

# Namibia's river

# fisheries in crisis

*Namibia is well-known for its highly productive sea fisheries, thanks to the nutrient-rich water of the Benguela Current that sweeps north along the country's coastline. Understandably, because of their economic importance to the country, a lot of fisheries management emphasis is on these marine fish stocks.*

By Denis Tweddle, Project Coordinator – NNF/EU Community Conservation Fisheries in KAZA Project

In contrast to the sea fisheries, there is much less public awareness of the vital role the inland river and floodplain fisheries in the north of Namibia play in terms of food security and livelihoods for the majority of the country's rural population, including some of the poorest communities in the country.

Three major perennial rivers in the north east of the country, the Kavango, Kwando and Zambezi, all support major fisheries. Further to the northwest, the Cuvelai River flooding south from Angola feeds a remarkable series of shallow, seasonally inundated

depressions called oshanas; in higher rainfall years these reach the famous Etosha Pan with its rich wildlife concentrations. These temporary waters support thriving short-lived fisheries, mainly for juvenile catfishes that come down with the floodwaters from Angola.

In terms of tonnage, freshwater fish yields in Namibia are relatively low in comparison with the sea fisheries. With sound management, however, potential production is about 5,000 tonnes a year of high quality animal protein. This is therefore an incredibly important resource for food security

for the local communities and shows the significant human dimension of the fisheries. Despite their importance, these freshwater fisheries have in recent years suffered serious declines due to increased, uncontrolled exploitation using environmentally destructive fishing gear. Increased commercialisation of the fishery and uncontrolled inward migration of fishers from over-exploited fisheries elsewhere in the region have created a nightmare situation for the local communities and the fisheries authorities responsible for management of the resources. These



*Mikolo (dugout canoes) at a fish landing on Lake Liambezi.*



Research sampling on Lake Liambezi.

problems are exacerbated by the fact that, for much of their courses, these rivers form boundaries with neighbouring countries. The Zambezi River is the border between Namibia and Zambia over its approximately 150 km length, while the Kavango forms the border with Angola for about 350 km and then enters

Botswana. With different fisheries management systems and regulations in each country, this makes effective management difficult.

The problem faced by Namibia's inland fisheries is a classic example of the "Tragedy of the Commons". When a common resource, such as a fishery shared between two countries,

is open to all, the inevitable result is an increase in exploitation, particularly when associated with a rapid increase in human population. This results in declining catches for individual fishers, even though the total catch may initially increase. In order to maintain their catch rates, individual fishers increase the amount of nets they use, leading to a further decline in catch rates, a decline in total catch, and a switch to highly destructive fishing gears.

There is a direct link between the fisheries collapse in the Zambezi River and the introduction of fishing nets made of monofilament nylon in the late 1990s. Monofilament nets are made of single strands of transparent nylon and replaced the previous multifilament (string) nets. Monofilament nets are on average three times more effective than multifilament nets, so even if the overall

number of nets in use remains the same, fishing effort is tripled in fisheries that were already fully exploited using the less effective gears. Monofilament nets have had a number of negative impacts. Initially, the monofilament nets allowed had large meshes, which had the unfortunate effect of targeting the breeding stocks of the large cichlid species (mainly tilapias). Another destructive innovation was the use of drifting gillnets down the main river channel, rather than the previous method of setting them in a fixed position overnight. Fish are driven into the path of the net by beating the water and the riverbank where the fish shelter. As the large fish have been effectively fished out, increasingly smaller meshes are now used to catch the remaining smaller fish.

Yet another problem with monofilament nets is that, as they are cheaper and have a shorter life span than multifilament nets, they are simply discarded by fishers when damaged or worn. The river is full of abandoned nets that continue to "ghost-fish" for months, if not years, while nets abandoned on land trap and kill or wound terrestrial wildlife such as birds, lizards, snakes and small mammals. Even hippos have been seen entangled in such nets, and a hippo injured by the twine can become a very dangerous animal. A complete ban on the importation and use of monofilament nets in Namibia's rivers is urgently needed.

In addition to the monofilament nets, fishers are also increasingly turning to environmentally damaging fishing gears, such as long dragnets made of shade cloth, lined with cotton cloth so that nothing can escape. In Zambia, these are called sefa-sefa



Preparing monofilament nets for a night's fishing.

(sieves), a term that gives an apt description of what these nets do.

What can be done to reverse this desperate situation? Government fisheries departments in Africa are handicapped by a lack of capacity in human resources, finances and infrastructure, especially when one takes into consideration the scale of the fisheries (e.g. in Namibia, the combined floodplains of the Zambezi, Chobe and Kwando/Linyanti river systems and Lake Liambezi have an area of over 4,000 km<sup>2</sup>). Unfortunately, there is an unrealistic expectation in many fishing

communities that the government will be fully responsible for managing the fishery and controlling fishing methods. Because of this, communities hesitate to take initiatives themselves.

