

**NRM ESTUARINE, COASTAL AND
MARINE REPORT CARD BEST PRACTISE
FRAMEWORK WORKSHOP REPORT**

Tangalooma, QLD, March 2008

UT12

Christopher Auricht, Dr Richard Mount and Jenny Newton



National Land & Water Resources Audit

An Initiative of the Natural Heritage Trust

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Executive Summary

Background – Current Status of Report Carding for ECM

Increasingly throughout Australia many state agencies, local governments, regional bodies (catchment management authorities) and other groups are choosing to produce and publish information about resource condition based on some form of formal reporting process. These tend to range from State of Environment type reports based on internationally accepted frameworks, through to simple score-card outputs based on nationally or locally developed frameworks. In some cases the output may be produced to fulfil legislative requirements at international, national or state level, however in recent times there has been an emerging trend to prepare reports to satisfy stakeholder and community expectations. These changes form part of a shift towards greater transparency and accountability currently being experienced throughout all levels of Government, and various industry sectors and the community.

A report card BPF provides guidance by identifying excellent reporting systems and solutions to report card issues. For example, this could be in the form of a checklist that a report card creator could use to ensure that the optimal report card can be produced with the available resources.

National Workshop

A national workshop was held in Queensland between 11 and 14th March 2008 with the following objectives:

- Within the context of the ECAF, identify the structure and core components for an NRM ECM Report Carding Best Practice Framework
- Identify what needs to be done (i.e. pathways, next steps) to produce and implement an NRM ECM Report Carding Best Practice Framework

This report provides a summary of the workshop.

Background documents and workshop proceedings are available on the project share-point web site. See below.

http://www.auricht.com/Report_Card/index.html

user = audit

password = chrisaOlives851

The above password protected website provides access to workshop agenda, background discussion paper, presentations and Workshop Outputs. Examples of existing on-line report cards and software tools are also available from the site.

Workshop Findings and Recommendations

The key findings of the workshop recommend further work in the following areas:

- Production of a Best Practise NRM ECM Report Card Developers Manual, drawing on existing standards wherever possible.
- More detailed definition of the “back end” or contributing reports, including susceptibility, vulnerability and risk reports.
- Consideration given to adopting the Streams and Estuaries Assessment Program (SEAP) (and the associated VPSIRR software) as a national ECM standard.

- Consideration given to further development of the VPSIRR software package, to enable easier implementation of standard approaches to scoring. For example, it would be possible to develop standardised settings in the software that can produce regional, state and national scores derived from the same information content.
- Determine whether it is important to go beyond report card grades and identify management actions.
- Further development of the rules around aggregating and integrating indicators for report card purposes.
- Trialling of the ECAF report card process with report card writers and trialling of the resulting report cards with audiences.
- Development of management objectives for each asset – a critical component of the ECAF which should be given a high priority

Within the context of NRM report carding activities throughout Australia the ECAF offers considerable value – one unique aspect is that it provides an overall policy framework under which various report carding activities can be implemented. In this respect it also provides a solid foundation from which to develop standards and governance arrangements.

Definitions

Asset: The attributes of a system that hold value for the community and about which the community would be concerned if they were lost or degraded (DNRE 2002)

BPF: Best Practice Framework

Condition (State): The state or health of individual animals or plants, communities or ecosystems (Scheltinga 2004).

ECAF Framework Structure: The organising principles and overall approach underpinning the framework. For the ECAF, it consists of the flexible, layered First, Second and Third Passes.

Index or Indices: These can refer to a score or measure generated by combining (e.g. aggregating or integrating) a number of indicators.

Indicators: At it's simplest, it is...XXXX Ecologically, they may be processes, species or community characteristics of a particular habitat that are indicative of a particular set of environmental conditions (Barton 2003).

National: Here, an adjective describing something that is produced or agreed by jurisdictions at all levels including the Australian Government, State/NT Governments, NRM Regions and Local Governments.

NEECAAF: National Estuarine Environmental Condition Assessment (ECA) Framework. A framework developed by regions states/territories and the Australian Government

NMECAF: National Marine Environmental Condition Assessment (ECA) Framework. A framework developed by regions states/territories and the Australian Government

Pressure/ Driver: Factors that impact on aquatic ecosystems and includes pollutants, changes to habitat, changes to flows, pest species and direct human impacts such as fishing (Moss et al. 2006).

Report Card: This is a general term for any high level summary of, in this case, environmental information designed to communicate with a target audience. The concept includes scorecards and State of Environment Summary Reports. It may, or may not, include an overall "score" or ranking such as an "A" or "B" as used in old fashioned school report cards.

Risk: One definition is that it is a combination of the vulnerability of the system and the intensity of the pressure (stressor) on, a system – a highly vulnerable system exposed to a high level of pressure is considered at high risk (Moss *et al* 2006).

Stressors: Major components of the environment when changed by human or other activities can result in degradation to natural resources. Stressors can be a component of the environment that is changed from its natural state or a component not usually present in natural (healthy) ecosystems (Scheltinga 2004).

TBL: Triple bottom line - decisions that consider economic, social and environmental factors

Threat: A source of impending danger or harm to the condition of natural resource assets or the services they provide. Can include both pressures and stressors

Trajectory / Phase: An aspect of the system that varies with time e.g. wet/dry season and open/closed estuary

Value: The worth we assign to an estuary or attributes of an estuary. These are reflected in the management objectives for the estuary

Vulnerability: The resilience or sensitivity of the system to a stressor (Moss *et al.* 2006).

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Introduction

Background

This report presents a summary of a national workshop held in Queensland between 1-14 March 2008 to explore the potential for developing a national Best Practice Framework (BPF) for NRM ECM report carding based the recently developed Environmental Condition Assessment Framework (ECAF). The rationale of developing a best practice framework for NRM ECM Report Carding is to provide a guide and standard for those involved in producing report cards or similar summary documents of environmental information e.g. State of Catchment Reports.

Increasingly throughout Australia many state agencies, local governments, regional bodies (catchment management authorities) and other groups are choosing to produce and publish information about resource condition based on some form of formal reporting process. These tend to range from State of Environment type reports based on internationally accepted frameworks, through to simple score-card outputs based on nationally or locally developed frameworks. In some cases the output may be produced to fulfil legislative requirements at international, national or state level, however in recent times there has been an emerging trend to prepare reports to satisfy stakeholder and community expectations. These changes form part of a shift towards greater transparency and accountability currently being experienced throughout all levels of Government, and various industry sectors and the community.

A report card BPF provides guidance by identifying excellent reporting systems and solutions to report card issues. For example, this could be in the form of a checklist that a report card creator could use to ensure that the optimal report card can be produced with the available resources.

The report card BPF could also act as a “yardstick” or standard to measure potential report card content against. For example, many industries are monitoring aspects of the environment and producing reports. Assessing whether these reports should be incorporated into NRM reports could be done with a report card BPF. The concept of report card standard setting is also beneficial when compiling high level (e.g. national) reports from information supplied from separate sources (e.g. states). For example, it would be useful to decide whether four or five classes are standard when “scoring” at the national level (i.e. “A-D” or “A-E”), as this would assist the translation of the available information. Refer to text box below:

Audience

The national report card BPF is designed to assist the ECAF to deliver consistent assessments of broad resource condition at the national level to all parties interested in national scale reporting. These include national policy makers, such as politicians and natural resource managers, and the general public. A wide range of industrial and national development interests intersect with estuarine and marine ecosystems including emergency management, key national infrastructure (e.g. ports, refineries, desalination plants), shipping and transport, urban development, water and sewage management, recreation, tourism, conservation, agriculture, aquaculture and fishing.

The reports and assessments are useful for people who need to make comparisons of regions or states with other regions or states or with the national perspective. For example, this information will assist with evaluating the effectiveness of programs such as the Caring for our Country.

Multi-scale reporting requires specific interpretation of the data for the intended audiences. Information important to local and regional managers needs to be collated, aggregated and, usually, reinterpreted for larger scale reporting. The ecological processes of interest often changes with the jurisdictional interests of the specific report reader. For example, a regional manager may be interested in the number of algal blooms in an estuary, but a report that aggregates this information for a national audience will be difficult to interpret because records will vary greatly with monitoring effort around the country.

While the ECAF is designed to support national level reporting, any such system is dependent on the states, Northern Territory and regions as they are the primary sources of ecological information. Clearly, the ECAF and the associated Report Carding BPF must work for all the participants in the system. The ECAF is a high level assessment framework that acts as a “**translation engine**”. This means that it does not attempt to prescribe detailed methods of assessment that are inconsistent with current state and Northern Territory practises. Instead, it defines concepts and standards that allow information generated by those various practises to be translated for national reporting purposes

ECM Environmental Condition Assessment Framework

The development of this NRM **ECM Environmental Condition Assessment Framework**, or ECAF was driven by an analysis of the information base required for reporting. It has a number of characteristics as follows:

- An “**environmental condition assessment**”, or ECA, is a broad assessment of the environmental condition or status of a defined NRM “asset”, such as an estuary, key habitat type or key ecological feature, given current management objectives. The key concept is a focus on environmental or ecological condition in a way that contributes to, for example, triple bottom line reporting, pressure-state-response reporting or ecosystem services assessments.
- The ECAF is an **assessment framework** only, not a management framework. It complements and supports the information requirements of management via a systematic approach to information management. It can be thought of as a form of “**assessment logic**” that complements the NRM “program logic” approach.
- The ECAF is a high level assessment framework that acts as a “**translation engine**”. This means that it does not attempt to prescribe detailed methods of assessment that are inconsistent with current state and Northern Territory practises. Instead, it defines concepts and standards that allow information generated by those various practises to be translated for national reporting purposes

Workshop Objectives, Scope and Structure

Workshop Objectives

The key objectives of the workshop were to:

- Within the context of the ECAF, identify the structure and core components for an NRM ECM Report Carding Best Practice Framework
- Identify what needs to be done (i.e. pathways, next steps) to produce and implement an NRM ECM Report Carding Best Practice Framework

Workshop Scope

The workshop scope was framed to focus on a number of key areas. These include the following:

- Furthering the development and refinement the range of reports and other outputs generated by the ECAF 'reporting engine'.
- Assisting with the identification and establishment of standards for high level national NRM asset condition assessment 'wrapper' report cards, which act as overall broad summaries of 'how things are going at present' based on available underlying reports
- Assisting with the definition of NRM 'Assets'
- Addressing the environmental aspects of Triple Bottom Line (TBL) reporting
- For the purposes of reporting the areas of interest where confined to ECM within State Coastal Waters (i.e. 3 nm boundary)

Workshop Structure

The workshop structure was developed to progress from background information type sessions leading through to identification of issues and outputs and development of action plans for future pathways as part of the next steps. A mix of delivery mechanisms were used – viz: background papers and presentations (which took the form of an Open Day), technical working sessions (in the form of a software workshop), break-out groups and group discussion/plenary sessions.

A copy of the workshop program and agenda is given as Attachment 1, while a listing of workshop participants is given as Attachment 2.

Key Outcomes and Recommendations

Development of an ECAF Share-Point Web Site

Given the considerable amount of background reference material available relevant to the workshop (e.g. existing report carding initiatives, frameworks for economic and social indicators, triple bottom line indicators, habitat classification schemes and guidelines on the identification of assets etc), coupled with the need (or interest) to make the high quality background presentations and preliminary workshop findings quickly available to interested parties a share point web site was established. Refer Figure 1.

