Flood of February 12th, 1981
Kennebecasis River Basin

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SYNOPSIS

Runoff from heavy rainfaill combined with a rapid snowmelt runoff resulting from above seasonal temperatures caused an early ice break-up and extensive flooding in the Kennebecasis River Basin on FEBRUARY 12TH, 1981. Flood plains usually inundated during periods of spring freshet or flood were those affected, but there was observed a notable difference in the degree of response of the different watercourses in the basin. While flooding in some areas of the basin was described by the local papers as "one of the worse flooding situations in recent years", flooding along other sections of the same watercourse was described as "not as severe as (floods) ... experienced in the past". The February 12th, 1981 flood occurred over an 18 hour period (less than 12 hour period in the Sussex - Sussex Corner area), and cannot be described as being similar to any other recently recorded historical flood.

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1 INTRODUCTION

METEOROLOGICAL CONDITIONS

A complex weather disturbance extended into N. B. from a low over the Great Lakes to several waves situated along the Atlantic Seaboard caused cloud to move into New Brunswick on Tuesday, February 10th. The northward movement over southern Quebec of the Great Lakes low and the movement of waves situated over the seaboard toward Maine caused mixed precipitation over the province late Wednesday, February 11th. During the passage of this front over the province sections of southern New Brunswick experienced moderate to heavy rainfall in the evening of the 11th and early morning of February 12th. This disturbance was accompanied by strong southerly winds with maximum record temperatures being set in some localities of the province.

On the morning of February 12th, 1981 the local Emergency Measures Organization (E.M.O.) coordinator for Sussex (KENNETH COONE) was alerted at 0530 hours by the Sussex Works Department to the danger of possible flooding in the area. By 0600 hours Trout Creek at Maple Avenue Bridge in Sussex had overtopped its banks. It was reported by the KINGS COUNTY RECORD that, at this time, the river rose from four to six feet within three hours. The SUSSEX VALLEY REGISTER reported a rise of four to five feet between the hours of 0400 and 0600.

PURPOSE OF STUDY

This report documents information of the February 12th, 1981 flood collected by this writer during a 2 1/2 day field reconnaissance of the Sussex - Sussex Corner area. The purpose of this report is to document information and photographs which may assist in defining the lateral limits of flooding and the depth of water at various reference points. (A similar study was done by this writer, M. E. FOLSTER, in July 1980: "HISTORICAL FLOOD REVIEW OF THE UPPER KENNEBECASIS RIVER BASIN". There are references to observations and conclusions based on the 1980 review throughout this report).

PROCEDURE

By means of photographs and line drawings, which are referenced to MAP 1, a sequential accounting of flooding begins in Sussex Corner with the break out of PARSONS BROOK opposite the site of the newly constructed school (REF. NO. 1) and continues in an approximate westerly direction to the ROACHVILLE interchange area (REF. NO. 13). Evidence of high water was still visible at the time of this reporters' survey. (February 16th - 17th, 1981). On the afternoon of February 12th, 1981 an aerial reconnaissance of the flooded KENNEBECASIS Basin was undertaken by PHILLIP HANSEN of the Water Resources Branch of Environment New Brunswick. Some of these photographs have been used to aid in locating points of reference and as an aid in defining the lateral limits of flooding.

Information was secured from local newspapers, interviews with local radio (CJCW), KINGS COUNTY CABLE LTD. employees, Sussex Works Department officials, RCMP and others, as well as on site interviews of flood plain residents. Comments made by these interviewees regarding

the rate of rise and estimates of the time of peaking are included in this report as they may help in analysing the reaction of the Kennebecasis River watershed.

Included in this review is a general examination of flooding in the vicinity of APOHAQUI, NORTON, LOWER MILLSTREAM, and SMITH CREEK areas.

Observations and comments by this writer on points which may relate to possible future flood forecasting in the vicinity of Sussex - Sussex Corner are found in the Appendix.

