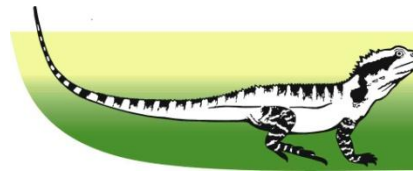


Moggill Catchment Creek Health Monitoring Program

May 2013 – Sampling Overview



Prepared by Dr Tim Howell
and Camille Percival



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Thank you!

Without you we wouldn't have such a successful monitoring program!

We really appreciate you giving up your precious time to participate and we hope that you will continue to be involved with the program!



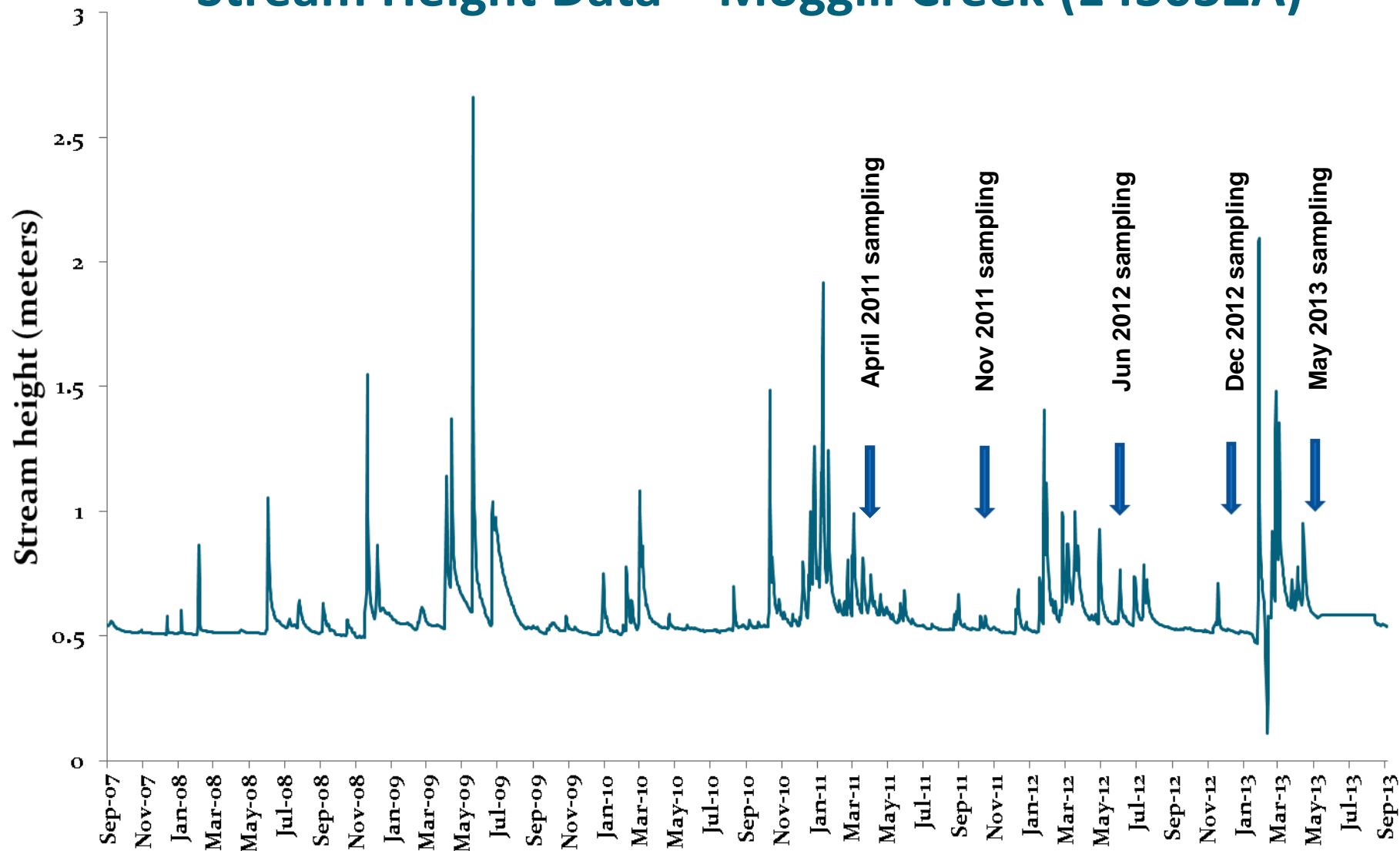
Monitoring Program Objectives

- To assess current conditions throughout the catchment (fish, aquatic macro-invertebrate, habitat and water quality).
- To monitor trends through time in this baseline values to determine decline or improvement in condition.
- To determine spatial and temporal trends in the aquatic ecosystem health throughout the Moggill Creek Catchment.
- To identify reaches which require particular attention for rehabilitation or protection.
- To increase community awareness and knowledge of issues and relevant skills relating to water quality, creek health and subsequent effects on aquatic ecosystem health.
- To identify issues and opportunities for improving the condition of waterways and take action to address these.
- To foster partnerships between Moggill Creek Catchment Group with other groups, e.g. UQ, SEQ Catchments.

