

The contribution of improved water information to water resource management in Tasmania

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Outline of Presentation

- Overview of the current Tasmanian water information space (key drivers, monitoring networks, recent initiatives/ activity, water data access)
- Current challenges faced by Tasmanian water information custodians and future directions (collection and storage of data, consolidation of water data sets, water data products and reporting)
- Advantages and benefits of the current Tasmanian position in the water information area to the new role and responsibilities of the BoM
- The benefits that these new arrangements in the Water Information sector have for Tasmanian Water Resource Management

Tasmania's Water Advantage



45 582 GL mean annual runoff - 11.8% of Australian total for 0.9% of the land area

(Murray Darling Basin - 6.2% of Australian total for 14% of the land area)

c. 1000GL /annum for consumptive use (2% of total runoff)

60% irrigation; 20% town supplies

Hydro Tasmania - 13000 GL/annum for power generation

Key drivers - State

- **Socio economic**

- Tasmania's industries are highly water dependant (agriculture, mining, electricity generation, manufacturing, tourism)
- Increased future risk given drought and climate change

- **Water Development Plan (2001-2008)**

- By 2015 an additional 150-200,000 ML per annum of irrigation water required to underpin projected growth in irrigated agriculture (40-50% increase on existing irrigation supplies)
- State Government adoption of holistic funding approach to providing funding for sustainable water management and development
- significant investment in expansion of water monitoring networks (via 2 Budget Initiatives), developing conservation management frameworks and determination of environmental water requirements
- further expansion and product development via NAPSWQ/NHT/NWC funding sources



Recognition that sustainable water resources management and development must be underpinned by good water information reflected in National and State investment in:

- Stream flow and WQ monitoring
- Ground water monitoring and management
- Hydrological modelling
- Accurate water use information
- Water information management and access

Key regulatory and policy drivers - State

- **Statutory responsibilities - *Water Management Act 1999* (Surface and Ground Water)**
 - Water licensing and allocation, including water licence register
 - On ground water management - licence compliance, water restrictions (provision of information)
 - Water metering and Water Management Plans
- **State Policy on Water Quality Management**
 - Setting of PEVs, WQO's (Part 5 Monitoring)
- **Tasmanian Surface Water Quality Monitoring Strategy**
 - state blueprint for WQ monitoring network design, integration and data sharing arrangements between water quality data custodians

Key Drivers - National

- **National Water Initiative (Implementation Plan)**

- Water entitlements register, water resource accounting, water metering
- surface and groundwater hydrological modelling,
- groundwater monitoring,
- collection, storage and sharing of water data consistent with national plans (ESCAWRI/BOM)

- **Bilateral Agreements (NHT, NAPSWQ)**

- Resource Condition Matters for Target - NRM Regions
- Groundwater, Water Quality, Hydrology, River Condition

- **National Plan for Water Security**

- *Water Act 2007*, Part 7 (Provision of Water Information)

Major players in Tasmania

Dept Primary Industries and Water - statutory responsibilities for water resource management

Hydro Tasmania - major water management activities in “hydro-electricity districts”

Water Authorities/Local Government - provides all urban water supply services

Dept Tourism, Arts & Environment - water quality regulatory activities and targeted programs

