DATA REPORT:
TERN COLONY SURVEYS IN NEW BRUNSWICK 1983

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Introduction and Methods

The largest concentration of breeding Terns in the Atlantic Provinces is on the Gulf Shore of New Brunswick. Some dozen colonies were known on the sandbars which separtate this low coastline from the waters of the Gulf of St. Lawrence and estimates of breeding numbers made by several people in different years ind cated that perhaps 9,000 pairs bred there - all of them Common Terns (Sterna hirundo). However, with the exception of counts done in the Kouchibouguac National Park colony, no really accurate or repeatable censuses had been done, nor was it certain that all breeding places were known.

It is my normal practice, before undertaking a census of breeding seabirds in a specific area, to carry out a low-level aerial survey, in the course of which the locations and approximate sizes of all colonies can be determined. This was not done primarily because colonies on this coast had been documented during previous C.W.S. summer survey flights and, secondly, because the breeding habitat is lineally arranged - sand bars and islands in the sheltered lagoons - and easily examined by a field party travelling along the coast in a small boat.

Censuses of Tern colonies can be done most quickly, though not most accurately, by carrying out counts of territorial adults on the colony. However, no matter how carefully this method is calibrated, it includes a source of error that is needless unless time is short, or if it is important to minimise colony disturbance. Nisbet has used

this method successfully, but unless photographic aids are employed, it is to a degree subjective and dependent on the counting or estimating abilities of the censuser. It is, furthermore, not easily employed in large colonies in which it is difficult to put all territorial birds into the air at once and to separate them, accurately, from loafing non-breeders.

It was decided that numbers of Terns breeding on the Gulf Coast of New Brunswick could be most accurately determined by doing counts of active nests. As Terns are a semi-nidifugous species, these counts could only be done in that period after the initiation of most clutches and before too many had hatched. This limits activities to about a three-week period and, of course, limits the amount that can be accomplished by a single censusing party in one year.

Nest counts were made in carefully delineated parts of the colony and both empty and occupied nests were tallied. Some Terns and Gulls may make more than one nest before a final breeding site is chosen and all empty nests cannot be thought of as simply indicating the number of pairs attempting to breed but which have not yet laid or which have already lost a clutch. Nor are counts of empty nests accurate; they are inconspicuous and may be so rudimentary that it is difficult to decide if indeed any particular depression can be considered a "nest". It was thought that the proportions of empty nests in a colony might serve as a crude indicator of any abnormal egg predation.

Counts of active nests made in a single visit to any colony will,

undoubtedly, be an underestimate of the number of pairs attempting to breed there, but as long as there is no abnormal disturbance or predation in the colony, it is the most reliable index of the number of pairs attempting to breed that can be obtained in a single visit.

Results

The locations of colonies surveyed are shown in Figure 1 and census data are summarised in Table 1. All censuses were carried out between the 8th and 30th June 1983, within the period during which accurate censuses can be done. All were total nest counts with the exception of the colony on Tracadie Bay Beach. This colony stretched over more than 4 km of sand bar and very few of the nests contained eggs. It was not thought that any accurate census could result from doing a complete search in such circumstances. Instead, a 600 m section of the colony was searched carefully and the, apparently valid, assumption was made that they bred in approximately equal density all along the bar.

The proportion of empty nests in Tern colonies is highly variable. The ratio of occupied to empty nests is plotted in Figure 3 against the total nest count in each colony. Major colonies are identified by numbers referring to Table 1. The plot reveals a tendency for the proportion of empty nests to decrease as colony size increases. There is, as might be expected, considerable variability in the data, but the trend is well defined. The highest proportions of occupied nests are in colonies 16, 17, 18 and 19, all in Kouchibouguac National Park.

Even though these colonies are of greatly differing sizes, the relative numbers of occupied nests in each is high suggesting that egg predation is very low. The presence of Park Wardens and a Canadian Wildlife Service investigator in the park colonies presumably prevented significant human interference and very few gulls breed within foraging range of these colonies. In strong contrast colonies 10 and 16 have, for their sizes, relatively few occupied nests. In both of these, and Colony No. 5 on Miscou Island, there were obvious signs of recent human presence, and in Colony No. 6, that with the lowest proportion of intact nests, a man was observed collecting Tern eggs.

The numbers of active nests counted in these 26 colonies was 12,461, but in colonies 10 and 6, at least, the number of active nests counted was far below the number of pairs attempting to breed. If the ratio of occupied:empty nests in colony 6 were similar to that observed in other colonies of similar size, we would expect there to be about 3,000 occupied nests and 300 empty. Similarly with colony 10, we would expect about 1,500 occupied nests and 200 empty. If these estimates for colonies 6 and 10 are substituted for the observed values, we can estimate approximately 15,500 pairs of Common Terns are attempting to breed on the Gulf Shore of New Brunswick.

