# Moggill Catchment Creek Health Monitoring Program November 2013 – Sampling Overview

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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.

# November 2013 – Sampling Summary

- In late October/ early November 2013 eleven sites throughout the Moggill Creek catchment were sampled by members of the Moggill Creek Catchment Group (MCCG) under guidance of Camille Percival and Adrian Webb.

- Six sites were sampled on Moggill Creek itself (one of the normal site was dry) 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:

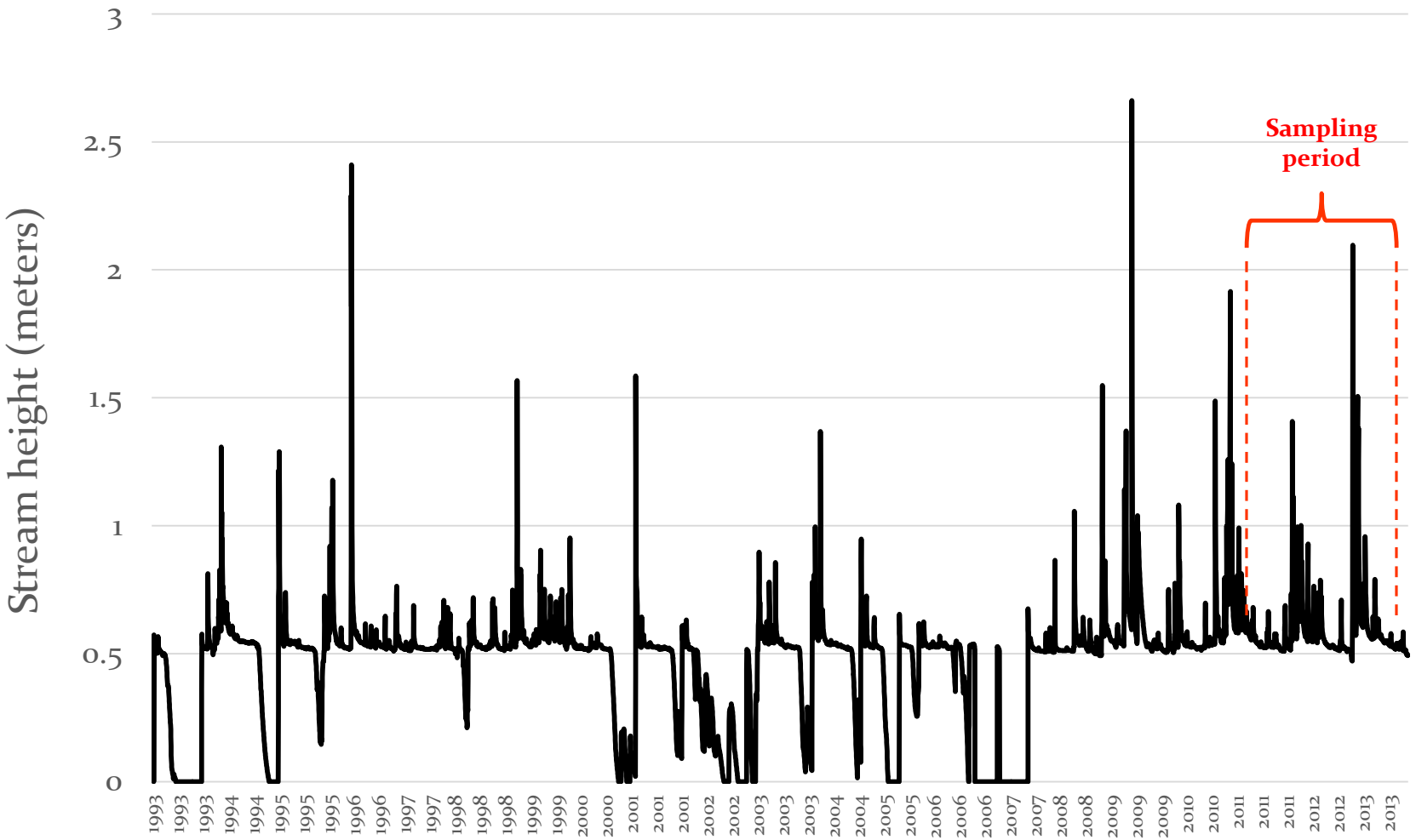
  - ✓ Water quality results were similar to previous sampling events.