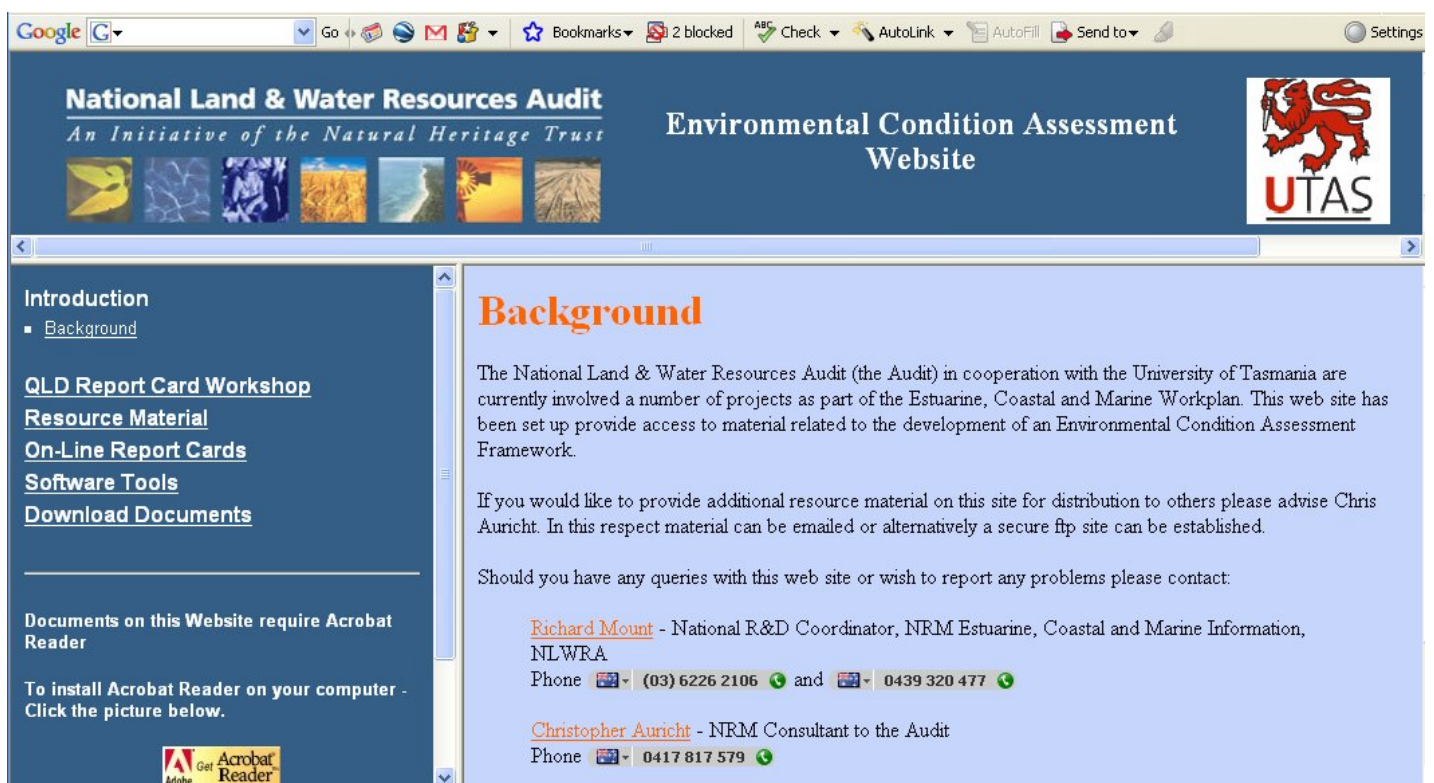


Figure 1. ECAF Share-Point Web Site

Specific details for the share-point web site are:

http://www.auricht.com/Report_Card/index.html

user = audit

password = chrisaOlives851

The above password protected website provides access to workshop agenda, background discussion paper, presentations and Workshop Outputs. Examples of existing on-line report cards and software tools are also available from the site.

Outcomes and Recommendations

Key Findings

The following principles and learnings about NRM ECM report cards were obtained:

- The ECAF is capable of producing NRM report cards and is consistent with known ECM report card activities occurring around the country.
- Each report card must be designed for a purpose and for a clearly defined target audience.
- Successful report cards form only one part of an overall communication package.
- The integrity of the reporting process is critical to building trust and respect, and thus, its value and influence. Transparency of the reporting process is the best way to ensure integrity. Trusted messengers are important report card allies.
- A report card needs to have a multi-tiered structure or layout with a simple top level score and/or comment, followed by brief summaries of the “back end” or contributing reports at the second tier and access to the underlying “back end” reports at the third tier.
- The summarised top level score should be derived from the environmental condition assessed in the light of current management intentions.
- A lack of adequate data or management objectives should be reported. That the data is absent and needed will form the content of the report. This builds incentive to strive for better quality information, rather than being “data driven”.
- A developer’s guide to NRM report carding that presents the ECAF and current science communication best practice is critical to setting national reporting standards.

Draft Schematic Structure and Content of Report Cards

Report Cards need to have a tiered structure with:

- A very simple high level summary, including an overall score (where possible)
- A summary of contributing information and its quality
- Access (linkage) to underlying summary reports of contributing information and methods etc
- Access to detailed source data

Where practical a national 5 class scoring scale should be used

Contributing reports may include:

- Descriptive or foundation data
- Conceptual models and flow charts
- Susceptibility (or vulnerability) reports
- Pressure reports
- Degree of modification reports
- Risk assessment reports
- Current condition reports

Draft Implementation Guideline

Stage One - develop the "back end"

1. An environmental/ecological description of the "asset" e.g. the whole estuary or some aspect of the estuary such as WQ. The description would include the catchment and hydrology etc (in layman's terms) and would ideally be in the form of a conceptual model (cartoon or boxes and arrows or flow chart).
2. Drawing from the description, identify the vulnerability of the system (i.e. low vulnerability due to high flushing rates) and the key types of pressures/threats acting on it.
3. If quantified pressure/threat information is available (e.g. some kind of catchment disturbance index or invasive spp or fishing pressure or nutrient loadings etc) then it may be possible to identify the Likely Condition or Estimated Condition or Inferred Condition. For example, a highly vulnerable estuary with a lot of pressures acting on it would likely to be in poor condition. This is a "Likely Condition Assessment".
4. Identification of Values and Management Objectives attached to the estuary. The ANZECC National WQ Management Strategy's 3 categories of Aquatic Ecosystem Protection (see <http://www.environment.gov.au/water/publications/quality/targets-online/factsheet.php?id=3>) of *Ecosystems of high conservation or ecological value, Slightly to moderately disturbed ecosystems, and Highly disturbed ecosystems* would do for now. Each estuary could be allocated to a single category and then any scoring would be done using this category as a reference.

Note: 1-3 are 1st Pass activities)

5. To take this a step further, is there any way to conduct a Risk Assessment. This could be in the form of a comparison of the asset's vulnerability against the pressures (e.g. VPSIRR) in the light of the consequences/losses (i.e. lost values)
6. If there is a monitoring program over a long enough period, then it would be possible to report on those resource condition indicators, especially if there are target ranges for the measured variables e.g. turbidity etc. (3rd Pass activity). Alternatively, as has been done in Victoria, it may be possible to produce a "Condition" report based on the information that is available. For example, an Index of Stream Condition.

Stage Two - produce the "front end" Report Card itself.

7. Finally, assess what "back end" reports are available and collate them into a "front end" Report Card, ideally with a three tiered structure as follows:

1. A top level headline assessment (scored on a 5 class range such as A-E). This score ideally consists of the ecological evidence measured against the management objectives (e.g. NWQMS levels of protection) as a reference - i.e. NOT only against pristine naturalness.

2. A summary of any mix of the input reports including Descriptions (maps, volumes, typologies), Conceptual Models, Vulnerability (susceptibility) scores, Pressure scores, Likely Condition scores, Risk scores and Resource Condition status and trends. (All scores = 5 classes)

3. The underlying reports and science in detail including data.

Other components could include a description of the process used to produce the report i.e. validity/credibility/independence/transparency/reviews etc. Data quality and reliability statements. Possibly some pointers to actions that could be considered by management.

Note Tiers 1 and 2 may well appear on the same page. Tier 3 of the report card would be a appendices or further readings etc.

Recommendations

Based on the key findings of the workshop further work is recommended in the following areas:

- Production of a Best Practise NRM ECM Report Card Developers Manual, drawing on existing standards wherever possible.
- More detailed definition of the “back end” or contributing reports, including susceptibility, vulnerability and risk reports.
- Consideration given to adopting the Streams and Estuaries Assessment Program (SEAP) (and the associated VPSIRR software) as a national ECM standard.
- Consideration given to further development of the VPSIRR software package, to enable easier implementation of standard approaches to scoring. For example, it would be possible to develop standardised settings in the software that can produce regional, state and national scores derived from the same information content.
- Determine whether it is important to go beyond report card grades and identify management actions.
- Further development of the rules around aggregating and integrating indicators for report card purposes.
- Trialling of the ECAF report card process with report card writers and trialling of the resulting report cards with audiences.
- Development of management objectives for each asset – a critical component of the ECAF which should be given a high priority.

Overall the outcomes of the workshop demonstrated that the ‘report carding’ process is critical to the ECAF, however at this stage it requires additional development. A number of steps have been identified above, all of which have potential to deliver positive outcomes.

The delivery of report cards within the context of a rich national repository of high quality information consistent with the ECAF report cards and NRM indicators is currently in an excellent position – refer to Case Study given as Attachment 3. This scenario show-cases the new NRM

Reporting Module within the OzCoasts web site and demonstrates the multi-scale linkage between various thematic areas and levels of reporting. The unique aspect of ECAF is that it provides an overall policy framework under which various report carding activities can be implemented. In this respect it also provides a solid foundation from which to develop standards and governance arrangements.

Note: for additional information on workshop outputs users are referred to the share-point web site.

For completeness material produced as part of the workshop sessions are presented in Attachments 4 and 5.

Attachment 1
Workshop
logistics and
Agenda

ECM NRM Report Carding Workshop, Brisbane **11-14 March 2008**

Organisers:

Richard Mount
National R&D Coordinator
NRM Estuarine, Coastal and Marine Information
National Land and Water Resources Audit (NLWRA).
03 6226 2106; 0439 320 477

Facilitator:

Kim Willing

Chris Auricht
Auricht Projects
08 83773460; 0417 817 579

Alana Innes
Natural Resource Themes Coordinator
National Land & Water Resources Audit
02 6263 6039

Logistics Contact:

Jenny Newton
03 6226 1981; 0418 991 480
Contact Jenny for any assistance during the four days of the workshop.



National Land & Water Resources Audit
An Initiative of the Natural Heritage Trust

Tuesday 11 March – VPSIRR Software workshop

Convenors: David Scheltinga and Andrew Moss

Venue: State Library of Queensland, Training Room 07 3840 7666
Cultural Centre
Stanley Place
South Bank

Times: 10am to 3pm
Lunch provided at the venue, 12.30pm



Travelling to South Bank

By car

Temporary vehicle set-down in Stanley Place; access via Grey Street, Montague Road, the Cultural Centre tunnel or Peel Street.

