

Echo Lake

A Chronology of Lake Management Events

by

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Introduction

In September of 1992, it was requested by John Ryan of Echo Lake that I go through whatever information available to me and produce a sort of history of what has occurred in the management of Echo Lake itself over recent years. That information which I obtained was primarily from two sources: the files of the Fish Division, Ill. Dept. of Conservation, District Offices; and, my own personal files of Lake Management Services. There is some information included from the Lake Committee of Echo Lake and a few other sources, however, no attempt has been made to go through information which may be available from Echo Lake Homeowners internal sources.

Following, you will find dates of this information in chronological order and a brief abstract as to the purpose of the activity. At the end, I have included a sort of "overview" of the principal trends and influences of the direction which lake management has proceeded for Echo Lake.

Text

<u>Date</u>	<u>Activity</u>
4/23/50	A request for fish stocking was made by Echo Lake to the Fish Division, Dept. of Conservation, Springfield, Ill.
4/25/50	A response was made from the Fish Division, stating that a Fish Conservation Agent would visit the lake.
9/19/50	A Lake Inspection Report by Fish Conservation Agent Clarence Bear lists the color of the water of Echo Lake as greenish-blue and water transparency was 3 feet. Bass, bullheads and bluegills were listed as being present.
5/25/53	A request for fish stocking was made by Echo Lake to the I.D.O.C. Fish Division.
6/10/53	A response from the Fish Division, stating that Fishery Biologist Bruce Muench will visit and inspect the lake.

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<u>Date</u>	<u>Activity</u>
6/27/53	Lake was inspected by B. Muench, surface area was measured (25 A) aquatic plants covered 95% of lake. Elodea most common, then curlyleaf pondweed. Lake winterkilled in winter of '50-'51, lost bass and panfish. Lake sounded, 8½' max. four ft. ave. depth. Water color brown/green. Transparency 3 feet. Sampled fish by electrofishing: sunfish, bluegills, golden shiners, bullheads, These are the winterkill survivors.
7/6/53	Muench treated the aquatic plants with sodium arsenite.
10/15/58	Lake inspection by Muench. Sampled fish population with shocker. A dense algae bloom was present. Transparency of 5 inches. Yellow perch, black bullheads, green sunfish, golden shiner, carp Recommends complete rehabilitation (rotenoning of fish).
3/22/65	G. Tichacek, Biol., inspected lake, made dissolved oxygen tests, found oxygen to be low. Recommended snow removal over 4 to 5 acres to help prevent winterkill.
1/8/68	A letter was sent from G. Tichacek to Echo Lake concerning dredging and setting up a meeting at Echo Lake.
2/29/68	Copies of a lake survey map he made were sent by G. Tichacek to Echo Lake which included size, soundings, watershed, slough area.
3/26/68	G. Tichacek attended meeting at Echo Lake concerning dredging and disposal of spoils and ultimate rehabilitation (rotenoning).
3/31/70	A note from the Soil Conservation Service to G. Tichacek about a winterkill of fish which had occurred on Echo Lake in '69 - '70.
6/5/73	The fish population was examined with an electroshocker by Gary Erickson (Biologist). Found Black bullheads, carp, golden shiner and bluntnose minnows primarily. Transparency of water 11 in. Recommends dredging lake and rehabilitation (rotenoning).
6/9/74	The Lake Committee sent out an update of the condition of the lake and set up a fishing contest and other planned projects.
9/6/74	The fish population was rehabilitated by G. Erickson, using 84 gallons of rotenone. What showed up was mostly bullheads, carp, pumpkinseed sunfish, green sunfish & yellow perch. Lake to be restocked by IDOC with largemouth bass, bluegills and redear sunfish.
7/11/74	Following fish were stocked by IDOC: 940 largemouth bass, 7500 redear sunfish and 10,500 bluegills.
6/13/75	3000 largemouth bass fingerlings also stocked.
6/26/75	Fish population examined with shocker by G. Erickson. Found

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bluegills, pumpkinseed sunfish, largemouth bass and black bullhead. Also did methyl orange alkalinity, pH, and nitrate N tests. Lake temperature was stratified. Lots of curlyleaf pondweed present along with some chara.

- 6/22/76 Fish population examined by G. Erickson (shocking). Water transparency was 25 inches, color green from algae bloom. Found curlyleaf pondweed and coontail as aquatic plants. Fish: bass 7½-12½" bluegill 2 - 3", pumpkinseed sunfish, redear sunfish, black bullheads and carp (few). The aquatic plants had recently been treated with a herbicide.
- 7/28/76 Letter to Echo Lake from G. Erickson summarizing the management measures and recommendations. Also recommends aeration.
- 12/1/78 Letter to Echo Lake from Lake County Health Dept. outlining the results of several bacteria tests conducted in the lake in November of that year. One sample indicated pollution.
- June 79 Water Property Divers Service reports 50% of lake bottom has the aquatic plant milfoil.
- 8/20/79 Fish population sampled by G. Erickson following the winterkill of '78 - '79. Carp, yellow perch, pumpkinseed, green sunfish are again abundant. Largemouth bass almost absent. Water is turbid once more. Recommends aeration and total rehabilitation again.
- 10/16/82 A Physical, Chemical & Biological survey made of lake by Bruce Muench. Considerable number of water chemistry tests were taken, the watershed was investigated, water depth and sediment thickness in the lake basin was measured and the history of the lake was summarized. Heavy metals were measured in the sediment and the fish population sampled with a shocker. Very few bass and bluegills were present, mostly carp and a few bullheads, crappies and northern pike. Took diss. oxygen series on 3 dates near aerator. D.O. adequate all three times, transparency ranged from 9 - 12½" with plankton algae and silt evident in water. This was the most comprehensive report to date and should be reviewed periodically.
- 5/6/86 A request for fish management services was sent from Echo Lake to the IDOC Fish Division. In a letter on this date, J. Langbein, a biologist, recommended siphoning the lake down and rehabilitation.
- 5/9/90 A proposal was sent to Echo Lake by B. Muench, suggesting certain water chemistry tests be performed in 1990.
- 7/23/90 J. Ferencak, biologist, recommended dredging and rehabilitation to Echo Lake.
- 8/4/90 A water chemistry study was conducted by B. Muench with a number of tests being performed during the summer, including dissolved

