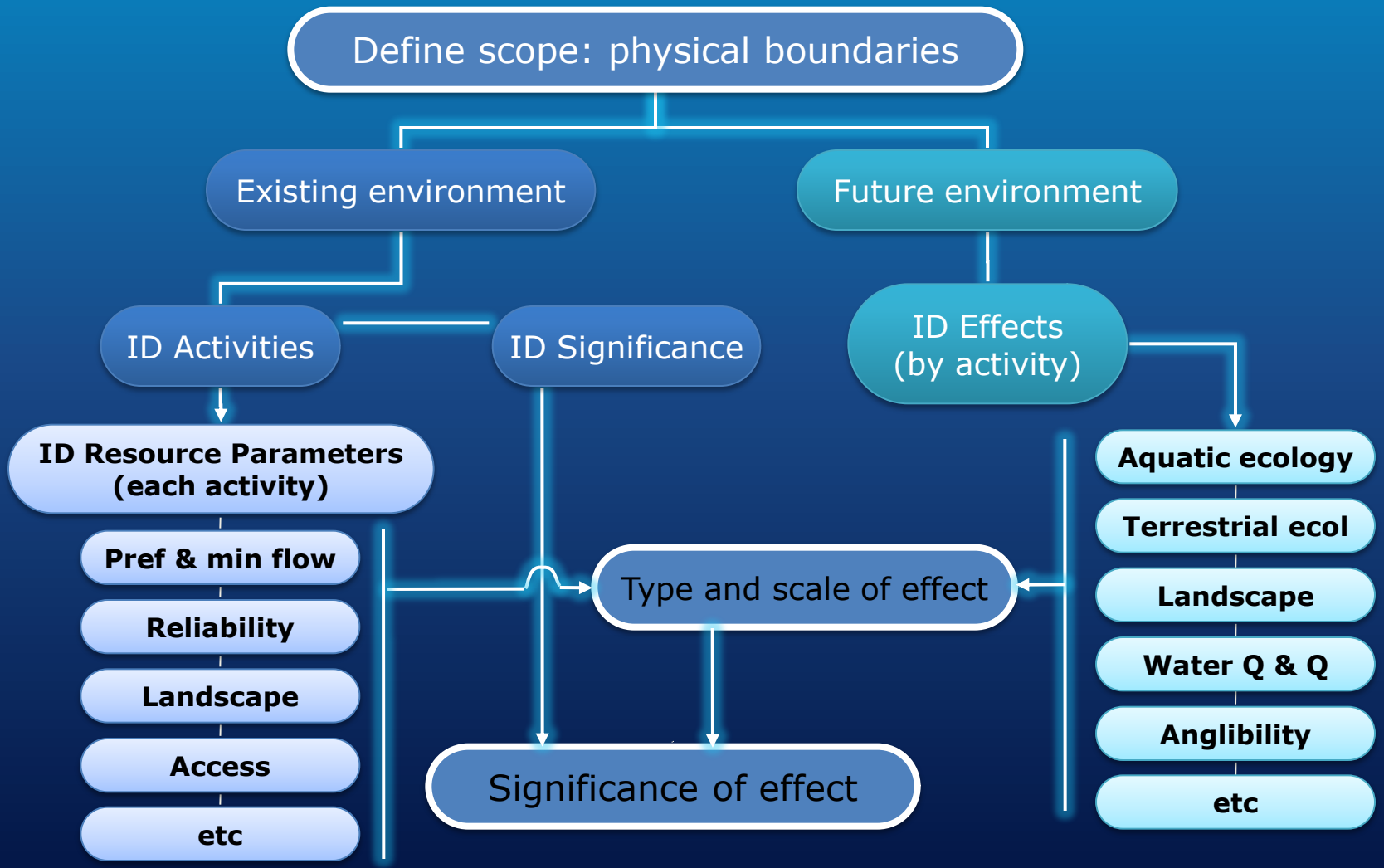
Recreation and tourism impact assessments: Rivers

for RMLA Conference
Christchurch 2010

Aims of Presentation

- Review general approach to assessing effects on recreation and tourism resulting from river developments
- Consider some methods for data gathering
- Consider some important definitions

