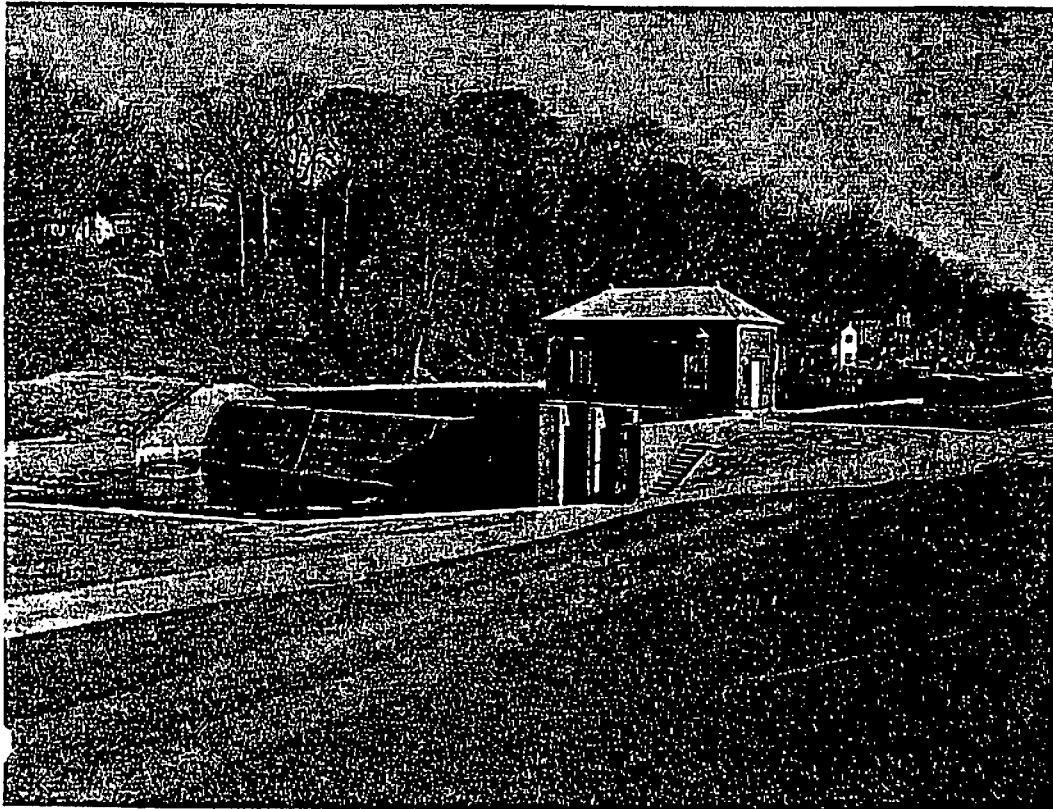


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# Lake Hopatcong Water Level Management Plan



NJ Department of Environmental Protection  
Division of Parks and Forestry  
**State Park Service**  
P.O. Box 404  
Trenton, NJ 08625-0404



1201

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## EXECUTIVE SUMMARY

The purpose of this management plan is to examine past water level management practices measured against current considerations and make needed changes. Remaining sections provide the public with rainfall data, past drawdown information and some frequently needed permits for waterfront development or maintenance.

The title to all property, water rights, rights to impound and divert water, the authority to manage and control is vested in trust to the State of New Jersey. By succession the authority and responsibilities with the Department of Environmental Protection, Division of Parks and Forestry.

The property and rights vested in trust include: Lake Hopatcong, Lake Musconetcong, Cranberry Lake, Bear Pond at Saxton Falls and Greenwood Lake N.J.S.A. Title 13:12-1 through 13:12-29)

Encroachment on Morris Canal and Banking Company waters for the development of structures or alterations are covered by the legislation, Flood Hazard Area Control Act:

N.J.S.A. 58:16A-50:

“An act concerning the delineation and marking of flood hazard area; prescribing the functions, powers and duties of the Department of Environmental Protection in connection therewith; authorizing the adoption of land use regulations for flood hazard areas; providing for the control of stream encroachments and for the integration of municipal, county, State and Federal programs in the flood hazard area.”

