

## Improving the management of deepwater snapper resources in Pacific Island countries

*Deepwater snappers are an important fisheries resource in several Pacific Island countries and territories (PICTs). Caught on the outer reef slope and around seamounts, they are out of the range of many small-scale inshore fishers and have largely escaped the overfishing that characterises the more valuable inshore resources. Snappers are good-eating, and because of their deepwater habitat they are not subject to ciguatera poisoning, which makes large reef fish a risky choice.*

Deepwater snapper constitutes an export fishery (notably in Tonga), supplying a market in Hawaii. In countries with tourism industries deepwater snapper are sought after by hotels and restaurants, and can command relatively high prices. In New Caledonia, for example, deepwater snappers account for less than 50% of the volume but 70% of the value of coastal finfish landings.

While there are several species with different characteristics, deepwater snapper are generally large but slow-growing by tropical standards. In many cases, fisheries have developed on a previously unfished resource, yielding impressive catches at first, but which soon declined. There is a lack of management plans in most PICTs except the US territories and Tonga, and a lack of information on the status of stocks that could be used to develop plans. A recent review (McCoy 2010) of snapper fisheries management measures in the Pacific identified requirements that are not being met in most PICTs. These include the application of financial and human resources to ensure that the collection of high quality data is of sufficient coverage to meet the needs of management, and the lack of scientific and technical expertise familiar with the resources, their assessment and management.

In July 2011 a meeting was held at SPC to develop a work plan for deepwater snapper management in the region and to identify priority information and training needs.

### 2012–2014 PICTs Deepwater Snapper Work Plan

#### Objective

To improve stock assessments for deepwater snapper in PICTs to allow sustainable development of the fishery, while developing national capacity to undertake this kind of work.

#### Priority PICTs

The work plan will initially focus on the Marshall Islands, Samoa, Tonga and Vanuatu in line with priorities identified in SPC Joint Country Strategies. Other PICTs are encouraged to contact SPC for assistance on a needs basis.

#### Fisheries data collection systems

Recent experiences to assess the status of tuna and shallow inshore coastal species clearly demonstrate substantial benefits of adopting a standardised approach to fisheries data collection across the Pacific region. These include: 1) facilitating the development and maintenance of a common database system in each PICT, which minimises development and maintenance costs; 2) providing consistency in how and which data are collected and analysed; 3) facilitating comparisons of fisheries among PICTs; and 4) allowing data fields to be categorised and prioritised depending on their intended use.

#### Activities

- Develop deepwater snapper fisheries data forms that allow multiple levels of data to be recorded depending on individual PICT capabilities and capacities, while maintaining the integrity of the data reported. Use existing data forms where feasible (e.g. artisanal data form, Tonga's deepwater snapper data collections system) to maintain familiarity in data reporting and to maximise the likelihood of accurate data being reported.
- Develop a new data management system for deepwater snapper (SNAPMAN), with similar user interfaces to the system used for tuna.
- Build in-country capacity to sustain these data collection systems.

#### Biological knowledge

Estimates of demographic parameters, such as growth and mortality rates, are fundamental to understanding a species' population dynamics and for predicting responses of populations to exploitation. Surprisingly little knowledge exists for these parameters in the Pacific Islands region.

#### Activities

- Collect data on growth rates of major target species, allowing for future comparisons between PICTs.
- Conduct at least one catch depletion experiment on an unexploited population of snappers to estimate mortality parameters.

- Collect data on the reproductive biology of major target species, allowing for future comparisons between PICTs.
- Collect data on stock structure to identify management units for deepwater snapper in each PICT.

### Stock assessment systems

The lack of available data for deepwater fish species in many PICTs has prevented the use of traditional stock assessments. Management procedures offer an alternative paradigm to fisheries management decision making (Bentley and Stokes 2009), and are formal specifications of the management actions that will be taken in response to data collected from the fishery (e.g. exploitation reference points based on the ratio of fishing mortality to natural mortality). A key advantage of management procedures is that, due to their ability to be simulated, the performance of alternative forms of management can be evaluated against a range of management objectives.

### Activities

- Characterise the deepwater snapper fishery in each PICT to identify trends and critical data limitations.
- Develop species distribution models and provide maps of potential habitat for major target species.
- Develop biological and fishery reference points suitable for application within the management procedures framework.
- Develop plausible management actions that can be implemented within each PICT in response to reference points.

### Capacity building

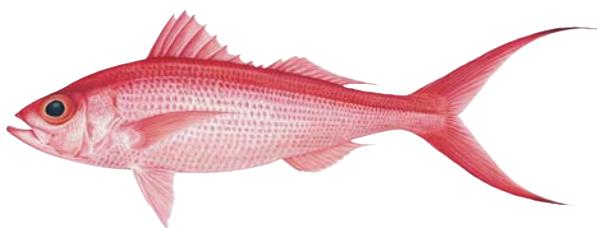
- Where appropriate, Pacific Island fisheries officers should participate in longer term attachments to SPC to focus on developing data collection and stock assessment systems for application in their home country.
- Provide opportunities for Pacific Island fisheries graduates to complete post-graduate studies to enhance capacity for deepwater snapper management and assessment in their home country.

### References

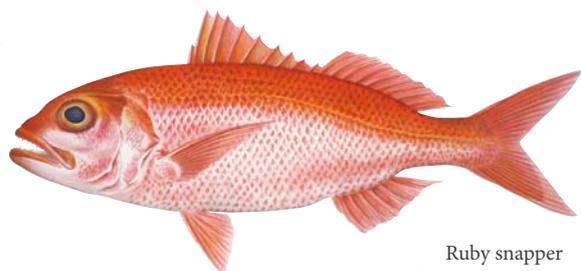
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- McCoy M.A. 2010. Overview of deepwater bottomfish fisheries and current management activities in Pacific Island countries and territories.

#### For more information:

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Flame snapper  
*Etelis coruscans*



Ruby snapper  
*Etelis carbunculus*



Crimson jobfish  
*Pristipomoides filamentosus*



Goldbanded jobfish  
*Pristipomoides multidens*

Four of the main species targeted by deepwater snapper fisheries of the Pacific Islands region  
(Illustrations: Les Hata)