

# **The River Values Assessment System (RiVAS and RiVAS+): background, method, benefits**

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# Acknowledgements

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  - Integrated Valuation and Monitoring Framework for Improved Freshwater Outcomes. Grant C09X1003.
- And to Mary-Anne Baker from Tasman District Council for the initial expression of need, ongoing help, advice, etc
- And Neil Deans, Nelson Marlborough Fish and Game, for his expert advice and ideas.
- Also to host councils, mostly Tasman, Gisborne and Hawkes Bay.
- And, also, mostly, to all the mainly lay experts from all walks of life who have worked with us on these assessments – farmers, tangata whenua, fishers, kayakers, etc.

# Background and purpose

- RMA - multiple requirements for significance to be assessed.
- Historically - multiple agencies x multiple attempts x multiple techniques, at ranking water bodies for relative significance.
- But, no objective system that allowed different values (e.g., irrigation, tangata whenua, native birds, angling) to be assessed using the same method.
- With the why defined, and existing hows not working, need for a new tool – hence the River Values Assessment System (RiVAS)
- **My purpose today** is to explain RiVAS, applications, the method and costs and benefits ...

# What is RiVAS?

In a nutshell RiVAS is:

- a multi criteria,
- best-available information, and
- expert panel based system.

It defines key attributes of values, establishes indicators for these and then enables their quantification and conversion to a (typically) 3-point threshold scale that, when applied and summed, enables rivers to be ranked for their relative significance for that value.

# The method – operationalising

## A: RiVAS

- 1 Define river value categories and river segments
- 2 Identify attributes
- 3 Select and describe the primary attributes
- 4 Identify indicators
- 5 Determine indicator thresholds
- 6 Apply indicators and indicator thresholds
- 7 Weight the primary attributes
- 8 Determine river significance
- 9 Outline other relevant factors
- 10 Method review - review assessment process and identify future information needs

## B: RiVAS+

- 11 Identify rivers and interventions
- 12 Apply indicators and indicator thresholds for potential value
- 13 Weight the primary attributes for potential value
- 14 Determine river potential value

# The method – multi-criteria driven, standardised numeric scale, and expert panel based approach

- Very few ‘values’ have full or up-to-date, comparable or quantitative, data, either nationally or regionally – notable exception is F&G NZ’s salmonid angling surveys.
- No contemporary data for some values, e.g., swimming or natural character, while others are mixed, e.g., native birdlife.
- Used the best available information - filled the gaps with expert judgement: there is no other way!
- Method built around key attributes of river values, populating where possible with real data, and then converting this information to numeric scales for ranking values = multi criteria analysis.
- Ultimately this led to us using expert panels and best available information as the cornerstones of the project.

# Using the Best Available Information

- Mandated in Fisheries Act 1996 under the Information Principles (S10)
- Supported by numerous Environment Court decisions
- Bottom line: cannot wait forever for the collection of perfect data so we use the Best Available Information, in a precautionary way
- We are absolutely explicit about the data we use – nothing is hidden

# Why we use Expert panels

- The most appropriate people to find, populate and interpret the Best Available Information are experts in the various values
- Experts are also best placed for identifying the attributes, indicators and importance thresholds of the values
- The choice and credibility of experts is vital – a credible National Expert Panel tends to act cautiously because its members, by definition, have to remain credible (as do subsequent regional panels)
- An independent facilitator keep experts ‘honest’
- Independent peer reviewers are also an important moderating influence



# Applications of RiVAS

- RiVAS applied to following values in the following places:
  - Irrigation: Canterbury, Tasman, Gisborne, Hawkes Bay
  - Tangata whenua: Southland, others (in progress)
  - Salmonid angling: Tasman, Marlborough, Hawkes Bay, Gisborne
  - Whitewater kayaking: West Coast, Tasman, Hawkes Bay
  - Swimming: Manawatu, Tasman, Gisborne, Hawkes Bay
  - Native birds: Canterbury, Tasman, Gisborne, Hawkes Bay
  - Native fish: Gisborne, Hawkes Bay (in press), Tasman (in press)
  - Natural character: Marlborough, Tasman, Gisborne, Hawkes Bay
  - Potable water: Gisborne
  - Hydro – NZ generally – trial application
  - Whitebait – Tasman (in progress)

