THE SEVENTH ANNUAL REPORT OF THE BOWDOIN SCIENTIFIC STATION

Bulletin No. 9 Bowdoin College, Brunswick, Maine January 1, 1944

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KENT ISLAND COMMITTEE

Albert T. Gould
Edward N. Goding
Sumner T. Pike
Alfred O. Gross

DIRECTOR

Alfred O. Gross

WARDEN

Ernest A. Joy

THE BOWDOIN SCIENTIFIC STATION

Kent Island, Bay of Fundy

New Brunswick, Canada

THE SEVENTH ANNUAL REPORT OF THE BOWDOIN SCIENTIFIC STATION

Bowdoin College,
Brunswick, Maine.
January 1, 1944.

To the President and
Trustees of Bowdoin College

Sirs:

Following is the seventh annual report of the Bowdoin Scientific Station at Kent Island, Bay of Fundy, New Brunswick, Canada.

The Kent Island Committee recommended the usual appropriation of five hundred dollars ($500.00) which was approved by the Governing Boards of the College. Of this amount three hundred dollars ($300.00) was paid to Mr. Ernest Joy for services as warden and the remainder was used for needed minor repairs of buildings, payment of taxes, and expenses of the present report.

Because of war conditions and the Summer Session at Brunswick no undergraduates of the college were able to attend the sessions at the station during the summers of 1942 and 1943. Nevertheless the Committee feels that it is important to keep this project alive until normal times return and students again will have an opportunity to use the facilities of the station. Although no undergraduates were able to be at the station four members of former sessions as well as other research workers visited the island for varying periods of time to carry on scientific work.

The warden, Mr. Ernest Joy, under the direction of Mr. Robert Cunningham of M.I.T., has continued daily meteorological observations during 1942-1943, the results of which are included in this report. A summary of the temperatures of sea water taken in various places of the Bay of Fundy region by Lester and Therlin Tate are also included.

I visited the Station from July 23 to August 3, 1943, which gave me an opportunity to check up on needed repairs of the buildings and equipment and to gain first hand information concerning the status of the bird colonies.

Alfred O. Gross
for the Committee

NOTES ON KENT ISLAND BIRD LIFE

The sea birds are flourishing at the island under the care of Mr. Ernest Joy, who since 1935 has been serving as all year warden. We are fortunate to have the services of a man who has an intelligent interest in the birds and whose pleasing personality has kept the good will of the people while he maintains a rigid protection of the birds against the depredations by thoughtless persons who would wantonly disturb or destroy them.

Egging has been strictly forbidden at the southern end of the island but, with certain restrictions, persons seeking permission may collect eggs for food on the northern section of the island. By this arrangement we have created a friendly relationship with the natives who now fully respect our wishes in regard to the preservation of the birds of the main colonies located on the southern end.

The Eider Duck. Mr. John Sterling Rockefeller, who presented Kent Island to Bowdoin College in 1935, originally purchased the island in 1930 because of his interest in preventing the extermination of the Eider Ducks from the region. In 1930 there were only about twenty pairs nesting on the island. Since that time special attention and protection were given the Eider Ducks. A census taken in June 1937 revealed that there were 300 nests containing eggs at that time. (See Gross, 1938. Eider Ducks of Kent Island, Station Contribution, No. 3). This year, 1943, Mr. Joy made counts and careful estimates which indicate that the eider population comprises a thousand pairs, more than triple the number present in 1937. One morning during the height of the nesting season Mr. Joy counted 504 male eiders swimming in the water near the shores of the island. The birds have included most of the island in their nesting range and this year for the first time have occupied Crockett's Point where 30 nests with eggs were found. I have never before experienced seeing so many young eiders as were present about the island during my visit July 23 to August 3rd. This phenomenal increase in the number of Eider Ducks on Kent Island is very gratifying as it has been one of our chief objectives which is now an accomplished fact.

Black Duck. At least a dozen pairs, possibly more, Black Ducks nested on Kent Island this past summer. This is a much larger number of resident breeding individuals than we had had in past years. The Black Duck is a wary species and no doubt the unavoidable disturbance caused by the students of former summers in the course of their field work, has had much to do with discouraging this duck from nesting. The numbers of resident birds is augmented by large numbers during the fall migration. At that time the warden has been permitted to take a few of the birds to supplement his food supply during these times of rationed supplies.

Brant. The Brant continue to use the waters about Kent Island as a way feeding station on their migration to the nesting grounds in the Arctic. During the Spring migration, Mr. Joy reports that thousands of these birds are to be seen for a period of several weeks.

Leach's Petrel. Five years ago we were much concerned about the future of Leach's Petrel because their numbers seemed to be rapidly decreasing in spite of anything we could do about it. On the southern end of the island where their nesting holes could be seen in most every favorable situation fifteen years ago, these birds had practically disappeared. But in the last year or two they have returned to this section, and this year were present in considerable numbers. The petrels have increased on the northern section of the island also so it does not mean a mere shifting of the resident population. In July 1943, I found many occupied nests some with eggs and others with downy young. Mr. Donald Griffin, as late as October 15, examined 15 burrows which contained young in various stages of development most of them well advanced. Neither Mr. Griffin nor myself found any banded individuals in spite of the fact that 558 were banded in 1938 by Mr. Griffin in connection with his homing experiments with these birds. The banding of petrels has netted such meagre results that wholesale banding of them in the future will be discouraged. The removal of the birds from their long tunnelled burrows is so disturbing that it may be an important factor in their decrease in numbers.

Herring Gull A detailed census taken in 1940 revealed that we had a Herring Gull population of 30,000 individuals on the island. (Crystal, 1941, Fifth Annual Report of the Bowdoin Scientific Station). Kent Island can boast having the largest known colony of herring gulls and there is every indication that it is more than maintaining the numbers of the 1940 census. Fewer dead gulls were noted than on previous years when many were dying of disease or lack of sufficient food. More Herring Gulls were banded this year, thus continuing an unbroken record of nine years of banding this species at the station. The banding returns of Herring Gulls not previously reported are given in the section devoted to bird banding.

Mr. Joy reported finding twelve nests of the Black-backed Gull this past ssason. Two of them were built on Crockett's Point, While we are pleased to have this species represented we would not care to see them increase beyond the present numbers because of their known destructive tendencies to other species notably the young eider ducks.

The Black Guillemots, according to Mr. Joy are present to practically the limit of suitable nesting sites, although I did not see as many of them as I expected during my visit to the island July 24-August 3rd. Apparently the majority of the young had left their nests and with the adults had deserted the vicinity of the island. In past years there have been about ninety pairs of these birds nesting among the giant bowlders of the sea wall.

Kent Island is on one of the main migration routes of the shore birds. The presence of thousands of these birds, especially during the fall migration constitutes one of the most spectacular features of the bird life of the island. The sandpipers, plovers, phalaropes, yellowlegs, curlews and hosts of others are always well represented.

Land Birds. The sea and shore birds are so striking and conspicuous that we sometimes overlook the interesting land birds. Mr. Joy located three nests of the Black-poll Warbler in low spruces west of the station buildings and he feels certain an effort to find others would reveal that it is one of

the southern most nesting places of this northern warbler along the Atlantic coast hence it is of special interest to know that they are so common.

Of the sparrows the Savannah is the commonest species and it continues to nest in large numbers in the grassed areas around the station buildings. Twenty-two nests were located in a single season and most of the birds were successful in rearing their young.

