

2FG

A

O-D-41:

1961/62



**THIRTEENTH
ANNUAL
REPORT**

DALHOUSIE
LIBRARY
GOVERNMENT DOCUMENTS

**ON ACTIVITIES UNDER THE
MARITIME MARSHLAND
REHABILITATION ACT
FOR THE FISCAL YEAR
ENDED MARCH 31, 1962**

MARITIME MARSHLAND REHABILITATION ADMINISTRATION

CANADA DEPARTMENT OF AGRICULTURE

CONTENTS

Page

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	2
2. The Tantramar River Dam	2
3. Standard Projects	3
4. Special Projects	3
5. Outstanding Projects	3
6. Special Investigation	3
Appendix I - Active Projects on March 31, 1962.	4
Appendix II - Expenditures, Fiscal Years 1949-1961 and 1961-1962	7
Appendix III - Special Projects, Financial Sharing of Capital Expenditures to March 31, 1962.	11
Appendix IV - Graph Showing Area Incorporated-Area Protected.	12
Photographs of Works on Marshland Projects	13

THIRTEENTH ANNUAL REPORT OF ACTIVITIES UNDER THE
MARITIME MARSHLAND REHABILITATION ACT 1961-62

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 320 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, while that of the provinces is to assure proper land utilization.

The Act is administered by the Federal 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 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 ...".

The Advisory Committee did not meet during the year as there were no outstanding project requests from the provinces and no other developments requiring consideration.

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, 1962, 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 acreages 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 construction trend, directed by economic feasibility studies, 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 1962 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 the 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.

During the year, construction was practically completed.

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

2. Tantramar River Dam, Westmorland County, New Brunswick.

This dam also serves as the Trans-Canada Highway river crossing. Construction was undertaken as a joint project with the Province of New Brunswick Department of Public Works. Under the agreement Canada and New Brunswick shared the cost in the ratio of 7.75 to 2.25.

Construction commenced in May, 1958, and was completed during the year.

3. Standard Projects

Construction was initiated on and protection provided for four projects in Nova Scotia and one project in New Brunswick.

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.

Maintenance work was undertaken on project structures as required.

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

4. 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 and details of expenditures on projects which became joint projects appear in Appendix III.

5. Outstanding Projects

Although construction has been initiated and practically 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).

6. 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.

APPENDIX I. MARITIME MARSHLAND REHABILITATION PROJECTS

Active Projects

Note: Acreages are based on information available on March 31, 1962, 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. 1	Johnston River	Queens	275
----------	----------------	--------	-----

APPENDIX II EXPENDITURES UNDER THE MARITIME MARSHLAND REHABILITATION ACT

	<u>1949-1961</u>	<u>1961-1962</u>
Administration	\$ 521,756.10	\$ 35,526.28
Surveys and Engineering	1,789,425.08	106,737.09
Workshop and Construction Supervision	3,204,392.18	303,440.84
Construction and Maintenance of Projects and Special Surveys:		
	<u>NOVA SCOTIA</u>	
Advocate Marsh	124,534.33	945.49
Allan River Marsh	50,447.80	24.21
Amherst Point Marsh	165,318.12	1,328.13
Annapolis Royal Town Marsh	27,624.41	
Annapolis River Survey	27,049.60	
Annapolis River Dam	1,511,236.94	80,455.18
Armstrong Marsh	17,699.48	122.77
Argyle Marsh	15,068.32	86.83
Athol Marsh	20,531.02	3.22
Avonport Marsh	103,264.36	3,271.01
Barronsfield Marsh	82,255.70	484.24
Bartlett's Beach Marsh	2,644.17	
Belcher Street Marsh	116,975.75	329.54
Belmont Marsh	25,658.19	244.47
Bishop Beckwith Marsh	176,063.44	2,838.58
Brown Salt Pond Marsh	23,647.96	1,026.34
Burlington Marsh	46,128.70	199.34
Burntcoat Marsh	14,920.96	25.96
Castle Frederick Marsh	54,760.43	232.52
Central Onslow Marsh	46,808.07	2,347.74
Centre Burlington Marsh	36,809.22	38.93
Chambers Marsh	15,760.42	
Chegoggin Marsh	32,740.08	83.25
Chignecto Marsh	46,216.88	649.46
Comeau Marsh	38,268.06	
Converse Marsh	146,460.51	2,086.46
Dentiballis Marsh	102,954.42	3,238.98
Dugau Marsh	29,893.87	11,328.83
Elderkin Marsh	69,888.00	425.17
Falmouth Great Dyke Marsh	136,473.45	51,832.06
Falmouth Village Marsh	42,055.48	229.25
Farnham Dyke Marsh	33,063.90	12.30
Fleming Marsh	47,127.51	442.84
Fort Belcher Marsh	58,070.06	3,389.36
Fort Ellis Marsh	34,855.00	13,539.35
Fox Bow Marsh	20,242.73	
Fort-Lawrence-Amherst Marsh	84,978.53	387.53
Glenholme Marsh	64,468.18	305.03
Goose Bay Marsh	29,002.59	157.78
Grand Pre Marsh	567,896.24	11,059.17
Granville Centre Marsh	27,213.80	
Greenhill Marsh	28,646.27	2,248.57

