

Blind Sucker Flooding

Luce County, T49N, R12W, Section 1
Blind Sucker River Watershed, last surveyed 2007

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Environment

The Blind Sucker Wildlife Flooding extends through several sections of T49N, R12W. This area is in northwest Luce County, with the Grand Marais Truck Trail to the north and County Road 416 to the south (Figure 1). The flooding is about twelve miles east of Grand Marais and seven miles west of Muskallonge State Park.

Wildlife Division has an unpublished master plan for this flooding, written in 2003. The full title is located in the reference section, and it will be referred to in this document as the Wildlife Management Plan. Most of the environment data is taken from that Wildlife document. Sandy ridges of end moraine and pitted outwash are characteristic of the geology of this area. The surficial soil of the area includes intermixed communities of wetland and upland glacial deposits. Well-drained lacustrine deposits of droughty sand dunes and beach ridge deposits lie mixed with small wetland swales to the north along the Lake Superior shoreline. The sand dune portions of the lake plain support forests dominated by jack pine and red pine-jack pine. Wetlands consisting of emergent marshes and bogs are common in the swales between the dunes and around small lakes immediately inland of Lake Superior, as well as the large wetland complex adjacent to the flooding (Figure 2). The complex containing the Blind Sucker Flooding consists of about 9 square miles of poorly drained lowlands and wetlands oriented along an east-to-west axis. Those wetlands are dominated by stunted black spruce, northern white cedar, and tamarack, while narrow beach ridges within the wetlands are dominated by white and red pine. Several marshes and pothole lakes are inundated by and incorporated into the Blind Sucker Flooding. The water body itself is generally composed of a drowned river channel that supports both floating and submerged aquatic plants. Upland forests within and adjacent to the flooding include mixed pine forest and a rich mesic forest that has white pine and hemlock components. The Blind Sucker River flows east along the base of a high escarpment (approximately a 60% slope) dominated by hemlock and white pine. The escarpment is about five miles long and over 100 ft high, lying in an arc along the south side of the flooding (Figure 2). There are areas of alder thickets, peatlands dominated by leatherleaf and emergent marsh communities along the edges of the flooding. The escarpment is apparently the headwater source for the Blind Sucker River, as the river in the northeast quadrant of Section 14 has a significant flow velocity in the narrow sections. In contrast, the Dead Sucker River, located in the middle of the large wetland complex, has little current velocity.

The control structure for the flooding is located in Section 1. Although the flooding was never mapped, the original file data estimated that it covers 1050 acres. However, a recent estimate using a planimeter and an ArcMap 2005 aerial photograph was only 407 acres. The maximum depth found during an extensive 2007 netting survey was 6 ft, while a 1966 survey found 10 ft in Wheeler and Mud Lakes. There was a small grassy island and several log deadheads in the flooding in 2007. Two state forest campgrounds exist near the dam, one on each side of the flooding. Both have gravel boat launch ramps and vehicle parking areas. That portion of the flooding has more defined shorelines with stands of hardwood, pine and hemlock trees. Some individual campsites allow boats to be grounded on-site.

White Water Associates, Inc. is under contract with the Department of Environmental Quality to analyze water chemistry samples taken from Fisheries Division surveys conducted with Fisheries Status and Trends protocols. Analyses of samples taken on August 30, 2007 showed water temperature of 70F, pH of 8.4, dissolved oxygen of 13 mg/l, and alkalinity of 74 mg/l. A chlorophyll a sample was taken, but none was detected, nor were total phosphorus, ammonia nitrogen, nitrate or nitrites detected. Total Kjeldahl nitrogen was 0.91 mg/l. The water, although darkly stained, is not turbid but clear as the secchi disk was darkly visible while resting on the bottom substrate at 6 ft depth.

History

The Blind Sucker River was originally the Sucker River, which was blocked off and rerouted circa 1900 to force its flow directly into Grand Marais Harbor. The effort was conducted so loggers did not have to float their logs back west through thirteen miles of open Lake Superior shoreline to the sawmill. The Blind Sucker River now begins within the wildlife flooding, which fills with groundwater seepage from surrounding glacial deposits.

The flooding was first proposed in 1936, with construction to be done by the Civilian Conservation Corps (CCC). However, the CCC was disbanded before any construction was begun. Discussion resumed in the 1940s, and the Luce County Board of Supervisors approved the project in 1950. The flooding was filled in 1955, and quickly became a popular destination for anglers. The two State Forest Campgrounds were completed soon after.

