

Regulation in Uganda's Lake Victoria fishery: historical and contemporary conditions

MERCY KYANGWA, *Fisheries Resources Research Institute, P. O. Box 343, Jinja, Uganda*

K. GEHEB *UNECIA Ltd., Lake Victoria Fisheries Research Project, P. O. Box 2145, Jinja, Uganda.*

Abstract: This paper sets out to explore how Uganda's Lake Victoria fishery has been managed. It explores the management of the fishery during the Protectorate period, and argues that the apparent success of regulation during this time may be attributed to the very heightened controls arising from Sleeping Sickness Controls. Once these were removed, we argue, entry into the fishery was rapid and uncontrolled, and the resultant impact on fish stocks was quickly felt. With its huge area, considerable shoreline, and innumerable islands, the Lake Victoria Fisheries Service was quickly overwhelmed and disbanded as a result. In the early independence years, the Republic's government focussed on developing the fishery, plans thwarted by turmoil of, and following, Idi Amin's reign. More recently, the fishery has prospered from Uganda's entry into the Nile perch fillet export market, which has adversely affected stocks. We present and comment on recently collected data that considers fishers' impressions of the status of the fishery, regulations and future managerial possibilities, and comment on these in the light of recent changes to Uganda's fisheries administration.

Introduction

Lake Victoria is the second largest freshwater lake in the world with an area of 68,800 km². 28,500 km² (45%) of this lies within Ugandan territory, which has a shoreline of 2,380 km. The lake is very important for the riparian states, providing food, water for the generation of hydro power, freshwater for livestock, domestic, agricultural and industrial uses, transport, recreation, waste water disposal, tourism and biodiversity conservation. Its fishery directly employs about 100,000 people but more than 2 million people are involved in other, indirect, activities (Government of the Republic of Kenya, *et al*, 1995).

Lake Victoria's basin has a population of about 30 million. Population pressure and the rise in land-based socio-economic activities, such as agriculture, industry and urban growth, have had serious impact on the lake environment (Government of the Republic of Kenya, *et al*, 1995). Intense fishing pressure and water hyacinth infestation have served to augment these difficulties, while algal blooms are frequent and turbidity, which reduces water transparency, continues to increase due to eutrophication (Government of the Republic of Kenya, *et al*, 1995).

Since peaking in 1989 at 146,600 tonnes, Uganda's Lake Victoria catches have declined to an estimated 106,600 tonnes in 1997, a 27 per cent decline. Since 1969, furthermore, there has been a seven-fold decline in stock abundance (Okaranon, 2000). Overfishing is rampant, particularly in key fish habitats. At the same time, the country aims at a (national) fisheries output of 320,000 tonnes of fish by 2015 (MAAIF, 2000). The problems the lake's fishery faces have almost certainly arisen from the combined effect of, on the one hand, poor regulatory implementation and, on the other hand, increasing and burgeoning effort levels on the lake.

Part of the problem in Uganda's Lake Victoria fishery may well be its traditional reliance on 'command-and-control' styles of fisheries management. In this paper, we explore the history of the regulation of Uganda's Lake Victoria fisheries. We argue that Protectorate efforts to control the fishery were in large measure successful only because they were amplified by Sleeping Sickness Control measures. Following the diminution of these latter controls, and the creation of a lake-wide regulatory body in 1947, problems of control in Uganda increased.

We suggest that declines in the fishery since the end of the Protectorate period have only been mitigated by the introduction of the Nile perch and other fast growing exotic species. The use of a centralised fisheries regulation system, particularly one suffering from under-staffing and financing, seems an unlikely candidate for the successful management of Uganda's Lake Victoria fishery. We extend this discussion into the contemporary fishery by drawing on recently collected data collected under the Lake Victoria Fisheries Research Project, and consider new directions in the control of this important fishery that may offer solutions to its precarious condition.

This paper relies on secondary sources of information as well as a published data set (SEDAWOG, 2000a), based on 343 structured interviews collected from 22 landing sites in 10 districts along Uganda's Lake Victoria shore between May and September 1999. The data is additionally supported by qualitative data obtained from Participatory Rural Appraisals (PRAs) collected at two Ugandan landing sites (Lwalalo and Nkombe) in June and September 2000.

The Protectorate period

After the presentation of Graham's (1929) important report on his lake-wide survey, it was several years before any of the riparian states established mechanisms to implement his recommendations. In Uganda, responsibility for regulating the fishery was passed to the Uganda Game Department and its enigmatic and energetic Chief Warden, Captain C. S. Pitman. Pitman never underestimated the difficulties of having to administer an area of water the size of a small country, a shoreline of over 2,000 km. and the innumerable islands in the Sesse Island belt. Pitman was not, however, without allies in his war on illegal net users. Much of the history of the Uganda Protectorate's regulation of its Lake Victoria fishery is tied up in its sleeping sickness regulations. The sleeping sickness epidemic along the lakeshore was particularly acute in the eastern area of Busoga where, in 1901, the Sub-commissioner of Busoga wrote:

"This disease is most prevalent in the Busoga District, especially on or near the lake shore. From Lakalango's eastwards, the entire country is almost depopulated. Lakalango (chief) is now ill and the old chiefs up to the Sio River are dead. On going round in that direction, the country appeared to be a vast burying ground...Here and there people who suffered from the disease could be seen lying in the sun, insensible to all their surroundings. They were as good as dead...Instances could be quoted of large families who two or three years ago were prosperous and enjoying the best of health. Today there is not a single one of them left. They died of famine or disease" (Nayenga, 1979: 167).