# Outputs

**Native birdlife in Gisborne District:**  
Application of the river values assessment system  
(RiVAS and RiVAS+)



Sandy Bull  
Andy Bassett  
Ken F.D. Hughey

LEaP Research Paper No. 5  
March/2012

**Salmonid Angling in the Hawke's Bay Region:**  
Application of the River Values  
Assessment System (RiVAS)



**'Water used for domestic purposes'**  
in Gisborne district:  
Application of the river values assessment  
system (RiVAS and RiVAS+)

Kay Booth  
Larissa Coubrough  
Tom Winlove

LEaP Research Paper No. 16

**Whitewater Kayaking in the  
Hawke's Bay Region:**  
Application of the River Values  
Assessment System (RiVAS)



Chris Reed,  
Graham Sevicke-Jones,  
Kay Booth,  
Andy England,  
Bernie Kelly,  
Sean Bellamy,  
Mark Mahoney,  
Warren Hales

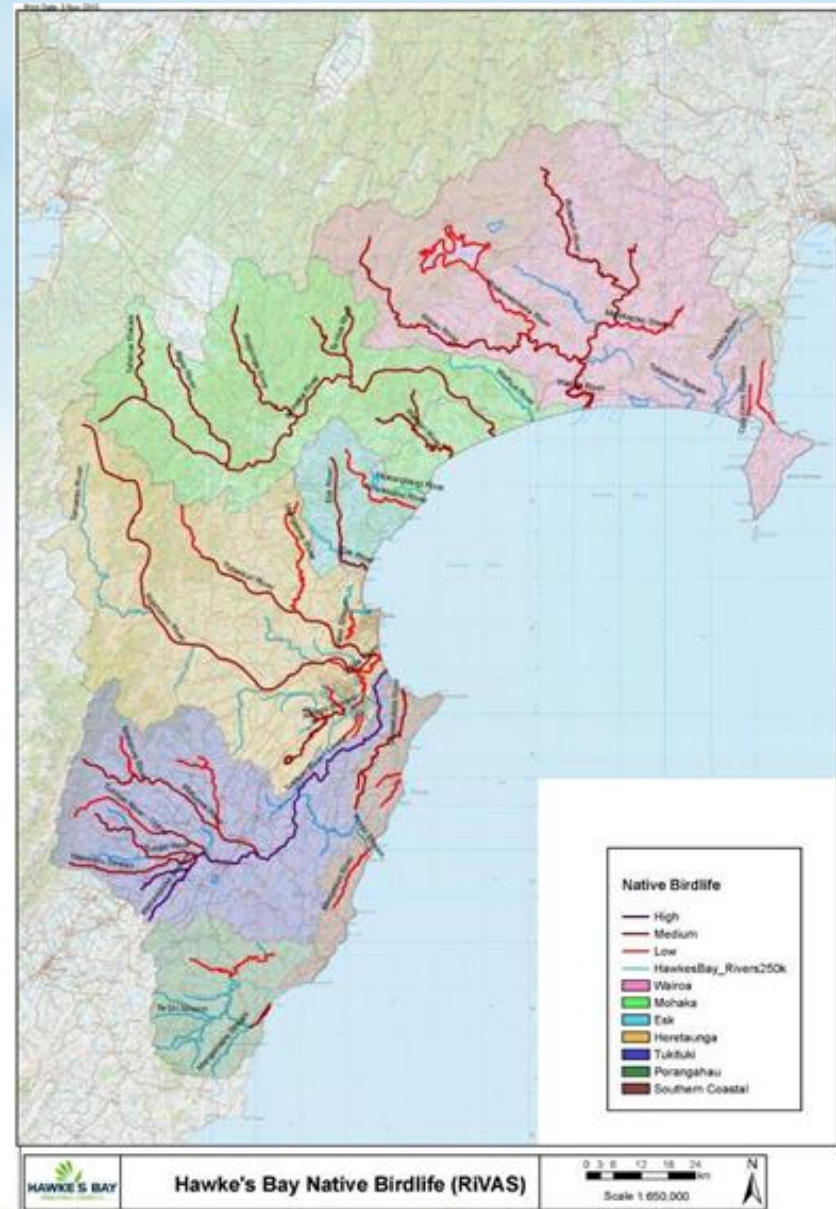
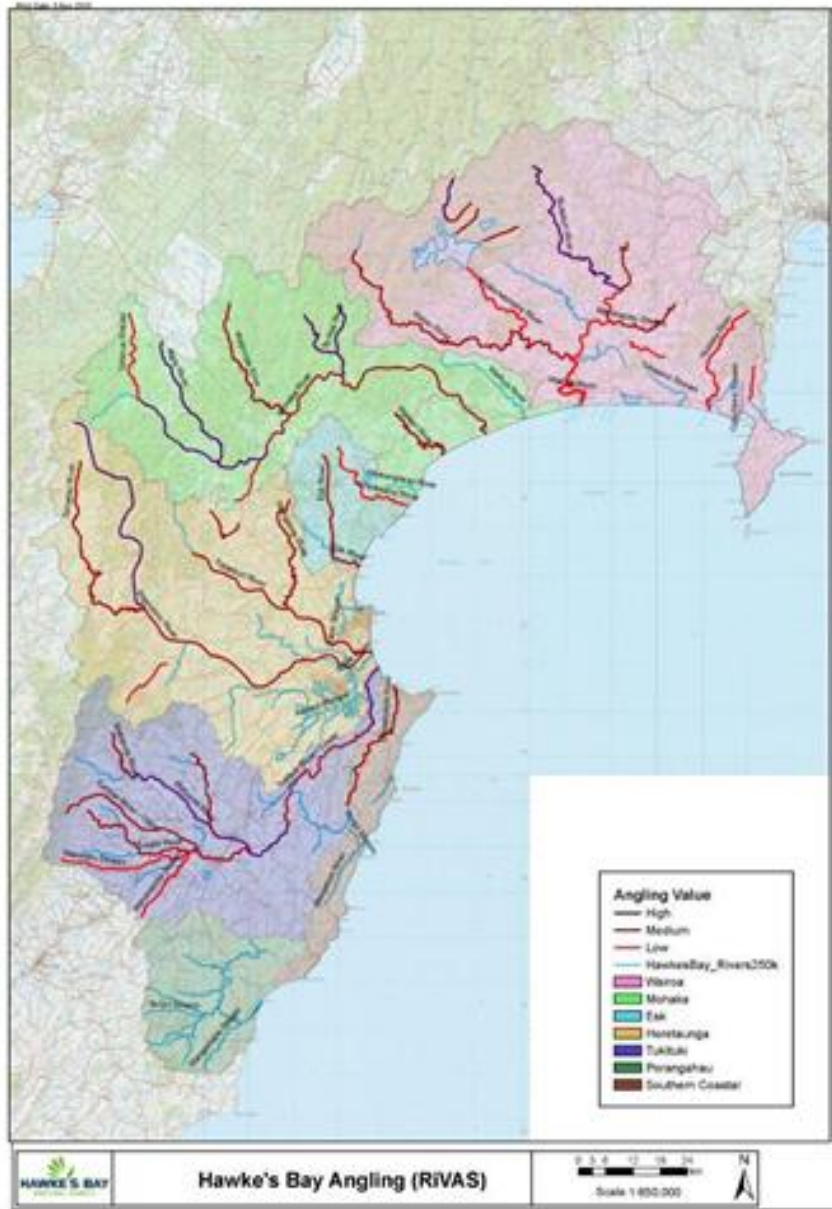
LEaP Research Paper No. 12



Peter Higgs  
Marcus Koll  
Dennis Crone  
Judith Robertson  
Keriana Wilcox-Taylor  
Bruce Duncan  
Ken F.D. Hughey

