

Kimberley Marine Research Program

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Kimberley Marine Research Program

Undertake a program of marine research to support the conservation and management of the waters of the Kimberley, particularly the proposed State marine parks.

25 integrated projects

>80 scientists

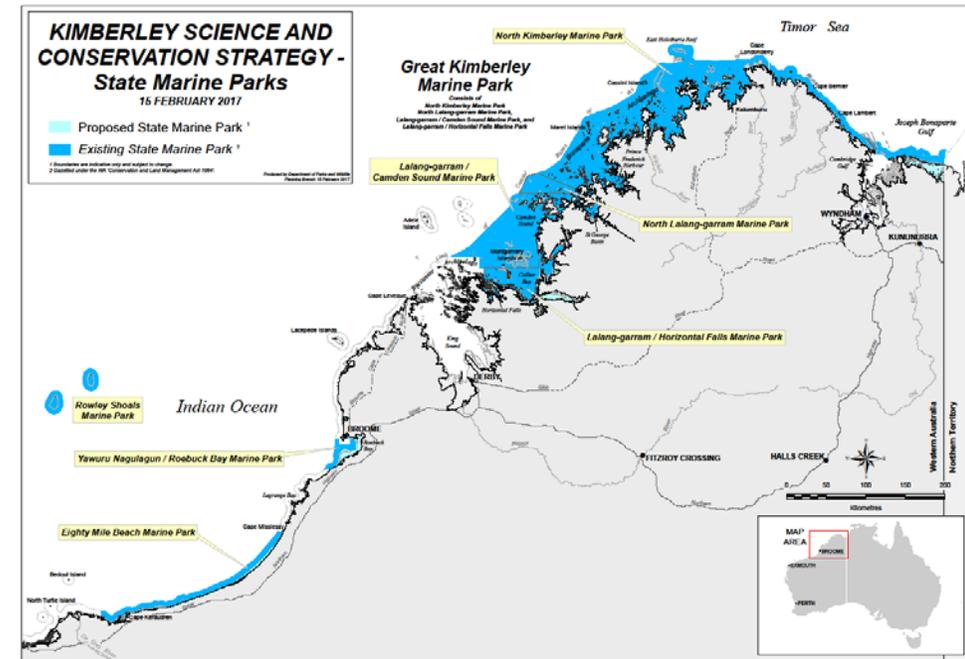
9 WAMSI partners

10 Indigenous communities

Kimberley Science and Conservation Strategy

“... to recognize and conserve one of the world’s last great wilderness areas.”

State Government funding 2012-2017



KMRP Science Plan

Building a regional picture of the Kimberley:

- **Biological, physical and social characterization**
- **Ecosystem processes and human impacts**

Priority research gaps focussed on management questions



WAMSI Kimberley Marine Research Program

Biological

Plants & Animals

Benthic biodiversity

Dolphins

Dugongs

Sea turtles

Crocodiles

Whales

Shorebirds

Environment & Habitats

Mapping productivity

Seagrass

Benthic productivity

Recruitment and herbivory

Connectivity

Climate change

Social

Values, uses and management

Social values

Human use

Indigenous knowledge

MSE Modeling

Physical

Background

Geomorphology

Sediments

Remote Sensing

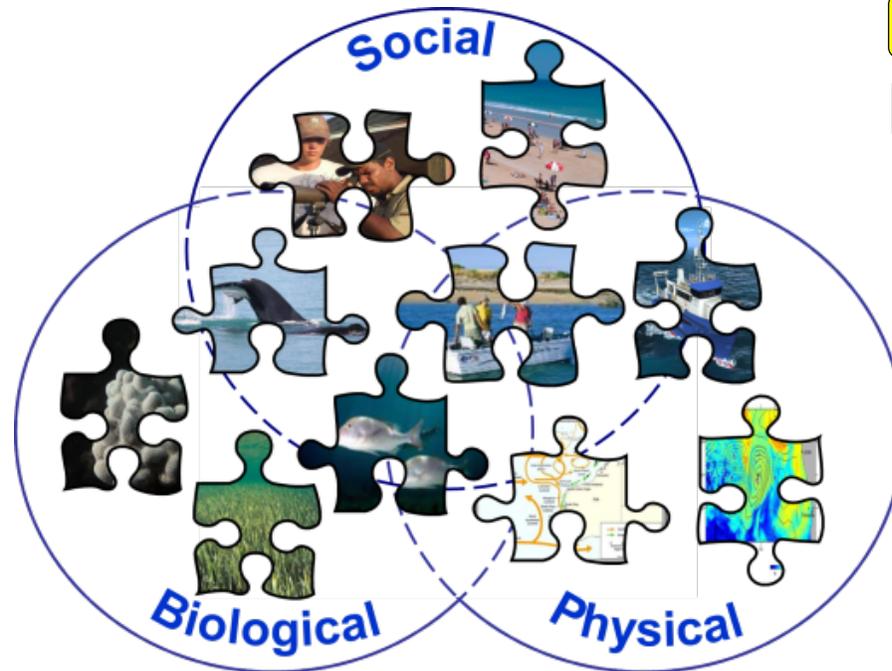
Processes

Land – Ocean links

Biogeochemistry

Calcification

Oceanographic dynamics



Where research has taken place

	Benthic biodiversity	Recruitment	Connectivity	Whales	Turtles	Crocodiles	Dolphin	Dugong	Shorebirds	Geomorphology	Calcification	Remote sensing	KISSP	Human use	Values	Oceanography	Biogeochemistry	Primary production	Seagrass	Mapping production	Land-ocean	Climate change	MSE	Sediment record	
Miriuwung Gajerrong					Green	Green		Blue						Green											
Balangarra					Green		Green	Green					Green	Green											
Wunambal Gaambera	Green				Green			Green					Green	Green	Green									Green	
Dambimangari	Green	Yellow	Yellow	Yellow	Green	Green	Green	Green	Yellow	Green	Yellow	Yellow	Green	Green	Green	Green	Green	Yellow	Yellow	Yellow	Green	Yellow	Yellow	Yellow	
Mayala			Green		Green			Green		Green				Green										Green	
Bardi Jawi		Green	Green		Green		Green	Green		Green	Green		Green	Green	Green	Green		Green	Green	Green					
Nyul Nyul					Green			Blue					Green	Green											
Goolarabooloo				Green	Green			Blue						Green											
Yawuru	Light Green		Light Green	Light Green	Green	Light Green	Green	Blue	Green	Light Green	Light Green	Light Green	Green	Green	Green	Light Green	Light Green	Light Green	Light Green	Light Green	Light Green	Light Green	Light Green	Green	
Karajarri					Green			Blue	Green				Green	Green											
Nyangumarta-Karajarri					Green			Blue	Green					Green											
Nyangumarta					Green			Blue	Green					Green	Green										
Gnarla					Green			Blue	Green					Green											