The Governor of the Protectorate, Hesketh Bell, reacted to the epidemic by depopulating a band, parallel to the lake shore and 3.2 km wide. Except for in a few, selected places, no habitation was permitted within the Infected Area, and the Uganda Fishing Ordinances of 1907 and the Sleeping Sickness rules of 1908, made fishing on the lake illegal and the possession of fish caught from the lake prohibited (Hoppe, 1997). People moved out of the zone were offered tax breaks as compensation (Nayenga, 1979).

By the time Captain Pitman assumed his responsibilities over the fishery in 1931, fish stocks were apparently healthy and he wrote, in his 1935 report that "...most definitely there is no shortage of fish" (Uganda Protectorate, 1936: 44). Pitman must have viewed the sleeping sickness ordinances as a macabre blessing in his efforts to keep the fishery healthy.

Beyond the sleeping sickness ordinances, there seemed to be little in the way of specific rules with which to manage the fishery. Pitman differentiated between *ngege* (tilapia) nets (102 – 127 mm.) and *ningu* (*Labeo victoriantus*) nets (51 - 76 mm.), and, along with other colonial fisheries administrators within the region, believed that *ningu* nets were rarely used to capture *ngege* and *vice versa*. Many of Pitman's reports worry about the natural shrinkage that occurred to flax nets once submerged in the water, and, later, the shortage of nets on the Ugandan market occasioned by the Second World War.

Much of the time, Pitman believed that illegal fishing in the closed areas was limited and rare. Armed as it was with motorised patrol boats and spotter aircraft, the Uganda Game Department was fairly confident that illegal fishing and hunting camps would soon be discovered (Uganda Protectorate, 1939). There were occasionally, however, moments when Pitman became concerned. In 1939, he commented, illegal fishing along the closed Busoga coastline was cause for concern. Fishers, he felt, had been tempted by the well stocked waters off Busoga and the *ngege* breeding grounds in Hannington and McDonald Bays (Uganda Protectorate, 1939).

Hoppe (1997), in his examination of the Ugandan sleeping sickness epidemic, argues that breaches of the law were rife, particularly in the islands of the lake. Following the sleeping sickness and fishing ordinances of 1907 and 1908 banning fishing on the lake, fishers took to smoking their catch, accumulating it and then smuggling it to land. Thereafter, it was smuggled through to officially sanctioned markets and distributed amongst fish arriving from other lakes still open to fishing. As one respondent told Hoppe:

“We stayed in many new secret landings in the swamps, and moved only by night. Those are still good places. We hid from the British doctors, then we hid from all the soldiers. Now we hide from the revenue collectors...Whites patrolled with motorboats, so it was dangerous to come and go. We could stay here for a few weeks, then take dried fish back” (Hoppe, 1997: 94).

In response to questions about sleeping sickness, the respondent replied: “Some of us fell sick and died. But we fished. That is what we did. You belong where you can earn a living” (Hoppe, 1997: 94). Hoppe argued that the reactions of Ugandans to the Sleeping Sickness Ordinances were, in part, motivated by protest fuelled by the widespread belief that the British were using the Ordinances as a ploy for seizing Ugandan land (see also Nayenga, 1979).

It is curious that Hoppe’s portrayal of the fishery during the sleeping sickness years indicates rampant disregard for the sleeping sickness and fishing ordinances, while Pitman’s own view was that infringement of these regulations was very limited. Despite this, the average weight of *ngege* landed declined 50 grams between 1938 and 1948, from 726 grams to 676 grams (Uganda Protectorate, 1938, 1949). Catch declines did occur, and these Pitman attributed to depopulation arising from sleeping sickness ordinances, shortages of fishing nets or unusually low water levels on the lake. He never attributed them to over-fishing. With sleeping sickness ordinances so stringently enforced, there seems little reason to suppose that Pitman was wrong.