The Namibia Nature Foundation (NNF) has a long-term programme, in partnership with ministries and other organisations, to address the situation. One of these organisations is the Kavango Zambezi Transfrontier Conservation Area (KAZA), the world's largest transfrontier conservation area, which encompasses the riverine landscapes in which the

Use of a sefa sefa in a floodplain lagoon. Nothing can escape the cloth lining.

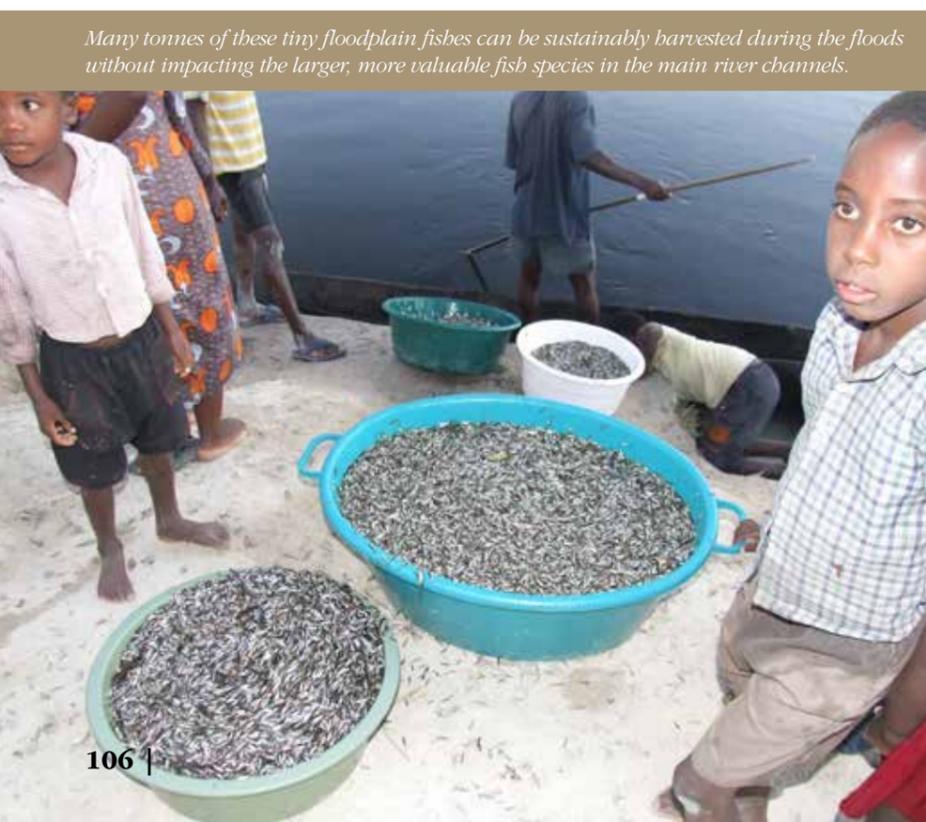


Women and children fishing for tiny, highly prolific, floodplain fish species during the floods, a very valuable source of animal protein.





MFM and project scientists collecting data on fish catches from Lake Liambezi.



Many tonnes of these tiny floodplain fishes can be sustainably harvested during the floods without impacting the larger, more valuable fish species in the main river channels.

NNF fisheries projects operate. The current NNF EU-funded project, Community Conservation Fisheries in KAZA, aims to encourage and empower local communities in the KAZA area to take responsibility for managing fishery resources sustainably. Through this project, and supporting research programmes, the factors that have caused the Upper Zambezi fishery to collapse have been identified. Communities tend to lack understanding of the biology and ecology of fish and fisheries. Therefore, the NNF/EU project is establishing community awareness programmes to share its information with fishing communities and to provide advice on the management measures that can be implemented by the communities themselves, ideally without needing much support from higher authorities.

Throughout the world, Marine Protected Areas (MPAs) are increasingly used to protect fish breeding stocks. In most cases, their effectiveness has been demonstrated by improved catch rates by fishers in the adjacent, unprotected areas. Through the information provided by the NNF projects, this approach is increasingly understood by the Zambezi fishing communities, and the concept of Fish Protection Areas (FPAs) is being adopted and, importantly, understood by the communities. Two pilot FPAs have been established by Namibian communities, one in Sikunga Conservancy and another in Impalila Conservancy. In a major success last year, at the request of the conservancies and with the Minister of Fisheries and Marine Resources (Hon. Bernard Esau) having taken a direct interest, the FPAs were formally designated as "Fish Reserves" by the Namibia Government.



