

AMENDMENTS TO APPENDICES I AND II OF THE CONVENTION

Proposals Concerning Export Quotas

A. PROPOSAL

Transfer of the Ethiopian population of Crocodylus niloticus from Appendix I to Appendix II subject to an export quota.

B. PROPONENT

The People's Democratic Republic of Ethiopia and the Republic of Zimbabwe.

C. SUPPORTING STATEMENT

1. Taxonomy

11. Class: Reptilia
12. Order: Crocodylia
13. Family: Crocodylidae
14. Species: Crocodylus niloticus, Laurenti, 1768.
15. Common Names: English: Nile crocodile
French: crocodile du Nil
Spanish: Cocodrilo del Nilo
Amharic: Azo
16. Code Numbers:

2. Biological Data

There is considerable information on the biology and ecology of the Nile crocodile and also on its conservation and utilization. Notable amongst scientific work is the monograph of Cott (1961), the theses produced on the crocodile at Lake Turkana, part of which is in Ethiopia, by Graham (1968) and Modha (1967) and the recent work of Hutton (1984). With this information as background, this proposal presents only biological data which are specific for Ethiopia.

21. Distribution:

211. Geography: Ethiopia is a large and ancient country in the North-East of Africa, bordering the Red Sea. With an area of 1.2 million km², this is the tenth largest country on the continent. Ethiopia has an elevated central plateau varying in height between 2,000-3,000 m. To the North and East of the plateau are large tracts of arid and semi-arid country, though the Awash River, which drains through the North-East to end at Lake Abe, is perennial and supports a crocodile population.

Crocodiles are common in perennial lowland rivers in the South and West, and in fresh water Rift Valley lakes. Large sections of the upland plateau are climatically unsuited for crocodiles, but animals are reported from Lake Tana at over

2,000 m and occur in most rivers which cut back into the plateau (see map 1). The main restriction on crocodiles occurrence and numbers is the expanding human population which currently numbers 42 million most of whom live in the fertile highlands.

212. Historical Distribution: Ethiopians always recognised that crocodiles were common in low lying rivers and Rift Valley lakes, but throughout the country religious tradition has made the utilization of crocodiles (and indeed any wildlife) for food unlikely and for this and other reasons crocodiles have never featured large in Ethiopian culture. Some people in the extreme South do eat crocodiles and their eggs like neighbouring people around Lake Turkana, but this must be considered the exception (Chapman, 1969; Graham, 1968).

The first documented evidence of serious crocodile utilization come from the 1950s and early 1960s when crocodile skin fashion products were important in Europe and the value of a 3 m crocodile skin was about £ 20, a large sum in those days. Various hunters held concessions to shoot crocodiles in Ethiopia in the 1950s and were able to hunt in most areas with few restrictions other than that animals under 2 m could not be taken (Chapman, 1969).

