Investigating ‘Anchor Scour’: collaborative partnerships and the applications of seabed mapping

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What is ‘Anchor Scour’?

Physical disturbance of seabed environments from the anchors and chains used to hold vessels
Vessels routinely anchor & require ‘good’ holding ground
The Blue Economy

Did You Know?

90% of global trade is carried by sea and will double by 2030.

The blue economy promotes smart shipping and transportation to lessen the impacts on the environment.
Increasing pressures on the marine environment

Merchant ship anchor scour:

“Examine ship anchoring activities and potential for physical disturbance to key habitats” (HMBA, 2015)

“Increasing pressure with uncertain impacts and this is not actively managed” (SOE, 2016)
Sound solutions require detailed knowledge.

Case Study: Wollongong Region, NSW
Aims & Disparate Objectives

**NSW Ports**

= Safety for Vessels

**Research Team**

= Characterise ‘Anchor Scour’ & Benthic habitats

ALL seeking to ID ‘good’ holding ground (soft sediments)

WIN FOR ALL!
1. Spatial scale of anchoring

- AIS Data from AMSA (Sept 2012 – June 2015)

- Apply filters (<1 kn)
2. Habitats affected; historical maps can be patchy
2. Habitats affected

Mount Ousley

Offshore Wollongong Region
High resolution imagery of seabed depth (40-70m)
3. Identification of ‘good holding ground’

- ...A work in progress
- Reef ≠ secure holding for vessels
- Limited sufficient area of continuous soft sediments for anchoring
- ~1nm swing circle for each ship within an anchorage
4. Identify areas of high conservation value

Towed Underwater Video (TUV)

Anchored / Anchor-free sites

~16 Lineal Km’s of seabed examined
4. Identify areas of high conservation value
Sponge collections using Remotely Operated Vehicle (ROV)

- Sponge collections (n=15)
- 6 new species
  ~ 1 in 3 ‘new’ species
- 1 new genus

NSW Temp. East ~ sponge biodiversity hotspot (Van soest et al. 2012)
Take home messages

• Seabed mapping ~ essential to inform ALL managers of the marine estate

• Although stakeholder aims may differ – common goals achieved

• Crucial for;
  - Safe & effective expansion of marine infrastructure
  - Identification of high conservation value habitats
Next step in the partnership?

Federal Partners;

• Prioritise seabed-mapping in Federal waters near ports

• Locate good holding ground to designate safe & sustainable anchorages
Logistically difficult & expensive to assess

Thanks to.....
References