oxygen/temperature profiles, nutrients, suspended and volatile solids in water. Transparency was 12 inches in July, with heavy plankton algae bloom. Dissolved oxygen in low and water temperature is stratified. No aeration present in lake at this time.

11/29/90 A plan for the management of Echo Lake was presented by commissioner Ed Henricksen.

6/10/91 A permit to purchase rotenone was sent by J. Ferencak to Echo Lake, also the fish stocking recommendations following the rotenone treatment of the lake.

7/91 An Echo Lake newsletter update on lake rehabilitation which is to occur in September, plus the drawdown beforehand and the installation of an aeration system.

9/6/91 Fish population rehabilitated with rotenone. Report by Joe Ferencak. Mostly carp (70%). Water transparency was 3½ inches just before treatment. Restocking recommended by IDOC: bluegill largemouth bass, and channel catfish.

Subsequent stocking which occurred by IDOC was: 17,000 bluegill, 2,600 channel catfish on 10/8/91. Later on 7/7/92 2,600 largemouth bass were stocked.

10/1/91 Echo Lake water quality studies were summarized by B. Muench. report included a review of the 1990 studies, plus the added tests done on the date of rehabilitation and again four weeks later. In this time period, the water transparency had improved from 4½ to 31 inches. Tests included total suspended solids, volatile suspended solids, dissolved oxygen/temperature profile. The dissolved oxygen was much improved by 9/27/91. Recommended planning for aquatic plant control by several possible methods, including herbicides, harvesting, use of white amur. Also rec. testing aeration system once it is operating, plus other water chemistry tests.

9/13/92 A report by B. Muench which discussed observations made on Echo Lake on Sept. 12th, listing the abundance of rooted, submergent aquatic plants (leafy pondweed and chara abundant) and also the plant control options. A dissolved oxygen and temperature profile of the water column looked good and water transparency was 72 inches. Suggestions were made about the periods during which the aeration system should be operated.

10/27/92 This chronological summary report by B. Muench.

Overview

In a review of what has happened at Echo Lake over the past 42 years, certain overriding trends are apparent. I offer this in the following observations:

1. In the "good, old days" the answer to all lake problems was the stocking of fish by the Department of Conservation. This practice changed in the early 1950's with the coming of professionally trained fishery biologists to the staff of the IDOC. After that time, environmental considerations were given first priority and management measures were recommended based upon findings of field investigations.

2. Echo Lake, it was apparent, had a primary environmental limitation because of its shallowness and its susceptibility to winterkilling of its desirable species of fish. Winterkill negated the considerable efforts toward fish population rehabilitation undertaken in 1974.

3. Winterkilling at Echo Lake throws the fish population from such desirable species as bass and bluegills toward such low oxygen tolerant species as black bullheads and carp.

4. These "survivor" species, i.e. carp and bullheads, are bottom feeding fish and as such stir up both the bottom sediments of Echo Lake and its accompanying nutrients in their process of obtaining food. This has two results: a. It creates turbidity in the water by keeping sediment in suspension, and b. It recycles nutrients, such as phosphorus and nitrogen from the lake bottom to the surface, where it stimulates additional growth of plankton algae.

5. The increased amount of both organic and inorganic particles in the water, especially in warm weather, create poor water transparency so that fish which feed by sight, such as bass and bluegills, find unfavorable environmental conditions to maintain themselves.

6. The option of dredging in Echo Lake to achieve additional depth has never been accomplished, to my knowledge. Costs of dredging, plus confounding requirements for disposal of dredge material are no doubt drawbacks to this management measure.

7. Providing artificial aeration to the lake, especially in the warmest weather and also during the period of ice cover, has special promise in Echo Lake. It could possibly prevent winterkill of fishes and it can also retard the emergence of nutrients from the bottom sediments of the lake by aerating the deepest waters. The success of artificial aeration should be evaluated by both summertime and winter testing.

8. When Echo Lake has been rehabilitated (fish removed) in the past, the water transparency has improved markedly in a short period of time. This has both positive and negative implications. The positive, i.e. improved visibility and environment for desirable species of fish and

improved aesthetics for the lake are well documented.

9. The negative of improved water transparency in a shallow lake like Echo Lake, is the almost immediate reappearance of rooted, submergent aquatic plants, such as curlyleaf pondweed and chara. The fact that most of the basin of the lake is potentially available to the growth of these plants means that they can create a problem in and of themselves, so planning has to include what measures to undertake to reduce aquatic plant growth so that the water remains reasonably accessible.

10. The communication of information on tests conducted on the lake and upon management recommendations to all the homeowners of Echo Lake should be a primary objective of the Lake Committee. It accomplishes both the increased cooperation of homeowners in projects, plus the understanding of the same homeowners as to the limitations in management efforts. It is apparent to me the Echo Lake has greatly improved its ability to undertake management measures since the 1970's and that the lake rehabilitation effort of 1991, is one of which the homeowners can be justifiably proud. It is also true that lake management was, is, and always will be an On-going Effort.