



Catch and Culture

Fisheries Research and Development in the Mekong Region

Volume 11, No. 2

ISSN 0859-290X

September 2005



INSIDE

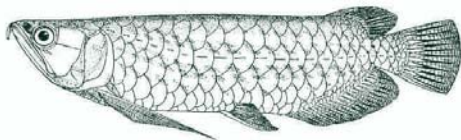
- Hydroacoustic surveys
- Tagging giant fishes
- Cambodian aquatic proverbs
- ADB Conservation Initiative
- Fish tales in Siem Reap



Catch and Culture is published three times a year by the Mekong River Commission Secretariat in Vientiane, Lao PDR and distributed to over 650 subscribers around the world. Free email subscriptions to *Catch and Culture* are available through the MRC website, www.mrcmekong.org For information on the cost of hard-copy subscriptions, contact the MRC's Documentation Centre by email to doc.centre@mrcmekong.org

Contributions to *Catch and Culture* may be sent to mrcs@mrcmekong.org

© Mekong River Commission 2005



Editorial panel

Dr Chris Barlow, Fisheries Programme Manager

Dr Suchart Ingthamjitr, Fisheries Programme Officer

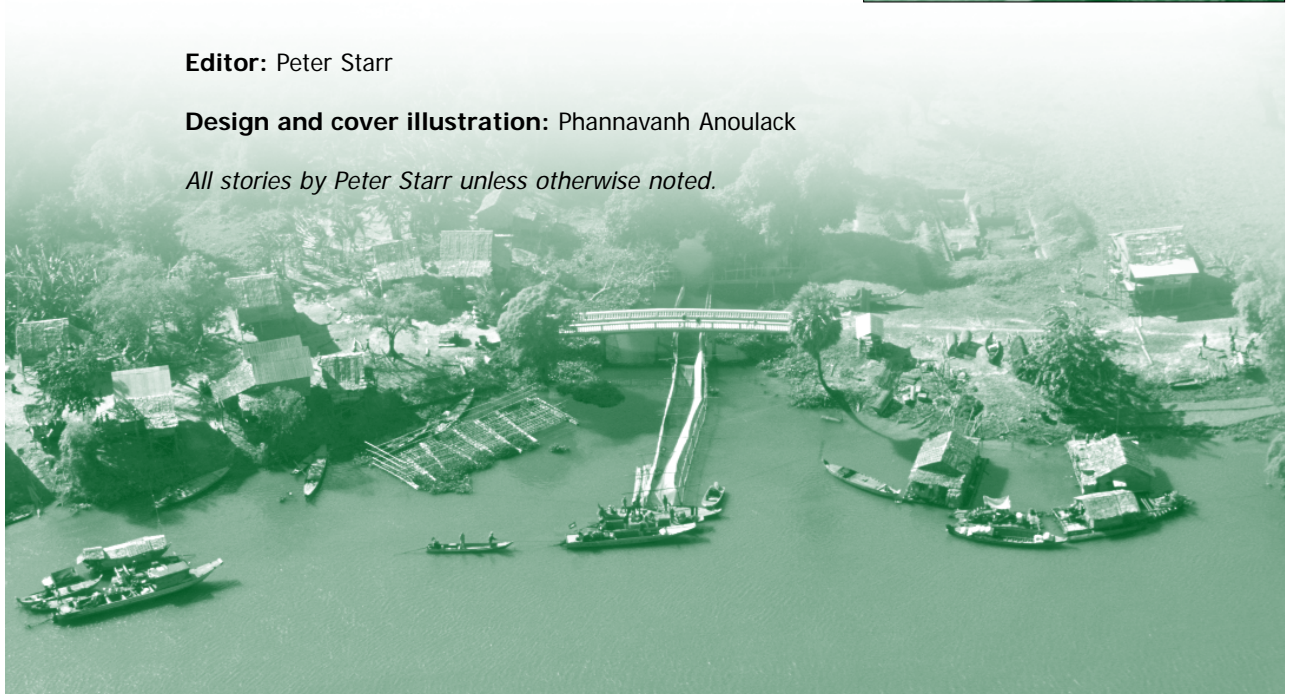
Khamtanh Vatthanatham, Fisheries Programme Officer

Virginia Addison, MRC Secretariat Communications Officer

Editor: Peter Starr

Design and cover illustration: Phannavanh Anoulack

All stories by Peter Starr unless otherwise noted.



Soundings from the Deep

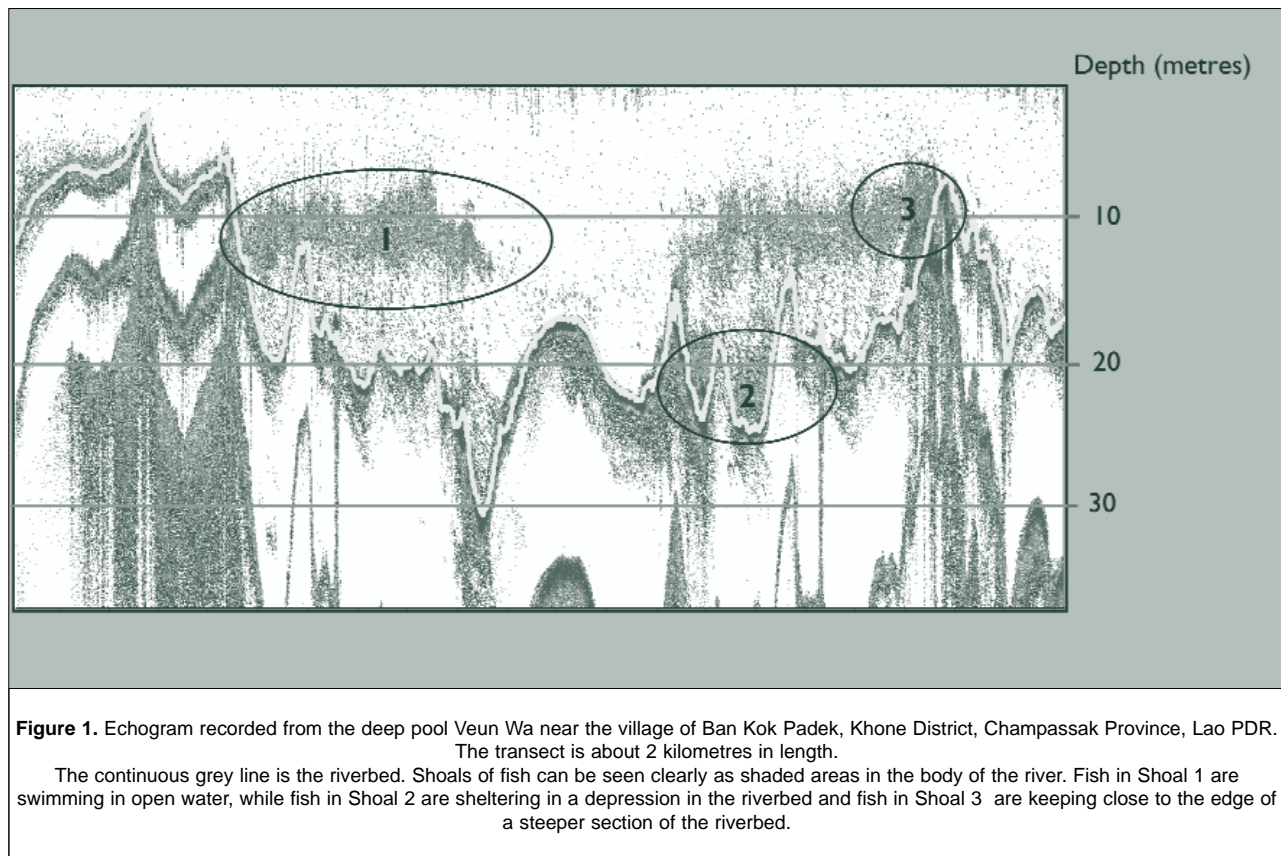


New hydro-acoustic surveys recorded in the stretch of the Mekong in southern Lao PDR and northern Cambodia are providing fisheries scientists with previously unseen images of fish life in some of the river's deepest pools.

In June 2002, Catch and Culture reported the results of a pilot hydro-acoustic survey recorded over some of the Mekong's deep pools in the Siphandone area of southern Lao PDR. The survey, which used echo sounding to monitor the abundance of fish, was one

of the first trials of this type of equipment in a tropical river such as the Mekong.

Following the success of the pilot survey, a team of fisheries scientists from IFRDI (Inland Fisheries Research and Development Institute, Phnom Penh), LARReC (Living Aquatic Resources Research Centre, Vientiane) and the University of Bergen, Norway, conducted a more extensive survey over 30 deep pools in the stretch of the Mekong between Khone Island in Lao PDR and Stung Treng in northern Cambodia.



The deep pools in this 150-kilometre section of the Mekong are well known for their bountiful resources of fish and other aquatic animals. They are also home to the reclusive Irrawaddy dolphin. Over the last decade, surveys of catches taken from the pools have recorded over 160 species of fish. These include many rare and endangered forms such the giant catfish (*Pangasianodon gigas*).

The faunas comprise both sedentary fish, like the Boeseman croaker (*Boesemania microlepis*), that live in the pools all year round and migratory species such as the Mekong catfish (*Pangasianodon hypophthalmus*), that use the pools as a refuge during the dry-season.

Fisheries scientists now believe these habitats play a critical role in the life cycle of many commercially important fish. Fish living or spawned in the pools provide the recruitment for both local fisheries and the huge fisheries on the Mekong's floodplains hundreds of kilometres downstream.

Conservation of these habitats is therefore critically important to livelihoods of local villagers and the countless fishing communities living around the Great Lake in Cambodia, on the floodplains of the Mekong around Phnom Penh and in the Delta region of Viet Nam.

Until recently, much of what fisheries scientists knew about the ecology and faunas of the deep pools came from monitoring catches and interviewing local fishermen. These provided a wealth of data on the location of the pools, the species of fish that live in them and the abundance and diversity of fish faunas. However, the surveys provided little information about where in the pools shoals of fish congregated, whether they preferred to live at certain depths and their favoured microhabitats. Now the new hydro-acoustic records are providing fisheries scientists with their first glimpses of fish life in some of the Mekong's deepest pools.

