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Proceedings of the Workshop on Regionalization of Aquatic Impacts Using the Adirondacks as a Case Study

N. S. Dailey
R. J. Olson

Environmental Sciences Division
Publication No. 2717

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ENVIRONMENTAL SCIENCES DIVISION

PROCEEDINGS OF THE WORKSHOP ON REGIONALIZATION OF AQUATIC IMPACTS USING THE ADIRONDACKS AS A CASE STUDY

N. S. Dailey* and R. J. Olson, Editors

Environmental Sciences Division
Publication No. 2717

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PREFACE

The workshop on "Regionalization of Aquatic Impacts Using the Adirondack Region as a Case Study" was held August 20-22, 1985, at Paul Smith's College in Paul Smiths, New York. The workshop was sponsored by Task Group I (Assessments) of the National Acid Precipitation Assessment Program through the Acid Deposition Assessment Staff of the U. S. Environmental Protection Agency. The purpose of the workshop was to examine alternative approaches for applying aquatic data from specific sites and surveys to additional areas within a region or to broader regions for analysis and assessment. Invited participants included data analysts and modelers from government, academia, and private industry with specialized expertise in the analysis of aquatic impacts from acidic deposition. (Appendix A provides a complete list of the participants.)

The format of the meeting provided plenary sessions in which invited speakers presented information on current research needs and available data resources, and reviewed statistical and process models. Attendees were then divided into small discussion groups and asked to develop an approach for conducting regional assessments. One of the sessions provided posters and demonstrations of results of relevant data analyses and model developments in support of the working group discussions.

This report is divided into five chapters. The first chapter outlines the objectives of the workshop and summarizes the research needs of the U. S. Environmental Protection Agency, the Electric Power

Research Institute, the New York State Department of Environmental Conservation, and the Empire State Electric Energy Research Corporation. Chapter II contains a copy of the agenda and abstracts of the formal presentations from the plenary sessions and the poster session. Data resources are summarized in the third chapter. Chapter IV presents the recommendations, approaches, and data and research needs identified in the working group discussions. Chapter V outlines the overall recommendations for approaches to regional assessments.

Three appendices provide further background information on the attendees, information data bases, and cross-references to studies and surveys conducted on lakes in the Adirondack Region. The list of participants (Appendix A) provides a summary of each participant's current research interests as well as an address and telephone number. Appendix B contains descriptions of the various data bases offering data resources pertinent to the Adirondack Region. These summaries include contact person, reference citation(s), keywords, importance, variables, sampling methods, geographic coverage, and period of record. Appendix C provides a cross-reference list of lake identifiers used in the Adirondack Lake Survey, the National Surface Water Survey, the Direct/Delayed Response Program, the Integrated Lake-Watershed Acidification Study, the Adirondack Watershed Data Base, the Fish Information Network, the Paleoecological Reconstruction of Lake Acidification Project, the Lake Acidification Mitigation Project, the New York State Department of Environmental Conservation surveys, and others. (For additional information on each of the above surveys or data bases refer to Appendix B: Data Base Descriptions.)

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ACKNOWLEDGMENTS

The authors would like to thank Drs. Joan P. Baker, Mark B. David, Walter A. Kretser, John L. Malanchuk, and Webster Van Winkle for serving on the workshop steering committee, helping to conduct the workshop, and reviewing the drafts of this proceedings. We are also grateful to Drs. B. Jack Cosby, Charles T. Driscoll, Christopher G. Hoogendyk, Dixon H. Landers, and Jerald L. Schnoor for serving as working group leaders and reviewing the summaries of their working groups. Drs. Carolyn T. Hunsaker, David S. Shriner, and Stephen G. Hildebrand are acknowledged for providing internal technical reviews. Special thanks are given to Dr. Kenneth B. Adams, Eileen B. Allen, Dr. Donald J. Bogucki, and Dr. Gerhard K. Gruendling for organizing and guiding the tours of the St. Regis Wilderness Canoe Area and Whiteface Mountain. Norma C. Cardwell of Oak Ridge National Laboratory and Deborah H. Wells of Paul Smith's College coordinated the logistical arrangements for the workshop; their assistance is greatly appreciated. Sincere thanks are given to Lana K. McDonald and Donna D. Rhew for coordinating the typing and to Natalie E. Tarr for editing this proceedings.

The workshop was sponsored as part of the National Acid Precipitation Assessment Program by the Office of Research and Development, U. S. Environmental Protection Agency, Dr. John L. Malanchuk, project manager.

ABSTRACT

DAILEY, N. S., and R. J. OLSON (Editors). 1986. Proceedings of the Workshop on Regionalization of Aquatic Impacts Using the Adirondacks as a Case Study. ORNL/TM-10044. Oak Ridge National Laboratory, Oak Ridge, Tennessee. 174 pp.

Alternative approaches to applying aquatic data from specific sites and surveys to additional areas within a region or to broader regions (i.e., regionalization) for analysis and assessment were examined in a workshop held August 20-22, 1985, in Paul Smiths, New York. Studies conducted within the Adirondack Region of New York provided the principal information base for evaluating regional extrapolation. Primary data bases for the Adirondacks were reviewed and statistical and process modeling approaches were discussed as methodologies for regionalization. Small working groups of data analysts and modelers developed approaches moving toward regional extrapolation of Adirondack data sets, based on either estimating current impacts or predicting future impacts. This report outlines suggested approaches, recommendations for future research, and existing data needs. The discussions emphasized (1) the lack of information on the extent and mechanics of aquatic impacts in the Adirondack Region and across the United States as a whole, (2) the need for increased information exchange, and (3) the need to develop modeling approaches for regionalization. Recommended approaches included the development of a classification system for surface waters and watersheds, based on select criteria and the development of second generation models which would incorporate select features from both simple and complex models.

Abstracts of the formal presentations from the plenary sessions and the poster session are included. Descriptions of the various data resources (from government, academia, and industry) on the Adirondack Region and a cross-reference list of lake identifiers used in current and past surveys of the Adirondacks are also provided.

CHAPTER I: WORKSHOP OBJECTIVE AND RESEARCH NEEDS

The objective of the workshop was to examine alternative approaches for applying aquatic data from specific sites and surveys to additional areas within a region or to broader regions for analysis and assessment. Studies conducted within the Adirondack Region provided the principal information base to examine regional extrapolation. Primary data bases for the Adirondacks were reviewed and evaluated, and statistical and modeling approaches were discussed to evaluate methodologies for regional extrapolation.

Five specific goals were accomplished: an inventory of existing data resources was compiled; a cross-reference list of independent studies of Adirondack lakes was compiled; current analyses/models were reviewed; synopses of future data needs were discussed; and a consensus of the number of acidic lakes in the Adirondack Region was developed.

RESEARCH NEEDS

Research on the aquatic effects of acidic deposition within the Adirondack Region is primarily being sponsored by either the U.S. Environmental Protection Agency (EPA) or the U.S. Department of Energy (DOE) via the National Acid Precipitation Assessment Program (NAPAP), the New York State Department of Environmental Conservation (NYSDEC), the Electric Power Research Institute (EPRI), or the Empire State Electric Energy Research Corporation (ESEERCO). In the opening session, representatives from each of the above agencies described aquatic and watershed research programs related to the workshop and

summarized the future research needs for these programs. [Abstracts of these presentations are included in Chapter II; see J. L. Malanchuk (EPA), J. R. Colquhoun (NYSDEC), D. B. Porcella (EPRI), and J. G. Holsapple (ESEERCO)]. Although the defined purpose of each research program differs, the ultimate goal of the research, that of increasing knowledge of the effects of acidic deposition on aquatic resources, is the same. Thus, the basic research need common to all of the agencies is to compile and evaluate relevant data that will contribute to this understanding.

For the EPA, research needs are directed toward conducting future assessments, such as those planned for 1987 and 1989 under NAPAP. The lack of a complete information base on the extent and mechanics of aquatic impacts across the United States prompted the agency to examine approaches for future regional extrapolations that could play an important role in these assessments. As a result, the specific research needs include the development of reliable methodologies and the data resources to support these methodologies for future assessments.

The NYSDEC aquatic research program has been conducting both basic research and regional surveys related to understanding and defining the extent of acidic deposition impacts on aquatic resources in the state since the mid-1970s. The research covers all relevant bodies of water including small, high-elevation lakes and headwater streams, which at the present time have been omitted from the EPA/NAPAP-sponsored surveys. Because the state of New York is currently committed to controlling emissions of acidic deposition precursors, the NYSDEC

program will continue its long-term chemical and biological monitoring studies to document any changes that occur after these emissions are reduced. The NYSDEC feels that the federal and other state governments need to design and implement similar programs quickly to complement the NYSDEC program.

EPRI conducts applied research and development for the electric utility industry. EPRI's Ecological Studies Program sponsors research to develop an integrated view of ecological problems, such as acidic deposition, and to develop equitable solutions for utilities. From EPRI's viewpoint, important research needs are to determine the relative contributions of various pollutants to environmental damages, identify the ecologically damaging agents, understand environmental processes involved in acidification and increase this understanding by developing models to simulate these processes, and evaluate the efficacy and economics of possible mitigation measures and control technologies. Efforts include both basic and applied research to increase scientific understanding and contribute to future decision making.

ESEERCO is committed to multiple interests such as environmental protection, prudent use of electric rate payer's dollars, and the maintenance of a healthy industry/public relationship. As a result, ESEERCO has sponsored research on environmental acidification and has also contributed to hardware and operational studies to reduce fossil fuel emissions. However, recent legislative activities suggesting the possibility of additional emission reductions have expedited ESEERCO's need for studies that will help policymakers reach informed decisions

concerning the need for and the nature of further reductions. These studies must address such complex issues as determining the relative contribution of acidifying agents (both anthropogenic and natural in origin) and assessing the impact of acidification on the environment. The primary objective of ESEERCO's research program is to clarify the role of utilities with respect to environmental acidification.

CHAPTER II: PROGRAM AND ABSTRACTS

-- AGENDA --

WORKSHOP ON REGIONALIZATION OF AQUATIC IMPACTS USING THE ADIRONDACK REGION AS A CASE STUDY

Paul Smith's College
Paul Smiths, New York

Tuesday, August 20, 1985

8:00 a.m. Registration, John Freer Science Hall

8:30 a.m. Opening Remarks

- Workshop Objectives and Organization - R. J. Olson
- Welcome and Adirondack Park Agency Perspectives - H. F. Cole, Jr.

9:00 a.m. SESSION I: Assessment Needs - J. L. Malanchuk, Chairman

OBJECTIVE: To describe aquatic and watershed programs related to the workshop topic and to define assessment needs, thereby outlining the goals of the workshop.

- The Adirondack Regional Case Study: A Component of the 1985 Assessment of Aquatic Effects due to Acidic Deposition for the National Acid Precipitation Assessment Program - J. L. Malanchuk
- Empire State Electric Energy Research Corporation - J. G. Holsapple
- Acidic Deposition-Aquatic Effects Assessment Needs: New York's Position - J. R. Colquhoun
- Ongoing Research by the Ecological Studies Program at the Electric Power Research Institute - D. B. Porcella

10:00 a.m. COFFEE BREAK

10:15 a.m. SESSION II: Data Resources - R. J. Olson, Chairman

OBJECTIVE: To describe the available historical data resources including survey designs, parameters measured, sampling/measurement problems, etc.

A. Regional Surveys
- Adirondack Lakes Survey Corporation - W. A. Kretser

- National Surface Water Survey - D. H. Landers
- Direct/Delayed Response Project - K. W. Thornton
- A Discussion of Chemical Characteristics of Adirondack Lakes from the Regional Integrated Lake-Watershed Acidification Study - C. T. Driscoll

12:00 p.m. LUNCH

1:30 p.m. B. Watershed Attributes

- State University of New York (SUNY/Plattsburgh) Watershed Research - G. K. Gruendling
- New York State Adirondack Park Agency Geographic Information System - R. P. Curran
- The Adirondack Watershed Data Base: A Resource for Regional Studies - R. J. Olson, A. E. Rosen, C. T. Hunsaker, R. S. Turner, C. C. Brandt, R. C. Durfee, P. R. Coleman, D. L. Wilson, and F. E. Latham
- Soil Conservation Service Soil Survey - K. A. Wheeler
- Atmospheric Deposition in the Northeast - G. J. Stensland

2:45 p.m. COFFEE BREAK

C. Lake Data

- The Acidification Chemistry Information Database - C. G. Hoogendyk, N. F. Gmur, and G. R. Hendrey
- Assessment of Fish Population Status in Adirondack Lakes Based on the FIN (Fish Information Network) Data Base - J. P. Baker and T. B. Harvey
- New York State Department of Environmental Conservation (NYSDEC) Fisheries - M. H. Pfieffer
- NYSDEC/Environmental Protection-Acidic Deposition Research - H. A. Simonin
- Paleoecological Reconstruction of Recent Lake Acidification: Preliminary Results from the PIRLA Project - S. A. Norton, D. R. Whitehead, and D. F. Charles

6:00 p.m. EVENING SOCIAL

6:45 - 7:00 p.m. PICNIC

Wednesday, August 21, 1985

8:00 a.m. SESSION III: Statistical and Process Models - W. Van Winkle, Chairman

OBJECTIVE: To describe current statistical and process modeling approaches to regionalizing water chemistry and fisheries data, including a discussion of the strengths and weaknesses of each approach.

A. Overviews
- Introduction - W. Van Winkle
- The Role of Statistical Models in Regional Assessments of Acidic Deposition - S. W. Christensen
- The Use of Process Models in Regional Extrapolation - K. W. Thornton

9:30 a.m. COFFEE BREAK

9:45 a.m. B. Panel Discussion: Ten-minute presentation by each panel member, followed by discussion among panel members and participation by other attendees

- J. P. Baker, B. J. Cosby, C. T. Hunsaker, C. G. Hoogendyk, and J. L. Schnoor

11:45 a.m. SESSION IV: Regional Assessments (Discussion Groups) - J. P. Baker, Chairman

OBJECTIVES: (1) To evaluate the advantages and disadvantages of alternative statistical and process modeling approaches for estimating changes in water chemistry and fishery resources. (2) To reach a consensus, if possible, on our best estimate of current and future impacts on surface water chemistry and fishery resources.

- Definition of discussion group goals and assignment of individuals to subgroups (10-15 per subgroup)

12:00 p.m. LUNCH (subgroups remain together)

1:15 p.m. • Subgroups meet

2:30 p.m. COFFEE BREAK

2:45 p.m. SESSION V: Posters and Demonstrations - N. S. Dailey, Chairman

OBJECTIVE: To present data analysis and model development results through the use of posters and personal computer demonstrations. The posters and demonstrations will provide relevant resources for the discussion group analyses.

SESSION V: Posters and Demonstrations (continued)

- Adirondack Lakes Survey - J. Nicollette and C. Bell
- Adirondack Regional Case Study: Relationships Between Watershed Attributes and Water Chemistry - C. T. Hunsaker, R. J. Olson, S. W. Christensen, R. S. Turner, A. E. Rosen, J. J. Beauchamp, R. C. Durfee, P. R. Coleman, D. L. Wilson, and F. E. Latham
- Adirondack Soil Survey Activities: Soil Conservation Service - K. A. Wheeler
- AQUAFFECTS: A Menu-Driven Micro-Computer Program to Assess Regional Impacts of Acidic Deposition on Surface Waters - C. G. Hoogendyk and E. Kaplan
- Data Base Development for the National Stream Survey - M. J. Sale, J. M. Coe, and J. Messer
- Data Collection for Testing Alternative Hypotheses Concerning Increased Acidification and Fish Population Declines in Adirondack Lakes - G. K. Gruendling, D. J. Bogucki, K. B. Adams, and E. B. Allen
- Geographical Information Systems: A Tool to Acidic Deposition Studies - R. C. Durfee, P. R. Coleman, and D. L. Wilson
- Model of Acidification of Groundwater Catchments - B. J. Cosby, R. F. Wright, G. Hornberger, and E. B. Rastetter
- The National Surface Water Survey Eastern Lake Survey: Data Management and Analysis - P. Kanciruk, T. A. Gregory, L. A. Hook, and R. M. McCord
- Seasonal Variation in the Chemistry of Precipitation in the United States - G. J. Stensland and V. C. Bowersox

6:00 p.m. DINNER

7:15 p.m. Optional Tour of APA Headquarters

Thursday, August 22, 1985

8:30 a.m. SESSION IV: Regional Assessments (continued)

- Subgroups reconvene

9:30 a.m. SESSION V: Posters and Demonstrations (continued)

9:45 a.m. COFFEE BREAK

10:30 a.m. SESSION IV: Regional Assessments (continued)

- Group leaders will present the consensus of their group's discussions and will participate in a panel discussion of the results

12:00 p.m. LUNCH

1:00 p.m. SESSION VI: Model Verification (Optional Tours) - G. K. Gruendling, Chairman

OBJECTIVE: Acidic deposition impacted sites will be visited for comparison with model predictions.

- Tour A - Canoe tour of the St. Regis Wilderness Canoe Area near Paul Smith's College

- Tour B - Driving/hiking tour of Whiteface Mountain

A B S T R A C T S

Sessions I - IV

ASSESSMENT OF FISH POPULATION STATUS IN ADIRONDACK LAKES, BASED ON THE FIN (FISH INFORMATION NETWORK) DATA BASE

Joan P. Baker
Kilkelly Environmental Associates, Inc.
Raleigh, North Carolina

and

Todd B. Harvey
Adirondack Lakes Survey Corporation
Ray Brook, New York

A major goal of the National Acid Precipitation Assessment Program (NAPAP) is to quantify current and potential impacts of acidic deposition on fish resources. Such an assessment requires not only a thorough understanding of the effects of acidification on fish, but also a regional data base on the distribution and status of fish populations in surface waters sensitive to, or already impacted by, acidic deposition. As the first phase of this process, a formal framework for organization of a national data base on fish in acid-sensitive waters (FIN, Fish Information Network) has been established. All relevant data on fish populations in Adirondack lakes have been incorporated into FIN, and efforts to compile data for other regions of the northeastern United States have been initiated.

Based on the FIN data base, we addressed a series of key policy questions regarding the acidity status of Adirondack lakes and potential effects of acidification on fish. Our answers, however, must be qualified due to uncertainties associated with the existing data. Six hundred and ninety-three (693) lakes have laboratory electrometric, air-equilibrated pH measurements within the last 10 years (1974-1983), excluding 1979 data. Of these, 171 (24.7%) had mean summer surface pH values below 5.0. By adjusting the sample for potential biases related to lake area and/or elevation, an estimated 20 to 28% of the 2759 lakes in the Adirondack Ecological Zone are acidic (pH < 5.0). Changes in pH over time (based on linear regression analyses) for the region as a whole have not been significant ($P > 0.05$). High-elevation (>610 m) lakes and lakes with current pH < 5.0 have, however, as a group experienced a significant ($P \leq 0.05$) decrease in pH over time.

Changes in fish communities over time, and explanations for observed changes (including shifts in stocking policy, other fisheries management, and habitat alteration), were evaluated without reference to lake identity or water chemistry data. Ratings of fish community status were significantly ($P \leq 0.05$) correlated with lake pH. This correlation, while not proving cause and effect, adds credence to the argument that fishery declines have occurred in the Adirondacks as a result of acidification. For lakes with adequate data for evaluation

of fish community status, the number of fish communities adversely affected (loss of one or more populations) by acidification ranges from 50 to 200-250, depending on the definition of "adequate evidence" for detection of effects. For Adirondack lakes in general, 400 to 500 (14-18%) may have been adversely affected. These are, however, fairly rough estimates, and associated levels of uncertainly cannot be quantified.

THE ROLE OF STATISTICAL MODELS IN REGIONAL ASSESSMENTS OF ACIDIC DEPOSITION[1]

Sigurd W. Christensen
Environmental Sciences Division
Oak Ridge National Laboratory
Oak Ridge, Tennessee

Assessing the effects of acidic deposition on a regional scale involves addressing a series of key questions: What has happened to water chemistry in lakes? What is the current chemical status of lakes? What will happen under different scenarios? Statistical models and process models represent two related, yet different, approaches to answering these questions.

Statistical techniques that have been used or are being developed to address these key questions include time-series analysis, cluster analysis, multiple linear regression, discriminant analysis, and logistic regression. Some disadvantages of these methods include difficulty in discerning cause-and-effect relationships, limited regional applicability, lower accuracy than process models, and limited usefulness in predicting future conditions. Compared with process models, however, they can more easily use available data, which often are less comprehensive than desired; and they can be applied even in situations where understanding seems not yet adequate to support substantive process modeling (e.g., fish presence/absence). Statistical models and process models can and should be mutually supportive in regional assessments.

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[1]Research funded as part of the National Acid Precipitation Assessment Program by the U.S. Environmental Protection Agency under Interagency Agreement Number DW89930858-01-2 (DOE 40-1488-84), and by the Office of Environmental Analysis, U.S. Department of Energy, under Contract No. DE-AC05-84OR21400 with Martin Marietta Energy Systems, Inc.

ACIDIC DEPOSITION-AQUATIC EFFECTS ASSESSMENT NEEDS: NEW YORK'S POSITION

James R. Colquhoun
Fisheries Division
New York State Department of Environmental Conservation
Albany, New York

The New York State Department of Environmental Conservation (NYSDEC) is conducting both basic research and regional surveys related to understanding and defining the extent of acidic deposition impacts on aquatic resources. After investigators at Cornell University reported finding a number of acidified lakes in the Adirondacks in the mid-1970s, the NYSDEC initiated a synoptic chemical survey program covering over 1000 bodies of water from 1975 to 1983. Currently, the NYSDEC is participating with the ESEERCO to conduct the Adirondack Lake Survey (see the description by Holsapple in this report). These surveys indicate the existence of a large number of low pH lakes in the Adirondacks, and acidic deposition is suspected as contributing to the acidification process. While there are valid questions about basic acidification mechanisms, rates, and reactions, evidence is overwhelming that no improvement will occur without reductions in acidic deposition. Because the state of New York is committed to controlling acidic deposition, the orientation of the NYSDEC aquatic effects assessment program has a different orientation than the federal program which calls for additional research in the form of "assessment needs."

We consider the National Surface Water Survey, a federal program that currently utilizes a large share of the aquatic effects budget, as a good example of an identified "assessment need" with very little value. Using existing water chemistry information and sensitivity surveys, it can be readily determined that this survey will indicate that a very small percentage of the freshwaters in the United States are acidic. In addition, no small lakes (less than 4 ha) were chosen for survey even though many references clearly state that small high-elevation lakes are particularly vulnerable. No headwater streams were planned for survey in the northeastern United States even though many reports indicate that headwater streams in sensitive areas are chronically acidic or experience acidic episodes following major precipitation or snowmelt events. Thus, this federal program is designed to verify an obvious conclusion and will not even do that very well.

We consider that the only true "critical assessment need" is to implement a long-term chemical and biological monitoring program that will document changes in water chemistry and aquatic biota resulting from acidic deposition reductions. There is need to design, review, and implement this project immediately because some states and provinces such as New York, New Hampshire, and Quebec are acting to further reduce their emissions of SO_2 and NO_x, and other states and provinces may soon impose similar reductions.

THE USE OF MECHANISTIC MODELS IN EXAMINING THE LONG-TERM DYNAMICS OF WATERSHED RESPONSE TO ACIDIC DEPOSITION

B. Jack Cosby
Department of Environmental Sciences
University of Virginia
Charlottesville, Virginia

Although the "sensitivity" of regions to potential damage by acidic deposition can be defined on a relative scale, quantitative predictions of the time scales of water quality changes under different rates of atmospheric deposition have not been made. Recent research focused attention on certain chemical processes in the soils of catchments as likely keys to the responses of surface water quality to acidic deposition. These processes include:

- anion retention by catchment soils (e.g., sulfate adsorption);
- weathering of minerals in catchment soils as a source of base cations (Ca^{2+}, Mg^{2+}, Na^{+}, K^{+}) and aluminum (Al^{3+});
- adsorption and exchange of base cations and aluminum by catchment soils;
- alkalinity generation by dissociation of carbonic acid with subsequent exchange of hydrogen ions for base cations.

A critical unanswered question, however, is how quickly and to what extent do these processes control surface water quality responses to changes in rates of atmospheric deposition of sulfuric acid.

The water quality changes we are interested in understanding (and ultimately predicting) occur over several years in natural systems. Direct observation of the dynamics of these changes will, in most cases, require the acquisition of lengthy and costly time series of water quality measurements. In the meantime, we face the problem of integrating and understanding the implications (for whole catchment responses) of results from many individual process-level studies. We would like to use existing information to estimate the patterns, time scales, and magnitudes of long-term changes in surface water quality in response to actual or assumed changes in the levels of atmospheric sulfur deposition. Physically based, process-oriented models (either conceptual or quantitative) can be used for this purpose. The effects that processes represented in a model might have on the time scales and magnitudes of surface water acidification can be examined in a series of modeling exercises.

A speculative simulation exercise using an on-off square wave of deposition is presented as an example. For parameter values and deposition levels typical of a small forested catchment in the Blue Ridge Mountains of Virginia, the water quality responses are notably

asymmetric. Acidification occurs approximately 60 years after onset of deposition. Initial acidification responses are slow, but quicken as deposition persists. Full recovery of the system following cessation of deposition takes more than twice as long as the original acidification. Initial recovery responses are rapid but they slow down as recovery proceeds.

NEW YORK STATE ADIRONDACK PARK AGENCY GEOGRAPHIC INFORMATION SYSTEM

Ray P. Curran
Adirondack Park Agency
Ray Brook, New York

The Geographic Information System (GIS) is a filing and data analysis system that organizes town planning maps, U.S. Geologic Survey (USGS) 7-1/2 minute base maps, aerial photography, and special analyses such as soils inventories in a combined electronic and paper map filing system. It responds to a need for better technical services in the Agency's programs - - local planning, regulatory review, and regional planning - - at a time when less money is available to provide these services.

The GIS is used to:

- Store and organize file maps, agency operations information, and economic, demographic, and natural resource reference information about the Adirondack Park;
- Generate new information by combining reference sources for comparisons with other new information becoming available to the Agency, such as 1980 census data and the new Park wetlands survey;
- Support manual filing systems based on New York State (NYS) Department of Transportation (DOT) and USGS standard 7-1/2 minute (1"=2000') quadrangle maps. (Two-hundred quadrangles complete the map of the entire Park. Yet, the USGS maps also provide detail on smaller individual land ownership.)
- Support parkwide economic and environmental trend analysis by providing rapid comparisons of new and historic information. Wetlands and forest-cover inventories are currently under way.

<u>Operating Characteristics</u>:

- Software includes custom-designed map and image-processing programs, as well as an off-the-shelf data base manager, all operating in a CP/M operating system environment.

- Mapped information is stored in one-acre square grid units, with up to 15 characteristics recorded for any one map. Up to 12 parkwide maps may be stored and analyzed in the electronic GIS at any one time. Additional map data may be stored on magnetic tape.

- Most information mapped on paper must be entered by hand through the system's "digitizer" or electronic tablet. This requires tracing the map characteristics which are electronically converted to the one-acre square grid units.

- Written and mathematical data are stored as in other computers. A written description of a location exceeding 15 characteristics may be linked to a map site in an "attribute file," which is stored and analyzed separately from mapped information. Project, economic, or demographic information is similarly stored.

- The 4500 aerial photographs (scale 1 in. = 2000 ft) that cover the Park for 1968 and 1978, respectively, are enhanced by digital land-cover information from Landsat for 1973 and 1978 only. The system uses data from the Landsat satellites maintained for public use by NASA. This information provides an electronic false color infrared picture measuring infrared rather than the normal visual color spectrum.

Equipment Characteristics:

- Micro-computer base

- Large electronic memory on fixed and removable discs (96 megabyte)

- Color graphics on video monitor; black and white graphics and typewriting on dot matrix printer

- 48" digitizer capable of digitizing from NYS DOT 1:250,000, USGS Quad, park facsimile, and other scaled maps with appropriate cartographic control

- 9-track 1600 BPI Tape Drive for communication with other data sources and for entering data into the computer

System Data:

Digital maps: (1) Adirondack Park land use and development plan map and state land classification map; (2) quadrangle, town and county boundaries; (3) 1978 vegetation/land-cover characteristics; (4) unique historic, natural, geologic and hydropower sites; (5) 1973-1978 forest-cover change; (6) state, town and county roads; (7) meso-level soil survey.

Attribute information: (1) population, housing and employment for municipalities (1970 and 1980); (2) soil association interpretive information; (3) agency application actions; (4) special interest areas (historic, natural, hydropower).

Funding:

This system was funded in part by a grant from the Land and Water Conservation Fund, National Park Service, U.S. Department of the Interior.

A DISCUSSION OF CHEMICAL CHARACTERISTICS OF ADIRONDACK LAKES FROM THE REGIONAL INTEGRATED LAKE-WATERSHED ACIDIFICATION STUDY

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The Regional Integrated Lake-Watershed Acidification Study (RILWAS) was a 3-year study (1982-1985) funded by the Electric Power Research Institute and the Empire State Electric Energy Research Corporation. The primary objective of RILWAS was to evaluate the processes regulating the water chemistry in 23 surface water sites located throughout the Adirondack Region of New York. Sites were selected to encompass a wide range of characteristics, including geographic location within the Adirondacks, bedrock geology, surficial geology, vegetation, and drainage pattern (e.g., drainage and seepage). Study sites were monitored for a wide range of watershed/surface water characteristics, including wet deposition, vegetation, surficial geology, soil chemistry, instantaneous discharge, water chemistry, and fish populations.

It was evident that there were profound surface-water-to-surface-water variations in sensitivity to acidification and acidification processes. Although there are differences in the atmospheric loading of SO_4^{2-} to the Adirondack Region (the southern and western Adirondacks receive the highest loading which decreases in a northeastern direction), these intraregional variations would appear to be minor as evidenced by the rather uniform SO_4^{2-} concentrations observed in drainage waters. Differences in Adirondack lake sensitivity and water chemistry are largely due to variations in water flow paths and contact of this water with the surrounding surficial geology. For example, the presence of thick organic (peat) deposits can have profound effects on water chemistry. Water contacting these materials is enriched in organic acids that contribute to the acidity

and bind potentially toxic forms of aluminum. These brownwater lakes are probably naturally acidic, although inputs of SO_4^{2-} have undoubtedly enhanced this acidity.

There is a distinct range in sensitivity of clearwater lakes to inputs of acidic deposition. This sensitivity is a function of flow paths of water through the catchment and/or the presence of weatherable minerals (e.g., calcite). Seepage lakes isolated from the local water table are extremely sensitive to strong acid inputs because of minimal contact of water with the mineral soil and therefore minimal neutralization of acidity from the release of basic cations.

Waters that drain shallow acidic soils also are sensitive to mineral acid inputs. In this soil environment, pools of exchangeable or easily weatherable basic cations are small and the retention time of water in the mineral soil is short. Therefore, neutralization of H^+ inputs is incomplete, resulting in the dissolution of Al^{n+} and the export of H^+ and Al^{n+} to surface waters.

If there is adequate contact of drainage waters with deeper mineral soil (e.g., thick till) or an abundance of easily weatherable minerals (e.g., carbonate), basic cations will be released to compensate mineral acid inputs in addition to neutralizing CO_2 acidity in the soil. These processes result in the complete neutralization of mineral acids and the production of HCO_3^- in solution.

The sensitivity of surface water to acidification largely depends on the extent to which basic cations are released relative to inputs and retention of acidic anions. In the Adirondack Region, as the ratio of sulfate and nitrate equivalence in solution approaches and exceeds the equivalence of basic cations, neutralization of mineral acid inputs is incomplete and there is significant export of potentially deleterious acidic cations (H^+, Al^{n+}) to surface water. Although organic acids significantly contribute to the acidity (and low pH values) of brownwater lakes, inputs of H_2SO_4, and to a lesser extent HNO_3, are the predominant mechanisms responsible for the acidification of clearwater Adirondack lakes.

STATE UNIVERSITY OF NEW YORK (SUNY/PLATTSBURGH) WATERSHED RESEARCH

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Abstract not available.

EMPIRE STATE ELECTRIC ENERGY RESEARCH CORPORATION

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New York State, and more specifically the Adirondack Park, has been one of the focal points for evaluating the cause-and-effect relationship of ecosystem acidification. A preponderance of low ionic strength waters, its geographical "downwind" location to major industrial SO_x and NO_x emitters, and its vast stretches of mature forests and surrounding bogs, long considered as one of the most naturally acidic systems in America, have made the Adirondack area an obvious candidate for scientific studies. Such complex issues as determining the relative contribution of acidifying agents, both natural and anthropogenic in origin, and the impact of acidification on Adirondack fisheries are of keen interest to New York State residents.

In an attempt to satisfy such varied New York electric utilities' interests as environmental protection, prudent use of electric ratepayers' dollars, and the maintenance of a healthy industry/public relationship, the eight-member electric generating systems of the Empire State Electric Energy Research Corporation (ESEERCO) have committed in excess of $8 million dollars over the last several years to studies advancing the scientific communities understanding of ecosystem acidification. In addition, substantial monetary and technical advisory contributions to hardware and operational studies aimed at reducing fossil fuel station emissions have been made by the New York utilities in cooperation with such organizations as the U.S. Environmental Protection Agency, the U.S. Department of Energy, the New York State Energy Research and Development Administration, and the Electric Power Research Institute.

A recently promulgated New York State Acid Rain Control Law, and potential federal legislation suggesting the possibility of additional substantial emission reductions beyond the approximate 58% already achieved by the New York utilities between 1968 and 1980, provide a clear incentive for expediting studies that will help policymakers reach an informed decision on the need for and nature of further New York State electric utility SO_x and NO_x emission reductions.

Of particular relevance to this workshop are three studies currently begin supported by ESEERCO: ESEERCO projects 85-7, HNO_3^- Surface Water Acidification Study; 82-4, Regional Integrated Lake-Watershed Acidification Study (RILWAS); and 82-23, Adirondack Lakes Study. These studies when added to other research efforts being undertaken, will assist scientists, policymakers, and utilities in fulfilling their common assessment need; i.e., the identification of the New York utilities' role in dealing with aquatic ecosystem acidification.

THE ACIDIFICATION CHEMISTRY INFORMATION DATABASE

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The Acidification Chemistry Information Database (ACID) is a database of national proportions, with information on ~48,000 stations and ~900,000 station-date observations. It contains mainly morphometric and chemical data and has been used for a preliminary analysis of temporal patterns in water chemistry on a national scale. To improve the ease and efficiency of use for the FY 1985 assessment, separate regional databases were extracted for the Adirondacks, the Blue Ridge Province, and the upper Midwest. The regions were defined as polygons based on the lowest alkalinity categories of Omernik's Total Alkalinity Map of the United States. Inventories were made of the data available in these regional polygons, and then further datasets of particular interest were added and extensive quality assurance checks were made on all three regional polygons. The Adirondack database contains Schofield's 1975 survey, Don Charles' 1978-1979 survey, the NYSDEC's 1979 survey, the New York Conservation Department's surveys from the 1930s, and nearly all of the individual datasets listed by the National Research Council trends committee as having high quality data, in addition to other data. There are about 100 sites with data from STORET and about 1800 sites with data from other sources. Of these, the vast majority are lakes. The ACID regional database for the Adirondacks is probably the most extensive collection of historical data on water chemistry in the Adirondacks. Due to both automated checking and hand scanning of computer-generated cross-listings, the data it contains are often in better shape than the original source. (All changes and corrections were checked with the original sources before being implemented).

ADIRONDACK LAKES SURVEY CORPORATION

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The Adirondack Lakes Survey Corporation (ALSC), a not-for-profit organization established by the New York State Department of Environmental Conservation (NYSDEC) and the Empire State Electric

Energy Research Corporation (ESEERCO), initiated intensive survey efforts in 1984 to gather biological, chemical, and physical data on approximately 1200 Adirondack bodies of water within a 3-year period.

The goal of this study is to complete fish and chemistry surveys of lakes and ponds within the Adirondack Ecological Zone in a manner that will provide an accurate, up-to-date comprehensive data base that can be utilized for fisheries management purposes and provide a basis from which environmental impacts and associated trends can be measured. To achieve this goal at least 400 bodies of water are surveyed annually.

Field investigations are scheduled as three separate operations. Phase I field operations, lasting approximately 6 to 8 weeks, involve intensive fisheries netting efforts using helicopters to move teams of biologists to remote areas. Biological data, including fish biocharacteristics, bathymetric data, and surface water chemistry data are collected during this period.

Phase II field operations, conducted during July and August, focus on visiting each of the 400+ candidate bodies of water scheduled in a given year to gather detailed water column chemistry information including temperature profiles and oxygen measurements. Each sample collected is analyzed for 21 different parameters in an on-site laboratory designed and equipped specifically to meet project needs. Phase III field operations involve conducting intensive fisheries netting efforts in the fall of each year on lakes and ponds that were not previously scheduled during spring helicopter operations.

General information such as location, elevation, size, ownership, status, access, and land classifications are determined for each body of water surveyed. Watershed size, lake volume, flushing rate, shoreline length, and littoral zone area are calculated. Bathymetric maps are prepared for each body of water. Maps are digitized, plotted, and stored on floppy disks in x-y coordinate data files.

All field and office data generated are verified, validated, and keyed, utilizing on-site microcomputers and a remote mainframe computer to support the data management software (SIR, Scientific Information Retrieval, Inc.).

Strict quality control/quality assurance and standard operating procedures were designed to ensure the overall integrity of the program. Reports summarizing results of survey efforts are distributed annually.

NATIONAL SURFACE WATER SURVEY

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Abstract not available.

THE ADIRONDACK REGIONAL CASE STUDY: A COMPONENT OF THE 1985 ASSESSMENT OF AQUATIC EFFECTS DUE TO ACIDIC DEPOSITION FOR THE NATIONAL ACID PRECIPITATION ASSESSMENT PROGRAM

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A complete national scale assessment of the effects of acidic deposition on aquatic resources is currently unavailable for the United States. A more limited assessment was performed in three potentially sensitive geographical regions: the Adirondack Mountains of New York; the Southern Blue Ridge Province of North Carolina, Tennessee, and Georgia; and the upper midwest of Minnesota, Wisconsin, and Michigan. The Adirondack Regional Case Study is by far the most complete. A series of 10 questions organized the assessment, and historical and current data from each region were employed to address the questions. Where possible independent data sets were used singly and in combination within a given case study area to respond to the questions. Responses to a specific question, arrived at independently, were compared within a region to provide an estimate of confidence. Conclusions among regions also were compared. In general, the impact of acidic deposition on aquatic resources is difficult to detect but positive correlations between atmospheric deposition and effects do exist. Thus, there is evidence to suggest that acidic deposition is at least partially responsible for the acidification of aquatic resources. The extent of acidification, however, varies from region to region. The Adirondacks appears to represent the region of greatest impact, but independent studies indicate that the area of acidified lakes is a small percentage of the total resource.

PALEOECOLOGICAL RECONSTRUCTION OF RECENT LAKE ACIDIFICATION: PRELIMINARY RESULTS FROM THE PIRLA PROJECT

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The PIRLA project (Paleoecological Reconstruction of Recent Lake Acidification) is a multidisciplinary study involving more than twenty-five investigators at seven institutions. It is focused on lakes situated in four acid-sensitive areas of North America that currently receive acidic deposition. The areas include New England, the Adirondacks, the Northern Great Lakes States, and northern Florida. The questions addressed are: (1) Have lakes in these regions experienced acidification-related changes? (2) What is the magnitude, character, and timing of the changes? (3) What factors were responsible for the changes? PIRLA investigators are analyzing diatoms, chrysophytes, pollen, charcoal, polycyclic aromatic hydrocarbons, total carbon, hydrogen, nitrogen and sulfur, carbon and sulfur isotopes, and trace metals and metal speciation from sediment cores. Dating is provided by ^{210}Pb and chronostratigraphic markers. pH reconstructions are based on diatom, chrysophyte, and water chemistry data from calibration sets of modern lakes.

Diatom-inferred (DI) pH reconstructions for four of five Adirondack PIRLA lakes indicate recent acidification. Big Moose Lake pH declined from 5.8 to 4.7 starting in the 1940s. The pre-1800 DI pH of Deep Lake, Upper Wallface Pond, and Lake Arnold was about 5.0 $\pm$ 0.2-0.3 pH units. The DI pH of these lakes declined steadily after the 1900s by about 0.2-0.7 pH units. The pH declines were associated with significant increases in percentage of acidobiontic diatom taxa. Little Echo Pond, a bog lake, has low-diversity diatom assemblages. Its DI pH has fluctuated around 4.5 for the past 100 years. Data on sediment chrysophyte assemblages; total metals; sequentially extracted metals; total C, N, S, and H; sulfur isotopes; and polycyclic aromatic hydrocarbons indicate increasing influence of products of fossil fuel combustion and lake acidification. Acidification of these lakes cannot be accounted for by natural long-term acidification or watershed disturbance, although these may be important factors in individual cases.

THE ADIRONDACK WATERSHED DATA BASE: A RESOURCE FOR REGIONAL STUDIES[1]

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The Adirondack Watershed Data Base (AWDB) has been designed to support regional assessments of acidic deposition impacts on aquatic resources. It is currently being used in the Adirondack Regional Case Study, which is part of the National Acid Precipitation Assessment Program (NAPAP) 1985 Assessment. The fully documented, integrated AWDB will be available to assist other ongoing and long-term projects in the Region.

The AWDB includes base data (e.g., lake name, location, size, elevation) for all 2800 lakes in the Adirondack Ecological Zone, and watershed attributes for 464 headwater lakes. Parameters have been selected on the basis of their relative importance to the acidic deposition issue and on their availability for the region; however, the data base design anticipates the need to add new parameters and has the flexibility to reference data by units other than watersheds. The AWDB links data on a watershed's morphology, physiography, bedrock, soils, land cover, land use, wetlands, disturbances (cabins, fires, and logging), beaver activity, and atmospheric deposition with the lake's water chemistry and fishery status.

Watershed data are compiled from maps, aerial photos, and regional monitoring networks. Thematic maps (e.g., soils, land use, elevation) are digitized for the entire 2.5×10^6-ha region and data are extracted for each watershed by overlaying the digital boundaries of the watersheds. Digital files are also used to calculate new variables

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[1]Research funded as part of the National Acid Precipitation Assessment Program by the U.S. Environmental Protection Agency under Interagency Agreement Number DW89930858-01-2 (DOE-40-1488-84), and by the Office of Environmental Analysis, U.S. Department of Energy, under Contract No. DE-AC05-84OR21400 with Martin Marietta Energy Systems, Inc.

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such as slope and aspect from elevation data or adjusted wet deposition by overlaying concentration contours and precipitation contours. Soil attributes of map units were assigned by merging chemical/physical properties using soil series names. The Fish Information Network data base provides water chemistry and fishery status data that were compiled from many surveys.

"Watershed units," as determined from topographic maps, are the common spatial cells used for integrating thematic data within the data base; the AWDB contains over 150 thematic variables for each watershed. The SAS system provides data management, statistical analysis, and graphical display capabilities for the AWDB. The Geographic Systems Group at Oak Ridge National Laboratory (ORNL) provides support for geographic data input, manipulation, analysis, and display. Data undergo extensive quality assurance checks and documentation. The AWDB thematic data will be distributed as either SAS, "card image," or PC (personal computer) disk data sets through the NAPAP Acid Data Deposition Network (ADDNET) project at ORNL.

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION (NYSDEC) FISHERIES

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Throughout the years, various New York State governmental agencies were charged with fisheries resource conservation responsibilities. The first was the Commission of Fisheries which was established in 1868. It, along with several agencies that succeeded it, concentrated almost entirely on fish propagation efforts. These successors included the Fisheries, Game and Forest Commission; the Forest, Fish and Game Commission; and the Conservation Commission. The latter was established in 1911 and while this agency still emphasized fish culture, the concept of biological surveys was first initiated during their tenure.

Thus, in 1920, the first state-sponsored survey of Adirondack lakes involved a study of Lake George's aquatic resources. Under Dr. Emmeline Mooer's direction, the New York statewide biological surveys were initiated in 1926. The objective of these studies was to assemble a large body of factual data relevant to aquatic resource management and thereby to promote more effective and less wasteful fish stocking programs. From this point on, a separate watershed investigation was conducted each summer using a large seasonal crew of expert specialists, mainly derived from the academic world. The results of these surveys were published in reports dated the year following the survey effort.

What was formerly designated as the Conservation Commission became the Conservation Department, under a single commissioner, in 1927. A new bureau category, the Bureau of Biological Survey, was created in 1929. This coincided with watershed surveys having a direct bearing on the Adirondack Region, including Lake Champlain (1929), St. Lawrence (1930), Oswegatchie and Black (1931), and upper Hudson (1934). The final watershed survey (Lake Ontario) was completed in 1939. In a move to decentralize fish management efforts throughout the State, the first fish management offices were gradually established throughout the State and these were later converted to regional office designation.

There are currently nine such major installations, most with satellite suboffices. The Adirondack regional responsibility is shared by Region 5 with headquarters at Ray Brook, covering the eastern portion, and Region 6 with headquarters in Watertown, covering the western flank.

While district and regional staffs continued routine survey and inventory efforts, more specialized projects and research studies were also initiated, with many funded by the Dingell-Johnson fund. Another major change in emphasis occurred in 1970 when the former Conservation Department was renamed the Department of Environmental Conservation (DEC) in keeping with the Department's increased role in combating pollution and protecting the environment. Thus, specific DEC studies relating to acidification impacts on aquatic resources in the Adirondacks were first initiated in 1975 and are continuing. In 1984, the Adirondack Lakes Survey Corporation undertook an intensive, large-scale physical, chemical, and biological investigation of lakes and ponds in three major Adirondack watersheds. This major study is designed to define the extent of the problem and provide a sound, up-to-date data base to help measure environmental changes and develop appropriate management strategies.

ONGOING RESEARCH BY THE ECOLOGICAL STUDIES PROGRAM AT THE ELECTRIC POWER RESEARCH INSTITUTE

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The Ecological Studies (ES) Program at the Electric Power Research Institute (EPRI) sponsors research related to environmental problems of the electrical utility industry. The ES effort in the field of acidic deposition consists of the seven major projects listed below. Currently, these projects represent a total of $37 million of contracted research. Each project was designed by a project manager to develop an integrated view of ecological problems and their solutions. In the process, utility advisors help to ensure that priority problems

are addressed and that results actually come to closure (i.e., can be used in a solution to the problem). The highlights of the projects are as follows:

- Integrated Lake-Watershed Acidification Study (ILWAS) - R. A. Goldstein, Project Manager -- Detailed biogeochemical analysis of acidification based on long-term study of three similar lakes with different pH regimes: watershed-lake comprehensive process studies, detailed climatic and deposition measurements, and a model for predicting pH, ANC, and other critical variables. The entire watershed is modeled, encompassing the forest canopy to the lake outlet. The model incorporates all known processes affecting acidification. Results have shown that (1) alkalinity is the key variable needed to understand acidification processes, (2) lakes need to be understood in the context of their watersheds, and (3) lake acidification is site-specific, thus making fruitless any attempts to regionalize from a few lakes.

- Regional Integrated Lake-Watershed Acidification Study (RILWAS) - R. A. Goldstein, Project Manager -- Regional application of the ILWAS model. Initial results led to modification of the original model code to include processes that were insignificant in the original study (ILWAS) (see abstract by C. T. Driscoll, this workshop proceedings for more details). As part of this project, a detailed investigation of cores from 40 lakes in the Adirondacks, New England, the upper Midwest, and Florida is being performed under the Paleoecological Reconstruction of Recent Lake Acidification (PIRLA) Project (R. A. Goldstein, Project Manager; see abstract by S. A. Norton, this workshop proceedings).

- Aluminum Stream Study (ALSS) - D. B. Porcella, Project Manager -- This project is concerned with stream aluminum processes in two regions of the United States: the Adirondacks and the Blue Ridge Mountains. The objective is to link chemical variables such as pH, ANC, aluminum, and calcium with biological processes in streams.

- Lake Acidification Mitigation Project (LAMP) - D. B. Porcella, Project Manager -- The liming of lakes with $CaCO_3$ (limestone) can be one way to mitigate acidic waters and restore fish habitat. This would be beneficial during the period when additional data are being collected, and also could be used to restore lake fisheries rapidly. The project is concerned with the development of models for predicting liming requirements and determining when the lake has to be relimed. Two lakes have already been limed (Woods Lake and Cranberry Pond), and the third lake (Little Simon Pond), a lake with a stressed fish population, will be limed in 1986. Initial results indicate that chemical and biological effects have followed predictions. The stocked fish are feeding actively and appear to have high growth rates.

- Lake Acidification Fisheries (LAF) - J. S. Mattice, Project Manager -- This project has provided quantitative results on the effects of varying pH, aluminum, and calcium on different brook trout life stages. Since the functional relationships are nonlinear, simple estimates of effects such as toxicity cannot be made. This study will include similar analyses for three other species: rainbow trout, smallmouth bass, and white sucker. Field data and a model will be provided in the final project results.

- Aluminum Biogeochemistry Study (ALBIOS) - R. A. Goldstein, Project Manager -- This is a geochemical study of aluminum in watersheds. The work is closely aligned with ALSS and RILWAS, but is focused mostly on soil interactions and toxicity to trees. It will not be discussed further in this workshop.

- Integrated Forest Study (IFS) - L. F. Pitelka, Project Manager -- This large-scale project is concerned especially with the effects of atmospheric deposition on forest nutrient cycling. Field sites include areas in the United States (Adirondacks, New England, Blue Ridge, Cascades) and in other countries where contractors and co-operators will follow the IFS protocol (United Kingdom, Norway, and Australia). As with ALBIOS this project is beyond the scope of the workshop and will not be discussed further.

There are several EPRI data bases in preparation or in review that may be of interest to other investigators. Generally, the data will be available in hard copy and/or magnetic tape at the conclusion of the research program. EPRI project managers should be contacted if advance information is needed. The relevant data bases are described in Appendix B: Data Descriptions.

