Restricted

RESOURCE DEVELOPMENT BRANCH

MANUSCRIPT REPORT

No. 58-1

Obstruction Survey

East River, Chester, N. S.

by

Neil MacEachern

1958

FISHERIES SERVICE
DEPARTMENT OF FISHERIES AND FORESTRY OF CANADA
HALIFAX, N.S.

OBSTRUCTION SURVEY
EAST RIVER CHESTER, N. S.

by

Neil MacEachern

1958

EAST RIVER CHESTER

A survey of all the dams on East River Chester was carried out by the writer and Fishery Officer Don Burns on July 16th and 17th. At this time water levels were very low.

East River Chester is situated in Lunenburg County, Nova Scotia. The main river is approximately 15 miles long from its headwaters at Timber Lake to the estuary at Mahone Bay. Canaan River, the largest tributary on the system, enters the main river about 4 miles above the head of tide.

All the dams on East River Chester above the confluence of Canaan River are owned by the Mersey Pulp and Paper Company. This company carries out extensive logging operations in the area and also operate a sawmill, which is located on Little Whitford Lake. This lake is used as a holding area for logs which are sawed at the mill. Logs cut on the upper part of the river are floated down the river to Little Whitford Lake. All dams on this section of the river are used to store water for driving the logs in the spring.

Two dams are located on the Canaan River - one at the foot of Connaught Lake, and one at the foot of Newton Lake. Both are owned by the Nova Scotia Light & Power Company and are now abandoned by them.

DESCRIPTION OF THE DAMS

The dams on East River Chester are described below and marked as B-1, B-2, etc., on the map.

LITTLE WHITFORD LAKE DAM B-1

The old wooden dam at the foot of Little Whitford Lake has been replaced by an earthen dam with a wooden centre section. The wooden section is 25 ft. long and 6 ft. high. It contains one sluiceway, 8 ft. wide and 20 ft. long. Stoplogs are used in the sluiceway, instead of a gate. This dam is required to hold a constant water level on the lake, which is used as a holding area for logs intended for the sawmill. The outlet from the lake has an average width of 10 ft., and would not be inhabited by adult salmon, trout or gaspereaux, except during freshet conditions. A hex should be installed at the mouth of the stream to prevent large fish moving into the stream during high-water conditions.

WHISTLER LAKE SLUICEWAY B-2

A rock roadway was built across the foot of Whistler Lake and a sluiceway was built in the centre of the road. The sluiceway is 15 ft. long, 10 ft.wide and 3 ft.deep.

/There

There are no stop logs or gates in this sluiceway. The upper part of the floor is constructed of planks and the lower part of logs. The log section of the floor has been removed, but the spill flowing over the end of the plank section is obstructed by a cross log which formerly supported the log floor. The drop from the end of the plank floor to the tailwater is 1 to 1½ ft. An inclined ramp from the end of the plank floor to the tailwater would allow gaspereaux to swim through this sluiceway.

BIG WHITFORD LAKE DAMS B-3 & B-4

B-4. This dam is located on the main outlet of the lake. It is approximately 200 ft. long and 6 ft. high. The dam has two sluiceways, each 27 ft. long and 6 ft.wide. The upper half of the sluiceway floor is built of planks and the lower part is built of logs spaced 1 to 2" apart. Water flowing through the sluiceway is lost before it reaches the end of the sluiceway. During very low water conditions, there is approximately a 1½ ft. drop from the end of the sluiceway to the stream. At the time of the survey, one gate was open in the sluiceway.

B-3. The second dam is located on the south-eastern corner of the lake where a canal has been dug through to Little Whitford Lake. This is a wooden dam, 145 ft.long and 6 ft.high. The sluiceway in the dam is 50 ft.long and 6 ft. wide. The floor on this sluiceway is built of logs spaced 1 to 2" apart. The height of the end of the sluiceway above the water is approximately 2 ft. when water levels are very low. Sluiceway gate was closed when the dam was inspected.

BAD LAKE DAM B-5

Bad Lake Dam is 130 ft.long and 6 ft.high. The dam contains two sluiceways, each 6 ft. wide and 21 ft. long. The floor of the sluiceway is inclined downwards to the tailrace and is constructed of planks, so that the water is confined to the sluiceway. The gate was open and approximately 2 to 2½" of water was flowing over the floor of the sluiceway on July 17th.

COOLAN LAKE DAM B-6

Coolan Lake Dam is 185 ft.long and 6 ft.high. There are two sluiceways in the dam, both 12 ft.long; one is 5 ft.wide, and the other is 6 ft.wide. Both gates were closed, but mill officials claim that they had opened one gate and possibly a fisherman may have closed it. The floor of the sluiceway is constructed of planks and the height from the end of the sluiceway to the tailrace is approximately 1 ft.