The four species of swallows are represented though there were not as many Tree and Barn Swallows as during previous seasons. The Barn Swallows have fewer nesting sites since the old original fish houses have been repaired or torn down. Twelve pairs of them nest in the cellar of the warden's house. Mr. Joy keeps his cellar door open purposely for these birds again exhibiting his keen interest in the birds in his care. The Tree Swallows occupied 20 of the bird houses erected for their use. This number is smaller than in the past because many of the boxes are in need of repair and others have blown down. During the summer of 1938 we had 63 pairs of Tree Swallows nesting in seventy boxes. A few of the boxes have been occupied by Bluebirds and this year the Starlings took possession of some of them. The Cliff Swallows have also suffered because of the lack of suitable nesting sites. However, we have built special strips along the eaves of the new work shop which were used by 30 pairs of these swallows during the past summer. Both the Barn and Cliff Swallows experience difficulty in obtaining proper clay for nest construction. The sandy material used becomes friable when dry and many fall to pieces before the young are reared. One summer, clay of the proper composition was brought from the mainland and was readily used by the birds with success. I hope that this may be repeated in the future. There are about 50 nests of the Bank Swallow built near the upper edge of the eroded bank along the eastern side of the island not far from the old lime quarry. These numbers have been fairly constant since we have been at the island.

A pair of Ravens and four pairs of Crows nested this year and brought forth their broods. Although these birds are destructive to some of the other birds, we do not wish to interfere with their activities, as it is important for our ecological studies to maintain the island under natural conditions with as little interference on the part of man as possible. From an ornithological point of view one species is just as important as another. For similar reasons we make no attempt to control the hawks and owls which appear in considerable numbers at certain seasons of the year. The flourishing condition of all the bird life makes it apparent that this policy has thus far proved correct.

The winter bird life of the island is also of interest. Notable among the winter visitants in the Bay of Fundy are the thousands of Dovekies known to the Fundy Fishermen as Ice Birds. There are also several species of northern gulls and many ducks which are of regular occurrence. The Gyrfalcons are sometimes seen and during the winter of 1941-42 there was an unusual invasion of Snowy Owls to the island. The owls according to Mr. Joy, fed largely on the Purple Sandpipers and Snow Buntings which were abundant at that time.

The location of the island makes it a haven for unusual birds which are swept out of their normal ranges by storms. (See Pettingill 1939, Contribution No. 5 of the Bowdoin-Kent Island Scientific Station). Mr. Joy established new records for the island by finding both the Purple and Florida Gallinules. The Florida Gallinule was collected October 29, 1942, and is now in the Bowdoin collection of scientific skins at Brunswick.

MUSKRATS

Mammals heretofore have been conspicuous for their absence. In 1941 muskrats, the first mammals made their appearance on Kent Island. These individuals probably came from nearby Hay Island where they arrived a few years before. The ancestral stock, however, must have made the crossing of about six miles from Grand Manan by water. The muskrats are prospering on Kent Island and there are now fully 300 of them in the numerous holes and runs of the several marshy areas of the island. The warden has been granted permission to trap a certain number of them for which he obtains a substantial income. Last year the market price was $3.00 per skin. We expect to leave a considerable number of them unmolested as they will provide interesting material for some student who wishes to conduct a life history or ecological study of them.

METEOROLOGY

(by Robert M. Cunningham, Massachusetts Institute of Technology)

Weather observations have been taken continuously during 1942 and 1943. As there has been no Bowdoin group on the Island for the last two summers, Mr. Joy has kept a year-round record.

There has been little change in the weather equipment on the Island in the last two years, as all the present instruments have performed reasonably well. The wind measuring apparatus has performed perfectly throughout the period. A new maximum thermometer was installed in September, 1942. Continuous weekly thermograph records and hygrograph records for all except the summer months have been obtained.

A new form for recording the observations was introduced in April, 1943. This form was modeled after the regular daily form used at U.S. Weather Bureau stations. Additional items now observed include cloud types and snow depths (from a snow stake placed between the main house and the radio shack.) More detailed information on the beginning and ending of fog and precipitation are being recorded.

On September 17, 1943, a maximum and minimum thermometer (Six's thermometer) was set up in a thermometer screen at Ingall's Head (Lester Tate and Therlin Tate, observers,) for comparison readings with Kent Island. Observations are taken near sunset on a form similar to the one used by coöperative observers in the United States.

Observations on Kent Island were taken at the following times (A.S.T.) during 1942 and 1943 - see schedule below. The attempt was made to have the evening observation as near sunset as possible. An extra observation which began in September, 1942, and does not include outside temperature and precipitation is also made at 8:10 p.m.

January, 1942	8:10 a.m.		4:10 p.m.
Feb. - Apr., 1942	8:10 a.m.		5:10 p.m.
May-August, 1942	8:10 a.m.		8:10 p.m.
Sept. - Oct., 1942	8:10 a.m.	5:10 p.m.	8:10 p.m.
Nov., 1942 to May 2, 1943	8:10 a.m.	4:10 p.m.	8:10 p.m.
May 3 - Aug., 1943	8:10 a.m.		8:10 p.m.

For the last four years a more complete record of the beginning and ending of dense fog (visibility less than 5/8 of a mile) on the Island has been taken. The following table gives the average number of days on which dense fog occurred some time during the day for the years, 1940, 1941, 1942, and through August, 1943.

TABLE 1

FOG FREQUENCY

J	F	M	A	M	J	J	A	S	O	N	D	Total
3	3	4	4	11	14	18	15	9*	5*	4*	4*	94

*Indicates three-year average.

A number of sea-temperature readings were taken by Lester Tate, both at Ingall's Head, Grand Manan, and at a number of offshore points. The following table includes most of the readings for 1942 and 1943. Readings are not nessarily taken every day in each period, but all readingswhich were the same taken during specified periods were grouped together. (IHBW indicates Ingall's Head Break Water; GM indicates Grand Manan.)

TABLE 2

SEA TEMPERATURE

Date 1942	Place	Sea Temp.	Remarks
Mar. 31	Cheney's Passage	34	
June 27	Three Isl. Harbor	45	
Aug.4	IHBW	52	
Aug. 4	8 mi. SSE White Head	52	
Aug. 6	6 mi. SE Gannet	52	
Aug. 16	6 mi. SE Old Proprietor	52	
Sept. 1	6 mi. SE Gannet Rock	51	
Sept. 3	Old Proprietor	50	
Sept. 6	Three Island Harbor	50	
Sept. 7	6 mi. SSE Old Proprietor	49	
Sept. 11	IHBW	53	
Sept. 11	Southern Head, G.M.	49	
Sept. 17	Old Proprietor	49	
Sept. 22-26	IHBW	52	
Sept. 30-Oct. 3	IHBW	51	
Oct. 8	IHBW	52	
Oct. 18-24	IHBW	50	
Oct. 31-Nov. 6	IHBW	48	
Nov. 10	IHBW	47	
Nov. 15-18	IHBW	46	
Nov. 26	W. of Green Island	43	
Nov. 30	IHBW	44	
Dec. 5-7	IHBW	42	
Dec. 12	IHBW	40	
Dec. 18	IHBW	32	Land Temp. -8
Dec. 19	IHBW	31	Land Temp. -10
Dec. 20-21	IHBW	28	Land Temp. -12,-6
Dec. 25-31	IHBW	36	Land Temp. 32, 36