LAKE RESOURCES AT RISK IN THE ADIRONDACK PARK OF NEW YORK

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Multiple regression models and the steady-state version of the Trickle-Down model were used to predict the lake resources at risk under different acid loadings in the Adirondack Park. Error estimates were determined based on a procedure of model calibration, verification (cross-validation), and prediction. A database (UI database) was compiled from existing data sources including the ACID database; reports by Haines and Akielaszek, and Pfieffer and Festa; topographic maps; Norton et al.'s bedrock maps; and the GEOECOLOGY database. The UI database includes four water quality parameters (alkalinity, pH, conductivity, and color) and 23 watershed descriptors.

Watershed descriptors that were significantly correlated with lake alkalinity concentrations were bedrock type, elevation of the lake, annual rainfall, watershed area, lake surface area, soil pH and cation exchange capacity, and hydrogen ion deposition. Those that correlated inversely with lake alkalinity were elevation of the lake, annual rainfall, and hydrogen ion deposition.

The Trickle-Down model was coupled with regression models to estimate weathering rate coefficients a priori. Mean absolute prediction errors were on the order of ±80 μeq/L alkalinity. The model tended to "under predict" the number of high alkalinity lakes (>200 μeg/L) and "over predict" the number of lakes in the alkalinity range from 0 to 40 μeq/L for the Adirondack Park. Application of the Trickle-Down model worked at least as well as the multiple regression equation to predict alkalinity concentrations of the lakes. An estimate of the number of acidic lakes in the Adirondack Park under current loading conditions is 18%, but the number would increase to 46% if acidic deposition were to double, and it would decrease to 11% at half-loading.

A methodology was developed to estimate the number of acidic lakes in any region under current conditions. The prediction error (80-180 μeq/L) is rather large for an individual lake, but it may be acceptable for estimating distributions of lakes by alkalinity classes. The steady-state Trickle-Down model can be coupled with multiple regression equations to predict the number of acidic lakes under different acid-loading conditions. Unfortunately, it is not possible to obtain an error estimate for prediction at different levels of acid loadings. More laboratory research, whole watershed manipulations, and long-term records are needed. Calibration of the Trickle-Down model to lakes in many different locations and lakes that receive different levels of acidic deposition may test the power of the model in a different way. Further testing of the model is recommended, especially as the National Surface Water Survey database becomes available.

NYSDEC/ENVIRONMENTAL PROTECTION - ACIDIC DEPOSITION RESEARCH

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Bureau of Environmental Protection personnel have been involved with acidic deposition research since 1980. Projects have included Adirondack stream fisheries surveys, lake and stream water chemistry monitoring, evaluations of Adirondack pond water transparency, and extensive in situ bioassays.

Many small Adirondack streams exhibit low pH, high monomeric aluminum levels during periods of high flow, and it is this poor water quality that severely limits fish populations. Summer and fall pH depressions due to intense rainstorms may be as important as those that occur as a result of snowmelt in Adirondack streams. Waters that are dark in color and have high levels of dissolved organic carbon were found to be less toxic to fish than clear waters.

In situ bioassays demonstrated that ambient water quality is toxic to fish in some Adirondack streams. Creek chub and blacknose dace are more sensitive to acid waters than are brook trout and lake trout. Critical life stages were found to be "upon hatching" and "early feeding" fry. Yearling and adult fish were surprisingly sensitive to acidic waters, resulting in questions concerning fish population response and the effectiveness of stocking programs in these waters.

ATMOSPHERIC DEPOSITION IN THE NORTHEAST

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This paper discusses four areas (spatial patterns, seasonal variations, time trends, and problems) in the deposition database for applications to aquatic systems modeling for specific lakes.

Spatial patterns of ion concentration and deposition, for selected ions, are presented for individual years from 1980 to 1984. Averages for the 1978 to 1984 period are also presented. The primary database used is that from the National Atmospheric Deposition Program/National Trends Network (NADP/NTN).

The limited database on time trends in deposition is critically reviewed. Limitations in pre-1978 data are reviewed to indicate why the pre-1950 data are not very useful and why much of the data from the 1950s to mid-1970 are controversial.

In contrast to the other topics, the discussion on seasonal variations addresses patterns for the entire United States. It is shown that all of the ions have seasonal patterns and that the seasonality is generally strongest in the Rocky Mountain region.

THE USE OF PROCESS MODELS IN REGIONAL EXTRAPOLATION

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Process models, as with all models, represent abstract simplifications of natural systems. All models are developed to achieve specific objectives. These objectives must be known and explicitly stated for proper use and application of these models for regional extrapolation. Several factors to consider in evaluating process models for regionalization include:

- Objectives of model development
- Process formulations
- Time and length scales of individual process formulations
- Prototype system
- Assumptions

Three models (ILWAS, MAGIC, and Trickle-Down) were developed to improve our understanding of the effects of acidic deposition on surface water chemistry. The objectives of model development, however, were different for all three models. These differing objectives result in different spatial and temporal resolution, different process formulations, and differing capabilities for regional extrapolation. Preliminary evaluations indicate the ILWAS model is appropriate for episodic and annual extrapolations, while the MAGIC and Trickle-Down models are appropriate for annual and long-term extrapolation.

A general regionalization strategy is presented that integrates both statistical and process models. Regionalization requires the use of multiple techniques and procedures, not a reliance on any single approach.

DIRECT/DELAYED RESPONSE PROJECT

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Surface water chemistry of some systems may respond relatively quickly to changes in atmospheric inputs ("direct response" systems). Other systems may respond over much longer time scales (10 to 100 years = "delayed response" systems), or they may show no response for centuries or millennia ("capacity protected" systems). The current geographic distribution of these types of systems and their future responses to

changes in atmospheric inputs is a topic of vital concern to the National Acid Precipitation Assessment Program and to EPA. Distributions among direct response, delayed response, and capacity-protected systems are based on the time scales over which systems in each category are expected to reach an acidic steady state, given current levels of acidic deposition.

The Direct/Delayed Response Project (DDRP) assumes that atmospheric deposition of sulfur plays the principal role in controlling long-term acidification (years or decades) of surface waters. This range of potential effects (direct vs delayed) on surface waters has clear and significant implications to public policy decisions on possible additional emissions control.

The overall goals of the DDRP are to reduce the uncertainties in current understanding of effects of acidic deposition on surface water chemistry and provide essential input for public policy decisions on this issue.

The following specific objectives stem from these two goals:

- characterize the variability of soil and other watershed characteristics across the regions of concern;
- determine which of these soil and watershed characteristics are most strongly related to surface water chemistry;
- estimate the relative importance of key watershed processes in controlling surface water chemistry across the regions of concern; and
- classify a sample of watersheds as direct response, delayed response, or capacity protected (to the degree that is scientifically defensible) and extrapolate the results from the sample of watersheds to the region of concern (i.e., number or area of lakes and number of miles of streams in different response classes).

The regions of concern for the DDRP are the northeastern United States and the southwestern portion of the Blue Ridge Province, commonly called the "Southern Blue Ridge Province."

A variety of data sources and methods of analysis will be used to address each of the four objectives above. The data sources include existing data (e.g., NSWS, ADDNEI) and data to be collected through sampling of watershed soils on a regional scale. Therefore, a crucial part of the DDRP will be to map soils and watershed characteristics of a representative sample of 150 to 200 watersheds, and to perform detailed physical and chemical analyses on samples of most soil series found within these watersheds. Once the soil survey is complete, a description of the variability in soil and watershed characteristics (Objective 1) can be developed.

The proposed levels of analysis fall into three groups or levels:

Level I. System Description
- statistical descriptions of the variability in soil characteristics within and among watersheds, soil types, and geographic regions;
- evaluation of the input-output balance of sulfate in the National Surface Water Survey watersheds; and
- indices of watershed soil content.

Level II. Single Factor Response Time Estimates
- time to steady state in sulfate adsorption in soils;
- time to reduction of soil base saturation (assuming different weathering rates) to a critical value;
- time of travel and residence time in watershed soils; and
- estimates of mineral weathering rates.

Level III. Dynamic Systems Modeling
- integration of major processes to predict changes in soil conditions and surface water chemistry over time (using existing models applied to representative, intensively studied watersheds);
- sensitivity analyses of model predictions, given regional variability in soil and watershed characteristics; and
- classification of the response time of watersheds included in the soil survey.

These three levels of analysis will be integrated along with estimates of uncertainty in classifying the system response as direct, delayed, or capacity-protected. This classification rule will be used to classify, first, the response categories of the DDRP soil survey watersheds. Because these watersheds were selected using a probability sampling frame, the DDRP watershed response categories can be extrapolated to the Phase I National Lakes Survey lakes and National Stream Survey streams and watersheds. Regional estimates for the northeastern United States and the Southern Blue Ridge Province can be made using the expansion factors for these two surveys.

SOIL CONSERVATION SERVICE SOIL SURVEY

Keith A. Wheeler
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The Soil Conservation Service has been given the national responsibility to prepare soil surveys on nonfederal lands. Through a multiagency cooperative agreement, the Environmental Protection Agency is attempting to determine the probability of the direct and delayed effect of acidic

rain on lakes in the northeastern United States. Many factors of buffering acidity in soils have been recognized, but there are remaining variances in lake alkalinity that cannot be explained through typical soil buffering-soil water perculate relationships. A soil survey of selected watersheds was done to present multiple factors for correlation with lake alkalinity levels. These factors may then be generalized to project regional trends through the use of standard soil correlation procedures.

A B S T R A C T S

Session V

Posters and Demonstrations

MODEL OF ACIDIFICATION OF GROUNDWATER CATCHMENTS

B. Jack Cosby, Richard F. Wright, George Hornberger,
and Edward B. Rastetter
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University of Virginia
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Abstract not available.

DATA COLLECTION FOR TESTING ALTERNATIVE HYPOTHESES CONCERNING INCREASED ACIDIFICATION AND FISH POPULATION DECLINES IN ADIRONDACK LAKES

Gerhard K. Gruendling, Donald J. Bogucki,
Kenneth B. Adams, and Eileen B. Allen
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Representative maps and aerial photographs from research conducted at the State University of New York/Plattsburgh illustrate examples of Adirondack wetlands, forest-cover types, beaver activity, and disturbance history. The data have been incorporated into the National Acid Precipitation Assessment Program's Adirondack Watershed Data Base (see R. J. Olson et al., this workshop).

GEOGRAPHICAL INFORMATION SYSTEMS: A TOOL TO ACIDIC DEPOSITION STUDIES

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Abstract not available.

AQUAEFFECTS: A MENU-DRIVEN MICRO-COMPUTER PROGRAM TO ASSESS REGIONAL IMPACTS OF ACIDIC DEPOSITION ON SURFACE WATERS

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A program has been developed that integrates data retrieved from a large-scale database, a choice of aquatic chemistry models, a choice of fisheries models, and graphical output with analytical features to assess the effects of acidic deposition on the surface waters of a region, in this case the Adirondack State Park, New York. The program runs on an IBM PC and is completely menu-driven and designed so that an individual who has no experience with computers can easily run it. The data are from 603 lakes in the Adirondacks and were retrieved from the Acidification Chemistry Information Database (ACID). Aquatic chemistry models currently included are those of Henriksen and Schnoor for the acidification of lakes. Fisheries modeling is based either on a logistic model or on critical pH values for the survival and reproduction of brook trout and lake trout, based on expert judgment. Output is presented in terms of probability density functions of pH and alkalinity for the region scaled to the total number of lakes. Graphically oriented, menu driven integration is available to arrive at the number of lakes within any interval on either graph. Choice of models, parameter values, and future deposition levels can easily be changed to assess the behavior of the models as well as the results of different scenarios.

ADIRONDACK REGIONAL CASE STUDY: RELATIONSHIPS BETWEEN WATERSHED ATTRIBUTES AND WATER CHEMISTRY

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The National Acid Precipitation Assessment Program is performing a national assessment of current effects of acidic deposition for Congress. A portion of this assessment focuses on the effects of acidic deposition on lake chemistry in the Adirondack Region of the state of New York. Oak Ridge National Laboratory's responsibilities

include developing and documenting the Adirondack Watershed Data Base (AWDB) and using this integrated data base to identify relationships between watershed attributes and lake chemistry.

The primary objective of the Adirondacks study is to determine, on a regional scale, the watershed attributes that account for variability in lake pH and alkalinity, and subsequently, in fish population status. Relationships developed by statistical analyses are used to assess the status of additional lakes in the Adirondacks. Single headwater lakes rather than lakes linked by wetlands or streams were selected for initial analysis. The AWDB links data on a watershed's morphology, physiography, bedrock, soils, land cover, wetlands, disturbances (number of cabins and fires, and the logging activity), beaver activity, land use, and atmospheric deposition with a lake's water chemistry and fishery status.

Bivariate and multivariate statistical techniques are used to determine relationships between watershed characteristics and lake chemistry. Spearman rank correlations, t-tests, contingency tables, and nonparametric one-way analysis of variance are used to test "popular" hypotheses about acidic deposition (e.g., there is a significant difference between the pH and alkalinity in the lakes of watersheds with a high percentage of coniferous vegetation versus those with fewer conifers). Multiple linear regression (MLR) and discriminant analysis techniques are used to determine multivariate relationships between lake pH and alkalinity using 34 watershed variables for approximately 200 lakes.

Three watershed variables (wet hydrogen ion deposition, lake elevation, and percentage of watershed in conifers) are selected consistently by both the MLR and discriminant analyses as the strongest predictors of both lake pH and alkalinity. Lake area, soils with a slope >25%, and percentage of watershed in rock outcrop frequently show a significant relationship in multivariate analyses. The four-variable and six-variable MLR models account for 38 to 74% of the variation in lake pH and alkalinity, depending on the subset of lakes used to fit the model. We think the addition of variables such as dry deposition, in-lake processes, and recent land disturbances should improve the models. Discriminant functions using eight variables and two classes (acidic and basic) correctly classify 81 to 84% of the lakes with observed pH and alkalinity measurements. Future work will refine the models, incorporate new and improved watershed data, and analyze complex lakes. For headwater lakes in the Adirondacks, our work indicates that approximately 50% of the lakes have a total alkalinity $\leq$40 µeq/L and 40% of the lakes have a pH of $\leq$5.5 (levels believed to be detrimental to some fish species).

This research was funded as part of the National Acid Precipitation Assessment Program by the U.S. Environmental Protection Agency under Interagency Agreement Number DW89930858-01-2 (DOE 40-1488-84), and by the Office of Environmental Analysis, U.S. Department of Energy, under Contract No. DE-AC05-84OR21400 with Martin Marietta Energy Systems, Inc.

John Beauchamp is with the Engineering Physics Division, Oak Ridge National Laboratory, and Richard Durfee, Phillip Coleman, Don Wilson, and Fred Latham are with the Computing and Telecommunications Division, Martin Marietta Energy Systems, Inc., Oak Ridge, Tennessee.

THE NATIONAL SURFACE WATER SURVEY EASTERN LAKE SURVEY: DATA MANAGEMENT AND ANALYSIS[1]

Paul Kanciruk, Tricia A. Gregory,[2] Les A. Hook,[2]
and Raymond M. McCord[2]
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The 1984 Eastern Lake Survey was the first part of a long-term EPA effort, the National Surface Water Survey, which was designed to synoptically quantify the surface water quality in selected areas of the United States. This effort supports the National Acid Precipitation Assessment Program. The survey, conducted in the fall of 1984, sampled approximately 1800 lakes in the Northeast, Southeast, and upper Midwest (900 western lakes will be sampled in the fall of 1985). Helicopters were used in the East to make watershed observations and also served as platforms from which to collect water samples, which were analyzed at mobile field laboratories and analytical laboratories.

The Computer Operations and Data Support Group of the Environmental Sciences Division (ESD) of the Oak Ridge National Laboratory (ORNL) is working closely with EPA regional laboratories in Corvallis and Las Vegas, as well as at EPA Headquarters, to create and analyze the data bases for the eastern and western lake surveys. The function of the data management and analysis component of the Eastern Lake Survey was to (1) process the background information gathered during the survey; (2) establish a validated data base for analyses; and (3) work with EPA to statistically analyze, display, and evaluate the data.

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[1]Research funded as part of the National Acid Precipitation Assessment Program by the U.S. Environmental Protection Agency under Interagency Agreement No. 40-1441-84 with the U.S. Department of Energy, under Contract No. DE-AC05-84OR21400 with Martin Marietta Energy Systems, Inc.

[2]Science Applications International Corporation, Oak Ridge, Tennessee 37830.

The data base for the Eastern Lake Survey is currently being validated. The data analysis results produced by ESD included over 1000 graphs and maps describing regional lake quality on a regional basis. This analysis package was the basis for the final report released in 1986. The finalized data base will be available through the ORNL Acid Deposition Data Network (ADDNET) and will be made available to the EPA Storage and Retrieval System (STORET). The survey results will be used in planning further acidic deposition research including the National Stream Survey and the EPA Direct/Delayed Response Project.

ADIRONDACK LAKES SURVEY

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The Adirondack Lakes Survey (ALS) lake data base is maintained with the use of the Scientific Information Retrieval (SIR) system and composes 16 record types. This data base contains 202 different variables. The ALS data system is managed with the use of the Sperry Univac 1100 mainframe system (located at SUNY, Albany) and in-house IBM PC XT microcomputers. In-house software is used for data entry, map creation, and data calculations (i.e., morphometrics). Data verification and validation occur at all phases of data collection and transmittal.

DATA BASE DEVELOPMENT FOR THE NATIONAL STREAM SURVEY[1]

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and

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The U.S. Environmental Protection Agency is conducting the National Stream Survey (NSS) as part of the National Surface Water Survey (NSWS) — a project designed to (1) quantify the extent of low pH and low alkalinity systems that may be affected by acidic precipitation/deposition, (2) determine the status of fisheries and other aquatic resources in these systems, and (3) select regionally representative surface waters for long-term monitoring. The streams to be sampled in the NSS will have drainage areas less than 155 km^2 (60 sq. miles) and will be sampled at their upper and lower ends during seasonal high-flow periods. Each water sample in the NSS Phase I study will be a broad characterization of water chemistry for acidic precipitation/deposition assessment, including pH, acid-neutralizing capacity (alkalinity), major cations and anions, dissolved organic and inorganic carbon, extractable aluminum, and other important physical variables. Quantitative and qualitative data on land-use and other watershed characteristics that may be important to the acidification process will also be incorporated into the NSS data base.

The NSS data management activities at Oak Ridge National Laboratory play an important coordinating role in the project, especially with respect to quality assurance and quality control (QA/QC). Three types of data sets will be identified: (1) raw data that have been checked for accurate entry and acceptable ranges, (2) verified data that have passed intrasample analytical QA/QC checks, and (3) validated data that have been subjected to intersample comparisons and other checks for regional representativeness. After validation, data will be released for use outside the NSWS through the Acid Deposition Data Network (ADDNET) at ORNL and through EPA's Storage and Retrieval System (STORET).

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[1]Research funded as part of the National Acid Precipitation Assessment Program by the U.S. Environmental Protection Agency under Interagency Agreement 40-1557-85 with the U.S. Department of Energy, under Contract No. DE-AC05-84OR21400 with Martin Marietta Energy Systems, Inc.

Field sampling has been completed on the NSS Phase I Pilot Study which examined 63 stream reaches in the Blue Ridge Province of Tennessee, Georgia, South Carolina, and North Carolina. Current plans are to begin sampling four subregions in the eastern United States in early spring 1986.

SEASONAL VARIATION IN THE CHEMISTRY OF PRECIPITATION IN THE UNITED STATES

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Abstract not available.

ADIRONDACK SOIL SURVEY ACTIVITIES: SOIL CONSERVATION SERVICE

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Examples of various soil survey products for the Adirondack Region were displayed. They included 1:750,000 and 1:250,000 General Soil Maps of New York; 1:62,500 meso-intensity soil map for the Adirondack Park; 1:62,500 soil maps and cover-type maps expanded to a 1:24,000 base sheet for Kiwassa Lake (one of 32 pilot watersheds); and 1:24,000 detailed soil survey, cover-type maps, depth to bedrock maps, and geological bedrock-type maps for Kiwassa Lake (one of 41 Adirondack watersheds in the detailed soil survey). Also included were status maps for additional soil survey products for the remainder of New York State and the entire United States.

CHAPTER III: DATA RESOURCES

Presentations in Session II of the workshop described aquatic research activities and surveys of the Adirondack Region that have produced data that may be used for regional assessments. Both abstracts of these presentations (Chapter II) and data base descriptions (Appendix B) provide general information as to the research or survey design, parameters measured, sampling/measurement problems, etc., and identify individuals or reports that can provide additional specific details. Table 1 lists the title, agency, and a brief description of the data bases included in Appendix B.

Most of the studies and surveys utilize the New York State Department of Environmental Conservation (NYSDEC) "pond" numbers as unique lake identifiers. These identifiers consist of a watershed basin code (basins 04 to 08 cover the Adirondacks) and a lake number; they were assigned to lakes in hydrologic order in the 1930s using large-scale topographic maps. Since then the system has been modified to accommodate "new" lakes (reservoirs, beaver ponds, or lakes not on the original maps) by adding a single letter as a suffix to the pond number. The NYSDEC regional office at Ray Brook maintains a master set of maps and pond numbers for the Adirondack Region. The NYSDEC plans to update lake coordinates (latitude and longitude) for the lakes during 1985-1986. The NYSDEC also maintains a statewide gazetteer of more than 7500 ponded waters which is currently being updated (Swart and Bloomfield 1985). The pond numbers in the gazetteer have been modified from previous assignments to reflect recent legislation concerning designated uses of the New York State waters.

Table 1. Data bases containing Adirondack research and survey data related to aquatic resources (see Appendix B for detailed descriptions)

Data base name	Agency[a]	Data base description
Acid Precipitation Mitigation Program	FWS	New program to develop data base of chemical, biological, and physical parameters of surface waters being limed
Acidification Chemistry Information Database	BNL	Historical surface water chemistry data
Adirondack Lakes Survey	ALSC	Biological, chemical, and physical data on approximately 1200 Adirondack waters (400/year) between 1984 and 1986
Adirondack Park Agency Geographic Information System	APA	Watershed data
Adirondack Watershed Data Base	ORNL-SUNY/P	Lake and watershed data for 463 headwater systems: morphology, topography, land cover, wetlands, beavers, bedrock, disturbances, deposition, lake chemistry, and fish status
Extensive Lake Survey	CU	Water chemistry and fish status
Fish Information Network	NCSU	Historical fish and water chemistry data for lakes
Huntington Wildlife Forest, New York, Acidic Deposition Measurement	SUNY/S	Collection and analysis of wet and dry deposition
In Situ Bioassays of Fish in Acid Waters	NYSDEC	In situ bioassays of major fish species to acidic water, all life stages
Integrated Lake-Watershed Acidification Study	EPRI	Biogeochemical analysis of lake acidification in three lakes and model development
Lake Acidification Mitigation Project	EPRI	Development of models to determine frequency of liming acid lakes

Table 1 (continued)

Data base name	Agency[a]	Data base description
National Surface Water Survey Eastern Lake Survey-Phase I	EPA	Water quality and watershed information for selected lakes in the northeastern, upper midwestern, and southeastern United States
Regional Integrated Lake-Watershed Acidification Study	EPRI	Biogeochemical analysis of 20 lakes
Sediment Chemistry-Adirondack Lakes	UM	Sediment chemistry from ten lakes
University of Iowa Acid Lake Database	UI	Water quality and watershed descriptors for lakes in the northeastern United States

[a]FWS = U.S. Fish and Wildlife Service; BNL = Brookhaven National Laboratory; ALSC = Adirondack Lake Survey Corporation; APA = Adirondack Park Agency; ORNL-SUNY/P = Oak Ridge National Laboratory-State University of New York/Plattsburgh; CU = Cornell University; NCSU = North Carolina State University; SUNY/S = State University of New York/Syracuse; NYSDEC = New York State Department of Conservation; EPRI = Electric Power Research Institute; EPA = U.S. Environmental Protection Agency; UM = University of Maine; UI = University of Iowa.

Many of the same lakes within the Adirondack Region have been included in several surveys or studies such that present-day research can draw on previous studies for historical or complementary data. Therefore, a cross reference file was created on the basis of input from the workshop participants. It contains information from 18 surveys or data compilations. The title, source, year(s), and number of lakes included in each of these studies are given in Table 2. Table 3 lists pond numbers and names of 35 lakes that have been included in seven or more different surveys; Appendix C includes the complete cross reference list. The cross-reference data file is available from the ADDNET (Acid Deposition Data Network) project at ORNL.

Table 2. Number of Adirondack lakes included in various surveys or data bases (see Appendix C for a complete listing)

Acronym	Title	Source	Year(s)	Number
ACID	Acidification Chemistry Information Database	BNL	1900-1982	1615
ALS	Adirondack Lakes Survey	ALSC	1984-1986	1200
AWDB-C	Adirondack Watershed Data Base-Complex Lakes	ORNL-SUNY/P	1900-1984	154
AWDB-S	Adirondack Watershed Data Base-Simple Lakes	ORNL-SUNY/P	1900-1984	463
ELS	Extensive Lake Study	CU	1983-1987	10
FIN	Fish Information Network	NCSU	1900-1984	469[a]
FIN-S	Fish Information Network-Schofield Lakes	NCSU	1975	236[a]
ILWAS	Integrated Lake-Watershed Acidification Study	EPRI	1977-1982	3
LAMP	Lake Acidification Mitigation Project	EPRI	1985-1987	6
LTM	Long-Term Monitoring	EPA	1983-present	14
NSWS	National Surface Water Survey-Phase I Lakes	EPA	1984	184
NSWS-D	NSWS-Direct/Delayed Lakes	EPA	1985	38
NSWS-2	NSWS-Phase II Lakes	EPA	1986	47
PIRLA	Paleoecological Reconstruction of Recent Lake Acidification	EPA	1978-1983	50
RILWAS	Regional Integrated Lake-Watershed Acidification Study	EPRI	1980-1982	22
Norton	Sediment Chemistry-Adirondack Lakes	UM	19??	10
SOILS	Soils Survey	EPA	1985	38
SOILS-P	Soils Survey-Pilot	EPA	1984	32

[a]Lakes having recent pH data (summer surface samples collected between 1974 and 1983, measured using electrometric, air-equlibrated method; deleting 1979 DEC measurements). FIN also includes some sort of chemistry data for 942 additional lakes.

Table 3. Lakes in the Adirondacks that have been included in seven or more surveys (see Appendix C for a listing of surveys conducted at each lake)

Pond number	Lake name	Number of surveys
020100	Kiwassa Lake	7
020126	Little Echo Lake	7
020143	Middle Pond	8
020264	Heart Lake	8
030128	Dry Channel Pond	7
040199	Middle South Pond	8
040292	Nicks Pond	8
040321	John Pond	8
040504	Hawk Pond	8
040639	Hitchcock Lake	7
040706	Grass Pond	8
040746	Moss Lake	8
040747	Cascade Lake	7
040748	Bubb Lake	7
040750	Dart Lake	8
040752	Big Moose Lake	7
040753	West Pond	8
040756	Merriam Lake	9
040758	Gull Lake South	9
040777	Constable Pond	8
040866	Deep Lake	8
040873	Wolf Lake	7
040982	Woodhull Lake	7
050156	Woods Lake	7
050192	St. John Lake	7
050274	County Line Lake	7
050310	Long Pond	7
050577	Nate Pond	8
050673	Zack Pond	7
060083	Mount Arab Lake	7
060313	Sagamore Lake	7
070719	Nine Corner Lake	7
070793	Trout Lake	7
070936	Whitney Lake	8

CHAPTER IV: REGIONAL ASSESSMENTS - RECOMMENDATIONS, APPROACHES, AND DATA AND RESEARCH NEEDS

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The purpose of Session IV, Regional Assessments, was to examine alternative approaches for the regionalization of aquatic impacts using specific site and survey data. To accomplish this, the attendees were convened in small working groups to promote interaction and stimulate discussion on the topic of regionalization. This topic was divided into two major questions: (1) how to estimate current impacts, and (2) how to predict future impacts. Estimation and prediction were not to be limited to individual systems; the need for regional extrapolation was stressed. Two coordinators were assigned to moderate the two working groups, with each group discussing one of the two major questions. Within each working group, three subgroups were formed with appointed discussion leaders. Attendees were purposely assigned to their working groups to give each subgroup a complementary mixture of technical backgrounds.

The specific question for each group to address was:

Group 1: How many lakes have been acidified by acidic deposition?

Group 2: How many lakes will be acidified by acidic deposition?

For the purpose of the discussion, and because of the recognized time limitations, the estimation of impacts was limited to the Adirondack region with emphasis on aquatic chemistry; biological impacts were to be addressed secondarily. Lakes were assigned first priority; streams, were of secondary importance. While addressing the question assigned

to them, each subgroup was to recommend a best approach for regionalization based on subgroup consensus and, hopefully, without preconceived biases. Similarly, the subgroups were to focus on the proposed 1989 NAPAP assessment, thus, limiting the available time to collect new data, refine existing models, or even develop new models. Next, each subgroup was hypothetically allocated $1 million/year in funds to see their approach to its conclusion; thus, financial constraints had to be taken into consideration. Once an approach was selected, each subgroup was asked to defend their decision and discuss what the expected outcome and results would be. In defending their decision, the subgroups were to outline what other approaches were considered and why the other approaches were rejected. Finally, the overall needs of the approach (i.e., necessary data or specific research tasks to be accomplished) were to be addressed.

Although none of the six subgroups actually conducted a "trial run" of their approach, two of the subgroups looking at future impacts accepted the results of three recent studies that estimated the current number of acid lakes in the Adirondacks to be between 18 to 23% (Schnoor et al. 1985, Hunsaker et al. in prep., Baker and Harvey 1984). Several of the subgroups developed parallel approaches to regionalization. At times, only the specific order of preference among the components of the approach were different. The subgroups also identified similar key data and research needs to support their approaches. Although none of the subgroups apportioned their allotted $1 million in research funds, several subgroups prioritized aspects of their approach, noting those areas that deserved primary attention and those that deserved secondary consideration.

Tables 4-7 outline the results of the six subgroup discussions. The basic recommendations offered by the subgroups have been divided into four categories: general, regionalization approaches, research needs, and data needs. However, it is important to note that the recommendations offered by a single subgroup do not necessarily imply an absence of agreement (or disagreement) among the other subgroups. Instead, they reflect separate ideas and areas of discussion reported for the particular subgroup, because each subgroup did not necessarily cover the same topics (e.g., fisheries, streams, etc.) in the time allocated to address their principal question. The page numbers listed in the tables provide a direct reference to the location of the supporting text for each recommendation.

The next section of this report summarizes the discussions of each of the six subgroups. These summaries were prepared from tape recordings of each of the discussion leader's presentations in the concluding session on regional assessments. Specific references to each of the four tables have been incorporated into the text (i.e., Table 4, Recommendation A is equivalent to 4A) for cross-referencing.

Table 4. General recommendations (excerpted from working group discussions)

Subject	Working groups					
	Current			Future		
	IA	IB	IC	IIA	IIB	IIC
A. Provide immediate and adequate funding for synthesis and integration projects	56				72	
B. Provide feedback mechanism between analysis/modeling and research/surveys	56				71	
C. Review data needs		60			69,71	
D. Conduct periodic regional workshops	56					
E. Establish a clearinghouse to disseminate data and research findings	56					

Table 5. Recommended assessment approaches (excerpted from working group discussions)

Subject	Working groups					
	Current			Future		
	IA	IB	IC	IIA	IIB	IIC
A. Select data for regionalization						
o ALS (more lakes, small lakes, biota)	56					
o NSWS (rigorous design-based sample)			62			
o Combined ALS and NSWS		61				
B. Select deposition scenario						
o Constant (possible worst case)					68	
o Varying levels				67	68	
C. Classify lakes/watersheds for regional analysis stratification	57	61				
o Chemistry-based criteria	57	61				
o Biota-based criteria	57					
o Watershed-based criteria	57			65	69	
o Use cluster analysis		60,61				
D. Use watershed attributes to extrapolate to the region	56					76
o Discriminant functions, cluster analysis						76
E. Use the NSWS design-based framework (i.e., probability sample) to extrapolate to the region			62			
F. Use a modified Direct/Delayed Response Project approach to extrapolate to the region by incorporating additional processes				66	69,70	
o Mineralization				66	70	
o Episodic events/hydrologic responses				67	70,71	
o Organics in controlling Al and pH levels					69,70	
o Fish responses					70,71	
G. Use second generation versions of existing process models				66	68	
o Simplify complex models				66	68	
o Add more processes to simple models				66	68	
H. Use a combination of statistical and process models				67	68	72
o Incorporate variance/covariance matrices				67		
I. Use a linked three-tiered approach						73
o Intensive, process-oriented site research						73
o Survey sample population (based on results of intensive research)						73
o Extrapolate to study region						73

Table 6. Recommended research to support approaches to regionalization (excerpted from working group discussions)

Subject	Working groups: Current IA	Current IB	Current IC	Future IIA	Future IIB	Future IIC
A. Episodic events	58,59	61,62		66	70,71	
o Relate to watershed attributes, especially hydrologic responses (flashy systems)	58,59	62		66		
o Determine patterns of water chemistry changes within lakes	58				70	
o Relate to fish response including evaluating refuge sites	58				70	
B. Mineralization (weathering rates)				67	70	
o Relate to watershed attributes and H^+ deposition				67	70	
o Determine base cation replacement rates				67		
o Organic mineralization/sulfur fixation					70	
C. Hydrology				67	70	
o Identify "flashy" watershed characteristics				67	70	
D. Other processes						
o Evaluate in-lake processes				67		
o Evaluate sulfate exchange				67		
o Evaluate the effects of organics on pH and Al					69,70	
E. Indices						
o Develop sensitivity index based on chemistry	57					
o Develop habitability index based on fish needs		61				
F. Statistical approaches for regionalization						
o Examine sampling designs and framework for regionalization			64			
o Couple statistical and process models				67	68	72
o Parameter estimation						76
o Probability density functions				67		
o Develop statistical methods to analyze and display spatial data			63			
G. Evaluate effects on biota:	58,59			66	70	
o In-situ bioassay	59					
o Whole lake acidification	59					
o Laboratory bioassays	59					
o Refuge sites	59					

Table 7. Data resources needed to support approaches to regionalization (excerpted from working group discussions)

Subject	Working groups					
	Current			Future		
	IA	IB	IC	IIA	IIB	IIC
A. Lake inventory	57					
o Location, name, size, type	57					
o "Sampling framework"		60				
o Identify ephemeral beaver lakes	57	61				
B. Stream inventory		61				
C. Lake surveys (chemistry and biota)						
o ALS	56	60				
o NSWS		60				
o Extend ALS to Hudson basin	57	60				
D. Stream surveys (chemistry and biota)		61				
E. Watershed attributes	59	60				
o Topography, soils, land cover, geology, hydrology, wetlands, beavers, etc.						
F. Deposition						
o Wet, dry, throughfall	58,59					
o Temporal variation				67		
G. Historic data						76

WORKING GROUP SUMMARIES

GROUP I: ESTIMATING IMPACTS TO DATE – John L. Malanchuk, Coordinator

Subgroup 1A: Charley Driscoll (Discussion Leader), Charles Bell, Don Bogucki, Dick Olson, Gary Stensland, Neal Oden, and Webb Van Winkle

The subgroup's recommended approach centered on three avenues: how the effort should be organized, what analyses could be used with the currently available data, and how should the chemical effect of acidic deposition be determined? With regard to organization, recommendations were to (1) hold a series of regional workshops (4D, i.e., Table 4, Recommendation D), and (2) couple this with a clearinghouse to manage and disseminate the Adirondack data for regionalization efforts (4E). A major consideration was to provide adequate funding to synthesize and integrate the available data (4A). Considering the amount of data available for the Adirondacks, data synthesis would need to start immediately and continue up through the 1989 assessment. The workshops would be used to evaluate, review, and suggest redirections of the work as needed (4B). In this way, the results should be ready for the 1989 assessment.

Data analysis would rely on the Adirondack Lakes Survey (ALS) data for 1200 lakes (7C) and then extrapolate to the entire Adirondack region (2700 lakes) using these data (5D). Factors such as elevation, watershed area, lake area, watershed characteristics (percent wetlands, forest type, etc.), and deposition would be used in the extrapolation (5A). Some of the data for extrapolation could be derived from mapped

information. One problem recognized with this approach is that there is one major basin, the Hudson basin, that is not being studied in the ALS. Thus, it would be important to look at the results of these extrapolations and compare them with currently existing data [i.e., from the National Surface Water Survey (NSWS) or other studies]. If this extrapolation was not adequate, then funding would be provided to conduct an appropriate survey in the Hudson basin (7C).

The next essential step would be to update the inventory of Adirondack lakes (7A) to determine if individual lakes are permanent (nonpermanent lakes are less important to the overall assessment) and if these individual lakes are important for fisheries. Once this was done, a lake classification system based on watershed characteristics (watershed area, percent wetlands, etc.), water chemistry, or fish information would be developed (5C). Fish and other biological data would be used to conduct analyses comparable to Baker and Harvey's (1984) work with the New York State Department of Environmental Conservation data.

Once the classification system and information network was in place, the question of evaluating chemical effects of acidic deposition would need to be addressed. Because a number of the Adirondack lakes are naturally acidic, simple pH or alkalinity can <u>not</u> be used as a measure of sensitivity or effects. Instead, a sensitivity index should be developed (6E). Such a sensitivity index should be based on the electrochemical balance of anions and cations within a lake. In a simple form, the index could be calculated as the sum of the basic cations plus ammonium minus the sum of strong acid

anions.[1,2] This is equivalent to bicarbonate alkalinity plus organic acids minus H^+ ions minus aluminum, which allows the determination of acidity contributed from natural organic acids. This index would eliminate some of the problems associated with organic acids and aluminum in identifying anthropogenic impacts. A classification system could then be established using sensitivity index values, such as less than 50 μeq/L or 100 μeq/L, as the basis for the chemical effects assessment.

Additional recommendations for future research that would resolve data needs included: evaluate refuge sites within lakes which are important to assess episodic effects on fish (6A), evaluate the magnitude of the chemical change during episodic periods (6A), establish a throughfall network to estimate dry deposition (7F), and conduct additional fisheries experiments (6G).

Episodic information from Phase II of the NSWS (i.e., measurements of water chemistry related to snowmelt) would be used to look at the depth of the acid pulse and to see how the pulse moves through the lake (6A). These pulse movements need to be examined as a function of watershed area, lake area, lake depth, intensity of snowmelt (6A), etc., to extrapolate to the region as a whole for evaluating the effects of episodic events on fish populations.

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[1]Sensitivity index = $2[Ca^{2+}] + 2[Mg^{2+}] + [Na^+] + [K^+] + [NH_4^+] - [SO_4^{2-}] - [NO_3^-] - [Cl^-] = [HCO_3^-] + [RCOO^-] - [H^+] - n[Al^{n+}]$.

[2]All ionic concentrations (except organic acids) can be measured.

For evaluating the magnitude of the chemical changes during episodic periods, some flow data for the Adirondacks are already available, but additional site data are probably needed to develop concentration-discharge relationships (6A). Then this information, along with critical parameters (base cations, nitrate or possibly sulfate), could be coupled with certain watershed characteristics (bedrock geology, depth of till, etc.) (7E) that may influence the short-term response of the watershed. From this information, the magnitude of the short-term changes in water chemistry that could occur within the Adirondack region could be assessed, and within some bounds, the episodic response for different types of watersheds could be determined. This information could then be used to modify the initial estimate of effects and the sensitivity index.

The lack of information concerning estimates of dry deposition in the Adirondacks was noted as a significant problem (7F). The development of a throughfall network to provide a better estimate of dry deposition was recommended as a necessary complement to the existing precipitation network.

To improve knowledge of acidification impacts to fisheries, additional experiments were recommended (6G). These fisheries experiments might include in-situ bioassays (again, taking into account regional needs), whole lake acidification, and laboratory bioassays (in decreasing order of importance).

Subgroup IB: Dixon Landers (Discussion Leader), Eileen Allen, John Holsapple, Pat Mundy, Don Porcella, Howard Simonin, Kelton McKinley, and Martin Pfieffer

The general approach adopted by this subgroup, although generally similar to Subgroup IA above, reflects a different order of preference for the various aspects of its recommended approach. Resolving data needs was regarded as the primary concern for any regional assessment effort (4C). Completion of the survey of Adirondack lakes, particularly in the Hudson basin, was given top priority (7C). The NSWS sampled some lakes in the Adirondacks (and a few were in the Hudson basin), but they were not sampled with the same intensity as the ALS nor did they collect all the parameters necessary for an assessment effort. Thus, neither the ALS nor the NSWS conducted studies across the entire region (7C). The Hudson basin accounts for 35% of the Adirondack area and, as a result, these data are needed to provide a complete assessment of the Adirondacks. The next data need involved the development of a complete sampling frame for the roughly 2700 lakes in the Adirondacks (7A). Additional data that should be gathered are drainage type, residence time, vegetation, soils, geology, etc. (7E). These data may be available from maps. With this information, a lake classification system could then be developed for extrapolating back to the total population of lakes in the region with better accuracy (5C).

Several data analysis needs were identified as critical to the assessment effort. The first recommendation was to statistically evaluate and combine the data from the ALS and the NSWS to make a

best estimate of current lake status (i.e., chemistry) for all Adirondack lakes (including those less than 4 ha in size) (5A). Next, it would be necessary to determine how many of these small lakes are ephemeral, due to beaver activity, to evaluate the appropriateness of their inclusion in (or exclusion from) the assessment (7A). Second, the above data set should be analyzed to develop a clear, accurate classification system for the Adirondack lakes (5C). By taking the ALS and NSWS combined data set with the enhanced sampling framework data set, the region's lakes could be classified according to the full complement of information. Cluster analysis was one recommended approach for developing a lake classification system for the Adirondacks (5C). The third recommendation was to develop a habitability index for Adirondack lakes to evaluate 'potential' fish habitat (based on both physical and chemical conditions) (5C, 6E). This information would provide for better estimates of the impacts to fish populations in the Adirondack region.

Other areas of recommended research included evaluating stream chemistry in the Adirondacks (7D) and evaluating the effects of episodic events in both lakes and streams (6A). The subgroup hypothesized that stream chemistry should generally follow lake chemistries (i.e., if one were to know some spatial distribution of lake types in the Adirondacks then the streams going into or out of these lakes should generally follow the same characteristics of these lakes). To confirm the hypothesis, a stream inventory could be conducted that would be based on the spatial distribution of the lake types for the region (7B). Thus, a sample frame for streams in the

Adirondacks would need to be developed to extrapolate to the whole population. With regard to episodic events, the sampling of lakes should be based on the range of lake types identified in the lake classification system developed for the region (6A). Different episodic conditions are expected at different lake depths and for different drainage types of lakes (6A). Thus, the sampling would need to reflect the range of conditions existing in the Adirondacks. Whereas in streams, the episodic studies should work across suspected gradients of stream types and should be based on both the lake classification and the geographic location. Both snow and rain events should be investigated. The use of continuous monitors was recommended to evaluate stream episodes.

Subgroup IC: John Malanchuk (Discussion Leader), Paul Kanciruk, Walt Kretser, Scott Overton, Joe Unangst, Don Wilson

Most of this subgroup's discussion centered on the techniques for regionalization. The most elementary form of regionalization techniques involves making estimates based on regional totals or means (5E). These estimates can be based on scientifically derived, statistical (i.e., probability) sampling designs and are, therefore, design based. Design-based methods provide distribution-free, unbiased information capable of assessing the properties of the sample. The NSWS is one example of a design-based study (5A). On the other hand, estimates can also be based on a relational model, (e.g., a regression model), and the sampling design is, therefore, model based.

Model-based sampling methodologies are currently receiving significant attention. This method allows the use of data collected by other means. However, it is important to note that significant efforts are needed to bring an arbitrary data base into the structure of the model-based framework and to construct meaningful regional statistics from it.

Regionalization can also be accomplished by analyzing the spatial distribution of the data (6F). Spatially based regionalization can be used to generate contour or isopleth maps. Here, too, the sampling framework can be either design based or model based. If the probability sample has been designed in a manner compatible with generating isopleth maps, then regionalization would be relatively easy to perform (6F). Otherwise, considerable work would be required to generate unbiased contour maps if the sample had been selected in another manner, as was the case for the NSWS.

The NSWS sampling framework was based on the three alkalinity classes (Linthurst et al. 1986) for lakes within the particular region. Roughly, equal sample sizes were taken in each of the three classes within each region. As a result, some difficulty has been encountered in constructing contour maps and isopleths. This is because the number of lakes within each size class (or strata) in the region are very different. To resolve this situation, the data will be weighted based on sample intensity. This will yield unbiased patterns for isopleth construction. Unweighted contours, on the other hand, would yield biased patterns.

Most scientific surveys can be classed as either design based (i.e., probability sample), model based, or judgment based,[3] but all three are not appropriate for regionalization. Probability-based surveys are specifically designed for use in regionalization in one manner or another. Model-based surveys require additional methodologies and efforts to complete regionalization. Admittedly, surveys based on judgment samples have a significant amount of information in them, but it is very difficult to bring these data into any type of regionalization effort.

The last category of information type that one must deal with is data of opportunity. Sometimes these "found data" will have information that can contribute to the research effort. But the capability to extract the useful information from the complete data set and to use it for regionalization still needs to be developed. Similarly, data that are being used for purposes not considered in the original survey design frequently have the same properties as found data. Therefore, extending their use for purposes beyond those for which they were originally designed requires considerable thought and effort.

The recommendation for regionalization, then, is to develop a sampling framework and survey plan that will be compatible with regionalization needs (6F). However, it is also important to recognize the difficulties associated with bringing new data into any type of regionalization.

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[3]Judgment-based surveys are not based on probability; they are based on the researcher's impression (i.e., purposive selection) of the average population following inspection of the whole population and should only be used for small, heterogeneous populations.

GROUP II: PREDICTING IMPACTS INTO THE FUTURE -- Kent Thornton, Coordinator

Subgroup IIA: Jerry Schnoor (Discussion Leader), Mark David, Richard Durfee, Jerry Gruendling, Greg Mallon, Carolyn Hunsaker, Joe Nicollette, and Jeanne Panek

Before beginning their assigned task, the subgroup members decided it was best to consider the adequacy of current damage estimates so that they had a firm basis for discussing approaches to predict future impacts. The subgroup concluded that the necessary research is currently being conducted or has been completed for estimating impacts through 1989. Three different estimates for the number of acid lakes in the Adirondack Region were presented at the workshop. Although these estimates were generated by independent subgroups using different methods, the results are similar. Estimates were 18% (University of Iowa, Schnoor et al. 1985), 22% (Oak Ridge National Laboratory, Hunsaker et al., in prep.), and 23% (North Carolina State University, Baker and Harvey 1984). In addition, results from two surveys, the ALS and the NSWS, should be available soon. With the detailed surface water chemistry available from these surveys, additional estimates of the number of lakes affected by anthropogenic activities will be forthcoming. Therefore, not only is it known what percent of the lakes are acid, but it should also be possible to make an estimate of the percent of those that have a strong organic acid influence relative to those dominated by anthropogenic sulfate and nitrate (5C).

Several research needs associated with developing current estimates were identified. Additional bioassay work in the area of episodic events should be done, especially with the more sensitive life stages, to estimate a worst-case event (i.e., no refuge site for

aquatic organisms) (6G). Measuring chemical changes during episodic events and evaluating how these relate to watersheds with "flashy" hydrographs (where episodic events are most likely to occur) were also recommended (6A). It is expected that relationships between flashy hydrographs and watershed characteristics, such as depth to bedrock, can be identified using associational or statistical models (6A). Then estimates of the number of watersheds with flashy hydrographs in the region can be derived.

The subgroup's recommended approach to predict future impacts to aquatic systems involved the development of second generation models (5G). However, several other approaches were considered. The use of time series analysis was rejected because of the lack of sufficient historical data. Simple steady-state models were also rejected because they lack a temporal trend component. The Direct-Delayed Response Project's (DDRP) approach was partially rejected because it lacks consideration of some important process questions. If, however, it were coupled with the necessary process research (minerology, hydrology, etc.), then this modified DDRP approach would show promise (5F).

In calling for the development of second generation models, the first recommendation was to make simple models more complex (e.g., include time trends, and relate them, as best as possible, to multivariate statistical models) (5G). Next, complex models should be made more simple (5G). An example of this is the ILWAS (Integrated Lake-Watershed Acidification Study) model which needs to have unimportant processes removed from it before it can be used as an assessment model. Finally, more statistical techniques should be

coupled with simple process models (6F). Variance-covariance matrices and probability density function models (i.e., those developed by Mitch Small at Carnegie-Mellon University) are two promising examples (5H).

Specific areas that need additional research to be able to predict future impacts include mineralogy (6B), hydrology (6C), sulfate exchange (6D), in-lake processes (6D), and damage function estimates (6G). Mineralogy and hydrology research were assigned top priority because they provide process information for all models. The rate of mineral weathering (both laboratory and field studies), the dependence of weathering on pH, and the replacement rate of base cations were noted as important mineralogical processes that require additional study (6B). Similarly, hydrological research should evaluate subsurface flow and investigate possible correlations with watershed descriptors (6C). Other research recommendations, but of lesser importance than the above, included evaluating sulfate exchange (both the hydrogen dependence and the organic sulfur pool) (6D) and evaluating in-lake processes (net sulfate reduction or incorporation and algal uptake of nitrogen) (6D). Lastly, the subgroup noted that damage function estimates should not be limited to constant deposition levels at current loadings (5B); additional modeling or statistical research for realistic deposition levels are needed (6B, 7F).

Subgroup IIB: Jack Cosby (Discussion Leader), Ken Adams, Sig Christensen, Bill Fallon, Rich Holdren, Ed Kaplan, Dick Rush, Robb Turner, Bob Newton

The recommended approach selected by this subgroup was somewhat in agreement with that recommended by Subgroup IIA. Time series approaches were also rejected for estimating future impacts, because of the data limitations. Members of this subgroup felt that statistical models alone would probably not be sufficient for predicting future effects due to the paucity of data with which the models can be constructed. They, therefore, recommended that the approach draw on mechanistic models because these models embody the best understanding of the processes affecting long-term dynamic responses of catchment water quality to acidic deposition (5G). The full range of dynamics inherent in the mechanistic models must be understood, however, if they are to be applied on a regional scale. Thus, they concluded that the development of a predictive protocol should, in all likelihood, involve the use of both mechanistic and statistical descriptions of lake responses (5H, 6F). Unlike Subgroup IIA, who recommended the development of continuous damage functions for various deposition levels, they recommended that this first attempt at making regional predictions should look at a worst-case scenario using constant deposition (5B). Needless to say, the subgroup did agree that analysis of several different scenarios would provide useful information (5B). In looking then at future impacts based on constant deposition levels, the subgroup reviewed the approach for regionalization adopted by the DDRP in order to assess its advantages and disadvantages.

