

Grantee: Patricia Davis and Jason Kuartei, C3, Palau
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Executive Summary

Background

The Palauan dugong population is not only small (50-200 individuals¹) but also unique by virtue of the fact that it is the most isolated population in the world, located 800km from the dugongs of Irian Jaya and the Philippines². Dugongs were heavily hunted here following World War II, by means of dynamiting and or spearing from motorized boats.

Up until November 2002, the fine for killing, harming or possessing part of a dugong was a mere \$50, hardly a deterrent to poachers who continued to kill them during the night, when hunting for turtles in nearshore seagrass beds. Fortunately, the new dugong legislation has raised the penalty to a substantial \$5000-\$10,000 and informers can benefit from reporting poachers, by receiving a share of the penalty following prosecution.

Aside from poaching, dugongs are threatened by the destruction of the seagrass beds on which they depend for food. Almost all of the 14 states in Palau have commenced dredging activities in order to produce materials for road construction, in particular, the Compact Road, currently being built around the main island of Babeldaob. There is no legislation to protect seagrass from the impacts associated with such activities. In many places, nearshore waters have become saturated with suspended solids associated with dredging; this has led to the deterioration of adjacent seagrass beds. Locals are complaining of declines in various invertebrates usually found in these beds, such as sea cucumbers and sea urchins.

Our Research

Funding from Sirenian International in February 2003 enabled C3 to collect information in Koror State waters on:

- 1) The extent and species composition of seagrass beds
- 2) Incidental sightings of dugongs
- 3) Local knowledge about dugongs
- 4) Diet
- 5) Genetics

Seagrass beds were mapped at one of the most important feeding areas for dugongs in Palau using ArcView. Most of the shallow beds in less than 2m of water were found to be dominated by *Thalassia hemprichii*, whereas deeper beds (>6m) were

¹ Marsh, H., Rathburn, G. B., O'Shea, T. J., and Preen, A. R. 1992. An Assessment of the Status of Dugongs in Palau, including comments on Sea Turtles. A report to the Ministry of Natural Resources, Republic of Palau, March 1992, revised June 1992.

² Nishiwaki, M. and Marsh, H. 1985. The Dugong. Pp1-31 in Handbook of Marine Mammals Vol.3, S. H. Ridgeway & R. J. Harrison, eds., Academic Press, London.

dominated by *Halophila ovalis*. Feeding trails were observed in sparse, mixed beds only and were not recorded from dense stands. It was noted that in some cases, dugong had left behind the rhizomes and leaf sheaths of *T. hemprichii* plants, presumably too tough to remove from the substrate.

Most recorded sightings were from people in motorized boats and in three instances from snorkelers who were fortunate to have close encounters with the animals while free diving. The lone animals appeared to be curious of the snorkelers and approached to within a couple of metres. Usually lone animals or cow-calf pairs are seen, with the largest group observed consisting of seven animals seen by a local fisherman. Occasionally, researchers saw a group of five animals (three adults and two calves) from a light aircraft. The group was consistently observed from the air in the mornings at only one location; it is not clear whether the group travels together at other times of the day or only aggregates at this particular site.

All informants noted changes in dugong behaviour over the past five years, with animals no longer seen at sites they once frequented on a daily basis. All informants identified increased boat traffic in these areas as the most likely reason for this change in behaviour. Dugongs appear to stay close to reefs or wrecks in deeper water during the daytime, moving closer inshore at night to feed in the shallows. This has long been considered to be a deliberate avoidance strategy so that the animals do not come into close proximity to motorized boats or poachers.

Stomach contents (analysed as of the date of this report) from dugong carcasses show that at least six species of seagrass are consumed, including *T. hemprichii*, *Cymodocea rotundata*, *Halophila ovalis*, *Halodule uninervis*, *Enhalus acoroides*, and *Syringodium isoetifolium*, with *T. hemprichii* being a major component of one stomach (50%). As of this report, we are waiting to hear the results of the DNA analysis. The tissue is being examined by a researcher at James Cook University who is comparing the genetics of dugongs from around the world.

Future Directions

Much traditional knowledge and respect for dugong has been lost in Palau over the past 50 years. There is currently a backlash against heightened conservation efforts in the country, which aim to protect rare and endangered marine and terrestrial species from over-exploitation. A couple of months ago there were reports from conservation organisations about poachers specifically targeting such species at the request of government officials, businessmen and even, sadly, traditional chiefs in the community. These people are aware of the laws to protect such animals but often feel their status precludes them from respecting laws that govern the general populous. The younger generations appear to care very much about the future of Palau's wildlife, their concern and admiration for the dugong apparent from the decision of the Community College to choose it as its mascot. There is an urgent need for elected leaders in the community to set an example to others by supporting the protection of Palau's natural heritage for its future generations.

From an ecological perspective, the greatest priority for dugong conservation is the inclusion of feeding areas in a national network of protected areas. In November 2003, the government passed the legislation for such a network and it is hoped that all

conservation groups will encourage communities to include seagrass beds in marine protected areas in the near future. The reduction and restriction of boat traffic in particular areas is currently an issue under consideration by Koror State Government as it develops its Rock Island Management Plan.

Associated work

- 1) Incidental Sighting cards have been distributed to dive shops, research organisations and members of the public and a database of recorded sightings is to be kept at Palau Conservation Society.
- 2) An aerial survey was coordinated in March 2003 by The Nature Conservancy Palau Field Office. C3 analysed the results of this survey and compared it with all past aerial surveys in a report on the Current Status of Dugongs in Palau.
- 3) Palau International Coral Reef Center has conducted some broad-scale mapping of seagrass beds in Palau and continues to coordinate the Seagrass Watch programme, which involves schoolchildren and members of the public learning survey techniques.