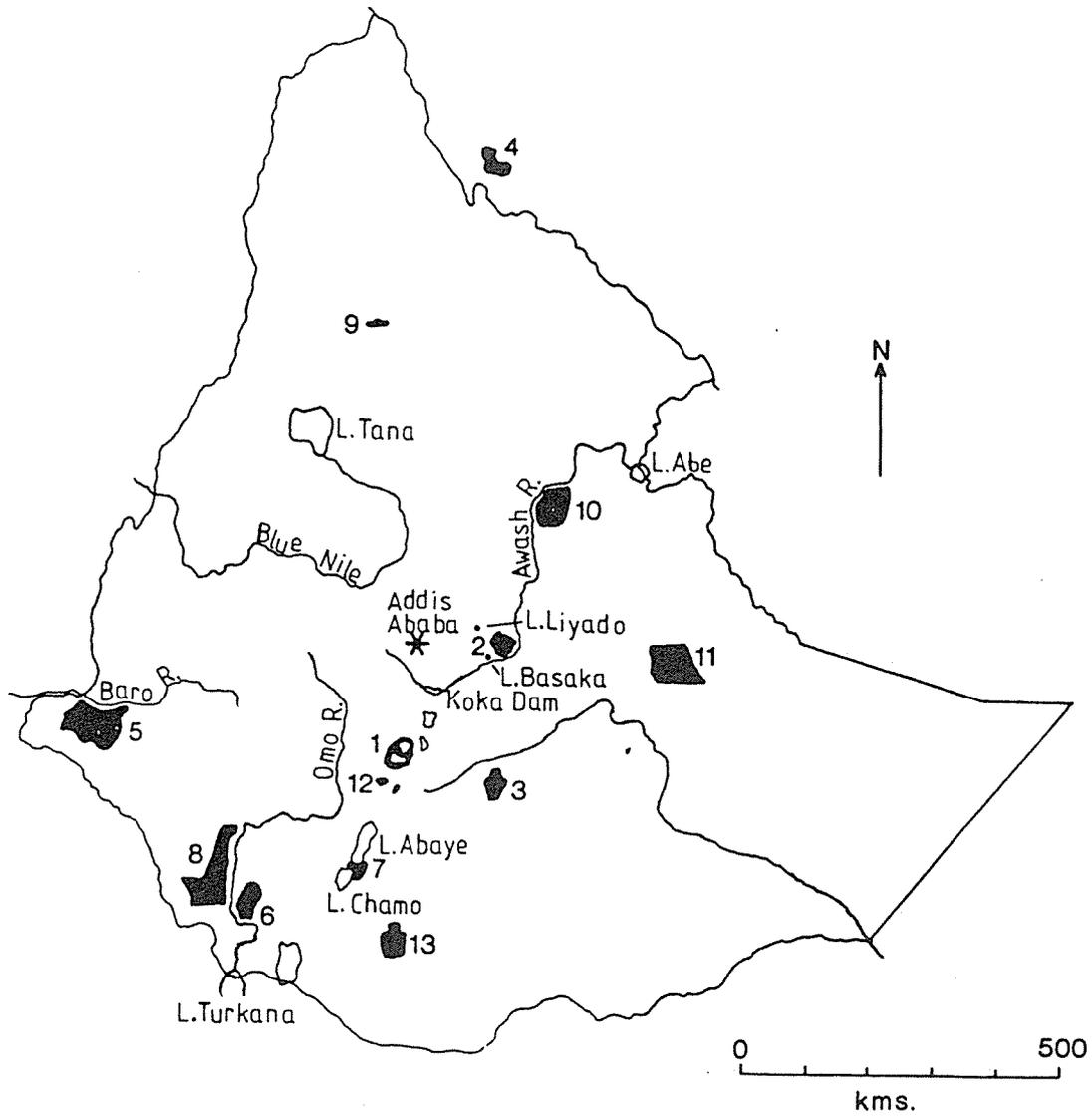
In 1963 a French company (Dofan Ethiopia S.C.) began hunting and in 1966 were given sole hunting rights in exchange for the construction of a small tannery which took skins to "crust", and a series of surveys which were undertaken by a zoologist. Surveys were undertaken on Lake Abaya (formerly Margherita), Lake Chamo, the Rivers Awash, Omo and the Blue Nile (Chapman, 1969). Although of little importance to this proposal the EWCO is seeking to recover this information, and also on the number of skins taken during this period, however anecdotal.

By 1969 Chapman reported that the population of Lake Abaya had been heavily hunted and reduced to a few hundred animals. Lake Chamo was believed to have been even fewer crocodiles. He predicted that populations could take 50 years to recover. In fact by 1986 over 200 nests were found on Lake Chamo alone (see below), demonstrating the rapid potential recovery rate of exploited crocodile populations (Craig, Craig and Hutton, 1989).

Chapman (1969) describes the Awash River in some detail and gives some anecdotal information on its crocodile population. The most important information is that crocodiles occurred from the Koka Dam in the headwaters of the Awash, and in all neighbouring lakes, all the way to the lakes and swamps into which it disappears 500 km later on the Djibouti border. In some inaccessible places populations were believed to be good, but despite exploitation they were nowhere extirpated.

The Omo River is also described by Chapman (1969) who reported an estimated 2,000 adults in the stretch of 100 km which is now within the Omo National Park. It is not clear if this areas was subsequently hunted, but even in heavily exploited areas close to Lake Turkana Chapman reported that "the river has been repopulated".

