Final Task Report

Task Number: T1.11
Title: Information to assist Torres Strait Islanders manage their traditional fisheries for green turtles and dugongs in a sustainable manner
Start Date: 01-Jan-04
End Date: 30-Jun-07

Task Contacts

Task Leader: Grayson, Jillian
Task Associate: Yorkston, Peter
Task Associate: Taylor, Sascha

Objectives

To collect information relevant to the development of community-based management of the traditional dugong and green turtle fisheries of Torres Strait by working with Torres Strait Islander counterparts to:

1. Describe the challenges of community-based management using the dugong and turtle fisheries of the Kaiwalagal region of Torres Strait as a case study.

2. Investigate the opportunities and threats arising from participating in community-based management of the dugong and turtle fisheries from the hunters perspective

3. Describe the challenges of community-based monitoring: a) using Hammond Island and Thursday Island communities as a case study; inform the case study by working with Torres Strait Islander counterparts to:
   i) Trial and scientifically verify different methods of community-based catch-monitoring of dugongs and turtles with a view to finding a method that is both culturally appropriate and scientifically robust.
   ii) Describe the composition of the dugong and turtle catch in terms of sex and reproductive status.
   iii) Describe the selectivity of the turtle catch by comparing data from (ii) with data collected from wild populations in a companion project conducted by Mark Hamann (Task 4.3).
   iv) Describe and quantify the major social, cultural, economic and environmental factors that influence hunting pattern, hunting effort, hunting success and harvest levels.

3b) Using insight gained from CSIRO data, investigate the temporal and spatial patterns in the harvest of dugongs and turtles in the Torres Strait Protected Zone and the relationship with other fisheries.

4. Investigate the potential of using dugong tusks as a population modeling tool.

This part of the project will only be done if other parts of the project cannot be achieved.

Need (from proposal)

To be completed

Significance (from proposal)

To be completed

Research Summary

The aim of the project was to increase the capacity of Torres Strait Islanders to manage their traditional fisheries for dugongs and turtles. The project was based on Hammond and Thursday Islands in the
Kaiwalagal traditional sea country (inner islands) of Torres Strait and data was collected between November 2004 and July 2006. I trialled a community-based strategy to monitor the catches of dugongs and turtles. Hunters participated by completing datasheets after each hunting trip and these were collected weekly by an Indigenous research counterpart employed on the project. I described the composition of the dugong and green turtle catch in terms of sex and reproductive status to complement existing life history information used to assess the sustainability of the harvest. I also described the selectivity of the green turtle catch by comparing my data with data collected from wild populations by Dr Mark Hamann in a companion project. I investigated the existing opportunities and constraints for the sustainable use of dugongs and green turtles by Hammond Islanders and their aspirations for the future by interviewing hunters and elders on Hammond Island.

The catch-estimates obtained from the datasheets should be very good because there was a high level of participation by hunters in both communities and the Indigenous research counterparts ensured the reliability of the information provided by maintaining regular contact with all hunters that signed-up to participate. Nonetheless it was more challenging to conduct monitoring successfully at Thursday Island than Hammond Island because of the larger size and greater diversity of the community. Preliminary results suggest that Islanders strongly selected adult female green turtles. Results about the composition of the catch and the opportunities and constraints for the sustainable use of dugongs and green turtles are not available at this stage.

The datasheet catch-monitoring method should work well in some communities, but it is more challenging in larger multicultural communities like Thursday Island. In larger communities, it might be necessary to also trial other concurrent monitoring tools that reduce the effort required for monitoring and could therefore make it more effective. For community-based monitoring to work, it is essential to have a local research counterpart employed on the project maintaining regular contact with hunters. Successful co-management initiatives are likely to take many years to develop because time is needed for partnerships to grow and the management arrangements need to be tested systematically to measure how well they have worked and improve them if necessary. Therefore, while community-based catch-monitoring, including capacity building and employment is very valuable as an ideal, management tools other than catch regulation should also be explored with hunters prior to being incorporated into management arrangements.

**Task Associate Comment**

TAYLOR, Sascha (Mr S)

To Be Completed

**Outcomes/Achievements against each Specific Objective**

To collect information relevant to the development of community-based management of the traditional dugong and green turtle fisheries of Torres Strait by working with Torres Strait Islander counterparts to:

1. Describe the challenges of community-based management using the dugong and turtle fisheries of the Kaiwalagal region of Torres Strait as a case study.

Trialling the datasheet catch-monitoring method revealed several challenges associated with community-based monitoring and management. For example, a great deal of time and effort is required to introduce the project and gain support for it and involvement in it; external factors such as adverse media attention can cause considerable difficulties for researchers, derail the project and result in delays because of extra time needed to renegotiate with communities; local Indigenous research counterparts are essential for making community-based catch-monitoring work; greater effort is required to monitor catches in larger, more diverse communities and monitoring could be made more effective in these communities by including other tools that make catches more transparent and reduce the effort required to monitor.

