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**FOURTEENTH
ANNUAL
REPORT**

**ON ACTIVITIES UNDER THE
MARITIME MARSHLAND
REHABILITATION ACT
FOR THE FISCAL YEAR
ENDED MARCH 31, 1963**

MARITIME MARSHLAND REHABILITATION ADMINISTRATION

CANADA DEPARTMENT OF AGRICULTURE

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CONTENTS

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O-D-41
Page

1962/63

Introduction	1
Administration and Organization	1
Summary of Progress to Date	2
(a) Projects and Acreages Protected	2
(b) Construction of Works	2
1. The Annapolis River Dam	3
2. Standard Projects	3
3. Special Projects	4 3
4. Outstanding Projects	4 3
5. Special Investigations	4 3
Appendix I - Active Projects on March 31, 1963	6 5
Appendix II - Expenditures, Fiscal Years 1949-1962 and 1962-1963	9 8
Appendix III - Special Projects, Financial Sharing of Capital Expenditures to March 31, 1963	12
Appendix IV - Graph Showing Area Incorporated-Area Protected ...	13
Photographs of Works on Marshland Projects	14

FOURTEENTH ANNUAL REPORT OF ACTIVITIES UNDER THE
MARITIME MARSHLAND REHABILITATION ACT, 1962-63

INTRODUCTION

The Maritime marshlands cover an estimated 100,000 acres principally around the Bay of Fundy.

Although the majority of farms consist largely of upland holdings, and farms consisting entirely of fertile marshlands are in the minority, the marshlands have long been considered important to the economy of the region. Some areas were protected for agricultural use over 300 years ago.

Federal assistance for the preservation and extension of this resource was arranged after a combination of factors had seriously handicapped the owners.

The Maritime Marshland Rehabilitation Act was passed in 1948. Under the Act, federal responsibility is to provide the main protective works, and that of the provinces is to assure proper land utilization.

The act is administered by the Canada Department of Agriculture through the Maritime Marshland Rehabilitation Administration.

ADMINISTRATION AND ORGANIZATION

The Maritime Marshland Rehabilitation Administration headquarters was established at Amherst, Nova Scotia, in 1949. All operations are controlled from this headquarters by a Director responsible to the Deputy Minister of Agriculture.

The establishment comprises:

1. Administration and Accounting Branch.
2. Engineering Branch:
 - (a) Surveys and Design
 - (b) Construction Services
 - (c) Workshop and Equipment

Construction divisions operate from Amherst and Windsor, Nova Scotia. Temporary additional offices are established from time to time as required.

The Maritime Marshland Rehabilitation Advisory Committee was established and functioned as required under Section 8 of the Act. The Act states "No work shall be undertaken in any Province ... unless (a) the work has been recommended by an Advisory Committee ...".

SUMMARY OF PROGRESS TO DATE

Projects and Acreages Protected

All projects which have been approved by the Minister of Agriculture for Canada and which have not been incorporated into larger projects are designated as active. The number of active projects in each province on March 31, 1963, and the acreages protected are as follows:

<u>Province</u>	<u>No. of Active Projects</u>	<u>Acreage Protected</u>
Nova Scotia	84	44,054
New Brunswick	38	36,936
Prince Edward Island	1	275
		<u>81,265</u>

The active projects in each province and the ~~averages~~ ^{average} ~~acreages~~ ^{acreage} protected are listed in Appendix 1.

Construction of Works

The marshlands are protected from the tides by dykes. At major stream crossings where fresh water runoff is to be discharged, these include structures known locally as aboiteaux. River bank control and foreshore protective works are installed where required.

The protecting works include:

248 miles of dyke, 68 miles having rock or timber facing;

433 aboiteaux;

3 major tidal dams;

17 miles of riverbank control installations.

The construction trend, directed by economic feasibility studies, ~~have~~ ^{has} been towards protecting areas in groups, using a single large aboiteau, or dam, instead of miles of dyke and large numbers of small aboiteaux. It is probable that this trend will in time render obsolete some of the protective works constructed during the current program.

A graph showing the annual progress from 1949 to 1963 appears in Appendix IV.

THE CONSTRUCTION PROGRAM FOR THE YEAR INVOLVED:

1. The Annapolis River Dam, Annapolis County, Nova Scotia

This dam also serves as a Provincial highway river crossing. Construction was undertaken as a joint project with the Province of Nova Scotia Department of Highways. Under agreement, Canada and Nova Scotia share the cost in the ratio of 1.75 to 1.00. Construction commenced in March, 1958.

Construction will be completed in 1963 and the agreement with the Province of Nova Scotia terminated.

This dam is the largest single structure constructed under the Act.

2. Standard Projects

Works previously constructed were improved and extended on several projects.

