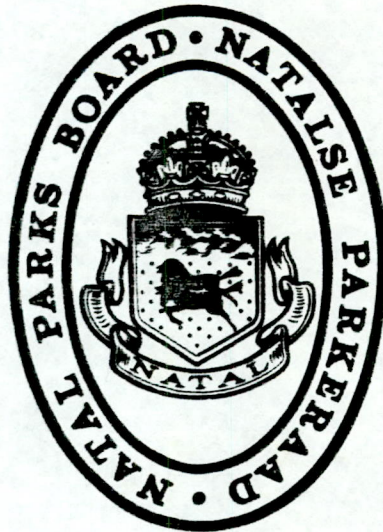


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HUMAN UTILIZATION OF THE ST LUCIA SYSTEM

R.H. TALYOR

1 INTRODUCTION

In order to take a holistic look at the St Lucia ecosystem it is necessary to consider the influences of human utilization of the Lake and its immediate catchment areas. Although the area is used to a large extent by man, little research has been conducted to document the extent of the utilization, the resources being used or the effects man is having on the system. In this paper an attempt is made to review our knowledge of each of the main land-uses, to show the extent of mans use and to identify future research and planning needs. For the purpose of this review the study area includes the marine coastline from Mapelane to Sodwana, the Eastern Shores Nature Reserve, the Lake, and the local catchment areas of the western shoreline which drain directly into Lake St Lucia.

A study to rationalize land-use on the Eastern Shores was conducted by A'Bear et al (1977). This study attempted to establish the value the area has for recreation, conservation and afforestation and to plan for the utilization of the area in a manner that caused the least conflict in interests. Much useful information was derived from this study and planning guidelines were given. Its main deficiency, however, was that the optimum extent for the development of each of the land-uses was not determined.

The land-uses of the area were described by Taylor (1980). This was done specifically to evaluate the effects each one has on the hippopotamus population of St Lucia and therefore did not deal with all aspects of human utilization.

2 DESCRIPTION OF THE MAIN LAND-USES

2.1 Tourism

Ferrario (1981) regards St Lucia as having some of the most highly rated tourist attractions in Natal, and it has been recognised by Kriel (1966) and Little & Phelan (1978) that there are ever increasing tourist demands on the St Lucia system. The numbers of people staying in the St Lucia Resort area were shown by Van der Elst (1978) to have increased considerably during the period 1966 to 1976, and this trend appears to be continuing. If the tourist demands are to be met without degradation of the tourist attractions, sensitive and careful planning and developmet are necessary.

This has been recognised by the Natal Town and Regional Planning Commission which has drawn up plans for the development of portions of the whole area (Van Zyl, 1973; Little & Phelan, 1978; A'Bear, 1978). There has, however, been no attempt to plan the whole St Lucia system as an intergrated tourist region, or to look at its importance in the context of recreation in Natal.

2.1.1 Tourist areas and accommodation

The St Lucia area provides a diversity of interests for the tourist. These are all outdoor interests related to the sea and beach, to wildlife and to angling on the Lake. The areas of the St Lucia system utilised by tourists are shown in figure 1. With the exception of the St Lucia Resort, all recreational facilities in St Lucia are provided by the Natal Parks Board. In the St Lucia Resort the tourist needs are catered for by both private enterprise and the Natal Parks Board.

Utilization figures are available for the Natal Parks Board areas, and these are shown in table 1. To relate the importance of the St Lucia region with tourism in the rest of Natal, table 2 shows the maximum number of beds available in the area (including accommodation supplied by private enterprise). This shows that the St Lucia region provides 4.6% of the total accommodation available in the Province.

2.1.2 Sea and beach activities

The coastline between Mapelane and Sodwana is well known for its unspoilt beaches. The most important recreational activities in this area include ski-boat fishing, shore angling, driving of off-road vehicles, skin-diving, spearfishing, bait collecting, swimming and beach activities. The foci for these activities are Sodwana, Cape Vidal, St Lucia Resort and Mapelane. Little is known about the extent or importance of each of these activities. Data are being collected by the Oceanographic Research Institute on the extent of angling, ski-boating and bait collecting, but the data collection is not very intensive as it is being done on a province wide scale. Nothing is known about the importance of the area for other activities, although it is evident that there is a conflict of interests between some of the activities. For instance ski-boat launching is incompatible with swimming, and the driving of off-road vehicles on the beach is incompatible with other beach activities.