2. Investigate the opportunities and threats arising from participating in community-based management of the dugong and turtle fisheries from the hunters perspective.

The results about the opportunities and threats arising from participating in community-based management of dugong and turtle fisheries from the hunters perspective are not yet available. However, one positive outcome of this objective so far was that my Hammond Island counterpart gained valuable experience in conducting interviews.
3. Describe the challenges of community-based monitoring: a) using Hammond Island and Thursday Island communities as a case study; inform the case study by working with Torres Strait Islander counterparts to:

i) Trial and scientifically verify different methods of community-based catch-monitoring of dugongs and turtles with a view to finding a method that is both culturally appropriate and scientifically robust.

The catch-monitoring method was successfully trialled on both Hammond and Thursday Islands. Both communities now plan to continue using the datasheets to collect catch and other information. The catch-estimates obtained from the datasheets should be very good because there was a high level of participation by hunters in both communities (89% at Hammond Island and 87% at Thursday Island) and the Indigenous research counterparts ensured the reliability of the information provided by maintaining regular contact with all hunters that signed-up to participate. The catch-monitoring trial showed that datasheets can be an effective method of collecting catch-statistics and other information relevant to management. However, the size and structure of the community can affect the effectiveness of the datasheets. For example, using datasheets requires more effort in larger more diverse communities like Thursday Island than small cohesive communities like Hammond Island. In addition, local catch-monitors are essential to making the method work. The datasheet method is likely to be transferred relatively easily to other communities with similar structures to Hammond Island, where monitoring was much easier.

ii) Describe the composition of the dugong and turtle catch in terms of sex and reproductive status.

Results about the composition of the dugong and turtle catch are not yet available. Most hunters recorded the sex and size of the dugongs and turtles they caught. Fewer hunters, however, recorded the reproductive status because of the need to collect biological samples from the animals. Preliminary results suggest that almost all of the green turtles caught were large adult females.

iii) Describe the selectivity of the turtle catch by comparing data from (ii) with data collected from wild populations in a companion project conducted by Mark Hamann (Task 4.3).

There was a strong bias in the turtle catch data towards adult females, which was not representative of the population of animals found on the reefs (Task 4.3). Most of the turtles on the reefs during the day were juveniles, with a sex ratio of about 1:1 and very few adults were seen (Task 4.3).

iv) Describe and quantify the major social, cultural, economic and environmental factors that influence hunting pattern, hunting effort, hunting success and harvest levels.

This objective has been replaced with Objective 2.

3b) Using insight gained from CSIRO data, investigate the temporal and spatial patterns in the harvest of dugongs and turtles in the Torres Strait Protected Zone and the relationship with other fisheries.

Results for this Objective are not yet available.

4. Investigate the potential of using dugong tusks as a population modeling tool.

This part of the project will only be done if other parts of the project cannot be achieved.

Utilisation and Application of the Research, Commercialisation

To be completed

Publications

(Final Report)

Technical Reports:

[Insert list of technical reports here]


**Other Outputs**

(Final Report)

Media Activities (Television, radio exposure, newspaper or magazine):
"Dugong and turtle research in the community" CRC Reef News June 2005.
"Get involved in dugong and marine turtle research projects" Torres News 25th February 2005.
"Hammond Islanders, scientists team up" Torres News 11th May 2005.

February 2004, TSIMA 4MW radio station Thursday Island: Introduced myself and my proposed research project.

February 2005, TSIMA 4MW radio station Thursday Island: Promoted upcoming training workshops for my project and Mark Hamann's turtle project (T4.3).

Number of Other Public Presentations, eg Seminars and Conference Presentations:


Workshops, Industry Information Sessions for Communications of Research findings:
Marine turtle and dugong monitoring project, communication of research findings workshop, Hammond Island, 13th July 2006.

(1st July 2005 - 30th June 2006)

Number of Other Public Presentations, eg Seminars and Conference Presentations:

1st July 2004 - 30th June 2005

Media Activities (Television, radio exposure, newspaper or magazine):
Article about research with Hammond Island Community in the Torres News "Hammond Islanders, scientists team up". Wednesday 11/05/2005.
Postgraduate Students

Student name: Jillian Grayson (Task Leader)
Degree enrolled: PhD
Supervisors: Professor Helene Marsh, Dr Mark Hamann, Dr Stephen Sutton.
Thesis Title: Capacity building for community-based monitoring of dugong and turtle fisheries in the Kaiwalagal region of Torres Strait.
Start date: 1st January, 2004
Anticipated finish date: 30 June, 2007
Type of support provided: scholarship, operating costs, supervision

Grants & Awards

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