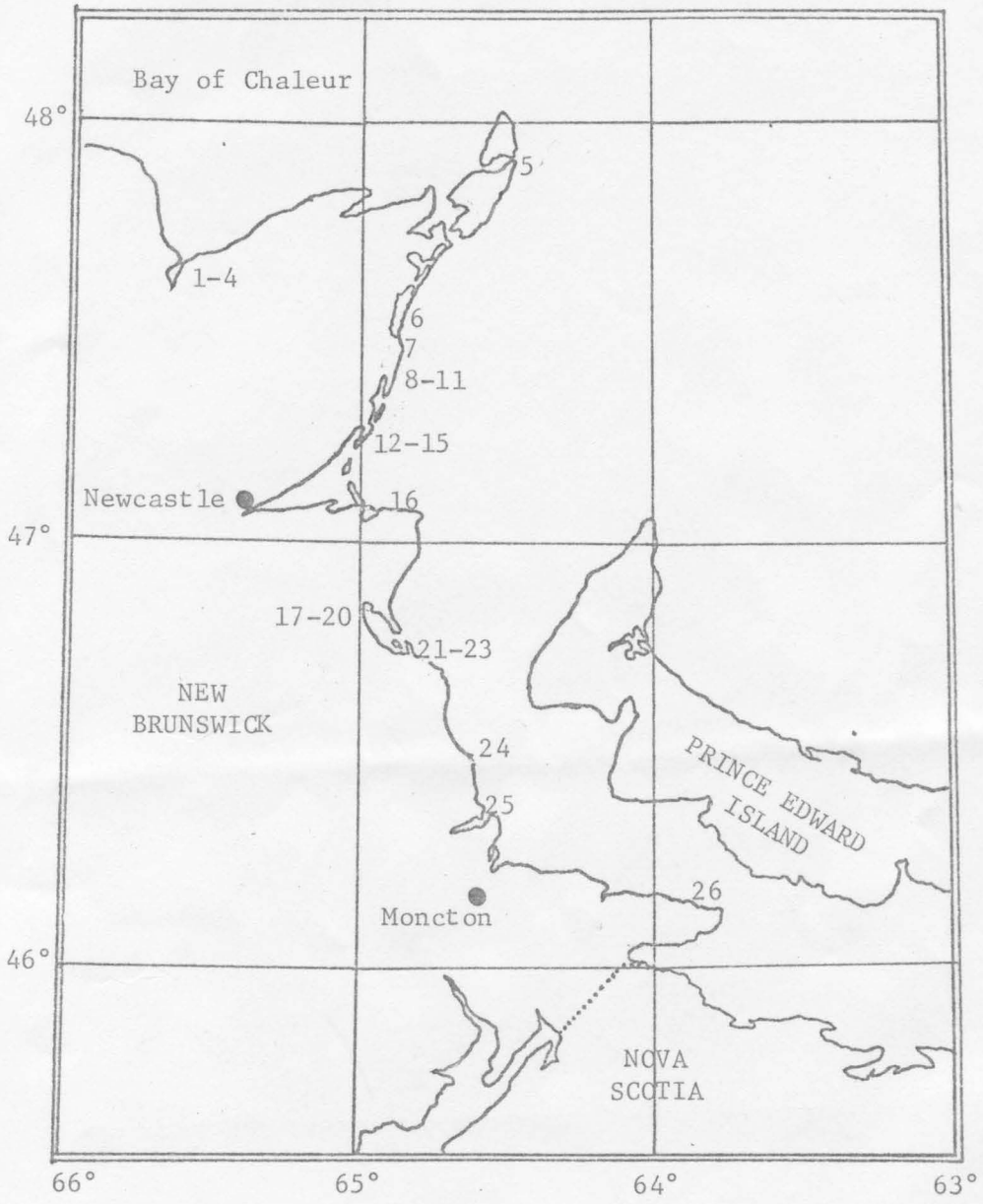


Figure 1. Common Tern colonies in northern New Brunswick
Colony numbers refer to Table 1.