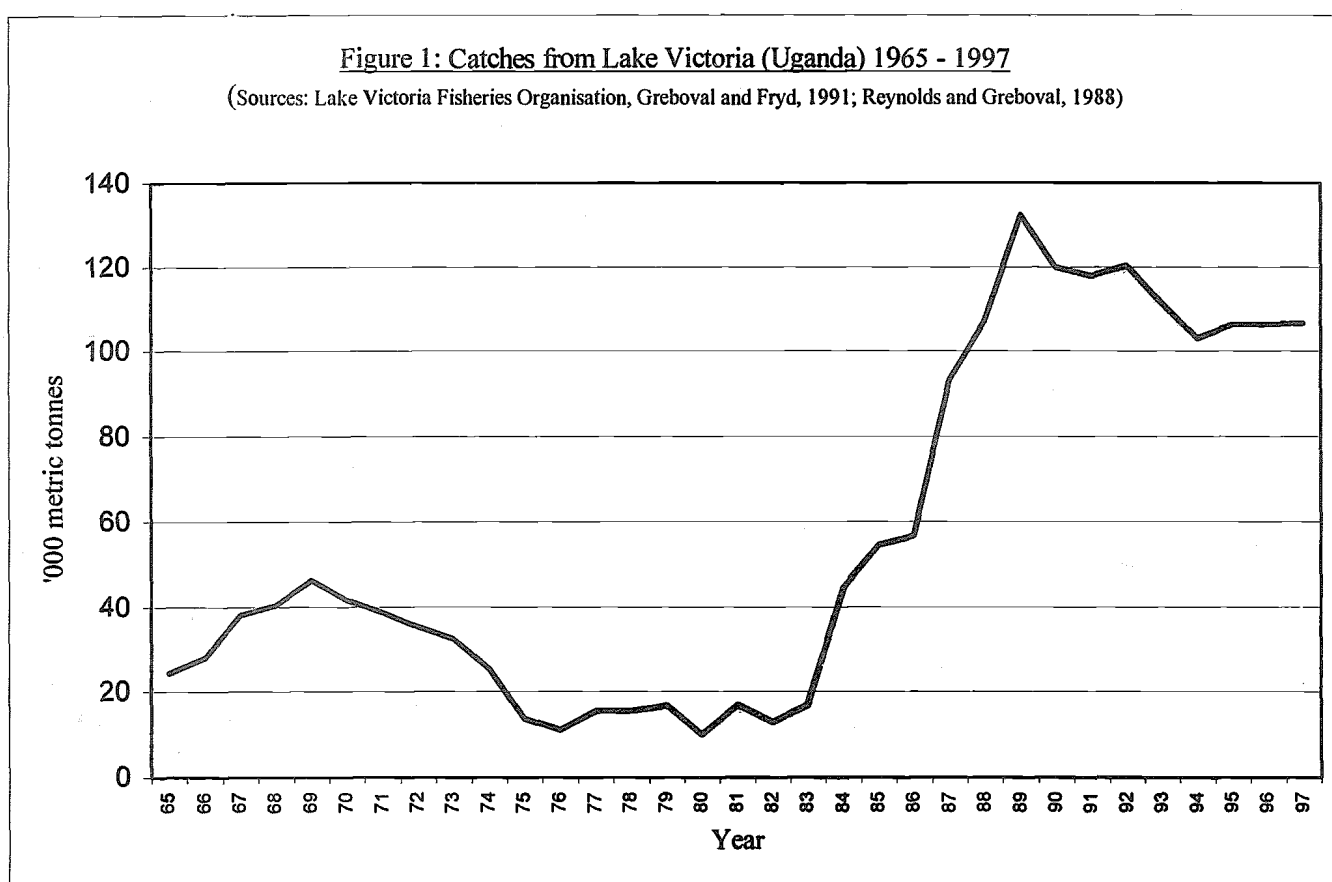
In 1947, Pitman handed over responsibility for the fishery to the Lake Victoria Fisheries Service (LVFS), a regulatory body established for the lake as a whole. The hand over coincided with the diminution of the Sleeping Sickness Ordinances and the re-opening of certain shore areas to repopulation, and fishing grounds to exploitation. The slackening of the Sleeping Sickness controls represented a spectacular regulatory decline. The rapid repopulation of lakeshore and islands hit fish stocks hard, and were augmented by inflows of Kenyan fisheries labour prompted by catch declines in the (Kenyan) Winam Gulf (Ineichen, 1967; Temple, 1965). Although he admits that his conclusions were based on ambiguous results, Beverton’s (1959) assessment of the Ugandan fishery was gloomy. These catch declines and effort increases were not arrested by the cash and staff strapped LVFS. In the 1950s, Ugandan fishers turned to using four-inch gillnets. Beverton (1959) understood this to have occurred because of declines to *ngege* stocks within the fibre-inch mesh size range. Beverton could only suggest that controls on mesh sizes be redeployed following their withdrawal in 1957, but acknowledged that:

“If...it should be wished to...reimpose [the mesh regulation] in Uganda and Tanganyika, I would strongly advise that the whole question of its enforcement be looked in to...[T]he difficulty of enforcing the regulation is likely to increase rather than the reverse if the fishing intensity continues to rise” (Beverton, 1959: 37).

The lake's riparian states appeared to agree with Beverton's analysis. The mesh-size restrictions were not re-imposed, and the LVFS's activities became sufficiently fruitless for the organisation as a whole to be disbanded in 1960. In the absence of the draconian Sleeping Sickness Ordinances, therefore, Uganda's fisheries regulations were ineffective.

Independence years

With effort levels continuing to pour into Uganda's Lake Victoria fishery, catches grew substantially from 24,384 tonnes in 1965 to 46,273 tonnes in 1969 (Figure 1: Reynolds and Greboval, 1988). These increases were very much in line with the independent republic's policies, which sought national landings of 'over 100,000 tons' by 1971 (Uganda Government, 1967), and the newly formed Fisheries Department introduced a subsidy scheme for the construction of bigger and more efficient fishing boats (Kanyike, 1972). Considerable pressure was also applied during these years to commence commercial trawling operations for under-utilised *Haplochromis* stocks (Kudhongania-Akiki, 1973).



