

KHONE FALLS FISHERS

By Ian G. Baird*

Fish from as far away as the South China Sea migrate up through this vital passage where the Hoo Sahong Channel has a special importance and forms the basis for the livelihood of thousands of fishers in the region.

The Mekong River in the southern part of Laos is a rich resource, and the lives of the people living near her are invariably linked with the cycles of the river, and those of the wild fish. When it comes to food and animal protein intake, nothing is more important to Laotian people than fish.



Wild capture fisheries

Although virtually all the people living along the Mekong River and its tributaries in southern Laos rely heavily on wild fish for food and income, nowhere are the lives of the people more dependent on wild capture fisheries as in Khong District, Champasak Province, where most of the over 60,000 people in the district live on numerous islands in the middle of the Mekong.

The Khone Falls, the only major waterfalls on the mainstream of the Mekong River south of China, are especially important fishing grounds in Khong District close to Cambodia. The Khone Falls, which actually include tens of channels, rapids and waterfalls, support a great deal of biological diversity, and are a natural wonder unique to South-East Asia.



Start of the fishing year

For most villagers in southern Laos, including those at the Khone Falls, the fishing year begins at the end of the monsoon season in late September or October. As streams, swamps and rice paddy fields begin to dry out, many species of fish, including "black fish", such as *Channa striata* (pa kho), *Clarias* spp. (pa douk), and *Rasbora* spp. (pa sieu), migrate from these areas to perennial water bodies like the Mekong River. Villagers use various traditional fishing gears to target these short distance migrating fish. Some families make the staple fish sauce (pa

dek) during this season.

By the end of October fish begin migrating up the Mekong River from Cambodia. Just below the Khone Falls, villagers use gillnets to target these mainly medium and large-sized species. Between November and early January, three spawning species are especially targeted in large numbers. They include *Hypsibarbus* spp. (pa pak nouat), *Probarbus labeamajor* (pa eun khao) and the IUCN Red Data Book listed species *Probarbus jullieni* (pa eun ta deng). Most of these fish are either consumed locally or sold fresh to traders who resell them in larger towns such as Pakse.

By mid-December, as the Mekong River's water level continues to drop, the first of the long distance migratory small cyprinid fish begin arriving at the Khone Falls from Cambodia. *Henicorhynchus* spp. (pa soi soi houa lem) is the first to arrive. Villagers use bamboo and wood traps placed in various channels around the Khone Falls to catch these fish.



A fisher uses a "sone" net to catch migrating small cyprinids as they travel up the "Hoo Sahong" Channel of the Khone Falls (February).

Shortly after the first small cyprinids arrive, other medium-sized migrating cyprinids begin arriving at the Khone Falls. They include *Scaphognathops* spp. (*pa pian*), *Mekongina erythrospifa* (*pa sai-i*), *Labeo erythropterus* (*pa va souang*) *Bangana pierrei* (*pa va na no*), *Gyrinocheilus pennocki* (*pa ko*), and *Cirrhinus prosemion* (*pa keng*). These species support another important fishery for local people, who target them using gillnets and traps in the rapids. Much of the catch is smoked and sold. Many of these fish are believed to migrate up the Mekong River to Laos from the Sekong, Sesan, and Sepok Rivers in north-eastern Cambodia.

By January more schools of small cyprinids begin arriving at the Khone Falls from Cambodia. These large schools of fish include *Henicorhynchus* spp. (*pa soi houa fem and pa soi houa po*), *Cirrhinus microfepis* (*pa phone*), *Botia modesta* (*pa mou man*), *Labiobarbus feptocheilus* (*pa fang khon*), *Lobocheilus mefanotaenia* (*pa khiang*), *Crossocheilus reticulatus* (*pa toke thoi*), *Tenuafosa thibeaudai* (*pa mak phang*), *Parafaubuca typus* (*pa tep*) and many others. They are believed to migrate from flooded forests and wetlands in Cambodia, including the Great Tonle Sap Lake. Together these fish constitute an extremely important fishery in the Khone Falls area and other parts of southern Laos, north of the Falls. Traps placed in the rapids are used extensively to target these fish until March, when the migrations end. Villagers living on islands in Khong District often make fish sauce (*pa dek*) for subsistence use and sale during this season, and large quantities of sun-dried and smoked fish are also consumed and sold by the villagers. Most families consume between one and three jars of fish sauce a year (about 22 kg of salted fish per jar).

Hoo Sahong most important channel

By April, the first schools of small migratory catfish arrive at the Khone

Important migratory fish species in the Khone Falls area (January): from top to bottom: Crossocheilus reticulatus (pa toke thoi), Henicorhynchus cryptopogon (pa soi houa lem), Paralaubuca typus (pa tep),

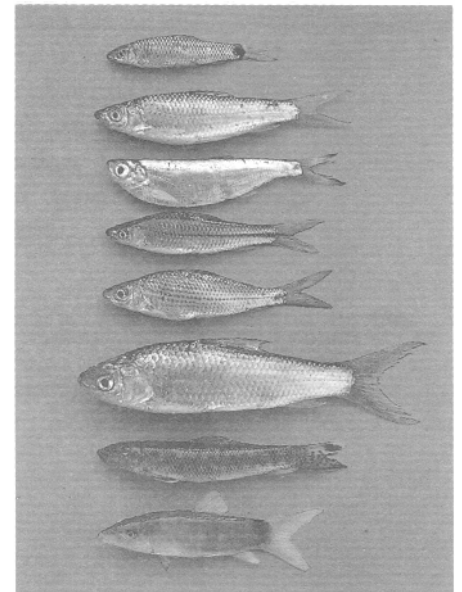
Lobocheilus melanotaenia (pa khiang), Labiobarbus leptocheilus (pa lang khon), Henicorhynchus siamensis (pa soi houa po), Gyrinocheilus pennocki (pa ko) and Botia modesta (pa mou man).

