An Evaluation of Stock-watering Ponds for Waterfowl Use

Aulac Marsh, Westmorland Co., NB

Environment Canada
Environmental Conservation Branch
Atlantic Region
17 Waterfowl Lane
P.O. Box 6227
Sackville, New Brunswick
E4L 1G6

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(*Al Smith (retired)
536-0164)

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Introduction

In November, 1970, the National Historic Parks Branch decided they no longer required a 177 acre portion of their Fort Beausejour historic site at Aulac, N.B. (Figure 1). It was proposed that the land be transferred to the Canadian Wildlife Service as part of their Migratory Birds Habitat Program, and be used to provide marshland habitat for migratory birds.

The Department of Agriculture was also interested in this property as at the time it was assembling the small individual portions of the Aulac marsh into a holding of approximately 1,000 acres for a beef production program.

Because of those differing interests in the land, a meeting was arranged between the various departments to explore the possibility of multiple land use which would permit grazing and hay production and also have value as waterfowl habitat. It was agreed that the New Brunswick government would incorporate the 177 acres into their beef production project and that they would create ten 2,000 square foot ponds to serve as watering holes for cattle and as waterfowl habitat (Figure 2).

One-half of each pond was to be fenced off, providing a 50 foot wide area enclosed next to the water for waterfowl nesting purposes. Construction of the ten ponds was completed in the fall of 1971 and the fencing of the ponds in the spring of 1973 (Figure 2).

The ten man-made ponds may be described as prairie type ponds (Photograph 1). Such an area is usually devoid of trees, the margin of the pond usually vegetated with bulrushes and other emergents, with its

open water supporting pondweeds. The surrounding lands may be of tall or short grasses located in heavily grazed pasture. In the latter case the pond has to be fenced off or most of the vegetation will very likely be eaten by livestock. Waterfowl use of the ponds was monitored from 1973 to 1975 to evaluate their value as waterfowl habitat.

Description and History of the Aulac Marsh

The Aulac Marsh is located on the north end of the Cumberland Basin in a region containing three major marsh areas formed by the drainage of the Tantramar, Aulac, and Missaquash rivers (Figure 1). Separating those marshes are low rolling ridges rising to about 100 feet above sea level, and to the north and south on the lateral boundaries of the marshes the land rises gradually to a height of approximately 500 feet. During historical times the activities of man have had a great effect on the marshes. As early as the middle of the seventeenth century, diking and draining were in progress and much of the salt marsh was turned into agricultural land, principally hay meadow and pasture. The general system of reclamation has changed little over the years except, of course, that it has accelerated with modern machinery (Photograph 2).

Dikes from seven to eight feet in height above the normal high tides were built. The tidal portions of the rivers are controlled by diking along the banks or by construction of an aboideau near the mouth. The diked marsh is drained into the rivers with a system of ditches about a foot wide at the bottom, three feet deep, and 21 yards apart.

After World War I during the depression years, when the dikes and ditches were neglected, some of those areas reverted to salt marsh.

Recently, however, as part of a government assisted reclamation program, those areas have been greatly reduced. Tidal influence is now shut off from all three rivers.

Value of Ponds to Waterfowl

Beginning March 29, 1973 observations were carried out on the ten man-made ponds to determine their waterfowl value. These records consist largely of casual observations, i.e. areas were visited in association with other work activity with only short periods spent scanning areas whenever time away from primary job activities permitted. Observations during the early spring migration were carried out almost entirely on the adjacent salt marsh areas which were free of ice approximately one month earlier than the ponds. Table 1 summarizes the seasonal distribution of waterfowl sightings on the ten ponds. During this spring period (March to May), with the exception of 1974, waterfowl sightings accounted for less than 3 per cent of the total. Ice and deep slush conditions on the pond prevented any form of waterfowl use, while in nearby marshes the migrating numbers peaked and subsided (Tables 2 to 4). That is largely because the ponds are somewhat sheltered by the spoil banks left during construction and are not subject to the turbulence experienced by larger bodies of water. As mentioned, the spring of 1974 was the exception, with moderating temperatures advancing spring freshet by one month.

Observations during the summer months of June and July showed a decline in waterfowl numbers throughout the complete area. That is

largely because the migrant birds have moved on and the remaining birds were much more secretive during the nesting and incubation periods. Waterfowl use accounted for less than one per cent of the total sightings during that critical period because only two of a possible five requirements for adequate breeding habitat were available (loafing area and fresh water). Adequate food, cover, and nesting sites were lacking.

