

Thanlwin-Nu-Salween Estuary: Threats Challenging Brackish Water Fisheries

Key words

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Policy Pointers

Management of illegal fishing activities through the observance and implementation of laws by local and national government

Capacity building and information sharing for both local communities and development stakeholders through institutionalization of a community-based resource management system

Regulations for commercial sand collection to reduce and minimize environmental effects on soil and erosion

Proper implementation of EIA's and SIA's in all development projects



Fishing on the Thanlwin River Estuary (Credit: Dr. Cherry Aung)

The Thanlwin/Salween River originates in China, where it is known as the Nu (angry) River and flows south into Myanmar, then eventually Thailand. It meets with two rivers (namely the Gyine and Attran Rivers) at the point of Mawlamyine and together discharge into the sea (Gulf of Mottama) by two channels (namely the Mawlamyine and Dayebauk Rivers). These four Thanlwin tributaries are experiencing daily tidal intrusion and freshwater discharge, forming estuarine environments and habitats for varieties of fresh, brackish and marine creatures. The term estuary refers to a mixing body of fresh and sea waters. The Mon and Kayin ethnic groups are dominant around the estuary and the riparian communities largely depend on fisheries within the river tributaries as well as those out at sea for their livelihoods and survival.

Declining fish stock and catches within the estuary and out at sea have had deep impacts on community livelihoods, ecology and socio-economics within last ten to forty years. Encouraging the reduction and management of the natural and anthropogenic threats might encourage specific ways to improve the fishery status of the estuary.



Drift net fishing for Coitor Croaker in the Gyine River (Credit: Dr. Cherry Aung)

Depleting fish populations challenge the local fishery community at Gyine River (Case Study: Kayar Village)

Gyine River originates from Dalna Hill and flows west to join with Thanlwin River near Mawlamyine and together discharge into the sea. The sea water encroaches as a deep layer up to the Gyine Village in non-monsoon season and up to the Kaulamu village in monsoon season.

For many decades, the Gyine River was well known for its high catches of fish and was of great value to the local community. The recent status of the fisheries and thus the livelihoods to the people living along the river, with Kayar Village being used as a case study area, has been investigated for this research. Kayar village is located near a place suitable to catch a variety of fresh, brackish and marine fishes, depending on the season. Fresh water prawns, Nga Kyin (Carp), Nga Phar Ma, Nga Oke Phar and other commercial fresh water fish come down to this area from upstream.

Inland and near shore fisheries are more important for poor communities, especially for rural river populations, due to its low investment costs and stable food security provisions. The degradation of fishing grounds and fish populations are now causing problems in many river systems. The use of illegal fishing, illegal techniques, overexploitation by the use of high-powered fishing boats with modernized gears and habitat loss caused by construction projects are all the major problems.

As the estuary is in balance with rhythmic up and down flows of fresh and sea water, these changes create substantial threats to 70 species of fresh, brackish, and marine fish observable in the estuary. Nga Pone Na (Paradise Threadfin) and Nga Pyat (Coitor Croaker) are the important commercial fishes found around the estuary. Unfortunately, within the past ten years, local communities are facing the problems of yearly depletion of fish catches around these areas. Some species are on the verge of complete disappearance, some commercial species have become rare and some are now totally vanished from the area, causing most of the fishermen to only catch the fish for daily consumption.

Both regional and national government are now trying to manage the illegal actions being undertaken on both inland and coastal marine fisheries. An official spawning period of fish between June to August has been announced by the Department of Fisheries in order to prevent fishing by the locals, helping fish populations recuperate their numbers.

However, Nga oke phar disappeared more than five years ago. According to local information, one of the locally important marine commercial fishes, Nga Tha Lauk (Herrings) has almost disappeared from the river and Arius (Giant catfish) is now officially gone. Nowadays, fresh water fishes from upstream rarely come down. Marine and brackish fishes also rarely arrive with tidal water surges to the village area.



Map containing the locations of the four villages used for case studies at the Thanlwin River Estuary: 1) Kayar village; 2) Kyone Sein village; 3) Kau Mu Pon village and 4) Khin Tan village (Credit: Cherry Aung)

Fishing efforts in the Attran River (Case Study: Kyone Sein village)

The Attran River starts from the inner region of the land and discharges into the Gyine River near Mawlamyine; sea water enters into the river at its mouth. Many of the mangrove plants (*Sonneratia caseolaris*) grow along the banks of the river which is common in sea water intrusion. Kyone Sein Village in Attran River is well known for its high catch in fresh, brackish and marine fish species. Almost all the fish species and the important seasonal commercial species are similar with those that are found in Kayar Village.

According to the local community, the major cause of depletion of fish within the Gyine and Attran Rivers is overfishing by Damin Kyar across the river using small mesh-sized nets, illegal fishing using poisons, which cause high motility of shrimps and creeks fishes, illegal fishing by baby trawls and fishing in spawning season at the inner region of the channels. Local people from these two rivers said that the fish catches started to become rarer 10 years ago, especially after the construction of the Thanlwin Bridge.

However, illegal fishing is controlled by law by an authorized person of the village, the ethnic group of Mon National Society Party, Kayin National Union(KNU), Mon Peace and Defense Party co-management with the Department of Fishery. Nowadays, illegal fishing can be managed in some regions by the local people, migrants and ethnic rebels. Because of these illegal activities, every year, the river does not yield fish from June to August. Nowadays people rarely depend on fisheries, paddy fields and gardens for their livelihood in these areas as most of the people now depend on income from abroad. Only some old and young men are still in the village depending on these types of economic activities.



