

N Y A S A L A N D



P R O T E C T O R A T E

Annual Report of Department of Game, Fish and Tsetse Control for the year ended 31st December, 1949

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A. STAFF AND GENERAL

Since the organization, which appears for the first time in the 1950 Protectorate Estimates as a separate Department, has been evolving over the past three years, it may be as well to preface its initial Report with a brief account of its history.

2. It arose, in some measure, in response to the Report of the Game and Forest Reserves Commission of 1946, which recommended the establishment of an organization to deal with the problem of crop marauding game and that of Tsetse Fly control, also to some extent a "game problem."

3. Mr. B. L. Mitchell was appointed as Tsetse Entomologist in September 1946 as the first appointment in this organization. His work was at this time directed by the Standing Committee on Tsetse and Trypanosomiasis. Mr. A. D. Sanson was appointed as Fisheries Officer in February 1947 and worked under the direction of the Director of Agriculture. In August, 1947, a Game, Fish and Tsetse Control organization was formed as a branch of the Provincial and District Administration, in which these two officers were included, Mr. H. J. H. Borley being seconded from the Administration to administer the new organization. Temporary officers were recruited to act as Game Control Officers. This organization was intended as an interim one, pending the formation of a Game, Fish and Tsetse Control Department jointly with Northern Rhodesia, which was then under consideration.

4. In the event the idea of a joint department seemed unsatisfactory and was abandoned. It has now been decided to establish a local Game, Fish and Tsetse Control Department as from 1st January, 1950. Apart from some changes in the staffing of the Game Control side this is virtually the 1947-49 organization under a different title.

5. The interim nature of the original organization led to the appointments on the Game Control side being on a month to month basis. This proved unsatisfactory and late in 1948 it was decided to recruit on the more permanent basis of three-year agreements. The original recruitment policy, which had, under the circumstances to be short term, has accentuated the usual recruitment difficulties which any new organization has to surmount and staff changes between 1947 and 1949 have been regrettably numerous on the Game Control side.

6. The housing and building shortage has also hampered the organization very severely and much time has had to be spent in building under Departmental supervision. Thanks are due to the Departments of Agriculture and Veterinary which have lent office accommodation to the Officer in charge and the Tsetse Entomologist respectively.

7. The disaster of the failure of the 1948-49 rains made necessary the secondment of all the Southern Province staff of the organization to the planting drive from January till March 1949 and the Game Control Officer, Southern Province, was seconded for anti-famine work from 1st September to the end of the year.

8. The staff position as at 31st December 1949 is set forth in Appendix I.

B. GAME

9. Since the main reason for the formation of the Game side of the organization was the protection of crops, emphasis has to date been laid on game and vermin control rather than game conservation.

10. In the field of game and vermin control the organization has had to experiment with European and African personnel as well as with techniques. In the opening stages an endeavour was made to give some sort of overall protection by deploying hunters over wide areas, at least during the season of growing crops. In default of fully-trained reliable African hunters, however, and with the additional handicap of inexperienced European personnel this policy was found to be unworkable in practice and from mid-1948 the hunters have been to an increasing extent concentrated in teams under the direct supervision of the European officers. This has led to better results per man and more tangible effects in the areas which have been the object of such concentrated efforts. It has not given universal satisfaction because the "front" has naturally been limited, but pending the training of really reliable men deployment of hunters over a wide area for any length of time appears impracticable. The secondment of the Game Control Officer, Southern Province, to anti-famine measures and the frequent staff changes in the other Provinces have, of course, prevented the full exploitation of the possibilities of the concentration system.

11. In the Northern Province, which was without a European officer from January to September, the hunters have been deployed for the greater part of the time, though some concentrated efforts have been made in Chinteché District and the Kasitu Valley of Mzimba. In the Central Province approximately half the Kasungu District and the greater part of the Kota-Kota Lake-shore and some of the hill area have been dealt with. The effect in the first has been tangible and of some duration. On the Kota-Kota Lake-shore the initial effect was good but the long drought, which drove the larger game from the Reserve to the Lake-shore in search of water, has made the effect less lasting. An effort was also made on the Dowa Lake-shore but was of short duration owing to the Game Officer in charge becoming involved in a motor accident. A successful foray against elephant on the Dedza Lake-shore and in Southern Ncheu was also undertaken and very definite relief given in the latter area. In the former, the water question again prevented the effect being very lasting. The effort could not be repeated owing to lack of staff. Dedza and Ncheu Districts both employed a number of poisoning teams under the supervision of the District Commissioners, and good results were obtained.

