

PRAIRIE PROVINCES WATER BOARD

**T W E L F T H
A N N U A L R E P O R T
1 9 5 9**

**c/o P.F.R.A.
Motherwell Building,
Regina, Saskatchewan**

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PERSONNEL

There was one change in the personnel of the Board during 1959. Mr. B. B. Hogarth has retired from service with the Government of Manitoba and Mr. J. A. Griffiths was appointed to take his place (Manitoba Order in Council 747/59).

- | | |
|-----------------|--|
| G. L. MacKenzie | - Chairman of the Board:
representing Federal
Department of Agriculture
(Appointed 21 March 1957)
- Director, P.F.R.A. |
| R. H. Clark | - representing Federal
Department of Northern
Affairs and National
Resources.
- Chief Hydraulic Engineer,
Water Resources Branch,
Ottawa |
| J. A. Griffiths | - representing Province of
Manitoba.
- Director, Water Control
& Conservation, Winnipeg. |
| B. W. Boyson | - representing Province of
Saskatchewan.
- Chief Engineer, Sask.
Water Rights Office, Regina. |
| F. L. Grindley | - representing Province of
Alberta.
- Director, Alberta Water
Resources Branch, Edmonton. |
| E. F. Durrant | - Engineering Secretary to
the Board.
- c/o P.F.R.A., Motherwell
Building, Regina. |

WARRANT AND FUNCTION OF THE BOARD

On July 28th, 1948, the Prairie Provinces Water Board was established by the Governments of Canada, Manitoba, Saskatchewan and Alberta; consisting of two members appointed by Canada and one from each of the three provinces.

The Board's function is to recommend the best use to be made of interprovincial waters in relation to associated resources in Manitoba, Saskatchewan and Alberta and to recommend the allocation of water as between each province of streams flowing from one province into another province.

The Board's duties are: to collate and analyze the data now available relating to the water and associated resources of interprovincial streams; to determine what other data are required from time to time and to make recommendations to the appropriate governmental organizations concerned for the carrying out of such surveys and studies which the Board considers necessary to supply information required for the performance of its duties; upon request of any one of the three provinces or Canada, to recommend the allocation of the waters of any interprovincial stream among the respective Provinces; and to report on any questions relating to specific projects for the utilization or control of common river or lake systems at the request of one or more of the Ministers or authorities charged with the administration of such river or lake systems.

REVIEW OF ACTIVITIES

Since the Board was formed in 1948, many studies and recommendations have been made. Definite allocations for water were recommended in 1949, 1950 and 1953 and concurred in by the governments concerned; details may be found in Appendix B. A list of the various maps and reports prepared for the use of the Board may be obtained from the Engineering Secretary.

A resolution was adopted by the Board and transmitted to the various governments which defines clearly the relationship between existing allocations and hydro-plants under construction or proposed. A copy of the resolution is appended to this report (see Appendix C).

The Board made a reservation of 1,000,000 acre feet annually for the development of small water projects in all three provinces. The data now being collected for the small projects inventory will provide (it is hoped in 1960) a basis for an allocation.

The Board recorded for Saskatchewan the potential municipal use of 30,000 acre feet annually to be distributed by pipelines from the North and South Saskatchewan Rivers.

During the year the Board requested and received from the Secretary a memorandum on "The Possible Effects of Headwater Storage on the Flow of the North Saskatchewan River". A similar study for the South Saskatchewan River was dropped because of a larger undertaking outlined below.

Over the years the Board has taken several preliminary steps toward a comprehensive study of the Saskatchewan-Nelson River system. In view of the recently accelerated pace of water development, the Board has instructed the Secretary to prepare a reconnaissance report.

1. outlining a program of study of the physical aspects of an integrated basin plan on the Nelson-Saskatchewan River system,
2. indicating the portions of this study which have already been completed and how they fit into an overall program,
3. summarizing the data which are lacking and indicating whether or not these can be obtained with the means at the Board's disposal,
4. estimating the scope, requirements, and recommended conduct of studies to develop such a plan.

The status of other studies currently sponsored by the Board is described below:

1. An Annotated Bibliography of the Effects of De-forestation, Re-forestation, etc. on the Regimen of Prairie Streams

This project was undertaken by Geo. Underhill (Alberta Water Resources Branch) in 1958 and is scheduled for completion in 1960.