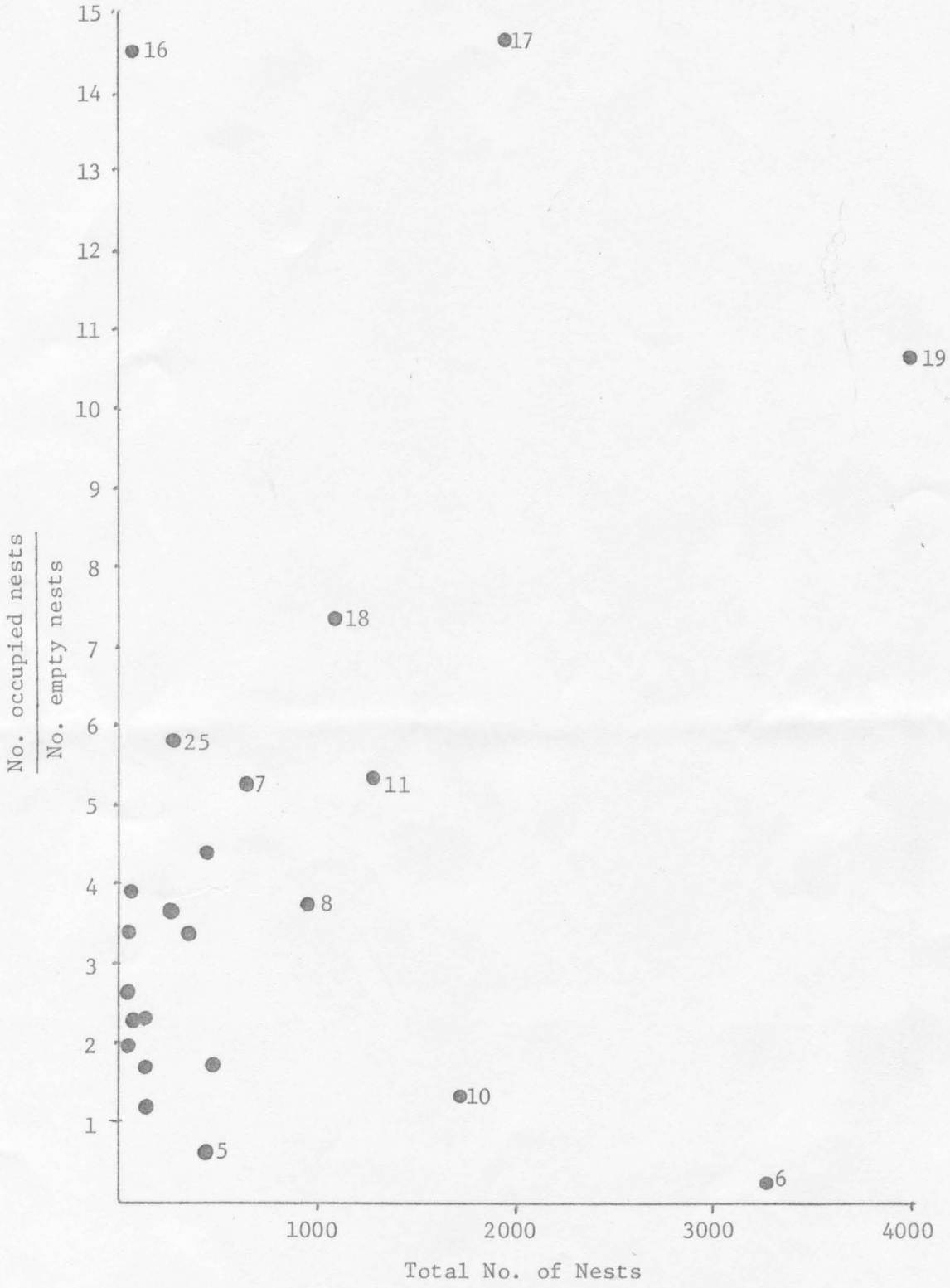


Figure 2. The ratio of occupied to empty nests in Common Tern colonies in northern New Brunswick plotted against colony size. Colonies are identified by number, referring to Table 1.

Table 1. Common Tern Colonies in Northern New Brunswick

Colony No.	Colony Name	Lat.	Long.	Census Date	No. Nests Occ.	No. Nests Empty	No. Adults
1	Bathurst Harbour Island 1	47°38'	65°37'	8 June	76	33	-
2	Bathurst Harbour Island 2	47°38'	65°40'	8 June	191	53	300
3	Bathurst Harbour Island 3	47°37'	65°38'	8 June	46	18	
4	Bathurst Harbour Island 4	47°38'	65°37'	8 June	38	20	500
5	Miscou Harbour	47°53'	64°30'	10 June	159	255	600+
6	Tracadie Bay Beach	47°33'	64°53'	11/12 June	Ca.590	Ca.2700	- [2]
7	Tabusintac Bay Beach	47°17'	64°57'	13 June	568	106	800
8	Tabusintac Bay Beach	47°17'	64°57'	13 June	744	198	1200
9	Tabusintac Bay Beach	47°18'	64°57'	13 June	301	172	600
10	Tabusintac Bay Beach	47°19'	64°56'	14 June	964	735	1000+
11	Tabusintac Bay Beach	47°20'	64°54'	14 June	1088	204	1000+
12	Neguac Bay Beach	47°16'	64°59'	13 June	79	48	450
13	Neguac Bay Beach	47°16'	64°59'	13 June	81	67	450
14	Neguac Bay Beach	47°16'	64°59'	13 June	348	79	450
15	Neguac Bay Beach	47°08'	65°03'	14 June	297	89	650
16	Egg Island	47°06'	65°03'	15 June	74	5	
17	Tern Island 1	46°47'	64°53'	22 June	1827	124	1000+ [1]
18	Tern Island 2	46°47'	64°52'	21 June	956	130	500 [1]
19	Tern Island 3	46°46'	64°52'	21/22 June	3613	340	1000 [1]
20	Little Gully Island	46°53'	64°56'	21 June	90	39	- [1]
21	Island in Richibucto Hbr.	46°42'	64°52'	23 June	39	10	70
22	Island in Richibucto Hbr.	46°41'	64°41'	23 June	2	0	4
23	McAlmon Island	46°39'	64°53'	23 June	2	0	4
24	Buctouche Bar	46°29'	64°38'	26 June	34	10	100
25	Cocagne Bar	46°25'	64°37'	29 June	243	42	150
26	Cape Jourimain	46°09'	63°48'	30 June	11	1	14