Waterfowl use of the ten ponds apparently peaked during the first year and rapidly decreased in the following years. It is known that shortly after construction the available nutrients required for plant and animal life are at maximum and, therefore, would be very attractive to waterfowl. That, however, would be short-lived on such small areas and waterfowl usage in subsequent years appears to indicate this.

Disturbance within the impounded areas by cattle contributed to fewer ducks on the ponds. On ponds where proper fencing was lacking, upwards to 20 cattle could be seen within the fenced enclosures. In such cases the biotic potential of the ponds was virtually destroyed (Photograph 3). Adverse weather greatly affected those small ponds. During 1975, extremely dry conditions throughout the summer and fall decreased the average pond size and associate plant and animal communities by two-thirds. Because of dry conditions, cattle utilization increased and the existing fences were simply pushed over or broken down in order to obtain water.

Drought conditions had a detrimental effect on waterfowl populations in the area. Available habitat in the surrounding salt marshes was greatly diminished and converted to a baked barren environment. Ducks

Unlimited personnel banding with a dog had poor success and found small ducklings dead on nearby marshes.

Approximately 90 per cent of waterfowl sightings on the ten ponds occurred during the fall months. The adjacent salt marshes were used as staging areas as immature birds began to fly and migrant birds moved into the area. With four nearby salt marshes supplying most of the food requirements, those ponds were used primarily as loafing and preening sites and for a source of fresh water.

During periods of high tides with windy conditions, the ponds offered shelter from the elements and it was not unusual to see flocks of 50 ducks on those small ponds.

Duck use on the ponds increased with the opening of the hunting season. With approximately 25 blinds located on the salt marshes, they offered some relief from hunting pressures. Flocks of 30 to 40 teal could be seen on ponds Nos. 2 and 3 at regular intervals during this period. They are located next to a large salt marsh on the Cumberland Basin, situated in natural habitat and provide adequate cover.

Although most of the ponds were in terrible condition and others to a lesser degree because of cattle influence, waterfowl occurrences in the fall appeared not to vary from pond to pond. Different species, however, seemed to prefer certain pond environments. Black Ducks, for instance, could be seen consistently on pond #4 and several others to a lesser degree which more or less could be described as mud holes. Teal species, however, were not observed on those ponds but were seen with regularity on pond #10 along with Black Ducks. This was the only pond

with well maintained fencing and emergent vegetation. It is believed that with proper maintenance, complete utilization of all the ponds by these two waterfowl species could be attained.

Summary and Recommendations

1. Cattle utilized all of the ponds intensively throughout the year and no doubt benefitted from their existence.
2. The ponds and surrounding area were used by waterfowl in the spring and fall during peak migration periods. Mid-season use by waterfowl was insignificant.
3. The basic requirements necessary for waterfowl production are lacking on those ponds. There were no broods reared on the ponds over the three year period.
4. A combination of extensive cattle use and lack of proper yearly maintenance contributed to fewer numbers of waterfowl around the ponds.

The ponds could provide the necessary requirements for brood production and provide valuable habitat for resident and migratory birds with proper modifications. Five ponds, Nos. 2, 3, 5, 7, and 10 (Figure 2) should be maintained within this 1,000 acre marsh. Those ponds are uniformly spaced throughout the area, in moist locations and would provide excellent conditions for cattle and waterfowl. The size of each enclosure should be enlarged with the water area also increasing in size and design. Page wire fencing must be employed as this would reduce maintenance costs and be more efficient than barbed wire.

Regardless of how many ponds are maintained on this marsh, fence maintenance must be considered a priority. If not, the multiple use concept and eventually the ponds themselves will be useless even as watering holes. The responsibility of such maintenance must be designated to one of the five concerned parties (the farmers, Ducks Unlimited, Canadian Wildlife Service, Department of Agriculture, and the Province of New Brunswick).

On the existing ponds there is no standard in fencing designs or dimensions. The amount of edge left between the water line and the fence varies on all ponds and in some cases is only a foot wide. The lease agreement states that the lessee must provide a 50 foot wide enclosure to the water for waterfowl nesting purposes. If those ponds are to be maintained and continue to provide valuable habitat for both cattle and waterfowl, proper maintenance and design according to the lease agreement is necessary.

