Assessing the risk from current threats and future climate change on seagrass habitat- a nation-wide, spatially explicit approach.

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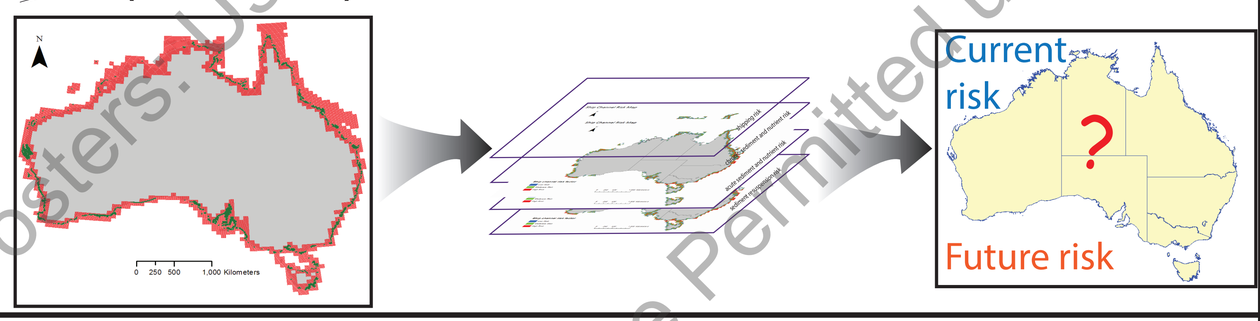
1. RATIONALE

- Seagrass habitat provides important ecosystem services
- Australia - high diversity, extensive cover, large losses, mutliple threats
- Globally declining
- Risk assessment identifies areas to focus management

2. APPROACH

- Collate nation-wide habitat map
- Identify threats & acquire data for spatially explicit threat layers (10 x 10 km)
- Assign probability of risk for each threat
- Run cumulative risk assessment (InVEST)



3. CURRENT ANTHROPOGENIC THREATS

	DATA SOURCE
agriculture	http://www.ozcoasts.gov.au &
urbanisation	http://www.bom.gov.au/water/hrs
coastal d'ment	(3 datasets combined for these threats)
industry	http://adl.brs.gov.au
dredging	http://data.gov.au/dataset/australian-ports
shipping	www.operations.amsa.gov.au/
oil + gas	www.geoscience.gov.au

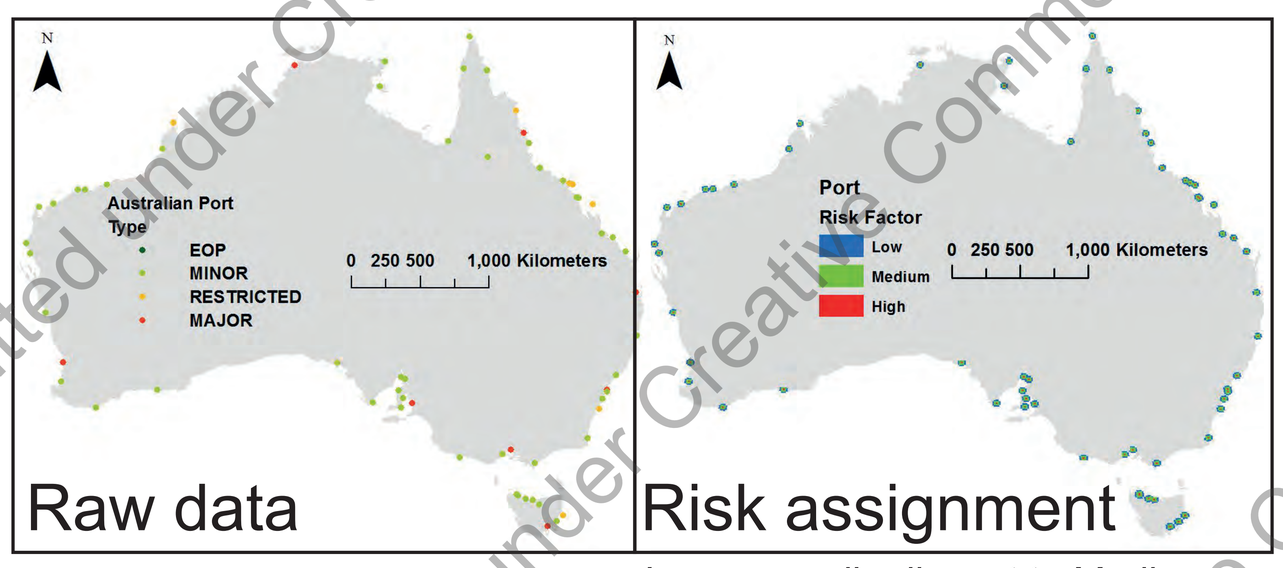
FUTURE CLIMATE THREATS (based on 2070 predictions IPCC A1F1 scenario)

