Interim Workshop Report #5
April 2015

Introduction & Agenda

Aims:

- Focusing on application of research to NRM planning

- Developing planning packages

- Reflection on processes

- Where to next

Agenda

Time	Activity	Detail
8:30	**Welcome back**	
8:30-10:00	Update via practice stories	All NRM groups + researchers
10:00-10:30	Reflection	Plenary exercise
10:30-11:00	MORNING TEA	
11:00-11:30	Program update	Update from Cath
11:30-12:00	PP improvements	Small groups + report back
12:00-12:45	Studio for additional packages	Small groups
12:45-1:00	Studio report back	
1:00-1:45	LUNCH	
1:45-2:15	Biodiversity discussion	Talia Jeanneret, AdaptNRM
2:15-2:30	What's next for plans	Plenary brainstorm
2:30-3:00	Further work, maintaining connections	Small groups
3:00-3:30	Wrap up	Darryl

Practice stories

Aims

- Summarise and document where we're up to
- Brief reflection on individual projects
- Basis for further discussions throughout the day

Storyline - outline

When we started the project, we had…	We wanted to improve this and deliver…	So far, we have done…	The research was good for….
What we started with	**What we wanted**	**What we have so far**	**What the research was good for**
The things that worked were…	The things that didn't work were…	Our next step is…	Our recommendations for others are….
What worked	**What didn't work**	**What we're doing next**	**What you should do next time**

How Projects Really Work (version 1.5)

How the customer explained it

How the project leader understood it
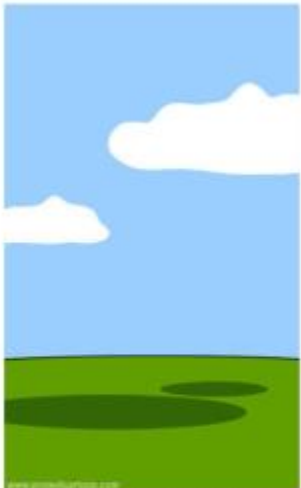
How the analyst designed it

How the programmer wrote it

What the beta testers received

How the business consultant described it

How the project was documented

What operations installed

How the customer was billed

How it was supported

What marketing advertised

What the customer really needed

SEQ Catchments – a whole NRM plan update

What we started with	What we wanted	What we have so far	What the research was good for
• An endorsed NRM plan • Policies in the statutory regional plan • Regional plan with climate considerations (tipping points and targets for vegetation). • A spatial plan with an atlas representing targets and confluence mapping to achieve maximum targets.	• Action plan • Focus on fewer targets (priority) • Updated climate projections • Journey with ecosystem services – wanted to apply a beneficiaries approach (more colour), and injecting the plan into the business world (e.g. including tourism in the reference group etc). • Wanted to include how climate change impacts on the ability of natural assets to provide benefits to those industries	• Action plan • Targets • Framework • Series of maps showing where in the landscape we can achieve priority targets. • Can confluence that together to show where in the landscape to do work to add to the resilience of the region.	Climate projections
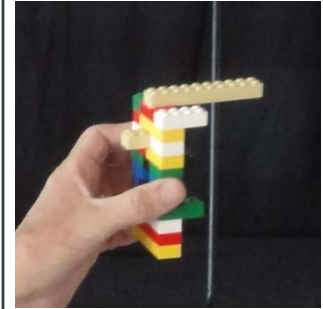
What worked	What didn't work	What we're doing next	What you should do next time
• Target update • Status report • Maps • Community engagement • Examples: • Land use change in SEQ – where losing vegetation to urban, takes the region to a tipping point – there is a need to change thinking in terms of planning and revegetation and linkages. • Local community plans – hat community want in terms of services and benefits and changes that might occur, and how to offset and mitigate.	• High level local government support • Needed to go to each local government individually to work with them – Council of Mayors did not work as an umbrella organisation. • Thought would get more support from local government as they are an owner of SEQ Catchments, but not necessarily. • Originally wanted to feed into local plans (ability to rezone), but political reality stepped in.	• Governance • Review of statutory regional plan • Local government support 	Start with science and updated maps
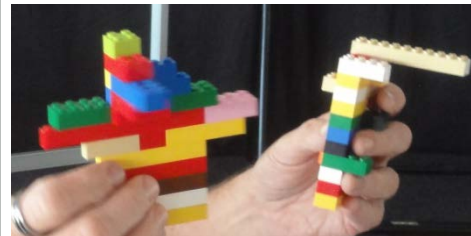
Greater Sydney LLS – focusing on the journey (process)

What we started with	What we wanted	What we have so far	What the research was good for
• One planning process just completed with great frustration (2 CAPs crashed into one, then modified under new boundaries) • Vague reference to climate change • Restructure and loss of staff and capacity (including key 'knowledge broker' for climate change in the LLS) • Money from the Australian Government • A genuine desire to incorporate climate science and risk assessment into our planning and operations • A 'blank canvas' as our application for AG funding was very non-specific	• Retain staff skills (keep staff who might otherwise have been lost in the restructure) • Build capacity in planning for future risk • Work with key collaborators to support their needs in planning and in use of climate science to reduce their exposure to risk • Decision support tools to direct investment, particularly with the $13M of funding we received under the Biodiversity Fund – better decision processes to get multiple outcomes from that money.	• Some unexpected but welcome outcomes such as a spatial analysis project over 3 NRM regions • Good relationship with a host of researchers and access to research outcomes and advice • A better understanding of the capacity of our collaborators, particularly local government, in adaptation planning • Improved internal capacity, with the expectation that this will continue to develop as our LLS staff start to apply adaptation thinking to project design.	• I have to admit that we started from a low base level. The person who had led previous climate related activity took redundancy and we lost our knowledge broker capacity. • The research injected energy into the process (like an injection of monkey glands), though not everything was directly applicable to our needs, it lifted our team out of the routine of management into a more academic approach to challenge our plans and operations. We don't often get to do exciting stuff and we can get stultified. • The projections research provides the 'backstory' to our plans and future management and communication with stakeholders. • All the research products will be considered in our final plans.
What worked	**What didn't work**	**What we're doing next**	**What you should do next time**
• I have appreciated the level of collaboration within the stream 1 cluster and with the stream 2 researchers. • We hope for a cutting edge products for better targeting of biodiversity and land management (the spatial product – the closest we have seen from other regions is from SW, but didn't include multiple benefits). • I feel I have access to a network that can support me in the future.	• It has been well documented that the funding of stream 1 and 2 was a flawed process – too rushed and no consideration of the timing of products vs the needs of planners • No real communication of needs of stream 1 planners before the research program was established (difficult to get discourse between researchers up front) • Most of the $ in the first year – not staged funding delivery.	• Currently trying to draft a plan and complete the MCAS-S products. The final form is not fully decided but will be a filter to put thinking through in terms of all the work we do – e.g. if planning a biodiversity project or client – look at adaptation plan to use future focus not backwards looking.	No energy left to go through it again!

North Coast LLS – stream 1 planning project – climate ready

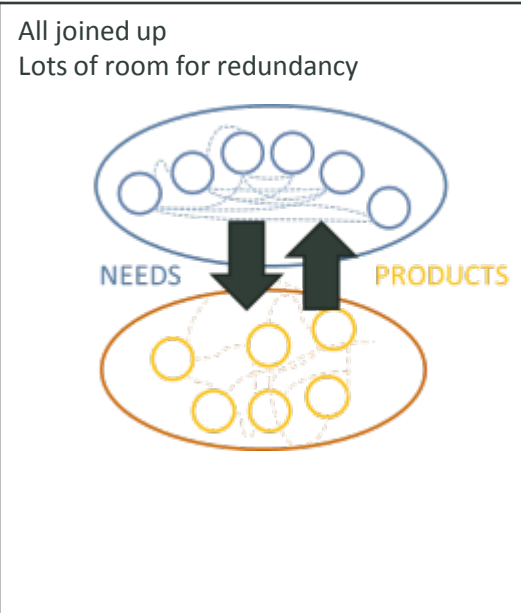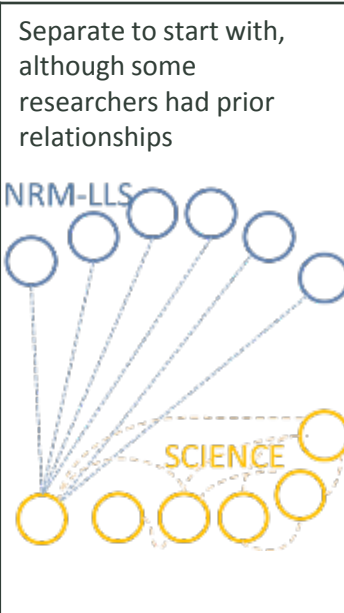|			
Greenfield…. Ideas, separate regions A problem – how best to prioritise activities under a changing climate Possible impacts How to deal with organisational change Resourcing An aim – getting our CAP climate ready **CHANGE** Time	• A climate ready CAP • Increased GIS capacity • Evolution of the region's CAP • Dedicated resources to do • To get on with it • New ways of looking at the landscape • A better understanding of climate change • Better informed stakeholders	• Dedicated resources to do • A better understanding of climate change • Relationships • a recognition we can't do everything • A shortcoming in anticipated contributions from external sources to the project (ie data and information) • Conceptual models and products nearing completion • A process and method • Commitment • Alignment – delays= capacity to use research	• Providing additional information to support • Solving some problems (climate projections, 3C biodiversity) • Showing us that no-one really knows
What we started with	**What we wanted**	**What we have so far**	**What the research was good for**
• Dedicated **resources** (contractors) – actually provided some stability as they sat outside the restructuring process • Dedicated **team** • Willingness to roll with it • Experience • Overall timeframe – lost time early on but the longer lead-in time helped, although still going out the other side – it allowed alignment with some of the research that wouldn't have happened otherwise	• Trying to do everything • Constant organisational change • Much more iterative than anticipated	• Refining criteria • Finalising models • Delivering a product (most of what we wanted) • Seeing the path/ process as an evolutionary one – can get tied up in action and what is happening now, and get frustrated if one set of actions doesn't achieve what you want, but it is often part of a process that achieves something over time. This plan will have a short life but be part of a longer process. • Strategic input • Ongoing relationships	• Include what you won't be doing as well as what you will in the scope • Ensure dedicated resources and time – always allow extra • Have regular meetings, commit to the time, stay focused on the problem • Climate change is part of the environment, and so are we, not an add-on
What worked	**What didn't work**	**What we're doing next**	**What you should do next time**

