OPINIONS AND DECISIONS

OF THE

PUBLIC SERVICE COMMISSION OF WISCONSIN

VOLUME XVI

MAY 27, 1937, TO AUGUST 17, 1937

MADISON, WISCONSIN
1938

On June 30, 1937, the State Highway Commission caused to be filed with this Commission a certified copy of a resolution duly adopted by said Highway Commission from which it appears that said Commission has assumed jurisdiction and complete control of the bridge in question and undertakes the operation and maintenance of the same as a free bridge, and making further provision for the replacement of the bridge, if necessary, in the manner provided by the statutes of this state. It appears from said resolution that the terms, conditions, and requirements specified in our order of June 29, 1937, have been fully complied with.

IT IS THEREFORE ORDERED, That the Commission hereby consents to and approves of the discontinuance of all tolls or charges by the city of Durand in the operation of such toll bridge, and further consents to and approves of the abandonment by said city of Durand of the utility service heretofore rendered by it in the operation of said toll bridge.

[2-WP-295]

IN THE MATTER OF THE PETITION OF A. E. MAYER AND 73 OTHER PERSONS FOR AN ORDER FIXING A HIGHER MINIMUM LEVEL FOR THE LAKES AFFECTED BY THE REST LAKE DAM IN VILAS COUNTY OWNED BY THE CHIPPEWA & FLAMBEAU IMPROVEMENT COMPANY

Decided July 8, 1937

FOLLOWING INVESTIGATION, the Commission finding it necessary in the public interest, pending determination by the Attorney General concerning the jurisdiction of the Commission to change the levels at the Rest Lake dam, ORDERED the Chippewa & Flambeau Improvement Company (1) to maintain water level in Rest Lake Reservoir, Vilas County, at gauge heights, specified; (2) to patrol all reservoirs and report filling of potholes; and (3) to start 5-year program of dredging bars between main reservoir and potholes to preserve fish life. Jurisdiction *retained.*

BY THE COMMISSION:

On September 10, 1915 (16 W.R.C. 727), the Railroad Commission of Wisconsin made an order requiring the Chippewa & Flambeau Improvement Company to maintain and operate the Rest Lake Reservoir Dam so that at no time of

the year the maximum headwater at the dam would exceed 8 feet 6 inches as measured on the staff gauge, nor less than 5 feet 6 inches on the gauge, except when the entire surface of the reservoir is covered with ice, the water in the reservoir may be lowered to a minimum head of 2 feet 6 inches on the gauge.

The petitioners herein, in effect, request that the Public Service Commission of Wisconsin make an order setting aside the minimum pond level established by the Railroad Commission and establishing a new and higher minimum pond level in the interest of fish life.

The petition was filed with the Commission on the 11th day of January 1937, and is signed by A. E. Mayer and 73 other persons, and is worded as follows:

> To the Public Service Commission
> Madison, Wisconsin
> Gentlemen:
>
> We, the undersigned citizens of Spider Lake, Vilas County, Wisconsin, and the communities adjoining the fourteen lakes comprising the Upper Manitowish Waters, hereby complain to your honorable body that the Chippewa Flambeau Improvement Company that have a charter for building a dam on thorofare between Rest Lake and Dam Lake in Town of Spider Lake, Vilas County, Wisconsin, and have so built and operate said dam, have opened the gates at said dam and maintained them such that same has caused the water to be drawn from the Upper Manitowish chain of fourteen lakes above the dam to such great extent that fish have been caught in pockets and has actually resulted in the killing of fish in said upper waters, to the damage of said citizens as well as vast summer guests and residents of this region.
> Dated December 29, 1936.

A public hearing on said petition on due notice was held at the Town Hall in the town of Spider Lake, Vilas County, on the 9th day of April 1937, and on an adjournment thereof at the office of the Commission in the city of Madison on the 30th day of April 1937. The appearances on April 9 were as follows:

Present: Adolph Kanneberg, Examiner.