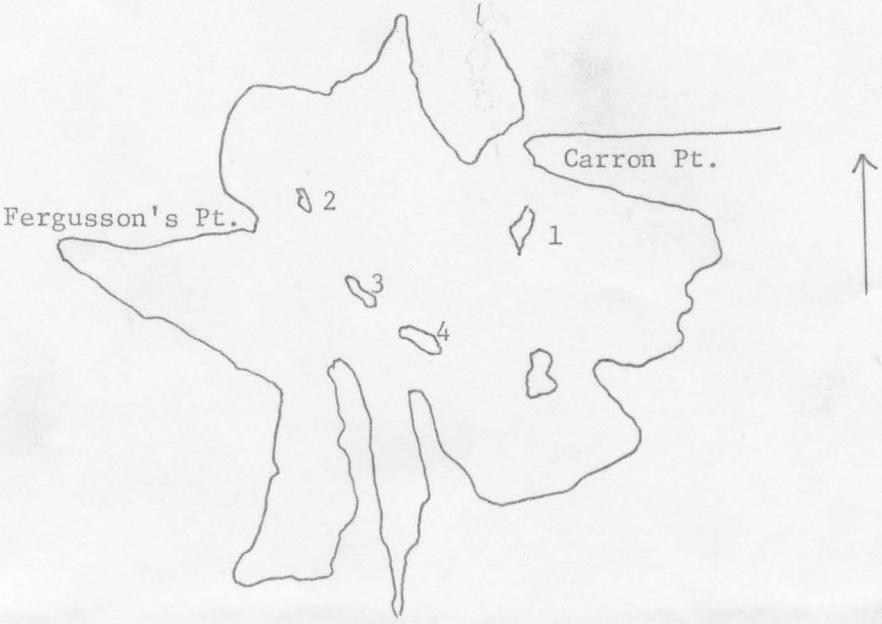
[1] Kouchibouguac National Park

[2] Estimates of nest numbers based on a partial colony search

APPENDIX

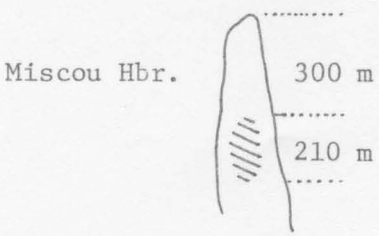
Locations of Tern Colonies
in northern New Brunswick