N.J.S.A. 58:16A-55.2 (a):

“No structure or alteration within the area which would be inundated by the 100 year design flood or any non-delineated stream shall be made, rebuilt or renewed by any person without the approval of the department and without complying with such conditions as the department may prescribe for preserving such area and providing for the flow of waters impounded or affected by such structure or alteration. No such approval by the department shall impair or affect any property rights otherwise, which might be invaded by the construction or maintenance of any such structure or alteration.”

The most significant changes include: specific procedures on water level controls for both 26 inch and 60 inch drawdowns and an easier format to obtain most lakeshore construction permits.

I.

## INTRODUCTION

This management plan, for the waters of Lake Hopatcong, Lake Musconetcong and the Musconetcong River will describe the objectives, uses, and minimum river flow requirements, Lake Hopatcong drawdowns, lakeshore construction and gate manipulation guidelines.

Lake Hopatcong, Lake Musconetcong, Cranberry Lake and Greenwood Lake are part of the Morris Canal and Banking Company. Through passage of 14 Canal Acts during the period February 28, 1923 to March 13, 1925, continued these lakes as part of the Morris Canal and Banking Company. Its charter and rights which were deeded in trust to the State of New Jersey. The Acts placed the administration and management of the Company and its property under the Board of Conservation and Development.

At present the responsibilities remain by succession with the Department of Environmental Protection, Division of Parks and Forestry. (N.J.S.A. Title 13:12-1 through 13:12-19)

The first set of rules for the manipulation of the gates at Lake Hopatcong Dam were established by the State of New Jersey on October 20, 1932 (see Appendix A). The river flow rates were measured by reading the U.S. Geological Survey Weir below the Hopatcong State Park fountain. In September, 1967 a new weir went into operation. This weir is the river gage that is used today.

The Musconetcong River starts at Lake Hopatcong Dam and proceeds downstream to Lake Musconetcong. From the Musconetcong Dam the river then flows through Waterloo Village and Stephens Park Section of Allamuchy Mountain State Park discharging into the Delaware River at Phillipsburg, New Jersey.

Because the Lake Hopatcong/Musconetcong River System is a very important recreational resource and the fact that Lake Hopatcong is the basic supplier of water to the Musconetcong River, a minimum Waterfront flow must be maintained from Lake Hopatcong.

## II.

### GOAL AND OBJECTIVE

#### Goal

To maximize the recreational opportunities for the Lake Hopatcong/Musconetcong River System and still provide lake maintenance opportunities, environmental safeguards, with all river flow requirements being met.

#### OBJECTIVE

To establish a set of management and operational guidelines for the manipulation of water levels and for the management of aquatic habitats in the Lake Hopatcong/Musconetcong River System.

### **III MANAGEMENT PURPOSES, CONSIDERATIONS AND PROCEDURES**

The following is an analysis of purposes, considerations and management procedures. Each purpose and consideration has a direct impact on the development of a management plan for Lake Hopatcong and the Musconetcong River. Considerations and procedures are based on Historic Lake controls, environmental conditions and recommendations by both private and State sources.

#### **RECREATION** **PURPOSE**

1. The water of Lake Hopatcong and Lake Musconetcong may be used as an aquatic public park, for boating, bathing, fishing and winter sports. (N.J.S.A. 13:12-5)
2. The Musconetcong River is one of the best fishing rivers in the State of New Jersey.
3. The trout fishing along the Musconetcong River is the most important sport for visitors to Stephens Park Section of Allamuchy Mountain State Park.
4. Waterloo Village, Allamuchy Mountain State Park, provides historic education to the public.

