

Wild food from sea and forest

There are some parallels between overfishing and the bushmeat crisis in west Africa, especially in terms of livelihoods and food security

Most readers will be well versed with the crisis affecting the world's fisheries, and the role of the United Nations (UN) in addressing the resultant problems. But they may not know that the UN has also warned of an impending 'bushmeat crisis', which threatens both the food security of forest communities and the survival of the species hunted. The high level of hunting in the tropics for bushmeat—the meat obtained from animals caught in the wild—is of increasing international concern. In significant parts of the tropics, especially in Africa, there is now a massive and completely unmanaged harvest of wild meat for consumption purposes. In these areas, the levels of offtake may well represent a greater threat to the sustainability of wildlife than habitat conversion.

The London-based Overseas Development Institute (ODI) is implementing a project to research the human and social dimensions of hunting wild meat for consumption in tropical forests. In contrast to most research previously carried out that has focused on the ecological and biodiversity impacts of bushmeat hunting, the ODI project aims to greatly expand understanding of bushmeat as an important dimension of livelihoods security for poor people, often in underdeveloped States. It is anticipated that through a better understanding of the human and social dimensions of hunting, new approaches to solving the bushmeat crisis can be crafted.

This article is based on the author's contribution to the ODI project and his own experience of the crises affecting both fisheries and bushmeat. Information has also been drawn from the ODI website (http://www.odi-bushmeat.org/wildlife_policy_briefs.htm).

The important contribution made by fish to household food security in west Africa is well documented. Fish is widely consumed as a staple source of protein, often providing the only affordable source of this and other essential nutrients for low-income families. Fishing also provides livelihoods for millions of people who catch, process, transport and trade fish. There are also many fishery-dependent sources of livelihoods in such ancillary industries as boatbuilding, net making, engine services and repair, and so on.

The contribution of bushmeat to food security is less well known. There are few well-documented case studies and statistics. However, indications are that, as in the case of fisheries, bushmeat does make an important contribution to food security at the household level—both as a source of food and as a source of income.

Bushmeat has long played a role in the livelihoods of people living in tropical forest and savannah areas. For many rural people, bushmeat is not only an important source of animal protein in their diets, but it may also increasingly be a key component of their livelihoods in providing flexible cash incomes from its sale to traders and local consumers. Large proportions of communities can be involved in hunting. For example, in Congo's forested areas, one study found that approximately 50 per cent of households earned income from bushmeat sales. Bushmeat may be consumed as food by a substantial proportion of households, both close to forest areas and elsewhere.

Safety net

Like fisheries, bushmeat may also provide a safety net for the poor in times of hardship, when the resource can be relied

Table 1: The relative importance of fish and bushmeat in west African food supply

Country	Bushmeat supply ¹	Meat supply ²	Fish supply ²
Cameroon	233 963	225 000	125 000
Central African Republic	48 821	96 000	15 000
Congo DR ¹	665 972	238 000	298 000
Rep .Congo	189 234	45 000	50 000
Equatorial Guinea ¹	2 937	n/a	7 007
Gabon	49 069	55 122	59 405

All data in tonnes per annum.

Supply=Total Production + Imports - Exports

¹ Source: Fa et al. 2003

² Source: FAOSTAT <http://apps.fao.org/> Taken from food balance and fisheries databases for 2001

n/a Not available

on for improved food security. It is also often traded along a 'commodity chain', and a range of other people, apart from hunters and their families, may depend on bushmeat for their livelihoods. For example, traders who journey to areas where bushmeat is hunted, may also be urban market vendors (frequently, women) who sell the dried bushmeat to consumers.

A further parallel with fisheries is the distinction often drawn between bushmeat hunting for subsistence and hunting that is commercial. In reality, hunters may often hunt simultaneously for subsistence and commercial purposes—depending on what species they are able to successfully hunt on each occasion. Large, high-value species may be sold, while smaller species may be kept for household consumption.

While studies on the harvesting of bushmeat tend to highlight the use of endangered species such as gorillas, much bushmeat is from small, common mammals and birds, some of which are crop pests. Also, like fish, bushmeat can be smoke-dried, enabling it to be stored for a limited period for household use or to enable trading over a wider area. A great deal of bushmeat is eaten in 'chop bars', which are restaurants specializing in dishes containing bushmeat. Although accurate data on consumption of bushmeat is limited, some idea of its

importance in comparison to fish and conventional meat supplies can be seen in Table 1.