Marine Park Key

- North Kimberley
- Horizontal Falls and Lalang garram/Camden Sound
- Roebuck Bay
- 80 Mile Beach

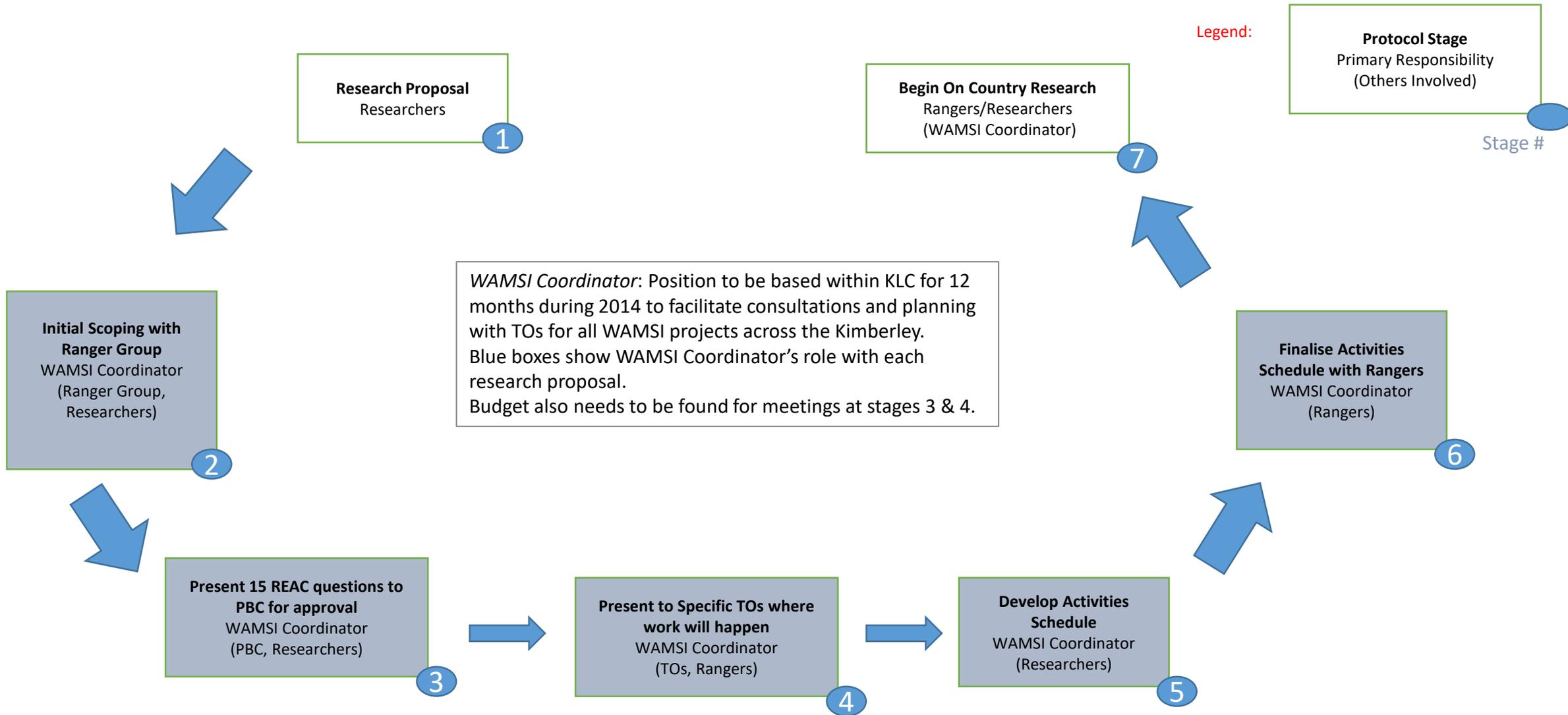
WAMSI INDIGENOUS ENGAGEMENT

1. Internal WAMSI Indigenous engagement Policy
Developed and approved by the Board.
2. Engagement protocols and process developed to provide detail for researchers.
 - Scope of works
 - Research agreements
3. WAMSI principles and approach to indigenous partnerships.

WAMSI Principles

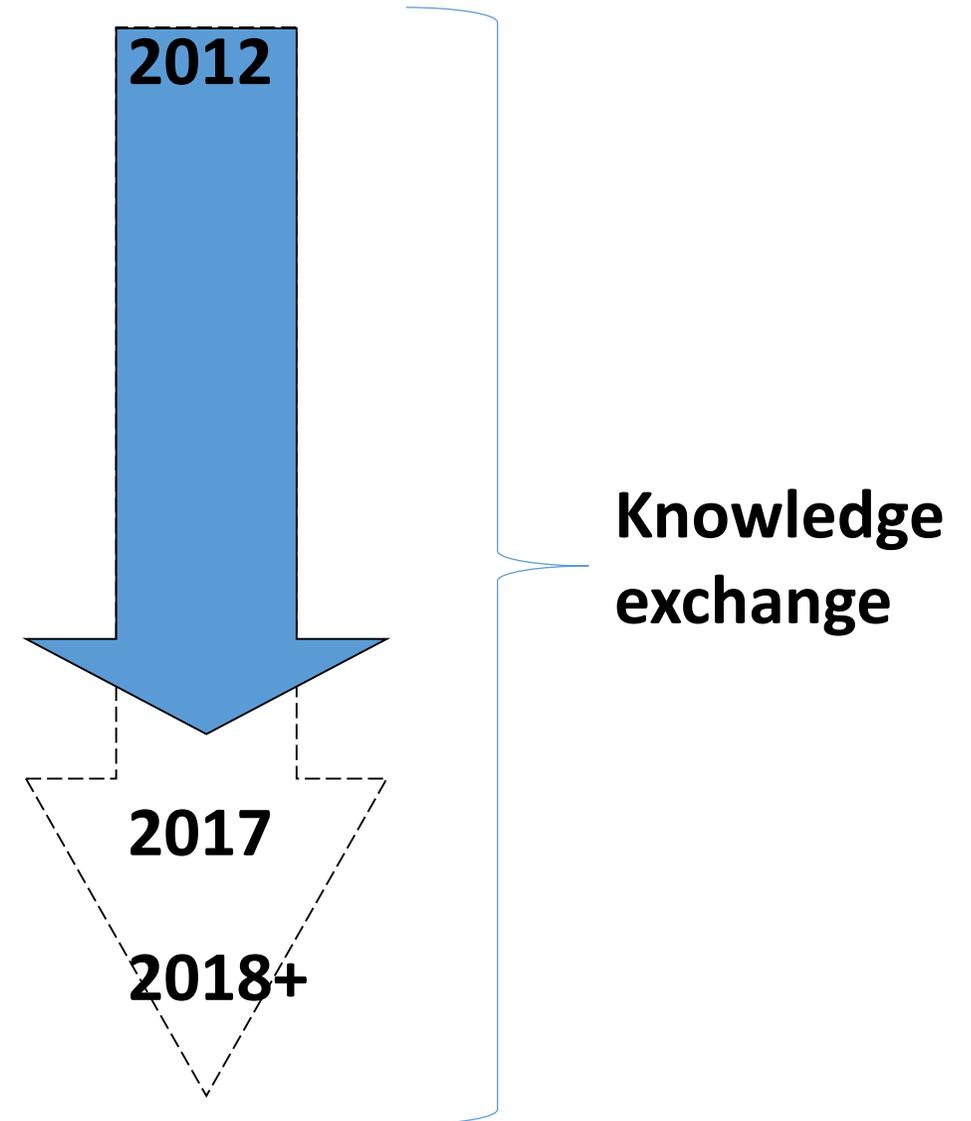
- Respect for culture, values, practices and Indigenous knowledge
- Shared Benefits through partnerships
- Shared information
- Respect for ownership of local knowledge

