



Impacts and Achievements of the MTSRF

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Marine and Tropical Sciences Research Facility (MTSRF)
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Showcasing the Australian Government's investment
in the MTSRF for improved sustainability of the
North Queensland region, and Australia

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Pullman Reef Hotel & Casino
Cairns, North Queensland



Abstract

[MTSRF Project Number 1.3.3](#)

'Our Grandfathers' Wisdom' - Towards a Sustainable Future for the Hand Collectable Fisheries (Beche de mer and Trochus) of Torres Strait

Alifereti Tawake*¹, James Butler², Tim Skewes³, Lavenie Tawake², Kenny Bedford⁴, Willie Lui⁵, Annabel Jones⁶, Fiona Morseu⁷, Vic McGrath⁷, Helene Marsh⁸

¹School of Earth and Environmental Sciences, James Cook University, ²CSIRO Sustainable Ecosystems, ³CSIRO Marine and Atmospheric Research, ⁴Erub Island Council ⁵Warraber Island Council ⁶ Australian Fisheries Management Authority, Thursday Island, ⁷Torres Strait Regional Authority Land and Sea Management Unit, ⁸Graduate Research School, James Cook University

Torres Strait Islanders rely heavily on fisheries (e.g. tropical rock lobster, beche de mer, trochus, dugong, and turtle) to sustain their livelihoods. Effective management is critical to the long term sustainability of these fisheries, in particular the two hand collectable fisheries (trochus and beche de mer) which are highly vulnerable to overexploitation. However, they are potentially an important source of income for Torres Strait Islanders. These two fisheries are currently managed by state and federal government agencies and are based on Total Allowable Catch (TAC) as well as gear restrictions. There is no limit on the number of licenses that may be issued to Torres Strait islanders. The current management arrangements have been developed to protect over-exploited species (e.g. sandfish) in a remote area where enforcement is difficult, however are considered by some stakeholders to be inefficient.

Through this project, government agencies in Torres Strait, researchers and the communities of Erub and Warraber islands are collaboratively working towards finding a win-win arrangement to sustainably manage the trochus and beche-de-mer fisheries in their sea country. By reviewing the history of hand collectable fisheries in Torres Strait and local fishing practices, we present preferred future co-management arrangements and harvest strategies developed by marrying the wisdom and experience of the fishers with the scientific knowledge of researchers. The outcomes will allow for the evolution of adaptive co-management for fisheries in the Torres Strait.

The research emphasizes the significance of community involvement and stewardship that can change patterns of interactions among key actors, and allows new adaptive forms of co-management and governance to emerge. It illustrates that enabling legislation based on scientific knowledge is essential, but not sufficient for shifting governance toward a preferred adaptive co-management arrangement. Our Grandfathers' wisdom is required.



Australian Government
 Department of the Environment, Water, Heritage and the Arts



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'Our Grandfathers' Wisdom' - Towards a Sustainable Future for the Hand Collectable (HC) Fisheries of Torres Strait.

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¹PhD Student, School of Earth and Environmental Sciences, JCU, ²CSIRO Sustainable Ecosystems, ³CSIRO Marine and Atmospheric Research, ⁴Erub Island Council ⁵Warraber Island Council ⁶ Australian Fisheries Management Authority, Thursday Island, ⁷Torres Strait Regional Authority Land and Sea Management Unit, ⁸Graduate Research School, JCU





1.3.3 Livelihood Benefits of Adaptive Co-management of Hand Collectable (HC) Fisheries in the Torres Strait

Aims and objectives:

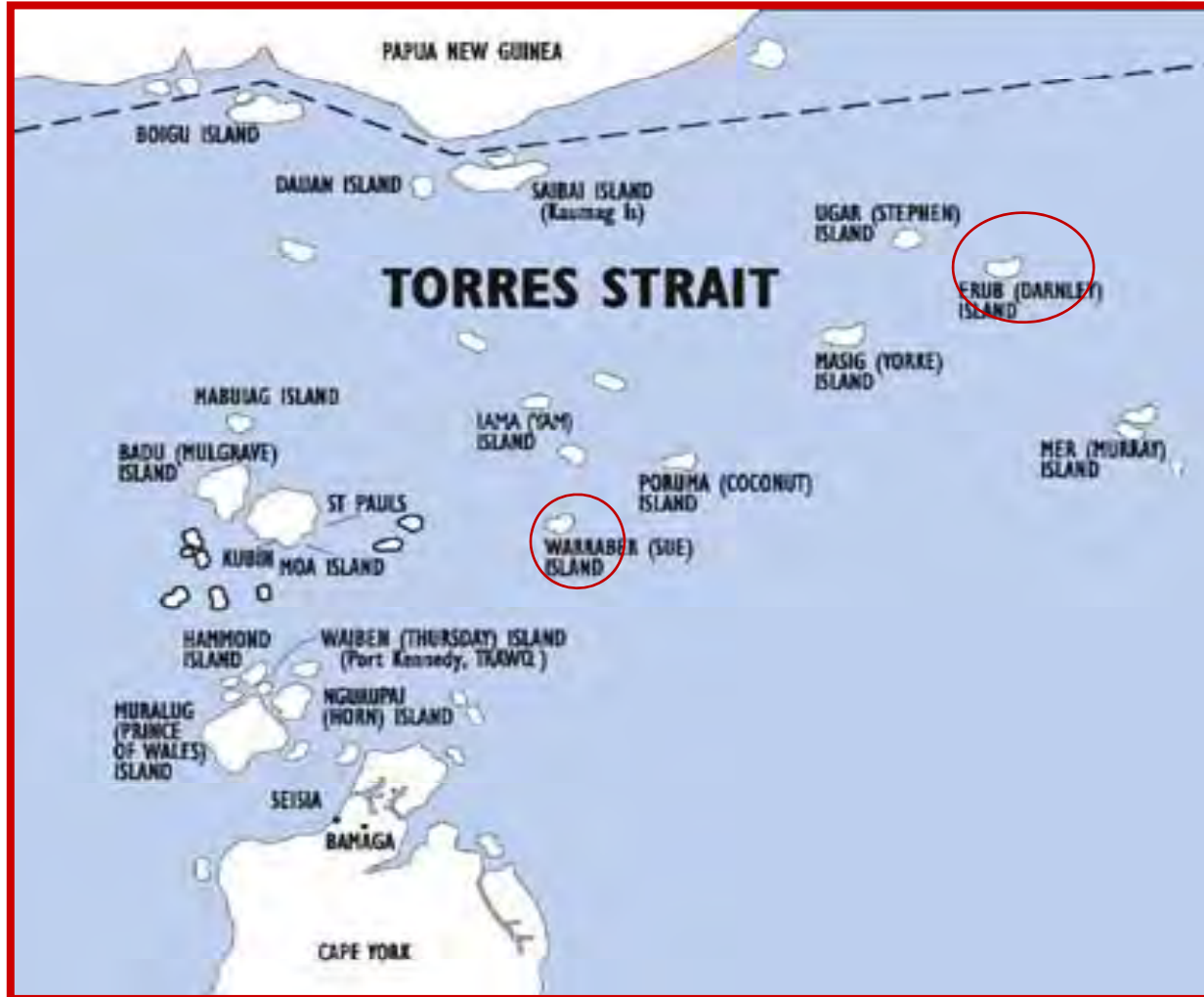
- Develop and pilot community-based HC harvest strategy.
- Trialling a co-management approach for trochus and beche-de-mer.
- Measure livelihood benefits of co-management in terms of social, economic, cultural and ecological outcomes.

Benefits to community:

- Restore sea cucumber and trochus fishery
- Revive traditional ecological knowledge (TEK)
- Integrate TEK with western science
- Local empowerment to manage and monitor fisheries



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Current HC Fisheries Management Arrangements

Sea cucumber fisheries (Sokpis)

1. Sandfish, black teatfish and surf redfish closed.
2. TAC for other 23 commercial species
3. Minimum size limits 220mm
4. Harvest limited to hand collection



Trochus (Kabar)

1. TAC 150t/yr
2. Harvest limited to hand collection
3. Harvest size limits 80-120mm





What Makes Effective Co-management?

1. Defined management boundaries and members
2. Development and enforcement of harvest strategies by local communities
3. Harvest strategies appropriate to local condition/needs
4. Communities have the opportunity or rights to make, enforce and change the rules
5. Local monitoring of the resources
6. Presence of conflict resolution mechanisms
7. Partnership with research providers

