

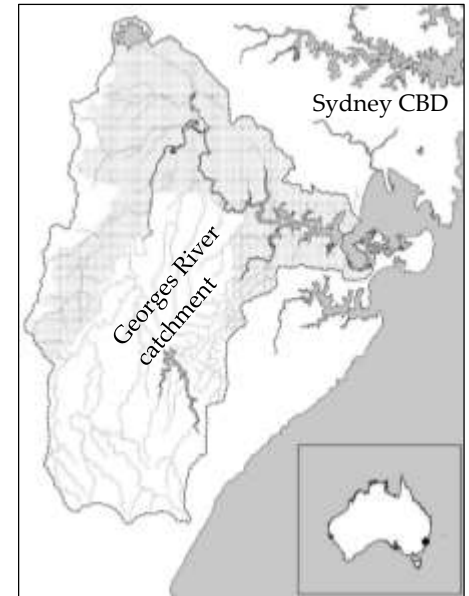
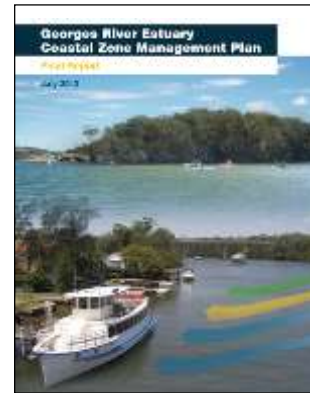
## Development of metrics and an electronic platform for rapid visual assessment of urban streams

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### ***Georges Riverkeeper***

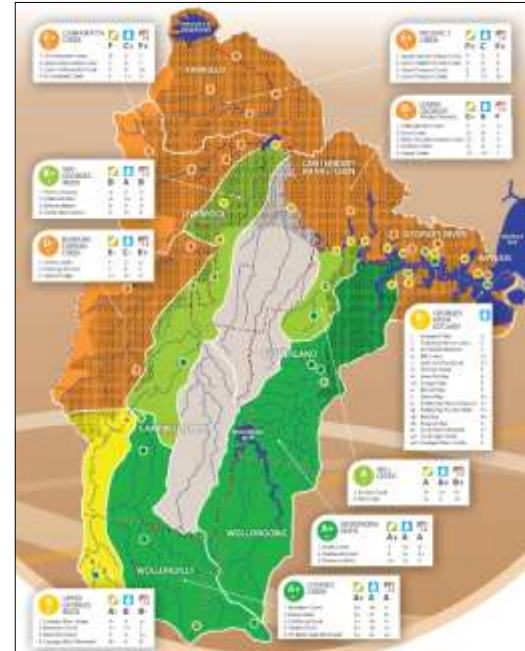
- coordinated catchment-scale waterway management in southern Sydney
- funded by local councils for core Programs
  - River Health Monitoring
  - Stormwater
  - Research
  - Catchment Actions
  - Community Engagement & Capacity Building
- supplemented by grant-funded projects
- partner with councils, state government, universities, schools and contractors



Traditional Georges Riverkeeper monitoring (50 sites):

- riparian vegetation (visual assessment in field)
- water quality (field collection and laboratory analyses)
- macroinvertebrates (field collection and laboratory identification)

10 years of data collection



## **Problem**

Traditional waterway monitoring restrictive:

- time consuming
- expensive water quality analyses
- restricted number of sites
- focused on ecological condition
  - measuring symptoms, not causes
  - urban streams are highly ecologically degraded, but they have other values



time consuming



expensive

***Aim***

Develop a monitoring platform for collecting data at high spatial resolution to guide urban waterway management for multiple values



## **Solution**

Rapid Visual Assessments with electronic data entry:

- more cost effective
- allows collection of information at higher spatial resolution (>10 sites/person/day)
- allows assessment of anything that is visible, not limited to ecological values
- needs tablet and storage capacity



## Example of data collection: vegetation structure & liveability



Visible metrics (some causes, some symptoms) useful for informing management:

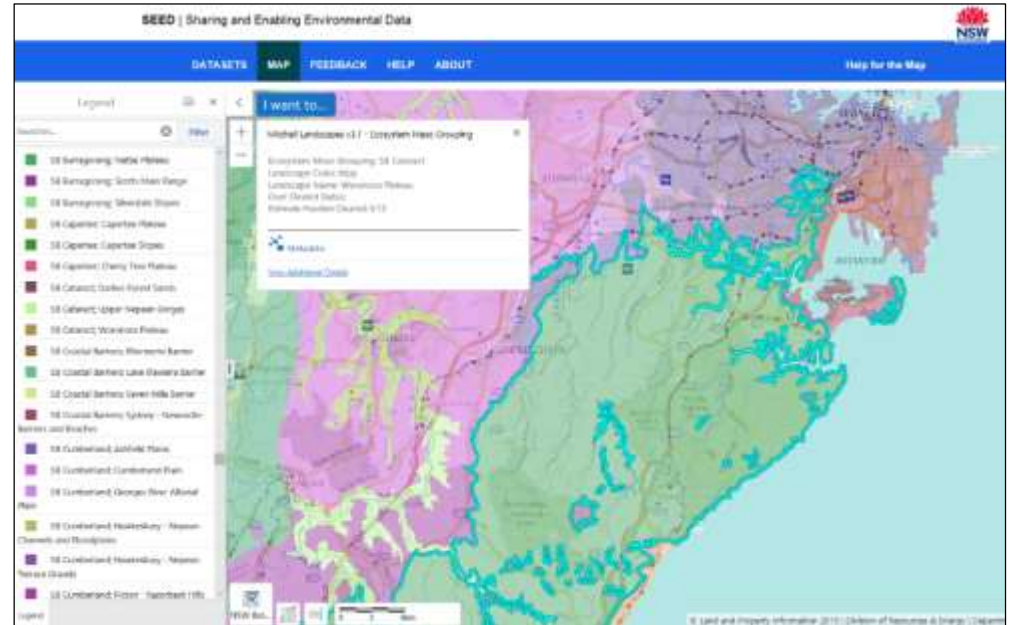
- Site features: land uses, litter, sewer, stormwater, odour, turbidity
- Riparian vegetation: width, vegetation type/structure, weeds, habitats (e.g. remnant trees, hollows, logs, rock outcrops), based on Rapid Riparian Assessment (Findlay et al. 2011)
- Channel features: bed and bank types, channel shape, meanders, pools and riffles, instream large wood or rocks, overhanging vegetation shading, based on River Styles (Brierley & Fryirs 2005, [www.riverstyles.com](http://www.riverstyles.com))
- Deposition and erosion: benches, bars, islands, undercutting, slumps, gulying
- Liveability: interpretative or warning signs, paths/access, antisocial indicators, dominant sounds, nearby facilities, likely uses, maintenance issues