Conservation areas of Ethiopia & places mentioned in text



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|--|-------------------------------------|
| 1. Abijatta-Shalla Lakes National Park | 8. Omo N.P. |
| 2. Awash N.P. | 9. Simen Mountains N.P. |
| 3. Bale Mountains N.P. | 10. Yangudi Rassa N.P. |
| 4. Dahlac Marine N.P. | 11. Harrer Elephant Sanctuary |
| 5. Gambella N.P. | 12. Senkelle Swayne's Hartebeest S. |
| 6. Mago N.P. | 13. Yavello S. |
| 7. Nechisar N.P. | |

Crocodiles were reported from the rivers of the arid South-East, though their status unknown.

In the West, Chapman identified the Baro River in Gambella as an area which had been hunted extensively both from Ethiopia, and illegally from the Sudan.

The Blue Nile was reported to be unsuitable for crocodiles along much of its course (though they were found throughout to Lake Tana at over 2,000 m) and the lower reaches were said to have been heavily poached from Sudan.

As early as 1969 Chapman was concerned about the effect of relatively indiscriminate hunting on crocodile populations in Ethiopia. He suggested a series of sensible and innovative measures such as quotas, size limits, closed seasons, protected areas and even crocodile ranching. Albeit slowly, Ethiopia subsequently moved steadily towards crocodile conservation and management, starting with a total ban on hunting in 1973 and culminating in the present successful ranching scheme.

In 1973 Bolton made a survey of Lake Abaya from a boat during daylight hours and saw 110 crocodiles deemed to be of breeding size (Bolton, 1973). It is interesting to note that a similar daytime count of crocodiles on part of Lake Kariba, Zimbabwe, where the crocodile population is believed to be in excess of 15,000 animals, revealed only about 0.3% of the animals (Hutton, pers. comm.). Clearly, crocodiles were not at endangered levels at the end of this period of exploitation.

In April 1977 an aerial survey of the crocodiles revealed 134 animals in Lake Abaya and 148 in Lake Chamo. These are presumed to have been adults and subadults (Andeberhan, 1977; Bolton, 1983). In a similar aerial survey of Lake Kariba, Zimbabwe, only 30% of the adults and subadults which were counted by spotlight at night were seen by experienced observers in aerial survey (Taylor, 1987).

It has further been found that on average only about 35% of crocodiles are counted at night (Hutton and Woolhouse, 1989). While correction factors are not directly transferable, it seems obvious that the crocodile populations of these lakes was substantial in 1977.

In July 1983, 102 adult crocodiles were seen in a daytime count of about 15% of Lake Chamo in an area where, ten years previously 10 - 20 adults were seen (Bolton, 1983).

213. Current Distribution: Section 212. shows that in recent times crocodiles occurred in most suitable waters below the central plateau, on its edge and in the Rift Valley. Commercial hunting may have reduced numbers considerably in accessible places, but in many areas populations were untouched. Even where exploitation occurred, the evidence strongly suggests that undisturbed populations had recovered by the late 1970s. Although in the last twenty years

Ethiopia's human population has doubled, and the settlement and cultivation of lake and river banks has increased with it, crocodiles still occur throughout their historical range.

Members of the EWCO have recently seen crocodiles in fair numbers in the Awash River and associated lakes (notably Lakes Basaka and Liyado), the Omo River, the main Rift Valley lakes with fresh water and the Baro River in Gambella. In less disturbed parts of the country crocodiles are again found in large and spectacular concentrations which are totally unafraid of man (Hutton, 1988a).

22. Population: Crocodile surveys have recently been undertaken on Lakes Abaya and Chamo in the Rift Valley, the Omo River within the National Park, and the northern section of Lake Turkana which falls within Ethiopia.

