

A TRiCI response to climate change predictions?

Aniela Grun, NRM South

Outline

- Climate change in Tasmania
- Tasmanian River Condition Index
TRCI

Climate change will effect rivers

Rainfall, temperature, evaporation, seasons

Flows

Channel form

Vegetation

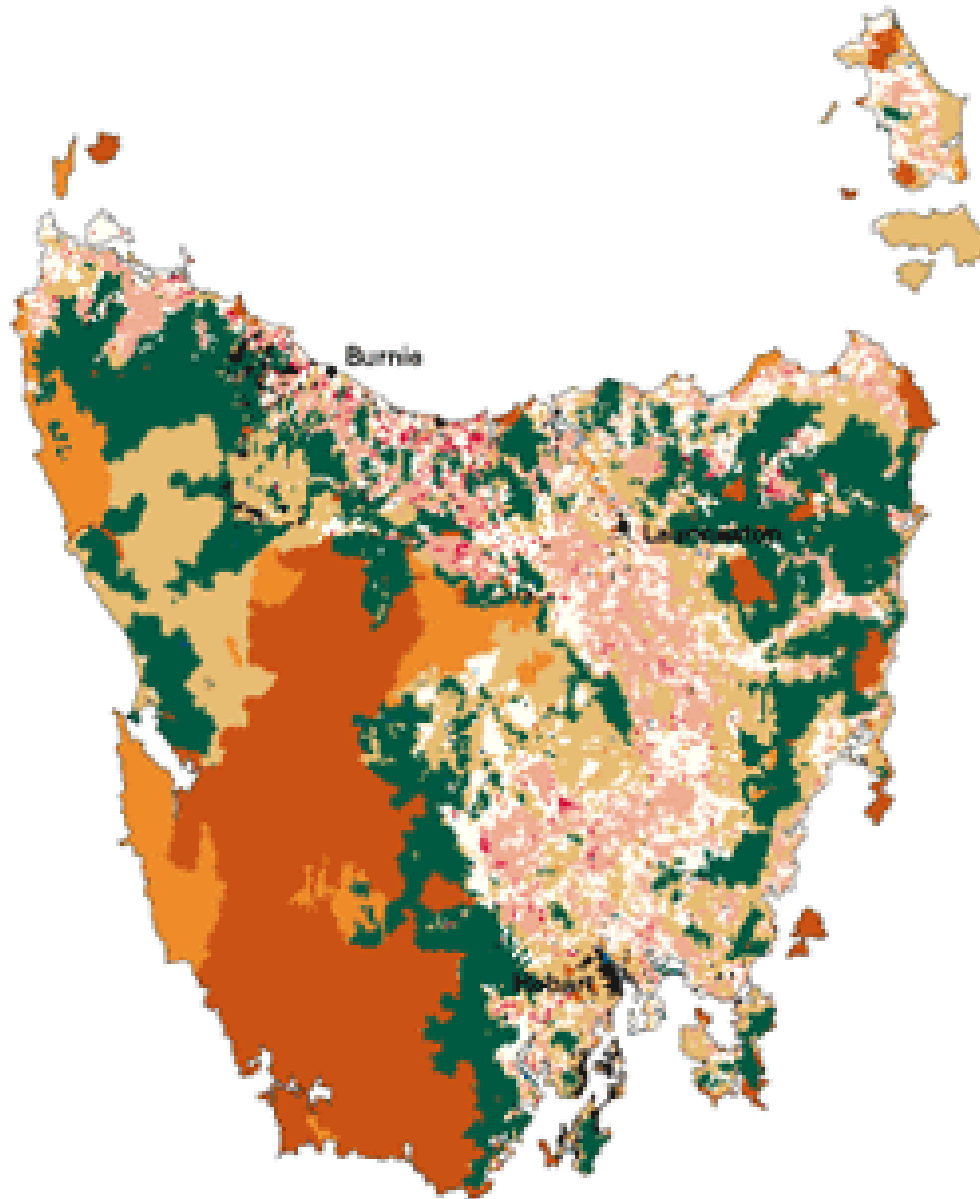
Water quality

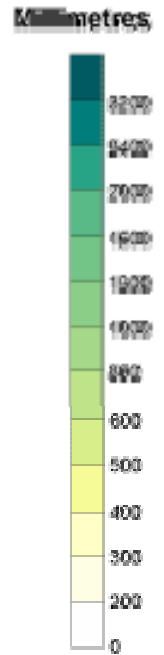
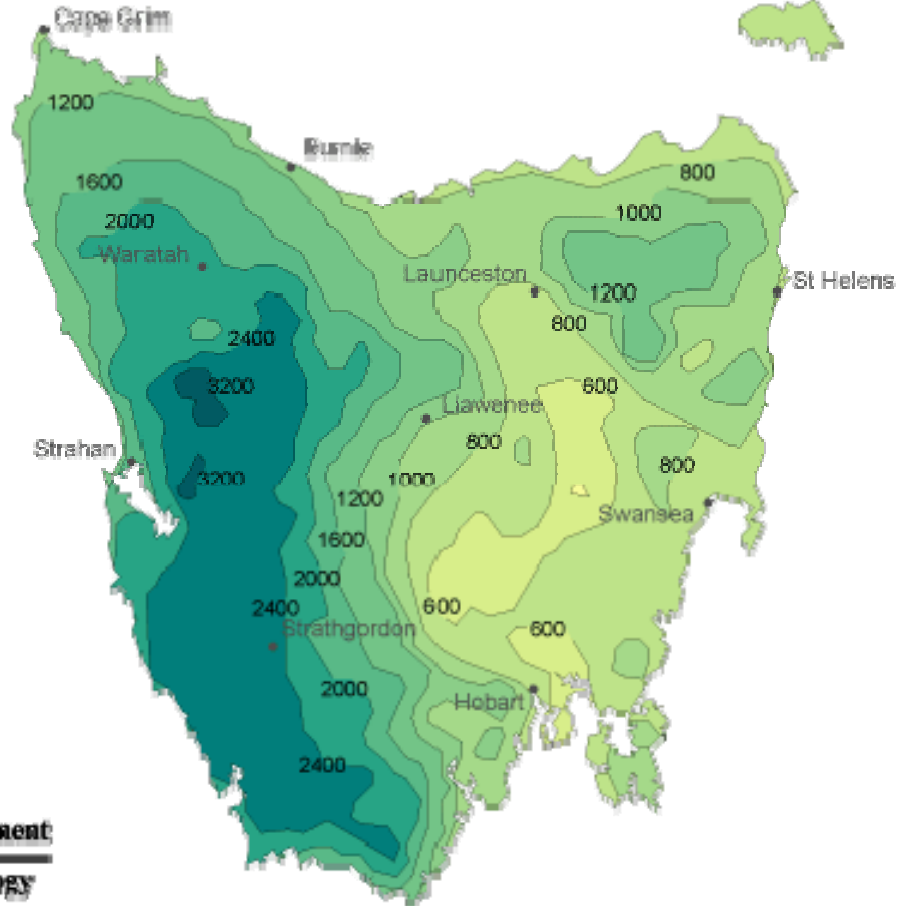
Aquatic fauna

Human response to climate change

As people adjust to climate change they will change:

- rates/seasons of water use
- infrastructure – dams, inter-basin transfers
- landuse - forestry, irrigation, dryland agr.
- management practice – better or worse?





Average rainfall Annual

Australian Government
Bureau of Meteorology

Based on a standard 93-year climatology (1961-1990)
© Commonwealth of Australia, 2005