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- Key
- Accommodation facilities
- 1 Sodwana Bay
 - 2 Cape Vidal
 - 3 St Lucia Resort
 - 4 Mapelane
 - 5 Lister's Point
 - 6 Fannies Island
 - 7 Charter's Creek
 - 8 Dugandhlovu
 - 9 Mount Tabor
 - 10 Wilderness Trails
- ➔ Ski-boat launching sites
 - Beach activities
 - Lake fishing
 - Walking

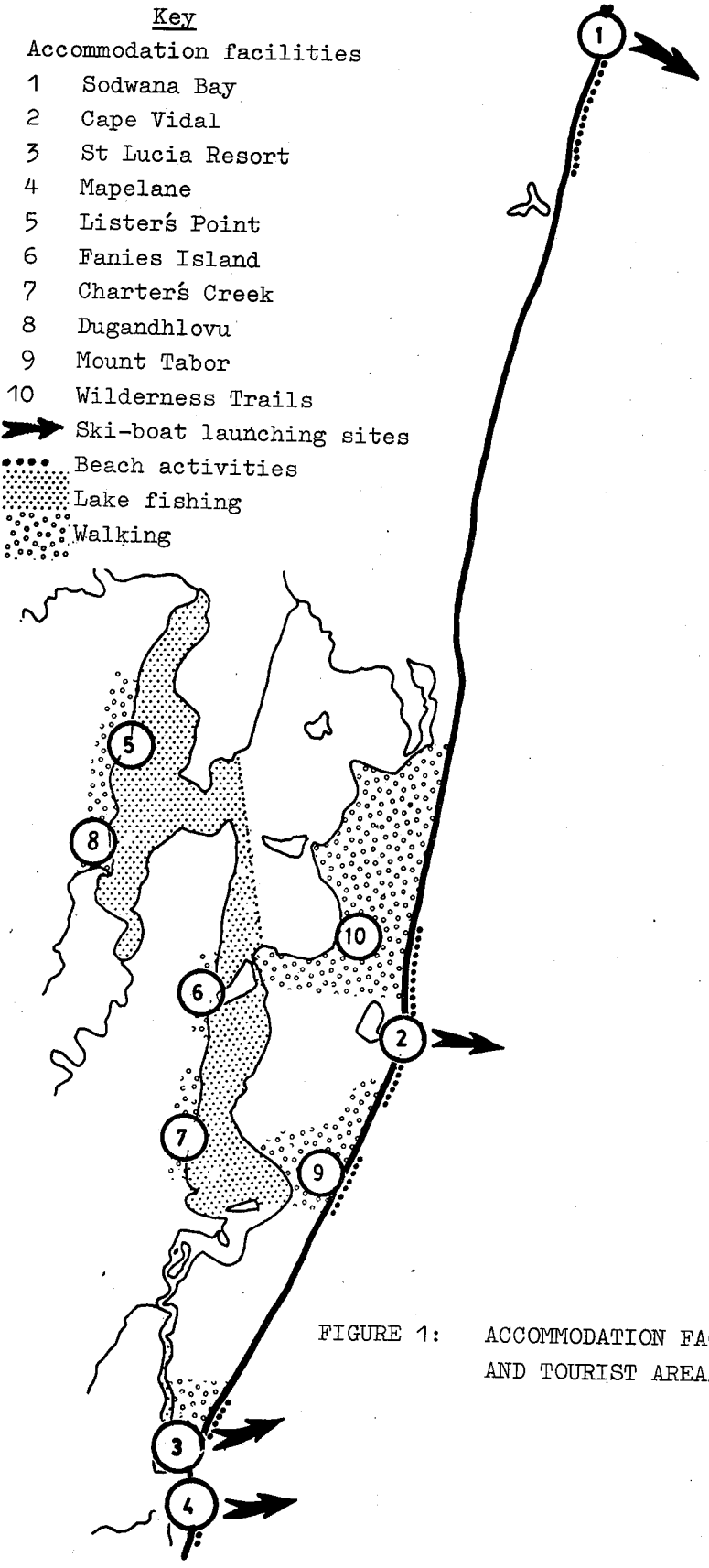


FIGURE 1: ACCOMMODATION FACILITIES AND TOURIST AREAS

Table 1 Average utilization figures for the Natal Parks Board facilities in the St Lucia area. (people days/year)

	Hutted Camp or chalets	Bush camp	Camping and caravan site	Day visitors	Wilderness trails	No. of months used to obtain average	Total
Charter's Creek	4447	-	-	4029	-	31	8476
Panies Island	6170	-	7790	2506	-	60	16466
Mt. Tabor	-	545	-	NA	-	18	545
Wilderness area	-	-	-	-	371	48	371
False Bay Park	-	669	8277	11926	-	60	20872
St Lucia Resort	-	-	101064	NA	-	60	101064
Cape Vidal m	-	-	31408	37956	-	24	69364
Mapelane	2159	-	18212	5074	-	24	25445
Sodwana	-	-	190644	NA	-	46	190644
Total	12776	1214	357395	61491+	371	-	433247

NA = figures not available.

Average number of people staying in a campsite is taken to be 4
Average number of people staying in a hut at Panies Island is
taken to be 2

Data from NPB records.

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Table 2 Numbers of beds available (Natal Parks Board and private enterprise) in the St Lucia system.