12. In the Southern Province the main effort has been in Fort Johnston District, since it was to this area that the Game Officer was seconded for anti-famine duties. Only a small team of hunters could be kept in being but, per man employed, has produced good results. In the early part of the year a few extra hunters were employed and attached to some of the other officers seconded for the planting drive. The concrete results were only moderate but the influence on morale not negligible. During the few months when the Game Officer was not employed on anti-famine work efforts were made in the Shire Valley area of Zomba District and the Chiromo Area of Port Herald, chiefly against raiding hippo.

13. An analysis of African staff employed, animals destroyed and ammunition expenditure appears at Appendix II, with 1948 figures for comparison as far as possible, and reflect the insistence which has been laid on the destruction of vermin as distinct from game.

14. Appendix III shows the revenue accruing to the Native Development and Welfare Fund and Native Treasuries from the sale of game meat shot under the Scheme, the value of the ivory collected, and the number of skins sent to the Veterinary Department for tanning.

15. Mention should here be made of the crocodile destruction scheme which has been carried on on Lake Nyasa, though its effects will naturally be of benefit to the fishing industry rather than to agriculture. The work was carried on under the supervision of Mr. W. H. Jollyman, and started in the Salima Area, Dowa District, in January 1949. The Maleri Islands, once a breeding ground for crocodiles, was virtually cleared early in the year and a very definite impression made on the enormous population of the Linthipe River Delta. The closure of the rivers and the onset of the cold season high winds made work on this exposed coast impossible after July and the effort shifted to the south-east arm of the Lake and Lake Malombe. Results were not quite so obvious here, the crocodile population being much less concentrated, but nevertheless large numbers were killed. The great numbers of reptiles were killed by poison baits but in the south-east arm, efforts were also made to work out a technique of trapping so as to permit an earlier recovery of the bodies and utilization of the skins for commercial purposes. Unfortunately, these efforts did not meet with success. The time spent on them rather interfered with the poisoning campaign and so lessened the overall effect.

16. During the year some 375 dead crocodiles were actually seen by Mr. Jollyman and a further 50 were reported by Africans. These figures, at least so far as the effort in the Linthipe Delta is concerned, must represent only a proportion of the reptiles actually killed.

C. FISHERY

17. The first essential of Fishery Control work is the collection of statistics on which control measures should be based. In accordance with this fact the main effort of the Fisheries Officer has been directed to the training and establishing of African recorders and stationing them at various beaches representing key points in the African industry. The Non-African fishing firms are required to submit their own statistics of catches and their stations are also subject to periodic inspection by the Fisheries Officer.

18. The active development of African fisheries by encouragement, organization of twine supplies, the exploitation of species of fish, other than those generally popular, and the stumping of beaches, has also been attempted.

19. The Fisheries Officer has been considerably handicapped by the lack of a launch, the lack of an office, until he built himself one, and his secondment to the planting drive interrupted his training scheme for African recorders very severely.

The State of the Fish Stocks

20. The report of Miss R. H. Lowe, the biologist who lately did two years' intensive work on the southern half of the Lake, was received early in 1948. This drew attention to the existence of overfishing of the Tilapia group in the south-east arm. Later observations of the Fisheries Officer supported these findings, overfishing being reflected in the fall in catch per single haul of seine and ring net in the non-African fishery from 1944 to 1948, the catches of these nets consisting chiefly of Tilapia.

21. In accordance with these findings a long close season on seine and ring net fishing was imposed during the 1948-49 season. Unfortunately the imminent danger of famine in 1949 made it necessary to make all possible use of local food supplies immediately and the restrictions had to be relaxed for the latter part of the 1948-49 season and the 1949-50 season.

22. The slight rise in catch per unit effort of the ring net during 1949 suggests that the stocks of off-shore-dwelling Tilapia received some benefit from the close season.

23. The continued fall in catch of the shore seines is partly explained by the fact that the firm owning the largest shore seines abandoned this method of fishing during 1949 so that the unit of effort is itself reduced. This very fact is, however, an indication of the shortage of the inshore species.

24. The failure of the 1948-49 rains is likely to have had a bad effect on the species of fish which enter rivers to spawn, in particular the Labeo, as few rivers came down in sufficient flood to permit entry. The effect will naturally not be felt for two or three years when the fish which should have been spawned in 1948-49 would normally reach maturity.