Hydro-acoustic equipment, which works on the same echo-sounding principles as the sonar used in navy ships and submarines, detects both the range (distance) and size of fish. Objects in the river, such as fish, return echoes if their density differs significantly from that of the surrounding water. The greater the density contrast the stronger the echo. Fish give a strong echo because the air in their swim bladder is less dense than water. Broadly speaking, bigger fish have larger swim bladders and therefore return a stronger signal.

Using equipment set up on boats, the team from LARReC and IFReDI recorded over 160 transects, or echograms, from pools ranging in depth from four to

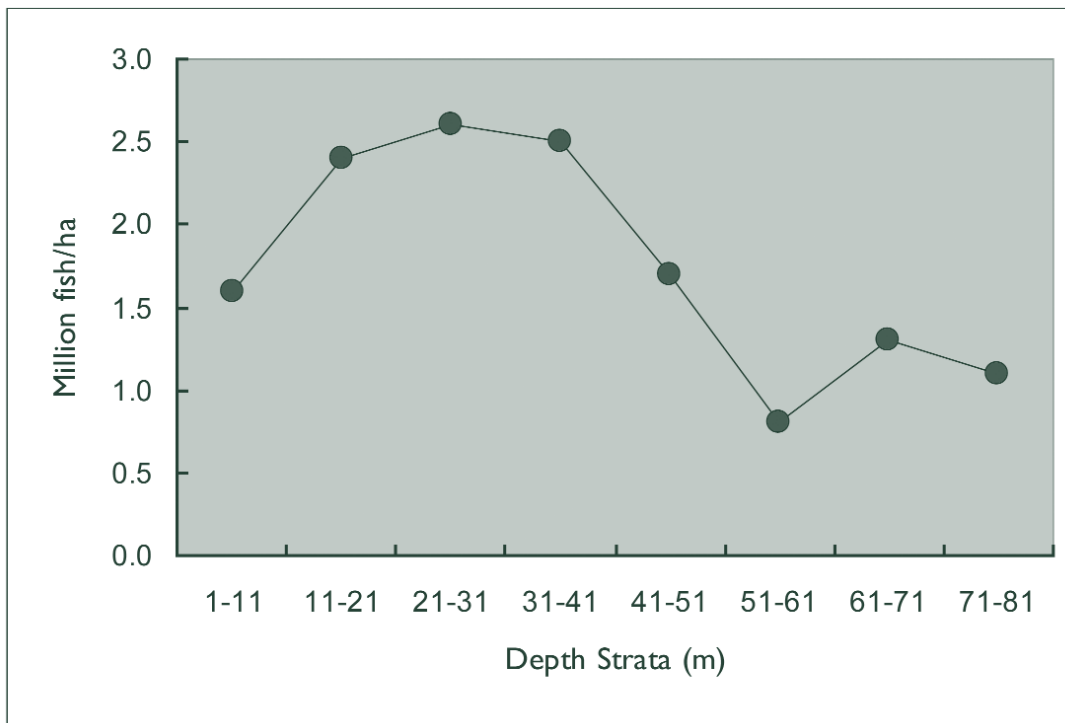


Figure 2. Mean density (million fish/ha) of fish at depth intervals of 10 metres.

77 metres. The survey was undertaken during the wet season of 2003 and the dry season in 2004.

At the same time, the team also asked 12 fishermen from four local villages to record the number and type of nets they set and composition of their catch.

The combination of the hydro-acoustic and catch data provided the fisheries scientists with a two dimensional image of the riverbed, the pools and the populations of fish they contain.

Interestingly, the survey revealed that fish are more abundant in certain depths of water. Water depths of around 30 metres contain the most fish. Below this depth, fish numbers drop off sharply, reaching a minimum at about 50 metres. Rather surprisingly, the numbers start to increase again at depths greater than 60 metres.

The proportion of larger fish also increases with water depth. Signals from fish of up to two metres long were recorded in the deepest parts of some of the deepest pools.

Echograms from individual pools reveal a more complex picture. These show shoals of fish congregating in particular regions of the pool. Some fish swim in shoals in the open water. Some congregate in the shelter of steeper parts of the riverbed and others in hollows or crevices in the floor of the river.

The fishermen's catches by and large support the findings of the echo-sounding. With a few exceptions,

such as gill nets set in shallow pools, catches increased with increasing pool depth.

The reasons behind fish's preference for particular locations needs further study. Unfortunately, while hydro-acoustic data provides lots of information about where fish live they say little about the type or the maturity of the fish they record. The survey team attempted to 'ground truth' their findings by guiding fishermen to locations where the echo-soundings indicated the presence of large shoals of fish. Sadly, the results were disappointing. Filamentous weed, which often chokes this part of the river during the dry season, tangled with the fishermen's gear, limiting their catch to just three fish.

Nevertheless, the 2003-2004 survey showed that hydro-acoustic data provides fisheries scientists with information they cannot get by other means. In particular, because the technique does not harm fish, the surveys can be conducted in restricted areas, such as fish conservation zones, where fishing is prohibited.

Once purchased, the equipment is cheap to run and the surveys are quick and relatively easy to carry out. Moreover, as hydro-acoustic survey are repeatable, fisheries scientists could use them to monitor long-term seasonal migration patterns and changes in fish populations related to other ecological, environmental and developmental factors.

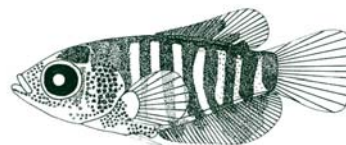
The Fisheries Programme will publish the results of the 2003-2004 survey later this year as a volume in the Mekong Technical Report series.



Sammano Phounsavanh

Examining images from hydro-acoustic equipment being used to study fish distribution in deep pools in the Mekong River.

Tagging and release of giant Mekong fish species in Cambodia



By Kent G. Hortle, Lieng Sopha, Em Samy and Zeb Hogan

*A fishing lot owner reported the capture of two specimens of Cambodia's new national fish - the giant barb *Catlocarpio siamensis*. The two giant barbs were duly tagged and released into the wild. Captive breeding also offers hope for conserving such endangered giant species.*



Em Samy

The Director-General of the Cambodian Department of Fisheries, Mr Nao Thuok, about to release a giant barb back into the Tonle Sap.

Scientists in Cambodia have been carrying out a tagging programme since the year 2000 for large Mekong fish species, including the giant barb, *Catlocarpio siamensis*, and the endemic giant catfish, *Pangasianodon gigas*. The tagging programme is implemented by the Cambodian Department of Fisheries (DoF) supported by the Assessment Component of MRC's Fisheries Programme, as well as the Mekong Wetlands Biodiversity Programme and the National Geographic Conservation Trust. The programme aims to ensure the release of these species and to provide some indication of the status of fish stocks over time. The aim of tagging is to collect information about growth rates and migrations from recaptured fish.

The giant barb is reputed to grow to more than 200 kg. In Khmer, the fish is known as *trey kahao* (juveniles) and *trey kolreang* or *trey kabala* (adults). The giant catfish, known as *trey reach*, reaches 300 kg. Both are fast-growing herbivorous fish which were formerly common but are now rare as a result of fishing pressure. Mattson *et al.* (2002) reviewed all information on these fishes. The recent catch of a record 293 kg giant catfish in northern Thailand confirms anecdotes about the enormous size the fish can reach .

Although modern gears such as gill nets kill or injure fish during capture, many traditional gears are designed to keep fish alive, so they can be sold fresh or grown-out in associated aquaculture operations. Commercial gears such as barrages or *dais* (stationary bagnetts) direct fish into holding pens or traps. Most of the recorded captures of large giant barbs and giant catfish since 1999 have been from the dai bag net fisheries of the Tonle Sap, particularly from the most downstream of the dais in Rows Nos. 1 to 4 (Table 1). Unfortunately, the large specimens of giant catfish that are caught in *dai* nets suffer severe capture stress, so some do not survive handling or die shortly after tagging. Giant barbs seem to tolerate capture and handling better. There have been no reports of recaptures of any of the giant fish tagged since 2000, but fishers may be unwilling to report that they have captured such large and endangered fish.

Most fish were tagged, but some giant catfish died of capture-related stress. In 2005 improved handling measures are to be implemented to minimise stress. Catches of small individuals of these species generally go unreported.

The *dais* near Phnom Penh have been studied closely by the DoF since 1995, so the capture of giant species has been well-reported. Commercial fishers

elsewhere catch giant species, but it is only recently, with improved communications - especially via the mobile handphone network- that they began to routinely report captures to DoF. As a result, some giant fish have been tagged and released in better condition than those caught in the dai fishery.

Origin	Giant Catfish	Giant Barb
Dais	37	46
Fishing Lots	5	5
Ponds	4	-
Total	46	51

Table 1. Giant species recorded in Cambodia 1999-2005



Giant fish often do not survive the trauma of capture.



Zeb Hogan

The giant barb, *Catlocarpio siamensis*, has been proclaimed the national fish of Cambodia.

Most recently, two giant barb were caught in fishing lot No. 3 on the Tonle Sap Great Lake in Pursat Province, about 170 km north of Phnom Penh. The fish were caught in a barrage, a gear in which a fence several kilometres long directs fish into a pen. The fish were held alive in the pen for several days in good condition. They weighed about 70 kg and 15 kg and were 142 cm and 104 cm in total length. The lot owner, Mr Sem Vai, reported the captures to the DoF and then the Director-General, Mr. Nao Thuok, supervised tagging and release of the giant barb to the wild on 22 July 2005. The release was publicised by the DoF to appeal to all people and fishers to cooperate and conserve endangered fish, and to report any recaptures of these species.

Earlier, two giant barb were released by the Phnom Penh City's Municipal Fisheries Officers on 1 July 2005 into the Tonle Sap; these fish weighed 14 kg and 15 kg. They were caught by fishers in Boeng Cheng Aik, a large wetland south of Phnom Penh. Five other giant barb that were caught at the same time are being maintained by the council officers who aim to breed them.