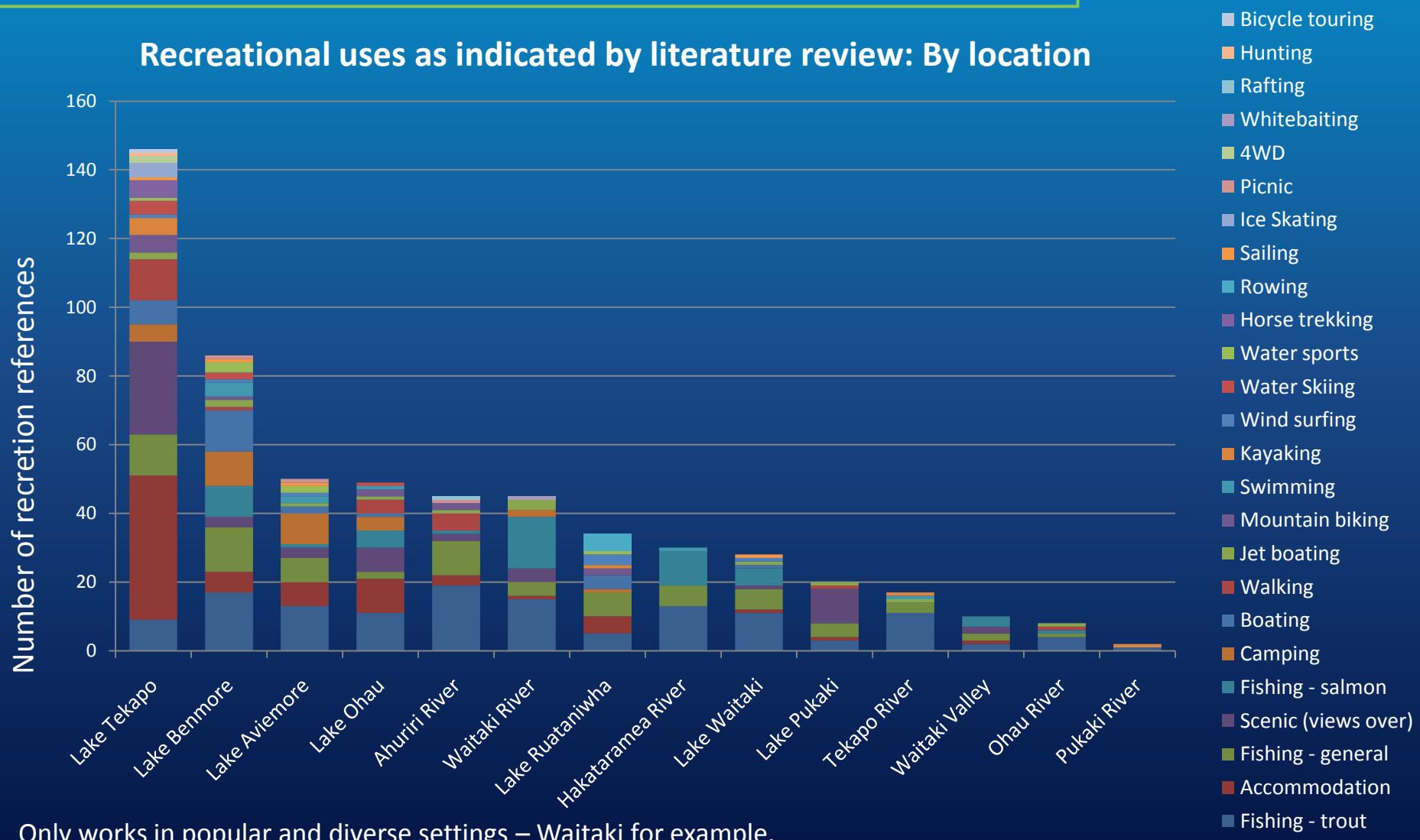
General approach



Identify activities – and resource parameters

- Survey – interception, observational
- Popular literature and Web review
- Quantified literature review and quantified on-line presence analyses (discourse analysis)
- Structured interviews and workshops
- Specialist technical reports (eeling, whitebait, trout …)
- Planning documentation: Regional Council publications, NRRPs, other TA management plans, recreation strategies, Conservation Management Strategies, etc