Appearances: A. E. Mayer, et al., by *Leonard F. Schmitt*, attorney, of Schmitt & Schnabel, Merrill, Wisconsin.

W. T. Durant, on his own behalf, Manitowish, Wisconsin.

Wisconsin Conservation Commission, by *B. O. Webster,* superintendent of fisheries, and *J. H. H. Alexander,* superintendent of recreational publicity.

Chippewa & Flambeau Improvement Company, by *G. E. Loughland,* hydraulic engineer, Northern States Power Company, Minneapolis, Minnesota; *Donald Boyd,* secretary; *Ernest Cotton,* general superintendent, and *H. H. Coolidge,* vice president, manager and treasurer.

At the adjourned hearing at Madison, the appearances were as follows:

Present: Robert A. Nixon, Commissioner, and Adolph Kanneberg, Examiner.

Appearances: A. E. Mayer et al., town of Spider Lake, Manitowish Waters Association, by *Leonard F. Schmitt,* attorney, of Schmitt & Schnabel, Merrill, Wisconsin.

W. T. Durant, on his own behalf, Manitowish, Wisconsin.

Wisconsin Conservation Commission, by *B. O. Webster,* superintendent of fisheries.

Chippewa & Flambeau Improvement Company, Northern States Power Company, and Flambeau Paper Company, by *Bailey Ramsdell,* attorney, of Ramsdell, King & Linderman, Eau Claire, Wisconsin.

The respondent, Chippewa & Flambeau Improvement Company, is a corporation organized and existing under Chapter 640, Laws of 1911, as amended. Its authority to acquire and operate water-storage reservoir dams is by virtue of said act. The Rest Lake dam is located in section 9, township 42 north of range 5 east, across the Manitowish River, one of the tributaries of the North fork of the Flambeau River. The dam was acquired by the respondent on the 31st day of December 1912 from the Chippewa River Improvement and Log Driving Company. The latter company constructed the dam in 1888, pursuant to Chapter 449, Laws of 1887, which authorized said company to improve the North fork of the Flambeau River for log-driving purposes by building and operating one or more dams or other structures and equipment in the headwaters of said river. The dam after its completion in 1888 was of sufficient height and strength to hold a head of 16 feet. Prior to the transfer of the dam to the respondent, the water was

allowed to rise as high as 15 feet above the natural flow of the river during the winter months. During the log-driving season all water was released to facilitate the drives. After the driving season was over the pond was down to natural run. The gates in the dam were again closed either in the fall or before the break-up in the spring to store water for the coming log-driving season.

After the acquisition of the dam by the respondent it petitioned the Railroad Commission to fix a maximum and a minimum level of water for the Rest Lake reservoir maintained by the dam. The petition was based on a provision in Section 6 of Chapter 640 of the Laws of 1911, namely:

> Such railroad commission shall cause the height to which the water may be raised by any dam to be indicated by permanent monuments and bench marks, and shall have supervision and control of the time and extent of the drawing of water from the reservoirs, and the power to compel the maintenance of all reservoirs established.

On November 24, 1914, after a public hearing, the Commission by its order established a maximum head of 8 feet on the gauge and a minimum head of 5 feet 6 inches on the gauge for the Rest Lake Reservoir, thus allowing the respondent to vary the head of water in the reservoir by 2½ feet. (15 W.R.C. 438) The respondent, being dissatisfied with the order of the Commission, filed an application for a rehearing. The application for rehearing was granted and the order of the Commission was suspended pending the hearing and final determination on said rehearing.

On the rehearing, the respondent requested a maximum level of 10 feet, as measured on the gauge, with permission to draw down the head to the natural flow of the water, or "O" on the gauge.