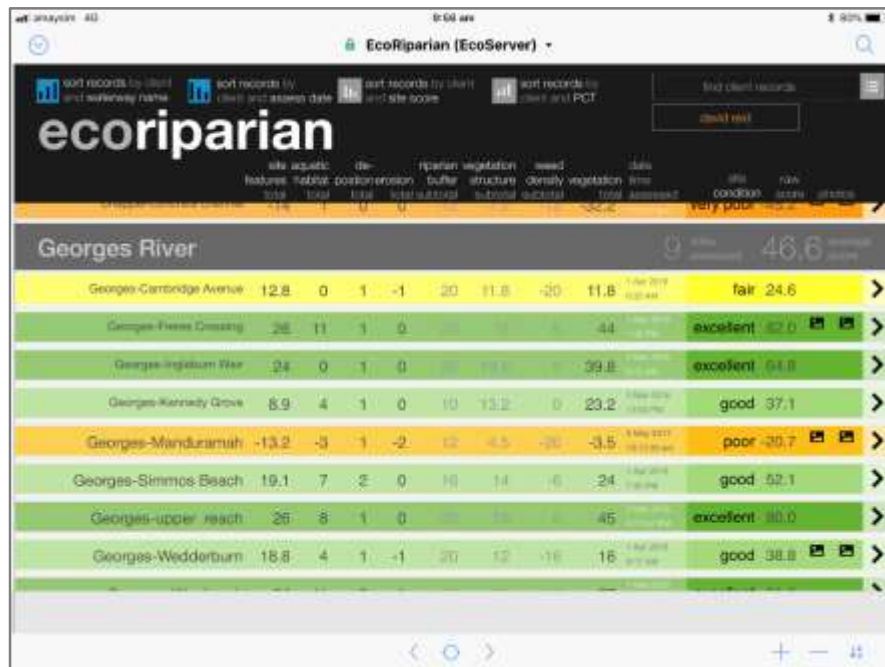


Integrated with desktop information

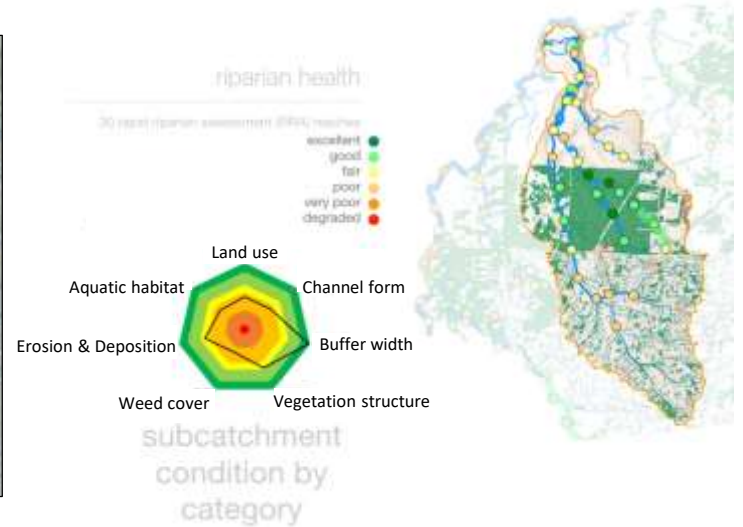
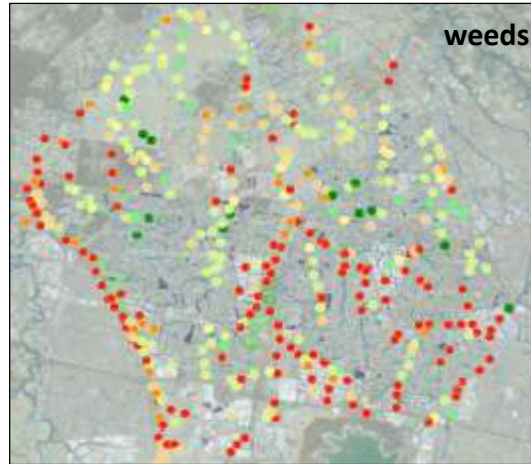
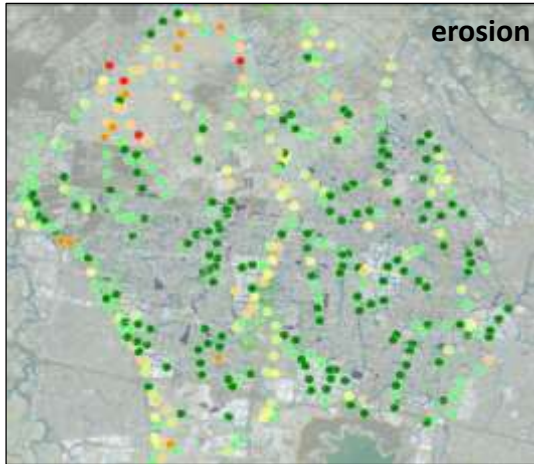
- Mitchell Landscape
- Plant Community Types
- Key Fish Habitat

Plus, other non-visual data (e.g. water quality, macroinvertebrates)





## Example of landscape-scale mapping



Being used for:

- quantifying hotspots for management
- Subcatchment Management Plans to aid proactive waterway management
- monitoring to quantify shorter term reach-scale management successes (ecological and social), whilst also guiding longer term and larger scale management



## Conclusions

Visual metrics and electronic platform are powerful tools for:

- collection of a large amount of data
- assessing causes and symptoms
- informing management at a range of spatial and temporal scales
- informing management for multiple values (not just ecological)



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