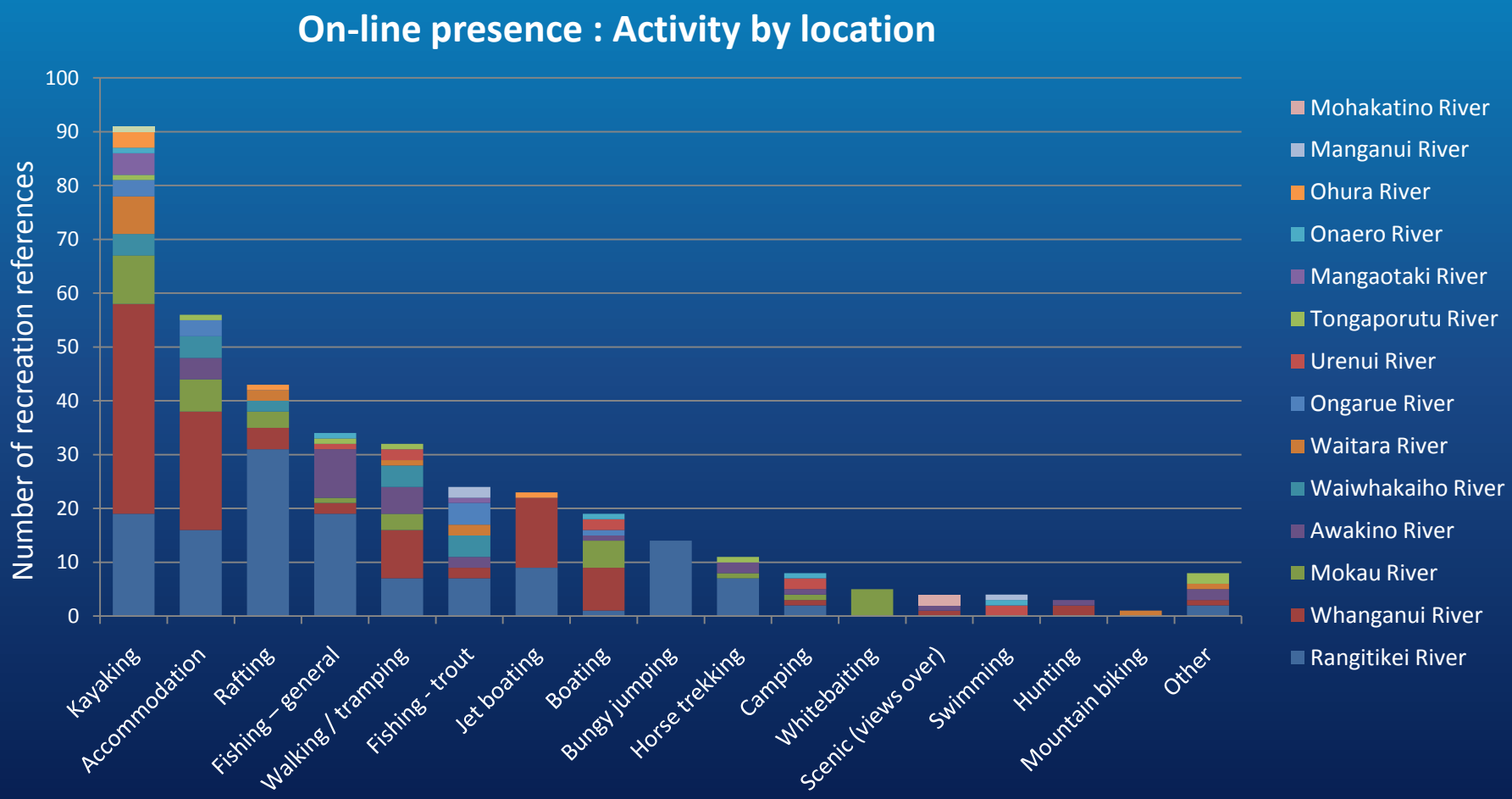
ID activities: Quantified literature review



Only works in popular and diverse settings – Waitaki for example.

Greenaway for Waitaki Catchment Water Allocation Board hearing, 2005

ID activities: On-line presence / discourse analysis



Greenaway for King Country Energy – Mokau River hearing 2007

Identify significance

- International, national, regional, local
  - MfE Flow guidelines for instream values. 1998
- RIVAS method – Lincoln University – preferred approach
  - Relies on regional assessment with expert representative panel
- Older significance assessments, eg:
  - Grindell and Guest (eds). 1986. A list of rivers and lakes deserving inclusion in a schedule of protected waters.
  - Davis, S.F. 1987. Wetlands of national importance to fisheries.
- Popular guides, eg:
  - Charles, G. 2006. New Zealand Whitewater
  - Egarr, G. 1989 / 1995. New Zealand's North / South Island Rivers
- National research, eg:
  - Ministry for the Environment. 2004. Potential Water Bodies of National Importance for Recreation Value – not very useful
  - Unwin, M.J. 2009. Angler usage of lake and river fisheries managed by Fish and Game New Zealand.
- Interception survey, quantified literature and Web reviews, etc

Significance: RIVAS

Whitewater Kayaking in The West Coast Region: Application of the River Values Assessment System (RIVAS). Prepared by: Kay Booth, Andy England, Doug Rankin, Martin Unwin, Graham Charles, Kevin England, Keith Riley, Dave Ritchie. Peer Reviewed by: Rob Greenaway and Duncan Catanach. February 2010