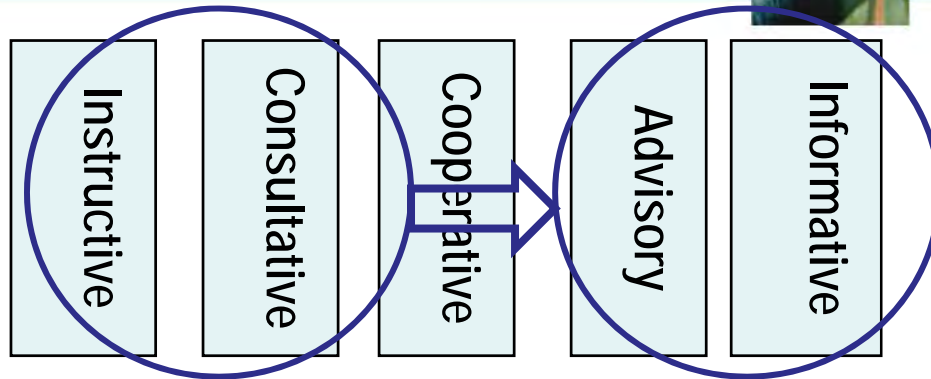
(Govan et al. 2009, Cinner 2008, Ostrom 2007, Pomeroy 2007)



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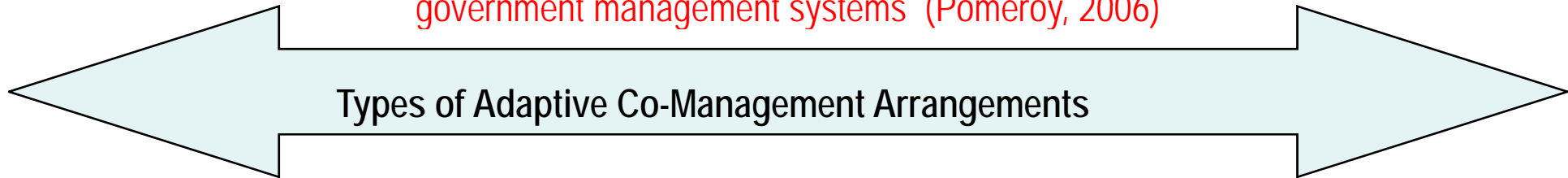


Government controlled



Community controlled

Partnership, sharing decisions, integration of community and government management systems (Pomeroy, 2006)



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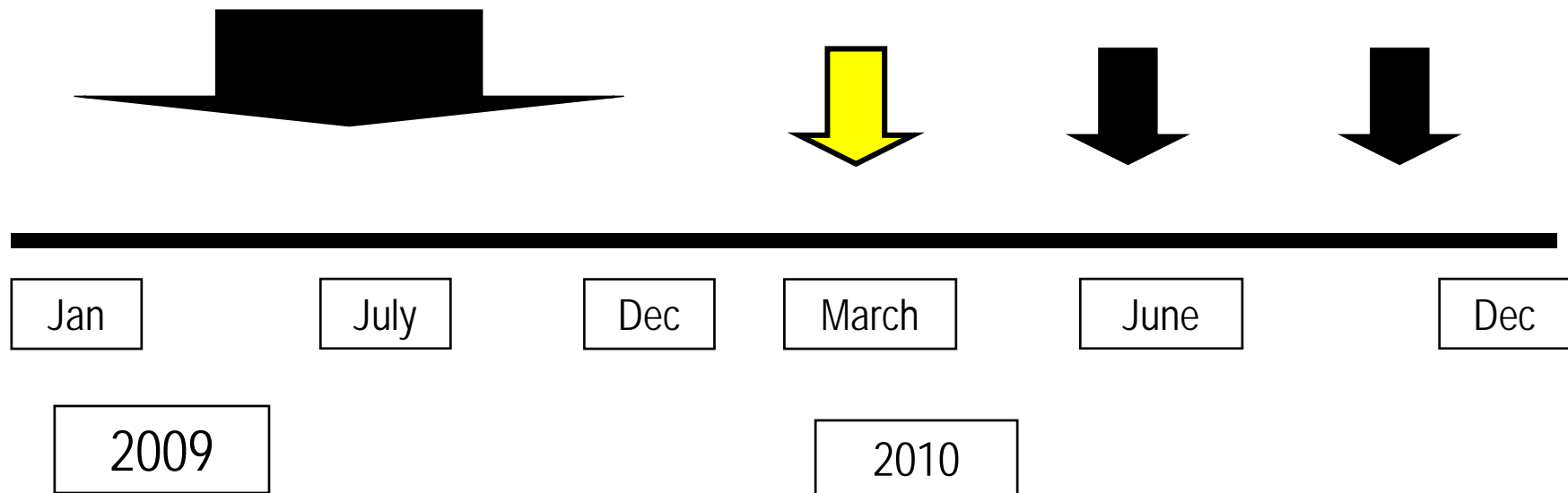


