

Introduction

This is the third in a series of flyers on the development and application of a Participatory Fisheries Stock Assessment methodology.

ParFish is an approach to fisheries stock assessment which uses Bayesian statistics and multi-criteria decision-making theory, and provides a tool for involving fishers in the management process (see Flyer 1).

ParFish can be used where there is a lack of long-term data, and can use a range of information sources including local knowledge. The approach is participatory and looks at the most preferred outcomes for fishers. It provides management recommendations based around controlling effort, quotas or closed areas.

The **ParFish Toolkit**, comprising a set of guidelines, software and software manual, is available for individuals or institutions interested in undertaking a Participatory Fisheries Stock Assessment (see reverse of flyer).



Andhra Pradesh Case Study

The crab fishery

The focus of this case study is the mud crab (*Scylla serrata*) fishery in the Coringa mangroves near Kakinada, East Godavari District, Andhra Pradesh. The crab fishery forms an important contribution to people's livelihoods in the area, involving nine villages bordering the mangrove belt and supporting 5000 fishers.¹

The importance of the crab fishery in India

In India, the crab fishery is small scale and is based mainly on capture fishery,

providing substantial income to the artisanal fishing households. *Scylla serrata*, the edible mud crab, is available along the estuarine regions of maritime states of India. It has good demand in the domestic and export market and its availability in live condition fetches good prices.

Why is ParFish needed for the crab fishery?

In recent years there has been a gradual reduction in the landings of the mud-crab. This is likely to be due to increased levels of fishing effort and

environmental changes, leading to over-exploitation.

ParFish will be used to provide a participatory method for assessing the stock and involving fishers in collecting data and developing management plans to improve landings.

Current progress

The Department of Fisheries in Andhra Pradesh, with the State Institute of Fisheries Technology (SIFT), the United Fishermen's Association (UFA), Marine Resources Assessment Group (MRAG) and the fishermen themselves, are carrying out a stock assessment of the fishery, using the ParFish approach,

The Department of Fisheries, SIFT and UFA have held meetings with the fishermen and have carried out interviews to obtain information about the number of days they fish and their average catches.

During a training workshop, held in July, the data was

analysed. The findings will be communicated to the fishers, and the management options discussed.

2005 HIGHLIGHTS

- ◇ ParFish presented to FAO, May 2005
- ◇ ParFish Toolkit completed & distributed, July 2005
- ◇ Training on ParFish held in India, July 2005
- ◇ ParFish applied in the mud crab fishery, Coringa Mangroves, Andhra Pradesh, June – September 2005
- ◇ ParFish planned in Diani, Kenya with CORDIO and the Dept of Fisheries — August 2005
- ◇ ParFish planned in Gabon, West Africa, September 2005
- ◇ ParFish considered for lake fisheries in Cote d'Ivoire, West Africa, September 2005
- ◇ ParFish planned for use in World Bank funded projects, Tanzania - August 2005



¹ Studies conducted by Bay of Bengal programme (BOBP) and Central Marine Fisheries Research Institute (CMFRI)

Where else has ParFish been tested?



ParFish has been tested in:

Conch fishery in Turks and Caicos, Caribbean

This case study provided recommendations on altering fishing quotas and allowed the method to be tested with a long-term time series of catch and effort data.

Mixed reef fishery, Zanzibar

The Zanzibar case study provided recommendations on levels of effort. The participatory approach of the assessment built understanding of the fishers and the fisheries department, and provided a basis to begin discussions on management planning for the fishery.

ParFish Training workshop

A ParFish training workshop was held in Mangalore from 25th to 29th July 2005. The workshop included 14 participants representing fisheries departments and research organisations from Andhra Pradesh, Orissa, West Bengal, Kerala, Maharashtra and Karnataka in India, Tanzania and Kenya.

The five-day workshop covered an overview of stock assessment and Bayesian statistics, the scientific background and ParFish software, participatory methods, analysis, management planning and providing feed-back to fishermen.

For further information on training or training materials please email one of the contacts at the end of this flyer.



Obtaining the ParFish Toolkit

There are two ways of obtaining a copy of the ParFish Toolkit:

1. Request electronic or hardcopy versions of the Toolkit from MRAG (see contacts below)
2. Download the Toolkit from the FMSP website: <http://www.fmsp.org.uk> and select 'Software Downloads' or <http://www.ahj00.dial.pipex.com/FTRs/r7947>.

Further Information

For Further information also request or download:

- ParFish Flyer 1 (September 2004): gives an overview of the ParFish Approach
- ParFish Brief 1: September 2004: describes the scientific background to ParFish
- ParFish Brief 2: March 2005: describes the relevance of ParFish to management

CONTACT DETAILS

For further information or to give feedback please contact:

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- **India queries:** Mr G. Venkata Raju, Andhra Pradesh Department of Fisheries (gvraju_fisheries@yahoo.co.in)
- **Zanzibar queries:** Dr Narriman Jiddawi, IMS (jiddawi@ims.udsm.ac.tz Tel: +255 24 2232128)
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