



Australian Government

Department of the Environment, Water, Heritage and the Arts

**Marine and Tropical Sciences Research Facility (MTSRF)
February 2007 Milestone Report**

Project 1.3.2 - Ecological role and potential economic value of sponges to the Torres Strait

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Summary

During this milestone reporting period, we have started to analyse the sponge abundance and size frequency distribution data collected from the November 2006 field trip to central and eastern Torres Strait. This has shown that *Coscinoderma* abundance and size can vary significantly between and within island groups. *Coscinoderma* is most common at Yorke and reaches largest size at Yorke and Coconut. A summary report was sent to each of the five islands that were surveyed explaining what we did and found. Genetic and microbial analyses have also been started on the 10+ sponges collected from each of the 5 island groups in November 2006. The next field trip is planned for March 2007, and John Morris and Samson Lowatta from Yorke will be employed to dive on the project. During this field trip, the 180 recruitment plates deployed in November 2006 will be replaced and examined for sponge recruitment. This project is on track.

For reference: Milestone extracted from Project Schedule

Description

Report detailing in separate segments 1) what data, documents have been sourced to assist achieving objectives a-c, 2) findings of field work conducted to date (surveys of populations, collection for genetic work, recruitment plate deployment, sponge pathogen characterization) and schedule of remaining field work and 3) summary of all liaison activities conducted to date (including employment of TSI for project).

Project Results

Description of the results achieved for this milestone

1) Data and documents sourced to assist achieving objectives a-c.

Before the November 2006 field trip to central and eastern Torres Strait, I did a literature search for publications detailing sponge distribution and recruitment patterns, and benthic survey protocol. I also spoke with a JCU colleague, who has done genetic analyses on a related sponge species, about the requirements for sponge genetic work. Before the field trip a meeting was held at AIMS, involving all scientific personnel, to design ecologically and statistically meaningful experiments for Torres Strait to meet objectives.

2) Findings of field work conducted to date (surveys of populations, collection for genetic work, recruitment plate deployment, sponge pathogen characterization) and schedule of remaining field work.

a) Population survey.

Bath sponges were surveyed using a hierarchical sampling design in and around the waters of Stephens, Darnley, Yorke, Coconut and Sue. In total, 447 *Coscinoderma* sponges were recorded, with abundance highest around Yorke with an average of 19 sponges per 100 m². *Coscinoderma* is uncommon in the four other island-groups. In addition to large spatial scale variation, sponge abundance varied significantly between sites 200 m apart. The size frequency distribution of *Coscinoderma* also varied significantly between and within islands groups. Overall, *Coscinoderma* was largest at Yorke and Coconut. We also surveyed for other commercially important bath sponges species, with one individual of a *Spongia* sp. found at Stephens. *Spongia* sponges have exceptional fibre quality, demand quality prices, but are very uncommon in central and eastern Torres. This experiment is currently being written up as a scientific publication.

b) Genetic analyses.

10+ sponges were collected from each island group in November 2006. Because this is the first study to examine genetics of a *Coscinoderma* species, we are currently investigating the best primer to obtain reliable sequences; so far, our sponge sequences have been "messy". By June, we expect to have identified a good primer, obtained good sequences, and determined genetic connectedness between island groups.

c) Recruitment plate deployment.

In November 2006, we deployed 180 settlement plates at different depths, islands and sites to examine bath sponge recruitment. In March 2007, we will retrieve the settlement plates and redeploy new plates, thus comparing recruitment patterns across seasons.

d) Sponge pathogen characterization.

Of the 447 *Coscinoderma* sponges recorded during the November 2006 survey, only 1 was found to be diseased, indicating a healthy *Coscinoderma* population(s) in Torres Strait. Characterisation of the microbial community of *Coscinoderma*, and identification of variation between island-groups, is ongoing.

3) Summary of all liaison activities conducted to date (including employment of TSI for project).

Three Torres Strait islanders, John Morris, Samson Lowatta and Stanley Lui, helped out with the diving and survey work on the November cruise. John Morris and Samson Lowatta will also be employed on the March 2007 trip, with payment administered by TSRA.

This project is “on track”.

Communications, major activities or events

During milestone reporting period

A summary report was sent to each surveyed island community, detailing bath sponge abundance and size in central and eastern Torres Strait. It also included abundance patterns of the other surveyed finfish and invertebrate species.

During next milestone reporting period

A 2 week long field trip to Torres Strait is planned for March 2007, where John Morris and Samson Lowatta from Yorke will be employed to dive on the project.