Colonies 1-4 on islands in Bathurst Harbour

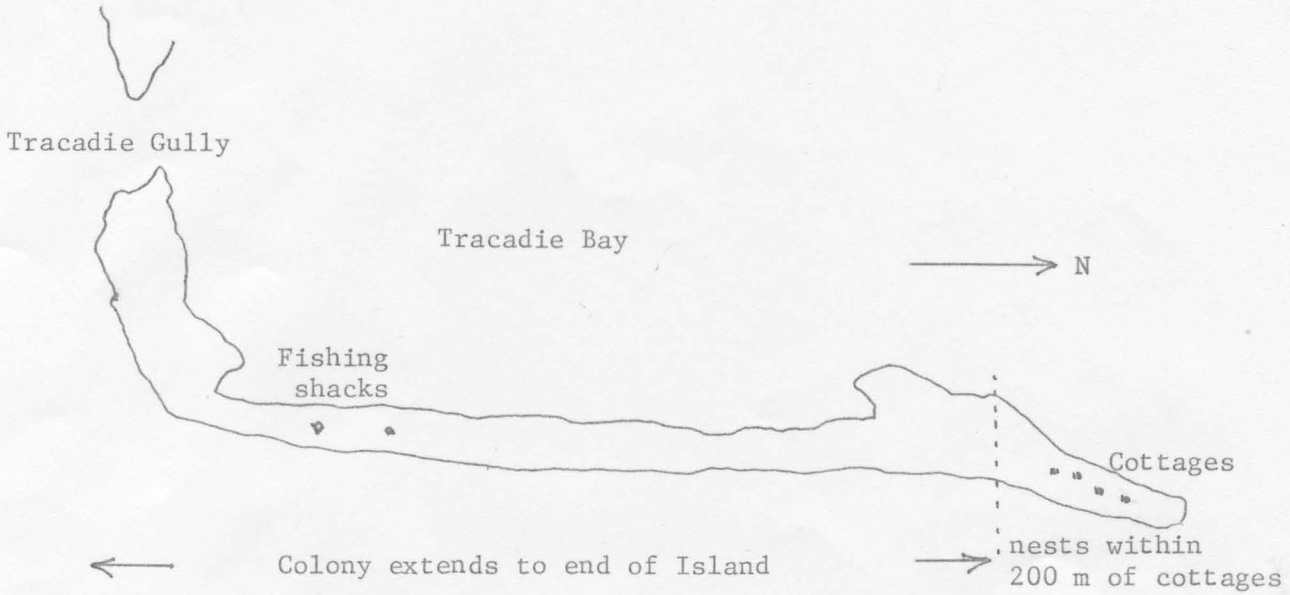


Colony 5, Miscou Island

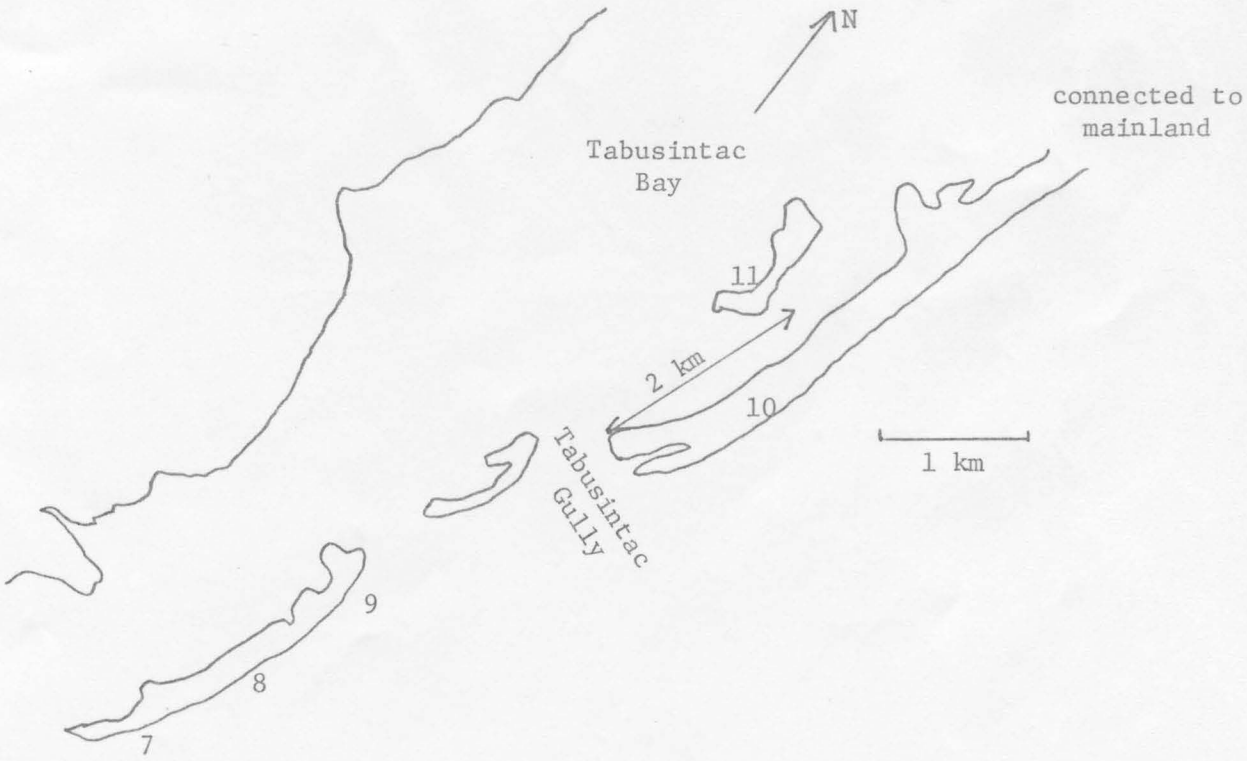
Miscou Harbour Gully

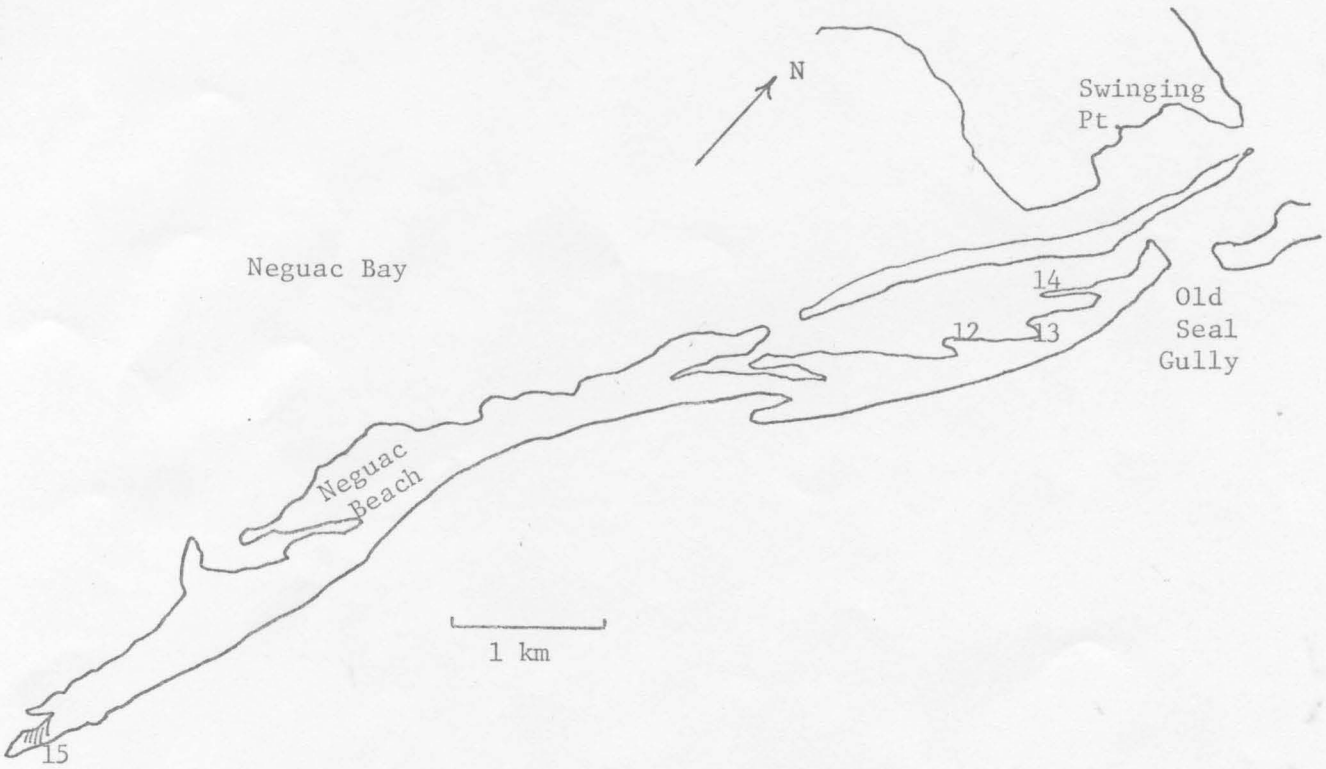


