

Hydrology and Water Allocation in Te Awarua- o-Porirua Whaitua

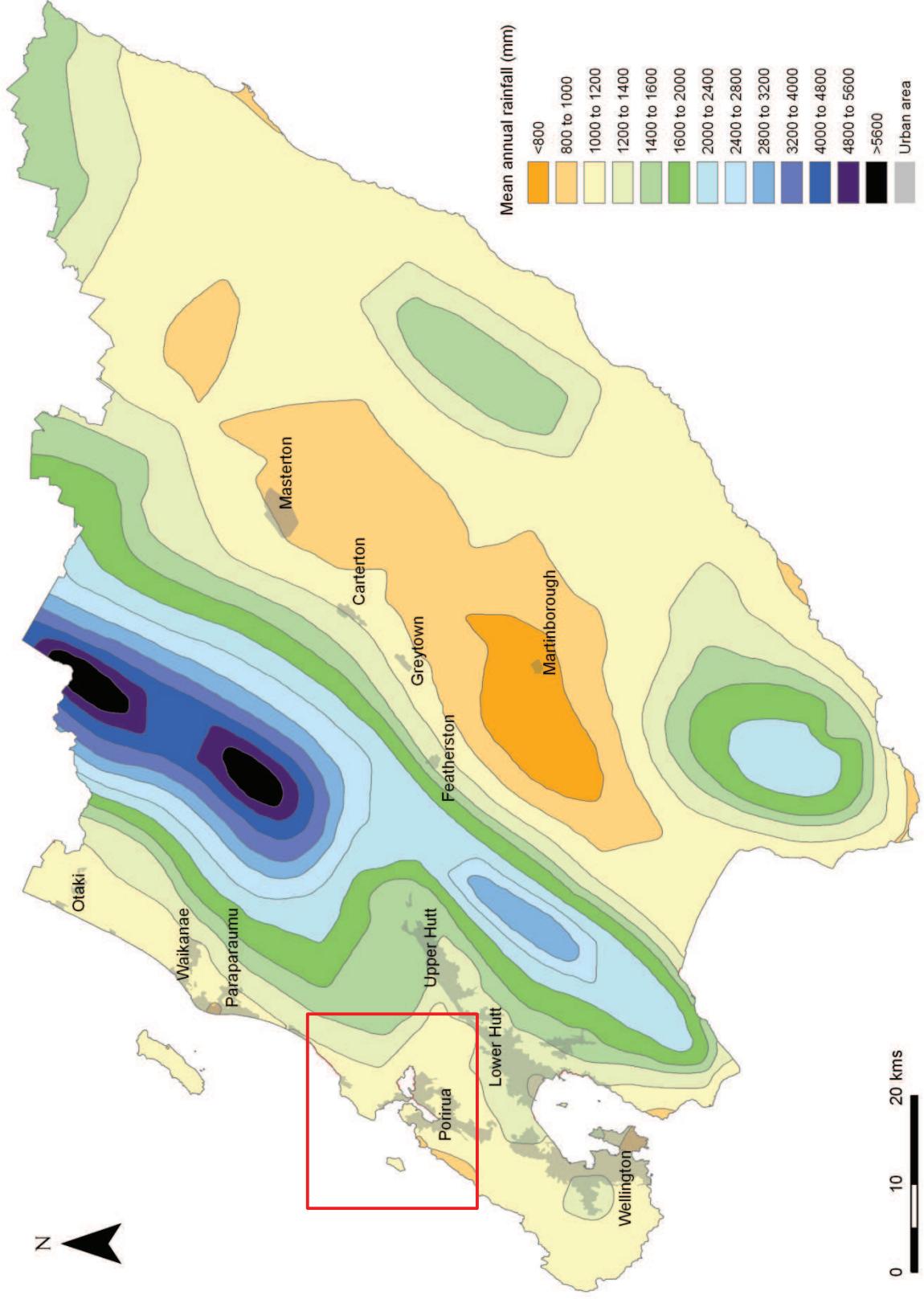
Mike Thompson, Environmental Science Department