North Coast LLS – Creating a regional climate change adaptation plan

What we started with	What we wanted	What we have so far	What the research was good for
• A very technical CAP – acknowledged the need for climate adaptation planning and put processes in place to do so – but we didn't really have a clear idea about how to do it • Stream 1 started the ball rolling – but mostly just from a biophysical perspective. How to tackle social and economic elements was very unclear • IRVA helped us to understand social and economic aspects. • In-house technical and GIS expert left.	A climate change adaptation plan that clearly articulated: Background shift • The social, economic, environmental issues and opportunities Action plan • The role of LLS in addressing the issue and opportunities • Incorporated stream 2 elements and what to do with them – capturing products and how to use them well, how to access and interact with knowledge	A framework for our climate change adaptation plan: • Better understanding of climate change • The role of stream 2 findings and how to use them • Local government issues and opportunities we might pursue • Industry issue and opportunities we might pursue • Our response to IRVA recommendations • Identify the relationships to the strategies in our new strategic plan	Recognising that: • Identifying critical elements • A big job, many elements that need to be unpacked and tied together • Needed someone to coordinate • Took us beyond our stream 1/2 scope – used contractors to identify issues and opportunities • Still social and economic aspects that we are not talking about • How to feed information into the plan. • Other things that hang off the research that allow us to use the information in a broader context.

What worked	What didn't work	What we're doing next	What you should do next time
• From the broad collaboration got spin-off ideas (what are local government and industry doing) and how can the LLS contribute and buy into it. Industry and LG are two components of new plan. • The Hunter / Greater Sydney / North Coast alliance – otherwise North Coast would have had technical and introverted way of looking at climate change – working with others stopped us from getting too anal about technical stuff • Development of the climate change adaptation plan is a core *** with the local strategic plan	Monica – staff turnover Opportunities for researchers to go to the regions NRM bodies had to construct something, as didn't know what they needed – need to build a machine to understand the needs	• Consolidating ideas • Consolidating strategic and actions • Greater organisational interest and support • How best to influence strategic plan actions • What does the climate change adaptation plan look like, how does it interface with the local strategic plan. Finished local strategic plan talks about how we are going to do things, not what we are going to do. The climate change adaptation plan will be draped over the plan, and we will include climate change information in conversations when it is relevant. • Climate change is not an add-on but a way of thinking across all the action = mainstreaming	• Spread the load within the organisation • Make sure people are better informed • Have a longer romance before the marriage – needed a longer time to develop the projects. We have gone through some pain to get here, don't want to start all over again – we are now well placed to start and project

Cath – Whole of stream 2 action / interaction stream 1

What we started with	What we wanted	What we have so far	What the research was good for
Separate to start with, although some researchers had prior relationships NRM-LLS SCIENCE	All joined up Lots of room for redundancy NEEDS · PRODUCTS	+ Some useful products, some less useful or not useful products + A more lengthy and iterative process to establish needs (than expected), and a more even exchange (not one-way) + Some successful partnerships + Some less so + A smorgasbord of projects and products (and a take it or leave it approach from practitioners – maybe you want some of this for your lunch, maybe you don't)	+ Building relationships among scientists (don't talk enough) + Broadening the scope of understanding of the scientists – live in an elitist world in universities and think about ARC grants and journal publications rather than doing things that are useful – rewards are for other things + NRM bodies can be elitist too - well educated and versed in a particular range of problems and reinforce each others' beliefs that we are doing something, but many others have different things to think about (other than NRM) – e.g. where the next meal is coming from. + Engaging with NRM + Products that increase understanding of climate change and adaptation

What worked	What didn't work	What we're doing next	What you should do next time
+ Enhanced interactions and understanding (between science and NRM) + Building up a community, joining things up	+ Not all NRM needs met + A 'smorgasbord' approach is a bit wasteful – some things might not be embraced or wanted. Smorgasbord occurred partly due to the timing. + Consortium's relationship with federal department – Aus Government is still cranky about the complexity of the ECC – didn't have a straight line approach; quite different to other clusters (team of wild horses)	+ Targeted projects + Will keep doing climate change adaptation + Interested in continuing to support NRM, but how? ($?)	+ More time to establish needs and find the scientists who fit the tools' applications (we are not very flexible – tend to have a toolkit and are only able to do that) + More effort managing the federal government + Developing specific projects earlier + Identify the client – the NRM bodies or the federal government? + Recognise NRM is a 2-way collaboration – NRM bodies directing traffic and researchers creating traffic + It is not possible to pick up science and plunk it into a public document. Looking for simplicity may show ignorance of how science needs to be reinterpreted to be useable. More sophisticated approach may be more reflective of reality?

Darryl – whole project perspective (from a CRC background)

What we started with	What we wanted	What we have so far	What the research was good for
• Blank sheet • Vague notion of government's ambiguous requirements (behind the brief) • Confusing initial brief by clients (2 government departments + consultants) • Uncertainty over the future of CMA's and NRM funding	• Greater clarity • Adjustment in project funding to align stream 1 & 2 to maximise benefits of stream 2 research	• Excellent planners network (albeit changing personnel in some regions) • Established procedures & processes to engage and communicate science into NRM planning • Timing of planning products	• Ask the NRM bodies!

What worked	What didn't work	What we're doing next	What you should do next time
• Planners Working Group workshops • Interpretation of science into planning 'products' for NRM planning applications • Identification of NRM bodies' planning / science needs, also needs from 6 regions were different. Often you don't know what you need at the start of the project, and there may be separation between what you think you want and what you actually need.	• Opportunity to capitalise on network enhancement (including capacity building) due to churn of planning personnel	• Scoping options to continue engagement & collaborative research • Seeking innovative ways to maintain communication & engagement • Engaging local government within NRM regions	• Spend some time in the actual regions engaging with others in NRM organisations besides the planners (i.e. others that use the planning products) • Engage with local government in NRM regions earlier • (background to the CRC model): consortia or research, industry and government apply for 7 years funding. Enter into legal agreement based around milestones, but after that the CRC organisation manages the whole project. Aim is stakeholder driven research – attempt to form joint research teams with industry people in research. Focus is on dissemination and uptake, and that is the measure of success. This could have been a useful arrangement for this project, but was not allowed.

Mel – practitioner – researcher interactions (whole project)

What we started with	What we wanted	What we have so far	What the research was good for
	Understanding NRM needs Useful research informing planning	Staff churn Better understanding Relationships 	• Maps (spatial analysis) • Knowledge, information • Ideas • Stimulating future thinking

What worked	What didn't work	What we're doing next	What you should do next time

• Regular meetings:
  • -ve: time, cost
  • +ve – sharing, face to face
• Some input to research design
• Plan review as focus for activity (without a focus, interest can be difficult to maintain)
 	
	• Cross-cluster sharing – missed opportunity
	• Distance between regions – difficult to travel
	• Documenting for others (but still time)
	• Bringing outside people in (others from NRM, local government, other clusters)
	• Confused model – were NRM bodies expecting research or consulting?
	• No website
		network ✓
		
		? For discussion
		
		GOODBYE ✗
			• Easier with established relationships
			• More input to initial planning
			• Process to articulate needs
			• Documentation / communication process

Silvia – the whole project and process

THE WHOLE PROJECT AND PROCESS

Deliveries! From the researchers & wishlists from the NRM bodies

2012-3   2012-3

What we started with

Neat alignment between the deliveries and wishes

2013-2015

What we wanted

Some surprises, some where the wrapping was more interesting

2013-2015   2017

What we have so far

This is not the end – forms part of a knowledge base to be used into the future

2020

What the research was good for

Networking, interaction, ideas

What worked

2013   2014
2013   2014   2015

Mismatch in timing and funding, churn

What didn't work

2020

Trying to retrofit the presents to the wishlists

What we're doing next

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① ② ③

Better identification of the problems and needs by co-designing the project at the proposal stage. Researchers to visit NRM regions to better understand issues and needs.

What you should do next time

Reflection Bingo
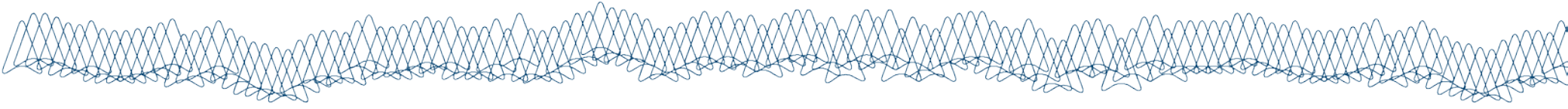
Roux et al. 2010 [a] have developed a framework for participative reflection on the accomplishment of research programs that include funders, researchers and practitioners. The framework describes the ultimate achievement of transdisciplinary research as:

changed practice based on well tested evidence whose value to society exceeds the cost of enquiry

But, this is difficult to assess until well after the project is finished. They propose a framework that captures the elements that contribute to meeting this outcome, and propose it as a basis for participative reflection.

We have adapted the framework for application to this project.

Aim

Reflect on the elements of the project that were done well (or not), and how they could be improved.

[a] Roux, D. J., Stirzaker, R. J., Breen, C. M., Lefroy, E. C. and Cresswell, H. P. (2010) 'Framework for participative reflection on the accomplishment of transdisciplinary research programs', *Environmental Science & Policy*, 13(8): 733-741. Available: http://www.sciencedirect.com/science/article/pii/S1462901110001036.