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

	<u>NOVA SCOTIA</u>	<u>1949-1961</u>	<u>1961-1962</u>
Green's Creek Marsh			29,094.93
Habitant Marsh		21,502.47	
Herbert River Marsh		26,477.85	341.98
Highland Village Marsh		64,657.29	4,142.10
Horton Marsh		102,667.56	1,691.92
Isgonish Marsh		175,574.13	588.26
John Lusby Marsh		140,983.82	632.32
Kennetcook Marsh		49,942.62	119.86
Kentville Marsh		16,277.98	94.09
Lower Truro Marsh		58,426.94	3,508.71
Maccan Marsh		39,668.61	207.35
Mantua Poplar Grove Marsh		81,685.65	2,139.26
Martock Marsh		166,831.09	923.71
Masstown Marsh		188,433.16	9,995.46
McKay Marsh		17,165.94	
Messenger Marsh		3,457.06	
Mill Marsh		7,321.94	
Minudie Marsh		145,206.36	496.19
Morse Marsh		4,616.95	
Morse Bishop Marsh		3,173.26	
Moschelle Marsh		28,719.68	
Mount Anne Marsh		60,302.71	
Nappan-Maccan Marsh		17,725.35	672.31
Nappan River Dam		172,349.82	3,467.79
New Minas Marsh		96,149.44	329.39
Newport Town Marsh		74,648.15	259.32
Noel Shore Marsh		187,300.88	1,334.87
Old Barns Marsh		43,929.77	8,840.36
Onslow North River Marsh		75,372.09	1,564.83
Pre Rond Marsh		9,014.96	
Pereaux Marsh		21,292.61	50.00
Princeport Marsh		15,841.92	1,458.53
Queen Anne Marsh		167,889.52	3,019.99
Rhynds Creek Marsh		45,996.97	2,911.41
Ricketson Marsh		2,519.54	
River Hebert Marsh		244,469.64	8,462.32
Rosette Marsh		2,977.37	
Round Marsh		37,569.82	98.00
Ryerson Marsh		55,359.89	
Saulnierville Marsh		7,139.88	54.00
Scotch Village Marsh		20,474.36	8,958.26
Seaman Marsh		44,838.68	235.15
Selmah Marsh		27,348.46	39.73
Shipleigh Marsh		4,609.00	
Shubenacadie Marsh		23,657.87	337.51
Southside Marsh		26,577.38	196.80
Starr's Point Marsh		110,458.86	8,143.84
St. Croix Marsh		94,848.05	1,958.52
St. Mary's Bay Marsh		77.60	95,071.78
Stewiacke Marsh		37,408.80	1,980.13
Sunny Slope Marsh		10,133.78	59.21
Tregothic Marsh		52,850.46	806.48
Truro Dykeland Park Marsh		119,981.35	2,433.02
Tufts Marsh			19,409.56
Tupperville Marsh		18,608.25	
Upper Belleisle Marsh		32,091.75	

