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A PRELIMINARY SURVEY OF 21 CEYLON LAKES

2. Limnology and Fish Production Potential

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Introduction

Preliminary limnological observations on 21 lakes were made during the ten-week period, 27th February to 2nd May, 1962, with a view to assessing the plankton, benthic fauna and fish productivity of the lakes. Only a few days, sometimes a single day, was spent at each lake. The author's earlier work (Mendis 1956) was used as a guide to the present study.

The number of samples of plankton and bottom fauna obtained from each lake was very limited. An attempt has been made to obtain the figures for the quantity of organic matter in the plankton and for the dry weight of bottom fauna from these few samples. A rough idea of the fish productive capacities of these lakes have been calculated from the plankton and bottom fauna figures. More accurate figures for assessing the productive capacities of the lakes could only be obtained when more regular and intensive sampling is done.

Sixty-five sets of experimental bottom gill nets were laid both during the day and night at random depths to find out the most suitable period (i.e., day or night) for carrying out such operations.

Methods and techniques described by Welch (1948 and 1952) have been freely used in the field and in the analysis of data. Plankton and benthic fauna have been identified from descriptions given by Desikachary (1959), Mendis and Fernando (1962), Needham and Needham (1953), Prescott (1954), Randhawa (1959), and Smith (1950).

Some Morphometric, Physical and Chemical Conditions

The surface area, water capacity (volume), maximum depth (i.e., the depth of water at sluice at full supply level) and the catchment area in Table 1 are figures obtained from the Administration Reports of the Director of Irrigation (Gunasekera 1960).

pH was determined by using pH test papers.

Turbidity was determined by means of an U. S. Geological Survey Turbidity Rod.

An U. S. Geological Survey Outfit was used for measuring the colour of water resulting from colloidal and dissolved substances. Since the observations were carried out in the field and were of a preliminary nature it was deemed unnecessary to filter the sample of water used for colour determinations.

It is seen from Table 1 that the water area of the tanks varies from 19,000 acres in Senanayake Samudra to 60 acres in Moragaswewa.

Depths of over 100 feet are recorded from only two lakes, of which Senanayake Samudra is the largest lake in Ceylon having a capacity of 770,000 acre feet. Castlereagh reservoir with a maximum depth of 115 feet at the sluice has an area of only 910 acres with a capacity of approximately 44,000 acre feet.

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* The lakes surveyed are indicated in the map on page 2 (Editor).

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The pH of the water in the lakes (Table 1) was neutral or nearly so except in Kande Ela, Castlereagh, Iranamadu, Senanayake Samudra and Moragaswewa which were acidic. The acidity in these lakes is probably due to the decomposition of extraneous materials. Senanayake Samudra and Iranamadu have many decaying tree stumps, etc. Moragaswewa is a very small village tank and has cattle droppings and other refuse constantly being washed into it. Castlereagh has decaying tea bushes as it was once a tea estate. Kande Ela is a small lake partly surrounded by jungle where the factors causing acidity have not been found.

TABLE 1

Some Morphometric, Physical and Chemical Data of the 21 Lakes

	Area in Acres	Capacity in Acre feet	Max. Depths* in feet	Catchment Area in sq. miles	pH	Turbidity in p.p.m.	Colour in U.S.Geological Survey Units
Parakrama Samudra ..	5,590	83,000	23	28	7·5	7	15
Giritale ..	760	17,500	40	9·40	7·5	17	20
Minneriya ..	6,300	110,000	35	92·6	7·5	16	20
Moragaswewa ..	(60)	(750)	(10)	†	6·8	20	16
Kantalai ..	4,725	70,000	32	77·1	7·2	14	30
Kandalama ..	2,430	24,600	28	38·0	7·5	13	25
Horowupotana ..	(300)	(2,000)	(12)	†	7·5	24	40
Nachchaduwa ..	4,408	45,148	25	236·0	7·5	20	50
Magallewewa ..	653	6,205	16	21·0	7·5	30	40
Tabbowa ..	1,140	7,900	13	150·0	7·0	16	60
Ridiyagama ..	2,195	21,750	17	11·0	7·5	35	150
Wirawila ..	1,390	10,020	12	32·0	7·5	40	180
Hambegamuwa ..	304	1,961	16	19·0	7·5	170	140
Nalanda ..	675	12,400	70	48·0	7·0	7	25
Kande Ela Reservoir ..	108·5	1,762	27	†	6·0	—	40
Castlereagh ..	910	43,830	115	44·5	6·5	11	25
Padaviya ..	5,800	72,500	22	†	7·5	10	50
Giants Tank ..	4,547	26,596	10·5	38·0	7·5	7	40
Iranamadu ..	5,750	82,000	28	227·0	6·8	12	35
Senanayake Samudra ..	19,200	770,000	110	384·0	6·8	7	15
Soraborawewa ..	989	8,579	14	16·9	7.5	14	30