Apart from these recent releases of giant barb, fish farmers along the Tonle Sap near Phnom Penh recently discovered giant catfish growing with other species of river catfish (Pangasiidae) in their ponds. The farmers bought the catfish as fry from fishers on

the Mekong River about seven years ago. The fry, along with other species of river catfish, are likely the progeny from spawning upstream in the Mekong River or its large tributaries in northern Cambodia. Four giant catfish, each about 40-60 kg, were tagged and released under the supervision of H. E. Dr Chan Sarun, Minister of Agriculture, Forestry and Fisheries, and Dr. Claude Martin, Director General, World Wide Fund for Nature (WWF), on 15 June 2005 in the Tonle Sap near Phnom Penh.

Both the giant barb and giant catfish have been protected since 1987 under Article 18 of the Cambodian fisheries law. The giant catfish is listed by the IUCN as critically endangered, affording it some legal protection under international agreements, but the giant barb is not protected internationally. The status of the giant barb improved this year when it was designated as the national fish of the Kingdom of Cambodia in a Royal Decree on 21 March 2005. This designation is appropriate because the giant barb has long-been an important and well-known fish in Cambodia. It is depicted on bas reliefs on the Bayon and other temples near Siem Reap, it features in the famous legend of Pradyumna, it is cooked or preserved traditionally in many different ways, and its scales are used to make shuttlecocks for the popular Khmer sport, *seay toat*, and are also used in handicrafts.

Unfortunately it is often not possible to effectively protect these endangered species in the field, particularly when they may be killed during capture. For the many thousands of individual fishers - who may be quite poor - a giant fish is a very welcome source of food or income. In the past, the MRC funded the DoF to pay for any giant fish reported by fishers, as a way to ensure their cooperation. It is heartening that the owner of Fishing Lot No. 3 was not paid, but was proud to be the one to release the newly-designated "Cambodian National Fish".

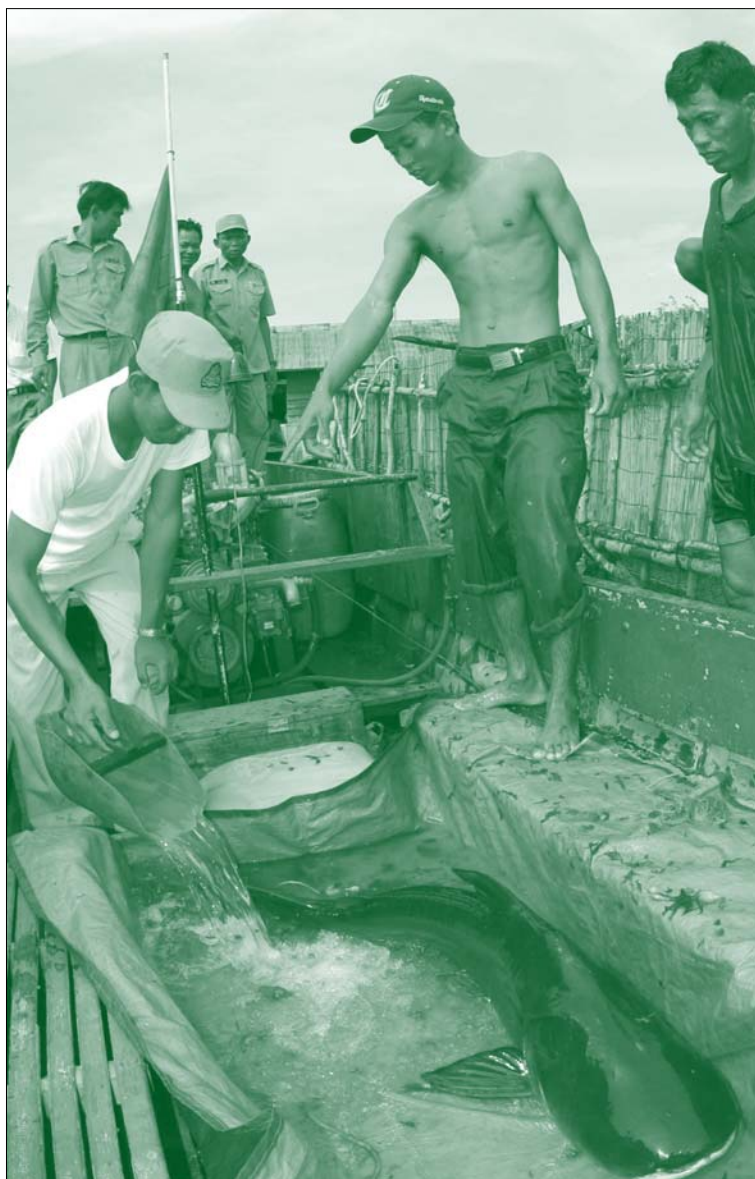
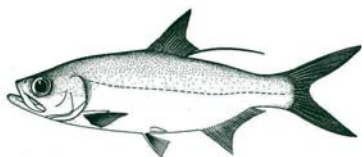
Other conservation measures

Both giant species are known to move to deep pools in the Mekong and large tributaries in northern Cambodia during the dry season. In a bid to protect the endangered Irrawaddy dolphin in this section of the Mekong, the DoF has recently banned the use of large-mesh gill nets, a measure that - if implemented - would also protect large fish species likely to be caught in gill-nets. Captive breeding is another approach to conservation. The DoF maintains some

adult giant barb and giant catfish in government hatcheries with the intention of breeding and growing fish to stock in natural water bodies or aquaculture ponds, but this activity is currently unfunded. In Thailand both species are raised in ponds.

Reference List

Mattson, N. S, Buakhamvongsa, K, Sukumasavin, N, Nguyen, T, and Ouk, V. (2002) Mekong giant fish species: on their management and biology. MRC Technical Paper No.3. 29 pp. Mekong River Commission Phnom Penh, Cambodia.

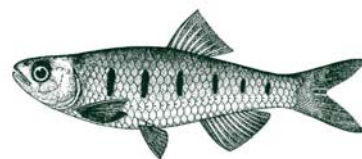


Em Samy

A giant catfish being cared for prior to release in Cambodia.

Fisheries on the Web

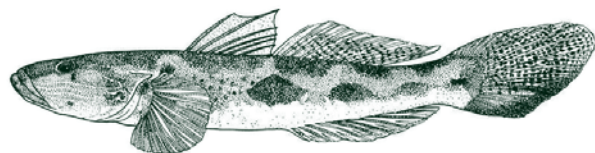
By Niklas Mattson, MRC Fisheries Programme



Searching for relevant publications is an essential part of planning research. Similarly, when interpreting results and preparing papers and reports, timely access to references is essential. This is always a demanding task, particularly so in places where access to the resources of a large library is not possible. Today, the job is getting easier thanks to the Internet.

Although Mekong inland fisheries are among the most productive in the world, relevant information is dispersed and can be difficult to find. An increasing amount of fisheries information is available on the Internet, including both general as well as Mekong specific information.

Below are links and brief descriptions of selected web sites that provide information of relevance to fisheries. The list is by no means complete, but can provide a starting point for information and reference searches. Depending on the information desired, it may be more efficient to start by searching using a generic search engine like Google (<http://www.google.com>), but this will often retrieve a huge number of links, some useful and some not, which may take a long time to look through.



Access to Global Online Research in Agriculture (AGORA)

AGORA (<http://www.aginternetwork.org>) is an initiative to provide free access to major scientific journals in agriculture and related biological, environmental and social sciences to public institutions in developing countries. Launched in October 2003, AGORA provides access to 745 journals from the world's leading academic publishers.

Potential users are required to register, and access is password controlled.

The AGORA Publisher Partners are providing free access to relevant institutions in the following Mekong basin countries: Cambodia, Lao PDR, Myanmar and Viet Nam.

Searching for articles can be done via the AGORA subset of CAB Abstracts (<http://www.agora-cabi.org>). Another option is to search ASFA (see below).

Aquatext

A free online aquaculture dictionary. (<http://www.aquatext.com/dicframe.htm>)

ASFA (Aquatic Sciences and Fisheries Abstracts)

ASFA is an international cooperative information system which comprises an abstracting and indexing service covering the world's literature on the science, technology, management, and conservation of marine, brackish water, and freshwater resources and environments, including their socio-economic and legal aspects. ASFA is distributed by CSA (<http://www.csa.com>), and requires an account (user name and password). The ASFA bibliographic database is the principal output of the system and it contains approximately 1,000,000 references, with coverage since 1971. About 3,500 new bibliographic references are added each month to the database. Each reference includes: the title of the document in its original language (all non-English titles are also translated into English); an English language and/or non-English language abstract and subject; taxonomic and geographic index entries as relevant.

Asian Fisheries Society

The Asian Fisheries Society (<http://www.asianfisheriessociety.org>) is a scientific society organized in 1984 for fishery professionals in Asia to communicate, share information and cooperate with each other. Since its establishment, the Society has grown from the 14 charter members who signed the constitution to over 2,800 members from 75 countries and territories.

Asia-Pacific Fishery Commission (APFIC)

APFIC (<http://www.apfic.org>) is an FAO Regional Fishery Body that acts as consultative forum working in partnership with other regional organizations and arrangements and members. It provides advice, coordinates activities and acts as an information broker to increase knowledge of fisheries and aquaculture in the Asia Pacific region. The APFIC secretariat is based in the FAO Regional Office for Asia and the Pacific, Bangkok, Thailand. The APFIC website contains fisheries information relating to the work of APFIC, FAO and its members in the Asia-Pacific region. Many MRC Fisheries Programme publications are lodged on the site, available as free downloads.

Department of Fisheries, Thailand (DOF)

Website of the Thailand Department of Fisheries (<http://www.fisheries.go.th/english/>):

FishBase

(<http://www.fishbase.org>) is a global information system with all you ever wanted to know about fishes.