#### **PROCEDURES**

1. During the period March 15th through Labor Day, unless delayed by hard spring ice (able to support 100 lbs.), the Lake Hopatcong Dam control gates are kept closed to the minimum stream flow of 7.5 MGD (12 c.f.s.) as measured at Hopatcong Dam. In times of drought the minimum stream flow from Lake Hopatcong may be reduced to, but not less than 3 MGD (5.1 c.f.s.), as directed by the Commissioner of NJ DEP. The minimum stream flow setting may be extended through October 31<sup>st</sup> depending on the winter drawdown schedule.
2. During the winter months the Lake Hopatcong control gates are opened and closed whenever necessary to keep the water level static. This is done only when the lake ice is very hard and movement of the ice is required down the Musconetcong River to insure appropriate aquatic habitat for fish population would damage docks and headwalls.
3. A minimum stream flow of 7.5 MGD at Hopatcong Dam is required down the Musconetcong River to insure appropriate aquatic habitat for fish populations.

4. At Waterloo Village a minimum stream flow is needed to turn gristmill and sawmill waterwheels.

## MANAGEMENT CONSIDERATIONS AND PROCEDURES DOWNSTREAM FROM THE LAKE HOPATCONG DAM

### MANAGEMENT CONSIDERATIONS

1. The top 12 inches of the Musconetcong Dam is a wood cap, running the length of the spillway. This wood cap needs to be protected every winter against ice damage.
2. Water from the Musconetcong River is used by U.S. Mineral Wool for cooling U.S. Mineral Wool is located downstream from the Musconetcong River. The amount of sewage discharge is based on a minimum stream flow.
3. The Musconetcong Sewer Authority operates Sewage treatment plant on the Musconetcong River. The amount of sewage discharge is based on a minimum stream flow.
4. The Division of Fish and Wildlife has determined that the minimum stream flow necessary for protection of aquatic habitat is 5.3 MGD (8.2 c.f.s.) at Hopatcong Dam. Lower streamflows, down to an absolute 3.0 MGD minimum, may be allowed under declared drought for short periods but with the understanding that there may be commensurate damage to the aquatic biota.
5. A steady flow of water from the Lake Musconetcong, into the old section of the Morris Canal, in Stanhope, is needed for fire suppression purposes.
6. The rate of water that is released from Lake Hopatcong is limited by the maximum holding capacity of the Musconetcong River.
7. Following the acquisition by the State in 1922, a court action by the Association of Musconetcong Millers resulted in a court order requiring the construction of a fountain below the newly constructed Lake Hopatcong Dam, designed to measure the minimum flow of 7.5 MGD (12 c.f.s.) from Lake Hopatcong down the Musconetcong River. (from "A Summary Report on the Morris Canal and Banking Company", by Frederick A. Eckhart, Sr., June 27, 1975).



## MANAGEMENT PROCEDURES

1. Unless otherwise instructed by the Director, Division of Parks and Forestry, there shall be discharged at all times through the fountain, at Hopatcong State Park, supplemented if necessary by gate opening, at Hopatcong Dam, 7.5 MGD (12 c.f.s.). River flow is according to the rating table, Geological Survey, for the stream gaging station just below the fountain, that corresponds to a gage height of 1.26 feet. If owing to lowered water pressure from the lake, the fountain does not discharge enough water to maintain the height on the gage, one gate should be opened slightly to an amount sufficient to maintain the river flow.
2. The minimum flow through the Musconetcong Dam gates are reduced during the winter months. Because there is 7.5 MGD flowing into Lake Musconetcong from Lake Hopatcong, the partially closed gates at Lake Musconetcong Dam forces part of the minimum flow (7.5 MGD) over the spillway, keeping the ice from building up on the wooden spillway cap. The flow of water over the Musconetcong Dam depends on the continuous flow of MGD (12 c.f.'s.) from Lake Hopatcong.
3. A constant flow of at least 3 MGD is needed to supply cooling water to the U.S. Mineral Wool plant in Notching.
4. Both current operations and future development of The Musconetcong Sewer Authority is based on the Constant flow of water, 7.5 MGD (12 c.f.'s.) down the Musconetcong River.
5. The aquatic habitat of the Musconetcong River and how it is protected depends on a minimal flow of <sup>8.2</sup>MGD (8.2 c.f.s.) at Hopatcong Dam. Historically the Musconetcong River flow is kept at 7.5 MGD (12 c.f.s.) and are only reduced in times of drought. The Bureau of Freshwater Fisheries recommends a minimum stream flow of 8.6 MGD from the Musconetcong Dam.
6. A constant flow of water is let out of the Musconetcong Dam into the Old Morris Canal bed in Stanhope, for fire suppression.
7. During the times of high water the gates at Lake Hopatcong may have to be closed based on the maximum capacity of the Musconetcong River.
8. For the last 75 years local planning and zoning boards have used the minimum stream flow of 7.5 MGD (12 c.f.s.) in considering construction and development along the Musconetcong River.