Natal Parks Board

	Hutted camp/ Chalet	Bush Camp	Camp Site	Total
Charter's Creek	45	-	-	45
Fannies Island	24	-	80	104
Mt. Tabor	-	8	-	8
False Bay	-	16	160	176

St Lucia white	-	-	760	760
Black	-	-	80	80

Cape Vidal	-	-	144	144
Mapelane	45	-	216	261
Sodwana	-	-	2400	2400

Private enterprise*

	Hotels	Holiday Flats	Caravan Parks	Total
St Lucia **	108	791	160	1059

Total = 5037 beds

Total in Natal = 110100
Therefore the St Lucia
area can cater for 4.6%
of Natal's tourists.

* Data from Ferrario 1981

** Does not include rented beach cottages

Note: , It is assumed that a campsite
caters for 4 people.

2.1.3 Use of Lake St Lucia

Lake St Lucia is well known for its angling which attracts the majority of the tourists to the area. It is also rated very highly, for its wildlife attractions, of which the main draw cards are the bird-life, the hippopotamuses and the crocodiles.

Little information is available which relates to the use of the system by anglers. Most of the shoreline fishing is done at the St Lucia mouth where several hundred anglers may be fishing at any one time during the grunter run. Fishing from boats is done all over the system except in the north-eastern side of the Lake which is a wilderness area, and in the upper reaches of the Narrows. Boats may be launched from Lister's Point, Charter's Creek, Fannies Island and from the St Lucia Resort.

No records are maintained of the numbers of boats using the area, and the angler monitoring conducted by the Natal Parks Board for the Oceanographic Research Institute is not comprehensive enough to give useful information. The best indication of angler effort can be obtained by analysing bait sales in the area. Averaged figures for bait sales are shown in table 3. These indicate that there are an average of 100 377 bait units used in the system each year. (a unit is one carton of prawns, one packet of sardines or one packet of mullet).

Although Lake St Lucia is well known as a bird paradise and the viewing of hippopotamuses is rated as having a very high tourist potential (Ferrario, 1981), visitors to the area have little opportunity of seeing them. Launch tours are conducted from Lister's Point, Charter's Creek and the St Lucia Resort. The average annual useage of launch tours is shown in table 4. This facility however does not meet the demands from the public, and the tours are bedevilled by inclement weather and mechanical problems.

2.1.4 Nature walks and wilderness trails

There is an ever increasing demand for walking in the area. Nature walks have been opened up in False Bay Park, at Fannies Island, at Charter's Creek, in the St Lucia Game Park and at Mount Tabor. Although no records of utilization are maintained, these walks are used to a large extent.

Two bush-camps have been established recently, one in False Bay and the other at Mount Tabor. An average of 1 214 people nights have been spent in these bush camps per year over the past two years.

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Table 3 Average monthly bait sale figures for St Lucia Resort (excluding private enterprise), Charter's Creek, Panies Island and Lister's Point.

Area	* Months	Days of the Week												TOTAL
		A	M	J	J	A	S	O	N	D	J	F	M	
Lister's Point	60	416	324	306	594	356	203	282	154	677	212	226	277	4027
Panies Island	60	649	398	448	480	302	327	411	222	729	371	251	364	4952
Charter's Creek	31	321	324	298	255	376	334	391	259	345	318	301	449	3971
St Lucia	60	6235	7878	7566	9427	5587	7375	10794	7731	12168	5892	2809	3965	87427

* Number of months used to calculate average figures.

Note: a unit of bait is 1 carton of prawns, 1 packet of sardines, or 1 packet of mullet.

Table 4

Average number of people taken on launch tours.

Area	* Months	Days of the Week												TOTAL
		A	M	J	J	A	S	O	N	D	J	F	M	
St Lucia	60	410	374	336	482	379	316	353	307	407	337	212	327	4240
Charter's Creek	31	91	126	139	190	151	89	101	83	84	60	53	107	1274
Lister's Point	60	125	121	58	161	95	56	55	43	98	85	25	59	981
													Total	6495

* Number of months used to derive the average figures.

Wilderness trails are conducted on the Eastern Shores during the winter season. These are popular, but only cater for a low intensity of use. An average of 371 people nights per year are spent on wilderness trails each year.

2.2 Nature conservation activities

Conservation management activities in the terrestrial areas include animal introductions, animal culling, veld-burning, removal of alien plants and the prevention of poaching. Management of the estuary includes dredging in the mouth area to remove sediments and to prevent its closure, and excavations to improve fresh water inflow into the system. These activities have been described (Taylor, 1980) and most of them are backed by research and monitoring. The nature conservation areas are shown in figure 2.

2.3 Afforestation

The Department of Environment Affairs (Directorate of Forestry) has 3 924 ha of Pinus elliottii plantations on the Eastern Shores and has plans to increase these. It also has extensive plantations on the Western Shores which are also being expanded. These plantations are felled at 16 year intervals to provide an average of 250m³ of wood per hectare. The wood is used to manufacture paper pulp. The pulp produced from trees in this area is of a very high quality. The areas under pines are shown in figure 3.