APPENDIX 3: Assessment of indicators by SMARTA criteria

Indicator	Specific	Measurable	Achievable	Relevant	Timely	Already in use
Perception of scenic attractiveness	Yes	Kayakers' response to rating scale question	Expert Panel estimate; ideally survey kayakers	Contributes to quality of kayaking experience	No data available	Yes (used in recreation surveys)
Perception of wilderness character	Yes	Kayakers' response to rating scale question	Expert Panel estimate; ideally survey kayakers	Contributes to quality of kayaking experience	No data available	Yes (used in recreation surveys)
Density of high quality hydraulic features	Yes	Kayakers' assessment	Expert Panel estimate; ideally survey kayakers	Whitewater kayaking experience dependent on quality of whitewater	No data available	No
Flow reliability (% of time river is kayakable)	Yes	Flows data assessment; kayakers' assessment	Flow data could be used in future; kayakers' assessment	Relates to opportunity to kayak	Flow data available but assessment not done; Expert Panel assessment	No
Ease of access (mode)	Yes	Kayakers' response to transport mode question	Expert Panel estimate; ideally survey kayakers	Relates to ease of opportunity to kayak	Guidebook assessment	Yes (used in recreation surveys)
Number of users (kayaker days p.a.)	Yes	No. kayaker days	Expert Panel estimate; ideally count kayakers	Use implies value	No data available	Yes (used in recreation surveys)
User catchment (home district/region)	Yes	Kayakers' response to home location question	Expert Panel estimate; ideally survey kayakers	Greater distance from home implies higher value	No data available	Yes (used in recreation surveys)
Scarcity of kayaking experience	Yes	Rating scale	No data available	Indicator of significance	No data available	Yes (used in previous significance assessments)

Significance: RIVAS

Whitewater Kayaking in The West Coast Region: Application of the River Values Assessment System (RIVAS). Prepared by: Kay Booth, Andy England, Doug Rankin, Martin Unwin, Graham Charles, Kevin England, Keith Riley, Dave Ritchie. Peer Reviewed by: Rob Greenaway and Duncan Catanach. February 2010

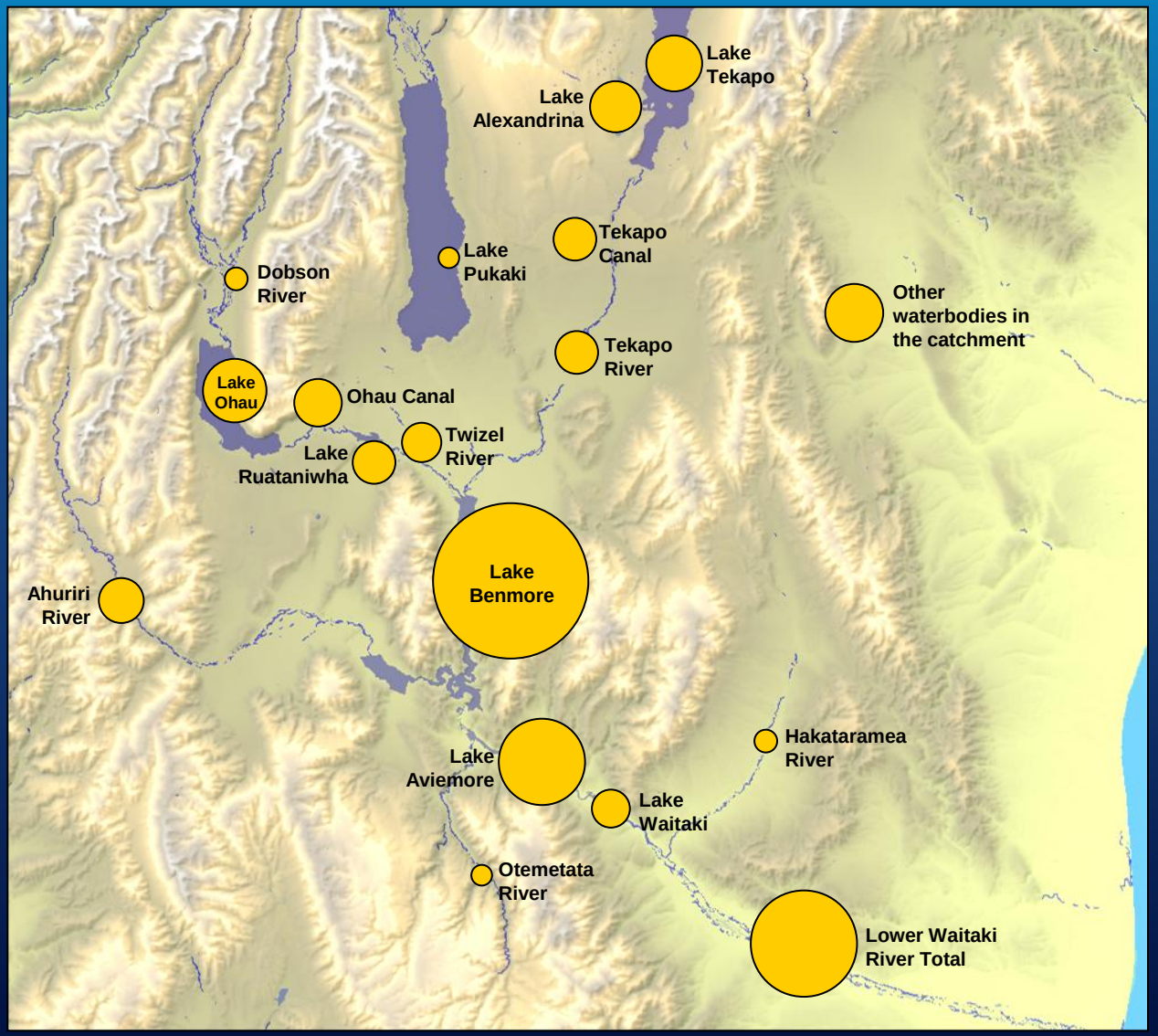
APPENDIX 4: Significance assessment calculations for whitewater kayaking (Steps 1 and 5-8)