Community Consultations, Fishers
and Elders Interviews, Household
Surveys

Workshops to
develop draft
harvest strategy
plans

Draft Community
based harvest
strategies & plan
agreed to

Community
based harvest
strategies
trialled



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1. Community Consultation, Jan-Feb 2009
2. Fishers and Elders Interviews, June-Oct 2009
 - Perceptions on past/current fisheries status
 - Concerns, needs, issues
 - Desired future of the fisheries
 - Suggestions on harvest strategies
 - Preferred co-management arrangements
 - Grandfather's Wisdom (TEK, local knowledge)
3. Household Surveys, June 2009-March 2010
 - Measure baseline data on livelihood outcomes
4. Government Agency Consultations, August – Oct 2009
 - TSHC Fisheries Working group
5. Community-based Workshops, March 2010
 - Integration of western science
 - Visioning
 - Draft harvest strategy





2020 Vision: Desired Future of HC Fisheries

1. Sea Country:

'Abundant hand collectable fisheries stocks that are sustainable for the future generations.'

2. Economic Activity:

'Better prices for trochus and beche-de-mer and more islanders involvement in the fisheries operations (owning boats, harvesting, marketing and buying).'

3. Tradition and Culture:

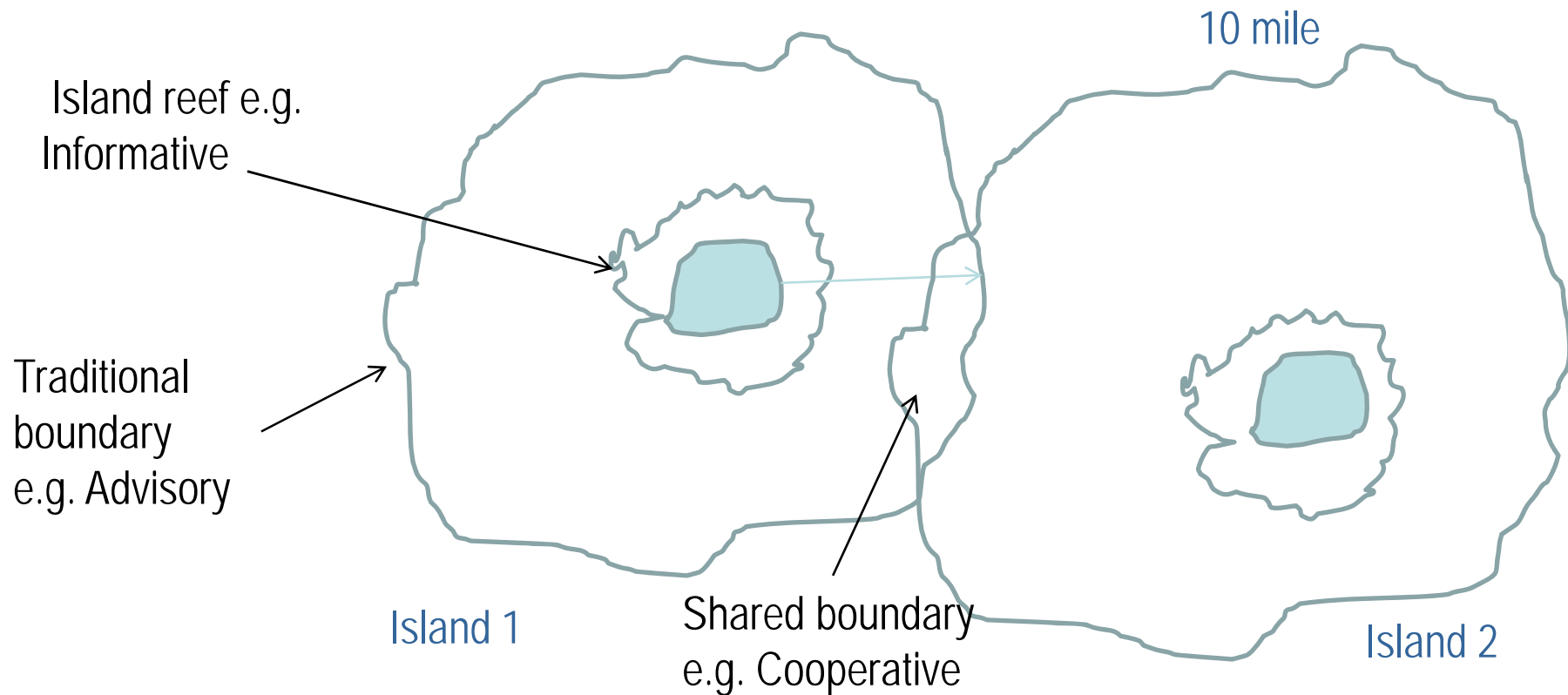
'Maintaining fishing (esp. free diving) as a lifestyle for all islanders.'