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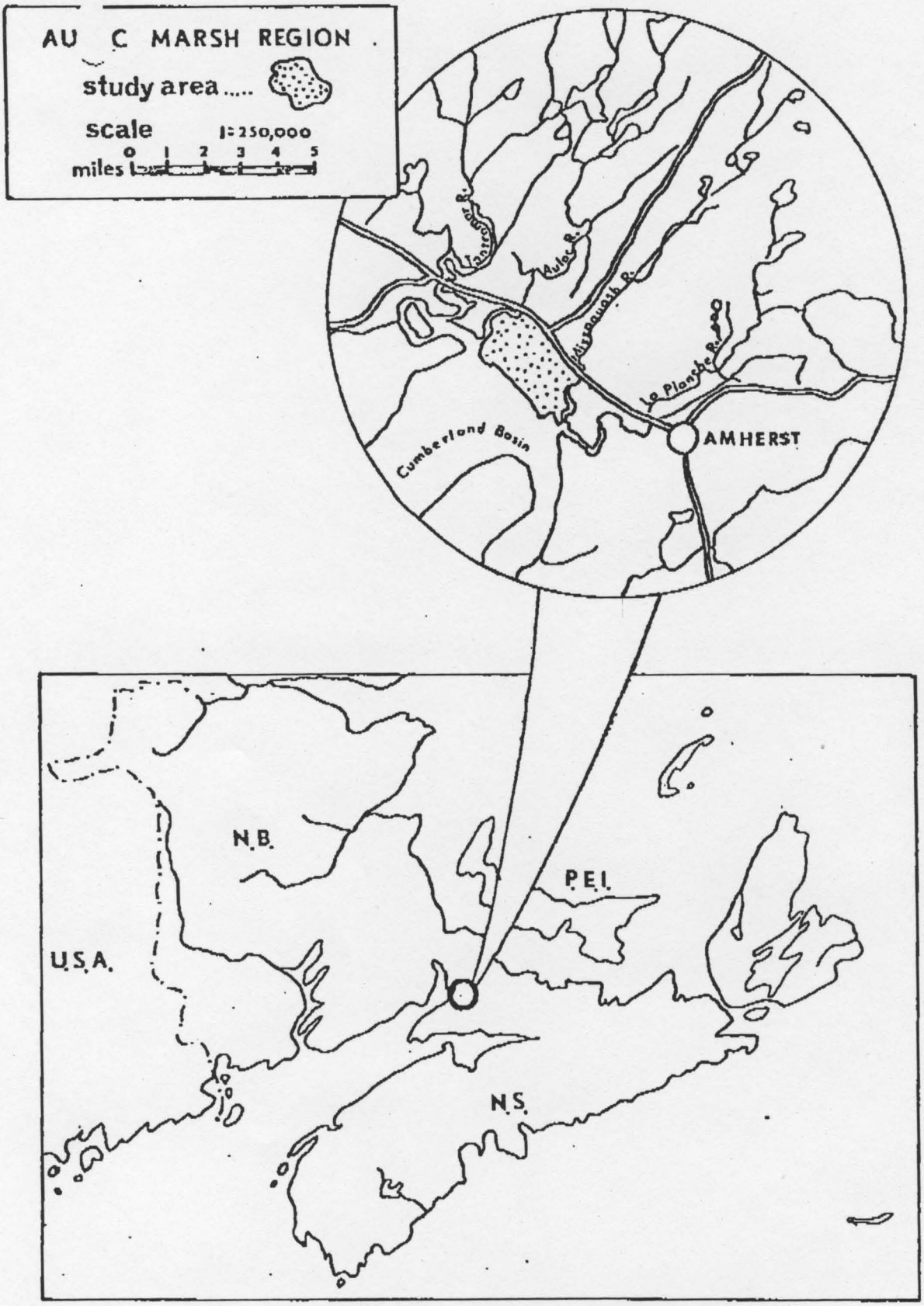


Fig. 1. Map of Maritime Provinces with Aulac Marsh Region enlarged to show location of observation area.