Step 1: Define river segments				Step 6A: Apply indicators									Step 6B: Apply thresholds								Step 8: River value												Step 9: Issues
River no.	River	Reach	Whitewater grade	Perception of scenic attractiveness (rating scale)	Perception of wilderness (rating scale)	Density of quality hydraulic features (rating scale)	Flow reliability (% of time river kayakable)	Ease of access (mode)	Number of users (kayaker days p.a.)	User catchment (home district/region)	Scarcity of kayaking opportunity (rating scale)	Scenic attractiveness	Perception of wilderness	Density of quality hydraulic features	Flow reliability	Ease of access	Number of users	User catchment	Scarcity of kayaking opportunity	Sum Weights 1	River rank 1	Sum Weights 2	River rank 2	Sum weights 3	River rank 3	Sum Weights FINAL	River rank FINAL	Sum Weights 5	River rank 5	Sum Weights 6	River rank 6	River kayaking value	Comments
				1=highly modified to 5=not modified	1=no wilderness to 5= exceptional wilderness	1=very low density to 5= very high density	Recorded as 10% bands	Mainly: 1=helo; 2=long walk-in; 3=4WD; 4=2WD	Recorded as number	1=intra-district; 2=intra-region; 3=bordering regions; 4=other NZ; 5=international	1=not scarce; 2=regionally scarce; 3=nationally scarce	1= 1 or 2= modified with little scenic value; 2= 3 = little modification with moderate degree of naturalness; 3= 4 or 5 = barely modified and highly natural	1= 1 or 2= low wilderness value; 2= 3 = moderate wilderness value; 3= 4 or 5 = high wilderness value	1= 1 or 2= low density; 2= 3= moderate density; 3= 4 or 5= high density	1=<33%; 2= 33-66; 3=>66%	1=1 or 2 helo or walk-in; 2=3 4WD; 3=4 2WD	1<100; 2= 100-500; 3=>500	1=intra-district; 2= intra- or bordering region; 3=rest of NZ or int'al	1=not scarce; 2=regionally scarce; 3=nationally scarce	Equal weights		Hydraulic density x 1.5		Flow reliability x 1.5		No access attribute. Equal weights		No access attribute. Hydraulics x 1.5		No access attribute. Flow reliability x 1.5			More comments could be added to this column
908000	Arahura River	Newton Ck put in	4, 5	5	5	5	90	1	250	5	3	3	3	3	3	1	2	3	3	21	1	22.5	1	22.5	1	20	1	21.5	1	21.5	1	High	
906000	Hokitika River	Kakariki	4	5	5	5	80	1	150	5	3	3	3	3	3	1	2	3	3	21	1	22.5	1	22.5	1	20	1	21.5	1	21.5	1	High	
893250	Perth River	Five Finger	4, 5	5	5	5	80	1	160	5	3	3	3	3	3	1	2	3	3	21	1	22.5	1	22.5	1	20	1	21.5	1	21.5	1	High	
906055	Styx River	Tindall Creek	4, 5	5	4	4	90	2	200	5	3	3	3	3	3	1	2	3	3	21	1	22.5	1	22.5	1	20	1	21.5	1	21.5	1	High	
893000	Whataroa River	Lower	3, 4	5	5	5	80	1	160	5	3	3	3	3	3	1	2	3	3	21	1	22.5	1	22.5	1	20	1	21.5	1	21.5	1	High	
906140	Whitcombe River	Cropp	4, 5	5	5	5	90	1	200	5	3	3	3	3	3	1	2	3	3	21	1	22.5	1	22.5	1	20	1	21.5	1	21.5	1	High	
951000	Karamea River	Roaring Lion	4	5	5	5	80	1	80	5	3	3	3	3	3	1	1	3	3	20	2	21.5	2	21.5	2	19	2	20.5	2	20.5	2	High	
943000	Mokihinui River	Forks	4	5	5	4	100	1	40	4	3	3	3	3	3	1	1	3	3	20	2	21.5	2	21.5	2	19	2	20.5	2	20.5	2	High	
893250	Perth River	Scone	5	5	5	5	70	1	80	5	3	3	3	3	3	1	1	3	3	20	2	21.5	2	21.5	2	19	2	20.5	2	20.5	2	High	
911310	Taipo River	Julia Creek hut	4, 5	5	5	4	80	1	80	5	3	3	3	3	3	1	1	3	3	20	2	21.5	2	21.5	2	19	2	20.5	2	20.5	2	High	
906054	Toaroha River	Below T Canyon	4	5	5	5	60	2	100	5	3	3	3	3	2	1	2	3	3	20	2	21.5	2	21	3	19	2	20.5	2	20	3	High	
901000	Waitaha River		5	5	5	5	80	1	50	5	3	3	3	3	3	1	1	3	3	20	2	21.5	2	21.5	2	19	2	20.5	2	20.5	2	High	
897000	Wanganui River	Upper	4, 5	5	5	4	80	1	40	5	3	3	3	3	3	1	1	3	3	20	2	21.5	2	21.5	2	19	2	20.5	2	20.5	2	High	
897000	Wanganui River	Lower	3, 4	5	5	4	90	1	100	3	3	3	3	3	3	1	2	2	3	20	2	21.5	2	21.5	2	19	2	20.5	2	20.5	2	High	
901100	Kakapotahi River	Lower	4	4	3	4	80	4	200	5	2	3	2	3	3	3	2	3	2	21	1	22.5	1	22.5	1	18	3	19.5	3	19.5	4	High	
903000	Mikonui River		2	5	5	4	100	4	50	2	3	3	3	3	3	1	2	3	3	21	1	22.5	1	22.5	1	18	3	19.5	3	19.5	4	High	
929000	Totara River		4	4	4	5	10	4	150	5	3	3	3	3	1	3	2	3	3	21	1	22.5	1	21.5	2	18	3	19.5	3	18.5	6	High	
911310	Taipo River	Seven Mile	2, 3	4	4	4	90	3	160	3	2	3	3	3	3	2	2	2	2	20	2	21.5	2	21.5	2	18	3	19.5	3	19.5	4	High	
906000	Hokitika River	Mungo	5	5	5	5	40	1	20	5	3	3	3	3	2	1	1	3	3	19	3	20.5	3	20	5	18	3	19.5	3	19	5	High	
906000	Hokitika River	Serpentine	5	5	5	5	60	1	60	5	3	3	3	3	2	1	1	3	3	19	3	20.5	3	20	5	18	3	19.5	3	19	5	High	
906050	Kokatahi River	Crawford	5	5	5	5	60	1	50	5	3	3	3	2	1	1	1	3	3	19	3	20.5	3	20	5	18	3	19.5	3	19	5	High	Int scarce
868200	Landsborough River		4	5	5	3	80	1	50	5	3	3	3	2	3	1	1	3	3	19	3	20.0	4	20.5	4	18	3	19	4	19.5	4	High	