1943

Jan. 2	IHBW	35	
Jan 7	IHBW	29	Air Temp. 3
Jan. 8	Cheney's Head	33	Air Temp. 0
Jan. 19	SW of W. Green Is.	34	Air Temp. 35
Jan. 21-22	IHBW	27	Land Temp. - 10, -8
Jan. 24	IHBW	30	Air Temp. 36
Sept. 10	Southern Head, G.M.	5o	
Sept. 10	Long Ledge	50.8	Air Temp. 53
Sept. 10	8 mi. SSW Yellow Ledge	52.5	Air Temp. 56
Sept. 10	NW Shoal, G.M. Banks	57	Air Temp. 57
Sept. 10	" "	54	Low Tide and fog
Sept. 10	" "	55	Flood tide, clear
Sept. 10	" "	57	Strong flood, clear
Sept. 10	" "	58	First of ebb, clear
Sept. 11	" "	52	Last of ebb, foggy
Sept. 11	" "	53	Strong flood, clear
Sept. 11	Three Island Harbor	51	High tide, clear
Sept. 11	Cheney's Passage	52	Ebb tide, clear
Sept. 11	IHBW	55	Ebb tide, clear
Sept. 12	Three Island Harbor	52.5	Low tide

It is of interest to note in these observations of sea temperature that the inshore readings fluctuate over a wider range than the offshore readings. The observations at Ingall's Head Breakwater in very cold weather are unrepresentative of the offshore water temperature readings, particularly at ebb tide. The series of readings taken on September 10 and 11 was made during a fishing trip to the Grand Manan Banks, and indicate the effect on the water temperature of tidal stirring through the Grand Manan Islands. The flood tide on these Banks brought in the warm surface water from further south, while the ebb tide brought down the cold water carried to the surface by the intense stirring around the Grand Manan Islands. This local difference in temperature would have a corresponding effect on fog frequency in the region. Thus Kent Island finds itself in the region of coldest surface water temperature and therefore in a "Fog hole", while points as close as 20 miles to the south should have fewer days of fog than around the small islands, ledges, and shoals immediately south of Grand Manan.

Weather summaries for 1942 and through August, 1943, will be found in Tables 3 and 4. A few outstanding weather events of this period might be pointed out. In January, 1942, the temperature fell below the zero mark for the first time since the establishment of the station (1937). The Island in May, 1942, experienced two and one-half times the normal days of fog, making the month equivalent to a midsummer month with regard to fog. December, 1942, turned out to be a very cold, windy month, with a correspondingly large amount of vapor fog. A four-day wind storm began on December 2, with a southeast wind of 54 m.p.h., shifting to a west wind of 55 m.p.h. The temperature fell to -10 on the 20th and registered readings of below- zero from the 17th to the 21st. The wind during this period was north to northwest, 10 to 30 m.p.h. with thick vapor fog (visibility less than 500 yards a large part of the time). The minimum in January, 1943, also

fell below zero, but February, 1943, established a record of -14 on the 16th with a northwest wind, 15 to 20 m.p.h. and thick vapor fog. The rapid warming of the air as it blew over the warm Bay of Fundy is shown by the minimum temperatures recorded on this day from a number of nearby stations along a line approximating the trajectory of the air concerned. At Woodland, Maine, (inland from the coast) the minimum was -34. At Eastport (on the coast and almost surrounded by sea water) a minimum of -19 was reached. At Kent Island (26 miles southeast of Eastport) with half and half land and water in between) the temperature reached -14; while Yarmouth, N.S. (60 miles to the southeast of Kent Island over open water) recorded a minimum of -6. The water temperature at this time was approximately 34 degrees around Kent Island.

A cold front accompanied by an exceptionally heavy wind squall occurred at 1 a.m. on February 12, 1943. Many tree tops were broken off, some being blown clear across the Island. As this squall occurred near low tide, it blew down the tide gauge structure in the middle of the Harbor. A velocity of 48 m.p.h. was measured some time after the main squall had passed.

July 1943, was somewhat more foggy and rainy than usual. Fog occurred on a total of 21 days. A total of 2.84 inches of rain fell in less than three hours in a heavy thunder storm on July 22. The year 1943 up through August has been very wet, with a total for the first eight months of 45.49 inches. September also continued wet with a total of 3.11 inches up through the 16th (2.44 of this being the result of the tropical storm of the 15th).

In these war years we are particularly fortunate to have Mr. Ernest Joy faithfully continuing to gather weather data. The longer continuous records are kept, the more valuable they become.

TABLE 3

METEOROLOGICAL SUMMARY FOR KENT ISLAND - 1942

	Jan.	Feb.	Mar.	Apr.	May	June	July
Mean Temp	24.2	23.1	35.2	40.0	45.3	50.5	54.7
departure	-1.2	-4.5	+5.2	+0.8	-0.7	-1.0	-1.0
Mean Max. Temp.	30.6	28.2	39.7	45.7	50.5	57.2	61.7
Mean Min. Temp.	17.8	18.1	30.7	34.4	41.0	43.8	47.7
Highest Temp.	47	40	45	67	63	73	70
Lowest Temp.	-4	3	26	29	35	40	43
Prevailing wind	NW	NW	E	SW	SW	SW	SW
Av. Velocity m.p.h.	15.9	14.9	14.1	12.4	8.3	8.0	7.7
Highest velocity	55	40	49	39	16	13	15
Precipitation in.	5.04	2.17	6.59	2.17	1.57	5.93	2.09
Snowfall in.	31.3	2.3	4.4	0.2	0	0	0
Days with:							
.01 in. or more	17	7	13	10	18	13	14
.25 or more	6	3	7	4	2	4	4
Snow	11	11	7	2	0	0	0
Fog (all types)	7	4	5	7	17	16	16
"Vapor fog	6	2	0	0	0	0	0
Dense fog	4	3	5	4	15	15	12
Dense vapor	3	1	0	0	0	0	0
Dense fog(during day)	5	4	6	4	18	18	14
Thunderstorms	0	0	0	1	1	2	2

	Aug.	Sept.	Oct.	Nov.	Dec.	Annual Ave.
Mean Temp	56.1	54.8	49.9	39.0	25.4	41.5
departure	-2.0	+0.3	+1.8	-1.2	-5.9	-0.8
Mean Max Temp	63.2	61.1	55.3	44.2	31.5	47.4
Mean Min Temp	49.0	48.4	44.4	33.8	19.2	35.6
Highest Temp	72	73	60	57	51	73
Lowest Temp	46	38	38	20	-10	-10
Prevailing wind	SW	SW	SW	NW	NW	SW
Av Velocity (mph)	7.9	8.9	12.5	14.1	18.5	11.9
Highest velocity	17	22	24	52	55	55
Precipitation in.	3.77	5.90	3.57	4.94	2.84	46.58
Snowfall in.	0	0	0	1.6	5.8	45.6
Days with:						
.01 in. or more	11	14	12	12	13	154
.25 in. of more	3	5	5	6	3	52
Snow	0	0	0	3	13	47
* Fog (all types)	17	15	5	3	6	118
*"Vapor fog"	0	0	0	0	6	14
* Dense fog	17	11	5	2	4	97
* Dense vapor	0	0	0	0	4	8
**Dense fog	18	14	7	4	5	117
Thunderstorms	0	1	1	1	0	9