FishBase is a relational database with information to cater to different professionals such as research scientists, fisheries managers, zoologists and many more. FishBase on the web contains practically all fish species known to science, with information on some 28,500 species.

FishBase was developed at the WorldFish Center in collaboration with the Food and Agriculture Organization of the United Nations (FAO) and many other partners, and with support from the European Commission (EC). Since 2001 FishBase is supported by a consortium of seven research institutions.

Food and Agriculture Organization

While FAO is a global organization (<http://www.fao.org/fi>), it has particular interest in Asia-Pacific as nearly two-thirds of the world's farmers reside in this region.

In the field of fisheries the FAO regional office (<http://www.fao.org/world/regional/rap/fisheries.asp>) is promoting:

- Sound management and sustainable use of resources in fisheries and aquaculture
- Development of fisheries and aquaculture techniques
- Responsible aquaculture development
- Conservation of marine and inland fisheries' resources within the Framework of the FAO Code of Conduct for Responsible Fisheries
- Strengthened regional institutions and international collaboration in support of responsible fisheries
- Improved fisheries statistics

Inland Fisheries Research and Development Institute (IFReDI)

IFReDI (<http://www.ifredi.org/index.html>) is a research and development institute under the supervision of the Department of Fisheries (DoF), Cambodia.

LarvalBase

(<http://www.larvalbase.org/>) is a comprehensive information system on fish larvae that is relevant in the field of fisheries research and finfish aquaculture, combining traditional sources such as primary and "grey" literature. In addition, unofficial data from various sources such as the Internet and from practising aquaculturists are lodged on the database.



Living Aquatic Resources Research Center (LARReC)

LARReC (<http://www.mekonginfo.org/partners/larrec/index.htm>) is one of nine research centers under the National Agriculture and Forestry Research Institute (NAFRI) in Lao PDR.

MekongInfo

MekongInfo (<http://www.mekonginfo.org/>) is an

interactive system for sharing information and knowledge about participatory natural resource management in the Lower Mekong Basin. In addition to over 2,500 documents (full-text and abstract) in the library, reference and case studies sections, MekongInfo provides: a contacts database of individuals, projects and organisations, news and announcements of events, relevant Web links, a gallery of useful resource materials, a forum for online discussions, and a free Web hosting service. Over 300 publications from the MRC Fisheries Programme are available at the MekongInfo site.

Network of Aquaculture Centres in Asia-Pacific (NACA)

NACA (<http://www.enaca.org/>) is an intergovernmental organization that promotes rural development through sustainable aquaculture. NACA seeks to improve rural income, increase food production and foreign exchange earnings and to diversify farm production. The core activities of NACA are:

- Capacity building through education and training;
- Collaborative research and development through networking among centers and people;
- Development of information and communication networks;
- Policy guidelines and support to policies and institutional capacities; and
- Aquatic animal health and disease management.

Research Institute for Aquaculture No 2 (RIA2)

RIA2 (<http://www.ria2.org.vn/index.html>) is a governmental institution assigned by the Ministry of Fisheries to be responsible for research activities on aquaculture development, post harvest technologies



and management of environment and inland fisheries resources in the Southern Viet Nam.

Scirus

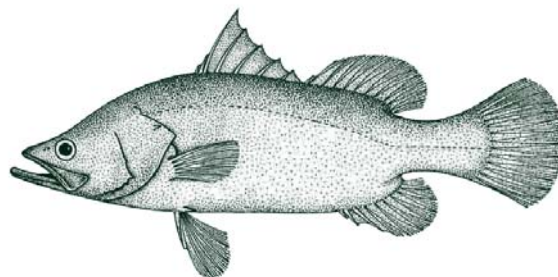
Scirus (<http://www.scirus.com>) is a comprehensive science-specific search engine on the Internet. Search engines are all different in the Web sites they cover, and the way they classify these sites. Scirus, the search engine for science, focuses only on Web pages containing scientific content.

Scirus searches over 200 million science-specific Web pages, enabling you to quickly:

- pinpoint scientific, scholarly, technical and medical data on the Web.
- find the latest reports, peer-reviewed articles, patents, pre prints and journals that other search engines miss.
- offer unique functionalities designed for scientists and researchers.

StatSoft Electronic Statistics Textbook

The Electronic Statistics Textbook



(<http://www.statsoft.com/textbook/stathome.html>) offers training in the understanding and application of statistics. The material was developed at the StatSoft (the publishers of the STATISTICA software) R&D department based on many years of teaching undergraduate and graduate statistics courses. It covers a wide variety of applications, including laboratory research (biomedical, agricultural, etc.), business statistics and forecasting, social science statistics and survey research, data mining, engineering and quality control applications, and many others.

The Electronic Textbook begins with an overview of the relevant elementary (pivotal) concepts and continues with a more in depth exploration of specific areas of statistics, organized by "modules," accessible by buttons, representing classes of analytic techniques. A glossary of statistical terms and a list of references for further study are included.

Support to Regional Aquatic Resources Management (STREAM)

The regional STREAM Initiative (<http://www.streaminitiative.org/>) founded by NACA, DFID, FAO, VSO and AusAID aims to offer support to the livelihoods of poor peoples who manage aquatic resources (via management of aquaculture or capture of fish or aquatic resources). It contains an extensive library of documents, with many publications in regional languages.

The Digital Library of the Commons (DLC)

DLC (<http://dlc.dlib.indiana.edu/>) is a gateway to the international literature on the "commons", such as water resources, fisheries, forest resources, etc. The site contains an author-submission portal; an archive of full-text articles, papers, and dissertations; the Comprehensive Bibliography of the Commons; a Keyword Thesaurus, and links to relevant reference sources on the study of the commons.

The site not only provides access to scientific literature, but also provides an opportunity to submit papers, uploading to and storing them in the Library, and making them permanently available for free on-line.

The Fisheries Management Science Programme (FMSP)

FMSP is funded by DfID and implemented by MRAG Ltd., London, England. Link: <http://p15166578.pureserver.info/fmsp/Home.htm> (previously fmsp.org.uk).

The programme is targeted at the poorest sectors of society - small scale and subsistence fishing communities which have little or no alternative to

fishing as an activity, and which depend on fisheries for their livelihood.

Apart from a great number of reports of finalized projects, the web-site provides access to software and a bibliography.

The Southeast Asian Fisheries Development Center (SEAFDEC)

SEAFDEC (<http://www.seafdec.org>) is an autonomous intergovernmental body established as a regional treaty organization in 1967 to promote fisheries development in Southeast Asia. SEAFDEC aims specifically to develop the fishery potentials in the region through training, research and information services. Its services cover the broad areas of fishing gear technology, marine engineering, fishing ground surveys and stock assessment, post-harvest technology as well as development and improvement of aquaculture techniques.

Although the focus for SEAFDEC is marine fisheries, more attention has recently been given to inland fisheries (see <http://inland.seafdec.org/>).

WorldFish Center

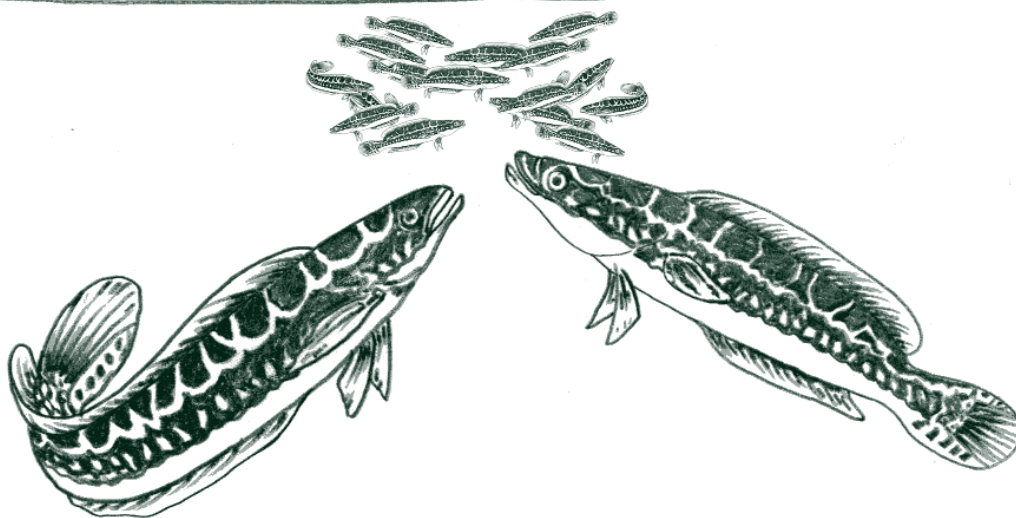
The WorldFish Center (<http://www.worldfishcenter.org>) is an international scientific research organization. Its mission is to reduce poverty and hunger by improving fisheries and aquaculture. Numerous fisheries publications can be accessed on the site.



The language of fish

Aquatic proverbs of Cambodia

By Kent G. Hortle and Srun Lim Song



The relationship between water and fish on Cambodian floodplains is exemplified by the well known saying *ti-na mee-un teuk, ti-nuh mee-un trey* "where there is water, there is fish". Even temporary pools are rapidly colonised by fish, either because fish fry swim up small channels or because some species can survive the dry season by aestivating in mud, to re-appear immediately after rain and then breed rapidly; some fish even 'walk' to new habitats. The saying implies a dependence on the natural supply of fish, which together with rice are the staple Khmer foods.

Metaphors and proverbs tell us much about culture, as hidden meanings imply a general familiarity with key aspects of the environment by the native speakers of a language. Khmers use a common observation from tropical environments: *teuk trojek, trey kom*, "if the water is cool, fish will gather", meaning that if you are a calm and well-mannered person, people will want to associate with you. To

warn against associating with evil people, an English-speaker might say "one bad apple spoils the barrel", whereas a Cambodian would say: *trey moi kontrol, s'oi moi s'oi tengoh* "in a basket of fish, one rotten fish spoils them all!"