The 1960s were also notable for the introduction of Uganda's enduring 1964 Fish and Crocodile Act (later renamed the 1964 Fish Act). The main tenets of the Act are as follows (Uganda Government, 1964):

- (a) Any person must have a valid license to fish, to accompany a person who is fishing or who is in a boat used for fishing. The Chief Fisheries Officer may, with the approval of the Minister, limit the number of fishing licenses issued, either generally or specifically to certain waters.
- (b) Vessels must be licensed if gill-netting or long-lining is to occur from them; the Chief Fisheries Officer, with the Approval of the Minister, may, by statutory instrument, limit the number of gill-nets or long-lines to be carried in a boat, generally or with regard to specific areas.
- (c) Without written permission of the Chief Fisheries Officer, no poisoning, explosives nor electric fishing may occur.

- (d) The Minister may, by statutory order, ban a gear generally or with reference to specific waters. By the same means, the minister may declare closed seasons generally or specifically to certain waters and either generally or specifically to certain fish species.
- (e) It is illegal to transfer fish or eggs from one water body to another.
- (f) The government, 'Federal State' or district administration may issue fishing licenses, provided that they think it is in the public interest to do so. A District Commissioner (DC) can annul a license issued by a Federal state or the government if s/he feels that it is in the public interest to do so. The Minister may remove the rights of Federal states and DCs in this respect as s/he sees fit (in 1967, this, in effect, occurred, with the transfer of power away from DCs to the Chief Fisheries Officer).
- (g) It is illegal to take immature fish, to use under-size mesh-sizes. General regulations specifying what an 'immature fish' is, or what an under-sized mesh-size is, have not been issued as Statutory Orders (Geheb, 2000).

The Act, which remains current presently, relies heavily on the creation of rules by the Minister in charge and/or the Chief Fisheries Officer. In the absence of such rules being issued, the Act has not played a major role in the regulation of Lake Victoria's fisheries because the necessary attending rules are absent.

In 1971, the year Idi Amin took power, Ugandans landed 38,809 tonnes of fish from Lake Victoria. In 1970, Luo fishermen were expelled from Uganda (Republic of Uganda, 1971) affecting catches negatively, and in the turmoil that followed Amin's *coup d'état*, catches never again rose above their 1981 level until 1984, when 44,792 tonnes of fish was landed, a large proportion of which was Nile perch (Figure 1: Reynolds and Greboval, 1988). In 1989, at the height of the Nile perch 'boom', catches peaked at 146,600 tonnes, 69 per cent of which was Nile perch. The rise of this industry coincided with increasing global demands for quality white fish meat (Harris *et al.* 1995), and the growing Nile perch filleting industry in Uganda (Ssali *et al.*, 1991; Kudhonganika and Coenen, 1991). Between 1990 and 1995, Uganda's export of Nile perch fillets grew from 1,438 tonnes to 13,958 tonnes (Ddungu, 1998).

The massive expansion of the market for Uganda's Nile perch has caused problems. In 1977, the average weight of Nile perch landed at Masese landing site in Jinja was 41.54 kg. By 1989, it was 2.39 (Okaranon and Wadanya, 1991). In trawl surveys between 1969-1971, catches in waters less than 30 m. deep yielded 797 kilos of fish per hour. In more recent trawl surveys, catches in the same water column yielded 115 kg of fish per hour (Okaranon, 2000). Total catches have declined from the 1989 peak of 146,600 tonnes to 106,300 tonnes in 1997 (Unpublished Department of Fisheries Resources figures), a 27% decline. Much of the catch is composed of juvenile fish, which has not had the chance to breed (MacLennan pers. com.). At the same time, effort increases have escalated, growing from 8,674 boats in 1990 (Okaranon and Wadanya, 1991) to 16,093 in 2000 (Unpublished Department of Fisheries Resources figures based on a March 2000 frame survey).

These catch declines and effort increases are not indicative of successful regulatory strategies. In partial recognition of this, the Ugandan Government has radically restructured its fisheries administration.

New directions in Uganda's fisheries administration

In 1992, the Ministry of Agriculture, Animal Industry and Fisheries (MAAIF), beneath which the Fisheries Department falls, separated the duties of extension from law-enforcement. This led to the creation of the Fisheries Regulations and Control Unit (FRCU), whose mandate it is to manage the exploitation of fisheries resources, to facilitate and guarantee the safety and quality of fish and fishery products for food security, and economic development through the implementation of appropriate regulations (Kizza, 1999). Fisheries extension work has been devolved to the districts bordering Lake Victoria as part of the process of the state's commitment to decentralisation, promulgated in Uganda's Constitution (Republic of Uganda, 1995).

A further elaboration of the Ugandan Constitution has been the articulation of what 'decentralisation' means at the local level.

Under the 1997 Local Governments Act (Republic of Uganda, 1997), districts are given considerable powers over both revenue collection and the management of their resources. In addition, districts are given the power to formulate their own byelaws, provided these do not in any way contradict the Laws of Uganda. As discussed above, the 1964 Fish Act contains no fish rules providing fisheries managers with specific areas to enforce – such as, for example, minimum mesh-sizes. Commenting on the Act, the Fisheries Department itself notes, "...by current standards [The Act] is neither comprehensive enough nor flexible enough to provide for the proper management and conservation of fisheries" (MAAIF, 2000: 20).

