

# Learning about Our Fishing Gear and Fish Resources: Overlooked and Scattered Information on Inland Capture Fisheries

*by Jarumon Talawat*



various means of planning. To achieve these, fishery planners need to have available and be informed by good data on inland fisheries. The current lack of statistical data and information for management of inland fisheries, especially data on available fishing gear and practices, is one of the major causes for the current underestimation of total production.

## **Objectives**

Once properly analyzed and compiled, these scientific inventory surveys on inland capture fishing gear and methods in Lao PDR and Myanmar will provide a significant basis for publications and other information

## Introduction

Existing information and data for sustainable development and management of inland fisheries in the ASEAN region is widely recognized as being inadequate. With this concern in mind, the ASEAN Member Countries and SEAFDEC in 2002 initiated a special five-year project, called 'Information Gathering for Inland Capture Fisheries in ASEAN Countries'. The project aims at strengthening information collection and compilation, considering the importance of inland fisheries to the region as well as the need to get effective and useful specifics for policy makers and administrators to support the sector.

The project was implemented under the lead of the Marine Fishery Resources Development and Management Department (MFRDMD) of SEAFDEC, with assistance from the Secretariat. Activities on the compilation of inland fishing gear and methods in Southeast Asia were proposed to be conducted in Lao PDR and Myanmar. Using the technical capacity of SEAFDEC, the project aimed to assist these countries in developing proper methodologies for the national survey and collection of information on fishing gear and related operations.

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In addition, a study on the taxonomy of inland fishes was also considered to help a better understanding of the existence and distribution of fish species in inland water bodies. The taxonomic aspect of the study was proposed to be implemented in Myanmar, as this country has one of the richest fish fauna in the world, with a large abundance of inland fisheries resources. The study would provide a basis for future planning and management of the inland fisheries sector.

## Key questions

To determine appropriate approaches for gathering the required information, two main questions needed to be considered for understanding the situation of inland capture fisheries. These questions are *what are used for capture?* and *what is captured?* The types of gear and fishing methods, as well as the composition and distribution of fish species are the basic information required. The answers to *who, when, where, why* and *how* will further improve understanding and provide an overall picture of the situation and trends in inland fisheries.

## Compilation of inland fishing gear and methods in Lao PDR and Myanmar

### Background and current situation

Lao PDR is the only landlocked country in Southeast Asia. It is crossed by a web of rivers, which makes the inland fishery sector one of the most important contributors to food security and local people's livelihoods. Despite the importance of the sector, information on inland fisheries is still very limited. Although it is clear that the limited interest in the sector on the part of the government is an important reason for this

scarcity of information, limited funds and the large number of fishing gear and methods used in the country, some of which are still to be identified and classified, are making the situation more difficult.

The Union of Myanmar is the largest country in mainland Southeast Asia and has various major sources of freshwater food fish production, namely lease (or concession) fishery, open fishery and aquaculture. In recent years, inland fisheries have become a profitable enterprise contributing significantly to rural food production and social-cultural aspects. However, Myanmar is currently encountering threats to its inland fishery resources. There is an increasing need for management actions that can be developed through



will also provide technical assistance for the preparation of monographs and posters.

### Results of the initial survey

In Lao PDR, an initial survey was conducted in Luang Prabang during the period 25–28 August 2003. The survey team visited eight fishing villages, most of which have small-scale fisheries being operated using a diverse range of inland fishing gear, including hooks and lines, cast nets, gill nets and fish traps. Some of the main target species are pangasius catfish (*Pangasius* spp.), isok barb (*Probarbus jullieni*), common carp (*Cyprinus carpio*), small-scale mud carp (*Cirrhinus microlepis*), black sharkminnow (*Labeo chrysophekadion*) and sheatfish (*Kryptopterus* spp.). Information related to fishing gear and their operations was collected for developing a monograph that can be used for inland fisheries management planning.

The team conducted the initial Myanmar survey in Mandalay Division and Inlay Lake of the Shan State, during the period 15–19 September 2003. Various categories of fishing gear and remarkable traditional gear were noted. Lease fisheries were the largest contributor to national inland fisheries, providing fish traded widely around the country. The team observed seven natural water bodies, and recorded both commercial and small-scale fishing gear found in those sites, including fence filter traps, beach seines, surrounding gill nets, shrimp traps, and the Inlay basket (a plunge basket found only in the Inlay Lake in Myanmar). The major commercial fish observed included

common silver barb (*Puntius gonionotus*), striped catfish (*Pangasius hypophthalmus*), grey featherback (*Notopterus notopterus*), and striped snakehead fish (*Channa striata*).

### Future activities

It was proposed that future activities would include follow-up surveys and publications for further use as reference. These will support the management of inland capture fisheries. Some highlighted information will also be published as posters in order to draw public attention to the issue.

## Taxonomy of inland fishes in Myanmar

### Background and current situation

Myanmar is considered to have some of the richest fisheries resources in the world. Yet, a lack of record and study on aquatic animals' taxonomy has caused difficulties for the management and planning of these fisheries, especially on issues related to biodiversity and fish habitats. As a part of a much needed improvement in the management of inland capture fisheries, a full taxonomy of inland fishes in the country needs to be developed, covering both brackish and freshwater species.