Suggested Protocol for WAMSI Consultation with TOs and Rangers



Program Stages

- Research planning
- Research delivery
- Outcome delivery
- Legacy/future research/application



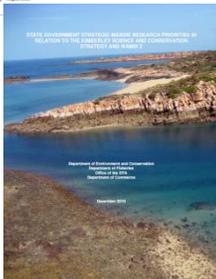
2008

A turning of the tide: science for decisions in the Kimberley-Browse marine region 2008

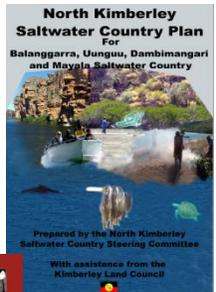
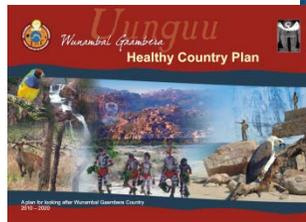


2010

State Government Strategic Marine Research Priorities -



Wunambal Gaambera Healthy Country 2010 - 2020

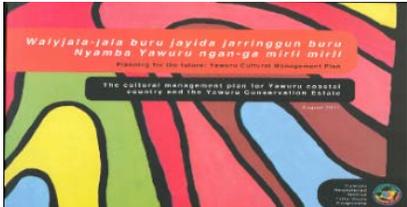


2011

Kimberley Science and Conservation Strategy May 2011

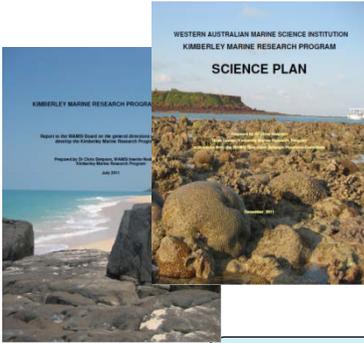


Cultural management plan for Yawuru coastal country and the Yawuru Conservation Estate 2011



2012

WAMSI Kimberley Marine Research Program Strategy and Science Plan December 2011



Dambimangari and Balangarra Healthy Country Plans 2012-2022

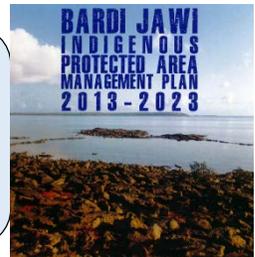


2013

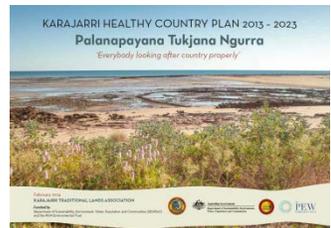
Lalang-garam Camden Sound Marine Park Joint Management Plan 2013



Bardi Jawi Indigenous Protected Area Management Plan 2013-2023



Karajarri Healthy Country Plan 2013-2023



KMRP INDIGENOUS KNOWLEDGE PROJECT

Incorporating indigenous knowledge into
research and monitoring.



Kimberley Indigenous Saltwater Science Project



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KISSP Objectives

Objective 1

Integrate Traditional Ecological Knowledge (TEK) and management practices into Kimberley marine conservation and management.

Objective 2

Develop standard and agreed community protocols and a research agreement template to underpin marine research in the Kimberley and an implementation strategy to build awareness in the science community of the need for this engagement.

Objective 3

- a) Develop a framework and protocols for standardising data collection, storage and analysis methodologies that can be used to monitor saltwater country across the Kimberley.
- b) This includes the development of a training package for agreed research targets for delivery to Rangers to develop internal capacity in these standardised techniques.