  - ✓ There was a relatively good diversity of sensitive and tolerant macroinvertebrate species in most sites.

  - ✓ 765 fish from 15 species were recorded throughout the catchment.

  - ✓ Aquatic vegetation was not monitored during the November 2013 sampling.

# Stream Height Data – Moggill Creek (143032A)



# Water Quality – Summary

- Dissolved oxygen was relatively high across all sites.
- Water temperature was reflective of ambient temperatures and comparable between the two years of sampling.
- pH was what would be expected at all sites.
- Conductivity gradient (increasing downstream) was observed in Moggill Creek. High at MC7 likely to be attributable to tidal water intrusion. The trend for higher conductivity across all sites in the November/December sampling period was also consistent.
- Turbidity was reasonably low at all sites and below the QWQG for lowland streams in SEQ.

# Water Quality – November 2013

| Site | Dissolved Oxygen mg/L | pH | Temperature (°C) | Electrical Conductivity (microS/cm) | Turbidity (NTU) |
|---|---|---|---|---|---|
| MC1 | 8.5 | 7.13 | 23.8 | 497 | 0 |
| MC2 | Dry no sample | | | | |
| MC3 | 8.28 | 7.24 | 24 | 770 | 0 |
| MC4 | 9.33 | 7.1 | 21.6 | 782 | 4.82 |
| MC5 | 8.1 | 6.98 | 26.4 | 725 | 0 |
| MC6 | 8.7 | 6.92 | 24.3 | 814 | 10.2 |
| MC7 | 8.31 | 7.1 | 24.7 | 6866 | 11.0 |
| GC1 | 10.1 | 6.7 | 20.2 | 212 | 7.4 |
| GC2 | 9.8 | 7.05 | 22 | 960 | 0 |
| GC3 | 8.89 | 7.1 | 22.6 | 893 | 2.4 |
| MB1 | 7.48 | 6.84 | 23.2 | 1184 | 0 |
| GA1 | 7.26 | 6.84 | 23.8 | 572 | 0 |

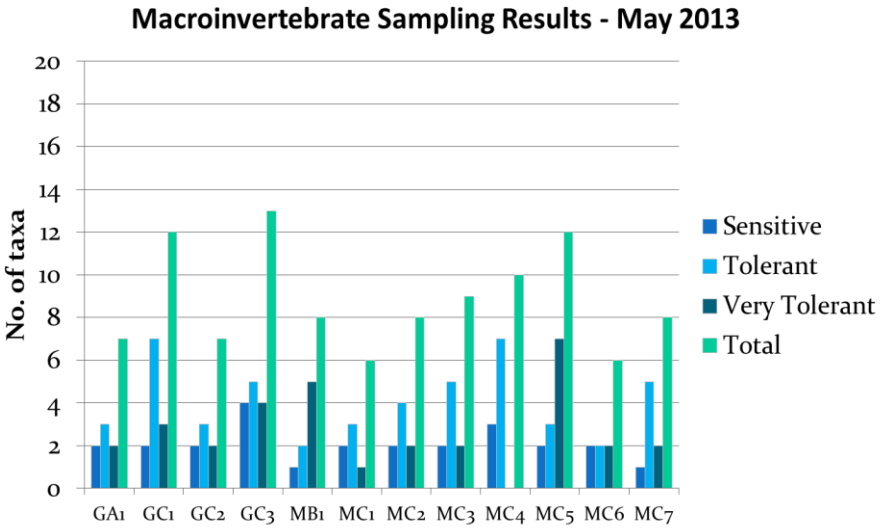
# Aquatic Macroinvertebrates – Summary of Findings