Significance: National angler survey results

National Angler Surveys

Angler usage of lake and river fisheries managed by Fish & Game New Zealand: results from the 2007/08 National Angling Survey
Martin Unwin, NIWA. 1994/96, 2001/02, 2007/08



Significance: interception survey

Loyalty = % of activity time spent at this resource
Total loyalty = % of respondents who do their activity at only this resource
Alternatives = number of alternative settings named for activity
Local = % of respondents who are from the 'local' area

Visitor profile indicators for the Waitaki River	*Loyalty*	*Total loyalty*	*Frequency*	*Alternatives*	*Local*
Main Activity	*%*	*%*	*Visits / year*	*No.*	*%*
Viewing river	89%	53%	46	3.1	60%
Salmon fishing	84%	61%	35	1.9	38%
Swimming	84%	38%	19	1.3	61%
Whitebaiting	80%	53%	24	1.4	70%
Trout fishing	74%	37%	36	2.5	48%
Trout/salmon fishing	73%	35%	54	2.5	50%
Taking a break (driving)	54%	46%	26	1.6	21%
Picnicking	46%	17%	8	2.1	35%
Jet boating	43%	33%	16	3.3	34%
All (inc 'other')	**68%**	**43%**	**32**	**2.1**	**47%**

Measuring The Significance of Multi-Use Outdoor Recreation Resources: A Comparative Analysis of Three Sites in New Zealand.
Annals of Leisure Research Vol. 5, 2002, 65 – 79.
Rob Greenaway