Working Group's Research Approach

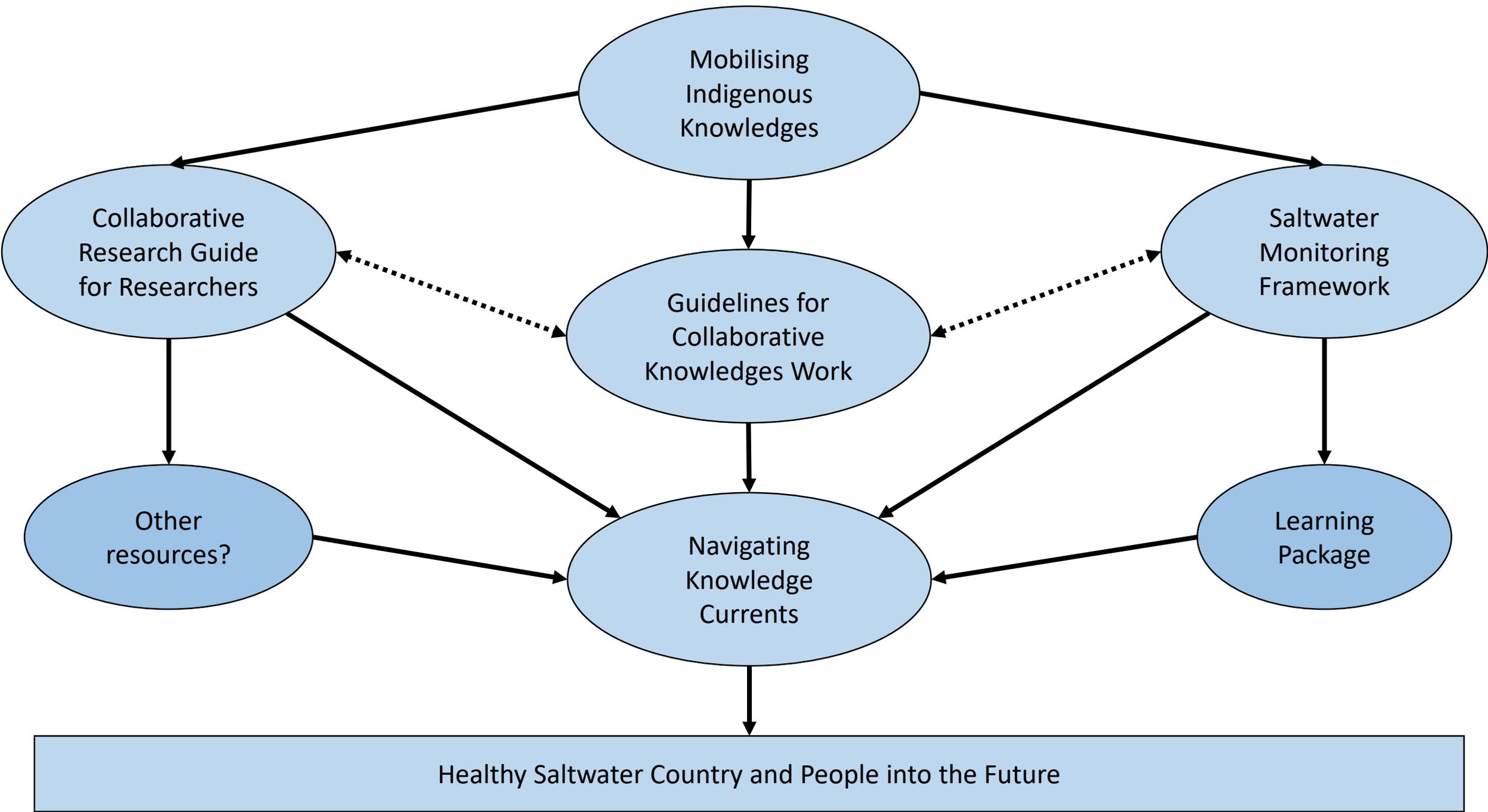
- Led by the KISSP Working Group.
- Rangers resourced to facilitate workshops.
- TOs and Rangers identify approach, agenda, who to attend and venue.
- 7 x 'On-Country' workshops.
- October 2016 Working Group workshop.
- July 2017 Working Group workshop
- Working Group feeding back all information to PBCs.



Research Team Selection Process

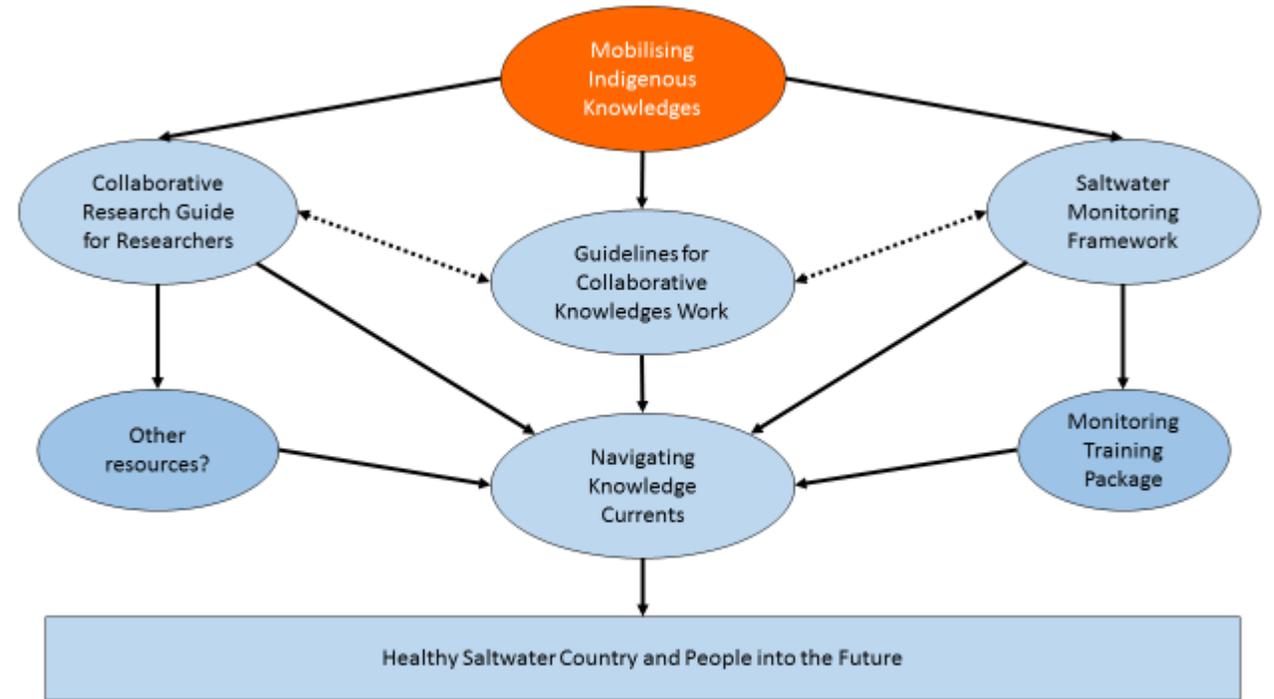
- Previous working relationships
- Submitted EOIs
- Pitches to Working Group
- Strengths-based research team selected

Objective	Who
<p><u>Objective 1</u> Integrate Traditional Ecological Knowledge (TEK) and management practices into Kimberley marine conservation and management.</p>	<p>Beau Austin Cathy Robinson Stephen Garnett</p>  
<p><u>Objective 2</u> Develop standard and agreed community protocols and a research agreement template to underpin marine research in the Kimberley and an implementation strategy to build awareness in the science community of the need for this engagement.</p>	<p>Gina Lincoln</p> 
<p><u>Objective 3a</u> Develop a framework and protocols for standardising data collection, storage and analysis methodologies that can be used to monitor saltwater country across the Kimberley.</p>	<p>Rebecca Dobbs Fiona Tingle Paul Close</p> 
<p><u>Objective 3b</u> This includes the development of a training package for agreed research targets for delivery to Rangers to develop internal capacity in these standardised techniques.</p>	<p>Gina Lincoln</p> <p><i>Mosaic Environmental Consulting</i></p>



Purpose:

To further mobilise Indigenous knowledges for research, and management of Kimberley Saltwater Country.