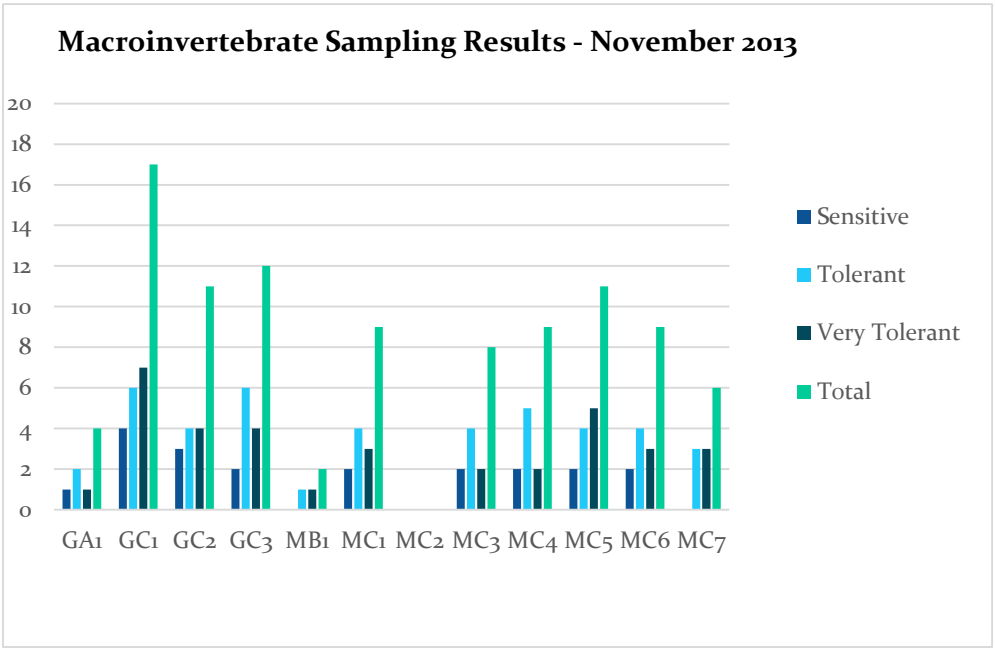
- Reasonably good spread of sensitive, tolerant and very tolerant species. Twenty-six orders identified throughout the catchment - indicates a relatively healthy community in the waterways of Moggill Creek.
- Highest number of macroinvertebrate taxa found at Site 1 of Gold Creek, with the highest number of sensitive taxa found at Site 3 of Gold Creek this site.
- Some interesting upstream to downstream species richness trends across sampling periods, longer term data required to help explain.

# Aquatic macroinvertebrates – May 2013

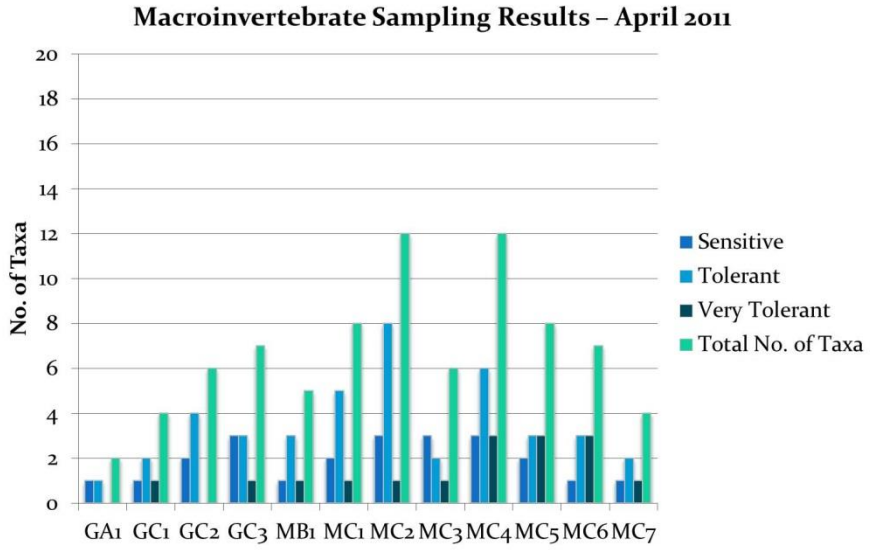
| | Common name | Scientific order (unless otherwise indicated) | Pollution sensitivity | GA1 | GC1 | GC2 | GC3 | MB1 | MC1 | MC2 | MC3 | MC4 | MC5 | MC6 | MC7 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SENSITIVE | Mayfly nymph | Ephemeroptera | 10 | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | | ✓ | |
| | 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 | Oligocheata (class) | 1 | | | | ✓ | ✓ | | | | | ✓ | ✓ | |

