



Northern Gulf Regional NRM Plan

Adaptive Management Strategy

“Those who fail to learn from the past are condemned to repeat its mistakes”.¹

Purpose

This document has been developed to support the delivery and implementation of the Northern Gulf Regional NRM Plan, and the regional strategies contained within, by the Northern Gulf Resource Management Group (NGRMG) as the lead agency.

The purpose of the Adaptive Management Strategy is to continually develop knowledge and collect evidence to facilitate internal evaluation and adaptation of NRM delivery in the Northern Gulf region, tracking against the Plan. This approach represents an evolution from static Plans which become increasingly less relevant as they age, to “planning as a process” where assumptions and relevance is reviewed and assessed on an ongoing basis for the currency period of the NRM plan, and beyond. For this evolution to be successful, it will require a culture shift within all levels of NGRMG which encourages NRM delivery to be more reflective, more strategic and ultimately, more effective.

The following pages will lay pathways for NGRMG to achieve this. It will establish the foundational principles and attributes of adaptive management and then provide a roadmap of the sort of mechanisms that NGRMG could include in their operations to achieve this adaptive management.

Note: This document is a Draft and subject to IWG and board discussion and deliberation. Project staff are critical to the delivery and success of any AM Framework, and should be consulted extensively on the practicalities and limitations of any proposed measures.

Adaptive Management (AM) in Natural Resource Management (NRM)

NRM seeks to bring about landscape scale benefits through management interventions into environmental processes. These interventions are often experimental in nature and typically adopt a trial and error approach to environmental management. AM seeks to change this paradigm by consciously identifying uncertainties and assumptions, which are then reviewed and evaluated on an

ongoing basis. Therefore, AM simultaneously integrates *learning with managing* of natural resources and systems.

Given the high levels of uncertainty, complexity, risk and external shocks associated with both social and ecological systems, AM provides a means of “learning while doing”, while providing a level of organizational flexibility and responsiveness in response to change at both social and environmental levels. AM involves strengthening feedback from monitoring systems to management decisions. Actively identifying and testing assumptions allows the learning and adaption process to be accelerated.

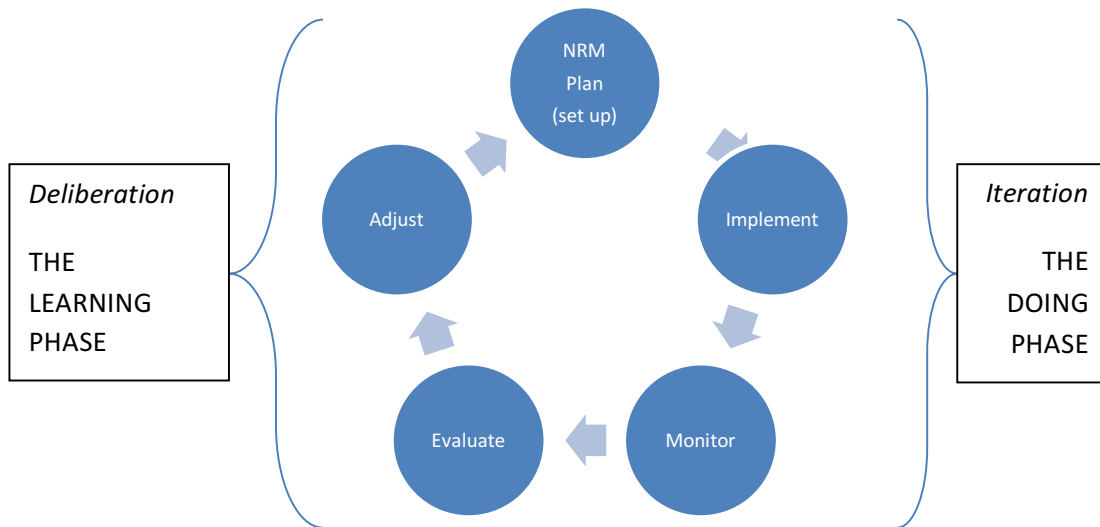
“We are not going to succeed every time, but if we are honest in our appraisals of our efforts, we will learn every time”.²

AM has been in the NRM discourse for a number of decades, with many NRM bodies now embracing AM as the approach they use to meet their resource management responsibilities. The Australian government has also embraced the rhetoric of AM, with the most well-known examples being the their MERI (Monitoring, Evaluation, Reporting, Improvement) model and Program logics which are now embedded into funding, delivery and reporting arrangements between regional NRM bodies and funding programs. It is expected that AM will continue to be embedded into NRM delivery models, and this Strategy will be a useful resource in meeting future expectations from funding bodies.