Paid parking is available at the following local car parks:

- **Stanley Place car park.** Enter via the Cultural Centre tunnel or Stanley Place. For information on parking fees, telephone (07) 3840 7103.
- **Queensland Art Gallery/Queensland Museum car park.** Enter via Grey Street or the Cultural Centre tunnel. For information on parking fees, telephone (07) 3840 7103.
- **Queensland Performing Arts Centre car park.** Enter via the Cultural Centre tunnel. For information on parking fees, telephone (07) 3840 7103.
- **Brisbane Convention and Exhibition Centre.** Enter via Stanley or Merival Streets. For information on parking fees, telephone (07) 3308 3000.

Wednesday 12 March 2008

Open Day: Report Card Presentations

Venue: State Library of Queensland, Auditorium 2
Cultural Centre
Stanley Place
South Bank

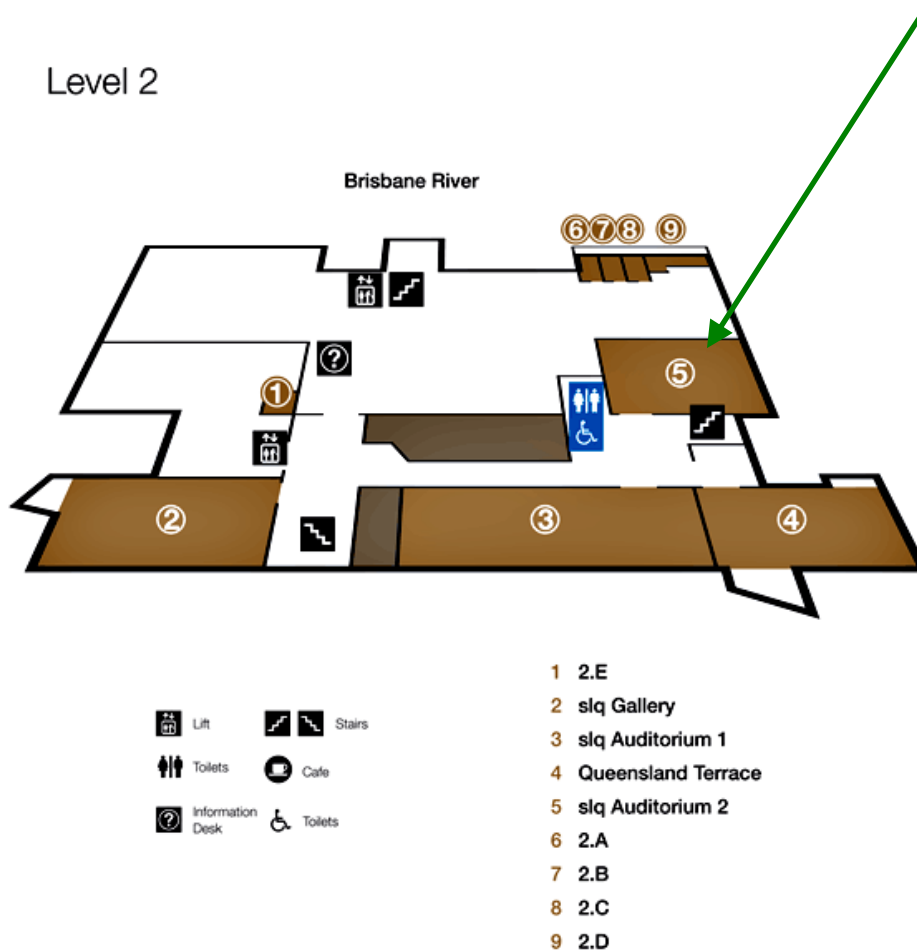
07 3840 7666

Times: 9am to 3pm

Morning tea (10.40) and lunch (12.30) provided at the venue.

Map and access details for the state Library of Queensland are given on page 2.

Auditorium 2 is on Level 2. To access level 2 you will need to proceed through Security. Laptops and back pack size bags will be tagged and allowed through to Level 2. Larger bags and cases need to be left in the Cloakroom.



DRAFT Report Card Framework Open Day

SUBJECT TO MINOR CHANGE

9am to 3pm Wednesday, 12 March 2008 at the State Library of Queensland - Auditorium 2

Time	Presenter	Title
9.00	Dr Richard Mount National R&D Coordinator NRM Estuarine, Coastal and Marine Information National Land and Water Resources Audit (NLWRA).	Welcome and Introduction to the Environmental Condition Assessment Framework (ECAAF)
9.50	Dr David Scheltinga/ Andrew Moss Freshwater and Marine Sciences Unit Environmental Protection Agency	A framework for monitoring the risk to estuarine, coastal and marine areas and its current condition: assisting management
10.20	Tony Roper/ Dr Peter Scanes Manager, MER Coordination Section Department of Environment and Climate Change National Estuaries Network NSW Department of Environment and Conservation	NSW Estuarine Report Carding
10.40	<i>Morning tea</i>	
11.00	Dr Jan Carey Marine Environmental Botanist University of Melbourne	An opinion on "Expert Opinion"
11.20	Dr Chris Marshall Science and Information Management Section Marine and Biodiversity Division Department of the Environment, Water, Heritage and the Arts	Identifying Marine Assets for Assessment
11.40	Dr Lynda Radke Marine & Coastal Environment Group Geoscience Australia	OzCoasts NRM Reporting Module
12.00	Chris Barry (by Dr Richard Mount) National R&D Coordinator NRM Estuarine, Coastal and Marine Information National Land and Water Resources Audit (NLWRA).	Gippsland Integrated Natural Resources Forum Report Cards
12.20	<i>Lunch</i>	
1.30	Dr Eva Abal Scientific Coordinator, South East Queensland Healthy Waterways Partnership	SEQ Reporting Framework
1.50	Dr David Rissik Chief Scientist, Queensland EPA	EHMP contingency monitoring review

2.20	Dr Bronwyn Harch Research and Business Leader, Environmental Modelling and Monitoring CSIRO Mathematical and Information Sciences	Report Card Principles: A statistical viewpoint
2.40	James McKee Operations Manager NRM North, Tasmania	NRM regional perspective - Report Card trial

All participants attending the Report Card Framework Workshop at Tangalooma need to be ready to board the bus at 3.30pm.

Wednesday 12 March – Friday 14 March 2008

ECM NRM Report Carding Framework 2 Day Workshop

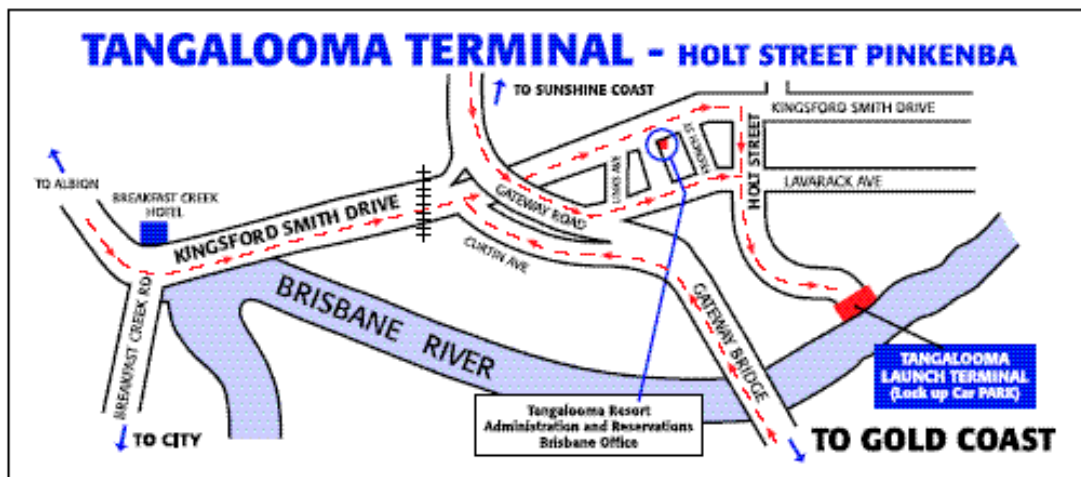
Venue: Tangalooma Resort
Moreton Island

www.tangalooma.com

Wednesday 12 March

A bus will collect participants from the State Library of Queensland at 3.30pm for transfer to the Tangalooma ferry. The ferry leaves Holt Street Wharf at **5pm**.

Parking is available at the ferry terminal (\$6 per day). Holt Street Wharf is approximately 15 minutes from Brisbane Airport and the City Centre. Please let Jenny Newton know (0418 991 480) if you will not be travelling on the bus.



- 6.15pm Arrive at Tangalooma and check-in
- 7.30pm Deluxe Aussie Barbecue on the Patio

Thursday 13 March

Time	Event
7am	Breakfast will be served in Tursiops.
9am	Workshop commences in Wadsworth Room.
1pm	Lunch served on the Patio.
2pm – 5.30pm	Workshop continues in Wadsworth Room.
7 pm	<u>Dolphin Feeding opportunity.</u> Meet at the Tanga Jetty for a briefing. You will need to wear shorts and Tshirts as you could get wet up to your waist.
8pm	Dinner on the Patio.

Friday 14 March

Time	Event
7am	Breakfast will be served in Tursiops. You will need to check out of the rooms by 10am. All luggage should be left outside rooms for collection with blue luggage tags supplied
9am	Workshop continues in Wadsworth Room.
12.30pm	Lunch served on the Patio.
1.30pm – 3pm	Workshop continues in Wadsworth Room.
3.30pm	Delegates assemble on jetty for departure to collect boarding passes.
4pm	Launch departs
5.15pm	Launch arrives at Holt Street Wharf. A bus will deliver us to the airport by 6pm.

Attachment 2

Workshop

Participants

ECM NRM Report Carding Framework Workshop Participants

Name	From	Agency	Phone Number	Email
Tim Allen	VIC	NRM Coastal Facilitator	03 9637 8493 0438 463 889	Tim.Allen@dse.vic.gov.au
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Al Becker	VIC	Deakin University		Al.Becker@deakin.edu.au
Jo Burton	QLD	SEQHWP	07 3403 6861	jo.burton@healthywaterways.org
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Jean Chesson	National	BRS	02 6272 5893 0409 448 924	Jean.Chesson@brs.gov.au
Jocelyn Dela Cruz	NSW	DECC		Jocelyn.Delacruz@environment.nsw.gov.au
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Sam Gaylord	SA	EPA	08 8204 2068 0405 228 583	sam.gaylard@epa.sa.gov.au
Alana Innes	National	NLWRA	02 6263 6039	Alana.Innes@nlwra.gov.au
Chris Marshall	National	NOO	03 6208 2916	Chris.Marshall@environment.gov.au
James McKee	TAS	NRM North	03 63337772 0412 704 229	JMcKee@nrmnorth.org.au
Andrew Moss	QLD	EPA	07 3896 9245	andrew.moss@epa.qld.gov.au
Richard Mount	TAS	ECM Coordinator, Audit	03 6226 2106 0439 320 477	richard.mount@utas.edu.au
Sue Murray-Jones	SA	SADEH	08 8124 4895	murray-jones.sue@saugov.sa.gov.au
Jenny Newton	TAS	UTAS	03 6226 1981 0418 991 480	jbnewton@utas.edu.au
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Attachment 3

Case-study:

Burnett Mary

NRM Region

Estuarine Report

Cards

3 Case Study: Burnett Mary NRM Region Estuarine Report Cards

Source: Scheltinga and Tilden, 2008

The aim of this project was to examine how estuarine condition and pressure (risk) data can be reported at a variety of levels, from local to national, to be useful to the relevant resource managers at those levels.

