

FLOODING IN CENTRAL KOSCIUSKO
COUNTY LAKES

by

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Introduction

Kosciusko County is blessed with 102 lakes. While these lakes provide many recreational and economic benefits to the area, they have recently become a source of annual Springtime flooding.

This problem occurs throughout the county, but for the purpose of this report, we are concentrating on the Barbee Chain, Webster and Tippecanoe Lakes area which incorporates a drainage area of 113 sq. miles (72,320 acres). Red Cross officials stated that approximately out of 1,000 structures surveyed in March, 1982, in these areas, approximately 725 reported water damage, and 125 reported major damage severe enough to warrant dollar loss. These figures do not take into account the inconvenience and hardship experienced by the general population.

The purpose of this paper is not to supply a definite answer to the problem but rather to expose several proposals for a possible solution. The suggestions herein were obtained from qualified individuals approached by the committee.

The Cause of the Problem

In our investigation we determined four factors that contribute to the flooding situation.

1. unpredictable retention of snow mass
2. unpredictable heavy concentration of rainfall
3. inadequate drainage away from the lakes
4. excessive drainage into the lakes

In early 1900's Webster Dam was constructed in order to maintain flooding problems and better maintain the lake levels. In the late 1950's early 1960's additional dams were constructed at Webster Lake, Tippecanoe Lake, and Barbee Chain recognizing the need to better control the water flow within the county. Dams were constructed on each lake in an attempt to stabilize the level of the lakes and minimize any flooding that may occur.

At that time the actual control of the dams was relinquished to private individuals who controlled the levels based upon court rulings.

<u>Lake</u>	<u>April 1 to Oct. 31</u> <u>Legal Level</u>	<u>Nov. 1 to Mar. 31</u> <u>Legal Level</u>
Webster	852.75	852.75
Tippecanoe	836.40	835.90
Barbee Chain	837.50	837.50

Our research indicates that since that time, no other action has been taken to control the water levels.

Solutions

- a) Control of the dams should be placed in the hands of the DNR. It would be their responsibility to establish lake levels, administer control and appoint a keeper of the dams. By combining the separate functions of; court established regulations, DNR recommendations, and individual administration into one governing body with the necessary expertise control of the dams would become a more efficient and timely function.
- b) There currently exist areas of controversial wetlands within the county. We recommend utilizing these areas as

spillways to temporarily relieve swollen lakes.

- c) The Tippecanoe River is the main waterway used to drain the lakes in Kosciusko County. Cleaning the debris from this waterway should increase the waterflow away from the lakes.