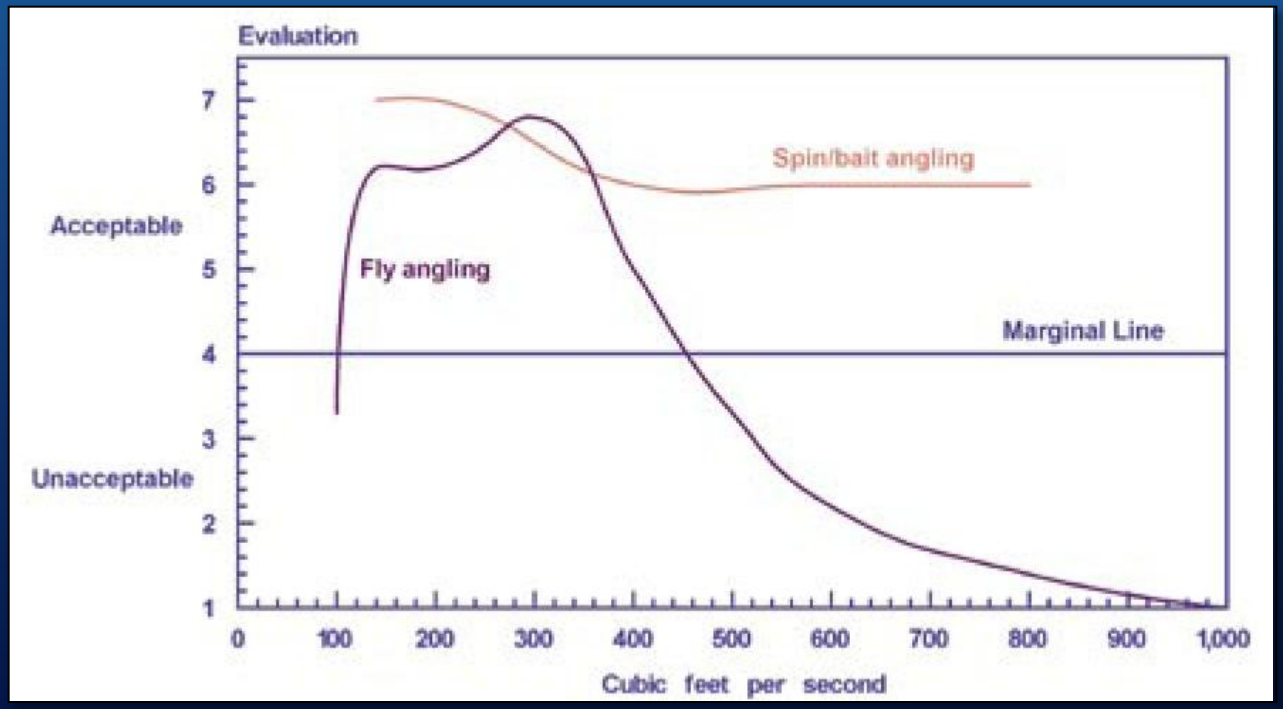
Visitor profile indicators for the Hurunui River	*Loyalty*	*Total loyalty*	*Frequency*	*Alternatives*	*Local*
Main Activity	*%*	*%*	*Visits / year*	*No.*	*%*
Salmon fishing	61%	21%	14	2.1	8%
Swimming	52%	28%	14	1.2	33%
Camping	51%	25%	3	1.6	6%
Trout/salmon fishing	49%	18%	22	2.2	23%
Relaxing / holiday / picnic	48%	22%	4	1.7	9%
Kayaking	43%	6%	5	2.1	6%
Trout Fishing	41%	14%	6	1.9	12%
All (inc 'other')	**32%**	**20%**	**7**	**1.7**	**13%**

Identify effects

> High degree of dependency on other technical assessments: hydrology, terrestrial and aquatic ecology, landscape, morphology, depth modelling, anglibility, etc. RIVAS helps here.

Experiential analysis for re-permiting existing schemes – relatively easy when you can regulate flows.

Flows and Recreation. A guide to studies for river professionals
Whittaker, Shelby and Gangemi, 2005 (US).



Identify scale of effect

> Two elements: ‘activity specific’ and ‘net recreation effect’

> Activity specific:

- A ‘**minor**’ effect refers to a small change in the recreation setting, but where the original recreational activities can continue. This scale of effect is defined as much by the definition for ‘more than minor’.

- ‘**More than minor**’ refers to an activity opportunity where a shift in the recreation setting may modify the characteristics of an activity – such as the frequency it may be undertaken, the location of the favoured sites, and some of the activity’s qualities – but the activity setting retains most or many of its original values and the activity may continue to be pursued. A question of scale applies – 25% effect (US National Parks Service overflight threshold, DOC satisfaction worry line), 20-50% (‘effective control’ for share ownership)?

Identify scale of effect

> Activity specific:

- An activity opportunity may be described as '**severely restricted**' where, while the opportunity may remain, the ability to pursue it is strongly limited by, for example, loss of access or periodicity of suitable river flows.

- A '**significant**' effect would refer to an activity opportunity that was removed (the recreational potential of the setting for a specific activity would be significantly diminished).