TABLE 4

METEOROLOGICAL SUMMARY FOR KENT ISLAND - 1943

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.
Mean Temp	21.4	27.4	30.3	36.6	45.3	41.2	54.8	56.4
departure	-4.0	-0.2	+0.3	-2.6	-0.7	-0.3	-0.9	-1.7
Mean Max Temp	28.0	35.0	37.0	42.8	51.9	58.6	61.8	62.8
Mean Min Temp	14.8	19.9	23.6	30.4	38.4	43.8	47.9	49.9
Highest Temp	39	47	47	58	60	71	70	73
Lowest Temp	-5	-14	3	17	29	38	43	47
Prevailing wind	NW	NW	SW	SW	N,SW	S	SW	SW
Av Velocity(mph)	15.6	15.3	14.4	14.7	9.7	9.6	8.4	8.1
Highest velocity	37	48	41	46	29	22	23	26
Precipitation in.	1.95	5.24	5.14	3.92	6.12	7.11	7.28	8.73
Snowfall in.	12.0	18.6	13.3	4.8	0	0	0	0
Snow depth on 15th	1.0	3.2	0	0	0	0	0	0
Snow depth on 30th	1.8	T	0	0	0	0	0	0
Days with:								
.01 in. or more	15	12	13	16	14	17	20	14
.25 in. or more	1	9	6	8	8	10	8	5
Snow	11	8	7	6	0	0	0	0
*Fog (all types)	8	9	7	4	7	13	21	15
*"Vapor"fog	7	3	1	0	0	0	0	0
* Dense fog	1	8	5	4	7	13	20	14
* Dense vapor	0	2	0	0	0	0	0	0
**Dense fog	2	8	5	4	8	15	21	16
Thunderstorms	0	0	0	0	1	7	2	4

* Fog that occurred on one or more of the two observations a day.
** Dense fog that occurred any time during the day.
Departure is departure from normal which is measured by the average of the years 1937 through 1941. All temperatures in degrees Fahrenheit.

NOTES ON AN OCTOBER VISIT TO KENT ISLAND

Donald R. Griffin
Fatigue Laboratory, and Biological Laboratories
Harvard University, Cambridge

A restful week's vacation in mid-october 1943 was my first return to Kent Island since the summer of 1938. The weather was clear and bright throughout the week, a welcome contrast with 1938 when, as I recall, there were but two days in July when the sun could be seen at all. (A reference to Bob Cunningham's weather records in past reports will support this assertion in principle if not in detail.)

Mr. Paul Robinson also of the Fatigue Laboratory staff, accompanied me to the island, and he assures me that his trip was both a pleasant vacation and a welcome glimpse of a biological field station with a promising future.

Our first night's sleep in the mess hall building was rudely interrupted by a noisy intruder rattling windows, jarring pots and pans, and making still other inexplicable noises. Shivering at the shock of leaving a cosy sleeping bag, I accosted the intruder, who turned out to be a full-grown but incredibly tiny saw whet owl. My light startled him from his perch on top of the stations's stove, but he was dazzled and easily captured from the table top, where his confused flight ended. He endeared himself at once to Ernest and Cary. We all had difficulty in persuading Cary to let us release him the next day. In fact, this little saw whet owl came close to succeeding Croaky and Hooty as Kent Island pet and mascot.

We observed the petrels rather closely almost every night and were interested to find that many of the young were still in the early stages of their growth. One was about 25 days old, judging from the data in Bill Gross's paper (The Life History Cycle of Leach's Petrel, Auk: 52, 382-399. Contribution No. 1 Bowdoin Scientific Station). Others ranged in age up to one bird which was superficially indistinguishable from the adults, but was still too weak or too heavy to fly. The young grow much heavier than adults, and then, towards the end of their long stay in the burrows, they loose most of the excess weight.

The adult petrels were visiting these young petrels every night or sometimes skipping a night between visits. Despite the almost complete absence of gulls (except along the beaches), the adult petrels did not arrive until after 10:00 p.m., and often not until past midnight.

The small size of many of the young petrels in mid-October shows that some of them cannot leave the burrows until last November. It is interesting to speculate about the fate of these late-hatched birds. Are they fed by the parents up to the onset of winter, and how late do they remain in the burrows? Roberts describes in the report of the 1934-37 British Graham Land Expedition how the closely related Wilson's petrel in the South Atlantic is often trapped by snow in its burrow. The young must then either wait for a thaw or starve before they ever leave their nests.

We both left the island filled with post-war dreams of problems which are crying for attention at Kent Island. Further homing experiments with gulls

or petrels were naturally uppermost in my mind; but in these foggy waters there are also the fascinating problems concerning the sensory basis of orientation and navigation by all the summer resident sea birds, to say nothing of the uncanny abilities of the experienced Grand Manan fishermen.

A great opportunity for ecological studies is presented by the complete absence of small mammals from Kent Island. How do the flora and fauna differ on the floor of the wooded areas of Kent Island from that of the closely similar forests of Grand Manan, where one can find a sizeable population of wood-mice and shrews?

The marine invertebrates of the waters around the island should be worked up more fully as well as the ecological effects of the extreme tides.

Doubtless all the others who have worked at Kent Island in the past have their own ideas of problems to ne tackled in the future. Certainly the physical facilities are much improved since 1938 and the station should go forward with renewed enthusiasm and success in its unique combination of research, bird banding, and the opportunity for undergraduates to acquire field experience.

BIRD BANDING

The banding of Herring Gulls has been one of the major projects at the Kent Island Station during the past nine years. In this time the various cooperators have banded 33,992 gulls including 32,357 immatures and 1,635 adults. Up to November 1, 1943 we have received 1,314 returns 996 of which have been previously reported.

An analysis of the 773 returns received up to the end of the year 1939 was made in Contribution No. 7 of the Bowdoin Scientific Station.

In addition to the gulls many other species have been banded in smaller numbers.

Herring Gulls Banded
1934 to 1943

Bander in Charge	Year	Number of Gulls Banded		
		Young	Adults	Total
F. B. Whitman, Jr.	1934-35	2 248	-	2 248
J. A. Crystal	1935	6 754	50	6 804
J. A. Crystal	1936	7 600	400	8 000
N. R. Pillsbury, Jr.	1937	4 651	200	4 851
C. S. Brand	1938	3 059	720	3 779
I. M. Spear	1939	3 000	110	3 110
E. A. Joy	1940	800	-	800
I. M. Spear	1941	1 300	155	1 455
E. A. Joy	1942	687	-	687
A. O. Gross	1943	2 258	-	2 258
Nine-Year Totals		32 357	1 635	33 992

The following 318 individual recoveries of Herring Gulls banded by the Bowdoin Scientific Station at Kent Island have not been recorded in previous Annual Reports:

Herring Gull Recoveries

Band Number	Date Banded	Date Recovered	Name of Place Recovered	How Recovered
B-624899	7-25-34	2-6-37	Galveston Bay, Tex.	Caught
34-516163	7-23-34		Beverly, Mass.	Found dead
34-516435	8-9-34	6-8-36	Leland, N.C.	Found
34-542016	8-12-34	4-1-37	Norwalk, Conn.	Found dead
34-542225	8-12-34	8-12-38	Amagansett, N.Y.	Found dead
34-542241	8-12-34	3-1-39	Margate City, N.J.	Found dead
34-542532	8-13-34	12-29-36	Cape Sable, N.S.	Found dead
34-542621	8-13-34	1-18-39	Sandwich, Mass.	Frozen in ice
34-542771	8-13-34	3-24-36	Feanandina, Fla.	Found dead
34-542807	8-13-34	7-19-36	Montauk Point, L.I.	Found dead
34-543035	8-27-34	3-1-38	Babylon, N.Y.	Found dead
34-543113	8-27-34	7-29-41	Kent Island, N.B.	Trapped-Released
34-543398	8-27-34	1-25-37	Galveston, Tex.	Caught
34-543503	8-27-34	5-16-37	Provincetown, Mass.	Found dead
34-543522	8-27-36	3-24-36	Rockaway Beach, N.Y.	Found dead
34-543712	8-27-34	11-25-36	Newburyport, Mass.	Found dead
34-543763	8-27-34	8-24-38	Nantasket Beach, Mass.	Found dead
34-628122	6-30-34	2-21-39	Bayon Lafourche, La.	Found dead
34-628178	6-30-34	1-2-39	Norfolk, Va.	Found dead
34-628182	6-30-34	6-6-36	Grand Manan, N.B.	Found
34-628292	8-1-34	3-19-38	City Island, N.Y.	Found dead
34-628322	8-1-34	1-24-41	Staten Island, N.Y.	Caught-Released
35-528061	8-11-35	1-15-36	Norfoldk, Va.	Recovered
35-528166	8-11-35	7-5-38	Sandy Neck, Mass.	Found dead
35-528990	8-11-35	9-9-38	Breezy Point, N.J.	Found dead
35-529024	8-6-35	2-6-36	Kenner, La.	Caught injured
35-529044	8-6-35	7-29-41	Little Wood Id., N.B.	Trapped-released
35-529168	8-6-35	8-26-36	Provincetown, Mass.	Found dead
35-529497	8-6-35	7-13-38	Machias Seal Id., N.B.	Founddead
35-529523	8-6-35	12-15-36	Newport, R.I.	Found dead
35-529557	8-6-35	3-2-36	Putnam County, Fla.	Caught-released
35-529628	8-6-35	5-5-36	Monimicutt Point, R. I.	Found dead
35-529636	8-6-35	5-7-36	Wilmington, N.C.	Caught-released
35-529749	8-6-35	11-24-37	Orchard Beach, N.Y.	Found dead
35-529799	8-6-35	1-9-37	Ardsley-on-Hudson, N.Y.	Found dead
35-529917	8-6-35	5-12-41	Kent Island, N.B.	Found dead
35-529943	8-6-35	7-26-41	Kent Island, N.B.	Trapped
35-529953	8-6-35	11-6-35	Blue Ridge, Ga.	Killed
35-530324	8-7-35	5-5-38	Little Compton, R.I.	Found dead
35-530583	8-7-35	8-4-36	Thomaston, Me.	Captured
35-530744	8-7-35	2-8-36	Panama, Fla.	Caught
35-530799	8-7-35	5-5-36	Passagrille, Fla.	Found dead
35-530810	8-7-35	3-14-39	Edgemere, L.I.	Found dead
35-530845	8-7-35	1-21-37	Savannah, Ga.	Caught
35-530997	8-7-35	2-16-36	Biloxi, Miss.	Caught
35-530999	8-7-35	3-16-36	Jana, Fla.	Captured on boat
35-531112	8-8-35	7-13-38	Machias Seal Id. N.B.	Found dead line
35-531124	8-8-35	2-13-36	Palm Beach Inlet, Fla.	Caught on fish
35-531149	8-8-35	10-1-35	Wood Island, N.B.	Foot with band in Stomach of fish
35-531241	8-8-35	1-11-39	College Point, N.Y.	Caught
35-531299	8-8-35	3-14-38	Kings Park, L.I.	Found dead

Band Number	Date Banded	Date Recovered	Name of Place Recovered	How Recovered
35-531301	8-8-35	1-15-36	Fernandina, Fla.	Found dead
35-531429	8-8-35	3-20-36	Arthur, Tex.	Found dead
35-532085	8-9-35	12-15-36	Newport, Del.	Caught in Trap
35-532172	8-9-35	3-5-39	Elizabeth, N.J.	Found dead
35-532232	8-9-35	2-16-37	Shelburne Co., N.S.	Recovered
35-532276	8-9-35	3-9-36	Pensacola, Fla.	Recovered
35-532359	8-9-35	6-4-36	Brooklyn, N.Y.	Found dead
35-552378	7-27-35	12-21-36	Greenport, L.I.	Found dead
35-532391	8-9-35	2-2-36	Portsmouth, Va.	Found injured
35-532580	8-9-35	5-12-36	Fort Erie, N.Y.	Found dead
35-532627	8-9-35	1-25-36	Little Lake, La.	Caught in Trap
35-532670	8-9-35	9-17-36	Shadyside, Md.	Caught in Fish Net
35-532734	8-9-35	7-17-36	Fairport, Ohio	Found dead
35-532835	8-9-35	1-6-39	Fowler, Indiana	Trapped-released
35-532965	8-9-35	5-23-36	Lake Shore Park, Ont.	Found dead
35-542453	8-12-34	2-24-41	Napanee, Ont.	Caught in Trap
35-548140	8-1-35	12-29-30	Brooklyn, N.Y.	Found dead
35-548284	8-1-35	7-22-41	Kent Island, N.B.	Trapped- released
35-548349	8-1-35	11-3-40	Hastings-on-Hudson, N.Y.	Found dead
35-548671	8-1-35	3-12-36	Beaufort, N.C.	Found in Creek
35-548804	8-1-35	12-10-41	Woodmere, N.Y.	Found dead
35-549060	7-22-35	7-22-41	Kent Island, N.B.	Trapped
35-549446	7-22-35	5-14-41	New York City, N.Y.	Found dead
35-549906	7-22-38	5-14-43	Meteghan River, N.S.	Found dead
35-550410	8-10-35	4-15-42	St. Alphonse, N.S.	Found dead
35-551074	8-1-35	5-1-36	Morehead City, N.C.	Found dead
35-551086	8-1-35	11-3-41	Staten Island, N.Y.	Shot
35-551278	8-1-35	7-26-41	Kent Island, N.B.	Trapped-released
35-551338	8-1-35	9-1-42	Eastport, Me.	Caught in "Scoot Bin"
35-551492	8-1-35	7-26-41	Kent Island, N.B.	Trapped-released
35-551897	8-1-35	10-29-41	Brooklyn, N.Y.	Found dead
35-552206	7-27-35	7-27-41	Kent Island, N.B.	Trapped-released
35-552247	7-27-35	1-16-36	English Lookout, La.	Caught
35-552583	7-29-35	3-26-41	Brooklyn, N.Y.	Found dead
35-552907	7-30-35	12-15-40	New Rochelle, N.Y.	Found dead
35-555399	8-25-41	11-2-41	Rockaway Point, L.I.	Found sick
35-555497	8-25-35	12-30-40	Quincy, Mass.	No Information
35-555673	8-25-35	7-26-41	Kent Island, N.B.	Trapped-released
35-555676	8-25-35	8-13-41	Penikese Island, Mass.	Trapped-released
35-555716	8-25-35	-	East Patchogue	Found dead
35-555833	8-25-35	9-16-41	Wahant, Mass.	Found dead
35-556142	8-26-35	6-12-43	Manasquan River, N.J.	Found sick
35-556470	8-27-35	2-7-42	Grand Manan, N.B.	Found dead
35-556683	8-27-35	5-25-42	Brackroe Beach, Va.	Found dead
35-556822	8-25-35	12-21-36	Bronx, N.Y.City, N.Y.	Found dead
35-557212	7-22-38	12-20-41	Island Beach, N.J.	Found dead
35-557238	8-2-38	7-26-41	Kent Island, N.B.	Trapped-released
35-557275	6-4-38	6-30-41	Kent Island, N.B.	Jacked at night
35-557578	7-16-39	5-6-42	Cape Charles, Va.	Found dead
35-557683	7-28-36	10-6-40	W. Hampton Beach, N.Y.	Found disabled
35-557796	7-25-36	7-26-41	Kent Island, N.B.	Trapped-released
35-557934	7-25-36	7-1-41	Kent Island, N.B.	Jacked at night
35-557947	7-25-36	7-1-41	Kent Island, N.B.	Jacked at night
35-601403	6-3-41	-	Bayonne, N.J.	Found dead
35-601828	7-23-41	11-14-41	Phoebus, Va.	Caught by Dogs