Falls from Cambodia. The species *Pangasius macronema* (*pa gnone siap*) is caught in large quantities as they migrate up the Mekong past the waterfalls. Catches of this economically important species are particularly high in the Hoo Sahong Channel of the Khone Falls; which lies between the islands of Don Sadam and Don Sahong. That is because Hoo Sahong is the only channel that migratory fish can effectively use in the lowest-water season to get past the Khone Falls. In fact, Hoo Sahong is well-known to all locals to be by far the most important channel for upriver migratory fish in all seasons. Most of the other channels that make up the Khone Falls have large waterfalls on them which migratory fish cannot get past. The Hoo Sahong Channel, on the other hand, has no natural barriers along its approximately 7 km length, making it easily passable by migratory species of fish that move up the Mekong River to the Khone Falls from Cambodia.

Vital channel of passage

Although many villagers now target migratory fish in the Hoo Sahong, the Lao Government has long considered the channel to be of critical importance to migratory fish. At various times in the 1960s, 1970s and 1980s the Lao Government specifically banned fishing in Hoo Sahong because of its well-known function as a pathway for migratory fish. Villagers living upstream from Hoo Sahong often point out that if fish could not get up that channel, all the people living from Khong District to the north of Vientiane would not have enough fish to eat because migratory fish cannot easily get up other channels in the Khone Falls in large numbers.

Considering the importance of Hoo Sahong to dozens of species of highly migratory fish species, and the dependence of large numbers of people on these migratory fish, plans to build a large hydroelectric dam in Hoo Sahong will have to be carefully considered, as the blocking of Hoo Sahong could devastate much of the most important Mekong River fisheries in Laos.



By May, when the monsoon rains begin to fall and the Mekong River rises dramatically over a very short period of time, large numbers of fish, including many *Pangasiidae* catfish species and other large cyprinids, such as *Hypsibarbus* spp. (*pa pak*) and *Cylocheilichthys enoplos* (*pa tchok*), migrate up the Mekong River from Cambodia and arrive at the Khone Falls. There they are heavily targeted using hook and line gear, large-meshed gillnets, and large wooden wing traps which are placed in the rapids around the Falls. Much of the catch is either smoked or salted. This is certainly one of the most important fishing seasons for the villagers, and large catches are regularly brought in during this period.

Catfish appear and disappear

Although a number of species of *Pangasius* catfish are caught in large numbers in this season, including *Pangasius conchophilus* (*pa pho/pa ke*), *Pangasius bocourti* (*pa houa mouamlpa yang*), *Pangasianodon hypophthalmus* (*pa souay kheo*) and *Pangasius larnaudiei* (*pa peung*), one of the most interesting migratory species is *Pangasius krempfi* (*pa souay hang leuang*), a large catfish reaching 15 to 20 kg in weight and over a metre in length. This economically important species, which constitutes over 60 per cent of the volume of fish caught in the May to July large-meshed gillnet fishery just below the Khone Falls, is believed to migrate all the way from the Mekong Delta in Viet Nam and the South China Sea. Only adults of this species weighing over about 1.5 kg are caught in the Khone Falls area. During this season, all the *Pangasius krempfi* in the Khone Falls area have been observed to be in spawning condition. It is not known exactly where these fish spawn, but they are only found in the Khone Falls area between May and late October or early November. After that time, they all disappear and are believed to travel back down the Mekong River to the Mekong Delta in Viet Nam. Fishers in the Mekong Delta have reported that they only encounter the species between December and April, indicating that the whole adult population of this species may take part in this long distance migration up to the Khone Falls and back.

In May and June villagers living just above the Khone Falls also use narrow bamboo funnel traps to target schools of *Mystus nemurus* (*pa kot leuang*) which are migrating south to Cambodia, where they are believed to enter tributaries of the Mekong.

Between June and July, many small and medium-sized cyprinids, including the ecological key-stone species *Henicorhynchus spp.* (*pa soi*), also swim downstream from Laos to Cambodia where they spawn and enter various streams and wetlands, including the Great Tonle Sap Lake.

By July, when water levels have increased to a high level, wing traps in the Khone Falls are swept away by the strong current and gillnets become largely unusable. At that time villagers begin using bamboo traps, longlines and hook and line gear to catch non-migratory fish for largely subsistence purposes.

Monsoon migrations

Although it is difficult to know exactly what the migratory patterns of fish are in the Khone Falls area during the height of the monsoon season, due to the inability of villagers to target fish in large numbers in this season, it is believed that many species of cyprinids and other species migrate downstream to Cambodia before entering tributaries of the Mekong, including the Sekong, Sesan and Sekong Rivers.

Although the above descriptions of some of the fish migrations and related fisheries in the Khone Falls area are incomplete, they should at least help to indicate how important migratory fish are to the people of the Khone Falls, who are estimated to rely on wild fish for 90 per cent of their animal protein.



Women from Ban Hang Sadam preparing smoked "pa te" using migrating *Pangasiidae macronema* caught in the "Hoo Sahong" Channel of the Khone Falls (April).

* Ian G. Baird is the Senior Project Adviser for the Lao Community Fisheries and Dolphin Protection Project, an NGO supported Lao Government project under the direction of the Agriculture and Forestry Division of Champasak Province, P.O. Box 860, Pakse, Lao PDR. Fax: (856-21) 21-7624.