CORRESPONDENCE/MEMORANDUM — **State of Wisconsin**

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To: Bureau of Fisheries and Habitat Protection

From: Thomas (Skip) Sommerfeldt
Senior Fisheries Biologist, Park Falls

Subject: DRAFT

1999 Lake Survey Summary - Hiles Millpond, Forest County

(T37N, R12E, sec. 10; WBIC - 408000)
Headwaters GMU

This report is submitted with the approval of Basin Supervisor (GMU Team Leader), Tom Bashaw and Regional Fisheries Expert, Steve AveLallemant. The report was written and work supervised by Thomas (Skip) Sommerfeldt, Senior Fisheries Biologist under the Chequamegon and Nicolet National Forest contract fisheries program.

NOTED: _____
Upper Chippewa Basin Supervisor, Tom Aartila

APPROVED BY:

_____ _____
Fisheries Expert, Steve AveLallemant Date

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Headwaters Basin Supervisor, Tom Bashaw Date

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Bureau of Fisheries and Habitat Protection Date

cc: Bureau of F & H Prot.
Park Falls DNR (Skip)
USFS S.O. - Sue R.
Woodruff DNR - Bob Young

Local Warden USFS - Eagle River

BACKGROUND INFORMATION

Hiles Millpond is a shallow drainage impoundment on Pine Creek in west-central Forest County. The dam has a head of 6 feet and the outlet flows into Pine Lake to the south. The flowage covers 713 acres, which includes about 300 acres of open water and about 400 acres of deep marsh, shallow marsh, and sphagnum bog (US Forest Service estimate - Dec 1992). There are 6 miles of shoreline, with about 5.0 miles of it owned by the US Forest Service. The shoreline is predominantly wetland of bog, meadow, shrub, and conifer (90%); with the remaining portion being upland hardwood, pine, and pasture. Bottom types are mainly muck (90%), with lesser amounts of sand (8%), and gravel. Public access is provided by a gravel boat ramp on the south end of the flowage next to the dam.

According to US Forest Service records, Hiles Millpond was originally created in the late 1800's to serve as a log driving site for the Hiles Lumber Company. Occasional repairs to the dam were made over the years, but much of the original structure was still in place in 1992. However, safety inspections by the WDNR around this time identified several problems in the structure, including seepage, rodent burrowing, and settling of the outlet pipe. The WDNR concluded that repairs had to be made or the dam would have to be abandoned and the Millpond drained. It then appears that the dam/outlet was reconstructed in 1993 and the flowage refilled by the spring of 1994.

A fishery survey was conducted on the Millpond in 1980 and found a fishery of mainly northern pike, yellow perch, and pumpkinseed. Bullhead and golden shiners were also found in high numbers. Growth of the northern pike was considered fair and the perch and pumpkinseed populations exhibited good growth rates. The survey report concluded that the physical characteristics and water quality provided marginal conditions to support a fishery. However, it was also stated that a fair fish population was present and did provide angling opportunities. Growth, condition, and natural reproduction were good for all species and no additional management or investigation was recommended.

In the spring of 1994 - apparently after the refilling of the millpond after dam reconstruction - various species of sportfish were field transferred into the flowage. The species stocked included largemouth bass, northern pike, bluegill, pumpkinseed, yellow perch, black crappie, and rock bass. A subsequent shocker survey in July 1995 found northern pike, perch, pumpkinseed, and golden shiner to be present.

The present fishery survey on Hiles Millpond was conducted through the Chequamegon/Nicolet National Forest contract fisheries program. It was designed to inventory the fish population and provide future management direction. To gather information on the fishery, the survey utilized an electrofishing run in May and a summer fyke-net effort in June 1999. In addition, dissolved oxygen (DO) levels were measured during ice cover in March 1999.