As well as fish, other aquatic animals feature in sayings. Cambodians call someone who knows little about the wide world but who nevertheless talks a lot *gong-gaip knong andoang*, "a frog in a well". To admonish someone who is forgetting his origins and former friends they refer to *kro-bper vong-veng boeng*, "the crocodile forgets his lake", because a hungry crocodile eats anything, including its own siblings or parents! In business it is usual to hear *ro-ying ro-yong doach samlor kom-peus*, "joined together like shrimps in soup"; anyone who has tried to pull a shrimp from soup will notice that it tends to hook onto others, forming a chain. The saying thus implies dependence and that removal of one will affect the others.

An English-speaker might say, "what goes around comes around" or perhaps "every dog has his day", to advise patience when apparently bad people are benefiting at others' expense. A Khmer would likely say *pel teuk larng, trey see sra-maoch; pel teuk hao-ich, sra-maoch see trey* "when the waters rise, fish eat ants; when the waters fall, ants eat fish!"

Apart from general references to the aquatic environment, a strong association of Cambodians with inland fish is shown in sayings about particular species. As well as making moral lessons more memorable, such sayings strengthen feelings of kinship, because to understand the meaning, the listener must know the particular type of fish and its habits. The proverbs are taught from childhood and often rhyme: *kom moa-ut ch'rarn doach trey kom-phleanh*, "don't talk a lot like trey kom-phleanh" which means "if you talk too much you may make a mistake or give out secrets". This saying refers to gouramis (*Trichogaster spp.*), which often live in low-oxygen environments and have a habit of swimming near the surface while opening and closing their mouths to gulp air.



Trey Sanday, *Wallago attu*

Metaphors have a way of softening criticism with an amusing image: *kom saich khlang pek proyat rohaek moa-ut doach trey sanday*, "don't laugh too much or you will get a big mouth like trey sanday!", which means "one must not laugh loudly at someone who is making a mistake", referring to trey sanday (*Wallago attu*), a voracious predator that has an extremely large mouth with sharp teeth.

In business, Westerners tend to be direct: when something seems too complicated they might quote the "kiss" principle: "keep it simple, stupid". But how much more appealing is: *ontoong veng, ch'nung veng*, "a long swamp-eel, a long cooking pot", implying that someone has chosen a very complicated way to cook ontoong (the swamp-eel, *Monopterus albus*), when they should simply chop it into pieces! And even if someone is not particularly clever, we might say "everyone has their good points"; rather than *trey*

p'roul ch'ngun sroka, trey pra ch'ngun sroka, "a p'roul (*Cirrhinus microlepis*) has delicious scales, a river catfish has delicious gill filaments", as these are the particular parts of those fish which are most tasty.

And what would you say if you had an incredibly favourable result from a business project, or won a lottery? Perhaps the obvious and direct, "it was a long-shot, a lucky-break or one-in-a-million", certainly not *trey kranh larng see sleuk ampeul*, "the climbing perch has climbed to eat tamarind-tree leaves!" A Cambodian knows that climbing perch (*Anabas testudineus*) frequently "walk" over land, but never climb trees or eat their leaves.

To criticise someone who exploits or abuses his subordinates or others in his care we hear the colourful criticism *trey chhdaur see kon aing* "a giant snakehead eats its own offspring" which refers to how "good" adults of this species (*Channa micropeltes*) protect their young and never eat them. People who spend a lot of time in wetlands will undoubtedly have seen schools of young snakeheads with the parents swimming protectively below them.

Despite the increasing industrialisation of agriculture and slow urbanisation of Cambodia, the love of Cambodians for fish and the vast extent of the country's wetlands mean that these unique links between environment and language will never die out. Cambodians are also increasingly applying the adage *bong ree-un aoi jeh chenh-chum trey, koo pdol trey hoap os moy chi-vet* "teach people to grow fish and they will have fish to eat forever"!

Note: The Khmer spellings follow Tuttle's Practical Cambodian Dictionary.



Is the Siem Reap River a river?

By Matti Kummu and Terry Lustig

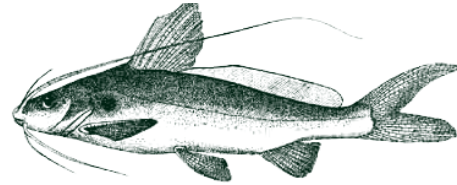
There's no need to redraw the maps. But new research is uncovering fascinating things about medieval Khmer water management, as delegates to the latest annual meeting of the MRC fisheries program in Siem Reap recently found out.

The monumental Angkor temples in northwest Cambodia have been studied in great detail over the past century. Recent research has uncovered an equally impressive feature of the medieval capital - an extensive hydraulic network stretching across more than a thousand square kilometres. The network can still be seen in radar and satellite images, and the main features are still evident from the ground. One is a channel which runs through Angkor to the Tonle Sap Lake. Now known as the Siem Reap River, it starts in Phnom Kulen and flows through the modern provincial capital before reaching the lake. In pre-Angkorian times, however, this watercourse didn't exist (See figure 1).

Today, the Angkor hydrological regime contains three watersheds - Puok, Siem Reap and Roluos - spread over 2,885 square kilometres. But before the Angkor kingdoms emerged in the 9th century, the region had only two main watersheds which were the Puok (including most of the present Siem Reap watershed) and the Roluos. During the Angkor period, the natural water system changed with human activities such as the construction of channels and water reservoirs. These ancient reservoirs are known as *trapeangs* (dug into the ground, fed by rain and groundwater, and unrelated to the channel network) and *barays* (basically tanks with sides of earthen embankments fed by channels and rainfall). Part of the main water-related constructions were offtake channels diverting water south from the Puok River from as early as the 10th century.

Artificial watercourse

Originally a constructed channel, the Siem Reap River is one of these offtakes from the Puok which now carries most of the water flowing through Central Angkor. This artificial watercourse has now captured



most of the waters of the Puok River, which used to flow generally southwest from the Kulen Hills to the Tonle Sap (see Figure 2). The channel probably diverted water to the Eastern Baray. Another major offtake was the Great North Channel which most probably was built to get water to the Western Baray.

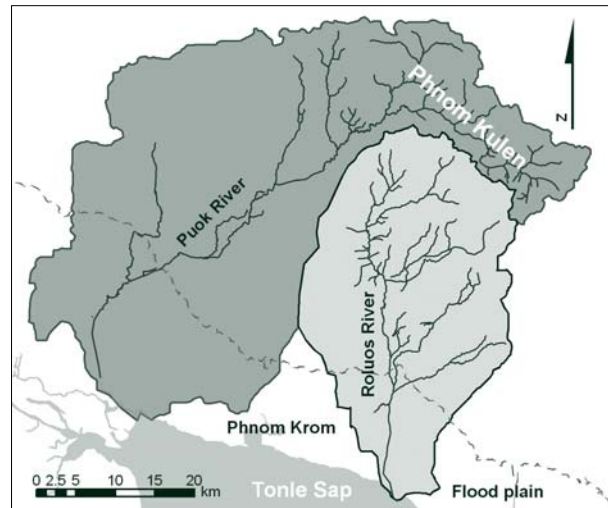


Figure 1. Watersheds before Angkorian period (modified from Kummu, 2003)

The Siem Reap River now diverts water southwards from Puok River until it meets the north bank of the Eastern Baray. It then runs due west, then again south past Angkor Thom and Angkor Wat to the Lake. The watershed is now about six hundred square kilometres with an average flow of 6.8 cubic metres a second. Unlike the Puok River, which meanders naturally across its flood plain, the Siem Reap channel is, in the main, deep and straight without any flood plain (see Figure 3).

Many modern artificial watercourses have also been built along straight lines. But people have only recently started to appreciate that channels built in straight lines are not sustainable, causing the sort of problems seen in Europe such as floods and the loss of natural ecosystems.

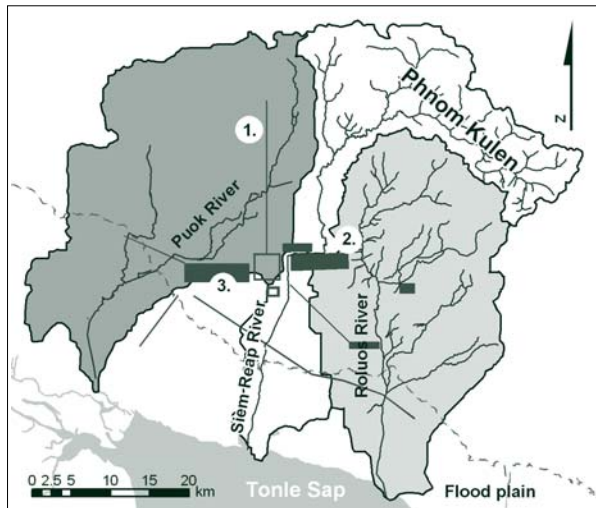


Figure 2. Watersheds after human impact on natural water courses during Angkor period. 1. The Great North Channel 2. East Baray 3. West Baray. (Modified from Kummu, 2003).

The population of Angkor was not spared from these problems. Because the Siem Reap Channel was much straighter than the natural rivers, the water flowed faster and eroded the bed of the channel- by as much as 10 meters in some places - and it's most likely that problems emerged in diverting water to the Eastern Baray and elsewhere. How fast this erosion happened is still under research.

Although the Siem Reap River was originally a human-built channel and not a river, it has become a river over the past thousand years with small meanders and its own unique ecosystem. It will never be a typical river for the area but it is now more of a river than a channel. So it does not have to be renamed "Siem Reap Channel" on maps of the present Angkor area.

Matti Kummu is a hydrologist with the Water Resources Laboratory at the Helsinki University of Technology who also works on the MRC's Finnish-funded Lower Mekong Modelling Project and is a member of the Greater Angkor Project. He made a presentation on Angkor water management to the 12th annual meeting of the MRC Fisheries Programme in Siem Reap in June and also led a field trip to the area. Dr. Terry Lustig is a water and ecological engineer with 40 years experience in the Asia-Pacific region who is also a member of the Greater Angkor Project team. The authors plan to publish their research findings in a series of articles next year. They would like to acknowledge other members of the Greater Angkor Project team - particularly Prof. Roland Fletcher, Dr. Dan Penny, Dr. Christophe Pottier and Damian Evans - as well as the Australian Research Council for funding the project.