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

	NOVA SCOTIA	<u>1949-1961</u>	<u>1961-1962</u>
Upper Nappan Marsh		54,929.55	
Upper Maccan Marsh			26,577.93
Victoria Diamond Jubilee Marsh		88,197.85	2,659.19
Walker Marsh		5,210.13	
Wellington Marsh		99,018.94	2,444.36
Wentworth Marsh		18,271.29	99.21
Windermere Marsh		49,026.18	
Windsor Forks Marsh		75,861.57	2,465.83
Woodworth Marsh		23,487.11	
Subtotal for Nova Scotia projects		8,064,330.91	455,795.66
	NEW BRUNSWICK	<u>1949-1961</u>	<u>1961-1962</u>
Allison Marsh		28,125.78	243.29
Aulac Marsh		291,829.38	2,239.19
Baie Verte Marsh		923.03	
Beaumont Marsh		70,516.08	1,201.07
Belliveau Village Marsh		25,519.39	211.04
Black River Marsh		14,837.51	78.77
Boundary Creek Marsh		4,430.00	
Calkins Marsh		107,971.05	389.05
Chartersville Marsh		62,710.21	442.14
Cole's Island Marsh		52,094.47	
College Bridge Marsh		120,081.87	2,164.64
Coverdale Marsh		19.31	
Coyle Landry Marsh		49,331.31	65.00
Creeks Marsh		10,435.96	114.30
Dixon Island Marsh		73,014.43	403.25
Dock Marsh		18,018.28	78.34
Dorchester Marsh		281,064.15	7,921.47
Dover Marsh		15,121.73	214.71
Fox Creek Marsh		34,136.85	1,159.25
Gautreau Village Marsh		106,998.79	324.37
Great Marsh		6,828.22	
Germantown Marsh		11,909.61	
Hillsboro Marsh		161,006.70	1,597.79
Hopewell Hill Marsh		72,406.13	
Jones Marsh		4,803.31	
Jones Creek Marsh		7,797.15	
Log Lake Marsh		52,004.10	
Lower Coverdale Marsh		61,500.71	849.83
Memramcook Marsh		48,567.87	4,929.93
Memramcook West Marsh		183,646.60	2,702.58
Middle Coverdale Marsh		19,072.61	60.30
Missaguash Marsh		11,523.58	11.05
New Horton Marsh		95,898.30	608.86
Pre d'En Haut Marsh		42,403.86	482.21
Red Bank Marsh		4,656.23	177.10
Sackville Marsh		60,209.08	2,261.77
Shepody River Dam		1,548,597.50	16,933.03
Shepody River Survey		26,334.47	
St. Martins Marsh			33,122.29
Tantramar River Dam		744,960.61	14,855.90
Tantramar River Survey		23,201.48	