Development of a classification scheme for the lakes in the region was suggested as a first step toward regionalization (5C). In particular, this could serve to enhance efforts to determine the behavior of organic-rich lakes with respect to acidic deposition. A particular research need identified for this effort concerned the effects of organics on aluminum or pH, which are currently used to estimate impacts (5F, 6D). However, the subgroup could not agree as to whether regionalization should be attempted for all lakes or whether it would be appropriate to do predictions for different classes of lakes. The concern was raised that seepage and drainage lakes might show significant differences in their mode of response (i.e., terrestrial versus in-lake processes). Most, if not all, extant models deal with terrestrial processes predominantly and hence projections may be applicable only to drainage lakes. Additional discussion and/or research is needed to resolve this question.

The subgroup felt that the development of a predictive protocol should be an iterative procedure. The first attempt at regionalization [i.e., the first assessment from the Direct/Delayed Response Project (DDRP) which is due in 1987] should be used to indicate gaps in the data and identify research required for subsequent attempts (4C). Further support for research efforts to examine, modify, and refine the predictive protocol would be necessary to provide an improved (or at least a better understood) product for the 1989 assessment. In particular, looking at the DDRP as it is currently structured with process models forming its core, several areas were identified that could potentially generate major objections to the conclusions which will come from the DDRP.

Immediate attention to these areas for both process-level studies and integrative analyses was recommended. In some cases, new programs need to be established; in other cases, existing research programs need to be revised. Specifically, areas needing additional research include (1) evaluating the role of organic mineralization and/or fixation of sulfur and the role of mineralization (in the lake or watershed) in the production of alkalinity (5F, 6B); (2) evaluating hydrological responses (5F, 6C), particularly the mechanism and dynamics of episodic pH or alkalinity depression, and, more particularly, the response of biota to episodic acidification (5F, 6A, 6G); and (3) determining the role of organics (brownwater) in controlling aluminum availability and/or buffering atmospherically derived strong acids (5F, 6D). The results of this research need to be incorporated into the existing process models (5F). With respect to mineralogy, the process models in the DDRP rely very heavily on estimates for weathering rates. This then is a very important aspect of evaluating the robustness of the program's results. The recovery rates or the persistence rates for these models depend on how fast these base cations are replenished. Estimates of mineral weathering rates must be improved, and an increased understanding of the regional variability of weathering or its temporal changes in response to acidic deposition must be achieved (6B). Therefore, the research to evaluate primary mineral weathering in a variety of these systems needs to begin immediately in order to have results ready for use in the 1989 assessment. The next area of concern involved hydrology or the flashiness of the response. In terms of assessing chemical impacts, it was decided that there was no a

priori reason from a purely chemical point of view that one would want to know if there was a lot of variability in chemical status in the short term. However, the implicit idea that ultimately these effects are going to be linked to biological impacts and that short periods with low pH might be very important in terms of the biological status lead us to believe that more attention should be given to these process models and more information is needed about the distribution of flashiness or variability throughout the region (5F, 6A). The above recommendations might answer the major criticisms or at least strengthen the weakest links in the process models for the protocol established for the DDRP.

Most, if not all, mechanistic models have been built to describe chemical responses. If the prediction of biological effects is to be undertaken, a closer cooperation between the physical/chemical researchers/modelers and the biological effects people should be a priority in future work (4B). In terms of coupling these types of chemical projections to biological effects, the types of data needed by biologists to develop an appropriate index, such as the one developed by Baker and Harvey (1984) must be identified (4C). The chemical models are producing certain sets of outputs, and if these are not compatible with the known or assumed inputs for a biological index, then there is no direct way of coupling the regional chemical assessment to a regional biological assessment. Some of the questions that need to be asked include: are the appropriate chemical species to which biota respond being modeled and are the temporal and spatial

scales of the physical/chemical models consistent with what is understood about the biological effects? Therefore, some discussions and planning need to be undertaken now.

Finally, given the large amount of money and the large number of subgroups working on the problem, a conscious and concerted effort must be made to integrate all the data and the research results. Therefore, it is important to note that funds need to be allocated for analyses, and data exchange and synthesis (4A).

Subgroup IIC: Chris Hoogendyk (Discussion Leader), Phil Coleman, Nancy Dailey, George Davis, Ted Hinds, Ed Rastetter

Subgroup discussions focused more on the various techniques for regionalization attempts per se. A basic framework was agreed on, but most of the discussions focused on details for implementing different aspects of the overall framework. The statistical aspects of the actual implementation of a regionalization process were noted as very important. The subgroup acknowledged that several problems exist that have not been dealt with in any detail by either statisticians or process modelers. On this basis, the subgroup recommended that significant efforts should be placed on these problems and that several projects should be initiated which would focus on the actual regionalization process. Specifically, a number of statisticians, process modelers, and research scientists should jointly develop methods to couple and integrate the process-oriented research and modeling with the statistical methodology for regionalization (5H, 6F).

The basic framework recommended by the subgroup was fairly simple and straightforward. The overall structure reflects work accomplished in Brookhaven National Laboratory's AQUAFFECTS and the NSWS (also recommended for the DDRP); but more importantly, the basic framework can be seen to be common to all of these projects. The framework utilizes a three-tiered view of the regional assessment to set the stage for statistical analyses (51). The first tier consists of a subgroup of research watersheds[4] that undergo detailed, process-oriented research (51). This research should provide the information necessary to construct detailed, process-oriented models, such as the ILWAS model. From this close interaction, a better understanding of watershed processes arises, and it should be possible to determine which processes are the most important. The evolving knowledge and experimentation with the models help guide the research. The second tier consists of a statistical survey of a larger number of watersheds (51). The variables surveyed should be selected on the basis of information derived from the research watersheds regarding the important processes. Simpler models [such as Trickle-Down, Steady State (Schnoor et al. 1985), or MAGIC (Cosby et al. 1985) would then be applied. These simpler models are based on the results of the more complex process models at the research watershed level. The ultimate goal is to make inferences about the condition of the whole population of watersheds in the study region (the third tier) (51). The watershed

[4]The basic example cited here refers to a population of watersheds, but certainly one could utilize lakes, streams, or bodies of water in general as the population. The details of implementation would be different, but the overall concepts remain the same.

survey can take into account the different kinds of watersheds and the different types of response to various levels of pollution loading. Thus, the survey's statistical sampling design can be quite complex, involving stratified or multistage sampling with unequal probabilities. On this simple framework, any number of the complexities and details of survey sampling and process modeling can be superimposed.

Certainly, there are a number of approaches available for parameter estimation for any particular process model one might want to use in this framework. The specific details of these approaches can be argued and, in many cases, will have to be worked out. One of the basic concerns is how to determine optimal model complexity. If the watersheds were quite similar, then one might choose to apply the ILWAS model to a handful of the watersheds and make regional estimates using that projection. Alternatively, if there were many watersheds with significant variance among them, a simpler process model applied to a larger number of watersheds might give a more precise regional estimate for the cost. The allocation of funds for the analysis of these tradeoffs in advance can substantially improve the cost effectiveness of future expenditures. For a given cost, the number of watersheds surveyed will depend on the intensity of measurement on each watershed, which in turn depends on (or determines) which models can be applied to the survey watersheds. Taken together, this allocation of effort within and among watersheds determines the ultimate precision of the regional assessment.

Next, efforts need to focus on predictive error (or error variance of real data about a model prediction) to reduce the variance in making estimates for the future. The model should be compared against real data to see how closely it matches. Certainly, complex models have "knobs" and "dials" that can be twisted and turned to make them fit a set of data. However, in a controlled environment, the model is fitted to one set of data, and is then used to make predictions for another set. The models that do not work are omitted, and those that do are used for further analyses. It is not known whether the simple or complex models will win out in their controlled environment. But this is the environment within which predictions of the future necessarily have to be made. It is the only way of truly testing a model. Therefore, we should be careful to focus on predictive error.

In the statistical sampling framework, power calculations can be used to design long-term monitoring or field surveys in terms of decision making. For example, choose a null hypothesis that there is no change (i.e., that at a certain level of deposition nothing is going to happen); no lakes are going to shift in one way or another. The object is to be able to detect a particular alternative hypothesis, perhaps to detect whether 5% of the lakes reach a crucial threshold of pH. The procedure is to state an alternative hypothesis and compute variance estimates based on running the models against real data. The predictive error and variance within and among the watersheds can be used with the power calculations to determine if a change can be detected based on a particular survey design. If not, the design can then be modified.

Another question that needs further study concerns time-dependent responses in watersheds and, in the process, models that represent them. Historical data need to be incorporated into the sampling frame of the survey watersheds (7G) (i.e., ALS, or NSWS, or the DDRP), or into other design programs, so that inferences about the entire population of watersheds can be made. To estimate parameters for the models, make projections, and calculate predictive error variances, time-dependent data are essential (6F). Discriminant functions or cluster analysis could be used to incorporate historical data sets into the sampling frame of the surveys (5D, 7G).

CHAPTER V: WORKSHOP RECOMMENDATIONS

The primary objective of the workshop was to examine alternative approaches for applying aquatic data from specific sites and surveys to additional areas within a region or to broader regions for analysis and assessment. The plenary sessions provided background information on current research efforts, future research needs, and data resources, and provided discussions on existing statistical and process models. The following recommendations were largely derived from the working group discussions but also reflect recommendations offered in the other sessions. In essence, the majority of the recommendations emphasize the incompleteness of the information base on the extent and mechanics of aquatic impacts in the Adirondack Region and across the United States as a whole. The recommendations were compiled by the authors of the proceedings and were circulated to the workshop steering committee for their review and comment.

Overall, a number of researchers recommended that adequate funding (timely and sufficient) for both field research and subsequent analyses (synthesis and integration) of the data be provided. They also recommended the establishment of mechanisms to promote information and data exchange, such as sponsoring periodic regional workshops or establishing an information clearinghouse. The effectiveness of future regionalization efforts will be very dependent on establishing an organized data coordination/administration effort such as the Acid Deposition Data Network (ADDNET) sponsored by EPA and DOE.

Although several approaches for regionalization were recommended, two received widespread consensus. One approach called for the development of a classification system for surface waters and watersheds. The classification system could utilize watershed, chemical, or biological criteria, depending on the specific environmental impact(s) undergoing evaluation. The second approach involved the development of second generation models; making simple models more complex and complex models more simple. For example, time trends and processes shown to be important by multivariate statistical models could be incorporated into simple models. Likewise, less important processes could be removed from complex models to simplify their use. Overall, the iterative nature of any regionalization approach was emphasized.

Numerous research needs were identified, but four seemed to be of primary interest. First, environmental responses to episodic events must be evaluated in terms of watershed attributes, water chemistry, and biotic response. Future modeling endeavors will require additional minerological research; some of the key efforts include determining rates of mineral weathering and replacement of base cations, and evaluating the hydrogen ion dependence of weathering. Quantification of the effects of acidification on biota through additional in-situ bioassays, laboratory bioassays, and whole-lake acidification studies were also recommended. In addition, closer cooperation between researchers and modelers of physical/chemical effects and the biological effects was deemed important for future efforts to couple regional chemical assessments to regional biological assessments. Lastly, research is needed to develop approaches for regionalization, such as the coupling of statistical and process

models, developing probability density functions, and analyzing and displaying spatial data.

Extensive data are needed to support all regionalization approaches, including data derived from the research mentioned above and data on site-specific characteristics. Recommendations focused on developing a complete inventory of lakes and streams (i.e., name, location, size, and type), characterizing watershed attributes (topography, soils, land cover, geology, hydrology, etc.), conducting chemical and biological surveys of surface waters, and increasing the spatial and temporal resolution of deposition monitoring (wet, dry, and throughfall). With regard to the Adirondack Region, portions of the data on site-specific characteristics are available for use in regionalization studies. For example, a fairly complete inventory of lakes and streams is currently available, data on selected watersheds are available, and extensive chemical and biological surveys have been or will be initiated. However, additional survey data from the Hudson basin, which was not included in the ALS, may be needed. Moreover, data on deposition in the Adirondacks, especially dry deposition, are still insufficient.

With regard to current estimates of regional impacts to the Adirondack Region, a number of the participants agreed that recent research indicates that 18 to 23% of the lakes in the Adirondacks are acid (pH < 5.0). Neither specific causes of lake acidification nor estimates of future impacts to Adirondack lakes could be determined at this time.

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Swart, J. M., and J. A. Bloomfield. 1985. Characteristics of New York State Lakes: Gazetteer of Lakes, Ponds, and Reservoirs. New York State Department of Environmental Conservation Report, Albany, New York (draft of second edition).

APPENDIX A:

PARTICIPANT'S LIST

Adams, Kenneth B. (Ken)
State University of New York/Plattsburgh
Center for Earth & Environmental Science
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Phone: (518)564-2039 FTS:
Data collection (forest cover and disturbances) for testing alternative hypotheses of lake acidification.

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Data compilation (morphometry, veg. cover, beavers) from maps and aerial photos for testing alternative hypotheses of lake acidification.

April, Richard
Department of Geology
Colgate University
Hamilton NY 13346
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ILWAS/RILWAS geology.

Baker, Joan P.
Kilkelly Environmental Associates
Water Garden, P.O. Box 31265
Raleigh NC 27622
Phone: (919)781-3150 FTS:
Development and analysis of the FIN (Fish Information Network) Data Base concerning the status of fish populations in the Adirondacks.

Bell, Charles E. (Chuck)
New York State Department of Environmental Conservation
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Bogucki, Donald J. (Don)
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Center for Earth & Environmental Science
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Data compilation (wetlands) from maps and aerial photos for testing alternative hypotheses of lake acidification.

Christensen, Sigurd W. (Sig)
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Oak Ridge TN 37831
Phone: (615)574-7394 FTS: 624-7394
Statistical evaluation of the Adirondack Watershed Data Base for the 1985 NAPAP Assessment.

Cole, Jr., Herman F.
Adirondack Park Agency
P.O. Box 99, Route 86
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Director, Adirondack Park Agency

Coleman, Philip R. (Phil)
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Phone: (615)574-5393 FTS: 624-5393
Computer mapping, spatial data analysis, geographic structures, and computational geometry.

Colquhoun, James R.
New York State Department of Environmental Conservation
Fisheries Division
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Phone: (518)457-6178 FTS:
Currently overseeing research on acid deposition, hazardous wastes, pesticide effects, and water quality. Conducted research on acid rain and fish.

Cosby, B. Jack
University of Virginia
Department of Environmental Sciences
Clark Hall
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Phone: (804)924-7161 FTS:
Modeling the impact of acid deposition on soils and ground water.

Curran, Raymond P. (Ray)
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Dailey, Nancy S.
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Environmental Sciences Division
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Oak Ridge TN 37831
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Evaluation of the evidence relating air pollution and/or acid deposition to forest damage in the northeastern U.S.

David, Mark B.
University of Illinois
Department of Forestry
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110 Mumford Hall
Urbana IL 61801
Phone: (217)333-4308 FTS:

Davis, George
Northrop Services, Inc.
Corvallis Environmental Research Lab.
200 SW 35th Street
Corvallis OR 97333
Phone: (503)757-4666 FTS: 420-4666
Dynamic modeling of seven watersheds for the Direct/Delayed Response Project.

Driscoll, Charles T. (Charley)
Syracuse University
Department of Civil Engineering
237 Hinds Hall
Syracuse NY 13244
Phone: (315)423-3434 FTS:
Water chemistry, soil chemistry, water quality modeling, and biogeochemistry.

Durfee, Richard C.
Oak Ridge National Laboratory
Computing and Telecommunications Div.
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Oak Ridge TN 37831
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Computer mapping, spatial data analysis, and geographic structures.

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EPA Headquarters acid deposition planning staff.

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Center for Earth & Environmental Science
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Data collection (morphometry, veg. cover, disturbances, beavers) from maps and aerial photos for testing alternative hypotheses of acidification.

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Holdren, G. Richard (Rich)
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Corvallis Environmental Research Lab.
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Phone: (503)757-4355 FTS: 420-4355
Evaluation of weathering rates for primary minerals in soils environments.

Holsapple, John G.
Empire State Electric Energy Research Corp.
3890 Carman Road
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Project Manager for water related R&D sponsored by the New York utilities, also member of the Adirondack Lakes Survey Corp. Management Committee.

Hoogendyk, Christopher G. (Chris)
Brookhaven National Laboratory
Terrestrial and Aquatic Ecology Division
Building 318
Upton NY 11973
Phone: (516)282-3744 FTS: 666-3744
Application of statistical methods to process oriented models. Development of a regional assessment framework and implementation in AQUAHIFCIS.

Hunsaker, Carolyn T.
Oak Ridge National Laboratory
Environmental Sciences Division
P.O. Box X, Building 1505, Room 378
Oak Ridge TN 37831
Phone: (615)574-7365 FTS: 624-7365
Evaluation of relationships between watershed attributes and lake acidity, and documentation of Adirondack Watershed Data Base & Integrated Lakes Files.

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Oak Ridge National Laboratory
Environmental Sciences Division
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Oak Ridge TN 37831
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Data analysis and management for the EPA National Surface Water Survey.

Kaplan, Edward (Ed)
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Phone: (516)282-2007 FTS: 666-2007
Statistical and numerical calculations of changes to surface water chemistry from atmospheric deposition.

Kretser, Walter A. (Walt)
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Ray Brook NY 12977
Phone: (518)891-1370 FTS:
Biological, chemical, and physical inventory of 1200 Adirondack ponded waters.

Landers, Dixon H.
U.S. Environmental Protection Agency
Corvallis Environmental Research Lab.
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Corvallis OR 97333
Phone: (503)757-4695 FTS: 420-4695
EPA National Lake Survey: a synoptic survey of the chemistry (fall turnover) of lakes in the northeast, upper midwest, and southeast United States.

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U.S. Environmental Protection Agency
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U.S. EPA Acid Deposition Assessment Staff, responsible for aquatic assessment within the 1985 NAPAP Assessment.

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U.S. EPA Acid Deposition Planning Staff Assistant.

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Project coordinator for EPRI LAMP.

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U.S. EPA Acid Deposition Assessment Staff.

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Mapping of surficial geology for approximately 30 Adirondack watersheds and relationships to sensitivity to acid deposition.

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Data management supervisor for AISC.

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Oden, Neal L.
Brookhaven National Laboratory
Biomed. & Environ. Assess. Div.
Upton NY 11973
Phone: (516)282-2060 FTS: 666-2060
Statistics of objects in geographic space.

Olson, Richard J. (Dick)
Oak Ridge National Laboratory
Environmental Sciences Division
P.O. Box X, Building 1505, Room 350
Oak Ridge TN 37831
Phone: (615)574-7819 FTS: 624-7819
Development of an integrated watershed level data base for the Adirondacks, and data coordination and development of the ADONEI Data Base for NAPAP.

Overton, W. Scott
Oregon State University
Department of Statistics
Corvallis OR 97331
Phone: (503)754-3366 FTS:
U.S. EPA National Surface Water Survey: probability sampling in environmental systems and modeling complex environmental systems.

Panek, Jeanne
State University of New York/Albany
Atmospheric Sciences Research Center
Whiteface Center Field Station
Wilmington NY 12997
Phone: (518)946-7191 FTS:
Collection of throughfall to the forest floor to measure forest effects caused by precipitation pH and chemistry.

Pfeiffer, Martin H.
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Porcella, Donald B. (Don)
Electric Power Research Institute
3412 Hillview Avenue
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Phone: (415)855-2723 FTS:
Project manager for the Lake Acidification Mitigation Project and the Aluminum Stream Study; other research- lake productivity, eutrophication, and toxicity.

Rastetter, Edward B. (Ed)
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Phone: (804)924-7761 FTS:
Modeling the impact of acid deposition on soils and groundwater.

Roy, Karen
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Rush, Richard M. (Dick)
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Energy Division
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Landscape and lake acidification relationships.

Schnoor, Jerald L. (Jerry)
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Dept. of Civil and Environmental Engr.
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Phone: (319)353-7262 FTS:
Prediction of lake alkalinity using multivariate statistical analysis, Trickle-Down model, and time-variable models; chemical weathering kinetics.

Simonin, Howard A.
New York State Department of Environmental Conservation
Acid Deposition Project
8314 Fish Hatchery Road
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Phone: (315)337-0910 FTS:
Effects of acid waters on fish and water chemistry in Adirondack lakes and streams.

Stensland, Gary J.
Illinois State Water Survey
Atmospheric Chemistry Section
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Phone: (217)333-2213 FTS: 957-2213
Evaluation of wet deposition sampling methods; evaluation and interpretation of wet and bulk deposition data; role of alkaline aerosols from soils.

Thornton, Kent W.
Ford, Thornton, Norton and Associates
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Studies of stream chemistry during episodic events; design and analysis of data from EPA NSWS and Direct/Delayed Response Projects.

Turner, Robert S. (Robb)
Oak Ridge National Laboratory
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Oak Ridge TN 37831
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National Soils Survey; Direct/Delayed Response Project.

Unangst, Joe
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Route 86
Ray Brook NY 12977
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Adirondack Lake Survey chemistry.

Van Winkle, Webster (Webb)
Oak Ridge National Laboratory
Environmental Sciences Division
P.O. Box X, Building 1505, Room 254
Oak Ridge TN 37831
Phone: (615)574-7398 FTS: 624-7398
Evaluation of lake acidification and fisheries impacts (sponsored by EPRI); manipulation of watersheds (sponsored by the US DOE).

Wheeler, Keith A.
Soil Conservation Service
U.S. Courthouse and Federal Building
100 S. Clinton Street, Room 771
Syracuse NY 13260
Phone: (315)423-5192 FTS:

Wilson, Donald L.
Oak Ridge National Laboratory
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Phone: (615)574-7451 FTS: 624-7451
Computer mapping, spatial data analysis, geographic structures, and computational geometry.

APPENDIX B:

DATA BASE DESCRIPTIONS

Data Base Title: Acid Precipitation Mitigation Program

Subject: Surface Water

Date Obtained: September 5, 1985 Acronym: APMP

Primary Data Source(s):

R. Kent Schreiber
Eastern Energy & Land Use Team
U.S. Fish & Wildlife Service
Box 705
Kearneysville, WV 25430
(304) 725-2061; FTS 925-5354

Jim Brown
Eastern Energy & Land Use Team
U.S. Fish & Wildlife Service
Box 705
Kearneysville, WV 25430
(304) 725-2061; FTS 925-5282

NAPAP Code: E-5

Sponsoring Agency: U.S. Fish and Wildlife Service

Description: An interdisciplinary research program on mitigation of acidified surface waters will provide a data base including chemical, biological, and physical parameters on selected lakes and streams in the northeast, southeast, and upper midwest over an approximate time period of five years.

Keywords: Surface water, chemistry, biota, mitigation

Data Uses: Assessment of efficacy of mitigation measures

Data Importance: Survey will provide two years of pre-treatment data and three years of post-treatment data.

Variables and Units: Chemical, biological, and physical parameters

Number of Records: Zero; under development

Geographic Coverage: Selected lakes and streams in Minnesota, West Virginia, Massachusetts, and Tennessee

Spatial Resolution: Lake or stream

Period of Record: 1986-1991

Data Base Title: Acidification Chemistry Information Database

Subject: Water Quality

Date Obtained: July 1985 Acronym: ACID

Primary Data Source(s):

Christopher G. Hoogendyk
Terrestrial and Aquatic
Ecology Division
Brookhaven National Laboratory
Building 318
Upton, NY 11973
(516) 282-3744; FTS 666-3744

George R. Hendrey
Terrestrial and Aquatic
Ecology Division
Brookhaven National Laboratory
Building 318
Upton, NY 11973
(516) 282-3262; FTS 666-3262

NAPAP Code: E1-08, E2-11

Sponsoring Agency: Acid Deposition Assessment Staff, U.S. Environmental Protection Agency

Appropriate Reference Citation:
Hendrey, G. R. Acidification Chemistry Information Database, Brookhaven National Laboratory, Upton, New York 11973

Description: A database comprising fresh surface water quality data from lakes, streams, reservoirs, and canals from ~50,000 stations over one million observation dates with nationwide coverage (except Alaska and Hawaii) and with special emphasis on data from the last 20 years. ACID concentrates on low buffer capacity (low alkalinity) surface waters.

Keywords: Database, water quality, surface water, lake, stream, reservoir, canal

Data Uses: Spatial and temporal analyses of water quality on a local, regional, and national basis

Data Importance: Great efforts have been made to encode historical upland and headwater water quality data from areas not directly impacted by local pollutant sources; hence, the importance of non-STORET data.

Variables and Units: Eight station types plus location descriptors, 15 physical and morphometric descriptors, 17 chemical variables, chemical method codes where available

Sampling Methods: Method codes assigned to chemical variables where possible as supplied by original sampling agencies

Uncertainty/Reliability: While much QA has already been accomplished on the data in ACID, ultimately the data are only as reliable as the sampling agencies who collected, analyzed, and reported them.

ACID (continued)

Data Type: Raw sampling agency data

Number of Records: >1 x 10^6 • >200 megabytes disk storage

Geographic Coverage: Nationwide (except Hawaii and Alaska)

Spatial Resolution: Sparse to intensive, depending on sampling agency; point data

Period of Record: ~1910--~1983 (most data between 1960 and 1982)

Temporal Resolution: Daily, yearly, or single shot, depending on sampling agency.

References or Supporting Documents:

Gmur, N. F., C. G. Hoogendyk, and E. Kaplan. September 1984. A Description of Three Eastern United States Polygons to be Analyzed for Surface Water Quality Data in the FY 1985 NAPAP Assessment. Report for NAPAP Project 13-02.31. BNL 35648.

Gmur, N. F., G. G. Hoogendyk, and E. Kaplan. Data Addition and Quality Assurance Efforts for the Adirondack, Blue Ridge and Upper Midwest Regional Databases. Report for NAPAP project I3-02.34 (in preparation).

Hoogendyk, C. G., N. F. Gmur, and E. Kaplan. October 1984. Availability of Surface Water Chemistry Data in Three Eastern United States Polygons to be Analyzed in the FY 1985 NAPAP Assessment. Report for NAPAP Project 13-02.31. BNL 35784.

Hendrey, G. R., C. G. Hoogendyk, and N. F. Gmur. 1983. Analysis of Trends in the Chemistry of Surface Waters of the United States. Annual Report for NAPAP Projects E1-8, E2-11. Volumes I and II. BNL 51739.

Hendrey, G. R., C. G. Hoogendyk, and N. F. Gmur. 1983. Establishing the Acidification Chemistry Information Database (ACID). Progress Report for NAPAP Project E1-08. BNL 51707.

Data Base Title: Adirondack Lakes Survey

Subject: Surface Water

Date Obtained: August 20, 1985 Acronym: ALS

Primary Data Source(s):

Walter A. Kretser
Adirondack Lakes Survey Corporation
New York State Department of
Environmental Conservation
Route 86
Ray Brook, NY 12977
(518) 891-1370

Sponsoring Agency: New York State Department of Environmental Conservation and FSEERCO

Appropriate Reference Citation:
Kretser, W. A., et al. 1985. Adirondack Lakes Survey. 1984 Field Study. 5 volumes. New York State Department of Environmental Conservation, Ray Brook, New York.

Description: Biological, chemical, and physical data on approximately 1200 Adirondack waters (400/year) between 1984 and 1986

Keywords: Location, size, elevation, access, land use, volume, shoreline, water chemistry, water quality

Data Importance: Accurate, up-to-date comprehensive data base for fisheries management or environmental analyses

Variables and Units: 202 variables; 16 record types-fish surveys; water quality; watershed descriptors; lake descriptors; water chemistry

Sampling Methods: Diverse

Uncertainty/Reliability: Strict quality control/quality assurance and standard operating procedures are followed.

Data Type: Raw

Number of Records: 1200 lakes at completion

Geographic Coverage: Adirondack Region

Spatial Resolution: Lake

Period of Record: 1984-1986

Temporal Resolution: One year per lake

References or Supporting Documents: See above

Data Base Title: Adirondack Park Agency Geographic Information System

Subject: Soils

Date Obtained: August 20, 1985 Acronym: None

Primary Data Source(s):

John S. Banta
Adirondack Park Agency
P.O. Box 99, Route 86
Ray Brook, NY 12977
(518) 891-4050

Sponsoring Agency: Adirondack Park Agency

Description: Digital meso soils map of Adirondack Park. Other data sets available for comparison include 1973, 1978, and 1982 Landsat land cover; political factors (state land, jurisdictional boundaries). Subsets for some watershed or other defined geographic areas are available.

Keywords: Soils, land cover, land use (as designated by the APA), geographic information system, watersheds

Data Importance: Provides park-wide watershed attribute data to use in the analysis of acid rain impacts

Variables and Units: Soil type, land-cover type, land-use class.

Sampling Methods: Data obtained from large-scale maps or remote-sensed imagery.

Data Type: Processed

Number of Records: Approximately six million for each data type

Geographic Coverage: The entire Adirondack Park

Spatial Resolution: One acre (0.4 ha)

Period of Record: Varies

Data Base Title: Adirondack Watershed Data Base

Subject: Surface Water

Date Obtained: July 25, 1985 Acronym: AWDB

Primary Data Source(s):

Richard J. Olson
Oak Ridge National Laboratory
P.O. Box X, Building 1505
Oak Ridge, TN 37831
(615) 574-7819; FTS 624-7819

Carolyn T. Hunsaker
Oak Ridge National Laboratory
P.O. Box X, Building 1505
Oak Ridge, TN 37831
(615) 574-7365; FTS 624-7365

NAPAP Code: 12-02.1

Sponsoring Agency: U.S. Environmental Protection Agency, U.S. Department of Energy

Appropriate Reference Citation:
Rosen, A. E., R. J. Olson, R. C. Durfee, D. L. Wilson, P. R. Coleman, C. C. Brandt, R. S. Turner, and C. T. Hunsaker. An Adirondacks Watershed Data Base: Attribute and Mapping Information for Regional Acidic Deposition Studies. Oak Ridge National Laboratory, Oak Ridge, Tennessee (in prep.).

Description: Watershed attribute data were compiled from several sources for 463 simple (headwater) lakes in the Adirondack region of New York State to study the relative importance of watershed variables in determining the response of lakes and fish to natural and anthropogenic acidification processes. Data sources include the State University of New York (Plattsburgh), the Adirondack Park Agency, the Fish Information Network, and the New York Department of Environmental Conservation. Data for 66 complex lake systems will be added in 1986.

Keywords: Watersheds, lake chemistry

Data Uses: Statistical and process models; regional assessments

Data Importance: Important to help distinguish factors (especially anthropogenic) associated with lake chemistry and fish population changes

Variables and Units: pH, alkalinity, other water chemistry, lake morphology, fish status, soils, land cover, geology, topography, land use, precipitation, deposition, fires, logging, wetlands, beaver activity

AWDB (continued)

Sampling Methods: Vary

Uncertainty/Reliability: Water chemistry subject to sampling and method errors of original survey; most watershed data are derived from maps or aerial photographs.

Data Type: Summarized for watersheds

Number of Records: 463 watersheds, ~150 variables

Geographic Coverage: Adirondack Park, New York

Spatial Resolution: Watersheds

Period of Record: 1900 to present

Temporal Resolution: Varies

References or Supporting Documents:

Hunsaker, C. T. et al. 1986 (draft). Adirondacks Regional Case Study: Empirical Relationships between Watershed Chemistry and Aquatic Resources. ORNL/TM-9838. Oak Ridge National Laboratory, Oak Ridge, Tennessee (in prep.).

Data Base Title: Adirondack Watershed Data Base (State University of New York)

Subject: Land Use/Land Cover

Date Obtained: July 1985 Acronym: AWD

Primary Data Source(s):

Gerhard K. Gruendling
Center for Earth and
Environmental Sciences
State University of New York
Plattsburgh, NY 12901
(518) 564-3107

NAPAP Code: 1

Sponsoring Agency: Oak Ridge National Laboratory/U.S. Environmental Protection Agency/U.S. Department of Energy

Appropriate Reference Citation: Data collection for testing alternative hypotheses concerning increased acidification and fish population declines in Adirondack lakes

Description: Lake and watershed variables including elevation, lake size, watershed size, forest cover, wetland type, disturbance history, beaver activity

Keywords: Forest cover, wetlands, watershed, disturbance, beaver, lakes, acidification, natural sources

Data Uses: Statistical models

Data Importance: Sole source for much of these data

Variables and Units: Dependent on variable

Sampling Methods: Maps, aerial photographs, planimetering

Uncertainty/Reliability: ORNL quality assurance standards

Data Type: Derived measurements/observations

Number of Records: Hundreds-thousands, depending on data set

Geographic Coverage: Adirondack Park

Spatial Resolution: 29 15-min U.S. Geological Survey quadrangles

Period of Record: Variable, different for each parameter

Temporal Resolution: Not applicable

Data Base Title: Extensive Lake Survey

Subject: Land Use/Land Cover

Date Obtained: May 1986 Acronym: ELS

Primary Data Source(s):

Steve Gloss
Cooperative Fishery Unit
Cornell University
118 Fernow Hall
Ithaca, NY 14853
(607) 255-4251; FTS 882-4251

Sponsoring Agency: U.S. Fish and Wildlife Service

Description: Ten lakes in the Adirondacks with diverse characteristics were selected to study the effects of liming as a method of mitigating lake acidification. Water chemistry and fishery status were evaluated before and after liming.

Keywords: Mitigation, liming, lake acidification, water quality

Geographic Coverage: Adirondacks

Period of Record: 1983-1987

Data Base Title: Fish Information Network

Subject: Aquatic Biota

Date Obtained: July 15, 1985 Acronym: FIN

Primary Data Source(s):

Walter A. Kretser/Martin H. Pfeiffer
New York State Department of
Environmental Conservation
Route 86
Ray Brook, NY 12977
(518) 891-1370

Carl L. Schofield
Department of Natural Resources
Cornell University
Fernow Hall
Ithaca, NY 14853
(607) 256-2001

NAPAP Code: E3-24

Sponsoring Agency: U.S. Environmental Protection Agency/North Carolina State University National Acid Precipitation Assessment Program

Appropriate Reference Citation:
Baker, J., T. Harvey, and J. Nicolette. 1984. Compilation of Available Data on the Status of Fish Populations in Regions of the Northeastern United States Susceptible to Acidic Deposition. Final Report to U.S. Environmental Protection Agency, Corvallis, Oregon.

Description: FIN is maintained at NCSU on the SIR (Scientific Information Retrieval System) data base management systems. It is an hierarchically structured data base divided into 19 different record types. It contains both fish and water chemistry survey data on a lake-by-lake basis.

Keywords: Fishes, water chemistry, Adirondacks, New York, Maine, New Hampshire, Vermont

Data Uses: Assessment of changes in fish populations over time (particularly in the Adirondacks), related to lake acidification

Data Importance: Used in 1985 NAPAP assessment Adirondack Case Study

Variables and Units: Fish surveys; fish species; number caught, size range, gear used, etc.; water chemistry: pH, pH method, alkalinity (μeq/l), alkalinity method, etc.; stocking: fish species, number stocked, etc.; and others.

Sampling Methods: Diverse. FIN is a compilation of existing data, including information on sampling and analytical methods.

Uncertainty/Reliability: Varies

FIN (continued)

Data Type: Raw

Number of Records: Unknown

Geographic Coverage: Adirondacks; some information for Maine, New Hampshire, Vermont

Spatial Resolution: By lake

Period of Record: 1800s to 1984

Temporal Resolution: Days

References or Supporting Documents:

Baker, J., T. Harvey, and J. Nicolette. 1984. Compilation of Available Data on the Status of Fish Populations in Regions of the Northeastern United States Susceptible to Acidic Deposition. Final Report to U.S. Environmental Protection Agency, Corvallis, Oregon.

Baker, J., and T. Harvey. 1984. Critique of Acid Lakes and Fish Population Status in the Adirondack Region of New York State. Final Report to U.S. Environmental Protection Agency, Corvallis, Oregon.

Data Base Title: Huntington Wildlife Forest, New York, Acidic Deposition Measurement

Subject: Deposition

Date Obtained: July 1985 Acronym: NADP

Primary Data Source(s):

Dudley J. Raynal
College of Environmental Sciences
and Forestry
State University of New York
Syracuse, NY 13210
(315) 470-6782

Sponsoring Agency: New York State Electric and Gas Corporation; State University of New York at Syracuse

Description: Collection and chemical analysis of wet and dry deposition at Huntington Wildlife Forest, Adirondack Mountains, New York

Keywords: Deposition, Adirondack Mountains, Huntington Forest, precipitation chemistry

Data Uses: Reports and analyses available from principal investigator

Data Importance: Sole NADP station in Adirondack Mountains

Variables and Units: Concentration land deposition of SO_4, NO_3, PO_4, Cl, Na, K, Mg, Ca, and pH and conductivity

Sampling Methods: NADP protocol; open bucket Aerochem metrics sampler

Uncertainty/Reliability: Quality assurance both internal and external (NADP protocol); very reliable

Data Type: Raw, summarized, tables, figures

Geographic Coverage: Single location, central Adirondack Mountains (Essex County, New York)

Spatial Resolution: Single location, central Adirondack Mountains (Essex County, New York)

Period of Record: November 1978 to present

Temporal Resolution: Weekly, wet deposition, bimonthly dry deposition

Data Base Title: In Situ Bioassays of Fish in Acid Waters

Subject: Aquatic Biota

Date Obtained: July 19, 1985 Acronym:

Primary Data Source(s):

Howard A. Simonin
Rome Field Station
New York State Department of Environmental Conservation
8314 Fish Hatchery Road
Rome, NY 13440
(315) 337-0910

James R. Colquhoun
Bureau of Environ. Protection
New York State Department of Environmental Conservation
50 Wolf Road
Albany, NY 12233
(518) 457-6178

NAPAP Code: E

Sponsoring Agency: New York State Department of Environmental Conservation

Appropriate Reference Citation: (New York State Department of Environmental Conservation computer tape and paper files)

Description: Brook trout, lake trout, creek chub, and blacknose dace were exposed in situ to acidic water during all life stages. Data include mortality observations and water chemistry at various sites during the 17 individual bioassays.

Keywords: Bioassays, aquatic toxicology, Adirondacks, acidification, fish, sport fish

Data Uses: Application to models and assessment of environmental impact

Data Importance: Few bioassays of this scope have been conducted. In situ bioassays more accurately indicate natural impacts on the organisms being tested.

Variables and Units: Percent survival, pH, inorganic monomeric aluminum (mg/l), time (hours)

Sampling Methods: Observations of mortality; collected water samples analyzed in the laboratory

Uncertainty/Reliability: Model developed applies only to waters of similar chemistry (low pH, low conductivity)

Data Type: Primarily point station observations

Geographic Coverage: Southwest Adirondacks, New York

In Situ Bioassays (continued)

Period of Record: September 1983 - June 1985

References or Supporting Documents:

Johnson, D. W., H. A. Simonin, J. R. Colquhoun, and F. M. Flack. 1986. In situ toxicity tests of fishes in acid waters. Biogeochemistry (in press).

Data Base Title: Integrated Lake-Watershed Acidification Study

Subject: Surface Water

Date Obtained: August 20, 1985 Acronym: ILWAS

Primary Data Source(s):

Robert A. Goldstein
Electric Power Research Institute
P.O. Box 10412
3412 Hillview Avenue
Palo Alto, CA 94303
(415) 855-2593

Steve A. Gherini
Tetra-Tech, Inc.
Suite 300
3746 Mt. Diablo Boulevard
Lafayette, CA 94549
(415) 283-3771

Sponsoring Agency: Electric Power Research Institute

Appropriate Reference Citation: See "References or Supporting Documents."

Description: ILWAS is a detailed biogeochemical analysis of lake acidification based on the long-term study of three similar lakes with differing pH regimes. The ILWAS model was developed to predict pH, ANC, and other variables; it includes all known processes affecting acidification encompassing the forest canopy to lake outlet

Keywords: Lakes, watersheds, biogeochemistry, models, acidification

Data Uses: Development of detailed watershed level models

Data Importance: Valuable to determine relative importance of watershed processes

Variables and Units: pH, ANC, flow, precipitation, deposition, water chemistry, watershed attributes

Sampling Methods: Periodic sampling at many sites in the lake and watershed

Data Type: Raw and summarized

Number of Records: 600,000

Geographic Coverage: Adirondacks, New York State

Spatial Resolution: Three individual lake-watershed systems

ILWAS (continued)

Period of Record: 1977-1982

Temporal Resolution: Varies

References or Supporting Documents:

Tetra-Tech, Inc. 1984. The Integrated Lake-Watershed Acidification Study, Volume 4: Summary of Major Results. EPRI Final Report EA-3221, Vol. 4.

Ibid. Volume 3: Lake Chemistry Program. EPRI Final Report EA-3221, Vol. 3.

Ibid. Volume 2: Hydrologic Analysis. EPRI Final Report EA-3221, Vol. 2.

Ibid. Volume 1: ILWAS Model Principles and Application Procedures. EPRI Final Report EA-3221, Vol. 1.

Data Base Title: Lake Acidification Mitigation Project

Subject: Surface Water

Date Obtained: August 20, 1985 Acronym: LAMP

Primary Data Source(s):

Donald B. Porcella
Electric Power Research Institute
3412 Hillview Avenue
P.O. Box 10412
Palo Alto, CA 94303
(415) 855-2723

Jack Heineman
General Research Corporation
7655 Old Springhouse Road
West Gate Research Park
McLean, VA 22102
(703) 893-5900

Sponsoring Agency: Electric Power Research Institute

Description: This project is concerned with the development of models for predicting liming requirements and determining when lakes need to be relimed. Several lakes are being limed and water chemistry and fish populations monitored to determine the effects of the mitigation treatment.

Keywords: Mitigation, liming, lakes, fish, acidification

Data Uses: Development of models to predict liming requirements

Variables and Units: Water chemistry, fish status

Sampling Methods: Period lake sampling

Data Type: Raw and summarized

Geographic Coverage: Adirondacks, New York State

Spatial Resolution: Three lakes

Data Base Title: National Surface Water Survey Eastern Lake Survey-Phase I

Subject: Surface Water

Date Obtained: August 20, 1985 Acronym: NSWS ELS-I

Primary Data Source(s):

Dixon H. Landers
Environmental Research Laboratory
U.S. Environmental Protection Agency
200 SW 35th Street
Corvallis, Oregon 97333
(503) 757-4695; (FTS) 420-4695

Paul Kanciruk
Environmental Sciences Division
Oak Ridge National Laboratory
P.O. Box X, Building 1505, MS-3
Oak Ridge, TN 37831
(615) 574-7314; (FTS) 624-7314

NAPAP Code: E

Sponsoring Agency: U.S. Environmental Protection Agency

Appropriate Reference Citation: See "References or Supporting Documents."

Description: As part of the National Acid Precipitation Assessment Program, the U.S. Environmental Protection Agency initiated the National Surface Water Survey (NSWS) in 1983. The NSWS, which includes both lakes and streams, has three primary goals and three distinct phases: (1) quantify the present chemical status of surface waters in the United States (Phase I), (2) assess the temporal and spatial variability in aquatic chemistry and define the key biological resources associated with surface waters (Phase II), and (3) identify temporal trends in surface water chemistry and biology (Phase III).

The ELS-I was designed to provide the information needed to assess the chemical status of lakes in areas of the eastern United States containing the majority of low alkalinity systems. Over 1600 lakes were sampled in the fall of 1984. Lakes were selected statistically from the population of lakes within the northeastern, southeastern, and upper midwestern regions of the United States. Twenty-five variables thought to influence or be influenced by surface water acidification were measured using standardized methods. The ELS-I data base may be used to investigate correlative relationships among chemical variables on a regional basis and to estimate the chemical status of lakes within a specific region. The ELS-I samples 203 lakes in region IA which covers the Adirondacks.

Keywords: Water chemistry, statistical survey

Data Uses: To make regional population estimates of lake chemical status; also to explore relationships between lake chemistry and other factors related to lake acidification.

NSWS ELS-I (continued)

Variables and Units: pH, ANC, Al, Ca, DIC, DOC, color, condition, SO_4, NO_3, NH_3, P, major metals

Sampling Methods: Statistical probability design, helicopter-based collection

Uncertainty/Reliability: Extensive quality assurance was performed to estimate sampling errors.

Data Type: Raw

Number of Records: 203 lakes in Adirondacks

Geographic Coverage: 203 lakes in Adirondacks; also susceptible regions northeast, upper midwest, Appalachians, and Florida

Spatial Resolution: Points

Period of Record: Fall 1984

Temporal Resolution: One sample in one year

References or Supporting Documents:

Linthurst, R. A., D. H. Landers, J. M. Eilers, D. F. Brakke, W. S. Overton, E. P. Meier, and R. E. Crowe. Characteristics of Lakes in the Eastern United States. 1986. Volume I: Population Descriptions and Physico-Chemical Relationships. EPA-600/4-86-007A. United States Environmental Protection Agency, Washington, D.C., 275 pp.

Overton, W. S., P. Kanciruk, L. A. Hook, J. M. Eilers, D. H. Landers, D. F. Brakke, D. J. Blick, Jr., R. A. Linthurst, and M. D. DeHaan. 1986. Characteristics of Lakes in the Eastern United States. Volume II: Lakes Sampled and Descriptive Statistics for Physical and Chemical Variables. EPA-600/4-86-007B. United States Environmental Protection Agency, Washington, D.C., 369 pp.

Kanciruk, P., J. M. Eilers, R. A. McCord, D. H. Landers, D. F. Brakke, and R. A. Linthurst. 1986. Characteristics of Lakes in the Eastern United States. Volume III: Data Compendium of Site Characteristics and Chemical Variables. EPA-600/4-86-007C. U.S. Environmental Protection Agency, Washington, D.C., 1986, 374 pp.

Data Base Title: Regional Integrated Lake-Watershed Acidification Study

Subject: Surface Water

Date Obtained: August 20, 1985 Acronym: RILWAS

Primary Data Source(s):

Robert A. Goldstein
Electric Power Research Institute
P.O. Box 10412
3412 Hillview Avenue
Palo Alto, CA 94303
(415) 855-2593

Sponsoring Agency: Electric Power Research Institute

Description: RILWAS is a regional extension of the ILWAS study and model. Approximately 20 lakes in the Adirondacks and other areas were selected to represent different systems and deposition levels. Key variables identified in ILWAS were sampled. Sediment cores were taken from each lake as part of the PIRLA project.

Keywords: Lakes, watersheds, biogeochemistry, models, acidification, regional

Data Uses: Development of watershed level models

Data Importance: Valuable for development and verification of models under widely different systems

Variables and Units: pH, ANC, precipitation, deposition, flow, water chemistry, sediment cores

Sampling Methods: Periodic sample at each watershed

Data Type: Raw and summarized

Geographic Coverage: Adirondacks, New York State, Wisconsin

Spatial Resolution: 30 individual lake-watersheds

Period of Record: 1982-1985

Temporal Resolution: Varies

Data Base Title: Sediment Chemistry - Adirondack Lakes

Subject: Geology

Date Obtained: June 1984 Acronym: None

Primary Data Source(s):

Stephen A. Norton
University of Maine
110 Boardman Hall
Orono, ME 04469
(207) 581-1954

NAPAP Code: E

Sponsoring Agency: U.S. Environmental Protection Agency

Description: Sediment chemistry from ten lakes in the Adirondacks

Keywords: Sediment, heavy metals, acidification, land use, paleolimnology, geochemistry

Data Uses: Historical assessment

Data Importance: Historical perspective of acid precipitation and its effects on sediment chemistry

Variables and Units: Concentration, deposition rates, time

Sampling Methods: Sediment cores

Data Base Title: University of Iowa Acid Lake Database

Subject: Water Quality

Date Obtained: July 15, 1985 Acronym: UI

Primary Data Source(s):

Jerald L. Schnoor
Energy Engineering Division
University of Iowa
Engineering Building, 1134 EB
Iowa City, IA 52242
(319) 353-7262

Sponsoring Agency: U.S. Environmental Protection Agency

Appropriate Reference Citation:

Schnoor, J. L. et al. 1985. "Lake resources at risk due to acid deposition in the northeastern United States," Report to the U.S. Environmental Protection Agency, Corvallis Environmental Research Laboratory, Corvallis, OR, 158 pp.

Description: Water quality and watershed descriptors for lakes in northeastern United States

Keywords: Acid rain, lakes, water quality, statistical modeling

Data Uses: Multiple regression analyses

Data Importance: Subset of data base was randomly chosen

Variables and Units: Alkalinity, pH, conductivity, color, and 21 watersheds

Sampling Methods: vary

Uncertainty/Reliability: Statistical uncertainty in regression analyses is approximately ± 100 μeq/L alkalinity, but uncertainty in original measurements is largely unknown.