The Non-African Fisheries

25. Tables in Appendix IV give statistics of the nature of the non-African effort, the catch per unit effort, the estimated total catches of the more important species and the estimated weight of fish landed. The tables are based on returns submitted by the non-African firms themselves, verified as far as possible by the personal observations of the Fisheries Officer.

Note should be taken of the large number of immature Tilapia appearing in the catches during 1947. This was due to the use of a net with mesh under the specified size by one firm. This very small meshed net has been withdrawn but there is still room for revision in the "standard" mesh.

26. During 1949 a new non-African firm made its appearance in the South-east arm of the Lake. This firm is at present concentrating entirely on the predatory catfish so that its activities should contribute in some degree to relaxing the pressure on the overfished Tilapia stocks. The organization, owing to the difficulties of supply of equipment it still in the embryonic stage. In all four non-African firms were in action at the close of 1949.

The African Fishery

27. Records of African catches are summarized at Appendix V. These records concern the observed catches and not necessarily the total effort. They must therefore be considered in a "qualitative" rather than a "quantitative" light. They give an indication of the direction and success of the average effort.

28. To one familiar with the fishing in the south-east arm, over the period 1940 to 1943 the decline in the use of the large meshed *chambo* seine and a corresponding increase in that of the small meshed *kambuzi* seine is very apparent. This net, which used to be used almost exclusively during the limited season when the small growing Haplochromids are common, is now being used all the year round and consequently large quantities of immature Tilapia are being caught. This is a good example of how overfishing carries the seeds of its own increase. The stock of mature Tilapia of the inshore species is short. The financial limitations of the African fisherman do not permit him to turn to the open water species as the non-African firms have been able to do. He has accordingly decreased his net mesh so as to keep up his takings by catching young fish, thereby accentuating the problem.

29. Until the enactment of the Fisheries Ordinance, in 1949, Government had no power to control African fishing and since that date the famine conditions pertaining in the areas surrounding the south-east arm have rendered it impolitic to introduce regulations which must, at least temporarily, result in decreased total catches.

30. During the past year attempts have been made to increase the production of the African fishery by greater emphasis on hook and line fishing, and to this end supplies of fish hooks have been imported by Government and sold at cost. Similar efforts are to be made with reference to the supply of twine for gill netting etc. but to date only part of the consignment ordered has been received. The Fisheries Officer, during 1948 also tried to organize a supply of old motor tyres at reasonable prices, by assisting a prominent African trader to place a fair contract with a Motor Transport firm. This venture, which looked promising, lapsed because the substitution of rayon for cotton or flax in the modern tyre made the twine drawn from them unsuitable for nets.

31. It is not at present intended to pursue these experiments in bulk purchasing to the detriment of legitimate trade and at cost to Government, but to use them as a lever to promote (a) the habit of using better material (b) the bulk purchasing by some African fishermen's organization of a co-operative nature. The auguries for success in this direction are not good but it is felt that efforts must be made.

Fish Trade

32. Figures in Appendix VI (Table I) show the apparent requirements of local bulk consumers as indicated to Government at various times during the last few years. These figures naturally represent only a small proportion of the requirements of the community as a whole.

33. A comparison of the requirements as indicated by Appendix VI (Table 1) and the catches of the non-African firms as indicated in Appendix IV (Table 4) suggest that these latter have seldom been able to supply the total requirements of the bulk consumers over the past two or three years. The African requirements, but only a small proportion. Requirements, however, are not necessarily equivalent to commercial demand and the large non-African fishing firms have frequently asserted that they are unable to sell all their normal catch locally.

34. Appendix VI (Table 2) shows the exports and their declared value over the last few years. During 1949, since February, the only exports permitted have been in the form of salted fish, which is not in demand locally. Exports by non-African firms account for practically all those recorded.

35. Appendix VI (Table 3) shows the relation which the recorded exports bear to the total catches as notified by the non-African firms.

