

REPORT ON SCOPING WORKSHOP FOR NERP PROJECT 9.4
APRIL 2012 – TOWNSVILLE

“Conservation planning for a changing coastal zone”

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The workshop was facilitated by Bob Pressey (project leader) and was attended by 34 researchers and stakeholders (see list in Appendix 1) at Rydges Southbank Convention Centre in Townsville over 2 days. It was organized by the ARC Centre of Excellence for Coral Reef Studies.

1. Aim of the workshop

This scoping workshop aimed at discussing the potential objectives, methods and outputs of the project with a range of stakeholders and at involving these stakeholders in the project.

2. Project summary

This project is funded by the National Environment Research Program (NERP) Tropical Ecosystem Hub (Canberra) for 3.5 years.

Using a spatial conservation planning approach, NERP 9.4 project sets out to identify key priorities for protecting and restoring coastal ecosystems in the Great Barrier Reef World Heritage Area (GBRWHA). The work will take into account changing land use, expanding infrastructures and climate change. This will allow looking at cumulative impacts of coastal development. One part of the project will look at the entire GBR coast; another will look at case studies at a much finer scale. Scenario planning will be the main method used.

The steps of the project are:

- Spatial modelling of coastal development scenarios
- Estimates of impacts of future development
- Determination of conservation priorities
- Mainstreaming results into activities
- Governance analyses

Bob Pressey also presented how this project will interact and collaborate with 2 other NERP projects (NERP Tropical Ecosystem Hub project 9.3: Prioritising management actions for Great Barrier Reef islands; NERP Northern Australia Hub project 1.1: Catchment to coast conservation planning) both co-led by Bob Pressey. Collaborations will include spatial analysis methods and mainstreaming of results.

3. Updates on progress so far

The following steps were completed:

- Identified some areas for case studies
- Identified some datasets needed

- Recruited post-doctoral research fellow (Amélie Augé who could attend this workshop but with a start date of June 2012)
- Obtained funding from the Australian Centre of Ecological Analysis and Synthesis (ACEAS) to organise 3 working group meetings to work collaboratively on this project and NERP North Australia project 1.1. The aims of these working groups include the design of a decision-making framework for catchment-to-coast planning
- Liaised with managers and scientists from North Queensland and catchment projects that have overlapping ideas with this project.
- Will participate in a land use change modelling workshop at JCU Cairns (Bob and Amélie)

4. Project co-leaders and attendees' introductions

Jon Brodie talked about water quality in GBR catchments and its involvement in Reef Plan 2014. He introduced the issue that GBRMP Act does not include any coastal ecosystems such as wetlands and also of the issue of gap areas between the GBRWHA and Great Barrier Reef Marine Park (GBRMP). He mentioned the lack of integrated planning for the catchment to the coast in the GBR and the lack of protection or consideration for Ramsar (Convention on Wetlands of International Importance) sites along the GBR coasts.

Alan Dale presented the part of the study he is leading on governance, from local to international scopes. The project will look at overall governance for the GBR coast. Governance is not necessarily related to government and politics. The study will first aim to identify the main domains of governance systems. Alan emphasised that the outcomes of this project must include socio-economic factors, not just biodiversity.

Each attendee also presented his or her background and expertise to the group and representation was wide and diverse (Appendix 1). Notable missing representation included indigenous communities and fisheries/aquaculture.

5. Discussion on geographical and temporal boundaries of the study

The participants brainstormed and gave their views on what should be included in the study and how to define boundaries seawards, landwards, northward and southwards. Bob showed people Figure 1 to illustrate what the project will include schematically. The boundary at sea could be defined using flood plume extents, 3nm or entire reef, with a need to include the effects of oceanic currents. The landward boundary created the most discussion. Most participants agreed that the spatial modelling should not include the entire catchment. Suggestions to define the boundary included land use or zoning plans, critical land uses, coastal agriculture, contours (20 or 30m), wetlands and mining. Sea level rise and water quality assessments were pointed out as something that needed to be taken into consideration. Institutional boundaries should not be used as they are not ecologically representative. Several people thought that boundaries were not needed or should be flexible to each issue (but this is not possible for spatial modelling, we need an extent). For the latitudinal extent, it was suggested not to include SEQ and Torres Strait Island and to confine the study to the GBRMP due to ethical and political issues in these areas. Most participants agreed with a time frame of 20-25 years for the GBR coast and possibly 10 years for the focal case studies.