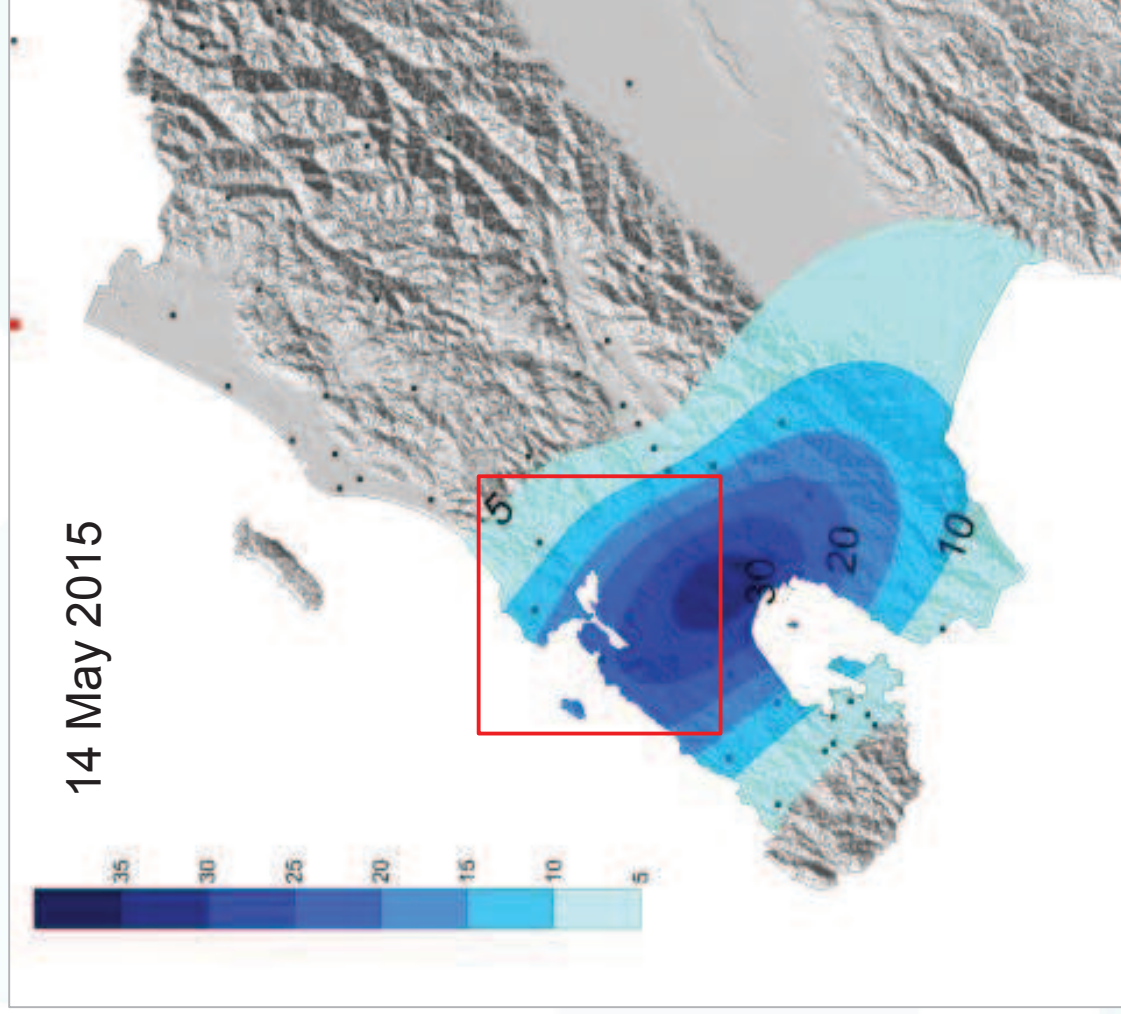
Background

- **Whaitua covers area ~ 210 km²**
 - Low lying rolling hills
 - Was covered in native forest
 - Now pastoral and urban land use
 - Greywacke basement