36. During 1949 one non-African firm was prosecuted for exporting fish other than salted fish.

37. The African fish trade continues to consist of innumerable small scale transactions between the fishermen and itinerant buyers. This system has many advantages in a country with a scattered population and without a comprehensive network of good roads. It has the disadvantage, however, of tending to create too irregular a demand. Efforts have been made to create a more regular trade by persuading the fishermen of one particular area to sell exclusively to one buyer. The particular buyer already possessed a lorry and it seemed possible that by enabling him to buy fish by the lorry load instead of by the head load a more regular trade might be built up, and one in which the larger turnover would make it possible to pay higher prices to the fishermen. The attempt has not so far been very successful largely because of the reluctance of the fishermen to take part in a combined effort of this nature, but also because of the famine conditions on the Lake-shore led to the greater part of the catch being exchanged for food rather than sold for cash. On one occasion, however, the buyer was able to purchase £6 worth of fish on the Lake-shore and sell it for £84 in Neheu.

Trout Fishing

38. A total of 32 Trout Fishing Licences were issued in respect of the Zomba Mountain fishing, and ten for the Mlanje streams, yielding some £39 in revenue. Unfortunately not enough returns have been received to permit of analysis of the catches.

39. During 1948 and 1949 several enthusiasts helped in collecting data about the Zomba stream by saving scales from their fish. These were latter sent to the River Research Station in Kenya for reading. The conclusion reached by Dr. Van Someren, who kindly read the scales, was that up to approximately one year old the Mlungusi fish were growing normally, by Kenya standards, but that second year growth fell well below that in Kenya. This suggests overstocking.

40. In July and August sample catches of fish were taken out of season, to endeavour to determine breeding season. The samples showed that the breeding season had already started by the time the investigation began in July and ripe or spent fish continued to be found in diminishing numbers through August to September.

41. A beginning was made with stream improvement on the Mlungusi with the erection of some twenty-seven boulder weirs and a number of deflectors.

42. Streams in the Northern Province were also inspected and temperature data collected as a preliminary to stocking.

D. TSETSE CONTROL

43. Work on the Tsetse Fly has fallen into two main categories (a) defensive action against the spread of tsetse fly to country at present fly free (b) preparation for offensive action against the tsetse fly in its established habitats.

44. Defensive action considered of the maintenance of decontamination posts on the main traffic routes from the fly belts in the Central and Southern Provinces to the fly free areas.

45. Nine posts in all were in action by the end of 1949, of which five were provided with proper decontamination was carried on in the open air. Figures in Appendix VII show the flies caught at the various posts.

46. During the year the Protectorate received a visit from Mr. H. E. Hornby in the course of his survey of the Tsetse and Trypanosomiasis position in East and Central Africa, carried out at the request of the Imperial Government. His interim report to the Nyasaland Government commented favourably on the conduct of the posts and stressed their importance at the present stage of Tsetse Control.

47. In order to prepare for offensive action it has been necessary to collect some information on the ecology of the fly within the known fly belts. To this end observation posts have been established in various vegetational associations typical of the country known to be tsetse-infested. Vegetation types chosen were:—

- (a) the "Mopane" woodland of the Shire Valley, Fort Johnston and Zomba Districts;
- (b) the *Acacia-Albizia-Combretum* woodland of the Cape Maclear Peninsula;
- (c) *Branchstegia-Isobertinia* woodland of the Dowa Lake-shore.
- (d) *Combretum-Acacia-Albizia* woodland of the Dowa Lake-shore.

48. By the middle of 1949 some of these posts had yielded sufficient data for the formulation of plans for active reclamation schemes on an experimental scale. One such scheme is to be put in action in the Shire Valley section of Zomba District during 1950.

49. A survey of the Karonga Lake-shore carried out by the Entomologist in 1948, yielded the basis for another reclamation scheme. This was to have been put in action in 1949 but the disruption of arrangements due to the famine and delays in recruitment made it impossible to make more than preliminary arrangements during that year. The scheme should be in action during 1950.

50. In addition to information on the ecology of the fly it is necessary to have more precise knowledge than now exists concerning the actual limits of the fly belts and incidence of fly, so that a system of priorities in reclamation may be planned.

51. To this end a survey of the Shire Highlands where sporadic outbreaks of trypanosomiasis have occurred amongst the European-owned cattle, has been carried out by the Tsetse Entomologist. An exhaustive search was made, but no resident fly of any species was found. The conclusion was reached that the outbreaks were caused by (a) isolated specimens of transported fly and/or (b) "mechanical transmission" to the resident herds from infected cattle brought up from the Lower River for slaughter purposes. The outbreaks have decreased very considerably since the establishment of decontamination posts on the main access routes to the Shire Highlands.