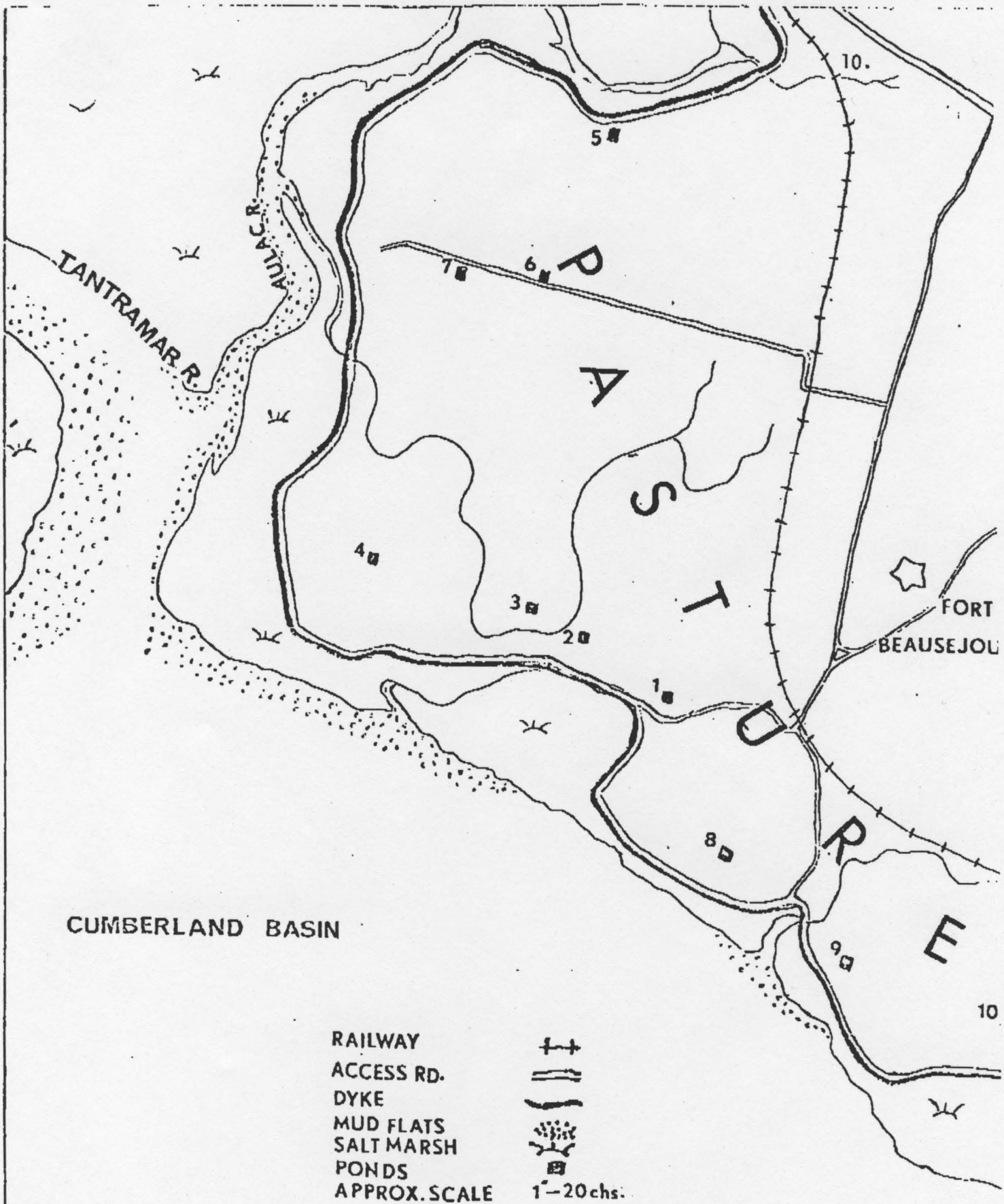


FIG. 2. Map showing location of ponds.

Table 1. Waterfowl numbers observed on the Aulac ponds 1973-75

Year	Season	Pond number										Total
		1	2	3	4	5	6	7	8	9	10	
1973	Spring	2	2	-	-	-	-	-	-	-	-	4
	Summer	-	-	-	-	-	-	-	-	-	-	-
	Fall	3	30	83	-	8	5	29	9	-	31	198
1974	Spring	2	1	-	10	-	3	2	-	-	3	21
	Summer	-	-	-	-	-	-	-	-	-	-	-
	Fall	No observations										
1975	Spring	1	-	-	-	-	-	-	-	-	2	3
	Summer	-	-	-	-	1	-	-	-	-	-	1
	Fall	-	-	-	4	4	-	-	3	-	16	27