Band Number	Date Banded	Date Recovered	Name of Place Recovered	How Recovered
35-601832	7-23-41	9-15-42	Jamaica, L.I.	Found injured
35-601852	7-23-41	3-25-43	New Orleans, La.	Electrocuted in Wires
35-601869	7-23-41	7-10-43	Ogunquit, Me.	Found dead
35-601932	7-23-41	3-6-42	Chichasaw, Ala.	Found crippled
36-641042	8-8-36	1-25-37	Mobile, Ala.	Found dead
36-641064	8-8-36	2-17-37	Sewall's Point, Va.	Caught-released
36-641077	8-8-36	1-13-37	Apalachicola, Fla.	Caught
36-641087	8-8-36	1-27-37	Tampa Bay, Fla.	Shot
36-641091	8-8-36	3-28-37	Savannah, Ga.	Found dead
36-641032	8-8-36	8-3-37	Manomet, Mass.	Found dead
36-641435	8-8-36	1-24-37	Galveston, Tex.	No Information
36-641586	7-22-36	2-15-42	Long Beach, L.I.	Found dead
36-641981	7-27-36	2-1-41	Groton, Conn.	Killed by Automobile
36-642065	7-26-36	8-5-41	Bonavista Bay, Nfd.	Found dead
36-642113	7-26-36	2-18-42	New York City, N.Y.	Found dead
36-642198	7-26-36	9-30-42	Eastport, Me.	Taken
36-642296	7-26-36	9-19-43	New York City, N.Y.	Found dead
36-642305	7-26-36	5-26-41	Kent Island, N.B.	Found dead
36-642307	7-26-36	5-26-37	Galveston, Tex.	Found dead
36-642321	7-26-36	7-26-41	Kent Island, N.B.	Trapped-released
36-642822	7-30-36	3-22-41	North Wildwood, N.J.	Found dead
36-642938	7-26-36	7-14-42	Church Point, N.S.	Found injured
36-643101	7-26-36	5-4-42	Somers Point, N.J.	Found dead
36-643393	7-26-36	1-2-41	Nantasket Beach, Mass.	Found dead
36-643941	7-26-36	5-31-41	Timber Point, L.I.	Found dead
36-643815	7-26-36	3-22-41	Arran, Fla.	Found Skeleton
36-643861	7-26-36	6-15-43	Digby County, N.S.	Caught-Fish Line
36-643941	7-26-36	-	Norfolk County, Va.	Found dead
36-644171	7-30-36	2-12-41	Buzzards Bay, Mass.	Shot
36-644261	7-30-36	9-24-40	Cocagne Island, N.B.	Found dead
36-644291	7-30-36	-	Salem, Mass.	Found dead
36-644721	7-30-36	-	Norfolk, Va.	Shot
36-644862	7-30-36	2-26-38	Charleston, Va.	Found dead
36-644913	7-30-36	7-12-41	Kent Island, N.B.	Trapped-released
36-645049	7-30-36	6-20-42	Port Maitland, N.S.	Found dead
36-645196	7-30-36	3-4-42	Federalsburg, Md.	Found exhausted
36-645896	8-3-36	2-6-43	Rockaway Point, L.I.	Found dead
36-646072	8-3-36	3-31-41	Oceanside, N.Y.	Found dead
36-646076	8-3-36	10-27-41	Peconic Bay, L.I.	Found dead
36-646265	8-6-36	7-28-41	Kent Island, N.B.	Trapped-released
36-646395	8-10-36	11-15-41	Jamesport, N.Y.	Found dead
36-646418	8-6-36	-	Plymouth, Mass.	Found dead
36-647200	8-11-36	3-12-43	Bronx, N.Y.	Flew into Wire
36-647322	8-11-36	1-8-41	Ocean View, Va.	Found dead
36-648005	8-13-36	11-9-41	Fire Id. Lighthouse, N.Y.	Caught-released
36-648010	8-13-36	2-25-41	Cape May, N.J.	Found dead
36-648104	8-13-36	3-29-41	Orchard Beach, N.Y.	Found dead
36-648149	8-13-36	11-11-40	West Dennis, Mass.	Found dead
36-648501	8-12-36	9-?-41	Franklin, Me.	Found dead
36-648611	8-12-36	12-9-42	North Weymouth, Mass.	Found dead
36-648653	8-12-36	12-20-40	Manasquan, N.J.	Found dead
36-648801	8-13-36	4-?-42	Narrangansett, R.I.	Found dead
36-648889	8-13-36	8-14-41	Perry, Maine	Caught
36-648987	8-13-36	1-28-41	Harbor Island, N.Y.	Captured
36-649149	8-8-40	7-?-41	Indian Island, N.B.	Found dead