Further reading:

Evans, D. 2002. Pixels, Ponds and People: Urban Form at Angkor from Radar Imaging. Honours Thesis for the Department of Archaeology at the University of Sydney, Australia. 107 pages.

Fletcher, R. 2001. "A.R. Davis Memorial Lecture. Seeing Angkor: New views of an old city." Journal of the Oriental Society of Australia 32-33:1-25.

Fletcher R. M. Barbetti, D. Evans, H. Than, I. Sorithy, K. Chan, D. Penny, C. Pottier and T. Somaneath. 2003. Redefining Angkor: Structure and environment in the largest, low density urban complex of the pre-industrial world. UDAYA 4: 107-21.

Groslier, B-P. 1979 Le cité hydraulique angkoriennne: exploitation ou surexploitation du sol? Bulletin École Française d'Extrême Orient, 66,161-202.

Kummu, M. 2003. The historical water management of Angkor, Cambodia. World Archaeological Congress 2003. Washington DC, June 2003.

Lustig, T., Kummu, M. and Pottier, C. In preparation. The down-cutting of the Siem Reap River - an early adverse environmental impact on Angkor?

Pottier, C. 1999. Carte Archéologique de la Région d'Angkor. Zone Sud. Ph.D thesis, 3 vols. Université Paris III - Sorbonne Nouvelle (UFR Orient et Monde Arabe).

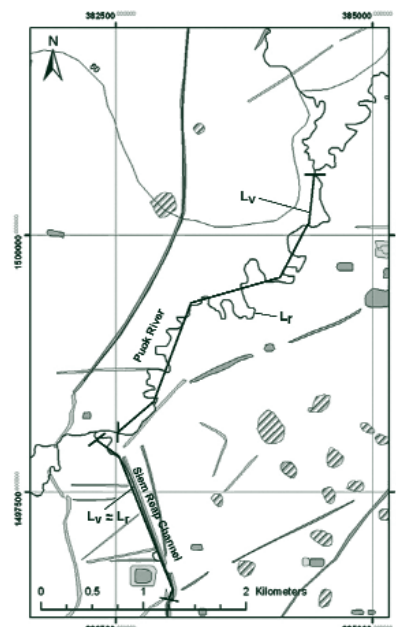


Figure 3. Comparison of natural river course to artificial channel.

Fishers bring their tales to the meeting room

By Virginia Addison

Mr Kung Chanthy from Stoeng Treng, Cambodia has been fishing for 26 years and makes his money from selling fish, growing crops and raising livestock. But the 39-year-old has another important role to play: He is one of the vital cogs in the Fisheries Programme's research team spread throughout villages in the basin.

Since April 2003 Mr Kung and other fishers have been recording their daily catches for the programme's Assessment of Mekong Capture Fisheries (AMCF) component.

The fisherman was one of three locals, who rely on the Mekong fishery, to bring their grassroots stories to the MRC Fisheries Programme's 12th annual meeting held in Siem Reap, Cambodia, from 2-4 June 2005.

The AMCF component has been employing fishers and traders for some years now to capture all types of statistics at the base level and their information has proved invaluable.

Mr Kung said that while there were still many big fish in his part of Mekong, there were fewer than 10 years ago and more people are fishing nowadays.

His catches had declined from 70-80 kg per day in the peak period 20 years ago to only 5-20 kg for the peak period today. In the low season he sometimes only caught 1kg per day.

He explained that he thought the decline was due to lower water levels in deep pool areas coupled with overfishing and use of illegal fishing gears, poisons, and explosives during the dry season.

Another local, Ms Nyaim Vantha, has been selling fish for 22 years. She buys her fish from Boeng Cheung

Aik, a large wetland south of Phnom Penh. She and her daughter have been recording their fish sales in logbooks since August 2003. Her husband used to be a fisher, but there were too many fishers and not enough fish. Now he has changed his job to film cameraman. She says her fish are easy to sell but it's more difficult to buy fish now as she has to buy from more fishers and the area of water is less. Her income is the same as in the past but inflation reduces the value of her earnings.

The third local speaker, Mr Tey Hon, 41, is predominately a rice farmer, but with nine mouths to feed in his family he branched out into aquaculture in 2001 to boost his income. His new venture now constitutes 12 per cent of his income and reduces his reliance on agriculture and livestock.

Pond aquaculture is not as common in Cambodia as in the other MRC member countries and the Fisheries Programme is promoting it where suitable.

Mr Tey prefers to stock indigenous fish species rather than alien species and now also educates neighbouring villagers on the importance of fish culture with indigenous fish species. He called on the Fisheries Programme to work more on other indigenous fish species for aquaculture.

These three people exemplify the people the Fisheries Programme is trying to help and the delegates noted that their participation demonstrated the value of involving of rural communities in the Fisheries Programme. They hoped that these surveys would be incorporated into the work programmes of national fisheries agencies. The delegates applauded the continued uptake of co-management among fishing communities across the region and the Fisheries Programme's work in fostering these practices.



Mr Kung measures a trey keak (*Labeo chrysophekadion*) part of his daily catch.

Chan Sokheng

Presentations from the FP Annual Meeting in Siem Reap



MRC Fisheries Programme: Phase 2

Donor contributions for MRC Fisheries Programme Phase 2 from 2006 to 2010 are expected to be known in September following a very positive appraisal in April. Programme manager Chris Barlow told the programme's annual meeting in Siem Reap in June that the Danish International Development Agency (Danida) had offered funding while the Swedish International Development Cooperation (Sida) was considering its contribution. Other donors are also being approached.

Expected to start in January, the second phase has four components - ecology, valuation and mitigation; fisheries management and governance; programme management and communication; and an extension of the existing Aquaculture of Indigenous Mekong Species component, known as AIMS. The appraisal found that fisheries agencies and all National Mekong Committees had a "very strong sense of ownership and commitment" to the programme and also praised the "clear dynamism" of the Technical Advisory Body on Fisheries Management.

River Flows

The Environment Programme plans to start work next year on a second project devoted to predicting the consequences of flow changes in the Mekong River. Ian Campbell, the programme's senior environment specialist, told the meeting that the new field-based project would last four to five years and cover up to ten sites.

The team assembled this year will include fisheries specialists and be similar to the team working on the second phase of a linked project under the Water Utilisation Programme.

Members of that team - including hydrologists, geomorphologists, botanists, fish ecologists and social scientists - have completed their field work and are preparing predictions based on five flow scenarios. "These will allow countries to make a first consideration of the predicted costs and benefits of a limited range of hydrological scenarios," Dr. Campbell said. He also noted that the Mekong had a major emergence of insects between Kratie and Vientiane during the dry season. "How will that be affected by flow changes? How important is that for fish? Also, what are the triggers for spawning and migration for fish in the dry season? Will they change if dry season flow is changed? MRC Fisheries Program has about five years to answer those questions."



Ms Nyaim Vantha (right) is a fish vendor in Phnom Penh. Here she is presenting information about fish marketing at the MRC Fisheries Programme's Annual Meeting along with Ms Khay Dany from the Cambodian Department of Fisheries.

Joe Garrison

Co-management of Fisheries

The Food and Agriculture Organisation (FAO) wants fisheries co-management to become the prevailing practice of governments. Simon Funge-Smith, aquaculture officer from the FAO's regional office in Bangkok, told the meeting that the Asia-Pacific Fisheries Commission (APFIC) planned to draw up recommendations for co-management to be "more mainstreamed in national policy." Recommendations were expected to emerge from an APFIC workshop in Siem Reap in August. Often supported by donors rather than governments, APFIC says co-management is largely confined to scattered sites and in many cases fails after support is withdrawn. In a separate presentation to the annual meeting, staff of the Management of River and Reservoir Fisheries Component of the MRC Fisheries Programme said Cambodia's experience could provide a basis for developing government guidelines in the area. By 2004, Cambodia had 375 community fisheries registered including 45 organized by the management component. Other partners have included the FAO as well as Oxfam Australia's Community Aid Abroad (CAA) and Cambodia's Culture and Environment Preservation Association (CEPA).

WorldFish Center regional office

The WorldFish Center headquartered in Penang was planning to open a regional office in Phnom Penh in August. Eric Baran, research scientist with the WorldFish Center, told the annual meeting that the move aimed to improve the center's presence in the region. Dr. Baran said the center had 14 projects underway since 2001 in the basin, including capacity building at the Inland Fisheries Research and Development Institute (IFReDI) in Phnom Penh. It has also been involved in a separate project that looked at the legal and institutional frameworks associated with wetlands management, and economic valuation of resources and the environment in the four MRC member countries.

Further presentations

Oxfam America presented work on income security for subsistence fishers in the Lower Mekong Basin. IUCN-Mekong Wetlands Biodiversity Programme described initiatives that are underway to preserve the Mekong giant catfish. NACA described its work on genetics and biodiversity for resource management and animal health.

The 13th meeting will be held in Viet Nam in June 2006.

Joe Garrison



Delegates at the opening of the MRC Fisheries Programme's Annual Meeting in Siem Reap, Cambodia.

Mekong leaders agree to speed up regional agricultural cooperation



An initiative launched by the Asian Development Bank (ADB) in 1992 celebrated its 13th birthday in Kunming recently during a second summit of regional ministers. The next summit, in Vientiane, is scheduled for 2008.

Prime ministers from the six countries of the Greater Mekong Subregion (GMS) have agreed to accelerate cooperation in the agricultural sector and acknowledged that environmental degradation is a serious threat to the region. Meeting in the Chinese city of Kunming in July, the prime ministers of Cambodia, China, Lao PDR, Myanmar, Thailand and Viet Nam also agreed to reinforce efforts to develop energy and transport networks. In addition, they stressed the need for greater private-sector involvement in regional programs and stronger partnerships with academics and civil society groups.