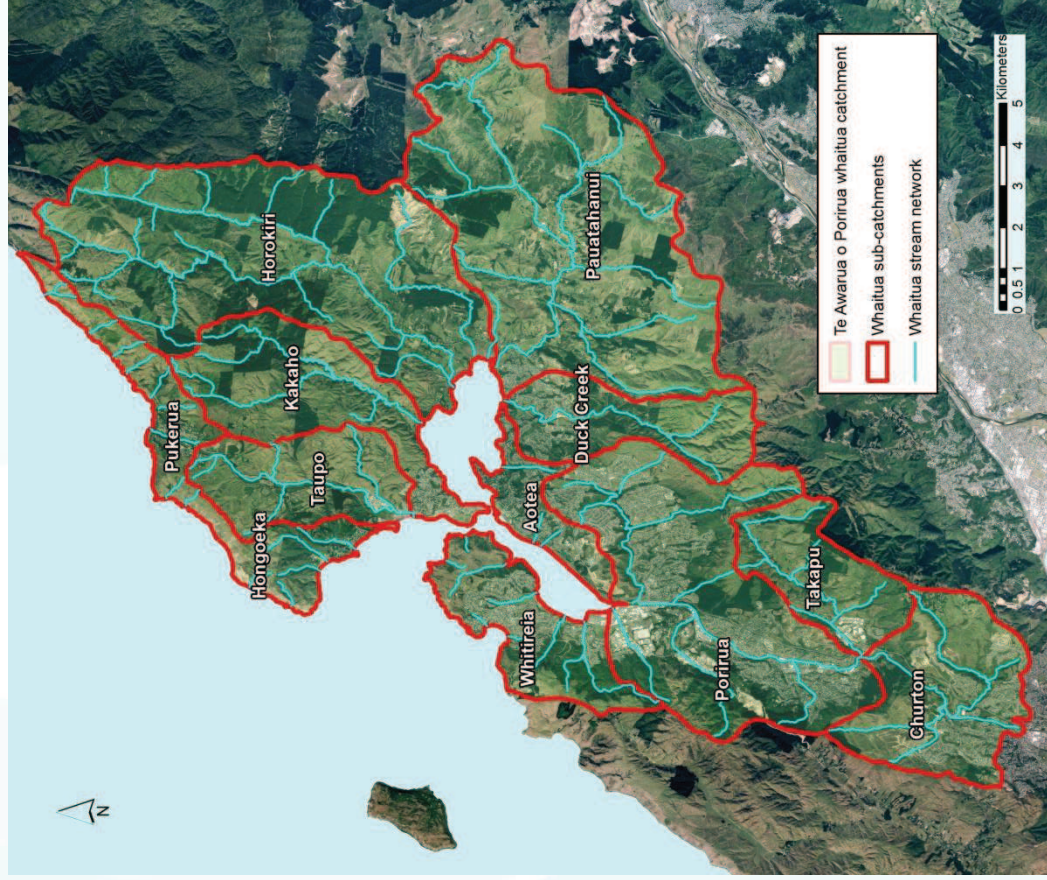
Rainfall - average

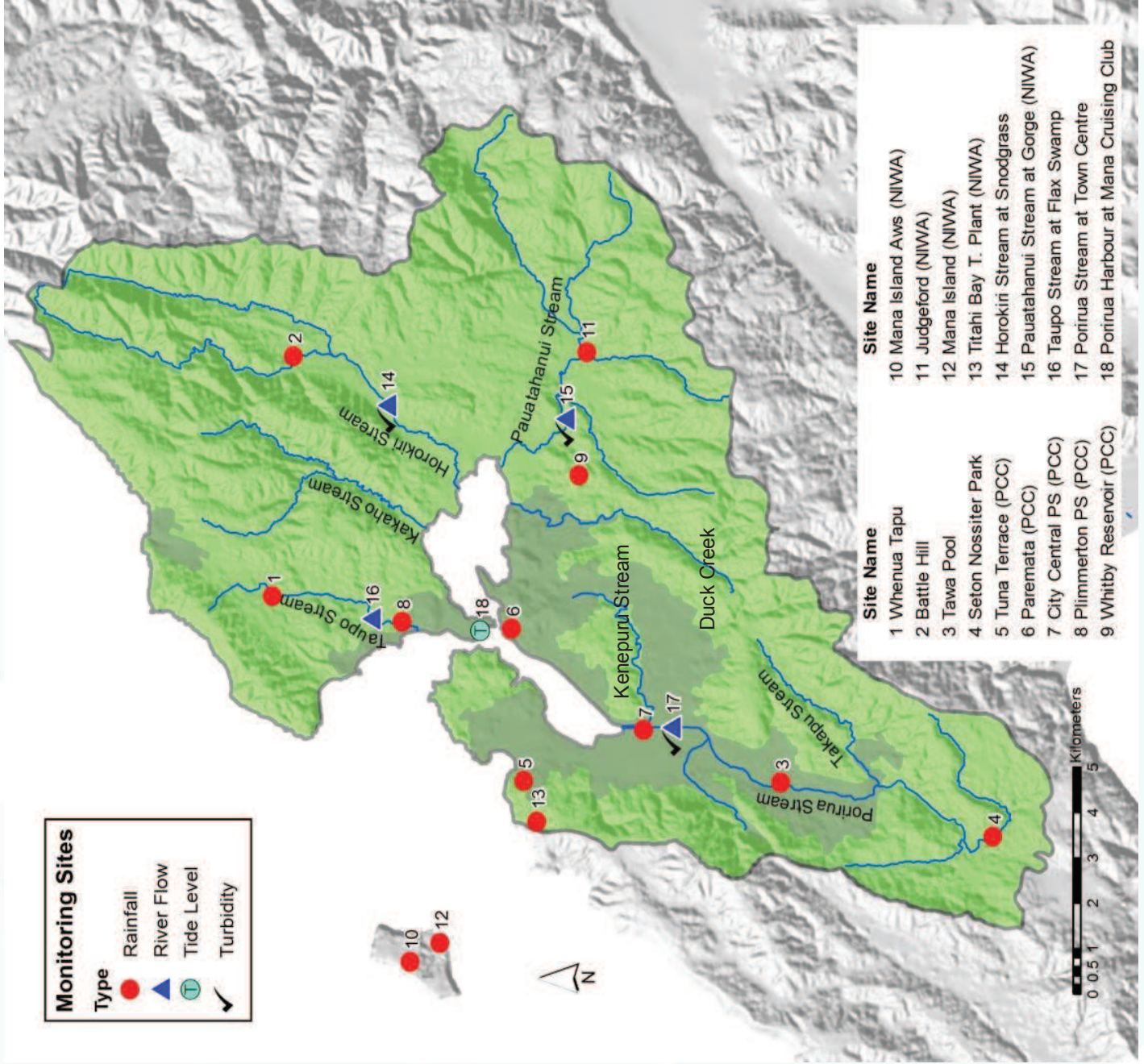


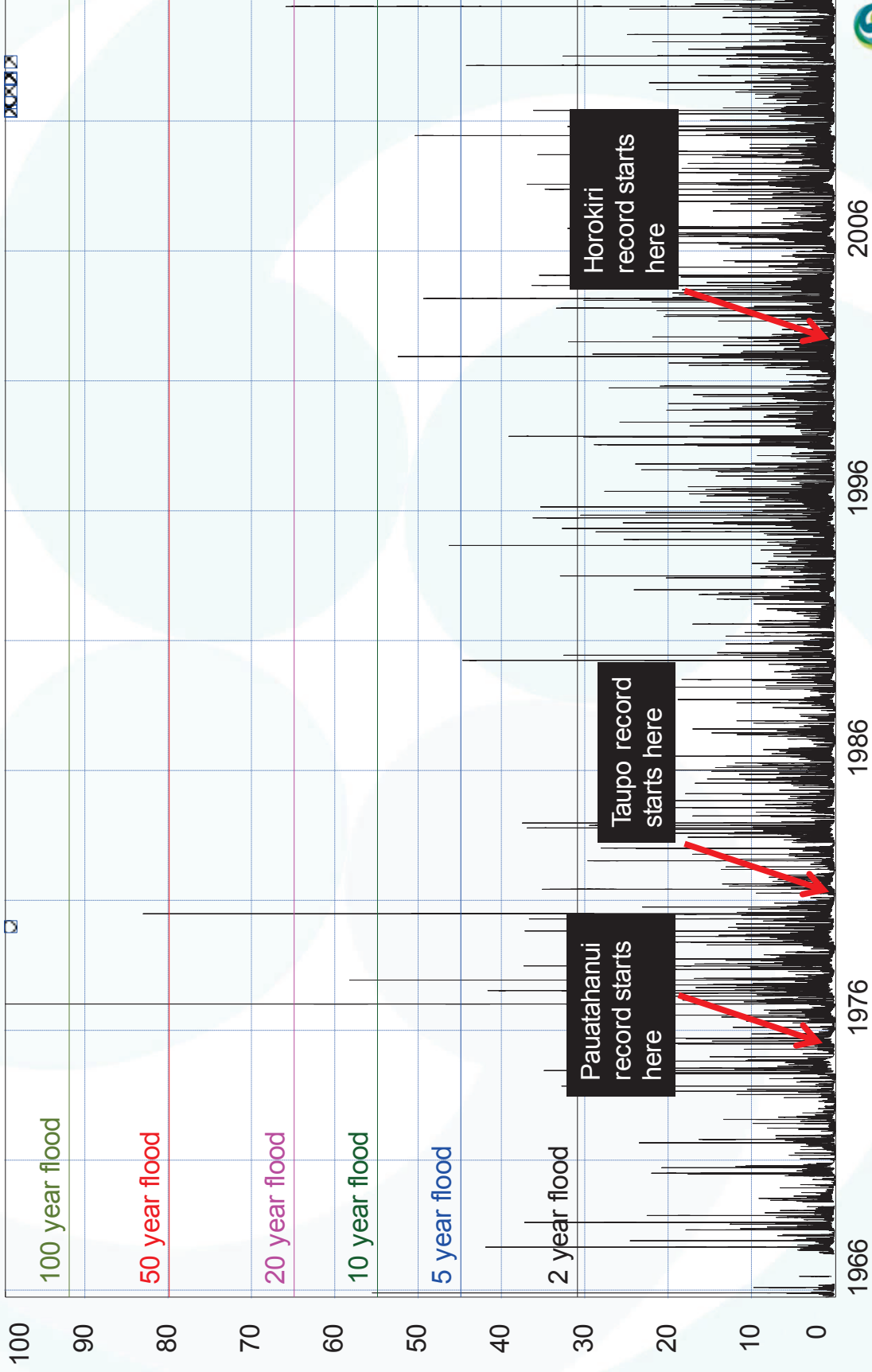
Rainfall – storm profile



Streams of the Whaitua

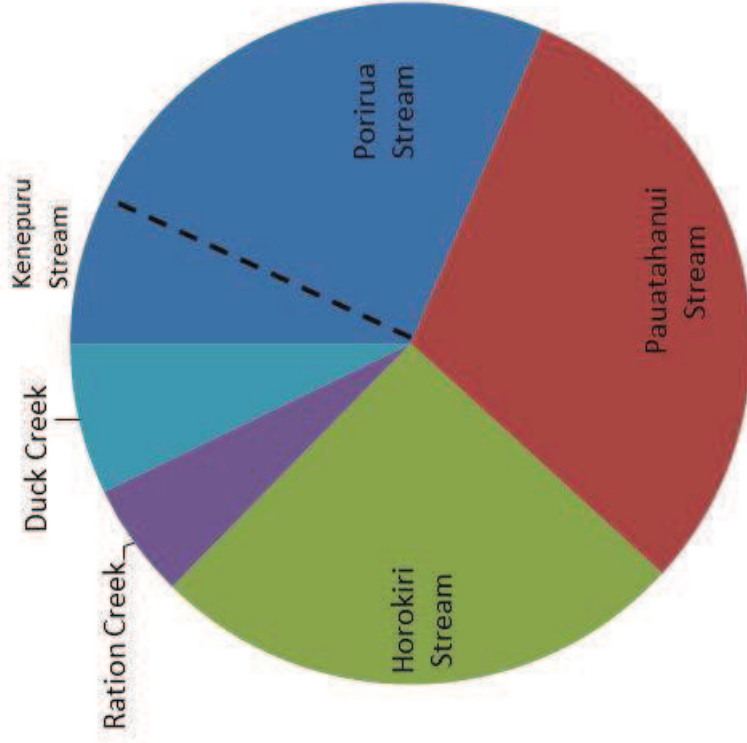