Summary

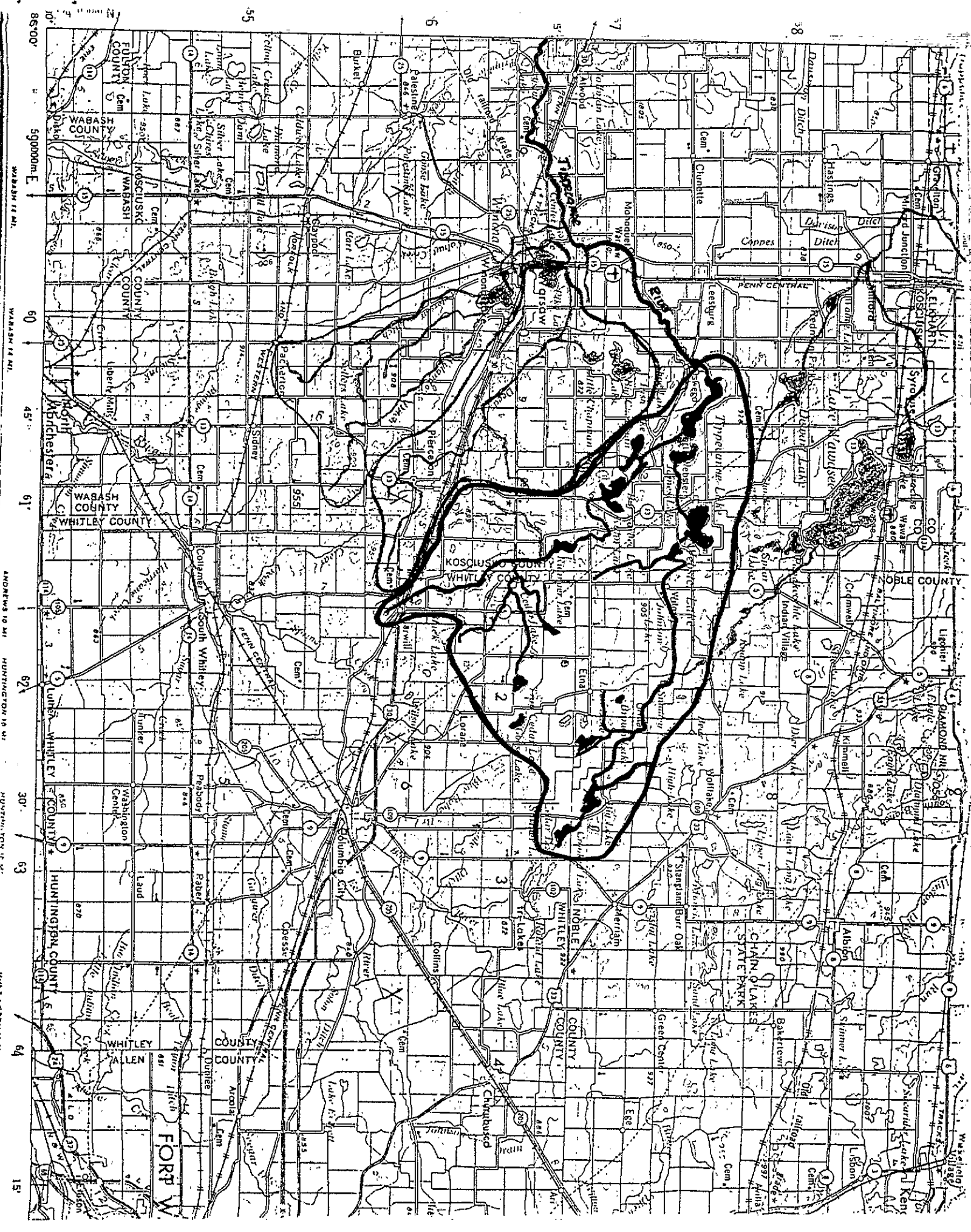
Kosciusko County, the fourth largest county in Indiana, has the unique advantages and disadvantages of an abundance of lakes.

Our findings indicate that an objective and realistic approach to the solution dictates that no one solution will solve the problem in its entirety.

However, a task force has been formed to study the problem. Working in conjunction with the Department of Natural Resources, they have been assigned the task of finding the best possible solution/ solutions and taking the appropriate action to control the problem.

Appendix:

1. Letter to Tom Hamilton (Flood Control Task Force Chairman) from the Indiana Department of Natural Resources.
2. Letter to Terry Frank (Dam Controller, Tippecanoe Lake) from the Indiana Department of Natural Resources.



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55

5

5

7

38

59°00'00" E

60

45'

61'

ANDREWS 10 MI

HUNTINGTON 18 MI

30'

63

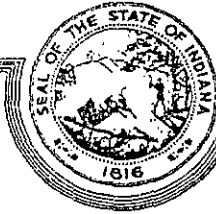
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15'

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STATE OF INDIANA



INDIANAPOLIS, 46204

DEPARTMENT OF NATURAL RESOURCES

JAMES M. RIDENOUR
DIRECTOR

April 19, 1982

Tom T. Hamilton, Vice President
CTB Advertising, Inc.
P.O. Box #677
Milford, Indiana 46542

Dear Mr. Hamilton:

Pursuant to your request at our meeting on April 7, 1982, I have assembled some preliminary data regarding the drainage areas, lakes and lake levels for some of the major lakes which are tributary to the Tippecanoe River in Kosciusko County.

Enclosed is a small map depicting the drainage areas at the outlets of Lake Tippecanoe, Pike Lake and Winona Lake. Lake Tippecanoe has a drainage area of 113 square miles (72,320 acres). The drainage areas upstream of the control structures of Webster Lake, Barbee Lake, Pike Lake and Winona Lake are 49.2, 51.8, 41.5 and 32.1 square miles, respectively. I have also enclosed a map showing the sites of the various gaging stations in Kosciusko County and a listing of their locations and the drainage area upstream of each gage.