## LAKE HOPATCONG DRAWDOWN (26 inches) (Effective Jan.1, 1990)

### MANAGEMENT CONSIDERATIONS

1. Through discussions with the Lake Hopatcong Regional Planning Board and other State Agencies, the historic annual drawdown of 30 inches can be reduced to a 26 inch drawdown, with no adverse effect to shoreline properties. Annual drawdowns will start November 1<sup>st</sup>. of each year.
2. The main purpose for the drawdown is to protect docks and headwalls around Lake Hopatcong from winter ice damage, to provide a reservoir for spring rains and the prevention of downstream flooding of the Musconetcong River.
3. Shoreline cleanup and minor dock and headwall repairs can be done during the 26-inch drawdown.
4. Starting in late winter or early spring, rainfall is allowed to raise the lake level.

### MANAGEMENT PROCEDURES

1. By September 1<sup>st</sup>. the Division of Parks and Forestry will apply for a water-lowering permit with the Division of Fish and Wildlife as required under N.J.S.A. 23:5-29.
2. On November 1<sup>st</sup>. the 26 inch (2.17 feet) drawdown will commence. On that date gates shall be open to an amount sufficient to maintain a lake lowering average rate of  $\frac{3}{4}$  inch per day. It will be necessary to make gate adjustments to insure that the 26 inch below spillway elevation is achieved by December 15<sup>th</sup>. When the 26-inch below spillway elevation is reached the gates shall be closed, except to the extent that may be necessary to maintain a flow of 7.5 MGD (12 c.f.s.) down the Musconetcong River.
3. During the period December 15<sup>th</sup> through February the gates shall be regulated to maintain the lake level between 24 to 28 inches below the spillway.
4. State, Municipal, Commercial and private property owners may take advantage of this time to clean up shoreline, repair docks or repair headwalls.
5. On March 15<sup>th</sup>. or earlier if the ice has broken away from the shore, the gates are closed, except as may be necessary to maintain 7.5 MGD (12 c.f.s.), and the lake allowed to fill by spring rains.

6. In times of emergency the Superintendent of Hopatcong State Park is authorized to take such actions regarding the gates, either closing or opening them and shutting off the fountain, as may be necessary. Prompt reporting of this action and the reasons shall be made to the Director, Division of Parks and Forestry.
7. The gates at lake Musconetcong shall be open to an amount sufficient to supply water into the old canal bed in Stanhope for fire suppression and still provide enough water over the spillway to prevent ice damage to the wood spillway cap. The minimum stream flow from Lake Musconetcong shall be 7.5 MGD (12 c.f.s.). Historically the flow of 7.5 MGD from Lake Musconetcong has been adequate for the aquatic habitat along the Musconetcong River. The historic flow 7.5 MGD will be maintained from the Musconetcong Dam, unless otherwise directed by the Director, Division of Parks and Forestry.
8. If a drought warning is declared by the Commissioner, Department of Environmental Protection, or a drought emergency is declared by the Governor, the NJDEP will provide direction to the Division of Parks and Forestry. This is to facilitate coordination between downstream users and out of basin water transfer requirements.