May 2013 – Sampling Summary

- In May 2013 twelve sites throughout the Moggill Creek catchment were sampled by members of the Moggill Creek Catchment Group (MCCG) under guidance of Camille Percival.
- Seven sites were sampled on Moggill Creek itself along with 3 sites along Gold Creek and single sites on Gap Creek and Mackay Brook.
- Generally, aquatic ecosystem of creeks within the Moggill Creek catchment were in relatively good condition:
 - ✓ Water quality results were similar to previous sampling events.
 - ✓ There was a relatively good diversity of sensitive and tolerant macroinvertebrate species in most sites.
 - ✓ 861 fish from 14 species were recorded throughout the catchment.
 - ✓ Aquatic vegetation was not monitored during the May 2013 sampling.

Stream Height Data – Moggill Creek (143032A)



Water Quality – Summary

- Dissolved oxygen probe malfunctioned during May 2013.
- Water temperature was reflective of ambient temperatures and comparable between the two years of sampling.
- pH was what would be expected at all sites except Mackay Brook. above Possibly linked to local geology or groundwater inflow influences in the creeks, with decreasing flows.
- Conductivity gradient (increasing downstream) was observed in Moggill Creek. High at Mackay Brook consistent with past sampling.
- Turbidity was reasonably low at all sites and below the QWQG for lowland streams in SEQ.

Water Quality – May 2013

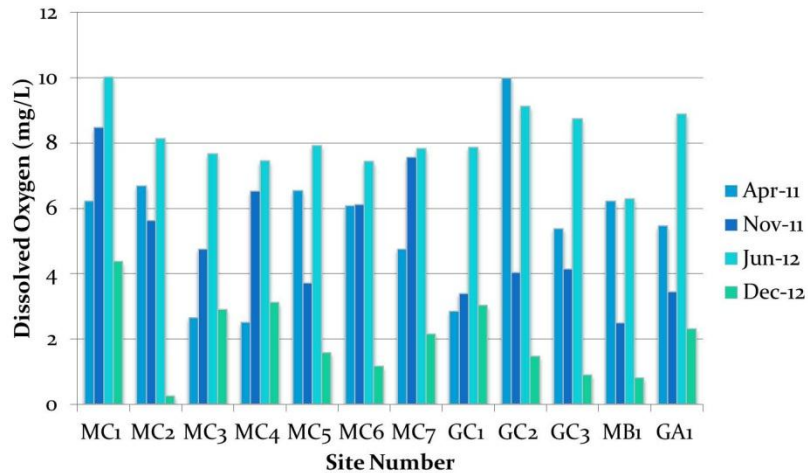
	Parameter				
Site	Dissolved Oxygen (mg/L)*	pH	Temperature (°C)	Electrical conductivity (µS/cm)	Turbidity (NTU)
MC1	-	7.45	16	352	5.1
MC2	-	7.65	15.1	326	2.8
MC3	-	7.6	16.3	393	3.1
MC4	-	7.4	16	446	0.1
MC5	-	7.32	15.9	492	3.6
MC6	-	7.12	16.1	471	7.6
MC7	-	7.3	16.6	504	15.6
GC1	-	7.68	15.3	144	2.6
GC2	-	7.25	14.6	335	5.6
GC3	-	7.47	15.9	423	7.64
MB1	-	6.89	14.7	1042	15.7
GA1	-	7.47	13.6	367	8.12

Red text = exceedance of QWQG (2009) for lowland streams

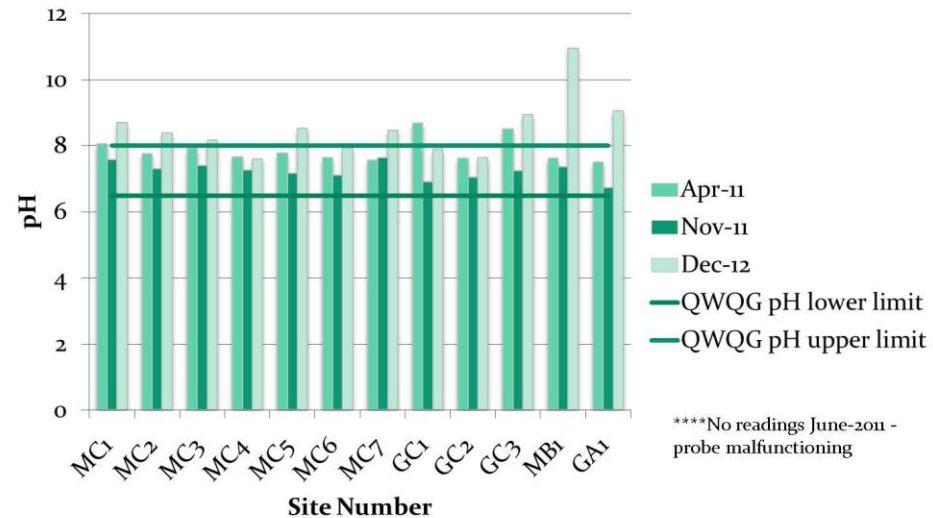
*Dissolved oxygen not recorded due to instrument malfunction