As noted in Section 21.2. above, Bolton (1983) reported that crocodiles in Lake Chamo appeared to have increased dramatically since the end of commercial hunting. The twin Lakes of Abaya and Chamo were subsequently identified as having considerable potential for providing eggs for crocodile ranching (Bolton, 1984). As a result, between 1984 and 1987, four standardized daytime boat counts were made of Lake Chamo by EWCO in the months of November/December, before egg laying and collection. In addition, Bolton (1984) counted about 5 km of the Chamo shoreline at night to obtain a rough correction factor for daytime counts. He saw a total of 360 crocodiles by day. In his sample areas he saw 8 by day and 27 by night, a correction factor of 3.4.

Table 1 Crocodile counts of Lake Chamo 1984 to 1987

Year	Number seen by day	Correction by 3.4	Number of nests found
1984	397	1,350	22
1985	533	1,812	87
1986	1,321	4,491	126
1987	1,228	4,175	316

The marked increase in the numbers seen between 1985 and 1986 is probably due to an increase in coverage and observer experience rather than to any real increase in numbers.

Over the initial survey period nest sites were identified and a crocodile ranch built nearby (see section 31. below). The number of nests located in each year is also described in Table 2. The majority were from Lake Chamo, but in the early years at least a few were from the southern end of Lake Abaya which is contiguous with Chamo through the 10 km River Kulfo (Bolton, 1984; 1986). On a small beach in the North-western section of Lake Chamo over 200 adult crocodiles, many of which are over 5 m total length, can be seen basking at almost anytime. This is probably the most outstanding wild crocodile spectacle anywhere in the world (Hutton, 1988a).

It is hard from the survey figures available to estimate the total population with any confidence. Total estimates are of limited value to the wildlife manager in any case. Of more importance are trends. It is clear that over the last twenty years, the crocodile population of Lake Chamo has increased rapidly. It is believed still to be increasing despite egg utilisation for ranching.

About 100 km of river within the Omo National Park was briefly surveyed by air on 4 February 1989. An observer counting only the west bank saw 259 animals larger than 1.5 m total length. No comparable surveys have been made from the ground or river itself, but Hirsch (pers. comm.) saw more than 1,000 animals in a stretch of 300 km of water upstream of the Park while "whitewater rafting" in 1984.

In 1968 Graham reported 8.8 crocodiles/km in the northern section of Lake Turkana which falls with Ethiopia. When re-surveyed in 1988 the density had declined slightly (5.22/km), but not significantly (Hutton, 1988b). The Lake Turkana population is contiguous with that of the Omo River.

23. Habitat: As noted elsewhere, the human population of Ethiopia has doubled in the last 20 years, and is expected to do so again in the next.

Densities of virtually all large wildlife species have declined as a result of human encroachment into former wilderness, and even protected areas. Riverbank settlement and cultivation is a major problem in drier parts of the country and even the Omo River within the National Park is now settled. This will have a deleterious effect on crocodiles. There is no evidence that people are hunting or feeding on crocodiles (though there is abundant evidence for the reverse), but people and crocodiles compete for raised sandy banks and the crocodiles are commonly unable to use prime nesting areas. This is even the case on relatively undisturbed Lake Chamo where crocodile nesting is largely concentrated within Nechisar National Park (Bolton, 1984). Suitable habitat will continue to disappear in this way and it is important to realize that it is this pressure and not exploitation which is the biggest threat to the survival of crocodile in Ethiopia today. Indeed, utilization is seen by EWCO as the key to conservation. The pilot project based on Lake Chamo is conspicuously successful. Both nationally and at a local level the lake is appreciated as a bank of crocodiles capable of earning substantial amounts of foreign currency. The conservation status of the population is better than at any other time in its history.

24. Conclusion: It is concluded that crocodiles still occur throughout their historical range, that in many protected places they have dramatically increased in the last 20 years since the end of hunting and that the principal threat to their continued existence comes from the inexorable expansion of the human population and not from exploitation. Indeed, utilization to give wild populations an economic value is believed to be the only way to assure the survival of these animals in any thing but small and fragmented populations.

3. Trade Data

31. National Utilization: Crocodiles have not been commercially hunted for their skins in Ethiopia since 1972 and the former Dofan tannery has long since shifted to tanning sheep skins. There is no vegetable tanning of crocodiles skins and there are no crocodile products for sale anywhere in the country. It is rare for Ethiopian people to eat either crocodile or their eggs (see above) and there is no exploitation for national consumption of any sort.