2.4 Bait fisheries

The Natal Parks Board catches prawns and mullet in the Lake to provide bait for anglers. Approximately 15 000 kg of prawns and 1 700 kg of mullet are caught per annum. Daily prawn catch records are maintained. From these average monthly catch per unit effort data are calculated. These, shown in figure 4, indicate that catches are highest in the late summer.

2.5 The cutting of ncema, reeds and thatch

Ncema, (Juncus kraussii) is used by the Zulu people for the construction of sleeping mats. These people come from all over Natal and pay the Natal Parks Board R1.00 per day to be allowed to cut ncema. The Department of Environment Affairs (Directorate of Forestry) also allows utilization of ncema in their area, and charge 15c per arm load.

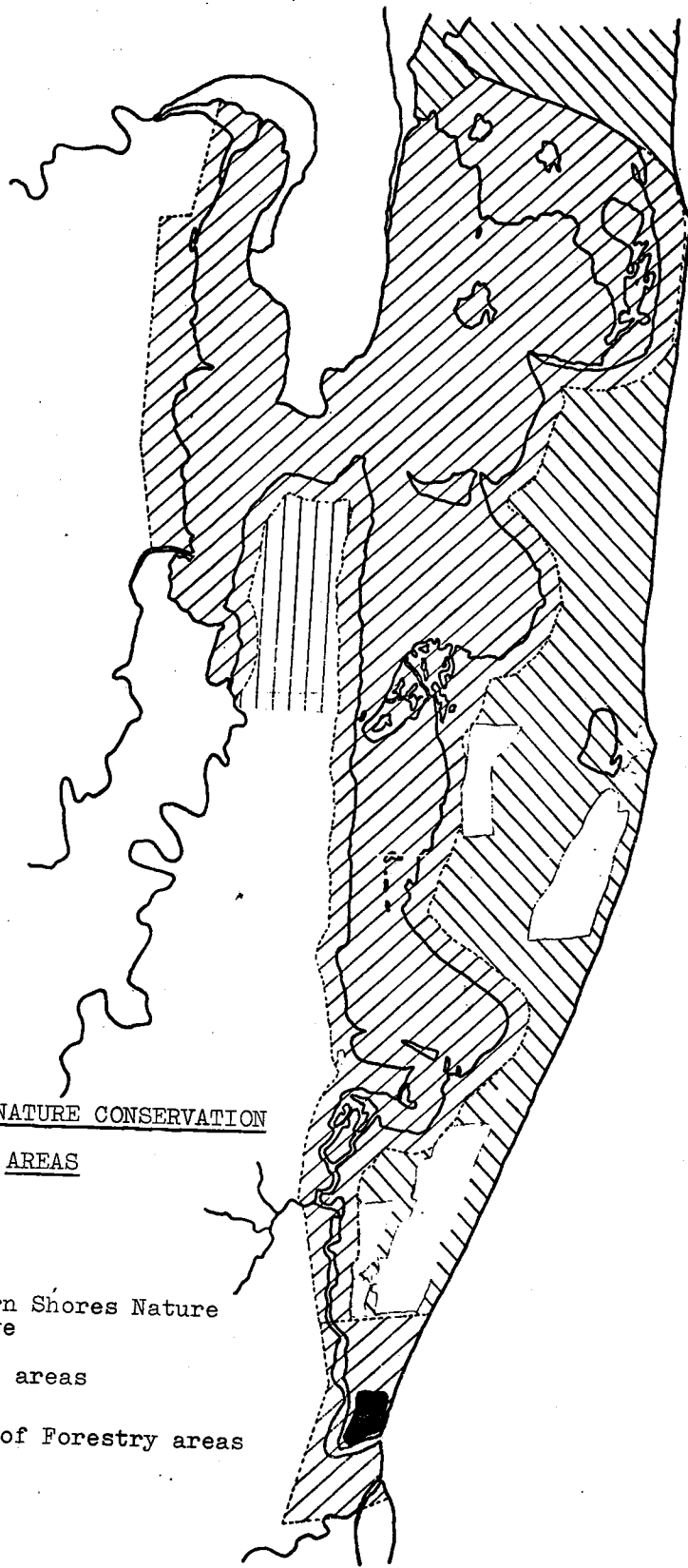


FIGURE 2: NATURE CONSERVATION
AREAS

Key




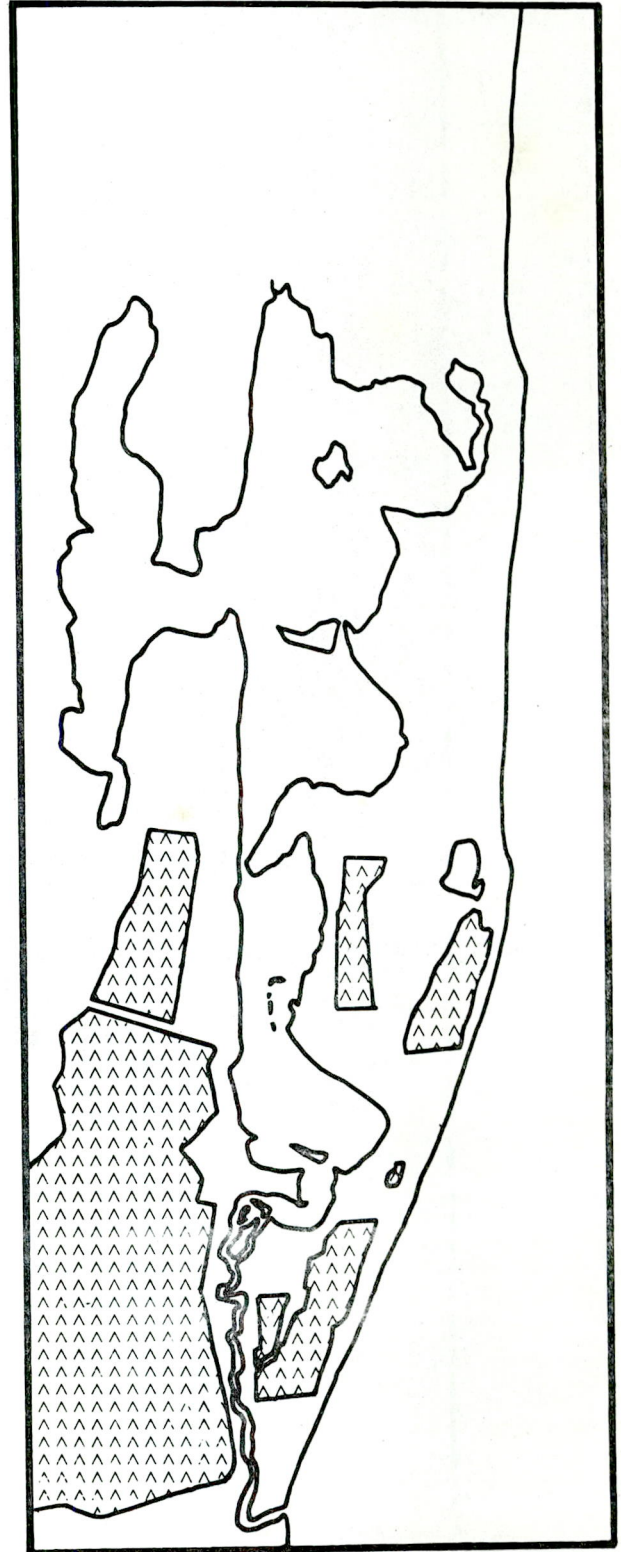
-  Eastern Shores Nature Reserve
-  N.P.B. areas
-  Dept. of Forestry areas

FIGURE 3:
PINE PLANTATIONS IN THE
ST LUCIA AREA

Key

^^^^^^
^^^^^^ plantations
^^^^^^
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19: UTILIZATION

FIGURE 4: MEAN CATCH PER UNIT EFFORT OF PRAWNS IN THE NARROWS

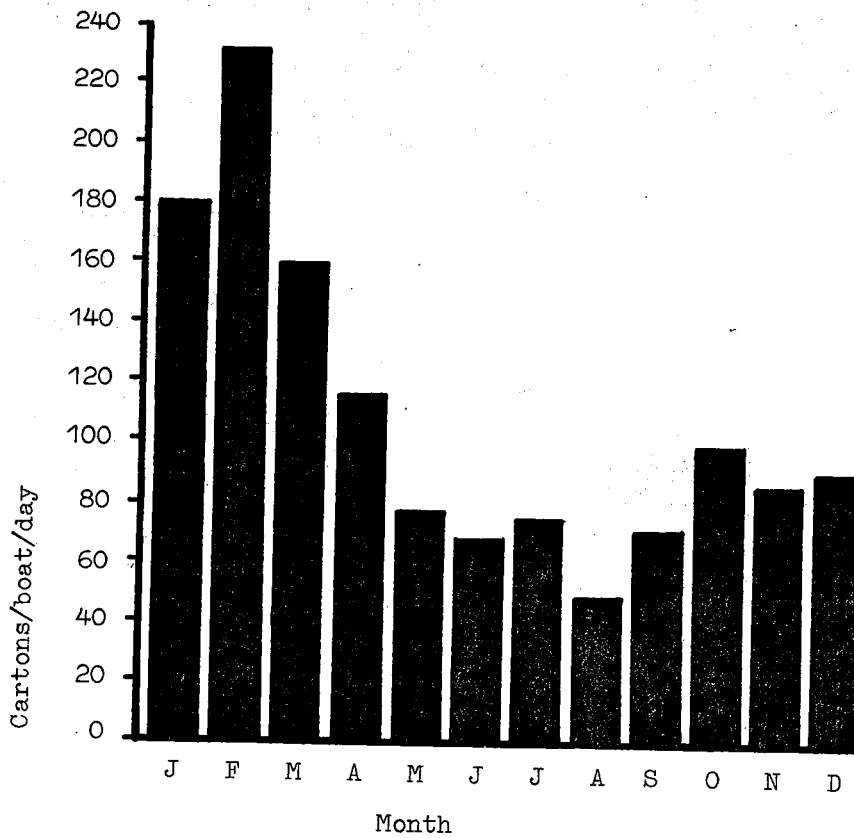


Figure 5(a) shows average seasonal utilization of ncema, and figure 5(b) shows the annual utilization.

