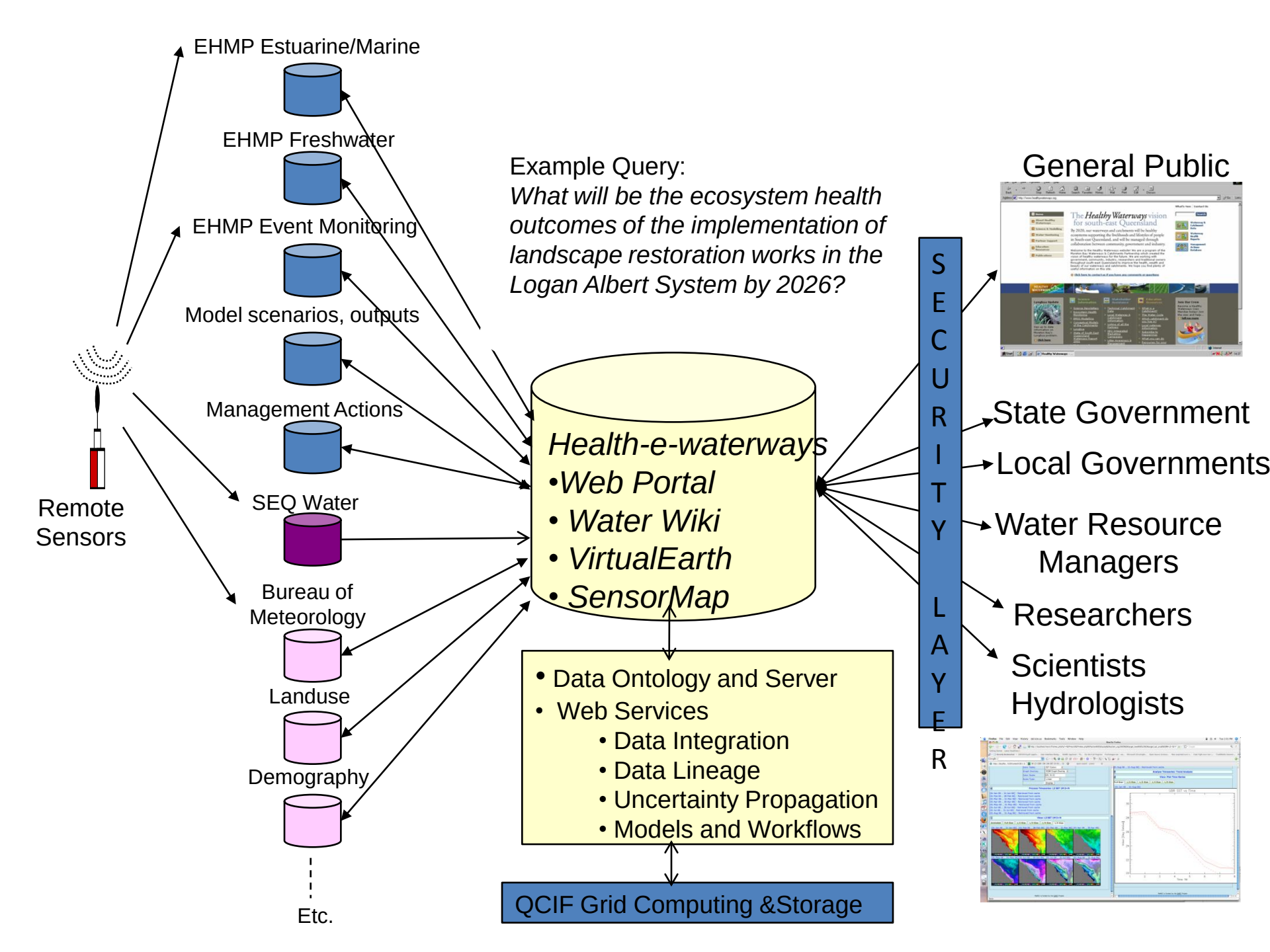
Health-e-Waterways

South East Queensland


EHMP Estuarine/Marine
EHMP Freshwater
EHMP Event Monitoring
Model scenarios, outputs
Management Actions
SEQ Water
Bureau of Meteorology
Landuse
Demography
Etc.
Remote Sensors
Example Query:
What will be the ecosystem health outcomes of the implementation of landscape restoration works in the Logan Albert System by 2026?
Health-e-waterways
•Web Portal
• Water Wiki
• VirtualEarth
• SensorMap
• Data Ontology and Server
• Web Services
• Data Integration
• Data Lineage
• Uncertainty Propagation
• Models and Workflows
QCIF Grid Computing &Storage
SECURITY LAYER
General Public
State Government
Local Governments
Water Resource Managers
Researchers
Scientists
Hydrologists

Health-e-Waterways Databases

- EHMP – F/W at NRW
- EHMP – E/M at EPA
- Event Monitoring – NRW
- Management Action – HWP
- Models
  - Many Sources
  - Receiving Water, EMSS, E2

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

EcosystemHealth Monitoring Program

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.

Estuarine/Marine

- 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 has 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 exists 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