Between 1973 and 1988 the only legal utilization of crocodiles of any sort was through sport hunting.

Table 2: Number of Crocodiles Hunted under Sport-hunting Licence

Year	No. of crocodiles hunted
1985	9
1986	17
1987	20
1988	14

In June 1983, the Ethiopian Ministry of Agriculture and the FAO signed an agreement to assist with crocodile management. This was extended into a crocodile ranching programme based on the crocodile population of Lake Chamo. A ranch was built, equipped and staffed at Arba Minch. It took in its first hatchling in 1985 (Bolton, 1983; 1984; 1986; 1987). The hatchlings collected for the ranch in each year are detailed in Table 3.

Table 3: Number of hatchlings collected and increase and percentage alive after one year

Year	Number of hatchlings	Number alive age 1	% live
1985	150	80	53%
1986	2,713	260	10%
1987	2,622	2,350	89.6%
1988	2,500	2,315	92.6%

It is notable that in 1986 when 206 nests were found only 126 were opened (61%). From these nests 5,521 eggs were taken for incubation and 4,928 hatchlings were obtained - an incubation success of 89.3%. Of these only 2,622 were placed on the farm, the rest were released back into the wild (Abdu Mahamued, 1987).

The survival of crocodiles in their first year on the ranch is show in Table 3. The first two years were notably unsuccessful, but by the fourth year survival had increased from 10 to 93%.

Local wildlife and veterinary staff have twice visited crocodile farms in Zimbabwe in 1984 and 1987; Zambia in 1987; Kenya 1987 and 1988, and emphasis has been placed on the training of local management. An attempt in 1987 to have the farm assisted by an outside company claiming expertise was unsuccessful. Subsequently the policy to training local management was assisted by WWF-International who organized an African crocodile specialist to visit the farm in August 1988 (Hutton, 1988).

Management of the Arba Minch ranch is now adequate, and constantly being improved. The ranch has 68 four year old, 89 three year old and almost 2,200 two year old animals ready for slaughter and another 2,300 one year olds. A future crop of 4,000+ hatchlings will be taken in 1989. No sales of crocodiles and their products have been made either internally or externally.

32. Legal International Trade: Ethiopia only acceded to CITES in 1989. There has been no international trade in crocodiles or their products in recent years.

This proposal is intended to allow the export of all ranchered products accumulated to date.

33. Illegal Trade: It has long been held that crocodiles are poached from the Sudan along western rivers, notably the Blue Nile and the Baro (Chapman, 1969). We have no recent information on this but some illegal movement from these regions cannot be discounted. Current upheavals and unrest in the Sudan bordering Ethiopia make investigation impossible. It is, however, fairly certain that there is no illegal offtake of animals from large populations of the Omo River, Awash and Rift Valley lakes.

34. Potential Trade Threats:

341. Live Specimens: EWCO is faced with many reports of problem crocodiles each year. Human life is commonly lost to crocodiles. It is the intention of EWCO to catch rather than shoot offending crocodiles in the future with a view to housing them either on local ranches or for export. This will cause no threat to the wild population. An undertaking will be made to hold the number of large animals exported to less than 20 each year.

In view of the limited capacity of the Arba Minch ranch (Bolton, 1983; 1984; 1986; 1987; Hutton, 1988a) a second ranch is planned in the near future. In the meantime, however, EWCO intends to export up to 2,500 live hatchlings each year. Again this will present no threat to the wild population. Craig, Craig and Hutton (1989) have shown that over 80% of all eggs and hatchlings can be removed from otherwise unexploited, stable or growing Nile crocodile populations without causing them to decline. A return to the wild of juveniles of 1.5 m total length is planned and will strengthen the wild population even more.

342. Parts and Derivatives: It is intended that trade in crocodile parts and derivatives will be controlled, in the short term, under Resolution Conf. 5.21, and in the longer term by Resolution Conf. 3.15 ranching proposal. All

products will be tagged and documented in accordance with the requirement of CITES. All products will come from controlled ranching and none from a wild harvest. There is, therefore, no potential trade threat from this source.

