
Local ecological knowledge and customary resource tenure for a *Macrobrachium* fishery on the Nam Khan

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ABSTRACT

A unique freshwater prawn fishery targeting a species of *Macrobrachium* is found on the Nam Khan, a tributary of the Mekong River in northern Lao PDR. Fishermen place bamboo basket traps near the banks of the Nam Khan to catch the prawn during seasonal migrations into clear water streams that are percolating through the surrounding limestone mountains. A system of customary tenure arrangements exists to clarify property rights amongst the fishermen for access to the habitat where the prawns are migrating. These tenure arrangements, inherited by each successive generation, effectively reduce excessive competition for access rights to the prawn habitat. While this prawn species has yet to be systematically classified the ecological knowledge of local fishermen offers important information of the prawn's life cycle. Further research is required to determine the range and taxonomic classification of the species.

KEYWORDS: *Macrobrachium*, freshwater prawn, customary resource tenure, Nam Khan

INTRODUCTION

The Nam Khan River is a tributary of the Mekong River in Northern Lao PDR (Figure 1). The city of Luang Prabang is located near the confluence of the Nam Khan with the Mekong. Being the former royal capital of Lao PDR and a World Heritage city, Luang Prabang has been an important city for trade, culture and tourism for generations. As such the commerce and culture of Luang Prabang has been shaped by the wealth of natural resources from the surrounding area.

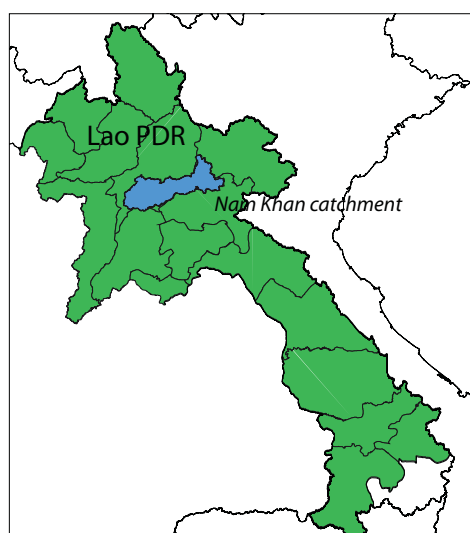


Figure 1. Location map

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This report is a summary of information based on local fishermen's knowledge of a unique freshwater prawn fishery from select sites of the Nam Khan. The purpose of this study was to enhance our understanding of the freshwater biodiversity of the Nam Khan, highlighting the important role of biodiversity in the culture and economy of Lao PDR.

In Luang Prabang province there are important prawn fisheries targeting species of freshwater prawn in rivers like the Nam Ou, Nam Xouang, Nam Khan and the Mekong mainstream. It is unclear how many species of prawn are involved in these localized fisheries, but fishermen understand there could be as many as 5 different species (Souksavat *et al.* 2000).

The freshwater fauna of the Nam Khan is notable for a locally important freshwater prawn fishery found at the village of KengGung. Judging from the large chelae these prawn are from the *Palaemonidae* family of the genus *Macrobrachium*, a highly specious genus of prawn found throughout the tropics. It is estimated there are around 200 species of *Macrobrachium* prawn distributed throughout the tropics, most of which require brackish water at some stage of the life cycle (New 2002). In the land-locked country of Lao PDR it is presumed that the Nam Khan prawn are spending their entire life cycle in the freshwater environment of the Nam Khan and possibly the Mekong.

METHODOLOGY

Participatory assessments of prawn harvesting and habitat were carried out in KengGung Village during the prawn fishing season of 2005. The survey team consisted of staff from the Department of Livestock and Fisheries, the Livestock and Fisheries Section of Luang Prabang Province, the Xieng Ngeun District Agriculture and Forestry Office, and WWF Laos.

The participatory assessment of fishing livelihoods in KengGung allowed the survey team to directly observe the fishing gear, habitat and species of importance to the livelihoods of local fishermen. Semi-structured interviews with both individuals and groups of prawn fishermen offered information on the type of gear used to harvest prawn, the seasonality of the prawn fishery, important habitat for harvesting prawn, management systems and customary resource tenure. This qualitative information is based upon local fishermen's knowledge of the resource. No attempt was made at this time to collect quantitative data on prawn yield during the harvesting season.

RESULTS

Local Knowledge of Prawn Ecology

On the Nam Khan the fishermen from KengGung village have been harvesting prawn for generations. While little scientific information is available for the Nam Khan prawn fishery,

the fishermen themselves have a good understanding of the seasonal migrations and habitat for harvesting prawn.

The prawns, called *gung boh* in Lao language, spend most of the year in the turbid water of the Nam Khan. In this riverine environment fishermen have great difficulty catching the prawn in any significant quantity. Women and children occasionally catch individual specimens in the mainstream river using scoop nets called *sving*.

Once the rainy season begins, clear water streams called *boh* begin to percolate through the karst mountains surrounding KengGung village and into the Nam Khan. The fishermen place bamboo basket traps at the confluence of the *boh* streams and the Nam Khan. At the onset of the rains the prawn begin migrating from the Nam Khan into the *boh* streams and are captured in the bamboo traps. Fishermen check the traps every morning and evening to remove the prawn. While some traps are placed at the rivers edge, other *boh* streams join the Nam Khan at a depth of 1-2 meters under water and the fishermen must dive down to remove the trap and collect the prawn.

The fishing season for these freshwater prawn is from June-November when heavy rain causes the *boh* streams to flow. Fishermen at KengGung village believe the prawns are migrating into the *boh* for reproductive purposes. Typically they are catching more female prawn than male, identified by the size and colour of the chelae, and they often notice that they are catching gravid females during these months. These prawn fishermen estimate they can harvest up to 4 kg in a single day during peak migration periods. Prawns are sold fresh in the village for 35,000 Kip (~3.5 USD) and in the District town for at least 50,000 Kip (~5 USD).

Customary resource tenure

There are about 10 households that are actively involved in the freshwater prawn fishery at KengGung Village. Each household has roughly 4-5 areas where they set their prawn traps. In a village of 49 households this means that only select families are involved in this locally important fishery. To eliminate competition over the *boh* stream habitat a system of customary tenure arrangements has long been established within the families of KengGung Village.

Customary resource tenure refers to an individual or community's right to ownership and access to land or natural resources over which they have ancestral claims. It may involve complex social systems that include traditional use and cultural beliefs (WRI *et al.* 2005). In KengGung village the access rights to the *boh* stream habitat where the prawn are harvested have been owned by individual households for generations. Ownership rights are passed on within the family from generation to generation. Due to the limited habitat available for placing the *gung* traps, this system of tenure arrangements allows select households the access to the *boh* streams for harvesting prawn. This effectively reduces resource competition for setting *gung* traps and places the responsibility for managing the habitat in the hands of the person with access rights.

CONCLUSION

The Nam Khan prawn is a unique species in that it lives its entire life cycle in a freshwater environment. Local knowledge of prawn habitat and seasonal migrations can offer useful information towards understanding the life cycle of this species. Further research of the life cycle should be conducted to determine the distribution and taxonomy of the Nam Khan prawn. This would help clarify the range of *Macrobrachium* species in the Mekong Basin. It would also provide useful information on the management and potential culture of the species. The existing customary tenure arrangements in KengGung village appear to be effective at clarifying property rights and reducing excessive competition for harvesting prawn

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