Water Quality – DO, temp and pH

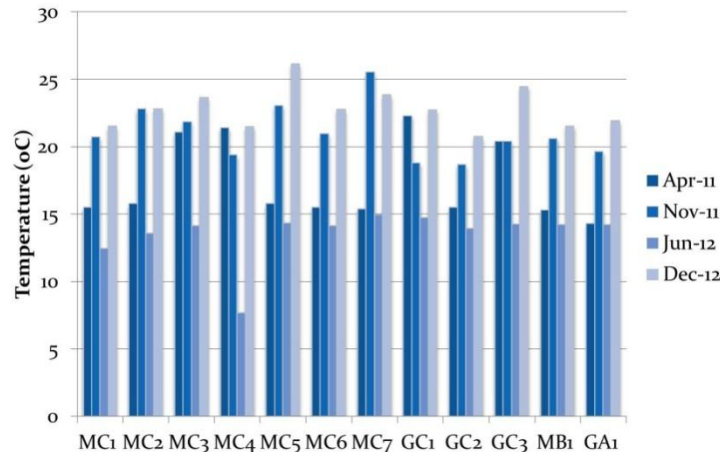
Dissolved Oxygen - MCHMP



pH - MCHMP

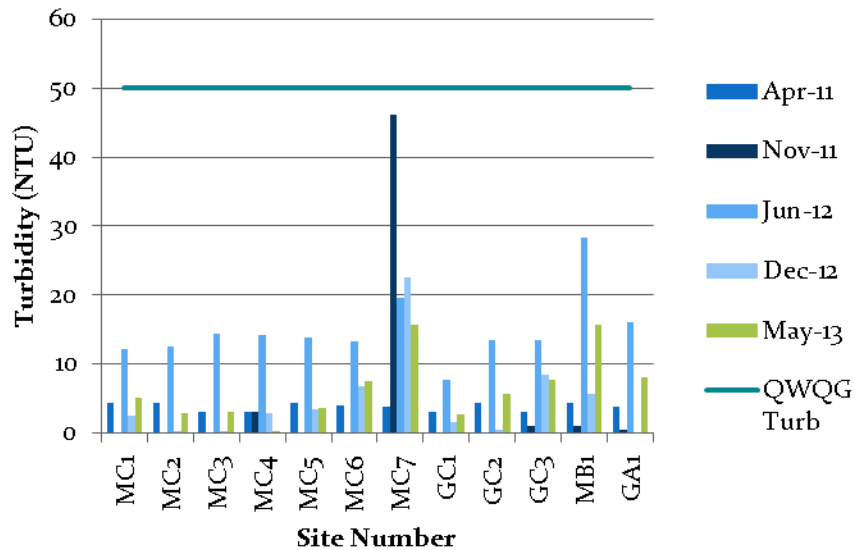


Water Temperature - MCHMP

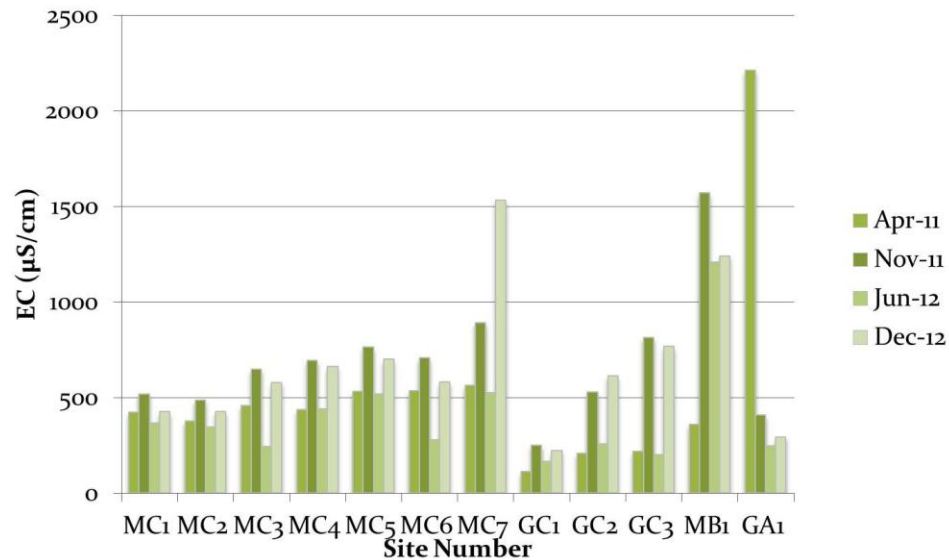


Water Quality – Conductivity and Turbidity

Turbidity - MCHMP



Electrical Conductivity - MCHMP



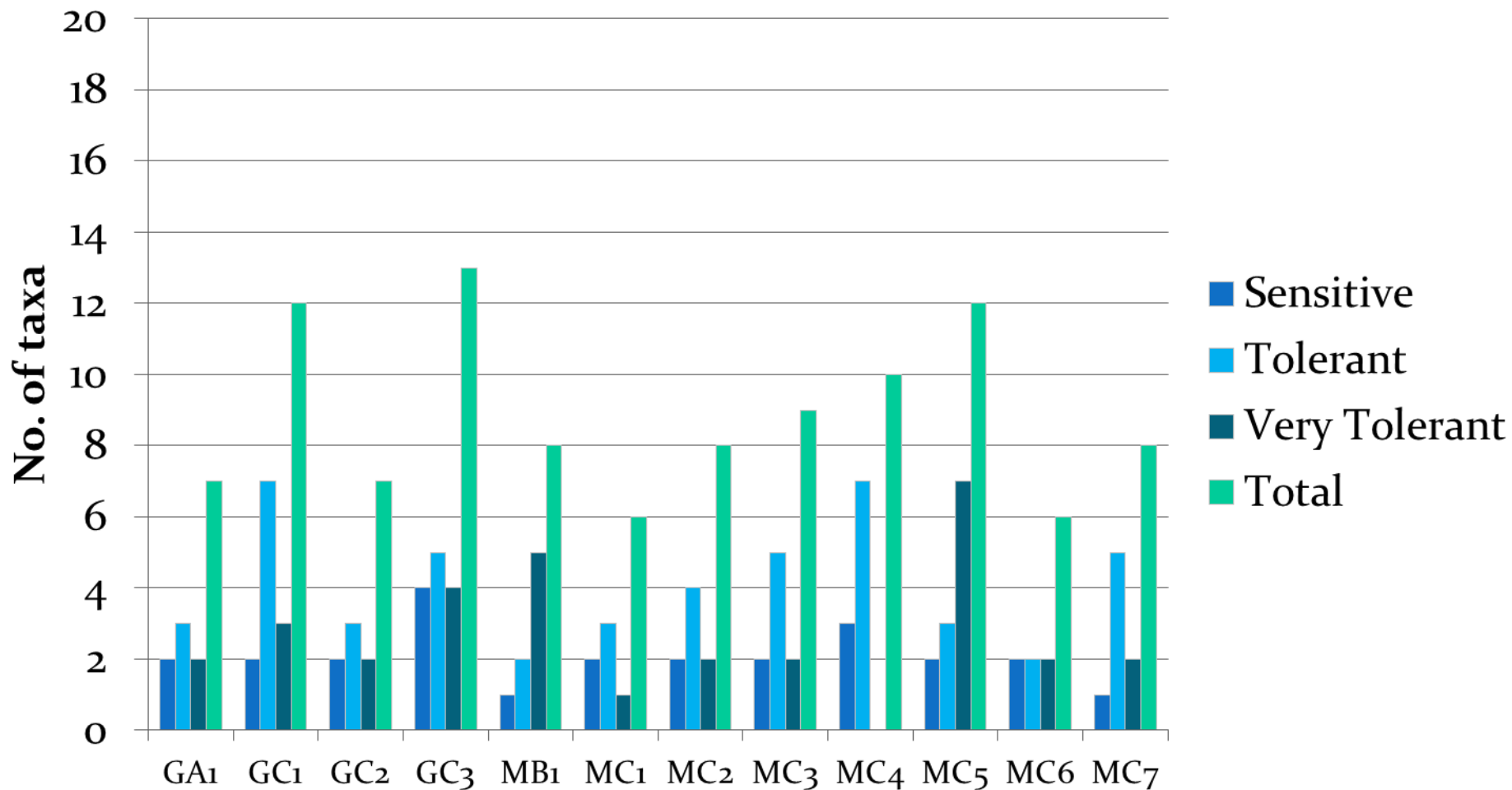
Aquatic Macroinvertebrates – Summary of Findings

- Reasonably good spread of sensitive, tolerant and very tolerant species. Twenty-six families identified throughout the catchment - indicates a relatively healthy community in the waterways of Moggill Creek.
- Highest number of macroinvertebrate taxa found at Site 3 of Gold Creek, with the highest number of sensitive taxa also found at this site.
- The highest number of taxa recorded at Mackay Brook for all sampling occasions (8 taxa)
- The number of macroinvertebrate taxa in Moggill Creek increased in a downstream gradient until site 5, after which it decreased.
- Taxa Richness has fluctuated at all other sites, increasing or decreasing between sampling periods.

