

# 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

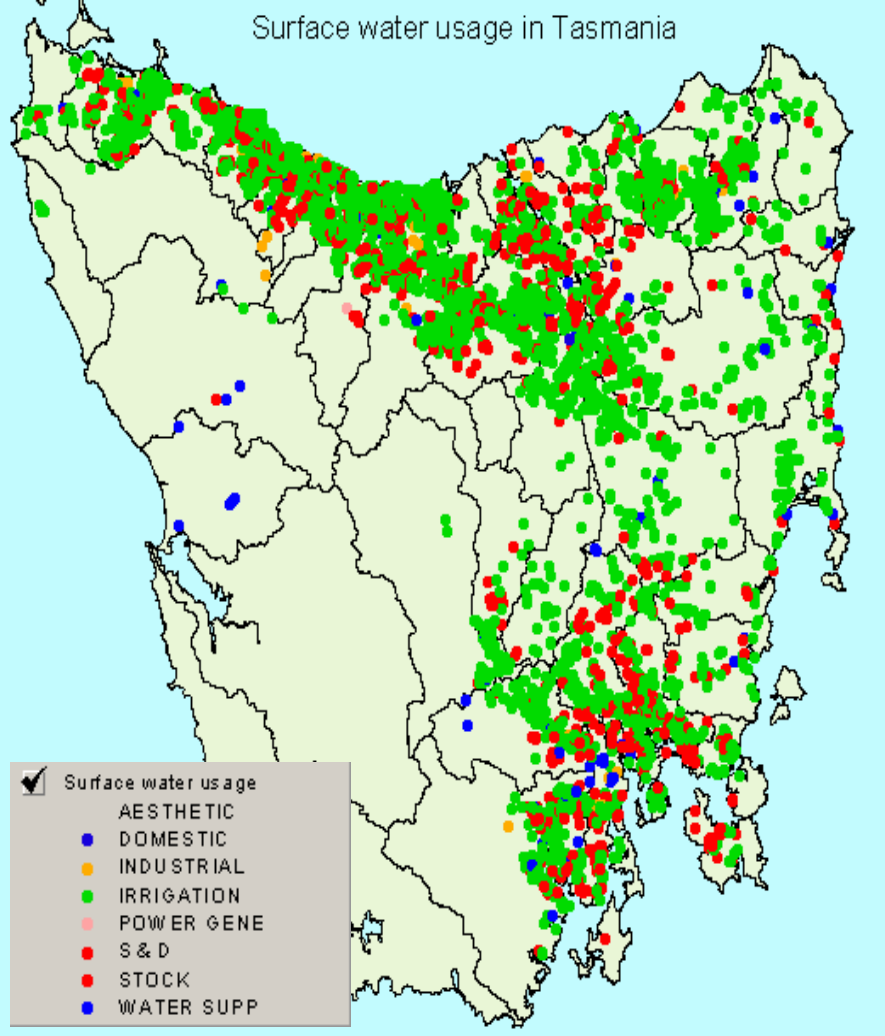
**NRM Regions** - Regional NRM Strategies



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# 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 :**

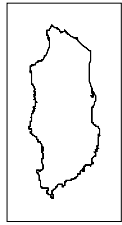
1. Management of water restrictions to protect environmental flows
2. Storage information - winter and flood allocation takes, water trading
3. More accurate water use info in hydrological modelling