Inland Fisheries Service - aquatic fauna regulatory activities

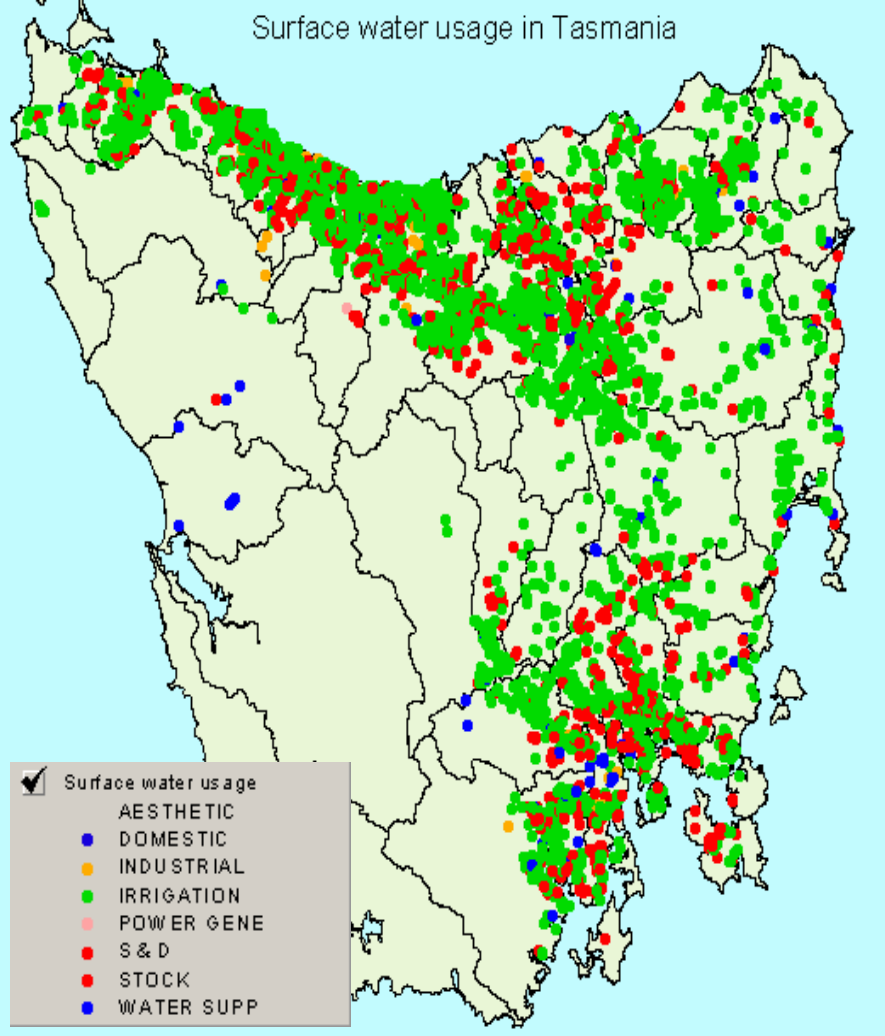
Rivers and Water Supply Commission - Govt owned irrigation schemes

NRM Regions - Regional NRM Strategies



Monitoring networks and recent initiatives

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Water Use

1. Most historical water use information based on surveys and licences (WIMS)
2. Metering rollout via WMP and WUS programs
3. *Tasmanian Water Use Management Project (TWUMP)* - installation of 3000 Ajenti telemetry systems on water meters throughout Tasmania (HT/NWC)

This will lead to better :

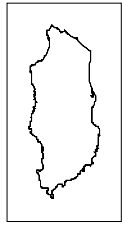
1. Management of water restrictions to protect environmental flows
2. Storage information - winter and flood allocation takes, water trading
3. More accurate water use info in hydrological modelling

Streamflow

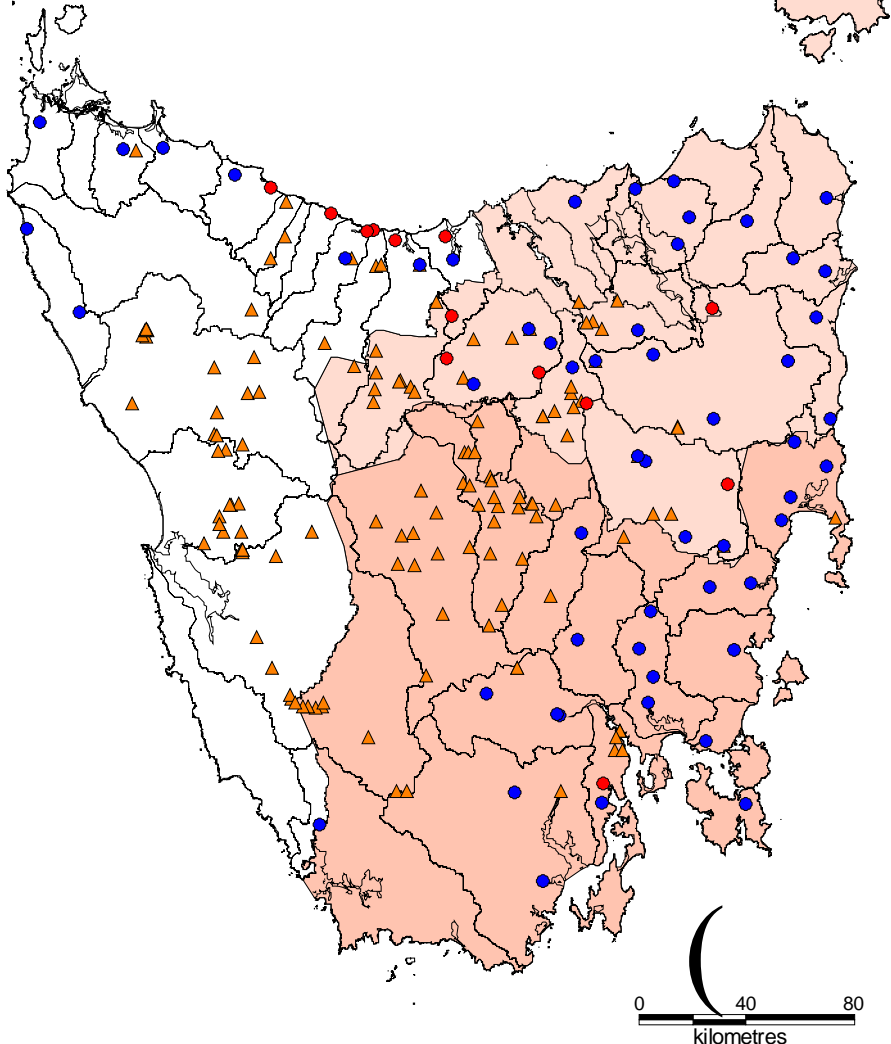
Significant expansion in DPIW streamflow network