Aquatic macroinvertebrates – May 2013

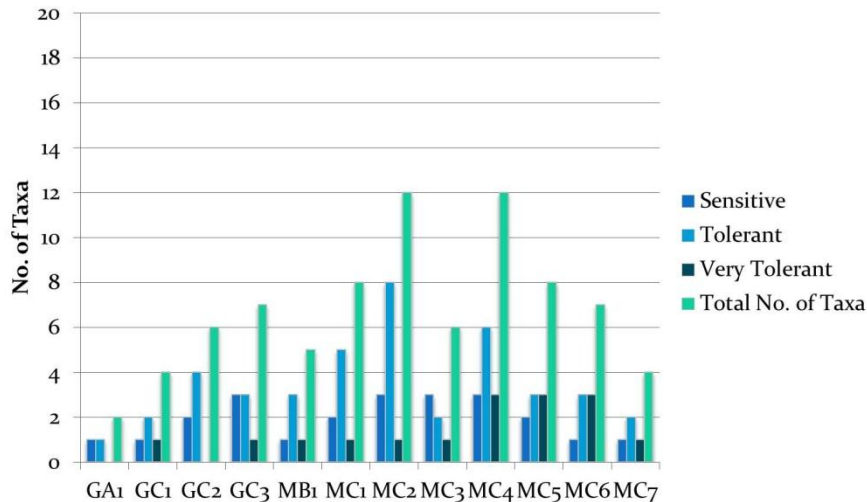
	Common name	Scientific order (unless otherwise indicated)	Pollution sensitivity	GA1	GC1	GC2	GC3	MB1	MC1	MC2	MC3	MC4	MC5	MC6	MC7
SENSITIVE	Mayfly nymph	Ephemeroptera	10	✓	✓	✓	✓		✓	✓	✓	✓		✓	
	Caddis fly nymph	Trichoptera	10	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Stonefly nymph	Plecoptera	9		✓		✓					✓			
	Riffle beetle adult	Coleoptera	8				✓							✓	
	Riffle beetle larva	Coleoptera	8												
	Crane fly larva	Diptera	6												
	Water mite	Acariformes	6												
TOLERANT	Water flea	Cladocera (suborder)	5												
	Whirligig beetle adult	Coleoptera	5		✓	✓					✓	✓			
	Whirligig beetle larva	Coleoptera	5		✓		✓					✓	✓		
	Blackfly larva	Diptera	5				✓								
	Water measurer	Hemiptera	4												
	Damselfly larva	Odonata	4		✓				✓	✓		✓			✓
	Dragonfly larva	Odonata	4		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Freshwater yabby	Decapoda	4		✓					✓	✓	✓			
	Scud	Amphipoda	4								✓				✓
	Freshwater shrimp & prawns	Decapoda	4	✓	✓	✓	✓		✓	✓	✓		✓	✓	✓
	Biting midge larvae	Diptera	4									✓			✓
	Copepod	Copepoda (subclass)	4												
	Water strider	Hemiptera	4	✓	✓			✓				✓			
	Seed shrimp	Ostracoda	4	✓			✓								
	Soldier fly larva	Diptera	4				✓								
VERY TOLERANT	Water scorpion	Hemiptera	3												
	Freshwater slater (isopod)	Isopoda	3					✓					✓		
	Freshwater mussel	Bivalvia (class)	3												
	Scavenger water beetle adult	Coleoptera	3	✓		✓									
	Scavenger water beetle larva	Coleoptera	3	✓				✓							
	Mosquito larva/pupae	Diptera	3				✓						✓		
	Flatworm	Turbellaria (class)	3		✓										
	Non-biting midge larva	Diptera	3		✓	✓		✓		✓					✓
	Freshwater snail	Gastropoda (class)	2					✓			✓				
	Hydra	Hydrozoa	2												
	Backswimmer	Hemiptera	2							✓	✓		✓		
	Leech	Hirudinea (class)	2										✓		
	Predacious diving beetle adult	Coleoptera	2		✓										
	Predacious diving beetle larva	Coleoptera	2												
	Roundworm	Nematoda (phylum)	2				✓						✓		
	Water boatman	Hemiptera	1				✓		✓				✓	✓	✓
	Segmented worm	Oligochaeta (class)	1				✓	✓					✓	✓	