The project produced mock-ups of national and regional web pages of estuarine report cards that contain real data. Reporting at the local government and state level for State of the Environment (SoE) reporting purposes was also examined, though not actively engaged, during this project.

Reporting needs of local government

Local governments from the Burnett Mary region were consulted on their needs for estuarine reporting products through the Burnett Mary Regional Group (BMRG), which has local government coordinators within the organisation. However, due to the amalgamation of councils within Queensland and the council elections held in mid March, the local governments were unable to provide advice on their current or future needs. However, a simple method of reporting on the estuaries located within a local government boundary, and for providing information at local government level, was thought to be useful.

Queensland State SoE reporting needs

State Government SoE and SoE on-line managers were consulted during the project but, due to the imminent release of the Qld SoE report, were unable to provide advice on their reporting needs. They were, however, excited about the reporting products produced for the BMRG and on OzCoasts and talks are continuing to produce a 'State' report which will be based around reporting on stressors.

Burnett Mary Regional reporting

The starting web page is the "Burnett Mary Region State of the Estuarine Environment Regional summary" page (see Figure 3). This regional summary page provides:

- a text summary for the region as a whole and a link to download the full *State of the Estuarine Environment Report*
- a Google interactive map of the region, highlighting the position of all the estuaries studied, with the estuary selected specifically shown
- a summary of the overall health, risk and trend of each of the estuaries monitored
- information on the *Key stressors* in the region
- *Information about the assessment process*, i.e. the Stream and Estuary Assessment Program (SEAP) framework used to monitor the estuaries
- a link to the national reporting OzCoast website.

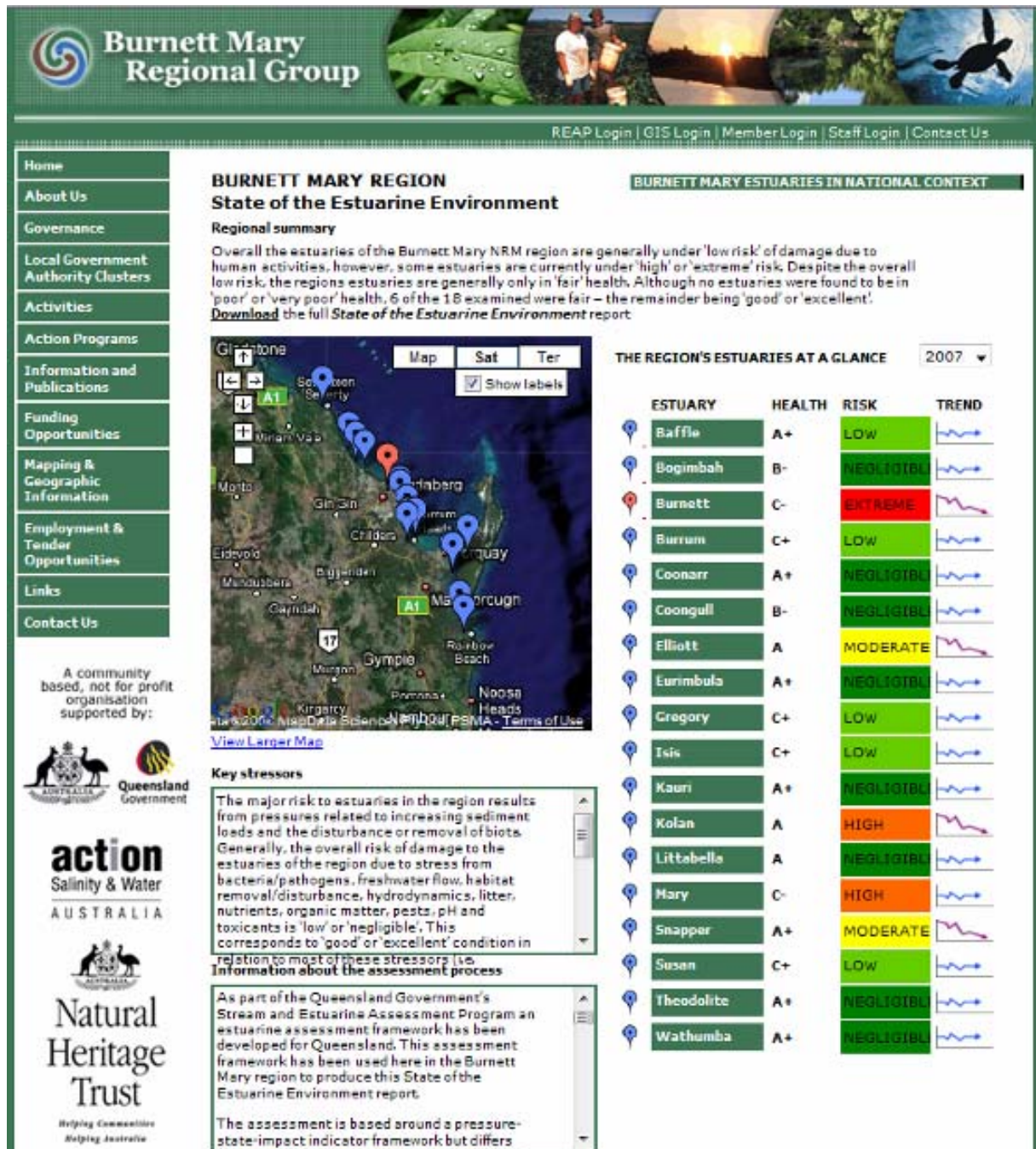


Figure 3. Screen grab of the BMRG regional summary page.

By clicking on the name of an estuary the page changes to a summary of that particular estuary. For example, click on the Burnett estuary name (see Figure 4).

Estuary Report: Burnett River

Summary

Overall the Burnett estuary is under an 'extreme' level of risk of damage due to human activities. Despite this extreme level of risk, the estuary is currently in 'fair' health. This suggests that unless management actions are performed to reduce this risk the condition of the estuary will most likely decrease in the future.



[View Larger Map](#)

Stressor information - aquatic sediments

Catchment land-use, the high % of the catchment that has been cleared and the loss of riparian vegetation are major pressures in the Burnett River catchment that result in large sediment loads reaching the estuary. Within the estuary itself, boating activity and dredging levels are high. These pressures are here identified as key targets for management actions.

The main reason for the 'poor' score for the Burnett estuary in relation to aquatic sediments is the loss of seagrass that was one found in the estuary. This occurred as a result of a sediment slug coming out of Ben Andersen Weir in the 1950s and smothering the seagrass.

Management of aquatic sediments

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[More management information from BMRG](#)

OVERALL ASSESSMENT (ALL STRESSORS)

2007

C-



	Score	Confidence
Overall risk to estuary	EXTREME	VERY HIGH
% of data collected	76	
Overall health of estuary	FAIR	VERY HIGH
% of data collected	77	

ASSESSMENTS OF INDIVIDUAL STRESSORS

STRESSOR	Score	Confidence
Aquatic sediments	HIGH	HIGH
<i>Risk (this stressor)</i>		
<i>Pressure Indicators</i>		
catchment landuse	HIGH	HIGH
% catchment cleared	HIGH	HIGH
% lgh of river, no riparian veg	HIGH	HIGH
point sources	EXTREME	VERY HIGH
boating activity	EXTREME	VERY HIGH
unsealed road density	MODERATE	MODERATE
intensive agric. on steep slopes	MODERATE	HIGH
% groundcover	NO DATA	
dredging	HIGH	HIGH
fine sediment load	EXTREME	HIGH
<i>Health (this stressor)</i>	POOR	VERY HIGH
<i>Condition Indicators</i>		
Turbidity	EXCELLENT	VERY HIGH
Secchi depth	EXCELLENT	VERY HIGH
seagrass extent	VERY POOR	HIGH
% cover of seagrass	VERY POOR	HIGH
mangrove extent	NO DATA	

[More detail about this estuary](#)

[Report on another estuary](#)

[More about report methodology](#)

Figure 4. Screen shot of the Burnett estuary report page.

The web page in Figure 4 shows:

- a short text *Summary* of the Burnett estuary
- a Google interactive map (zoomed in on the actual estuary – note that further zoom and movement functionality is possible, as with the regional map)
- a summary of the *OVERALL ASSESSMENT (ALL STRESSORS)*, with *Overall risk, Overall health and trend* “scores”, *confidence in the data* and *% of data collected* all shown
- a section on *ASSESSMENTS OF INDIVIDUAL STRESSORS* provides a list of all the indicators for a particular stressor. The score and confidence are provided for each indicator.
- a section on *Stressor information* includes a discussion of the important indicators listed
- information on the *Management of aquatic sediments* (i.e. the particular stressor). This section provides advice on what the key pressures were found to be and suggests which to target for management actions in the future.

The *More management information from BMRG* link goes to information on management actions that are currently occurring or proposed for the future in the estuary’s (river) catchment.

The *More detail about this estuary* link was included in case more detailed information on the estuary was needed. We anticipate that this will not be needed, as specific data and information can be requested from BMRG. However, this remains to be discussed with BMRG staff.

The *More about report methodology* link will eventually go to a website with the full detail of the estuarine assessment framework developed by the Qld EPA as part of the SEAP and used here. The scoring system is fully described in the SEAP (Moss et al., 2006).

National reporting needs (OzCoasts)

In close consultation with Geoscience Australia, national reporting web pages were developed with the data provided by the Qld EPA study. The following prototype pages have been produced and it is envisaged that when the BMRG *State of the Estuarine Environment Report* is completed in late June, the appropriate data will be delivered to the OzCoast website.

The first of the national reporting pages for the Burnett Mary NRM Region (see Figure 5) shows the 2000 Audit estuarine assessment data (this is Second Pass data under the ECAF system, not First Pass as shown in the screen shot). It shows all the estuaries in the region that were examined in 2000 and the percentage in ‘near pristine’, ‘largely unmodified’, ‘modified’ and ‘extensively modified’ condition.

The year 2008 can be selected from the pull down box which then provides the 2008 BMRG State of the Estuarine Environment data. From this page a summary of the estuaries of the region (% in each scoring category) can be obtained via the pull down box (i.e. overall condition or the condition in relation to any of the stressors – see Figure 6). **Note** that similar information can be viewed in relation to risk by selecting the *Risk* tab. See the ‘risk’ example for the stressor *Biota removal/disturbance* given in Figure 7.

A link from the OzCoast site to the BMRG site will be provided so that anyone interested can 'drill down' into the reporting results right down to the individual indicator level.