- Prior to 2002 - 25 streamflow sites
- 2002-2005 - expansion to 56 streamflow sites (WI Budget Initiative/NAPSWQ)
- 2006-2010 - further expansion of 50% (SMART Farming Budget Initiative)
- 82 Stream Flow Sites by June 2008

Flow Gauging Stations In The Three NRM Regions

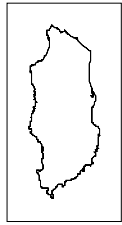


- DPIW Stream Gauging Network (Current)
- DPIW Stream Gauging Network (New Sites)
- Hydro Tasmania Stream Gauging Network

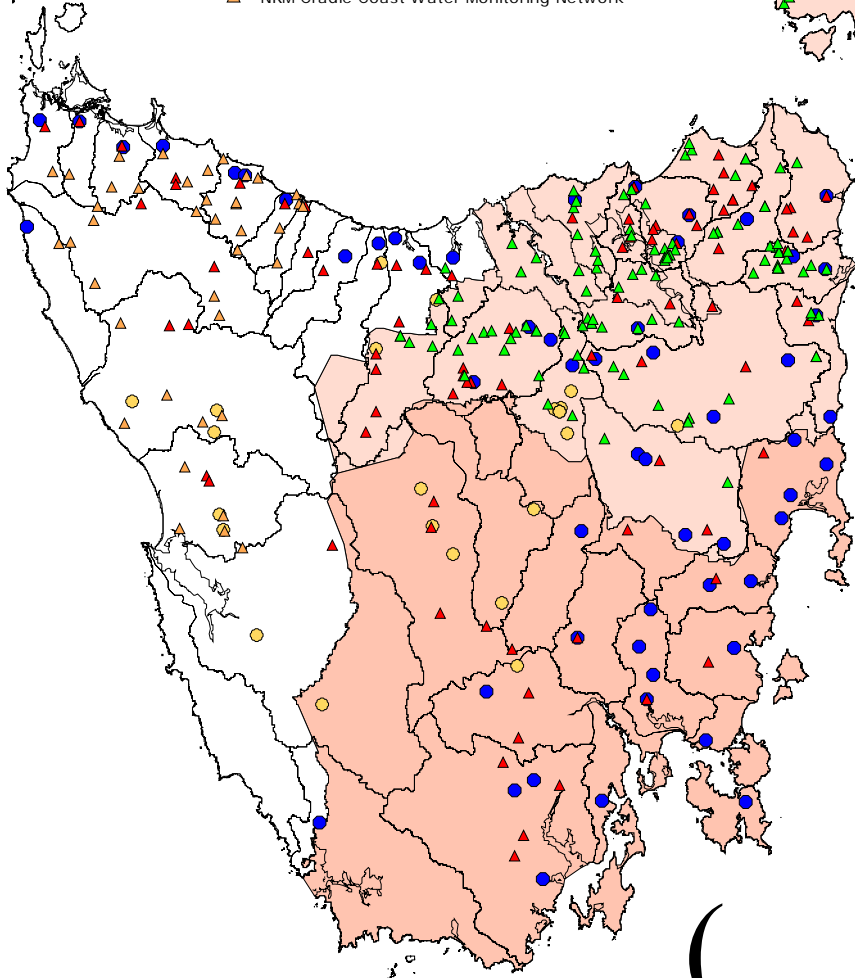