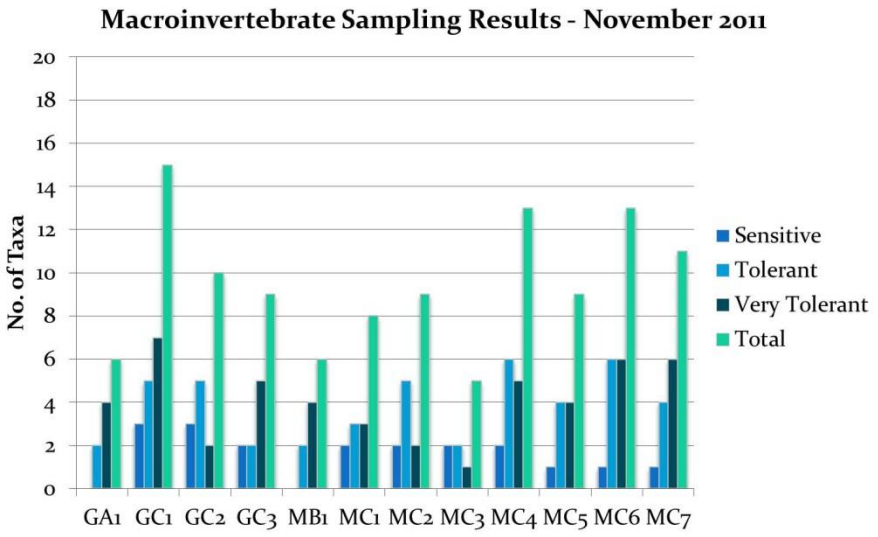
# 2013 macroinvertebrate results

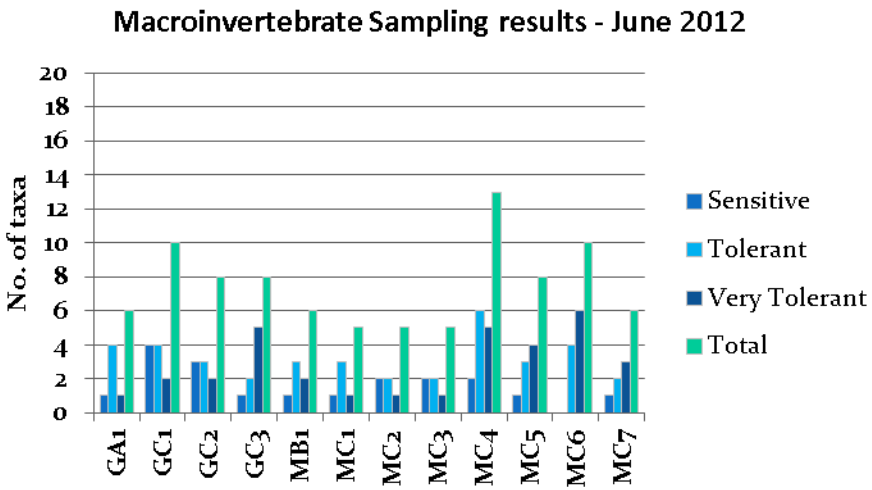


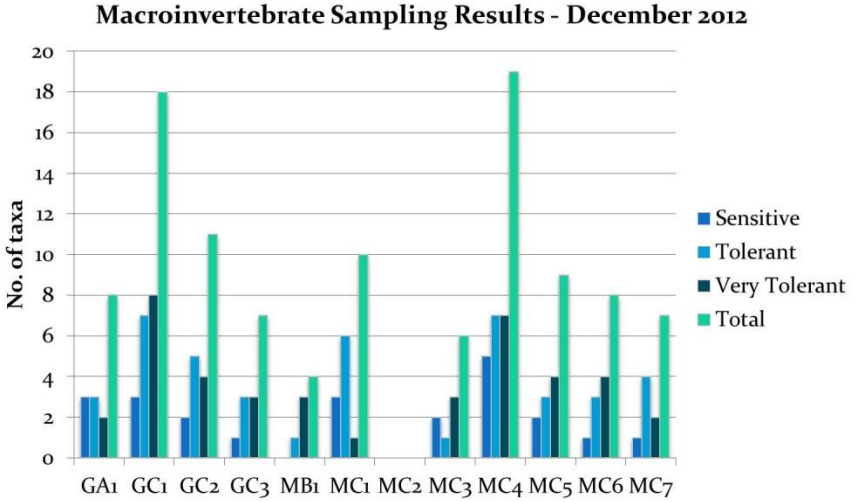




# Previous years macroinvertebrate results



# Fish Species – Summary of Findings

- 765 fish from 15 species recorded. Sampling was again successful at recording a broad range of species.