It has been found advantageous to quarry, haul and place required protective rock for most projects during the winter months. This program was successfully continued last winter.

The maintenance of structures required special attention due to the unusually high runoff in the spring and severe storms in the early fall.

Details of expenditures to date on all projects are recorded in Appendix II.

3. Special Projects

The existence of several multipurpose structures, serving as aboiteaux and highway or railway culverts, prompted the careful investigation of possible combined undertakings early in the rehabilitation program. Such investigations have been continued.

4. Outstanding Projects

Although construction has been initiated and almost completed on all projects approved, there are several projects which have been favourably considered by the Advisory Committee and on which for various reasons the provinces concerned have postponed requesting action. These are as follows:

Nova Scotia Region

N.S. 102, Chebogue Marsh, Yarmouth County

N.S. 114, Great Village Marsh, Colchester County

New Brunswick Region

N.B. 37, Sackville-Ram Pasture, Westmorland
County (an extension of the presently
completed Sackville project)

5. Special Investigations

The Maritime Marshland Rehabilitation Administration has attempted to bridge the gap between the early dyke building and present-day engineering construction. Various design principles and construction techniques of value in related fields of construction have been developed in the process.

The Administration has had complete design and construction responsibilities on all joint projects and has frequently advised provincial government agencies, municipalities, private groups and individuals on construction matters related to Administration experience.

In compliance with ARDA Directorate requests, studies were conducted on several drainage and river flood problems in New Brunswick and Nova Scotia. Of these, the largest undertaking was a study of the Maugerville -Sheffield Area on the Saint John River in New Brunswick.

APPENDIX 1. MARITIME MARSHLAND REHABILITATION PROJECTS

Active Projects

Note: Acreages are based on information available on March 31, 1963, and include dyke rights-of-way, roads and creeks.

Project No.	Name of Marsh	County	Acreage Protected Marsh
<u>NOVA SCOTIA</u>			
N.S. 2	Windsor Forks	Hants	465
N.S. 3	Falmouth Great Dyke	Hants	975
N.S. 4	Queen Anne	Annapolis	477
N.S. 5	Dugau	Annapolis	172
N.S. 6	Saulnierville	Digby	73
N.S. 8	Grand Pre (inc. Wickwire)	Kings	3013
N.S. 11	Truro Dykeland Park	Colchester	878
N.S. 12	Victoria Diamond Jubilee	Colchester	527
N.S. 13	Dentiballis	Annapolis	348
N.S. 14	Elderkin	Hants	203
N.S. 15	Isgonish	Colchester	491
N.S. 16	Castle Frederick	Hants	145
N.S. 17	Falmouth Village	Hants	97
N.S. 18	Ryerson	Annapolis	86
N.S. 20	Advocate	Cumberland	489
N.S. 23	Masstown	Colchester	986
N.S. 24	Noel Shore	Hants	309
N.S. 27	Newport Town	Hants	338
N.S. 30	Allan River	Annapolis	122
N.S. 38	St. Croix	Hants	248
N.S. 39	Round	Colchester	86
N.S. 40	Fort Belcher	Colchester	181
N.S. 41	Habitant	Kings	677
N.S. 42	Amherst Point	Cumberland	2252
N.S. 44	Converse	Cumberland	838
N.S. 45	Barronsfield	Cumberland	237
N.S. 46	River Hebert	Cumberland	1052
N.S. 47	Selmah	Hants	188
N.S. 48	Centre Burlington	Hants	158
N.S. 49	Scotch Village	Hants	89
N.S. 50	Herbert River	Hants	74
N.S. 52	St. Mary's Bay	Digby	692
N.S. 53	John Lusby	Cumberland	821
N.S. 54	Minudie	Cumberland	2711
N.S. 55	Seaman	Cumberland	441
N.S. 56	Wellington	Kings	3105
N.S. 57	New Minas	Kings	304
N.S. 59	Brown Salt Pond	Yarmouth	294
N.S. 61	Kennetcook	Hants	169
N.S. 63	Maccan	Cumberland	200
N.S. 64	Glenholme	Colchester	292
N.S. 65	Bishop Beckwith	Kings	604
N.S. 66	Flemming	Colchester	277
N.S. 67	Onslow North River	Colchester	496
N.S. 68	Tregothic	Hants	576
N.S. 69	Martock	Hants	1478
N.S. 70	Cheggoggin	Yarmouth	425
N.S. 71	Goose Bay	Yarmouth	269
N.S. 72	Horton	Kings	309