Colony 6, Tracadie Bar

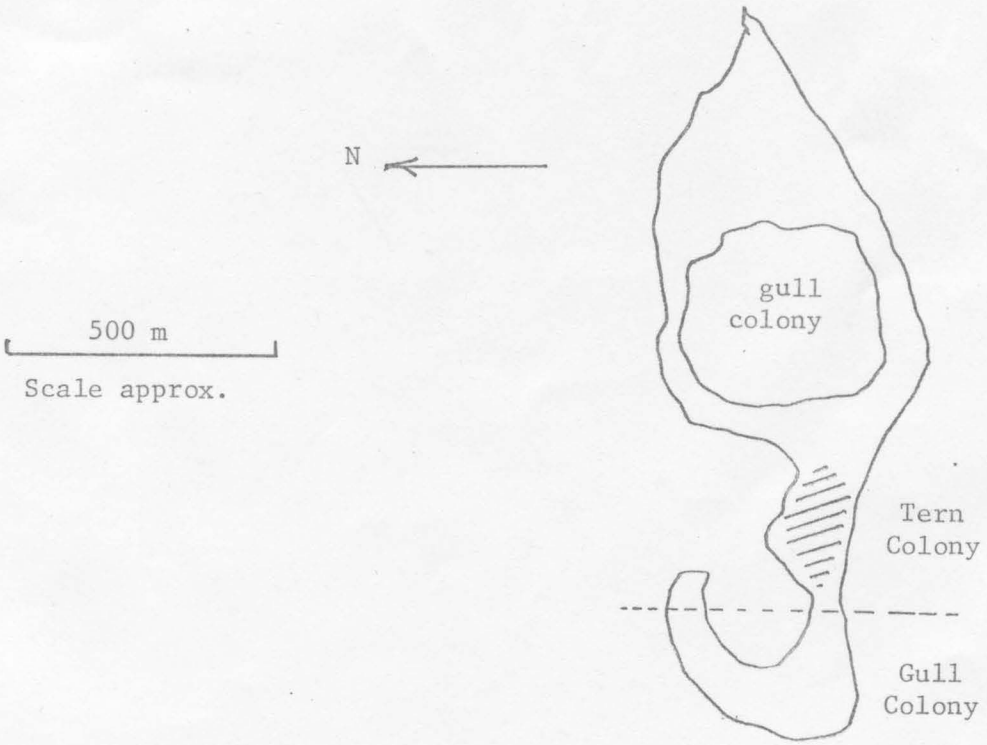


Positions of Colonies 7-11

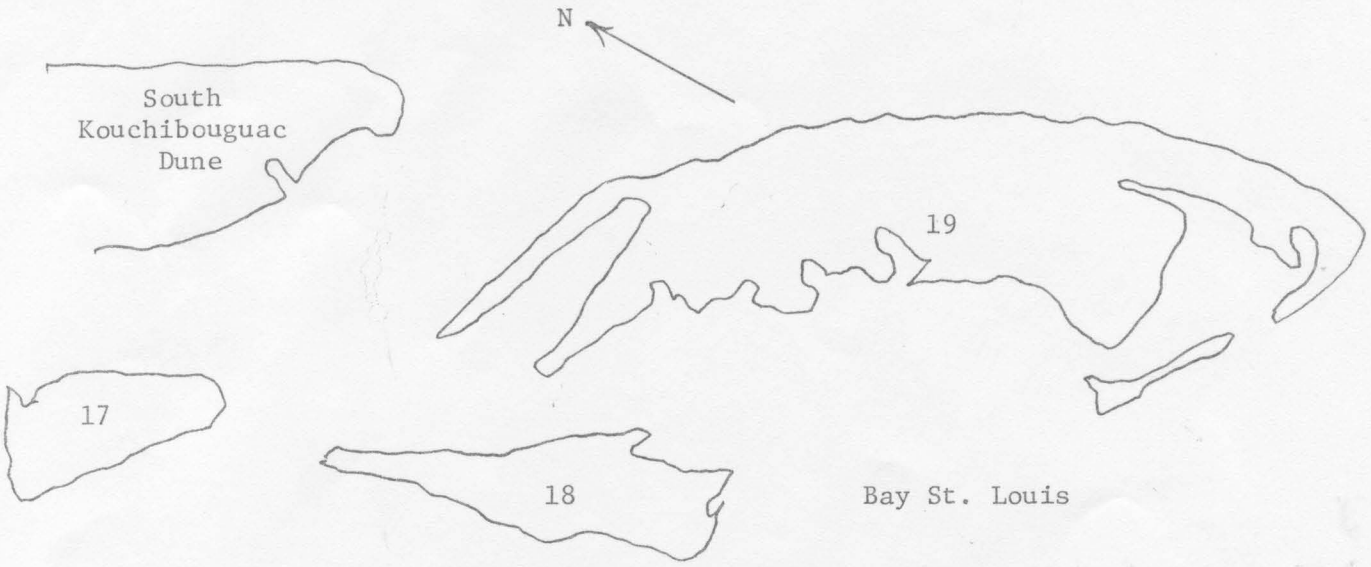




Colony 16, Egg Island

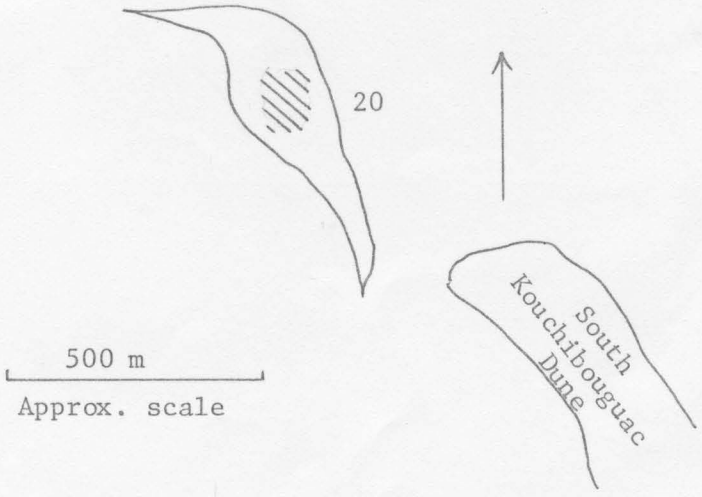


