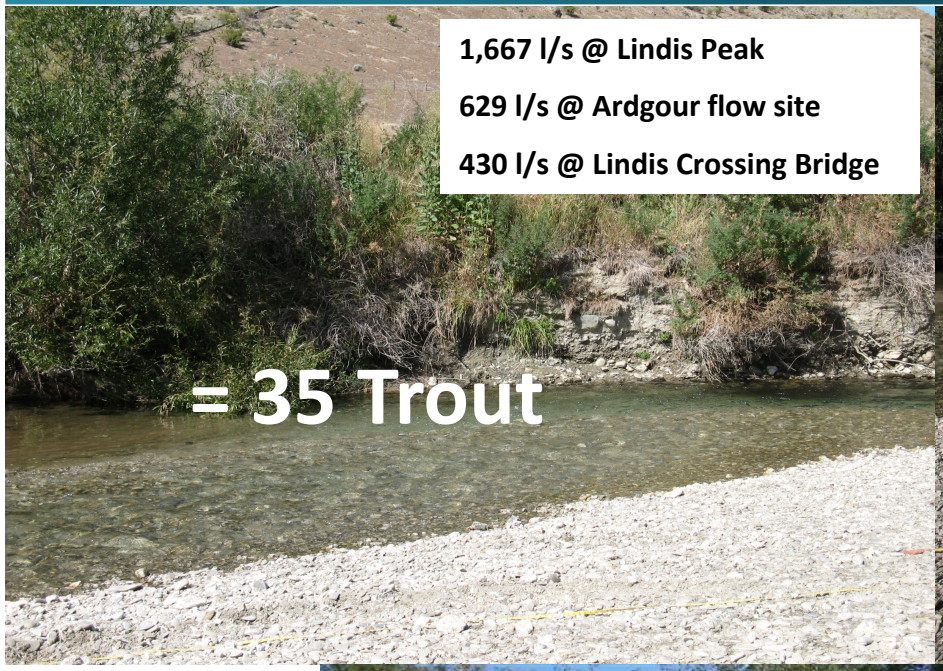
Hydrology of the lower Lindis River

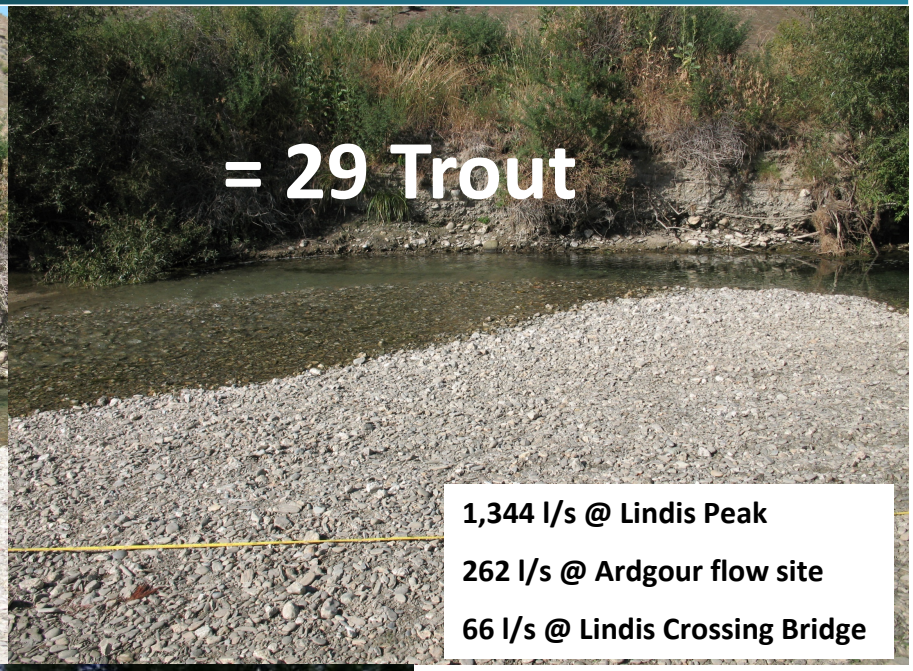


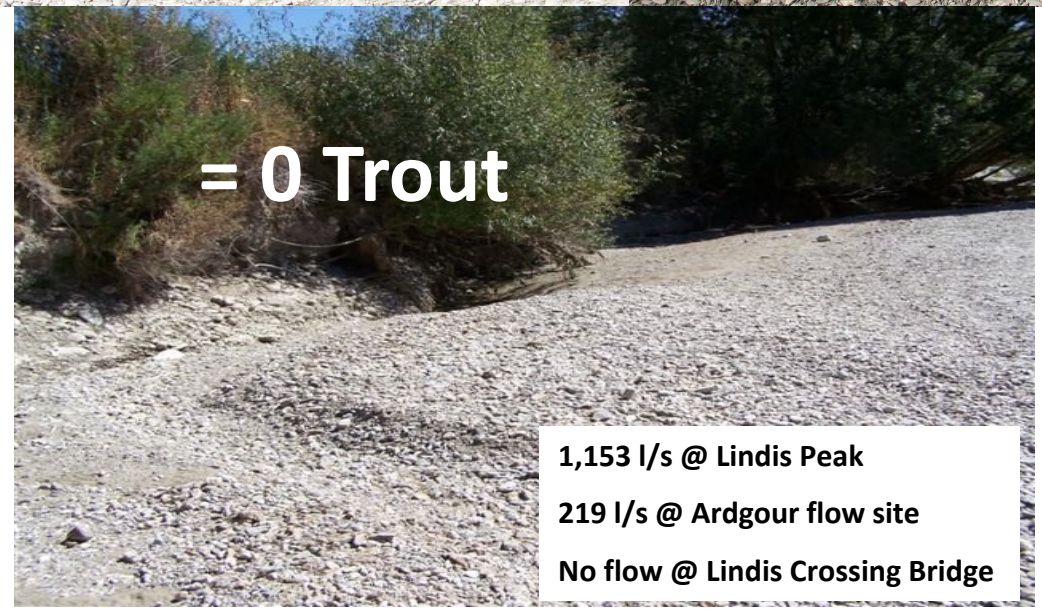
Lindis @ Ardgour hydrograph - February 2007