Leadership	Program funding and consistent leadership has been established that is conducive to long-term research including the advancement of facilities, inter-project learning and application by practitioners.
Discourse	Events have been programmed and funded to develop and sustain discourse to strengthen relationships between research providers, practitioners, funders and the wider community to inform and contextualize the research
Flexibility	Researchers and practitioners have freedom to explore modes and structures of practice within appropriate limits of scientific and financial accountability, and to change research projects in line with emerging practitioner needs
Adaptive learning	Feedback from project and program evaluations is being used to improve processes, relationships and behaviours – at program, project and individual level, and during the project not just at the end
Knowledge sharing & relevance	New knowledge is developed with the explicit recognition of its intended application, as measured by the degree of interaction with research users and their ability to apply the knowledge. Researchers and practitioners share their findings and insights with each other, peers, and parties that represent other knowledge forms
Capacity building for adoption	The capacity of all participants to understand and communicate with each other and the research-practice nexus is improved. Research processes are designed to improve the capacity of practitioners to engage in the research process and to utilize relevant new knowledge
Adaptive decision-making and policy revision	Practitioners have the processes and flexibility to incorporate new research findings into their decision-making, strategic planning and policy where relevant
Continuity & organisational capacity	Funders, researchers and practitioners maintain commitment and engagement to the research program over the whole course of a transdisciplinary research program and support the capacity and availability of their staff to fully engage in the project.

Bingo - Instructions
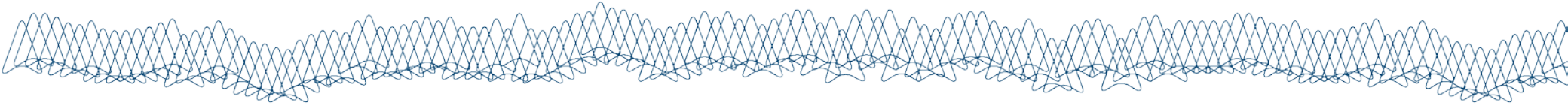
Aim of playing the game

- To win prizes prizes prizes*

- To encourage groups to fill as many boxes as possible

Instructions

- Divide into 2 teams

- Each team has 15 minutes to provide comments in as many boxes as possible (as a team or individually and then pool)

- Bridges – parts of the project that assisted in meeting this aspect

- Barriers – parts of the project that hindered meeting this aspect

- Improvements – suggested improvements for others / next time

- In plenary, the teams will take turns to read out their comments for a square, with the aim of connecting 4 in a column or 3 in a row.

- If you have a different comment to the other team you can come in on top and take the square.

- Use strategy to block the other team and make the most connections

- Please complete the exercise over the rest of the day as you think of things.

*prizes not guaranteed to be good

Aspect	Bridges	Barriers	Improvements
Leadership	1		3
Discourse	4		6
Flexibility			
Adaptive learning			12
Knowledge sharing & relevance			
Capacity building for adoption	16	17	
Adaptive decision-making and policy revision	19	20	21
Continuity & organisational capacity	22	23	24

Green team won!

Aspect	Bridges	Barriers	Improvements
Leadership	Shared leadership Learning how to work with federal government Learning how to work between consortium partners	Mismatch in timing of $ Mis-communication from federal government Inexperience at Commonwealth level	Improve timing of funding Greater clarity from federal government Courting before marriage!
Discourse	Mel email updates Planners working group meetings Networking and face-to-face meetings	Regularity of meetings Volume of traffic (distraction) Lack of clarity about what was on offer and what was needed – in the beginning	Cross cluster – face to face More interactions at the beginning of the project
Flexibility	Meeting stream 1 / stream 2 Changes scenario of planning	Department of Environment	More flexible contractual Clearer understanding of roles and responsibilities
Adaptive learning	Planners working group Reflections	Each NRM body at different phase of their planning process, some NRM bodies just starting their planning process Not all products produced in time (out of sequence of stream 1/2)	Learning framework at start vs on the run Sequence research better
Knowledge sharing & relevance	Ability to contact stream 2 people out of meetings Workshop dropbox	Stream 2 not visiting the regions Timing	Examples of the use of research / applications, case studies Timing
Capacity building for adoption	Ability to contact stream 2 people out of meetings Current and continuous network	Lack of opportunity for stream 2 to visit regions – staff turnover Turnover of staff in regions	Another phase of reflection – researchers asked to modify / improve Work to continue network in the future
Adaptive decision-making and policy revision	Plan review	Restructuring in NSW Merger of plans Governance changes	Availability of ongoing resources that practitioners can apply as required in future
Continuity & organisational capacity	Core group of people – timeframe 3-4 years Good governance Workshops	Restructuring Federal and local level $ handed out Funding inconsistent	Longer projects Recognition of future activities – planning Better funding schedule

Planning packages - improvements

Aims of the planning packages:

- To present information from the program in a form that is useful for planners – both those involved and those who have not been involved

- To document useful examples of the application of research or information in planning, particularly NRM

Exercise:

3 packages have been drafted (very roughly), + the horticulture briefing note from CSIRO:
- Scenario planning
- Coastal vulnerability
- Revegetation planning
- Horticulture integrated assessment

In small groups, take one or more of the draft packages, and suggest improvements and case study examples. Please provide **comment on**:

- Usability of layout (especially on screen, with embedded links)

- Introductory content – who is it useful for?

- Examples and case studies that should be included

Planning packages – suggested improvements

Thank you for the suggestions!

- Define the audience more clearly – is it the planners who have been involved, the planners yet to come, others in the NRM body (e.g. the GM saying what is this all about), NRM practitioners from other clusters or other stakeholders (local government etc)? E.g. if it is a landholder, then needs to be even simpler

- Packages need to be a doorway and invitation in – provide a narrative or directory that makes you want to go to other things and shows you how to get there. Make others interested so then can immerse themselves in the collective work.

- Must be very very very very very very simple (at least to start with)

- Provide a synthesis of multiple research project, not just one package per project

- E.g. coast – diagrams are good, words need to be simpler

- Less text – too packed in. too heavy

- Audience needs to be able to choose their entry point

- Useful resource document

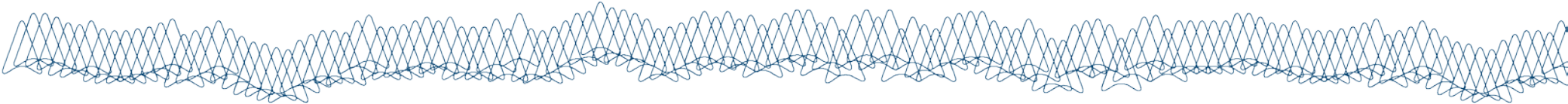- Adaptation plan would be a way of getting to a broader audience

Planning packages – suggested improvements

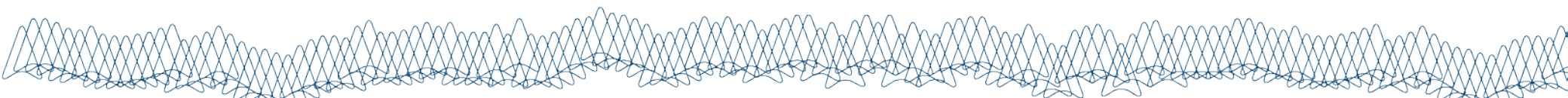**Thank you for the suggestions!**

- Better to make it meaningful to a broad audience, and if they are interested they can explore further

- Basic framework:
    - Problem
    - Issues
    - Potential solutions
    - Examples

- Workshops and presentation useful to bring the research to life – possibly include youtube presentations or webinars?

- Useful to embed research into culture – something to pass on. Need succession planning for research. Also good for re-structure proofing

- Also good as a website archive – not too deep

Planning packages – drafting new

1. Identify any additional topics

2. Vote on highest priorities for Griffith team

3. Nominate topics to start on today, individually or small groups

4. Work on drafting – ToC outline, NRM examples, etc

5. Report back

(voting using Shakespeak.com)

Voting results

Adaptation pathways	5
Biodiversity	4
Framing and values	4
Socio-economic vulnerability	4
Stakeholder / industry adaptation	3
The NRM planning process	2
Blue carbon	2
Modelling ecosystem shift	2
Researcher practitioner interactions	2
Systems approaches to NRM	2
Understanding and using projections	2
Being a bridging organisation	1
Learning networks	0
Stakeholder engagement (CC)	0
Weeds	0

We will work on them in this order and see how we go!

Examples and case studies welcome, please let us know.

# Adapt NRM biodiversity module - discussion

Presentation by Talia Jeanneret:

AdaptNRM biodiversity presentation

- First module is already available, second module will be available in mid-June

- Focusing on a community-level modelling approach

- Module takes a 'forward' looking approach to biodiversity, focusing on an ecological functional landscape approach concerned with overall health rather than individual species

New principles for biodiversity conservation:

- Optimise ecological processes

- Maintain evolutionary character

- Maintain regional character

- Minimise species loss nationally

- Minimise mal-adaptation

Adapt NRM biodiversity module - discussion
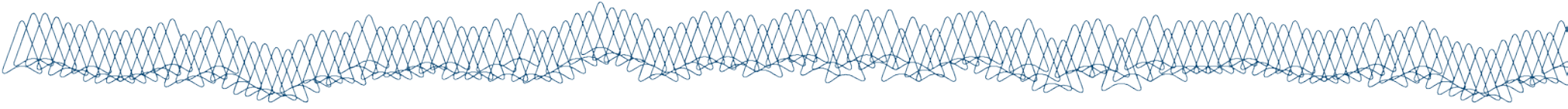
Leads to different approaches to biodiversity conservation:

- Appropriateness of local provenance restrictions in a changing climate?

- How does this thinking fit with current regulations, e.g. EPBC focus on individual species?