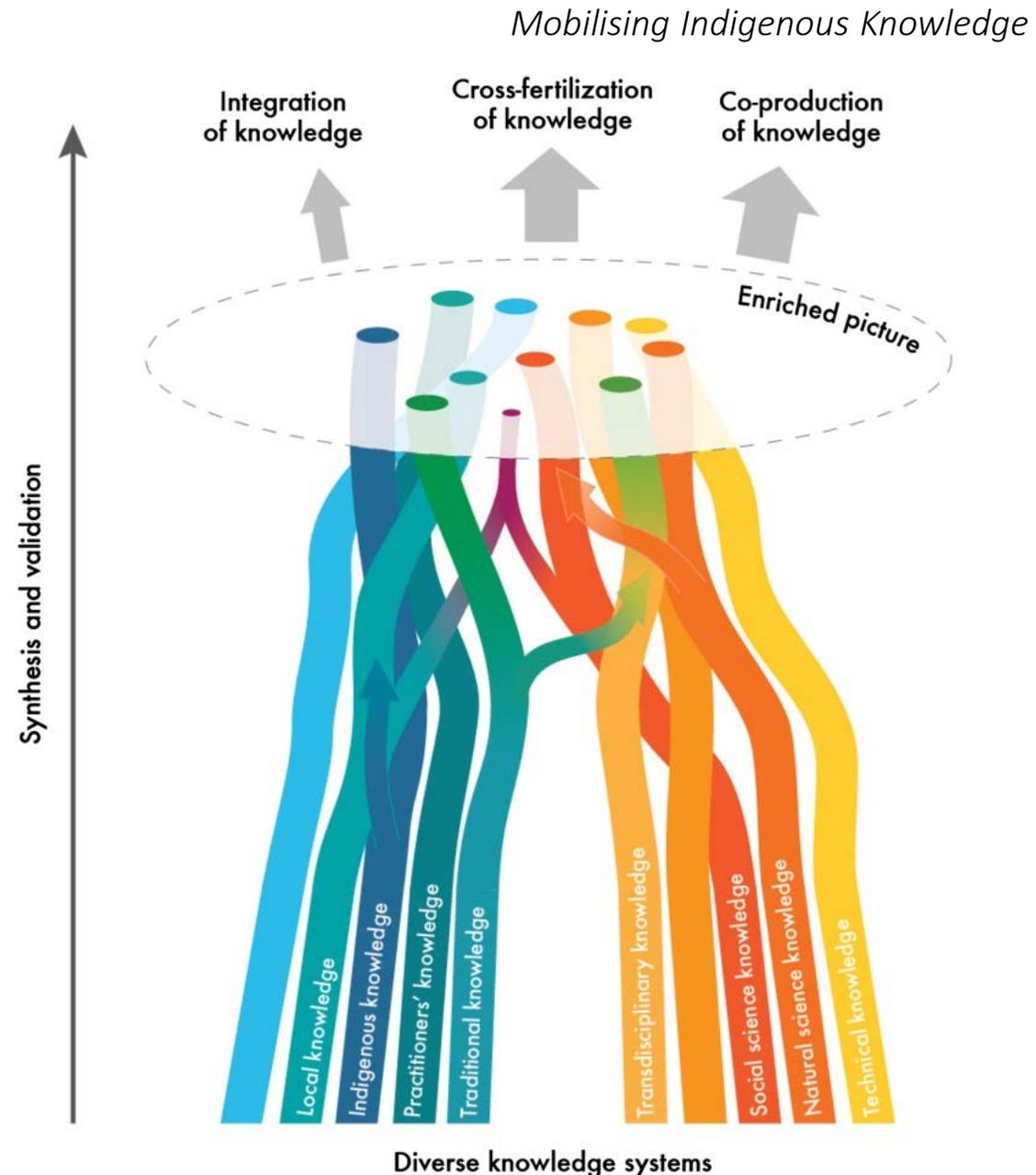


Audience

someone who collaborates with Indigenous people in the Kimberley, or and Indigenous person who collaborates with scientists and managers, especially towards looking after Saltwater Country.

A Multiple Evidence Based Approach

- 'Evidence-base' = knowledge that can be used for supporting decision-making, policy development and management.
- The **Multiple Evidence Base (MEB)** approach positions all knowledges as equally useful and useable.
- Lets each knowledge system speak for itself.
- Can think of it as weaving knowledges like a dillybag.
- It takes all available sources of evidence from multiple knowledge systems and makes sure that precious funds for research, monitoring and evaluation are not misspent on finding answers to questions we already know.
- Especially relevant for Kimberley Saltwater Country.
- Requires empowerment and capacity development of practitioners from all knowledge systems.



Tengo et al. (2014). *Connecting Diverse Knowledge Systems for Enhanced Ecosystem Governance: The Multiple Evidence Base*. *Ambio* 43, 579-591

Recognising Indigenous Knowledges

- Traditional Owners want to work with both local knowledge holders and western scientists to make the best decisions for Kimberley Saltwater Country.
- Most common examples of Indigenous knowledge for Saltwater Country:
 - ***Seasonal indicators***
 - ***Historical knowledge***
 - ***Knowledge of tides and currents***
 - ***Hunting***
 - ***Location of cultural values, sites, boundaries and connections***
 - ***Health indicators***
 - ***Connectivity***
 - ***Risk management on Country***

“In a way science is catching up to our knowledge. Collecting data makes it a bit easier to explain to scientists and put them in our shoes. Where knowledge is missing science can fill in the gaps.” *Traditional Owner.*

“It makes us and the rangers work better and know about Country. And we might have similar thoughts.” *Traditional Owner.*

“All the older people should be teaching the young ones at the same time as science is being taught to the young ones.” *Traditional Owner.*



Investing in Intercultural Knowledge Brokers

- **Knowledge brokers** are people (individuals/organisations, Indigenous/non-Indigenous) who have the capacity to create **meaningful, appropriate and functional linkages and relationships** between otherwise disparate knowledge holders/producers.
- This is a **demanding role that is often under-funded** in collaborative knowledge projects, yet is crucial to optimising outcomes.