2 DESCRIPTION OF FLOODING

AREAS FLOODED

The most serious flooding on February 12th, 1981 in terms of total area inundated and damages sustained was in the HOLINAN AVENUE - STEWART AVENUE - MCLEAN STREET area (REF. NO. 11). Meadow Crescent Subdivision and a portion of Cunningham Avenue in Sussex Corner (REF. NO. 2) were flooded while Skyline Acres in Sussex Corner (REF. NO. 4) was affected by the runoff from PARSONS BROOK and by storm overflow. These three areas, MEADOW CRESCENT SUBDIVISION, CUNNINGHAM AVENUE AND SKYLINE ACRES SUBDIVISION have traditionally been subjected to drainage problems during times of snowmelt (FOLSTER). The area of Golding Avenue where the senior citizens housing is located (REF. NO. 11e) was flooded and residents of that home were evacuated on the morning of February 12th. The Gateway Mall parking lot which is located near the confluence of Trout Creek and KENNEBECASIS RIVER (REF. NO. 12) was almost completely inundated. Early Thursday morning of February 12th, the Maple Avenue Bridge (REF. NO. 11b) and Leonard Drive Bridges (REF. NO. 9) were closed to traffic. Traffic had to be rerouted until the bridges were re-opened at noon of the same day.

NEWSPAPER REPORT

The following is an account of the February 12th, 1981 flood as reported by the KINGS COUNTY RECORD:

> "There was water over the road in low-lying areas all along Route 121, the old road from Sussex to Hampton which follows the KENNEBECASIS, and road shoulders were washed out in many areas. Flooding closed the road to Apohaqui in the Lower Millstream - Berwick area and the Smith Creek Road at the Salmon River Bridge for part of Thursday; one bridge in the Upper Millstream area was washed out, and a second was threatened.
>
> The village centre of Norton ... (was flooded but there was no serious damage to property).
>
> Train travel was also disrupted as the VIA Rail passenger train, Atlantic ... was stopped at Norton when railway crews reported that the heavy rainfall had washed out soil around a train bridge abutment at Second Brook between Apohaqui and Norton, and some of the road bed near Mauwigewack.
>
> Telephone service was also disrupted ... The Springfield - Norton area was isolated when a mile of underground cable was washed away. Residents in Sussex also experienced disruption in long distance service.

APPROXIMATE HIGH WATER LEVELS

The following highwater elevations were determined by Harry Brooks of the Sussex Works Department on February 12th, 1981, 1000 hours.

	Elev./ft	Elev./m
Gateway Mall	56.36	19.63
Senior Citizens Home, Golding Street	63.75	19.44
Maple Avenue Bridge	63.80	19.46
Leonard Drive Bridge	69.75	21.27

UNUSUAL FLOOD PATTERN

The flooding of the HOLMAN AVENUE - STEWART AVENUE - MCLEAN STREET area was more significant in terms areal extent of inundation and ice and water damage than in other recorded historical floods (FOLSTER). The flow pattern was changed as well. Water near the foundations of residences at the upper end of MCLEAN STREET (REF. NO. 11i) was a result of water flowing along that end of the street rather than from flooded backyards which border on Trout Creek (CHOWN).

The water behind Stewart Avenue flowed along Mill Street to join the flood water in McLean Avenue. Evidence of ice pans along the entire stretch of both these streets (McLean and Mill) was observed).

AREAS NOT FLOODED

The February 12th flood did not cause any concern to the residents of several areas of SUSSEX - SUSSEX CORNER which usually experience high water:

> SUSSEX CORNER INTERSECTION (PARSONS BROOK) Runoff out of Parsons Brook in the area opposite the new school (REF. NO. 1) crossed highway and ran along sidewalk and ditch of Needle Street to the Sussex Corner intersection. (This runoff also contributes to the flooding of Cunningham Avenue). There was 3 to 4 inches of water over the road at this point (DONCASTER). This water continues to flow along the Main Street ditch toward Skyline Acres Subdivision. The grade of the road here has been recently raised and Cunningham Avenue now prevents the continuation of the flow into the MAPLES MOTEL area. (At the same time contributing to the flooding of Skyline Acres (DONCASTER).

TRAILER PARKS, SUSSEX CORNER (TROUT CREEK) (REF. NO. 2k). The trailer parks on either side of Trout Creek downstream of the bridge were not flooded. There were no ice jams at this site. (Jams are often the cause of backwater flooding in the Cunningham Subdivision) (FOLSTER).

MAPLES MOTEL and the MALONE SUB-DIVISION (PARSONS BROOK) (REF. NO. 5). The area of the motel and Malone development off Main Street, Sussex was not affected. (Creighton Avenue may now act as a dyke blocking drainage out of Sussex Corner).