Macroinvertebrate Sampling Results - May 2013

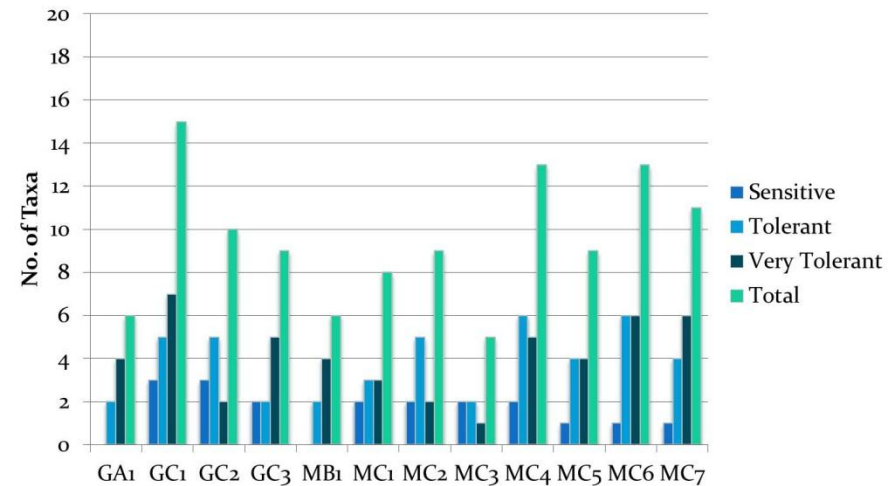


Previous macroinvertebrate results

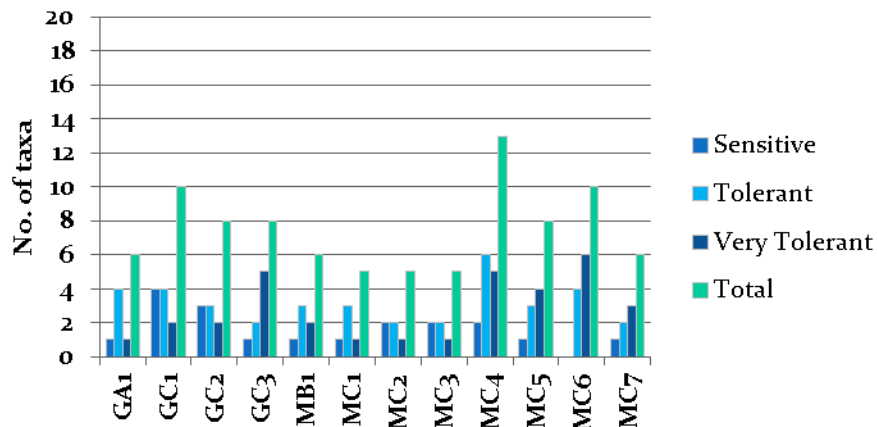
Macroinvertebrate Sampling Results – April 2011



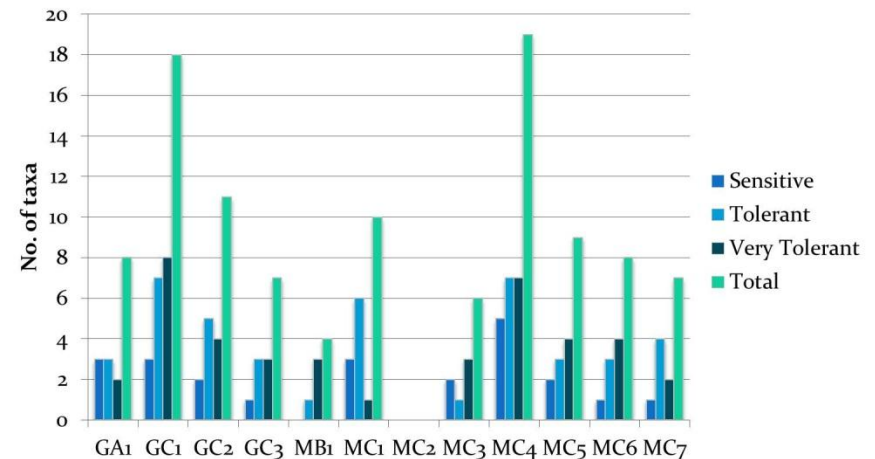
Macroinvertebrate Sampling Results - November 2011



Macroinvertebrate Sampling results - June 2012



Macroinvertebrate Sampling Results - December 2012



Fish Species – Summary of Findings

- 861 fish from 14 species recorded. Sampling was successful at recording a broad range of species.
- Generally lower fish abundance in sites along Moggill Creek.
- Site 4 at Moggill Creek recorded the highest number of taxa with 6 species recorded.
- Site 1 and 3 at Gold Creek recorded the highest abundance with 335 and 296 individuals captured respectively. Dominated by *Hypseleotris* species.
- Gap Creek and McKay Brook consistently have low abundance and diversity.
- Some interesting upstream to downstream species richness trends across sampling periods, longer term data required to help explain.



Male western carp gudgeon (*Hypseleotris klunzingeri*)



Male (top) and female (bottom) firetail gudgeon (*Hypseleotris galii*)