The important commercial fish (Coitor Croaker) in the Thanlwin River Estuary (Credit: Cherry Aung)



Small scale fishery in the Thanlwin River Estuary (Credit: Cherry Aung)

Physical processes affecting the livelihoods of local communities around Khin Tan Village on Dayebauk River

The Darebauk River is also well known for its high productivity of fishery resources over the last decade. It starts from Mawlamyine and flows down to discharge into the sea. About 37 species of marine and brackish fishes are found here. The fisher folk catch the fish not only from the river but also from the sea. However, in the last ten years, the fishery industries have also declined here. Because of this, the economy of the local residents or migrant people who depend on fisheries have changed and this has become the biggest recent issue to the people of the area. The local people believe that over-exploitation, high sedimentations, the effect of tsunami, changing of water direction, modern fishing techniques, which have all changed the fishing grounds, are the major causes of depletion of fish species. Depending on the situation, the local people change their livelihoods to gardening, agriculture and other businesses.

The Ministry of Fisheries announced a “no fishing” period for three months (from May 5 to the end of July) in order to prevent the further decline of fish stocks in the river and from June 1 to end of August for offshore fisheries in the sea. Moreover, the protective areas for lobsters and fishes have also been marked. The Mya Sein Yaung project, under the Livestock, Fisheries and Rural Development Ministry, is now supporting micro-finance for local people with a cooperative system, implementing livestock, fisheries, agriculture, electricity, produces and other vocational projects (Naing, 2015). Evidently, the local community now depends on the mudflat fishery, which has caused the gradual erosion of land and village loss. The local people have to move to other locations where there is enough sediment accumulation in the land.

Massive erosion at the mouth of the Mawlamyine River (Case Study: Kau Mu Pon Village)

The Mawlamyine River starts from near Mawlamyine and flows south to discharge into the sea at Kyeikkhame. Brackish and marine fishes were caught in the river and the high catch fishing grounds were located in the upper region of the river especially, in the area between the new bridge and Thanlwin Bridge. However, the new bridge is going to be built near the Kanyaw Village across the Mawlamyine River.

Local people said that the fish catch degraded after Thanlwin Bridge had been built ten years ago and they believe they it will worsen after the new bridge is built as the sediment will greatly accumulate between the two bridges. They also said that erosion happened at the bank of the river after the bridge was completed. As they face the problem of depleted fish catches in the river, they are forced to change their livelihoods. Some fishermen leave fishing and change jobs and some people try to catch fish from the outside the river in the sea but it is very far from the village and it takes time to do so. However, the decrease of fish catches is also observed in the outer estuary.

How can threats be reduced?

The inner estuary is under the Fresh Water Fishery law which is governed by the regional government. The law covers illegal fishing methods by use of poison, catching spawning fishes within the ban period, illegal fishing by using large gear and nets along the rivers and the use of bottom trawls. The



Massive eroded river bank of Mawlamyine river (Credit: Dr.Cherry Aung)



Formation of sand bar at the mouth of the estuary (Credit: Cherry Aung)

outer estuary is under the Marine Fishery law by the national government and covers illegal fishing and illegal gear usage. The local government should be encouraged to improve the community researches on fish behaviors and estuarine processes, which is to reduce the high sedimentation at the point of the rivers and channels. This will improve the fish population in the estuary and help to predict in advance the effects of any disturbances to the estuarine, such as the state of fresh and salt water inundation.¹

Policy Recommendations

To be able to address the numerous threats concerning the livelihoods of the local people, the following policy actions are needed to be done by the local and national governments:

- ❑ Regional and national government need to systematically enforce its current laws and regulations on fisheries, needed to manage any illegal fishing activities.
- ❑ The national government needs to contribute to building the engagement capacity of local communities and local ethnic groups to support awareness of the law on fisheries.
- ❑ The national government needs to improve its project development on fisheries to build research and knowledge transfer to the local communities.
- ❑ A community-based resource management system should be institutionalized by the national government so that local people are directly engaged in the process.

- ❑ The national government needs to strengthen its decision-making activities with evidence based-research to control the out of balance of estuarine environments that will affect estuarine resources.
- ❑ Private, commercial sand collection by boats along the rivers should be regulated by giving limited licenses dependent on the condition of sedimentation and erosion on the river banks.
- ❑ Overexploitation by use of large fishing boats with high power gear (Bon Gyaung) should be managed by controlling the frequency of fishing activities as this is the major cause of depletion of fish populations.
- ❑ The government should be aware of the negative effects of any construction work in the rivers which disturbs the fishing grounds and environment. Proper implementation of EIA and SIA which includes meaningful consultation with the local people should be conducted before any development project are constructed in the area.

Knowledge Products

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¹ For more information on the subjects discussed in this brief, please visit the *Mekong, Salween and Red Rivers: Sharing Knowledge and Perspectives Across Borders* at <http://bit.ly/2ykDz1f>.

References

- Grill G., et al. (2015). *An index-based framework for assessing patterns and trends in river fragmentation and flow regulation by global dams at multiple scales*. Environ. Res. Lett. 10; 015001
- Marschke, Melissa, (1973) *Life, fish and mangroves: resource governance in coastal Cambodia*. Melissa Marschke (Edt.) 2012, University of Ottawa Press. Governance series, 1487-3052; 28. ISBN 978-0-7766-0772-6
- Naing, N. H. (2015, November 5). *Union Minister U Ohn Myint needs to answer*. Retrieved 2017, from Opinion: <http://www.elevenmyanmar.com/opinion/union-minister-u-ohn-myint-needs-answer>



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