Draft Guidelines for Collaborative Knowledge Work



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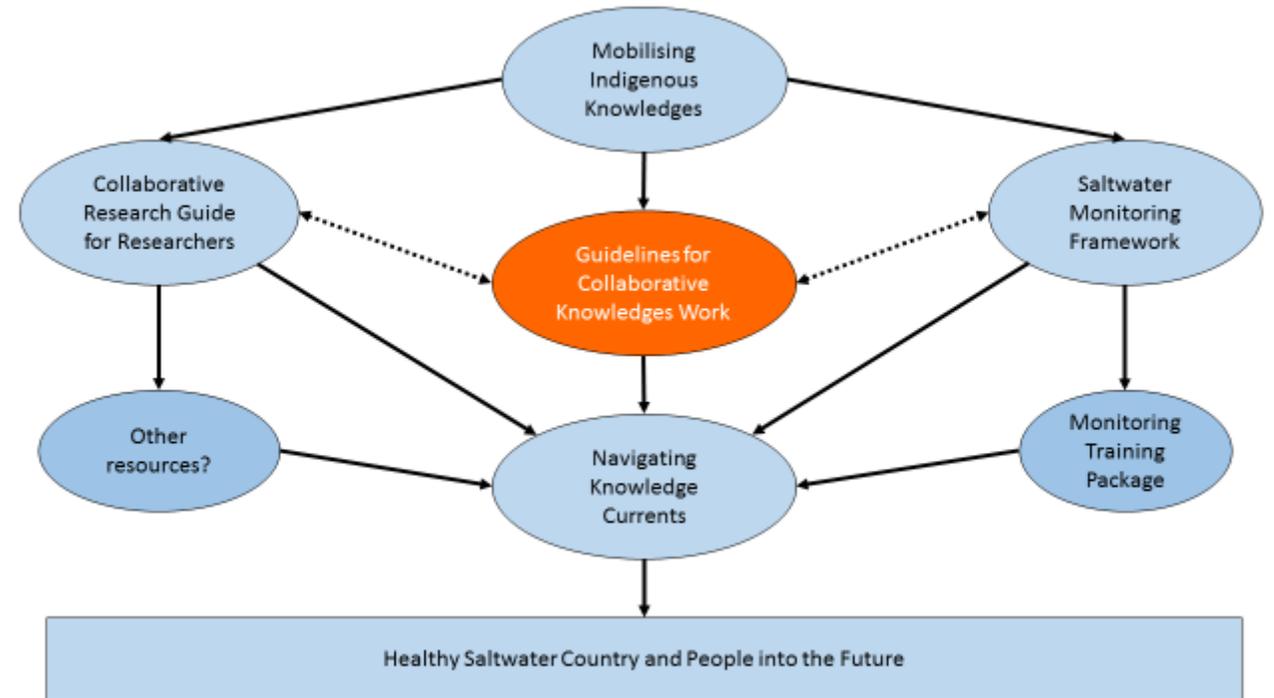
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Purpose :

- **Inform project design and the development of capacity building resources** to help Indigenous people, rangers and their partners to look after Country in a way that produces multiple benefits for both People and Country.



Audience:

People collaboratively using Indigenous knowledges, Western scientific knowledge or any other relevant knowledge to **support enhanced decision-making, policy and management** for Kimberley Saltwater Country.

Survey of Scientists

- Gina and Beau conducted an online survey of scientists with experience in the Kimberley.
- Invitations sent through the networks, included:
 - Western Australian Marine Science Institute (WAMSI)
 - Western Australian Department of Parks and Wildlife (DPAW)
 - Western Australian Department of Fisheries
 - the National Environmental Science Programme (NESP)
 - universities or other institutes.
- In total 78 invitations were sent – 26 responses received.

Help Wanted!

Survey respondents suggested that they themselves need to improve their engagement with Indigenous people by:

- Commencing the process earlier,
- Dedicating more time for collaborative interpretation of results and report writing, and
- Actively seeking feedback on outcomes of the project.

Also, there was a general awareness that collaborative research requires much more flexibility regarding milestones and schedules than purely WSK projects.

To assist them in their collaborative work, WSK practitioners would like Indigenous people to provide clearer guidance on:

- The correct process for engagement;
- Faster approvals processing, and;
- Identified, publicised and up to date points of contact for Traditional Owner groups.

- ***No apparent conflicts.*** No reason that the guidelines identified above by Traditional Owners cannot be implemented in full.
- Significant willingness to reach ***'good enough' ways of working together.***
- Improvements sought more about ***more information***, not negotiation/modification of guidelines and processes.

Recommendations

- **Indigenous rep bodies and interest groups** given opportunity to provide feedback.
- **Western science practitioners and partnering institutions** (government, research, NGOs, etc.) offered opportunity provide feedback.
- **Implementation and enforcement should be conducted by relevant PBCs** through the collaborative research negotiation and approval process.
- Most appropriate mechanism for **supporting Traditional Owner authority** to decide who visits Country and what activities they are allowed to conduct.
- **PBC Boards and Staff are incredibly busy** – under-staffed, under-resourced and under pressure.
- **Ongoing investment in building capacity** (financial, human and infrastructure) of PBCs to exercise their authority to produce win-win outcomes.
- **Need for knowledge equality.**
- **Evaluation of the value of adopting collaborative, multiple evidence-based approaches** to looking after Country needs to be conducted.

Saltwater Country Monitoring Framework



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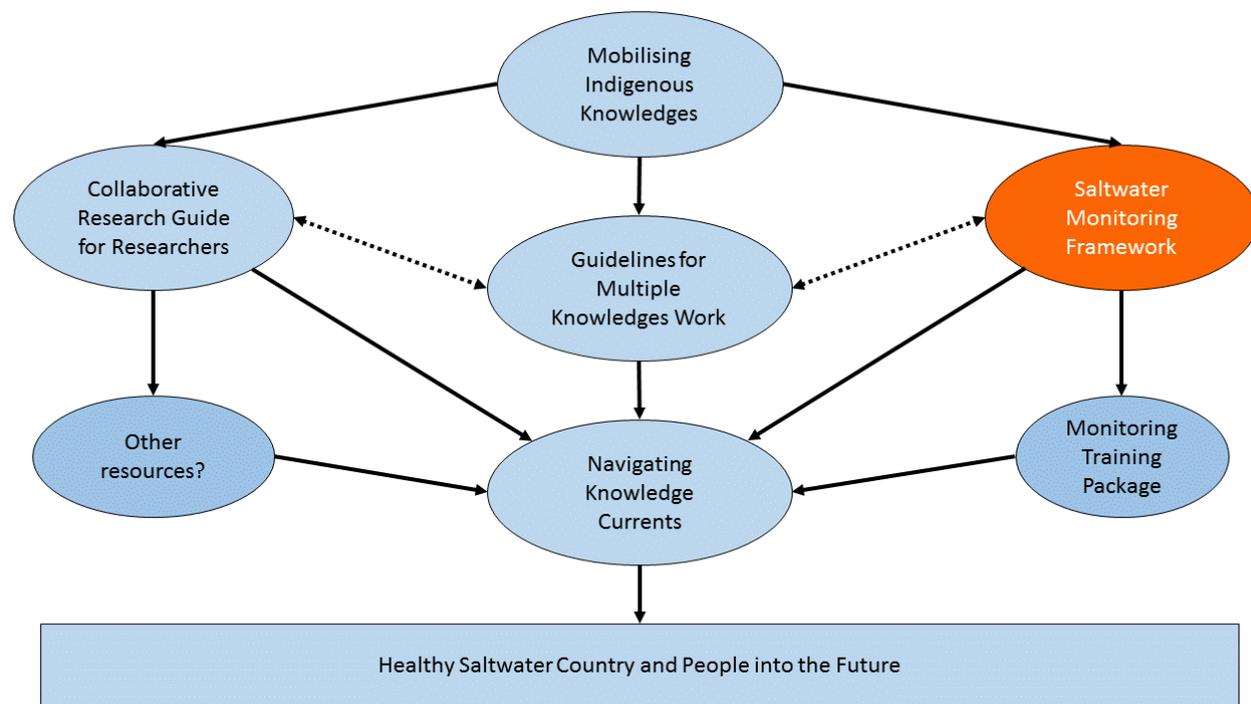
CHARLES
DARWIN
UNIVERSITY



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Purpose

Outlines the development of a best practice regional monitoring framework for the Kimberley that addresses multiple values and priorities (including ecological, social and cultural). This framework and the tools developed will assist Traditional Owner groups to monitor and manage Saltwater Country.