Band Number	Date Banded	Date Recovered	Name of Place Recovered	How Recovered
36-649155	8-8-40	2-27-41	Palm Beach, Fla.	Found dead
36-649190	8-8-40	11-20-40	Biloxi, Miss.	Caught
36-649220	8-8-40	11-10-40	Biloxi, Miss.	Found dead
36-649258	8-8-40	1-24-41	Cape Sable, Fls.	Caught-Fish Net
36-649278	8-8-40	2-11-41	Englewood, Fla.	Tame bird-good health
36-649315	8-9-40	9-23-40	Lubec, Me.	Found dead
36-649309	8-9-40	11-20-40	Louisville, Ky.	Killed
36-649317	8-9-40	7-8-41	Sussex Co., Del.	Found dead
36-649367	8-9-40	2-2-41	Staten Id., N.Y.	Found dead
36-649398	8-9-40	10-26-40	Jacksonville, Fla.	Found dead
36-649404	8-9-40	1-24-42	Atlantic Beach, L.I.	Found dead
36-649427	8-9-40	11-15-40	Houma, Tex.	Caught
36-649559	8-10-40	2-11-41	New Orleans, La.	Found dead
36-649635	8-10-40	1-9-41	Everglades City, Fla.	Shot
36-649710	8-10-40	1-3-41	Barnegat City, N.J.	Found dead
36-649748	8-10-40	5-32-41	Lubec, Maine	Killed by Eagle
36-649834	8-12-40	3-25-41	Beaufort, N.C.	Taken
36-649871	8-12-40	12-14-40	Yarmouth, N.S.	Shot
36-649893	8-12-40	1-2-43	Bronx, N.Y.	Found dead
36-649895	8-12-40	8-24-41	Lower Cape Bald, N.S.	Found dead
36-649929		10-13-41	Prospect Harbor, Me.	Shot
36-650085	7-13-38	1-30-43	Morgan City, La.	Caught-released
36-650089	7-13-38	7-26-42	Digby County, N.S.	Found dead
36-650385	8-20-42	1-9-43	Mobile, Ala.	Caught-released
36 -650521	7-26-41	5-15-42	Freeport, N.S.	Caught-released
36-650560	7-26-41	5-10-43	Kent Island, N.B.	Found dead-recent
36-650562	7-26-41	12-1-42	Eastport, Me.	Found dead
36-650582	7-26-41	8-2-41	Rossway, N.S.	Found dead
37-646865	8-20-42	11-26-41	Beverly, N.J.	Found dead
37-646920	8-20-42	10-8-42	Grand Anse, N.S.	Caught-fishing net
37-646928	8-20-42	11-2-42	Eastport, Me.	Found dead
37-646941	8-20-42	10-20-42	Shelter Island, L.I.	Skeleton
37-646959	8-20-42	2-11-43	Carrabelle, Fla.	Found dead
37-646986	8-20-42	10-30-42	Perrin, Va.	No report
37-653090	7-10-37	7-26-41	Kent Island, N.B.	Trapped-released
37-653304	7-11-37	3-12-42	Atlantic City, N.J.	Found dead
37-653383	7-11-37	5-22-43	Digby County, N.S.	Broken wing
37-653470	7-11-37	11-24-41	Stamford, Conn.	Found dead
37-653521	7-11-37	9-21-40	Barnegat Inlet, N.J.	Found crippled
37-653564	7-11-37	3-26-41	Brigantine, N.J.	Found dead
37-653596	7-11-37	5-28-41	Flagg Island, Me.	Found dead
37-653708	7-11-37	11-10-41	Brooklyn, N.Y.	Found dead
37-654046	7-12-37	11-5-41	Malpeque Bay, P.E.I.	Found dead
37-654091	7-12-37	7-31-41	Staten Island, N.Y.	Found dead
37-654407	7-16-37	11-26-42	Lake Lure, N.C.	Found dead
37-654424	7-16-37	11-18-42	Woodbury, L.I., N.Y.	Shot
37-654551	7-16-37	7-10-42	Kent Island, N.B.	Found dead
37-654621	7-16-37	12-7-40	Rockaway Point, L.I.	Found dead
37-654916	7-18-37	1-6-41	Freeport, L.I.	Found dead
37-655308	7-19-37	4-11-43	Long Beach Id. N.J.	Found dead
37-655414	7-19-37	11-14-41	Provincetown, Mass.	Found dead
37-655515	7-20-37	11-4-41	Plymouth Beach, Mass.	Found dead
37-655531	7-20-37	5- - 42	Jersey City, N.J.	Found dead
37-655680	7-20-37	- - 42	Long Beach, N.Y.	Found dead
37-656618	7-21-37	- - 42	Long Beach, N.Y.	Found dead
37-656715	7-21-37	8-30-42	Center, L.I.	Found dead

Band Number	Date Banded	Date Recovered	Name of Place Recovered	How Recovered
37-656734	7-21-37	4-20-41	Brooklyn, N.Y.	Caught-released
37-656734	7-21-37	4-26-41	Ozone Park, N.Y.	Found
37-656752	7-21-37	7-29-41	Kent Island, N.B.	Trapped-released
37-656864	7-24-37	8-10-40	Naragansett Bay, R.I.	Found dying
37-656906	7-24-37	9-21-42	Jamaica Bay, N.Y.	Found dead
37-656911	7-24-37	9-28-38	Cumberland County, N.S.	Found dead
37-656912	7-24-37	10-3-38	Prince Edward Id.	Recovered
37-656947	7-24-37	9-11-37	Red Id. via Burgo, Nfd.	Killed
37-657080	8-6-37	1-18-42	Mattituck, L.I.	Wing gone
37-657102	8-27-37	9-2-41	Grand Manan, N.B.	Shot
37-657117	8-27-37	4-25-42	Freeport, N.S.	No information
37-657159	8-27-37	7-26-41	Kent Island, N.B.	Trapped-released
37-657178	8-27-37	10- -40	East Dennis, Mass.	No information
37-657196	8-27-37	1-12-42	Oceanside, N.Y.	Found dead
37-657314	8-29-37	8-3-41	Dartmouth, Mass.	Found dead
37-657354	8-29-37	6-8-43	Kent Island, N.B.	Found dead-recent
37-657385	8-29-37	5-20-41	Mill ridge, Me.	Found
37-657513	8-27-37	12-1-40	Valley Stream, L.I.	Found dead
37-657865	7-17-38	12-10-41	S. Norwalk, Conn.	Found dead
37-664887	8-20-42	11-15-42	St. Andrews Bay, Fla.	Hit by airplane
37-664893	8-20-42	9-23-42	Upper Pockmouche, N.B.	Found
38-660183	7-25-41	11-17-42	East Providence, R.I.	Found dead
38-666342	8-11-41	-	Linden, N.J.	Shot
38-667805	7-21-41	11-2-42	Absecon, N.J.	Found dead
38-667850	7-21-41	1-10-42	Port St. Joe, Fla.	Found dead
38-667906	7-21-41	12- -41	Gates County, N.C.	Caught
38-667933	7-21-41	12-15-41	Pensacola, Fla.	Found dead
38-667967	7-21-41	9-2-41	East Harpswell, Me.	Found dead
38-668043	7-21-41	7-27-42	Fort Story, Va.	Found injured
38-668043	7-21-41	7-31-42	Cape Henry, Va.	Found injured
38-669639	7-28-38	2-15-41	Bayonne, N.J.	Found dead
38-669800	7-25-38	1-3-41	Norfolk, Va.	Found dead
38-670322		9-15-40	Nyack, N.Y.	Found dead
38-670396	8-14-38	7-29-41	Kent Island, N.B.	Trapped-released
38-670638	8-4-38	10-30-40	North Head, G. Manan	Found dead
38-670645	8-5-38	7-19-41	Kent Island	Trapped-collected
38-670682	8-8-38	6-27-41	Kent Island, N.B.	Jacked-collected
38-670698	8-9-38	11-15-40	Port Maitland, N.S.	Shot
38-670701	8-3-38	12-13-41	Milford, Del.	Injured
38-670929	8-4-38	10-12-40	Barnegat Bay, N.J.	Found dead
38-671097	7-16-38	10- -42	Rehoboth Beach, Del.	Found injured
38-671174		10-12-40	East Hampton, N.Y.	Found dead
38-671848	7-25-38	12-1-40	Mosquito Cove, N.J.	Found
38672025	8-5-38	7-12-41	Kent Island, N.B.	Trapped- collected
38-672056	8-13-38	9-13-41	Jarmouth County, N.S.	Found dead
38-672057	8-13-38	7-12-41	Kent Island, N.B.	Trapped-collected
38-672076	8-13-38	7-20-41	Kent Island, N.B.	Trapped-collected
38-672081	8-13-38	12- -40	Manteo, N.C.	Caught-fish net
38-672088	8-13-38	7-19-41	Kent Island, N.B.	Killed-collected
38-672146	8-11-38	7-12-41	Kent Island, N.B.	Trapped-collected
38-672169	8-12-38	2-19-40	Nassawodox, Va.	Found dead
38-672186	8-12-38	2-12-41	Newport, R.I.	Found dead
38-672315		10-21-40	Tiverton, N.S.	Found dead
38-672444	8-29-38	1-13-39	Hyannis Beach, Mass.	Found-leg bone

