

Health-e-Waterways
South East Queensland



3 April 2008



Survey Report

- Identify key data sets and their attributes, etc
- Survey will provides the basis for development and evaluation of a common model for water data integration in SEQ
- General information
 - Custodianship
 - Physical location
 - Access agreements
 - Key Contacts
- Technical information
 - Storage format and environment
 - Schema
 - Access/Export mechanism
 - # Records
 - Frequency of access
- The report draft has been completed and reviewed
- Currently undergoing formatting and structural improvements



Data Sources Documented

- EHMP Indicator summary relevant to the data sets
- EHMP – F/W
 - AQEIS Oracle database structure and schema
 - Data population characteristics (size, update frequency, importance)
- EHMP – E/M
 - WQMS Oracle database structure and schema
 - Data population characteristics
- Event Monitoring
 - HYDSTRA software structure
 - Water Quality Samples and Results schema
 - Data population characteristics
- Management Action
 - MAD Access 2003 database structure and schema
 - Data population characteristics
- Models
 - Receiving Water, EMSS, E2 Summary
- Database overlap and relationships



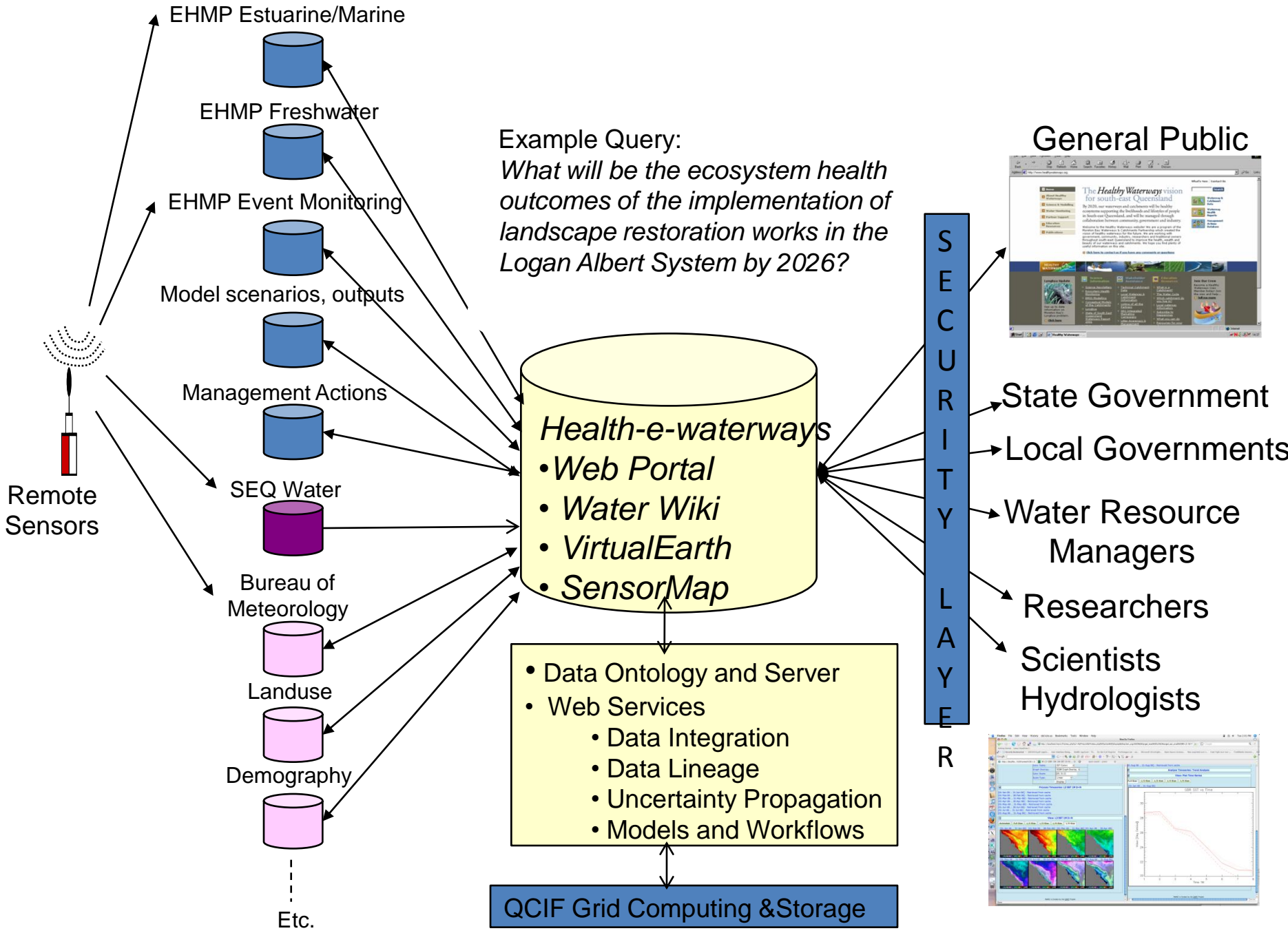
Access and Export Method

- Strict firewalls and policy are common
- Will eventually leverage approach developed for Bureau of Meteorology
- Periodic source database updates can be propagated to Health-e-Waterways via automated export scripts or direct connections
- EHMP – F/W at NRW
 - Integration via periodic data exports scripts from the AQEIS database
- EHMP – E/M at EPA
 - Integration via periodic data exports scripts from the WQMS database
- Event Monitoring – NRW
 - Scripts needed to extract and export the data
- Management Action – HWP
 - Direct query or exports, depending on where the database will reside
- Models
 - Deployment on HPC (High Performance Computing) and wrapped as services may provide a mechanism for scheduled web enabled simulations through the secure Health-e-Waterways portal.
 - Many challenges for integration



Freshwater Reporting Program

- R Scripts are currently used to automate calculations and create graphs using data from CSV files
- Visual Basic Solution as specified by David Moffatt and adopted from the existing R scripts