- May be challenging to some – go with no regrets options now and include the more difficult concepts later on

NSW adaptation hub:

http://climatechange.environment.nsw.gov.au/Adapting-to-climate-change/Adaptation-Research-Hub/Biodiversity-Node

Blue carbon

Cath working with Don on removing tidal floodgates to repair hydrology and allow mangroves and saltmarsh to re-establish -> blue carbon

[Blue carbon presentation](#)

Kerrylee has also done some work on this in the Hunter estuary:
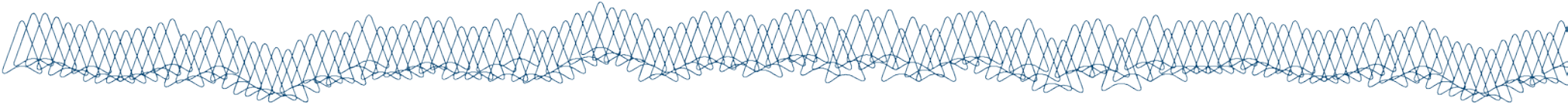
http://ro.uow.edu.au/smhpapers/1466/

Very interesting concepts that need following up –

Opportunities in north Queensland, looking for others

Possible suitable locations in Northern Rivers and e.g. Rocky Point canelands, Queensland

101 things to do with a plan

Aim

To facilitate discussion about 'live' plans and stakeholder interaction with the plans in the future

Background

Traditionally, plans are written then left on the shelf to gather dust. The new generation of plans is moving ahead and may end up sitting on the internet gathering electrons. What can we do to ensure the plans are used?

Exercise

The next stage of the planning process for many will focus on maintaining (or growing) stakeholder interaction with the plans, and keeping the plans usable and alive.

In teams, brainstorm ideas for engaging stakeholders with the plan. (butchers paper + sticky notes)

The theme is:

101 things to do with a plan (apart from leaving it on a shelf)

101 things to do with a plan – keeping it live
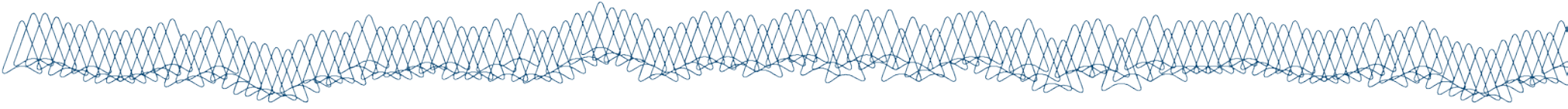
- Current review process

- Narclim info will need to be included

- Work with other people within organisations to implement plan

- Information may be used in the longer term – not all research outputs will change significantly in the short-term e.g. climate projections

- Re-write actions, finish others

- Business plan on yearly basis

- Do plans continue to be relevant? Will they be used / implemented as a whole? There are other plans that will be produced besides general NRM planning.

- Document different planning processes (LLS, SEQC and others)

- Updates – decision support tool prioritise project applications (action planning tools)

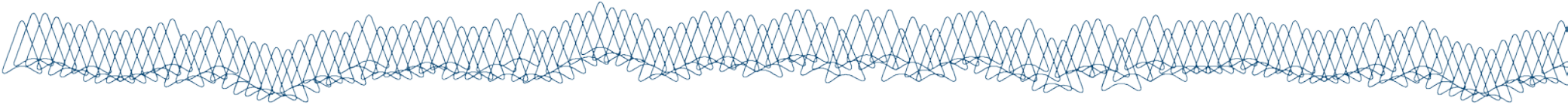- 2 types of tool – challenge to updates to plan (SEQC)

Further work
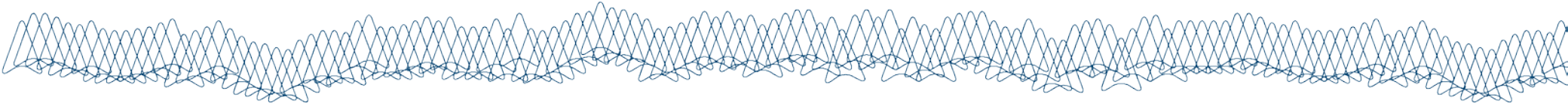
Imagine the feds have suddenly had an epiphany and realised that climate change adaptation and NRM are a top priority. As a first step, they have decided to extent this program for another three years. What are the burning questions or topics you think could be addressed in an extended program?

- Generally in a good position now to start a collaborative project!

- How do you maintain the network without resources (or a focus)?

- Would like to maintain connection to research that is relevant to the next planning process

- The focus on climate change won't stop – will be embedded as part of risk management

Further work

- There has not yet been time to know whether or how the research really has been / will be used - would be interesting to do an ongoing research project integrated with the plan (further) development and implementation phases, with the research 'embedded' in the next planning phase. This could include an independent evaluation of plan implementation, including the application for the information, interactions with stakeholders (outreach & extension), development of 'climate ready' thinking and any shift in internal governance and communication. Could evaluate how effective we are in going forward in what we're doing. There would also be benefit to the researchers in knowing the whole story and what happens. Mutual benefit – research and capacity building.

- Funding applications usually require some cash from industry partners – but it is almost impossible now for regions to find funding – needs to be all delivered out on the ground. ARC Linkage is Nov/Dec.

- A similar hub / core group and source of information for everyone to benefit from

Portal proposal

What benefits do you see from maintaining connection as a group (or subgroups)?

What mechanisms can we use to do this?

Darryl:

Have previously submitted application for funding to develop a portal that could be used for this:

https://www.dropbox.com/s/cka41mmf6ewqd0k/Portal%20Proposal.pptx.pdf?dl=0

Comments:

- Databases are useful as dumping ground for information to access afterwards, but usually a conversation is what is needed – that is why the workshops are so useful – can follow up information from the database afterwards, but do not start there.

- Building and maintaining the network is useful as you can identify what information and tools are available and how to access them.

Workshop evaluation

Practice stories	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
This session was useful and relevant				4	1
The storyboard format worked well				5	
The reporting back session was useful				4	1
Comments					
Interesting concurrence in opinion between stream 1 & 2 participants A great way of reflecting. Liked hearing other stories					

Reflection	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
This session was useful and relevant				5	
The reflection framework was relevant				4	1
The reflection framework was useful				3	2
The session prompted me to critically reflect on the project			1	4	
The game format made the session more interesting				2	3
Comments					
Though perhaps got caught up in the game more than reflection					

Program update/ blue carbon	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
This session was useful and relevant				1	4
I understand more of what the national program is up to				2	3
The update on the new blue carbon project was useful					5
Comments					
Good, re-awoke interest in and awareness of potential Reckon there are some real opportunities for us here. Will definitely follow up!					

Workshop evaluation cont.
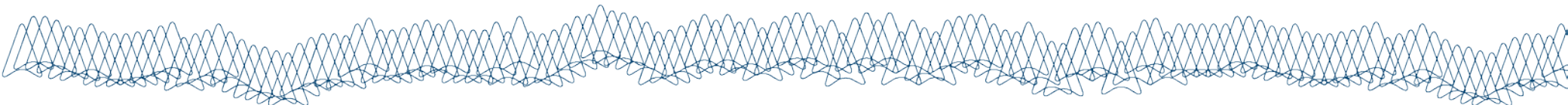
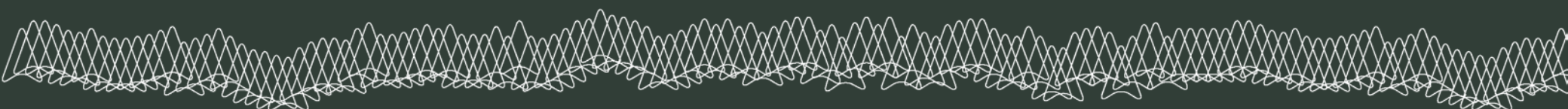| Planning packages improvements	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
The session was useful and relevant			2	2	
I felt I could make a useful contribution to the packages			2	1	1
The format of the session worked well			2	1	1
The draft planning packages will be a useful summary of the research			1	2	1
The draft planning packages will be a useful summary of current practice examples			1		2
Comments					
Opportunity for synthesis A good start – with improvements will be strongly agree Need a clearer understanding of audience and how they ca be used					
Additional planning packages	**Strongly disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly agree**
The session was useful and relevant			1	1	
I felt I could make a useful contribution to the packages			1	1	
The format of the session worked well			1	1	
The additional planning packages will be a useful summary of the research				1	
The additional planning packages will be a useful summary of current practice examples				1	

Workshop evaluation cont.

Biodiversity discussion	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
The project described is relevant to NRM planning					4
I will be able to use the results of the project					4
The workshop session improved my understanding of the project				2	2
I have a better understanding of how I might use the outputs from this project through attending this session				2	2
Comments					
Have had previous exposure to the draft Will find a way of applying and capturing the principles					

What's next for plans	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
The session was useful and relevant				2	
I gained some ideas that will be useful			2		
The format of the session worked well			2		

Workshop organisation	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
The workshop was well organised				3	1
The objectives of the workshop were clear			1	2	1
I feel that I benefited from attending the workshop				2	2
Comments					
Good organisation Fast, furious and enjoyable Great venue and food Well done!					

Available information: reports and presentations

TOPIC	BACKGROUND INFORMATION
Terranova ECC collection	https://terranova.org.au/repository/east-coast-nrm-collection
Draft grazing integrated assessment	https://www.dropbox.com/s/tajusm2ofns5ggb/Draft%20Grazing%20Briefing%20Note%20111114.docx?dl=0 https://www.dropbox.com/s/s7xienyyf0ckhfn/November%20PWG%20-%20East%20Coast%20Cluster%20Taylor%20EDITED.pdf?dl=0
SEQCARI reports and decision support tool	Reports: https://terranova.org.au/repository/discover?include_subfolders=0&facet.Type=Repository+Collection&facet.Type=Repository+Item&facet.text=seqcari DSS: https://terranova.org.au/seqcari/index.html
Draft horticulture integrated assessment	https://www.dropbox.com/s/lg6sawjuxk7agf8/Draft%20Horticulture%20Briefing%20Note%2016%20April%202015.docx?dl=0
AdaptNRM weeds module	**Weeds technical report:** www.adaptnrm.csiro.au/wp-content/uploads/2014/08/Adapt-NRM_M2_WeedsTechGuide_5.1_LR.pdf **Data access:** http://adaptnrm.csiro.au/invasive-plants-climate-change/weed-adaptation-campus/weeds-data-access-portal/
AdaptNRM biodiversity modules	Module 1: http://adaptnrm.csiro.au/biodiversity-impacts/ Module 2 outline: http://adaptnrm.csiro.au/biodiversity-options/