	DATA SOURCE
increased temperature	http://www.csiro.au/ozclim
increased flooding/rainfall	http://cmar.csiro.au
sea-level rise	http://cmar.csiro.au

Note: no spatially explicit layers could be sourced for current anthropogenic threats asscoiated with boating, other fishing, trawling, acquaculture & desalinisation plants.

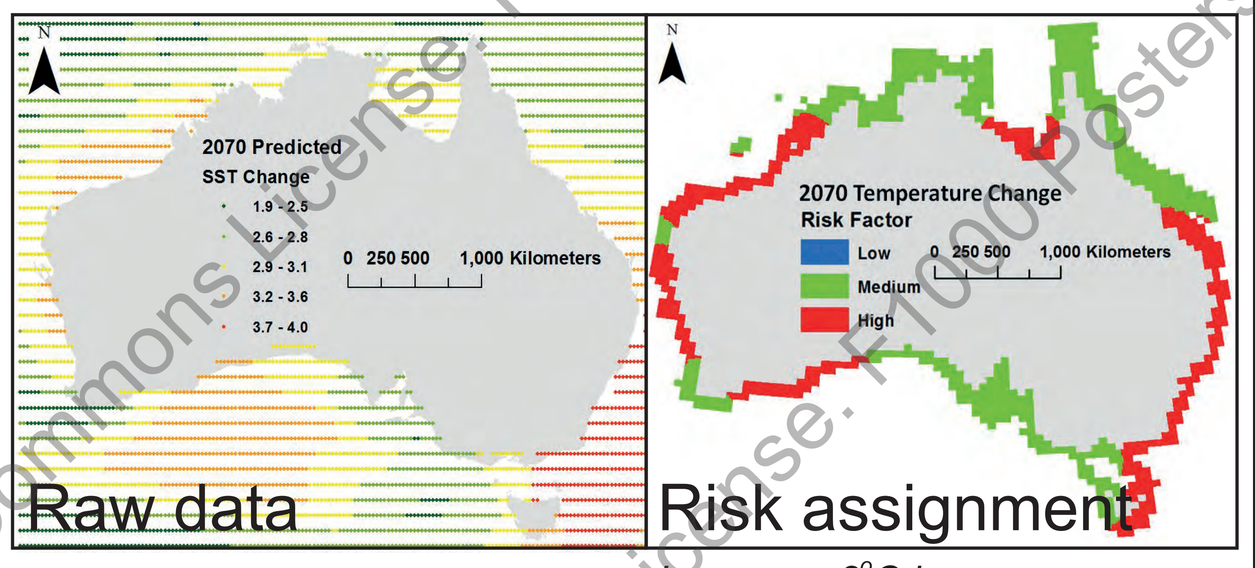
4. ASSIGN RISK FOR EACH THREAT

Current anthropogenic threat
Ports and dredging



Low: cell adjacent to Medium
Medium: cell adjacent to High
High: cell contains port

Future climate change threat
Temperature increase



Low: <2°C increase
Medium: 2-3°C increase
High: >3°C increase

5. SUMMARY & ON-GOING PLAN

- All data for spatially explicit threat layers acquired and risk assigned.
- Run cumulative risk assessment for current anthropogenic threats & for future climate change threats using InVEST habitat risk assessment tool (http://ncp-dev.stanford.edu/~dataportal/invest)

This research was inspired by the ACEAS seagrass working group collaboration. For further details contact Kathryn McMahon (k.mcmahon@ecu.edu.au) or visit http://www.aceas.org.au/index.php?option=com_content&view=article&id=97&Itemid=98