Colonies 17-19, Kouchibouguac Park

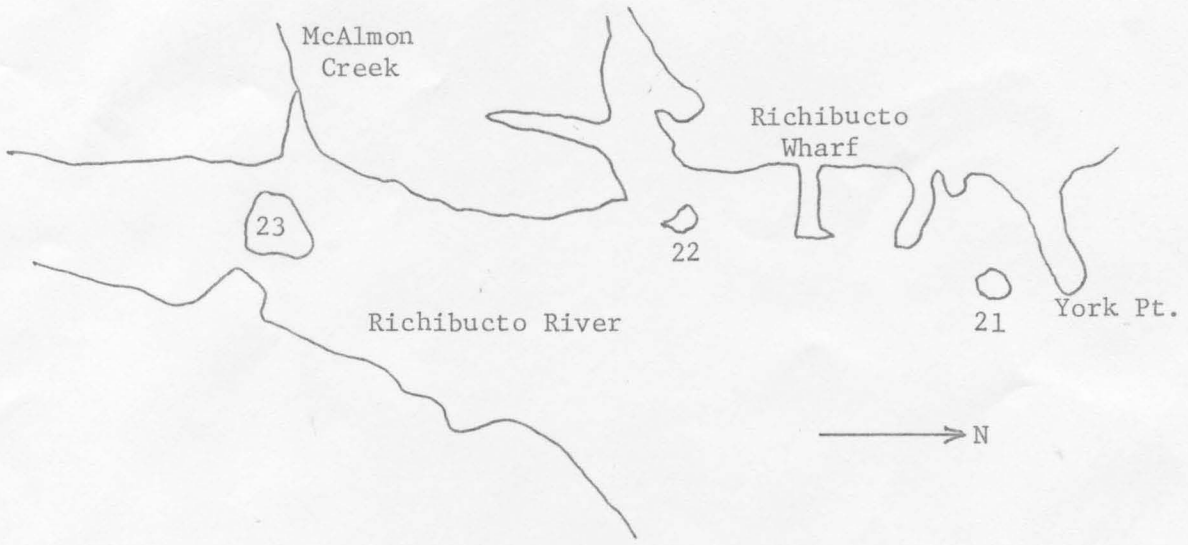


Terns breed all over all three islands.

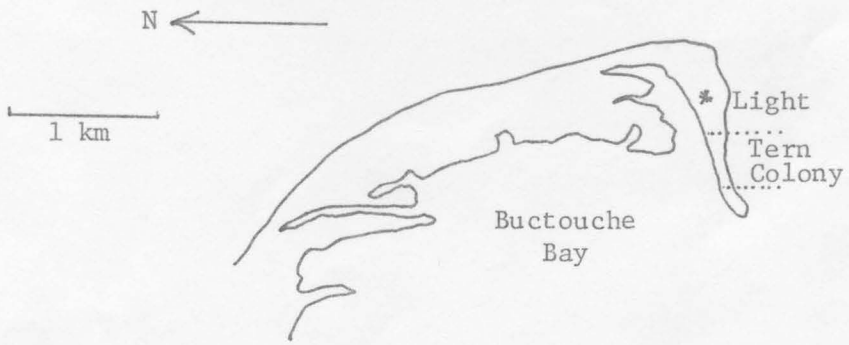
Colony 20, Little Gully Island



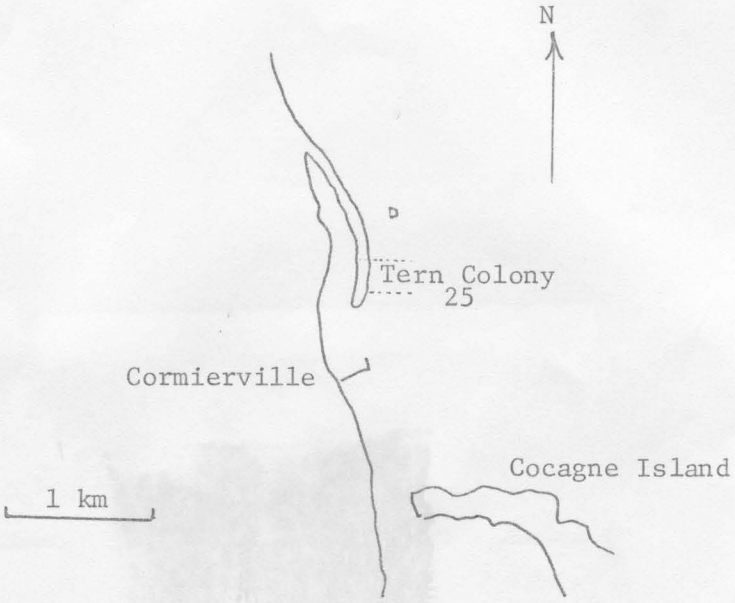