Thank you

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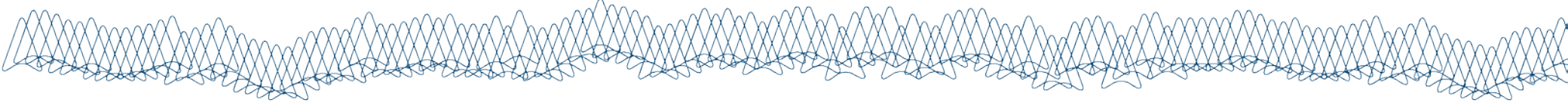Telephone:(07) 3735 5275
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NRM Planning for Climate Change:
The East Coast Cluster

AdaptNRM: Biodiversity update

Image: *Lake Johnston, by Suzanne Prober*

Implications of climate change for biodiversity: a community-level modelling approach

Outputs:

- Guide

- Data sets and maps (data.csiro.au)

- AdaptNRM website (www.adaptnrm.org)

Key points

- 'Community-level' modelling – GDM (Ferrier et al., 2007)
- Several derived measures
- Integrates exposure & sensitivity for risk analyses
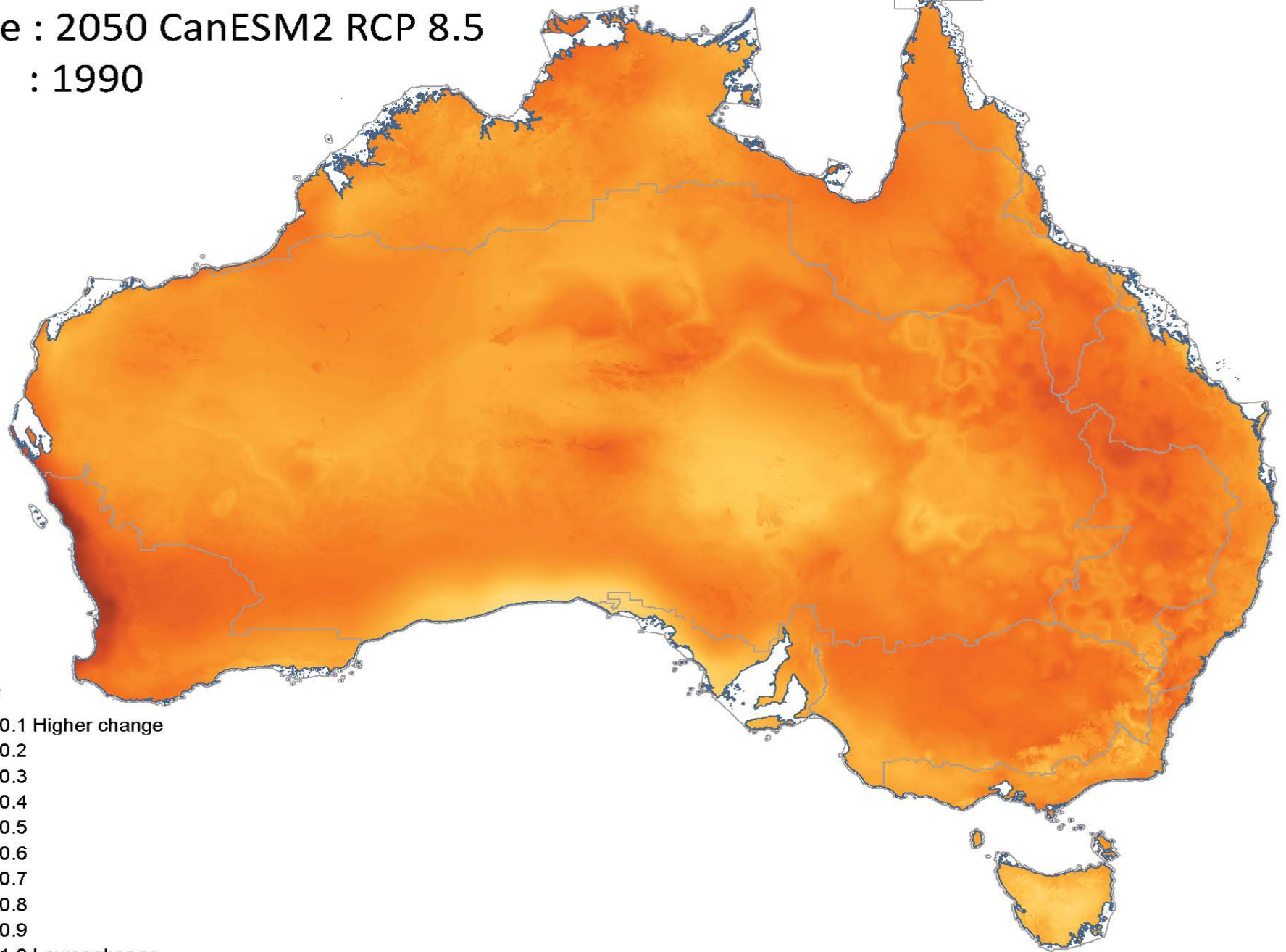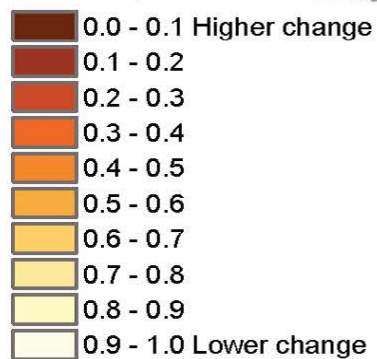- 250m grid so regionally/locally insightful

Potential degree of ecological change

Vascular plants

Future : 2050 CanESM2 RCP 8.5
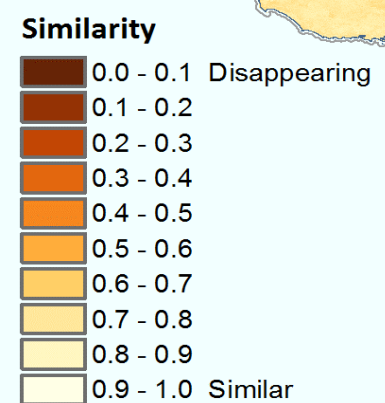Base   : 1990

Similarity

- 0.0 - 0.1 Higher change
- 0.1 - 0.2
- 0.2 - 0.3
- 0.3 - 0.4
- 0.4 - 0.5
- 0.5 - 0.6
- 0.6 - 0.7
- 0.7 - 0.8
- 0.8 - 0.9
- 0.9 - 1.0 Lower change
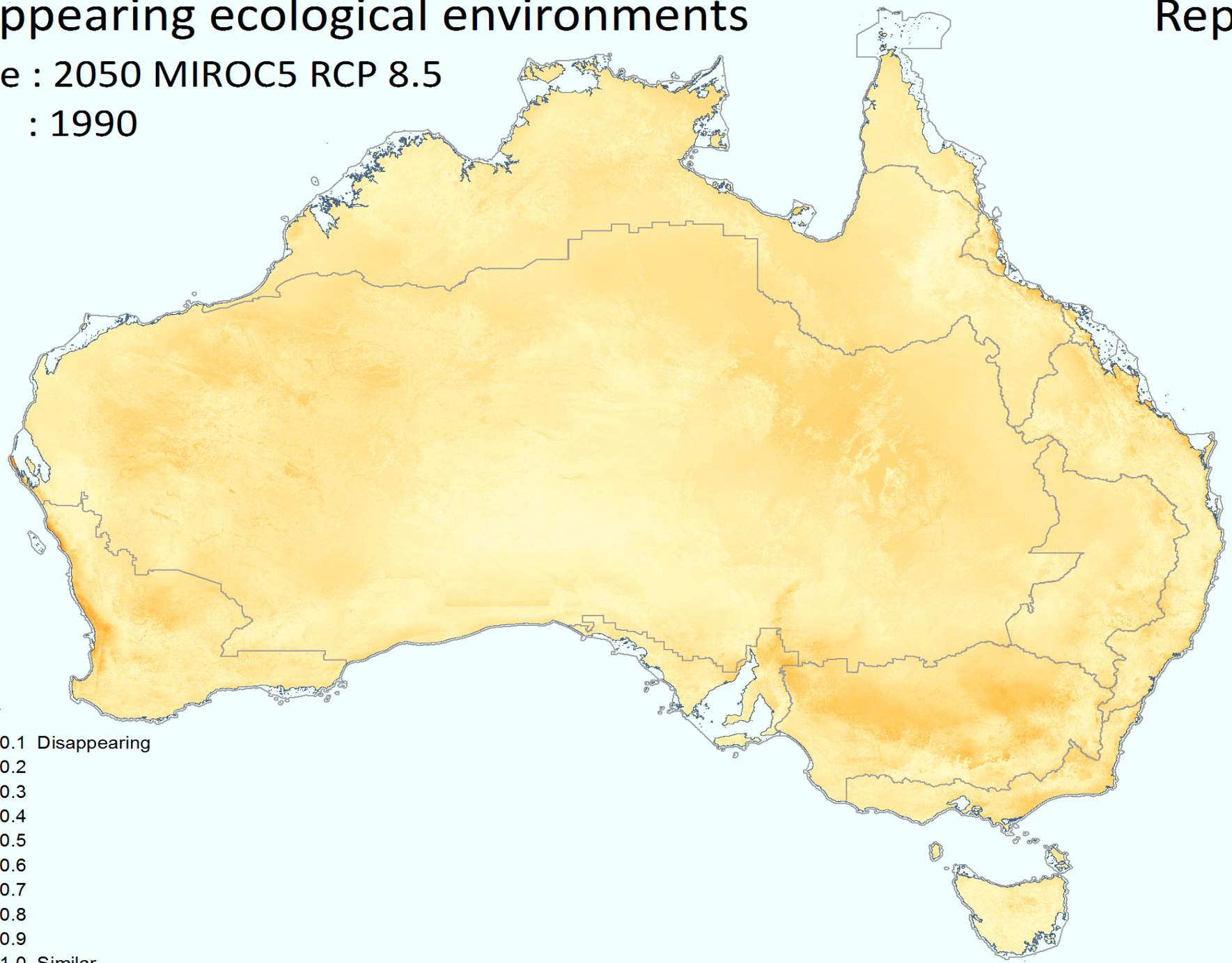
Helping biodiversity adapt: supporting climate adaptation planning using a community-level modelling approach

- Available June 2015
- Builds on 'Implications for biodiversity'
- Introduces new principles for conservation and new measures for evaluating potential actions
- Applicable to strategic and implementation planning

Principles

- Optimise ecological processes
- Maintain evolutionary character
- Maintain regional character
- Minimise species loss nationally
- Minimise mal-adaptation

Discussion…

- Do you identify with these principles?