While the proceedings were pending, Chapter 380 of the Laws of 1915 (now Chapter 31, Statutes) was enacted and became effective July 10, 1915. The parties to the controversy thereupon agreed that the Commission should proceed to a determination of the matter as though the proceedings had been commenced subsequent to the date when Chapter 380, Laws of 1915, became effective. Chapter 380, Laws of 1915, repeals Sections 1596–50 to 1596–77 of the

Statutes of that year, amends subsection (3) of Section 1596 of said Statutes, and creates Sections 1596–1 to 1596–26, inclusive, of the Statutes of 1915.

Section 1596–2 of said act, now Section 31.02(1), provides as follows:

> **31.02 Power of commission.** (1) The commission, in the interest of public rights in navigable waters or to promote safety and protect life, health and property is empowered to regulate and control the level and flow of water in all navigable waters and may erect, or may order and require bench marks to be erected, upon which shall be designated the maximum level of water that may be impounded and the lowest level of water that may be maintained by any dam heretofore or hereafter constructed and maintained in navigable waters; and shall establish and maintain gauging stations upon the various navigable waters of the state and shall take other steps necessary to determine and record the characteristics of such waters.

The Commission held that the section quoted applies to any dam constructed under the Reservoir Law, Chapter 640, Laws of 1911, as well as to dams constructed pursuant to the so-called Water Power Law, now Chapter 31 of the Statutes.

On September 10, 1915, after the testimony had been taken and the arguments had on the rehearing, the Commission made the order requiring the respondent to operate its said Rest Lake Reservoir dam in manner indicated in the first paragraph of this decision and order, and ordered the respondent to immediately make certain needed repairs on the dam. (16 W.R.C. 727)

The drainage area above the Rest Lake dam is 225 square miles. The water area affected by the dam includes Rest Lake, Mud Lake, Clear Lake, Stone Lake, Spider Lake, Island Lake, Manitowish Lake, Star Lake, Little Manitowish Lake, Little Bass Lake, Alder Lake, and Rice Lake, The combined water surface of these lakes is about 8 square miles. The lakes have a shore line of about 50 miles. The storage capacity of the Rest Lake Reservoir in feet and inches is as follows:

REST LAKE RESERVOIR CAPACITY

Above Flambeau Reservoir

Gauge Reading	Elevation Feet	Capacity M Cu. Ft	Percent Total Capacity	Gauge Reading	Elevation Feet	Capacity M Cu.Ft	Percent Total Capacity
2' 6"---------	102.50	0	0	5' 6"---------	105.50	435	43
7"---------	.58	10	1	7"---------	.58	449	44
8"---------	.67	20	2	8"---------	.67	463	46
9"---------	.75	30	3	9"---------	.75	477	47
10"---------	.83	40	4	10"---------	.83	491	48
11"---------	.92	50	5	11"---------	.92	506	50
3' 0"---------	103.00	60	6	6' 0"---------	106.00	520	51
1"---------	.08	72	7	1"---------	.08	535	53
2"---------	.17	83	8	2"---------	.17	550	54
3"---------	.25	95	9	3"---------	.25	565	56
4"---------	.33	107	11	4"---------	.33	580	57
5"---------	.42	118	12	5"---------	.42	595	59
6"---------	.50	130	13	6"---------	.50	610	60
7"---------	.58	142	14	7"---------	.58	625	62
8"---------	.67	153	15	8"---------	.67	640	63
9"---------	.75	165	16	9"---------	.75	655	65
10"---------	.83	177	18	10"---------	.83	670	66
11"---------	.92	185	19	11"---------	.92	685	68
4' 0"---------	104.00	200	20	7' 0"---------	107.00	700	69
1"---------	.08	212	21	1"---------	.08	717	71
2"---------	.17	225	22	2"---------	.17	733	73
3"---------	.25	237	23	3"---------	.25	750	74
4"---------	.33	250	25	4"---------	.33	767	76
5"---------	.42	262	26	5"---------	.42	783	78
6"---------	.50	275	27	6"---------	.50	800	79
7"---------	.58	287	28	7"---------	.58	817	81
8"---------	.67	300	30	8"---------	.67	833	82
9"---------	.75	312	31	9"---------	.75	850	84
10"---------	.83	325	32	10"---------	.83	867	86
11"---------	.92	337	33	11"---------	.92	883	87
5' 0"---------	105.00	350	35	8' 0"---------	108.00	900	89
1"---------	.08	364	36	1"---------	.08	918	91
2"---------	.17	378	37	2"---------	.17	936	93
3"---------	.25	392	39	3"---------	.25	955	95
4"---------	.33	407	40	4"---------	.33	973	96
5"---------	.42	421	42	5"---------	.42	991	98
6"---------	.50	435	43	6"---------	.50	1010	100