As a result, districts have considerable leeway to act on fisheries matters, and are prepared to do so: in 1999, following widespread incidences of fish poisoning, several Ugandan districts unilaterally closed down their Lake Victorian fisheries, and subsequently resisted central government demands that the fishery be re-opened. An important tenet in the management of the fish-poisoning crisis was the formation of National Task Forces on Lake Victoria landing sites, which were responsible for trying to control poisoning on the lake. Since the alleviation of the poisoning problem, the opening of the fishery and the recent opening of foreign markets to Nile perch exports from the fishery, these Task Forces have become a permanent feature on Uganda's fisheries management landscape, and many have come to be called Landing Management Committees (LMCs).

In many respects, the above trends within Uganda's fisheries management strategies provide plenty of scope within the realm of 'co-management'. While recent policy statements from the Fisheries Department¹ do not specifically mention 'co-management', the Department certainly recognises that changes to the managerial landscape have resulted in ample opportunity for the involvement of communities within the management structure: "the current role of the DFR is national fisheries planning, development and monitoring of the resources. It promotes, supports and guides all the programmes within the fisheries local government and private sector. Despite a number of problems, decentralisation has provided opportunities for grassroot participation in fisheries management and development" (MAAIF, 2000: 8).

In the section that follows, we examine fisher's perceptions of recent changes to their resource base and how they explain these changes. We will examine fisher's impressions of state-based fisheries management, whether or not they consider these to be efficient, and the future management of this fishery.

Lake Victoria's problems and regulation: fishers' perspectives

Ugandan respondents were asked what they considered the single most important problem with the fishery. With the poisoning crisis still fresh in their minds, 'illegal fishing techniques' was considered the worst problem for the largest proportion of respondents (41%), followed by corruption (19%) and gear theft (15%). Declining catches was mentioned as the fishery's worst problem by just 5% of respondents. After additional questioning, however, 86% of respondents agreed that catches had declined between 1995 and 1999 (Table 2). Over three quarters of respondents also agreed that there had been declines in fish species diversity, that their fishing trips were longer in 1999 than they had been in 1995, that the use of illegal fishing techniques had increased, that the number of boats had increased, that the average size of fish landed had declined (90%) and, finally, that fishing paid less in 1999 than it had done in 1995.

¹ The Fisheries Department is now renamed the Department of Fisheries Resources (DFR).

Problem	No. responses
Declining catches	16 (5%)
Too many boats and/or fishers	31 (9%)
Lack of regulation	23 (7%)
Corruption	64 (19%)
Illegal fishing techniques	137 (41%)
Gear theft	48 (15%)
Others	12 (4%)
Totals (N)	331

Table 1: What is the single most important problem on this lake? (1 'don't know' response is excluded from the table; 11 respondents who said they had no problems are also excluded). Source: SEDAWOG 2000a.

	Agree	Disagree	Not sure	Totals
There is less fish now than 5 yrs. ago	295 (86%)	42 (12%)	6 (2%)	343
There are more boats now than 5 yrs. ago	309 (90%)	28 (8%)	6 (2%)	343
There is less fish diversity than 5 yrs. ago	313 (91%)	22 (7%)	6 (2%)	343
Fishing trips are longer now than 5 yrs. ago	270 (79%)	65 (19%)	8 (2%)	343
The average size of fish landed is lower now than it was 5 yrs. ago	282 (82%)	58 (17%)	3 (1%)	343
There are more illegal fishing techniques now than 5 yrs. ago	284 (82%)	53 (16%)	6 (2%)	343
Fishing pays less now than it did 5 yrs. ago	299 (87%)	41 (12%)	3 (1%)	343

Table 2: Respondents' level of agreement to statements concerning fisheries resource change (Source: SEDAWOG 2000a)

The largest proportion of respondents believed that the reasons for these declines were because of regulatory disobedience (43%; n=343), followed by there being too many boats, fishers and/or nets (33%). Ugandan fishers, therefore, agree that there are substantial declines to the fishery and that these can be directly related to regulatory disobedience and excessive effort. Further questioning on why illegal gear use was so widespread revealed that 61% (n=343) of fishers believed that no fish would be caught unless a small mesh-size were used, and that small mesh-sized nets cost less than larger ones (82%). Interestingly, 52% of fishers did not think that the widespread use of illegal gear was because the Fisheries Department failed to stop its use.

This latter outcome may have occurred for two reasons: fishers were reluctant to (as they saw it) condemn the Fisheries Department – only 43% of fishers were prepared to say that they thought that the Fisheries Department was no good at protecting fish stocks. Alternatively, fishers may believe that the responsibility to prevent illegal gear use does not actually lie with the Fisheries Department but elsewhere. Over three quarters of respondents believed that the fisheries regulations were good, and that most fishers obey them. Despite many fishers interviewed accusing the Fisheries Department of corruption, they still believed that the Department was the best agent of fisheries management.

Our respondents were provided with a series of options for possible, future, management directions (Table 3). Over three quarters of respondents agreed with all the suggested managerial options, except for limitations on effort. This reluctance is echoed amongst respondents from Kenya and Tanzania, and Geheb and Crean (2000) argue that these trends are probably a reflection of fishers' reluctance to see the fishery closed as an employment avenue, particularly in circumstances where it may be an 'employer of last resort' in otherwise adverse economic, social and environmental conditions.