TIMBER LAKE DAM

Timber Lake is situated on the headwaters of East River Chester. The dam at the foot of the lake is 130 ft.long and 10 ft. high. The sluiceway is 80 ft. long and divided on the upper half into two sections, each of which is 5 ft. wide. The floor of this sluiceway is constructed of logs spaced 1 - 3" apart. The end of the sluiceway is approximately 2½ ft. above the water level of the tailrace. Water flowing through this sluiceway is lost between the openings in the floor before it reaches the end of the flume. Both gates were closed in the sluiceway, but there was considerable leakage around the gates. The lake is used as an emergency storage, and the dam is seldom opened after the spring run-off.

CONNAUGHT LAKE DAM B-8

Connaught Lake is situated on the Canaan River, and the dam at the foot of the lake is owned by the Nova Scotia Light and Power Company. This wooden dam, which is in a decaying condition, has been abandoned by the Company and the gate in the dam is always open. Water levels in front and in back of the dam are similar, but the opening has become plugged with old dead trees, logs and debris. This accumulation of logs and trees should be removed so that fish can pass freely through this opening.

NEWTON LAKE DAM B-9

Newton Lake, also located on the Canaan River, has a concrete dam at the foot of the lake. This dam is owned by the Nova Scotia Light & Power Company but is not used by them, so the gate is always open. This dam is not considered a barrier as fish can move from the brook to the lake if water conditions are not extremely low.

All the dams on East River Chester above the confluence of Canaan River are owned by the Mersey Pulp and Paper Company. These dams are used to store water, which is used to drive logs to the sawmill on Little Whitford Lake. The log drive takes place during the spring of the year, and the dams are closed around March 20th. During the spring, the gates in the dams are closed or opened, as water is required for driving purposes. If water levels are extremely low during the summer months, some of these dams are closed for short periods to provide water for Little Whitford Lake. In the fall, the gates are left open until freeze-up. The above was obtained from officials of the sawmill when they were asked for information regarding the opening and closing of the gates in the Mersey Company's dams on East River Chester. No log drive was carried out during the spring of 1958.

CONCLUSIONS

Little Whitford dam and the second Big Whitford dam (B-3) are not considered barriers, because they are located on a diversion of the main river. A hex should be installed at the mouth of Little Whitford Lake outlet to prevent adult fish from moving into this area during high-water conditions.

Timber, Bad, Coolan and the main Big Whitford Lake dams are complete barriers to fish ascending the river when the gates are closed. Because these four dams are used only at certain periods of the year, it does not seem reasonable to recommend fishways on all these small dams. Minor repairs to the floor of the sluiceway at main Big Whitford Lake dam, by replacing the log floor with a plank floor inclined towards the tailrace, would allow gaspereaux, trout and salmon to ascend the sluiceway when the gates are open. With average water levels, fish can ascend Coolan and Bad Lake sluiceways when the gates are opened. A fishway would be required on Timber Lake dam because the area is used as an emergency storage and the gates are seldom opened. Even with the gates opened, it is doubtful if fish could ascend the sluiceway unless there was an extremely heavy flow of water.

By constructing a small inclined ramp on Whistler Lake sluiceway, even gaspereaux could move through this flume at all water levels.

The dams on Canaan River are not considered as barriers except for the trash and debris collected in the opening of Connaught Lake dam.

These two dams might be used by the Department for water storage, which could be released when water levels drop below normal.

RECOMMENDATIONS

In regard to the Mersey Pulp and Paper Company's dams on East River Chester, the following recommendations are made:

1. That the Department of Fisheries obtain a written agreement from the Company to the effect that the gates in the main Big Whitford, Coolan and Bad Lake dams remain open except when the Company requires them for driving purposes in the spring of the year. This closed period in the spring should not extend beyond the end of May, so that the

/gaspereaux

gaspereaux are allowed to reach their spawning grounds. Provision could also be made for short periods of closure during very low-water conditions in the summer, if this is necessary to maintain a constant water level at Little Whitford Lake. During the fall, the gates should remain opened at all times to allow salmon and trout to reach the spawning areas.

2. That the gates be locked in the open position to prevent anglers, or other people in the area, from tampering with them.

3. That a small inclined ramp be installed on Whistler Lake sluiceway and on inclined plank floor replace the log floor on the main Big Whitford Lake sluiceway, so that fish can move through these sluiceways at all water levels when the gates are opened.

4. That a fishway be constructed on Timber Lake dam because it forms a barrier even when the gates are opened.

5. That a hex be installed at the mouth of Little Whitford Lake outlet to prevent adult fish from moving into the area during high water conditions.

