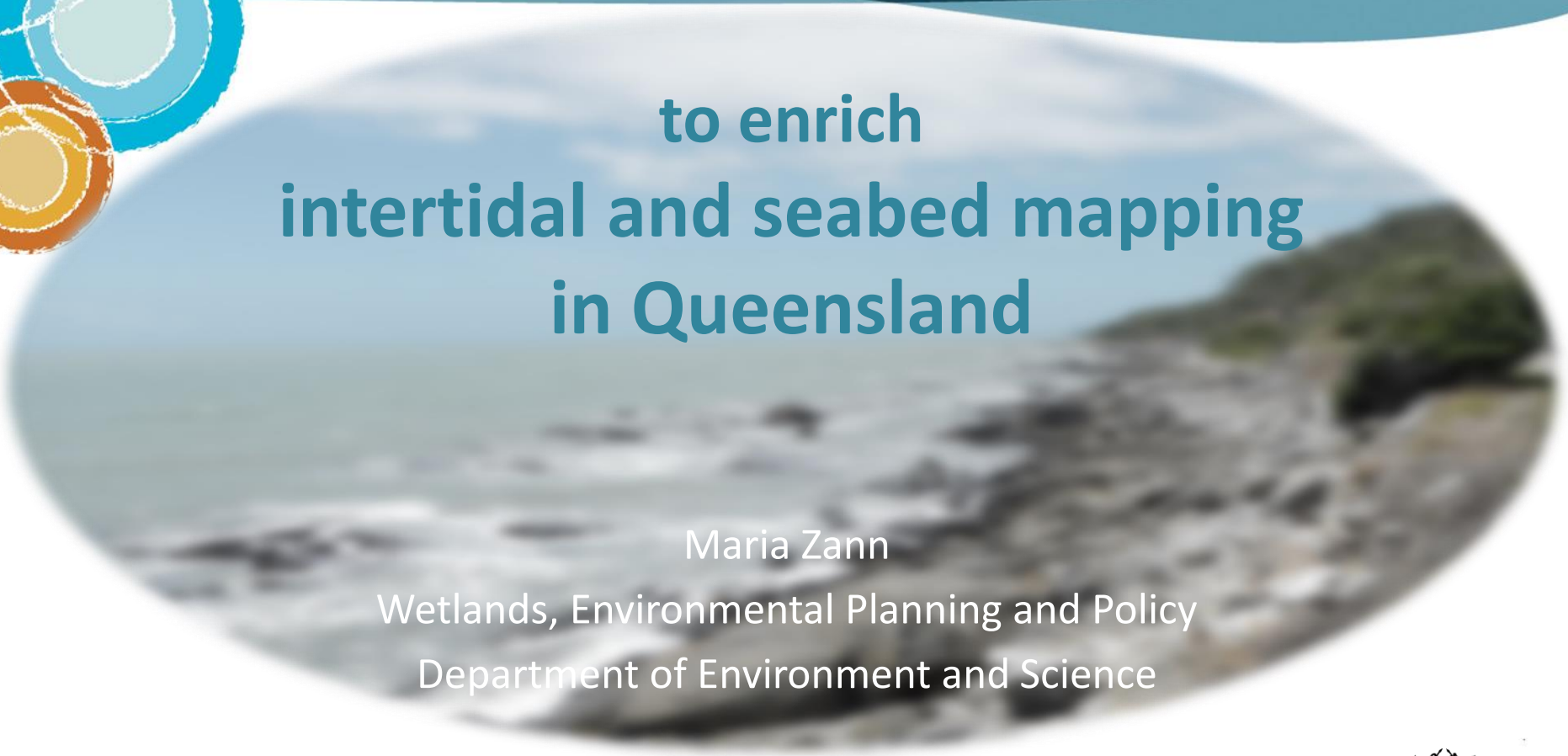
Applying attribute-based classification and typology

to enrich intertidal and seabed mapping in Queensland



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Queensland Wetlands Program

Queensland Government

Why classify ecosystems?