Data Type: Raw

Number of Records: 917 lakes

Geographic Coverage: New England and Adirondack Park

Spatial Resolution: All lakes in GNIS Lake Name Index

Period of Record: 1965 - present (mostly post-1975)

Temporal Resolution: Not applicable

References or Supporting Documents: See above

APPENDIX C:

CROSS-REFERENCE LIST

POND_NO	LAKE NAME	SOURCE	SOURCE ID	FIRST	LAST
020005B	UNNAMED	ALS	020005B	1986	1986
020006A	ROXANNE, L[a]	ALS	020006A	1986	1986
020008	LOON P[b]	ACID	36019011	1957	1957
		ALS	020008	1986	1986
020010B	MINER L	ACID	36019034	1964	1964
020011	KINAMIS L	ACID	36019012	1974	1974
		ALS	020011	1985	1985
020012	UNNAMED	ALS	020012	1986	1986
020016	UNNAMED	ALS	020016	1986	1986
020019	UNKNOWN	ALS	020019	1986	1986
020020	CRAZY L	ACID	36019002	1947	1978
		FIN	36019014	1974	1983
020021	MUD P	ACID	36019013	1963	1981
		ALS	020021	1986	1986
		FIN	36019015	1974	1983
020025	AMERICAN LEGION P	ACID	36019031	1964	1964
020027	UPPER SANDBORN BROOK R	ACID	36019032	1979	1979
020030	HEAD R	ACID	36019033	1967	1979
020031A	MAYES P	ACID	36019014	1972	1972
		ALS	020031A	1986	1986
020034	DOW P	ALS	020034	1986	1986
020035	BARNES P	ACID	36019035	1947	1947
		ALS	020035	1986	1986
020036	UNNAMED	ALS	020036	1986	1986
020037	MUD P	ACID	36019016	1958	1981
		ALS	020037	1986	1986
		FIN	36019023	1974	1983
020038	ORE P	ACID	36019017	1953	1953
		ALS	020038	1985	1985
020039	WHISTLE P	ALS	020039	1984	1984
020040	MUD P	ACID	36019018	1979	1979
		ALS	020040	1986	1986
020042	MUD P	ACID	36019019	1956	1979
		ALS	020042	1984	1984
020043	UNNAMED	ALS	020043	1986	1986
020045	MERRILL P	ALS	020045	1985	1985
020045A	DELL P	ACID	36019020	1957	1957
		ALS	020045A	1986	1986
020046	MOUNTAIN P	ALS	020046	1986	1986
		FIN	36033002	1974	1983
		FIRLA	ADIR035	1978	1983
020046A	UNNAMED	ACID	36033083	1953	1953
		ALS	020046A	1986	1986
020047	UNNAMED	ALS	020047	1986	1986
020048	LOON L	ACID	36033045	1947	1979
		ALS	020048	1985	1985
020049	LOWER INMAN P	ACID	36033084	1954	1954
		ALS	020049	1985	1985
020050	UPPER INMAN P	ACID	36033085	1954	1954
		ALS	020050	1986	1986
020051	BASS L	ACID	36033003	1954	1978
		ALS	020051	1986	1986
		FIN	36033008	1974	1983
020052	MUD L	ALS	020052	1986	1986
020053	UNNAMED	ALS	020053	1986	1986
020054	NAMELESS P	ALS	020054	1986	1986

POND_NO	LAKE NAME	SOURCE	SOURCE ID	FIRST	LAST
020055	KUSHAQUA, L	ACID	36033086	1966	1982
		ALS	020055	1984	1984
		FIN	36033012	1974	1983
020055A	UNNAMED	ALS	020055A	1986	1986
020056	CHUB P	ALS	020056	1984	1984
020057	MOUNTAIN P	ACID	36033087	1979	1979
		ALS	020057	1985	1985
020058	LITTLE HOPE P	ACID	36033088	1977	1977
		ALS	020058	1984	1984
020059	BIG HOPE P	ACID	36033089	1959	1979
		ALS	020059	1984	1984
020059A	LITTLE TAMARACK P	ACID	36033090	1954	1959
		ALS	020059A	1986	1986
020060	UNNAMED	ALS	020060	1985	1985
020061	ROCK P	ACID	36033091	1947	1979
		ALS	020061	1984	1984
020062	SQUARE P	ACID	36033092	1981	1981
		ALS	020062	1986	1986
		FIN	36033020	1974	1983
020064	OREGON P	ACID	36033093	1954	1979
		ALS	020064	1986	1986
020065	RAINBOW L	ACID	36033062	1978	1979
		ALS	020065	1984	1984
020066	RAINBOW L INLET	ACID	36033098	1981	1979
		ALS	020066	1984	1984
		ALS	020066	1986	1986
020067	UNNAMED	ACID	36033095	1957	1957
		ALS	020067	1986	1986
020068	UNNAMED	ALS	020068	1985	1985
020069	LOON P	ACID	36033096	1976	1977
		ALS	020069	1984	1984
		FIN	36033026	1974	1983
020070	CLEAR P	ACID	36033097	1979	1979
		ALS	020070	1985	1985
		NSFS	1A1-023	1984	1984
		SOILS-P	1A1-023	1984	1984
020071	UNNAMED PD	ALS	020071	1986	1986
020073	SILVER L	ACID	36019009	1947	1981
		FIN	36019031	1974	1983
		NSFS	1A1-028	1984	1984
		SOILS-P	1A1-028	1984	1984
020074	UNION FALLS P	ACID	36019021	1979	1979
020075	CRANBERRY P	ALS	020075	1985	1985
		ANDB-S	020075	1980	1984
020076	FRANKLIN FALLS P	ACID	36033098	1979	1979
		ALS	020076	1985	1985
020077	UNNAMED	ALS	020077	1986	1986
020079	UNNAMED	ALS	020079	1986	1986
020080	UNNAMED	ALS	020080	1986	1986
020081	MARSH P	ACID	36033099	1954	1954
		ALS	020081	1986	1986
020083	MOOSE P	ACID	36031117	1951	1982
		ALS	020083	1984	1984
		ANDB-S	020083	1980	1984
		FIN	36031001	1974	1983
020084	GRASS P	ACID	36031118	1957	1957
		ALS	020084	1984	1984
020085	MOODY P	ALS	020085	1985	1985
020086	FLOWER, L	ACID	36033100	1977	1977
		ALS	020086	1985	1985
020087	HEART P	ALS	020087	1986	1986

[a]L = Lake

[b]P = Pond

POND_NO	LAKE NAME	SOURCE	SOURCE ID	FIRST	LAST
020088	MCKENZIE P	ACID	36031060	1959	1979
		ALS	020088	1984	1986
		ARDB-S	020088	1980	1984
020089	TURTLE P	ACID	36031119	1957	1957
		ALS	020089	1986	1986
020090	OSEETAH L	ACID	36033101	1977	1977
020091	RAVENCROOK P	ACID	36031120	1981	1981
		ALS	020091	1985	1985
		FIN	36031007	1974	1983
020092B	RAVENCROOK RENAE. CENTER PD	ALS	020092B	1986	1986
020093	UNNAMED	ALS	020093	1986	1986
020094	BOLT P	ACID	36031121	1954	1959
		ALS	020094	1985	1985
020095	OTTER P	ALS	020095	1986	1986
020096	ALFORD P	ACID	36031122	1957	1979
		ALS	020096	1986	1986
		ARDB-S	020096	1980	1986
020097	CANERAS P	ACID	36031027	1958	1975
		ALS	020097	1986	1986
		FIN-S	36031014	1975	1975
020098	BIG PINE P	ACID	36033102	1978	1978
		ALS	020098	1984	1986
		ARDB-S	020098	1980	1986
		FIN	36033038	1974	1983
		FIELA	ADIR039	1978	1983
020099	OWL P	ACID	36033103	1957	1976
		ALS	020099	1984	1986
		FIN	36033039	1974	1983
020100	KIWASSA L	ACID	36033108	1964	1977
		ALS	020100	1986	1986
		HSWS	1A1-033	1984	1986
		HSWS-D	1A1-033	1986	1986
		HSWS-2	1A1-033	1986	1986
		SOILS	1A1-033	1985	1985
		SOILS-P	1A1-033	1984	1984
020101	LITTLE PINE P	ACID	36033035	1958	1979
		ALS	020101	1984	1986
		ARDB-S	020101	1980	1984
		FIELA	ADIR030	1978	1983
020102	SECOND P	ACID	36033070	1933	1979
		ALS	020102	1986	1986
020103	FIRST P	ACID	36033105	1982	1982
		ALS	020103	1984	1986
		FIN	36033043	1976	1983
020104	LOWER SARANAC L	ACID	36033087	1929	1981
		FIN	36033044	1979	1983
020105	UNNAMED	ALS	020105	1984	1984
020106	COLBY, L	ACID	36033015	1953	1979
		ALS	020106	1984	1984
020107	SECAGLET P	ACID	36033106	1956	1979
		ALS	020107	1984	1984
		ARDB-S	020107	1980	1984
020108	LILYPAD P	ACID	36033107	1953	1979
		ALS	020108	1986	1986
		ARDB-S	020108	1980	1984
020109	LITTLE ANDERSONED P	ACID	36033108	1958	1975
		ALS	020109	1986	1986
		FIN-S	36033049	1975	1975
020109A	WONPOPPLE P	ACID	36033200	1957	1957
020110	MIDDLE SARANAC L	ACID	36033051	1929	1982
		FIN	36033050	1974	1983
		HSWS	1A1-074	1984	1984
020111A	UNNAMED	ALS	020111A	1986	1986
020112	UNNAMED	ALS	020112	1986	1986
020113	UNNAMED	ALS	020113	1986	1986

POND_NO	LAKE NAME	SOURCE	SOURCE ID	FIRST	LAST
020114	UPPER SARANAC L	ACID	36033081	1929	1982
		FIN	36033054	1974	1983
020114A	UNNAMED	ALS	020114A	1986	1986
020115	BRANDY P	ACID	36033008	1957	1978
		ALS	020115	1984	1986
		FIN	36033055	1974	1983
020116	FOLLENSBY CLEAR P	ACID	36033109	1982	1982
		ALS	020116	1984	1984
		FIN	36033056	1974	1983
020117	SUNRISE P	ACID	36033110	1956	1974
		ALS	020117	1986	1986
		FIN	36033057	1974	1983
020117A	LITTLE SUNRISE P	ACID	36033111	1956	1956
		ALS	020117A	1986	1986
020118	HORSESHOE P	ACID	36033112	1952	1979
		ALS	020118	1984	1986
020119	LITTLE FOLLIWOG P	ACID	36033113	1952	1981
		ALS	020119	1986	1986
		FIN	36033060	1974	1983
020120	FOLLIWOG P	ACID	36033114	1970	1977
		ALS	020120	1984	1986
		FIN-S	36033061	1975	1975
020121	FROG P	ACID	36033115	1956	1977
		ALS	020121	1984	1984
020122	WEST FOLLIWOG	ACID	36033116	1956	1963
		ALS	020122	1984	1984
020123	FISH CREEK P S	ACID	36033117	1979	1979
020124	FISH CREEK P	ACID	36033118	1979	1979
		ALS	020124	1984	1984
		ALS	020124	1986	1986
020125	SQUARE P	ACID	36033074	1978	1979
		ALS	020125	1984	1984
020126	LITTLE ECHO P	ACID	36033119	1958	1976
		ALS	020126	1986	1986
		FIN	36033067	1976	1983
		LTH		1984	1984
		HSWS	1A1-107	1984	1984
		FIELA	ADIR029	1978	1983
		HILHAS		1982	1985
020127	SOSQUET P	ACID	36033120	1956	1954
		ALS	020127	1984	1984
020127A	LITTLE EGG P	ACID	36033121	1954	1980
		ALS	020127A	1986	1986
		FIN	36033069	1974	1983
020128	DUNE P	ACID	36033122	1958	1954
		ALS	020128	1984	1984
020129	UNNAMED	ALS	020129	1984	1984
020130	BLACK P	ACID	36033123	1972	1981
		ALS	020130	1984	1984
		FIN	36033072	1974	1983
020130A	LITTLE BLACK P	ACID	36033124	1974	1981
		ALS	020130A	1984	1984
		FIN	36033073	1974	1983
020131	AMPHITHEATER P	ACID	36033125	1973	1973
		ALS	020131	1985	1985
020132	S-W AMPHITHEATER P	ALS	020132	1984	1984
020133	UNNAMED	ACID	36033126	1958	1958
		ALS	020133	1985	1985
020135	N-W AMPHITHEATER P	ACID	36033127	1964	1964
		ALS	020135	1986	1986
020136	DUCK (ECHO) P	ACID	36033128	1957	1981
		ALS	020136	1986	1986
		FIN	36033079	1974	1983
020137	LITTLE EAST COPPERAS	ACID	36033129	1964	1964
		ALS	020137	1986	1986

POND_NO	LAKE NAME	SOURCE	SOURCE ID	FIRST	LAST
020138	EAST COPPERAS P	ACID	36033025	1978	1979
		ALS	020138	1984	1984
		FIN	36033081	1974	1983
		PIRLA	ADIR017	1978	1983
020139	COPPERAS P	ACID	36033016	1963	1979
		ALS	020139	1984	1984
		FIN	36033082	1974	1983
		PIRLA		1978	1983
020140	LITTLE SQUARE P	ACID	36033130	1979	1979
		ALS	020140	1984	1984
020141	NORTH WHEY P	ACID	36033131	1957	1976
		ALS	020141	1984	1984
020141A	LITTLE NORTH WHEY P	ACID	36033132	1976	1976
		ALS	020141A	1984	1984
		FIN	36033085	1974	1983
020142	FLOODWOOD P	ACID	36033133	1959	1979
		ALS	020142	1984	1984
020143	MIDDLE P	ACID	36033134	1953	1982
		ALS	020143	1984	1984
		AWDB-S	020143	1900	1984
		FIN	36033087	1974	1983
		NSWS	1A1-029	1984	1984
		NSWS-D	1A1-029	1986	1986
		NSWS-2	1A1-029	1986	1986
		SOILS	1A1-029	1985	1985
020144	UNNAMED	ALS	020144	1984	1984
		AWDB-S	020144	1900	1984
020145	MARSH P	ALS	020145	1985	1985
020146	TRACK P	ACID	36033135	1976	1982
		ALS	020146	1985	1985
		FIN	36033090	1974	1983
020147	EAST PINE P	ACID	36033136	1951	1981
		ALS	020147	1984	1984
		FIN	36033091	1974	1983
020148	P SE OF EAST PINE	ACID	36033137	1966	1966
		ALS	020148	1984	1984
020148A	UNNAMED	ACID	36033138	1961	1961
020149	LONG P	ACID	36033139	1955	1979
		ALS	020149	1984	1984
		AWDB-C	020149	1900	1984
020150	PINK P	ACID	36033140	1968	1982
		ALS	020150	1984	1984
		AWDB-C	020150	1900	1984
		FIN	36033095	1974	1983
020151	NORTH PINK P	ACID	36033141	1968	1968
		ALS	020151	1984	1984
020152	UNNAMED	ALS	020152	1986	1986
020154	TURNOFF P	ACID	36033142	1951	1968
		ALS	020154	1984	1984
020155	LEDGE P	ACID	36033143	1980	1980
		ALS	020155	1984	1984
		AWDB-S	020155	1900	1984
		FIN	36033100	1974	1983
020156	MOUNTAIN P	ACID	36033144	1950	1982
		ALS	020156	1985	1985
		AWDB-C	020156	1900	1984
		FIN	36033101	1974	1983
020156A	DRY L	ACID	36033145	1968	1968
		ALS	020156A	1984	1984
020156K		AWDB-C	020156K	1900	1984
020157	ENBODY P	ACID	36033146	1965	1982
		ALS	020157	1985	1985
		FIN	36033103	1974	1983
020158	LONG P #3	ACID	36033147	1976	1976
		ALS	020158	1984	1984
		AWDB-C	020158	1900	1984
020158A	LOWER MARSH P	ALS	020158A	1986	1986

POND_NO	LAKE NAME	SOURCE	SOURCE ID	FIRST	LAST
020159	SLANG P	ACID	36033148	1956	1982
		ALS	020159	1984	1984
		AWDB-C	020159	1900	1984
		FIN	36033106	1974	1983
020160	TURTLE P	ACID	36033149	1956	1982
		ALS	020160	1984	1984
		AWDB-C	020160	1900	1984
		FIN	36033107	1974	1983
020161	NOEL P	ACID	36033150	1979	1979
		ALS	020161	1984	1984
		AWDB-C	020161	1900	1984
020162	SUMMIT P	ACID	36033151	1968	1968
		ALS	020162	1984	1984
		AWDB-S	020162	1900	1984
020163	CHURCH	ACID	36033152	1954	1954
		ALS	020163	1986	1986
020164	LITTLE RAINBOW P	ACID	36033153	1968	1968
		ALS	020164	1984	1984
		AWDB-C	020164	1900	1984
020167	UNNAMED	ALS	020167	1986	1986
020168	ROLLINS P	ACID	36033154	1959	1979
		ALS	020168	1984	1984
		NSWS	1A1-069	1984	1984
020169	UNNAMED	ACID	36033155	1954	1954
		ALS	020169	1986	1986
020170	ROCK P	ACID	36033156	1956	1982
		ALS	020170	1984	1984
		FIN	36033117	1974	1983
020171	UNNAMED	ACID	36033157	1954	1954
020172	UNNAMED	ACID	36033158	1954	1954
		ALS	020172	1985	1985
		ALS	020172	1986	1986
020173	WEST PINE P	ACID	36033159	1955	1981
		ALS	020173	1984	1984
		AWDB-S	020173	1900	1984
		FIN	36033120	1974	1983
020174	UNNAMED P (LOWER POND)	ACID	36033160	1955	1955
		ALS	020174	1984	1984
020175	UPPER P	ALS	020175	1986	1986
020176	UNNAMED	ACID	36033161	1955	1955
		ALS	020176	1986	1986
020177	UNNAMED	ALS	020177	1986	1986
020178	DEER P	ACID	36033162	1956	1982
		ALS	020178	1986	1986
		FIN	36033125	1974	1983
020180	WHEY P	ACID	36033163	1955	1982
		ALS	020180	1984	1984
		AWDB-S	020180	1900	1984
		FIN	36033126	1974	1983
020181	DEER P	ACID	36033164	1980	1980
		ALS	020181	1984	1984
		AWDB-C	020181	1900	1984
		FIN	36033127	1974	1983
020182	MUD P	ACID	36033165	1956	1956
		ALS	020182	1984	1984
		AWDB-S	020182	1900	1984
020183	GREEN P	ACID	36033166	1955	1981
		ALS	020183	1984	1984
		FIN	36033129	1974	1983
020184	12TH TEE P	ACID	36033167	1975	1978
		ALS	020184	1984	1984
020185	WOOD P	ACID	36033168	1963	1963
020186	RAT P	ACID	36033169	1959	1979
		ALS	020186	1984	1984
020187	UNNAMED	ALS	020187	1985	1985

POND_NO	LAKE NAME	SOURCE	SOURCE ID	FIRST	LAST
020188	SUNDAY P	ACID	36033170	1940	1981
		ALS	020188	1986	1986
		FIN	36033138	1974	1983
020189	UNNAMED	ALS	020189	1986	1986
020190	UNNAMED	ALS	020190	1986	1986
020191	LITTLE CLEAR P	ACID	36033037	1930	1982
		ALS	020191	1985	1985
		FIN	36033137	1974	1983
		NSWS	1A1-027	1984	1984
		SOILS-P	1A1-027	1984	1984
020191A	CHARLEY'S P	ACID	36033171	1961	1961
		ALS	020191A	1986	1986
020191B	MCCAFFERY P	ALS	020191B	1986	1986
020192	LITTLE GREEN P	ACID	36033172	1963	1982
		ALS	020192	1985	1985
		FIN	36033141	1974	1983
020193	BONE P	ACID	36033173	1955	1982
		ALS	020193	1989	1989
		AWDB-S	020193	1990	1990
		FIN	36033142	1974	1983
020194	GRASS P	ACID	36033174	1981	1982
		ALS	020194	1986	1986
		FIN	36033143	1974	1983
020195	DUELL P	ACID	36033175	1950	1980
		ALS	020195	1986	1986
		FIN	36033144	1974	1983
020196	UNNAMED	ALS	020196	1986	1986
020197	SOCHIA P	ACID	36033176	1968	1974
		ALS	020197	1984	1984
020198	LK CLEAR OUTLET (HILL PD)	ALS	020198	1984	1984
		FIN	36033147	1974	1983
		SOILS-P	1A1-030	1984	1984
020199	CLEAR, L	ACID	36033177	1978	1978
		NSWS	1A1-030	1984	1984
020200	LINDSEY P	ACID	36033178	1950	1973
		ALS	020200	1986	1986
020201	SAINT GERMAIN P	ACID	36033179	1954	1981
		ALS	020201	1986	1986
		FIN	36033150	1974	1983
020203	MEADOW P	ACID	36033180	1954	1977
		ALS	020203	1986	1986
		FIN	36033152	1974	1983
020204	COWLEY LAKE P	ACID	36033181	1976	1976
		ALS	020204	1985	1985
		FIN	36033153	1974	1983
020205	BLACK P	ALS	020205	1984	1984
020206	PORKCHOP P	ALS	020206	1984	1984
		AWDB-S	020206	1990	1984
020207	TAMARACK P	ALS	020207	1984	1984
020208	LITTLE KELLER P	ALS	020208	1984	1984
		AWDB-S	020208	1990	1984
020209	KELLER P	ACID	36033182	1975	1975
		ALS	020209	1984	1984
020210B	DAVENPORT P	ACID	36019036	1949	1989
020210C	DAVIS L	ACID	36019035	1949	1981
		FIN	36019078	1974	1983
020211	MUD P	ACID	36019022	1954	1979
		ALS	020211	1984	1984
020211A	BEAVER P	ACID	36019023	1973	1973
		ALS	020211A	1986	1986
020212	UNNAMED	ALS	020212	1986	1986
020212A	LILY P	ALS	020212A	1986	1986
020212B	UNNAMED	ALS	020212B	1986	1986

POND_NO	LAKE NAME	SOURCE	SOURCE ID	FIRST	LAST
020213	AGGER L	ACID	36031322	1953	1979
020214	CLARK P	AWDB-S	020214	1990	1984
020217	KEENAN P	ACID	36031321	1956	1980
		FIN	36031996	1974	1983
		NSWS	1A3-007	1984	1984
020218	BUTTERNUT P	ACID	36031320	1956	1979
		NSWS	1A3-060	1984	1984
020222	FERN L	ACID	36019003	1959	1976
		ALS	020222	1986	1986
		FIN	36019039	1974	1983
020223	UNNAMED	ALS	020223	1985	1985
020224	SLUSH P	ACID	36019024	1956	1979
		ALS	020224	1986	1986
020225	MILITARY P	ACID	36019025	1950	1979
		ALS	020225	1986	1986
020225A	UNNAMED	ALS	020225A	1986	1986
020225B	ALLEGANY BROOK P	ALS	020225B	1985	1985
020225C	UNNAMED	ALS	020225C	1986	1986
020226	LITTLE SLUSH P	ALS	020226	1986	1986
020227	TAYLOR P	ACID	36019010	1952	1979
		FIN	36019048	1974	1983
		NSWS	1A2-027	1984	1984
		SOILS-P	1A2-027	1984	1984
020227A	ONCIO P	ALS	020227A	1986	1986
020227B	MENNERY P	AWDB-S	020227B	1990	1984
020228	MUD P	ALS	020228	1985	1985
		ALS	020228	1986	1986
020229	MORGAN (COOPER KILL) PD	ACID	36031323	1982	1982
		ALS	020229	1984	1984
		AWDB-S	020229	1990	1984
		FIN	36031015	1974	1983
020231A	EVEREST, L	ACID	36031324	1974	1982
		ALS	020231A	1986	1986
		FIN	36031016	1974	1983
020232	WARREN P	ACID	36031325	1960	1960
		ALS	020232	1984	1984
		ALS	020232	1985	1985
		AWDB-S	020232	1990	1984
020233	OWEN P	ACID	36031326	1952	1979
		ALS	020233	1984	1984
		AWDB-C	020233	1990	1984
		NSWS	1A2-028	1984	1984
		SOILS-P	1A2-028	1984	1984
020238	COPPERAS P	ACID	36031327	1959	1979
		ALS	020238	1984	1984
		AWDB-S	020238	1990	1984
		FIN	36031019	1974	1983
		PIRLA		1978	1983
020235	MARSH P	ALS	020235	1986	1986
020236	WINCH P	ACID	36031328	1960	1979
		ALS	020236	1980	1980
		AWDB-S	020236	1990	1984
020238	MARSH P	ACID	36031329	1979	1979
		ALS	020238	1985	1985
		AWDB-S	020238	1990	1984
020240	LITTLE CHERRYPATCH P	ACID	36031330	1951	1951
		ALS	020240	1984	1984
020241	BIG CHERRYPATCH P	ACID	36031331	1951	1979
		ALS	020241	1984	1984
		AWDB-S	020241	1990	1984
020242	TOM PECK P	ACID	36031332	1960	1979
		ALS	020242	1984	1984
		AWDB-S	020242	1990	1984

POND_NO	LAKE NAME	SOURCE	SOURCE ID	FIRST	LAST
020243	CONNERY P	ACID	36031133	1954	1979
		ALS	020243	1984	1984
		AWDB-C	020243	1900	1984
020244	LONG P	ACID	36031134	1956	1979
		ALS	020244	1984	1984
		AWDB-C	020244	1900	1984
020245	DUCK P	ACID	36031135	1954	1954
		ALS	020245	1985	1985
		AWDB-C	020245	1900	1984
020246	COLDSPRING P	ALS	020246	1984	1984
		AWDB-C	020246	1900	1984
020247	MALCOLM (HOLCOMB) P	ACID	36031136	1957	1979
		ALS	020247	1984	1984
		AWDB-S	020247	1900	1984
		SOILS-P	1A2-029	1984	1984
020249	NEWMAN P	ACID	36031137	1954	1954
		ALS	020249	1986	1986
020250	NIBROR L	ACID	36031070	1967	1978
		FIN	36031034	1974	1983
020251	MUD P (ECHO L)	ACID	36031138	1957	1957
		ALS	020251	1984	1984
		AWDB-S	020251	1900	1984
020254	PLACID, L	ACID	36031084	1929	1982
		AWDB-S	020254	1900	1984
		FIN	36031036	1974	1983
020255	BARTLETT P	ACID	36031139	1960	1960
		ALS	020255	1984	1984
		AWDB-S	020255	1900	1984
020256	LOCH BONNIE	ACID	36031140	1960	1960
		ALS	020256	1986	1986
020257	UNNAMED	ALS	020257	1984	1984
020258	ROUND L	ACID	36031092	1975	1975
		ALS	020258	1984	1984
		AWDB-S	020258	1900	1984
		FIN-S	36031040	1975	1975
020258A	UNNAMED	ALS	020258A	1986	1986
020258B	UNNAMED	ALS	020258B	1986	1986
020259	UNNAMED	ALS	020259	1986	1986
020260	UNNAMED	ALS	020260	1986	1986
020261	SCOTT P	ACID	36031098	1963	1975
		ALS	020261	1984	1984
		AWDB-C	020261	1900	1984
		FIN-S	36031043	1975	1975
020261A	UNNAMED	ACID	36031141	1963	1963
		AWDB-C	020261A	1900	1984
020263	UNNAMED	ACID	36031142	1963	1963
		ALS	020263	1984	1984
		AWDB-S	020263	1900	1984
020264	HEART L	ACID	36031050	1975	1979
		ALS	020264	1985	1985
		AWDB-S	020264	1900	1984
		FIN-S	36031046	1975	1975
		LTN		1984	1984
		WSWS	1A1-102	1984	1984
		FIRLA	ADIN022	1978	1983
		BILWAS		1982	1985
020265	MARCY DAM P	ACID	36031066	1975	1975
		ALS	020265	1985	1985
		AWDB-S	020265	1900	1984
		FIN-S	36031047	1975	1975
020266	ARNOLD, L	BILWAS		1982	1985
020267	UNNAMED	ALS	020267	1985	1985
020268	CLEMENTS P	ALS	020268	1985	1985
		AWDB-S	020268	1900	1984
020269	UNNAMED	ALS	020269	1984	1984

POND_NO	LAKE NAME	SOURCE	SOURCE ID	FIRST	LAST
020270	LOWER CASCADE L	ACID	36031063	1951	1978
		ALS	020270	1984	1984
		FIN-S	36031052	1975	1975
020271	UPPER CASCADE L	ACID	36031111	1951	1978
		ALS	020271	1984	1984
		FIN-S	36031053	1975	1975
020271A	MUD P	ACID	36031311	1975	1975
		ALS	020271A	1986	1986
		FIN-S	36031078	1975	1975
020272	LOST P	ACID	36031143	1975	1975
		ALS	020272	1984	1984
		AWDB-S	020272	1900	1984
020272A	HIGHLAND PARK P	ACID	36031144	1971	1971
		ALS	020272A	1986	1986
020273	GIANT WASHBOWL	ACID	36031045	1960	1979
		ALS	020273	1984	1984
		FIN	36031056	1974	1983
		FIRLA	ADIN019	1978	1983
020274	CHAPEL P	ACID	36031145	1964	1976
		ALS	020274	1986	1986
020276	LOWER AUSABLE L	ACID	36031062	1973	1982
		ALS	020276	1985	1985
		AWDB-C	020276	1900	1984
020277	UPPER AUSABLE L	ACID	36031110	1973	1981
		ALS	020277	1985	1985
		AWDB-S	020277	1900	1984
020278	HADLEY P	ACID	36031319	1954	1980
		FIN	36031994	1974	1983
020282	WARD P	ACID	36031318	1949	1980
		FIN	36031990	1974	1983
020284	LONG P	ACID	36031317	1956	1979
020286	FRANCES P	ALS	020286	1985	1985
		AWDB-S	020286	1900	1984
020288	BIG P	ACID	36031146	1965	1979
		ALS	020288	1986	1986
		WSWS	1A3-040	1984	1984
020288A	THRALL DAM P	ACID	36031147	1963	1982
		ALS	020288A	1985	1985
		FIN	36031065	1974	1983
020288B	FIREMAN'S P	ACID	36031148	1964	1964
		ALS	020288B	1986	1986
020289	MUD P	ACID	36031149	1954	1954
		ALS	020289	1986	1986
020292	COPPER P	ALS	020292	1985	1985
020297	WESBIT P	ALS	020297	1986	1986
020298	ROUND P	ALS	020298	1985	1985
020301	CLEAR P	ALS	020301	1986	1986
		AWDB-S	020301	1900	1984
020306	TROUT P	ACID	36031150	1954	1979
		ALS	020306	1985	1985
		AWDB-S	020306	1900	1984
020309A	LOST P	AWDB-S	020309A	1900	1984
020309B	DOYLE P	ACID	36031151	1973	1973
		ALS	020309B	1986	1986
020313	UNNAMED	ALS	020313	1985	1985
020314	NICHOLS P	ACID	36031152	1949	1982
		ALS	020314	1985	1985
		AWDB-S	020314	1900	1984
		FIN	36031078	1974	1983
020315	LINCOLN P	ACID	36031153	1963	1977
		AWDB-C	020315	1900	1984
020316	RUSSETT P	ACID	36031154	1956	1982
		ALS	020316	1984	1984
		AWDB-C	020316	1900	1984
		FIN	36031080	1974	1983

POND_NO	LAKE NAME	SOURCE	SOURCE ID	FIRST	LAST
020317	HURREY P	ACID	36031155	1976	1976
		ALS	020317	1984	1984
020318	HILL P	ACID	36031156	1979	1979
		ALS	020318	1984	1984
		ANDB-C	020318	1900	1984
020319	TANNER P	ACID	36031157	1956	1956
		ALS	020319	1984	1984
		ANDB-C	020319	1900	1984
020320	FIRTH P	ALS	020320	1986	1986
020321	UNNAMED	ALS	020321	1986	1986
020322	WINDSOR P	ALS	020322	1986	1986
		ANDB-S	020322	1900	1984
020323	UNNAMED	ALS	020323	1986	1986
020325	KILKENNY BROOK P	ACID	36031158	1971	1977
		ALS	020325	1985	1985
020326	LITTLE P	ACID	36031159	1956	1981
		ALS	020326	1986	1986
		ANDB-S	020326	1900	1984
		FIN	36031090	1974	1983
		NSWS	1A2-069	1980	1984
020327	BULLET P	ALS	020327	1986	1986
020328	TWIN P (LOWER)	ACID	36031160	1973	1973
		ALS	020328	1986	1986
020329	ROUND P	ACID	36031093	1956	1979
		ALS	020329	1984	1984
		FIN	36031093	1974	1983
		NSWS	1A1-065	1984	1984
		PIRLA	ADIR042	1978	1983
		SOILS-P	1A1-065	1984	1984
020330	LILYPAD P	ACID	36031161	1956	1974
		ALS	020330	1984	1984
020331	DIAL P	ACID	36031162	1982	1982
		ALS	020331	1986	1986
		FIN	36031095	1974	1983
020332	CRANBERRY P	ACID	36031163	1958	1978
		ALS	020332	1988	1988
020333	RHODODENDRON P	ACID	36031164	1974	1982
		ALS	020333	1984	1984
		FIN	36031097	1974	1983
020333C	WESTPORT RES. #2	ACID	36031316	1962	1965
020333D	WESTPORT FSG CLUB P #3	ALS	020333D	1986	1986
020334	UNNAMED	ACID	36031315	1979	1980
		FIN	36031984	1974	1983
020337	UNNAMED	ALS	020337	1985	1985
020338	BARTLETT P	ACID	36031165	1979	1979
		ALS	020338	1986	1986
020339	MUD P	ACID	36031166	1962	1962
		ALS	020339	1985	1985
		ANDB-S	020339	1900	1984
020340	NORTH P	ACID	36031167	1958	1979
		ALS	020340	1985	1985
020341	ROE'S P (MILL POND)	ACID	36031168	1964	1982
		ALS	020341	1986	1986
		FIN	36031106	1974	1983
020342	ENSIGN P	ACID	36031169	1960	1960
		ALS	020342	1986	1986
020343	PARCH P	ACID	36031062	1957	1979
		ALS	020343	1985	1985
		ANDB-S	020343	1900	1984
		FIN	36031109	1974	1983
		PIRLA	ADIR038	1978	1983
020344	SMITH P	ACID	36031170	1960	1960
		ALS	020344	1985	1985

POND_NO	LAKE NAME	SOURCE	SOURCE ID	FIRST	LAST
020345	LOWER ROCKPORT	ACID	36031171	1982	1982
		ALS	020345	1986	1986
		FIN	36031111	1974	1983
020345A	TUB HILL P	ACID	36031172	1982	1982
		ALS	020345A	1985	1985
020346	BIG LOCK P	ACID	36031173	1959	1959
		ALS	020346	1985	1985
		ANDB-S	020346	1900	1984
020347	UPPER FENDER P	ACID	36031174	1979	1979
		ALS	020347	1985	1985
020348	BULLFROG P	ALS	020348	1985	1985
020348A	UNNAMED	ALS	020348A	1986	1986
020350	SNAKE P	ACID	36031175	1957	1957
		ALS	020350	1985	1985
020351	SHERMAN L	ACID	36031176	1956	1979
		ALS	020351	1986	1986
020351A	PENFIELD P	ACID	36031312	1979	1979
020351B	GOOSEPUDDLE P	ACID	36031177	1968	1968
		ALS	020351B	1986	1986
020352	MUD P	ACID	36031178	1956	1956
		ALS	020352	1985	1985
020353	BEAR P	ACID	36031179	1956	1979
		ALS	020353	1984	1984
020354	LOST P	ACID	36031180	1954	1975
		ALS	020354	1984	1984
020355	PUTNAM P	ACID	36031181	1964	1979
		ALS	020355	1984	1984
020355A	CRANBERRY MARSH	ALS	020355A	1986	1986
020356	BERRYHILL P	ACID	36031182	1955	1979
		ALS	020356	1984	1984
020357	GRIZZLE OCEAN	ACID	36031183	1953	1979
		ALS	020357	1984	1984
020358	CLEAR P	ALS	020358	1984	1984
		FIN	36031125	1974	1983
		PIRLA		1978	1983
020359	MUD P	ALS	020359	1984	1984
020360	NORTH P	ACID	36031184	1982	1982
		ALS	020360	1984	1984
		FIN	36031127	1974	1983
020361	HEART P	ACID	36031185	1954	1982
		ALS	020361	1984	1984
		FIN	36031128	1974	1983
020364	BUCK MOUNTAIN P	ACID	36031314	1956	1956
		ALS	020364	1985	1985
020365	WORCESTER P	ACID	36031313	1956	1956
		ALS	020365	1985	1985
020366A	TICONDEROGA F.&G. CLUB P	ALS	020366A	1986	1986
020366B	HAYKADOW	ALS	020366B	1986	1986
020367	GEORGE, L	ACID	36031186	1979	1979
020369	MUD P	ACID	36115004	1958	1979
		ALS	020369	1985	1985
020370	UNNAMED	ALS	020370	1986	1986
020371	SHELTERED L	ALS	020371	1986	1986
020372	LOWER BLACK MOUNTAIN P	ACID	36115005	1958	1982
		ALS	020372	1984	1984
		FIN	36115004	1974	1983
020373	UPPER BLACK MOUNTAIN P	ACID	36115006	1958	1958
		ALS	020373	1984	1984
020375	UNNAMED	ALS	020375	1986	1986
020376	UNNAMED	ALS	020376	1985	1985

POND_NO	LAKE NAME	SOURCE	SOURCE ID	FIRST	LAST
020377	HIDDEN L	ALS	020377	1985	1985
020379	TROUT L	ACID	36113040	1948	1978
		ALS	020379	1985	1985
		FIN	36113005	1974	1983
		NSWS	1A3-020	1984	1984
020380	BOLTON F&G CLUB P	ACID	36113047	1960	1973
		ALS	020380	1986	1986
020381	EDGECOMB P	ACID	36113048	1981	1981
		ALS	020381	1986	1986
020382	WING P	ALS	020382	1985	1985
		ALS	020382	1986	1986
020383	POLE HILL P	ACID	36113049	1954	1968
		ALS	020383	1986	1986
020383A	BROWN P	ALS	020383A	1986	1986
020384	INDIAN P	ACID	36113050	1953	1982
		ALS	020384	1985	1985
		ALS	020384	1986	1986
		FIN	36113011	1974	1983
020385	LONG P	ACID	36113051	1954	1981
		ALS	020385	1984	1984
		FIN	36113012	1974	1983
020386	ISLAND P	ACID	36113052	1954	1982
		ALS	020386	1984	1984
		FIN	36113013	1974	1983
020387	UNNAMED	ALS	020387	1986	1986
020388	UNNAMED	ACID	36113053	1954	1954
020389	WOLF P	ACID	36113054	1954	1954
020389A	UNNAMED	ALS	020389A	1984	1984
020390	ROUND P	ACID	36113055	1968	1981
		ALS	020390	1984	1984
		FIN	36113017	1974	1983
020391	DUCK P	ACID	36113056	1968	1968
		ALS	020391	1984	1984
020392	LOWER SPECTACLE P	ALS	020392	1986	1986
020393	SPECTACLE P	ACID	36113057	1958	1958
		ALS	020393	1984	1984
020394	JABE P	ACID	36113058	1979	1979
		ALS	020394	1985	1985
020394A	LITTLE JABE P	ACID	36113059	1954	1954
		ALS	020394A	1984	1984
020395	NORTH P	ACID	36113060	1982	1982
		ALS	020395	1986	1986
		FIN	36113023	1974	1983
020395A	SWAMP GORE	ACID	36113061	1958	1958
		ALS	020395A	1986	1986
020398	PINE L	ACID	36115007	1979	1979
		ALS	020398	1986	1986
020399	HUD P (GRAPHITE POND)	ALS	020399	1986	1986
020399A	GREGORY P	ALS	020399A	1985	1985
020399B	UNNAMED	ALS	020399B	1986	1986
020400	LAPLAND P	ACID	36115008	1954	1981
		ALS	020400	1984	1984
		FIN	36115009	1974	1983
020401	UNNAMED	ALS	020401	1984	1984
020402	HILLMAN P	ALS	020402	1984	1984
020403	LOWER SANDS P	ALS	020403	1986	1986
020403A	UPPER SANDS P	ALS	020403A	1986	1986
020404	SPECTACLE P	ACID	36115028	1960	1960
020405	VANDERBURG P	ACID	36115029	1960	1960
020406	GREENLAND P	ACID	36115009	1981	1981
		ALS	020406	1984	1984
		FIN	36115014	1974	1983
020407	FISHBROOK P	ACID	36115010	1954	1979
		ALS	020407	1984	1984
020409	UPPER SPECTACLE P	ACID	36115011	1979	1979
020411	BURPS P	ALS	020411	1984	1984
020412	B. L	ALS	020412	1986	1986
020413	THURBER P	ALS	020413	1985	1985
020414	CROSSBY P	ALS	020414	1985	1985
		NSWS	1A3-022	1984	1984
020418	CLEAR P	ACID	36115030	1960	1960
020419	SAWMILL P	ACID	36115031	1960	1960
020420	SPRUCE P	ACID	36115032	1960	1960
020421	UNNAMED	ACID	36115037	1960	1960
020422	UNNAMED	ACID	36115038	1960	1960
020423	UNNAMED	ACID	36115039	1960	1960
020425	COPELAND P	ACID	36115012	1956	1956
		ALS	020425	1986	1986
020427	BACON P	ACID	36115033	1957	1957
020428	SLY P	ACID	36115013	1954	1954
		ALS	020428	1986	1986
020429	THE THREE P S-FIRST PD	ACID	36115014	1954	1954
		ALS	020429	1986	1986
020430	THE THREE P S-SECOND PD	ACID	36115015	1954	1954
		ALS	020430	1986	1986
020431	THE THREE P S-THIRD PD	ACID	36115016	1954	1954
		ALS	020431	1986	1986
020432	HADLOCK P	ACID	36115017	1979	1979
		ALS	020432	1986	1986
		NSWS	1A3-025	1984	1984
020433	INMAN P	ALS	020433	1985	1985
020436	MESO. L	ALS	020436	1986	1986
020439	BEAR P	ACID	36113062	1954	1954
		ALS	020439	1985	1985
020441	GLEN L	ACID	36113102	1987	1980
020443	BROWNS P OR ROUND POND	ACID	36113103	1954	1954
020450	RUSH P	ACID	36113104	1962	1962
020452	BUTLER P	ACID	36113006	1979	1979
		ALS	020452	1985	1985
		NSWS	1A3-027	1984	1984
020455A	WILKIE B	ALS	020455A	1986	1986
020458	LILY P	ACID	36115034	1956	1956
020458A	HUDSON FALLS FISH AND GAM	ACID	36115035	1960	1960
020464	GREEN P	ACID	36115036	1950	1950
020500A	LEDGE P	NSWS	1A1-041	1984	1984
03 .	GRASS RIVER FLOW	ACID	36049298	1976	1977
030001A	UNNAMED	ALS	030001A	1986	1986
030004	UNNAMED	ALS	030004	1986	1986
030005	UNNAMED	ALS	030005	1986	1986
030006	LOWER CHATEAUGAY L	ACID	36033183	1951	1976
030006A	CHATEAUGAY NARROWS	ACID	36019026	1951	1951
		ALS	030006A	1984	1984
030006B	UPPER CHATEAUGAY L	ACID	36019027	1951	1976

POND_NO	LAKE NAME	SOURCE	SOURCE ID	FIRST	LAST
030007	BRADLEY P	ACID	36019028	1979	1979
		ALS	030007	1985	1985
030008	UNNAMED	ALS	030008	1986	1986
030008A	UNNAMED	ALS	030008A	1986	1986
030009	UNNAMED	ALS	030009	1986	1986
030010	NORTH TWIN P	ACID	36019029	1955	1955
		ALS	030010	1985	1985
030011	SOUTH TWIN P	ACID	36019030	1955	1955
		ALS	030011	1985	1985
030011A	TEE SPRINGS P	ALS	030011A	1986	1986
030012	HUMPHREY P	ALS	030012	1986	1986
030013	MOUNTAIN P	ALS	030013	1986	1986
030013A	UNNAMED	ALS	030013A	1986	1986
030014A	PETER P	ALS	030014A	1986	1986
030014B	UNNAMED	ALS	030014B	1986	1986
030016	UNNAMED	ALS	030016	1986	1986
030017	SPRING P	ALS	030017	1986	1986
030018	PITCHER P	ALS	030018	1986	1986
030028	TITUS, L	ACID	36033076	1989	1979
		ALS	030028	1985	1985
030028A	MEMORIAL RECREATIONAL PAR	ALS	030028A	1986	1986
030029A	MALONE VILLAGE ICE P	ACID	36033299	1963	1963
030031	OWLS HEAD P	ALS	030031	1986	1986
030031A	POWERHOUSE P	ACID	36033188	1973	1973
030032	UNNAMED	ALS	030032	1985	1985
030033	FISHPOLE P	ALS	030033	1985	1985
030034	UNNAMED	ALS	030034	1986	1986
030038	DEBAR P	ACID	36033185	1980	1980
		ALS	030038	1984	1984
		FIN	36033185	1974	1983
		NSWS	1A1-068	1984	1984
030039	UNNAMED	ALS	030039	1986	1986
030040	DUCK P	ACID	36033028	1955	1981
		ALS	030040	1984	1984
		FIN	36033187	1974	1983
030040A	RAZORBACK P	ACID	36033186	1957	1957
		ALS	030040A	1986	1986
030041	GRASS P	ACID	36033187	1955	1980
		ALS	030041	1986	1986
030042	PORKBARREL P	ACID	36033188	1955	1955
030042A	WILLIAMS P	ACID	36033189	1957	1957
		ALS	030042A	1986	1986
030043A	SKIFF P	ALS	030043A	1984	1984
030043B	UNNAMED	ALS	030043B	1986	1986
030044	LOWER NOTCH P	ACID	36033190	1960	1960
030045	MIDDLE NOTCH P	ALS	030045	1985	1985
		ALS	030045	1986	1986
030046	UPPER NOTCH P	ACID	36033191	1960	1960
		ALS	030046	1985	1985
030047	OWLS HEAD P	ACID	36033192	1955	1955
		ALS	030047	1986	1986
030048	DRAIN P	ACID	36033021	1930	1961
		ALS	030048	1986	1986
030049	INGRAHAM P	ACID	36033193	1955	1979
		ALS	030049	1986	1986

POND_NO	LAKE NAME	SOURCE	SOURCE ID	FIRST	LAST
030050	MOUNTAIN VIEW L	ACID	36033198	1953	1979
		ALS	030050	1986	1986
030051	INDIAN L	ACID	36033032	1953	1979
		ALS	030051	1986	1986
030052	PAPOOSE L	ALS	030052	1986	1986
030053	BEERFLY P	ALS	030053	1986	1986
030054	DUCK P	ALS	030054	1986	1986
030055	CHARLIE P	ALS	030055	1985	1985
030056	NORTH DUCK P	ALS	030056	1986	1986
030057	SOUTH DUCK P	ALS	030057	1986	1986
030058	RAGGED L	ACID	36033061	1930	1981
		ALS	030058	1985	1985
		FIN	36033208	1974	1983
030058A	MUD P	NSWS	1A2-005	1984	1984
030058B	LOWER LILYPAD P	ALS	030058B	1986	1986
030059	FIGURE EIGHT P	ALS	030059	1986	1986
030060	LILYPAD P	ACID	36033195	1979	1979
		ALS	030060	1986	1986
030061	GRASS P	ALS	030061	1985	1985
030062	PLUMADORE P	ACID	36033196	1955	1979
		ALS	030062	1986	1986
030063	ELM P	ACID	36033197	1955	1955
		ALS	030063	1986	1986
030064	ELM P	ACID	36033198	1955	1955
		ALS	030064	1986	1986
030065	HOLY P	ACID	36033199	1930	1981
		ALS	030065	1986	1986
		FIN	36033215	1974	1983
		NSWS	1A1-021	1984	1984
030066	NORTH ELBOW P	ACID	36033200	1955	1955
		ALS	030066	1985	1985
030067	SOUTH ELBOW P	ACID	36033201	1955	1955
		ALS	030067	1985	1985
030068	CATAMOUNT P	ACID	36033010	1930	1981
		ALS	030068	1986	1986
030068A	REDWATER P	ACID	36085166	1971	1971
030069	FAIRLADY P	ALS	030069	1985	1985
030072	UNNAMED	ALS	030072	1986	1986
030073	DEER RIVER FLOW	ACID	36033202	1953	1979
		ALS	030073	1986	1986
030074	GOURDSHELL P	ALS	030074	1986	1986
030075	GOURDSHELL P	ALS	030075	1986	1986
030076	SPRING P	ALS	030076	1985	1985
030078	HORSESHOE P	ACID	36033203	1953	1981
		ALS	030078	1985	1985
		FIN	36033228	1974	1983
030079	DIAMOND P	ALS	030079	1985	1985
030080	DUANE, L	ALS	030080	1985	1985
030081	CARP P	ALS	030081	1986	1986
030082	FRANCES, L	ALS	030082	1986	1986
		NSWS	1A2-006	1984	1984
		NSWS-D	1A2-006	1986	1986
		NSWS-2	1A2-006	1986	1986
		SOILS	1A2-006	1985	1985
030083	EAGLE P	ALS	030083	1985	1985
030084	UNNAMED	ALS	030084	1986	1986

POND_NO	LAKE NAME	SOURCE	SOURCE ID	FIRST	LAST
030085	ROCK P	ACID	36033204	1965	1965
		ALS	030085	1986	1986
030085A	CLEAR P	ACID	36033013	1955	1980
		FIN	36033236	1974	1983
030086	MOUNTAIN P	ALS	030086	1986	1986
030087	MOUNTAIN P	ALS	030087	1986	1986
030088	FLORENCE, L	ALS	030088	1985	1985
030088A	UNNAMED	ALS	030088A	1986	1986
030089	UNNAMED	ALS	030089	1986	1986
030091	CLEAR P	ACID	36089074	1957	1974
		ALS	030091	1986	1986
		NSWS	1A2-098	1984	1984
030091A	PARISHVILLE R	ACID	36089167	1976	1976
		ALS	030091A	1986	1986
030091B	WHITAKER FALLS R	ACID	36089168	1973	1981
		FIN	36089380	1974	1983
030092	MUD P	ALS	030092	1986	1986
030096	TRAIN P	ALS	030096	1986	1986
030097	WELLER	ALS	030097	1986	1986
030098	MCCAVANAUGH P	ALS	030098	1986	1986
		NSWS	1A1-032	1984	1984
030099	BEES P	ALS	030099	1986	1986
030100	EGG P	ALS	030100	1985	1985
030101	UPPER TWIN P	ALS	030101	1986	1986
030102	LOWER TWIN P	ALS	030102	1986	1986
030103A	ARQUETT P	ACID	36089075	1979	1979
		ALS	030103A	1985	1985
030107A	WOLF P	ACID	36033205	1950	1950
030107B	UNNAMED	ALS	030107B	1986	1986
030110	LONG P	ACID	36033206	1950	1950
030112	MUD P	ALS	030112	1986	1986
030113	UNNAMED	ALS	030113	1986	1986
030115	UNNAMED	ALS	030115	1986	1986
030116	UNNAMED	ALS	030116	1986	1986
030117A	UNNAMED	ALS	030117A	1986	1986
030117B	UNNAMED	ALS	030117B	1986	1986
030126	MCDONALD P	NSWS	1A2-012	1984	1984
		SOILS-P	1A2-012	1984	1984
030126A	BLUE P	ACID	36033207	1968	1968
		ALS	030126A	1985	1985
030127	RIVER P	ACID	36033208	1957	1957
		ALS	030127	1986	1986
		AWDB-S	030127	1900	1984
030128	DRY CHANNEL P	ACID	36033209	1955	1955
		ALS	030128	1985	1985
		AWDB-C	030128	1900	1984
		NSWS	1A1-028	1984	1984
		NSWS-D	1A1-028	1986	1986
		NSWS-2	1A1-028	1986	1986
		SOILS	1A1-028	1985	1985
030128A	OTTER P	ACID	36033210	1979	1979
		ALS	030128A	1985	1985
		AWDB-S	030128A	1900	1984
030129	WINDFALL P	ACID	36033211	1980	1980
		ALS	030129	1985	1985
		AWDB-S	030129	1900	1984
		FIN	36033261	1974	1983
030132	CRANBERRY P	ACID	36033212	1966	1966