Project No.	Name of Marsh	County	Acreage Protected Marsh
N.S. 75	Armstrong	Hants	53
N.S. 76	Farnham Dyke	Kings	192
N.S. 77	Princeport	Colchester	49
N.S. 78	Athol	Cumberland	131
N.S. 79	Chambers	Hants	61
N.S. 80	Starr's Point	Kings	303
N.S. 81	Lower Truro	Colchester	399
N.S. 82	Kentville	Kings	71
N.S. 85	Mantua Poplar Grove	Hants	362
N.S. 86	Central Onslow	Colchester	291
N.S. 87	Chignecto	Cumberland	544
N.S. 88	Burlington	Hants	106
N.S. 90	Old Barns	Colchester	181
N.S. 91	Belcher Street	Kings	346
N.S. 92	Avonport	Kings	255
N.S. 93	Greenhill	Hants	53
N.S. 95	Fort Lawrence - Amherst	Cumberland	3400
N.S. 97	Highland Village	Colchester	212
N.S. 98	Stewiacke	Colchester	146
N.S. 100	Wentworth	Hants	150
N.S. 101	Pereaux	Kings	113
N.S. 103	Annapolis River Dam	Annapolis	4300
N.S. 104	Sunny Slope	Hants	17
N.S. 105	Belmont	Hants	72
N.S. 106	Fort Ellis	Colchester	203
N.S. 108	Argyle	Yarmouth	45
N.S. 109	Nappan River Dam	Cumberland	1074
N.S. 111	Burntcoat	Hants	37
N.S. 112	Rhynds Creek	Hants	187
N.S. 113	Southside	Colchester	134
N.S. 115	Nappan-Maccan	Cumberland	388
N.S. 116	Shubenacadie	Hants	111
N.S. 117	Tufts	Colchester	87
N.S. 119	Upper Maccan	Cumberland	169
N.S. 121	Green's Creek	Colchester	75
		Total	44,054

NEW BRUNSWICK

N.B. 4	Allison	Westmorland	197
N.B. 5	Westcock	Westmorland	800
N.B. 6	Taylor Village	Westmorland	444
N.B. 8	Coyle Landry	Westmorland	305
N.B. 11	Belliveau Village	Westmorland	191
N.B. 12	Pre d'en Haut	Westmorland	113
N.B. 13	Dorchester	Westmorland	1758
N.B. 14	Lower Coverdale	Albert	149
N.B. 15	Middle Coverdale	Albert	31
N.B. 16	Dixon Island	Westmorland	330
N.B. 17	New Horton	Albert	799
N.B. 18	Fox Creek	Westmorland	96
N.B. 19	Beaumont	Westmorland	207
N.B. 20	Gautreau Village	Westmorland	209
N.B. 21	Memramcook West	Westmorland	1105
N.B. 24	Aulac	Westmorland	2050

Project No.	Name of Marsh	County	Acreage Protected Marsh
N.B. 25	Dock	Westmorland	42
N.B. 26	Dover	Westmorland	43
N.B. 27	College Bridge	Westmorland	873
N.B. 28	Upper Coverdale	Albert	45
N.B. 30	Calkins	Albert	227
N.B. 33	West Coverdale	Albert	260
N.B. 36	Boundary Creek	Westmorland	51
N.B. 37	Sackville	Westmorland	473
N.B. 40	Woodpoint	Westmorland	43
N.B. 41	Turtle Creek	Albert	125
N.B. 43	Creek' s	Albert	93
N.B. 45	Chartersville	Westmorland	348
N.B. 46	Wilson	Westmorland	157
N.B. 47	Hillsboro	Albert	967
N.B. 50	Black River	Saint John	41
N.B. 51	Shepody River Dam	Albert	5552
N.B. 54	Jones Creek	Westmorland	51
N.B. 55	Missaguash	Westmorland	333
N.B. 56	Tantramar River Dam	Westmorland	17988
N.B. 57	Redbank	Westmorland	41
N.B. 58	Memramcook	Westmorland	215
N.B. 60	Petitcodiac River Survey	Westmorland and Albert	-
N.B. 62	St. Martins	Saint John	184
		Total	36,936

PRINCE EDWARD ISLAND

P.E.I.	Johnston River	Queens	275
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APPENDIX II EXPENDITURES UNDER THE MARITIME MARSHLAND
REHABILITATION ACT

	<u>1949-1962</u>	<u>1962-1963</u>
Administration	557,282.38	35,398.89
Surveys and Engineering	1,896,162.17	98,606.54
Workshop and Construction Supervision	3,507,833.02	249,884.88
Construction and Maintenance of Projects and Special Surveys:		