* Maximum depth of water at sluice.

† Figures not available.

Figures within brackets are approximations.

The turbidity and colour values (Table 1) were low in most lakes except in the three Southern Province lakes namely Ridiyagama, Wirawila and Hambegamuwa. The high figure for Hambegamuwa can be explained as resulting from very heavy plankton blooms (See table 2.) Ridiyagama receives its water from the Walawe ganga. At the time of the survey, the river was in spate resulting in the lake receiving large quantities of suspended materials which possibly accounts for the high turbidity and colour values. But the high values for Wirawila are not due to plankton or suspended material but may be due to a factor or factors still not known. This unknown factor or factors may also contribute to the high value for the water of the other two lakes.

Plankton

Surface plankton samples were taken at each of the 21 lakes. The samples were obtained by pouring 11 gallons (approx. 50 litres) of surface water through a plankton net by means of a one gallon measure. The plankton net was made of No. 20 bolting silk. It is assumed that that the plankton samples were taken from the top 1 foot layer of water.

TABLE 2

Analysis of Plankton Samples

				Blue Greens					Greens					Desmids	Diatoms		Rotifers						Cladocerans			Copepods			
	Dry Wt. of surface plankton lbs./acre foot	% Ash	Organic matter lbs./acre foot (Plankton productivity value)	Anabaena	Oscillatoria	Microcystis	Coelosphaerium	Hyella	Pediastrum	Richteriella	Spirogyra	Pleurococcus	Volvox	Staurastrum	Diatoma	Melosira	Brachionus	Trochosphaerium †	Anurea	Notholca	Noteus	Asplanchna	Ceriodaphina	Daphina	Diaphanosoma	Canthocamptus	Cyclops	Diaptomus	Nauplii
Hambegamuwa	948.85	14	816.01		C	B	A												A		O	A					A		
Soraborawewa	731.97	7	680.73			B	A						O						C						O				
Parakrama Samudra ..	477.98	25	358.48			A	A					O				A			C					O	O	O	A		
Senanayake Samudra ..	281.94	23	217.09			A	A							C		A		C					O	A		O	A	O	A
Moragaswewa	271.10	20	216.88			B	A							O					C	O	O		C				C	C	C
Horowupotana	243.99	22	190.31								O								C								A		A
Nalanda	162.66	9	148.02					A				C							O	O			O	C			C		
Tabbowa	190.19	28	136.94						C							C			C								C	O	C
Wirawila	227.72	41	134.35						C			A				A			C					C	O		C		C
Giritale	189.34	30	132.54	A		C	C		O	O		A		O		A				O				C			C	A	O
Minneriya	216.83	40	130.13	O		A	C				C					A			A					C			C		C
Kandalama	175.92	32	119.63						O							O					O		C	O			O	O	C
Giants Tank	151.82	25	113.87		O		O	O											C								C		O
Padaviya*	146.39	22	113.18				O												O		O								
Castlereagh	130.13	17	108.00			A			O							O			O	O			C				C		
Ridiyagama	173.50	38	107.57	A		C			O							A			C						C			C	C
Nachchaduwa	151.82	37	100.65			C	C					O				A				C			O			O	O	O	C
Magalle Wewa	135.55	28	97.60				O		O			O				A	O		C	C	O			C	C		C		
Kantalai	54.22	50	27.61			C					O					A			C								O		
Kande Ela Reservoir ..	27.11	29	19.25			O			A															A			O	C	C
Iranmadu	103.02	94 ?	6.18 ?			C			C						O	A					O								O

A = abundant B = Bloom C = Common O = Occasional

* Plankton samples not in good condition.

