



# Sediment management options for Ruamāhanga whaitua

For discussion 9 April 2018

Image: <http://www.stuff.co.nz/dominion-post/news/7108701/Wellingtons-dirty-water-revealed>

# What do we know?

- Sediment impacts:
  - Aquatic plant growth
  - Fish health
  - Macroinvertebrate community health
  - Recreation, cultural and social values
- In our rivers, streams and lakes

# What do we know?

	Baseline - annual loss (T/yr)		
	Non-native land	Native land	All land
Gully	6610	4123	10733
Landslide	540720	51144	591864
Surficial	112394	321480	433874
Earthflow	14459	84	14543
Netbank	227435	45613	273048
Total hill slope	674183	376831	1051014
Total erosion	901618	422444	1324062

	Baseline - % loss from		
	Non-native land	Native land	All land
Gully	1%	1%	1%
Landslide	60%	12%	45%
Surficial	12%	76%	33%
Earthflow	2%	0%	1%
Netbank	25%	11%	21%
Total hill slope	75%	89%	79%

- 79% hill slope erosion, 21% netbank erosion
- 68% from non-native land, 32% from native

# What do we know?

FMU name	% load each process on 'non-native' land contributes to entire Ruamāhanga catchment load					% load FMU contributes to entire Ruamāhanga load	% load FMU contributes of Ruamāhanga 'non-native' load
	Gully	Landslide	Surficial	Earthflow	Netbank		
Taueru	0.00	13.20	1.26	0.91	2.00	17.37	25.50
Huangerua	0.28	8.70	0.80	0.12	0.98	10.89	15.99
Eastern hill streams	0.11	3.69	0.29	0.06	2.28	6.43	9.45
Whangaehu	0.00	4.51	0.38	0.00	0.52	5.40	7.93
Kopuaranga	0.00	3.75	0.72	0.00	0.60	5.07	7.45
Valley floor streams-draining to Ruamahanga River	0.00	0.43	0.05	0.00	2.97	3.45	5.06
Waipoua	0.00	2.16	0.41	0.00	0.69	3.26	4.79
South coast streams	0.11	0.58	1.19	0.00	0.99	2.87	4.22
Upper Ruamahanga	0.00	0.58	1.29	0.00	0.47	2.34	3.44
Waiohine	0.00	0.18	0.92	0.00	0.58	1.68	2.46
Makahakaha	0.00	1.23	0.13	0.00	0.18	1.54	2.26
Waingawa	0.00	0.39	0.42	0.00	0.57	1.38	2.03
Mangatarere	0.00	0.64	0.19	0.00	0.52	1.34	1.97
Turanganui	0.00	0.15	0.02	0.00	0.61	0.78	1.15
Lake Wairarapa	0.00	0.00	0.00	0.00	0.76	0.76	1.11
Tauherenikau	0.00	0.14	0.31	0.00	0.31	0.76	1.11
Valley floor streams-draining to Lake Wairarapa	0.00	0.07	0.01	0.00	0.62	0.69	1.02
Streams discharging to Lake Wairarapa from the west	0.00	0.23	0.06	0.00	0.27	0.56	0.83
Parkvale Stream	0.00	0.16	0.04	0.00	0.34	0.53	0.78
Lake Onoke	0.00	0.00	0.00	0.00	0.37	0.37	0.54
Otukura Stream	0.00	0.02	0.01	0.00	0.33	0.35	0.52
Tauanui	0.00	0.03	0.01	0.00	0.23	0.27	0.40

~41%  
~66%

Non-native' load means the load from all land use types other than forest, and includes lifestyle and urban land  
Entire Ruamāhanga load means those loads of both native and non-native land

# What might the future hold?

BAU2080	Reductions in load from baseline (T/yr)			
	Retirement/ afforestation	Pole planting	Stock exclusion + planting	Constructed wetlands
Per mitigation	407	152663	181948	0
<b>Total</b>	<b>335019</b>			
% of Total	0.1%	45.6%	54.3%	0.0%

SILVER2080	Reductions in load from baseline (T/yr)			
	Retirement/ afforestation	Pole planting	Stock exclusion + planting	Constructed wetlands
Per mitigation	110075	265228	181948	51672
<b>Total</b>	<b>608924</b>			
% of Total	18.1%	43.6%	29.9%	8.5%

# What might the future hold?

	<b>Baseline</b>	<b>BAU2080</b>	<b>SILVER2080</b>
Annual Ruamāhanga load (T/year)	1324062	988814	715726
Total annual 'non-native' load (T/year)	901619	579999	333859
Total annual 'native' load (T/year)	422443	408815	381867
% annual 'non-native' load	68	59	47
% annual 'native' load	32	41	53