Colonies 21-23, Richibucto



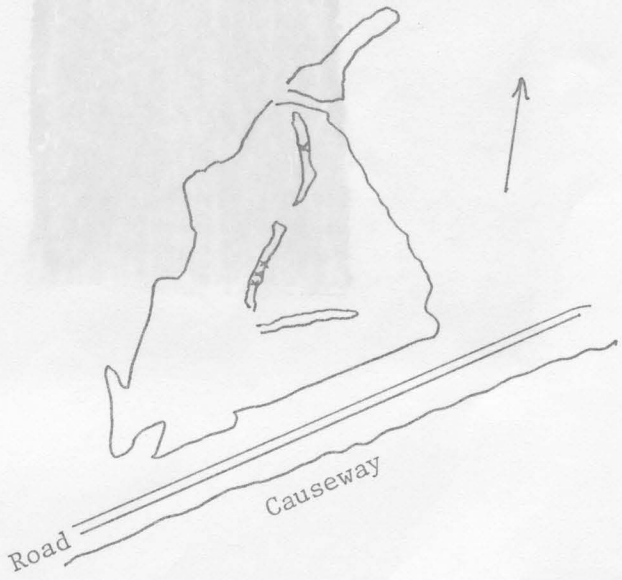
Colony 24, Buctouche Bar



Colony 25, Cocagne Bar



Colony 26, Cape Jourimain



Lock, A R

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