† New Record for Ceylon.

Two plankton samples were taken at each lake during each visit. One sample was used for qualitative examination of the different plankton forms. The other sample was used for determining the dry and ash weight of the plankton.

The dry weight of plankton was determined from the residue of the sample after pipetting out excess water. This residue, in a crucible, was placed in an oven at 52°C until a constant weight was realised. The dry plankton was then ashed and the ash weighed. The organic content of the plankton was calculated from the data so obtained. These values are used as indices of the plankton productivity of the lakes.

Surface samples of plankton do not generally give an accurate picture of the " standing crop " of plankton, due to the vertical and horizontal migrations of the plankton at different times of the day, seasons, etc. But considering that our artificial lakes are quite shallow it may be assumed that the quantities of plankton in the top 1 foot layer of water would form a suitable basis for the comparision of the plankton productivity of the Ceylon lakes.

Table 2 indicates the dry weight of surface plankton, the percentage ash content, the organic matter in lbs. per acre foot and also gives a synopsis of the various plankton forms for each lake. The lakes have been arranged in the order of the decreasing quantity of organic matter. It is evident from the table that the small village tanks such as Hambegamuwa, Moragaswewa and Horowupotana have high values for content of organic matter which is to be expected from small shallow lakes (Rawson 1953). The high organic content in Hambegamuwa and Moragaswewa is due to blooms of the bluegreen Microcystis present at the time of sampling. Horowupotana did not have a bluegreen plankton bloom at the time of sampling and the high value for organic content in the plankton of this lake is therefore attributed entirely to the presence of abundant quantities of zooplanktons particularly copepods.

Amongst the larger lakes Soraborawewa has the highest value for the content of organic matter. Soraborawewa is comparatively very shallow and at the time of sampling had a very heavy algal bloom of Microcystis. The high value for organic matter content in the plankton is attributed to this bloom.

Parakrama Samudra has a high content of organic matter. There was no algal bloom although some blue green algal forms were abundant. This is a lake rich in both phyto and zooplankton.

Senanayake Samudra, Nalanda, Tabbowa, Wirawila, Giritale and Minneriya have organic content in the plankton of over 125 lbs. per acre foot. All these lakes with high organic content are either producing large quantities of fish, or are capable of heavy production of fish.

Castlereagh, Ridiyagama, Nachchaduwa, Magallewewa and Kande Ela have an organic content less than 110 lbs. per acre foot and accordingly should be producing proportionately smaller quantities of fish than the lakes mentioned earlier. The values for Kantalai and Iranamadu are surprisingly low. These low figures are due to the high percentages of ash in the samples. A possible explanation for such a high ash content is that sand or debris had been collected with the sample.

Bottom Fauna

An Ekman dredge which brings up material from an area of 36 square inches was used. The dredge samples were taken at random in different areas to cover different depths. The samples brought up by the dredge were washed through a shallow cone shaped bag made of bolting silk having 32 meshes to the inch. The material left behind in the bag after washing was transferred into tubes containing 70% alcohol.

The Ekman dredge is suitable for bringing up samples from soft-bottomed lakes. It does not work efficiently where the lake bed is made up of hard material such as coarse sand, gravel, stones, rocks, hard clay or when the lake is bed covered with weeds. Peripheral areas in a few of the lakes had been devoid of water for some weeks prior to the survey. With the absence of water the beds of such areas had either been covered with weeds or the soil had caked up to form a hard surface. In such areas where the lake bed was hard sampling was avoided. Two of the lakes investigated, namely, Giants Tank and Padaviya had their beds covered with weeds. No attempt was made to obtain dredgings in the former and the dredgings were not satisfactory in the latter and were ignored in the calculations.