RESULTS AND SUMMARY

The 1999 survey on Hiles Millpond found a moderate density of northern pike and a panfishery of yellow perch, pumpkinseed, black crappie, and bullhead (both black and yellow). A total of 54 pike were measured and all were less than 20 inches in length. The northerns achieved below average growth rates (Figure 1) and the fish were noted to be in poor condition (skinny). The panfishery was predominantly

bullheads, but significant numbers of pumpkinseed, yellow perch, and black crappie were also present. Black bullhead were more abundant than yellows and most were in the 7 to 8 inch size. The pumpkinseed, yellow perch and crappie populations were all considered low in density. Growth rates for these 3 were average to above average (Figures 2, 3, 4) and good numbers of quality-size fish were found. Winter DO readings in March 1999 indicated no oxygen present in the lower end of the Millpond. However, no fish mortality was documented or reported following ice out.

The fishery in Hiles Millpond had changed very little over the past 20 years and continues to be comprised of species tolerant of low oxygen conditions. Northern pike remain the predominant gamefish and the poor size structure was very similar to what was found in 1980. Pumpkinseed, yellow perch and bullhead have persisted as the primary panfish and continue to experience average to above average growth rates. Black crappie have established a self-sustaining population since 1980 and this was likely a result of the adult fish transfer in 1994. The species less tolerant to low DO's (largemouth bass and bluegill) have failed to establish populations since their stocking in 1994.

Overall, it was concluded that this large, shallow impoundment contained a marginal sport fishery that suffers from periodic, partial winterkills. While no fish mortalities have been reported or documented in the past, the low winter DO's and the species composition in the Millpond indicate that partial winterkills occur on a regular basis. The northern pike were sustaining a low-quality population while the pumpkinseed, perch, and crappie did provide for some quality fishing opportunities. However, sportfish/panfish numbers were considered low for the amount of habitat available.

With the marginal water quality (mainly low winter oxygen levels) and limited habitat/forage for gamefish, fisheries potential on the Millpond was low. Winter aeration does not appear feasible on this large, shallow impoundment (electricity not readily available, too large of an expanse of very shallow water, bog/marshy nature of the shoreline). Over-winter draw downs (OWD) may help improve habitat but it was unknown if the outlet/dam was capable of water level manipulation. OWD's would help the winter DO problem by reducing weed density as well as the compacting and composting of the organic bottom sediments. This would result in less oxygen demand in winter under ice cover and provide more open-water area during the following summer(s). An additional/alternate strategy may be to establish wild rice as an emergent plant in the shallow littoral areas. Rice beds in water 3' and less would shade out the submergent vegetation, tie-up/stabilize bottom sediments, and provide more 'edge' habitat. In addition, there is some evidence that winter DO's may also improve when rice replaces submergents in the littoral area.

The Millpond should continue to be managed as a northern pike and panfish fishery. However, until habitat improvement activities are undertaken/completed, fisheries management activities should be minimal. It is recommended that no active management be exerted at present - meaning no stocking of any fish species and the current harvest regulations be continued (25 daily bag for panfish; no minimum and 5 daily bag for pike). Northern pike growth rates were well below average and restrictive regulations would not help to improve size structure. Increased open-water habitat and forage are needed to help improve the pike population. The crappie, perch and pumpkinseed populations were low density but did provide some quality-size fish to the angler. This will likely continue under the present management regime or until conditions drastically change in the impoundment (ie. draw downs, large rice beds, etc.).

MANAGEMENT RECOMMENDATIONS

1. Manage Hiles Millpond as a northern pike and panfish fishery with no active management at present. No supplemental stocking of any species should be conducted until winter oxygen conditions improve. In addition, the current harvest regulations were appropriate for the flowage for the time being (25 daily bag for panfish; no minimum and 5 daily bag for pike).

2. Pursue habitat improvement activities as the situation or conditions allow. Periodic over-winter draw downs should be conducted if the dam structure is capable of water level manipulation (at a frequency of every other year). If the structure is not capable at present, this feature should be incorporated into any future modifications or work on the dam. The establishment of wild rice should also be investigated and pursued if found to be a preferred alternative.