NOVA SCOTIA

Advocate	125,479.82	377.52
Allan River	50,472.01	36.45
Amherst Point	166,646.25	3,443.46
Annapolis Royal Town	27,624.41	
Annapolis River Survey	27,049.60	
Annapolis River Dam	1,591,692.12	7,140.32
Armstrong Marsh	17,822.25	1,302.43
Argyle	15,155.15	20.68
Athol	20,534.24	1,201.52
Avonport	106,535.37	5,868.17
Barronsfield	82,739.94	288.99
Bartlett's Beach	2,644.17	
Belcher Street	117,305.29	3,678.76
Belmont	25,902.66	122.63
Bishop Beckwith	178,902.02	3,143.58
Brown Salt Pond	24,674.30	
Burlington	46,328.04	234.46
Burntcoat	14,946.92	35.82
Castle Frederick	54,992.95	2,739.73
Central Onslow	49,155.81	115.90
Centre Burlington	36,848.15	350.62
Chambers	15,760.42	162.15
Chegoggin	32,823.33	21.79
Chignecto	46,866.34	55.44
Comeau	38,268.06	
Converse	148,546.97	14,681.07
Dentiballis	106,193.40	2,606.09
Dugau	41,222.70	2,598.62
Elderkin	70,313.17	2,291.21
Falmouth Great Dyke	188,305.51	3,787.62
Falmouth Village	42,284.73	2,564.78
Farnham Dyke	33,076.20	1,609.87
Flemming	47,570.35	226.39
Fort Belcher	61,459.42	1,725.07
Fort Ellis	48,394.35	1,363.29
Fox Bow	20,242.73	
Fort Lawrence - Amherst	85,366.06	73.97
Glenholme	64,773.21	194.07
Goose Bay	29,160.37	
Grand Pre	578,955.41	23,614.25
Granville Centre	27,213.80	
Greenhill	30,894.84	265.67
Green's Creek	29,094.93	4,398.14

Construction and Maintenance of Projects
and Special Surveys (Con' d.):

	<u>NOVA SCOTIA</u>	<u>1949-1962</u>	<u>1962-1963</u>
Habitant		21,502.47	382.32
Herbert River		26,819.83	290.45
Highland Village		68,799.39	3,709.17
Horton		104,359.48	841.77
Isgonish		176,162.39	552.79
John Lusby		141,616.14	261.24
Kennetcook		50,062.48	1,020.94
Kentville		16,372.07	4,692.37
Lower Truro		61,935.65	938.87
Maccan		39,875.96	534.22
Mantua Poplar Grove		83,824.91	1,950.22
Martock		167,754.80	3,987.28
Masstown		198,428.62	6,952.15
McKay		17,165.94	
Messenger		3,457.06	
Mill		7,321.94	
Minudie		145,702.55	1,583.82
Morse		4,616.95	
Morse Bishop		3,173.26	
Moschelle		28,719.68	
Mount Anne		60,302.71	
Nappan-Maccan		18,397.66	3,880.97
Nappan River Dam		175,817.61	1,284.31
New Minas		96,478.83	1,654.26
Newport Town		74,907.47	550.71
Noel Shore		188,635.75	1,722.98
Old Barns		52,770.13	1,817.55
Onslow North River		76,936.92	1,138.86
Pre Rond		9,014.96	
Pereaux		21,342.61	55.00
Princeport		17,300.45	
Queen Anne		170,909.51	3,634.14
Rhynds Creek		48,908.38	3,306.33
Ricketson		2,519.54	
River Herbert		252,931.96	2,789.65
Rosette		2,977.37	
Round		37,667.82	
Ryerson		55,359.89	
Saulnierville		7,193.88	1,535.67
Scotch Village		29,432.62	820.36
Seaman		45,073.83	121.50
Selmah		27,388.19	
Shiple		4,609.00	
Shubenacadie		23,995.38	145.20
Southside		26,754.18	366.90
Starr's Point		118,602.70	2,402.16
St. Croix		96,806.57	1,518.21
St. Mary's Bay		95,149.38	16,604.94
Stewiacke		39,388.93	761.80
Sunny Slope		10,192.99	641.21
Tregothic		53,656.94	1,928.78
Truro Dykeland Park		122,414.37	4,475.21
Tufts		19,409.56	2,617.58
Tupperville		18,608.25	
Upper Belleisle		32,091.75	

Construction and Maintenance of Projects
and Special Surveys (Con' d.):

	<u>NOVA SCOTIA</u>	<u>1949-1962</u>	<u>1962-1963</u>
Upper Nappan		54,929.55	
Upper Maccan		26,577.93	1,209.12
Victoria Diamond Jubilee		90,857.04	5,028.39
Walker		5,210.13	
Wellington		101,483.30	191.94
Wentworth		18,370.50	10.99
Windermere		49,026.18	
Windsor Forks		78,327.40	1,695.06
Woodworth		<u>23,487.11</u>	<u>1,695.06</u>
Subtotal for Nova Scotia projects		\$8,520,126.57	183,947.92