TABLE 3

Analysis of Benthos Samples

	1 Chironomid larvae %	2 Corethra larvae %	3 Oligo-chaetes %	4 Molluscs %	5 Others* %	6 Total No. per acre	7 Average dry weight lbs/acre † (Benthic fauna productivity value)
Horowupotana	9·0	—	0·8	91·2	—	43×10^5	130·6
Magalle Wewa	31·0	35·6	18·3	14·8	0·3	49×10^5	45·7
Wirawila	90·7	0·8	2·8	5·7	—	33×10^5	32·0
Parakrama Samudra	41·7	45·4	20·0	0·5	10·7	40×10^5	24·1
Ridiyagama	81·7	1·3	3·3	13·1	0·6	45×10^5	21·8
Nalanda	0·4	95·6	4·0	—	—	68×10^5	20·0
Minneriya	25·4	63·9	1·9	5·2	3·6	53×10^5	17·8
Tabbowa	52·1	6·3	20·8	20·8	—	17×10^5	17·4
Kantalai	11·3	28·9	58·1	1·7	—	64×10^5	14·0
Senanayake Samudra	30·4	21·3	—	26·1	22·2	7×10^5	14·0
Giritale	14·1	79·5	3·2	—	3·2	41×10^5	13·7
Kandalama	5·6	93·7	0·5	—	0·2	56×10^5	12·9
Hambegamuwa	19·4	15·3	65·3	—	—	21×10^5	9·5
Iranamadu	34·3	64·2	—	1·5	—	17×10^5	5·2
Nachchaduwa	54·2	43·1	—	2·7	—	12×10^5	5·0
Moragaswewa	81·5	—	11·1	—	7·4	16×10^5	4·6
Castlereagh	14·3	80·9	4·8	—	—	9×10^5	3·3
Soraborawewa	4·2	12·5	83·3	—	—	9×10^5	1·9
Kande Ela	64·3	—	35·7	—	—	9×10^5	1·5

Padaviya : Dredgings not satisfactory due to excess weeds.
Giant's Tank : Unable to take dredgings due to excess weeds.

* Includes Mayfly larvae, Caddisfly larvae, Leeches, Ceratopogonid larvae, Damselfly larvae, Cyclestheria and Ostracods.

† Mollusc shell weight deducted.

Columns 1-5 in Table 3 give the percentage composition of major groups of the fauna in each lake. Column 6 indicates that the number of organisms per acre ranges from 68×10^5 in Nalanda to 7×10^5 in Senanayake Samudra.

The average dry weight of bottom fauna per unit area in a lake is a better indicator of productivity than the number of organisms per unit area. The dry weight of bottom organisms in lbs./acre for each lake is given in column 7 of Table 3. The lakes have been tabulated in the order of the decreasing quantity of dry weight of bottom organisms per acre. Of the 21 lakes, Horowupotana has the largest quantity of bottom fauna, 130·6 lbs./acre. Horowupotana being a shallow village tank would necessarily be more productive in bottom fauna than the larger and deeper lakes. But the figure for Horowupotana is misleadingly high because of the presence of a high quantity and high percentage of molluscs which contribute little to fish production. Magalle wewa with 45·7 lbs./acre is the lake with the next highest both in weight and number of bottom fauna. Although this lake is not strictly a village tank, it is shallow and land all round it is agriculturally developed. The high figure can be attributed partly to agricultural wastes being washed into it and partly to the presence of a high percentage of molluscs.

Fish Production

Although plankton and benthos production values were obtained from a very limited number of samples, in the absence of more comprehensive data, they have been used to evaluate the annual fish production figures (Table 4) for the lakes under investigation. These figures may have to be revised if investigations are carried out over a period of years and at different periods of each year. The figures given in Table 4 will serve as a guide in the management of lakes.

The annual fish productions figure for Parakrama Samudra is known from available statistics, e.g., for 1961 it was approximately 100 lbs. per acre. The figures in Table 4 for the other lakes have been computed from the plankton and benthos productivity values (Tables 2 and 3). The conversion factors used are based on the relations between the known fish production of 100 lbs. per acre per year for Parakrama Samudra and its plankton and benthos productivity values. In these productivity studies it is assumed that half the fish population is supported by plankton and half by benthic fauna. No allowance has been made for the carnivorous species which do not depend on plankton or benthos. It is only with further study that the proportion of the fish population depending on each type of food could be worked out.

Table 4, column 1 shows the fish production figures calculated from plankton productivity, column 2, from benthos productivity and column 3 gives the average of columns 1 and 2.