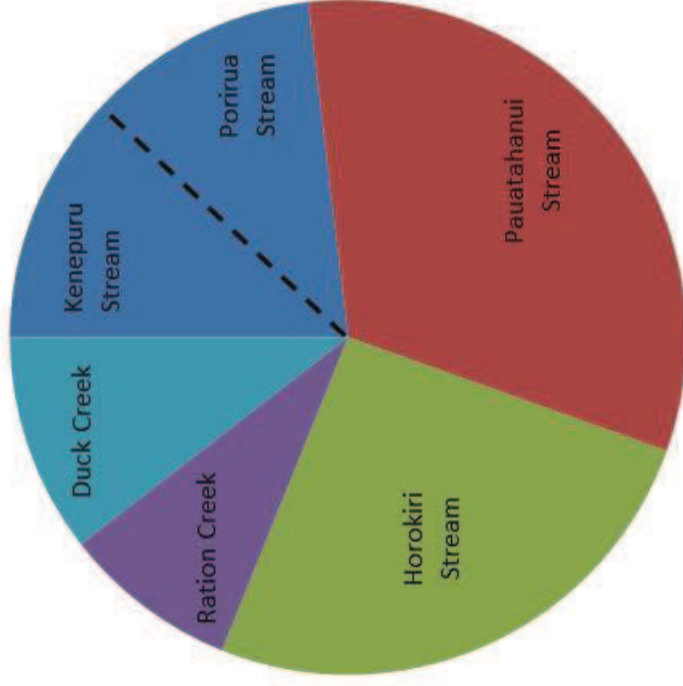


— Flow (m³/sec) at Porirua Stream at Town Centre

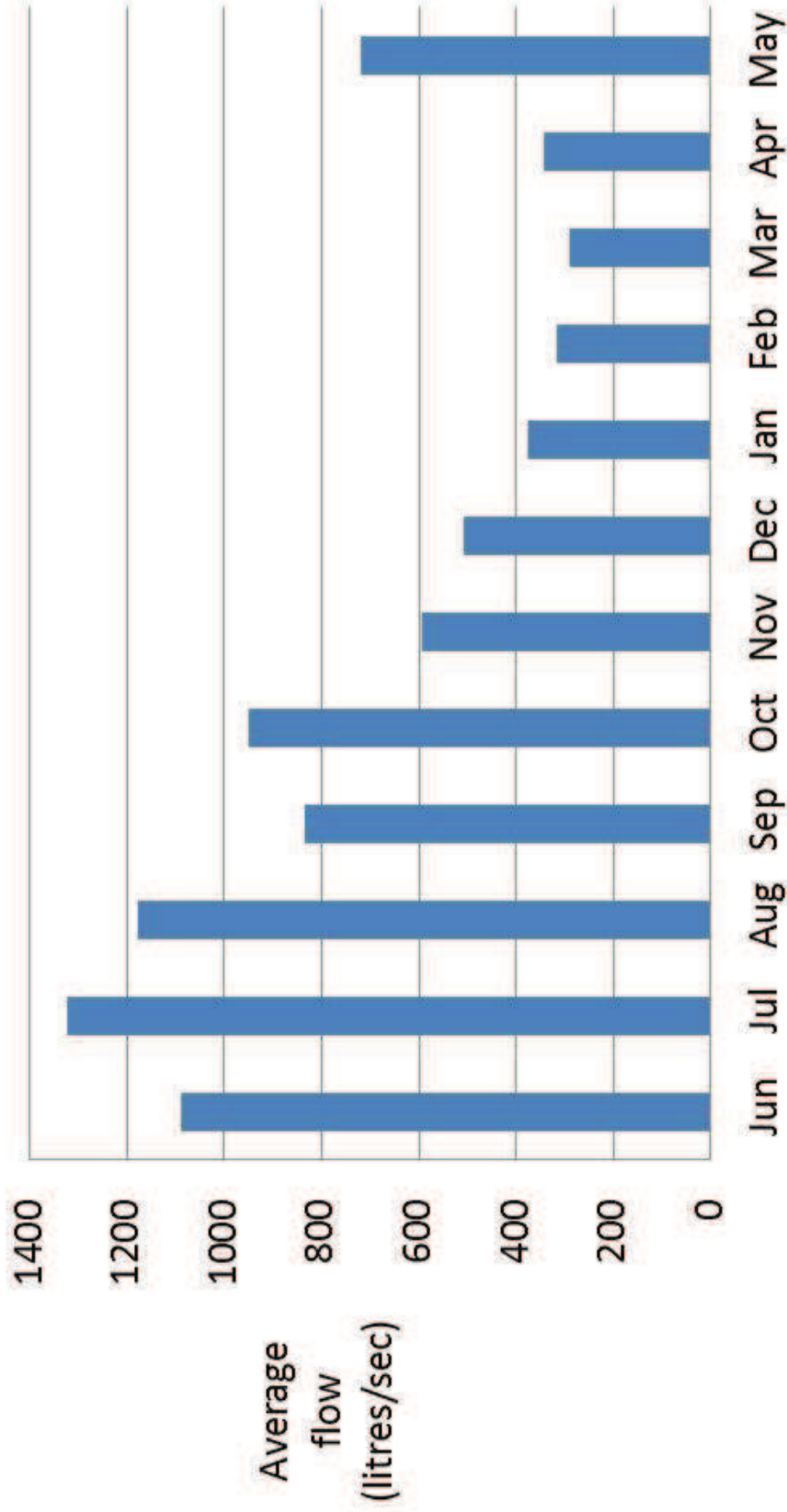
Mean flow contribution



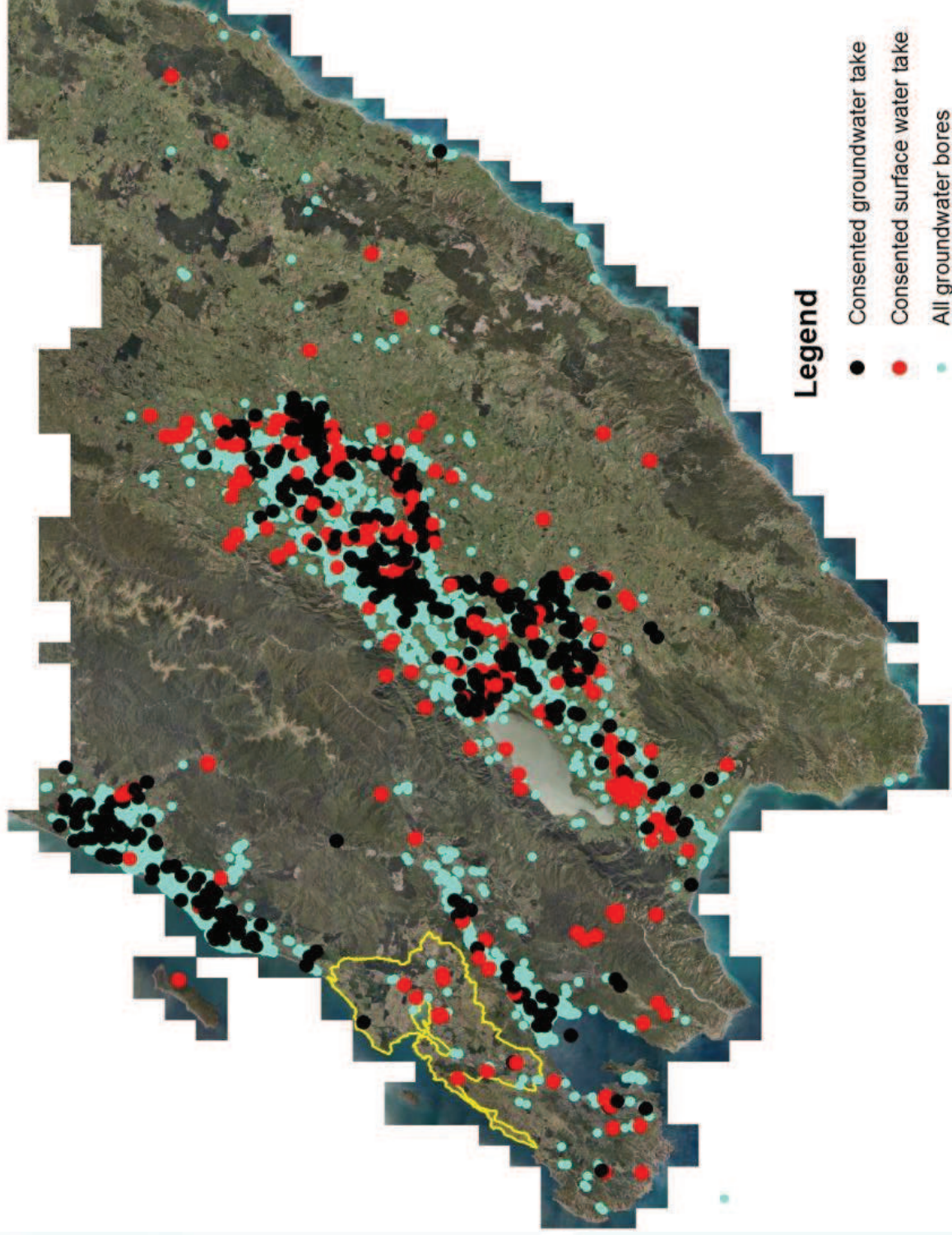
Flood flow contribution (10 year ARI)



Pauatahanui Stream



Water takes



Legend

- Consented groundwater take
- Consented surface water take
- All groundwater bores



Water takes

Stream	Type of use	Max rate of take (L/s)
Pauatahanui Stream	Irrigation (golf course)	1.7
	Irrigation	12.2
	Irrigation of pasture & dust control (cleanfill)	1.7
Horokiri Stream	Horticultural irrigation (nursery)	1.8
Unnamed Stream (Titahi Bay)	Stock and domestic use	0.9



Water management

- **Until recently....**
 - water allocated case by case, no overarching Plan limits
- **Proposed Natural Resources Plan**
 - interim limits for allocation (30% mean annual low flow for streams) and minimum flows (90% of MALF)
- **Water resource outlook**
 - higher average rainfall, more extremes



Summary

- Relatively good hydrology data at harbour catchment scale but difficult to capture local variation
- Urbanisation and land clearance result in rapid run off
- Demand for water currently low but small streams vulnerable
- Minimum flow and allocation limits a part of future management