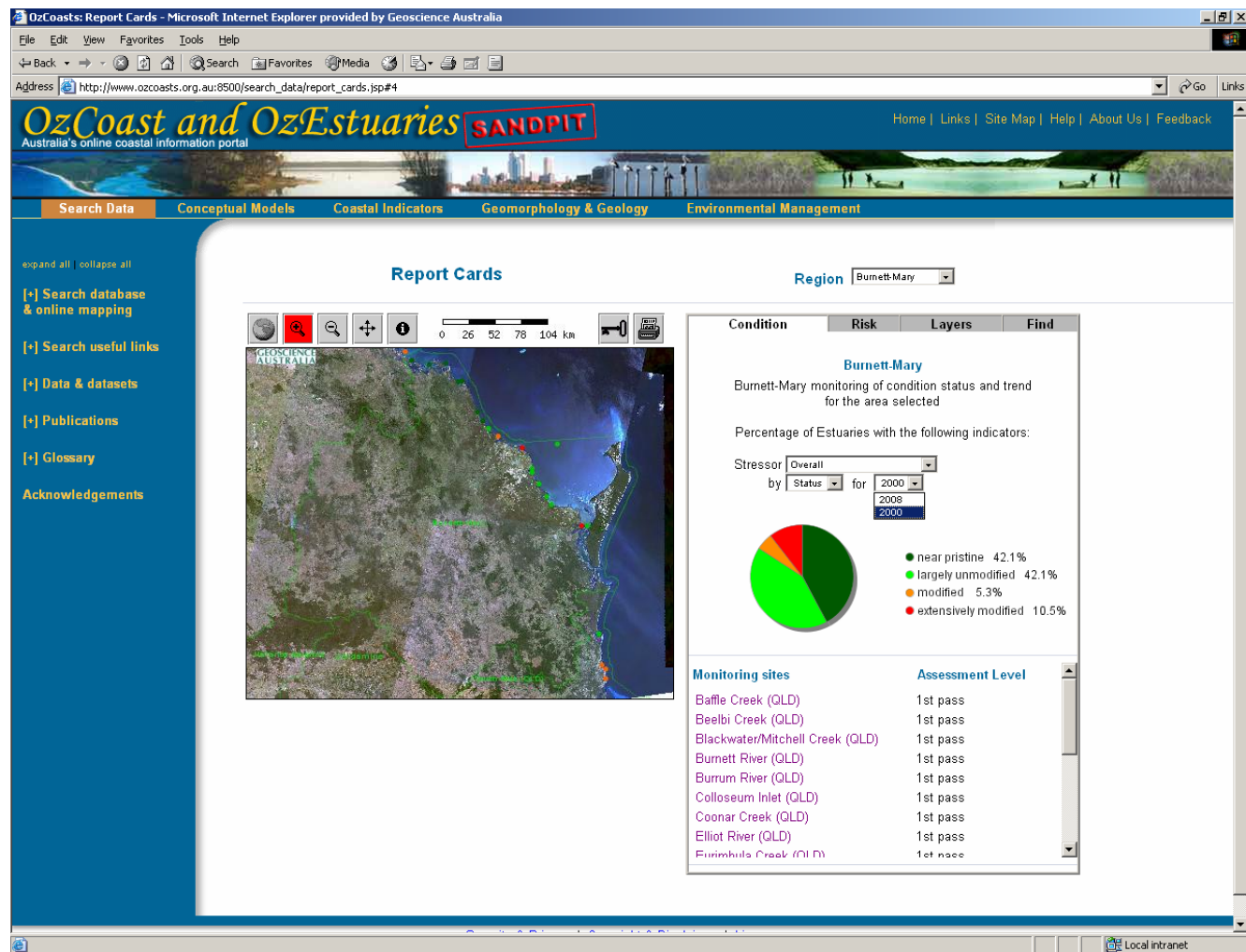


Figure 5. Screen shot of the OzCoast national report page showing the Audit 2000 second pass data.

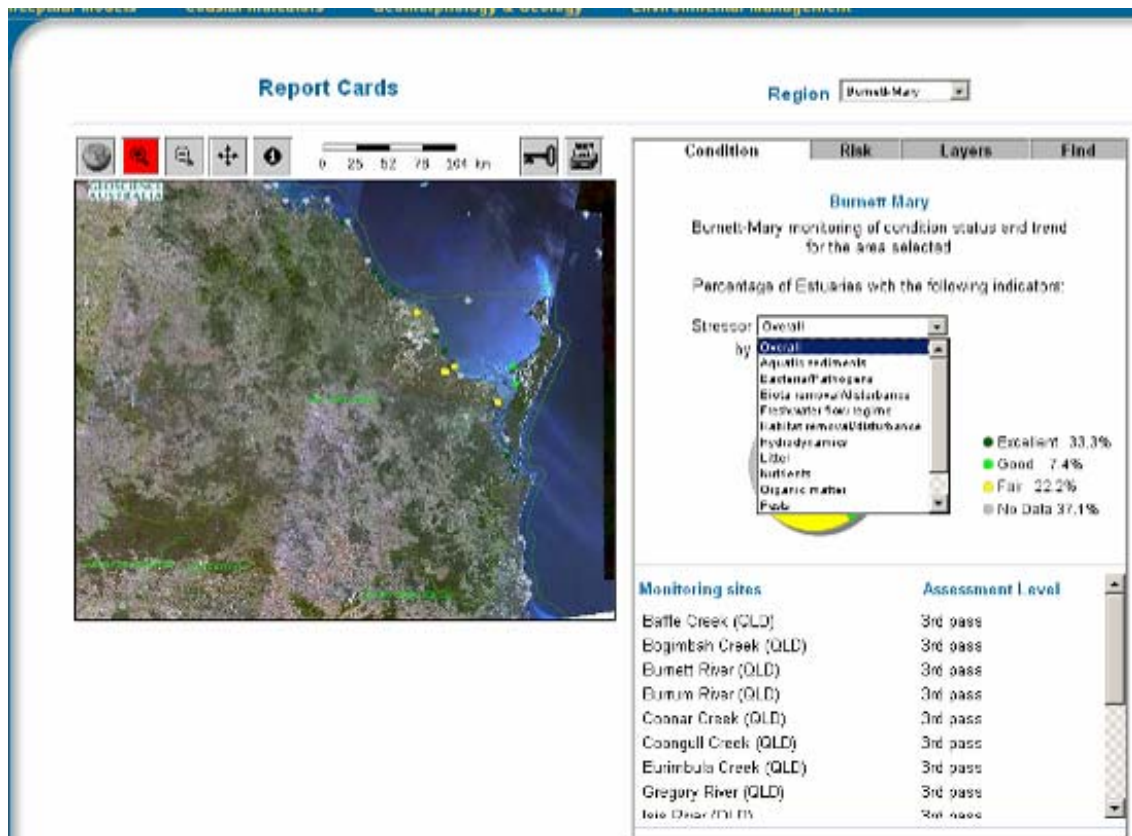


Figure 6. Screen shot of the OzCoast national report page showing the overall health of estuaries in the Burnett Mary Region (with the pull down menu showing how either overall score or scores for each stressor can be selected). A similar pull down menu is available for *Risk*.

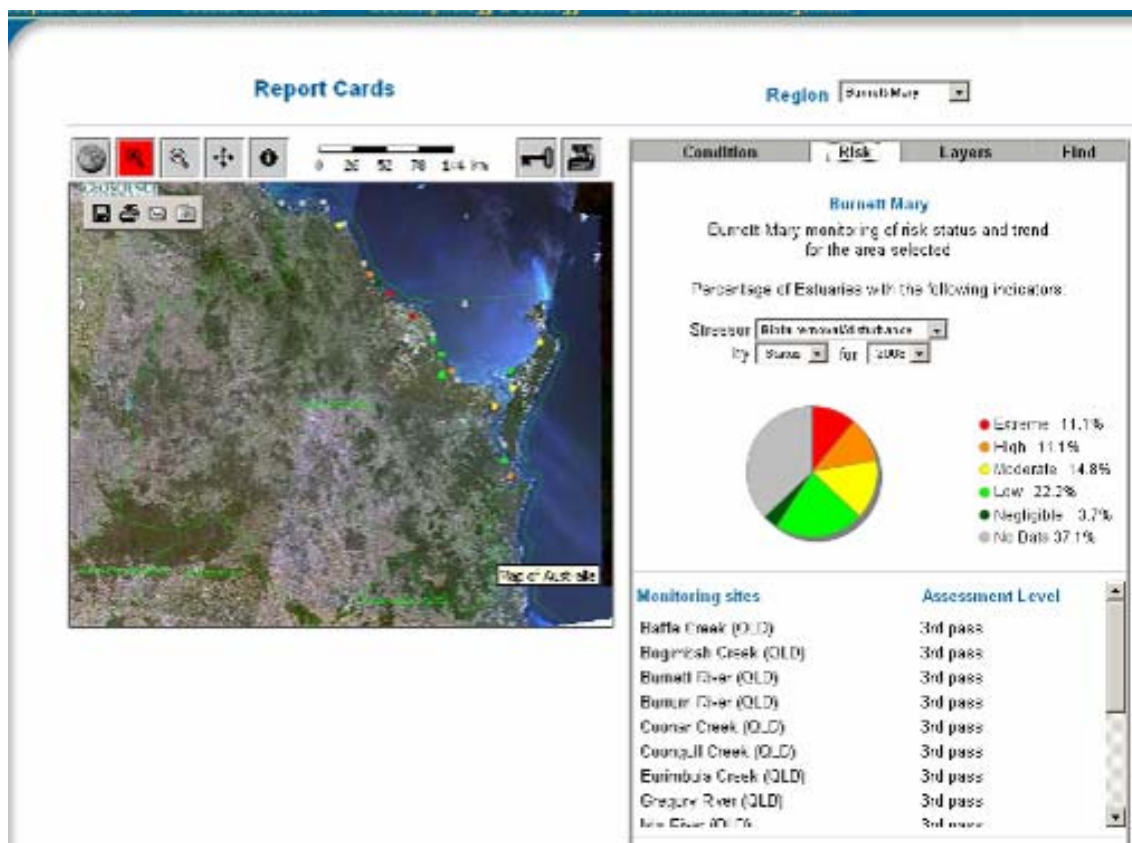


Figure 7. Screen shot of the OzCoast national report page showing the BMRG 2008 third pass risk data for the stressor “Biota removal/disturbance”.

Discussion

The trial has clearly shown that information on condition and risk collected at the estuary level, using the SEAP stressor framework, can be used to report at the local, regional and national levels in a way that is useful to the relevant resource managers at these levels.

Compatibility with the National Estuarine Environmental Condition Assessment Framework (NEECAAF)

The pilot explored the degree of fit with the draft NEECAF (Arundel and Mount, 2007). The NEECAF is based on the generic ECAF (Mount, 2008) which acts as a “translation engine” so that regional and state environmental condition reports can be “translated” into national report formats. Currently, the ECAF has identified the potential report components at each of its three passes (see page **Error! Bookmark not defined.**).

While some of these ECAF reports need to be further defined, there is clearly the capacity for the SEAP process to produce the bulk of the ECAF content. The overall ECAF report card score (i.e. A-E or 1-5) is similar to the overall SEAP condition score. In principle, the ECAF report card score is made up of the environmental condition score given the current management objectives. The SEAP applies this principle – the overall condition score is generated by a system that directly incorporates management objectives, such as water quality objectives, into the scoring tables.