#### LAKE HOPATCONG DRAWDOWN (60 inches) (Prior to Jan. 1, 1990)

##### MANAGEMENT CONSIDERATIONS

1. Because Lake Hopatcong Dam has been classified as a high hazard dam by the Corps of Engineers, the dam structure must be inspected and repairs made.
2. The 60-inch drawdown is scheduled every five years. The next 60-inch drawdown will begin in September 1992 and every five years thereafter.
3. A main purpose for the 60 inch drawdown is to allow lakeshore property owners to have a period of time when the lake is low to make major repairs to lakeshore structures.
4. An additional purpose for the drawdown is lake management which includes: nutrient removal, weed control, silt and drainage materials removal from the watershed areas around the lake.
5. Starting January 1<sup>st</sup>, the lake level is allowed to rise until the ice is hard. The level would be allowed to rise to the 30 inch below spillway level and then held at that point until the ice breaks away from the shore in early March.

6. Starting in late winter or early spring rainfall is allowed to raise the lake level.

#### MANAGEMENT PROCEDURES (Prior to Jan. 1, 1990)

1. The repairs to Lake Hopatcong Dam are scheduled to coincide with the 60 inch drawdown.
2. Starting after Labor Day the Lake Hopatcong control gates are open allowing maximum stream flow, dropping the lake levels 60 inches by October 31<sup>st</sup>.
3. All lakeshore construction or material removal that has a direct effect on the water, has to be approved by the Department of Environmental Protection. Major renovation to the Hopatcong State Park swimming area is scheduled during the 60-inch drawdown.
4. Most of the nutrient removal projects are managed, planned and scheduled through the Lake Hopatcong Regional Planning Board.
5. If starting January 1<sup>st</sup>, the ice conditions are not hard, the lake level will be allowed to rise. When the ice gets hard; the rising level must be stopped to prevent major ice damage to docks and other lake structures.
6. On March 15<sup>th</sup> or earlier if the ice has broken away from the shore, the gates are closed, except as may be necessary to maintain 7.5 MGD (12 c.f.s.), and spring rains allowed to fill the lake.

#### LAKE HOPATCONG DRAWDOWN (60 inch) (Effective Jan. 1, 1990)

##### MANAGEMENT CONSIDERATIONS

1. Because Lake Hopatcong Dam has been classified as a high hazard dam by the Corps of Engineers, the dam structure must be inspected and repairs made.
2. The 60-inch drawdown is scheduled every five years. The next 60-inch drawdown will begin September 1992 and every five years thereafter.
3. A main purpose for the 60 inch drawdown is also to allow lakeshore property owners to have a period of time when the lake is low to make major repairs to lakeshore structures.
4. Currently operational guidelines are based on Environmental norms. The historic policy establishes January 1<sup>st</sup>, as the first date the lake can be raised. Normally there is one to two weeks in early January that the

lake can rise before the ice conditions become too hard. The ice will normally break away from the shore in early March and with average rainfall in March and April the lake would rise sufficiently enough for the start of the recreational season. If there is low spring rainfall, the sixty-inch drawdown procedure prior to Jan. 1, 1990, will not permit the lake to rise in time for the recreational season, which starts with trout season in April. Any changes in the operation, norms or average rainfall will effect the raising of the lake either by filling it earlier or later.