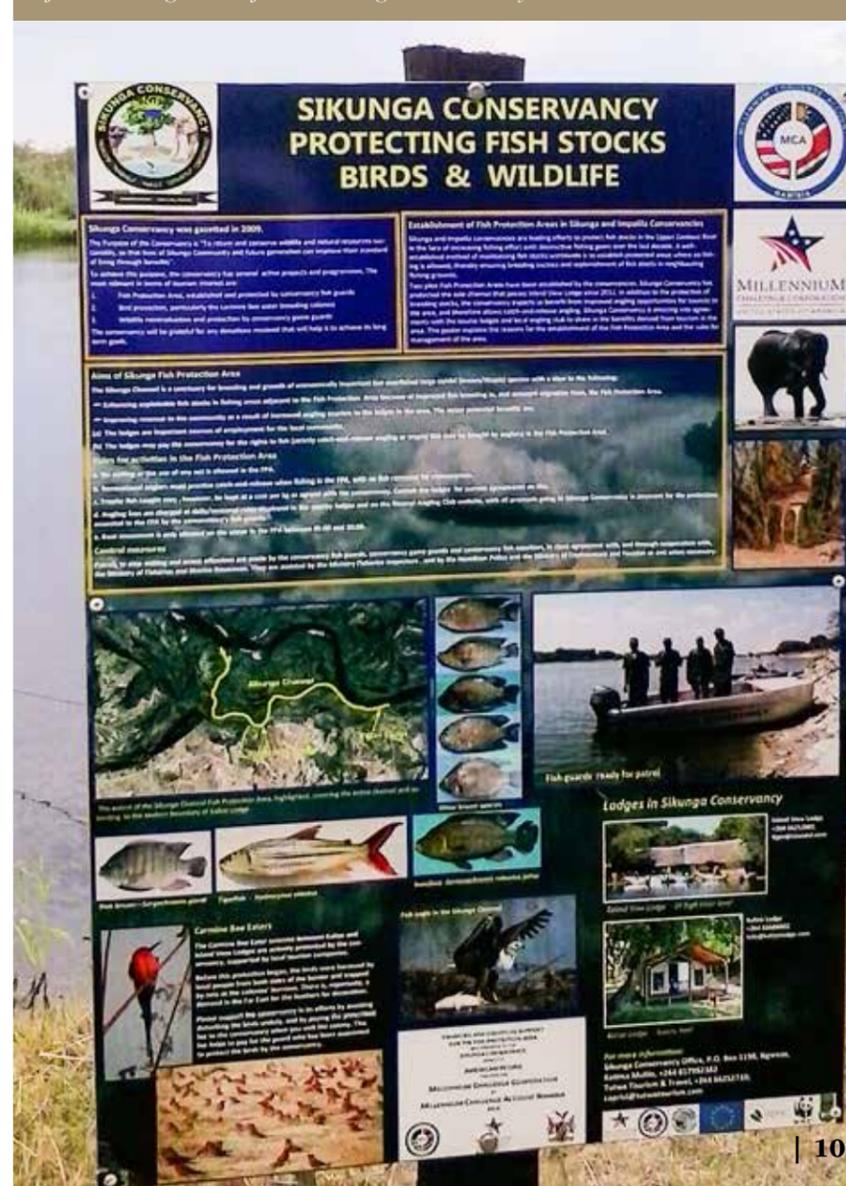
Fish are not just for human food, many birds are also dependent on fish and could be affected by declining stocks, such as this fish eagle with a large tigerfish.

inhibiting animals crossing, less risk of animals such as hippos attacking fishers in their dugout canoes, and less risk of wildlife getting entangled in nets and drowning or suffering injury.

Employing guards to monitor FPAs requires funding and can be difficult to implement where there are no formal community structures, such as conservancies with sources of income. At present, fishing licences are issued by government and the communities receive little to no benefit. But there is hope as communities, government and NGOs work towards finding ways to devolve responsibilities and include

Each of the protected river channels is over 12 km long and together they represent a major commitment to protecting the breeding stocks. Trained guards are employed and paid by the conservancies to keep fishers out. In addition, the guards ensure that fishermen in the conservancies as a whole are obeying the government fishing regulations. Among the fishing communities, the reaction to the FPAs has been generally positive, and other communities are now coming forward with proposals for their own FPAs. In Zambia, some communities have developed similar plans and only await support for implementation of a network of protected breeding areas. A major emphasis of the project is also working with KAZA to identify sites for FPAs where wildlife corridors are established to allow free passage of wildlife between countries across their riverine borders. Establishing FPAs in such corridors has multiple benefits in addition to protecting fish breeding stocks. There is less human disturbance

Information signboard for the Sikunga Conservancy's Fish Protection Area.



organised community structures (such as conservancies) in licensing and managing fisheries. The income from licensing would enable them to manage fisheries locally through cooperation with government departments and restrict fishing to sustainable levels. Once communities are empowered and develop the confidence to manage their fisheries, the burden on central government fisheries organisations can be reduced. Instead of being resented as policing agencies, they can become allies of the communities, providing advice and support, and reacting to requests from communities for assistance in enforcing regulations only when problems arise that the communities cannot resolve themselves.

*Nwanyi Angling Club handing over the sponsored boat to Sikunga Conservancy to patrol the Fish Protection Area.*



*Sikunga Conservancy fish guards in their boat donated by ESBboats through Nwanyi Angling Club sponsorship.*



**The Namibia Nature Foundation (NNF)**, founded in 1987, is one of the largest non-governmental organisations (NGO) targeting conservation and sustainable development in Namibia. The primary aims of the NNF are to promote sustainable development, the conservation of biological diversity and natural ecosystems, and the wise and ethical use of natural resources for the benefit of all Namibians, both present and future.  
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