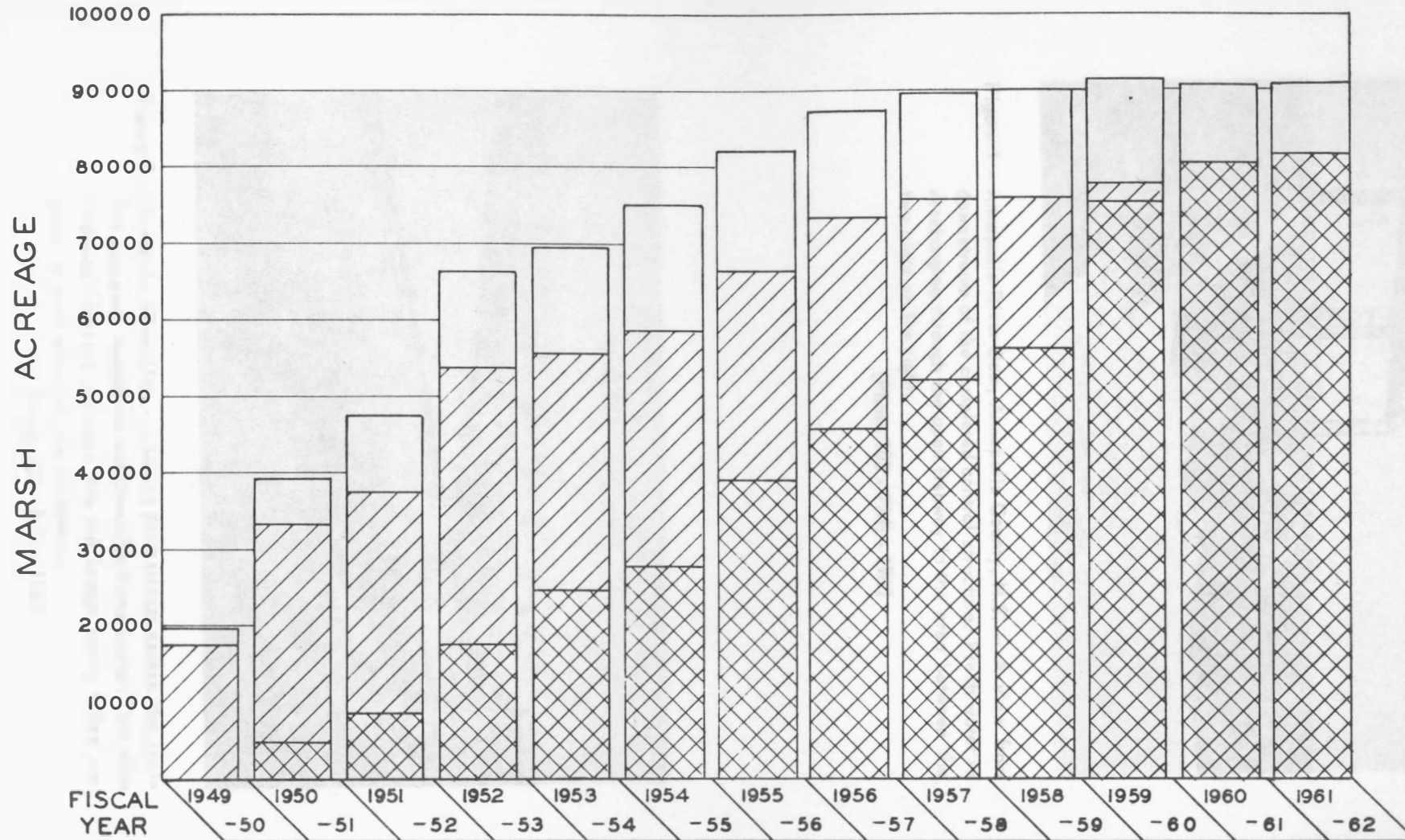
Construction and Maintenance of Projects
and Special Surveys (Cont'd):

	NEW BRUNSWICK	<u>1949-1961</u>	<u>1961-1962</u>
Tantramar West Marsh		45,616.39	
Taylor Village Marsh		100,175.74	1,353.13
Turtle Creek Marsh		27,021.07	
Upper Coverdale Marsh		19,135.92	
Upper Dyke Marsh		11,149.33	
Westcock Marsh		161,726.58	1,573.52
West Coverdale Marsh		76,553.35	4,481.19
Wilson Marsh		28,930.12	
Woodpoint Marsh		<u>2,432.65</u>	
Subtotal for New Brunswick projects		5,027,248.85	103,250.36
 PRINCE EDWARD ISLAND			
Johnston River Marsh		20,146.40	4.00
TOTAL EXPENDITURE FOR CONSTRUCTION AND MAINTENANCE OF PROJECTS AND SPECIAL SURVEYS		13,111,726.16	559,050.02
TOTAL EXPENDITURE FOR ADMINISTRATION, ENGINEERING AND SUPERVISION		<u>5,515,573.36</u>	<u>445,704.21</u>
<u>TOTAL</u>		<u><u>18,627,299.52</u></u>	<u><u>1,004,754.23</u></u>