The negative impacts of fishing activities off west Africa on fish stocks are well established, as are its knock-on effects onshore, such as in the artisanal processing and trading sectors. Similarly, bushmeat harvesting is known to have had a considerable impact on the populations of some animals. However, fisheries studies tend to concentrate exclusively on fisheries matters, and bushmeat studies, on bushmeat matters, which tells us little about the possible interactions. For example, there have been many studies on the effects of overfishing on fish stocks and on the implications of overharvesting of some mammals for bushmeat on their conservation status, but studies that look at the wider impacts are relatively scarce. Even the impact of overfishing on the wider issue of food security in west Africa, and the influence of fish supply on the demand for competing proteins are underexamined. So, when a link was proposed between overfishing by European Union (EU) vessels and increased demand for bushmeat, one of the big problems was to find evidence.

Food security

Since fish and bushmeat are so important in food security, it may be reasonable to suggest that a reduction in the supply of

one will have an influence on the demand for the other. But how might such a mechanism operate and what might be the causes of reduced supply, in the first place?

Overfishing and its impacts are well documented in west Africa. Artisanal fishing plays a major role in the region, both in supplying low-cost fish (often small pelagic species) to local markets, and catching higher-value demersal species for export. With stocks in decline, competition with larger-scale fleets—both national and foreign—for fishing space, resources and markets (local and export) has intensified. Also, as the artisanal catch is increasingly providing fish for exports, availability of fish for local consumers may be further reduced.

Both small-scale and large-scale fishing activities have been implicated in overfishing and stock depletion. But the lion's share of the blame often goes to foreign fleets. These are reported to take more than 60 per cent of the west African fish catch. The EU fleet, in particular, operating under fishing licence agreements (FLAs) and other arrangements, has come in for criticism for exceeding quotas, and illegal fishing; but proving this is quite another thing. Vessels fishing under FLAs may even make a positive contribution to food security by landing by-catch or marketing their catch of small pelagics locally.

In fact, the west African countries are major importers of small pelagic species from the EU. In both value and volume terms, the import is considerable, with annual amounts reaching several hundred thousand tonnes. A significant part of this is caught in west African waters by EU supertrawlers.

Unfortunately, the actual catch data for any distant-water fleet (DWF) fishing in west African waters is subject to speculation. Whether it is by the artisanal fishers who may migrate up and down the coast or by industrial fleets fishing under FLAs or other arrangements (joint ventures, chartering, and so on), accurate, verified catch data is hard to come by. In the case of artisanal fishers, who tend to land their catches in remote and isolated

locations, trying to keep a tally is near impossible. In the case of some DWF, much doubt has been expressed as to whether their declared catches in any way reflect the actual catch. In the worst case—that of illegal fishing by vessels operating under flags of convenience—we have almost no idea of what they are actually catching, or where they are catching it.

It is often convenient to blame EU vessels for the worst excesses of DWF, but this may not be justified. Undoubtedly, the EU fleet has contributed to the decrease in fish stocks off west Africa, but for all their faults, at least there is some degree of transparency in what they do, even if reported catches are sometimes treated with some scepticism. As far as bushmeat is concerned, they may even do some good, as fish caught by EU vessels off west Africa contributes some 700,000 tonnes per annum to supplies in central Africa. Of course, it can be argued that it would be better, for many reasons, if this were to be supplied by the coastal States' fishing fleets.

Taking the Gulf of Guinea as an example, EU FLAs account for a relatively small proportion of the reported catch. While they target demersal fishes, cephalopods and crustaceans, which are not consumed widely in west Africa due to their high cost, large quantities of fish of low economic value are caught as by-catch. The impact of this remains unmeasured, although it is reported that an ever-greater proportion of this is supplied to local markets, both directly and indirectly. On the other hand, west African States make large catches of pelagics to supply the local market. But the relative impact and significance of these activities, and those undertaken by the EU supertrawler fleet, on the key pelagic stocks, are unknown.

Pirate fishing

What really throws the whole issue into confusion is the problem of pirate fishing by unregulated vessels fishing under flags of convenience. These are the real unknowns in the equation as, by their very nature, they do not report catches, so it is very difficult to assess their impact on fish stocks and food security. A recent report by Greenpeace highlighted the problem of pirate vessels fishing off west Africa. What

is beyond doubt is that some fish stocks in the Gulf of Guinea have been fished beyond the point of sustainability, but quite who is to blame is difficult to say.