4. Protection Status

41. National: The Nile crocodile is a game animal protected under Wildlife Conservation Regulation Legal Notice No. 416 of 1972; Wildlife Conservation (Amendment) Regulation Legal Notice No. 445 of 1974; and Forest and Wildlife Conservation and Development Proclamation No. 192 of 1980. This means that crocodile can only be hunted under a licence issued by the Ethiopian Wildlife Conservation Organization. In addition, ownership or possession of a crocodile or products is, therefore, only permitted under a valid certificate of ownership issued by the organization.

Crocodile populations occurring within the boundaries of Ethiopia's National Parks and Reserves are fully protected except for management purposes. These populations account for approximately 50% of Ethiopia's crocodile population.

42. International: Ethiopia has acceded to the Convention on International Trade in Endangered Species of Wild Fauna and Flora on 12 January 1989, under Council of State Decree No. 14/1989.

The Nile crocodile was placed on Appendix I of CITES in 1973. It seems unlikely that the species ever merited this listing, but if it did the populations of several countries have recovered until they can sustain utilization. An ever increasing number of populations have been downlisted to Appendix II under Resolution Conf. 3.15 or 5.21. The Ethiopian population will, hopefully, join these.

43. Additional Protection Needs: The key to protection of the Nile crocodile lies with the strict control of imports into consumer countries. Producer countries must, of course, abide strictly by CITES and try to prevent illegal exports, but it is consumer countries which have the resources to check shipments, documentation and end users to prevent abuse.

If these controls are in place, there are no additional protection needs.

5. Information on Similar Species

There are no other crocodylian species in Ethiopia.

6. Comments from Countries of Origin

Countries of origin are united in their belief that the Nile crocodile should be in Appendix II (see Hutton et al., 1988). However, they are prepared to accept control and the encouragement of good management through the implementation of Resolutions Conf. 3.15 and 5.21.

7. Additional Remarks

71. This proposal is made under Article II 2(a).

72. Ethiopia has a well established crocodile ranching programme, subject to outside scrutiny and supported by organizations such as FAO and WWF-International. It had been intended that on joining CITES a Resolution Conf. 3.15 proposal on ranching would be submitted in time for the October 1989 CITES meeting. Unfortunately, as a result of bureaucratic delays, it has not been possible to accede to the Convention in time to submit a proposal 330 days before the meeting.

This proposal for a quota under Resolution Conf. 5.21 is, therefore, a temporary measure to allow the export of rapidly accumulating ranched products. It is intended that a ranching proposal be submitted in time for consideration at the 1991 meeting.

It would be helpful, if, at this stage, Parties indicated what information, additional to that presented here, will be required for a Resolution Conf. 3.15 proposal.

73. Ethiopia intends to utilize and export crocodiles and their products from two main sources:

1. Sport hunting
2. Ranching

There may also be some animals for export following the live capture of problem crocodiles.

It is intended that up to 50 specimens will be exported from sport hunting though in some instances one animal may give more than one specimen, for example, where skin and skull are exported separately.

In 1989, 1990 and 1991 it is intended that up to 2,500, 4,000 and 6,000 skins will be produced respectively from the ranch at Arba Minch (again, the number of specimens may exceed this number as meat, skulls and hides may be exported separately).

It is also intended to catch and export 2,500 hatchlings in 1990 and 1991.

Exports of wild-caught problem crocodiles will be kept to 20, or below.

Table 4: Quota required for the years 1989-1991

Year	Ranch skins	Hatchlings live	Hunting trophies	Adults live	Curios from ranching	Total
1989	2,500	0	25	20	300	2,845
1990	4,000	2,500	50	20	300	6,870
1991	6,000	2,500	50	20	300	8,870

92.

74. Ethiopia will comply entirely with Resolutions Conf. 5.21 and 6.17.

Resolution Conf. 5.21 Requirements:

- a) There is sufficient basis to establish that the Ethiopian crocodile population should be in Appendix II.
- b) Trade in specimens will be controlled so as not to lead to a reduction in CITES controls on other species.
- c) Ethiopia is capable of fulfilling its obligations under Article IV, paragraphs 2(b) and 3, of the Convention.
- d) Annual reporting will be made in a timely fashion.