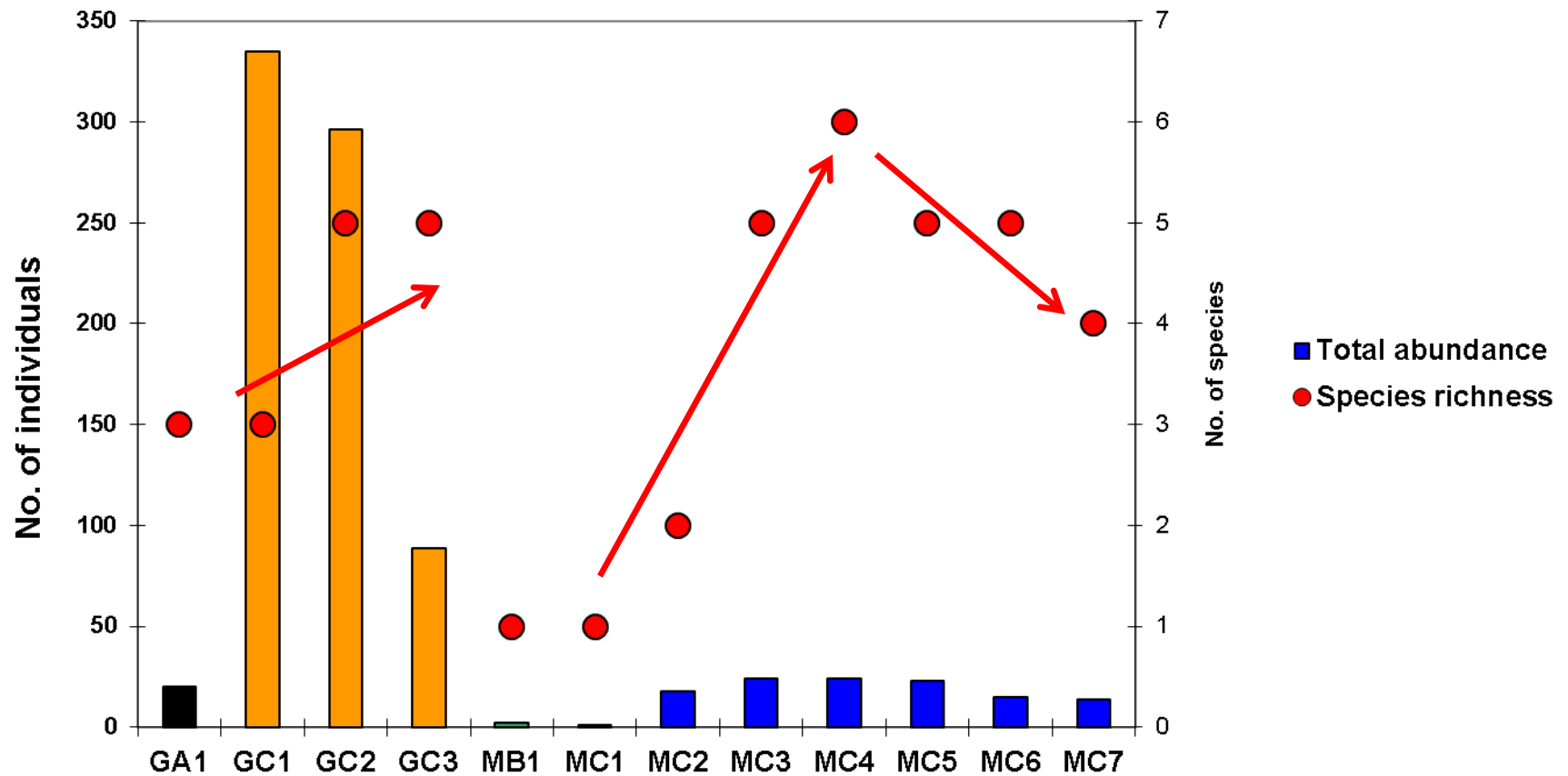
Fish species abundance – December 2012

Species	Common name	GA1	GC1	GC2	GC3	MB1	MC1	MC2	MC3	MC4	MC5	MC6	MC7
<i>Ambassis agassizii</i>	Agassiz's glassfish								5				
<i>Craterocephalus stermuscarum</i>	Unspecked hardyhead						1	3					
<i>Gambusia holbrooki</i>	Mosquito fish			7	5					3			
<i>Hypseleotris galii</i>	Firetailed gudgeon	1		267	36	2		15	15	6	2	1	
<i>Hypseleotris klunzingeri</i>	Western carp gudgeon		291		22						2	5	3
<i>Hypseleotris compressa</i>	Empire gudgeon				25					10	3	2	9
<i>Melanotania duboulayi</i>	Crimson spotted rainbowfish	18	43	8					2	1	1	6	
<i>Mogurnda adspersa</i>	Purple-spotted gudgeon				1				1				
<i>Philypnodon grandiceps</i>	Flathead gudgeon									1			1
<i>Philypnodon macrostomas</i>	Dwarf flathead gudgeon											1	
<i>Pseudomugil signifer</i>	Pacific blue-eye			13						3			
<i>Tandanus tandanus</i>	Eel-tailed catfish			1					1				
<i>Xiphophorus helleri</i>	Swordtail	1											
<i>Xiphophorus maculatus</i>	Platy		1										
	Unidentified										15		1
Totals		20	335	296	89	2	1	18	24	24	23	15	14