5. The 60 inch drawdown should be allowed to rise starting the middle of December, instead of January 1<sup>st</sup>. If the lake is allowed to rise starting December 15<sup>th</sup>, the normal period of time between gate closing and when the ice is hard would be two weeks longer. These additional two weeks could mean the lake might rise 8 to 12 inches before the ice get hard.
6. If the lake is allowed to rise starting the middle of December, it would result in a shorter period of time lakeshore owners could work on their docks. A 60-inch drawdown takes anywhere from 6 to 8 weeks depending on the amount of fall rain. This means the earliest the lake can be drawn down is the third week in October. If the gates are closed the middle of December, there would be a reduction in the time for shoreline repairs from a period of 8 to 10 weeks to a period of 6 to 8 weeks.
7. An additional purpose for the drawdown is lake maintenance which includes: nutrient removal, weed control, silt and drainage materials removal from the watershed areas around the lake.

#### MANAGEMENT PROCEDURES

1. By August 1<sup>st</sup>., the Division of Parks and Forestry will apply for a water-lowering permit with the Division of Fish and Wildlife as required under N.J.S.A. 23:5-29.
2. On the day after Labor Day the 60 inch (5.0 feet) drawdown will commence. On that date gates shall be open to an amount sufficient to maintain a stream gage height of at least 3.30 feet Top of gage). It will be necessary to make gate adjustments to insure that the Musconetcong River does not exceed maximum and that the 60 inch below spillway elevation is achieved by the third or fourth week in October. When the 60 inch below spillway elevation is reached, the gates shall be closed, except to the extent that may be necessary to maintain a flow of 7.5 MGD (12 c.f.s.). Before the regular 60 inch lake drawdown is implemented, the Division of Parks and Forestry will consult with the Division of Water Resources.

3. During the period of November 1<sup>st</sup> through December 15<sup>th</sup>, longer if directed by the Director, Division of Parks and Forestry, the gates shall be regulated to keep the lake level at 60 inches (5 feet) below the spillway in order to permit lakeshore maintenance.
4. On December 15<sup>th</sup> or later if directed by the Director, Division of Parks and Forestry, the gates shall be closed, except as may be necessary to maintain a flow of 7.5 MGD (12 c.f.s.) down the Musconetcong River. The lake will be allowed to fill from 12 to 48 inches below spillway elevation at which time the level will be maintained until the end of the first week of January.
5. At the start of the second week in January the lake will be allowed to fill to the 26 inch (2.17 feet) below spillway elevation or until the ice is hard and frozen to the shore, at which time the level will be maintained until the ice breaks away from the shore. At any time during January and February when ice conditions permit, the lake shall be allowed to rise too but not higher than, the 26 inch below spillway elevation.
6. On March 15<sup>th</sup> or earlier if the ice has broken away from the shore, the gates shall be closed, except as may be necessary to maintain a flow of 7.5 MGD(12 c.f.s.) down to Musconetcong River and the lake allowed to fill by spring rains.
7. If rainfall, as measured at Hopatcong State Park, for the months of September, October and November indicate a reduction of 20% from average rainfall, as recorded in appendix C, the following management procedures for filling Lake Hopatcong will be used. On December 1<sup>st</sup>. or earlier if directed by the Director, Division of Parks and Forestry the gates shall be closed. except as may be necessary to maintain a flow of 7.5 MGD (12 c.f.s.) down the Musconetcong River. The lake will be allowed to fill to the 26 inch (2.17 ft) below spillway elevation or until average rainfall, as measured at Hopatcong State Park has been reestablished, at which time the previous management procedures for a 60-inch drawdown will be followed. For spring filling of Lake Hopatcong refer to No. 7 above.
8. In times of emergency the Superintendent of Hopatcong State Park is authorized to take such actions regarding the gates, either closing or opening them and shutting off the fountain, as may be necessary. Prompt reporting of this action and the reasons shall be made to the Director, Division of Parks and Forestry.
9. The gates at Musconetcong shall be open to an amount sufficient to supply water into the old canal bed in Stanhope for fire suppression and still provide enough water over the spillway to prevent ice damage

to the wood spillway cap. The minimum stream flow from Lake Musconetcong shall be 7.5 MGD (12 c.f.s.). Historically the flow of 7.5 MGD from Lake Musconetcong has been adequate for the aquatic habitat along the Musconetcong River. The historic flow of 7.5 MGD will be maintained from the Musconetcong Dam, unless otherwise directed by the Director, Division of Parks and Forestry.