Table 2. Number of waterfowl observed on the Aulac area - 1973

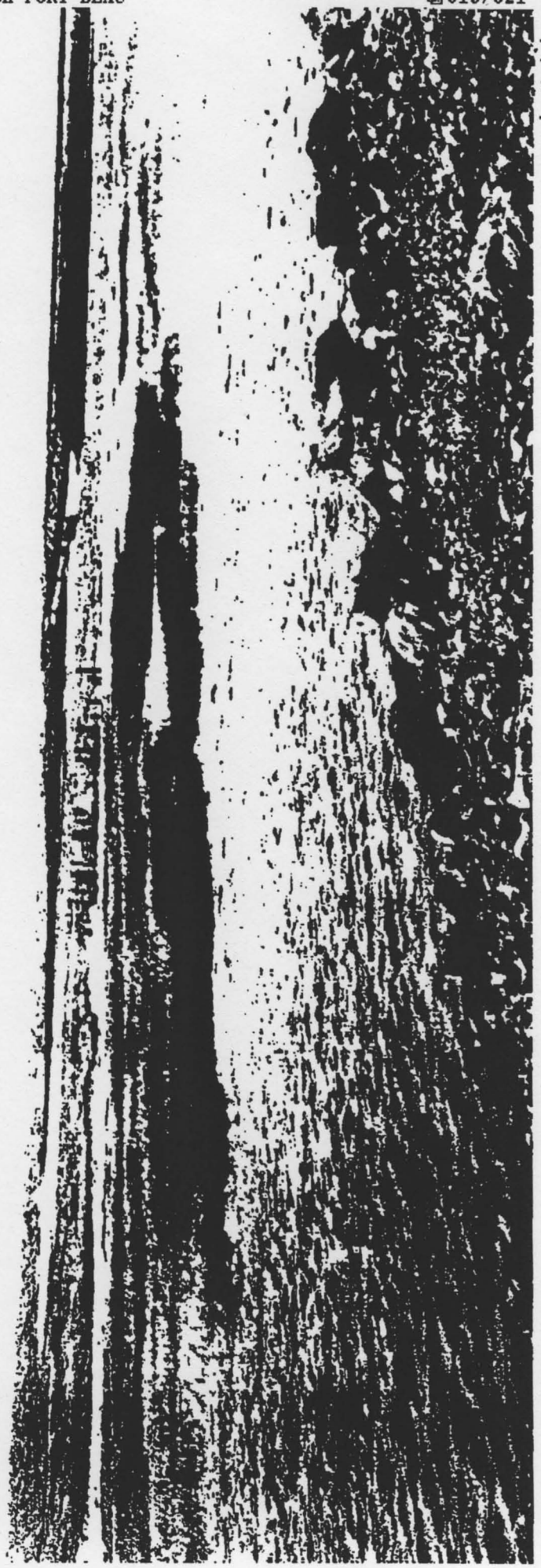
Date	Black duck	G.-w. teal	B.-w. teal	Pintail	R.-b. Merg.	Canada goose	Total
March 29	22	-	-	-	-	105	127
April 6	61	3	-	-	-	128	192
April 16	66	3	-	4	4	43	120
April 19	41	-	-	-	12	8	61
May 1	32	5	-	2	2	84	125
May 7	12	6	2	7	11	1	39
May 14	31	7	-	4	-	-	42
May 24	27	-	-	4	13	-	44
June 1	22	-	-	-	-	-	22
June 25	-	-	-	-	-	-	-
July 26	12	5	5	16	-	3	41
August 22	36	5	76	3	-	-	120
September 10	48	92	84	7	-	-	231
September 27	11	155	96	-	-	-	262

Table 3. Number of waterfowl observed on the Aulac area - 1974

Date	Black duck	G.-w. teal	B.-w. teal	Pintail	Merg. spp.	Canada goose	Wigeon	Eider	Total
April 8	67	12	-	-	-	233	-	100	412
April 17	45	26	-	1	8	124	-	80	284
April 26	29	19	-	2	17	17	7	120	211
May 3	55	18	-	4	22	69	-	-	168
May 13	33	9	2	2	-	6	-	-	52
May 17	38	4	-	6	8	-	6	-	62
May 24	31	2	1	8	-	-	-	-	42
May 29	29	-	-	5	-	2	-	-	36
June 5	10	2	-	-	-	-	-	-	12
June 19	2	-	-	1	-	-	-	-	3
August 2	6	-	-	-	-	-	-	-	6
August 19	30	-	-	-	-	-	-	-	30
November 23	125	-	-	-	-	-	-	-	125
November 27	175	-	-	-	-	200	-	-	375
November 28	90	3	-	-	9	125	-	-	227

Table 4. Number of waterfowl observed on the Aulac area - 1975

Date	Black duck	G.-w. teal	B.-w. teal	Pintail	R.-b. Merg.	Canada goose	Total
May 15	28	3	-	4	10	4	49
May 23	23	2	-	3	2	-	30
May 26	6	-	-	-	-	-	6
May 28	7	-	-	-	-	-	7
June 4	-	-	-	-	-	-	-
June 23	5	-	-	2	-	-	7
August 6	-	-	1	-	-	-	1
September 8	8	-	5	-	-	-	13
September 10	6	-	10	1	-	-	17
September 16	6	-	-	-	-	-	6



Photograph 2. Well maintained ditch system at [illegible]

Photograph 3 Beach maintained sand

Photograph 4. Snail banks left after construction mounded - [illegible]

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[illegible] Waterfowl Lane
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