The first Wildlife Division management plan was prepared in 1962. It proposed a stable water level with occasional drawdowns for aquatic vegetation control. However, only one drawdown has occurred since then. Stoplogs were removed in fall of 1987, and new stoplogs installed in spring of 1990. No other drawdown is scheduled, although one would be beneficial for aquatic vegetation control.

The majority of public use is oriented to (open water) fishing, with minor fall waterfowl hunting, moderate furbearer trapping activity and light winter ice-fishing. In addition, there is increasing use of the flooding for bird watching, canoeing, and kayaking. In fiscal year 2002, campers at both campgrounds accounted for 6,029 camper days (Wildlife Management Plan).

The fish community historically consisted of many small northern pike, many white suckers, some yellow perch, and rarely some pumpkinseed sunfish and rock bass. The northern pike population has historically contained a few trophy specimens, which continue to attract anglers.

Current Status

The 2007 netting survey followed Fisheries Division Status and Trends survey protocol, which samples the entire fish community as well as the water chemistry. Species captured were bluntnose minnow, blacknose shiner, common white sucker, golden shiner, Iowa darter, central mudminnow, northern pike, pumpkinseed sunfish, rock bass, and yellow perch (Table 1). White suckers comprised over 55% of the catch biomass, while northern pike comprised 39% and yellow perch comprised almost 4%. The only species that contained larger specimens was northern pike, with 22% being

greater than or equal to legal size (24 in). In fact, one pike was trophy size, 42 in and 18 lbs (Table 2). No pumpkinseed sunfish or rock bass captured were larger than 6 in, and no yellow perch were larger than 8 in.

Northern pike, pumpkinseed sunfish, rock bass, and yellow perch from the 2007 survey were analyzed to determine size at age and growth index (Table 3). All species except northern pike had mean lengths at age approximately equal to the state average. In contrast, northern pike mean lengths at age were 1.3 in lower than state average.

Analysis and Discussion

A primary concern from the 1999 netting survey was slow growth of northern pike. Sizes at that time were similar for all pike aged 3 - 7, and the pike were growing 3.2 in slower than state average. The 1999 growth rate was almost two inches slower than estimated for pike from the 2007 survey. Pike captured in 2007 showed a more defined incremental increase between consecutive year classes than those from 1999 (Figure 3).

The Blind Sucker Flooding historically supported some large pike, with 4 of 18 in 1999 and 12 of 54 in 2007 that were greater than or equal to legal size (24 in). Concurrently, the continuing high relative abundance of white suckers in the fish community, with sizes ranging from 5 - 24 in in 2007, implies adequate forage for all sizes of pike.

There has been no documentation or anecdotal evidence of changes in fishing pressure or harvest, which presumes a relatively steady-state pike population. The answer may potentially reside in the 1993 statewide change to a 24-inch minimum size limit for northern pike. The pike population and resulting fish community dynamics changes stemming from the 1993 regulation change may have still been occurring in 1999. However, in 2007, fourteen years after the regulation change, the fish community should have been relatively stable. Even so, the pike population during both years had similar proportions of legal-sized fish. For that reason, the explanation for the change in pike growth rate is unknown at this time.

The size frequency of white suckers captured in 2007 showed an unusually large number of fish between 5 - 15 in (Table 2). Suckers of that size are usually quite rare in survey nets, and their relative abundance is high, given the existing northern pike population. Biologists have long speculated that their general absence in many fish communities may be due to targeted predation. It is possible that the Blind Sucker Flooding's darkly stained water allows small suckers to hide better.

In the absence of large predators, white suckers have the potential to grow large enough to escape predation, thus potentially upsetting the predator-prey balance. For that reason, large northern pike must be maintained in this flooding, and regulations should not be liberalized. Pike harvest regulations should either be left unchanged or potentially modified conservatively to maintain a larger number of large pike in the flooding.

Management Direction

The Blind Sucker Flooding is essentially a very long, very narrow, shallow flooding of a darkly stained small river. The northeast lacustrine portion is about 250 acres and very shallow. In addition, this flooding lies within the Lake Superior heavy snowbelt area, which produces very long, dark, ice-covered winters. This is a very truncated, simple fish community, probably because of the severe ecological conditions. Despite the fact that pumpkinseed sunfish and rock bass are naturally present and growing well, they do not comprise a significant proportion of the community. The yellow perch population does not fare much better. Those ecological parameters likely would preclude successful stocking of either bass or walleyes. Given those conditions, there appears to be no predictable benefit to this fish community from removal, thinning, or addition of any fish species. At this time, no changes are recommended to the current management program. Management will continue to consist of enforcing the state-wide standard harvest regulations.