Table 1. Comparison of ECAF and SEAP components

ECAF Report/Output types	SEAP capacity
First Pass	
• Inventories and gap analyses	• Yes
• Classifications	• Maybe
• Conceptual models	• Yes, per stressor
• Susceptibility assessments	• Yes, implicit in scoring for SEAP “vulnerability”
• Types of pressures/threats assessments	• Yes
Second Pass	
• Degree-of-modification assessment	• Yes
• Pressure/threat assessments	• Yes
• Vulnerability (i.e. “likelihood”) assessments	• Yes, per stressor. Called a “risk” assessment; produced by relating SEAP “vulnerability” with Pressures; also translates to “likely condition”

- Risk assessment (i.e. “likelihood and consequence”)
- No valuation of assets, therefore no ECAF style “Risk Assessment” can be done

Third Pass

- Resource condition or status and trend indicator reports
- Yes, per stressor

Attachment 4

Outputs: Agenda
Session

1 Issue / Topic

Reference Conditions to Compare to

- Natural
- Human

1.1 Convenor

Richard Mount

UTAS

1.2 Participants

Tony Roper

Jan Tilden

Lynda Radke

Emma Murray

Vanessa Forbes

Chris Marshall

Maria

Sam Gayland

Jo

Christine Crawford

Peter Scones

Sue Murray-Jones

James McKee

Helen Arundel

1.3 Discussion Outcomes / Recommendations

How do we accommodate natural variation – spatial variation and variation through time?

Site specific references – or type specific references?

Pre-European times – what if no data?

Human use / Values influence choice of reference condition

If we always compare degraded systems to pristine environment the degraded systems will never be seen to improve. They may improve a little but this may not register

How can we be consistent in national reporting when different conditions are used for reference in different states / places

Have multiple thresholds reflecting natural state and human objectives (as in NWQMS). But is the NWQMS system transferrable to ecosystems?

We believe there is some absolute condition that is how the world should be (without human) intervention – there is a cost in attempting to meet this. Is the reference approach logical? Is it real?

If we use multiple ref's how will people be able to interpret our report cards? You have to make the enviro/human use values clear before giving the score

Getting consistent grades example use clear descriptors for scores (with scientific input) (Maroochy example)

Is it OK if everyone agrees that a crappy environment is good enough?

Is the educational process behind assigning environmental values different from the report carding process?

Variable baselines can be adaptively managed i.e. baselines can be raised with later iterations of the process

Trend is most important – is the asset in decline or improving?

Are we looking at what's socially important or environmentally important?

But governments have already set targets (e.g. NSW protect environment everywhere)

Is it easier to define what you don't want to happen to a system?

Estuaries can only be "scored" in relation to targets

Inputs = objective inventory stuff but actual report card needs to include management objectives

Are management objectives designed to support the community's environmental values?

A report card is for a specified audience with a particular set of objectives

How do we compare between regions if everyone is reporting on different objectives based on different local values? User satisfaction becomes the only basis possible.

Seek to adopt the highest standards we can

Need to nominate class or range of acceptable values for the asset e.g. within framework of modified, slightly modified near pristine

1 Issue / Topic

Coastal, estuarine and marine (CEM) State of the Environment Reporting (SOER) on Indigenous 'Sea Country'

1.1 Convenor

Karen Edyvane (NRETA)

1.2 Participants

Jan Tilden

1.3 Discussion Outcomes / Recommendations

- Need to recognise the coastal-marine tenure of northern Australia, for eg. 85% of NT's coastal environments are under Aboriginal tenure.
- Importance of partnership approach to coastal, estuarine and marine (CEM) SOER on Indigenous 'sea country'. Indigenous people are not just another stakeholder – indigenous Australians are the managers (NB. the 'Blue Mud Bay Case' is currently under consideration in the High Court – and has significant implications for the ownership of the intertidal zone, ie. down to the low water mark).
- Need to recognise and stress the importance of Indigenous consultation and engagement in CEM SOER in any national 'best practice' framework. Needs to be recognised as a principle.
- Report carding on 'sea country' needs to specifically address the following issues:
 - cross-cultural issues and cultural sensitivities need to be recognised and addressed
 - report cards will also need to be written in local 'language' or plain English summaries
 - need to investigate appropriate communication tools for Indigenous communities (eg. videos, picture cards, story telling)
 - need to specifically recognise and incorporate traditional ecological knowledge (TEK) in reporting.
- Community-based programs (monitoring/reporting) will be essential in implementing SOER on 'sea country':
 - increasing capacity building, training and employment of Indigenous communities (particularly in remote areas) are key drivers and policy commitments in the NT.
- In identifying and establishing community-based CEM monitoring and reporting programs need to clearly separate the environmental outcomes vs. social outcomes (employment, education, training, etc):
 - in both, assessing monitoring programs and assessing management performance
 - and also, in allocating funding.

- Role of government – State/Territory government agencies play a key role in SOER on ‘sea country’ as trainers, in data management, coordination and supervision of SOER programs. SOER needs to be a real ‘partnership’ between government agencies and Indigenous communities.
- Northern Australia CEM ecosystems are globally significant - representing the most pristine tropical environments in the world (see recent study by Halpen et al 2008). However, the region also has the most limited capacity and resources to manage, monitor and report on environmental condition. Australian government funding is needed.
- Regional monitoring, databases and reporting (across northern Australia) urgently needed for coastal and marine migratory species (eg. sea turtles, sea birds, shore birds, dugongs, cetaceans). At present, many different government (and non-government) databases for the same migratory species and even the same individuals.
- For coastal and marine migratory species, also need, at some stage, to link with international species databases. Important to recognise ‘connectivity’ and the “shared seas” of the Arafura Timor seas (ie. the distances between northern Australia and PNG and Timor Leste is very short – less than Bass Strait). In the longer term, Australia should be coordinating and fostering regional monitoring and reporting of the Arafura – Timor seas.

1 Issue / Topic

Tropical indicators in Australia – consistency, methods and reporting.

1.1 Convenor

Karen Edyvane (NRETA)

1.2 Participants

Emma Murray

Lynda Radke

David Scheltinga

Chris Auricht

1.3 Discussion Outcomes / Recommendations

- Tropical Australia is very data poor, with few monitoring programs for coastal, estuarine and marine (CEM) environments.
- However, this is also an excellent unique opportunity for developing a coordinated, consistent approach to CEM monitoring and reporting across northern Australia.
- Tropical Australia has both similar ecosystems and CEM reporting challenges – ie. high turbidity, high flows, high seasonal influence (wet-dry).
- Queensland uses water quality guidelines / standards. Mostly ambient monitoring. NT monitoring is largely confined to water quality monitoring in Darwin Harbour.
- Importance of conceptual models for tropical estuaries. Tropical estuaries require further characterisation and classification. Estuaries are currently defined on the basis of few parameters:
 - Geomorphology, length of tidal range
 - Catchment rainfall
 - Need to also include, catchment area, run-off, FW flow (gauges).
- Recommend NLWRA to facilitate workshop/s on reporting in tropical estuaries:
 - Workshop on Tropical Estuaries Environmental Reporting
 - Tropical estuary classification and vulnerability/risk
 - Conceptual models, potential stressors
 - Identify indicators, consistent methods across northern Australia
- Recommend NLWRA Workshop or Working Group on reporting in tropical coastal-marine habitats:
 - Tropical Coastal-Marine Habitat Environmental Reporting
 - Coastal-marine classification/s and vulnerability/risk
 - Conceptual models, potential stressors

- Identify indicators, consistent methods across northern Australia
 - Note that some habitat monitoring is well-established, eg. mangroves (remote sensing), intertidal seagrasses ('Seagrass Watch'), corals ('Reef Check'). Need to include AG research agencies (eg. AIMS).
- Indigenous issues and challenges are common to all of northern Australia (see 'Coastal, estuarine and marine (CEM) State of the Environment Reporting (SOER) on Indigenous 'Sea Country'):
 - Need for community – based monitoring/reporting programs ('Seagrass Watch', 'Reef Check')
 - Remote sensing tools ideal – due to remote, inaccessible coastal regions, and lack of baseline data.
 - Capacity-building, training and employment opportunities within Indigenous communities are key policy drivers in tropical jurisdictions.
 - Government agencies have a key role to play in scientific coordination, data management and capacity-building.

ISSUE/TOPIC:

When to stop collecting further information (or moving on to the next ECAF “Pass”)? When to stop? What is “enough information”? and, vice versa, what is the minimum threshold of information to be able to report?

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PARTICIPANTS (names):

Alana Innes, Chris Auricht, Richard Mount

DISCUSSION OUTCOMES/RECOMMENDATIONS:

Stop/Go questions – these questions test whether it is necessary to continue with data collection, research, setting management objectives and/or to proceed on to the next ECAF “Pass”:

- Is there enough environmental/ecological information and/or adequate management objectives to judge whether the management objectives are being met?
 - If not enough info, “not enough info” is the report
 - If inadequate management objectives, “not adequate management objectives is the report
- Does the “raw” environmental reports and information match the management requirements to assess the performance of their policies and/or investment?
 - If matches or more, then stop
 - If not enough, then advise what more needs to be done e.g. data gaps to fill, further understandings needing research.

These principles assume that a Report Card is reporting whether the environmental condition (i.e. either estimated from asset type (and thus vulnerability or susceptibility) X pressure OR actual measured condition) is within the ranges of values or targets set by the management objectives. Clearly, this means that both components (i.e. condition assessment and management objective (e.g. target values) are available.

ISSUE/TOPIC: Spatial and Temporal Scales

CONVENOR (contact details):

Peter Scanes

PARTICIPANTS (names):

Chris Marshall, Alistair Becker, Sam Gaylard, Chris Crawford,
Vanessa Forbes

DISCUSSION OUTCOMES/ RECOMMENDATIONS:

Topic 1 ANZLIC Guidelines not appropriate, need specific guidelines for systems.
Sampling should consider spatial patterns in/among estuaries and be aligned with those patterns.

One strategy is to focus on areas with greatest likelihood of showing impacts within a system.

Targets provide guidance about where to aim, but trends provide most information on performance.

Spatial classification (independent estimates) for target setting is best focused on classification into similar systems.

Temporal variation may be coped with by sampling intensively in short time spans rather than all year. Need prior investigation to test validity.

Topic 2: Indicators

- context specific/ question specific
- still need research to define indicators
 - progress being made with sediment respiration/nutrient flux/CO₂ and possibly macro-invertebrate structure

1 Issue / Topic

Defining the Resource.

1.1 Convenor

Patricia von Baumgarten (SA DEH).

1.2 Participants

Karen Edyvane (NRETA), Heather Taylor, David Scheltinga, Alistair Becker.