	<u>NEW BRUNSWICK</u>	<u>1949-1962</u>	<u>1962-1963</u>
Allison		28,369.07	656.60
Aulac		294,068.57	7,126.40
Baie Verte		923.03	
Beaumont		71,717.15	1,578.61
Belliveau Village		25,730.43	91.10
Black River		14,916.28	1,333.45
Boundary Creek		4,430.00	86.04
Calkins		108,360.10	1,329.45
Chartersville		63,152.35	396.17
Cole's Island		52,094.47	
College Bridge		122,246.51	4,915.81
Coverdale		19.31	
Coyle Landry		49,396.31	519.75
Creeks		10,550.26	521.84
Dixon Island		73,417.68	7,936.60
Dock		18,096.62	10.49
Dorchester		288,985.62	4,892.25
Dover		15,336.44	719.20
Fox Creek		35,296.10	2,205.53
Gautreau Village		107,323.16	417.70
Great		6,828.22	
Germantown		11,909.61	
Hillsboro		162,604.49	1,217.01
Hopewell Hill		72,406.13	
Jones		4,803.31	
Jones Creek		7,797.15	41.40
Log Lake		52,004.10	
Lower Coverdale		62,350.54	571.66
Memramcook		53,497.80	507.75
Memramcook West		186,349.18	2,995.07
Middle Coverdale		19,132.91	14.89
Missaguash		11,534.63	
New Horton		96,507.16	209.32
Pre d'en Haut		42,886.07	1,096.44
Red Bank		4,833.33	227.08
Sackville		62,470.85	390.08
Shepody River Dam		1,565,530.53	7,314.23
Shepody River Survey		26,334.47	
St. Martins		33,122.29	8,426.87
Tantramar River Dam		759,816.51	10,588.02
Tantramar River Survey		23,201.48	

Construction and Maintenance of Projects
and Special Surveys (Con'd.):

	<u>NEW BRUNSWICK</u>	<u>1949-1962</u>	<u>1962-1963</u>
Tantramar West		45,616.39	
Taylor Village		101,528.87	2,466.34
Turtle Creek		27,021.07	80.39
Upper Coverdale		19,135.92	14.90
Upper Dyke		11,149.33	
Westcock		163,300.10	2,993.07
West Coverdale		81,034.54	581.44
Wilson		28,930.12	187.20
Wood Point		<u>2,432.65</u>	<u>185.30</u>
Subtotal for New Brunswick projects		5,130,499.21	74,844.45