### Objectives

The activity aimed at conducting surveys with collection of fish specimens in Myanmar, and building up relevant staff's technical capacity and expertise on specimen collection and

### Collaborative On-the-job Training on Graphic Preparation for Fishing Technology Studies

According to the framework for activities, the compiled data will be presented through monographs. However, there is a lack of knowledge and skills for producing such publications. Training was therefore carried out to address this need for capacity building. This was organized by the Secretariat in collaboration with the SEAFDEC Training Department in June 2004 in Thailand.

The training has strengthened basic knowledge on fishing gear and related materials and literature, survey methodology of gill net, fyke net, trap and hook and lines. In terms of graphic software, the training provided basic concepts on computer graphics, drawing isometric figures, calculation and drawing of trap & net panels, development and layout of monographs, as well as additional tools for graphic preparation. It is expected that the current capacity in using graphic software as well as presenting fishing technology will be built up in these countries in the near future.



materials on inland fisheries in Lao PDR and Myanmar. This will contribute to building awareness on the need to manage inland fisheries, and to provide first-hand information for planning in the sector.

### **Surveys and data collection**

Surveys and data collection were conducted based on the standard FAO methodology for fishing gear surveys, taking into consideration the three major habitats of inland fisheries in the two countries, namely reservoirs, rivers and wetland/swamps systems.

The activities can be divided into three parts. First, SEAFDEC staff, accompanied by officials from the Department of Livestock and Fisheries (DLF), Lao PDR, and from the Department of Fisheries (DoF), Myanmar, carried out an initial survey at some sample spots in order to verify the methodology while at the same time building up officials' capacity. Once officials have experience through the initial survey, they can conduct a similar survey in other sampling areas, so remaining data collection activities were conducted solely by the respective government agency in each country. Eventually, when sampling surveys by the government are completed, a follow-up survey will be carried out to pursue and facilitate activities, so as to review the data collected by the DLF/DOF officials. This will include clarification on the linkage between collected data and management of inland capture fisheries as well as on overcoming obstacles faced during their surveys. SEAFDEC

scientific photography as well as species identification. The outcome of the activity will be presented in the form of a 'Handbook of Inland Fishes in Myanmar' for further use as a basis for planning and management of inland water bodies.

### **Surveys and data collection**

The surveys were designed to collect specimens of fish species for further study, including species identification, and collect related data for the publication. The specimens were collected from fishing grounds, landing places, fishing lots, fish farms and markets, including ornamental species, courtesy of dealers.

To facilitate fish identification, quality photos of collected specimens were taken using high resolution colour. Afterward, specimens were preserved in 10% formalin for two weeks and transferred to 70% ethyl alcohol for long-term preservation and further study in laboratory.

#### **On-the-job training for curators-to-be**

In order to facilitate inland fish taxonomy studies and the establishment of an inland fish museum in Myanmar, on-the-job training for curators on fish specimen cataloguing systems was conducted for five days at the Department of Fisheries in Thailand during January 2004.

The training provided the technical capacity and expertise on general taxonomic identification and classification, specimen collection and photography, preservation and sorting of specimens, fish cataloguing systems and taxonomy study for fish larvae. In addition, arrangements for an inland fish museum in Myanmar will be developed.

### **Results of surveys**

The surveys were conducted in the three most important areas of inland fish habitats in the country. Collected specimens were identified by scientific name and family, together with brief descriptions, including elements such as brief diagnostic characters, size, some known biology and distribution in river basins.

The initial inventory survey was carried out in Middle Myanmar in December 2002, in Yangon Division, Mandalay Division and the Inlay Lake



of Shan State. More than 280 fish species were found, but only 150 important and more common species were included in the study.

This was followed by another survey in Southern Myanmar in October–November 2003 at Pa-an District of Kayin State and Phyapon District of Ayeyarwady Division. 107 species were found in Pa-an District and 92 in Phyapon District.

The final survey was conducted in March 2004 in Northern Myanmar, at Myitkyina District and Indawgyi Lake of Kachin State. 60 fish species were found in Myitkyina District and 40 fish species at Indawgyi Lake. However, the survey was not able to cover the whole area in these two districts, so these diversity values are likely to be underestimates.

The complete results from the study on fish taxonomy indicate that diversity reached a total of 180 species in the surveyed areas.

## Conclusion

Information on inland fishing gear and methods as well as on inland fish species and distribution in water bodies are considered to be important for both planning and management. This study will provide an overview on the situation and trends of inland capture fisheries for local policy-makers and managers in Lao PDR and Myanmar. Outcomes will be disseminated for further use as a basis for management for sustainable inland capture fisheries in Lao PDR and Myanmar, as well as to provide valuable first hand experience to other ASEAN Member Countries.

### About the author

Jarumon Talawat is currently working as Information Officer at the SEAFDEC Secretariat. She has been involved in the coordination and implementation of the activities under the project on 'Information Gathering for Capture Inland Fisheries in ASEAN Countries.'

### Publications to be produced under the umbrella of the project

1. Inland Fishing Gear and Methods in Southeast Asia: Myanmar
2. Inland Fishing Gear and Methods in Southeast Asia: Lao PDR
3. Handbook of Inland Fishes of Myanmar