- Does your current approach align with or have similarities to these principles?

- Do the principles present particular challenges to biodiversity conservation?

- What might need to shift to adopt such an approach?

ADAPTNRM
ADAPTING TO AUSTRALIA'S CLIMATE FUTURE

Thank you!
www.adaptnrm.org
Image: Winter budgies, Credits: NACC

For all other AdaptNRM enquiries, contact:

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t: 07 3327 4730

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t: 02 6246 4099

Projected ecological similarity: In the context of climate change, projected ecological similarity measures how similar a single location is over two time periods in its composition. It is typically applied to a baseline (current) and future climate scenario. Ecological similarity can vary from 0 (no species in common) to 1 (all species the same).

Potential degree of ecological change: The potential degree of ecological change is how much change in composition may occur. It is measured using the projected ecological similarity between different points in time, but at the same location. The lower the similarity between a baseline and future time, the greater the potential degree of ecological change. This is the unit used for many of the measures presented in *Implications of Climate Change for Biodiversity*.

Novel ecological environments: Novel ecological environments are places where the future environment that arises is likely to have a species composition that is different from any ecological environment currently known on the continent.

Disappearing ecological environments: Disappearing ecological environments are places where the species composition in its current form is unlikely to exist anywhere on the continent in the future.

Change in effective area of similar ecological environments: Change in effective area of similar ecological environments is the extent within a specified area to which a particular habitat may have changed in its suitability and therefore reduced or increased capacity to support its original biodiversity. For example, this may occur due to climate change and/or land clearing patterns. If there is a reduction in the effective area of similar ecological environments, we expect a corresponding loss of original biodiversity, and vice versa.

- **Projected distribution of vegetation type** provides an indication of how present-day vegetation communities may shift spatially with climate change.
- **Revegetation benefit** index suggests where revegetation may be most worthwhile in a changing climate.
- **Dispersal pressure** indicates the potential need for assisted dispersal under the projected future climate scenario
- **Refugial potential** indicates how important a location may be as an ecological refugium.

Blue Carbon

Cath Lovelock

23 April 2015

Update on Stream 2

- DoE meeting in Sydney – 2 days late Feb
  - Highlights: CSIRO on-line products demonstrated
  - Session about "tailoring your message"
  - Diversity of products and approaches
- Coming up
  - CSIRO briefing notes – Horticulture just released, other sectors to follow – May
  - East Coast Lows draft synthesis available May (NSW-OEH)
  - Planners working group reports
  - Terranova

"Blue carbon"

➤ CO_2 mitigation + conservation
- Carbon sequestered in mangrove forests, seagrass meadows, saltmarshes
- Carbon stored within <u>sediments</u>

Topics

1. Background: CO_2 emissions to the atmosphere from land-cover change

2. CO_2 emissions: The distribution and carbon stocks in mangroves

3. Summary of policy directions

4. Blue carbon in Australia

1. Background

- CO_2 emissions are leading to increases in atmospheric CO_2 concentrations which is causing increasing global temperatures
- Land-use change accounts for about ~30% of CO_2 emissions
- Losses of mangroves (and seagrass, saltmarsh) are contributing to CO_2 emissions because they contain a lot of carbon in their sediments that is emitted to the atmosphere when converted

Surabaya, Indonesia

Emissions: How can mangroves be important?

SOURCES: UNEP WORLD CONSERVATION MONITORING CENTRE AND INTERNATIONAL SOCIETY FOR MANGROVE ECOSYSTEMS

National Geographic Magazine

SN	Country	Area (ha)	% of global total	Cumulative %	Region
1	Indonesia	3,112,989	22.6	22.6	Asia
2	Australia	977,975	7.1	29.7	Oceania
3	Brazil	962,683	7.0	36.7	South America
4	Mexico	741,917	5.4	42.1	North and Central America
5	Nigeria	653,669	4.7	46.8	Africa
6	Malaysia	505,386	3.7	50.5	Asia
7	Myanmar (Burma)	494,584	3.6	54.1	Asia
8	Papua New Guinea	480,121	3.5	57.6	Oceania
9	Bangladesh	436,570	3.2	60.8	Asia
10	Cuba	421,538	3.1	63.9	North and Central America

- total 138, 000 km²
- Small forested area compared to terrestrial forests (~43 million km²)
- Developing nations

High carbon stocks in mangroves
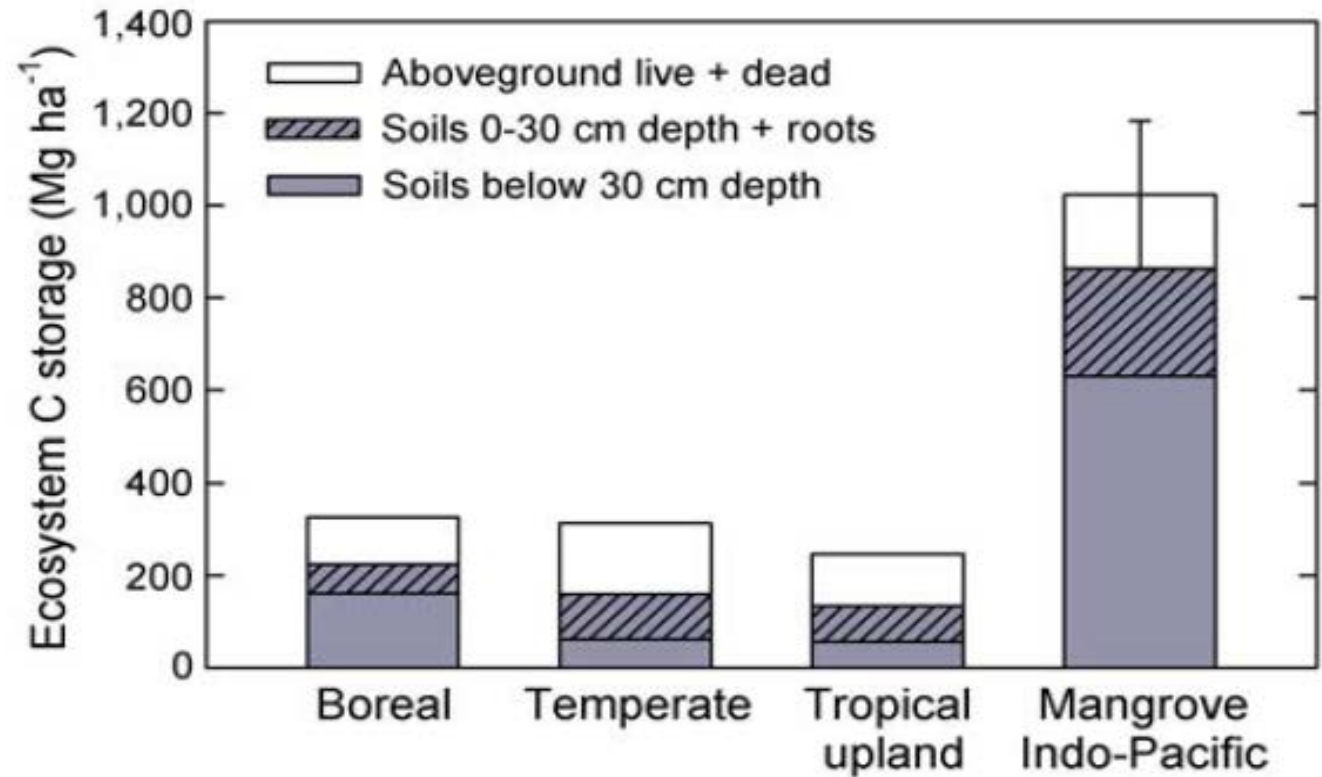
REVIEWS   REVIEWS   REVIEWS

A blueprint for blue carbon: toward an improved understanding of the role of vegetated coastal habitats in sequestering CO

Elizabeth Mcleod[1]*, Gail L Chmura[2], Steven Bouillon[3], Rodney Salm[1], Mats Björk[4], Carlos M Duarte[5,6], Catherine E Lovelock[7], William H Schlesinger[8], and Brian R Silliman[9]

Mangroves among the most carbon-rich forests in the tropics

Daniel C. Donato[1]*, J. Boone Kauffman[2], Daniel Murdiyarso[3], Sofyan Kurnianto[3], Melanie Stidham[4] and Markku Kanninen[5]