In addition, listed below are the legal lake levels of several larger lakes which drain into the Tippecanoe River along with the highest level to which these lakes have risen during the last month and during the period of record:

<u>LAKE</u>	<u>LEGAL LEVEL</u>	<u>HIGH LEVEL OF RECORD</u>	<u>RECENT HIGH LEVEL</u>
Wawasee	858.89	860.20	859.44
Webster	852.75	854.50	854.90
Tippecanoe	836.40	839.40	839.35
Barbee Chain	837.50	840.30	840.53
Pike	805.64	810.80	809.36
Center	803.86	807.20	806.69
Winona	811.06	813.31	812.86

Also, enclosed is a comparison list of pertinent data for Lake Tippecanoe, Webster Lake and the Barbee Lakes. A list of the exhibits accompanying this list is also included.

Tom T. Hamilton
April 19, 1982
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I hope this data will provide you with enough information to get a general overview of the problems to be addressed and to develop some general ideas for the Task Force to pursue.

Members of our staff will attempt to assist the Task Force as much as possible although our involvement in such things as conducting surveys may be severely limited by the State's current financial problems. Depending on their commitments the Department of Natural Resources will be represented by Gordon Lance, Paul Chester or myself at future meetings.

I hope the enclosed information is of assistance to you and if you need additional data, please contact me.

Very truly yours,



James J. Hebenstreit, P.E.
Assistant Branch Head
Division of Water

JJH:cjh

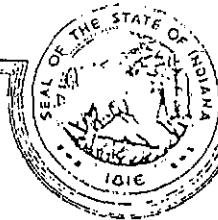
Enclosures: Map of drainage areas & outlets
Map of gaging stations
Comparison list

<u>LAKE</u>	<u>TIPPECANOE</u>	<u>WEBSTER</u>	<u>BARBEE CHAIN</u>
Structure	10 Slide Gates Boat lock not used (see Exhibit#2).	Two structures #1-Six gates #2-One gate	Fixed Crest w/boat lock (see Exhibit #4).
Ownership	DNR	Webster Lake Property Owners Association	DNR
Date Built	Approximately 1964	Approximately 1962	Approximately 1959
Location on Lake	Southwest side (See Exhibit #1 & 11).	Southwest side (See Exhibit#1 & 13).	Northwest side (See Exhibit#1 & 14).
Operator	Terry Frank	Lloyd Gump	None
Operator Instructions	(See Exhibit #5).	(See Exhibit #6).	None
Outlet	Tippecanoe River	Tippecanoe River to Lake Tippecanoe	Grassy Creek to Lake Tippecanoe
Surface Area (Acres)	1287	774	856
Drainage Area (Sq. Mi.).	113.0	49.2	51.8
Established Level	836.40	852.75	837.50
Maximum Level of Record thru Sept. 1980	839.43 (See Exhibit #7).	854.50 (See Exhibit #7).	840.32 (See Exhibit #7).
Date	May 21, 1943	February 1, 1969	October 17, 1954
Period of Record	1943 to date	1943 to date	1946 to date.

NOTE
Exhibit #11 LAKE Map TIPPE
#12 Barbee
#13 Webster

(2)

STATE OF INDIANA



INDIANAPOLIS, 46204

DEPARTMENT OF NATURAL RESOURCES

JAMES M. RHENOUR
DIRECTOR

March 23, 1981

Terry Frank
RK #2, Box #135-A
Leesburg, Indiana 46538

Dear Mr. Frank:

This is to advise you that the Kosciusko Circuit Court on March 2, 1981, granted this Department's petition requesting a modification of the Court's Order of October 18, 1942 which established the water level of Lake Tippecanoe at an elevation of 836.40 feet, sea level datum. The Court modified this order so as to make it permissible to lower the water level of the lake six (6) inches to a level of 835.90 feet, sea level datum between November 1st and April 1st of each year in order to attempt prevention of ice damage to riparian owners.

Therefore beginning on November 1st, of each year, the gates of the control structure should be opened a sufficient amount so as to allow the release of water from the lake until the water level is lowered to an elevation of 835.90 feet, sea level datum or 5.90 feet, gage datum. Care should be taken to see that water is released at such a rate as to prevent flooding downstream of the control structure. Once the winter level has been reached, the control structure should be operated in the same manner in which it is operated to maintain the lake's water level at its legally established water level. The water level should be maintained at or as near as possible to 835.90 feet, sea level datum until April 1st of each year; while releasing a sufficient amount of water at all times to maintain minimum flow within the Tippecanoe River downstream of the control structure. On April 1st, the gates should be closed as necessary to bring the lake's level back up to its legally established elevation of 836.40 feet, sea level datum while still providing sufficient discharge to maintain minimum flow downstream of the control structure.