APPENDIX III SPECIAL PROJECTS - FINANCIAL SHARING OF CAPITAL
EXPENDITURES TO MARCH 31, 1962

Project	Particular Project Structure Contributed Towards	Gross Expenditure on Project to date	Contributing Agency	Amount Contributed to Date
NOVA SCOTIA				
Annapolis Royal Dam	Aboiteau & Highway Causeway	\$2, 501, 367.06	Province of N. S.	\$ 909, 674.94
Isgonish River Dam	Aboiteau & Highway Causeway	222, 907.81	Province of N. S.	103, 566.52
Nappan River Dam	Aboiteau & Highway Causeway	191, 850.08	Province of N. S.	23, 536.43
Bishop Beckwith Marsh	Aboiteau & Sewer Outlet	180, 782.37	Town of Wolfville	1, 880.85
Burntcoat Marsh	Aboiteau & Highway Causeway	28, 425.68	Province of N. S.	14, 957.53
River Hebert Marsh	Sewer Outlet for School	253, 270.41	Province of N. S. (entire cost)	338.45
Kentville Marsh	Crib Bank Protection	18, 786.73	Town of Kentville	2, 414.66
Scotch Village Marsh	Aboiteau & Highway Crossing	33, 672.10	Province of N. S.	4, 239.48
St. Mary's Bay Marsh	Aboiteau & Highway Crossing	104, 693.01	Province of N. S.	9, 543.63
Tufts Marsh	Aboiteau & Highway Crossing	21, 644.31	Province of N. S.	2, 234.75
				<u>\$ 1, 072, 387.24</u>
NEW BRUNSWICK				
Tantramar River Dam	Aboiteau & Highway Causeway	893, 450.26	Province of N. B.	200, 948.06
College Bridge Marsh	Aboiteau & Highway & Railroad	219, 552.34	C.N.R. and Province of N.B.	96, 815.33
Coles Island Marsh	Aboiteau & Railroad Structure	86, 002.47	C.N.R.	36, 229.22
Black River Marsh	Aboiteau & Highway Causeway	21, 174.32	Province of N. B.	7, 900.00
Taylor Village Marsh	Dyke Protecting Bridge Approach	107, 459.13	Province of N. B.	5, 930.26
Belliveau Village Marsh	Placing Rock on Highway	26, 128.88	Province of N. B. (entire cost)	470.45
Sackville Marsh	Aboiteau & Highway Causeway	77, 470.85	Province of N. B.	15, 000.00
				<u>\$ 363, 293.32</u>

CANADA DEPT. OF AGRICULTURE M.M.R.A.
 GRAPH SHOWING AREA INCORPORATED — AREA PROTECTED
 YEAR 1949-50 TO 1961-62.
 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.