Recently NRM discourse has become increasingly focused on the concept of “resilience thinking”. Resilience is defined as *the capacity of a system to absorb disturbance and self-organise without major changes to the fundamental structure, dynamics or feedbacks*. This can relate to both social and ecological systems. Resilience thinking integrates the role of shocks and disturbance, often unforeseen, into the adaptive management cycle of ecosystems and organisations.

Natural systems are both responsive to management interventions but subject to uncertainties about the impacts of those actions. There is also a high degree of unpredictability in how systems behave, especially in response to climate change and variability. The fact that these changes are expressed over time provides natural resource managers an opportunity to improve management by learning over the course of the management timeframe. This also recognizes that resource systems are only partially understood, and seeks to continually and systematically expand our understanding.

The adaptive management cycle.



The above schematic illustrates the principle of Adaptive Management, which is a cyclical process of learning and doing, where planning precedes implementation, followed by monitoring, evaluating and adjusting. This process occurs across nested scales, with the doing stage starting with broad conceptual thinking, progressing to project level actions.

Multi layered, multi scale learning

*“Learn, Review, Reflect”*³

For adaptive management to be successful, it should operate across time scales, and influence how the organization operates at a number of levels. This involves evaluative and feedback loops designed into all activities. Overall, evaluation questions should assess the following:

1. **Effectiveness**- which pathway has greater influence/ success.
2. **Efficiency**- relative cost of different pathways to achieve the same outcome, incorporating costs/ benefit, delays and expected levels of on-going investment and support, and ongoing costs.
3. **Impact**- what other attributes of the system are changing (positive and negative) due to the chosen pathway?
4. **Appropriateness**- does the pathway have general community support and stakeholder buy-in?
5. **Legacy**- what happens if the resourcing stops? Is there a point where the NRM can exit and the activity/ intervention will sustain itself?

(Source: Murray Catchment Management Authority)

The first level of evaluative learning occurs most frequently (ongoing to annually) and focuses on projects level activities meeting their stated objectives. Evaluation questions may include:

1. *Did we achieve the desired outcomes?*
2. *Are we doing things right?*
3. *Could we have done it more effectively/ efficiently?*

The second level of evaluation will occur over longer timeframes (2 to 3 years). This includes challenging strategies and the assumptions and evidence base which underpins them. It may involve considering lessons learnt, challenging the relevance of assumptions made, and result in the reframing or superseding of strategies and targets. Evaluation questions may include:

1. *Are we asking the right questions?*
2. *Are our strategies and outcomes appropriate within the current context?*
3. *Are our assumptions sound?*

The third level of planning represents “closing the loop”, and reviewing and updating the Plan itself, possibly resulting in an entirely new Plan or major edits to the existing plan, and the additional of new goals, strategies and targets. Evaluation questions may include:

1. *Has the regional NRM Plan been implemented as intended?*
2. *Has it made progress towards its goals and strategies?*
3. *Was there any discernable and evident impact on the condition of the region’s natural resources?*

The Northern Gulf regional NRM planning process

Timeframe	Milestone/ Stage	Comments/ linkages
Aug 2013	Review NRM Plan	Completed by Olwyn Crimp at outset of NRM planning project
Nov 2013	Internal Governance Framework	Developed by Internal Working Group (IWG) and approved by the board.
Jan-Aug 2014	Science and literature review	Over 500 citations from studies undertaken in the Northern Gulf reviewed.
Jan-Aug 2014	Risk & resilience assessments	Spatial analysis (Niilo Gobius), social resilience benchmarks (Allan Dale) and climate change risk assessments (internal staff) undertaken to identify climate change risk in the region.
Aug 2014	Draft Regional assessment	Regional assessment collated by project team and presented to staff, executive and members.
Sep 14- Mar 15	Expert review	40+ regional experts review Draft regional assessment and suggest changes and additions
Mar 2015	Draft NRM Plan goal and functions	Presented to IWG on 27 March and approved by Board
May-Aug 2015	Community engagement	Sticker dot surveys and talk to the camera exercise identify community priorities, perceptions and values across the region
May-Aug 2015	Stakeholder engagement	NRM dilemmas workshop identify key issues for effective NRM delivery and collaborative strategies to address them

