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PRELIMINARY INVESTIGATION OF CONDITIONS FOR FISH LIFE IN THE PEAVY FALLS
AND WAY RESERVOIRS ON THE MICHIGAMME RIVER AND OF THE PAINT RIVER
WHERE DAMS HAVE BEEN PROPOSED

by

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A brief investigation of present conditions for fish in the impoundments on the Michigamme River was made on August 25 and 27, 1943. The Paint River was also inspected at the Horserace Rapids and above the Crystal Falls dam. District Supervisor of Field Administration Claude Smith kindly assigned Conservation Officers Paul Houlmont and John Shenky to assist. These men were of great help in the work, not only in providing boats, transportation and help in the field but also in contributing information on the fishing in these waters.

Peavy Falls Reservoir

According to Mr. Westerman's memorandum of August 6, 1943, the dam creating this reservoir was completed in February of this year and was filled during the spring run-off. The generating plant located some distance below the dam has an effective head of about 95 feet when the reservoir is full, but the maximum depth of the reservoir probably does not exceed 70 feet and deep water is presumably confined to a limited area above the dam. As high a level as possible is to be maintained by draw-down from the Way Reservoir above.

Observations: A series of temperatures and water analyses was made just above the dam. The results are given in Table 1. These show a decided drop in temperature from 74°F at the surface to 47°F at the bottom as might be expected from this depth and a surface draw-off. Oxygen ranged from 6.7 at the surface to 0.1 at 20 feet, and 0.0 at 30 feet and at 63 feet (one foot from the bottom). A strong odor of hydrogen sulphide was evident at the power tail-race and in most of the water samples. Bicarbonate alkalinity (M.O.) was moderate (75 p.p.m.) and the water was slightly acid (pH 6.8). Transparency was low in the darkly stained water. The Secchi disk disappeared at a depth of 3 1/2 feet.

Table 1. Temperature and Chemical Analyses of Michigamme River Impoundments

Name of Reservoir	Peavy Falls Reservoir					Way Reservoir					
Date Studied	August 25, 1943					August 27, 1943					
Point of Examination	150 yards from dam in channel					1/4 mile above dam					
Depth of Sample	Temperature	Oxygen	phth	M.O.	pH	Temperature	Oxygen	phth	M.O.	pH	
		Parts per million					Parts per million				
1 ft.	74°	6.7	...	...	...	69°	...	...	...	...
20 ft.	67°	0.1	...	...	...	...	...	...	...	...
22 ft.	...	...	...	...	...	68°	5.2	0.0	50.0	7.2
24 ft.	...	...	...	...	...	Bottom	...	...	...	...
30 ft.	64°	0.0	...	...	...	...	...	...	...	...
35 ft.	59°	...	...	...	...		
40 ft.	52°	...	...	...	...		
63 ft.	47°	0.0	0.0	75	6.8						
64 ft.	Bottom	...	...	...	...		
Transparency (Secchi Disk)	3 1/2 feet					4 1/2 feet					

The caretaker reported that many small crappie, perch and bullheads collected on the screens of the intake; also that schools of young bullheads and perch could be seen along the margin of the tail-race. Young-of-the-year perch were observed by us but no bullheads.

Conclusions: At present the Peavy Falls reservoir is not habitable by cold-water fish since all but the upper layer is lacking in oxygen due to decay of organic material flooded by the dam. At this time even the surface water and shallows at the lower end are not too well supplied with oxygen for warm-water fish either, but it is expected that this condition will improve in another year or so. Since the level is to be held constant, good fishing should develop at least temporarily for northern pike, perch, crappies and possibly walleyes. If the oxygen supply in deep water improves in the future, lake trout might find a suitable habitat since rocky cliffs and islands have been flooded at the lower end of the reservoir. If the cold-water layer is found to be habitable in the future, a bottom contour map should be secured to determine the extent of this possibility.

No fish stocking is necessary at present in this reservoir as there is an abundance of young crappie, perch, bullheads (and probably pike, walleyes and bass) drifting down from above.