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May 2012

# Maps



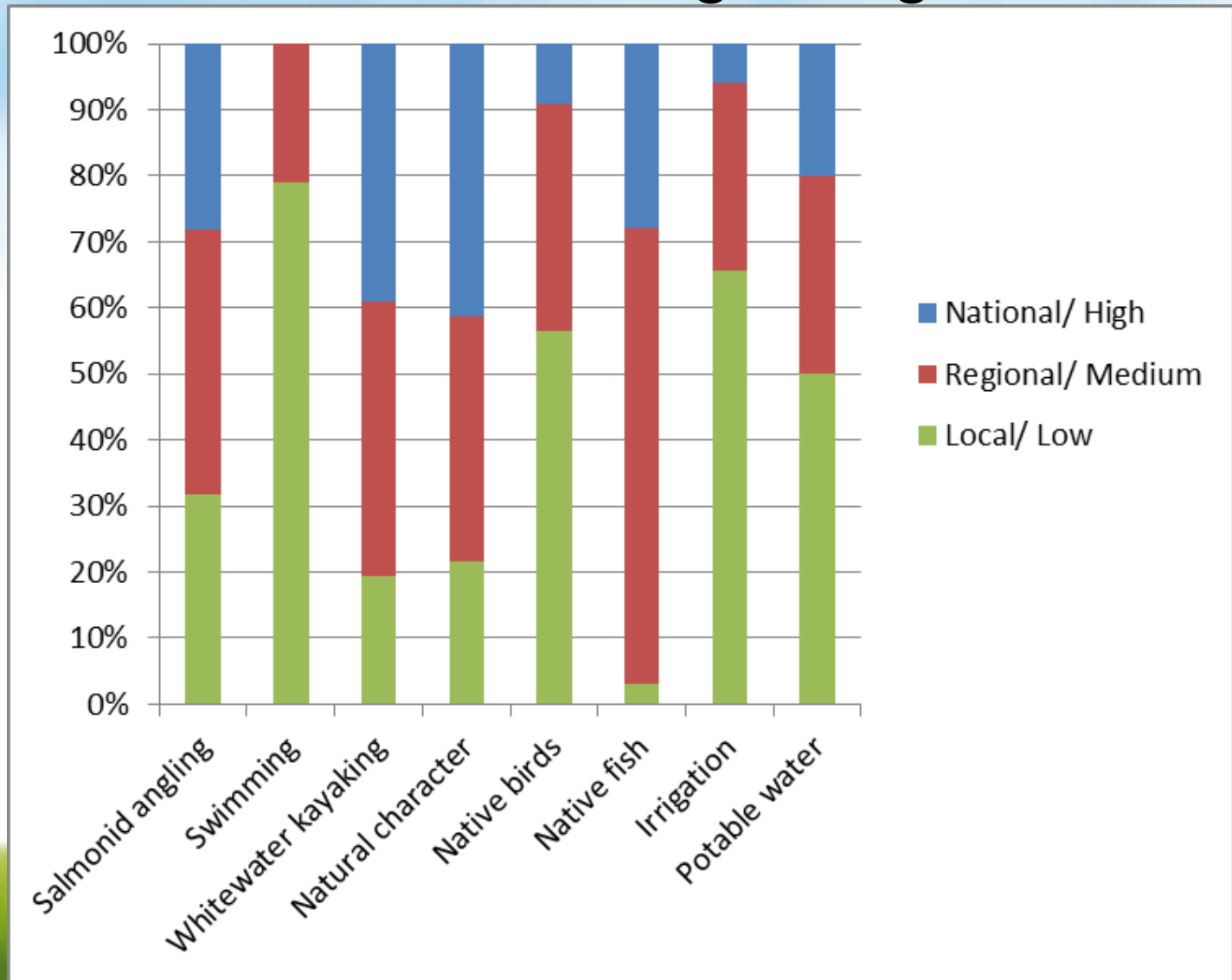
# Single spreadsheets containing the rankings and a wealth of knowledge, e.g., native fish