1.3 Discussion Outcomes / Recommendations

- Mesoscale ‘Bioregions’ (IMCRA) provide the basic framework for the definition of marine resources in environmental condition and stressor reporting for coastal, estuarine and marine environments. IMCRA defines the major coastal-marine ecosystems (major ecological systems and key processes) for the entire waters of Australia. The IMCRA ‘bioregions’ classification extends from low water mark to the edge of the continental shelf and include estuaries.
- ‘Bioregions’ have also been widely and formally adopted by jurisdictions (particularly at the State/Territory level) as the bioregional planning framework for marine ecosystem-based management (eg. Marine Protected Areas, marine planning).
- For offshore (Commonwealth) waters, large-scale, IMCRA demersal “provinces’ have been adopted as the template for bioregional planning. These provinces have largely been defined on the basis of demersal features and physical surrogates (sediments, slope, oceanography) and fish distribution.
- This current disparity in the scale of bioregional planning and management ie. bioregion vs. province - by State/Territory and Commonwealth jurisdictions, respectively - is a challenge for environmental reporting of Australia’s shelf ecosystems – where the same ecosystem or ecological unit is potentially involved.
- Some jurisdictions (ie. SA) have formally developed a sub-bioregion classification of inshore marine ecosystems, ie. ‘biounits’ – which defines ecological systems at the ‘seascape’ or “marine catchment scale” (eg. Moreton Bay, Port Phillip Bay). ‘Biounits’ have been determined largely on the basis of physical drivers (oceanography, geomorphology), key ecological processes and habitat assemblages. ‘Biounits’ have also been classified in Tasmania (but not published or formally adopted).
- National environmental condition and stressor reporting of inshore marine environments should be at ‘biounit’ level, as a minimum. Importantly, ‘bioregion’ reporting is too broad-scale for monitoring and will not pick up the impacts at the marine catchment scale.
- Within ‘bioregions’ and ‘biounits’ key coastal and marine resources would include:
 - Water quality, key habitats, key species for the 3 key assets:

- Estuaries
- Coasts
- Marine
- Recommend NLWRA facilitate finer scale sub-IMCRA definition of ecological systems and key processes for Australia's inshore marine ecosystems (ie. 'biounits' in SA). This classification should be at the "seascape" or "catchment-scale" (eg. Moreton Bay, Port Phillip Bay, Orontes Bank).
- Conceptual models at the 'biounit' (and 'bioregion') scale will assist formal identification of key processes, structure and key species and also, stressors, vulnerability/risk and indicators.
- For all 'bioregions' or 'biounits':
 - It will not be necessary to monitor or report on all stressors or indicators. This will depend on the type/level of stressors and vulnerability or risk.
 - Will need to continuously track "pressures" and review and assess current identified stressors and vulnerability/risk.
 - A stressor-based, environmental condition monitoring and reporting is an ITERATIVE, ADAPTIVE FRAMEWORK.

ISSUE/TOPIC: Frameworks

CONVENOR (contact details):

Patricia von Baumgarten

PARTICIPANTS (names):

Tony Roper, Chris Auricht, David Scheltinga, Andrew Moss,
Christine Crawford

DISCUSSION OUTCOMES/ RECOMMENDATIONS:

DPSIR

PSIR

PSR

Qld EPA – Stressor Pressure Vulnerability Risk (check against condition)

Victoria – Assets (agricultural land, biodiversity, seagrass) x Threat

For Qld EPA, if risk is high but condition good then no priority

But if risk is high and condition bad then low priority

When do we incorporate values – science community should have input (eg ?CV) as well as general public

Good for when resources limited and can't measure condition



More analysis usually required after assessment initially done.

Condition → REPORT CARD informs

- Values and targets
- Risk assessment
- Management actions
- Review and evaluation

NWQ?S starts with inventory and classification THEN values

ISSUE/TOPIC: WHAT DOES THE NATION REALLY WANT

CONVENOR: ANDREW MOSS

PARTICIPANTS: JAMES AUSTEN, CHRIS ALRIGHT, ALANNA INNES,

DISCUSSION OUTCOMES/RECOMMENDATIONS:

- Nationally we need the development of enduring systems, ultimately independent of AG \$ and policy directions
- Recommend the development of national protocols (i.e. A minimum set to fulfil national requirements) covering things such as data collection, data management, indicators etc.
- A national approach can leverage co-operation, allows people to bring pressure to bear on others, facilitate partnerships
- A nationally consistent approach provides foundations that underpin policy, program development and information for evaluation, as well as fulfilling a variety of needs including statutory obligations at all levels.
- From a program delivery perspective, simplistically, it allows us to know what the environment is like, why it is like that and what pressures/threats can we intervene in to fix it. Because national programs are delivered nationally, we need a national approach to report carding, or assessments
- Sometimes issues cut across a number of states (eg. Murray Darling Basin) and that is why a consistent national approach is needed.
- We need to have common way of describing and communicating standard problems and issues.
- A national approach must be relevant to states/regions/partners etc. so that the 'seed money' that the AG and states spends has positive spin offs and other sees the benefits of a national approach
- National level needs, need to have a clear strategic statement of intent, to be able to give clear direction to states as to what to do and where to invest.
- A national approach needs to be rigorous enough to be able to demonstrate/support being able to identify the outcomes of investment
- It needs to include some element of reporting on management actions/interventions
- It needs to be able to drive management decisions at all levels, otherwise it will be just another 'SoE report on the shelf
- Look for lessons learnt from other national approaches, eg. Sustainable Rivers Audit.
- Be able to 'normalise' elements of certain specific state approaches to be able to interpret at a national level.
- All levels need accountability/transparency and a report card may be able to be this vehicle.
- Don't be afraid to be honest about what we can and can't report on.

ISSUE/TOPIC: LINKING REPORT CARDS TO MANAGEMENT

CONVENOR: TONY ROPER

PARTICIPANTS: JAMES AUSTEN, JAMES MCKEE, JAN TILDEN, MARIA VANDERGRAGT, JOCELYN DELA-CRUZ, ANDREW MOSS, JO BURTON, SUE MURRAY JONES, HEATHER TAYLOR

DISCUSSION OUTCOMES/RECOMMENDATIONS:

- Role of Report cards (RCs) to show the difference between community value and result
- Identify the opportunities for a reactive versus structured response
- Identify structured engagement points with stakeholders/partners/mgt, before, during and after the RC release.
- Need political buy in
- Ensure independence and consultation around process
- (re SEQ RC) , QLD regional, subregional and management responses all released at the same time
- Define your managers driving purpose for the RC
- Should pressure be ranked, eg. Include catchment condition grade
- Establish clear management goals and targets within
- Flag where there are reasons for concern
- If we don't do anything, what will happen? What is the consequence of not doing anything
- NSW suggested a triage approach to identifying risks/vulnerabilities

Condition	Threat/vulnerability	Management response
Good	H	...
	M	
	L	
Medium	H	
	M	
	L	
Low	H	
	M	
	L	

- We need to keep it simple, otherwise the message could get lost, therefore we could have a simple front end and more detail in separate document
- Need to reduce reducing threats, otherwise we may have a mismatch between the change in condition and management action
- Threat will vary with indicators, no aggregating threats
- How do you report threat to a particular indicator (multiple reports), use of stressors may be one way of addressing this.
- Aggregating everything doesn't always tell you anything
- Should we build in vulnerability to threats, or should it be a separate process to the RC
- Can't just focus on pressures, need to consider how the system responds to
- RC needs to include vulnerability assessment

- Eg. Insert example from Allen Grovy(?) on exposure/sensitivity → adverse implications/potential to benefit/adaptive capacity → vulnerability (overall risk)

ISSUE/TOPIC: reporting with minimum information – next steps

CONVENOR Helen Arundel

PARTICIPANTS:

Chris Marshall, Lynda Radke, Alana Innes, Tony Roper, Vanessa Forbes

DISCUSSION OUTCOMES/RECOMMENDATIONS:

Nest step after creating an inventory?

- Management plan –to look at environmental values/establish values
- Identify pressures – look at estuary's capacity to adapt/displace pressure, e.g. catchment clearing and capacity for estuary to dilute inputs.
- Conceptual model – pictorialise the understanding of the system

Estuary response

- Model outcomes (use to look at estuary response)
e.g. Qualitative models – based on interactions between variables (loop analysis)
Catchment models (incorporating land use)
Links to catchment models (Chl a and turbidity), dilution factor

Likelihood of pressures occurring/prioritise based on likelihood in pressure

Risk = likelihood of pressure and consequence

ISSUE/TOPIC: How to integrate pressure and condition into report cards

CONVENOR Andrew Moss

PARTICIPANTS:

Jo Burton, Jos Dela-Cruz, James Austen. Alistair Becker

DISCUSSION OUTCOMES/RECOMMENDATIONS:

- Pressure ‘indicators’ required to provide context
- Link between human intervention/actions to ecological consequence – management priority
- Historical legacy of prevention but no agreement not to include pressures
- Existing report cards for SE Qld (EHMP) consider/discuss pressures when the grades are interpreted
- Establish the strength of causal links between pressures and condition → how far do we need to go → different levels depending on information e.g. expert opinion → field monitoring and models
- How to express/present the pressure and condition interaction in report cards → SEAP use stressors, → what about assets, threats, → risk [requires resolution?]
- If we include pressure, then we need to also consider vulnerability.
- Definitions required because each state, government etc have their own
- Interpretations – can we define risk, vulnerability, threats, stressors, pressures, consequences. Then we need to define how we will use them.

Issue/Topic

Can different assessment processes work together?

Convenor

James McKee

Participants

Sam Gayland, Maria V, Heather Taylor, David Scheltinga, Richard Mount, Chris Auricht, Patricia von Baumgarten.

Discussion Outcomes/Recommendations

“Asset” is given value through the services that flow from it in the context of the Millennial Ecosystem Assessment approach.

The question is whether assets should have an intrinsic value against which condition is reported or a derived condition based on the ecosystem service which flows from it.

One of the fears is that the real value of the asset cannot be calculated because of the interdependence and opportunity cost. It has proven very difficult to value the full scope of the service provided because of the multi layer dimension of services provided.

Ecosystem service values can enter the assessment and condition reporting process at various levels including at the consultation stage (as a tool to derive ownership and understanding) through to the detailed economic analysis.

A potential purpose of ecosystem services in condition reporting is helping people grapple with the value of trade off when talking about setting asset objectives. Furthermore, the use of ecosystem services can be useful in helping set the agenda of what to report on.

When looking at ecosystem services for reporting, more useful to think of the role of service value against trend rather than condition. i.e. if the trend is to go from a B to a C then what is the cost, what is the cost benefit threshold which then triggers management action.

Where condition itself is difficult to measure, services can provide a helpful surrogate for condition, in the same way that pressures can.

ISSUE/TOPIC

To aggregate or not to aggregate – that is the question?

CONVENOR

Lynda Radke

PARTICIPANTS

Sam Gayland, Heather Taylor, Karen Edyvane

DISCUSSION OUTCOMES/RECOMMENDATIONS

Advantages

- Nice simplified concept (A-E). This makes for a good communication tool, but not a science tool and should be expressed as such. Similar to a plain English summary.
- Simple output for all levels – communities and decision makers prefer less information
- Politically powerful

Disadvantages

- A-E (F) can lead to value judgements or at least gives the impression of a value judgement. People can be satisfied with a B.
- Concept of continuous improvements is a worthwhile end in itself.

General Principles

- Rules for aggregation must be open to state/public comment and clearly documented and publicly available –“transparency”. Some principles would be useful.
- Role for expert based panels or independent scientific assessment panels
- Must have access to all inputs i.e. the science that underpins the report. Easily available.
- Reporting of trend is necessary in addition to condition
- Statistical guidelines required- for temporal and spatial aggregation
- Need rules for statistical aggregation

ISSUE/TOPIC

How to incorporate climate change into report cards?