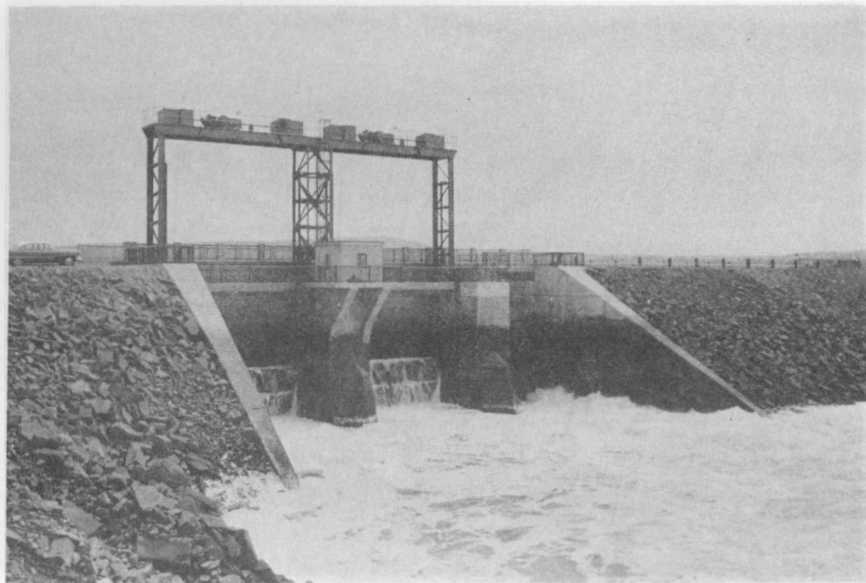


Figure 1 – Annapolis River Dam, Annapolis County, N.S. – A view from downstream of the completed control structure. Fresh water is discharging through the open fishway in the area between the two piers on the right.

(Photo 103 - 734) - 1961



Figure 2 – Annapolis River Dam – Looking downstream across the rock-fill causeway toward the old Granville Ferry bridge. This main highway crossing replaces the old bridge which failed just prior to completion of the causeway.

(Photo 103 - 731) - 1961

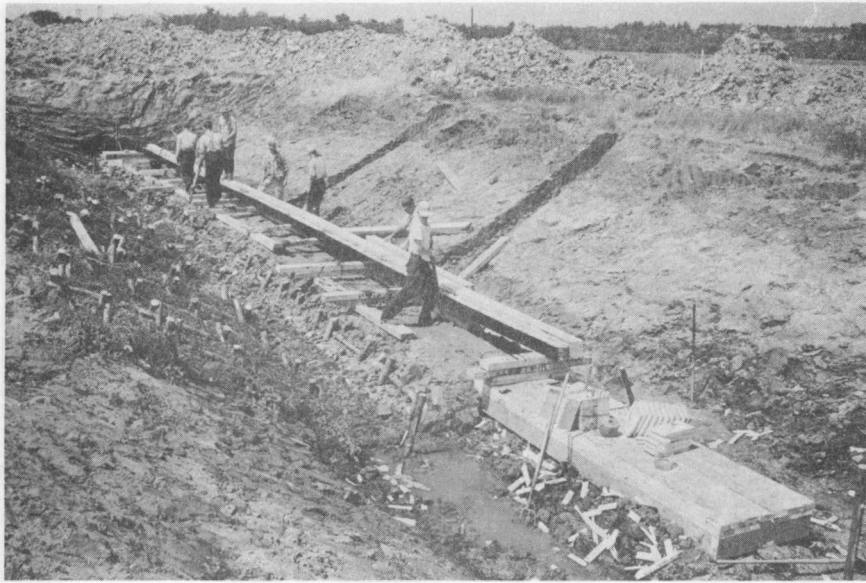


Figure 3 – Upper Maccan Marsh, Cumberland County, N.S. – Assembling a small prefabricated sluice. Note the staked brush on the left bank of the excavation, necessary to bind together the marsh mud which will be used as fill material.