Water Quality

Water Monitoring Sites In The Three NRM Regions



- DPIW Water Quality & Pesticide Baseline Monitoring Network
- Hydro Tasmania Water Quality Monitoring Network
- ▲ DPIW AusRivAS Monitoring Network
- ▲ NRM North Water Monitoring Network
- ▲ NRM Cradle Coast Water Monitoring Network



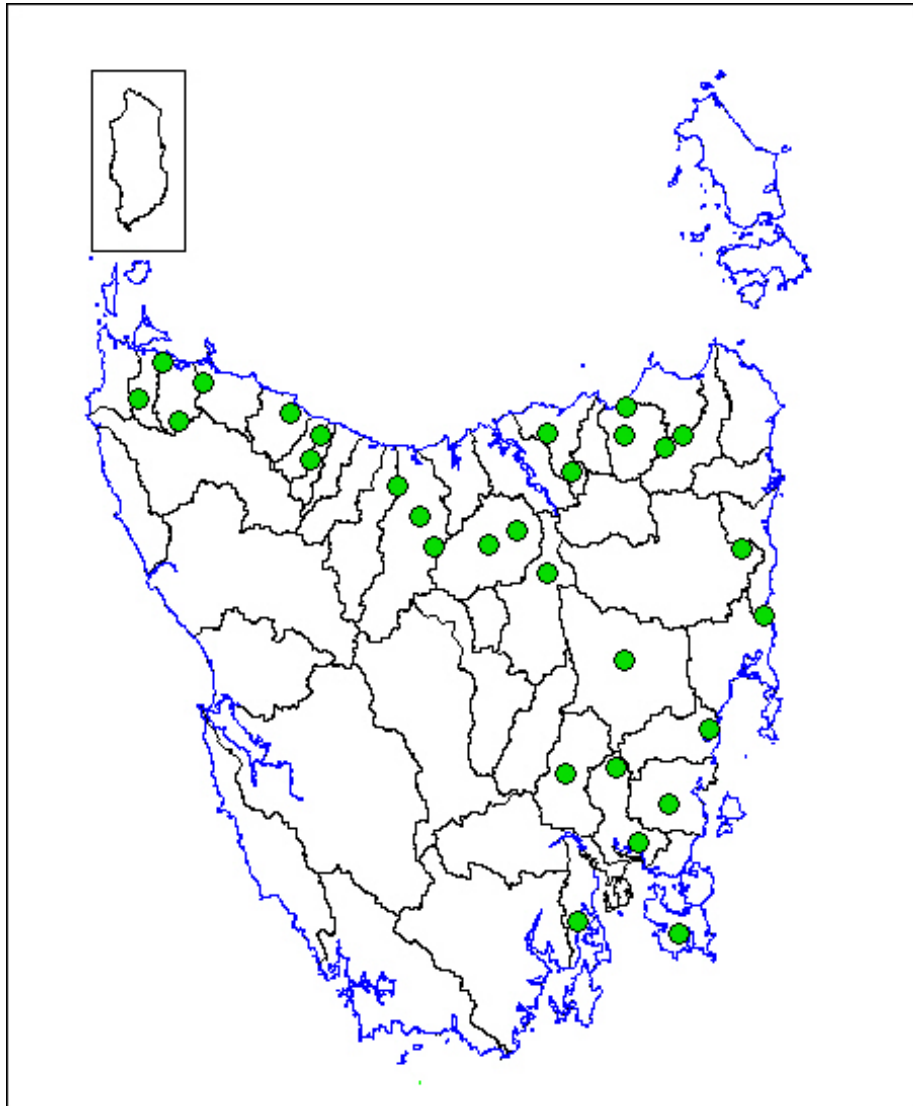
- DPIW, Hydro Tas, NRM

- Others through licence conditions and targeted programs

DPIW (11 sites in 2002)