The actual production figures for 1961 are available for three lakes (Parakrama Samudra 550,000 lbs.[1], Minneriya 650,000 lbs. and Kantalai 300,000 lbs.) When these figures are averaged, the production for the three lakes works out to approximately 100 lbs. per acre per year. This figure has been applied to all the lakes surveyed and the fish production figure for each lake on this basis is given in column 4.

TABLE 4

Estimates of Fish Productivity from Plankton and Benthos Productivity Values

	1 Using plankton productivity as basis of estimation		2 Using benthos productivity as basis of estimation		3 Average of columns 1 and 2	4 Assuming fish production in each lake to be 100 lbs. per acre
	Lbs/acre/year	Lbs/year	Lbs/acre year	Lbs/year	Lbs/year	Lbs/year
Parakrama Samudra ..	100	550,000	100	550,000	550,000	550,000
Giritale	40	30,000	60	45,000	40,000	75,000
Minneriya	40	250,000	50	300,000	275,000	625,000
Kantalai	10	50,000	50	300,000	175,000	475,000
Kandalama	30	75,000	50	125,000	100,000	250,000
Nachchaduwa	30	135,000	20	100,000	120,000	450,000
Magalle Wewa ..	30	20,000	175	100,000	60,000	50,000
Tabbowa	40	45,000	70	75,000	60,000	125,000
Ridiyagama	30	65,000	90	200,000	135,000	225,000
Wirawila	40	55,000	125	175,000	115,000	150,000
Nalanda	40	25,000	80	50,000	40,000	75,000
Castlereagh	30	45,000	20	25,000	35,000	100,000
Padiviya	30	175,000	—	*	*	575,000
Giant's Tank	30	135,000	—	*	*	450,000
Iranamadu	—	**	40	250,000	**	575,000
Senanayake Samudra ..	60	1,150,000	60	1,150,000	1,150,000	1,925,000
Soraborawewa	190	190,000	10	9,000	100,000	100,000

*Benthos productivity value not available, see table 3.

** Plankton productivity values not reliable, see table 2.

This table does not include the small village tanks and Kande Ela Reservoir.

[1] During the financial year 1963/64 (October 1 to September 30) the quantity of fish captured from Parakrama Samudra was 1,072,000 lbs. (*Personal* Communication—Mr. H. H. A. Indrasena, Superintendent, Fresh-water Fisheries). This works out to 190 lbs. of fish per acre per year.

Fishing Trials

Nets of the following mesh sizes and ply were used as bottom set gill nets. Each net was 30 feet long and 6 feet high :—

Stretched mesh size				*Ply*
$1\frac{1}{2}''$	..	..	..	3
2 ″	..	..	..	4
3 ″	..	..	..	6
4 ″	..	..	..	18
5 ″	..	..	..	24
6 ″	..	..	..	27

Six nets (one of each mesh size) were linked together to form an experimental set. Between the nets the spacing was approximately $2\frac{1}{2}$ feet. The foot rope at each end of the set or gang of nets had an anchor attached on to it so that the nets were not moved about by currents, etc. The head rope had at each end a buoy with a flag. There was sufficient rope between the buoy and the head rope to enable the buoy to float on the surface of the water.

The gang of nets was set tightly so that there was no slack either in the nets themselves or on the ropes between the nets. Nets were laid both during the day and during the night with a view to finding out if any species were captured at a particular time and also to find out the time of maximum catch, i.e., day or night. Nets were laid at various depths at random and a total of 65 trials were made in all the lakes. Table 5 gives a summary of the average number of fish captured per trial in each lake. The number of fish captured have been tabulated according to the mesh sizes and the time of capture i.e., by day or night. Table 6 gives a summary of the average number of fish captured per trial in each lake according to species. Here again the average number of each species of fish captured has been tabulated according to the time of capture.

It was only in 16 out of the 21 lakes that nets were laid both by day and night. From Table 5 it is seen that in 14 of the 16 lakes there is a higher porportion of fish captured in the night. Ignoring those lakes that had no catches in the day time the ratio of night capture to day capture varied from 1·2 to 21·3 and therefore it is strongly indicative of a higher capture power in the night than in the day but the number of variants in the experiment (depth, season, area, capacity, location, etc.) are too many for any conclusive inference to be drawn. It is necessary to continue the experiments through a reasonably long period with adequate controls.