	1 Fish Score		2 Spawning Score		3 Diadromous Score		4 Declining Species Score		5 Stronghold Score		6 Flow Score		7 WQ Score			8 Introduced Fauna Score		9 Physical Barrier Score		10 Riparian Shading Score		Sum	Importance	Comments
	Average number native fish	Regional score	Number of whitebait sites	Defined score	Average national score	Regional score	Number declining species	Defined score	Number of stronghold sites	Defined score	Average national score	Regional score	Average regional score	Regional score	Expert panel	Average national score	Regional score	Proportion of zone affected	Defined score	Average riparian cover	Defined score			
Awatere	4941	1	1	2	2.2	2	7	3	GK, SJK	3	3.0	3	2.5	2	3	3.0	3	0.00	3	0.52	2	25	National	Giant kokopu probably also SJK – significant because there are very few populations on the East Coast of New Zealand, probably heading towards going locally extinct due to reduced recruitment
Coastal 1	6520	1	1	2	2.5	2	9	3	GK, SJK	3	3.0	3	2.6	3	3	2.9	3	0.00	3	0.59	3	26	National	Giant kokopu probably also SJK – as above
East Cape/ Coastal 2	11278	1	0	0	2.9	3	3	1	BK	2	3.0	3	2.6	3	3	2.6	3	0.00	3	0.71	3	22	Regional	Good populations of Banded kokopu
Maraetaha/ Coastal 5	5608	1	1	1	2.1	2	3	1	LFE	1	3.0	3	2.0	1	2	2.3	2	0.00	3	0.58	3	19	Regional	Ranked all sites at least as regional importance – the East Cape and Poverty Bay Streams are regional and potentially could say national strongholds for longfin eels, still good numbers around throughout catchments
Motu	13314	1	1	1	1.8	1	5	2	SJK, LFE	3	3.0	3	2.8	3	2	2.5	2	0.00	3	0.56	2	20	Regional	Old records or SJK, pretty sure there is no fishing for longfin eel – one of only a handful of rivers in NZ
Pakarae/ Coastal 4	6482	1	0	0	2.3	2	2	1	LFE	1	3.0	3	1.6	1	2	2.8	3	0.01	2	0.49	2	17	Regional	Longfin eel
Turanganui/ Gisborne	5255	1	1	1	2.4	2	3	1	LFE	1	2.8	2	1.5	1	2	2.7	2	0.04	2	0.54	2	16	Regional	Longfin eel
Uawa	22584	2	1	1	2.2	2	4	2	LFE	1	3.0	3	2.1	1	2	2.8	3	0.01	2	0.55	2	20	Regional	Longfin eel
Waiapu	35644	2	0	0	1.7	1	7	3	LFE	1	3.0	3	2.6	3	2	3.0	2	0.00	3	0.50	2	19	National	Longfin eel
Waipaoa	59885	3	1	2	1.7	1	6	2	LFE, K	3	2.9	1	2.1	1	1	2.9	2	0.03	2	0.51	2	19	Regional	Stronghold for longfin eel – could say either regional or national importance, The Te Arai (waterworks bush) has a good population of koaro, one of very few streams (only one I saw) that flows in to Poverty Bay with koaro