CONVENOR

Emma Murray

PARTICIPANTS

Vanessa Forbes

DISCUSSION OUTCOMES/RECOMMENDATIONS

- Changes in species - distribution, type
- Changes in physical attributes leading to change in species
- When something changes how do you identify it was caused by climate change or something else
- Things that can change due to climate change ie
 - Sea level rise change the entrance which in turn change:
 - Entrance
 - Sediments
 - Salinity
 - Depth
 - Light
 - Habitat distribution
 - hydrodynamics
- what is an indicator of climate change? Eg a shift from diatoms to dinoflagellates
- Vulnerability to climate change?
 - What is the risk to the system?
 - Core vulnerability to climate change some systems will have a higher vulnerability than other

1	No change
2	Physical changes only
3	Physical changes with some effect on species
4	Dramatic change to species present, shift towards marine
5	Total change – flooded – becomes totally inundated

ISSUE/TOPIC

Report Card Formats

CONVENOR

Jan Tilden

PARTICIPANTS

Alana Innes, Richard Mount, James Austen, James McKee, Sue Murray Jones, Maria Vandergragt

DISCUSSION OUTCOMES/RECOMMENDATIONS

Some questions to prompt discussion.

1. What does a national report card BMF need to say about the report card format?
 2. Why would the framework need to say anything about format?
 3. What issues have people encountered?
- Format = content, and medium (ie hardcopy/electronic)
 - Who is the audience – what works for each audience
 - Structured into layers of information (works well on the web)
 - Because its “science” assumptions are made about how to present it
 - Desktop review of what’s already been done and how has it worked
 - Focus groups/trials/mock ups
 - Communicators
 - Report card design guide, developers guide, style guide
 - Photocopy able – colour
 - Depicting indicators and scores
 - Redundancy words/pictures
 - What do you want the audience to do? How do you want them to Response? (do with the information)
 - Evaluation of report card
 - Report card is a part of a package. Needs to be accompanied by a strategy to maximise its communication value
 - Includes someone to talk about it
 - Independent in the eyes of the audience (a trusted messenger)
 - Communication is not just media
 - Getting “buy in” early in the report card development
 - Credibility indicator
 - “look” and level of content
 - Design elements
 - Text
 - Spatial
 - Information
 - Conceptual models,
 - Indicators
 - Icons
 - Important to include

- Score (overall) condition /risk or threat
- Trend
- Story (very short narrative).

Let's build a report card developers guide!!!!

- Building upon ECM knowledge and science communicators knowledge

Attachment 5

Outputs: Action
Group Session

Action Group Name:

Harvesting "Best Practise" from other Communities of Practise.
Don't Reinvent the Wheel!

Convenor

Alana Innes NLWRA

Participants

Alana Innes, Jan Tilden, Lynda Radke, Sue Murray Jones, Richard Mount, Tony Roper, Emma Murray, Maria Vanergragt

What we will do:

(practical steps to be carried out in the future)

- Assist in articulating what the core components of a Best Practise Framework are. Eg the guiding principles such as interoperability, 'smart data' collation, stakeholder analysis etc. (What we need)
- Develop a communication strategy for communicating these core components to other communities of practise.
- Links closely to the activities of the action group "*Producing an NRM ECM developers' guide to report carding*" (which is more about report card design – ie one component of the BPF)

Who else we will bring in:

- NLWRA (for links with other NRM communities of practise)
- ANZLIC (for spatial data standards on collection/collation etc)
- [Knowledge for Regional NRM](#) (for analysis of Regional NRM bodies needs/wants)
- [Australian Water Data Infrastructure Project](#) (AWDIP) – recent community of practise that is setting up interoperability. ie real data in real time
- CRC's (for previous analysis of stakeholder needs – what works what doesn't in science communication) especially the previous Coastal CRC and possible eWater.
- Mike Ronan (Qld Wetlands Programme) – smart Pdf's – collating data/data entry

Date of first activity:

Share our existing resources relating to these issues: participants to post resources to website by the end of the first week after Easter.

ACTION GROUP NAME:

Marine NRM- 'State-of-the-Environment Reporting' and Report Cards.

CONVENOR:

Karen Edyvane (NRETA)

PARTICIPANTS:

Patricia von Baumgarten (SA DEH)

Heather Taylor

WHAT WE WILL DO:

1. Convene a small (10-12 person) Working Group to specifically address NRM-State of the Environment Reporting (SoER) and Report Cards.
2. The Working Group will develop a 'best practice' approach to NRM-SoER and Report Cards for Australia's coastal and marine ecosystems. The Working Group will undertake this task using the draft *National Report Card Best Practice Framework* (being prepared by the NLWRA) as a basis for review, discussion and input.
3. Key issues to be considered in the review will include: spatial scales of reporting; use of classifications (IMCRA, NISB); definitions; minimum reporting; core indicators; inshore vs. offshore ecosystems; ecological process reporting (eg. biota removal); ongoing work.
4. The Working Group will comprise jurisdictional representatives and technical experts and operate informally via email and telephone link-up/s.

WHO ELSE WE WILL BRING IN:

1. State/Territory & AG marine & SoER scientists/managers.
2. IMCRA technical community.
3. NLWRA.
4. Potential members could include: K Edyvane (NRETA), G Edgar (UTas), P Last (CSIRO), P Harris or A Heap (GA), J Day (GBRMPA), B McDonald (DEH), E Campbell or C Marshall (DEWR), D Rissik (QEPA), A Jordan (NSW), C Simpson (DEC), C Crawford (TAFI), Vic DSE, R Mount (NLWRA).

DATE OF FIRST ACTIVITY:

1. May 2008 – approximately 4 weeks after the preparation of the draft *National Report Card Best Practice Framework*.

ACTION GROUP NAME:

National Framework (Engine room back end of report carding process)

CONVENOR:

Helen Arundel

E-mail: helen.arundel@deakin.edu.au

PARTICIPANTS:

Sam Gaylard Vanessa Forbes Helen Arundel Lynda Radke Andrew moss James McKee
Chris Marshall

WHAT WE WILL DO:

(outline practical steps to be carried out in immediate future)

Find out what the audience wants

Investigate options for how best to drive the reporting process e.g. stressor approach,
themes (FARWH) VIPSIRR

Investigate feasibility of using VIPSIRR

Investigate further development of VPSIRR required for potential national roll out

END

WHO ELSE WE WILL BRING IN:**DATE OF FIRST ACTIVITY:**

ACTION GROUP NAME:

'Increasing our understanding of our systems'

(This action group will discuss plans for increasing our knowledge of the structure and function of estuarine systems)

CONVENOR:

Peter Scanes

Waters and Coastal Science Section

NSW Department of Environment and Climate Change (DECC)

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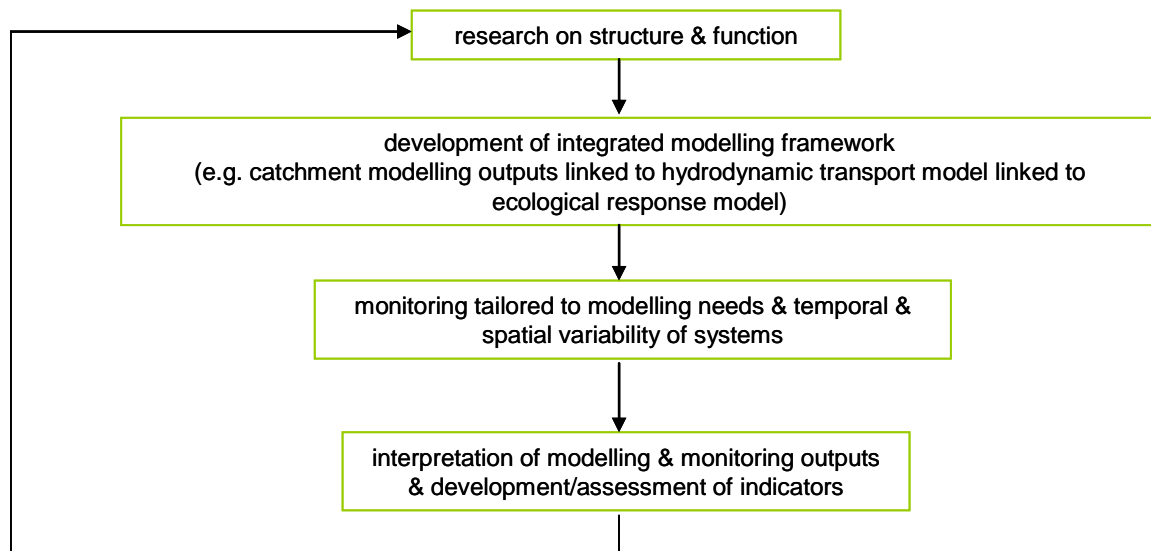
PARTICIPANTS:

Alistair Becker, Christine Crawford, Jocelyn Dela-Cruz

WHAT WE WILL DO:

(outline practical steps to be carried out in immediate future)

- 1) Compile and analyse existing data
- 2) Development of a best practice framework for data collection and analysis, as a means of explaining to funding agencies how research aids management. For example:



- 3) Establish protocols to improve the quality of monitoring data

WHO ELSE WE WILL BRING IN:

Researchers, academics

DATE OF FIRST ACTIVITY:

1st April 2008: Compilation of data and re-evaluation of existing estuarine classifications to include ecological processes (to be done by NSW DECC). This activity will help us to better define reference or base conditions for the resource condition report cards i.e. we are aiming to account for inherent vulnerabilities etc.

Action group name: Producing an NRM ECM developers' guide to report carding

Convenor: Jan Tilden jan.tilden@westnet.com.au (07) 5494 2680

Participants: Alana Innes, Richard Mount, Emma Murray, Sue Murray-Jones, Maria Vandergragt, Lynda Radke, Tony Roper

What will we do?

- desktop research for existing material about (or closely relevant to) designing report cards and report card communication strategies. Possible sources include NSW guidelines for local government SOE reporting, UN guidelines for SOE reporting (OECD), EHMP (which is continually improving), US forestry service, IAN's science communication publication (and many others).
- what resources do we have within the group? Resources to be posted to the website.
- research content/methods of report card processes and how we can improve on them (e.g. EHMP – Eva Abal has indicated she is interested in collaborating)
- test useability of elements of the proposed report card formats (if warranted)
- obtain funding
- write a brief and prepare a tender for a science communication person to do the work outlined above and below
- include some or all of the following in the guide:
 - a national set of NRM icons (could use icons from Integration and Application Network (IAN), or use their icon design service)
 - design templates (look into smart pdf, Mike Ronan knows about this)
 - conceptual models – what is best practice? Should we use IAN style? Is this style being overused? What other styles exist? John Gross has written a paper on conceptual diagrams. Maria Vandergragt and Tony Roper have this.
 - flowcharts (talk to Maria re wetlands)
 - guidance for how to identify the audience
 - for all elements of the guide, offer a range of options and suggestions about which ones are appropriate in which situation (list pros and cons and give examples)

Date of first activity (share our existing resources relating to these issues): participants to post resources to website by the end of the first week after Easter.