It is also recommended that the trash and debris be removed from the opening in Connaught Lake dam.

NMacE/mfm
Aug.18/58

East River Chester

B-1. Little Whitford Lake Dam

B-2. Whistler Lake Sluiceway

B-4. Big Whitford Lake Dam

B-4. Big Whitford Lake Dam

B-3. Big Whitford Lake Dam

B-3. Big Whitford Lake Dam

B-5. Bad Lake Dam

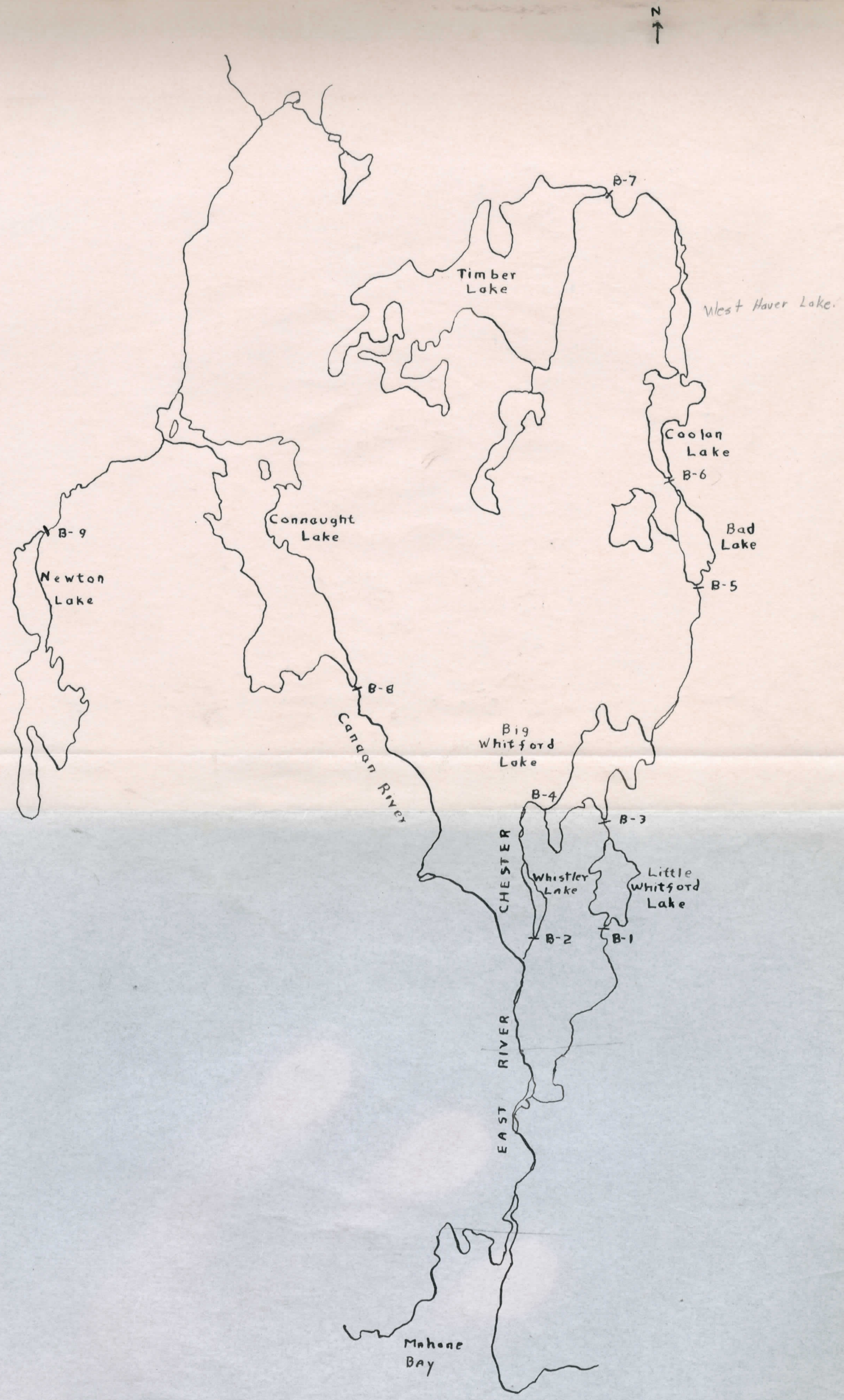
B-6. Coolan Lake Dam

B-7. Timber Lake Dam

B-7. Timber Lake Dam

B-8. Connaught Lake Dam

B-9. Newton Lake Dam



EAST RIVER CHESTER

Scale 1:50,000