

## Regional Groundwater Forum

- GW Forum Research Strategy - compiled with funding from Envirolink and published in 2013:
- A review of these research priorities was initiated in 2016 and agreed upon during May 2017 forum meeting.
- Several changes in research priority were proposed -with a number of new issues emerging as a result of the current issues facing groundwater resources, and freshwater quality more generally.
- New and emerging research areas identified as a result of the review:

Area	Possible research areas	Need/benefit	Linkages
Drinking water security	<ul style="list-style-type: none"> <li>Further work regarding pathogen survival rates in groundwater and the suitability of the faecal indicator bacteria for prediction of pathogen risk</li> <li>Research and development into smart tools for delineation of source protection zones and aquifer recharge areas</li> <li>Likely to be numerous research questions arise as a result of Havelock North enquiry. Secure groundwater classification?</li> </ul>	Improve ability of Council's to manage groundwater supply catchments to protect public health	
Freshwater quality	<ul style="list-style-type: none"> <li>Assessment of concentrations and effects of emerging contaminants on groundwater quality in New Zealand and implications for connected waters (e.g. hormones and pharmaceuticals)</li> <li>Continuation of ongoing research regarding groundwater contribution to contaminant (bacteria and nutrient) loads in surface waters, and smart monitoring tools</li> </ul>		Coastal and Swim SIGS
Water availability	<ul style="list-style-type: none"> <li>Quantifying contribution to groundwater from braided rivers</li> <li>Exploring new groundwater allocation methods</li> </ul>		SWIM
Climate change	<ul style="list-style-type: none"> <li>Climate change and groundwater response</li> </ul>	Prediction of future climatic influences on water supply and flow, including groundwater availability and quality impacts e.g. seawater intrusion	Coastal and Swim SIGS

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Coastal zone	<ul style="list-style-type: none"> <li>Water quality - effects of changes in groundwater quality on transitional coastal waters and their ecosystems</li> <li>Water quantity – how to quantify offshore groundwater flow</li> </ul>	A better understanding of linkages between groundwater and coastal water quality, including potential for adverse effects associated with changes in groundwater quality.	Coastal SIG
Groundwater biodiversity	<ul style="list-style-type: none"> <li>Development in research around groundwater biodiversity and ecosystem services to inform freshwater and land management</li> <li>Stocktake of knowledge around groundwater stygofauna identified as an emerging research need</li> </ul>	<p>Need to understand range and abundance of groundwater stygofauna in NZ</p> <p>Important to understand their roles in contaminant attenuation and sensitivity to changes in groundwater quality</p> <p>Potential to be used as groundwater health indicator</p>	SWIM/Land SIGS
Natural hazards	<ul style="list-style-type: none"> <li>Opportunities for further science around groundwater and natural hazards (liquefaction/groundwater flooding, groundwater level response to earthquakes/resilience in water supplies, climate change and groundwater response</li> </ul>	Improved resilience of water supplies	Hazards group
Overarching all of the above is the need to improve sector wide communication of science and research outputs, and its translation into effective policy.			Policy/Comms SIGs