52. Recruitment difficulties, the confusion resulting from the lack of office accommodation and the disruption of arrangements consequent on the famine have prevented surveys over wider areas but a Protectorate-wide survey, estimated to take three years, to be financed by research grant from the Colonial Development and Welfare Fund, is to start in 1950.

H. J. H. BORLEY
Director

APPENDIX I
STAFF AS AT 31st DECEMBER, 1949

Officer in Charge, Game, Fish and Tsetse Control ..	H. J. H. BORLEY, M.A.
Tsetse Entomologist	B. L. MITCHELL, B.Sc., A.R.C.S., C.M.Z.S.
Fisheries Officer	A. D. SANSON, B.Sc.
Game Control Officers	E. T. LLEWELLYN G. W. BAYLEY L. A. CHAPMAN One Vacancy
Tsetse Rangers	C. H. E. RICKMAN D. G. ARNOLD

APPENDIX II
CROP PROTECTION SCHEME

TABLE OF ANIMALS KILLED AND STAFF EMPLOYED 1st JAN.—31st DEC. 1949

	Totals 1948	Northern Province (3)	Central Province			Southern Province	Totals 1949
			Kota Team	Kota Team	Hill area Teams (3)		
Average number of Armed hunters per month ..	92	21	12	12	6	51	
Average number of Netters per month	—	20(5m)	12	9	3	—	
Average number of Poisoners	—	—	6	17	1	—	
Average total per month	92	29	30	38	10	107	
ANIMALS KILLED :							
Elephant	68	24	12	37	6	79	
Hippo	77	37	14	6	49	106	
Buffalo	300	46	12	4	1	63	
Water Buck	} 1077	88	62	10	3	163	
Roan, Eland, Kudu		123	7	45	12	187	
Other Buck		229	57	23	48	357	
Baboon :							
Shot	} 8567	1736	3029	1615	2512	8892	
Netted		741	432	796	—	1969	
Poisoned		—	556	2488	23	3067	
Pig :							
Shot	} 988	104	33	132	200	469	
Netted		—	1	31	—	32	
Poisoned		—	74	38	—	112	
Carnivora	90	12	—	21	46	79	
Rounds per beast killed ..	?	?	1.2	1.3	1.4	—	
Beasts killed per man employed	121	107	142	164	290	145	

- (1) Numbers given=those of dead bodies actually found. Probably many others died but were not found.
- (2) Totals of beasts killed used in this calculation do *not* include those poisoned.
- (3) Teams without special supervision for first eight months of year.
- (4) Teams without special supervision for last three months of year.
- (5) Game Officer seconded to planting drive Jan-March Sept.-Dec. Part-time supervision.

APPENDIX III
REVENUE ACCRUING FROM CROP PROTECTION SCHEME

			<i>Northern Province</i>		<i>Central Province</i>		<i>Southern Province</i>
SALES OF MEAT :							
1948	..	..	£252	..	£319	..	—
1949	..	..	£260	..	£130	..	£2
VALUE OF IVORY :							
1948	..	..	£176	..	£424	..	£152
1949	..	..	£195	..	£730	..	£11
SKINS SENT TO VETERINARY DEPT. OR P.W.D.							
1948	..	..	—	..	137	..	—
1949	..	..	—	..	121	..	18

Note. In Northern Province proceeds of sale of meat collected by Native Administration organization and therefore credited to Native Treasuries. In other Provinces proceeds credited to Native Development and Welfare Fund.

Sales of meat reduced in 1949 in Central Province owing to reduced killing of buck and exchange of considerable quantity for flour to feed staff, food in villages being otherwise short. In Central Province meat was also used to feed labour on Tobacco Land Surveys.

APPENDIX IV
NON-AFRICAN FISHERY

TABLE I. TOTAL OF HAULS OF EACH TYPE OF NET PER ANNUM

Type of Net	1947	1948	1949
Ring Net. S.E. Arm	1,322	1,299	1,599
Malombe	—	—	240
Seine Net	1,898	505	180
Gill Net. S.E. Arm	557	319	258
Malombe	—	—	58

TABLE II. MEANS OF MONTHLY AVERAGE CATCH PER SINGLE HAUL OF NET

Type of Net	1944	1945	1946	1947	1948	1949
Ring Net. S.E. Arm	144	88	65	40	26	41
Malombe	—	—	—	—	—	38
Seine Net	144	90	53	16	17	3
Gill Net. S.E. Arm	?	?	?	39	82	80
Malombe	—	—	—	—	—	315