Ncema grows mainly in saltmarsh, and is cut adjacent to the Narrows and in the swampland between the Umfolozi and St Lucia. A study of ncema utilization at St Lucia is currently being conducted by A.B. Cunningham and R.H. Taylor.

Phragmites reeds are cut in several places around the Lake and in the Mkuze swamps. No estimates of quantities cut are available.

A small amount of thatching grass is cut annually in False Bay Park.

2.6 Fish poaching

Illegal gill netting in the upper reaches of St Lucia Lake possibly removes significant amounts of fish from the system, and therefore must be considered under human utilization of the system. Whitfield (1977) analysed the catch composition of illegal gill nets and showed that poaching could remove large numbers of fish from the system each year. The actual numbers of fish caught cannot be estimated, but as over 1 000 m of netting have been confiscated at a time, the utilization must be extensive. The fish appear to be sold largely in the Stanger - Durban region.

A considerable amount of illegal prawn netting also occurs, but no estimates of its extent can be made.

2.7 South African Defence Force uses

In 1968 the SADF established a missile testing range in the area (Figure 6)

The area north of Ochre Hill is also used by the SADF for bush-warfare training.

2.8 Mining

The coastal dunes of St Lucia contain rich deposits of rutile, ilmenite and zircon. Prospecting leases have been granted for the area on the Eastern Shores, (figure 7) and there is a likelihood of mining operations being initiated within the next 10 to 20 years.

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FIGURE 5: NCEMA UTILIZATION IN THE N.P.B. AREA AT ST LUCIA

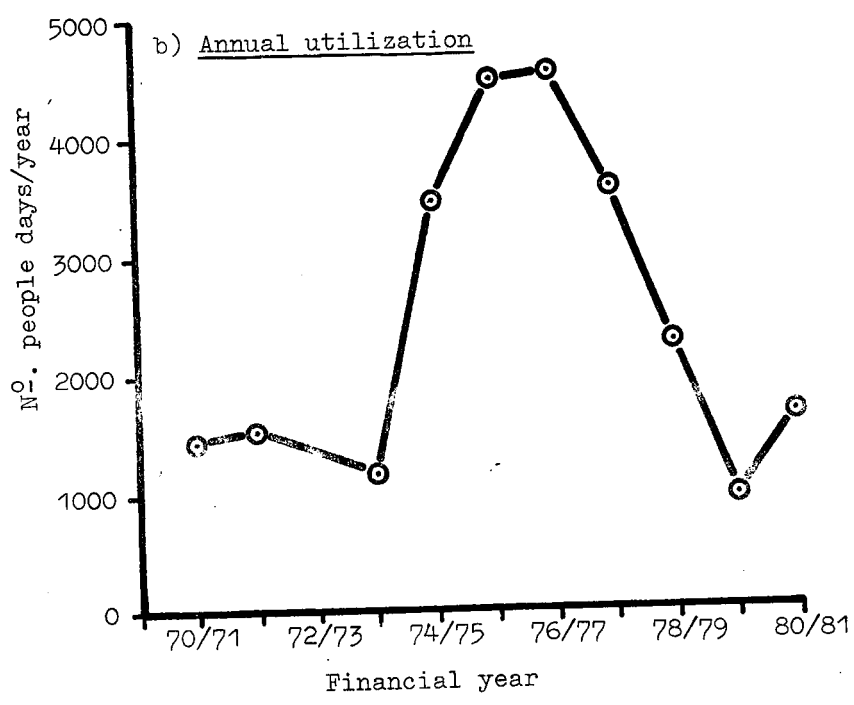
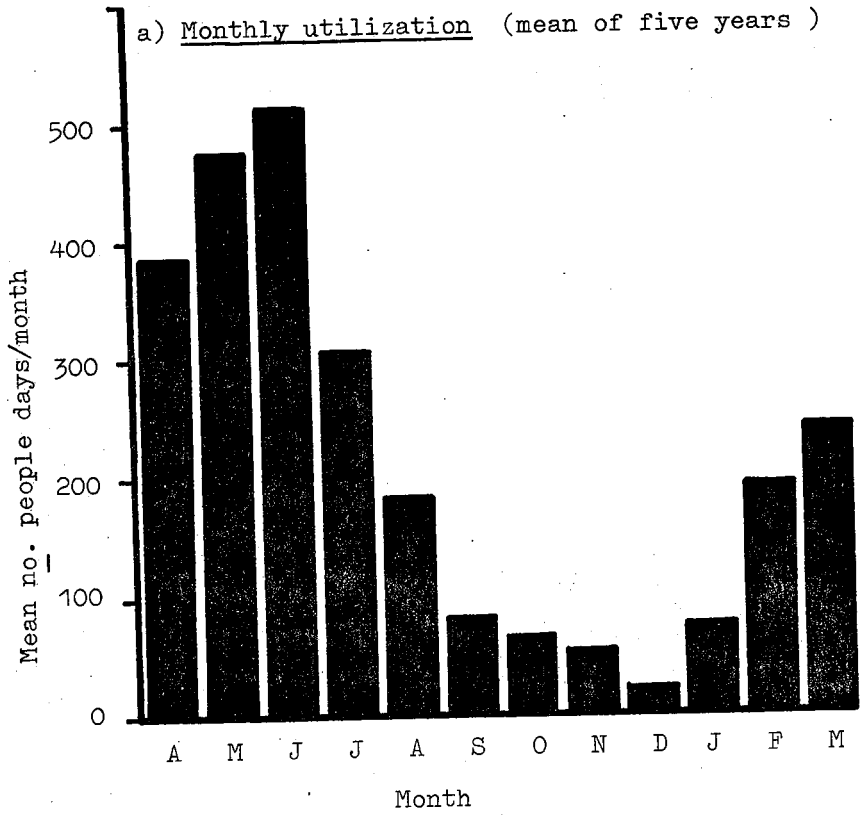


