Kimberley Marine Research Program

DAN OADES, BARDI JAWI IPA COORDINATOR
STUART FIELD, WAMSI, KMRP NODE LEADER
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**

<table>
<thead>
<tr>
<th>Marine Park Key</th>
<th>North Kimberley</th>
<th>Horizontal Falls and Lalang garram/Camden Sound</th>
<th>Roebuck Bay</th>
<th>80 Mile Beach</th>
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<tr>
<th>Benthic biodiversity</th>
<th>Recruitment</th>
<th>Connectivity</th>
<th>Whales</th>
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<th>Geomorphology</th>
<th>Calcification</th>
<th>Remote sensing</th>
<th>KISSP</th>
<th>Human use</th>
<th>Values</th>
<th>Oceanography</th>
<th>Biogeochemistry</th>
<th>Primary production</th>
<th>Seagrass</th>
<th>Mapping production</th>
<th>Land-ocean</th>
<th>Climate change</th>
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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

**WAMSI Coordinator:** Position to be based within KLC for 12 months during 2014 to facilitate consultations and planning with TOs for all WAMSI projects across the Kimberley. Blue boxes show WAMSI Coordinator’s role with each research proposal. Budget also needs to be found for meetings at stages 3 & 4.
Program Stages

- Research planning
- Research delivery
- Outcome delivery
- Legacy/future research/application
KMRP INDIGENOUS KNOWLEDGE PROJECT

Incorporating indigenous knowledge into research and monitoring.
Kimberley Indigenous Saltwater Science Project
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

<table>
<thead>
<tr>
<th>Objective</th>
<th>Who</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Objective 1</strong> Integrate Traditional Ecological Knowledge (TEK) and management practices into Kimberley marine conservation and management.</td>
<td>Beau Austin, Cathy Robinson, Stephen Garnett</td>
</tr>
<tr>
<td><strong>Objective 2</strong> 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.</td>
<td>Gina Lincoln</td>
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<td><strong>Objective 3a</strong> Develop a framework and protocols for standardising data collection, storage and analysis methodologies that can be used to monitor saltwater country across the Kimberley.</td>
<td>Rebecca Dobbs, Fiona Tingle, Paul Close</td>
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<td><strong>Objective 3b</strong> This includes the development of a training package for agreed research targets for delivery to Rangers to develop internal capacity in these standardised techniques.</td>
<td>Gina Lincoln - Mosaic Environmental Consulting</td>
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</tbody>
</table>
Mobilising Indigenous Knowledges

Guidelines for Collaborative Knowledges Work

Navigating Knowledge Currents

Saltwater Monitoring Framework

Collaborative Research Guide for Researchers

Learning Package

Healthy Saltwater Country and People into the Future

Other resources?
Purpose:
To further mobilise Indigenous knowledges for research, monitoring and management of Kimberley Saltwater Country.

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

- ‘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.

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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**
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
**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.

- **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
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
**Regional Scale Framework**

- **Values**
  - Identify those things important

- **Threats**
  - Identify what may cause them to change

**Assess**
- Health status and trend of values and threats
- Review Monitoring techniques

**Monitoring**
- Question
- Method
- Implement
- Analysis
- Results

**Prioritisation**
- Using a matrix of threats and values
- Develop questions and management strategies using Conceptual models
  - Program logic

**Question**

**Method**

**Analysis**

**Implement**

**Local Group Scale**

Figure showing how the regional framework and local framework work together.
# Toolbox

Allows groups to access techniques for local scale monitoring

<table>
<thead>
<tr>
<th>Tool</th>
<th>Description</th>
<th>Techniques Available</th>
<th>Question a Technique Can Help Answer</th>
<th>Background Documents</th>
<th>Recording Methods</th>
<th>Analysis / Comments</th>
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<tbody>
<tr>
<td>Boat Based Surveys (transects) (NAILSMA, CSIRO Technique)</td>
<td>Local changes in populations</td>
<td>Summary Methods: - Transsects - Behaviour, - Peter Rayli</td>
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<td>Data recording tools: - Data as per project need by CSIRO or PB,</td>
<td>Analysis: - NAILSMA Dugong and Marine Turtle Project Final Report - Currently for WGS</td>
<td>P8 through CSIRO, only WGS at moment</td>
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<tr>
<td>Local Indigenous Monitoring</td>
<td>Are populations stable, is cultural catch sustainable? Population health, pressure and change in populations</td>
<td>Summary Methods: - Change in sightings - Hunting success/effort</td>
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<td>Data recording tools</td>
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<tr>
<td>Local Harvest Surveys</td>
<td>Are populations stable, is cultural catch sustainable? Population health, pressure and change in populations</td>
<td>Summary Methods: - Recording catch/kiln numbers, fat content, date, time, name, location</td>
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<td>Data recording tools: - Individual groups have developed their own recording sheets</td>
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<td>Not developed</td>
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<td>Tagging (Scott Whiting/DPaW)</td>
<td>Are populations genetically different, what are their nesting and movement behaviour? Tagging of animals to understand movement</td>
<td>Summary Methods: - Survey turtle nesting behaviour, turtle nests and hatchlings - Collection of genetic samples - Collection of data on sand temperature - Establishment of weather stations - Satellite tagging</td>
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<td>Data recording tools: - Tagging of turtles and location can be recorded using the Saltwater Patrol - Saltwater Country Patrol_v5.2b - Tracker Saltwater Country Patrol Application Version 6 Fact Sheet</td>
<td>SW through DPaW</td>
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This is what it would need to look like to fit it all in

Module 1
What is monitoring?

Module 2
Why do monitoring?

Module 3
Indigenous Knowledge in monitoring

Module 4
What makes monitoring successful?

Module 5
Monitoring techniques

Module 6
Choosing a technique

Module 7
When, where, how often?

Module 8
Interpreting the data

Module 9
Reporting back

Module 10
Design a monitoring project

Module 11
Drop-down camera technique

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

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

(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.

**NOTE**

Step numbers refer to steps in the Guide for Researchers*

Steps in black text are essential for all research projects

Steps in green text may be negotiated for some projects

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1. Collaborative researchers are often invited to return for related research opportunities.

2. Learn about people and Country.
   - Develop the research idea with local first point of contact (FPOC).
   - Arrange resourcing and any payments required for research partners.
   - Fill in proposal form. Align research with local priorities or negotiate non-alignment.
   - Keep in touch with the FPOC to discuss the proposal as needed.

3. Research proposal is assessed at the PBC Director’s meeting and the right TOs are then consulted.
   - Unsupported projects will be promptly notified.

4. Undertake the local cultural induction as agreed.
   - Respond promptly to any questions arising.

5. Undertake fieldwork and associated payment for services as agreed.
   - Provide any agreed in-kind support (e.g. Ranger Training).

6. Present the research findings to Indigenous research partners in appropriate format.
   - Enable some participating Rangers to assist with analysis.
   - Facilitate TO and Ranger input into research findings.

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*Collaborative Science on Kimberley Saltwater Country - A Guide for Researchers*
Thank you