FOWLER AVENUE, SUSSEX (WARDS CREEK). Two homes on Elliot Drive had water in their basements. Otherwise there was no flooding here. (MAC-FARLANE). (The embankment along that part of WARDS CREEK which flows parallel to Fowler Avenue has been built up since the last flood).

CONFLUENCE OF WARDS CREEK - TROUT CREEK (REF. NO. 7). There was no flooding along the area of Magnolia Avenue and the intersection of Magnolia and Main Streets.

APPROXIMATE TIME OF PEAK FLOOD

Within the town limits of Sussex - Sussex Corner the February 12th, 1981 flood was similiar to recorded historical floods in that the rise was rapid, the peak was sustained only an hour or two and the water levels dropped almost as rapidly.

Bernie Tabor of AGRICULTURE CANADA (this building is located near the confluence) observed that WARDS CREEK crested one to two hours later than did TROUT CREEK. (Mr. Tabor has suggested a possible explanation for this may be a more rapid runoff from open farmland which borders TROUT CREEK while a watercourse such as WARDS CREEK drains a largely wooded area. The period of warm weather previous to the February 12th high temperatures may also have reduced the snow cover in the open fields bordering TROUT CREEK).

TROUT CREEK behind Holman Avenue: Ice down stream at 0500 hours. Topped bank at 0700 hours. Peaked 0800 - 0930 hours. Ice running freely.

TROUT CREEK peaked at LEONARD DRIVE BRIDGE at about 1000 hours (BROOKE$, TABOR).

WARDS CREEK remained high or higher for one to two hours after TROUT CREEK dropped (TABOR).

KENNEBECASIS RIVER at ROACHVILLE peaked at 1100 hours (GARAGE OWNER).

MILLSTREAM peaked from 1000 to 1200 hours (RCMP).

NORTON peaked in late afternoon (RCMP).

INTERVIEWEES

1. Brooks, Harry
   Sussex Works Department
   Apohaqui

2. Chown, Mrs. James
   McLean Street
   Sussex

3. Colpitts, Mr. & Mrs. Guy
   Sussex Corner

4. Doncaster, Richard
   Sussex Corner

5. Hill, Mrs. Hazel
   Holman Avenue
   Sussex

6. Holden, Arthur
   Main Street
   Sussex

7. Irving, Mrs. Grace
   Holman Avenue
   Sussex

8. Kay, John (photographer)
   580 Main Street
   Sussex Corner
   phone: 433-5535

9. Maxwell, Gair
   CJCW News (Radio)
   624 Main Street
   Sussex

10. McFarlane, Mr.
    Fowler Avenue
    Sussex

11. Murray, Mr.
    Holman Avenue
    Sussex

12. Olesen, Ivan
    Meadow Crescent
    Sussex Corner

13. Robillard, Cst. J. C.
    Sussex Highway Patrol
    (RCMP), Sussex

14. Robinson, Peter
    Kings County Cable Ltd.
    614 Main Street
    Sussex

15. Rogers, Mr. & Mrs.
    Meadow Crescent
    Sussex Corner

16. Rummings, Bill (photographer)
    W.E.R. Photo
    P. O. Box 1406
    Sussex
    phone: 433-4524

17. Tabor, Bernie
    Agriculture Canada
    Main Street
    Sussex
    Residence: Sussex Corner

18. Wynter, Gloria and Jim
    Sussex Motel and Cabins
    Main Street
    Sussex

and others.

ICE JAMS

SUSSEX - SUSSEX CORNER: Backwater flooding has historically been a contributing factor of localized flooding in the area of SUSSEX - SUSSEX CORNER (FOLSTER). However, this writer was not able to locate any ice jamming on the watercourses within the town limits of SUSSEX - SUSSEX CORNER, which may have contributed to the flooding. (Many residents commented on the thickness of the ice in 1981 compared with recent years). The theory has been advanced by some residents that the early heavy snow cover with light ground frost could explain the separation of the ice from the sides of the channel. This ice lifted with the rise of water level and in some streams (with steeper grades) promoted a more rapid breakup than is usual during a freshet (TABOR and OTHERS).

ROACHVILLE: Two ice jams were located approximately one to one and a half miles below the Roachville interchange. These were observed at 0700 to 0900 hours (BROOKS and OTHERS). The time of break up has not been determined.