FIGURE 6: AREAS UTILISED BY THE S.A.D.F.

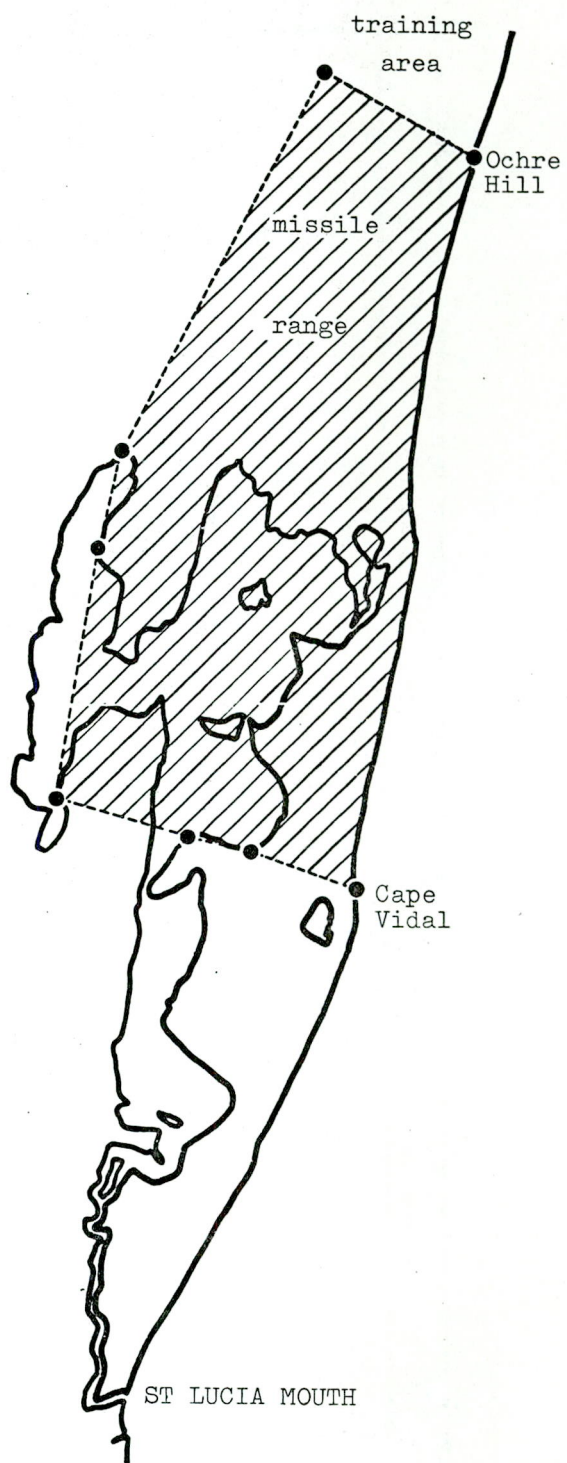
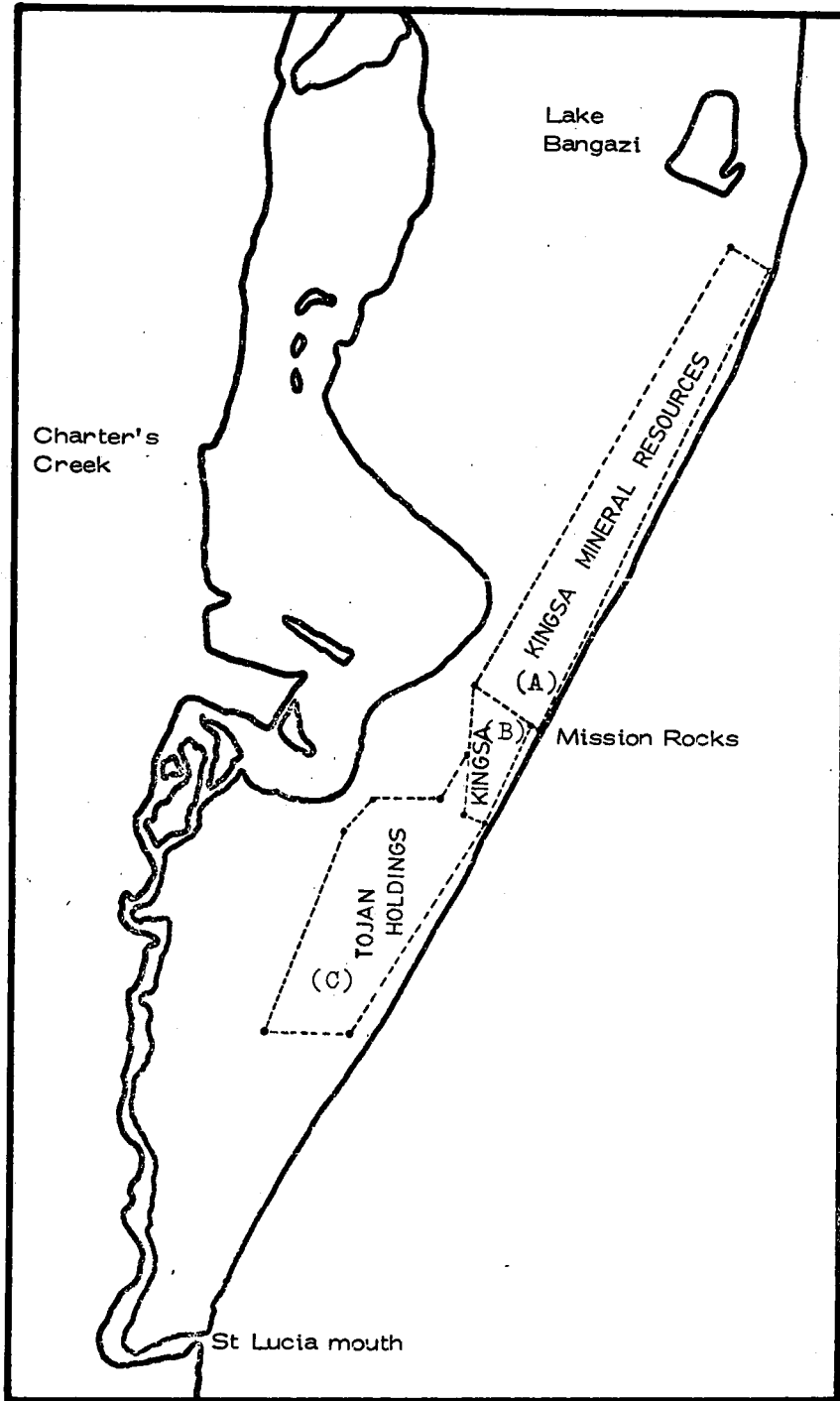