- Generally lower fish abundance in sites along Moggill Creek.
- Site 2 at Gold Creek had the highest number of taxa with 9 species recorded.
- 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*)**

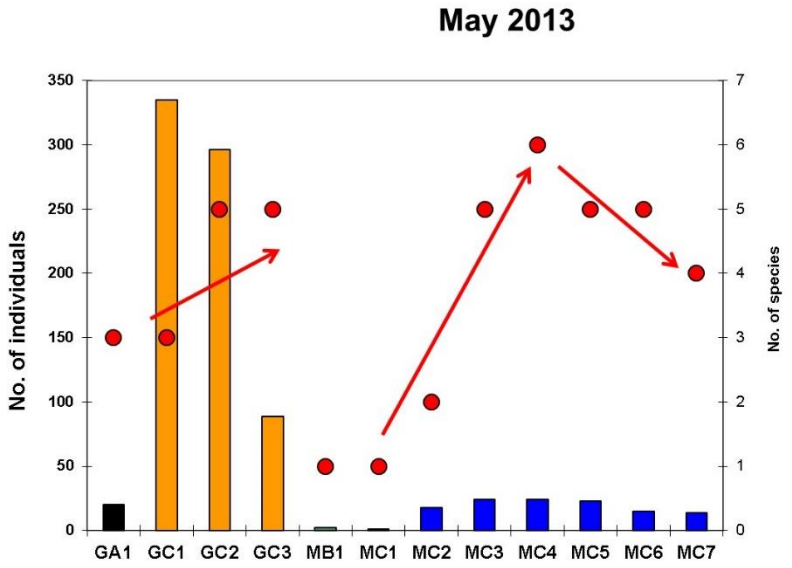
**Male (top) and female (bottom) firetail gudgeon (*Hypseleotris galii*)**

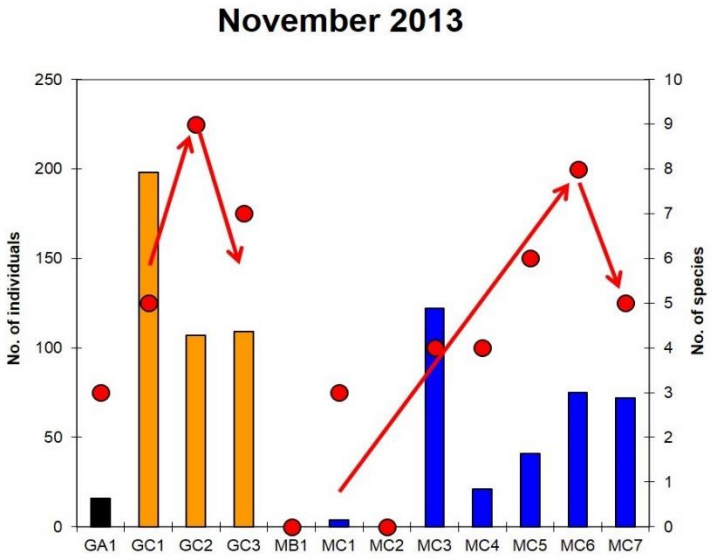
# Fish species abundance – November 2013