Management scenario	Agree	Disagree	Not sure	Totals
There should be no more fishers, boats and/or nets allowed on lake	128 (37%)	205 (60%)	10 (3%)	343
Government and fishing communities must take the regulations more seriously	335 (98%)	7 (2%)	-	343
The fishing communities must be able to say who can or cannot fish	299 (87%)	43 (13%)	-	343
Fishing communities should be allowed to claim the water in which they fish	303 (88%)	37 (11%)	3 (1%)	343
Fishing communities should be allowed to punish offenders	303 (88%)	38 (11%)	3 (1%)	343
There should be Fisheries Dept. personnel living on the landings permanently	314 (92%)	28 (8%)	-	342
Fishing communities should be allowed to participate in rule making	338 (98%)	5 (2%)	-	343

Table 3: Respondents' level of agreement to statements concerning selected managerial scenarios (Source: SEDAWOG 2000a).

Respondents were asked how they rated certain selected fisheries regulations in terms of efficacy (Table 4).

Regulation	Unaware of regulation	Effective	Useless	Totals
Mesh-size controls	14 (4%)	315 (92%)	13 (4%)	342
Closed fishing areas	231 (67%)	33 (10%)	79 (23%)	343
Closed seasons	235 (68%)	24 (7%)	84 (25%)	343
Poison ban	29 (8%)	312 (91%)	2 (1%)	343
Trawling Ban	170 (50%)	132 (38%)	40 (12%)	343
Minimum fish sizes	69 (20%)	242 (71%)	32 (9%)	343
Licensing	12 (4%)	327 (95%)	4 (1%)	343
Boat registration	17 (5%)	326 (95%)	-	343

Table 4: Respondents' efficacy ratings of selected fisheries regulations (Source: SEDAWOG, 2000a)

Licensing, boat registration, mesh-size controls and the poison ban are viewed as the most effective regulations. Again, it is curious to note that fishers consider regulation to be effective, despite agreeing that there is a high degree of regulatory disobedience on the lake. It may be that fishers agree that regulations could be effective given certain conditions. In many cases, indeed, fishers would try to qualify their answers, saying that certain choices were made conditional on circumstances. Hence, mesh-size regulations are by themselves effective, *provided* they are enforced. The questionnaires used for this survey did not allow such conditionality to be incorporated in answers. At Nkombe Beach, respondents were asked whether or not the community felt that the regulations were 'good', the respondents said that they felt they were, except that fishers go ahead and break them because they lack capital to purchase the recommended gears (Atai *et al.* 2000). Hence, regulations may be viewed as intrinsically 'right' and 'good', and efficacious for this reason, and not necessarily because the regulation is widely enforced.

It is also interesting to note the degree to which there appears to be some kind of regulations being enforced at landing site, despite provision for these not being made in the 1964 Fish Act. In many cases, the regulations to which fishers refer are so-called 'administrative orders' issued by the Fisheries Department to its staff, but nowhere sanctioned in state legislation.

If Ugandan fishers have a problem in the fishery, 51% would first complain to their beach leaders, followed by 39% who would complain to a Fisheries Department representative. 63% of fishers claimed that they would obey a directive issued by the Fisheries Department. If fishers knew that a fellow fish was using an illegal fishing technique, 48% would report him/her to their beach leaders, while 40% would report him/her to the Fisheries Department. Hence, in most cases, if correspondence is necessary concerning issues and problems relating to the fishery, respondents will direct this either to the Fisheries Department or their beach leaders.

When the difficulties concern conflict resolution, however, outcomes are somewhat different. If one fisher were to accuse another of stealing his/her nets, then the issue would be resolved either by the community's elders or a community meeting (72%). If a community were to accuse another community of stealing their nets, the conflict would, again, be resolved by community leaders (85%).

Sources of conflict resolution, therefore, depend on the nature of the problem involved. In Participatory Rural Appraisals (PRAs) at two Ugandan landing sites (Lwalalo and Nkombe) explored these issues even further. At Lwalalo, respondents were asked identify the offences that they thought were the most common at their landing sites, and then to indicate which institutions would punish these (SEDAWOG, 2000b). The Fisheries Department was not identified as a source of punishment for a single offence mentioned. At Nkombe, the same question yielded the answer that the Fisheries Department *together* with the beach leader were a source of punishment for some offences.

Conclusions

Centralised fisheries management strategies in Uganda have had variable success. Their application during the Protectorate period would appear to have been effective only because they operated in conjunction with the Sleeping Sickness Ordinances. The authorities' strategy of moving all inhabitants in a 3 km radius around the lakeshore resulted in one of the largest mass movements in Uganda's history, and was undoubtedly a highly effective fisheries resource conservation measure. Extensive Sleeping Sickness Ordinance staff considerably augmented the Game Department's ability to control fishing, and the restriction of fishing to a few, sanctioned landing sites facilitated this task.

The reduction of sleeping sickness rules from the late 1940s onwards resulted in a considerable diminution in fisheries control. The scale of rule breaking was sufficiently large that the Uganda Protectorate Government disbanded minimum mesh-size regulations, and, soon after, the regulatory authority that governed them.