FIGURE 7: MINERAL PROSPECTING LEASES.



2.9 Infrastructure associated with land-use

Each form of land-use requires an infrastructure of staff and supporting services. The staff employed in the St Lucia areas creates job opportunities for a large number of people, both black and white. The supporting services include staff housing, offices, roads, telephone systems, water pipelines, reservoirs, radio masts, firebreaks, jetties, fleets of motor vehicles and boats. All these, to a greater or lesser extent, do have an effect on the ecosystem.

3 SYNTHESIS

Man has a large influence in the St Lucia system which cannot be ignored. As the demands for further development of the area increase, so there is continuous insidious expansion of utilization of the area. Prior to further expansion a master plan providing for all land-uses in the whole area should be drawn up. This plan should take into account the need for a diversity of habitats, of tourist facilities, and the requirements of the country for paper-pulp and for minerals. It will be necessary to zone the area to prevent the more intensive forms of land-use from encroaching on the extensive ones. For each zone the type of development and recreation usage should be specified, and limits be placed on the extent of usage. A preliminary zonation of the Eastern Shores area has been suggested by Taylor (1981), but this is not detailed enough and must be expanded to include the whole area.

The master plan must be drawn up within the following constraints:

- i) The viability of the ecosystem must be maintained and ecological processes must not be disrupted.
- ii) Tourism is an important activity in the area, and much of the tourist attraction of the area is related to its wild unspoilt nature. Undisciplined development must not be allowed to destroy what the visitors come to seek.

4 RECOMMENDATIONS

- 4.1 A planning working group should be set up and funded to draw up a master plan for the human utilization of the area.
- 4.2 Research projects should be conducted to determine the effects each land-use is having on the St Lucia ecosystem.

Research should be conducted to determine tourist patterns, what their requirements are and how to develop without degrading the tourist attractions of the area.

- 4.3 Impact studies should be conducted prior to the expansion of any form of land-use which results in the loss of natural habitat. Such studies should be done prior to the area being mined, new campsites being established, plantations extended or new roads constructed.

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