Rates of carbon sequestration are ~100 fold greater in blue C compared to terrestrial forests
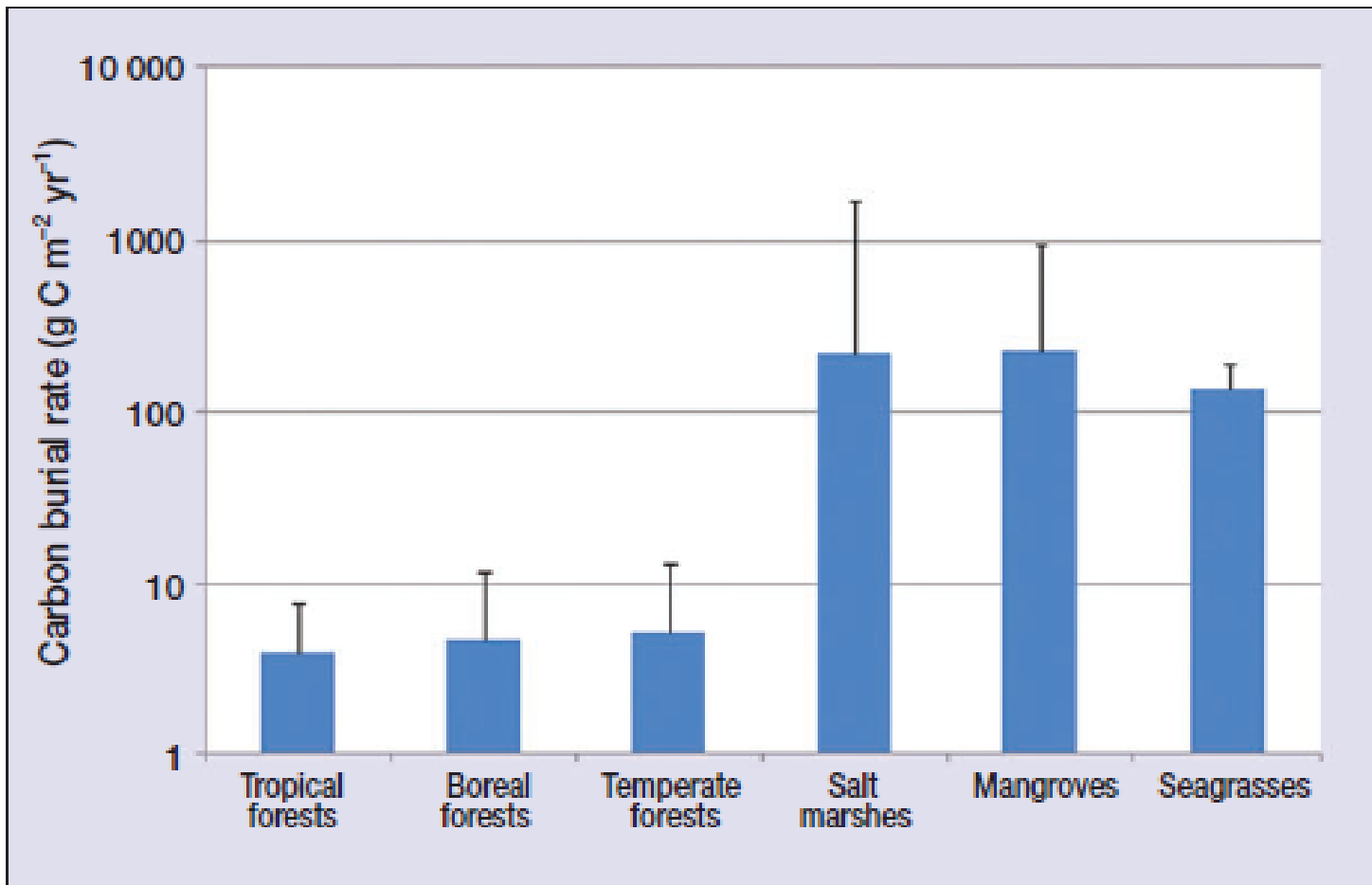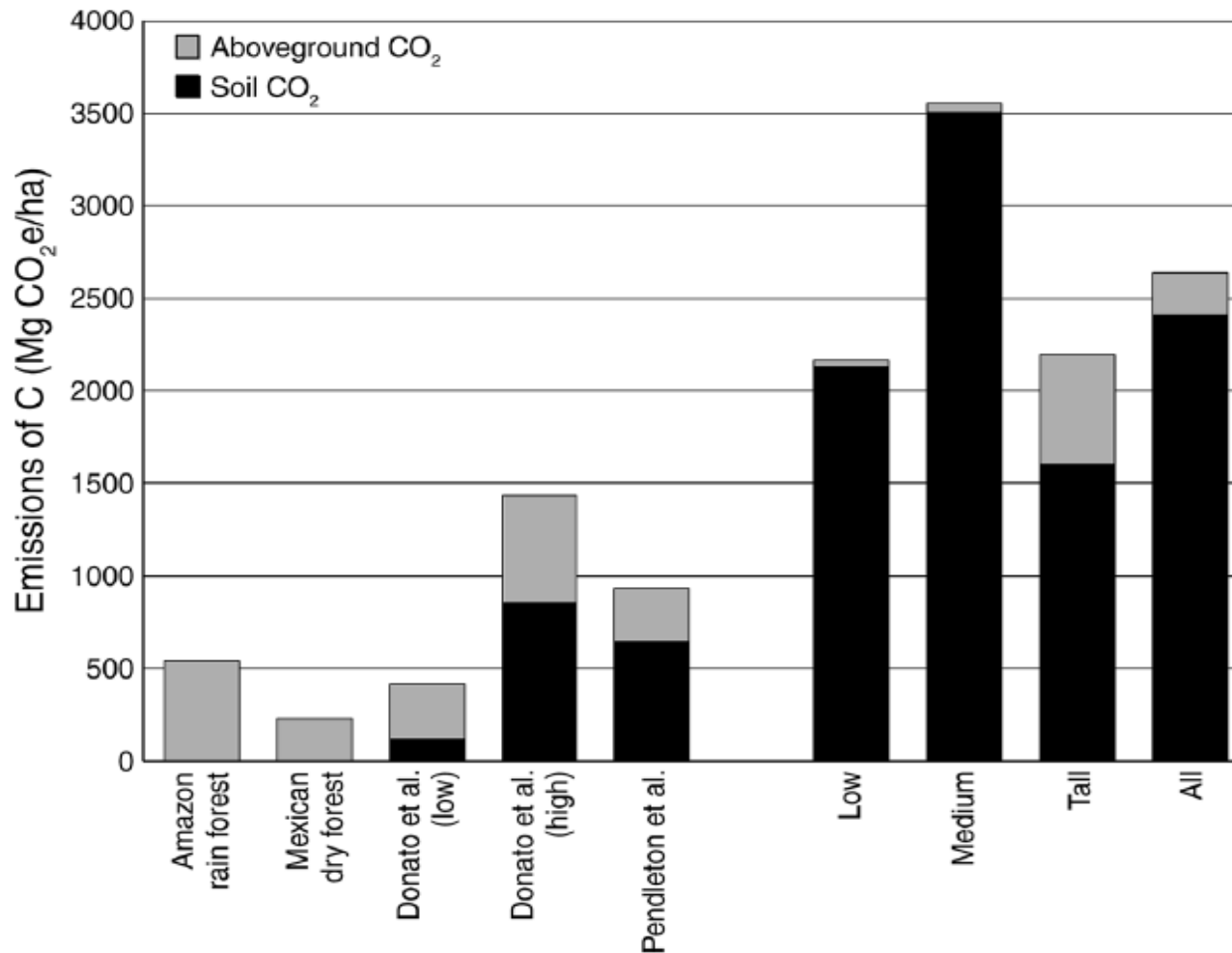
Evidence: Carbon stock change

➢ <u>Stock change</u> over time evident

  ➢ Conversion to shrimp ponds in Dominican Republic
    (Kauffman et al. 2013)
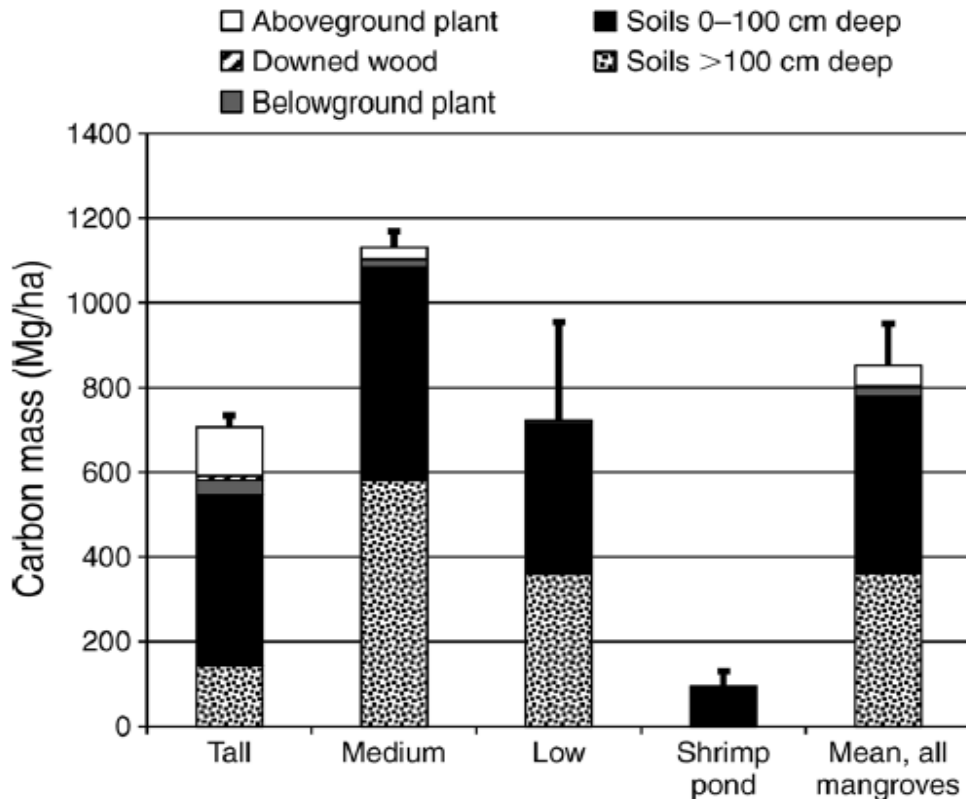
Estimated emissions from C stock change

- Current estimates of emissions maybe under-estimates

- Conversion to shrimp ponds
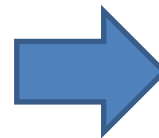
Policies to limit CO_2 emissions:

- Kyoto Protocol 2005
- IPCC 2006 guidance on accounting for CO_2 emissions
- Development of economic "tools" to reduce CO_2 emissions that have placed a value on CO_2 emissions
- Some of these tools are focused on reducing emissions and conserving natural ecosystems

REDD+

REDD+ helps to mitigate climate change through forests, and provides social and environmental benefits. It includes these essential components: creating incentives for not clearing standing forests, maintaining and expanding forest cover, sustainably managing forest and recovering degraded lands.