In the early post-independence period, government efforts to develop and expand the industry overshadowed efforts to control and conserve it. This may, in part, have contributed to the shortcomings contained in the 1964 Fish Act, which provided fisheries managers with few instruments with which to police the fishery. Attempts to develop the fishery were undoubtedly overshadowed by the period of upheaval following Idi Amin's *coup d'état* in 1971. Fish catches declined substantially. As peace came to Uganda in the 1980s and the market for fish grew exponentially, the resource base was severely affected. The Fisheries Department has not been able to contain this trend. The survey findings reported above indicate that Uganda's Lake Victoria fishers agree that the fishery is threatened and that effort levels on the lake are very high. While this may only be a qualitative measure of over-fishing, it would appear to be supported by independent stock-assessment and frame survey data (Okaranon, 2000; unpublished Fisheries Department Frame Survey Data, 2000).

At the same time, fishers appear cautious about criticising the state and its role in the fishery. This suggests that fishers remain convinced that the state does have an important role to play in its administration. At the same time, important developments in Uganda's fisheries administration policy provide fishing communities with the opportunity to play an active role in the regulation of their resource base. It is within this constantly evolving field of regulation that fishing communities will need to define the regulations they wish to see enforced, identify the roles that they feel the state should play, and determine the extent to which any regulations are enforced.

Many of the problems facing Uganda's fisheries management and the fishing industry as a whole are partly because communities or their organisations do not participate in the management processes. There is, however, a growing realisation that they must play an active role in its design, implementation and enforcement. Fisheries regulations on Lake Victoria are indeed well intentioned. The Fisheries Department, however, lacks the capacity to regulate what goes on at many landings, because it is both under-funded and understaffed.

Furthermore, the situation is compounded with a degree of abuse of office by some departmental officials. Under the above conditions, leaving fisheries management solely to the departments may lead to the collapse of the fisheries. Therefore, there is need to allocate some fisheries management roles to the community, in particular institutions such as the LMCs. This will be one way of involving resource users in fisheries management and also tapping indigenous knowledge and institutions in fisheries management.

References

- Atai, A., Gongga, J. and Nyapendi, A. T. 2000: Report of the PRA carried out at Nkombe Beach, Uganda, September 2-10, 2000. In Geheb, K. (Ed) The Co-management Survey: PRA reports from five beaches on Lake Victoria. *LVFRP Technical Document No. 9*. LVFRP/TECH/00/9. Jinja, the Socio-economic Data Working Group of the Lake Victoria Fisheries Research Project: 124-151.
- Ddungu, L. 1998. *Constraints to the export of fish from industrial fish processing plants in Uganda*. A special project submitted to the Faculty of Agriculture and Forestry in the partial fulfilment for the award of the degree of Bachelor of Science in Agriculture of Makerere University Kampala. June, 1998.
- Graham, M. 1929. *A report on the fishing survey of Lake Victoria 1927-1928 and Appendices*. London, Crown Agents for the Colonies.
- Geheb, K. 2000. Fisheries legislation on Lake Victoria: present legislation and new developments. In Geheb, K. and Crean, K. (Eds.) 2000. The Co-management Survey: Co-managerial perspectives for Lake Victoria's fisheries *LVFRP Technical Document No. 10*. LVFRP/TECH/00/10. Jinja, The Socio-economic Data Working Group of the Lake Victoria Fisheries Research Project: this volume.
- Geheb, K. and Crean, K. 2000. Who's doing what sustainably? Fishermen's perceptions of managerial responsibility on Lake Victoria, East Africa. In Geheb, K. and Crean, K. (Eds.) 2000. The Co-management Survey: Co-managerial perspectives for Lake Victoria's fisheries *LVFRP Technical Document No. 10*. LVFRP/TECH/00/10. Jinja, The Socio-economic Data Working Group of the Lake Victoria Fisheries Research Project: this volume.
- Government of the Republic of Kenya, Government of the Republic of Uganda and Government of the United Republic of Tanzania. 1995. *Lake Victoria Environment Management Program Proposal*. Submitted to the World Bank, November 1995.
- Greboval, D. and Fryd, D. 1993. *Inland fisheries of Eastern/Central/Southern Africa: basic fisheries statistics*. FAO/UNDP (Bujumbura), June 1993, Ref.: RAF/87/099-TD/52/93 (En.). Rome, Food and Agricultural Organisation.
- Harris, C. K., Wiley, D. S. and Wilson, D. C. 1995. Socio-economic impacts of introduced species in Lake Victoria fisheries. In Pitcher, T. J. and Hart, P. J. B. (Eds.) *The impact of species change in African lakes*. London, Chapman and Hall: 215-242.
- Hoppe, K. A. 1997. Lords of the fly: colonial visions and revisions of African sleeping-sickness environments on Ugandan Lake Victoria, 1906-61. *Africa* 67 (1): 86-105.
- Ineichen, B. 1967. Bugoto: a fishing community on McDonald Bay, Busoga. *Uganda Journal* 31 (2): 201-205.
- Kanyike, E. S. 1972. The present day fishery of the Uganda waters of Lake Victoria. In: Republic of Uganda, Ministry of Animal Resources: *Fisheries Department Occasional Papers No. 4* of 1972. Entebbe, Government Printer: 2-6.