3. Maintain the wild nature of the impoundment by continuing to limit development around the lakeshore. In addition, any logging or other work in the immediate area of the Millpond should follow the guidelines for riparian management zones as described in "Wisconsin's Forestry Best Management Practices for Water Quality" (PUB-FR-093 95).

4. Following any habitat improvement work, conduct regular monitoring of winter dissolved oxygen levels. A single reading in the mid-March period should be adequate to determine the annual potential for winterkill. The USFS/WDNR contract fisheries program will incorporate this into their annual work plans.

5. Assess the status of the fishery on a periodic basis. A spring electrofishing survey (index station) should be conducted every 4-5 years. If habitat improvements are undertaken, monitoring surveys should be more frequent. The USFS/WDNR contract fisheries program will incorporate this into their annual work plans.

Hiles Millpond, Forest Co. -- 1999 Survey Pictures

Checking nets in lower portion of the flowage

Some of the upland shoreline in the Millpond.

Figure 1. Northern Pike Growth Rates
Hiles Millpond, Forest Co.

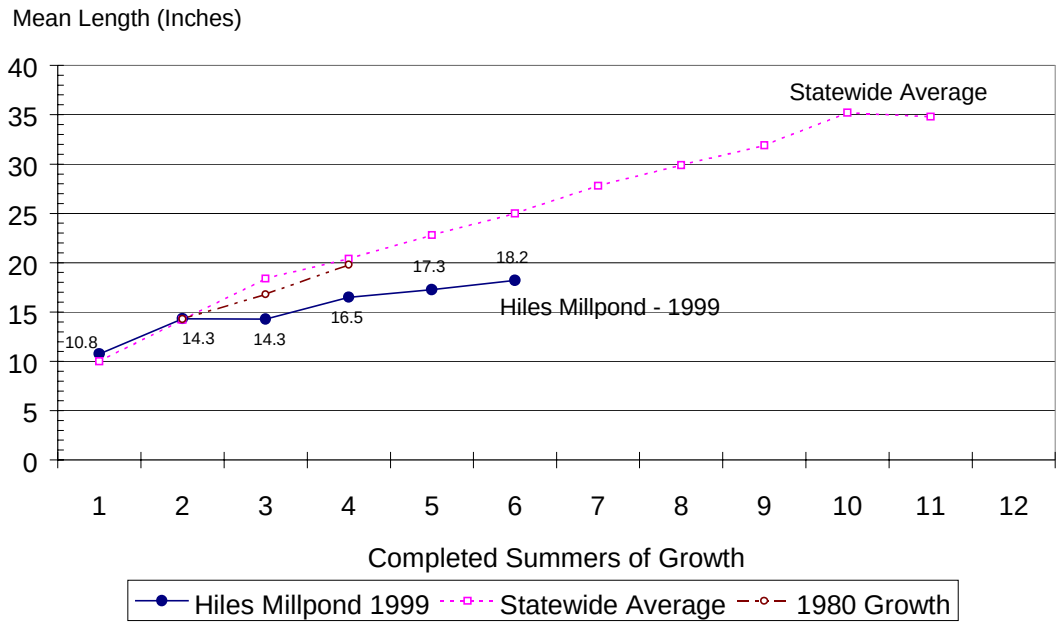


Figure 2. Yellow Perch Growth Rates
Hiles Millpond, Forest Co.