June 2015	Draft assessment criteria	To be adopted by IWG & board
July 2015	Draft adaptive management strategy	To be adopted by IWG & board
Aug-Sep 2015	Draft regional strategies	Draft suite of regional strategies (approx. 8-20 in total), directly informed by community and stakeholder engagement. For each big regional strategy develop conceptual model of change & rank evidence and assumptions.
Aug-Sep 2015	Assess projects/ pathways using assessment criteria	Link to project development process to regional strategies and assess through assessment criteria.
Oct-Nov 2015	Draft NRM plan open for comment	4 week submission period where draft will be widely circulated and available for comment
Nov 2015	Adopt NRM Plan & Adaptive Management Strategy	After workshopping the comments, amend Draft plan and adopt with Board and Australian Government.
2016	Implement regional strategies	Implement in way that objectives and tests assumptions, including explicitly describing the following steps: <ol style="list-style-type: none"> 1. Problem 2. Dynamics 3. Goals 4. Options for intervention 5. Approaches 6. Expected outcome 7. Evidence 8. Assumptions And identify the following: <ol style="list-style-type: none"> 1. principles 2. processes 3. best available science 4. levels of uncertainty
2016	Develop tools for Adaptation	See Roll out of Adaptive Management approach (page 9&10)
2016-2021 (each year)	Annual review	Annual reports/ MERI reporting
2017/ 2019	Two year review	Social resilience benchmark review
2021	Close the loop	Return to full review of NRM Plan

Risks to the process

The principles of AM are widely accepted within the NRM industry; however there are several critical risks to successful AM practice. These include:

1. Up-front costs (eg. data management systems). These should be compensated by more informative and collaborative resource management over the long term, however the upfront costs may be prohibitive.
2. Institutional barriers- effort not expended on re-designing organisational structures and processes to accommodate an adaptive style of management.
3. Honesty required about risk and risk aversion- need to promote conditions that encourage, reward and sustain learning by individual project staff, including candid discussion of where programs fail to meet stated objectives.
4. Scale and complexity- Ecosystems involve economic, institutional linkages across large landscapes- as scale and complexity increases, our influence over outcomes decreases.
5. Inappropriate temporal scales- Learning about resource responses and the decision making process itself will fail if the frequency of process adaptation is not matched with observed management responses.
6. Stakeholder perspectives and values can shift as the process unfolds.
7. Staff time and resources are reduced over the course of the planning period.
8. Turnover in key personnel means no succession of the AM process.
9. No meaningful data- if process fails to produce any recognizable differences in resource condition or uptake, and AM approach may not be a useful exercise.

Northern Gulf Resource Management Group- Adaptive Management Framework

The following table described the key processes- some new and some existing- which allow for feedback points in an Adaptive Management Framework.

Please note: This Framework should be re-visited when the NRM Plan, including a full suite of regional strategies and targets has been adopted. Specific monitoring mechanisms for each regional strategy and stated objective should be developed and integrated into future program delivery.

Level	Timeframe	Operations	Governance	Research & Science	On-ground works	Education and Communications
First level- learning from actions	Ongoing	<p>Staff fortnightly progress reports (FPRs)- report back on parts of the Plan which relate to the project officer's role.</p> <p>Periodic staff meetings- promote shared learnings and reflections among project staff as standing agenda items.</p> <p>New positions- align Key Performance Indicators with NRM strategies and targets.</p>	<p>Executive meetings- report on progress against the plan.</p> <p>Identify and develop partnerships which allow for shared costs of M&E and data share arrangements</p>	<p>Ant monitoring surveys</p> <p>Shared database- document knowledge gained from monitoring and evaluation of project activities.</p> <p>Water quality monitoring.</p>	<p>Assess landholder capacity to undertake NRM through extension activities.</p>	<p>Analytics of web traffic and social media</p> <p>Analysis of RSS feeds (local media).</p> <p>Participant evaluation of community events.</p> <p>Participation numbers in community events.</p> <p>Participant interviews (video) at end of each event.</p>
	Bi-annual (twice a year)	MERI/ MERIT/ enquire reporting- update project plans	General meetings- report on progress against the plan.			

		to reflect learnings from past actions- develop and use internal procedures to support project MERI.	Internal working group <i>OR</i> NRM Planning sub-committee of the board meet to review planning, assess progress and refine policy and planning process.			
	Annual (once a year)	Annual staff performance reviews	Annual reports- develop report template which explicitly reference progress against the Plan	Review commercial fisheries catch data for marine trends. Review marine debris data from Ghostnets Australia and Tangaroa Blue for trends.	Farm profitability assessment. Agricultural production assessment. Irrigation water and farm electricity use.	Grazier's forum- participant evaluation and numbers Annual kids events- participant evaluation and numbers Gulf vision (Christmas edition)- what we've achieved in a year – double page spread, relating to NRM Plan.
Second level- reviewing and reframing	Alternate year (every two years)	Review staff protocol for evaluation and reporting.	Review of social network analysis, including stakeholder survey			Soil forum- participant evaluation and numbers Rural women's network- participant evaluation and numbers