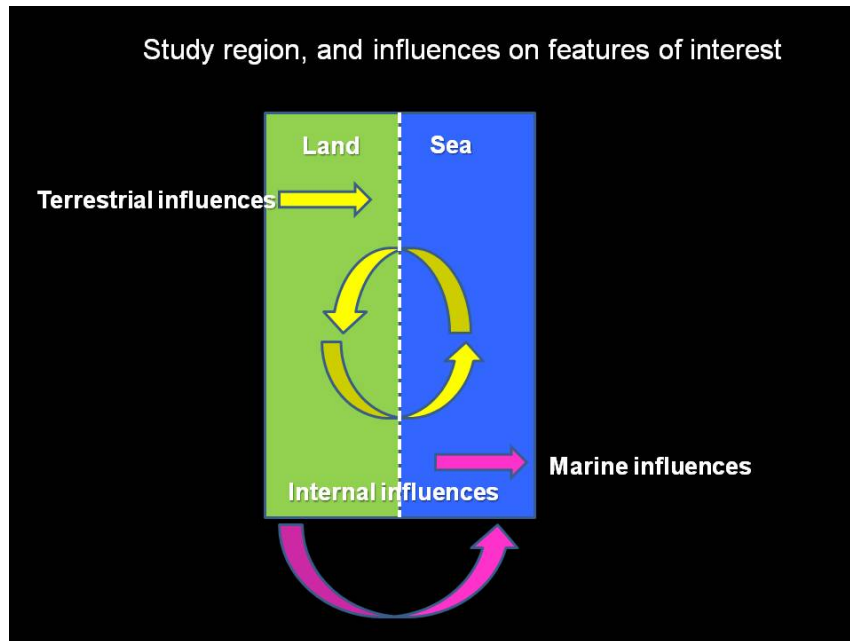


Figure 1: Schematic representation of the GBR coastal zone and processes

6. Discussion on governance in GBR coast

Alan Dale gave a presentation on governance and asked the participants to brainstorm on what types of governance exist throughout the coastal zone to show how much incoherence and confusion exist at all level of management from local to national. Table 1 contains the results of this brainstorming exercise.

Table 1: Governance in the GBR coast as brainstormed by participants

International	National	State	Regional
Ramsar convention	GBRMRA	UM Act	
BIODIVERSITY	National sea change taskforce	Fisheries Act	Water quality improvement plans
WAC.JAMBU	CEF	EP Act	Regional NRM plans
BONN Convention	Biodiversity Conservation Act	Biosecurity Act	Indigenous regional cap
MAPOC	Reef Plan framework	Land Act	ROCL LGA
	NAT	Transport Act	Protected areas
	COAG	Water Act	GBR zoning
	ANZECC	Biodiversity strategy	LOOR
	IG coastal policy	Defence	Local council adaptive strategy
	National port strategy	MR Act	
	Sustainable development strategy	Natural disaster Act	Regional pest management plans

The key questions to answer are: - Are subdomain the biggest systemic risks?
- How healthy is the governance?
- What key reforms are needed?

The key issues include contradictions between Acts (eg. The Mineral resource Act requires mining to extract as much as possible and is consequently a threat to river systems etc) and the lack of address of cumulative impacts on the reef. Offsets and illegal systems also need to be included in the analyses. There is an issue with compliance evaluation.

The governance in the GBR coastal zone is currently at least a 3-way relation with state versus local versus federal governments. A strategic analysis, including a risk analysis, will be run in conjunction with engaging with managers and end users to obtain the best effects.

7. Discussion on development scenarios

We will produce 3 or 4 scenarios that will combine important parameters to determine conservation planning. These scenarios are realistic and the first step is to identify variables i.e. development drivers. Sensitivity analyses are then conducted on the scenarios.