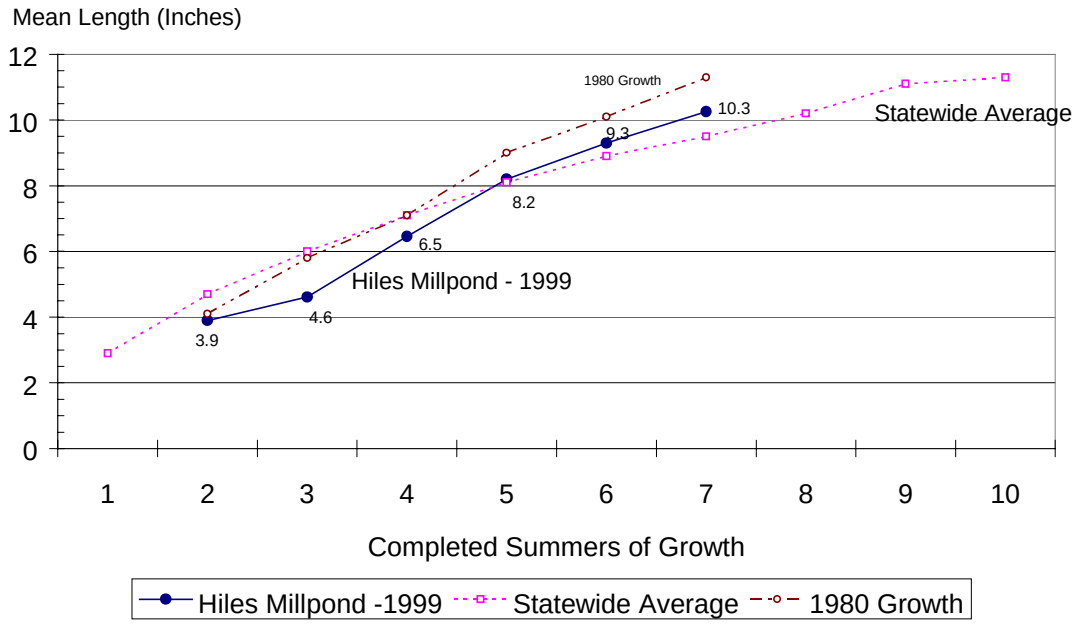


Figure 3. Pumpkinseed Growth Rates
Hiles Millpond, Forest Co.

