
Fisheries in the Mekong River

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Principles: 1) Environmental degradation, not capture fisheries, is the major threat to biodiversity in rivers, 2) healthy fisheries are the best catalysts for preserving overall riverine biodiversity.

Experience: Six nations are heavily utilizing the rich Mekong riverine biodiversity, primarily via small-scale fisheries.

Most important lesson learned: Cross-sectoral management, especially of habitat effects, is imperative where fisheries do not pose the major threat to biodiversity

Best practices: 1) 1995 Mekong River Agreement, 2) World Commission on Dams review, 3) the fishing “lot” system.

The Mekong River is an integral part of the life of almost the entire population of the basin, which includes China, Myanmar, Lao PDR, Thailand, Cambodia and Viet Nam. Its freshwater fishery is arguably the most productive in the world. Fish diversity of the Mekong, per unit area of catchment, is roughly three times that recorded for the Amazon River basin, and is well in excess of that normally associated with coral reefs. The number of fish species in the Mekong basin is current estimated at 1,200, and there is probably a high degree of within species diversity.

Much of the industrial/commercial fishery is based upon exploitation of fishes migrating in response to receding floodplain waters. Practically all species are targeted in the Mekong fishery. River fisheries are exploited largely by local communities and true “open access” fisheries rarely occur. Traditional systems for managing access and effort are widespread. Consequently, community-based management systems are better developed. Part-time fishing is the norm and is invariably mixed with agricultural activities. Average catches per fisher tend to be low, but participation is very high. There are no known direct or indirect economic government subsidies provided for the Mekong fishery.

The Mekong fishery is still dominated by smaller gears operated by individuals. At least 80 categories of gear have been identified in Cambodia alone. The net result is a very high participation in the fishery, with recorded involvement ranging from 64 to 93% of households. Survey findings indicate that, contrary to the common myth, the fishery can not be easily divided into its “commercial” and “subsistence” elements. Catches, especially of the higher value fish, are usually preferentially sold, but catches of smaller lower value fish significantly support household food security.

The “dai” fishery, prominent in Cambodia and Viet Nam, is based on a form of static trawl fixed by stakes in the river. During peak times a single gear in these “bagnet” fisheries can land up to 0.5 tons of fish per 15-minute haul. Other spectacular gears include the large barrage systems, in which fish are directed towards various forms of capture devices.

In the Cambodia and Thai Mekong a fishing “lot” system operates whereby most of the best fishing grounds are allocated through auction. Lot “owners” possess not only the fishing rights to their area, but also act as stewards. The owners protect their lots and enforce their regulations by the use of small local militia.

Although it is more prominent in some areas than others, aquaculture is currently dwarfed by the capture fisheries sector. The motivation for aquaculture, as with the fishery, tends to be profit rather than food.

The role of fisheries in conserving biodiversity

Development in the basin usually results in the simplification or obliteration of ecosystem diversity. Only by considering fisheries is there any realistic hope that these impacts can be moderated. Without the fisheries, managers across sectors have limited incentive to sustain the aquatic habitats upon which fisheries, and hence biodiversity, depend. Since the fishery exploits most of the available aquatic biodiversity, threats to fisheries and biodiversity are largely inseparable.

The Mekong fishery demonstrates that it is not necessary to use elaborate hypothetical arguments for sustaining biodiversity, because that diversity is demonstrably of immense immediate and tangible importance. Promotion of the concept that fisheries are generally damaging to biodiversity will reduce motivation to support the very sector that provides the clearest justification for improved management.

In general, individuals, communities, and government agencies in the fisheries sector in the Mekong do not distinguish between the management of biodiversity and fisheries. The direct impacts of the fisheries sector on biodiversity include the use of destructive fishing gears, exploitation of vulnerable life history stages and fishing activities in sensitive areas or times. Introductions and transfers of living aquatic organisms also affect biodiversity, through aquaculture and the inter and intra-drainage transfer of water. The movement of exotic species and strains for aquaculture is perhaps the major threat to biodiversity in the Mekong originating within the fisheries sector.

The major threat to biodiversity in river fisheries is environmental degradation. Development-related impacts from outside the fisheries sector include destruction of local spawning grounds or dry season refuges by habitat alteration, local changes in the quality and quantity of water in sensitive habitats and the timing of local hydrologic events, and the construction of barriers (dams, weirs, diversions etc.).

Status of fisheries

There is no evidence to support the widely held view that the fisheries, in terms of gross production, are declining. The limited data available, in fact, support the view that total catches have been maintained and are quite possibly increasing. What is generally accepted is that there are serious declines in the stocks of certain species. There are signs that this is already happening to the Tonle Sap fishery where the larger migratory species have declined significantly. Generally though, species like the giant fishes are still fairly regularly caught. This suggests that the Mekong fishery remains in reasonably good shape, and that it is worth investing in its proper management.

Nevertheless, adverse changes in Mekong fish biodiversity are undeniable. The underlying cause, however, is far from clear. Fishing pressure is certainly increasing but environmental changes are occurring even more rapidly. Even where the effects of fishing are more obvious, it is not known if other factors have exacerbated the situation. Whatever the theoretical limits of fishing pressure, it is obvious that the resource cannot withstand the combined impact of high fishery exploitation levels and environmental degradation.

Management

Biodiversity as such is still not firmly on the agenda of most fisheries management agencies, although there are a number of examples where fisheries management is aimed at biodiversity concerns. These include a recent ban on the use of dais for juvenile catfishes; widespread bans on the use of destructive gears; restrictions on fishing effort by gear type, location, season, method of deployment etc. and, rarely, restrictions on harvesting certain species, notably giant catfish. By and large, experiences with these government-imposed restrictions suggest they do not work effectively, except for the larger, easily monitored gears.

Community based management initiatives are relatively widespread in the Mekong. Many are aimed at migratory species. However, there are few case studies showing whether these initiatives actually succeed in sustaining biodiversity.

In terms of fisheries regulations and legislation, the picture in the Mekong is much the same as elsewhere. Top-down, government centered approaches generally fail to be effective. Management in the Mekong has generally failed to take on the greatest need of all – a cross-sectoral approach. Unless communities can manage influences from other sectors, these important fisheries can be considered highly vulnerable, if not doomed. At the level of environmental management, activities in the basin are conspicuous for their absence of examples of good practice.

Best practice

In 1995, the four countries of the lower Mekong Basin (Cambodia, Lao PDR, Thailand and Viet Nam) signed a comprehensive water and related resources sharing agreement based on the

principle of sustainable development. Conserving biodiversity is implicit within the concepts adopted. The Agreement presents an opportunity to implement existing international agreements, guidelines or codes including the Convention on Biological Diversity, Convention on Migratory Species and the FAO Guidelines for Responsible Fisheries.

One of the World Commission on Dams (WCD) study sites was in the Thai part of the Mekong where impacts of the dam upon local fisheries were particularly apparent. Recommendations of the Commission included a sustainable livelihoods approach, as opposed to the more usual formal economic “cost-benefit analysis” criteria applied to investment decisions. This is considered to be a major leap forward in natural resources management, especially as the World Bank has endorsed the WCD report.

Perhaps the most interesting example of “best practice” in the Mekong is the fishing lot system of Cambodia and Thailand. The extent to which “owners” manage their operations for sustainability is debatable, but a move towards longer-term, perhaps transferable, leases should promote moves in that direction. The social problems that the system may cause, such as the exclusion of the poor from resource use, need to be addressed.

A final example of progress in management approaches in the Mekong is the relatively successful use of local ecological knowledge in research and policy formulation.