- For seamless ecosystem-based management, land to sea, across the whole-of-system
- To understand intertidal and subtidal ecosystem nature and extent
- To understand the biological, physical & chemical factors influencing them
- To unify hundreds of mapping datasets, all collecting different parameters
- To extend the usefulness of mapping data that people are collecting in the field to a range of different purposes and potential uses
- To identify knowledge gaps, reduce redundancy, target future inventory

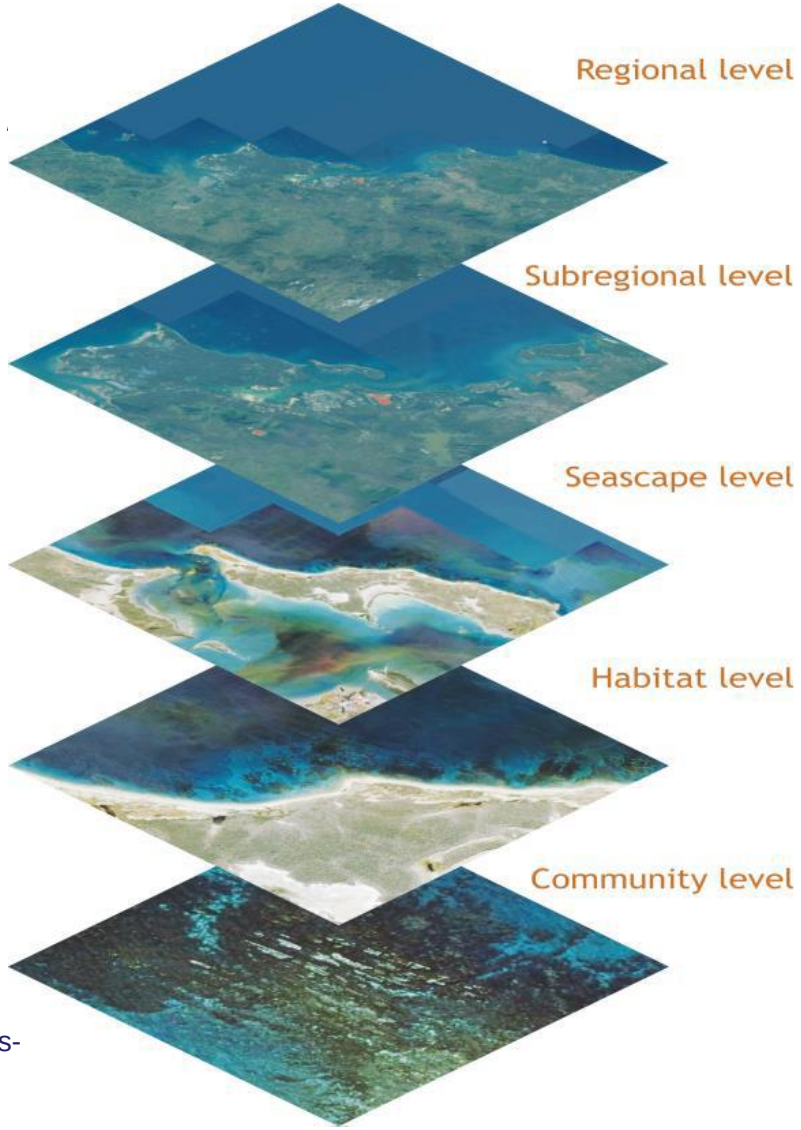
Photo by Gary Cranitch, Queensland Museum

The Queensland Intertidal & Subtidal Ecosystem Classification Scheme

Queensland Wetlands Program

PRINCIPLES & STANDARDS

- Compatible with national ANAE / NISB classification standards
- Compatible with Qld Regional Ecosystems and Wetlands frameworks
- 5 Level spatial hierarchy
- Attributes of the Scheme reflect the factors that underpin the nature & extent of ecosystems



https://wetlandinfo.des.qld.gov.au/wetlands/what-are-wetlands/definitions-classification/classification-systems-background/intertidal-subtidal/