POND_NO	LAKE NAME	SOURCE	SOURCE ID	FIRST	LAST
030133	EAST P	ACID	36033213	1973	1979
		ALS	030133	1984	1984
		AWDB-S	030133	1900	1984
		NSWS	1A1-098	1984	1984
030136	RAY P	ACID	36033214	1950	1966
030139	CAT P	ACID	36033215	1966	1966
		AWDB-S	030139	1900	1984
030140	LYDIA P	ACID	36033048	1930	1980
		ALS	030140	1986	1986
		FIN	36033272	1974	1983
030141	LITTLE LONG P	ACID	36033216	1973	1982
		ALS	030141	1986	1986
		AWDB-S	030141	1900	1984
		FIN	36033273	1974	1983
030142	KITFOX P	ACID	36033217	1970	1982
		ALS	030142	1986	1986
		AWDB-S	030142	1900	1984
		FIN	36033274	1974	1983
030143	UNNAMED	ALS	030143	1986	1986
030145	WILLIE P	ACID	36033055	1930	1980
		ALS	030145	1985	1985
		FIN	36033277	1974	1983
030146	BESSIE P	ACID	36033006	1930	1980
		ALS	030146	1986	1986
		FIN	36033278	1974	1983
030147	LITTLE FISH P	ACID	36033038	1930	1981
		ALS	030147	1985	1985
		AWDB-C	030147	1900	1984
		FIN	36033279	1974	1983
030148	DOUGLAS P	ACID	36033218	1952	1952
		ALS	030148	1985	1985
030149	FISH P	ACID	36033026	1930	1979
		ALS	030149	1984	1984
		AWDB-C	030149	1900	1984
		NSWS	1A1-092	1984	1984
030150	SKY P	ACID	36033219	1952	1980
		ALS	030150	1984	1984
		AWDB-S	030150	1900	1984
		FIN	36033282	1974	1983
030151	MUD P	ACID	36033220	1952	1980
		ALS	030151	1984	1984
		AWDB-C	030151	1900	1984
		FIN	36033283	1974	1983
030152	PARADISE P	ACID	36033221	1952	1952
030152A	MONDAY P	ACID	36033222	1952	1980
		ALS	030152A	1984	1984
		FIN	36033285	1974	1983
030153	CLAMSHELL P	ACID	36033012	1930	1982
		ALS	030153	1985	1985
		AWDB-S	030153	1900	1984
		FIN	36033286	1974	1983
030154	OCHRE P	ACID	36033056	1930	1981
		ALS	030154	1984	1984
		AWDB-C	030154	1900	1984
		FIN	36033287	1974	1983
030155	TUESDAY P	ACID	36033223	1952	1980
		ALS	030155	1984	1984
		FIN	36033288	1974	1983
030156	GRASS P	ACID	36033224	1952	1981
		ALS	030156	1984	1984
		AWDB-S	030156	1900	1984
		FIN	36033289	1974	1983
030156A	SAINT REGIS P	ACID	36033067	1930	1982
		ALS	030156A	1985	1985
		AWDB-S	030156A	1900	1984
		FIN	36033290	1974	1983
030157	GREEN P	ACID	36033029	1978	1979
		ALS	030157	1986	1986
		AWDB-S	030157	1900	1984
		FIN	36033291	1974	1983
		PIRLA	ADIR020	1978	1983

POND_ID	LAKE NAME	SOURCE	SOURCE ID	FIRST	LAST
030158	WHIPPLE P	ACID	36033223	1952	1976
		ALS	030158	1986	1986
		FIN	36033293	1974	1983
		NSRS	1A1-090	1986	1988
030159	SOUTH OTTER P	ACID	36033226	1952	1952
		ALS	030159	1986	1986
030160	NORTH OTTER P	ACID	36033227	1952	1952
		ALS	030160	1986	1986
030162A	SLOUGH P	ALS	030162A	1986	1986
030162B	BLIND P	ALS	030162B	1986	1986
030162C	UNNAMED	ALS	030162C	1986	1986
030163	UNNAMED	ALS	030163	1986	1986
030164	BEETER L	ACID	36033020	1930	1979
		ALS	030164	1986	1986
030165	GIONIA, L	ACID	36099076	1950	1981
		ALS	030165	1986	1986
		FIN	36099006	1970	1983
030165A	KELLYS P	ALS	030165A	1986	1986
030165B	UNNAMED	ALS	030165B	1986	1986
030165C	EAST P	ALS	030165C	1986	1986
030168	MUD P	ACID	36033228	1965	1979
		ALS	030168	1985	1985
030170	LONG P	ACID	36033229	1955	1980
		ALS	030170	1986	1986
		FIN	36033303	1974	1983
030170A	UNNAMED	ALS	030170A	1986	1986
030171	GRASS P	ACID	36033230	1955	1977
		ALS	030171	1986	1986
030172	LITTLE CLEAR P	ACID	36033231	1955	1955
		ALS	030172	1986	1986
030173	DEER P	ALS	030173	1986	1986
030174	CLEAR P	ACID	36033232	1955	1955
		ALS	030174	1986	1986
030175	BLACK P	ACID	36033233	1955	1955
		ALS	030175	1986	1986
030177	WOLF P	ACID	36033234	1979	1979
		ALS	030177	1985	1985
030178	RICE L	ACID	36033235	1980	1980
		ALS	030178	1986	1986
		FIN	36033310	1974	1983
030179	UNNAMED	ALS	030179	1986	1986
030179A	MEACHAM L	ACID	36033050	1978	1979
030181	WINNEBAGO P	ALS	030181	1984	1988
030182	STAR MOUNTAIN P	ACID	36033236	1957	1957
		ALS	030182	1985	1985
030183	STAR MOUNTAIN P	ALS	030183	1985	1985
030184	MARGARET, L	ACID	36033237	1955	1955
		ALS	030184	1986	1986
030185	MUD P	ACID	36033238	1957	1957
		ALS	030185	1986	1986
030186	WARD P	ACID	36033239	1957	1957
		ALS	030186	1986	1986
030187	BAKER P	ACID	36033240	1957	1957
		ALS	030187	1984	1988
030188	MCCOLLOMS P	ACID	36033241	1957	1957
		ALS	030188	1984	1988
030189	UNNAMED	ACID	36033242	1957	1957
		ALS	030189	1984	1988
030190	SPRING L	ALS	030190	1985	1985

POND_ID	LAKE NAME	SOURCE	SOURCE ID	FIRST	LAST
030191	UNNAMED	ALS	030191	1986	1986
030192	GRASS P	ACID	36033243	1957	1957
		ALS	030192	1984	1984
030193	CHAIN L	ALS	030193	1985	1985
030194	UNNAMED	ALS	030194	1986	1986
030195	CLEAR L	ALS	030195	1985	1985
030197	UNNAMED	ALS	030197	1986	1986
030198	MOUNTAIN P	ACID	36033053	1950	1979
		ALS	030198	1986	1986
		ARDB-S	030198	1980	1988
		NSRS	1A1-025	1984	1988
030199	LOST P	ACID	36033244	1955	1976
		ALS	030199	1984	1988
		FIN	36033331	1974	1983
030200	UNNAMED	ALS	030200	1986	1986
030201	BEAVER VALLEY P	ACID	36033245	1955	1976
		ALS	030201	1984	1984
		FIN	36033333	1974	1983
030202	OSGOOD P	ACID	36033057	1979	1980
030203	CEDRCH P	ACID	36033246	1982	1982
		ALS	030203	1986	1986
030204	UNNAMED	ALS	030204	1986	1986
030205	COOLER P	ACID	36033247	1976	1981
		ALS	030205	1986	1986
		FIN	36033337	1974	1983
030206	JONES P	ACID	36033034	1930	1979
		ALS	030206	1984	1988
		NSRS	1A1-091	1980	1988
030206A	UNNAMED	ALS	030206A	1986	1986
030207	SANTA CLARA FLOW	ACID	36033248	1968	1979
		ALS	030207	1986	1986
030208	UNNAMED	ALS	030208	1985	1985
030209	UNNAMED	ALS	030209	1986	1986
030212	UPPER GOOSE P	ALS	030212	1986	1986
030213	DIAMOND P	ALS	030213	1986	1986
030214	WRECKERS P	ALS	030214	1986	1986
030215	DUCK P	ALS	030215	1986	1986
030217	UNNAMED	ALS	030217	1986	1986
030218	DUCK P	ALS	030218	1986	1986
030219	UNNAMED	ALS	030219	1986	1986
030221	BEAR P	ALS	030221	1986	1986
030222	UNNAMED	ALS	030222	1986	1986
030223	UNNAMED	ALS	030223	1986	1986
030224	SHEEP P	ALS	030224	1986	1986
030225	MADRANSKE P	ACID	36033249	1970	1980
		ALS	030225	1985	1985
		FIN	36033339	1974	1983
030226	MIDDLE P	ALS	030226	1986	1986
030232	BEAR P	ACID	36033250	1951	1951
030233	BLACK P	ACID	36033251	1950	1950
030238	FOLLENSBY JR P	ACID	36033252	1950	1950
030242	UNNAMED	ALS	030242	1986	1986
030246	TOAD P	ACID	36033253	1955	1976
		ALS	030246	1984	1984
		FIN	36033380	1974	1983

POND_NO	LAKE NAME	SOURCE	SOURCE ID	FIRST	LAST
030245	SLUSH P	ACID	36033072	1930	1977
		ALS	030245	1984	1984
030247	UNNAMED	ALS	030247	1986	1986
030249	UNNAMED	ALS	030249	1985	1985
030251	DEER P	ACID	36033254	1955	1976
		ALS	030251	1986	1986
030252	UNNAMED	ALS	030252	1986	1986
030253	UPPER SPECTACLE P	ACID	36033255	1955	1982
		ALS	030253	1986	1986
		AWDB-C	030253	1900	1984
		FIN	36033389	1974	1983
030254	LOWER SPECTACLE P	ACID	36033256	1978	1982
		ALS	030254	1986	1986
		AWDB-C	030254	1900	1984
		FIN	36033390	1974	1983
030255	UNNAMED	ALS	030255	1985	1985
030256	BLACK P	ACID	36033257	1954	1980
		ALS	030256	1985	1985
		AWDB-C	030256	1900	1984
		FIN	36033392	1974	1983
		NSWS	1A1-071	1984	1984
		SILWAS		1982	1985
030257	LONG P	ACID	36033258	1954	1980
		ALS	030257	1985	1985
		AWDB-S	030257	1900	1984
		FIN	36033393	1974	1983
030257A	LOWER ST REGIS L	ACID	36033046	1971	1980
		ALS	030257A	1986	1986
030258	SOUR P	ACID	36033259	1972	1972
		ALS	030258	1985	1985
030259	UNNAMED	ALS	030259	1986	1986
030260	SINKINS P	ACID	36033260	1958	1976
		ALS	030260	1985	1985
030261	GOOSE P	ACID	36033261	1973	1973
		ALS	030261	1986	1986
030262	BARNUM P	ACID	36033002	1930	1979
		ALS	030262	1984	1984
030264	SPITFIRE L	ACID	36033073	1971	1982
		ALS	030264	1986	1986
		AWDB-C	030264	1900	1984
		FIN	36033400	1974	1983
030265	UPPER ST REGIS L	ACID	36033080	1950	1982
		AWDB-C	030265	1900	1984
		FIN	36033401	1974	1983
030266	BOILEY P	ACID	36033262	1955	1982
		ALS	030266	1986	1986
		AWDB-C	030266	1900	1984
		FIN	36033402	1974	1983
030267	LITTLE LONG P	ACID	36033263	1955	1982
		ALS	030267	1985	1985
		AWDB-S	030267	1900	1984
		FIN	36033403	1974	1983
030268	BREAD P	ACID	36033264	1972	1976
		ALS	030268	1986	1986
030268A	HIKES P	ACID	36033265	1972	1976
		ALS	030268A	1986	1986
030269	HUMDINGER P	ACID	36033266	1972	1976
		ALS	030269	1985	1985
030270	UNNAMED	ALS	030270	1986	1986
030271	BEAR P	ACID	36033004	1930	1982
		ALS	030271	1985	1985
		AWDB-S	030271	1900	1984
		FIN	36033408	1974	1983
		FIELA	ADIR004	1978	1983

POND_NO	LAKE NAME	SOURCE	SOURCE ID	FIRST	LAST
030271A	BOG P	ACID	36033007	1966	1979
		ALS	030271A	1984	1984
		ALS	030271A	1985	1985
		AWDB-S	030271A	1900	1984
		FIN	36033409	1974	1983
		FIELA	ADIR006	1978	1983
030272	UNNAMED	ACID	36033267	1964	1964
		ALS	030272	1986	1986
030273	BICKFORD P	ALS	030273	1984	1984
		AWDB-C	030273	1900	1984
030274	POTTER P	ACID	36033268	1955	1976
		ALS	030274	1985	1985
		AWDB-C	030274	1900	1984
030274A	UNNAMED	ALS	030274A	1986	1986
030290	CEDAR L	ACID	36089163	1969	1979
030291	HUCKLEBERRY L	ACID	36089033	1965	1970
030292	HOOK P	ACID	36089164	1976	1978
		FIN	36089333	1974	1983
030293	TROUT L	ACID	36089165	1964	1979
		NSWS	1A2-058	1984	1984
		NSWS-D	1A2-058	1986	1986
		NSWS-2	1A2-058	1986	1986
		SOILS	1A2-058	1985	1985
030299A	ORE BED P	ALS	030299A	1986	1986
030299B	ORE BED P	ALS	030299B	1986	1986
030301	LONG P	ALS	030301	1986	1986
030302	GREENFIELD P	ALS	030302	1985	1985
030303	ROUND P	ALS	030303	1985	1985
030305	BULLHEAD P	ALS	030305	1986	1986
030306	CLEAR L	ALS	030306	1986	1986
030307	ROCK P	ALS	030307	1986	1986
030309	HORSESHOE P	ALS	030309	1986	1986
030318	CRANBERRY P	ALS	030318	1984	1984
030315	TWIN P	ALS	030315	1985	1985
030316	TWIN P	ALS	030316	1986	1986
030317	L P	ALS	030317	1986	1986
030318	MARSH P	ALS	030318	1985	1985
030319	LITTLE ROCK	ALS	030319	1986	1986
030320	ROCK P	ALS	030320	1986	1986
030320A	ORMSBEE P	ACID	36089077	1972	1980
		ALS	030320A	1986	1986
		FIN	36089021	1974	1983
030321	LONG P	ACID	36089078	1972	1980
		ALS	030321	1986	1986
		FIN	36089022	1974	1983
030322	MUD P	ACID	36089079	1972	1972
		ALS	030322	1986	1986
030323	CHURCH P	ACID	36089080	1953	1982
		ALS	030323	1986	1986
		FIN	36089024	1974	1983
030324	UNNAMED	ALS	030324	1986	1986
030325	UNNAMED	ALS	030325	1986	1986
030327	UNNAMED	ALS	030327	1986	1986
030328	UNNAMED	ALS	030328	1986	1986
030329	BOYD P	ACID	36089081	1953	1979
		ALS	030329	1986	1986
		NSWS	1A2-011	1984	1984
030331	PARMETER P	ALS	030331	1986	1986

POND_NO	LAKE NAME	SOURCE	SOURCE ID	FIRST	LAST
030332	TRACY P	ALS	030332	1986	1986
030333	SLOUCH P	ALS	030333	1985	1985
030335	BLUE P	ACID	36089082	1972	1980
		ALS	030335	1985	1985
		FIN	36089036	1974	1983
030336	LITTLE BLUE P	ALS	030336	1985	1985
030337	CLEAR P	ALS	030337	1985	1985
		NSWS	1A2-013	1984	1984
030338	UNNAMED	ALS	030338	1986	1986
030341	PLEASANT L	ALS	030341	1985	1985
030342	MILE P	ALS	030342	1985	1985
030343A	PINE MARSH P	ALS	030343A	1986	1986
030344	LITTLE MOOSEHEAD P	ALS	030344	1986	1986
030345	MOOSEHEAD P	ALS	030345	1985	1985
030346	UNNAMED	ALS	030346	1986	1986
030347	COOK P	ACID	36089012	1930	1975
		ALS	030347	1986	1986
030348	BROTHER P	ALS	030348	1986	1986
030348A	UNNAMED	ALS	030348A	1986	1986
030349	BROTHER P	ALS	030349	1986	1986
030350	BROTHER P (MASSAWEPIE)	ALS	030350	1985	1985
030351	SILVER L	ACID	36089083	1955	1982
		ALS	030351	1986	1986
		FIN	36089052	1974	1983
		NSWS	1A1-034	1984	1984
030352	SAMPSON P	ALS	030352	1985	1985
030353	EGG P	ALS	030353	1986	1986
030356	CARTRIDGE HILLS P 1	ALS	030356	1986	1986
030357	CARTRIDGE HILLS P 2	ALS	030357	1986	1986
030358	CARTRIDGE HILLS P 3	ALS	030358	1985	1985
030358B	UNNAMED	ALS	030358B	1985	1985
030359	LEN P	ALS	030359	1986	1986
030360	WOLF P	ALS	030360	1985	1985
030361	BEAVER P	ALS	030361	1985	1985
030362	UNNAMED	ALS	030362	1986	1986
030364	BALSAM P	ALS	030364	1986	1986
030366	GRASS RIVER FLOW	ALS	030366	1986	1986
030367	JOCKS P	ACID	36089084	1968	1968
		ALS	030367	1985	1985
		NSWS	1A1-031	1984	1984
030368	PINE P	ACID	36089085	1962	1981
		ALS	030368	1985	1985
		FIN	36089067	1974	1983
030369	MASSAWEPIE L	ACID	36089045	1930	1980
		ALS	030369	1985	1985
		FIN	36089068	1974	1983
030370	CATAMOUNT P	ACID	36089009	1969	1982
		ALS	030370	1986	1986
		FIN	36089069	1974	1983
030370A	ROUND P	ACID	36089086	1962	1975
030370B	LONG P	ACID	36089087	1969	1979
030371	TOWNLINE P	ACID	36089088	1930	1981
		ALS	030371	1986	1986
		FIN	36089072	1974	1983

POND_NO	LAKE NAME	SOURCE	SOURCE ID	FIRST	LAST
030372	DEER P	ACID	36089088	1969	1981
		ALS	030372	1985	1985
		FIN	36089073	1970	1983
030373	HORSESHOE P	ACID	36089089	1969	1981
		ALS	030373	1985	1985
		FIN	36089074	1974	1983
030374	BOOTTREE P	ACID	36089090	1969	1981
		ALS	030374	1985	1985
		FIN	36089075	1974	1983
030375	BURNTBRIDGE P	ACID	36089091	1957	1979
		ALS	030375	1984	1984
030376	CENTER P	ALS	030376	1985	1985
		NSWS	1A3-011	1984	1984
040038	INDIAN L	NSWS	1A3-008	1984	1984
040054	BUTTERFIELD L	ALS	040054A	1986	1986
040094A	UNNAMED	ALS	040099	1986	1986
040099	STRETER P	ACID	36089162	1957	1957
040100	BULLHEAD P	ALS	040100	1986	1986
040100A	UNNAMED	ALS	040100A	1986	1986
040101	MUD P	ALS	040101	1986	1986
040105	GREEN P	ACID	36089079	1955	1972
040111	GRAHAM P	ALS	040111	1985	1985
040112	UNNAMED	ALS	040112	1986	1986
040113	SYNDER L	ALS	040113	1985	1985
040117	GRASS P	ALS	040117	1986	1986
040118	HILL P	ALS	040118	1986	1986
040119	UNNAMED	ALS	040119	1986	1986
040120	PORTAGEBRK L	ACID	36089092	1969	1982
		ALS	040120	1985	1985
		FIN	36089083	1974	1983
040121A	UNNAMED	ALS	040121A	1986	1986
040122	SMITH P	ALS	040122	1985	1985
		NSWS	1A2-015	1984	1984
040123	JONES P	ALS	040123	1986	1986
040125	GREENWOOD L	ACID	36089027	1955	1955
040125A	UNNAMED	ALS	040125A	1986	1986
040126	UNNAMED	ALS	040126	1986	1986
040127	UNNAMED	ALS	040127	1986	1986
040128	UNNAMED	ALS	040128	1986	1986
040129	UNNAMED	ALS	040129	1986	1986
040130	LONG L	ACID	36089093	1971	1979
		ALS	040130	1984	1984
040131	TWIN P	ALS	040131	1984	1984
040132	TWIN P	ALS	040132	1984	1984
040133	SPIDER P	ALS	040133	1986	1986
040134	BEAR L	ACID	36089003	1955	1955
		ALS	040134	1985	1985
040135	THE GULF	ALS	040135	1984	1984
040136	DRY TIMBER L	ACID	36089094	1955	1955
		ALS	040136	1984	1984
040137	ROCK L	ACID	36089055	1955	1955
		ALS	040137	1985	1985
040138	JENNY L	ACID	36089034	1950	1950
		ALS	040138	1984	1984

POND_NO	LAKE NAME	SOURCE	SOURCE ID	FIRST	LAST
040140	UNNAMED	ACID	36049084	1976	1976
040144	BIG HILL P	ALS	040144	1985	1985
040144A	UNNAMED	ALS	040144A	1986	1986
040144B	UNNAMED	ALS	040144B	1986	1986
040144C	UNNAMED	ALS	040144C	1986	1986
040145	GOOSE P	ACID	36089095	1952	1952
		ALS	040145	1985	1985
040145A	UNNAMED	ALS	040145A	1986	1986
040146	SOUTH CREEK L	ACID	36089059	1950	1977
		ALS	040146	1984	1984
040147	SEALY P	ACID	36049085	1974	1974
040147A	UNNAMED	ALS	040147A	1986	1986
040150	UNNAMED	ACID	36049086	1976	1976
040152	ELIJAH L	ACID	36049011	1979	1979
		ALS	040152	1985	1985
040153	LITTLE SILVER DAWN L	ALS	040153	1986	1986
040154	SILVER DAWN L	ACID	36049032	1952	1952
		ALS	040154	1986	1986
040155	UNNAMED	ALS	040155	1986	1986
		NSWS	1A1-042	1984	1984
040157	UNNAMED	ACID	36089096	1950	1950
		ALS	040157	1984	1984
040161	ROUND L	ACID	36089056	1971	1980
		ALS	040161	1984	1984
		FIN	36089113	1974	1983
040162	LONG L	ACID	36089097	1971	1983
		ALS	040162	1986	1986
		FIN	36089114	1974	1983
040163	HOLLINS P	ALS	040163	1986	1986
040164	LANES P	ALS	040164	1986	1986
040165	UNNAMED	ALS	040165	1986	1986
040166	HOULDY P	ACID	36049023	1953	1953
		ALS	040166	1986	1986
040167	LITTLE HOULDY P	ACID	36049033	1953	1953
		ALS	040167	1986	1986
040168	HOLLINS FLOW	ALS	040168	1986	1986
040170	UNNAMED	ALS	040170	1985	1985
040171	WOLF P	ACID	36043146	1955	1955
		ALS	040171	1985	1985
040172	UNNAMED	ALS	040172	1986	1986
040173	NASSAWEPIX P	ALS	040173	1985	1985
040178	UNNAMED	ALS	040178	1986	1986
040179	KELLEY P	ALS	040179	1985	1985
040180	UNNAMED	ALS	040180	1986	1986
040181	GREGG L	ACID	36043147	1949	1949
		ALS	040181	1986	1986
040182	UNNAMED	ALS	040182	1986	1986
040184	GREEN P	ACID	36043148	1949	1982
		ALS	040184	1984	1984
		FIN	36043013	1974	1983
040185	TWIN P S	ACID	36043149	1949	1975
		ALS	040185	1985	1985
		AWDB-S	040185	1900	1984
		NSWS	1A2-018	1984	1984
		SOILS-P	1A2-018	1984	1984

POND_NO	LAKE NAME	SOURCE	SOURCE ID	FIRST	LAST
040186	LOON HOLLOW P	ACID	36043070	1973	1975
		ALS	040186	1985	1985
		AWDB-S	040186	1900	1984
		FIN-S	36043015	1975	1975
		NSWS	1A2-063	1984	1984
040187	BRINDLE P	ALS	040187	1985	1985
040188	GRASS P	ACID	36043150	1979	1979
		ALS	040188	1985	1985
040189	ROCK L	ACID	36043151	1972	1979
		ALS	040189	1984	1984
040190	EMERALD L	ACID	36043152	1977	1979
		ALS	040190	1984	1984
040191	SAND L	ACID	36043153	1972	1981
		ALS	040191	1984	1984
		FIN	36043020	1974	1983
040192	SITZ P	ACID	36043154	1972	1982
		ALS	040192	1984	1984
		FIN	36043021	1974	1983
040193	UNNAMED	ALS	040193	1986	1986
040194	UNNAMED	ALS	040194	1985	1985
040195	MUSKRAT P	ACID	36043155	1948	1948
		ALS	040195	1985	1985
		AWDB-S	040195	1900	1984
040196	BEAR P	ACID	36043003	1975	1982
		ALS	040196	1985	1985
		ALS	040196	1986	1986
		FIN-S	36043025	1975	1975
040197	DIANA P	ACID	36043033	1975	1975
		ALS	040197	1985	1985
		AWDB-S	040197	1900	1984
		FIN-S	36043026	1975	1975
040198	LOWER SOUTH P	ACID	36043156	1972	1982
		ALS	040198	1984	1984
		AWDB-C	040198	1900	1984
		FIN	36043027	1974	1983
040199	MIDDLE SOUTH P	ACID	36043157	1972	1980
		ALS	040199	1984	1984
		AWDB-C	040199	1900	1984
		FIN	36043028	1974	1983
		NSWS	1A1-049	1984	1984
		NSWS-D	1A1-049	1986	1986
		NSWS-2	1A1-049	1986	1986
		SOILS	1A1-049	1985	1985
040200	UPPER SOUTH P	ACID	36043158	1972	1975
		ALS	040200	1984	1984
		AWDB-S	040200	1900	1984
040201	UNNAMED	ACID	36043159	1972	1982
		ALS	040201	1984	1984
		AWDB-S	040201	1900	1984
		FIN-S	36043030	1975	1975
040202	UNNAMED	ALS	040202	1984	1984
040203	UNNAMED	ACID	36043160	1972	1982
		ALS	040203	1984	1984
		AWDB-S	040203	1900	1984
		FIN	36043032	1974	1983
040204	UNNAMED	ACID	36043161	1982	1982
		ALS	040204	1984	1984
		FIN	36043033	1974	1983
040205	UNNAMED	ACID	36043082	1975	1975
		ALS	040205	1984	1984
		AWDB-S	040205	1900	1982
		FIN-S	36043034	1975	1975
040206	UNNAMED	ALS	040206	1984	1984
040207	UNNAMED	ALS	040207	1984	1984
040208	UNNAMED	ACID	36043162	1977	1977
		ALS	040208	1984	1984
		AWDB-S	040208	1900	1984
040209	UNNAMED	ALS	040209	1984	1984
		AWDB-S	040209	1900	1984

POND_NO	LAKE NAME	SOURCE	SOURCE ID	FIRST	LAST
040210	WILLYS L	ACID	36083142	1972	1975
		ALS	040210	1984	1984
		ARDB-S	040210	1900	1984
		FIN-S	36083039	1975	1975
040211	UNNAMED	ALS	040211	1985	1985
040212	UNNAMED	ALS	040212	1985	1985
040213	UNNAMED	ALS	040213	1985	1985
		ALS	040213	1986	1986
040214	WALKER L	ACID	36083135	1972	1975
		ALS	040214	1984	1984
		ARDB-S	040214	1900	1984
		FIN-S	36083083	1975	1975
040219A	COC CAMP P	ACID	36083163	1960	1960
040218	LOWER TWIN P	ACID	36089087	1960	1960
		ALS	040218	1986	1986
040219	UPPER TWIN P	ACID	36089088	1960	1976
		ALS	040219	1986	1986
040219A	LONG LEVEL P	ACID	36089089	1976	1981
		ALS	040219A	1985	1985
040227	MUD P	ACID	36089034	1955	1981
		ALS	040227	1985	1985
		FIN	36089012	1974	1983
040228	FRENCH P	ACID	36089035	1966	1966
		ALS	040228	1986	1986
040229A	SMALL P	ACID	36089090	1955	1966
040230	CLEAR P	ACID	36089036	1959	1979
		ALS	040230	1986	1986
040231	ROCK P	ACID	36089037	1955	1981
		ALS	040231	1986	1986
		FIN	36089015	1978	1983
040232	TROUT P	ACID	36089038	1970	1981
		ALS	040232	1986	1986
		FIN	36089016	1974	1983
040233	LITTLE DEER P	ALS	040233	1985	1985
040234	UNNAMED	ALS	040234	1986	1986
040235	UNNAMED	ALS	040235	1986	1986
040236	UNNAMED	ALS	040236	1986	1986
040237	LONG P	ACID	36089039	1949	1981
		ALS	040237	1986	1986
		FIN	36089021	1978	1983
040238	ROUND P	ACID	36089080	1949	1970
		ALS	040238	1986	1986
040239	UNNAMED	ALS	040239	1986	1986
040240	DESERT P	ALS	040240	1985	1985
040241	LOST P	ALS	040241	1986	1986
040242	LITTLE MUD HOLE	ALS	040242	1986	1986
040245	JAKES P	ACID	36083168	1949	1975
		ALS	040245	1984	1984
		ARDB-S	040245	1900	1984
040246	ROCK P	ACID	36083165	1949	1979
		ALS	040246	1985	1985
040247	HOG P	ACID	36083166	1949	1979
		ALS	040247	1985	1985
040248	WOLF P	ACID	36089174	1976	1976
040249	CLEAR L	ACID	36089173	1958	1958
040252A	UNNAMED	ALS	040252A	1986	1986
040255	HALL L	ALS	040255	1986	1986
040255A	UNNAMED	ALS	040255A	1986	1986
040255B	UNNAMED	ALS	040255B	1986	1986
040255C	UNNAMED	ALS	040255C	1986	1986
040255D	UNNAMED	ALS	040255D	1986	1986
040255E	UNNAMED	ALS	040255E	1986	1986
040255F	UNNAMED	ALS	040255F	1986	1986
040255G	UNNAMED	ALS	040255G	1986	1986
040256	PARTLOW P	ALS	040256	1985	1985
040257	SHINGLE P	ACID	36089098	1962	1973
		ALS	040257	1986	1986
040258	MUD P	ALS	040258	1986	1986
040260	UNNAMED	ALS	040260	1985	1985
040261	UNNAMED	ALS	040261	1985	1985
040262	TITUS P	ALS	040262	1986	1986
040263	CARR P	ALS	040263	1986	1986
040264	DODGE P	ACID	36089020	1977	1977
		ALS	040264	1986	1986
040265	UNNAMED	ALS	040265	1985	1985
040267	TWIN L NORTH	ACID	36089099	1955	1958
		ALS	040267	1985	1985
040268	TWIN L SOUTH	ACID	36089100	1955	1979
		ALS	040268	1986	1986
040269	LITTLE SANDY P	ALS	040269	1986	1986
040271	UNNAMED	ALS	040271	1986	1986
040272	UNNAMED	ALS	040272	1986	1986
040273	UNNAMED	ALS	040273	1986	1986
040274	SOCKER L	ACID	36089101	1955	1971
		ALS	040274	1986	1986
040277A	UNNAMED	ALS	040277A	1986	1986
040279	BRADWAY P 3	ALS	040279	1984	1984
040281	STAR L	ACID	36089062	1978	1981
		ALS	040281	1985	1985
		FIN	36089142	1974	1983
		NSMS	1A2-016	1984	1984
040282	UNNAMED	ALS	040282	1986	1986
040285	STRETER L	ACID	36089064	1931	1979
		ALS	040285	1984	1984
040286	PINE P	ALS	040286	1984	1984
040287	MUD P	ALS	040287	1985	1986
040288	PINSI P	ACID	36089102	1962	1982
		ALS	040288	1984	1984
		FIN	36089149	1974	1983
040288A	UNNAMED	ALS	040288A	1984	1984
040288C	UNNAMED	ALS	040288C	1984	1984
040288E	UNNAMED	ALS	040288E	1986	1986
040289	CRYSTAL L	ACID	36089016	1931	1982
		ALS	040289	1984	1984
		FIN	36089150	1974	1983
040290A	BENSON MINES P	ACID	36089103	1949	1980
		ALS	040290A	1986	1986
		FIN	36089152	1974	1983
040290B	BENSON MINES P	ALS	040290B	1986	1986
040290C	BENSON MINES P	ALS	040290C	1986	1986
040290D	BENSON MINES P	ALS	040290D	1986	1986
040290E	BENSON MINES P	ALS	040290E	1986	1986

POND_NO	LAKE NAME	SOURCE	SOURCE ID	FIRST	LAST
040291	SUNNY P	ACID	36089065	1931	1955
		ALS	040291	1986	1986
040292	NICKS P	ACID	36089046	1931	1980
		FIN	36089154	1974	1983
		WSWS	1A1-038	1984	1984
		WSWS-D	1A1-038	1986	1986
		WSWS-2	1A1-038	1986	1986
		PIRLA	ADIR036	1978	1983
		SOILS	1A1-038	1985	1985
		SOILS-P	1A1-038	1984	1984
040293	UNNAMED	ALS	040293	1986	1986
040294	UNNAMED	WSWS	1A2-001	1984	1984
040296	UNNAMED	ALS	040296	1986	1986
040297	UNNAMED	ALS	040297	1986	1986
040298	BEATH P	ACID	36089029	1931	1981
		ALS	040298	1986	1986
040298A	UNNAMED	ALS	040298A	1986	1986
040299	UNNAMED	ALS	040299	1986	1986
040300	MUSKRAT P	ALS	040300	1985	1985
040301	UNNAMED	ACID	36089104	1980	1980
		ALS	040301	1984	1984
		FIN	36089164	1974	1983
040301B	BROWN'S FALLS RES.	ALS	040301B	1986	1986
040302	UNNAMED	ALS	040302	1986	1986
040303	CHAUMONT P	ALS	040303	1985	1985
040303A	BENSON MINES P	ALS	040303A	1986	1986
040303B	BENSON MINES P	ALS	040303B	1986	1986
040304	LOST P	ALS	040304	1985	1985
040305	CRANE P	ALS	040305	1986	1986
040306	TOOLEY P	ALS	040306	1986	1986
040307	LOST P	ALS	040307	1984	1984
040308	DILLON P	ACID	36089019	1931	1960
		ALS	040308	1986	1986
040309	CRANBERRY L	ACID	36089038	1931	1962
		FIN	36089172	1974	1983
040309A	UNNAMED	ALS	040309A	1986	1986
040310	EGG P	ALS	040310	1986	1986
040311	LILYPAD P	ALS	040311	1986	1986
040312	CLEAR P	ACID	36089105	1974	1980
		ALS	040312	1984	1984
		FIN	36089175	1974	1983
040313	CURTIS P	ACID	36089037	1931	1982
		ALS	040313	1985	1985
		FIN	36089176	1974	1983
040313A	UNNAMED	ALS	040313A	1986	1986
040313B	UNNAMED	ALS	040313B	1986	1986
040314	UNNAMED	ACID	36089106	1977	1977
		ALS	040314	1986	1986
040315	UNNAMED OR DONUT P	ALS	040315	1986	1986
		AWDB-S	040315	1900	1984
040316	DOG P	ACID	36089107	1966	1980
		ALS	040316	1984	1984
		FIN	36089179	1974	1983
040317	UNNAMED LITTLE DOG P	ALS	040317	1984	1984
		AWDB-S	040317	1900	1984
040318	FISHPOLE P	ACID	36089108	1970	1980
		ALS	040318	1984	1984
		FIN	36089181	1974	1983
040319	DARNING NEEDLE P	ACID	36089018	1931	1975
		ALS	040319	1984	1984
		FIN-S	36089182	1975	1975
040320	LITTLE FISH P	ACID	36089109	1977	1977
		ALS	040320	1986	1986
040320A	UNNAMED	ALS	040320A	1986	1986
040320B	UNNAMED	ALS	040320B	1986	1986
040321	JOHN P	ACID	36089110	1980	1980
		ALS	040321	1986	1986
		AWDB-S	040321	1900	1984
		FIN	36089184	1974	1983
		WSWS	1A1-039	1984	1984
		WSWS-D	1A1-039	1986	1986
		WSWS-2	1A1-039	1986	1986
		SOILS	1A1-039	1985	1985
040321A	UNNAMED	ALS	040321A	1986	1986
040322	SCOTT P	ACID	36089111	1980	1980
		ALS	040322	1986	1986
		AWDB-S	040322	1900	1984
		FIN	36089185	1974	1983
040322A	UNNAMED	ALS	040322A	1986	1986
040322B	UNNAMED	ALS	040322B	1986	1986
040323	COLVIN P	ACID	36089112	1980	1980
		ALS	040323	1985	1985
		FIN	36089186	1974	1983
040324	UNNAMED	ALS	040324	1985	1985
		AWDB-S	040324	1900	1984
040325	INDIAN MOUNTAIN P	ACID	36089113	1955	1975
		ALS	040325	1984	1984
040326	ASH P	ACID	36089114	1975	1975
		ALS	040326	1984	1984
040327	COWHORN P	ACID	36089013	1931	1980
		ALS	040327	1985	1985
		AWDB-S	040327	1900	1984
		FIN	36089190	1974	1983
		PIRLA	ADIR012	1978	1983
040328	OLMSTEAD P	ACID	36089087	1931	1980
		ALS	040328	1984	1984
		FIN	36089191	1974	1983
040329	CAT MOUNTAIN P	ACID	36089008	1968	1980
		ALS	040329	1985	1985
		ALS	040329	1986	1986
		AWDB-S	040329	1900	1984
		FIN	36089192	1974	1983
		PIRLA	ADIR007	1978	1983
040329K		AWDB-C	040329K	1900	1984
040330	BASSOUT P	ACID	36089115	1969	1979
		ALS	040330	1986	1986
		FIN	36089193	1974	1983
040330K		AWDB-C	040330K	1900	1984
040331	UNNAMED	ALS	040331	1985	1985
040333	TOAD P	ACID	36089116	1951	1951
		ALS	040333	1984	1984
040334	SPECTACLE P NORTH	ACID	36089117	1970	1970
		ALS	040334	1984	1984
040335	SPECTACLE P SOUTH	ACID	36089118	1966	1980
		ALS	040335	1984	1984
		FIN	36089198	1974	1983
040336	SIMMONS P	ACID	36089058	1931	1980
		ALS	040336	1984	1984
040337	UNNAMED	ALS	040337	1986	1986
040338	UNNAMED	ALS	040338	1984	1984
040339	UNNAMED	ALS	040339	1986	1986
040340	OTTER P	ACID	36089119	1960	1979
		ALS	040340	1984	1984

POND_NO	LAKE NAME	SOURCE	SOURCE ID	FIRST	LAST
040343	BUCK P	ACID	36089320	1970	1980
		ALS	040343	1985	1985
		FIN	36089206	1974	1983
040344	CAGE L	ACID	36083021	1970	1982
		ALS	040344	1984	1984
		FIN-S	36083053	1975	1975
040345	BIG SHALLOW P	ACID	36083067	1972	1981
		ALS	040345	1986	1986
		FIN	36083054	1974	1983
040346	WASHBOWL	ACID	36083136	1978	1981
		ALS	040346	1986	1986
		FIN	36083055	1978	1983
		FIRLA	ADIR046	1978	1983
040347	LITTLE SHALLOW P	ACID	36083069	1978	1981
		ALS	040347	1984	1986
		FIN	36083056	1974	1983
		FIRLA	ADIR031	1978	1983
040348	LITTLE FIVE P	ACID	36083116	1981	1981
		ALS	040348	1986	1986
		FIN	36083057	1974	1983
040349	BIG FIVE P	ACID	36083007	1931	1980
		ALS	040349	1986	1986
		FIN	36083058	1974	1983
040350	LONE DUCK P	ACID	36083159	1975	1975
		ALS	040350	1986	1986
		FIN-S	36083059	1975	1975
040351	MOIR P	ACID	36083170	1972	1975
		ALS	040351	1984	1984
		FIN-S	36083060	1975	1975
040352	WOLF P	ACID	36083177	1970	1981
		ALS	040352	1984	1984
		FIN	36083061	1974	1983
040353	STRETTER FISH P	ACID	36083119	1972	1984
		ALS	040353	1985	1985
		AWDB-S	040353	1900	1984
		FIN-S	36083062	1975	1975
040354	RILEY P LOWER	ACID	36083172	1972	1977
		ALS	040354	1984	1984
		FIN	36083063	1974	1983
040355	RILEY P UPPER	ACID	36083173	1961	1977
		ALS	040355	1984	1984
040356	UNNAMED	ALS	040356	1985	1985
040357	GLASBY P	ACID	36089022	1931	1982
		ALS	040357	1985	1985
		FIN	36089208	1974	1983
040359	NICKS P	ACID	36083174	1971	1975
		ALS	040359	1986	1986
040360	BIG DEER P	ACID	36081223	1971	1979
		ALS	040360	1984	1984
		AWDB-S	040360	1900	1984
040361	CLEAR P	ACID	36089121	1970	1980
		ALS	040361	1985	1985
		FIN	36089209	1974	1983
040363	SLENDER P	ACID	36089122	1971	1972
		ALS	040363	1985	1985
040364	WEST P	ACID	36083175	1972	1976
		ALS	040364	1984	1984
		FIN	36083066	1974	1983
040365	OVEN L	ACID	36083099	1975	1975
		ALS	040365	1984	1984
		FIN-S	36083067	1975	1975
040366	GRASSY P	ACID	36083086	1975	1975
		ALS	040366	1984	1984
		FIN-S	36083068	1975	1975
040367	HYDE P	ALS	040367	1985	1985
		AWDB-S	040367	1900	1984

POND_NO	LAKE NAME	SOURCE	SOURCE ID	FIRST	LAST
040368	HITCHINS P	ACID	36083053	1975	1975
		ALS	040368	1984	1984
		FIN-S	36083070	1975	1975
		WSWS	1A1-094	1984	1984
040369	TOAD P	ACID	36083125	1931	1980
		ALS	040369	1984	1984
		AWDB-S	040369	1900	1984
		FIN	36083071	1974	1983
		WSWS	1A1-095	1984	1984
040370	UNNAMED	ALS	040370	1985	1985
040371	UNNAMED	ALS	040371	1984	1984
040372	LITTLE CROOKED L	ACID	36083065	1961	1975
		ALS	040372	1984	1984
		AWDB-S	040372	1900	1984
		FIN-S	36083074	1975	1975
040373	CROOKED L	ACID	36083030	1961	1975
		ALS	040373	1984	1984
		FIN-S	36083075	1975	1975
		WSWS	1A1-097	1984	1984
040374	COVEY P	ACID	36083176	1972	1972
		ALS	040374	1984	1984
		AWDB-S	040374	1900	1984
040375	CRACKER P	ACID	36083029	1975	1975
		ALS	040375	1984	1984
		AWDB-S	040375	1900	1984
		FIN-S	36083077	1975	1975
040376	GAL P	ACID	36083083	1931	1977
		ALS	040376	1984	1984
		WSWS	1A1-098	1984	1984
040377	GULL L	ACID	36083087	1937	1975
		ALS	040377	1985	1985
		AWDB-S	040377	1900	1984
		FIN-S	36083079	1975	1975
040378	LITTLE DUCK P	ALS	040378	1986	1986
		AWDB-S	040378	1900	1984
040379	DEER P	ALS	040379	1985	1985
040380	PARTLOW HILLDAM	ALS	040380	1985	1985
040381	JENKINS P	ALS	040381	1985	1985
040382	PARTLOW L	ALS	040382	1985	1985
		WSWS	1A1-046	1984	1984
		WSWS-D	1A1-046	1986	1986
		WSWS-2	1A1-046	1986	1986
		SOILS	1A1-046	1985	1985
040409	UNNAMED	ALS	040409	1985	1985
040410	UNNAMED	ALS	040410	1986	1986
040416	LOWER WEST P	ALS	040416	1985	1985
040417	UPPER WEST P	ALS	040417	1986	1986
040418	HIGH FALLS P	ALS	040418	1986	1986
040419	GOOSE P	ALS	040419	1983	1983
040420	NEISTER P	ALS	040420	1986	1986
040421	UNNAMED	ALS	040421	1985	1985
040422	UNNAMED	ALS	040422	1986	1986
040423	BELFORT P	ALS	040423	1986	1986
040424	TAYLORVILLE R	ACID	36089081	1977	1977
		ALS	040424	1985	1985
040425	ELMER FALLS R	ACID	36089042	1979	1979
		ALS	040425	1986	1986
040426	EFFLEY FALLS R	ALS	040426	1986	1986
040428	HOGSBACK P	ALS	040428	1986	1986
040429	SNIDER P	ALS	040429	1986	1986
040431	SOFT MAPLE DAM P	ACID	36089083	1979	1979
		ALS	040431	1986	1986

POND_NO	LAKE NAME	SOURCE	SOURCE ID	FIRST	LAST
040432	UNNAMED	ALS	040432	1985	1985
040433	EAGLE P	ALS	040433	1986	1986
040434	SOFT MAPLE R	ACID	36049044	1966	1971
		ALS	040434	1986	1986
040434A	IN OUT P	ACID	36049045	1964	1978
		ALS	040434A	1985	1985
040434B	SEEPAGE P	ACID	36049046	1968	1978
		ALS	040434B	1986	1986
040435	UNNAMED	ALS	040435	1986	1986
040436	SAND P	ACID	36049047	1953	1979
		ALS	040436	1984	1984
		AWDB-S	040436	1900	1984
		NSWS	1A2-072	1984	1984
040437	UNNAMED	ALS	040437	1986	1986
040438	INES P	ACID	36049048	1953	1953
		ALS	040438	1985	1985
040439	UNNAMED	ALS	040439	1984	1984
040439A	UNNAMED	ALS	040439A	1984	1984
040440	UNNAMED	ALS	040440	1984	1984
040441	CROOKED L	ALS	040441	1986	1986
040441A	SADIE P	ALS	040441A	1986	1986
040442	NOCADE P	ALS	040442	1985	1985
040443	PEPPERBOX P	ACID	36043177	1980	1980
		ALS	040443	1984	1984
		AWDB-S	040443	1900	1984
		FIW	36043086	1974	1983
040444	UNNAMED	ALS	040444	1986	1986
040444A	UNNAMED	ALS	040444A	1985	1985
040445	UNNAMED	ALS	040445	1986	1986
040446	TIED L	ACID	36043178	1979	1979
		ALS	040446	1985	1985
040447	UNNAMED	ALS	040447	1986	1986
040448	UNNAMED	ALS	040448	1986	1986
040449	BEAVER L	ACID	36049049	1979	1979
		ALS	040449	1985	1985
040450	BEAVER L	ALS	040450	1985	1985
040451	FRANCIS L	ACID	36049050	1979	1979
		ALS	040451	1986	1986
040453	UNNAMED	ALS	040453	1986	1986
040454	WOODWARDIA P	ALS	040454	1985	1985
040454A	BEAVER MEADOW L	ACID	36049051	1981	1981
		ALS	040454A	1986	1986
		FIW	36049060	1978	1983
040455	UNNAMED	ALS	040455	1986	1986
040456	UNNAMED	ALS	040456	1984	1984
040456A	UNNAMED	ALS	040456A	1984	1984
040457	UNNAMED	ALS	040457	1985	1985
040458	UNNAMED	ALS	040458	1985	1985
040459	UNNAMED	ALS	040459	1986	1986
		AWDB-S	040459	1900	1984
040460	UNNAMED	ALS	040460	1986	1986
040461	UNNAMED	ALS	040461	1986	1986
040462	UNNAMED	ALS	040462	1986	1986
040464	UNNAMED	ALS	040464	1986	1986