(Photo 119 - 001) - 1961

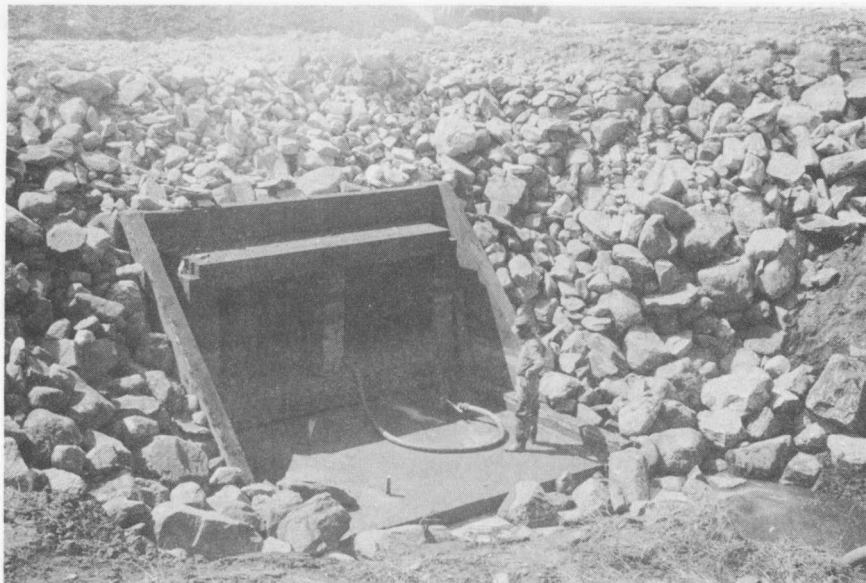


Figure 4 – St. Mary's Bay Marsh, Digby County, N.S. – A two-barrel, 5' x 5' sluice, one of the largest prefabricated wooden sluices used.

(Photo 52 - 003) - 1961

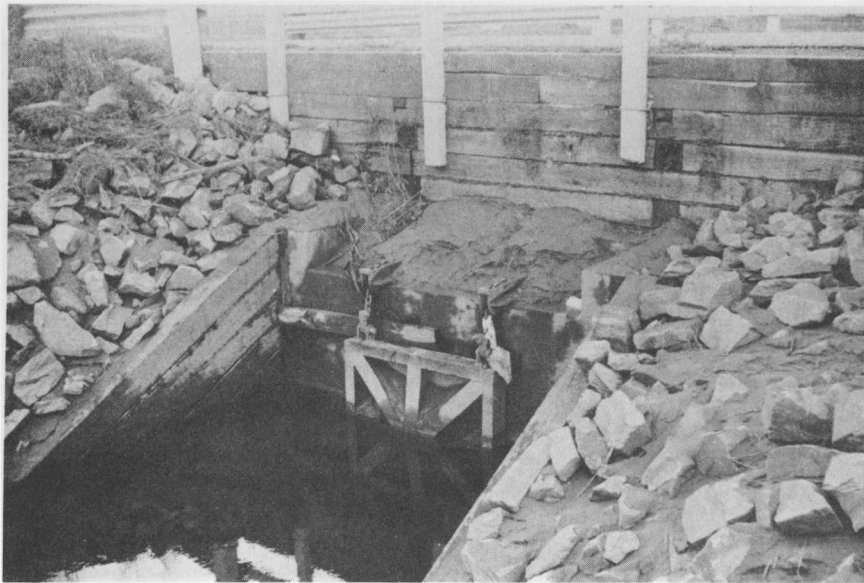


Figure 5 – Shubenacadie Marsh, Hants County, N.S. – This structure was originally a large timber highway culvert. It was modified by threading a pipe through it, pouring a concrete headwall at the downstream end, and installing a steel gate over the opening.
(Photo 116 - 021) - 1961



Figure 6 – St. Martins Marsh, St. John County, N.B. – Fill material being pushed across a triple barrel 5' x 5' sluice, the only aboiteau installed on this marsh.
(Photo 62 - 046) - 1961



Figure 7 – River Hebert Marsh, Cumberland County, N.S. – An example of bank erosion caused by high river flows.
(Photo 46 - 053) - 1961



Figure 8 – River Hebert Marsh – Aerial view of the area shown in the above photo. Heavy rock has been placed on the slope of the bank to divert the river current and halt cutting. Note, from the form of the silt bar, how the river channel has been directed away from the area.
(Photo 46 - 106) - 1961



Figure 9 – Aulac Marsh, Westmorland County, N.B. – Tide against protecting dyke. Heavy rock, placed on the dyke during the winter months, protects the dyke from wave erosion.
(Photo 24 - 018) - 1961



Figure 10 – Aulac Marsh – Another common method of protecting exposed dyke from wave erosion during high tides.
(Photo 24 - 020) - 1961