The Scheme's Structure and Documentation

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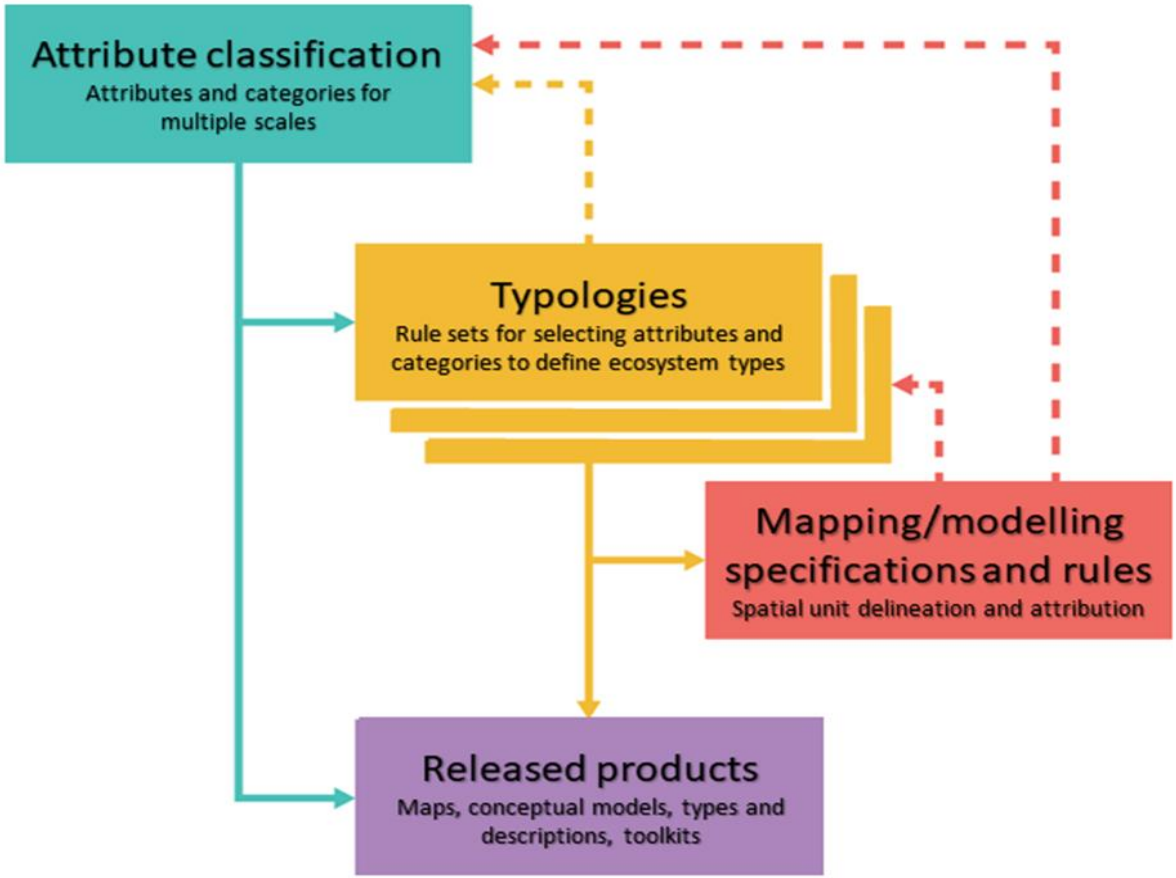
- Distinguishes between attribute classification, typology and mapping steps

MODULE DOCUMENTATION

- Module 1: Introduction to the intertidal and subtidal ecosystem classification scheme
- Module 2: Literature review of intertidal and subtidal classification
- Module 3: Attributes, categories, and metrics for the intertidal and subtidal ecosystem (as Attributes web pages)
- Module 4: Mapping method