Audience:

Local TO and Ranger groups, Regional Indigenous bodies (ie KLC) and management organisations in the Kimberley seeking to undertake saltwater monitoring and management at a local scale and/or regional scale
 You are an NGO, Government, or research group planning on undertaking marine research or developing tools for monitoring saltwater country in the Kimberley.

Why a Regional Framework?

Currently groups undertaking individual monitoring of saltwater to understand local issues and management effectiveness

Regional Framework

- Provides organizational structure around the current monitoring activities (Groups can learn and share experiences of techniques that work)
- Assists groups to answer and interpret local monitoring results (i.e. understanding migratory spp.)
- Provides capacity building for local Ranger Groups to do collaborative monitoring
- Empowers TO groups which is important when negotiating joint management arrangements
- Helps make local indigenous values and aspirations visible and matter at a larger scale
- Opportunity to show LSM outcomes at a broader scale (KLC , Major funding bodies)
- Highlights where investment/ research needed DPaW and research organisations

Toolbox

Allows groups to access techniques for local scale monitoring

Colour coding:

Scientific Monitoring- Green

Local Monitoring-

Research Monitoring-

VALUE	MONITORING TECHNIQUES AVAILABLE	QUESTION'S TECHNIQUE CAN HELP ANSWER	BACKGROUND DOCUMENTS	RECORDING METHODS	ANALYSIS / COMMENTS
SALTWATER RESOURCES					
TURTLE	BOAT BASED SURVEYS (transects) (NAILSMA, CSIRO technique)	-Local changes in populations	<u>Summary Methods</u> -Transects -Behaviour, =Peter Bayliss <u>Trials & Development</u> - NAILSMA Developing Boat Based Surveys Turtles and Dugong: Field trials at Montgomery Reef August 2012 - Jackson et al 2013 Turtle and Dugong Field report WG Country	<u>Data recording tools</u> - Data as per project need by CSIRO or PB, <u>Analysis</u> - NAILSMA Dugong and Marine Turtle Project Final Report - Currently for WG	PB through CSIRO, only WG at moment
	LOCAL INDIGENOUS MONITORING	Are populations stable, is cultural catch sustainable? Population health, pressure and change in populations	<u>Summary Methods</u> -Change in sightings - hunting success/effort	<u>Data recording tools</u>	
	LOCAL HARVEST SURVEYS	Are populations stable, is cultural catch sustainable? Population health, pressure and change in populations	<u>Summary Methods</u> -Recording catch/kill numbers, fat content, date, time, name, location	<u>Data recording tools</u> -Individual groups have developed their own recording sheets	Not developed
	TAGGING (Scott Whiting/DPaW)	Are populations genetically different, what are their nesting and movement behaviour? Tagging of animals to understand movement	<u>Summary Methods</u> -Survey turtle nesting behaviour, turtle nests and hatchlings -Collection of genetic samples -Collection of data on sand temperature -Establishment of weather stations -Satellite tagging	<u>Data recording tools</u> Tagging of turtles and location can be recorded using the Saltwater Patrol - Saltwater Country Patrol_v6.2b -I-Tracker Saltwater Country Patrol Application Version 6 Fact Sheet	SW through DPaW

This is what it would need to look like to fit it all in

Module 2
Why do monitoring?

Module 3
Indigenous Knowledge in monitoring

Module 11
Drop-down camera technique

Module 1
What is monitoring?

Module 4
What makes monitoring successful?

Plus about 2 days for module 11
(boat trip to do drop down camera work, then interpret photos)

Module 10
Design a monitoring project

About half a day per module 1-10 (5 days) allowing lost of time for activities & interaction to explore concepts and share knowledge

Module 5
Monitoring techniques

Module 9
reporting back

Module 8
Interpreting the data

Module 6
Choosing a technique

Module 7
When, where how often?

(More complicated modules in dark blue)

Objective 2

Develop standard and agreed community protocols and a research agreement template to underpin marine research in the Kimberley and an implementation strategy to build awareness in the science community of the need for this engagement.



Collaborative research (working 'two-ways' or 'right-way research') is the best-practice approach supported by Indigenous people in this region

It works because it:

- ✓ respects both types of knowledge and culture,
- ✓ meets the research needs of all research partners and
- ✓ makes best use of available resources