| Species | Common name | GC1 | GC2 | GC3 | GA | MB | MC1 | MC2 | MC3 | MC4 | MC5 | MC6 | MC7 | Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Ambassis agasizii* | Olive perchlet | | | | | | | Dry – not sampled | 28 | | | | | 28 |
| *Anguilla australis* | Short-finned eel | | | | | | | | | 1 | | | | 1 |
| *Gambusia holbrooki* | Mosquito fish | | | 2 | | | | | | | 14 | | | 16 |
| *Gobiomorphus australis* | Striped gudgeon | | 3 | | | | | | | | | 3 | 1 | 7 |
| *Hypseleotris compressa* | Empire gudgeon | 14 | 2 | 55 | | | 2 | | | | 10 | 58 | 43 | 184 |
| *Hypseleotris galii* | Firetail gudgeon | 48 | 17 | 7 | 2 | | 1 | | 83 | 4 | 7 | 2 | 1 | 172 |
| *Hypseleotris klunzingeri* | Western carp gudgeon | 50 | 62 | 2 | | | | | | | | 3 | | 117 |
| *Melanotania duboulayi* | Crimson spotted rainbowfish | 41 | 3 | | 9 | | | | 8 | 15 | | 2 | | 78 |
| *Mogurnda adspersa* | Purple-spotted gudgeon | | 1 | | | | 1 | | | | | | | 2 |
| *Philypnodon grandiceps* | Flathead gudgeon | | | 1 | | | | | | | 3 | | 5 | 9 |
| *Philypnodon macrostomas* | Dwarf flathead gudgeon | | 1 | | | | | | | | | 4 | | 5 |
| *Pseudomugil signifer* | Pacific blue-eye | | 13 | 41 | | | | | | | 3 | 1 | 22 | 80 |
| *Retropinna semoni* | Australian smelt | | | | | | | | | | 4 | 2 | | 6 |
| *Tandanus tandanus* | Eel-tailed catfish | | | | | | | | | 1 | | | | 1 |
| *Xiphophorus helleri* | Swordtail | 45 | 5 | 1 | 5 | | | | 3 | | | | | 59 |
| | | | | | | | | | | | | | | |
| | Total Abundance | 198 | 107 | 109 | 16 | 0 | 4 | | 122 | 21 | 41 | 75 | 72 | 765 |