STOPPING FOREST DESTRUCTION

USING FORESTS SUSTAINABLY

RECOVERING DEGRADED LAND

MAINTAINING FORESTED PEATLAND

BLUE CARBON
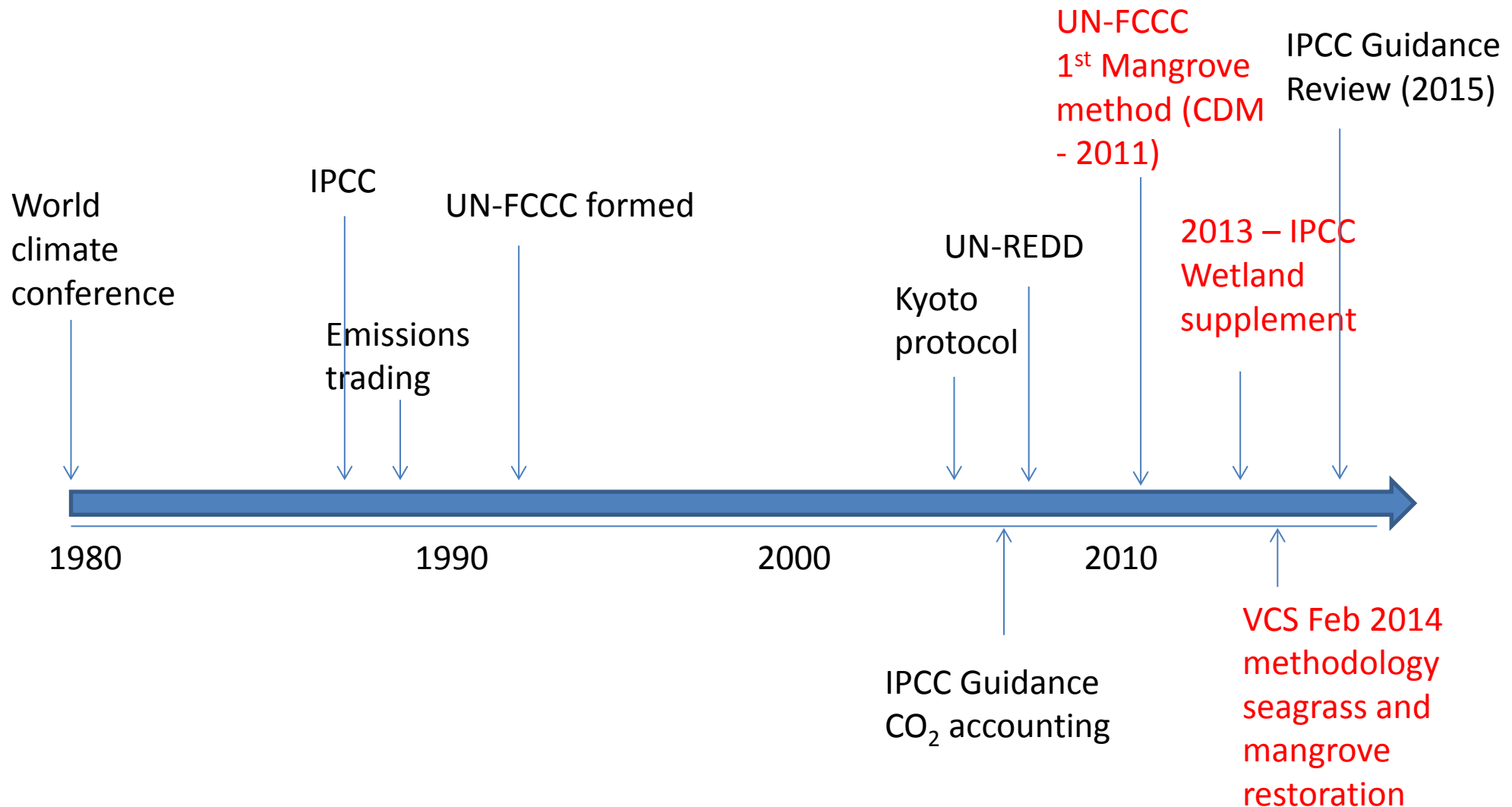THE ROLE OF HEALTHY OCEANS IN BINDING CARBON

e.g. Reducing Emissions from Deforestation and Forest Degradation in Developing Countries (~2008)

2009

Blue Carbon: progress in opportunities

UN-FCCC
1st Mangrove
method (CDM
- 2011)

IPCC Guidance
Review (2015)

IPCC

UN-FCCC formed

2013 – IPCC
Wetland
supplement

World
climate
conference

UN-REDD

Emissions
trading

Kyoto
protocol

1980   1990   2000   2010

IPCC Guidance
CO_2 accounting

VCS Feb 2014
methodology
seagrass and
mangrove
restoration

Current options for blue carbon projects in mangrove forests

➤ High value carbon stocks and high potential CO_2 emissions if the ecosystem is lost - developing nations
  - REDD+ strategies can work
➤ Restoration of carbon sequestration and stocks (USA)
  - Voluntary markets (VCS methodologies)
  - National policies and frameworks

Incorporating ecosystem services into the implementation of existing U.S. natural resource management regulations: Operationalizing carbon sequestration and storage

Ariana E. Sutton-Grier [a,c,*], Amber K. Moore [b,d], Peter C. Wiley [a], Peter E.T. Edwards [a,d]   2013

Considering "Coastal Carbon" in Existing U.S. Federal Statutes and Policies   Pendleton 2013

Blue carbon in Australia

- Coastal wetlands are protected!
- Regulatory (IPCC compliance, Offsets, etc...)
- Government - Direct Action (Carbon farming initiative or similar)
- Voluntary markets

Direct Action and coastal wetlands

– Big projects (difficult not insurmountable)

– Low cost interventions (possible)

– Compatible methods with established ones (possible)

– Site specific rates of carbon sequestration (possible and coming)

Action on the ground

- CSIRO Coastal Biogeochemistry Carbon Cluster (research)
- QLD government and others are doing some lobbying of Feds to include coastal wetlands in national GHG accounts
- Victoria is winding up (recent meeting)
  - Southern SeaScapes (TNC and partners)
  - NRM group and Deakin University
  - Greenfleet are ready to go - opportunity

QLD Preliminary project

- Working with the QLD Herbarium (Don Butler) to assess opportunities for carbon "farming" in wetlands
- Assess how re-establishing tidal flows in areas isolated from the sea, allowing mangroves to recolonize, is a carbon sequestration opportunity
- Focused first on ponded pastures (NQ)
  - Mapping
  - Establishing possible benefits (carbon sequestration, reduction in methane emissions) and dis-benefits (cattle production) of conversion to mangrove
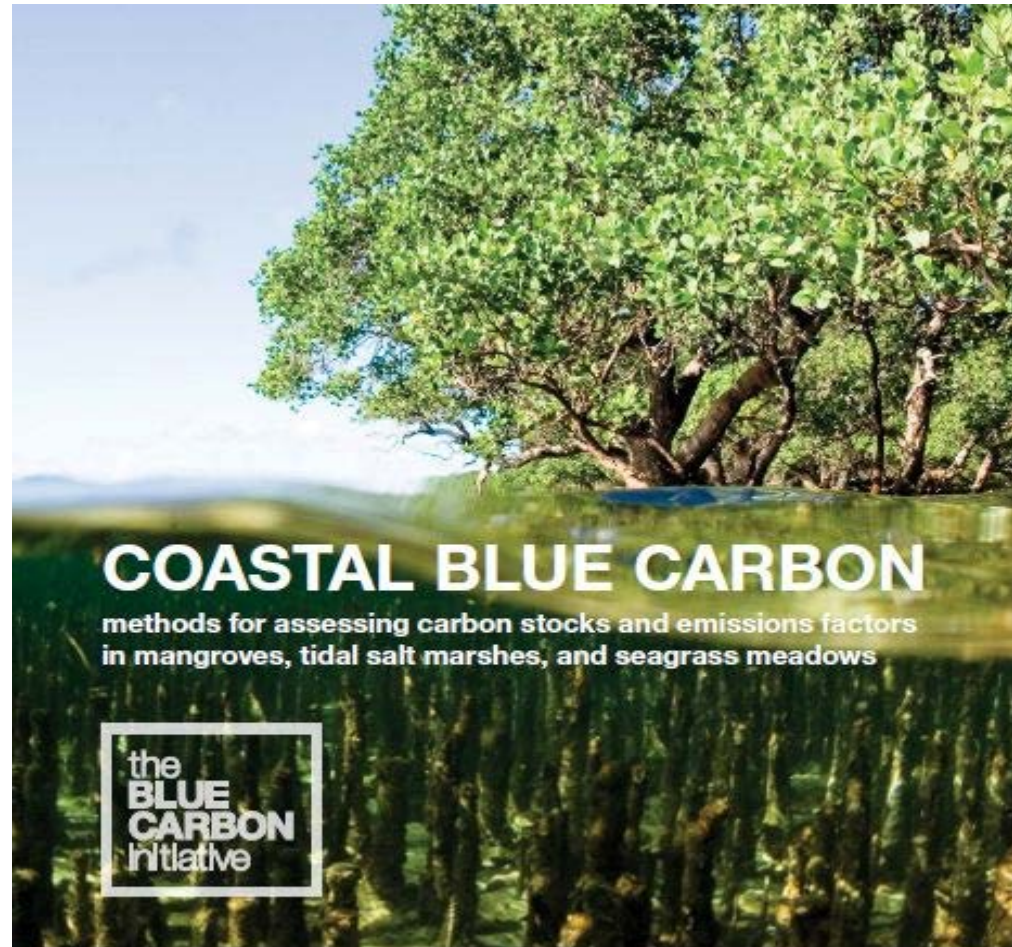
Pondage bank at Broad Sound

Mangrove growth along pondage bank adjacent to Fitzroy River.

- 1930's started, "insurance" against drought
- Lots of construction in 1960's
- In 2001 no longer possible to build walls below highest astronomical tides
- Maintenance of the banks still occurs
- 8000 ha in Fitzroy/Corio
- 8000 ha in Broad Sound
- Some catchments 90% of coastal wetlands have been converted
- Evidence of subsidence on "fresh side" – loss of soil carbon

What we are doing

- Mapping
- Loss of soil
- Methane emissions of pasture (literature)
- C sequestration (literature)
- Loss of freshwater biomass (initial emission - literature)
- Looking for other opportunities - ideas

Hot of the press