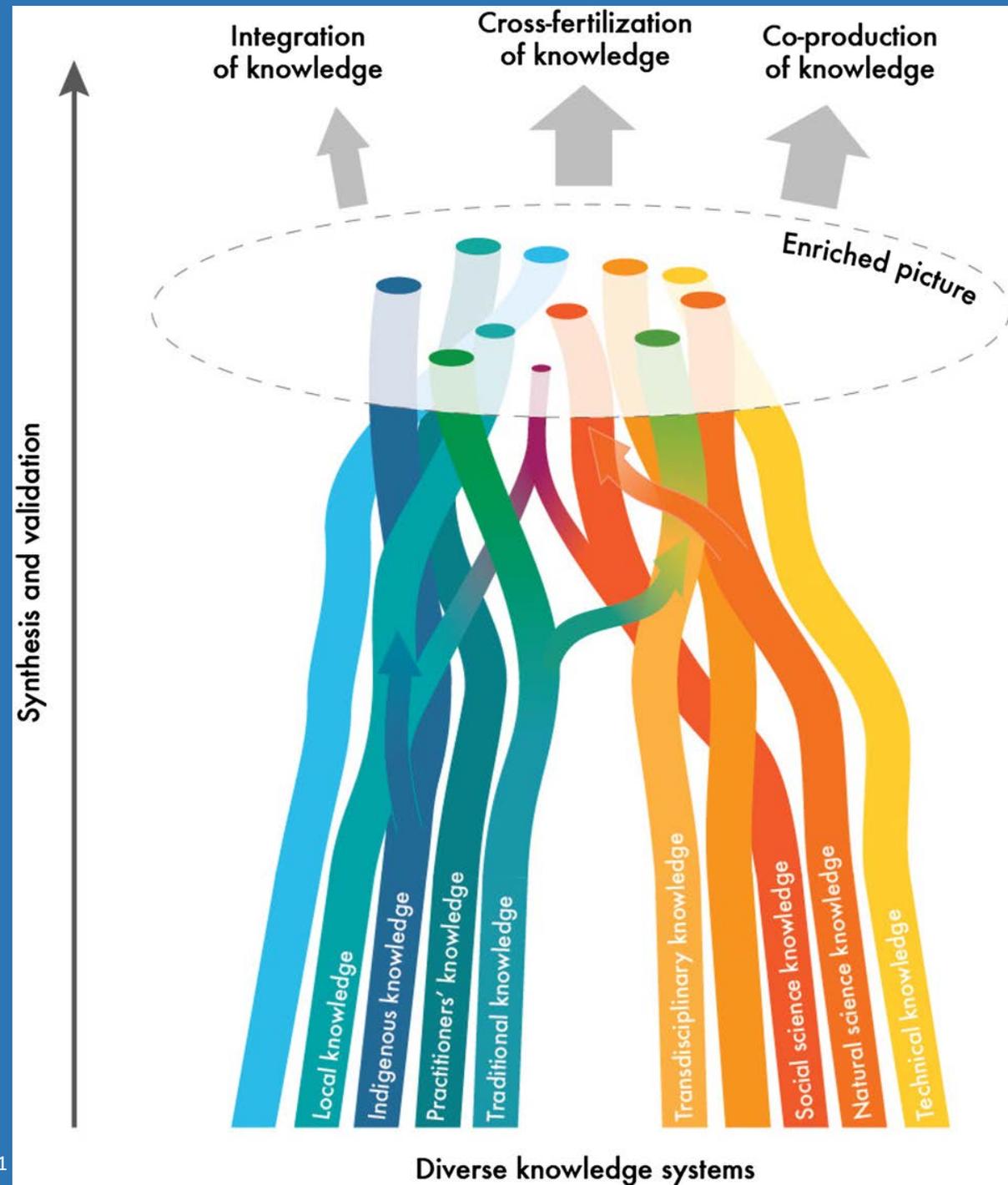
It can be thought of as land and sea research that is jointly owned and run by Indigenous people and their western science research partners in a way that values the contributions of both groups and builds knowledge together

Building knowledge together

What we've been learning about in this project is how knowledge is both integrated and co-produced during collaborative research projects

This approach allows two quite different knowledge and belief systems to sit next to each other towards a common output, with a range of benefits not commonly associated with scientific research projects

It provides strength to a research project because it gives your research a multiple evidence base



Collaborative Science on Kimberley Saltwater Country - A Guide for Researchers -

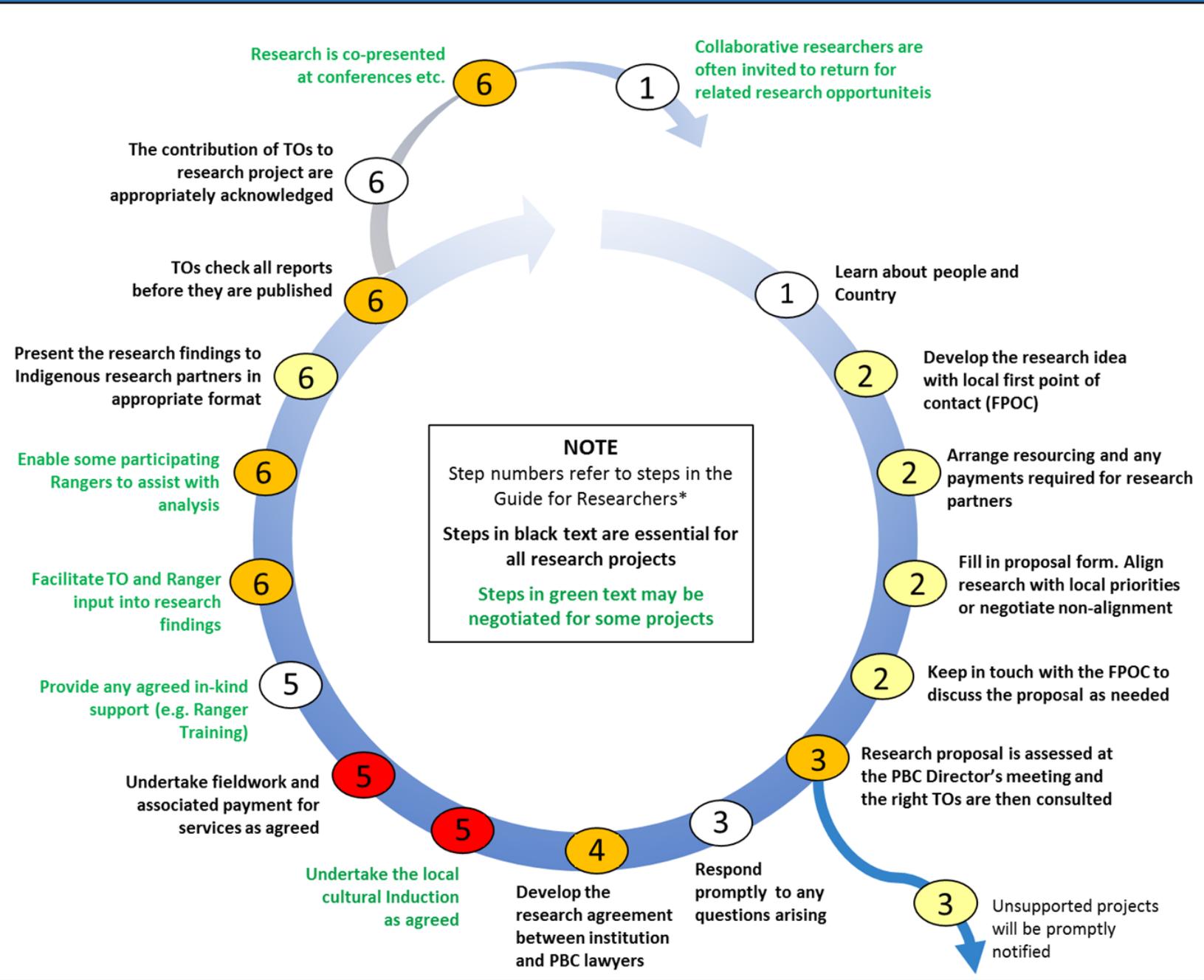


"People who have Indigenous Knowledge are scientists themselves"

(Kimberley Traditional Owner, 2016)

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Prepared by Mosaic Environmental





Thank you