POND_NO	LAKE NAME	SOURCE	SOURCE ID	FIRST	LAST
040467	UNNAMED	ALS	040467	1986	1986
040468	UNNAMED	ALS	040468	1986	1986
040469	UNNAMED	ALS	040469	1986	1986
040473	SUNDAY L	ACID	36043122	1931	1982
		ALS	040473	1984	1984
		FIW	36043109	1974	1983
040474	SUNDAY CREEK R	ACID	36043179	1956	1956
040474A	UNNAMED	ALS	040474A	1986	1986
040474B	UNNAMED	ALS	040474B	1986	1986
040475	UNNAMED	ACID	36043180	1962	1982
		ALS	040475	1986	1986
		FIW	36043111	1974	1983
040476	UNNAMED	ALS	040476	1984	1984
040477	UNNAMED	ALS	040477	1986	1986
040478	MOSHIER R	ACID	36043181	1979	1979
		ALS	040478	1984	1984
040479	UNNAMED	ALS	040479	1986	1986
040480	CROPSEY P	ACID	36043182	1975	1975
		ALS	040480	1984	1984
		FIW-S	36043116	1975	1975
040481	CROPSEY P	ACID	36043183	1975	1975
040484A	UNNAMED	ALS	040484A	1984	1984
040485	DEER P	ACID	36043184	1957	1982
		ALS	040485	1986	1986
		FIW	36043121	1974	1983
040487	SUNSHINE P	ACID	36043185	1972	1980
		ALS	040487	1984	1984
		FIW	36043123	1974	1983
040488	UNNAMED	ALS	040488	1985	1985
040489	LOWER MOSHIER P	ACID	36043186	1972	1982
		ALS	040489	1984	1984
		FIW	36043126	1974	1983
		NSWS	1A2-021	1984	1984
040490	UNNAMED	ALS	040490	1984	1984
040491	UPPER MOSHIER P	ACID	36043133	1966	1975
		ALS	040491	1984	1984
		FIW-S	36043128	1975	1975
040492	DUCK P	ACID	36043187	1972	1982
		ALS	040492	1984	1984
		AWDB-S	040492	1900	1984
		FIW	36043129	1974	1983
040493	STILLWATER R	ACID	36043188	1974	1982
		FIW	36043130	1974	1983
040493A	UNNAMED	ALS	040493A	1986	1986
040494	SHALLOW P	ALS	040494	1985	1985
040495	UNNAMED	ALS	040495	1985	1985
040496	RAVEN L	ACID	36043189	1979	1979
		ALS	040496	1985	1985
		AWDB-C	040496	1900	1984
		NSWS	1A1-016	1984	1984
		SOILS-P	1A1-016	1984	1984
040497	UNNAMED	ALS	040497	1985	1985
		AWDB-S	040497	1900	1984
040498	LYON L	ACID	36043073	1975	1982
		ALS	040498	1985	1985
		AWDB-S	040498	1900	1984
		FIW-S	36043135	1975	1975
040499	SLIM P	ACID	36043113	1975	1975
		ALS	040499	1985	1985
		AWDB-S	040499	1900	1984
		FIW-S	36043136	1975	1975

POND_NO	LAKE NAME	SOURCE	SOURCE ID	FIRST	LAST
040500	EVERGREEN L	ALS	040500	1985	1985
		NSWS	1A1-004	1984	1984
		SOILS-P	1A1-004	1984	1984
040501	UNNAMED	ALS	040501	1985	1985
040502	PEAKED MOUNTAIN L	ALS	040502	1985	1985
040503	UNNAMED	ALS	040503	1986	1986
040504	HAWK P	ACID	36083050	1972	1975
		ALS	040504	1984	1984
		AWDB-S	040504	1900	1984
		FIN-S	36083163	1975	1975
		NSWS	1A1-003	1984	1984
		NSWS-D	1A1-003	1986	1986
		NSWS-2	1A1-003	1986	1986
		SOILS	1A1-003	1985	1985
040505	HIDDEN L	ACID	36083190	1979	1979
		ALS	040505	1985	1985
		AWDB-S	040505	1900	1984
040506	UNNAMED	ALS	040506	1985	1985
040508	GINGER P	ALS	040508	1985	1985
040509	UNNAMED	AWDB-S	040509	1900	1984
040510	UNNAMED	ALS	040510	1985	1985
040511	SODA P	ACID	36083115	1975	1975
		ALS	040511	1985	1985
		AWDB-S	040511	1900	1984
		FIN-S	36083108	1975	1975
040512	UNNAMED	ALS	040512	1984	1984
		AWDB-S	040512	1900	1984
040513	UNNAMED	ALS	040513	1985	1985
040514	UNNAMED	ALS	040514	1986	1986
040515	DISMAL P	ACID	36083038	1972	1975
		ALS	040515	1984	1984
		AWDB-S	040515	1900	1984
		FIN-S	36083152	1975	1975
040516	UNNAMED	ALS	040516	1985	1985
		ALS	040516	1986	1986
040517	SALMON L	ACID	36083108	1931	1982
		ALS	040517	1984	1984
		FIN-S	36083158	1975	1975
040518	CAT P	ACID	36083193	1976	1976
		ALS	040518	1985	1985
040520	UNNAMED	AWDB-S	040520	1900	1984
040521	UNNAMED	ACID	36083192	1976	1976
		ALS	040521	1984	1984
040522	HIGBY TWIN EAST P	ACID	36083193	1972	1982
		ALS	040522	1984	1984
		FIN	36083159	1974	1983
040523	HIGBY TWIN WEST P	ACID	36083198	1972	1982
		ALS	040523	1984	1984
		FIN	36083160	1974	1983
040524	MUD P	ALS	040524	1984	1984
040525	CLEAR L	ACID	36083026	1968	1982
		ALS	040525	1984	1984
		AWDB-C	040525	1900	1984
		FIN-S	36083162	1975	1975
040526	UNNAMED	ALS	040526	1985	1985
		ALS	040526	1986	1986
		AWDB-S	040526	1900	1984
040527	SUMMIT P	ACID	36083121	1972	1975
		ALS	040527	1984	1984
		AWDB-S	040527	1900	1984
		FIN-S	36083168	1975	1975
040528	WITCHHOPPLE L	ACID	36083143	1968	1976
		ALS	040528	1984	1984
		FIN-S	36083165	1975	1975
040529	NEGRO L	ACID	36083195	1976	1982
		ALS	040529	1984	1984
		FIN	36083166	1974	1983
040530	BRAVERMAN P	ALS	040530	1984	1984
		AWDB-C	040530	1900	1984
040531	WILDER P	ACID	36083196	1976	1976
		ALS	040531	1984	1984
		AWDB-S	040531	1900	1984
040533	UNNAMED	ALS	040533	1986	1986
040534	LITTLE ROCK P	ACID	36083197	1968	1982
		ALS	040534	1986	1986
		AWDB-C	040534	1900	1984
		ELS		1983	1987
		FIN	36083171	1974	1983
040536	UNNAMED	ALS	040536	1986	1986
040537	FALLS L	ALS	040537	1986	1986
040538	ROCK L	ACID	36083198	1976	1982
		AWDB-S	040538	1900	1984
		FIN	36083175	1974	1983
		NSWS	1A1-050	1984	1984
040539	WEMASANE L	ACID	36081228	1980	1980
		FIN	36083083	1974	1983
040540	BUCK P	ACID	36083199	1979	1979
		ALS	040540	1984	1984
		AWDB-S	040540	1900	1984
040541	LILA, L	ACID	36081225	1979	1981
		FIN	36081008	1974	1983
040542	HARRINGTON P	ACID	36081226	1979	1979
		ALS	040542	1985	1985
040543	SCHLEY P	ALS	040543	1985	1985
040544	RAINER P	ALS	040544	1984	1984
040545	UNNAMED	ALS	040545	1985	1985
040546	UNNAMED	ALS	040546	1986	1986
		AWDB-S	040546	1900	1984
040547	LILYPAD P	ACID	36081228	1979	1979
		ALS	040547	1986	1986
040548	MUD P	ALS	040548	1985	1985
040549	LITTLE SALMON L	ALS	040549	1986	1986
040550	FRANK P	ALS	040550	1986	1986
		AWDB-S	040550	1900	1984
040551	HARDIGAN P	ALS	040551	1986	1986
040552	SALMON L	ACID	36081229	1950	1950
		ALS	040552	1986	1986
040553	TOURT P	ALS	040553	1986	1986
040554	SLY P	ALS	040554	1986	1986
040554A	NEW P	AWDB-S	040554A	1900	1984
040555	BOB P	ACID	36081153	1973	1973
		ALS	040555	1986	1986
		AWDB-S	040555	1900	1984
		FIN	36081018	1974	1983
040556	NEW P	AWDB-S	040556	1900	1984
040557	UNNAMED	ALS	040557	1986	1986
		AWDB-S	040557	1900	1984
040558	FLY P WEST	ALS	040558	1986	1986
040559	FLY P EAST	ALS	040559	1986	1986
040560	EAST P	ACID	36081057	1972	1981
		ALS	040560	1986	1986
		AWDB-S	040560	1900	1984

POND_NO	LAKE NAME	SOURCE	SOURCE ID	FIRST	LAST
040561	DEER P	ALS	040561	1986	1986
		AWDB-S	040561	1900	1984
		NSWS	1A1-055	1984	1984
		SOILS-P	1A1-055	1984	1984
040562	WEST P	ACID	36041230	1979	1982
		ALS	040562	1986	1986
		FIN	36041025	1974	1983
040563	NORTH P	ACID	36041231	1979	1979
		ALS	040563	1986	1986
040564	PANTHER P	ALS	040564	1986	1986
040565	SHINGLE SHANTY P	ACID	36041232	1979	1979
		ALS	040565	1985	1985
040566	UNNAMED	ACID	36041233	1979	1979
		ALS	040566	1985	1985
040567	THAYER L	ACID	36041234	1979	1982
		ALS	040567	1986	1986
		FIN	36041030	1974	1983
040568	ROSE P	ACID	36041235	1979	1979
		ALS	040568	1986	1986
		AWDB-C	040568	1900	1984
040569	UNNAMED	ALS	040569	1984	1984
040570	TERROR L	ACID	36041195	1965	1982
		ALS	040570	1984	1984
		AWDB-S	040570	1900	1984
		FIN-S	36041033	1975	1975
040571	EAST P	ACID	36043035	1949	1975
		ALS	040571	1984	1984
		FIN-S	36043177	1975	1975
040573	RAZORBACK P	ACID	36043103	1961	1981
		ALS	040573	1984	1984
		AWDB-S	040573	1900	1984
		FIN-S	36043179	1975	1975
040574	RED L	ACID	36043200	1982	1982
		ALS	040574	1984	1984
		FIN	36043180	1974	1983
040575	CRANBERRY P	ACID	36043201	1979	1979
		ALS	040575	1986	1986
		AWDB-S	040575	1900	1984
		LAHP		.	.
040576	WOODS L	ACID	36043145	1968	1982
		ALS	040576	1986	1986
		AWDB-S	040576	1900	1984
		FIN	36043182	1974	1983
		ILWAS		1977	1981
		LAHP		.	.
		PIRLA	ABIN051	1978	1983
040576A		ALS	040576A	1985	1985
		AWDB-C	040576A	1900	1984
040576B	LOST	ALS	040576B	1986	1986
040577	LITTLE BUCK P	ALS	040577	1985	1985
		AWDB-S	040577	1900	1984
040578	BUCK P	ACID	36043202	1953	1981
		ALS	040578	1985	1985
		AWDB-S	040578	1900	1984
		FIN-S	36043184	1975	1975
040579	SNAKE P	ALS	040579	1984	1984
040580	SILVER L	ACID	36043111	1975	1975
		ALS	040580	1986	1986
		AWDB-S	040580	1900	1984
		FIN-S	36043186	1975	1975
		NORTON		.	.
		NSWS	1A1-078	1984	1984
040581	POCKET P	ACID	36043101	1975	1976
		ALS	040581	1984	1984
		AWDB-S	040581	1900	1984
		ELS		1983	1987
		FIN-S	36043187	1975	1975
040582	SOUTH P	ACID	36043117	1936	1975
		ALS	040582	1984	1984
		FIN-S	36043188	1975	1975

POND_NO	LAKE NAME	SOURCE	SOURCE ID	FIRST	LAST
040583	JOCK P	ACID	36043060	1975	1975
		ALS	040583	1984	1984
		AWDB-S	040583	1900	1984
		FIN-S	36043189	1975	1975
040584	TWITCHELL L	ACID	36043130	1954	1982
		ALS	040584	1985	1985
		AWDB-C	040584	1900	1984
		FIN-S	36043190	1975	1975
040585	OSWEGO P	ACID	36043098	1949	1975
		ALS	040585	1984	1984
		AWDB-S	040585	1900	1984
		FIN-S	36043191	1975	1975
040586	LITTLE BIRCH P	ACID	36043203	1949	1975
		ALS	040586	1986	1986
		AWDB-C	040586	1900	1984
040587	LILYPAD P LOWER	ACID	36043063	1975	1982
		ALS	040587	1984	1984
		AWDB-C	040587	1900	1984
		FIN	36043193	1974	1983
040588	LILYPAD P UPPER	ACID	36043204	1949	1975
		ALS	040588	1984	1984
		FIN-S	36043194	1975	1975
040595	CRYSTAL L	ACID	36049052	1977	1977
		ALS	040595	1985	1985
040597	CHASE L	ACID	36049009	1972	1979
		ALS	040597	1986	1986
040599	LITTLE PARSONS P	ACID	36049053	1974	1974
		ALS	040599	1986	1986
040600	PARSONS P	ACID	36049054	1974	1974
		ALS	040600	1986	1986
040601	CALFHEAD P	ACID	36049055	1949	1966
		ALS	040601	1986	1986
040602	CHASE UPPER L	ACID	36049030	1954	1971
		ALS	040602	1986	1986
040604	LITTLE PUNKY P	ALS	040604	1986	1986
040605	HINCHINGS P	ACID	36049019	1974	1974
		ALS	040605	1985	1985
040606	UNNAMED	ALS	040606	1986	1986
040607	CORK P	ACID	36049056	1961	1975
		ALS	040607	1985	1985
		ALS	040607	1986	1986
040608	EVIES P	ACID	36049012	1954	1982
		ALS	040608	1985	1985
		FIN	36049073	1974	1983
040610	LONG L	ACID	36049057	1969	1982
		ALS	040610	1985	1985
		ALS	040610	1986	1986
		FIN	36049074	1974	1983
040611	EAST SPECTACLE P	ALS	040611	1984	1984
040612	WEST SPECTACLE P	ALS	040612	1984	1984
		ALS	040612	1986	1986
040613	NAHAN P	ACID	36049058	1953	1953
		ALS	040613	1984	1984
040614	FISH P	ACID	36049059	1979	1979
040615	NORTH P	ALS	040615	1984	1984
040617	STONY L	ACID	36049028	1948	1976
		ALS	040617	1985	1985
040618	HOPSICKER P	ALS	040618	1985	1985
040619	CLEVELAND L	ACID	36049060	1960	1982
		ALS	040619	1986	1986
		FIN	36049083	1974	1983
040620	PAYNE L	ACID	36049061	1957	1982
		ALS	040620	1986	1986
		FIN	36049084	1974	1983
		NSWS	1A2-022	1984	1984
		SOILS-P	1A2-022	1984	1984

POND_NO	LAKE NAME	SOURCE	SOURCE ID	FIRST	LAST
040622	HUCKLEBERRY L	ALS	040622	1986	1986
		NSWS	1A2-056	1984	1984
040623	UNNAMED	ALS	040623	1986	1986
040625	HALFMOON L	ALS	040625	1984	1984
040626	GOURD L	ALS	040626	1984	1984
040627	STEWART P	ALS	040627	1984	1984
040628	TROUT P	ALS	040628	1985	1985
040630	BILLS P	ALS	040630	1985	1985
040631	MIKES P	ALS	040631	1985	1985
040632	PANTHER P	ACID	36049063	1968	1982
		ALS	040632	1984	1984
		FIN	36049096	1974	1983
		NSWS	1A2-023	1984	1984
		PIRLA	ADI8037	1978	1983
040633	UNNAMED	ALS	040633	1986	1986
040635	FIFTH CREEK P	ACID	36043205	1959	1979
		ALS	040635	1984	1984
		AWDB-S	040635	1900	1984
040636	UNNAMED	ALS	040636	1986	1986
040637	UNNAMED	ALS	040637	1985	1985
040638	UNNAMED	ALS	040638	1984	1984
040639	HITCHCOCK L	ACID	36043052	1931	1979
		ALS	040639	1985	1985
		AWDB-S	040639	1900	1984
		NSWS	1A1-057	1984	1984
		NSWS-D	1A1-057	1986	1986
		NSWS-2	1A1-057	1986	1986
		SOILS	1A1-057	1985	1985
040640	BLUE P	ALS	040640	1986	1986
040641	HITCHCOCK P	ACID	36043206	1979	1979
		ALS	040641	1986	1986
		AWDB-S	040641	1900	1984
040642	GRASS P	ACID	36043207	1979	1979
		ALS	040642	1985	1985
		AWDB-S	040642	1900	1984
040643	MOOSE P	ALS	040643	1986	1986
		AWDB-S	040643	1900	1984
040644	UNNAMED	ALS	040644	1986	1986
040645	UNNAMED	ALS	040645	1986	1986
040645A	UNNAMED	ALS	040645A	1986	1986
040646	UNNAMED	ALS	040646	1985	1985
		AWDB-S	040646	1900	1984
040647	INDEPENDENCE L	ACID	36043058	1931	1979
		ALS	040647	1986	1986
		NSWS	1A3-087	1984	1984
040648	UNNAMED	ALS	040648	1986	1986
		AWDB-S	040648	1900	1984
040649	LYONS MARSH	ACID	36043208	1979	1979
		ALS	040649	1986	1986
		FIN	36043210	1974	1983
040650	LITTLE INDEPENDENCE P	ACID	36043209	1979	1979
		ALS	040650	1985	1985
		FIN	36043211	1974	1983
040650A	DOE P	ALS	040650A	1985	1985
040651	LITTLE DIAMOND P	ACID	36043066	1975	1975
		ALS	040651	1986	1986
		AWDB-S	040651	1900	1984
		FIN-S	36043212	1975	1975
		LAMP		.	.
040656A	WHETSTONE MARSH P	ACID	36049063	1975	1975
040658	WORN WOOD P NORTH	ACID	36049080	1948	1948

POND_NO	LAKE NAME	SOURCE	SOURCE ID	FIRST	LAST
040659	WORN WOOD P SOUTH OR N	ACID	36049081	1948	1948
040662	CATSPAW L	ACID	36049008	1966	1966
040662A	PITCHER P	ACID	36049058	1963	1982
		ALS	040662A	1986	1986
		FIN	36049102	1974	1983
040663	SAND P	ACID	36049065	1973	1973
		ALS	040663	1985	1985
040664	LITTLE OTTER L	ACID	36049066	1970	1979
		ALS	040664	1986	1986
		FIN	36049104	1974	1983
040664A	FLORENCE P	ACID	36049067	1951	1977
		ALS	040664A	1984	1984
040664B	PUNKY P	ACID	36049082	1970	1970
040664C	LONG P	ACID	36049083	1972	1972
040665	UNNAMED	ALS	040665	1986	1986
040667	EAST P	ALS	040667	1985	1985
		ALS	040667	1986	1986
040671	UNNAMED	ALS	040671	1986	1986
040674	GOOSE P	ALS	040674	1986	1986
040675	WEST P	ALS	040675	1985	1985
040676	BIG OTTER L	ACID	36043011	1961	1981
		ALS	040676	1984	1984
		FIN	36043218	1974	1983
		NSWS	1A2-026	1984	1984
040677	NORTH P	ALS	040677	1986	1986
040678	EAST P	ACID	36043210	1973	1976
		ALS	040678	1984	1984
		AWDB-S	040678	1900	1984
		FIN	36043236	1978	1983
040679	UNNAMED	ALS	040679	1985	1985
		AWDB-S	040679	1900	1984
040680	LITTLE SIMON P	ALS	040680	1984	1984
		LAMP		.	.
040681	BLACKFOOT P	ACID	36043211	1980	1980
		ALS	040681	1983	1983
		FIN	36043219	1978	1983
040683	UNNAMED	ALS	040683	1985	1985
040684	GIBBS L	ACID	36043212	1979	1979
		ALS	040684	1985	1985
040685	BEALS P	ALS	040685	1986	1986
040686	SHEENEY P	ACID	36049068	1949	1949
		ALS	040686	1986	1986
040688	PAINE L	ALS	040688	1986	1986
040689	BRAMINGHAM L	ACID	36049069	1949	1973
		ALS	040689	1986	1986
040690	PLEASANT L	ALS	040690	1986	1986
040691	BURNT P	ACID	36049007	1954	1954
		ALS	040691	1986	1986
040692	LONG P	ACID	36049070	1981	1981
		ALS	040692	1986	1986
		FIN	36049121	1974	1983
040693	DYER P	ACID	36049071	1954	1958
		ALS	040693	1985	1985
040694	WEST PINE P	ACID	36043072	1973	1973
		ALS	040694	1984	1984
040697	GARRET L	ACID	36049073	1949	1949
		ALS	040697	1986	1986
040698	UNNAMED	ALS	040698	1986	1986
040699	PINE L	ACID	36049074	1962	1979
		ALS	040699	1984	1984

POND_NO	LAKE NAME	SOURCE	SOURCE ID	FIRST	LAST
040700	EAST PINE P	ACID	36049075	1973	1982
		ALS	040700	1984	1984
		FIN	36049127	1974	1983
040701	MUDHOLE P	ACID	36049076	1962	1981
		ALS	040701	1984	1984
		FIN	36049128	1974	1983
040701A	UNNAMED	ACID	36049077	1981	1981
		ALS	040701A	1986	1986
040702	LOST L	ALS	040702	1984	1984
040703	UNNAMED	ALS	040703	1986	1986
040704	MIDDLE SETTLEMENT L	ACID	36043075	1973	1982
		ALS	040704	1984	1984
		AWDB-S	040704	1900	1984
		FIN	36043228	1974	1983
040705	CEDAR P	ACID	36043213	1954	1981
		ALS	040705	1984	1984
		AWDB-C	040705	1900	1984
		FIN	36043225	1974	1983
040706	GRASS P	ACID	36043214	1976	1981
		ALS	040706	1984	1984
		AWDB-S	040706	1900	1984
		FIN	36043226	1974	1983
		NSWS	1A3-048	1984	1984
		NSWS-D	1A3-048	1986	1986
		NSWS-2	1A3-048	1986	1986
		SOILS	1A3-048	1985	1985
040707	MIDDLE BRANCH L	ACID	36043215	1965	1979
		ALS	040707	1984	1984
040708	LITTLE PINE L	ACID	36049078	1962	1981
		ALS	040708	1984	1984
040709	UNNAMED	ALS	040709	1986	1986
040710	COPPER L	ACID	36049080	1948	1982
		ALS	040710	1986	1986
		AWDB-S	040710	1900	1984
		FIN	36049132	1974	1983
040711	UNNAMED	ALS	040711	1986	1986
040712	UNNAMED	ALS	040712	1986	1986
040713	TWIN SISTER L	ALS	040713	1985	1985
040715	UNNAMED	ALS	040715	1986	1986
040717	GULL L	ACID	36043216	1954	1979
		ALS	040717	1985	1985
		AWDB-S	040717	1900	1984
040718	WELSON L	ACID	36043217	1973	1975
		ALS	040718	1984	1984
		NSWS	1A3-089	1984	1984
040720	OKARA L EAST	ACID	36043218	1964	1982
		ALS	040720	1985	1985
		FIN	36043233	1974	1983
040721	OKARA L WEST	ACID	36043219	1964	1981
		ALS	040721	1985	1985
		FIN	36043234	1974	1983
040722	ROCK P	ACID	36043220	1973	1974
		ALS	040722	1985	1985
		ALS	040722	1986	1986
040723	UNNAMED	ALS	040723	1986	1986
040724	WHEELER P	ACID	36043221	1957	1957
040725	UNNAMED	ALS	040725	1986	1986
040726	UNNAMED	ALS	040726	1984	1984
040727	WINDFALL P	ACID	36043222	1982	1982
		ALS	040727	1985	1985
		FIN	36043240	1974	1983
		NSWS	1A3-063	1984	1984
		NSWS-2	1A3-063	1986	1986
		PIRLA	A01R048	1978	1983
040729	UNNAMED	ALS	040729	1986	1986

POND_NO	LAKE NAME	SOURCE	SOURCE ID	FIRST	LAST
040731	WHEELER P	ALS	040731	1986	1986
040731A	UNNAMED	ALS	040731A	1985	1985
040733	BIG DIAMOND P	ACID	36043006	1975	1975
		ALS	040733	1986	1986
		AWDB-S	040733	1900	1984
		FIN-S	36043247	1975	1975
040734	CLEAR P	ALS	040734	1986	1986
040735	LITTLE SAFFORD L	ALS	040735	1986	1986
040736	SAFFORD P	ACID	36043107	1931	1979
		ALS	040736	1984	1984
040737	UNNAMED	ALS	040737	1986	1986
040738	THIRSTY P	ACID	36043128	1931	1975
		ALS	040738	1986	1986
		AWDB-S	040738	1900	1984
		FIN-S	36043252	1975	1975
		NSWS	1A1-082	1984	1984
040739	HONDAZE, L	ACID	36043223	1951	1982
		ALS	040739	1986	1986
		FIN	36043253	1974	1983
		LTM		1984	1984
		NSWS	1A1-110	1984	1984
		RILWAS		1982	1985
040740	GOOSE P	ACID	36043084	1931	1979
		ALS	040740	1984	1984
		NSWS	1A1-018	1984	1984
040741	MOUNTAIN P	ACID	36043087	1960	1979
		ALS	040741	1986	1986
		ELS		1983	1987
		FIN-S	36043255	1975	1975
040742	FLY P	ACID	36043224	1959	1982
		ALS	040742	1984	1984
		FIN	36043256	1974	1983
040743	NEST L	ACID	36043140	1931	1982
		ALS	040743	1985	1985
		FIN	36043257	1974	1983
		NSWS	1A1-083	1984	1984
040744	KAW-AC-TO, L	ACID	36043061	1931	1982
		ALS	040744	1985	1985
		FIN	36043258	1974	1983
040745	LINDSEY P	ACID	36043225	1975	1982
		ALS	040745	1985	1985
		FIN	36043259	1974	1983
040746	MOSS L	ACID	36043082	1970	1982
		ALS	040746	1986	1986
		AWDB-C	040746	1900	1984
		FIN	36043260	1974	1983
		LAKE		.	.
		LTM		1984	1984
		NSWS	1A1-109	1984	1984
		RILWAS		1982	1985
040747	CASCADE L	ACID	36041236	1962	1982
		ALS	040747	1984	1984
		AWDB-S	040747	1900	1984
		FIN	36041038	1974	1983
		LTM		1984	1984
		NSWS	1A1-105	1984	1984
		RILWAS		1982	1985
040747A		AWDB-C	040747A	1900	1984
040748	BOBB L	ACID	36043019	1931	1982
		ALS	040748	1986	1986
		AWDB-C	040748	1900	1984
		FIN	36043261	1974	1983
		LTM		1984	1984
		NSWS	1A1-113	1984	1984
		RILWAS		1982	1985
040749	SIS L	ACID	36043226	1979	1982
		ALS	040749	1986	1986
		AWDB-S	040749	1900	1984
		RILWAS		1982	1985

POND_NO	LAKE NAME	SOURCE	SOURCE ID	FIRST	LAST
040750	DART L	ACID	36043032	1931	1982
		ALS	040750	1986	1986
		AWDB-C	040750	1900	1984
		FIN	36043263	1974	1983
		LAMP		-	-
		LTR		1984	1984
		NSWS	1A1-106	1984	1984
		RILWAS		1982	1985
040750A	WINDFALL P	ACID	36043227	1975	1982
		ALS	040750A	1985	1985
		AWDB-S	040750A	1900	1984
		FIN-S	36043264	1975	1975
		RILWAS		1982	1985
040751	TOWNSEND P	AWDB-S	040751	1900	1984
		NSWS	1A1-086	1984	1984
		PIRLA	ADIR064	1978	1983
		RILWAS		1982	1985
040752	BIG MOOSE L	ACID	36043009	1948	1982
		AWDB-C	040752	1900	1984
		FIN	36043266	1974	1983
		LTR		1984	1984
		NSWS	1A1-103	1984	1984
		PIRLA	ADIR005	1979	1983
		RILWAS		1982	1985
040753	WEST P	ACID	36043228	1982	1982
		ALS	040753	1985	1985
		AWDB-C	040753	1900	1984
		FIN	36043267	1974	1983
		LTR		1984	1984
		NSWS	1A1-112	1984	1984
		PIRLA	ADIR067	1978	1983
		RILWAS		1982	1985
040754	SQUASH P	ALS	040754	1986	1986
		FIN	36043268	1974	1983
		LTR		1984	1984
		NSWS	1A1-111	1984	1984
		RILWAS		1982	1985
040755	SILVER DOLLAR P	ALS	040755	1984	1984
		ELS		1983	1987
040756	MERRIAM L	ACID	36043229	1951	1975
		ALS	040756	1984	1984
		AWDB-S	040756	1900	1984
		FIN-S	36043270	1975	1975
		LTR		1984	1982
		MORTON		-	-
		NSWS	1A1-108	1984	1984
		PIRLA	ADIR034	1978	1983
		RILWAS		1982	1985
040757	LITTLE CHIEF P	ALS	040757	1986	1986
040758	GULL L SOUTH	ACID	36041237	1982	1982
		ALS	040758	1984	1984
		AWDB-S	040758	1900	1984
		FIN	36041035	1974	1983
		NSWS	1A1-073	1984	1984
		NSWS-D	1A1-073	1986	1986
		NSWS-2	1A1-073	1986	1986
		SOILS	1A1-073	1985	1985
		SOILS-P	1A1-073	1984	1984
040759	UNNAMED	ALS	040759	1984	1984
040760	OTTER P	ACID	36041132	1975	1975
		ALS	040760	1984	1984
		AWDB-S	040760	1900	1984
		FIN-S	36041037	1975	1975
040762	GULL L NORTH OR UPPER	ACID	36041238	1982	1982
		ALS	040762	1984	1984
		AWDB-S	040762	1900	1984
		FIN	36041039	1974	1983
040765	UNNAMED	ALS	040765	1984	1984
040766	UNNAMED	ALS	040766	1984	1984
040768	LOWER SISTER L	ACID	36041239	1970	1970
		ALS	040768	1984	1984
		AWDB-C	040768	1900	1984
040769	UPPER SISTER L	ACID	36041240	1970	1970
		ALS	040769	1984	1984
		AWDB-C	040769	1900	1984
040770	UNNAMED	ALS	040770	1986	1986
		AWDB-C	040770	1900	1984
040771	UNNAMED	ALS	040771	1986	1986
040772	SOUTH P	ACID	36041188	1975	1981
		ALS	040772	1986	1986
		AWDB-S	040772	1900	1984
		FIN-S	36041049	1975	1975
040773	UNNAMED	ALS	040773	1985	1985
040774	RUSSIAN L	ACID	36041241	1979	1979
		ALS	040774	1984	1984
		AWDB-S	040774	1900	1984
040775	MAIS P	ACID	36041242	1981	1981
		ALS	040775	1986	1986
		AWDB-C	040775	1900	1984
		FIN	36041052	1974	1983
		RILWAS		1982	1985
040775A	PUG HOLE	ALS	040775A	1985	1985
		AWDB-S	040775A	1900	1984
040776	BIG CHIEF P	ALS	040776	1986	1986
		AWDB-S	040776	1900	1984
		ELS		1983	1987
		FIN	36043272	1974	1983
040777	CONSTABLE P	ACID	36041243	1951	1976
		ALS	040777	1984	1984
		AWDB-C	040777	1900	1984
		FIN	36041054	1974	1983
		NSWS	1A1-017	1984	1984
		NSWS-D	1A1-017	1986	1986
		NSWS-2	1A1-017	1986	1986
		SOILS	1A1-017	1985	1985
040778	CHUB L	ACID	36041060	1960	1981
		ALS	040778	1984	1984
		AWDB-S	040778	1900	1984
		FIN	36041055	1974	1983
040779	PIGEON L	ACID	36041137	1975	1976
		ALS	040779	1984	1984
		AWDB-S	040779	1900	1984
		FIN-S	36041056	1975	1975
040780	UNNAMED	ALS	040780	1986	1986
040781	UNNAMED	ALS	040781	1986	1986
040782	UNNAMED	ALS	040782	1985	1985
040782A	FIRST L FULTON CHAIN	ACID	36043230	1979	1982
		FIN	36043276	1974	1983
040782B	SECOND L FULTON CHAIN	ACID	36043231	1982	1982
		ALS	040782B	1986	1986
		FIN	36043277	1974	1983
040782C	THIRD L FULTON CHAIN	ACID	36043232	1981	1982
		ALS	040782C	1986	1986
		FIN	36043278	1974	1983
040782D	FOURTH L FULTON CHAIN	ACID	36043233	1978	1982
		FIN	36043279	1974	1983
040783	BALD MOUNTAIN P	ACID	36043234	1953	1982
		ALS	040783	1986	1986
		FIN	36043280	1974	1983
040784	SURPRISE P	ACID	36043235	1951	1951
		ALS	040784	1986	1986
040785	UNNAMED	ALS	040785	1986	1986
040786	FIFTH L	ACID	36041244	1982	1982
		FIN	36041058	1974	1983
040787A	SIXTH L	ALS	040787A	1986	1986
		AWDB-C	040787A	1900	1984
		FIN	36041059	1974	1983
040787B	SEVENTH L	ACID	36041171	1978	1982
		AWDB-C	040787B	1900	1984
		FIN	36041060	1974	1983
		NSWS	1A1-060	1984	1984
		NSWS-2	1A1-060	1986	1986

POND_NO	LAKE NAME	SOURCE	SOURCE ID	FIRST	LAST
040788	EAGLES NEST L	ACID	36041055	1931	1974
		ALS	040788	1984	1984
		ALS	040788	1985	1985
		AWDB-S	040788	1900	1984
040789	BOG L	ACID	36041028	1931	1982
		ALS	040789	1985	1985
		AWDB-S	040789	1900	1984
		FIN	36041062	1974	1983
040790	HIGHTE L	ACID	36041246	1979	1982
		ALS	040790	1984	1984
		AWDB-S	040790	1900	1984
		FIN	36041063	1974	1983
040791	HIGHROCK P	ALS	040791	1986	1986
		AWDB-C	040791	1900	1984
		ELS		1983	1987
040792	UNNAMED	ACID	36041287	1965	1965
		ALS	040792	1985	1985
		AWDB-C	040792	1900	1984
040793	TROUT P	ACID	36041248	1965	1981
		ALS	040793	1986	1986
		AWDB-C	040793	1900	1984
		ELS		1983	1987
		FIN	36041066	1974	1983
040794	CATHERINE, L	ALS	040794	1985	1985
040795	QUIVER P	ACID	36043236	1953	1982
		FIN	36043283	1974	1983
		NSWS	1A1-019	1984	1988
		SOILS-P	1A1-019	1984	1984
040796	MOUNTAIN P	AWDB-S	040796	1900	1984
040797	UNNAMED	ALS	040797	1986	1986
040798	TWIN P	ACID	36043237	1955	1955
		ALS	040798	1986	1986
040799	UNNAMED	ALS	040799	1986	1986
040802	GRAY L	ACID	36043238	1982	1982
		ALS	040802	1986	1986
		FIN	36043290	1974	1983
040803	BLOODSUCKER P	ALS	040803	1984	1984
		AWDB-S	040803	1900	1984
040804	WICKS L	ACID	36043090	1931	1982
		ALS	040804	1985	1985
		FIN	36043292	1974	1983
040805	UNNAMED	ALS	040805	1986	1986
040806	UNNAMED	ALS	040806	1986	1986
040808	LITTLE MOOSE L	ACID	36043067	1975	1979
		AWDB-C	040808	1900	1984
040809	PANTHER L	ACID	36043239	1975	1975
		AWDB-S	040809	1900	1984
		ILWAS		1977	1981
		NORTON		-	-
040811	COMBS L	ACID	36043240	1975	1975
040812	GREEN L	ACID	36043241	1975	1975
040818	TAYLOR P	ACID	36043242	1975	1975
040821	FOX P	ACID	36043041	1975	1975
		FIN-S	36043309	1975	1975
040822	DOE P	AWDB-S	040822	1900	1984
		FIN	36043310	1974	1983
040824	BEAVERDAM P	ALS	040824	1985	1985
040825	UNNAMED	ALS	040825	1986	1986
040826	LIMEKILN L	ACID	36041096	1989	1982
		ALS	040826	1985	1985
		AWDB-C	040826	1900	1984
		FIN	36041067	1974	1983
040827	FAWN L	ACID	36041249	1961	1979
		ALS	040827	1984	1984
		AWDB-S	040827	1900	1984

POND_NO	LAKE NAME	SOURCE	SOURCE ID	FIRST	LAST
040827A	UNNAMED	ALS	040827A	1984	1984
040828	HORSESHOE P	ACID	36043056	1975	1975
		AWDB-S	040828	1900	1984
		FIN-S	36043318	1975	1975
040831	HALL P	ACID	36043048	1975	1975
		AWDB-S	040831	1900	1984
		FIN-S	36043317	1975	1975
040832	PICO L	ACID	36043100	1975	1975
		FIN-S	36043318	1975	1975
040836	STINK L	ACID	36043243	1973	1979
		ALS	040836	1984	1984
040837	BALSAM L	ACID	36043244	1973	1979
		ALS	040837	1984	1984
040838	CANACHAGALA L	ACID	36043023	1975	1982
		FIN-S	36043324	1975	1975
040840	UNNAMED	ALS	040840	1985	1985
040841	UNNAMED	ALS	040841	1985	1985
040844	HARRY P S	ACID	36043245	1975	1975
		FIN-S	36043330	1975	1975
040846	UNNAMED	ALS	040846	1984	1984
040847	MITCHELL P LOWER	ACID	36041250	1979	1979
		ALS	040847	1984	1984
040848	MITCHELL P UPPER	ACID	36041251	1982	1982
		ALS	040848	1984	1984
		FIN	36041070	1974	1983
040849	BEAVER L	ACID	36041252	1979	1982
		ALS	040849	1984	1984
		AWDB-C	040849	1900	1984
		FIN	36041071	1974	1983
040850	SQUAW L	ACID	36041191	1975	1982
		ALS	040850	1984	1984
		AWDB-S	040850	1900	1984
		FIN-S	36041072	1975	1975
040851	UNNAMED	ALS	040851	1985	1985
040852	INDIAN L	ACID	36041083	1975	1982
		ALS	040852	1984	1984
		FIN-S	36041074	1975	1975
040853	MUSKRAT P	ACID	36041126	1963	1975
		ALS	040853	1984	1984
		FIN-S	36041075	1975	1975
040854	HORN L	ACID	36043055	1972	1982
		ALS	040854	1985	1985
		AWDB-S	040854	1900	1984
		FIN-S	36043333	1975	1975
040855	MOUNTAIN L	ACID	36043084	1973	1975
		ALS	040855	1984	1984
		AWDB-S	040855	1900	1984
		FIN-S	36043334	1975	1975
040856	UNNAMED	ALS	040856	1985	1985
040857	UNNAMED	ALS	040857	1985	1985
040858	UNNAMED	ACID	36043246	1973	1973
		ALS	040858	1984	1984
		AWDB-S	040858	1900	1984
040859	TWIN L LOWER	ACID	36043247	1973	1982
		ALS	040859	1985	1985
		FIN	36043337	1974	1983
040860	TWIN L UPPER	ACID	36043248	1973	1975
		ALS	040860	1984	1984
		FIN-S	36043338	1975	1975
040861	LITTLE DEER L	ACID	36043249	1973	1973
		ALS	040861	1984	1984
040862	CARTER MUDHOLE	ALS	040862	1985	1985

POND_NO	LAKE NAME	SOURCE	SOURCE ID	FIRST	LAST
040863	UNNAMED	ACID	36041253	1982	1982
		ALS	040863	1986	1986
		AWDB-S	040863	1900	1984
		FIN	36041078	1974	1983
040864	UNNAMED	AWDB-S	040864	1900	1984
040864A	UNNAMED	ALS	040864A	1985	1985
040866	DEEP L	ACID	36041047	1954	1979
		ALS	040866	1984	1984
		AWDB-S	040866	1900	1984
		FIN	36041081	1974	1983
		NORTON		-	-
		NSWS	1A1-084	1984	1984
		PIRLA	ADIR014	1978	1983
040867	UNNAMED	ALS	040867	1986	1986
040868	TWIN L S WEST	ALS	040868	1985	1985
040869	TWIN L	ACID	36041254	1963	1975
		ALS	040869	1984	1984
		FIN-S	36041084	1975	1975
040870	TWIN L	ACID	36041199	1963	1975
		ALS	040870	1984	1984
		FIN-S	36041085	1975	1975
040871	UNNAMED	ALS	040871	1986	1986
		AWDB-S	040871	1900	1984
040872	UNNAMED	ALS	040872	1985	1985
040873	WOLF L	ACID	36041219	1963	1975
		ALS	040873	1984	1984
		AWDB-S	040873	1900	1984
		FIN-S	36041088	1975	1975
		NSWS	1A1-061	1984	1984
		NSWS-D	1A1-061	1986	1986
		NSWS-2	1A1-061	1986	1986
		SOILS	1A1-061	1985	1985
040874	BROOKTROUT L	ACID	36041024	1950	1975
		ALS	040874	1984	1984
		AWDB-S	040874	1900	1984
		FIN-S	36041089	1975	1975
		NORTON		-	-
040875	NORTHROP L	ACID	36041127	1975	1975
		ALS	040875	1986	1986
		AWDB-S	040875	1900	1984
		FIN-S	36041090	1975	1975
040876	ICEHOUSE P	ACID	36041255	1963	1982
		ALS	040876	1984	1984
		FIN	36041091	1974	1983
040877	HELLDIVER P	ACID	36041256	1963	1981
		ALS	040877	1984	1984
040878	LOST P S WEST	ACID	36041257	1960	1981
		ALS	040878	1984	1984
		FIN	36041093	1974	1983
040879	LOST P S EAST	ACID	36041258	1960	1981
		ALS	040879	1984	1984
		FIN	36041094	1974	1983
040880	BIAR P	ACID	36041008	1975	1975
		ALS	040880	1985	1985
		AWDB-S	040880	1900	1984
		FIN-S	36041095	1975	1975
040881	LOST P	ALS	040881	1985	1985
040882	UNNAMED	ALS	040882	1986	1986
040883	KORA, L	ACID	36041093	1975	1975
		FIN-S	36041098	1975	1975
040884	HONK P	ACID	36041062	1975	1975
		FIN-S	36041099	1975	1975
040885	FALLS P	ACID	36041064	1963	1981
		ALS	040885	1984	1984
		AWDB-S	040885	1900	1984
		FIN-S	36041100	1975	1975
040886	JIMMY P	ACID	36041259	1963	1963
		ALS	040886	1984	1984
		AWDB-S	040886	1900	1984

POND_NO	LAKE NAME	SOURCE	SOURCE ID	FIRST	LAST
040887	LOST P	ACID	36041260	1979	1979
		ALS	040887	1984	1984
		AWDB-S	040887	1900	1984
040888	SLY P	ACID	36041180	1965	1979
		ALS	040888	1984	1984
		AWDB-S	040888	1900	1984
		FIN-S	36041103	1975	1975
040889	CELLAR P	ACID	36041037	1975	1982
		ALS	040889	1985	1985
		ALS	040889	1986	1986
		AWDB-S	040889	1900	1984
		FIN-S	36041104	1975	1975
040890	LITTLE HOOSE L	ACID	36041099	1975	1975
		ALS	040890	1985	1985
		FIN-S	36041105	1975	1975
040905	BARNES L	ACID	36089002	1939	1939
		ALS	040905	1985	1985
		LTR		1984	1984
		NSWS	1A2-076	1984	1984
		PIRLA	ADIR003	1978	1983
		RILWAS		1982	1983
040906	UNNAMED	ALS	040906	1985	1985
040907	ROUND P	ACID	36065009	1952	1982
		ALS	040907	1984	1984
		ALS	040907	1986	1986
		FIN	36065002	1974	1983
040908	UNNAMED	ALS	040908	1986	1986
040909	POPLAR P	ACID	36065010	1939	1939
		ALS	040909	1984	1984
040910	BUCK L	ACID	36065011	1939	1977
		ALS	040910	1986	1986
040916	UNNAMED	ACID	36065021	1939	1939
040918	DOE P	ALS	040918	1986	1986
040920	ROUND L	ALS	040920	1986	1986
040921	DEER P	ALS	040921	1985	1985
040922	LONG L	ACID	36065012	1973	1976
		ALS	040922	1985	1985
040923	BRANDY L	ACID	36065013	1952	1979
		ALS	040923	1985	1985
		ALS	040923	1986	1986
040924	UNNAMED	ALS	040924	1985	1985
040925	LOST P	ACID	36065014	1979	1979
		ALS	040925	1985	1985
		ALS	040925	1986	1986
040926	OTTER L	ACID	36065005	1987	1972
		ALS	040926	1985	1985
		FIN	36065013	1974	1983
		NSWS	1A2-026	1984	1984
040927	SUDHOLE P	ALS	040927	1985	1985
040934	UNNAMED	ALS	040934	1986	1986
040935	ALDER P	ACID	36065015	1981	1981
		ALS	040935	1986	1986
		FIN	36065016	1974	1983
040937	UNNAMED	ALS	040937	1986	1986
040944	FORESTPORT R	ACID	36065016	1968	1979
		ALS	040944	1986	1986
040945	LINDSEY P	ACID	36065017	1977	1977
040946	UNNAMED	ALS	040946	1986	1986
040948	DEAD L	ACID	36083250	1977	1977
		ALS	040948	1984	1984
040949	STONE DAM P	ALS	040949	1985	1985
040951	LITTLE WOODHULL L	ACID	36083251	1979	1979
		ALS	040951	1984	1984

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040952	LILY L	ACID	36043252	1982	1982
		ALS	040952	1984	1984
		FIN	36043365	1974	1983
040957	UNNAMED	ALS	040957	1986	1986
040958	WHITE L	ACID	36065018	1949	1979
		ALS	040958	1986	1986
		NSWS	1A2-061	1984	1984
		SOILS-P	1A2-061	1984	1984
040963	GRANNY MARSH	ALS	040963	1985	1985
040967	BREWER L	ACID	36043018	1979	1982
		ALS	040967	1984	1984
		AWDB-S	040967	1900	1984
		FIN	36043353	1974	1983
		NSWS	1A3-069	1984	1984
040968	BEAR L	ACID	36043253	1954	1982
		ALS	040968	1984	1984
		AWDB-S	040968	1900	1984
		FIN	36043354	1974	1983
040969	GULL L	ACID	36043254	1958	1979
		ALS	040969	1984	1984
		AWDB-S	040969	1900	1984
040970	ROCK P	ALS	040970	1984	1984
040971	CHOD P	ACID	36043255	1974	1977
		ALS	040971	1984	1984
040972	UNNAMED	ALS	040972	1986	1986
040973	FOURTH L BISBY CHAIN	NSWS	1A1-020	1984	1984
		NSWS-D	1A1-020	1986	1986
		NSWS-2	1A1-020	1986	1986
		SOILS	1A1-020	1985	1985
040975	THIRD L BISBY CHAIN	ACID	36043123	1975	1975
		FIN-S	36043361	1975	1975
040976	SECOND L BISBY CHAIN	ACID	36043109	1975	1975
		FIN-S	36043362	1975	1975
040977	FIRST L BISBY CHAIN	ACID	36043037	1975	1975
		FIN-S	36043363	1975	1975
040978	SYLVAN P LOWER	ACID	36043072	1975	1975
		FIN-S	36043364	1975	1975
040979	SYLVAN P UPPER	ACID	36043134	1975	1975
		FIN-S	36043365	1975	1975
040980	CHAMBER L	ACID	36043025	1975	1976
		FIN-S	36043366	1975	1975
040981	SAND L	ACID	36043256	1979	1979
040982	WOODHULL L	ACID	36043257	1969	1982
		AWDB-C	040982	1900	1984
		FIN	36043368	1974	1983
		NSWS	1A1-066	1984	1984
		NSWS-D	1A1-066	1986	1986
		NSWS-2	1A1-066	1986	1986
		SOILS	1A1-066	1985	1985
040984	BLOODSUCKER P	ALS	040984	1985	1985
		AWDB-S	040984	1900	1984
040984A	KANOTA L	ACID	36065019	1980	1980
		ALS	040984A	1986	1986
		FIN	36065027	1974	1983
040985	UNNAMED	ALS	040985	1986	1986
040986	UNNAMED	ALS	040986	1986	1986
040987	UNNAMED	ALS	040987	1985	1985
040988	UNNAMED	ALS	040988	1985	1985
040991	MAPLE L	ALS	040991	1985	1985
040992	NORTH BRANCH L	ALS	040992	1986	1986
		AWDB-S	040992	1900	1984
040993	UNNAMED	ALS	040993	1986	1986
040994	COTTON L	ALS	040994	1985	1985
040995	BURP L	ACID	36043258	1974	1974
		ALS	040995	1985	1985
		AWDB-S	040995	1900	1984
040996	BLACK CREEK L	ACID	36043259	1962	1979
		ALS	040996	1985	1985
		AWDB-S	040996	1900	1984
040998	UNNAMED	ALS	040998	1986	1986
041000	TWIN L S R	ACID	36043260	1960	1974
		ALS	041000	1985	1985
		AWDB-S	041000	1900	1984
041001	MINK L	ACID	36043261	1958	1958
		ALS	041001	1985	1985
		AWDB-S	041001	1900	1984
041002	REEDS P	ACID	36043262	1973	1973
		ALS	041002	1985	1985
041003	LITTLE SALMON L	ACID	36043068	1974	1975
		ALS	041003	1985	1985
		AWDB-S	041003	1900	1984
		FIN-S	36043382	1975	1975
041004	SOUTH L	ACID	36043116	1936	1982
		FIN-S	36043383	1975	1975
		NSWS	1A3-065	1984	1984
		NSWS-D	1A3-065	1986	1986
		NSWS-2	1A3-065	1986	1986
		SOILS	1A3-065	1985	1985
041007	NORTH L	ACID	36043094	1968	1982
		ALS	041007	1986	1986
		FIN	36043386	1974	1983
041008	MUD P	ACID	36043088	1975	1975
		ALS	041008	1986	1986
		FIN-S	36043387	1975	1975
041009	UNNAMED	ALS	041009	1985	1985
041010	GOOSENECK L	ACID	36043045	1975	1975
		ALS	041010	1984	1984
		AWDB-S	041010	1900	1984
		FIN-S	36043389	1975	1975
041010A	UNNAMED	ALS	041010A	1986	1986
041011	SNIDER L	ACID	36043114	1975	1975
		ALS	041011	1984	1984
		FIN-S	36043391	1975	1975
		NSWS	1A3-010	1984	1984
041012	BONDSERT L	ACID	36043080	1973	1975
		ALS	041012	1984	1984
		AWDB-S	041012	1900	1984
		FIN-S	36043392	1975	1975
041015	HARDSCRABBLE L	ACID	36043049	1975	1975
		ALS	041015	1985	1985
		FIN-S	36043395	1975	1975
041016	UNNAMED	ALS	041016	1985	1985
041017	UNNAMED	ALS	041017	1986	1986
		AWDB-S	041017	1900	1984
041043	HANNSVILLE P	ACID	36045006	1974	1974
050027	SARATOGA L	ACID	36091024	1932	1980
		FIN	36091051	1974	1983
050030	LONELY, L	ACID	36091025	1932	1962
050053	UNNAMED	ACID	36091026	1932	1932
050075	CARTER L	ACID	36115019	1973	1973
050077	UNNAMED	ACID	36115020	1957	1957
050079	COSSAYUNA L	ACID	36115021	1932	1975
050080	SUMMIT L	ACID	36115022	1950	1950
050086	SCOTT L	ACID	36115023	1957	1957
050087	SMITH P	ACID	36115024	1957	1957
050089	HEDGES L	ACID	36115025	1932	1973