Suggestions for scenarios included “doom and bloom”, “China”, Federal and state government”, “money in conservation”. What needs to be included in scenarios was suggested as: industrial, climate change, land use, water quality, biodiversity outcomes, development scene, ports, exports (and limitations), economic and political factors, sea level rise (available at Qld government), unpredictable events (eg cyclones, floods), coal price, governance, connectivity, agriculture, urban, shipping, mining, fishing.

Each scenario should cover the same area and the same period (20-25 years).

The strategic assessment has a different time frame but its results and ideas need to be incorporated or at least looked at in this scenario project.

How do we make a system that works (governance) is different from the drivers of land use change and development in the coastal zone. There is the possibility to test whether good governance is related to good systems.

We will define targets for marine habitat, regional ecosystems, species, water quality, ecosystem services, possibly human welfare, and assess them and their resilience in each scenario. There will be a need to determine what exactly we will look at as we cannot look at everything (what are people’s priorities/values for conservation?). It was suggested that one target may be much easier to look at and interpret (eg water quality). Balance between values (ecological and economical) is important. Economic drivers will definitely play an important role.

Below are the answers to the questions: “What are the main parameters to define the gradient of response of development and policy drivers?”:

- Food security
- Demand for coal
- Population growth
- Price of carbon
- Regional plans

- Key risks
- Demand for gas
- Sea level rise
- Cyclones
- Peak oil
- Agricultural drivers (commercial prices)
- Water security
- Energy security
- Climate change
- Financial security
- Agricultural industry
- Investments

8. Discussion on impact assessment of the scenarios

Recommendations on what we should measure impacts on included socio-economic characteristics, regional ecosystems and their connections, species that use both coastal and marine environments during their life-cycle (e.g. mangrove jack and marine turtle, dugongs however for dugongs it is hard to quantify impacts but can use broad classification such as decline, improve or stable), narrow endemic species (at threats of extinction from local development), water quality and quantity (run-offs but also anti-fouling components, toxicity, ballast water), soil productivity (if agriculture is under threat), groundwater, coral cover (local effects near the coast), lifestyle, fisheries, economic diversity, distribution of incomes, scenery, irreplaceability.

Some of these impacts will be assessed quantitatively through modelling; others will be qualitatively assessed via experts' knowledge.

Before assessing impacts, we will have to determine objectives (or goals) for spatial allocation of conservation management. Below is the list of possible objectives that were recommended by the attendees:

- Vision: NRM
- Conservation objectives
- Development objectives
- Livelihood objectives (expressed through NRM plans – livelihood, community plan for QLD neighbourhood)
- Best of interest from the region
- Ecological goods and services
- Management of GBRWHA
- Objectives for protection and restoration of ecosystems
- Aesthetic values (sceneries etc)

Issues of working with objectives are 1. There are a number of ways to reach the same objectives in an area, 2. Low resolution of spatial data and 3. Data available. Irreplaceability was pointed out as a characteristic important for conservation planning: “if you don't get the total irreplaceable area, your planning is not working”. If we can calculate irreplaceability and vulnerability of areas of species then we can define priorities, with an order of priority in time as well (how soon do we have to act?). Another important issue in developing objectives

is to determine the achievability of an objective so that resources are not used for something that cannot be saved.

Offset process can also be an issue in defining objectives.

8.1 Current knowledge of GBR ecosystems

Presentation by Hugh Yorkston on the report “Informing the outlook for the Great Barrier Reef coastal systems”: Understanding the modified current GBR catchments and its functions and services for the GBR.

A discussion followed this presentation and included themes such as how to capture cumulative impacts along the coastal zone, landscape management (36% neglected?), reef plan outcomes, need for long-term programs, target setting for water quality.

8.2 Study region, features of interests and cumulative impacts

Presentation by Bob Pressey on defining the GBR coastal zone and where influences come from followed by discussion. Some changes happen outside the coastal zone but have a significant effect on it (e.g. agriculture practices in catchments and mining). It was pointed out that there is the need to include research activities and researchers in the zone outside the coastal zone to broaden the context. The NERP water quality implementation group links project together.