# Streamflow

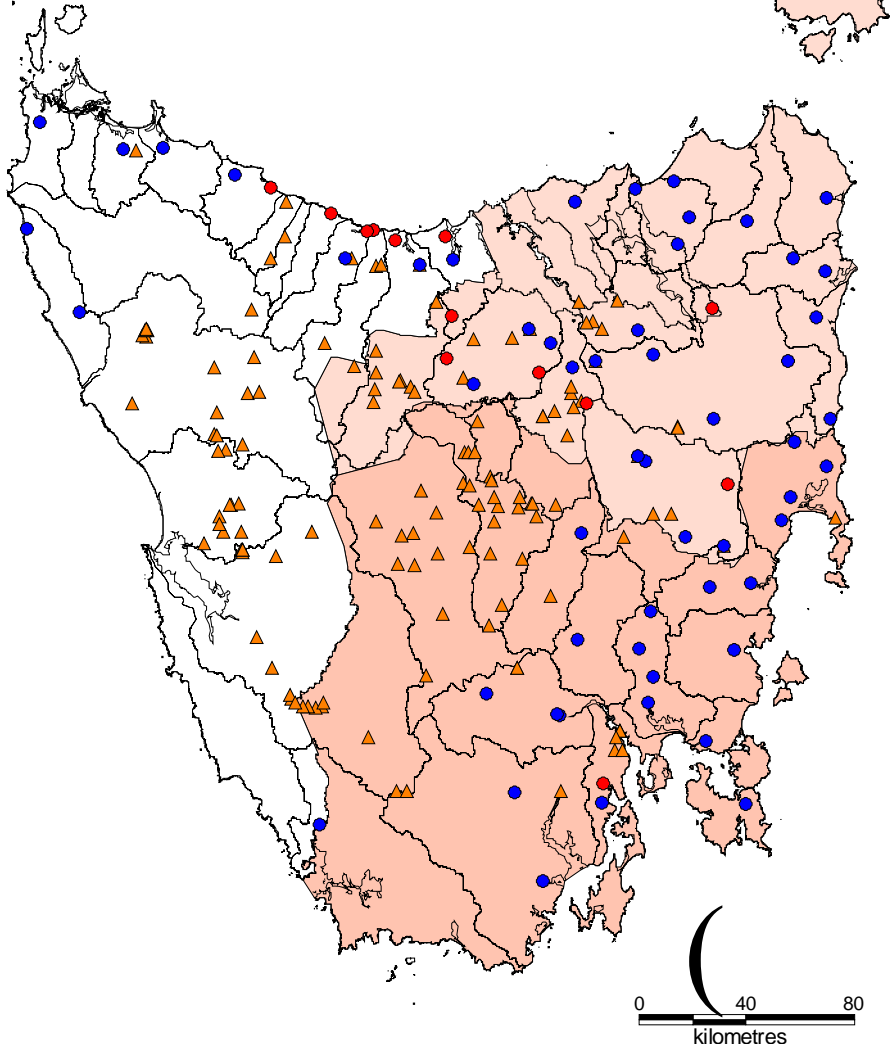
## Significant expansion in DPIW streamflow network