# Possible objectives and policy approach

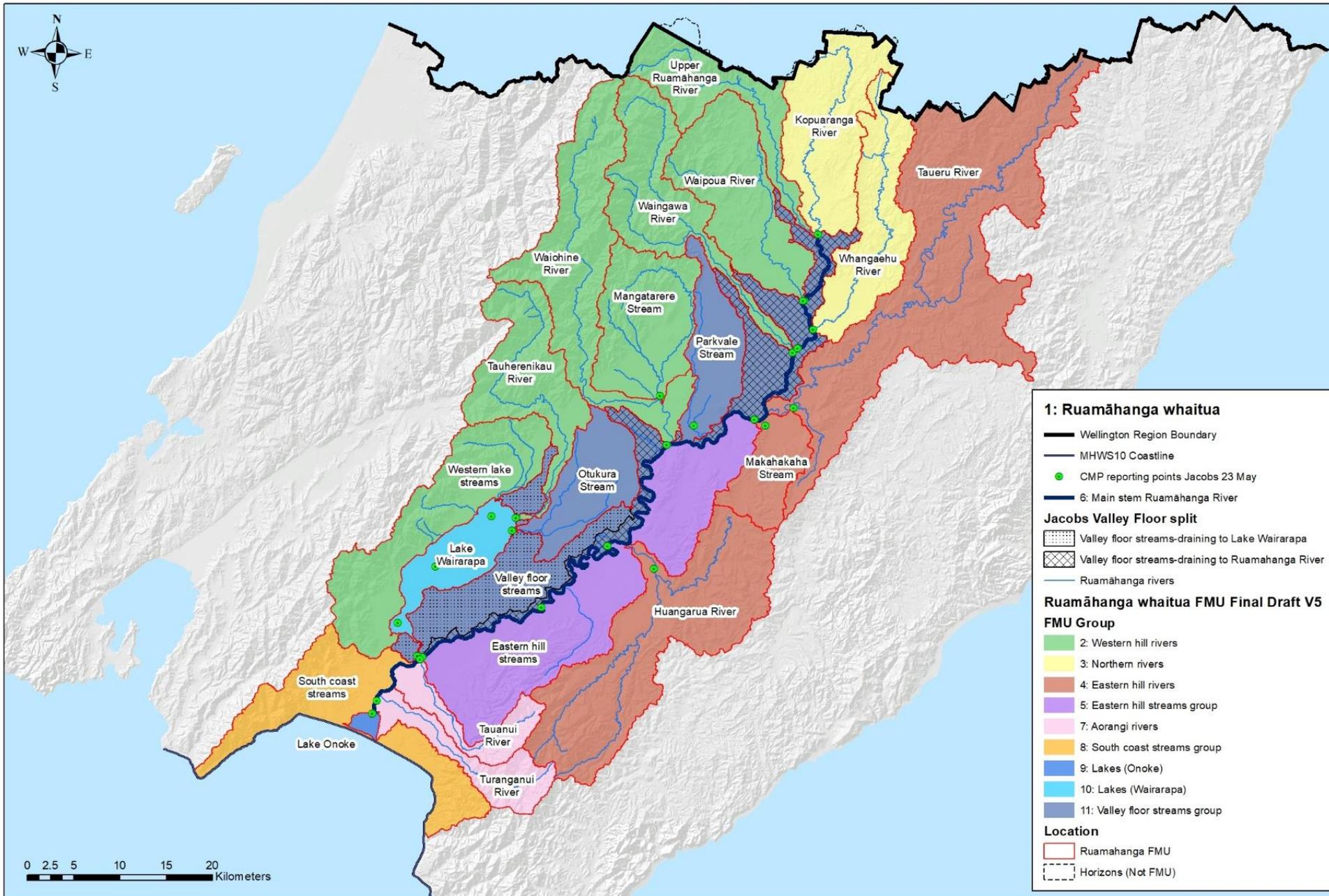
- Numeric objectives reflecting desired state
  - Requires suitable data and relationships to be known between contaminant loss and water quality outcome
  - Currently very hard for sediment in the Ruamāhanga
- Change in load target based on what's feasible
  - Still driven by impacts on values
  - Co-benefits with other freshwater objectives
  - SedNetNZ analysis ids issues and opportunities
- Note on allocation

# Suggested policy approach for discussion

- Two key drives – increase effort to:
  - Reduce stream bank erosion across whaitua
  - Reduce hill erosion in ‘top 5’ FMUs
- Sediment load **targets** for all FMUs
- GMP for high risk activities
- Improve monitoring and information
- Sub-catchment planning and work prioritisation in ‘top 5’
- Extensive riparian programme

# Reducing sediment in the 'top 5' – how much and by when?

Total loads (T/yr) per FMU from non-native land uses						
FMU name	Baseline	BAU2080	10% SILVER2080	20% SILVER2080	50% SILVER2080	100% SILVER2080
Taueru	229931	143803	136167	128531	105622	76363
Huangarua	144136	98439	93810	89181	75293	46292
Eastern hill streams	85169	57728	55100	52471	44586	26285
Whangaehu	71510	50271	47795	45318	37889	24765
Kopuaranga	67149	60274	56935	53596	43579	33390
<b>TOTAL OF 5 FMUs</b>	<b>597895</b>	<b>410516</b>	<b>389806</b>	<b>369097</b>	<b>306969</b>	<b>207095</b>
<b>% reduction from Baseline non-native load in 'top 5' FMUs</b>		<b>-31%</b>	<b>-35%</b>	<b>-38%</b>	<b>-49%</b>	<b>-65%</b>
Comparative loss from native to non-native land (entire whaitua)	Baseline	BAU2080	10% SILVER2080	20% SILVER2080	50% SILVER2080	100% SILVER2080
Native	32%	41%	43%	44%	47%	53%
Non-native	68%	59%	57%	56%	53%	47%



Draft water quality freshwater management units, Ruamāhanga whaitua

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