Table 5 indicates that very few or no fish were captured in the larger mesh sizes, particularly the 5″ and 6″ sizes. One explanation for this is that the nets being only 30 feet long would have only 60 meshes in the case of the 6″ net and 72 meshes for the 5″ net. The average number of meshes in a commercial fishermen's net is 1,000. Another explanation is that the twine in the larger mesh sizes was too thick. The ply of the 5″ and 6″ nets used in the survey were 24 and 27 respectively. The commercial fishermen's nets are much thinner, about 18 ply.

Table 6 gives the average catch per trial by species. Separate figures are given for the day and night trials respectively. Here again the indications are that for nearly every species more of their numbers are captured during the night. But considerable numbers of *Puntius sarana* and *Labeo dussumeiri* were also captured during the day. The ratios of night capture to day capture for these two species were 13 : 11 and 5 : 4 respectively. *Labeo porcellus* was captured in only two lakes namely Nachchaduwa and Giant's Tank and the ratio of night and day capture was 1 : 2.

TABLE 5

Analysis of catch by Mesh Sizes and Time of Capture (Day or Night)

	No. of net sets	Average catch per net set (No. of Fish)												Ratio of the average catch per night set to the average catch per day set
		$1\frac{1}{2}''$		2″		3″		4″		5″		6″		
		N	D	N	D	N	D	N	D	N	D	N	D	
Parakrama Samudra	7	7	23	7	9	1	0	2	0	1	0	0	0	0·6 : 1
Giritale	4	27	0	60	0	3	0	1	0	0	0	0	0	37 : 0
Minneriya	4	24	19	17	2	1	0	0	0	0	0	0	0	2 : 1
Moragaswewa	1	—	0	—	1	—	0	—	0	—	0	—	0	
Kantalai	4	24	3	20	2	3	1	1	0	0	0	0	0	8 : 1
Kandalama	4	30	4	7	6	0	0	3	0	0	0	0	0	4 : 1
Horowupotana	2	8	1	4	0	0	0	0	0	0	0	0	0	12 : 1
Nachchaduwa	4	13	15	3	0	1	0	1	0	0	0	0	0	1·2 : 1
Magallewewa	4	17	6	10	1	6	0	1	0	0	0	0	0	4·9 : 1
Tabbowa	1	—	12	—	3	—	1	—	0	—	0	—	0	
Ridiyagama	4	29	0	31	2	4	1	0	0	0	0	0	0	21·3 : 1
Wirawila	4	23	6	34	4	15	6	8	3	1	0	1	0	4·3 : 1
Hambegamuwa	1	—	10	—	17	—	2	—	0	—	0	—	0	
Nalanda	3	4	0	6	0	0	0	0	0	0	0	0	0	10 : 0
Castlereagh	2	0	0	0	0	0	0	0	0	0	0	0	0	—
Padaviya	4	2	5	2	1	1	0	0	0	0	0	0	0	0·8 : 1
Giants Tank	2	81	89	36	2	8	2	0	0	0	0	0	0	1·3 : 1
Iranamadu	4	8	0	3	0	1	0	1	0	0	0	0	0	13 : 0
Senanayake Samudra	3	2	0	2	0	2	0	0	0	1	0	0	0	6 : 0
Soraborawewa	2	2	0	5	0	4	0	0	0	0	0	0	0	11 : 0
Kande Ela	1	—	0	—	5	—	0	—	0	—	0	—	0	

N : Denotes Night Sets.
D : Denotes Day Sets.

It can be concluded that fishing for *Labeo* spp. and *Puntius sarana* can be carried out both during the day and night while fishing for other species is best carried out during the night. *Labeo* and *Puntius* are usually captured by nets of mesh sizes 3″ to 4″ while *Tilapia* of $1\frac{1}{2}$ lbs. and over are captured in the bigger mesh sizes 5″ to 6″. It therefore follows that in the day time if the larger mesh sizes are used the catches would be poor, while the smaller mesh sized net would be richer as they will capture adult *Labeo* and *Puntius*. The suggestion is, therefore, that the larger meshed nets be only used at night while the smaller ones could be used both by day and night.