TABLE III. CATCHES OF MORE IMPORTANT SPECIES. (NUMBERS REPRESENT DOZENS. WT. ESTIMATED AS SHORT TONS)

Year	<i>Tilapia</i> (Adult)	<i>Tilapia</i> (Immature)	<i>Labeo</i>	<i>Clarias</i> , <i>etc.</i>	<i>Others</i>	Estimated Wt. all Species
1947	84,823	14,892	16,760	4,370	483 (Baskets 'utaka')	540
1948	58,544	4,969	20,494	5,051	514	398
1949 S.E. Arm	63,494	823	12,469	3,851	715	} 654
Malombe	36,199	—	4,400	2,149	410	

TABLE IV. LANDINGS PER MONTH

	1947	1948	1949
January	100	35	} 100
February	91	45	
March	61	16	
April	45	58	76
May	56	85	81
June	29	25	49
July	23	28	35
August	17	29	48
September	11	16	58
October	20	28	52
November	56	11	76
December	31	22	79
TOTALS	540	398	654

APPENDIX V
AFRICAN FISHERY

TABLE I. AVERAGE NUMBER OF HAULS OF EACH TYPE OF NET PER MONTH, AS OBSERVED AT RECORDING STATIONS

	<i>Large Mesh Seine</i>		<i>Small Mesh Seine</i>		<i>Open Water Seine</i>		<i>Gill Nets</i>	
	1948	1949	1948	1949	1948	1949	1948	1949
Malindi ..	—	1	138	434	*	—	*	1
Matewari ..	61	35	90	19	—	—	—	10
River Shire ..	?	99	?	3	—	—	—	71
Mpemba ..	6	9	77	41	—	97	—	1
Nkudzi ..	26	26	32	41	—	—	—	5
Monkey Bay ..	39	32	76	3	—	—	—	1
Kota Kota ..	43	31	37	12	—	—	—	266
Salima ..	?	35	?	35	—	—	—	1
Domira Bay ..	?	44	?	—	—	—	—	5

*Not recorded

TABLE II. MEANS OF MONTHLY AVERAGE CATCH PER SINGLE HAUL OF COMMON TYPES OF NET AT RECORDING STATION

A. Small meshed Shore Seines.

<i>Period and Station</i>	<i>Tilapia (Adult)</i>	<i>Tilapia† (Immature)</i>	<i>Labeo</i>	<i>Clarias</i>	<i>Haplochromis†</i>
MALINDI					
July-Dec. 1948	.3	10	.3	.3	900
Jan.-Dec. 1949	.5	45	.1	.6	1,200
MATEWARI					
July-Dec. 1948	1.3	5	—	.03	3,500
Jan.-Dec. 1949	11.2	100	—	—	300
MPEMBA					
July-Dec. 1948	.09	250	.06	.12	200
Jan.-Dec. 1949	.1	10	.02	—	600
NKUDZI					
July-Dec. 1948	3	400	.8	1.1	1,700
Jan.-Dec. 1949	11	1,000	1.2	.9	1,000
MONKEY BAY					
July-Dec. 1948	9.5	100	2	1	800
Jan.-May and Dec. 1949	14	100	7	1.4	400
KOTA KOTA					
July-Dec. 1948	26	100	8	3	300
Jan.-Dec. 1949	21	15	9	6	80
SALIMA	Insufficient Samples				
1948			1.4	2	2,400
Jan.-Dec. 1949	25	—	—	—	—
DOMIRA BAY	Insufficient samples				
1948					
Jan.-March and Dec. 1949	No observations				

B. Large Meshed Shore Seines.

<i>Period and Station</i>	<i>Tilapia (Adult)</i>	<i>Tilapia† (Immature)</i>	<i>Labeo</i>	<i>Clarias</i>	<i>Haplochromis†</i>
MALINDI	Few Hauls. Negligible Catches				
1948 } ..					
1949 }					
MATEWARI					
July-Dec. 1948	27	20	.1	2	80
Jan.-Dec. 1949	52	5	3	2	15
RIVER SHIRE	No Records				
July-Dec. 1948		5	1	.9	—
April-Dec. 1949	28	—	—	—	—
MPEMBA					
July-Dec. 1948	88	—	3	1.7	—
Jan.-Dec. 1949	50	20	9	8	—

†Small fish, not counted individually but measured in four gallon tins. Number of tins converted to numbers of fish on basis of average number per tin. Round figures only.