Lindis Crossing Bridge







Refuge Pool below Lindis Crossing Bridge

629 l/s @ Ardgour flow site

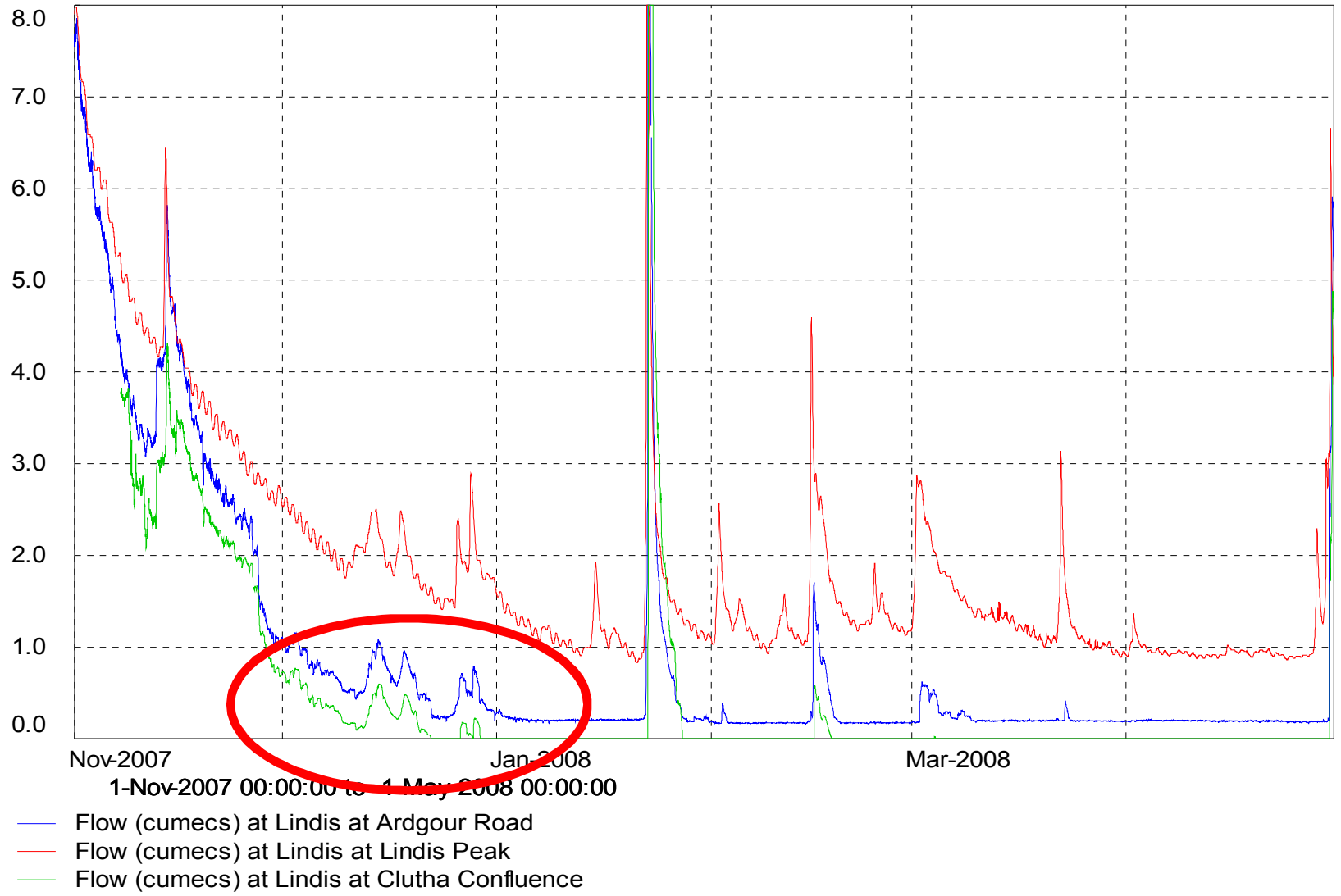
262 l/s @ Ardgour Flow Site

219 l/s @ Ardgour Flow Site

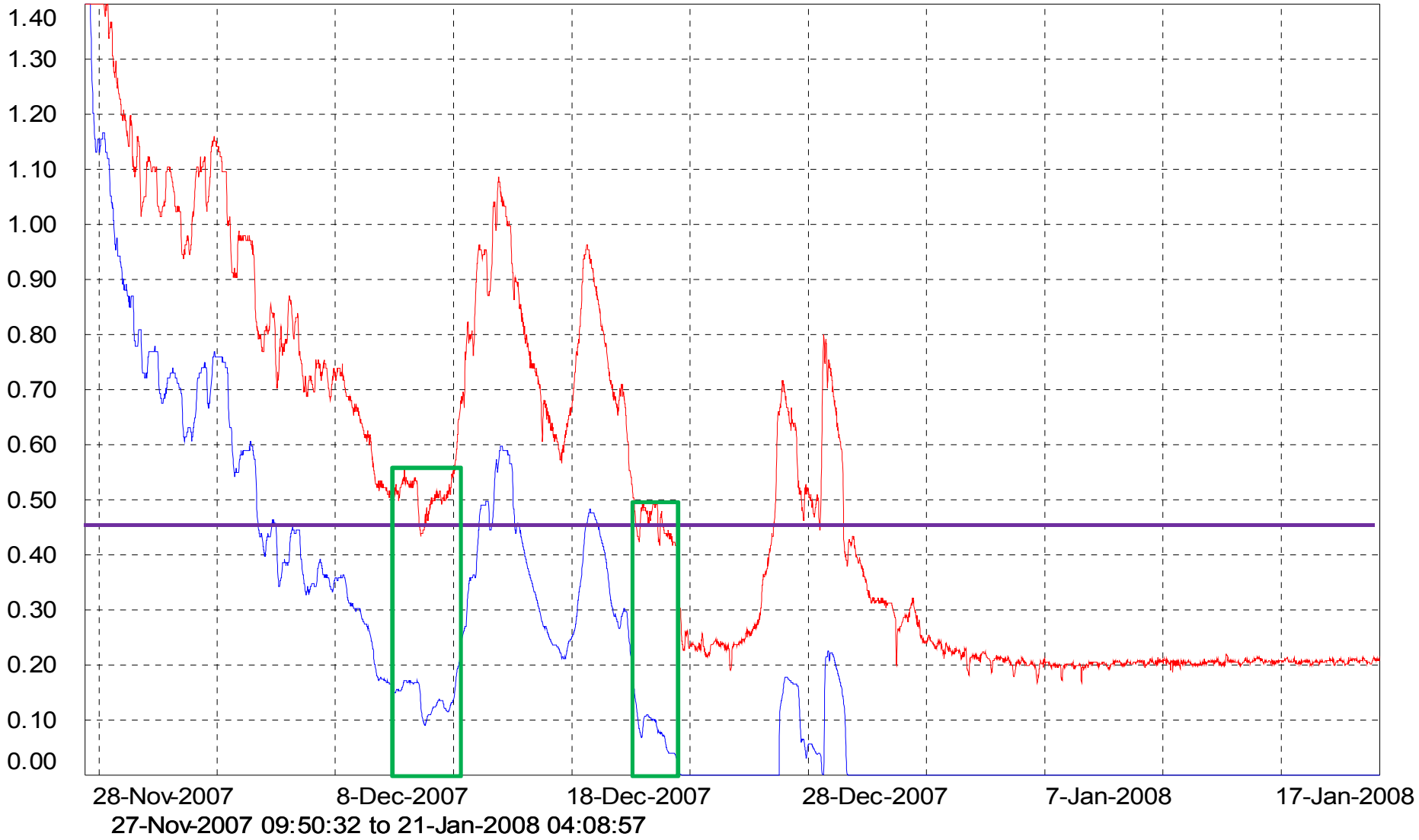
- Community asked that the minimum flow provide for:
  - Irrigation
  - Juvenile trout habitat
  - Trout spawning
  - Native fishery
  - Aesthetics, natural character, cultural values
    - Flows at Lindis Crossing Bridge