10. If a drought warning is declared by the Commissioner, Department of Environmental Protection, or a drought emergency is declared by the Governor, the NJDEP will provide direction to the Division of Parks and Forestry. This is to facilitate coordination between downstream users and out of basin water transfer requirements

### SPECIAL 84 INCH DRAWDOWN

#### MANAGEMENT CONSIDERATIONS

1. Lake Hopatcong Dam has been classified as a high hazard dam by the Corps of Engineers. The dam structure must be inspected and repairs made. The Lake may have to be lowered 84 inches to make any special repairs. The Lake Hopatcong Regional Planning Board has requested special 84 inch drawdowns in the past for special dredging and silt removal projects.

#### MANAGEMENT PROCEDURES

If a special 84 inch drawdown was to be requested, special management procedures would be developed. The Lake Commission, Local and County Governments, along with State agencies would be involved in the development. Emergency conditions will be reviewed with alternative procedures examined before an 84-inch drawdown will be approved. An 84-inch drawdown will only be used as a last resort.

**IV**    **LAKE HOPATCONG COMMISSION**

An act creating the Lake Hopatcong Commission, Title 58, Chapter 175 was signed into law on January 8, 2001. (See attachment C)



## V. ROLE OF LOCAL AND COUNTY GOVERNMENTS

Lake Hopatcong is located within the boundaries of four municipalities, (The Boroughs of Hopatcong and Mount Arlington and the Townships of Jefferson and Roxbury) as well as two counties (Morris and Sussex). In addition, the entire lake is a dedicated aquatic state park and is under the jurisdiction of the Department of Environmental Protection, Division of Parks and Forestry. The municipal boundaries do not stop at the lake shoreline but extends out into the lake. Consequently, persons using the lake are subject to the laws of the municipality in which they are located, all state laws and any applicable Park Service Rules and Regulations.

In some areas of regulation of the lake, the state government has exclusive authority. For instance, the municipalities have no jurisdiction over the outflow from the lake or the water level within the lake. Similarly, the local governments have no jurisdiction over pesticide use or application in the lake since that is a matter of exclusive state jurisdiction. The state does however, welcome the input of the local governments in these matters.

In many cases, however, the jurisdiction over the lake between the state and local governments is concurrent. That is, the laws of both state and local governments apply. Compliance with the level of government does not guarantee similar compliance at the other level. This is the case in the area of regulating pier, dock, bulkhead and marina construction. All four municipalities surrounding the lake have ordinances governing such construction. In addition, as described elsewhere in this manual, various state approvals are required. Parties wishing to engage in such construction activities are cautioned to obtain the necessary approvals of both levels of government.

Similarly, all construction along the shoreline, including construction in the lake itself is subject to municipal zoning and building codes. Local governments, through their zoning regulations, can also define and regulate the activities that can be conducted at all shoreline facilities, including lake access points and marinas.

In the area of the regulation of dredging of the lake, the jurisdiction is also concurrent. State approval should be sought first. Once obtained, parties are advised to check with the specific municipality where they are located to determine if there are any soil removal or soil erosion and sediment control regulations.

There are also several areas where the local municipalities can regulate in the absence of any state regulation. One of these areas is in the regulation of wintertime Ice-Retardant Systems. (which are also known as "Bubblers" or "Ice-Eaters.") One of the four municipalities has adopted a ordinance governing the area of ice which can be disturbed by these systems. (The three other municipalities are considering similar ordinances). Persons seeking to install such systems are advised to contact their local municipality.

In addition, municipal codes such as "Litter ordinances", "Indecency ordinances", "Disturbing the Peace ordinances", "Noise regulations" etc. can and do apply. In the past, the four local police departments, the New Jersey State Police Bureau of Marine Law Enforcement and the Park Service have all cooperated on various enforcement related matters.