B. Large Mashed Shores Seines.—*Continued*

<i>Period and Station</i>	<i>Tilapia (Adult)</i>	<i>Tilapia* (Immature)</i>	<i>Labeo</i>	<i>Clarias</i>	<i>Haplochromids*</i>
NKUDZI					
July-Dec. 1948 ..	46	100	.2	1	—
Jan.-Aug. 1949 ..	24	30	12	1	25
MONKEY BAY					
July-Dec. 1948 ..	42	200	5	.2	80
Jan.-May and Dec. 1949	21	100	9	.2	50
KOTA KOTA					
July-Dec. 1948 ..	175	200	12	10	30
Jan.-Dec. 1949 ..	93	—	61	20	—
SALIMA					
—Dec. 1948 ..	68	—	9	2	—
Jan.-Dec. 1949 ..	37	—	4	4	—
DOMIRA BAY					
Dec. 1948 ..	230	100	12	11	4
Jan.-March and Dec. 1949	120	50	10	10	—

C. Open Water small mashed Seines

<i>Station and Period</i>	<i>Tilapia (Adult)</i>	<i>Tilapia* (Immature)</i>	<i>Labeo</i>	<i>Clarias</i>	<i>Haplochromids*</i>
MPEMBA					
Jan.-Dec. 1949 ..	.4	—	—	.1	150

TABLE III. SUMMARY OF OBSERVED CATCHES AT RECORDING STATIONS. (ACTUAL NUMBERS OF FISH)

<i>Station</i>	<i>Tilapia (Adult)</i>	<i>Tilapia* (Immature)</i>	<i>Labeo</i>	<i>Clarias</i>	<i>Haplochromids*</i>	<i>Other</i>
JULY-DEC. 1948						
Malindi F.J. ..	423	3,700	356	781	1,175,500	5,517
Mateweri ..	13,009	35,500	533	1,686	202,500	7,130
Mpemba ..	5,177	16,000	184	132	507,000	3,892
Mkope ..	8,507	75,000	12	276	193,500	1,434
Nkudzi ..	7,715	116,000	216	740	384,500	1,985
Monkey Bay ..	19,160	95,000	3,568	1,636	614,500	3,738
Kota Kota ..	54,266	73,600	10,342	8,123	173,500	37,212
Salima } Dec.	9,743	—	1,431	369	—	1,673
Domira Bay } only	13,161	7,000	733	666	—	4,832
JAN.-DEC. 1949						
Malindi ..	1,992	8,500	197	2,293	5,545,000	9,630
Mateweri ..	26,681	29,000	7,874	1,692	96,000	6,640
River Shire (April-Dec.) ..	17,829	3,500	271	1,246	6,500	8,555
Mpemba ..	3,623	5,000	970	477	863,000	10,064
Nkudzi .. (Jan.-Aug.)	11,396	280,000	2,416	1,134	216,000	6,520
Monkey Bay (Jan.-May and Dec.) ..	3,767	26,500	1,443	146	14,500	2,244
Kota Kota ..	31,354	2,000	40,527	12,984	34,000	51,036
Salima ..	24,693	5,500	3,703	3,688	418,500	7,500
Domira Bay (Jan.-March and Dec. only) ..	16,815	1,000	1,358	1,701	1,000	3,866

*Small fish, not counted individually but measured in four gallon tins. Number of tins converted to numbers of fish on basis of average number per tin. Round figures only.

APPENDIX VI
TRADE AND EXPORT

TABLE I. REQUIREMENTS OF INDIVIDUAL CONSUMERS AS INDICATED TO GOVERNMENT

<i>Date of Indication and source of information</i>	<i>Monthly requirements in cured fish</i>	<i>Approximate annual requirements in cured fish</i>
Enquiry by C.E.S.P. early 1946	15 short tons	180 short tons
Answer to Press Advert. by Govt. May 1946	7 " "	84 " "
Answer to Press Advert. by Govt. August 1947	5 " "	60 " "
Answer to Foodstuffs Commissioner's call for requirements 1949	16 " "	192 " "
<i>Totals as advised over last few years</i>	<u>43 " "</u>	<u>516 " "</u>
<i>Total requirements expressed as weight before curing</i>	<u>120 " "</u>	<u>1,440 " "</u>

Note.—Several consumers have answered more than one of the requests for registration of requirements. In such cases the latest advised requirement has been included under the appropriate date and previous registrations have been ignored in the above Tables.