To balance all these values council suggests **450 l/s**

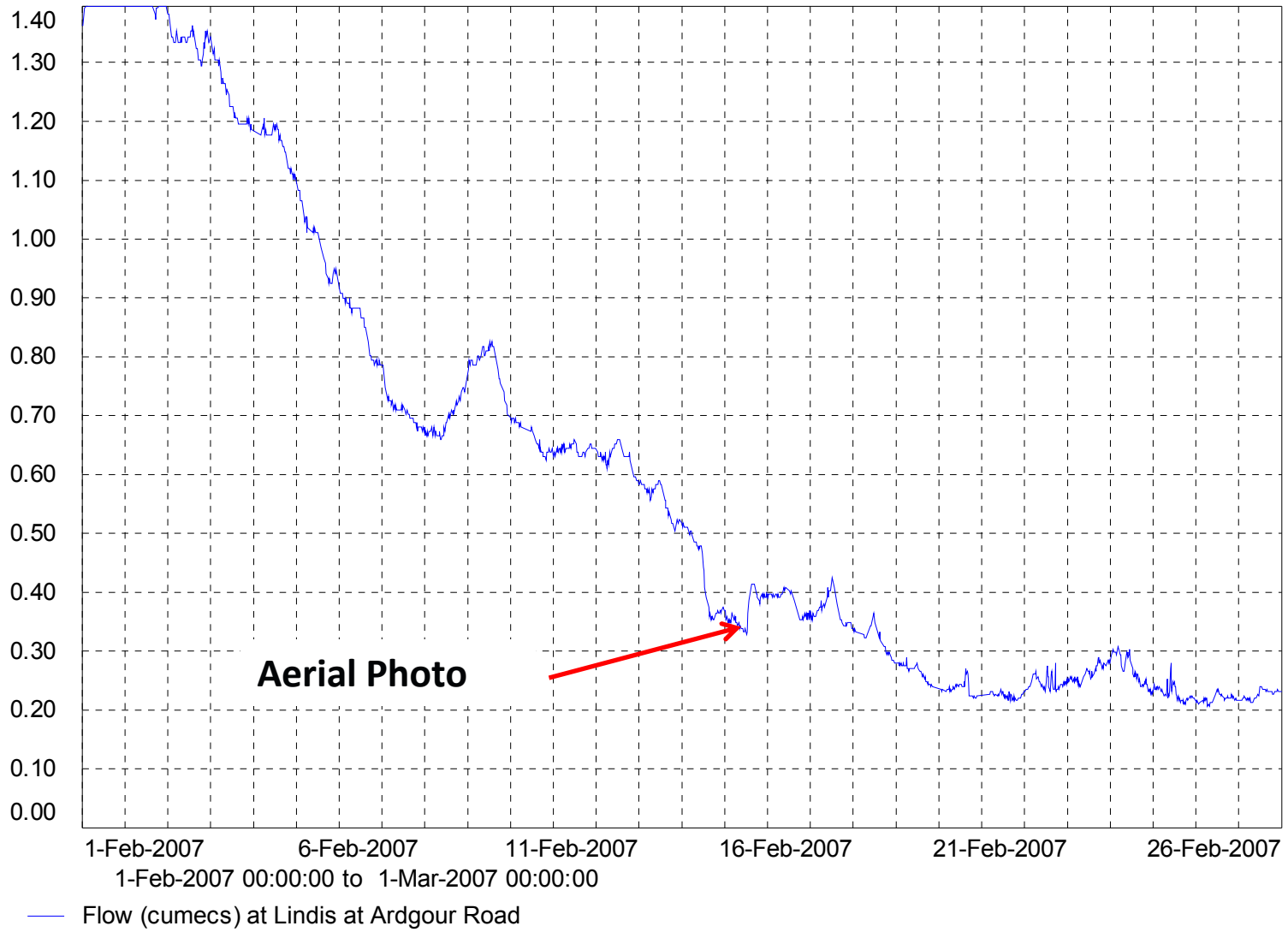
07/08 irrigation season - lower Lindis measured flows