2. Aridity of the Prairies

Professor Laycock, in co-operation with P.F.R.A., Meteorological Branch and Experimental Farms Service, is preparing a draft report summarizing three years analysis of the prairie climate. A draft report is scheduled for review by the Board in 1960.

3. Sedimentation Surveys

For several years the Board has requested that a program of sediment observation be undertaken for prairie streams. Partly as a result of the Board's representations, the Water Resources Branch (Department of Northern Affairs and National Resources) has been authorized to establish a modest sedimentation program in 1960.

4. Return Flows from Irrigation Projects


The program of measuring and recording these return flows is continuing, and annual reports are being received from the Federal Water Resources Branch.

5. Inventory of Small Projects

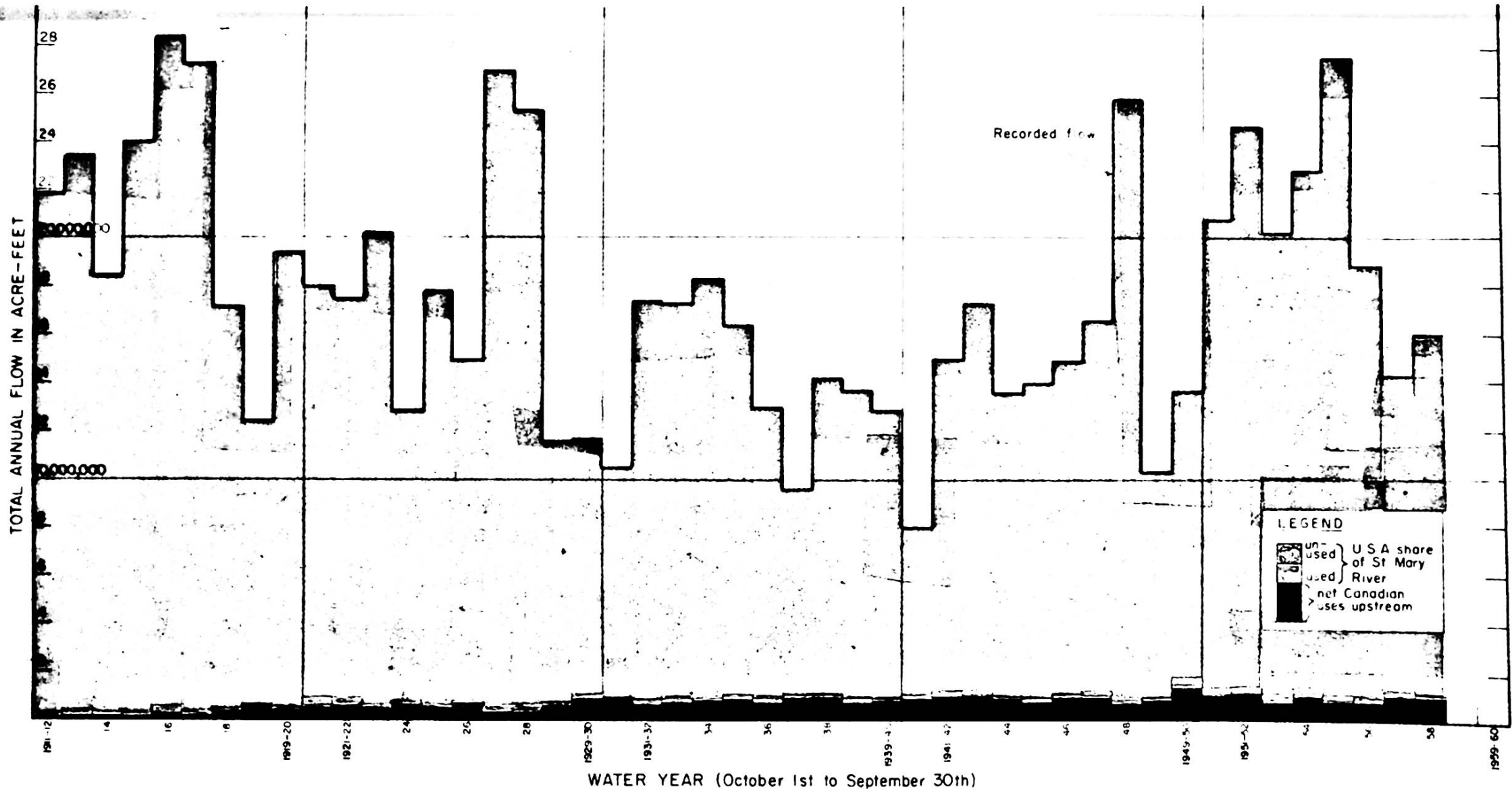
The three provincial members of the Board have undertaken to supply the Secretary with a tabulation of small projects in the Saskatchewan River watershed. The information will be of use to the Board in estimating the total amount of water which will be used by small projects.