Intertidal & Subtidal Attributes of the Scheme

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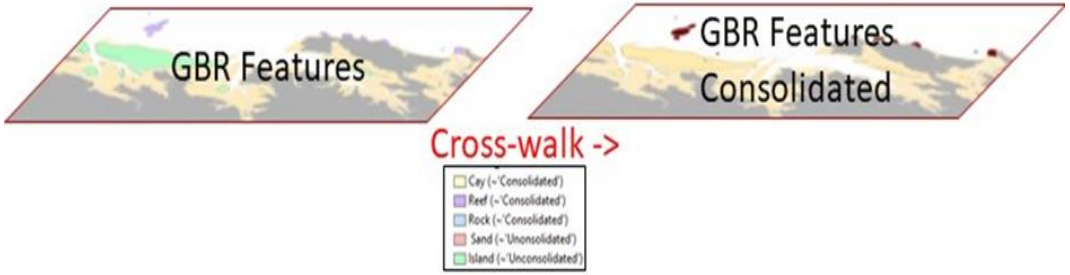
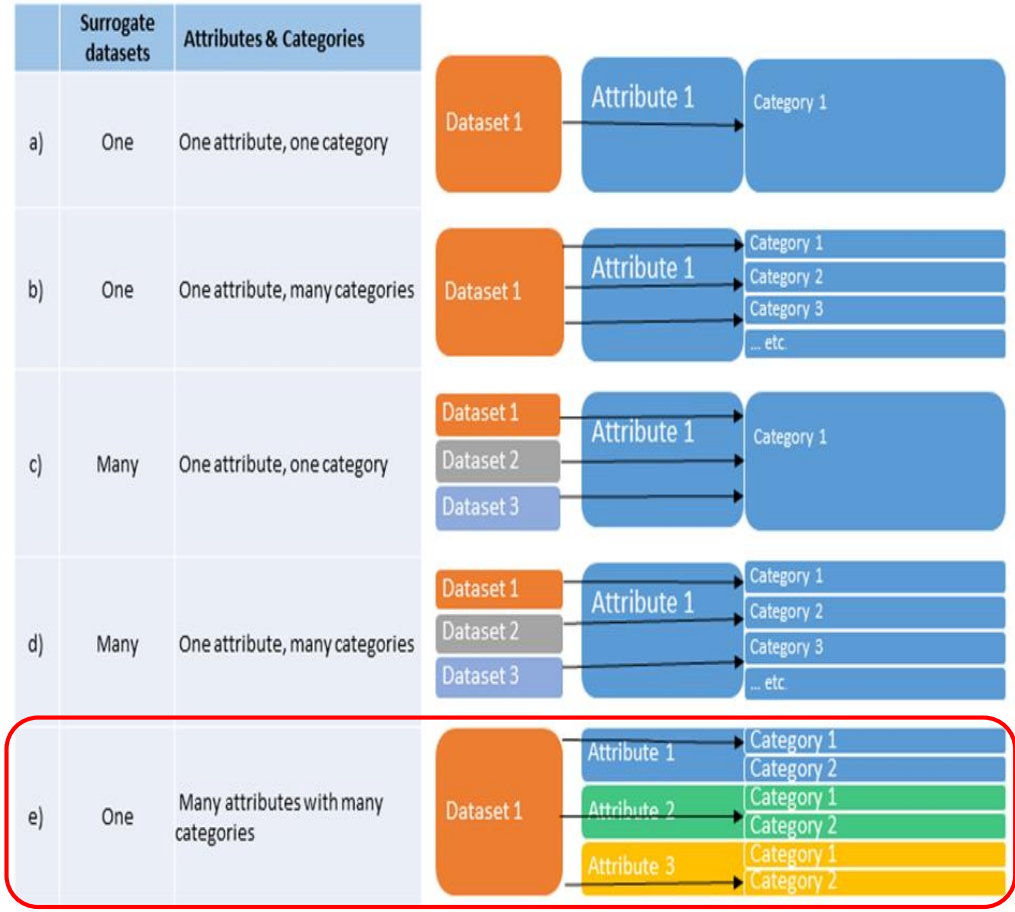
- Overlapping benthic & water column classifications
- Attributes and qualifiers
  - Themes:
    - terrain
    - substrate
    - biota
    - hydrology – physical
    - hydrology – chemical
- Provide standards for data inventory, collection & collation
- Crosswalk to unify datasets based on attributes & categories in common