Identify scale of effect

> ‘Net recreation effect’

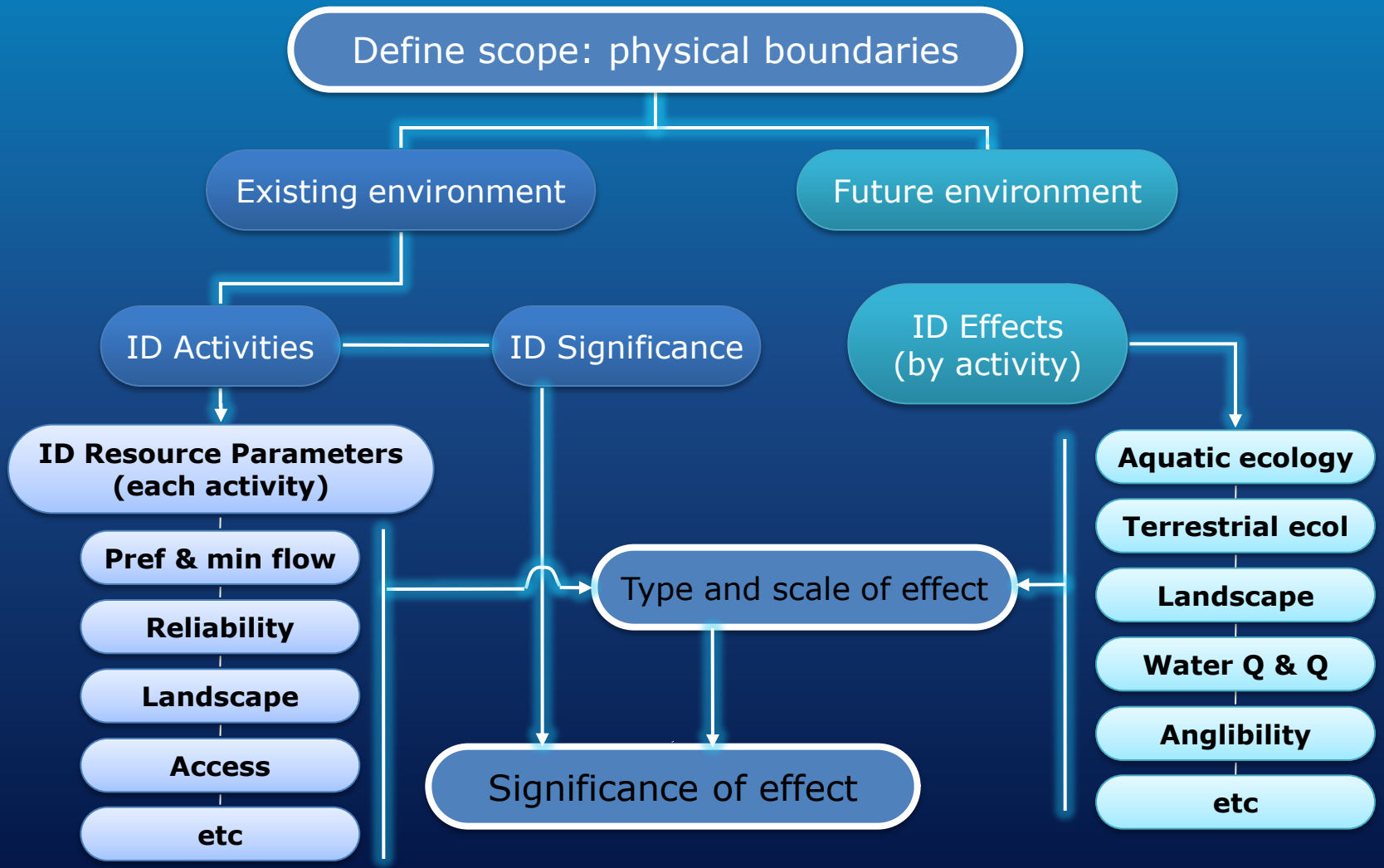
- Refers to the change in recreation activity in a setting in general. May relate to net economic effects – exchange of one activity for another.

- The Clutha Dam had a significant effect on the whitewater opportunities on the Kawarau River (a ‘significant’ activity-specific effect). However, the development of Lake Dunstan has created a setting which receives greater recreational use for a more varied set of participants than existed prior to the scheme, and so the development has had a positive net effect on recreation in general (a greater variety of activities is now possible, and more ‘person recreation days’ can be counted in the setting).

Calibrate to significance of setting

- All effects are not of the same scale just because they are adverse.
- Indicate scale of significance where activity-specific effects are ‘more than minor’: local, regional, national or international.
- Indicate number and values of individuals affected (but it’s not a numbers game).
- Identify where effects accrue to any specific tourism business – quantify if possible.
- Review alternatives (substitutability – setting and activity).
- Review ‘net recreation effect’. Consider mitigations and enhancements.
- Leave the rest to the commissioners and judges.

Summary


Define scope: physical boundaries
Existing environment
Future environment
ID Activities
ID Significance
ID Effects (by activity)
ID Resource Parameters (each activity)
Pref & min flow
Reliability
Landscape
Access
etc
Type and scale of effect
Significance of effect
Aquatic ecology
Terrestrial ecol
Landscape
Water Q & Q
Anglibility
etc