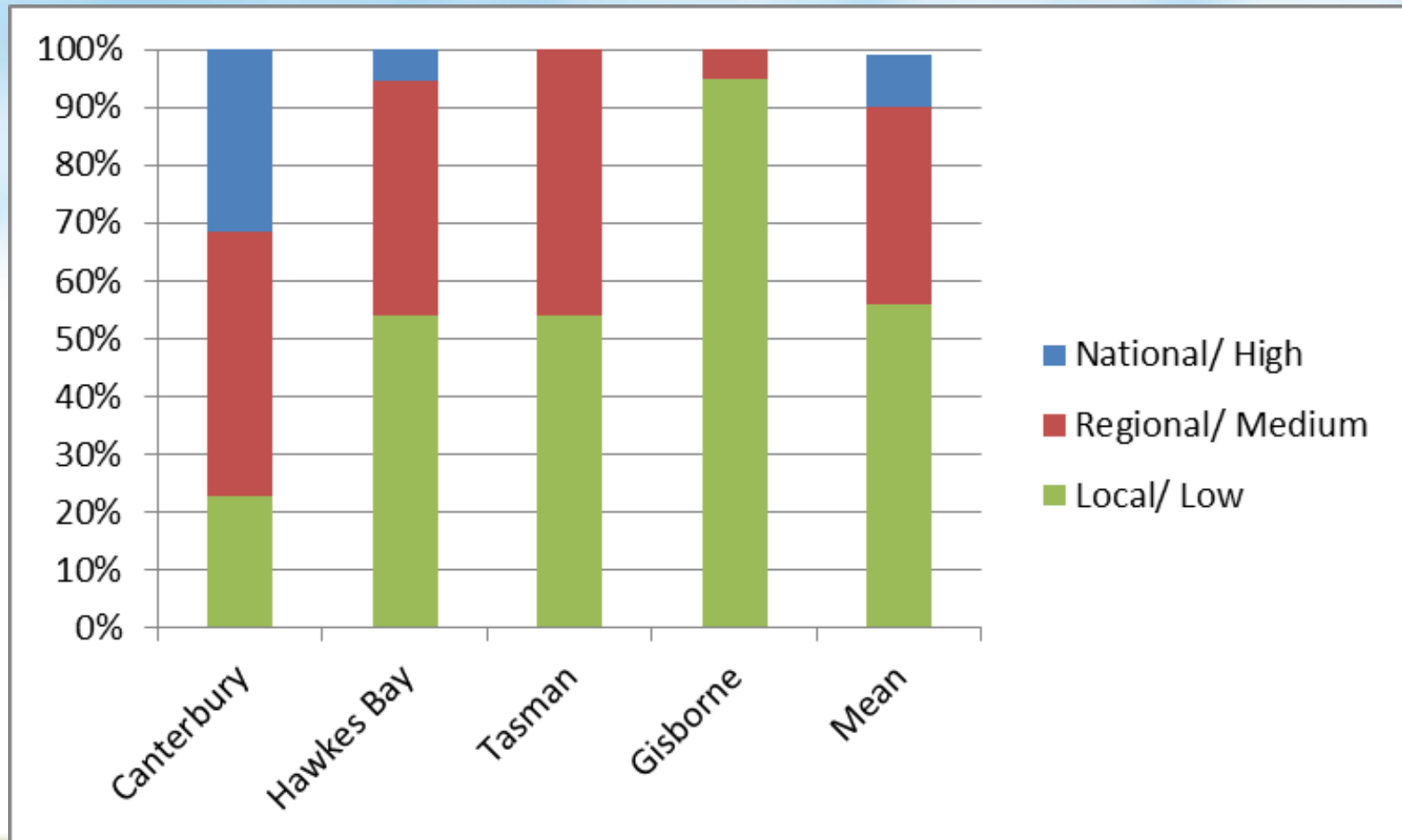
# Wealth of knowledge gathered for little cost and housed in one place

- Use by river – native bird numbers, native fish numbers, swimmers and kayaker numbers
- Origin of users by river – swimming, salmonid angling, kayaking
- Lists of species by river, i.e., diversity – native birds, native fish
- Threatened species aspects by river, e.g., presence of threatened or at risk species and whether or not river is a species stronghold – native fish, native birds
- Measures of water quality by river, i.e., attributes and indicators for native fish, natural character, salmonid angling and swimming
- River morphology, e.g., distribution and abundance of whitewater features used by kayakers – waves, play holes

# RiVAS – proportion of rivers, sections or clusters in different ranking categories



# Importance rankings for native bird rivers from four RiVAS applications



# Council level evaluation of RiVAS (and RiVAS+): method

- 3 councils, TDC, HBRC and GDC key contacts surveyed
- Each sent a table asking for information about use of RiVAS and RiVAS+ and strengths, weaknesses, opportunities and threats (SWOT)
- Results presented in that order



# RiVAS applications

## Policy / planning

- TDC: Information about known uses and values in a list in regional plan.
- GDC: Regional Fresh Water Management Planning
- HBRC: Angling, kayaking, swimming and natural character used to inform the decision making for the RPS Change 5 – Land and Water.

## Research / survey / monitoring

- TDC: Informed annual bathing water quality survey
- HBRC: Inform water quality monitoring sites for contact recreation

## Other

- TDC: Identified potential conflicts at water management objective level.
- HBRC: outputs used in community and stakeholder engagement to demonstrate how freshwater values vary throughout the region.
- HBRC: Maps used to highlight challenge of managing water abstraction and water quality and the need to balance values.