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050090	DEAD L	ACID	36115038	1957	1957
050101	HORNBO L	ACID	36091027	1963	1979
050103	HAWKINS P	ACID	36091020	1932	1932
050100A	SADDLE L	ACID	36091028	1956	1956
050110A	WALL STREET P	ACID	36115026	1958	1958
050118	KEENAN R	NSWS	1A2-029	1984	1984
050126A	STEWARTS BRIDGE R	ACID	36091010	1967	1981
		FIN	36091003	1974	1983
050127	GREAT SACANDAGA L	ACID	36091015	1932	1979
050127B	PALMER L	ACID	36091009	1932	1966
050128	BLACK P	ACID	36091001	1950	1979
050129	EFFER L	ACID	36091006	1932	1979
050130	JENNY L	ACID	36021036	1936	1936
050131	HUNT L	ACID	36091007	1932	1980
		FIN	36091010	1974	1983
050135	STERLE R	ACID	36091017	1980	1980
		FIN	36091018	1974	1983
050136A	THELAND ELY	ACID	36091038	1980	1980
		FIN	36091036	1974	1983
050138	AUBEY L	ACID	36091019	1967	1967
050143	KENNETTO R	ACID	36091020	1956	1975
050147	DESOLATION, L	ACID	36091002	1932	1980
		NSWS	1A2-049	1984	1984
050150	HASTENS P	ACID	36035032	1979	1979
050151	LAIR R	ACID	36035033	1980	1980
		FIN	36035002	1974	1983
050152	CAMERON R	ACID	36035030	1980	1980
		FIN	36035003	1974	1983
050152D	RICE R	ACID	36035035	1980	1980
		FIN	36035004	1974	1983
050152E	FORT R	ACID	36035036	1980	1980
		NSWS	1A3-032	1984	1984
050154B	WOODWARD L	ACID	36035037	1979	1979
050156	WOODS L	ACID	36091221	1932	1981
		FIN	36091106	1974	1983
		NSWS	1A2-085	1984	1984
		NSWS-D	1A2-085	1986	1986
		NSWS-2	1A2-085	1986	1986
		SOILS	1A2-085	1985	1985
		SOILS-P	1A2-085	1988	1988
050157	GRANT L	ACID	36091076	1932	1978
		ANDB-S	050157	1900	1984
050159	LOWER THREE P S	ANDB-S	050159	1900	1984
050164	CHASE L	ACID	36035007	1932	1979
050165	HUD L	ACID	36035038	1932	1932
050169	HOLMES L	ACID	36035015	1932	1979
		ANDB-S	050169	1900	1984
		NSWS	1A2-075	1984	1984
050182	BENNETT L	ACID	36041010	1932	1979
		ANDB-S	050182	1900	1984
050184	MIDDLE L	ACID	36041113	1932	1979
		ANDB-S	050184	1900	1984
050185	THE PLOW	ACID	36091021	1932	1932
050186	TENANT L	ACID	36091012	1932	1979
		ANDB-S	050186	1900	1984
050187	NEW L	ACID	36113026	1932	1973
		ANDB-S	050187	1900	1984

POND_NO	LAKE NAME	SOURCE	SOURCE ID	FIRST	LAST
050188	WILCOX L	ACID	36113066	1932	1979
		ANDB-S	050188	1900	1984
050189	HARRISBURG L	ACID	36113063	1969	1975
050190	BULLHEAD P	ACID	36091002	1975	1975
		ANDB-S	050190	1900	1984
		FIN-S	36091027	1975	1975
050192	ST JOHN L	ACID	36113033	1970	1975
		ANDB-S	050192	1900	1984
		FIN-S	36113035	1975	1975
		NSWS	1A2-002	1984	1984
		NSWS-D	1A2-002	1986	1986
		NSWS-2	1A2-002	1986	1986
		SOILS	1A2-002	1985	1985
050197	LIZARD P	ACID	36113022	1932	1979
		ANDB-S	050197	1900	1984
050197A	FORTAVILLE L	ACID	36035039	1954	1981
		FIN	36035015	1974	1983
050207	RICE P	ANDB-S	050207	1900	1984
050210	SAND L	ACID	36091022	1979	1979
		ANDB-S	050210	1900	1984
050211A		ANDB-C	050211A	1900	1984
050212	LIVINGSTON L	ACID	36091023	1980	1980
		ANDB-S	050212	1900	1984
		FIN	36091039	1974	1983
050213	HURENT L	ACID	36041261	1932	1979
		ANDB-S	050213	1900	1984
050215	WILLIS L	ACID	36041245	1932	1979
		ANDB-S	050215	1900	1984
050216	HUD L	ACID	36041262	1932	1982
		FIN	36041119	1974	1983
		NSWS	1A2-081	1984	1984
		NSWS-D	1A2-081	1986	1986
		NSWS-2	1A2-081	1986	1986
		SOILS	1A2-081	1985	1985
050218	BUCK P	ACID	36041263	1981	1981
		ANDB-S	050218	1900	1984
050219	CHARMBOSE, L	ANDB-S	050219	1900	1984
050220	HAMILTON L	ACID	36041264	1972	1979
		ANDB-S	050220	1900	1984
		NSWS	1A2-053	1984	1984
		SOILS-P	1A2-053	1984	1984
050221	SAND L	ACID	36041265	1956	1956
050222	OWL P	ACID	36041266	1978	1978
050225	SAND L	ACID	36041267	1932	1979
		ANDB-C	050225	1900	1984
050227	UNNAMED	ANDB-C	050227	1900	1984
050228	CLOCKHILL P	ACID	36041083	1932	1979
		ANDB-C	050228	1900	1984
		NSWS	1A2-073	1984	1984
050229	ROCK L	ACID	36041268	1932	1979
		ANDB-C	050229	1900	1984
		NSWS	1A2-068	1984	1984
050231	HUD L	ACID	36041269	1932	1932
050232	SPY L	ACID	36041290	1932	1979
050233	COONEY L	ACID	36041270	1978	1982
		FIN	36041137	1974	1983
050234	PISECO L	ACID	36041181	1932	1982
		FIN	36041138	1974	1983
050240	WARNER L	ANDB-S	050240	1900	1984
050241	SCOTCH L	ACID	36041169	1975	1975
		FIN-S	36041183	1975	1975
050243	FALL L	ACID	36041063	1932	1981
		FIN	36041185	1974	1983

POND_NO	LAKE NAME	SOURCE	SOURCE ID	FIRST	LAST
050244	FLY L	ACID	36041271	1957	1957
050245	MUD P	ACID	36041272	1957	1957
050247	FAWN L	ACID	36041273	1932	1976
050249	SILVER P	ACID	36041274	1957	1957
050251	FIDDLER'S L	ACID	36041275	1958	1958
		AWDB-S	050251	1900	1984
050252	OXBOW L	ACID	36041133	1932	1979
		AWDB-C	050252	1900	1984
		NSWS	1A2-039	1984	1984
		NSWS-D	1A2-039	1986	1986
		NSWS-2	1A2-039	1986	1986
		SOILS	1A2-039	1985	1985
050253	MUD P	ACID	36041276	1957	1957
050254	LILLY L	AWDB-S	050254	1900	1984
050255	UPPER LOOMIS P	ACID	36041056	1932	1976
		FIN-S	36041157	1975	1975
		NSWS	1A2-070	1984	1984
050256	LOOMIS P (WEST)	ACID	36041209	1961	1975
		FIN-S	36041158	1975	1975
050257	MIDDLE LOOMIS P	ACID	36041115	1932	1975
		FIN-S	36041159	1975	1975
050259	JOCKEYBUSH L	ACID	36041089	1932	1981
		AWDB-S	050259	1900	1984
		FIN	36041161	1974	1983
		NSWS	1A2-066	1984	1984
050260	TROUT L	ACID	36041277	1932	1979
050264	CHUB L	ACID	36041042	1932	1979
		NSWS	1A2-052	1984	1984
		NSWS-D	1A2-052	1986	1986
		NSWS-2	1A2-052	1986	1986
		SOILS	1A2-052	1985	1985
		SOILS-P	1A2-052	1984	1984
050265	GOOD LUCK L	ACID	36041278	1979	1979
050266	ROSS L	ACID	36041279	1962	1962
		AWDB-C	050266	1900	1984
050266A	NORTH BRANCH FLOW	ACID	36041280	1967	1967
050267	CANARY P	ACID	36041030	1932	1981
		AWDB-S	050267	1900	1984
		FIN-S	36041170	1975	1975
050268	BROWN L	ACID	36041281	1962	1978
050269	UNNAMED	AWDB-S	050269	1900	1984
050270	SILVER L	ACID	36041175	1932	1976
		AWDB-S	050270	1900	1984
		FIN-S	36041173	1975	1975
		NSWS	1A2-069	1984	1984
050271	WHITE L	AWDB-S	050271	1900	1984
050272	OXBOW L	ACID	36035040	1964	1964
		AWDB-S	050272	1900	1984
050273	DUCK L	ACID	36041053	1965	1975
		FIN-S	36041175	1975	1975
050274	COUNTY LINE L	ACID	36041282	1975	1976
		AWDB-S	050274	1900	1984
		FIN-S	36041176	1975	1975
		NSWS	1A2-004	1984	1984
		NSWS-D	1A2-004	1986	1986
		NSWS-2	1A2-004	1986	1986
		SOILS	1A2-004	1985	1985
050275	ROCK L	ACID	36041283	1932	1978
050276	NECO L	ACID	36041109	1932	1975
		AWDB-S	050276	1900	1984
		FIN-S	36041178	1975	1975
		NSWS	1A2-067	1984	1984
050276A	ALGONQUIN, L	ACID	36041284	1952	1979
		NSWS	1A2-040	1984	1984

POND_NO	LAKE NAME	SOURCE	SOURCE ID	FIRST	LAST
050279	DUNNING P	ACID	36041285	1932	1932
050280	CHARLEY L	ACID	36041039	1932	1979
		AWDB-S	050280	1900	1984
050281	GILMAN L	ACID	36041078	1932	1979
		AWDB-S	050281	1900	1984
050282A	LITTLE JOE P	ACID	36113064	1959	1959
050282B	WRETCHED P	ACID	36041286	1959	1959
050283	BUCKMORE P	ACID	36041287	1963	1963
050284	BUCKHORN P S	ACID	36041288	1963	1981
		AWDB-S	050284	1900	1984
		FIN	36041188	1974	1983
050285	BUCKHORN P	ACID	36041289	1963	1975
		FIN-S	36041189	1975	1975
050286	COD P	ACID	36113065	1932	1979
		AWDB-S	050286	1900	1984
		NSWS	1A2-038	1984	1984
050287	FISH P (LOWER)	ACID	36113066	1953	1979
		NSWS	1A2-037	1984	1984
		NSWS-D	1A2-037	1986	1986
		NSWS-2	1A2-037	1986	1986
		SOILS	1A2-037	1985	1985
050288	FISH P (UPPER)	ACID	36113067	1953	1979
		AWDB-S	050288	1900	1984
050289	MUD P (LITTLE)	ACID	36113068	1960	1960
050290	MUD P (UPPER)	ACID	36113069	1960	1960
050291	KIBBY P	ACID	36113819	1932	1981
		AWDB-S	050291	1900	1984
		FIN-S	36113048	1975	1975
050292	SIAMESE P (LOWER)	ACID	36113025	1932	1981
		FIN-S	36113049	1975	1975
050293	SIAMESE P (UPPER)	ACID	36113041	1932	1982
		AWDB-S	050293	1900	1984
		FIN-S	36113050	1975	1975
050294	TWIN P (LOWER)	ACID	36113070	1957	1981
		FIN	36113051	1974	1983
050295	TWIN P (UPPER)	ACID	36113042	1975	1981
		AWDB-S	050295	1900	1984
		FIN-S	36113052	1975	1975
050298	SECORD P	ACID	36113034	1957	1980
		AWDB-S	050298	1900	1984
		FIN-S	36113055	1975	1975
050299	THE FLY P	ACID	36113038	1975	1975
		AWDB-S	050299	1900	1984
		FIN-S	36113056	1975	1975
050300	BOTHERATION P	ACID	36113002	1975	1975
		AWDB-S	050300	1900	1984
		FIN-S	36113057	1975	1975
050301	JOHNSONS FLY P	AWDB-S	050301	1900	1984
050302	HAYES FLOW P	AWDB-S	050302	1900	1984
050303	SOUTH PINE L	ACID	36041290	1957	1979
050304	ELM L	ACID	36041062	1932	1979
050305	NORTH PINE L	ACID	36041291	1961	1961
050306	UPPER PINE L	ACID	36041203	1961	1975
		AWDB-S	050306	1900	1984
		FIN-S	36041195	1975	1975
050307	SOUTH UPPER PINE P	ACID	36041292	1957	1957
050308	OWL P	ACID	36041293	1932	1979
		AWDB-S	050308	1900	1984
050309	ROCK P	ACID	36041294	1932	1978
		AWDB-S	050309	1900	1984
		NSWS	1A3-066	1984	1984
		SOILS-P	1A3-066	1984	1984

POND_NO	LAKE NAME	SOURCE	SOURCE ID	FIRST	LAST
050310	LONG P	ACID	36041295	1932	1978
		AWDB-S	050310	1900	1988
		NSWS	1A2-046	1984	1988
		NSWS-D	1A3-046	1986	1986
		NSWS-I	1A3-046	1986	1986
		SOILS	1A3-046	1985	1985
		SOILS-S	1A3-046	1984	1988
050311	ACKERMAN P	ACID	36041296	1957	1957
050312	SOUTH P	ACID	36041185	1975	1981
		AWDB-S	050312	1900	1988
		FIW-S	36041201	1975	1975
050313	PLEASANT, L	ACID	36041182	1932	1982
		FIW	36041202	1974	1983
050314	SACANDAGA L	ACID	36041168	1932	1979
050315	SOUND, L	ACID	36041297	1957	1979
050316	MOD L	ACID	36041298	1957	1979
050317	ECHO L	ACID	36041061	1932	1981
		FIW	36041206	1974	1983
050318	LUZERNE, L	ACID	36113071	1950	1979
050320	BULLHEAD P	ACID	36113008	1979	1979
050325	FOURTH L	ACID	36113072	1963	1981
		FIW	36113085	1974	1983
050329A	WAMARE, L	ACID	36113004	1932	1932
050329B	BLACK P	ACID	36113073	1956	1956
050330	GAY P	ACID	36113074	1956	1956
050332	LEWS L	ACID	36113075	1958	1979
		AWDB-S	050332	1900	1988
050333	LITTLE P	ACID	36113076	1932	1970
050334	WOLF P	ACID	36113077	1932	1932
050335	COOK P	ACID	36113078	1932	1932
050336	NUMBER NINE P	ACID	36113079	1957	1957
050341	SHERMAN P	ACID	36113035	1932	1981
		FIW	36113095	1974	1983
050342	BURET P	ACID	36113005	1932	1981
		FIW	36113096	1974	1983
050343	CRYSTAL L	ACID	36113010	1932	1981
		FIW	36113097	1974	1983
		NSWS	1A3-061	1984	1988
050344	STREETER P	NSWS	1A2-051	1984	1984
050347	BRANT L	ACID	36113003	1988	1978
		FIW	36113091	1974	1983
		NSWS	1A2-035	1984	1988
050348	BEAVER P	ACID	36113080	1932	1959
050350	BRINDLE P	ACID	36113081	1964	1968
050351	BACKET P	ACID	36113082	1968	1968
050352	BUTTERMILK P	ACID	36113083	1956	1981
		FIW	36113096	1974	1983
050353	SWEDE P	ACID	36113084	1963	1979
050354	LILY P	ACID	36113020	1932	1979
		NSWS	1A2-036	1984	1988
050355	BENNETT P	ACID	36113085	1963	1963
050356	CUNNINGHAM P	ACID	36113086	1932	1932
050359	LIGGETS P	ACID	36113087	1932	1932
050360	FAXONS P	ACID	36113088	1932	1932
050360A	ALLIGATOR P	ACID	36113089	1956	1956
050365	FRIENDS L	ACID	36113012	1977	1982
		FIW	36113110	1974	1983

POND_NO	LAKE NAME	SOURCE	SOURCE ID	FIRST	LAST
050366	SULLIVAN P	ACID	36113090	1957	1957
		NSWS	1A3-018	1988	1988
050367	LOON L	ACID	36113023	1978	1979
050368	PALMER P	ACID	36113030	1932	1981
		FIW	36113113	1974	1983
050370	VALENTINE P	ACID	36113083	1932	1979
050371	SMITH P	ACID	36113036	1932	1981
		FIW	36113116	1974	1983
		NSWS	1A3-017	1988	1988
050374	SUNDOWN L	ACID	36031094	1932	1982
		FIW	36031136	1974	1983
050375	WARNER P	ACID	36113085	1932	1959
050376	FAT P	AWDB-S	050376	1900	1988
050381	NOKMAN P	ACID	36031187	1957	1979
050381A	SERENE, L	ACID	36031188	1961	1961
050381B	MINNAYA L	ACID	36031189	1932	1979
050381C	DIMICK P	ACID	36031190	1957	1957
050381D	BUSSEY BROOK BEAVER P	ACID	36031191	1960	1960
050382	CALAHAN P	ACID	36031192	1958	1958
050383	BIG SHERMAN P	ACID	36031193	1978	1978
		AWDB-S	050383	1900	1988
050385	OLIVER P	ACID	36031079	1932	1979
		AWDB-S	050385	1900	1988
050386	PARKER P	ACID	36031194	1957	1977
		AWDB-S	050386	1900	1988
050388	HEWITT P	ACID	36031051	1932	1979
		AWDB-S	050388	1900	1988
050389	BLACK P	ACID	36031195	1957	1957
050392	SHERMAN	AWDB-S	050392	1900	1988
050392A	LINGE FARM P	ACID	36041299	1960	1960
050394	MULINS P	ACID	36031074	1932	1979
050395	BIGSBY P	ACID	36031015	1932	1979
		AWDB-S	050395	1900	1988
050396A	HARRIMS P	ACID	36031196	1988	1988
050397	BAILEY P	ACID	36031197	1969	1978
		AWDB-S	050397	1900	1988
050398	HARION P	ACID	36031067	1969	1978
		AWDB-S	050398	1900	1988
		FIW-S	36031160	1975	1975
050399	HARSH P	ACID	36031198	1952	1952
050402	THORNAN P	ACID	36031199	1959	1979
		AWDB-S	050402	1900	1988
050403	HORSESHOE P	ACID	36031053	1979	1980
		AWDB-S	050403	1900	1988
		NSWS	1A2-032	1984	1988
050404	BULLET P	ACID	36031200	1955	1980
		AWDB-S	050404	1900	1988
		FIW	36031166	1974	1983
050405	FORTE P	ACID	36031201	1955	1979
		AWDB-S	050405	1900	1988
050406	BIG ROGERS P	ACID	36031202	1955	1979
		AWDB-S	050406	1900	1988
050407	HARRISON MARSH P	ACID	36031203	1940	1952
050408	SPECTACLE P	ACID	36031204	1974	1979
		NSWS	1A2-038	1984	1988
050409	SPECTACLE P	ACID	36031205	1952	1952
050410	CRAB P	ACID	36113091	1958	1979

POND_NO	LAKE NAME	SOURCE	SOURCE ID	FIRST	LAST
050411	WHORTLEBERRY P	ACID	36031206	1979	1979
050412	PHARAOH L	ACID	36031083	1932	1979
050413	WOLF P	ACID	36031207	1959	1982
		FIN	36031174	1974	1983
050414	SPRINGHILL P (LOWER)	ACID	36031208	1958	1979
050415	SPRINGHILL P	ACID	36031209	1958	1958
050416	SPRINGHILL P (UPPER)	ACID	36031210	1958	1979
050417	WILCOX P	ACID	36031211	1954	1954
050418	GULL P	ACID	36031048	1956	1979
		FIN	36031179	1974	1983
		FIRLA	AREN021	1978	1983
050419	GOOSE P	ACID	36031046	1932	1979
050420	ALDER P	ACID	36031212	1982	1982
		FIN	36031181	1974	1983
050421	CRANE P	ACID	36031034	1932	1979
		NSWS	1A2-059	1988	1988
050422	HONEY P	ACID	36031213	1963	1963
050423	LILYPAD P	ACID	36031214	1963	1982
050424	ROCK P	ACID	36031215	1955	1979
050425	LITTLE ROCK P	ACID	36031216	1955	1979
050426	BURGE P	ACID	36031217	1958	1963
050427	OXSHOE P	ACID	36031218	1950	1979
050428	UNNAMED	ACID	36031219	1952	1952
050429	GLIDDEN MARSH	ACID	36031220	1981	1983
		FIN	36031190	1974	1983
050430	CRAB P	ACID	36031221	1958	1982
		FIN	36031191	1974	1983
050431	HORSESHOE P	ACID	36031222	1958	1958
050432	PARADOX L	ACID	36031080	1932	1982
		FIN	36031194	1974	1983
		NSWS	1A1-070	1986	1986
		NSWS-2	1A1-070	1986	1986
050433	PEAKED HILL P	ACID	36031223	1951	1979
050434	JOHNSON P	ACID	36031224	1958	1979
050435	BUGGO P	ACID	36031225	1956	1956
050436	COTTERS P	ACID	36031226	1968	1981
		FIN	36031198	1974	1983
050437	PYRAMID L	ACID	36031227	1980	1980
		FIN	36031199	1974	1983
050437A	ARNOLD P	ACID	36031228	1958	1982
		FIN	36031200	1974	1983
050438	EAGLE L	ACID	36031039	1932	1982
		FIN	36031201	1974	1983
050439	SNAKE P	ACID	36031229	1932	1932
050441	OTTER P	ACID	36031230	1932	1956
050442	GOOSENECK P	ACID	36031231	1979	1979
		NSWS	1A2-033	1984	1984
050444	FLEMINGS P	ACID	36031232	1958	1979
050445	SCHOFIELD P	ACID	36031233	1963	1982
		FIN	36031205	1974	1983
050448	KNOB P	ACID	36031058	1932	1981
		FIN	36031211	1974	1983
050451	OVERSHOT P	ACID	36031234	1982	1982
		FIN	36031214	1974	1983
050453	HUSE P	ACID	36031235	1932	1932

POND_NO	LAKE NAME	SOURCE	SOURCE ID	FIRST	LAST
050453A	PALMER P	ACID	36031236	1958	1958
050453B	TROUT P	ACID	36031237	1963	1963
050454	BIG MARSH P	ACID	36031238	1958	1979
050455	LITTLE MARSH P	ACID	36031239	1979	1979
		AWDB-S	050455	1900	1984
050456A	NIAGARA FLOW	ACID	36031240	1965	1965
050457	SAND P	ACID	36031241	1932	1982
		AWDB-S	058057	1900	1984
		FIN	36031223	1974	1983
050458	CLEAR P	ACID	36031242	1932	1980
		FIN	36031224	1974	1983
		LTM		1984	1984
		NSWS	1A2-077	1984	1984
		FIRLA		1978	1983
		ELLNAS		1982	1985
050460	ELK L	ACID	36031243	1980	1980
		AWDB-C	050460	1900	1984
		FIN	36031226	1974	1983
050460A	DIX P	ACID	36031037	1960	1975
		AWDB-S	050460A	1900	1984
		FIN-S	36031227	1975	1975
050463	HATCH P	ACID	36031244	1981	1981
		FIN	36031230	1974	1983
050464	BASS L	ACID	36031245	1951	1979
050465	CHALLIS P	ACID	36031028	1932	1981
		FIN	36031232	1974	1983
050466	BERRYHILL P	ACID	36031246	1979	1979
050467	MOOSE MOUNTAIN P	ACID	36031247	1932	1979
050468	HEMLOCK P	ACID	36031248	1982	1982
050470	FISH P	ACID	36031249	1959	1979
050472	HOWARD P	ACID	36031250	1956	1982
		AWDB-S	050472	1900	1984
		FIN	36031239	1974	1983
050473	BROTHER P (LOWER)	ACID	36031251	1932	1932
050476	EAGLES NEST P	ACID	36031252	1956	1979
		AWDB-S	058476	1900	1984
050477	BLOODY P	ACID	36031253	1956	1956
050478	BLACK BROOK P (LOWER)	ACID	36031254	1963	1963
050479	BLACK BROOK P (UPPER)	ACID	36031255	1932	1963
050480	JOE P	ACID	36031256	1963	1963
050482	SHINGLETREE P	ACID	36031257	1950	1976
050483	COURTNEY P	ACID	36031033	1932	1982
		FIN	36031250	1974	1983
050486	HONSON P	ACID	36031258	1958	1979
		AWDB-S	050486	1900	1984
050487	TRIANGLE P	ACID	36031259	1963	1982
		AWDB-S	050487	1900	1984
		FIN	36031254	1974	1983
050488	BULLPORT P	AWDB-S	050488	1900	1984
050489	ROUND P	ACID	36031260	1956	1979
050490	MORIAH P	ACID	36031261	1956	1982
		AWDB-S	050490	1900	1984
		FIN	36031257	1974	1983
050491	GUY P	ACID	36031262	1932	1932
		AWDB-S	050491	1900	1984
050493	JOE P	ACID	36031263	1959	1959
		AWDB-S	050493	1900	1984
050494A	SECRET P	AWDB-S	050494A	1900	1984

POND_NO	LAKE NAME	SOURCE	SOURCE ID	FIRST	LAST
050495	BIRCH P	ACID	36031264	1958	1979
		AWDB-S	050495	1900	1984
050496	LOST P	ACID	36031265	1961	1961
		AWDB-S	050496	1900	1984
050499	HOSS P (SOUTHERN)	AWDB-S	050499	1900	1984
050501	NEW P	ACID	36031266	1979	1979
		AWDB-S	050501	1900	1984
050506	FREDER P	AWDB-S	050506	1900	1984
050506A	SOUTH DALTON P	ACID	36031267	1968	1968
050506B	NORTH DALTON P	ACID	36031268	1968	1968
050505	NEWPORT P	ACID	36031076	1932	1981
050506	HATCHING P	ACID	36031269	1932	1979
		AWDB-S	050506	1900	1984
050506A	UNNAMED	ACID	36031270	1968	1968
050507	CROWFOOT P	ACID	36031271	1932	1979
		AWDB-S	050507	1900	1984
050507B	LITTLE CROWFOOT P	ACID	36031272	1964	1964
050508	DAGGETT P	ACID	36113092	1932	1979
050510	BEAR P	ACID	36113093	1932	1932
050511	ECHO L	ACID	36113094	1932	1981
		FIN	36113126	1974	1983
050511A	SIT'N BULL P	ACID	36113101	1967	1967
050512A	PACK FOREST L	ACID	36113095	1963	1979
050513	DIPPIKILL P	ACID	36113011	1932	1981
		FIN	36113130	1974	1983
050515	LITTLE P	ACID	36113024	1932	1984
050516	AUSTIN P	ACID	36113096	1979	1979
050517	OTEN MOUNTAIN P	ACID	36113029	1932	1960
050519	CRANE MOUNTAIN P	ACID	36113009	1932	1981
		FIN-S	36113135	1975	1975
		FIRLA	ADIR012	1978	1983
050520	GARNET L	ACID	36113010	1932	1979
050521	ROUND P	ACID	36113097	1932	1979
050522	MOD P	ACID	36113098	1958	1958
050523	BIRD P	ACID	36113001	1932	1979
050529	CHATIREAC L	ACID	36113007	1932	1975
		AWDB-S	050529	1900	1984
		FIN-S	36113186	1975	1975
050529A	ROSS L	ACID	36113099	1932	1979
		AWDB-S	050529A	1900	1984
050531	CARTER P	ACID	36113100	1957	1957
050535	CLEAR P	ACID	36113008	1932	1982
		FIN	36113158	1974	1983
050536	EASTERN P	ACID	36031273	1957	1957
050538	TWENTYNINTH P	ACID	36031109	1957	1975
		FIN-S	36031283	1975	1975
050539	BROWN P	ACID	36041025	1957	1975
		AWDB-S	050539	1900	1984
050540	THIRTEENTH L	ACID	36113039	1932	1982
		AWDB-C	050540	1900	1984
		FIN	36113155	1974	1983
050541	HOGN P	ACID	36113014	1957	1979
		AWDB-S	050541	1900	1984
		FIN-S	36113156	1975	1975
050542	PEAKED MOUNTAIN P	ACID	36113031	1957	1975
		AWDB-S	050542	1900	1984
		FIN-S	36113157	1975	1975

POND_NO	LAKE NAME	SOURCE	SOURCE ID	FIRST	LAST
050544	FRIER P	ACID	36041300	1963	1980
		FIN	36041210	1974	1983
050547	BLACK MOUNTAIN P	ACID	36041301	1960	1979
050548	LITTLE BLACK MOUNTAIN P	ACID	36041302	1960	1982
		FIN	36041218	1974	1983
050549	BULLHEAD P	AWDB-S	050549	1900	1988
050550	HOTWATER P	ACID	36031274	1957	1957
050551	GRASSY P	ACID	36031087	1958	1975
		FIN-S	36031286	1975	1975
050552	FISH P	ACID	36031082	1958	1975
		AWDB-S	050552	1900	1984
		FIN-S	36031287	1975	1975
050554	VANDERWHACKER P	ACID	36031275	1956	1978
		NSWS	1A1-067	1986	1986
050555	DALTOUR L	ACID	36031012	1932	1979
050556	RANKIN P	ACID	36031276	1957	1979
050557	STORY P	ACID	36031102	1958	1977
		AWDB-S	050557	1900	1984
		FIN-S	36031293	1975	1975
050558	UNNAMED	ACID	36031277	1975	1975
		FIN	36031298	1974	1983
050559	CENTER P	ACID	36031278	1958	1977
		AWDB-S	050559	1900	1984
		FIN-S	36031295	1975	1975
050560	CHENEY P	ACID	36031279	1956	1979
050561	WOLF P	ACID	36031280	1932	1979
		NSWS	1A1-053	1986	1986
050564	LOWER BORSAS P	ACID	36031281	1979	1979
050565	WHITE LILY P	ACID	36031115	1975	1975
		AWDB-S	050565	1900	1984
		FIN-S	36031302	1975	1975
050567	O K SLIP P	AWDB-C	050567	1900	1984
050568	WHORTLEBERRY P	ACID	36041303	1958	1979
		AWDB-S	050568	1900	1984
050569	ROSS P	ACID	36041304	1958	1979
		AWDB-S	050569	1900	1984
		NSWS	1A3-046	1986	1986
050570	CARTER P	AWDB-C	050570	1900	1984
050571	UNNAMED	AWDB-C	050571	1900	1984
050572	PINE MOUNTAIN P	ACID	36041205	1958	1979
		AWDB-S	050572	1900	1984
050574	HUNTLEY P	ACID	36031055	1932	1982
		FIN	36031303	1974	1983
		FIRLA	ADIR024	1978	1983
050575	MOD P	ACID	36031282	1958	1958
050576	MINK P	ACID	36031069	1932	1982
		AWDB-C	050576	1900	1984
		FIN	36031305	1974	1983
050576A	HIGH DAM BEAVER P	ACID	36031283	1974	1974
050577	WATE P	ACID	36031075	1958	1975
		AWDB-C	050577	1900	1984
		FIN-S	36031307	1975	1975
		NSWS	1A3-001	1986	1986
		NSWS-D	1A3-001	1986	1986
		NSWS-2	1A3-001	1986	1986
		SOILS	1A3-001	1985	1985
050578	TROUB P	ACID	36031108	1932	1982
		AWDB-C	050578	1900	1984
050579	CEDAR P	ACID	36031284	1958	1958
050580	SQUIRREL P	ACID	36041306	1957	1981
		AWDB-S	050580	1900	1984
		FIN	36041222	1974	1983

POND_NO	LAKE NAME	SOURCE	SOURCE ID	FIRST	LAST
050581	DUNK P	ACID	36031038	1957	1979
		AWDB-S	050581	1900	1984
		FIN	36031310	1974	1983
		FIRLA	ADIR0016	1978	1983
050582	BULLHEAD P	ACID	36041307	1932	1979
050583	FRANCIS, L	ACID	36041308	1932	1979
050584	CRANBERRY P	ACID	36041309	1958	1980
		FIN	36041225	1974	1983
050585	BIG BAD LUCK P	ACID	36041310	1955	1982
		FIN	36041226	1974	1983
050586	ROCK P	ACID	36041311	1955	1979
050587	STONISTEN P	ACID	36041312	1955	1979
050587A	ADIRONDACK, L	ACID	36041312	1973	1979
		NSWS	1A3-067	1984	1984
050587B	ABANAKEE, L	ACID	36041001	1975	1976
050588	JERRY P	ACID	36041314	1979	1979
050588A	KINGS FLOW	ACID	36041315	1932	1979
		AWDB-C	050588A	1900	1984
050589	PUFFER P	ACID	36113032	1932	1981
		AWDB-S	050589	1900	1984
		FIN-S	36113158	1975	1975
050590	BOBED L	ACID	36041316	1957	1982
		AWDB-C	050590	1900	1984
		FIN	36041233	1974	1983
050591	NORTH P	AWDB-C	050591	1900	1984
050593	CENTER P	ACID	36041317	1932	1982
		FIN	36041236	1974	1983
		NSWS	1A3-065	1984	1984
		SDILS-P	1A3-045	1984	1984
050594	CLEER P	ACID	36041318	1950	1979
		AWDB-S	050594	1900	1984
050596	JOHN P	ACID	36041319	1932	1979
		AWDB-S	050596	1900	1984
050597	INDIAN L	ACID	36041008	1932	1982
		FIN	36041240	1974	1983
050597A	LEWEY L	ACID	36041095	1932	1979
050598	CROTCHED P	ACID	36041320	1956	1981
		AWDB-S	050598	1900	1984
		FIN	36041242	1974	1983
050599	JOHN HACK P	ACID	36041321	1955	1979
		AWDB-S	050599	1900	1984
050601	LOWER DOG MOUNTAIN P	ACID	36041322	1932	1979
		AWDB-C	050601	1900	1984
050602	UPPER DOG MOUNTAIN P	ACID	36041323	1932	1979
		AWDB-S	050602	1900	1984
050603	WHITAKER L	ACID	36041211	1932	1979
		AWDB-S	050603	1900	1984
050607	LITTLE MOOSE P	ACID	36041098	1958	1977
		AWDB-S	050607	1900	1984
		FIN-S	36041251	1975	1975
050608	OTTER L	ACID	36041130	1958	1981
		AWDB-S	050608	1900	1984
		FIN-S	36041252	1975	1975
050609	DEWITT P	ACID	36041324	1958	1978
050609B	LEACH P	ACID	36041325	1969	1969
		AWDB-S	050609B	1900	1984
050610	JESSUP L	ACID	36041326	1969	1969
050612	PANTHER MOUNTAIN P	ACID	36041327	1956	1956
		AWDB-S	050612	1900	1984
050613	MASON L	ACID	36041108	1932	1979
		AWDB-S	050613	1900	1984

POND_NO	LAKE NAME	SOURCE	SOURCE ID	FIRST	LAST
050616	CLEAR P	ACID	36031285	1932	1980
		FIN	36031311	1974	1983
050617	FRANK P	ACID	36031084	1932	1979
		AWDB-S	050617	1900	1984
		FIN	36031312	1974	1983
		FIRLA	ADIR0018	1978	1983
050618	SPLIT ROCK P	ACID	36031100	1932	1980
		AWDB-C	050618	1900	1984
		FIN	36031313	1974	1983
050619	LOBESONE P	AWDB-S	050619	1900	1984
050620	UNNAMED	AWDB-S	050620	1900	1984
050625	FIRST L ESSEX CHAIN	ACID	36031286	1952	1980
		AWDB-C	050625	1900	1984
		FIN	36031320	1974	1983
050626	SECOND L	AWDB-C	050626	1900	1984
050626A	THIRD L	ACID	36031107	1952	1980
		AWDB-C	050626A	1900	1984
		FIN	36031322	1974	1983
		NSWS	1A3-081	1984	1984
050626B	FOURTH L	AWDB-C	050626B	1900	1984
050626C	FIFTH L	AWDB-C	050626C	1900	1984
050627	GRASSY P	ACID	36041328	1952	1980
		AWDB-C	050627	1900	1984
		FIN	36041261	1974	1983
050628	LITTLE GRASSY P	AWDB-S	050628	1900	1984
050629	DEER P	AWDB-C	050629	1900	1984
050630	MUD P	ACID	36031287	1952	1952
		AWDB-C	050630	1900	1984
050631	SIXTH L	ACID	36031288	1981	1981
		AWDB-C	050631	1900	1984
		FIN	36031327	1974	1983
050632	UNNAMED	AWDB-C	050632	1900	1984
050633	EIGHTH L	ACID	36031289	1953	1981
		AWDB-S	050633	1900	1984
		FIN	36031330	1974	1983
050634	JACKSON P	ACID	36031290	1952	1952
		AWDB-S	050634	1900	1984
050636	BARKER P	ACID	36041329	1956	1979
050637	ROCK L	ACID	36041155	1932	1981
050638	LITTLE ROCK L	ACID	36041330	1957	1957
050640	WOLF P	ACID	36041220	1932	1975
		AWDB-S	050640	1900	1984
		FIN-S	36041268	1975	1975
050641	TIRRELL P	ACID	36041196	1932	1979
		AWDB-S	050641	1900	1984
050642	UNNAMED	AWDB-S	050642	1900	1984
050643	STEPHENS P	ACID	36041192	1932	1979
		AWDB-S	050643	1900	1984
		NSWS	1A1-081	1984	1984
050644	CASCADE P	ACID	36041032	1932	1975
		AWDB-S	050644	1900	1984
050645	ROCK P	ACID	36041331	1932	1979
050645A	DUBANY, L	ACID	36041332	1959	1979
		AWDB-C	050645A	1900	1984
050646	LOWER MITCHELL P	ACID	36041333	1957	1957
050647	MIDDLE MITCHELL P	ACID	36041334	1957	1957
050648	UPPER MITCHELL P	ACID	36041335	1957	1957
050649	LONG P	ACID	36041336	1932	1932
050650	GRASSY P	ACID	36041337	1932	1982
		FIN	36041279	1974	1983

POND_NO	LAKE NAME	SOURCE	SOURCE ID	FIRST	LAST
050651	SLIM P	ACID	36041338	1957	1957
050652	BRADY P	ACID	36041339	1957	1957
050653	WILSON P	ACID	36041217	1957	1982
		AWDB-S	050653	1900	1984
		FIN-S	36041282	1975	1975
050654	CRYSTAL L	ACID	36041300	1979	1979
		AWDB-S	050654	1900	1984
		FIN	36041283	1974	1983
050655	PINE L	ACID	36041301	1979	1979
050656	GREEN P	ACID	36041342	1957	1982
		FIN	36041285	1974	1983
050657	UNNAMED	ACID	36041343	1957	1957
050658	UNKNOWN P	ACID	36041340	1957	1979
		AWDB-S	050658	1900	1984
		NSWS	1A3-043	1986	1986
		NSWS-D	1A3-043	1986	1986
		NSWS-2	1A3-043	1986	1986
		SOILS	1A3-043	1985	1985
050658A	UNNAMED	AWDB-S	050658A	1900	1984
050659	CORNER P	ACID	36031291	1957	1957
050662	SPRAGUE P	ACID	36041188	1932	1979
		AWDB-S	050662	1900	1984
050664	UNNAMED	ACID	36041345	1975	1975
		FIN-S	36041292	1975	1975
050665	DISHRAG P	ACID	36041052	1975	1975
		FIN-S	36041293	1975	1975
050666	WAKELY P	ACID	36041206	1956	1981
		FIN-S	36041294	1975	1975
050667	CEDAR RIVER FLOW	ACID	36041326	1956	1980
		FIN	36041235	1974	1983
		NSWS	1A1-000	1984	1984
		NSWS-2	1A1-000	1986	1986
050668	UNNAMED	ACID	36041347	1975	1975
		FIN-S	36041296	1975	1975
050669	CARRY C	ACID	36041031	1957	1975
		FIN-S	36041297	1975	1975
050670	CEDAR L	ACID	36041035	1932	1982
		FIN-S	36041298	1975	1975
		NSWS	1A1-099	1984	1984
050671	BEAVER P	ACID	36041011	1956	1975
		FIN-S	36041299	1975	1975
050672	CHENEY P	AWDB-S	050672	1900	1984
		NSWS	1A3-042	1989	1989
		NSWS-D	1A3-042	1986	1986
		NSWS-2	1A3-042	1986	1986
		SOILS	1A3-042	1985	1985
050672A	GOODNOW FLOWAGE	ACID	36031292	1980	1980
		AWDB-C	050672A	1900	1984
		FIN	36031334	1974	1983
050673	ZACK P	ACID	36031293	1980	1980
		AWDB-S	050673	1900	1984
		FIN	36031335	1974	1983
		NSWS	1A3-040	1988	1988
		NSWS-D	1A3-040	1986	1986
		NSWS-2	1A3-040	1986	1986
		SOILS	1A3-040	1985	1985
		SOILS-P	1A3-040	1984	1984
050674	OTTER P	AWDB-S	050674	1900	1984
050675	BATES P	AWDB-C	050675	1900	1984
050676	GOODNOW P	ACID	36031294	1979	1979
		AWDB-S	050676	1900	1984
050678	HOOSE P	ACID	36031071	1975	1980
		FIN-S	36031340	1975	1975
050680	HARRIS L	ACID	36031049	1932	1978
050681	WOODRUFF P	ACID	36031295	1958	1979
		NSWS	1A1-088	1984	1984
		FIRLA	ADIR050	1978	1983
		WILWAS		1982	1985
050682	RICE L	ACID	36031087	1932	1978
		FIN	36031285	1974	1983
050684	ABBOTOS P	ACID	36031002	1978	1979
		FIN	36031347	1974	1983
		NSWS	1A1-052	1988	1988
		FIRLA	ADIR001	1978	1983
		WILWAS		1982	1985
050685	CATLIN L	ACID	36031296	1980	1980
		AWDB-C	050685	1900	1984
		FIN	36031348	1974	1983
050686	CORNER P	ACID	36041348	1932	1979
		AWDB-S	050686	1900	1984
050687	ROUND P	ACID	36041349	1956	1979
		AWDB-C	050687	1900	1984
050688	WOLF P	ACID	36031116	1978	1979
		AWDB-S	050688	1900	1984
		FIN	36031389	1974	1983
		FIRLA	ADIR009	1978	1983
050689	DEER P	ACID	36031038	1978	1981
		AWDB-C	050689	1900	1984
		FIN	36031350	1974	1983
		FIRLA	ADIR035	1978	1983
050691	PICKWACKET P	ACID	36041350	1979	1980
		AWDB-S	050691	1900	1984
		FIN	36041303	1974	1983
050694	NEWCOMB L	ACID	36031297	1972	1979
		AWDB-C	050694	1900	1984
050695	WARD P	ACID	36031298	1972	1982
		AWDB-S	050695	1900	1984
		FIN	36031354	1974	1983
050696	BLACK P	AWDB-S	050696	1900	1984
050698	ANDREW, L	ACID	36031001	1975	1975
		AWDB-S	050698	1900	1984
		FIN-S	36031357	1975	1975
050699	BEAVER FLOW	ACID	36031299	1972	1980
		FIN	36031358	1974	1983
050699A	BEAVER FLOW	ACID	36031300	1979	1980
		FIN	36031359	1974	1983
050700	UNNAMED	AWDB-S	050700	1900	1984
050701	HYSLOP P	AWDB-S	050701	1900	1984
050702	PERCH P	ACID	36031301	1980	1980
		FIN	36031362	1974	1983
050703	TROUT P	ACID	36031302	1958	1958
050704	FLOWED LANDS	ACID	36031043	1965	1976
		AWDB-C	050704	1900	1984
		FIN-S	36031364	1975	1975
050705	LIVINGSTON P	ACID	36031061	1958	1981
		FIN	36031365	1974	1983
		FIRLA	ADIR032	1978	1983
050706	COLDEN, L	ACID	36031031	1958	1978
		AWDB-C	050706	1900	1984
		FIN-S	36031366	1975	1975
		FIRLA	ADIR027	1978	1983
050707	AVALANCHE L	ACID	36031011	1958	1982
		AWDB-S	050707	1900	1984
		FIN-S	36031367	1975	1975
		FIRLA	ADIR002	1978	1983
050708A	UNNAMED	AWDB-S	050708A	1900	1984
050709	TEAR OF THE CLOUDS, L	FIRLA	ADIR028	1978	1983
050710	SANFORD L	ACID	36031303	1979	1979

POND_NO	LAKE NAME	SOURCE	SOURCE ID	FIRST	LAST
050711	CHENEY P	ACID	36031029	1975	1975
		AWDB-S	050711	1980	1984
		FIN-S	36031371	1975	1975
050712	SALLY, L	ACID	36031304	1979	1979
		AWDB-S	050712	1980	1984
050713	JIMMY, L	ACID	36031305	1979	1979
		AWDB-S	050713	1980	1984
050714	CALAMITY P	ACID	36031026	1975	1975
		FIN-S	36031374	1975	1975
050715	HENDERSON L	ACID	36031306	1979	1979
		NSWS	1A1-015	1984	1988
		NSWS-2	1A1-015	1986	1986
050716	HARKNESS L	ACID	36031307	1979	1979
		AWDB-S	050716	1980	1984
050717	BRADLEY P	ACID	36031024	1975	1975
		AWDB-S	050717	1980	1984
		FIN-S	36031377	1975	1975
050718	LOWER WALLFACE	ACID	36031065	1963	1975
		AWDB-C	050718	1980	1984
		FIN-S	36031378	1975	1975
050719	UPPER WALLFACE P	ACID	36031113	1963	1979
		AWDB-S	050719	1980	1984
		FIN-S	36031379	1975	1975
		NORTON PIRLA	ADIR045	1978	1983
050720	MIDDLE WALLFACE P	ACID	36031308	1975	1975
		AWDB-S	050720	1980	1984
		FIN-S	36031380	1975	1975
051010	MOREAU L	NSWS	1A3-031	1984	1984
060000B	TECON P #3	ACID	36089169	1962	1962
060005	POTSDAM FLOW	ACID	36089170	1933	1933
060005B	HANNAWA FLOW	ACID	36089171	1933	1933
060006	CLOSE P	ALS	060006	1986	1986
060006B	UNNAMED	ACID	36089172	1933	1933
060007	HIGLEY FALLS R	ACID	36089123	1933	1980
		ALS	060007	1986	1986
		FIN	36089213	1974	1983
060008	JOHN P	ALS	060008	1985	1985
060011	ARBUCKLE P	ACID	36089124	1933	1980
		ALS	060011	1985	1985
		FIN	36089215	1974	1983
060013	FRENCH L	ALS	060013	1985	1985
060014	BARNEY P	ACID	36089002	1933	1933
		ALS	060014	1985	1985
060015	GOGGARD P	ALS	060015	1985	1985
060015A	LOWER HOGGARD P	ALS	060015A	1986	1986
060015B	UNNAMED	ALS	060015B	1986	1986
060016	MUD P	ALS	060016	1986	1986
060017	COLD P	ALS	060017	1986	1986
060017A	SOUTH COLTON R	ACID	36089125	1969	1980
		ALS	060017A	1985	1985
		FIN	36089221	1974	1983
060018	ROCK P	ACID	36089126	1933	1933
		ALS	060018	1984	1984
060019	UNNAMED	ALS	060019	1985	1985
060020	NORTHERN NORTON P	ACID	36089127	1933	1949
		ALS	060020	1986	1986
060021	SOUTHERN NORTON P	ACID	36089128	1933	1974
		ALS	060021	1985	1985
060021A	FIVE FALLS R	ACID	36089129	1981	1981
		ALS	060021A	1984	1984
		FIN	36089226	1974	1983
060022A	RAINBOW FALLS R	ACID	36089130	1969	1979
060023	ORMSBEE P	ACID	36089048	1933	1933
		ALS	060023	1985	1985
060024	UNNAMED	ALS	060024	1986	1986
060025	LILYPAD P	ACID	36089131	1933	1982
		ALS	060025	1986	1986
		FIN	36089230	1974	1983
060026	UNNAMED	ALS	060026	1986	1986
060027	LITTLE ROCK P	ACID	36089132	1933	1933
		ALS	060027	1984	1984
060028	LONG P	ACID	36089133	1933	1982
		ALS	060028	1986	1986
		FIN	36089233	1974	1983
060029	STERLING P	ACID	36089063	1933	1960
		ALS	060029	1986	1986
060029A	BL R	ACID	36089134	1957	1980
		FIN	36089235	1974	1983
		NSWS	1A2-030	1984	1984
		NSWS-2	1A2-030	1986	1986
060031	JOE INDIAN P	ACID	36089035	1933	1980
		ALS	060031	1985	1985
		FIN	36089237	1974	1983
060031A	UNNAMED	ALS	060031A	1986	1986
060033	KILDARE P	ACID	36089038	1933	1933
		ALS	060033	1986	1986
060034	THIRTYFIVE P	ACID	36089067	1933	1933
		ALS	060034	1986	1986
060035	WHITNEY P	ACID	36089073	1933	1979
		ALS	060035	1985	1985
060035A	KETTLE P	ACID	36089037	1933	1960
		ALS	060035A	1985	1985
060035B	STARK FALLS R	ACID	36089135	1958	1980
		FIN	36089243	1974	1983
060035C	CARRY FALLS R	ACID	36089092	1953	1982
		FIN	36089248	1974	1983
060035D	FOX MARSH P	ALS	060035D	1986	1986
060036	MIDGET P	ALS	060036	1985	1985
060037	UNNAMED	ALS	060037	1986	1986
060038	UNNAMED	ALS	060038	1986	1986
060039	MCCUEN P	ALS	060039	1986	1986
060040	BUCK P	ALS	060040	1986	1986
060041	AMBER L	ACID	36089001	1933	1980
		ALS	060041	1986	1986
		FIN	36089250	1974	1983
060042	UNNAMED	ALS	060042	1986	1986
060043	UNNAMED	ALS	060043	1986	1986
060045	UNNAMED	ALS	060045	1986	1986
060046	JORDAN L	ACID	36089036	1933	1982
		ALS	060046	1986	1986
		FIN	36089255	1974	1983
060047	LITTLE JORDAN L	ACID	36089040	1933	1933
		ALS	060047	1986	1986
060048	DEER P	ACID	36089136	1974	1974
		ALS	060048	1984	1984
060049	OTTER P	ACID	36089052	1933	1980
		ALS	060049	1984	1984