						<p>Social resilience benchmarks review.</p> <p>Community survey- includes questions relating to NRM Plan and regional strategies.</p>
	Mid-point (3 year partial review, mid-point of currency period of the Plan)		Strategic intensive- calls together exec and staff for an intensive, reviewing progress against stated objectives and shared learnings- reframe regional strategies where appropriate.	<p>Eco-accounts- land condition monitoring.</p> <p>Document knowledge gained from evaluation of strategies and projects.</p>	Assess impacts of interventions/ investment points (e.g. riparian fencing, erosion control measures) - potential to integrate with Eco-accounts review.	Stakeholder engagement- revisit NRM dilemmas and dot surveys across regional community.
Third level- Closing the loop	End point (5 year complete review, currency period of the Plan complete. Overhaul and update Plan)	Interview all project staff as part of "expert review" for new NRM Planning exercise.	Review governance arrangements in corporate planning exercise which directly follow the NRM Planning exercise.	<p>Science and literature review- assess all new evidence and citations from the preceding 5 year period.</p> <p>Review Climate change risk assessments</p>		<p>Extensive stakeholder and community engagements.</p> <p>Review communications strategy with staff and executive.</p>

Roll out of Adaptive Management approach

For NGRMG to be successful in implementing an AM approach to continual planning and learning through the Northern Gulf Regional NRM Plan (2016-2021), it will require commitment and a raft of measures across the organization. If the AM process is an add-on or an overlay to existing operations and governance arrangements, it is unlikely that it will endure over the full 5 year period, as more immediate priorities continue to emerge over time. Therefore, AM will need to be integrate into the way we do business, including regular reporting , communications and collecting information for it to permeate the culture of NGRMG to the point where it delivers benefits. These will include measures for the following:

1. Develop easy to use tools which enable rapid learning, which are integrated across projects;
2. NRM Planning integrated into existing reporting requirements (not additional to);
3. Assign clear monitoring and evaluation responsibilities to specific people;
4. Effective and enduring mechanisms to link science with management in an active and ongoing dialogue;
5. Knowledge and information management systems are stored consistently and securely and provide ready access to information and knowledge in a form that is suitable for its audience.

The following table includes a suite of tools which could be utilized for these ends. The suite is not comprehensive and also provides a list of options, any combination of which could be employed.

Timeframe	Tool	User	Purpose
2016	Project evaluation template	Project staff	Build simple method, consistent across projects to capture, collate and query learnings from project and extension activities
	Project steering committees	Project staff Project stakeholders	This is a means to involve stakeholder representatives in the delivery of projects, and to integrate the NRM Plan strategies into the committee's Terms of Reference, providing a mechanism for critical review, accountability and inclusion for each project.
2016	Fortnightly Progress report template	Project staff	Amend FPR template to reflect NRM Plan strategies and targets
2016-2021	Standing item- Staff meeting agenda	Project staff	Review of activities and outcomes against the NRM Plan strategies and targets as a standing agenda item for regular staff meetings
2016	Staff protocol manual	Project staff	Develop staff resource detailing the process of implementation
	Staff KPIs	Project staff	Align KPIs with relevant regional strategy

2016	Staff training	Project staff	Workshop for project staff to build their capacity to implement the process
2017	Project trials	Project staff	Trial full AM process with a selected sub-set of projects which align with the regional strategies in the NRM Plan.
2016-2021	Program logics	Operations manager Government funders Project staff	Develop program logic for each individual project, which is revisited as part of an evaluation process.
2016-2021	MERI/ MERIT/ Enquire reporting	Operations manager Government funders Project staff	Adapt MERI reporting to integrate NRM Plan regional strategies
2016 Review- 2022	Corporate plan	Executive staff and directors	Review governance arrangements, organizational values and structure to align with NRM Plan.
2016-2021	Standing item- executive meeting agenda		Review of activities and outcomes against the NRM Plan strategies and targets as a standing agenda item for regular executive meetings
2016-2021	Standing item- general meeting agenda	Staff, executive and members	Review of activities and outcomes against the NRM Plan strategies and targets as a standing agenda item for regular general meetings
2016	Annual report template	Whole of company	Develop annual report template which align project outcomes with regional strategies and stated objectives in the NRM Plan
	Shared database	All staff	Robust framework (possibly cloud based) to store information and learnings, readily accessible to all staff, including contractors and members.

References

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