6. Current Depletions

For the information of the Board, a record is being maintained, by the Secretary, of current stream flow depletions in the Saskatchewan River watershed, The chart on the next page shows these depletions in comparison with the recorded flow of the Saskatchewan River at The Pas.


G. L. MacKenzie,
Chairman.


E. F. Durrant,
Engineering Secretary.



THE FLOW OF THE SASKATCHEWAN RIVER AT THE PAS

APPENDIX A - MEETINGS

The members of the Water Board have held meetings at the following places and dates:

In Regina - November 1, 1948
In Regina - February 2, 1949
In Regina - May 6, 1949
In Winnipeg - January 26, 1950
In Ottawa - April 25, 1950
In Winnipeg - December 18, 1950
In Regina - September 5, 1951
In Regina - December 17, 1952
In Regina - May 15, 1953
In Regina - October 9, 1953
In Edmonton - March 18, 1954
In Winnipeg - October 27, 1955
In Vauxhall - August 6 & 7, 1956
In Winnipeg - October 21, 1957
In Calgary - August 7 & 8, 1958
In Winnipeg - December 18, 1958
In Regina - June 19, 1959
In Winnipeg - December 2 & 3, 1959

APPENDIX B - ALLOCATIONS

By a letter dated March 24, 1949, the Honorable D. A. Ure of Alberta requested the Board to recommend suitable allocations for certain fully developed and partially developed irrigation projects in that province. On May 6, 1949, the Board recommended the allocation of waters for these projects: this allocation was subsequently ratified when the four governments passed appropriate orders-in-council as follows:

Canada Order-in-Council	4030/49
Alberta Order-in-Council	857/49
Manitoba Order-In-Council	1121/49
Saskatchewan Order-in-Council	1307/51

By a letter dated November 8, 1950, the Honorable I. C. Nollet of Saskatchewan requested the Board to recommend suitable allocations for certain existing and proposed projects in that province. On December 18, 1950, the Board recommended the allocations of waters for most of these projects: this recommendation was subsequently ratified when the four governments passed appropriate Orders-in-Council as follows:

Canada Order-in-Council	1874/51
Alberta Order-in-Council	1091/51
Manitoba Order-in-Council	1264/51
Saskatchewan Order-in-Council	1310/51

By a letter dated May 4, 1949, amended November 8, 1950 and again on December 18, 1950, the Honorable I. C. Nollet of Saskatchewan requested the Board to recommend a suitable allocation for the proposed South Saskatchewan River Project. The Board first considered this request on May 6, 1949, and due to insufficient

supporting data the requested water was placed in the "reservation" class. The application was considered again on December 18, 1950, but action was postponed pending detailed water supply studies that would show all interprovincial effects of this proposal. With the receipt of Water Board Report #3 containing the requested water supply study, the Board again considered the application on September 5, 1951, when it was decided to postpone further action until the report of the Royal Commission, appointed by the Canadian Government to investigate this project, became available and could be treated as additional evidence. This project was again considered by the Board on May 15, 1953, and it was then decided to recommend a "tentative allocation" of 960,000 acre feet of water annually from the South Saskatchewan River for the purpose of the South Saskatchewan River Project: this recommendation was subsequently ratified when the four governments passed appropriate Orders-in-Council as follows:

Canada Order-in-Council	1953/973
Alberta Order-in-Council	991/53
Manitoba Order-in-Council	924/53
Saskatchewan Order-in-Council	1271/53

At the next meeting on October 9, 1953, the Board, in view of the fact that (a) their recommended allocation of water for the South Saskatchewan River Project had been for consumptive uses only, and (b) some questions had arisen as to the adequacy of the river flows to supply the necessary water for the non-consumptive uses of the project, decided to submit to

the governments their views on this matter in the form of a resolution. This was done and the Board recommended to the governments that their understanding of the water supply situation and their actions (as contained in the resolution) be confirmed by Orders-in-Council. This recommendation was subsequently ratified when the four governments passed appropriate Orders-in-Council as follows:

Alberta Order-in-Council	1693/53
Saskatchewan Order-in-Council	2172/53
Canada Order-in-Council P.C.	1954/1169
Manitoba Order-in-Council	892/54

The following two pages set out the details of the allocations that were recommended and ratified.