There are a number of isolated areas of shallow ponds and swamp and low lands on the margin of the Rest Lake chain of lakes and the river between them at the natural stages of these waters when unaffected by the dam. These areas have different surface elevations and are successively submerged as the waters are raised by the Rest Lake dam, and conversely when the storage water is released from the reservoir some of these areas are more or less drained or insufficiently covered with water to sustain fish life. When the water in the reservoir is lowered to the minimum level in the winter some of these areas, or potholes as they are called in the testimony, will be drained until the ice rests upon the bed, or the water will be so low and covered with

a blanket of ice so that the free oxygen in the water is soon exhausted and fish and other animal life is suffocated. Moreover, sandbars have formed between the potholes and the reservoir proper by this action of the water.

During the winter of 1937 the Improvement Company lowered the waters in the Rest Lake Reservoir at the dam to the minimum elevation of 2 feet 6 inches on the gauge. This lowering caused the death of fish and fish foods in the so-called pockets. The fish killed were small, which would seem to indicate that the larger fish, sensing what was happening during the process of lowering, migrated to deeper water before the bottom was reached. Dead fish and fish foods were secured from the beds of the pockets through holes cut in the ice of about 20 inches in diameter.

An example of such dead fish and fish foods found is related in the testimony of the witness, I. C. Rheaume, page 56 of the testimony, who says he cut five holes through the ice in the pothole described in Exhibit 2, and found "30 hellgramites, 10 sticklebacks, 6 mud minnows, 3 curry fish, 1 clam, 10 snails, 6 bluegills, 6 bloodsuckers, 10 perch, 2 walleyed pike, 4 chubs, 7 shiners".

The petitioners testified to 17 potholes with sandbars across their outlets which tend to trap fish and other animal life when the reservoir is lowered or ice freezes on top of the potholes and bars. The following is a tabulation of these potholes. The first column of the table shows the numbering of the potholes, according to the elevations of the bars. The second column shows exhibit number. The third column shows the number of potholes given on the exhibit. The fourth column shows the gauge height of the top of the bars.

1	2	3	4
Number Bar	*Exhibit Number*	*Pothole Number*	*Gauge Height of Top of Bar*
1	7	------	8.3
2	10	3	7.8
3	4	1	7.7
4	3	2	7.37
5	3	4	7.3
6	3	3	7.3
7	2	1	6.7
8	8	1	6.7
9	9	1	6.4
10	10	5	6.3
11	11	1	5.2
12	6	2	5.0
13	10	4	3.4
14	5	2	3.2
15	10	1	2.5
16	10	2	2.5
17	6	1	2.5

It will be noted that fish can enter all of the potholes from the main reservoir during the summer months with a gauge height of 8.5 feet since the bars vary in elevation from 2.5 feet to 8.3 feet on the gauge. It will be rather difficult for any large fish to cross bar No. 1, since it is now at gauge height of 8.3 feet. The remaining 16 bars would have a depth of water over them of 0.7 feet (8½ inches), or more at full reservoir stage.

From the tabulation it is apparent that fixing a higher winter minimum, even though it be fixed at maximum summer pond elevation, will not entirely cure the trouble since over half of the bars will probably still trap fish during the winter months. This is not an unusual condition, since we find it to be true on other ponds and lakes where there is no winter fluctuation.