PRINCE EDWARD ISLAND

Johnston River 20,150.40

TOTAL EXPENDITURE FOR CONSTRUCTION
AND MAINTENANCE OF PROJECTS AND
SPECIAL SURVEYS 13,670,776.18 258,792.37

TOTAL EXPENDITURE FOR
ADMINISTRATION, ENGINEERING
AND SUPERVISION 5,961,277.57 383,890.31

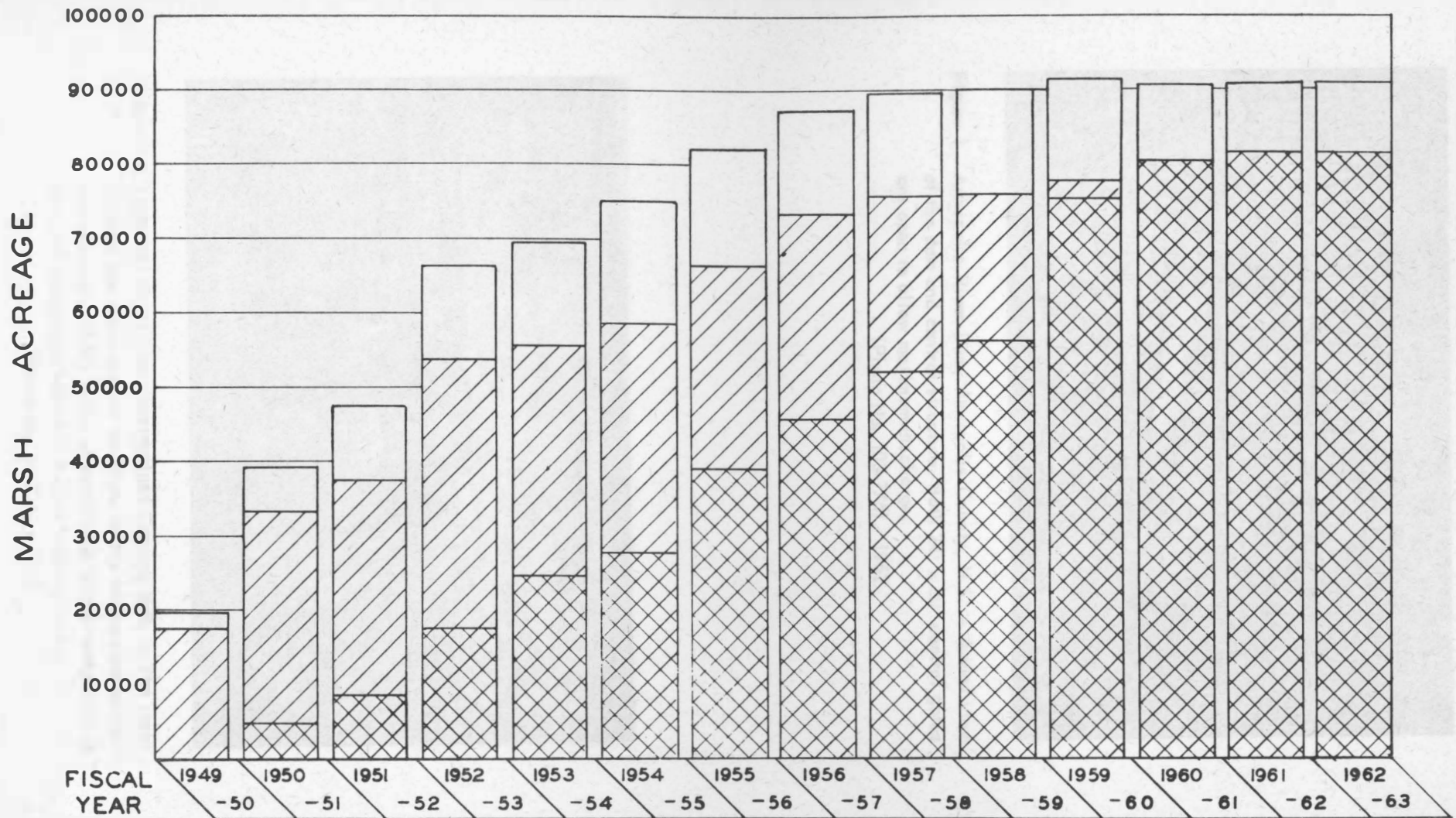
TOTAL 19,632,053.75 642,682.68

APPENDIX III SPECIAL PROJECTS - FINANCIAL SHARING OF CAPITAL
EXPENDITURES TO MARCH 31, 1963

<u>Project</u>	<u>Particular Project Structure Contributed Towards</u>	<u>Gross Expenditure on Project to Date</u>	<u>Contributing Agency</u>	<u>Amount Contributed to Date</u>
<u>NOVA SCOTIA</u>				
Annapolis Royal Dam	Aboiteau & Highway Causeway	\$ 2,512,313.49	Province of N.S.	\$ 914,815.35
Isgonish River Dam	Aboiteau & Highway Causeway	223,460.60	Province of N.S.	103,566.52
Nappan River Dam	Aboiteau & Highway Causeway	193,134.39	Province of N.S.	23,536.43
Bishop Beckwith Marsh	Aboiteau & Sewer Outlet	190,387.57	Town of Wolfville	1,880.85
Burntcoat Marsh	Aboiteau & Highway Causeway	28,461.50	Province of N.S.	14,957.53
River Hebert Marsh	Sewer Outlet for School	265,630.86	Province of N.S. (entire cost)	338.45
Kentville Marsh	Crib Bank Protection	23,600.98	Town of Kentville	2,414.66
Scotch Village Marsh	Aboiteau & Highway Crossing	34,492.46	Province of N.S.	4,239.48
St. Mary's Bay Marsh	Aboiteau & Highway Crossing	126,588.07	Province of N.S.	9,543.63
Tufts Marsh	Aboiteau & Highway Crossing	26,237.54	Province of N.S.	2,234.75
				\$1,077,527.65
<u>NEW BRUNSWICK</u>				
Tantramar River Dam	Aboiteau & Highway Causeway	904,038.28	Province of N.B.	200,948.06
College Bridge Marsh	Aboiteau & Highway & Railroad	225,025.15	CNR and Prov. of N.B.	96,896.38
Coles Island Marsh	Aboiteau & Railroad Structure	86,002.47	CNR	36,229.22
Black River Marsh	Aboiteau & Highway Causeway	23,591.76	Province of N.B.	9,042.03
Taylor Village Marsh	Dyke Protecting Bridge Approach	109,925.47	Province of N.B.	5,930.26
Belliveau Village Marsh	Placing Rock on Highway	26,219.98	Province of N.B. (entire cost)	470.45
Sackville Marsh	Aboiteau & Highway Causeway	78,031.39	Province of N.B.	15,000.00
				\$ 364,516.40

NOTE: Some of the payments from agencies participating in a project were not received in time to permit crediting to the particular project and there may therefore be variation between gross expenditures shown on this page and those derived from Appendix II.