TABLE II. EXPORTS OF FISH

<i>Consumer Country and year</i>	<i>Dried</i>		<i>Salted</i>		<i>Roes, etc.</i>		<i>Total value</i>
	<i>lbs.</i>	<i>Declared value</i>	<i>lbs.</i>	<i>Declared value</i>	<i>lbs.</i>	<i>Declared value</i>	
		£		£		£	£
1947 (Jan.-Nov.)							
N. Rhodesia ..	1,787	28	—	—	—	—	28
S. Rhodesia ..	15,560	283	98,874	1,674	100	8	1,965
P.E. Africa ..	9,083	102	—	—	—	—	102
S. Africa ..	—	—	—	—	1,314	122	122
<i>Total 1947</i> ..	<u>26,430</u>	<u>£413</u>	<u>98,874</u>	<u>£1,674</u>	<u>1,414</u>	<u>£130</u>	<u>2,217</u>
1948							
N. Rhodesia ..	725	7	—	—	—	—	7
S. Rhodesia ..	10,964	222	88,745	1,491	—	—	1,713
P.E. Africa ..	6,541	106	—	—	—	—	106
S. Africa ..	180	29	—	—	456	50	79
<i>Total for 1948</i>	<u>18,410</u>	<u>£364</u>	<u>88,745</u>	<u>£1,491</u>	<u>456</u>	<u>£50</u>	<u>1,905</u>
1949							
N. Rhodesia ..	—	—	—	—	—	—	—
S. Rhodesia ..	150	3	143,309	4,091	—	—	4,094
P.E. Africa ..	1,261	40	—	—	—	—	40
S. Africa ..	—	—	—	—	1,246	800	800
<i>Total for 1949</i>	<u>1,411</u>	<u>£43</u>	<u>143,309</u>	<u>£4,091</u>	<u>1,246</u>	<u>£800</u>	<u>4,834</u>

TABLE III. EXPORT WEIGHTS CONVERTED TO LANDED WT. AND EXPRESSED AS PERCENTAGES OF CATCH OF NON-AFRICAN FIRMS

<i>Period</i>	1947		1948		1949	
	<i>Sht. tons expt.</i>	<i>Per cent of catch</i>	<i>Sht. tons exptd.</i>	<i>Per cent of catch</i>	<i>Sht. tons exptd.</i>	<i>Per cent of catch</i>
Jan.-March ..	36	14	14	14	5	4
April-June ..	32	24	51	30	56	27
July-Sept. ..	48	80	26	35	64	45
Oct.-Dec. ..	13	17	25	39	26	14

APPENDIX VII

SUMMARY OF TRAFFIC AND FLIES CAUGHT AT DECONTAMINATION POSTS 1949

Post	Position	Number Motor Vehicles	Flies Caught	Number Cycles	Flies Caught	Number Pedestrians	Flies Caught	Total Flies
Kota Kota**	Outskirts Kota Kota Town- ship (N)	1,325	78	2,554	62	26,021	71	211
Chota	Outskirts Kota Kota Town- ship (S)	—	—	4,039	122	42,455	151	273
Mbobo*	Approach to C.P. Highlands, Kota Kota—Lilongwe Rd.	669	58	1,086	32	6,393	35	125
Mvera	Approach to C.P. Highlands, Salima—Lilongwe Rd.	4,521	175	6,198	2,075	26,613	297	2,547
Fort Johnston**	Outskirts Ft. Johnston Town- ship, East of Ferry crossing	1,343	151	26,369	5,268	80,285	7,209	12,628
Likwenu*	Approach to Zomba High- lands, Liwonde, Zomba and Namwera Rd.	2,779	18	10,582	26	11,261	3	47
Mwanza*	Approach to Nyasaland from P.E.A. Tete—Blantyre Rd.	2,034	18	1,905	—	5,037	—	18
Lirangwe**	Approach Shire Highlands from Shire Valley, Matope Rd.	3,413	3	8,658	45	13,402	1	49
Chikwawa*	Approach to Blantyre from Lower River	569	—	4,517	—	17,598	—	—

*Open air posts for whole year.

**Open air posts for greater part of year.