

# Urgent need to conserve Asian fishery

Expertise gained by Australian CSIRO scientists at Sarawak, Malaysia, has led to their involvement in a million-dollar project to assist in the conservation of a major Bangladesh fishery.

Division of Fisheries researchers, under the leadership of tropical fish ecologist Dr Stephen Blaber have formed a management plan to ease the fishing pressure on Sarawak's important Terubok fishery. Now they are becoming involved in a project with Bangladesh's Fisheries Research Institute in an effort to preserve that country's huge hilsa fishery.

This fishery has an annual catch of 200 000 tonnes – more than the entire Australian yearly total – and employs 2.5 million people. It represents 30% of total Bangladesh fish production and is the most important single source of protein for many of the country's 120 million people.

The hilsa fish grows to about 50 centimetres and is similar to the bony bream found in northern Australian waters. Despite increased fishing effort, catches are declining. Detailed biological and stock data are urgently required to develop sustainable management plans for the fishery.

Blaber and the coordinator of the Australian Centre for International Agricultural Research (ACIAR) Fisheries Program, Barney Smith, have met with Bangladesh Fisheries officials to set an agenda for the three-year project, to be funded by ACIAR.

Up to four scientists from the CSIRO Division of Fisheries marine laboratories at Cleveland are likely to be involved in the project, as well as an anthropologist/sociologist to address the 'human' aspect of the work.

Bangladesh is particularly reliant on the hilsa fishery as a food source and the fish itself is regarded almost as a national icon.

'The hilsa fishery is such a major part of so many people's existence that any interruption or change to it will have significant repercussions,' Blaber says. 'It is an integral part of the economy and social life of millions of people so it is vital that overfishing and pollution are controlled.'

The fishery is artisanal, with use of mainly drift or gill nets from traditional non-mechanised wooden boats. Despite greater efforts to fish the area, the increase in catch has been only marginal.

Before a management strategy can be formulated, the scientists must study the hilsa (*Tenualosa ilisha*), which is a species of fish that occurs in the shallow seas, estuaries, coastal lakes and rivers of south and South-East Asia.



Most hilsa are caught using drift or gill nets from traditional, non-mechanised wooden boats. The fishery is an integral part of the economy and social life of millions of people in Bangladesh, so it is vital that overfishing and pollution are controlled.



The Fisheries Research Institute has begun to study the hilsa's biology, but is constrained by lack of expertise in ageing, reproduction and stock discrimination techniques.

Also, little is known of the population distribution of the stocks in the various rivers, estuaries and nearshore waters, or of the basic biology of the species in relation to factors such as spawning, migration and abundance.

'We have been carrying out comprehensive research on the very closely related Terubok (*Tenualosa toli*) in Sarawak,' Blaber says. 'The knowledge gained during this project, together

with the expertise and equipment available at the CSIRO Cleveland Laboratories, places us in an ideal position to assist with research into the hilsa in Bangladesh.'

Bangladesh has given the highest priority to the hilsa project, which will involve:

- identifying different hilsa stocks;
- identifying spawning and nursery grounds;
- assessing the effects of changing physical factors, pollution and environmental change on hilsa;
- studies of juvenile hilsa;
- seasonal migration and abundance;
- diet studies;

## Spectrum

- socio-economic studies of the hilsa fishery and its people; and
- the definition and implementation of a management plan for the hilsa fishery.

Blaber says the a management plan will be formulated during the final phases of the project. It will draw on the results, the local knowledge of the Fisheries Research Institute and the experience of CSIRO from other regions.

Bangladesh will benefit from the training of local scientists in techniques for the continued provision of scientific information on the fishery, and local people will learn about the importance of managing hilsa on a sustainable

basis. Benefits to Australian research will come from advances in scientific knowledge of the Clupeidae (herring family), many of which are important in the South Pacific and Asian regions. Advanced ageing, reproductive and chemical analyses techniques will also be further developed during the project.

Blaber says scenarios such as the Bangladesh example are not uncommon in equatorial Third World countries. Many are over-populated and extreme pressure has been placed on marine resources simply to feed the people.

'In these developing countries, the main concern has been providing food sources, rather than considering conservation practices' he says.

'However, as we now realise, fish supplies are not limitless. Management plans are essential.'

Blaber's previous Malaysian experience has resulted in Government moves to save the Terubok fishery by declaring protected areas. Because of overwhelming demand, the Terubok population had been fast diminishing when the Government sought CSIRO assistance in 1992. The research in Malaysia is continuing.

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