CANADA DEPT. OF AGRICULTURE M.M.R.A.
 GRAPH SHOWING AREA INCORPORATED — AREA PROTECTED
 YEAR 1949-50 TO 1962-63.
 NOVA SCOTIA — NEW BRUNSWICK — P.E.I



- - ACREAGE INCORPORATED.
- ▨ - ACREAGE PROTECTED BY ALL CLASSES OF PROTECTIVE WORKS INCLUDING MINIMUM MAINTENANCE OF EXISTING STRUCTURES.
- ▩ - ACREAGE PROTECTED BY MAJOR TIDAL DAMS (SHEPODY, TANTRAMAR, NAPPAN, ANNAPOLIS RIVER DAM) AND STANDARD M.M.R.A PROTECTIVE WORKS.

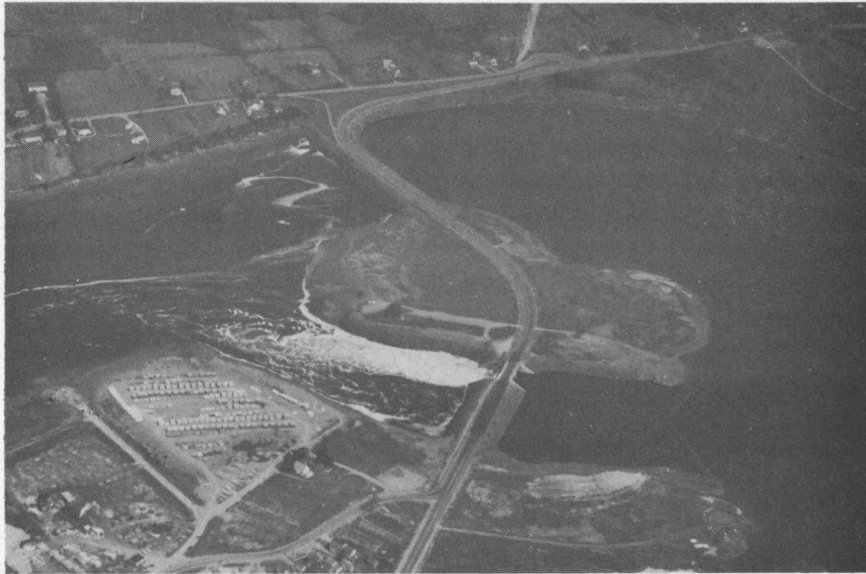


Figure 1 – Annapolis River Dam, Annapolis County, N.S. – Aerial view of the dam and control structure. Both 24' x 30' control gates are open to allow maximum discharge.

(Photo No. 103-775) - 1962



Figure 2 – Tantramar River Dam, Westmorland County, N.B. – The rock-fill dam and water control structure in the background protect approximately 18,000 acres of marshland. In the foreground is the CNR bridge and behind it the old highway bridge.

(Photo No. 56-706) - 1962

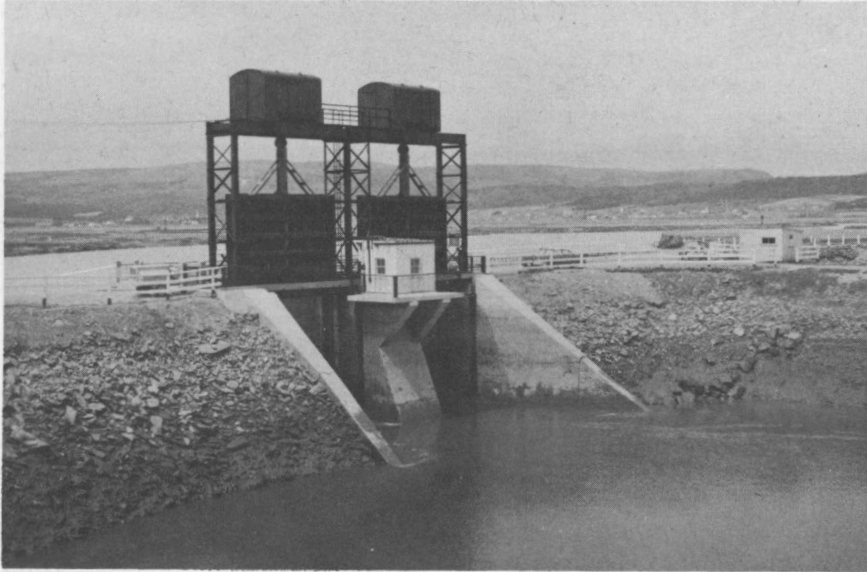


Figure 3 – Shepody River Dam, Albert County, N.B. – Downstream view of the control structure with both 16' x 20' gates raised for inspection. The tide has just reached the level of the reservoir.

(Photo No. 51-244) - 1962



Figure 4 – Shepody River Dam – Aerial view of conditions at time of 1962 record Spring run-off which caused extensive flooding throughout the central Maritimes.