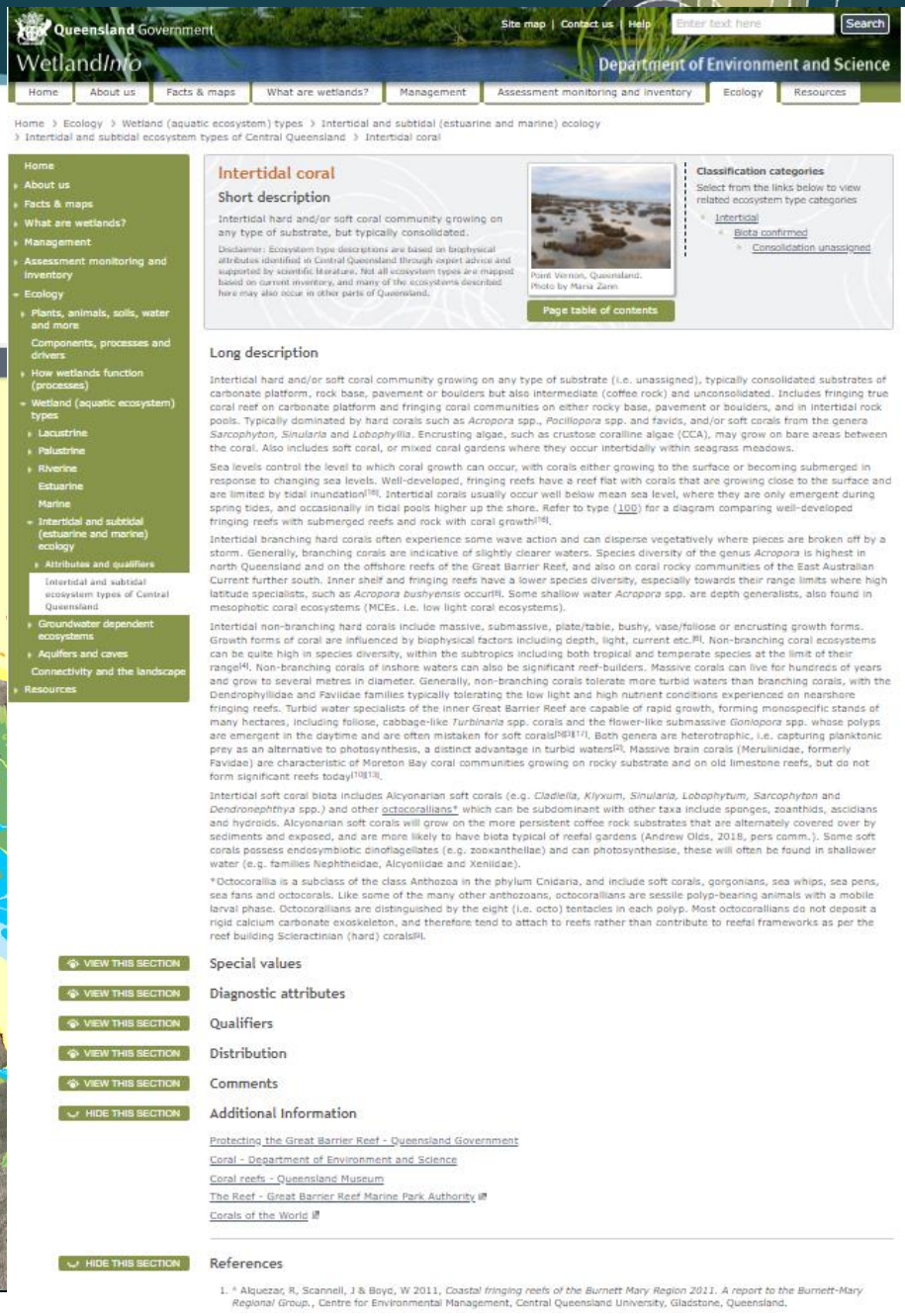
Crosswalking - ways to apply source datasets to attributes & categories

- Bathymetry underpins :
  - Benthic depth
  - Terrain slope
  - Terrain roughness
  - Terrain relative relief
  - Terrain morphology
  - Substrate consolidation
  - Substrate grain size / sediment texture (e.g. using MBES)
  - Structural macrobiota
  - Water column attributes e.g. energy magnitude, water clarity (benthic irradiance), attributes to extract from 3D / 4D hydrodynamic models



Intertidal & Subtidal Seascape Level Ecosystem Mapping

- Extent: Central Queensland State Coastal Waters
- WetlandMaps interactive mapping
- Links to 94 ecosystem types
- Types a combination of 8 attributes, each a data synthesis layer
- Attributes and qualifiers
- Mapping method factsheet
- Poster
- Module 4 detailed mapping method



Where to next?

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- Work with other institutions, agencies, stakeholders, citizen scientists to promote the use and standards of the Scheme to capture seabed and intertidal benthic inventory

- Collaborate with institutions to refine and enrich attribute datasets

- Are you collecting seabed data in Queensland? You need to classify using the Queensland Intertidal and Subtidal Ecosystem Classification Scheme!