One area where this cooperation has been demonstrated in the past has been in the regulation of bonfires on the lake. In 1985 all four municipalities, the Marine Police and the Division of Parks and Forestry entered into an agreement where they will mutually cooperate in enforcing the bonfire rules and regulations.

## VI GENERAL INFORMATION

1. The abbreviation c.f.s. means Cubic Feet per second.
2. The abbreviation M.G.D. means million gallons per day.
3. The term Lake Hopatcong/Musconetcong River System refers to Lake Hopatcong, Lake Musconetcong and the Musconetcong River.
4. The lake level reading of 9.00 feet on the Lake Hopatcong Lake gage is 923.70 feet above mean sea level or the top of the spillway.
5. The Bench Mark Normal Water Level of Lake Hopatcong as established for the construction of the dam in 1924 is 923.677 feet above mean sea level.
6. The Hopatcong Geological Survey River gage reading of 1.26 feet equals 12 c.f.s. (7.5 MGD).
7. The Hopatcong Geological Survey River gage reading of 1.11 feet equals 8.2 c.f.s. (5.3 MGD).
8. The Hopatcong Geological Survey River gage reading of 0.94 feet equals 5.1 c.f.s. (3.0 MGD).
9. Lake Hopatcong and Lake Musconetcong are subject to the DEP Water Emergency Regulations, N.J.A.C. 7:19A and 7:19B.
10. Lake Hopatcong, Lake Musconetcong and the Musconetcong River are within the Delaware River Basin, and as such are subject to the Delaware River Basin Commission Water Code.

## APPENDIX A

### RULES FOR THE MANIPULATION OF THE GATE AT Lake Hopatcong State Park

October 20, 1932

1. There shall be discharged at all times through the fountain, supplemented if necessary by gate openings, 12 cubic feet per second. According to the rating table for the stream gaging station just below the fountain, this corresponds to a gage height of 0.62 feet. If owing to lowered pressure in the lake the fountain does not discharge enough to maintain this height on the gage, one gate should be opened slightly to an amount sufficient to maintain this gage height.
2. On the day after Labor Day a gate shall be opened to an amount sufficient to maintain a total flow past the gaging station of 30 cu. ft. per sec. This corresponds to a gage height of 0.96- .97 feet. As the lake level recedes it will be necessary to increase the gate opening, little by little, above the 4-1/4 inches which has heretofore been used. It will not be necessary to make a daily record of these minor changes in the gate opening; the falling of the lake level and the maintenance of the flow at this gage height will be evidence that it has been necessary to increase the opening slightly.
3. The total drawdown of the lake, by means of the combined draft from the fountain and the larger gate opening, shall not be permitted to draw the lake more than 30 inches below the top of the dam, and in the event that condition is reached the gate shall thereupon be closed, except to the extent that it may be necessary to draw a small amount through the gate in order to keep the fountain discharge up to 12 cu. ft. per sec., and the height on the gage to 0.62.
4. During the months of January, February and the early part of March, it is desirable to keep the lake level at about 30 inches below the spillway in order to avoid damage to docks by pressure from the ice, and the gates shall be regulated accordingly. Records should be kept of the dates on which they are opened and closed.
5. About the middle of March and earlier if the ice has broken away from the shore, the gates shall be closed (except as may be necessary to maintain 12 cu. ft. per sec.) and the lake allowed to fill up.
6. These are general instructions but in time of emergency the man in charge at Lake Hopatcong is authorized to take such action regarding the gates, either closing or opening them, and shutting off the fountain, as may be necessary. Prompt report of this action and the reasons therefor shall be made to the Trenton Office.

7. The gates at Lake Musconetcong shall be regulated in harmony with this program to the end that there shall be discharged from that lake at least as much water as is fed to it from Lake Hopatcong.

8. (Since 1955):

For boat use we are trying not to lower in excess of -1.0 feet prior to Columbus Day.