Band Number	Date Banded	Date Recovered	Name of Place Recovered	How Recovered
38-672625		12-27-41	Bridgeport, Conn.	Found dead
38-672681	7-22-41	11-8-41	Bailey's Id., Me.	Wing-tipped
38-672866	8-11-41	10-1-41	Pembroke, Me.	Shot
38-672874	8-11-41	1-25-42	Silver Point, L.I.	Found dead
38-672897	8-11-41	11-23-41	Cape May County, N.J.	Found dead
39-657136	7-15-39	1- -42	Sacannah, Ga.	Found dead
39-658524	7-17-39	11-29-40	Beach Haven Crest, N.J.	Caught
39-658532	7-17-39	3-24-41	Keyport, N.J.	Found dead
39-658586	7-17-39	1-6-42	Rockwell Center, L.I.	Found dead
39-658590	7-17-39	11-25-40	Revere, Mass.	Found dead
39-658598	7-17-39	2-22-41	Island Beach, L.I.	Found dead
39-658610	7-17-39	3-30-42	Berlin, Md.	Found dead
39-658611	7-17-39	7-16-41	Courtney Bay, N.B.	Captured-released
39-658803	7-17-39	3-18-42	Cormierville, N.B.	Found
39-658891	7-17-39	4-20-41	Hatteras, N.C.	Drowned-pound net
39-658933	7-17-39	11-13-41	Webster, S.D.	Shot
39-658969	7-17-39	2-23-43	Cedarhurst, L.I.	Found dead
39-658992	7-17-39	8- 41	Wellfleet, Mass.	Found dead
39-659027	7-18-39	11-3-40	Winthrop, Mass.	Found dead
39-659062	7-18-39	5- -42	Sorrento, Me.	Found dead
39-659185	7-18-39	2-28-42	Burns Point, N.S.	Broken wing
39-659247	7-19-39	6-29-42	Vapau Renard, Gaspe, Q.	Found dead
39-659375	7-18-39	1-1-41	Yarmouth County, N.C.	Found dead
39-659485	7-19-39	10- -40	Thorofare, N.J.	Found
39-659530	7-21-39	3-8-43	Bronx, N.Y.	Found dead
39-659543	7-21-39	2- -40	Beaufort, N.C.	Killed-fish machinery
39-659724	7-21-39	12-23-41	Ocean Grove, N.J.	Found dead
39-569768	7-21-39	2-3-41	Brooklyn, N.Y.	Found dead
39-659996	7-24-39	4-3-43	Old Westburg, L.I.	Found dead
39-660005	7-26-39	7-20-41	Kent Island, N.B.	Sick and disabled
39-660027	7-26-39	3-7-42	Wildwood, N.J.	Found dead
39-660052	7-26-39	3-9-41	Portsmouth, Va.	Found dead
39-660141	7-26-39	7-23-41	Kent Island, N.B.	Found dead
39-660163	7-26-39	11-26-41	Portsmouth, Va.	Caught-released
39-660268	7-27-39	1-23-41	Atlantic City, N.J.	Founddead
39-660390	7-27-39	5-19-40	Spring Lake, N.J.	Shot
39-660478	7-27-39	12-11-40	Ossining, N.Y.	Found dead
39-660801	7-29-39	1- -42	Savannah, Ga.	Found dead
39-660941	7-30-39	3-16-41	Swampscott, Mass.	Found dead
39-661040	7-30-39	8-21-40	Truner Sta., Md.	Found dead
39-661098	7-30-39	6-1-42	Yarmouth, N.S.	Found dead
39-661346	7-31-39	5-24-41	Greenwood, Mass.	Found dead
39-661357	7-31-39	5-19-43	Yarmouth County, N.S.	Found dead
39-661505	8-8-39	9-4-41	Comeauville, N.S.	Found dead
39-661551	8-24-39	7-26-41	Kent Island, N.B.	Trapped-released
39-661568	8-11-39	7-26-41	Kent Island, N.B	Trapped-released
39-661592	8-25-39	10-15-42	Freeport, N.S.	Found
39-661731	7-21-41	10- -42	West Dennis, Mass.	Found dead
39-661814	7-15-41	12-30-41	Bernard Parish, La.	Caught in trap
39-661841	7-15-41	2-4-42	Jacksonville, Fla.	Founddead
39-661955	7-21-41	9-26-41	Lavallette, N.J	Found dead
39-661983	7-21-41	4-3-43	New Orleans, La.	Caught

CONTRIBUTIONS

In addition to the annual reports of the Bowdoin-Kent Island Scientific Station the following contributions have been published.

1. Gross, William A. O.
   1935 The Life History Cycle of Leach's Petrel (Oceanodroma leucorhoa leucorhoa) on the Outer Sea Islands of the Bay of Fundy. Auk, vol. 52, no. 4, pp. 382-399. Illus. 4 plates, 11 fig. and 8 tables.

   1936 Kent Island - Outpost of Science. Natural History Magazine, vol. 37, no. 4, pp. 195-210. Illus. 22 photographs.

2. Gross, Thomas A. W1JZM, VE1IN
   1937 Designing the First Stage of the Speech Amplifier. Q.S.T. vol. 21, no. 12, pp. 33-100. Illus. 1 plat, 1 fig.

3. Gross, Alfred O.
   1938 Eider Ducks of Kent Island. Auk, vol. 55, no. 3, pp. 387-400 Illus. 3 plates, 6 fig.

4. Gross, Thomas A., W1JZM, VE1IN
   1938 Operation of Zero-bias Modulators. Radio, no. 230, pp. 21-33. Illus. 7 fig.

5. Pettingill, Olin S., Jr.
   1939 The Bird Life of the Grand Manan Archipelago. Proc. Nova Scotia Institute of Science. vol. 19, pt. 4, pp. 293-372. Illus. 3 plates, 3 fig.

6. Griffin, Donald R.
   1940 Homing Experiments with Leach's Petrels. Auk, vol. 57, no. 1, pp. 61-74. Illus. 7 text fig.

7. Gross, Alfred O.
   1940 The Migration of Kent Island Herring Gulls. Bird Banding, vol. 11, no. 4, pp. 129-155. Illus. 1 photograph, 2 maps, 3 charts.

8. Cunningham, Robert M.
   1941 Chloride Content of Fog Water in Relation to Air Trajectory, Bull. American Meteorological Society, vol. 22, no. 1, pp. 17-20. Illus. 2 figs.

9. Gross, Alfred O.
   1944 Food of the Snowy Owl. Auk, vol. 61, no. 1, pp. 1-20 1 plate.

A number of copies of the above publications are still available for distribution and can be secured by writing to the Director of the station.