MARINE BIODIVERSITY RESEARCH

Prediction and Management of
Australia's Marine Biodiversity

Spatial Context for MPA Management

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Spatial Context for MPA Management

Management of any natural resource requires reliable spatial environmental data at useful scales

Multibeam acoustics

- fundamental accurate continuous geospatial framework for marine biodiversity mapping & condition assessment

- fine-scale coverage (few m) over large area (100s km)

- derivatives of bathymetry & backscatter provide key surrogates for habitats and communities

- enables optimisation of seabed sampling (images/direct sampling)

- enables repeat surveys of same location (required for monitoring)
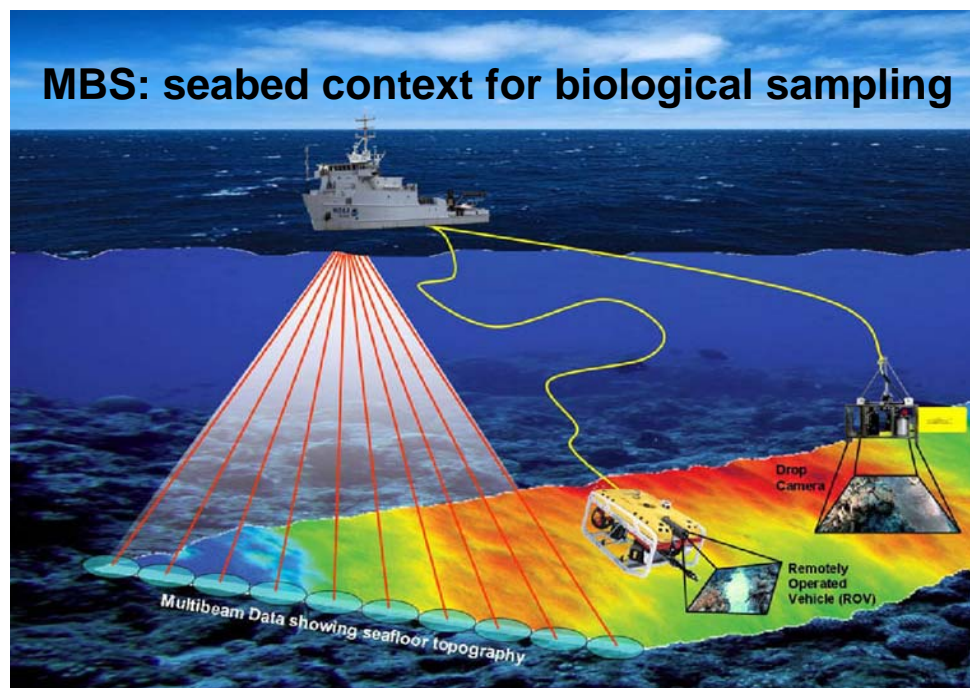
- direct measurement of seabed habitat stability

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Suggested Options – MBS acquisition

➢ Program of systematic acoustic mapping of MPAs

➢ New MNF Vessel – greatly enhanced capabilities to map shelf and deep sea environments

➢ Opportunity for DSEWPC to establish National MPA Mapping Program as a key function of the MNF

MBS: seabed context for biological sampling

Drop Camera

Remotely Operated Vehicle (ROV)

Multibeam Data showing seafloor topography

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Enhancing knowledge of MPAs – Data Collation

➢Exploit the network of contacts/trust established under the MBH & data management capabilities of Hub partners to collate & reformat environmental data for MPAs

  - Draw in existing relevant data not captured by MB Hub: State Agencies, Industry, AMSA, Navy

➢Follow on from CERF MB Hub National Marine Data project & Transition project (data gap analysis)

➢Link with upcoming programs of relevant data collection & collation:

  - RET/Petroleum Industry environmental data

  - Navy (AHS) bathymetry & substrate program

  - IMOS Facilities: Argo/Remote Sen./Ocean Modelling/AUV

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Summary

➢Two potential options to support MPA management:

- Systematic increase in MBS coverage of MPAs to increase options for environmental condition assessment

- Build MPA environmental datasets to better inform decisions
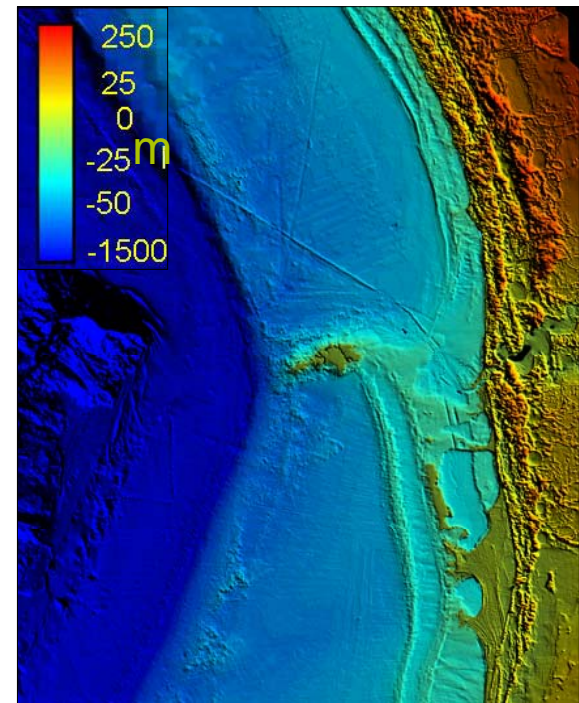
Physical Surrogates – overview & prospective

- Useful physical surrogates identified:
  - vary between regions/environments
  - new datasets for research & management

- Plenty yet to understand – ecological processes that link surrogates to biota

- Enhanced ability to predict – new parameters for models of biodiversity at broad & fine scales

- Surrogates approach useful for biodiversity management
  - Characterisation of habitats, communities, processes
  - Methods useful for monitoring: non-intrusive, rapid, reliable

- Represents a very cost-effective investment in research to support management of the Australian marine estate

- Surrogates research - new NERP Marine Hub? (in/validation, extended)