(Photo No. 51-258) - 1962

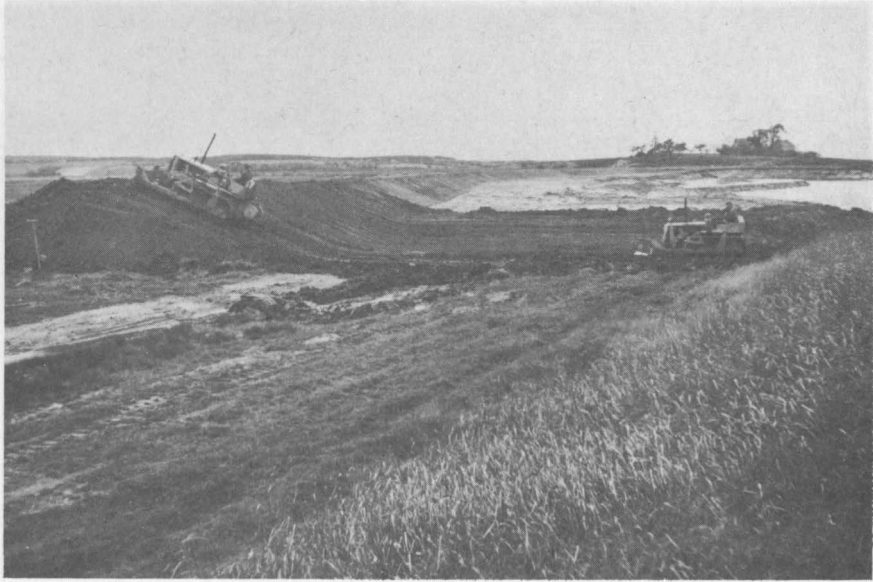


Figure 5 - Nappan-Maccan Marsh, Cumberland County, N.S. - Machines at work building a standard 'dozer dyke. This type of construction is possible where the foreshore area is suitable.

(Photo No. 115-140) - 1962



Figure 6 - Grand Pre Marsh, ^{Kings}~~Cumberland~~ County, N.S. - Heavy rock facing on the protecting dyke to avoid erosion by wave action during high tide periods.

(Photo No. 8-092) - 1962

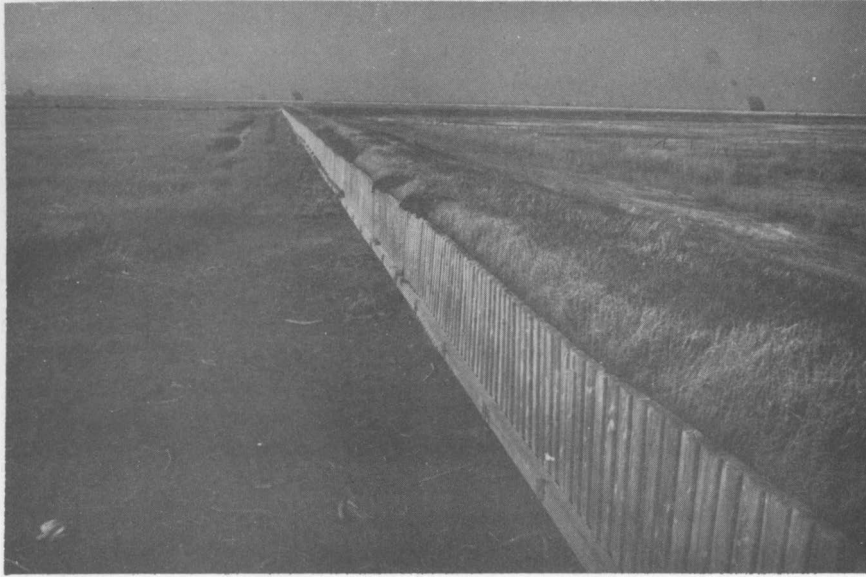


Figure 7 – Aulac Marsh, Westmorland County, N.B. – Another form of protection against wave action is the plank-faced dyke shown here. This type of facing is gradually being replaced by heavy rock.

(Photo No. 24-034) - 1962



Figure 8 – Seaman Marsh, Cumberland County, N.S. – A typical small sluice structure with a bronze $1\frac{1}{2}' \times 2\frac{1}{2}'$ gate.

(Photo No. 55-006) - 1962



Figure 9 – Seaman Marsh, Cumberland County, N.S. – Extensive sheep raising in this area accelerated the utilization of adjoining marsh for pasture.

(Photo No. 55-037) - 1962



Figure 10 – Grand Pre Marsh, Kings County, N.S. – A herd of mixed cattle grazing on the marsh.

(Photo No. 8 - 067) - 1962