- 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

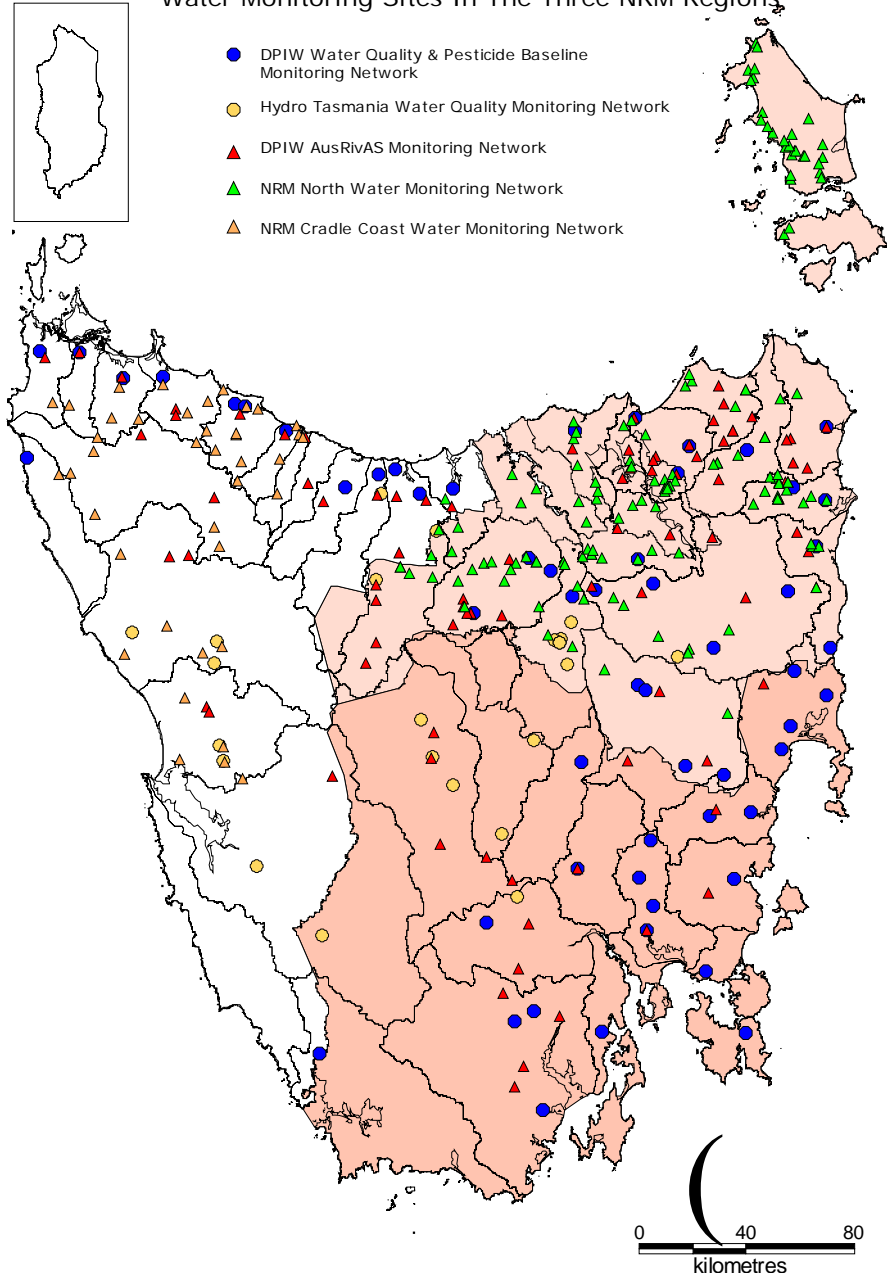


- DPIW Stream Gauging Network (Current)
- DPIW Stream Gauging Network (New Sites)
- Hydro Tasmania Stream Gauging Network



# Water Quality

Water Monitoring Sites In The Three NRM Regions



- DPIW, Hydro Tas, NRM

- Others through licence conditions and targeted programs

## DPIW (11 sites in 2002)

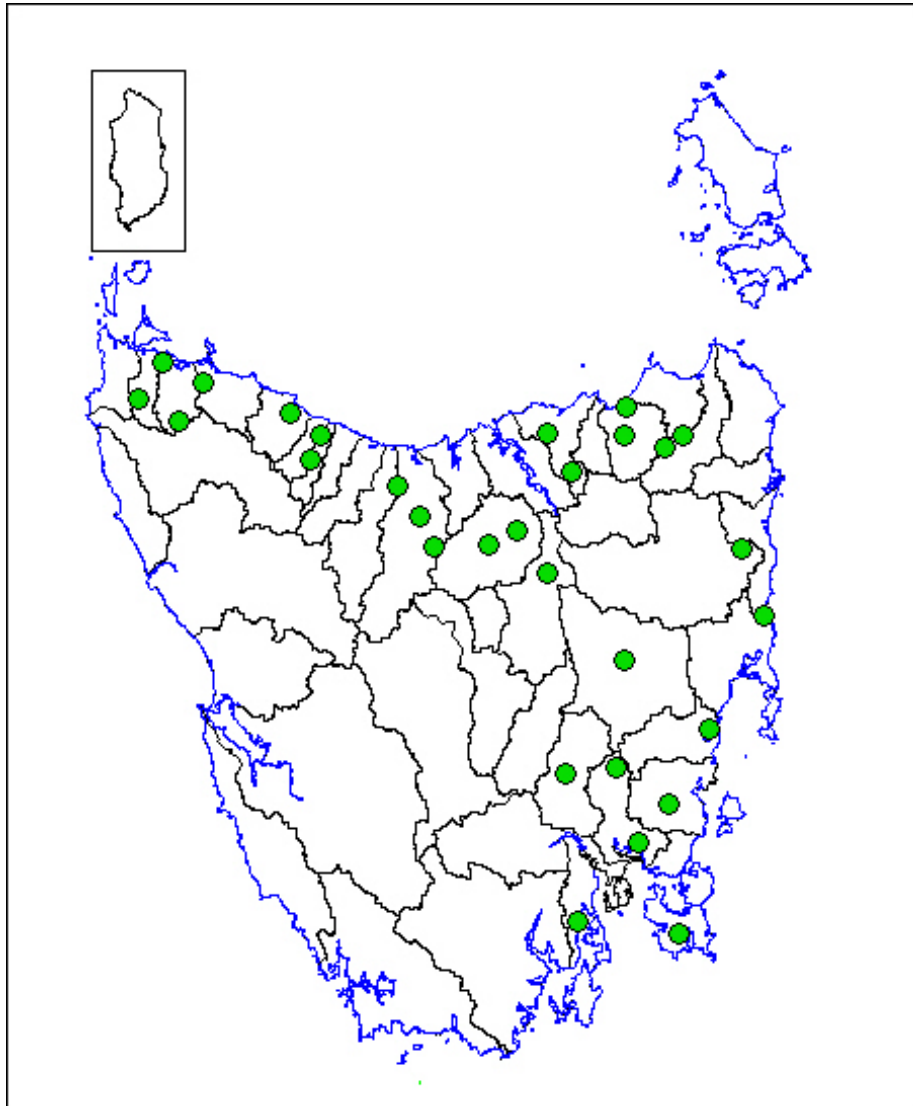
- 37 sites collect continuous water quality parameters (eg. Turb, EC, Do, Temp)