Desired Island-Centred Spatial Co-management Arrangement

Island based approach: community-driven and designed by islanders for each island



Building on 'gentlemen's agreement' for management of traditional boundary





Draft Harvest Strategy Plan

Strategy 1: Ban hookah gear within traditional boundary

Goal: To protect breeding stocks and sustain and improve fisheries yield to good and healthy stocks by 2020.

Assumption: Deep waters acts as refuge for breeding stocks acting as a source for juveniles to harvesting areas over the years

Indicators: Presence of breeding groups (e.g. >100 sandfish/ha)

- Trochus #/ hr of free dive
- Sokpis #/ ha of reef

2020 Target: Trochus: 600/hr, Sokpis: > 400/ha





Draft Harvest Strategy Plan

Strategy 2: *Closure of sections of reef for 4 years as 'Gardens'*

Goal: *To fast track recovery of depleted reef areas and enhance breeding by bringing wild mother stocks closer together leading to sustainable fisheries by 2020.*

Assumption: *Trochus and sea cucumber adults have to be close to each other (2-10m apart) to form spawning or breeding populations.*

Indicators: *Abundance and sizes of trochus and sea cucumbers within the garden and reefs adjacent to it.*

2020 Target: *Trochus: 600 /hr of free dive. Sokpis (> 400/ha of reef)*



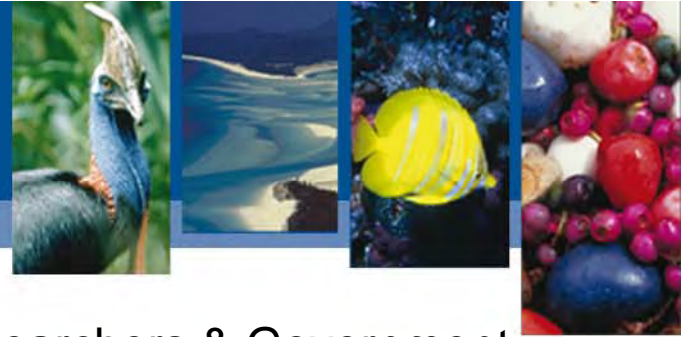


Workshop and Project Evaluation (N=21)

Statements	Strongly Agree	Agree	Disagree	Strongly Disagree	Don't know
1. Workshop objectives were achieved	14	7			
2. Enjoyed participating in the workshop	14	7			
3. Enjoyed contributing to harvest strategy development and involvement in the project	12	9			
4. Hand collectable fishery will be improved as a result of this project	5	16			
5. Willing to take part in future project activities	17	4			

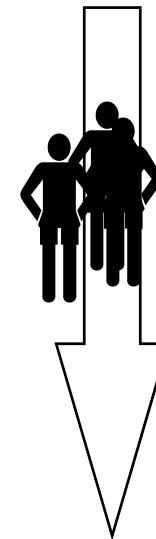
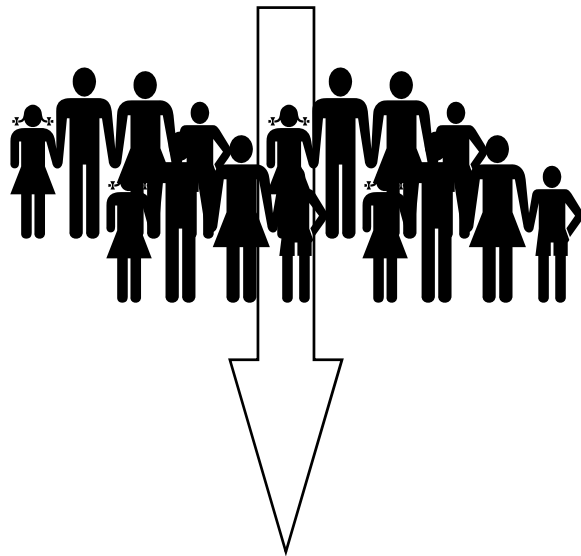


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Community, Government & Researchers

Researchers & Government



Hand Collectable
Harvest Strategy

Hand Collectable
Harvest Strategy





Future Plans

1. Finalise draft harvest strategies – June 2010
2. Work with Warraber & Erub communities, AFMA and TSRA to trial harvest strategy – Dec 2010 onwards
3. Extend beyond the 2 islands and measure livelihood changes



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1. MTSRF for funding
2. Warraber and Erub Community members
3. TSRA LSMU
4. Collaborative partners, AFMA, TSRA, Island councils, Fishers Association, CSIRO, JCU

Thank you!