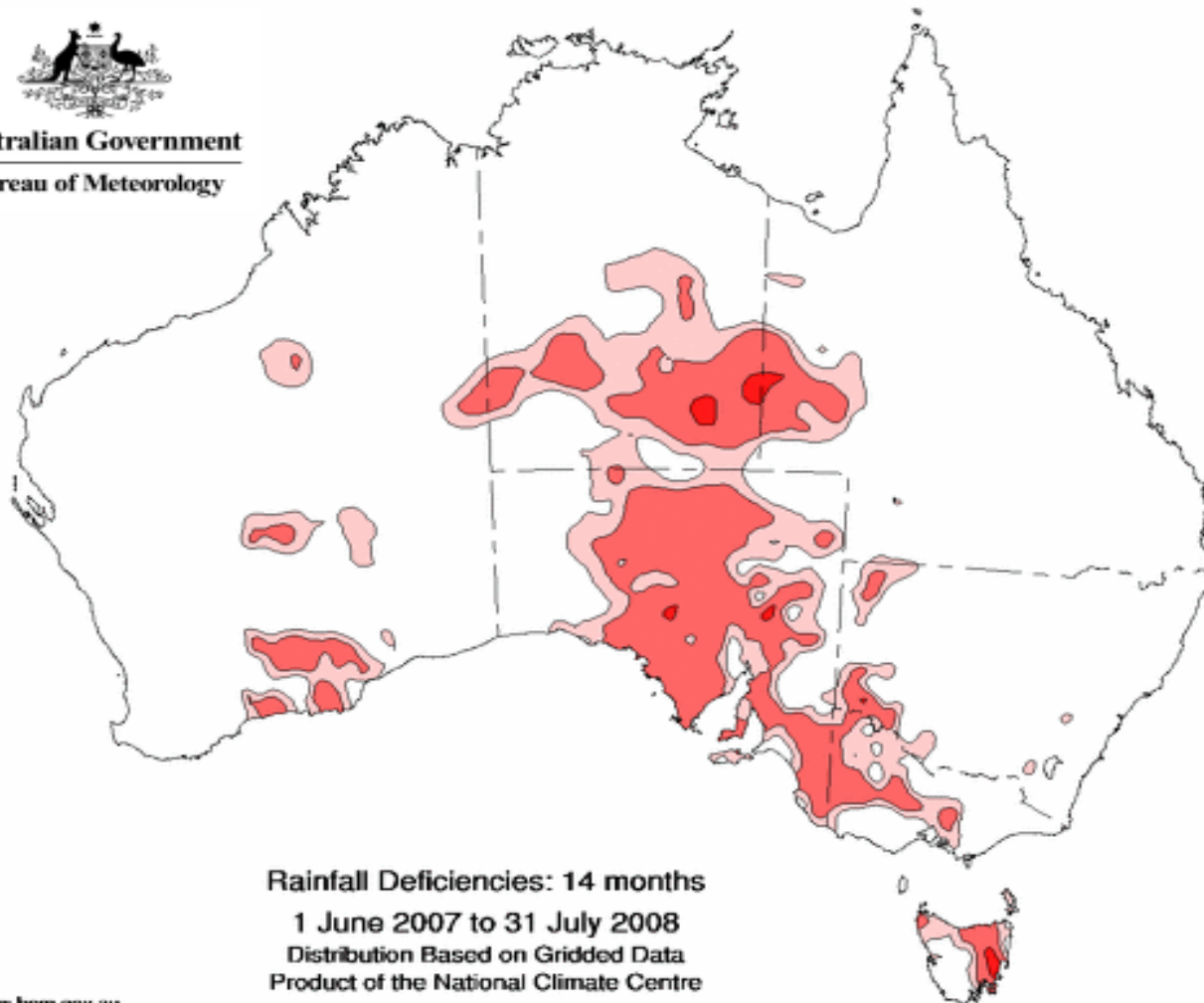


Climate change in Tasmania

- Hydro Tasmania, CSIRO, UTas, TPAC
- NE Tas – lower rainfall
- Other Areas – higher rainfall
- Drier Summer/Autumn
- Wetter Winter/Spring



Australian Government
Bureau of Meteorology



Rainfall Deficiencies: 14 months
1 June 2007 to 31 July 2008
Distribution Based on Gridded Data
Product of the National Climate Centre

<http://www.bom.gov.au>

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“Drought Proofing” Tasmania

- \$220 Million dollar
- 6 major projects to provide 250 000 ML water to increase agricultural production
- Dams
- Pipelines
- Inter-basin transfers

Development of the Tasmanian River Condition Index (TRCI)

- NRM South, NRM North, Cradle Coast NRM
- Department of Primary Industries & Water
- Earth Tech/Maunsell, Hydro Tasmania
- NAP, NHT (Caring for Our Country) funds

TRCI is:

- State wide baseline of river condition
- Informs priorities for management
- Improves our understanding of rivers
- Scientifically defensible, repeatable, rapid, affordable, useful

“Good management backed by Good Science”

Project Progress

Recommended Approach

Draft Method

Pilot in 3 catchments

Revised Method

NEXT: 3 more catchments

TRCI is:

Holistic: Aquatic Life, Hydrology, Physical Form, Streamside Zone, Water Quality

Field & desktop approach

Referential: sites vs Pre-european benchmark

Aquatic Life

- Macroinvertebrates – AusRivAs & Surber sampling
- Fish
- Algae
- Good data exists for benchmarks

Hydrology

- 12 Flow Stress Ranking, SKM
- DPIW surface water models
- Pre-european vs current

Streamside Zone

- Habitat Hectares (Tas VCA)
 - Large trees, Cover, Recruitment
 - Organic litter, Weeds, Logs
 - Landscape context
- Modified to riparian conditions (RARC)
- Riparian benchmarks to be developed (!)

Water quality – On Hold

- Insufficient WQ samples
- Modelling – SedNet



Physical Form

- Sediment size distribution
- Flow type
- Bankfull width:depth
- Bank shape, bank erosion
- Instream Wood, debris jam
- Instream macrophytes
- Sinuosity

Physical Form

No benchmarks !!!!

Plan A

- Fluvial Mosaics (*Jerie et al 2003*)

Plan B

- Conceptual models based Taswide Styles

Next steps

- Coal, Lake, Flowerdale catchments
- Finalise TRCI Method (Physical form!)
- Pitch to DPIW, Hydro Tas, Drinking water Authorities
- Baselines in key catchments

Thanks for your attention!

Aniela Grun

03 6208 6177

nap.water@nrmsouth.org.au

Johanna Slijkerman

6230 5755