The effect that overfishing has on food security and, more importantly, the paths through which it acts are not well known beyond the fisheries sector. We have information on the impact of overfishing on the supply of fish to artisanal processors and to petty traders, but not much information on the subsequent wider impact on food security. What will fishers do if there is not enough fish to be caught? If artisanal fish processors do not have enough fish, or fish is too expensive, what alternative incomes might be available? Last, but not least, if consumers cannot find fish in the markets, or it is too expensive, what alternative food sources might they turn to? There is no single answer to this question, as food preferences vary so much even within a single country, let alone in the region.

When people go to buy food, they may go out with something specific in mind or they may go out just to see what is available before making a choice. There will be times when only bushmeat will do, and there will be times when only fish will do—or, indeed, chicken, goat, beef or beans. The trouble is we just do not have enough information about why consumers choose a particular food on each occasion. We can suppose that availability, price and quality are all important in determining choice, but quite how, and how important each of them is, is very poorly known. Even with this lack of knowledge, it is quite reasonable to suppose that if fish is not available or is too expensive, consumers will turn to another protein source instead.

Evidence for this is scarce, but it is currently being researched in Nigeria and Ghana, so we should get some idea of the interaction and competition between various protein sources in due course. The main interaction is likely to be in the marketplace. It is very common to see dried, smoked marine fish for sale in remote, inland markets, alongside bushmeat. Improving infrastructure in west Africa now means that frozen fish is

now more widely available, and this too may be trucked inland to areas where fish supplies have previously been limited. In this case, it might be that improving fish supplies inland could have a beneficial effect on bushmeat animals by providing an alternative, readily available protein source. That of course, all depends on why consumers choose fish, bushmeat or other meats and until we know that, we cannot be sure what interactions there might be between fish supply and bushmeat demand. However, it seems inconceivable that there is no interaction or competition between two such important protein sources, but how it works is very much open to question.

Studies in Ghana have shown a strong relationship over time between per capita fish supply and bushmeat species biomass. In years when per capita fish supply was low, bushmeat species biomass also tended to be low, suggesting increased offtake. Further, it was also noted that bushmeat supplies in some markets tended to be higher when fish supply was limited. It would be wrong to suggest a direct cause-and-effect between the two, but it does at least indicate that a relationship does exist, even if fish supply and bushmeat demand are both responding to some other factor.

There is also data indicating that in years when the fish stocks in the Gulf of Guinea are low, bushmeat offtake tends to increase. This may not be a simple supply-related effect, with bushmeat replacing fish as it appears to be due, at least in part, to the reduced employment opportunities available in the fisheries catching and post-harvest sectors in years when fish stocks are low. If they cannot obtain work in the fisheries industry, fishworkers seem to turn to bushmeat harvesting and trading as an alternative source of livelihood. It has also been reported that there is an increasing tendency to rear bushmeat animals at the household level both for food and income.

Fishing agreements

It has been suggested that one solution to overfishing in west Africa is to repatriate all EU fishing vessels and to cancel all fishing agreements with the EU. But this alone is unlikely to solve the problems



facing west African fisheries, let alone to contribute to bushmeat conservation. One problem is that removal of EU fishing effort would not necessarily reduce the overall fishing effort.

Under the United Nations Convention on the Law of the Sea (UNCLOS), there is a requirement for coastal States to make any surplus stocks available to other nations. So fishing opportunities provided by the EU fleets' departure might simply be reallocated to others. If these were west African fleets, it could have a beneficial effect on regional food security and might generate greater economic activity than catches removed from the region by DWF, assuming the catches were not simply diverted to exports. Given that the demand for export markets remains high, it is very likely that fishing agreements would be replaced by joint ventures or other agreements designed to ensure continued supply for importing countries. If the fishing opportunities were reallocated to other, less accountable DWF, the effect could be detrimental for the region.

Of these options, the one that may have the greatest benefit for bushmeat animal conservation is for coastal States to use as much of their fishing opportunities themselves as possible, with the fish being landed and traded regionally. If infrastructure continues to develop in

west Africa, then it can be expected that fish will continue to find new markets in remote inland areas, and that supplies to these markets will continue to increase. Whether this would help ease demand for bushmeat remains to be seen, but it might well be that those with an interest in bushmeat conservation might do well to look to the seas as well as the forest. As to the question of what role other meats such as frozen chicken might play, that is an area that needs to be studied. ¶

This article is by Ian Watson (fishiwatson@aol.com), an independent fisheries consultant based in the UK and a member of the NRG group (<http://www.theNRgroup.net>)