The formation of bars, similar to those shown on the exhibits, is the natural result of the gradual filling of all lakes. Even Lake Mendota has a very pronounced bar forming across University Bay from Picnic Point to the south shore. These bars will eventually cut off the irregular portion of the lake and allow these portions to fill with accumulated vegetable matter, such as happened to the portion of the lake west of University Drive now part of the University Farm.

It has been suggested that the most practical way of preventing or rather minimizing the destruction of fish life is to excavate channels from the potholes to the reservoir proper to allow fish to escape during the winter months, and to maintain these channels each year, since it is a well known fact that the channels will partially fill up every summer due to current and wave action.

It appears, however, from Exhibit 30 that to channel the 17 potholes above described will require the removal of 2243 cubic yards of material. This excavation is rather expensive, since it may be necessary to do considerable hand digging. Some of the digging could undoubtedly be performed with a floating dredge. The channels would have to be re-excavated and maintained every year.

It also appears from the testimony that there may be a great many potholes similar to the 17 which have been located and described. From the testimony it would also appear that the 17 bars which have been tabulated are only a relatively small number of the total number of similar bars in the Rest Lake Reservoir. If the minimum pond level is raised the number of bars which require channeling will very likely be greatly reduced.

The remedy demanded by the petitioners is to set aside the minimum pond level established in 1915 and to fix a new and higher minimum level at 6 feet on the gauge. This would permit the respondent to vary the pond level only 2½ feet. This minimum would deprive the respondent of the use of 38 percent to 51 percent of the capacity of the Rest Lake Reservoir. The annual value of this capacity to the power companies is approximately $25,000.

At the hearing certain legal questions were raised concerning the jurisdiction of the Commission to change the levels at the Rest Lake dam. These questions have been referred to the Attorney General for an official opinion. Pending the determination of its jurisdiction, the Commission feels that the public interest requires the entry of the following order providing for a plan of operation which has been consented to by the owner and lessee of said dam.

IT IS THEREFORE ORDERED, That the minimum reservoir level which may be maintained in the Rest Lake Reservoir at the dam during the period of November 1 to the time of

the spring breakup of the ice shall be at a gauge height of 5 feet 0 inches. From the time of the spring break-up until April 15, the water shall be raised to a minimum level of 7 feet 3 inches on the gauge, provided the minimum discharge required by law and rainfall and runoff will permit. During the period from April 15 to July 1, the water shall be raised from 7 feet 3 inches to approximately 8 feet 6 inches, which is the maximum level which may be maintained at any time, provided the minimum discharge required by law and rainfall and runoff will permit. From July 1 to September 1, the water may be drawn not lower than a gauge height of 7 feet 3 inches. From September 1 to November 1, the water may be drawn to a stage not lower than 5 feet 0 inches on the gauge. At no time shall the reservoir be lowered at a rate exceeding 2 inches per day. At no time shall the reservoir be lowered after the ice sheet forms in the early winter and before the ice breaks up the following spring. The water surface may exceed the minimum levels fixed for the various periods of the year at any time, provided that the rate of lowering the reservoir thereafter does not exceed 2 inches per day.

IT IS FURTHER ORDERED, That the Improvement Company employ a patrolman to patrol all of the reservoirs operated by the Improvement Company during both the filling and draw-down periods, the patrolman to record the location and elevation at which water begins filling each of the potholes, and also the elevations at which the potholes are cut off from the main reservoir during periods of the lowering of the water stages.

IT IS FURTHER ORDERED, That the Improvement Company start a program of dredging the bars between the potholes and the main reservoir so as to allow fish to escape when the reservoir is lowered, and spend not less than $1000 per year on this work so long as this plan of operation is followed, or until the objectionable conditions are overcome.

IT IS FURTHER ORDERED, That this program of operation, inspection, and dredging shall continue for a period of 5 years from the date hereof, unless otherwise ordered.

IT IS FURTHER ORDERED, That the Improvement Company report to the Commission once in 3 months as to the conditions found by the patrolman and the dredging work done.