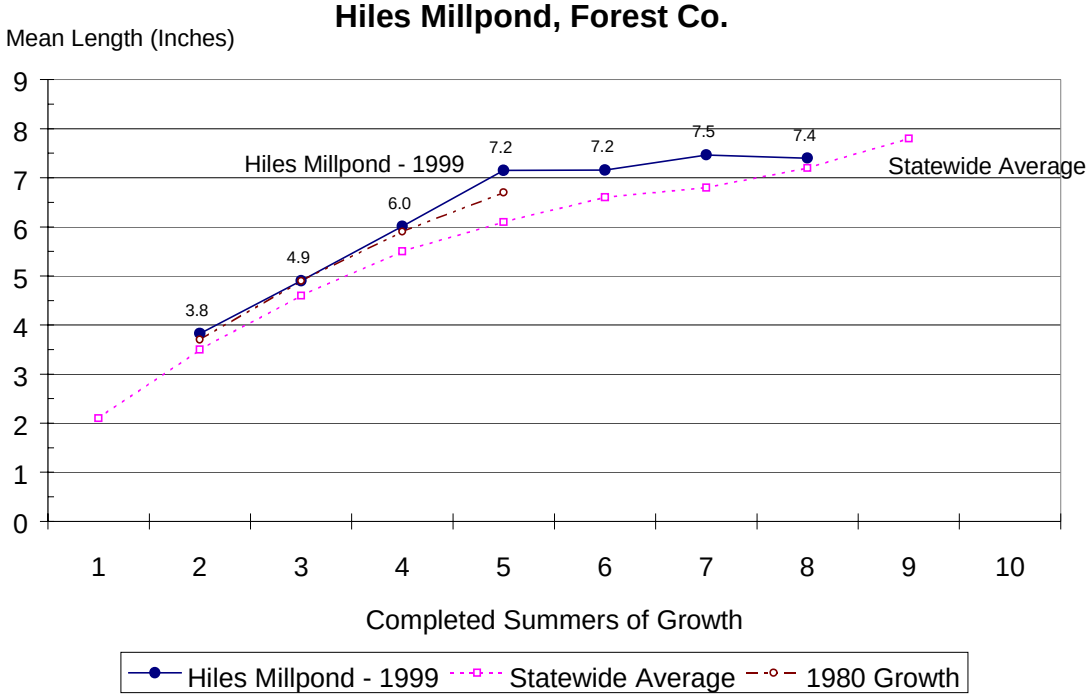
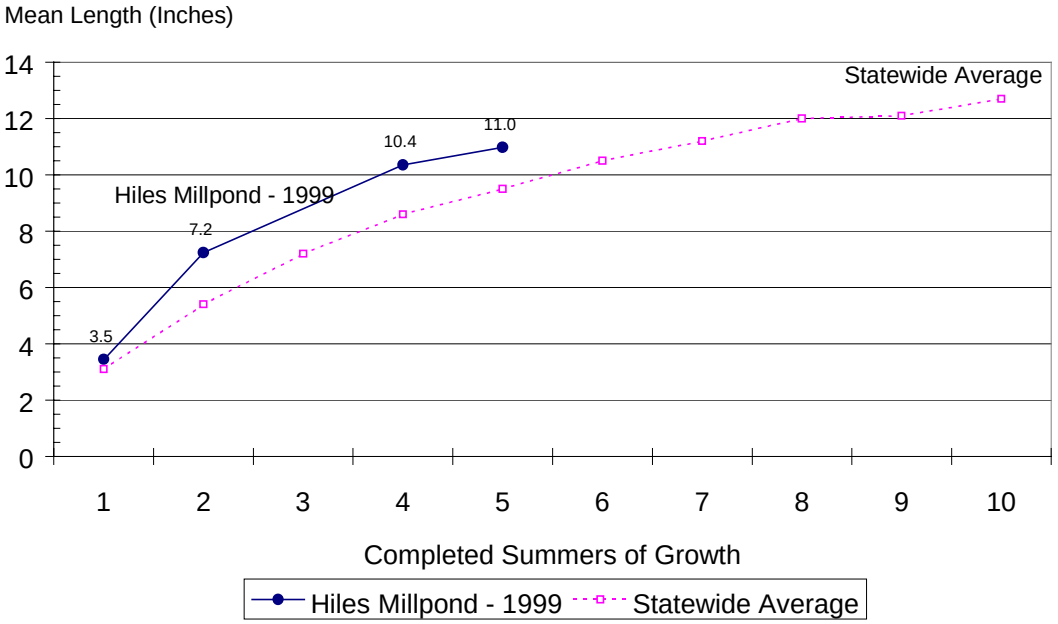


Figure 4. Black Crappie Growth Rates
Hiles Millpond, Forest Co.



Hiles Millpond Forest Co.
1999
Fish Survey Totals

Species	Spring Netting	Spring BS	Summer Netting	Fall BS	Totals
Largemouth Bass Mode; Length range					
Northern Pike Mode; Length range		11 11.0 - 19.9	43 11.5 - 19.9		**54**
Walleye Length range					
Musky Length range					
Smallmouth Bass Length range					
Sucker Length range			1 13.2		**1**
Bluegill Mode; Length range					
Black Crappie Mode; Length range			47 4.0 - 12.3		**47**
Pumpkinseed Mode; Length range		33 1.6 - 7.6	140 3.5 - 8.2		**173**
Yellow Perch Mode; Length range		26 3.0 - 11.1	16 5.9 - 11.1		**42**
Rock Bass Length range					
Hybrid Sunfish Length range					
Golden shiner		Present			
Bullhead	Yellow & Black	Common	140/314		454
Creek chub					
Bluntnose minnow					
Mudminnow					
Sculpin					
tadpole madtom					
Crayfish					