Bob Pressey then presented his thoughts on cumulative impacts modeling (Figure 2). There is currently a problem with ecological assessment system and impact assessments are carried out project by project without integrated management. We are looking at the entire GBR coast to be able to look at cumulative impact within the entire area. The project intends to assess the impact for the selected species and recognizes the change in the x axis and what

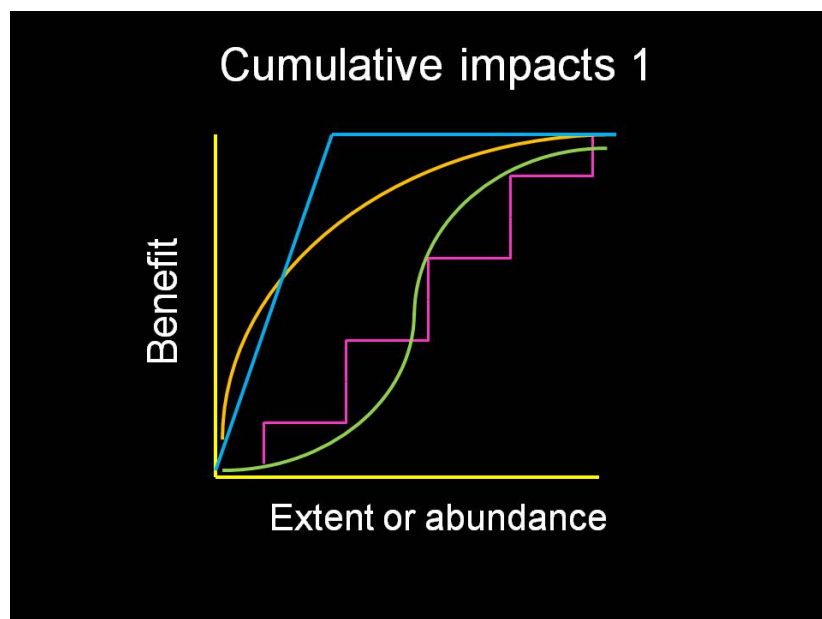


Figure 2: Schematic representation of possible modeling of cumulative impacts

it means to the persistence on the y axis (can only be done for species that are well studied). Regional ecosystems will be trialed as surrogates for numerous species with poor data relying on them.

9. Discussion on mainstreaming the results

The project has to end up in the hands of managers and end users. Mainstreaming is the process by which this can be done and that will make this research product useful for management. Stakeholders and end users will be involved in every step of the project to create a sense of ownership through intellectual inputs. Workshops and consultations will be regular. General communications and promotion through media can help mainstreaming the research. The results from this research will also be directly related to NRM activities. There is a need to include traditional owners of the land in the project as well.

It was decided that a reference group for the project would be created shortly after this scoping workshop and would include representatives from at least both governments, regional councils, NRM, industry, traditional owners, SWEFAC. The critical issues to be discussed with the reference group are “how do we go forward and ensure the research is taken up by managers?”

However, to mainstream the project, there will be the difficulty of getting into the planning realm that is already in place. To do this, the project will determine priorities that have not been identified in regional plans and take planning process into account. The project also needs to align with the strategic assessment. The language will have to be framed to get the government on board. A remark pointed out that planning is not static and that the project will also have to be able to accept suggestions from stakeholders to make better decisions.

The outputs from this project are about spatial planning. Carbon offset needs to be included as it is currently something people want to invest in but there are a lot of issues, uncertainties and difficulties of acceptance around offsets (nutrient offsets possibly?).

10. Discussion on potential case studies

The main questions that rose during this part were why choose case studies and what criteria to use. The responses for the why included that larger scale would allow to further test for a different level of information available and the inter-connectedness of ecosystems.

Suggested case studies were:

- Prosperine basin (change in hydrological system functions, water holes become eutrophic and create fish barriers)
- Whitsundays
- Gladstone (pressure for port expansions, rails, inshore species affected by coastal development)
- Rockhampton (pressure for development)

Acknowledgements

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Appendix 1 List of attendees at the scoping workshop, roles in the project, affiliations and contact details.

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