- Kiiza, F. X., 1998: Fisheries management issues. In *Proceedings of the stakeholder workshop on the fisheries of Lakes Victoria and Kyoga*, Jinja-Uganda 24th – 25th September 1998. Jinja, Fisheries Research Institute: 54-59.
- Kudhongania-Akiki, W. 1973. Commercial trawl fishing on Lake Victoria: fisheries development and conservation. In *EAFFRO Annual Report 1973*. Jinja, East African Freshwater Fisheries Research Organisation: 43-49.
- Kudhongania-Akiki, W. and Coenen, E. J. 1991. Trends in fisheries development, prospects and limitations for Lake Victoria (Uganda). In Fishing Statistics and Information Systems (FISHIN) – Uganda. National Seminar on the Management of the Fisheries of Lake Victoria. *FISHIN Notes and Records Occasional Papers* No. 5. UGA/87/007 Papers. Republic of Uganda/United Nations Development Programme and the Food and Agriculture Organization of the United Nations.
- MAAIF (Ministry of Agriculture, Animal Industry And Fisheries). 2000. *The national fisheries policy*. Department of Fisheries Resources, Entebbe: Draft for consultation.
- Nayenga, P. F. B., 1979. Busoga in the era of catastrophes: 1898-1911. In Ogot, B. A. (Ed.) *Hadith 7: Ecology and history in East Africa*. Proceedings of the 1975 Conference of the Historical Association of Kenya, Nairobi, Kenya Literature Bureau: 153-178.
- Okaranon, J. O. (2000) The fish stocks of Lake Victoria (Uganda). In Tweddle, D. and Cowx, I. G. (Eds.) Report on the Third FIDAWOG workshop held at the Triangle Hotel, Jinja, 29 March to 1 April, 1999. *LVFRP Technical Document* No. 6 (LVFRP/TECH/99/05). Fisheries Data Working Group of the Lake Victoria Fisheries Research Project, Jinja: 30-39.
- Okaranon, J. O. and Wandanya, J. 1991. Fishery resource base for the Uganda sector of Lake Victoria. In Fishing Statistics and Information Systems (FISHIN) – Uganda. National Seminar on the Management of the Fisheries of Lake Victoria. *FISHIN Notes and Records Occasional Papers* No. 5. UGA/87/007 Papers. Republic of Uganda/United Nations Development Programme and the Food and Agriculture Organization of the United Nations.
- Republic of Uganda, 1971. *Ministry of Animal Resources, Annual Report of the Fisheries Department for the year ended 31st December, 1971*. Entebbe, Government Printer.
- Republic of Uganda 1995. *Constitution of the Republic of Uganda*. Published by Authority of the Government of Uganda; Entebbe, Uganda Printing and Publishing Corporation.
- Republic of Uganda 1997. *The Local Governments Act*. Act Supplements No. 1 to The Uganda Gazette No. 19 Vol. XC dated 24th March, 1997. Published by Order of Government. Entebbe, Uganda Printing and Publishing Corporation.
- Reynolds, J. E. and Greboval, D. F. 1988. Socio-economic effects of the evolution of Nile Perch fisheries in Lake Victoria: a review. *CIFA Technical Paper* No. 17. Rome, Committee for the Inland Fisheries of Africa, Food and Agricultural Organization.
- SEDAWOG, 2000a. The co-management survey: results of the survey of fishers. In Geheb, K. and Crean, K. (Eds.) *The Co-management Survey: Co-managerial perspectives for Lake Victoria's fisheries*. *LVFRP Technical Document* 11. Jinja, Socio-economic Data Working Group of the Lake Victoria Fisheries Research Project: this volume.
- SEDAWOG 2000: Report of the PRA carried out at Lwalalo Beach, Uganda, June 5-14, 2000. In Geheb, K. (Ed) *The Co-management Survey*:

PRA reports from five beaches on Lake Victoria. *LVFRP Technical Document No. 9*. LVFRP/TECH/00/9. Jinja, the Socio-economic Data Working Group of the Lake Victoria Fisheries Research Project: 37-72.

Ssali, W. M., Reynolds, J. E. and Ogutu-Ohwayo, R. 1991. Industrial processing investment and development for the fisheries of Lake Victoria: present and future concerns. In Fishing Statistics and Information Systems (FISHIN) – Uganda. National Seminar on the Management of the Fisheries of Lake Victoria. *FISHIN Notes and Records Occasional Papers* No. 5. UGA/87/007 Papers. Republic of Uganda/ United Nations Development Programme and the Food and Agriculture Organization of the United Nations.

Temple, P. 1965. Lolui fishermen: a study of migratory groups on Lake Victoria. *Proceedings of the East African Academy* Vol. III (1965): 119-127.

Uganda Government, 1964. *The Fish and Crocodiles Act* Chapter 228, Revised Edition 1964. Government Printer, Entebbe, Uganda.

Uganda Government, 1967. *Policy statement by the Hon. J. K. Babiiha, M. P., Minister of Animal Industry, Game and Fisheries, 1966/67*. Entebbe, Government Printer.

Uganda Protectorate, 1936. *Annual Report of the Game Department for the year ended 31st December, 1935*. Entebbe, Government Printer.

Uganda Protectorate, 1939. *Annual Report of the Game Department for the year ended 31st December, 1938*. Entebbe, Government Printer.

Uganda Protectorate, 1947. *Annual Report of the Game Department for the year ended 31st December, 1946, and including the years 1940-1945*. Entebbe, Government Printer.

Uganda Protectorate, 1949. *Annual Report of the Game Department for the year ended 31st December, 1948*. Entebbe, Government Printer.