TABLE 6

Analysis of Catch per Net Set by Species for Each Lake. (The Lakes where no Night Sets were made have been left out from the Table)

	Night (N), Day (D) set	Wallago	Ompok	P. sarana	P. dorsalis	P. amphibius	Tilapia	Heteropneustes	L. dussumieri	L. porcellus	Macrones	Anabas	Glosogobius	Mastacembelus	O. striatus	P. chola
Parakrama Samudra	N		0	5	1	—	2	4	5	—	1	—	—	—	—	—
	D	—	1	22	0	—	7	0	3	—	0	—	—	—	—	—
Giritale	N	1	2	12	3	1	—	17	—	—	1	—	1	—	—	—
	D	0	0	0	0	0	—	0	—	—	0	—	0	—	—	—
Minneriya	N	—	1	9	21	1	—	8	1	—	0	—	—	—	—	—
	D	—	0	20	0	0	—	0	0	—	1	—	—	—	—	—
Kantalai	N	—	—	10	1	—	2	36	—	—	1	—	1	1	—	—
	D	—	—	3	1	—	3	0	—	—	0	—	0	0	—	—
Kandalama	N	—	—	18	19	—	1	—	1	—	—	—	—	1	—	—
	D	—	—	4	6	—	0	—	0	—	—	—	—	0	—	—
Horowupotana	N	—	2	2	4	—	2	—	—	—	1	—	—	1	—	—
	D	—	0	0	1	—	0	—	—	—	0	—	—	0	—	—
Nachchaduwa	N	—	1	1	3	—	—	1	11	1	—	—	—	—	—	—
	D	—	0	1	0	—	—	0	13	1	—	—	—	—	—	—
Magallewewa	N	—	1	6	12	10	5	—	—	—	1	—	—	—	—	—
	D	—	0	0	1	4	1	—	—	—	0	—	—	—	—	—
Ridiyagama	N	—	—	14	49	—	1	—	—	—	—	—	1	—	—	—
	D	—	—	1	2	—	0	—	—	—	—	—	0	—	—	—
Wirawila	N	—	2	11	39	—	17	2	—	—	4	—	1	—	—	—
	D	—	0	0	13	—	3	0	—	—	2	—	1	—	—	—
Nalanda	N	—	6	—	4	—	—	—	—	—	—	—	—	—	—	—
	D	—	0	—	0	—	—	—	—	—	—	—	—	—	—	—
Padaviya	N	—	—	0	—	—	1	3	—	—	1	—	—	0	—	—
	D	—	—	5	—	—	0	0	—	—	0	—	—	1	—	—
Giant's Tank	N	—	17	74	1	—	8	16	5	0	—	2	—	—	2	—
	D	—	0	89	0	—	0	0	1	1	—	0	—	—	0	—
Iranamadu	N	—	—	3	5	2	4	—	—	—	—	—	—	—	—	—
	D	—	—	0	0	0	0	—	—	—	—	—	—	—	—	—
Senanayake Samudra	N	—	—	—	2	—	2	1	—	—	—	—	—	—	—	2
	D	—	—	—	0	—	0	0	—	—	—	—	—	—	—	—
Soraborawewa	N	—	—	—	—	—	—	—	—	—	6	—	—	—	—	—
	D	—	—	—	—	—	—	—	—	—	0	—	—	—	—	—
Ratio by species of average catch per night set to average catch per day set		1 : 0	32 : 1	13 : 11	6 : 1	4 : 1	4 : 1	10 : 0	5 : 4	1 : 2	5 : 1	2 : 0	4 : 1	3 : 1	2 : 0	2 : 0

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Summary

Some morphometric, physical and chemical conditions of 21 lakes in Ceylon are described.

The values for the organic matter in the plankton and for the dry weight of bottom fauna in the lakes have been calculated. These values have been utilised to evaluate the potential fish production figures for the lakes.

Fishing trials were made in each lake. Suggestions regarding mesh sizes and time of fishing are put forward.

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