Resolution Conf. 6.17 Requirements:

- a) Skins will be tagged in the year of their taking.
- b) No export permits will be issued before legitimately taken skins are tagged and presented to the Management Authority (which owns and operates the ranch in any case).
- c) Unused tags will be destroyed at the end of the quota year.
- d) A report will be sent to CITES showing the number of tags used at the end of each year.
- e) The annual report will give the size of the skins exported.

In addition to the above, Ethiopia will document and tag all products in line with the recommendations of Resolution Conf. 3.15. Ranch and wild-taken crocodiles will be distinguished.

8. References

- Abdu Mahamued, 1987. Crocodile Ranching in Ethiopia. Report to Crocodile Specialist Group. Mimeo 2pp.
- Adeberhan, K., 1977. Lake Abaya and Lake Chamo crocodile survey. Report to Government. 5 pp.
- Bolton, M., 1973. Report on a survey of crocodile (C. niloticus) in selected parts of Lake Margherita (Abaya). Report for Government. 13 pp.
- Bolton, M., 1983. Assistance to Crocodile Management - Ethiopia. FAO Report FO:TCP/ETH/2307 Consultant's Report.
- Bolton, M., 1984. Assistance to Crocodile Management - Ethiopia. FAO Report FO:TCP/ETH/4405 Consultant's Report.
- Bolton, M., 1986. Crocodile Farming - Ethiopia. FAO Report FO:OP/ETH/84/009 Field Document.
- Bolton, M., 1987. Crocodile Farming - Ethiopia. FAO Report FO:OP/ETH/84/009 Field Document 2.
- Chapman, C.M., 1969. The Nile Crocodile in Ethiopia. Unpublished MS. 18 pp.

- Cott, H.B., 1961. Scientific results of an enquiry into the ecological and economic status of the Nile crocodile (Crocodylus niloticus) in Uganda and Northern Rhodesia. Trans. Zoo. Soc. Lond. 29(4):211-356.
- Craig, G.C., Graig, D. St-C. and Hutton, J.M., 1989. A population model for the Nile crocodile. Annex to CITES Nile crocodile project; Consultants' Report.
- Graham, A.D., 1968. The Lake Rudolf Crocodile (Crocodylus niloticus Laurenti) population. Msc. Thesis, Nairobi, Kenya.
- Graham, A.D., 1987. Methods of Surveying and Monitoring Crocodiles. IN/Hutton et al., Eds. Proc. SADCC Workshop Crocodile Management and Utilization. Kariba, June 1987.
- Hutton, J.M., 1984. The Population Ecology of the Nile Crocodile (Crocodylus niloticus Laurenti, 1768) at Lake Ngezi, Zimbabwe. D. Phil. Thesis, University of Zimbabwe.
- Hutton, J.M., 1988(a). Crocodile and Ostrich Management in Ethiopia. Consultant's report to WWF-International and EWCO. 68 pp.
- Hutton, J.M., 1988(b). The Status and distribution of crocodiles in the major waters of Kenya in 1988. Report to Director, Wildlife Conservation and Management Department. Kenya.
- Hutton, J.M., Graham, A.D., Mphande, J.N.B. and Roth, H.H., 1987. Eds. Proc. SADCC. Workshop Crocodile Management and Utilization. Kariba, June 1987.
- Hutton, J.M. and Woolhouse, M.J., 1989. Spotlight counts and mark recapture to estimate and monitor the absolute abundance of Nile crocodiles at Lake Ngezi, Zimbabwe. J. Applied. Ecol.
- Modha, M.L., 1967. The ecology of the Nile Crocodiles Crocodylus niloticus Laurenti, 1768 on Central Island, Lake Rudolf. Msc. Thesis, Nairobi, Kenya.
- Taylor, R.D., 1987. Estimation of crocodile numbers on Lake Kariba, Zimbabwe. IN/ Hutton et al., Eds. Proc. SADCC Workshop Crocodile Management and Utilization. Kariba, June 1987.