Actual measured Ardgour & Clutha confluence flows



Lindis @ Ardgour Hydrograph February 2007



Lower Lindis River 16/02/2007


2,075 l/s @ Lindis Peak
472 l/s @ Ardgour flow site
300 l/s @ Lindis Crossing Bridge

450 l/s - what does it mean?

- Access to irrigation maintained.
  - A drop in availability
- Flows past the Lindis Crossing Bridge
  - Approximately 200 l/s
- In prolonged low flows
  - Permanent flows below Lindis Crossing Bridge
    - Not guaranteed to the confluence
  - Refuge pools maintained in the lower 500m above Clutha Confluence.
  - Possible delays of trout returning to the Clutha
- River managed for trout passage not rearing

750 l/s - what does it mean?

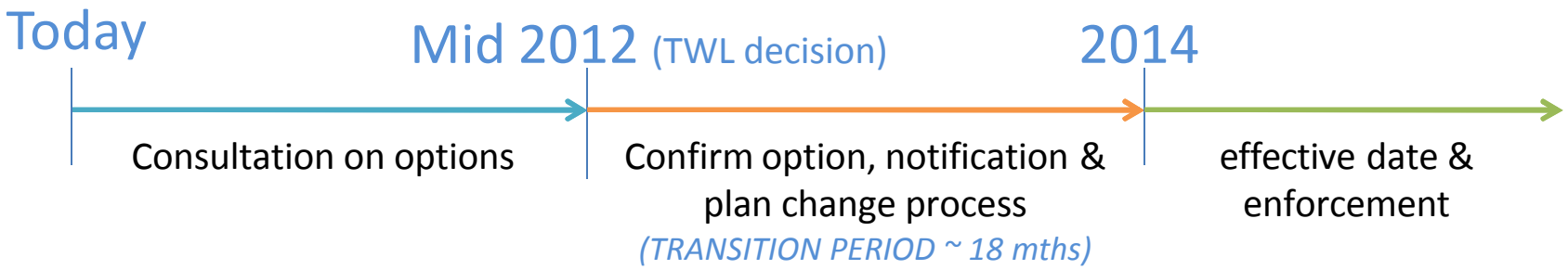
- Surface flows maintained at **all** times to the Clutha River
- Flows past the Lindis Crossing bridge
  - Approximately 500 -550 l/s
- Unrestricted migration of juvenile trout to the Clutha
- Trout rearing habitat provided for
  - IFIM point of inflection is 750 l/s

Flows & allocation

Scenario 1	
Minimum flow regime	
October – November	750 l/s
December – April	450
May	750
June – September	1600
Allocation	
Primary	1000 l/s
Supplementary blocks	500 l/s
Groundwater	~48 Mm3/yr

Scenario 2	
Minimum flow regime	
October – May	750 l/s
June - September	1600
Allocation	
Primary	800 l/s
Supplementary blocks	500 l/s
TWL	4,500 l/s
Groundwater	~48 Mm3/yr

Timing / transition



- No decision until decision on TWL is made
- 2014 - enforcement
- All surface takes (*including Lindis Ribbon Aquifer)* adhere to operative minimum flow regime *(incl. mining privileges)*

QUESTIONS?

Where to from here...

Consultation paper (draft)

Notify proposed plan change
Following decision on TWL~mid 2012

RMA process

Changes put into effect
~ 2014