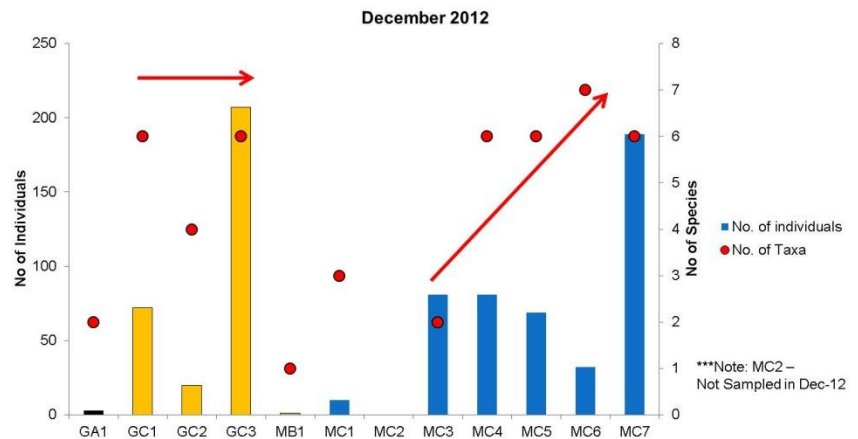
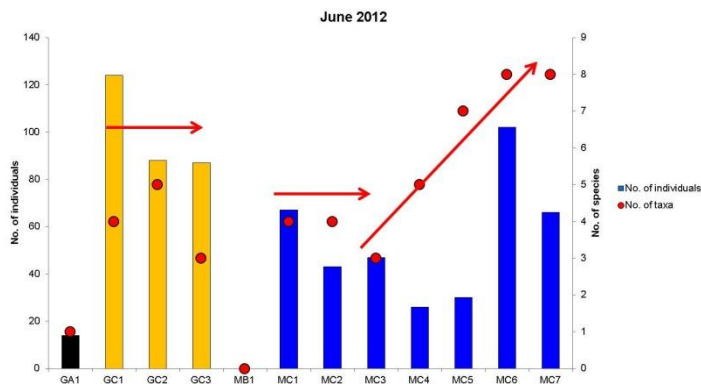
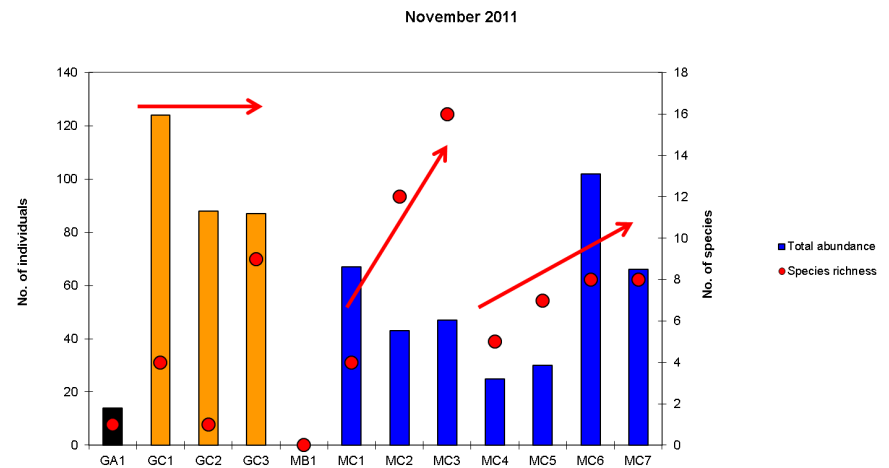
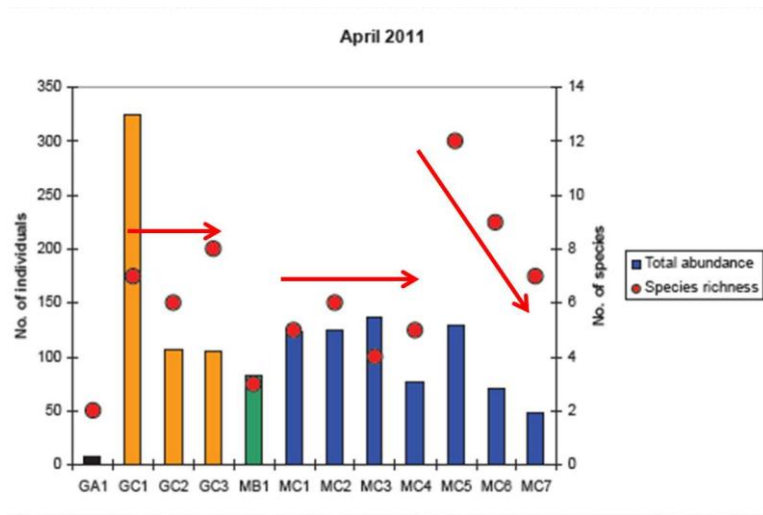
**Exotic fish species in red

Fish total abundance and species richness – May 2013

May 2013



Previous fish abundance and species richness results



Future Directions

- We are likely to be coming out of a series of wet years and into a series of dry years, results in coming years are likely to show some interesting contrasts in aquatic ecosystem health and help us better understand the system
- To help improve the turnaround time of reports it is suggested that one person needs to be designated to follow up with data collation.
- Camille and I will always be happy to assist and provide technical advice, however, as we now live quite a distance away a new local technical lead should be identified.
- As always, please continue to provide feedback including;
 - if you find the field sheets confusing,
 - have trouble with macroinvertebrate and fish IDs or,
 - can see any potential areas of improvement that could be made.

Contact Details

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