Managing the Marshall Islands' sea cucumber fishery

The high demand for beche-de-mer products in Asian markets, and the ongoing trend of resource over-exploitation of more accessible sea cucumber species, has resulted in beche-de-mer buyers and exporters moving to more remote locations to buy beche-de-mer products. In Pacific Island countries, species of lower commercial value are now being targeted because higher value species are becoming depleted. Because mounting pressure to exploit sea cucumbers is outpacing the region's capacity to tighten existing management systems, Pacific Island fisheries agencies are finding it challenging to ensure the sustainability of this resource.

In the past year, the Marshall Islands Marine Resources Authority (MIMRA) has been trying to manage the fast-developing and vulnerable beche-de-mer fishery. Some problems include 1) the lack of a licensing and permitting system for processors and exporters; 2) restrictions on efficient but destructive methods such as the use of scuba and hookah for collecting sea cucumbers; and 3) poor reporting of processed or export quantities of beche-de-mer. In addition, there are reports of frozen sea cucumbers being sold to large commercial tuna fishing vessels that use Majuro's port for tuna fisheries-related bunkering and transshipping services. Reliable production data are not available but fishing activities have been reported in Ebon, Woje, Maloelap, Arno and Majuro atolls, and prices paid for high value species start at USD 40/pound of dried product. Due to these management constraints, in March 2011, MIMRA introduced a moratorium on commercial exportation of beche-de-mer along with shark fin, until formal management arrangements are put in place.

In 2010, SPC was requested to assist the Marshall Islands in drafting a management plan and associated regulatory measures. Effective control of the beche-de-mer fishery requires better understanding of the resource and the fishery by local research officers. Kalo Pakoa, SPC's Fisheries Scientist (Invertebrates) and Maria Sapatu (Pacific Islander Attachment) went to Majuro to initiate a training for officers from local resource monitoring agencies, including MIMRA, Marshall Islands Environmental Protection Agency, College of Marshall Islands, and the Marshall Islands Conservation Society. The purpose of the training was two-fold: to respond to the Marshall Islands' sea cucumber management needs and to generate baseline information for the climate change monitoring pilot study on Majuro Atoll. Five participants from the four agencies were trained in using non-scuba resource assessment techniques, which are relatively simple to use, cost effective and provide robust data for assessing the status of sea cucumbers. Trainees were trained in selecting habitats and laying the belt

Sea cucumber survey along a belt transect.

transect line, conducting manta tows, using observational techniques, identifying and measuring species, recording protocols, cross-checking and understanding records, using GPS to log station positions, and understanding safety issues. Background information on the sea cucumber fishery in the Pacific region and within the Marshall Islands was provided.

Follow-up capacity building training will involve data entry, analysis, interpretation and reporting of the results by one or two trainees attached to SPC's Coastal Fisheries Programme. A similar field survey will be conducted by the trainees themselves to test the skills they learned.

The data generated from this assessment will provide baseline information for the climate change pilot monitoring study on Majuro Atoll. Maria Sapatu's participation in this training will benefit her work as she expands the implementation of the climate change monitoring pilot studies to the rest of the remaining sites. Preliminary results of the sea cucumber resource assessment show that lollyfish (*Holothuria atra*) and amberfish *(Thelonota anax*) are the most abundant sea cucumber species on Majuro Atoll.

SPC technical assistance was provided under the European Union-funded SciCOFish (Scientific Support for the Management of Coastal and Oceanic Fisheries in the Pacific Islands Region) project. SPC is also providing assistance to MIMRA staff in preparing a more formal management approach (fishery management plan and regulatory arrangement) for the Marshall Islands' sea cucumber fishery.

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Trainees Tamera Heine (MIEPA) and Candice Guavis (MIMRA) verify data.

Dried prickly redfish at Woje Atoll.

Packing beche-de-mer for export from Majuro.