ALLOCATION TO ALBERTA - recommended May, 1949

FINAL ALLOCATION

<u>Project</u>	<u>Irrigable acres</u>	<u>Allocations in acre feet</u>
St. Mary & Milk River Development	465,000	796,000
Western Irrigation District	50,000	85,000
Eastern Irrigation District	281,000	562,000
Bow River Irrigation Development	240,000	478,534
United Irrigation District	34,000	51,000
Lethbridge Northern District	96,135	150,000
Mountain View Irrigation District	3,600	6,000
Leavitt Irrigation District	4,400	7,000
Aetna Irrigation District	7,300	13,000
Macleod Irrigation District	5,000	8,000
Private Projects	70,000	80,000
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TOTAL	1,256,435	2,237,234

ALLOCATION TO SASKATCHEWAN - recommended May, 1953

Tentative Allocation

South Saskatchewan River Project from the South Saskatchewan River	960,000 Ac.Ft.
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ALLOCATION TO SASKATCHEWAN - recommended December, 1950

Final Allocation

<u>Project</u>	<u>Classifi- cation</u>	<u>Acre Feet (annually)</u>
<u>South Sask. Drainage Basin</u>		
Small projects		
- main stem	1 & 2	1,500
- tributaries	1 & 2	4,500
City of Saskatoon		
- municipal	1	11,426
- steam plant	1	31,260
Caron-Moose Jaw Diversion	2	12,600
Swift Current Irr. Project	3	55,000
Swift Current small projects	1 & 2	5,600

Qu'Appelle Drainage Basin

Small projects	1 & 2	20,000
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Battle Creek Drainage Basin

Small projects		
- main stem	1 & 2	7,536
- tributaries	1 & 2	3,410
Richardson-McKinnon project	1	3,054

Middle Creek Drainage Basin

Small projects	1 & 2	1,027
Middle Creek Reservoir losses	2	2,335

Lodge Creek Drainage Basin

Small projects	1 & 2	600
Spangler project	1 & 2	2,970

Tentative AllocationSouth Sask. Drainage Basin

Regina-Moose Jaw Diversion	29,000
French Flats-Valley Park Projects	11,140

Battle Creek Drainage Basin

Small irrigation development	
- main stem	1,000
- tributaries	1,000
Vidora Irrigation Project	3,360
Consul Irrigation Project extension	2,400

APPENDIX C - RESOLUTION ADOPTED BY THE P.P.W.B. DECEMBER 3, 1959

WHEREAS the Agreement authorizing the Prairie Provinces Water Board,

Section 11 states:

"Each of the parties hereto (Alberta, Saskatchewan, Manitoba and Canada) agrees that it will not within the limits of its jurisdiction construct or permit the construction of any project that will interfere with the allocation of waters resulting from a recommendation of the Board duly adopted pursuant to Section 5 hereof".

AND WHEREAS Section 12 states:

"Any water development project already constructed or to be constructed by any one of the parties hereto shall be so operated as to maintain as far as possible the allocation of water determined by the Board".

AND WHEREAS:

The Government of Alberta has requested assurance that the use of water by downstream hydro plants does not establish any right or claim to waters which have been allocated by the Board and approved by Orders-in-Council prior to the licensing of the hydro plants.

THEREFORE:

The Board considers it appropriate to recommend to the Governments concerned that water power regulations be amended so that each hydro plant license is made subject to stream flow depletions which may ultimately result from previous allocations made by the Board and ratified by Orders-in-Council.

A suggested form for said amendment is as follows:

Alberta:	"Water Power Regulations" Section 24 (4) add (i)
Saskatchewan:	"Water Power Regulations" Section 44 add (i)
Manitoba:	"Water Power Regulations" Section 44 add (h)
(i) or (h)	"The quantity of water which may be diverted shall be subject to ultimate depletions by uses for which previous allocations have been made by the Prairie Provinces Water Board and approved by Orders-in-Council".