Way Reservoir

Mr. Westerman's memorandum states that the Way dam was built for storage only to feed water to the Peavy Falls reservoir and that it has a head of approximately 35 feet. It floods a wide, shallow basin on about 8,000 acres, including a number of natural lakes--several of which provided good fishing prior to the impoundment.

It is understood that the usual plan of operation will be to fill the reservoir during the spring run-off and to draw in the summer, fall and winter. The dam has been operated for three years and is reported by Mr. Shemky to have been drawn to the original stream channel by spring of each year.

Observations: Temperatures and a chemical analysis are given in Table 1. It will be noted that there is only one degree difference between top and bottom water and that the supply of oxygen is tolerable by fish life at the bottom. The water is somewhat less hard (M.O. alkalinity 50.0) and alkaline in reaction (pH 7.2). Also, the transparency is somewhat greater (4 1/2 feet) than in the lower reservoir. On this date the water level was from six to eight feet below the emergency spillway.

The present caretaker at Way Dam reported that his predecessor stated that during the first two years of operation the water coming from the reservoir had such a strong odor that they had to keep the house windows closed when the wind was from that direction. Judging by the oxygen analysis and the lack of odor at present, decomposition of flooded material has greatly diminished.

Conclusions: Since this is a temporary lake, it cannot be expected to provide much fishing or to be a very suitable habitat for fish life. The natural lakes and the original stream flooded by the dam will probably be difficult or impossible of access when the reservoir is down. Some fish may possibly be trapped by receding waters. Except for stabilizing a higher flow of the river between the Way dam and Peavy Falls reservoir, the construction and operation of the Way dam must be considered detrimental to fishing. However, Officer Shemky reports that since the construction of ^{this} the dam fishing has improved in the Michigamme River below the Upper Falls. Large numbers of good sized perch, crappie, northern pike and walleyes have been taken during the past two years. These fish are presumed to have come down from the Way reservoir. It is possible that some of these may have originated in the natural lakes and the stream which was flooded by the dam. It would not seem that much successful spawning of any species could occur during a falling water level in late spring and early summer. It is also

possible that in spite of fluctuating levels young fish drifting down from the river above may have grown rapidly on the initially rich food supply characteristic of such reservoirs and may have been drawn out into the river below as the water was released. It is doubtful if this production--if it came from the Way reservoir--will continue after the food supply becomes stabilized at a lower level. On the other hand, the backwaters of Peavy Falls reservoir should become productive during the next few years and may furnish "runs" of perch, crappie, walleyes and northern pike which will concentrate below the Upper Falls. Good fishing may therefore be expected to continue for several years in the Michigamme River between the lower reservoir and the Falls but will probably decline between the Falls and Way dam. The proposed construction of a stable level power dam at the Upper Falls and another at the Lower Falls will provide fishing similar to that which will be afforded by the Peavy Dam, but it is predicted that as in other impoundments, there will be a decline in all three power reservoirs which will occur from five to seven years after construction is completed.

Proposed Impoundments on the Paint River

Mr. Westerman's memorandum also states that the Wisconsin-Michigan Power Company proposes to either divert a large portion of the flow of the Paint River into the Peavy Falls reservoir or if this is not possible, to construct a power generating plant below the Horseshoe Rapids on the Paint, conducting the water around the Rapids by a conduit similar to that at Peavy Falls. Storage reservoirs similar to the Way reservoir are also planned by this company on the Paint River above Crystal Falls.

While the construction accomplished and proposed on the Michigamme River may not result in less fish production for that river system (local reports are that this river has been little fished in the past), those proposed for the Paint River can only result in great and permanent impairment. This

river has been noted for its excellent smallmouth bass fishing and prior to the war attracted tourist fishermen from all over the mid-west. The economic value of this attraction to Crystal Falls and vicinity should be considered.

Also a number of picturesque waterfalls have been or will be destroyed by dams on the Michigamme, and the Horserace Rapids will be ruined either by the diversion or by dam construction. Of the two evils, the proposed diversion two miles above the rapids would be preferable. Although in either case the rapids will be spoiled, water could again be permitted to flow in the original channel from the diversion dam if in the future this water is not needed or cannot be used at Peavy Falls. If a generating plant is built at the rapids, its scenic value will be forever ruined.

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