"Agricultural development is essential to poverty reduction since poverty is largely a rural phenomenon," a joint declaration stated, calling for the early convening of a meeting of GMS agricultural ministers. "We pledge to accelerate cooperation in the agriculture sector, giving priority to farmers' livelihoods and ensuring food security for the poor through technical assistance such as the GMS agricultural information website." The declaration said the six countries would focus on cross-border aspects of agriculture, including trans-boundary animal diseases such as avian influenza. During the summit, officials from the GMS countries signed a memorandum of understanding on preventing and controlling such diseases which also include foot and mouth disease and swine fever.

A senior official from one GMS country said there was no mention of fisheries during the Kunming summit,

chaired by Premier Wen Jiabao of China. He said most of the talks on agriculture focused on animal diseases. It was unclear where and when an inaugural meeting of ministers of agriculture would take place, or whether or not fisheries would be on the agenda. Agriculture is a relatively new topic for the GMS. The agricultural working group was launched only in 2003, bringing the number of working groups and forums under the program to nine. At the time, fisheries was identified as one of four sub-sectors targeted for partnerships between the public and private sectors (along with forest and water resources, crops and livestock). The fisheries sector, however, is only indirectly covered in an initiative for "biodiversity conservation corridors" that was endorsed by GMS environment ministers in May.

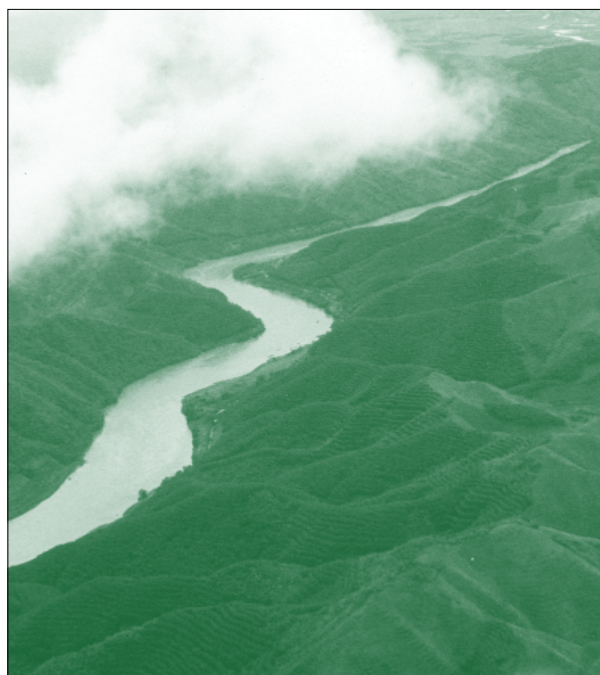
The Kunming Declaration stated that environmental degradation was among the "serious threats that call for greater surveillance" in GMS countries and that conservation along with the sustainable management and use of shared resources were vital to regional development. "We are determined to protect our natural environment and are committed to use our natural resources wisely," the leaders said, reaffirming environmental plans adopted by China and the Association of Southeast Asian Nations at the ASEAN summit in Vientiane last year.

In a separate statement, ADB president Haruhiko Kuroda said that GMS countries stood to benefit from "a myriad of investment opportunities" arising from increased cross-border trade. Kuroda described GMS cooperation as "the key to achieving an accelerated decline in poverty in the Mekong countries while embracing the principles of sustainable and equitable development." Since it was launched with ADB assistance in 1992, the regional economic program has carried out priority infrastructure projects worth US\$5.4 billion.

New Mekong conservation initiative stays out of the water



With the threatened loss of more than half the region's water and land habitats over the next century, all six Mekong countries are now taking action. An initiative developed by the Asian Development Bank involves several non-governmental organisations and other partners including the Mekong River Commission. But for now the initiative focuses on terrestrial species and has yet to dip into regional rivers.



Of five pilot-project sites in the new initiative, four are located in the Mekong Basin. One is located in the headwaters of the Mekong in China, while another three lie within the catchment areas of Cambodia, Lao PDR and Viet Nam. The pilot projects, developed by the Asian Development Bank (ADB), will begin in 2006. As well as conserving wildlife habitats, the ADB says the 10-year plan to develop "biodiversity conservation corridors" in the Greater Mekong Subregion (GMS) aims to improve water-related social issues such as water supply and flood protection. The initiative also seeks to promote the sustainable use of natural resources, although it does not cover fisheries.

In China, a pilot site is found in the Xishuangbanna conservation complex, a group of forests in the Upper Mekong Basin stretching through southern Yunnan province to the border with Lao PDR. The Cambodian site involves several wildlife sanctuaries and national parks in the Cardamom Mountains, an important catchment for the Tonle Sap. The Lao pilot project focuses on conservation areas in a major catchment for the Sekong and Sesan rivers which straddles Cambodian and Vietnamese territory. The nearby Vietnamese pilot project involves three nature reserves in the Central Annamite Mountains which includes the Sekong headwaters. Although they are not members of the Mekong River Commission, China and Myanmar are both dialogue partners.

The pilot projects are in five of the nine corridors designated by the ADB as high-priority conservation areas. All are located in the various GMS economic corridors that are emerging as new road networks connect China and Myanmar with the countries of the Lower Mekong Basin. The four other corridors are in

catchment areas of the Tonle Sap and the Northern Annamite Mountains as well as the dry forest plains that stretch from northern and eastern Cambodia into Lao and Vietnamese territory.

Part of a core environment programme endorsed at a meeting of GMS environment ministers in Shanghai in May, the initiative aims to address the urgent issue of "fragmented landscapes" caused by economic development. At their summit in Kunming in July, GMS leaders welcomed the initiative and a three-year action plan estimated to cost US\$10.9 million, with more than 70 per cent earmarked for GMS countries and pilot sites. In a joint declaration, the six prime ministers said the initiative would help conserve "terrestrial biodiversity" and protected areas in economic corridors as they develop.

As part of the broader core program, the ADB plans to set up an Environment Operations Centre in Bangkok with the World Wide Fund for Nature (WWF), the Swedish International Development Agency (SIDA) and the World Conservation Union (IUCN). Initially the centre will be staffed by a small number of international experts; government officials from GMS countries will be seconded at a later date.

The ADB says it plans to seek corporate sponsorship of flagship species in the conservation corridors, especially in Lao PDR and Viet Nam where hydropower stations are being built or planned. According to ADB vice president Jin Luqun, the private sector has already pledged almost US\$32 million to maintain and enhance Lao watershed services.

Threats to aquatic species

Although fish are missing from the initiative, it does include a few semi-aquatic creatures. In a strategic framework and technical assessment in May, the ADB said the Siamese crocodile, the Indochinese box turtle, the Chinese three-striped box turtle and the hairy-nosed otter were among globally-endangered species living in the corridors. But in an apparent reflection of the terrestrial bias of the initiative, endangered species that are fully aquatic - like the Irrawaddy dolphin and the giant Mekong catfish - are not included.

Still, the ADB report acknowledged that fisheries were among the region's "key" industrial sectors (along with energy, agriculture, tourism and transport) and warned that the development of GMS economic corridors would affect some of the

Mekong's catchments. "Conservation of the hydrological processes will be essential to maintaining the ecological communities and dynamics of the subregion," it said, stressing that numerous people depended on the river network and its resources. And the ADB also noted that as populations of large mammals disappear, the most visible trade in wildlife increasingly involves fish - along with small mammals, reptiles and plants.

If no action is taken, the report warned, the region will probably lose more than half its remaining aquatic and land terrestrial habitats over the next century - and a third of the habitats in the next few decades alone. The main threats come from over-exploitation of resources and loss of habitats along with rural poverty, new roads and other economic activities like dams. "The dams will have direct impacts on aquatic communities by disrupting flow regimes and blocking



spawning migrations and breeding of fish," the report states.

Among the five conservation corridors with pilot projects, the ADB noted that 19 dams had been mooted for the Mekong headwaters in China. In the border forest area of Cambodia, Lao PDR and Viet Nam, 13 have been built, are being built or have been proposed. Another five are within 10 kilometres of the area's boundary.

"Although not all will be approved and built, several will," the bank said. "Prior to building these, information about flows, sedimentation and the ecology of the river basins is needed." Five dams have also been mooted in the Central Annamite corridor of Cambodia and Viet Nam, with another two within 10 kilometres of the boundary. Three are also being considered in the Cardamom Mountains. In other corridors, five dams are either planned or proposed in the Eastern Plains dry forest corridor of Cambodia and Vietnam, with another six within 10 kilometres of the area. In the Northern Annamite corridor of Lao PDR and Viet Nam, eight dams are planned or at advanced stages and two are within 10 kilometres of the area.

While no dams are planned for the Tonle Sap corridor, the ADB warned that dams elsewhere in the Mekong Basin could alter the hydrological regime of the lake.

The clearing of wildlife habitat and conversion of lands for agriculture is a "significant" conservation issue, with increased fertilizer use and runoff into the lake adversely affecting fish and local people. Trees are cut to make fishing gear, including drift fences and fish traps, and fishing pressure is high because of intensive and even illegal methods. "Depletion of fish stocks cannot only deplete fish populations but also have cascading effects throughout the trophic structure of the ecosystem," the report warned.

The ADB and the United Nations Environment Programme (UNEP) worked with the IUCN and WWF in designing the initiative, which was mainly funded by a \$0.4 million grant from Japan. The Mekong River Commission is a collaborating partner and took part in the environment ministers meeting in Shanghai in May. Other collaborating partners include Birdlife International, Cat Action Treasury, the Chinese Academy of Sciences, Conservation International, Fauna and Flora International, the Nature Conservancy, the Western Forest Elephant Conservation Network, Wildaid, the Wildlife Conservation Society and the Xishuangbanna Tropical Botanical Garden.

Further reading:

www.adb.org/projects/gms-biodiversity



Peter Degen

Mekong Fisheries Index



Fisheries sector considers environment

Viet Nam News, 8 May 2005

Viet Nam's fisheries sector has set the target of producing 3.4 million tonnes of seafood and earning US\$4.5 billion in export turnover by 2010. Government spokesmen said to turn these figures into reality concrete actions had to be taken to reduce the degradation of the natural environment. Maintaining and upgrading aquaculture resources would maximise sustainable output. In recent years export turnover from the fisheries sector has risen from US\$205 million in 1990 to nearly US\$2.4 billion in 2004. However resources were dwindling and 37 species of fish, five species of shrimp and 27 species of molluscs were on the verge of extinction. The numbers of fishers had doubled and waters were being polluted by waste.