- 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

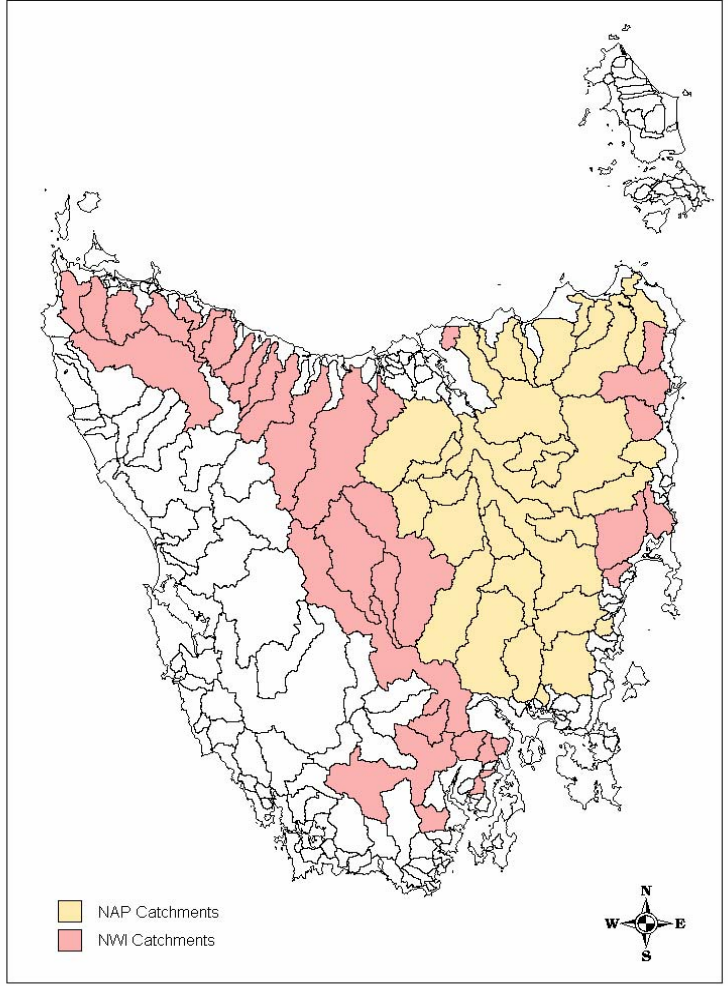
- ~ 60 state-wide monitoring bores by 2010
1. New bores will be focussed in top 3 to 5 priority GW management areas which will have GW models
  2. Need to consider telemetry

# 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



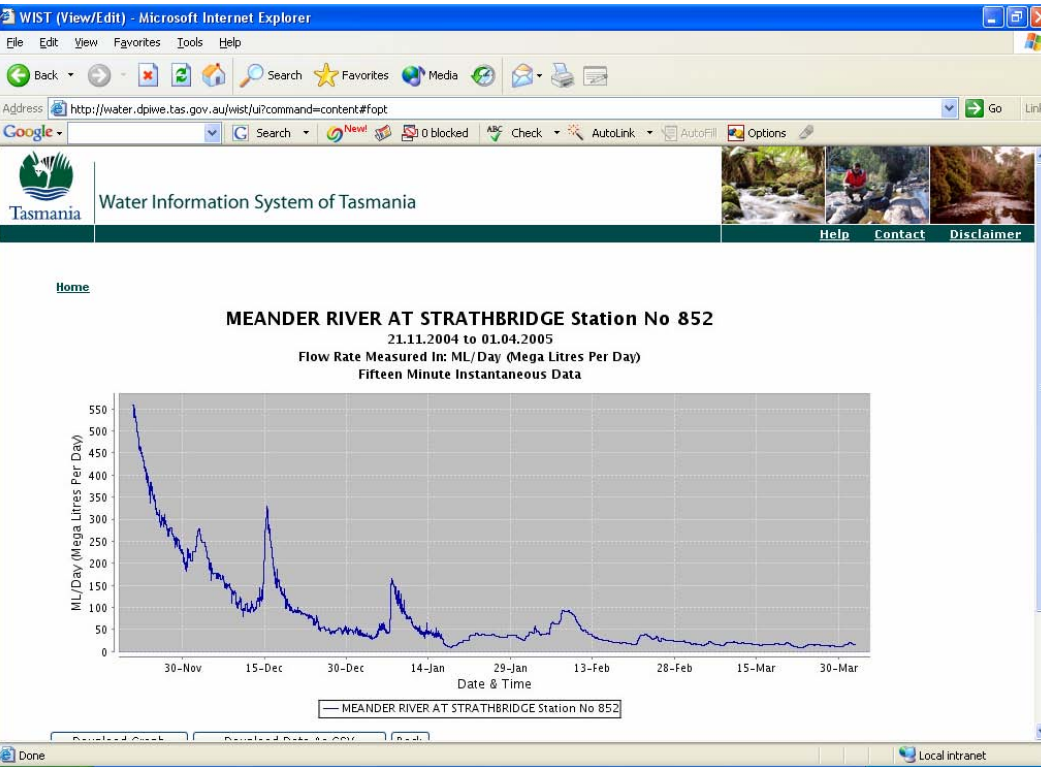
# Major Data Sets and Systems

## 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