- The program will automate and replace manual processes that are needed to produce reports
- Modular re-usable libraries will be created for utilisation by the Health-e-Waterways



Freshwater

- The data is being captured and managed by the Dept of NRW
- 127 freshwater sites across the catchments.
- 16 Indicators from 5 categories:
 - Physical/Chemical, Nutrients, Ecosystem Processes, Invertebrates, Fish
- Surveys are conducted every 6 months, spring and autumn.
- Survey results will be stored in a newly developed Oracle relational database.

- The data is being captured and managed by the Environmental Protection Agency
- 254 Sites in South East Queensland:
 - 168 sites from 19 estuaries
 - 86 from Moreton Bay
- 14 Indicators :
 - Turbidity , Salinity, Temperature, Dissolved Oxygen, pH, Secchi depth, Nitrogen, Phosphorus and Chlorophyll.
 - Lyngbya Majuscula (seaweed) cover.
 - Sewage plume mapping
 - Coral Cover
- Surveys are conducted monthly, biannually and annually.
- Survey results will be stored in an Oracle relational database.

Event Monitoring

- The data is being captured and managed by the Dept of NRW
- 60 to 100 sites across South East Queensland
- Proprietary software known as HYDSTRA by the Kisters group is used to store the data
- Compressed files store time-series data for each site
 - E.g. River height , Daily Min/Mean/Max flow
 - E.g. Pollutants
- Supporting information is also stored:
 - E.g. water parameters, survey technicians
- Raw data is less useful than interpreted data



MAD

- The Healthy Waterways Partnership manages and stores the database
- The database is used to track Action Plans that are part of the Healthy Waterways Strategy
- Approximately 550 actions are stored in the database
- 2003 Access database:
 - Access relational tables back-end
 - Access forms front-end
 - Interface and actions is organised through a 4 tier hierarchy



Models

- Many different models exist and are used for catchment hydrology
- The model simulations are run to forecast and emulate climate scenarios
- Written in many different languages for a variety of purposes and users
- Some models are complex and may use other models as part of simulations
- Focus on 3 Models:
 - EMSS (Environmental Management Support System) Catchment Model
 - Receiving Water Model
 - E2