# RiVAS strengths

## Policy / planning

### TDC:

- Neutral methodology
- Robust enough to be applied by any party
- Good tool to assemble crucial information.
- Enables assessment even in absence of hard data
- Used for a variety of end uses

### GDC:

- Really useful as rely heavily on experts to fill in information gaps.
- Cost effective way of highlighting conflicts on rivers
- IDs further information needs
- Great way to engage community and get people in a room together.

### HBRC:

- Gets experts in a room with a workable and accepted method
- Extremely cost/time effective - expert assessed outputs in 1-day
- Provides a wide-lens approach, region wide
- Useful for community engagement
- Simple to use
- Well received by experts involved in workshops
- Consistent methodology
- Useful for informing national and regional decision- making

## Research / survey / monitoring

### TDC:

- Highlights key water body attributes that may require particular management (e.g., swimming and adjacent facilities).
- Enables clustering of key attributes that may need to be addressed in monitoring/data gathering/ investigation programmes – water quality.
- Highlights gaps in knowledge/data needed to manage rivers for particular end uses.
- Prioritising work programmes

## Other

### TDC:

- Can be applied in cost effective, relatively short time
- Local people with local expert knowledge can be part of process – great opportunity for engagement

# Weaknesses

## Policy / planning

## Other

### TDC:

- People buy into the methodology only when they have been part of the process. “Outsiders” can remain sceptical.
- Some assume water management decision made with the ranking.
- Expert panel approach – depends on getting ‘right’ people.
- Lack of actual data for some values.
- Need to ensure ‘value’ properly understood/defined - ‘irrigation’ versus ‘primary production’.
- Very limited external stakeholder input into acceptability.

### GDC:

- Some values, e.g., swimming, not suited to N/R/L ranking, where there may be many, locally ranked sites of high significance (similar to tangata whenua values).
- Sometimes hard to find enough experts to participate.

### HBRC:

- Reductionist approach and ranking may not suit all values e.g. cultural

### TDC:

- May have a once over likely feel to it given that it can be applied in a relatively short time.
- Depends on getting right ‘experts’

# Opportunities

## Policy / planning

- TDC: Very good for understanding what is at stake –trade-offs that might be required
- TDC: Attributes and data may provide information needed to develop evidential requirements for deciding what is or isn't acknowledged at plan level.
- GDC: Need a way to factor in updated information over time. Do we keep the document 'live' or review it every few years?
- GDC: Using information to translate freshwater values for each water body into an environmental flow so robust and realistic allocation limits can be set.
- HBRC: Application to catchments (rather than region) will be useful for ICM.

## Other

- TDC: Great way to collate and present a lot of data about rivers – useful in community processes
- TDC: Looking forward to getting information mapped – but maybe some issues – scale, reach as opposed to point source locations are somewhat different for all the values.

# Threats

## Policy / planning

- TDC: Slightly different interpretations with each application – may undermine eventual development of that “nationally significant” threshold.
- TDC: Different experts disagreeing on how attributes assessed/prioritized
- GDC: Getting buy in from some stakeholders who think it is too broad brush/overarching.
- HBRC: Requires buy-in (experts, community, planners, councils, lawyers?)

# Logistics – time, cost, etc, questions

- Very user friendly to implement – see 1-pager
- Need a council champion: he/she organises EP, organises meetings, keeps notes, follows up on promises.
- Time: Hardest parts are organising the EP and then following up on draft report – I am still waiting for some council material on two native fish workshops I have run. Champion around 2.5 days per value; Facilitator around 2.5 days per value. Experts tend to be gratis but lunch, mileage etc helpful.
- Cost: Base fee per value is \$6000 plus travel and accommodation for facilitator; sometimes some additional cost for data, e.g., native fish most expensive at around \$11,000. Overall around \$36,000 for 5 values.

# Discussion and Conclusions

- RiVAS has been ‘fully’ trialled in 3 councils – not only has it produced lists of rivers ranked by value for importance, it has also led to multiple other spin off uses.
- Councils’ own evaluations have been incredibly positive, e.g.,
  - Incredibly cost and time effective
  - Community buy in
  - Multiple uses
  - Highly credible