A fisheries project for and by the people

Vientiane Times, 18 May 2005

The Department of Livestock and Fisheries and the Worldwide Fund for Nature have signed an MOU to support the Community Fisheries: Supporting Food Security and Aquatic Biodiversity, or ComFish project in Lao PDR. The project will work with local communities on the ecological, social, economic and legal aspects of their fishing resources and will help them maintain the rich aquatic biodiversity by strengthening the existing institutional framework for community fisheries management.

Shrimp exporters ask for help

The Nation, 8 June 2005

The Thai Shrimp Association has urged the government to develop measures to boost shrimp exports to the United States after they plummeted 36 per cent in the first quarter. Somsak Paneetayasia, the association's head, attributed the sharp drop to Washington's imposition of anti-dumping duties on shrimp exported from Thailand.

Thailand to promote new fish exports

Thai News Agency, 12 June 2005

Thailand plans to develop a new fish for export in an effort to fight poverty, according to local government authorities. A memorandum of understanding (MOU) was signed between Thai agencies concerned and European fish importers in Thailand's northeastern province of Nakhon Phanom to jointly develop the "Pla Mong Fish" for export, as demand in the US and Europe is increasing. The market for "Pla Mong Fish" is growing because of its delicious white flesh and the prospects for export to Russia and other countries in Asia in the near future, a senior Agriculture and Cooperatives Ministry official told TNA. At present Vietnam is the sole exporter of the fish and earns around 1.7 billion baht from its exports annually, said the official. The fresh water fish is common in Southeast Asia and could be found in the Mekong River, she said.

Green weed hopes wither

Bangkok Post, 12 June 2005

Ban Hat Krai housewives in Chiang Rai's Chiang Khong district thank Mother Nature for the greenish weed, locally known as gai, in the Mekong River. Each year these housewives, who formed a cooperative group in 1999, earn about 250,000 baht from selling products made from the weed, including chilli paste, weed snack and dried weed. The gai-based foodstuff is increasingly popular. However, they have started to worry that gai will soon disappear from the river due to ecological problems, which they believe are caused mainly by dams in China. The housewives, who usually collect the weed from March to June, believe dam runoff is wiping out the plant from the river. This year, they found only torn and limp wet shrub, filled with river mud, instead of the stretchy, resilient weed as before.

Cambodia's Tonle Sap lake spawns record fish haul in 2004-2005

Agence France Presse, 13 June 2005

A fishery in Cambodia's Tonle Sap, the largest lake in Southeast Asia, yielded its highest catch in 2004-2005 since records began a decade ago, the Mekong River Commission said. The results surprised researchers,

the MRC's Chris Barlow told AFP on Monday, as they reversed a dramatic fall the previous year which had alarmed experts because the lake's fish are a crucial source of protein to many Cambodians. "It was quite surprising, it's quite a turnaround. We cannot explain why it is so big, however it is an extremely pleasing result," said Barlow, who is manager of the MRC's fisheries programme. "Last year, at that stage we were quite concerned." The catch from the Tonle Sap's so-called dai fishery, a collection of 65 nets, soared to more than 16,000 tonnes, nearly three times the year's previous haul, according to an article in the MRC's newsletter.

Cambodian experts query record upbeat assessment of Tonle Sap fishery

Agence France Press, 14 June 2005

Fisheries experts queried an upbeat assessment of a fishery in Cambodia's Tonle Sap, warning that fish stocks were still much lower than the past. The Mekong River Commission said in a report published this month that one of the Tonle Sap's stable fisheries had yielded its highest catch in the 2004-5 season since it began keeping records a decade ago. Mak Sithirith, director of the Fisheries Action Coalition Team, a group of non-government organisations working on fisheries and environmental issues, said the overall weight may have increased but they were mostly small fish. He also said illegal fishing remained a serious threat to fish stocks, with culprits favouring contraptions using electrical currents to stun fish.

Catfish farmers sink not swim

Vietnam New Agency, 14 June 2005

With the current price of VND10,000/kg, tra and basa farmers in An Giang Province suffered losses of VND250bil per 100,000 tonnes of catfish harvested in the first half of the year. Catfish prices have slipped VND2,500/kg compared to the highest level in 2004. Farmers in An Giang Province alone suffered losses of VND250bil on 100,000 tonnes output in the first half of the year, approximately equivalent to 125,000 tonnes of rice. This is the third time An Giang and greater Mekong River Delta farmers have been affected by price decreases since catfish anti-dumping lawsuits began being filed in early 2003.

Cambodia to track Mekong Catfish

BBC News, 15 June 2005

Four giant catfish, which were raised for seven years in captivity, have been released into the wild in a ceremony in Cambodia. Scientists tagged the fish so they can follow their behaviour and try to find out why their numbers have been declining. The fish, which

weigh about 110 pounds each and measured nearly 5ft long, will hopefully reproduce after they are returned to the Mekong River.

Lack of funds threatens giant catfish

Bangkok Post, 2 July 2005

A lack of funds has threatened a move to persuade fishermen in this northern fishing hamlet to stop hunting the rare freshwater giant catfish, a local conservationist has said. Niwat Roykaew of Rak Chiang Khong, Chiang Rai's conservation group, said while it is agreed that fishermen should have new options to make a living, no alternative programmes could be started due to a lack of money. He said funding proposals to the province have so far been unresponsive. "We must help the villagers to have new options. Hunting giant catfish is not just a matter of the environment, it is concerned with culture as fishing skills are part of local tradition," he said. While fishermen in other areas have stopped hunting for the fish, Ban Had Krai fishermen still continue to do so.

**Fish whopper: 646 pounds a freshwater record
Researchers cite Thai catch to stress extinction dangers**

MSNBC, 29 June 2005

Thai fishermen netted a catfish as big as a grizzly bear, setting world record for the largest freshwater fish ever found, according to researchers who studied the 646-pound Mekong giant catfish as part of a project to protect large freshwater fish. Project leader Zeb Hogan said his team had confirmed that this catfish is the current record holder. Hogan is a fellow at the World Wildlife Fund, which is partnering with the National Geographic Society in a study of giant freshwater fish. The project includes two dozen other species, including the giant freshwater stingray, the dog-eating catfish, the dinosaur-like arapaima, and the Chinese paddlefish. The Mekong giant catfish was caught and eaten in a remote village in Thailand along the Mekong River. Local environmentalists and government officials had negotiated to release the fish so it could continue its spawning migration in the far north of Thailand, but the adult male died.

VNGO: Land clearing by river endangering fish

Cambodia Daily 16 July 2005

Increased land clearing along the Mekong and Tonle Sap rivers, as well as the Tonle Sap lake, is putting Cambodia's fish population at risk, according to an NGO official. Mak Sothirith, Executive Director of the Fisheries Action Coalition Team said he and other FACT officials were worried that much forested land along the lake and two rivers was being cleared by farmers looking for new land to plant rice during the

dry season. The forests become flooded during the rainy season and provide a seasonal habitat for Cambodia's fish population, much of which is swept down the Mekong and up the Tonle Sap.

ADB Supporting research on inland fisheries in Cambodia

ADB website, 18 July 2005

The ADB will support further capacity building of Cambodia's Inland Fisheries Research and Development Institute (IFREDI), to help promote the sustainable management of the country's inland fisheries, through a technical assistance (TA) grant approved for \$300,000. Cambodia's inland fisheries are the fourth most productive in the world in terms of total freshwater fish catch. The TA will build further the ability of IFREDI staff to disseminate research findings by accelerating technology transfer, support more research and development, and strengthen policy development and dialogue.

Vietnamese catfish just taste better, US studies find

Bangkok Post/AP, 20 July 2005

Vietnamese basa catfish may be tastier than the channel cats farmed in the United States, according to studies comparing the two. The basa were preferred in a taste test 3-1, said researchers at Mississippi State University. The studies were begun in 2002 at the height of the "catfish" wars, when US catfish farmers described basa as inferior catfish that were flooding the market. The researchers tested frozen imports against frozen farm-raised channel catfish from local grocery stores. When it came to aroma, taste, texture and overall liking three quarters of the 58 untrained testers in the blind tasting preferred the basa.

MRC members discuss future of the Basin

MRC Press Release, 30 August 2005

The Mekong River Commission's work in the Lower Mekong Basin was well advanced and the time had

now come for the MRC to adopt a new Strategic Plan that would set its path for the next five years, H.E. Mr Sitaheng Rasphone, Chairman of the Mekong River Commission Joint Committee for 2005/2006 said in Vientiane 29 August. He told the meeting that several of the MRC's established programmes (such as the Basin Development Plan and the Water Utilisation Programme) were at key stages of operation and that the MRC had recently welcomed the implementation of a new Flood Management and Mitigation Programme and the introduction of a new Hydropower Programme. It was an appropriate time to discuss the future and strengthen the spirit of trust and cooperation between member countries. Mr Sitaheng said the organisation's finances were solid. Several new funding arrangements with donors had been signed this year and contributions from member countries had increased. The MRC was also moving towards international standards in data collection and information management.



Published by the Mekong River Commission Secretariat

P.O. Box 6101, 184 Fa Ngoum Road, Unit 18, Ban Sithane Neua,
Sikhottabong District, Vientiane 01000 Lao PDR

Phone: 856-21-263 263 **Fax:** 856-21-263 264

Website: www.mrcmekong.org



Mekong River Commission

P.O.Box 6101, 184 Fa Ngoum Road, Unit 18, Ban Sithane Neua,
Sikhottabong District, Vientiane Lao PDR

Telephone: (856) 21 263 263 **Facsimile:** (856) 21 263 264

E-mail: mrcs@mrcmekong.org

Website: www.mrcmekong.org