- 37 sites collect continuous water quality parameters (eg. Turb, EC, Do, Temp)
- 52 sampled monthly for major nutrients and other parameters
- **NRM** - monthly sampling of basic parameters
- **Hydro** continuous and samples monitoring

Groundwater



Currently

- ~ 34 monitoring bores
- Local network in Devonport (12 bores)

Future

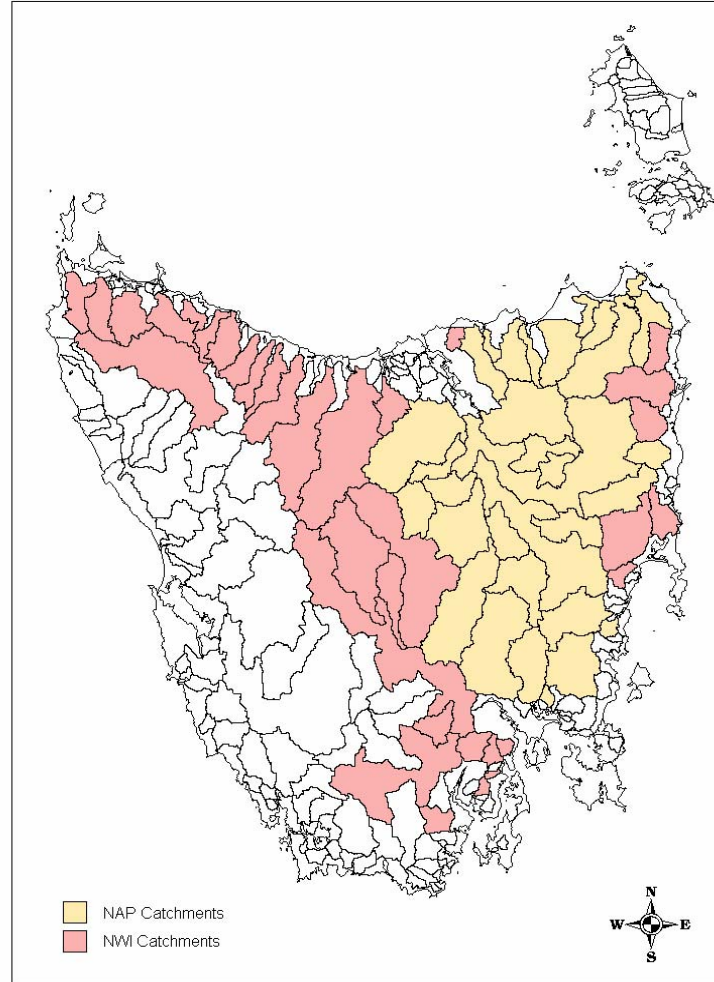
- ~ 60 state-wide monitoring bores by 2010
1. New bores will be focussed in top 3 to 5 priority GW management areas which will have GW models
 2. Need to consider telemetry

Groundwater and surface water hydrological models

Groundwater Modelling Areas
DPIW Project 2007
Label - Area (km²)