POND_NO	LAKE NAME	SOURCE	SOURCE ID	FIRST	LAST
060050	ROCK P	ACID	36033269	1933	1933
		ALS	060050	1986	1986
060051	POTTER P	ACID	36033270	1933	1933
		ALS	060051	1985	1985
060051B	UNNAMED	ALS	060051B	1986	1986
060052	SPRING P	ALS	060052	1986	1986
060053	MOUNTAIN P	ACID	36033271	1957	1957
		ALS	060053	1985	1985
		AWDB-S	060053	1980	1984
060054	WILLIS P	ACID	36033272	1933	1957
		ALS	060054	1986	1986
060054A	LITTLE WILLIS P	ACID	36033273	1957	1957
060055	UNNAMED	ALS	060055	1986	1986
060056	MUD P	ACID	36033274	1957	1957
		ALS	060056	1985	1985
060057	SUNSET P	ALS	060057	1986	1986
060057A	PITCHFORK P	ACID	36033275	1935	1980
		ALS	060057A	1985	1985
		FIN	36033424	1974	1983
060058	UNNAMED	ALS	060058	1986	1986
060059	UNNAMED	ALS	060059	1985	1985
060060	UNAMED	ALS	060060	1985	1985
060061	LONE P	ACID	36089137	1933	1933
		ALS	060061	1986	1986
060062	LEONARD P	ACID	36089039	1933	1977
		ALS	060062	1988	1988
060063	CROOKED L	ACID	36089015	1933	1933
		ALS	060063	1985	1985
060064	ROBERTS P	ACID	36089130	1933	1933
		ALS	060064	1985	1985
060065	PRESTON P	ACID	36089129	1933	1933
		ALS	060065	1985	1985
060066	CHANDLER P	ACID	36089011	1933	1953
060067	UNNAMED	ACID	36089100	1933	1933
		ALS	060067	1984	1984
060068	MUD P	ALS	060068	1985	1985
060069	LILYPAD P	ALS	060069	1986	1986
060070	WINDFALL P	ALS	060070	1985	1985
060072	UNAMED	ALS	060072	1986	1986
060073	SEVEN SISTERS P S	ACID	36089181	1933	1933
		ALS	060073	1985	1985
060074	SEVEN SISTERS P S	ACID	36089182	1933	1933
		ALS	060074	1985	1985
060075	UNAMED	ALS	060075	1986	1986
060076	UNAMED	ALS	060076	1984	1986
060077	SEVEN SISTERS P S	ACID	36089183	1933	1933
		ALS	060077	1986	1986
060078	MARSH P S	ACID	36089184	1933	1933
		ALS	060078	1986	1986
060078A	MARSH P S	ALS	060078A	1986	1986
060079	UNNAMED	ALS	060079	1985	1985
060080	EAGLE CRAG L	ACID	36089021	1933	1979
		ALS	060080	1986	1986
		AWDB-S	060080	1980	1988
060081	BUCK P	ALS	060081	1986	1986
060082	LILYPAD P	ALS	060082	1986	1986

POND_NO	LAKE NAME	SOURCE	SOURCE ID	FIRST	LAST
060083	MOUNT ARAB L	ACID	36089145	1933	1979
		ALS	060083	1986	1986
		AWDB-S	060083	1980	1984
		WSWS	1A1-068	1984	1984
		WSWS-P	1A1-068	1986	1986
		WSWS-2	1A1-068	1986	1986
		SOILS	1A1-068	1985	1985
060084	PINE P	ALS	060084	1985	1985
		AWDB-S	060084	1980	1984
060085	PIERCEFIELD FLOW	ACID	36089186	1933	1979
		ALS	060085	1985	1985
		WSWS	1A1-035	1984	1988
060086	UNNAMED	ALS	060086	1986	1986
060087	GULL P	ACID	36033030	1933	1982
		ALS	060087	1986	1986
		AWDB-C	060087	1980	1988
060088	HINZON P	ACID	36089187	1933	1979
		ALS	060088	1985	1985
		AWDB-S	060088	1980	1988
060089	MAQUETTE P	ACID	36033063	1933	1980
		FIN	36033429	1974	1983
060090	UNNAMED P	ALS	060090	1986	1986
060091	WOODBURY P	ACID	36033276	1955	1982
		ALS	060091	1986	1986
		FIN	36033431	1974	1983
060092	GIRO P	ALS	060092	1986	1986
060093	LEAD P	ACID	36033035	1933	1979
		ALS	060093	1984	1984
060094	UNNAMED	ACID	36033277	1957	1957
		ALS	060094	1985	1985
060095	LITTLE WOLF P	ACID	36033083	1933	1979
		ALS	060095	1985	1985
060096	MATHEADOW P	ACID	36033031	1933	1979
		ALS	060096	1986	1986
060097	WULF P	ACID	36033278	1933	1980
		FIN	36033437	1974	1983
060098	TONGUE P	ACID	36033279	1933	1933
		ALS	060098	1986	1986
060101	NORTHERN SPECTACLE P	ACID	36033280	1933	1933
		ALS	060101	1985	1985
060102	SOUTHERN SPECTACLE P	ACID	36033281	1933	1933
		ALS	060102	1985	1985
060104	HEAVENS P	ACID	36033282	1933	1955
		ALS	060104	1986	1986
060105	UNNAMED	ALS	060105	1986	1986
060106	CRANBERRY P	ACID	36033283	1933	1933
		ALS	060106	1986	1986
060107	UNNAMED	ALS	060107	1986	1986
060108	UNNAMED	ALS	060108	1986	1986
060109	TOPPER L	ACID	36033284	1928	1982
		FIN	36033448	1974	1983
060110	TOPPER L R	ALS	060110	1985	1985
060111	UNNAMED	ALS	060111	1986	1986
060112	JENKINS P	ACID	36033033	1933	1980
		ALS	060112	1986	1986
		FIN	36033451	1974	1983
		FIELD	ADX2025	1978	1983
060113	LONG P	ACID	36033284	1933	1982
		ALS	060113	1986	1986
		AWDB-S	060113	1980	1984
		FIN	36033452	1974	1983
		FIELD	ADX2033	1978	1983
060114	SAINT HUBERT P	ALS	060114	1986	1986

POND_NO	LAKE NAME	SOURCE	SOURCE ID	FIRST	LAST
060115	UNNAMED	ALS	060115	1986	1986
060116	LOST P	ALS	060116	1986	1986
060117	BEAR P	ACID	36041351	1933	1980
		ALS	060117	1986	1986
		AWDB-S	060117	1900	1984
		FIN	36041307	1974	1983
060117A	UNNAMED	ALS	060117A	1986	1986
060118	ROUND L	ACID	36041352	1980	1982
		ALS	060118	1985	1985
		FIN	36041308	1974	1983
060119	UNNAMED	ALS	060119	1985	1985
060120	LITTLE UPPER L	ACID	36041802	1950	1982
		NSWS	1A1-043	1984	1984
060121	HEDGEHOG P	ACID	36041353	1950	1950
		ALS	060121	1985	1985
060122	UNNAMED	ALS	060122	1986	1986
060123	HANDSOME P	ACID	36041354	1950	1980
		ALS	060123	1985	1985
		AWDB-S	060123	1900	1984
		FIN	36041313	1974	1983
060124	UNNAMED	ALS	060124	1985	1985
060125	SPEARY P	ACID	36041355	1950	1980
		ALS	060125	1985	1985
		AWDB-S	060125	1900	1984
		FIN	36041315	1974	1983
060125A	UNNAMED	ALS	060125A	1986	1986
060125B	UNNAMED	ALS	060125B	1986	1986
060126	ANTEDILUVIAN P	ALS	060126	1986	1986
		AWDB-S	060126	1900	1984
060127	DOCTORS P	ALS	060127	1986	1986
		AWDB-S	060127	1900	1984
060128	BUM P	ALS	060128	1986	1986
060129	ROCK P	ACID	36041356	1979	1979
		ALS	060129	1986	1986
060130	LITTLE MOOSE P	ALS	060130	1986	1986
060131	BOTTLE P	ALS	060131	1986	1986
		AWDB-S	060131	1900	1984
060132	FLATFISH P	ALS	060132	1986	1986
060133	LOGIE P	ALS	060133	1986	1986
060134	CHARLEY P	ACID	36041357	1980	1980
		ALS	060134	1985	1985
		AWDB-C	060134	1900	1984
		FIN	36041324	1974	1983
060135	EAST CHARLEY P	ACID	36041056	1933	1979
		ALS	060135	1986	1986
		AWDB-S	060135	1900	1984
		NSWS	1A1-107	1984	1984
060136	LITTLE CHARLEY P	ACID	36041358	1980	1980
		ALS	060136	1986	1986
		AWDB-S	060136	1900	1984
		FIN	36041326	1974	1983
060137	SOUTHERN BETTNER P	ACID	36041359	1933	1933
		ALS	060137	1985	1985
		AWDB-C	060137	1900	1984
060138	NORTHERN BETTNER P	ACID	36041360	1933	1933
		ALS	060138	1986	1986
		AWDB-C	060138	1900	1984
060139	OTTER P	ACID	36041361	1933	1933
		ALS	060139	1986	1986
060140	COB P	ACID	36041362	1933	1933
		ALS	060140	1985	1985
		ALS	060140	1986	1986
060141	UNNAMED	ACID	36041363	1933	1933
		ALS	060141	1985	1985
		ALS	060141	1986	1986
060142	LOON P	ACID	36041364	1980	1982
		ALS	060142	1986	1986
		AWDB-S	060142	1900	1984
		FIN	36041332	1974	1983
060143	HORSESHOE L	ACID	36089032	1933	1982
		ALS	060143	1986	1986
		AWDB-S	060143	1900	1984
		FIN	36089290	1974	1983
060144	HITCHINS P	ACID	36089030	1933	1980
		ALS	060144	1986	1986
		FIN	36089291	1974	1983
		NSWS	1A1-040	1984	1984
		NSWS-2	1A1-040	1986	1986
060145	LITTLE TROUT P	ACID	36089043	1933	1973
		ALS	060145	1986	1986
060146	TROUT P	ACID	36089148	1933	1982
		ALS	060146	1986	1986
		AWDB-S	060146	1900	1984
		FIN	36089293	1974	1983
060147	HIGH P	ACID	36041365	1933	1981
		ALS	060147	1984	1984
		AWDB-S	060147	1900	1984
060148	LITTLE PINE P	ALS	060148	1985	1985
060149	BRADFORD P	ACID	36089149	1958	1958
		ALS	060149	1985	1985
		AWDB-S	060149	1900	1984
060150	HORNET P S	ACID	36089150	1958	1958
		ALS	060150	1985	1985
060151	HORNET P (NORTHERN)	ACID	36089151	1933	1958
		ALS	060151	1985	1985
060152	HORNET P (3 POUND PD)	ACID	36089152	1933	1958
		ALS	060152	1985	1985
060153	UNNAMED	ALS	060153	1985	1985
060154	LONG P	ACID	36089153	1962	1980
		ALS	060154	1985	1985
		FIN	36089300	1974	1983
060155	FIRST P	ALS	060155	1985	1985
060156	SECOND P	ACID	36089154	1933	1933
060156A	SECOND P	ALS	060156A	1985	1985
060159	UNNAMED	ALS	060159	1986	1986
060161	SPRING P	ACID	36089155	1933	1958
		ALS	060161	1986	1986
060162	GRAVES P	ACID	36089156	1980	1980
		ALS	060162	1985	1985
		FIN	36089308	1974	1983
060163	OTTER P	ACID	36089157	1980	1980
		ALS	060163	1986	1986
		AWDB-C	060163	1900	1984
		FIN	36089309	1974	1983
060164	IRON P	ACID	36089158	1975	1975
		ALS	060164	1985	1985
		AWDB-C	060164	1900	1984
060165	MARIAN, L	ACID	36089159	1980	1980
		ALS	060165	1986	1986
		AWDB-C	060165	1900	1984
		FIN	36089311	1974	1983
060166	TRIANGLE P	ACID	36089069	1975	1980
		ALS	060166	1985	1985
		AWDB-C	060166	1900	1984
		FIN-S	36089312	1975	1975
060167	PANTHER P	ACID	36089053	1975	1980
		ALS	060167	1985	1985
		AWDB-S	060167	1900	1984
		FIN-S	36089313	1975	1975

POND_NO	LAKE NAME	SOURCE	SOURCE ID	FIRST	LAST
060168	MUD L	ACID	36089160	1980	1982
		FIN	36089316	1974	1983
060169	TOMAR P	ACID	36081366	1958	1958
		ALS	060169	1985	1985
060170	HALFMOON P	ALS	060170	1985	1985
		AWDR-S	060170	1980	1986
060171	TAMARACK P	ACID	36089066	1971	1971
		ALS	060171	1985	1985
		FIN-S	36089316	1975	1975
060171B	GRASSY P	ALS	060171B	1986	1986
060172	HIGH P	ACID	36089161	1971	1971
		ALS	060172	1986	1986
		AWDR-S	060172	1980	1986
060173	GRASS P	ALS	060173	1985	1985
060175	BOG L	ACID	36081367	1933	1980
		ALS	060175	1986	1986
060176	CLEAR P	ACID	36081368	1933	1979
		ALS	060176	1985	1985
060177	UNNAMED	ALS	060177	1985	1985
060178	BRIDGE BROOK P	ACID	36089007	1933	1979
		ALS	060178	1984	1984
060179	BLACK P	ACID	36089004	1933	1980
		ALS	060179	1985	1985
		RSWS	1A1-037	1986	1984
060180	SIMON P	ACID	36033285	1933	1980
		FIN	36033458	1974	1983
060181	MCBRIDE P	ALS	060181	1986	1986
060182	LITTLE SIMON P	ACID	36033001	1933	1980
		ALS	060182	1985	1985
		AWDR-S	060182	1980	1984
		FIN	36033436	1974	1983
060183	MOODY P	ACID	36033286	1933	1933
		ALS	060183	1986	1986
		AWDR-S	060183	1980	1984
060184	MORETTE P	ACID	36033287	1955	1955
		AWDR-S	060184	1980	1984
060185	LINE P	ACID	36033036	1933	1933
		ALS	060185	1986	1986
060186	FOLLENSBY P	ACID	36033028	1933	1980
		AWDR-S	060186	1980	1984
		FIN	36033460	1974	1983
060188	PANTHER P	ACID	36033058	1933	1981
		ALS	060188	1986	1986
060189	HOLL BANK P	ALS	060189	1984	1984
060190	TIFF P	ACID	36033288	1955	1982
		ALS	060190	1985	1985
		FIN	36033463	1974	1983
060191	STONY CREEK P S	ACID	36033075	1933	1979
		ALS	060191	1984	1984
060192	UNNAMED	ALS	060192	1986	1986
060193	MUD P	ACID	36033289	1979	1982
		ALS	060193	1984	1984
		FIN	36033464	1974	1983
060194	UNNAMED	ALS	060194	1985	1985
060195	PICKEREL P	ACID	36033059	1933	1979
		ALS	060195	1984	1982
060196	ROCK P	ACID	36033065	1933	1979
		ALS	060196	1986	1986
		AWDR-S	060196	1980	1984
		FIN	36033469	1974	1983
		PIRLA	ADIR041	1978	1983
060197	BLUEBERRY P	ACID	36033290	1933	1933
		ALS	060197	1986	1986
		AWDR-S	060197	1980	1984

POND_NO	LAKE NAME	SOURCE	SOURCE ID	FIRST	LAST
060198	UNNAMED	ALS	060198	1986	1986
060199	UNNAMED	ALS	060199	1986	1986
060201	WHITE LILY P	AWDR-S	060201	1980	1984
060202	ANTESSAND L	ACID	36033001	1933	1980
		FIN	36033475	1974	1983
060204	BEAVER P	ALS	060204	1984	1984
		AWDR-S	060204	1980	1984
060205	UNNAMED	ALS	060205	1986	1986
060206	UNNAMED	ALS	060206	1986	1986
060207	FALKER P	ACID	36033291	1933	1975
		ALS	060207	1984	1984
		AWDR-S	060207	1980	1984
		FIN-S	36033480	1975	1975
060208	DAWSON P	ACID	36033018	1933	1979
		ALS	060208	1986	1986
060209	UNNAMED	ALS	060209	1986	1986
060210	DUCK L	ACID	36033292	1933	1980
		ALS	060210	1986	1986
		FIN	36033483	1974	1983
060211	LOWER MOOSE P	ALS	060211	1985	1985
060212	UPPER MOOSE P	ALS	060212	1986	1986
		AWDR-S	060212	1980	1984
060213	LOWER COUNTY LINE P	ACID	36033293	1933	1982
		ALS	060213	1984	1984
		FIN	36033484	1974	1983
060214	MIDDLE COUNTY LINE P	ACID	36033294	1933	1933
		ALS	060214	1984	1984
060215	UPPER COUNTY LINE P	ACID	36033295	1933	1933
		ALS	060215	1984	1984
060216	CALKINS P	ACID	36081369	1933	1933
		ALS	060216	1986	1986
060217	BRUSHY P	ACID	36033009	1933	1979
		ALS	060217	1985	1985
060218	UPPER BRUSHY P	ACID	36033296	1955	1982
		ALS	060218	1985	1985
		AWDR-S	060218	1980	1984
		FIN	36033488	1974	1983
060219	SEWARD P	ACID	36033297	1955	1955
		ALS	060219	1984	1984
060220	UNNAMED	ALS	060220	1986	1986
060221	MOOSE P	ACID	36031309	1972	1979
		ALS	060221	1986	1986
		AWDR-C	060221	1980	1984
060222	SEAN P	ACID	36031310	1972	1982
		ALS	060222	1984	1984
		AWDR-S	060222	1980	1984
		FIN	36031363	1974	1983
060223	LATHAM P	ACID	36033059	1955	1975
		ALS	060223	1986	1986
		AWDR-S	060223	1980	1984
		FIN-S	36031368	1975	1975
060225A	UNNAMED	ALS	060225A	1984	1984
060225B	UNNAMED	ALS	060225B	1984	1986
060225C	UNNAMED	ALS	060225C	1986	1986
060226	UNNAMED	ALS	060226	1986	1986
		AWDR-S	060226	1980	1984
060226A	UNNAMED	ALS	060226A	1986	1986
060229A	UNNAMED	ALS	060229A	1984	1986
060230	MOUNTAIN P	ACID	36033052	1955	1978
		ALS	060230	1986	1986
		AWDR-S	060230	1980	1984
		FIN-S	36033490	1975	1975

POND_NO	LAKE NAME	SOURCE	SOURCE ID	FIRST	LAST
060231	ROCK P	ALS	060231	1984	1984
		AWDB-S	060231	1900	1984
060232	UNNAMED	ALS	060232	1986	1986
		AWDB-S	060232	1900	1984
060232A	UNNAMED	ALS	060232A	1986	1986
060233	MOOSE P	ACID	36031072	1955	1978
		ALS	060233	1984	1986
		AWDB-C	060233	1900	1984
		FIN-S	36031391	1975	1975
060233A		ALS	060233A	1986	1986
		AWDB-C	060233A	1900	1984
060234	BLACK P	ALS	060234	1984	1984
		AWDB-S	060234	1900	1984
060235	DUCK HOLE	ACID	36033023	1950	1982
		ALS	060235	1986	1986
		FIN-S	36033492	1975	1975
060236	UNNAMED	ALS	060236	1986	1986
060237	LOST P	ALS	060237	1984	1984
		AWDB-S	060237	1900	1984
060238	LOWER PRESTON P	ACID	36031064	1975	1975
		ALS	060238	1986	1986
		FIN-S	36031395	1975	1975
060239	UPPER PRESTON P	ACID	36031112	1975	1975
		ALS	060239	1986	1986
		AWDB-S	060239	1900	1984
		FIN-S	36031396	1975	1975
060240	HUNTER P	ALS	060240	1986	1986
060241	LONG L	ACID	36041370	1933	1979
		NSWS	1A1-044	1984	1984
		NSWS-2	1A1-044	1984	1984
060241A	PARK L	ACID	36041371	1955	1955
		ALS	060241A	1986	1986
060242	UNNAMED	ALS	060242	1986	1986
060243	POLLIWOG P	ALS	060243	1986	1986
060244	SHAW P	ACID	36041173	1930	1955
		ALS	060244	1986	1986
060245	SOUTH P	ACID	36041372	1933	1979
		ALS	060245	1986	1986
		AWDB-C	060245	1900	1984
060246	MUD P	ACID	36041373	1933	1979
		ALS	060246	1985	1985
		AWDB-C	060246	1900	1984
060247	SALMON P	ACID	36041166	1933	1975
		ALS	060247	1986	1986
		AWDB-S	060247	1900	1984
		FIN-S	36041348	1975	1975
060247A	OWLS HEAD P	ACID	36041378	1933	1982
		ALS	060247A	1984	1984
		AWDB-S	060247A	1900	1984
		FIN	36041349	1974	1983
060248	EATON, L	ACID	36041060	1933	1982
		AWDB-S	060248	1900	1984
		FIN	36041350	1974	1983
060250	MUD P	ACID	36041375	1933	1982
		ALS	060250	1985	1985
		FIN	36041352	1974	1983
		NSWS	1A1-067	1984	1984
060251	MOSQUITO P	ALS	060251	1986	1986
060252	ROCK P	ACID	36041376	1933	1980
		ALS	060252	1985	1985
		AWDB-S	060252	1900	1984
		FIN	36041354	1974	1983
060253	UNNAMED	ALS	060253	1986	1986
060254	HANNOM P	ALS	060254	1986	1986
060255	GRAMPUS L	ACID	36041377	1980	1980
		ALS	060255	1985	1985
		FIN	36041357	1974	1983
060256	MOONSHINE P	ACID	36041121	1950	1975
		ALS	060256	1986	1986
		AWDB-S	060256	1900	1984
		FIN-S	36041358	1975	1975
060257	MOHEGAN L	ACID	36041378	1980	1980
		ALS	060257	1986	1986
		AWDB-S	060257	1900	1984
		FIN	36041359	1974	1983
060260	SLIM P	ACID	36041379	1979	1979
		ALS	060260	1986	1986
060261	SAND P	ACID	36041168	1932	1950
		ALS	060261	1986	1986
		AWDB-S	060261	1900	1984
060262	UNNAMED	ALS	060262	1986	1986
060263	ROBINSON P	ALS	060263	1986	1986
		AWDB-S	060263	1900	1984
060264	STONY P	ACID	36041380	1979	1979
		ALS	060264	1986	1986
060265	UNNAMED	ALS	060265	1986	1986
060266	PARTRIDGE P	ALS	060266	1986	1986
060267	UNNAMED	ALS	060267	1986	1986
060268	LOWER CAT P	ALS	060268	1985	1985
		ALS	060268	1986	1986
060269	MIDDLE CAT P	ACID	36041381	1950	1950
		ALS	060269	1985	1985
		ALS	060269	1986	1986
060270	UPPER CAT P	ACID	36041382	1950	1950
		ALS	060270	1985	1985
060271	UNNAMED	ALS	060271	1986	1986
060272	FIRST ANTHONY P	ACID	36041066	1933	1933
		ALS	060272	1985	1985
		AWDB-C	060272	1900	1984
060273	SECOND ANTHONY P	ACID	36041170	1933	1955
		ALS	060273	1986	1986
		AWDB-C	060273	1900	1984
060274	THIRD ANTHONY P	ACID	36041383	1955	1955
		ALS	060274	1985	1985
		AWDB-S	060274	1900	1984
060275	HEDGEHOG P	ALS	060275	1986	1986
		AWDB-S	060275	1900	1984
060276	FORKED L	ACID	36041068	1933	1979
		NSWS	1A1-056	1984	1984
060277	BRANDRETH L	ACID	36041384	1975	1982
		FIN	36041379	1974	1983
060278	PILGRIM P	ACID	36041138	1975	1975
		ALS	060278	1986	1986
		AWDB-S	060278	1900	1984
		FIN-S	36041380	1975	1975
060279	LITTLE FORKED L	ALS	060279	1986	1986
060280	LITTLE HIGH P	ALS	060280	1986	1986
060281	HIGH P	ALS	060281	1986	1986
		AWDB-S	060281	1900	1984
060282	CART P	ALS	060282	1986	1986
		AWDB-C	060282	1900	1984
060282A	WEN P	ALS	060282A	1986	1986
060283	HAMILTON P	ALS	060283	1986	1986
		AWDB-C	060283	1900	1984
060284	SUTTON P	ALS	060284	1986	1986
		AWDB-C	060284	1900	1984
		NSWS	1A1-051	1984	1984
		MOILS-P	1A1-051	1984	1984

POND_NO	LAKE NAME	SOURCE	SOURCE ID	FIRST	LAST
060285	PEAT P	ALS	060285	1986	1986
		AWDB-S	060285	1900	1984
060286	MOOSE P	ALS	060286	1986	1986
		AWDB-C	060286	1900	1984
060288	ELK P	ALS	060288	1986	1986
		AWDB-C	060288	1900	1984
060289	CORNUS P	ALS	060289	1986	1986
		AWDB-S	060289	1900	1984
060290	UNNAMED	ALS	060290	1986	1986
060291	PINKLEY P	ALS	060291	1986	1986
060292	GRASS P	ACID	36041385	1955	1982
		ALS	060292	1984	1984
		FIN	36041398	1974	1983
060293	RAQUETTE L	ACID	36041150	1933	1982
		FIN	36041395	1974	1983
060294	LOWER SARGENT P	ACID	36041107	1933	1981
		ALS	060294	1984	1984
		FIN	36041396	1974	1983
060295	MIDDLE SARGENT P	ACID	36041116	1933	1982
		ALS	060295	1985	1984
		ALS	060295	1985	1985
		FIN	36041397	1974	1983
060296	UPPER SARGENT P	ACID	36041204	1933	1981
		ALS	060296	1984	1984
060297	UNNAMED	ALS	060297	1985	1985
060298	LOWER HELMS P	ACID	36041386	1955	1955
		ALS	060298	1985	1985
060299	HELMS P	ACID	36041081	1975	1975
		ALS	060299	1984	1984
		ALS	060299	1985	1985
		FIN-S	36041401	1975	1975
060300	ELDON L	ACID	36041387	1981	1981
		ALS	060300	1985	1985
		FIN	36041802	1974	1983
060301	HAYMARSH P	ACID	36041080	1955	1975
		ALS	060301	1984	1984
060302	ELIN P	ACID	36041179	1955	1975
		ALS	060302	1984	1984
		AWDB-S	060302	1900	1984
		FIN-S	36041404	1975	1975
060303	BEAR P	ACID	36041009	1955	1975
		ALS	060303	1984	1984
		AWDB-S	060303	1900	1984
		FIN-S	36041405	1975	1975
060304	UTOWANA L	ACID	36041205	1933	1979
		ALS	060304	1985	1985
060305	POTTER P	ALS	060305	1984	1984
060306	EAGLE L	ACID	36041054	1933	1982
		ALS	060306	1985	1985
		FIN	36041800	1974	1983
060307	BLUE MOUNTAIN L	ACID	36041019	1933	1982
		FIN	36041409	1974	1983
060308	PINE P	ALS	060308	1985	1985
060309	PINE P	ALS	060309	1985	1985
		AWDB-S	060309	1900	1984
060310	CHUB P	ACID	36041388	1982	1982
		ALS	060310	1984	1984
		FIN	36041412	1974	1983
060311	MINNOW P	ACID	36041138	1933	1975
		ALS	060311	1985	1985
		AWDB-S	060311	1900	1984
		FIN-S	36041413	1975	1975
		ESWS	1A1-076	1984	1984
060312	MORGAN L	ACID	36041120	1933	1975
		ALS	060312	1985	1985
		FIN-S	36041414	1975	1975

POND_NO	LAKE NAME	SOURCE	SOURCE ID	FIRST	LAST
060313	SAGAMORE L	ACID	36041165	1933	1976
		ALS	060313	1986	1986
		ILWAS		1977	1981
		SOETON		.	.
		ESWS	1A1-059	1984	1984
		FIRLA	ADIR043	1978	1983
		SOILS-P	1A1-059	1984	1984
060314	UNNAMED	ALS	060314	1986	1986
060315	ALGONQUIN P	ACID	36041003	1975	1975
		ALS	060315	1984	1984
		AWDB-S	060315	1900	1984
		FIN-S	36041417	1975	1975
060315A	RAQUETTE L R	ACID	36041389	1955	1955
		ALS	060315A	1985	1985
060316	LOWER BROOKS TRACT P	ACID	36041106	1933	1979
		ALS	060316	1985	1985
060317	UPPER BROOKS TRACT P	ACID	36041200	1933	1982
		ALS	060317	1984	1984
		FIN	36041820	1974	1983
060318	FOX P	ACID	36041390	1955	1955
		ALS	060318	1985	1985
060319	CRANBERRY P	ACID	36041391	1933	1979
		ALS	060319	1984	1984
		AWDB-C	060319	1900	1984
060321	LOWER HAYMARSH P	ACID	36041392	1980	1980
		ALS	060321	1984	1984
		AWDB-C	060321	1900	1984
		FIN	36041824	1974	1983
060322	UPPER HAYMARSH P	ALS	060322	1984	1984
060323	UNNAMED	ACID	36041393	1975	1975
		ALS	060323	1984	1984
		AWDB-S	060323	1900	1984
		FIN-S	36041426	1975	1975
060324	SHALLOW L	ACID	36041172	1933	1982
		ALS	060324	1984	1984
		AWDB-C	060324	1900	1984
		FIN	36041427	1974	1983
060325	FELCHER P	ACID	36041136	1933	1979
		ALS	060325	1984	1984
		AWDB-S	060325	1900	1984
060326	LOWER CHAIN P	ACID	36041394	1933	1956
		ALS	060326	1984	1984
		AWDB-C	060326	1900	1984
060327	MIDDLE CHAIN P	ACID	36041395	1956	1956
		ALS	060327	1984	1984
060328	UPPER CHAIN P	ACID	36041396	1933	1975
		ALS	060328	1984	1984
		FIN-S	36041831	1975	1975
060329	QUEER L	ACID	36041146	1933	1982
		ALS	060329	1986	1986
		FIN	36041832	1974	1983
		ESWS	1A1-089	1984	1984
		FIRLA	ADIR040	1978	1983
060330	UNNAMED	ACID	36041397	1982	1982
		ALS	060330	1984	1984
		AWDB-S	060330	1900	1984
		FIN	36041833	1974	1983
060331	LOPE P	ALS	060331	1984	1984
060558A		AWDB-C	060558A	1900	1984
070472	SUGARLOAF P	ACID	36091031	1975	1976
070563	GALWAY L	ACID	36091032	1934	1979
070674	WEST HILLPOND	ACID	36035058	1955	1955
070686	PECK L	ACID	36035041	1980	1980
		FIN	36035027	1974	1983
070688	LILY L	ACID	36035018	1932	1932
070689	VANDENBURG P	ACID	36035042	1979	1979

POND_NO	LAKE NAME	SOURCE	SOURCE ID	FIRST	LAST
070690	WOODWORTH L	ACID	36035031	1932	1932
070690A	HINDS P	ACID	36035014	1932	1932
070691	MOUNTAIN L	ACID	36035043	1932	1953
070695	GLASGOW P	ACID	36035044	1955	1962
070697	EAST CANOGA L	ACID	36035010	1934	1979
070698	WEST CANOGA L	ACID	36035045	1934	1979
070704	UNNAMED	ACID	36035057	1981	1981
		FIN	36035086	1974	1983
070704A	KYSER L	ACID	36035059	1961	1980
		FIN	36035153	1974	1983
070704B	DANIEL GREEN DAM P	ACID	36043060	1962	1981
		FIN	36035154	1974	1983
070705A	DOLGEVILLE BOG CLUB P	ACID	36043276	1976	1976
070706A	SPRUCE L	ACID	36041118	1934	1979
070708	KLONDIKE R	ACID	36043263	1979	1979
		AWDB-S	070708	1900	1984
070712	HUD P	NSWS	1A2-048	1984	1984
		NSWS-D	1A2-048	1986	1986
		NSWS-2	1A2-048	1986	1986
		SOILS	1A2-048	1985	1985
070716	LILY L	ACID	36035046	1934	1934
070717	CANADA L	ACID	36035005	1934	1979
		FIN	36035045	1974	1983
070718	NEST L	ACID	36035047	1934	1980
		FIN	36035046	1974	1983
070719	NINE CORNER L	ACID	36035022	1934	1982
		AWDB-S	070719	1900	1984
		FIN	36035047	1974	1983
		NSWS	1A2-046	1984	1984
		NSWS-D	1A2-046	1986	1986
		NSWS-2	1A2-046	1986	1986
		SOILS	1A2-046	1985	1985
070720	BROOMSTICK L	ACID	36035004	1934	1934
		AWDB-S	070720	1900	1984
070721	STONER L (MIDDLE)	ACID	36035048	1934	1975
070722	STONER L (WEST)	ACID	36035049	1934	1975
		AWDB-S	070722	1900	1984
070723	STONER L (EAST)	ACID	36041398	1934	1975
070724	PINE L	ACID	36035024	1934	1979
070725	INDIAN L	ACID	36035016	1975	1981
		AWDB-S	070725	1900	1984
		FIN-S	36035052	1975	1975
070727	GREEN L	ACID	36035013	1934	1982
		FIN	36035054	1974	1983
070729	OTTER L	ACID	36035023	1934	1981
		FIN	36035056	1976	1983
		LTM		1984	1984
		NSWS	1A2-078	1984	1984
		RILWAS		1982	1985
070730	STEWART L	ACID	36035050	1951	1979
		FIN	36035057	1974	1983
070732	IRVING P	ACID	36035017	1979	1979
070733	PRAIRIE L	ACID	36035026	1934	1955
		AWDB-S	070733	1900	1984
070734	BELLOWS L	ACID	36035003	1934	1955
		NSWS	1A2-031	1984	1984
		SOILS-P	1A2-031	1984	1984
070736	LITTLE HOLMES L	ACID	36035051	1964	1964
070745	PLEASANT L	ACID	36035025	1934	1979
		AWDB-S	070745	1900	1984

POND_NO	LAKE NAME	SOURCE	SOURCE ID	FIRST	LAST
070746	AYERS L	ACID	36035002	1934	1934
		AWDB-S	070746	1900	1984
070748	LITTLE HUD L	ACID	36043264	1934	1934
070749A	TRANSEL CREEK L	ACID	36043265	1934	1934
070752	EAST VLY L	ACID	36041078	1975	1975
		FIN-S	36041437	1975	1975
070753	LONG L	ACID	36035052	1963	1963
070755	LONG P	ACID	36035053	1978	1978
070759	DEXTER L	ACID	36035054	1979	1979
070760	SPECTACLE L	ACID	36035028	1934	1979
070761	DRY L	ACID	36041399	1963	1963
070763	LONG L	ACID	36035055	1957	1957
		NSWS	1A2-044	1984	1984
070764	THIRD L	ACID	36035029	1934	1976
		FIN	36035080	1974	1983
070765	FOURTH L	ACID	36035011	1934	1976
		FIN	36035081	1974	1983
		NORTON		-	-
070768	LITTLE HETCALF L	ACID	36043266	1975	1975
		AWDB-S	070768	1900	1984
		FIN-S	36043406	1975	1975
070769	HOUSE P	ACID	36035056	1979	1979
070771	REDLOUSE L	ACID	36041400	1973	1980
		FIN	36041439	1974	1983
070775	BOWEN P	ACID	36041401	1975	1975
		AWDB-S	070775	1900	1984
		FIN-S	36041442	1975	1975
070776	BILLS P	ACID	36041017	1975	1975
		AWDB-S	070776	1900	1984
		FIN-S	36041443	1975	1975
070777	FERRIS L	ACID	36041065	1934	1979
		AWDB-C	070777	1900	1984
070778	FERRIS VLY	ACID	36041402	1960	1960
		AWDB-S	070778	1900	1984
070778A	HOBLEY L	ACID	36041403	1961	1961
070779	IRON L	ACID	36041086	1954	1981
		AWDB-S	070779	1900	1984
		FIN	36041447	1974	1983
070780	BLACK CAT L	ACID	36041404	1954	1979
		AWDB-S	070780	1900	1984
070784	CHRISTIAN L	ACID	36041041	1934	1980
		AWDB-S	070784	1900	1984
		FIN	36041452	1974	1983
070786	HORSEHOUSE L	ACID	36041405	1980	1980
		AWDB-C	070786	1900	1984
		FIN	36041454	1974	1983
070787	BARTG L	ACID	36041006	1975	1975
		AWDB-S	070787	1900	1984
		ELS		1983	1987
		FIN-S	36041455	1975	1975
070788	HUD P	ACID	36041406	1975	1975
		AWDB-S	070788	1900	1984
		FIN-S	36041456	1975	1975
070790	BIG ALDERBED	ACID	36041407	1979	1979
070793	TROUT L	ACID	36041197	1934	1982
		AWDB-S	070793	1900	1984
		FIN-S	36041461	1975	1975
		NSWS	1A2-054	1984	1984
		NSWS-D	1A2-054	1986	1986
		NSWS-2	1A2-054	1986	1986
		SOILS	1A2-054	1985	1985
070794	BLIND MANS VLY	ACID	36041408	1979	1980
		AWDB-S	070794	1900	1984
		FIN	36041462	1974	1983

POND_NO	LAKE NAME	SOURCE	SOURCE ID	FIRST	LAST
070798A	BIG DRUMLIN	ACID	36065025	1973	1973
070798C	(ONEIDA 20 AREA, P #2)	ACID	36065024	1960	1960
070798D	GRIFFITHS FISH & GAME CLB	ACID	36065023	1970	1970
070798E	GRIFFITHS FISH & GAME CLB	ACID	36065022	1970	1970
070798F	PROSPECT R	ACID	36083277	1961	1974
070799	HINCKLEY R	ACID	36083051	1938	1979
070807	TAMARACK P	ACID	36083267	1971	1971
070809	TOM KETTLE L	ACID	36083126	1938	1983
		FIN	36083816	1974	1983
070810	CURTIS L	NSWS	1A3-028	1980	1984
		NSWS-D	1A3-028	1986	1986
		NSWS-2	1A3-028	1986	1986
		SOILS	1A3-028	1985	1985
		SOILS-P	1A3-028	1984	1984
070814	HOWITS CREEK L	ACID	36083268	1971	1973
		ANDB-S	070814	1900	1984
070816	HUO L	ACID	36083269	1938	1975
070817	JERSEYFIELD L	ACID	36083059	1938	1979
		ANDB-C	070817	1900	1984
		NORTON		-	-
070818	POTTER P	ANDB-C	070818	1900	1984
070819	COLD SPRING L	ANDB-C	070819	1900	1984
070821	BIG HETCALF L	ACID	36041015	1938	1975
		ANDB-C	070821	1900	1984
		FIN-S	36041466	1975	1975
070822	DIAMOND L	ACID	36041009	1938	1975
		ANDB-C	070822	1900	1984
		FIN-S	36041467	1975	1975
		NSWS	1A2-078	1984	1984
070823	LONG L	ACID	36041103	1938	1976
		ANDB-S	070823	1900	1984
		FIN-S	36041468	1975	1975
070824	DEER L	ACID	36041410	1975	1975
		FIN-S	36041469	1975	1975
070825	NORTH BRANCH L	NSWS	1A2-042	1984	1984
		NSWS-D	1A2-042	1986	1986
		NSWS-2	1A2-042	1986	1986
		SOILS	1A2-042	1985	1985
		SOILS-P	1A2-042	1984	1984
070827	TRACY R	ACID	36083270	1938	1938
070829	BOYER L	ACID	36083271	1962	1980
		FIN	36083829	1974	1983
070832	BLACK CREEK L	ACID	36041018	1938	1975
		FIN-S	36041470	1975	1975
070836	BUTLER L	ACID	36083272	1958	1972
070839	SWAN L	ACID	36083273	1938	1938
070844	BOCHEN L	ACID	36041020	1938	1976
		FIN	36041472	1974	1983
070845	FULYARD P	ACID	36041411	1938	1938
070846	DEBRAINE L	ACID	36041046	1975	1975
		ANDB-S	070846	1900	1984
		FIN-S	36041474	1975	1975
070849	HILL CREEK L	ACID	36083077	1938	1968
070850	WILBURT L	ACID	36041216	1975	1975
		ANDB-S	070850	1900	1984
		FIN-S	36041475	1975	1975
		NSWS	1A1-018	1984	1984
		NSWS-D	1A1-018	1986	1986
		NSWS-2	1A1-018	1986	1986
		SOILS	1A1-018	1985	1985
070853	ALDER BROOK L	ACID	36041412	1938	1938

POND_NO	LAKE NAME	SOURCE	SOURCE ID	FIRST	LAST
070853A	INDIGO L	ACID	36041085	1975	1975
		ELS		1983	1987
		FIN-S	36041479	1975	1975
070853B	JONES L	ACID	36041093	1975	1975
		ANDB-S	070853B	1900	1984
		ELS		1983	1987
		FIN-S	36041480	1975	1975
070855	LITTLE PINE L	ACID	36041100	1938	1975
		ANDB-S	070855	1900	1984
		FIN-S	36041482	1975	1975
070856	TWIN L (SOUTH)	ACID	36041013	1956	1980
		ANDB-S	070856	1900	1984
		FIN-S	36041483	1975	1975
070857	TWIN L (NORTH)	ACID	36041198	1938	1980
		FIN-S	36041484	1975	1975
070858	UNNAMED	ACID	36041818	1975	1975
070859	G L	ACID	36041073	1938	1981
		ANDB-S	070859	1900	1984
		FIN-S	36041486	1975	1975
070860	UNNAMED	ACID	36041815	1975	1975
		FIN-S	36041487	1975	1975
070861	NOTCH P	ACID	36041128	1956	1975
		ANDB-S	070861	1900	1984
		FIN-S	36041488	1975	1975
070862	T L	ACID	36041194	1938	1975
		FIN-S	36041489	1975	1975
		NORTON		-	-
070863	UNNAMED	ANDB-S	070863	1900	1984
070864	ROCK P	ANDB-S	070864	1900	1984
070865	WHITE BIRCH L	ACID	36041212	1975	1975
		ANDB-S	070865	1900	1984
		FIN-S	36041492	1975	1975
070866	ROCK P	ACID	36041021	1969	1975
		FIN-S	36041493	1975	1975
070867	ROCK P	ANDB-S	070867	1900	1984
070868	GID L	ANDB-S	070868	1900	1984
070870	SUCKER P	ACID	36083120	1975	1975
		FIN-S	36083445	1975	1975
070875	JONES L	ACID	36041091	1975	1975
		FIN-S	36041499	1975	1975
070876	BABY L	ACID	36083002	1975	1975
		FIN-S	36083448	1975	1975
070877	SONNEDAGA L	ACID	36083054	1975	1982
		ANDB-C	070877	1900	1984
		FIN-S	36083449	1975	1975
		FIELA	ADIR023	1978	1983
070877A		ANDB-C	070877A	1900	1984
070880	LITTLE ROCK L	ACID	36041101	1975	1980
		ANDB-C	070880	1900	1984
		FIN-S	36041502	1975	1975
070881	BEAR P	ACID	36041007	1975	1980
		ANDB-S	070881	1900	1984
		FIN-S	36041503	1975	1975
070882	SNAG L	ACID	36041181	1975	1976
		ANDB-S	070882	1900	1984
		FIN-S	36041504	1975	1975
070883	BIG ROCK L	ACID	36041016	1938	1980
		ANDB-S	070883	1900	1984
		FIN-S	36041505	1975	1975
070885	CASTOR P	ACID	36041033	1956	1975
		FIN-S	36041507	1975	1975
070889	AMBER P	ACID	36041416	1956	1956
070890	PEA P	ACID	36041135	1956	1975
		ANDB-S	070890	1900	1984
		FIN-S	36041512	1975	1975

POND_NO	LAKE NAME	SOURCE	SOURCE ID	FIRST	LAST
070891	ALE P	ACID	36041002	1956	1975
		FIN-S	36041513	1975	1975
070892	BEER P	ACID	36041417	1956	1956
070895	HISERY P	ACID	36041119	1956	1975
		AWDB-S	070895	1900	1984
		FIN-S	36041517	1975	1975
070897	NETCALF L	ACID	36041111	1934	1981
		AWDB-C	070897	1900	1984
		FIN-S	36041519	1975	1975
070898	NETCALF CHAIN L ,LOWER	ACID	36041818	1975	1975
		AWDB-C	070898	1900	1984
		FIN-S	36041520	1975	1975
070899	NETCALF CHAIN L ,MIDDLE	ACID	36041110	1956	1980
		AWDB-C	070899	1900	1984
		FIN-S	36041521	1975	1975
070900	NETCALF CHAIN L ,UPPER	ACID	36041819	1956	1976
		AWDB-C	070900	1900	1984
		FIN-S	36041522	1975	1975
070901	TWIN ROCK L	ACID	36041820	1976	1979
		AWDB-S	070901	1900	1984
		FIN	36041523	1974	1983
070905	SPOON L	ACID	36041187	1975	1976
		FIN-S	36041527	1975	1975
070906	STILLWATER	ACID	36041821	1976	1976
		FIN	36041528	1974	1983
070907	AMOS L	ACID	36041008	1975	1981
		AWDB-S	070907	1900	1984
		FIN-S	36041529	1975	1975
070908	SPRUCE L	ACID	36041189	1934	1982
		AWDB-C	070908	1900	1984
		FIN-S	36041530	1975	1975
		NSWS	1A1-080	1984	1984
070909	BALSAM L	ACID	36041005	1956	1975
		AWDB-S	070909	1900	1984
		FIN-S	36041531	1975	1975
070910	FIRST STILLWATER	ACID	36041822	1976	1976
		FIN	36041532	1974	1983
070911	DEER L	ACID	36041049	1975	1976
		AWDB-C	070911	1900	1984
		FIN-S	36041533	1975	1975
070912	OTTER L	ACID	36041131	1975	1975
		AWDB-C	070912	1900	1984
		FIN-S	36041534	1975	1975
070913	GOOSE L	ACID	36041075	1975	1975
		AWDB-S	070913	1900	1984
		FIN-S	36041535	1975	1975
070915	BEAVER P	ACID	36041010	1956	1975
		AWDB-S	070915	1900	1984
		FIN-S	36041537	1975	1975
070916	UNNAMED	AWDB-S	070916	1900	1984
070917	UNNAMED	AWDB-S	070917	1900	1984
070919	POOR L	ACID	36041143	1966	1978
		AWDB-S	070919	1900	1984
		FIN-S	36041581	1975	1975
070921	MICA L (BIG)	ACID	36041823	1956	1982
		FIN	36041543	1974	1983
070922	MICA L S	ACID	36041112	1956	1975
		FIN-S	36041544	1975	1975
070925	SAMPSON BOG	ACID	36041824	1956	1982
		FIN	36041547	1974	1983
070926	SAMPSON L	ACID	36041167	1934	1981
		AWDB-S	070926	1900	1984
		FIN-S	36041548	1975	1975
070927	BULLHEAD P	ACID	36041029	1975	1975
		AWDB-S	070927	1900	1984
		FIN-S	36041549	1975	1975

POND_NO	LAKE NAME	SOURCE	SOURCE ID	FIRST	LAST
070928	LAURENCE P	ACID	36041825	1956	1956
070929	NHD L (N CANADA L)	ACID	36041124	1934	1975
		AWDB-C	070929	1900	1984
		FIN-S	36041551	1975	1975
070930	SOUTH L (N CANADA L)	ACID	36041183	1934	1982
		AWDB-S	070930	1900	1984
		FIN-S	36041552	1975	1975
		NSWS	1A1-079	1984	1984
070931	WEST L (N CANADA L)	ACID	36041208	1934	1981
		AWDB-S	070931	1900	1984
		FIN-S	36041553	1975	1975
070932	CAT L	ACID	36041038	1956	1977
		FIN-S	36041554	1975	1975
070933	KINGS P	ACID	36041426	1963	1977
070934	UNNAMED	AWDB-S	070934	1900	1984
		NSWS	1A1-009	1984	1984
070935	STURGES P	ACID	36041027	1956	1966
		AWDB-C	070935	1900	1984
070936	WHITNEY L	ACID	36041214	1934	1981
		AWDB-C	070936	1900	1984
		FIN-S	36041558	1975	1975
		NSWS	1A1-012	1984	1984
		NSWS-D	1A1-012	1986	1986
		NSWS-2	1A1-012	1986	1986
		SOILS	1A1-012	1985	1985
		SOILS-P	1A1-012	1984	1984
070937	PUDDLE HOLE P	ACID	36041145	1956	1975
		AWDB-S	070937	1900	1984
		FIN-S	36041559	1975	1975
070938	FILLSBURY L	ACID	36041139	1934	1982
		AWDB-S	070938	1900	1984
		FIN-S	36041560	1975	1975
		NSWS	1A1-077	1984	1984
070939	MIRROR L	ACID	36043270	1962	1962
0710558	GRIFFIS AIRBASE EBC P	ACID	36065020	1975	1975
071059	DELTA R	NSWS	1A3-030	1984	1984
071062A	ECHO L	ACID	36065003	1979	1979
071089	ROUND L	ACID	36091033	1934	1977
071090	BALLSTON L	ACID	36091034	1934	1979
		NSWS	1A3-037	1984	1984
071094	UNNAMED	ACID	36091035	1963	1963
		NSWS	1A3-038	1984	1984
071121	LAUDERDALE, L	ACID	36115027	1973	1973

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