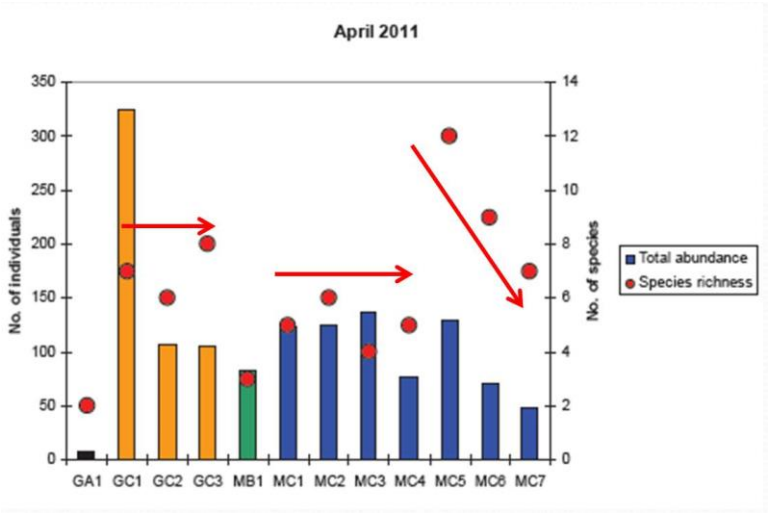
Exotic fish species in red

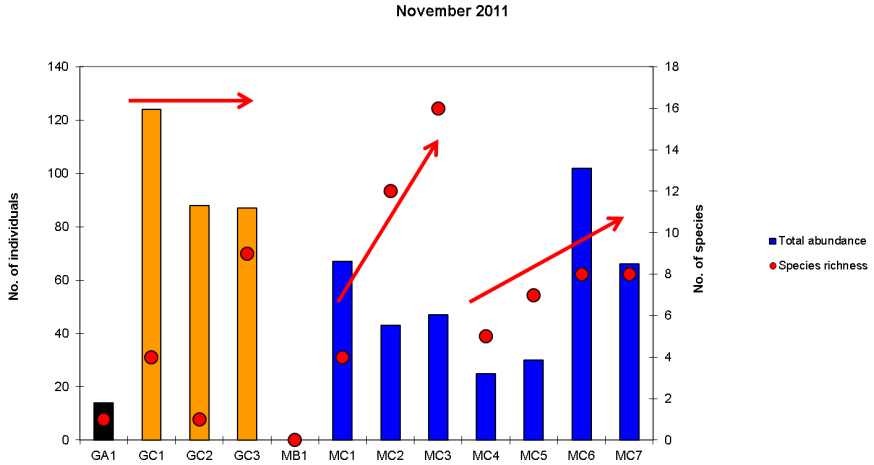
# Fish total abundance and species richness – May & October 2013

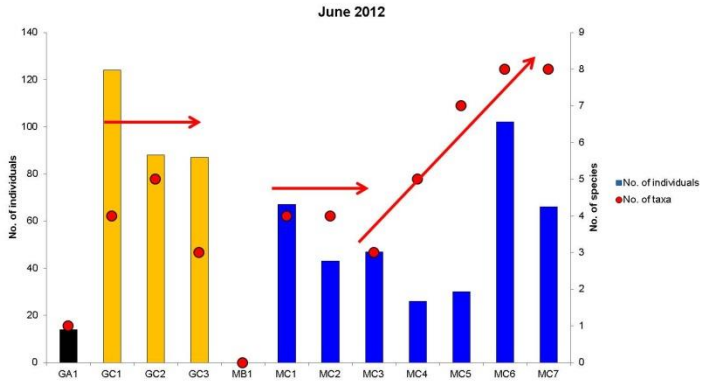


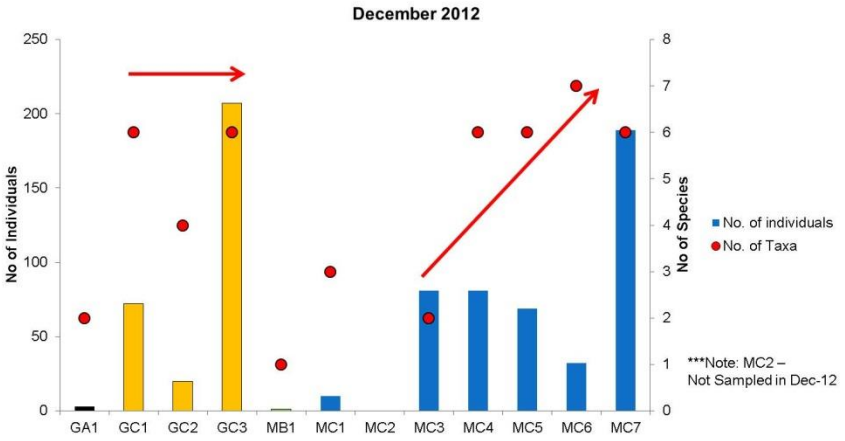



# Previous years fish abundance and species richness



# Future Directions

- The coming year will represent the first samples to be collected entering a drier period. This will perhaps reveal some of the more significant trends in relation to ecosystem stressors.

- A report on the first three years of ecosystem surveying (over a wet period) will be produced in the coming months.

- 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(s) should be identified for biannual surveys.

- 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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