Groundwater Modelling Areas
High Priority
Medium - High Priority
Medium Priority



Major Data Sets and Systems

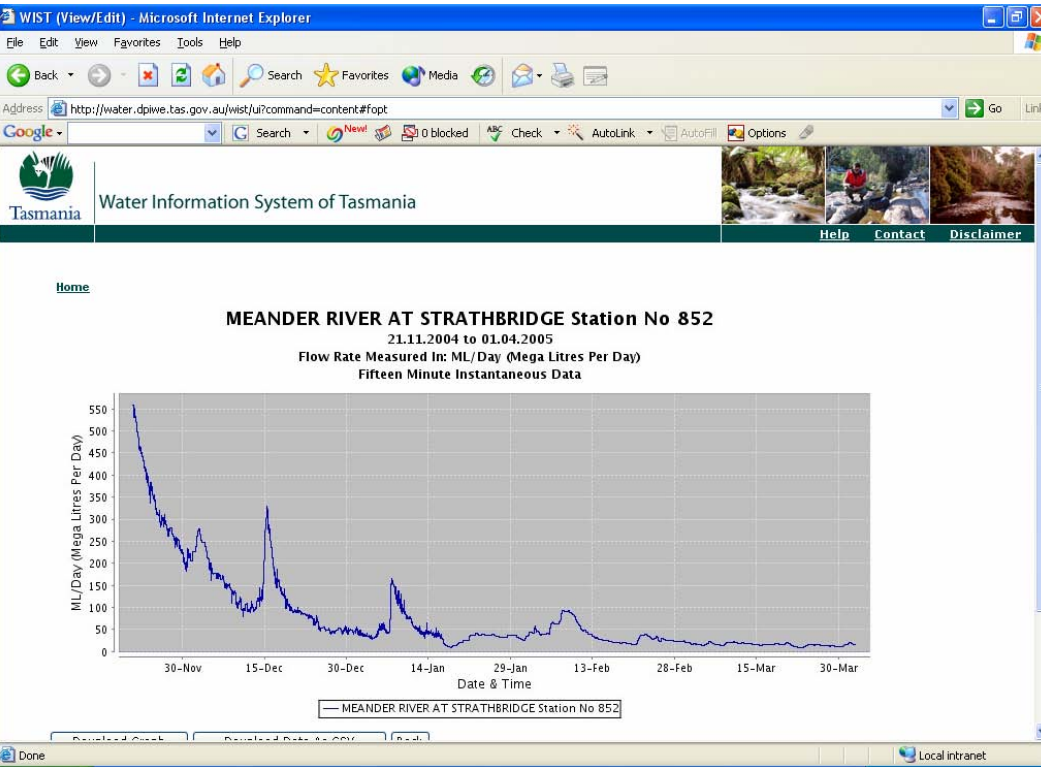
Hydstra TSM:

the state surface and groundwater quantity and quality database for time series, samples and site metadata

- Surface: operational and historical, Hydro special licence data
- Groundwater: state baseline sites, SWL, Quality
- Environmental monitoring and compliance : flow and WQ data (DTAE) - will separate during 2008
- Some Local government and NRM WQ data to be uploaded
- Historical Waterwatch WQ data

- Managed within a documented QA/QC process.
- Water use data will also be incorporated in Hydstra for modelling
- Hydstra TSM does not include or manage urban water use, stormwater or other data for water entities (Water Authorities, Local Government)

Data Access (WIST)



Water Information System of Tasmania

Completed modules

- Streamflow, WQ, Water Licence and Dam permits, Freshwater environmental values (CFEV), technical publications
- Modules for 2008
- River Health/Fish, Groundwater

Benefits of improved water information to Tasmanian water resource management

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Challenges

- Some catchments with no monitoring or one stream flow monitoring site - infrastructure upgrades required. Large information gap in SW Tasmania
- Limited resources currently working across a number of water areas
- Transition of Time Studio to WISKI (DPIW, Hydro Tas)
- New Telemetry system required
- Provision of commercially sensitive data (real time, raw data)
- DPIW at full capacity of sites with the current human and financial resources
- Availability, recruitment and retention of skilled staff in the water area

Advantages for the Bureau of Meteorology

- State commitment to collecting water information to inform management and development decisions in Tasmania
- Increasing amount of relevant water information to the Bureau's data requirements
- Key priorities for investment and product development are similar
- Currently in transitional phase (a good time to engage and invest)
- Small state = closer collaboration reflected by strong partnerships and regular dialogue between Tasmanian water data custodians (standardised and integrated monitoring networks, QAQC, data storage, concurrent evaluation of data systems)
- Similar philosophy to water data access (DPIW)

Benefits of improved water information

- Working collectively in an environment of limited expertise
- Funding priorities for BoM are development priorities for Tasmania (improvement of hydrometric monitoring systems, R&D partnerships, building on existing products, reporting tools)
- National water data standards will allow us all to work on a level playing field
- Tasmanian access to consolidated data sets - suite of applications
- Moving along the water information ladder - access to additional water information products and modelling tools (water balance, accounting and resource assessment areas)
- Active participation in research areas of mutual interest (climate change, interception)
- Forecasting - irrigation management and water security/reliability

Summary

- Common vision of open data sharing and accessibility
- Benefits internally for Tasmania particularly in consolidation of water data in a single location for many applications in water resource management (water balances, accounts, hydrological modelling etc)
- Benefits and opportunities lie in a partnership approach rather than a data delivery model
- Tasmania's primary collaborative interest is in the information and insight rungs of the water information ladder
- Significant opportunity and long term plan/roadmap for improved water resources management