References

Master Plan for the Operation and Maintenance for the Blind Sucker Wildlife Flooding, Dam ID. No. 0258. 2003. Sherry MacKinnon, Eastern Upper Peninsula Regional Ecologist, editor. Not published, available in Newberry Operations Service Center files.

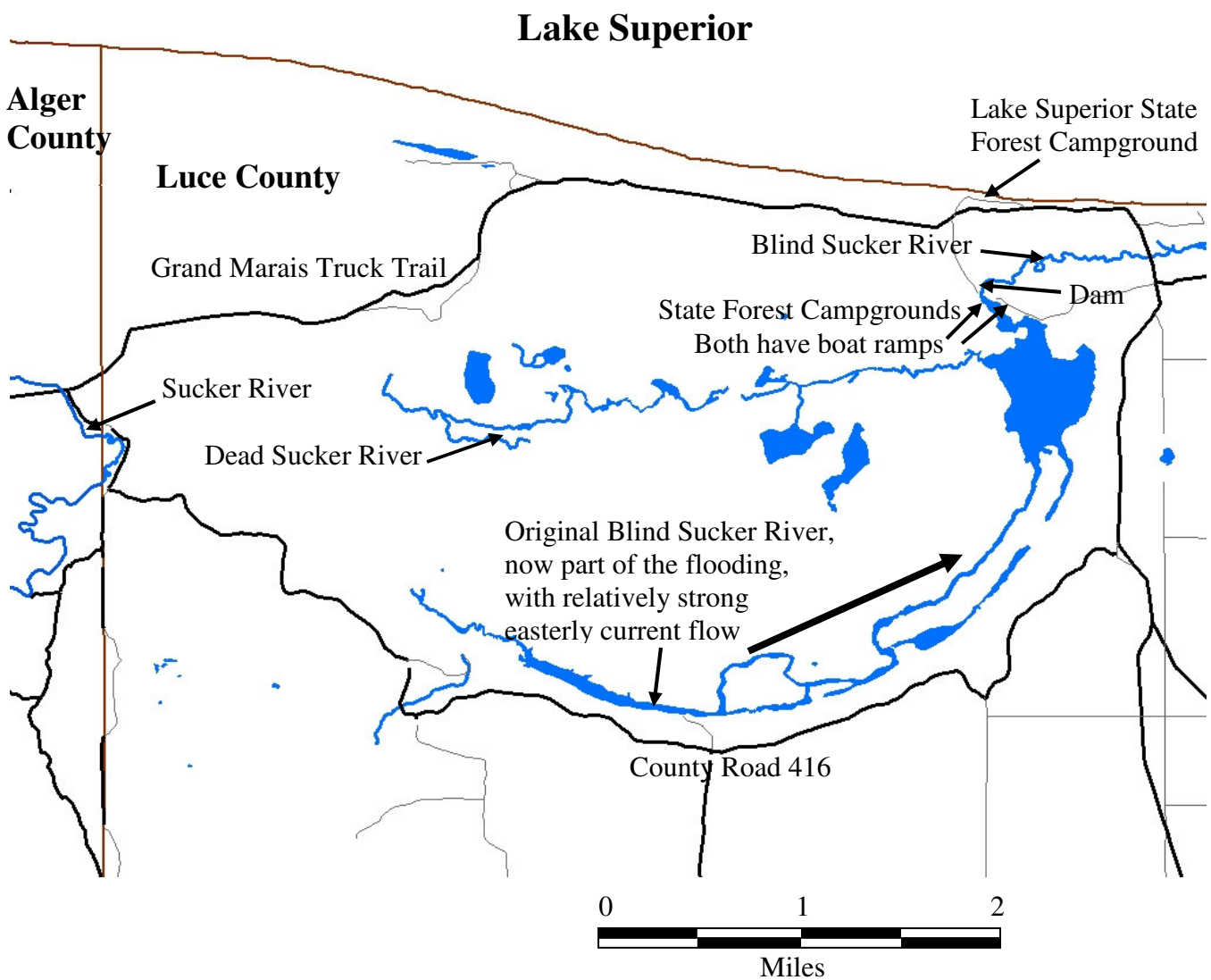


Figure 1. General map of the Blind Sucker Flooding and its proximity to the Sucker River, Alger County.

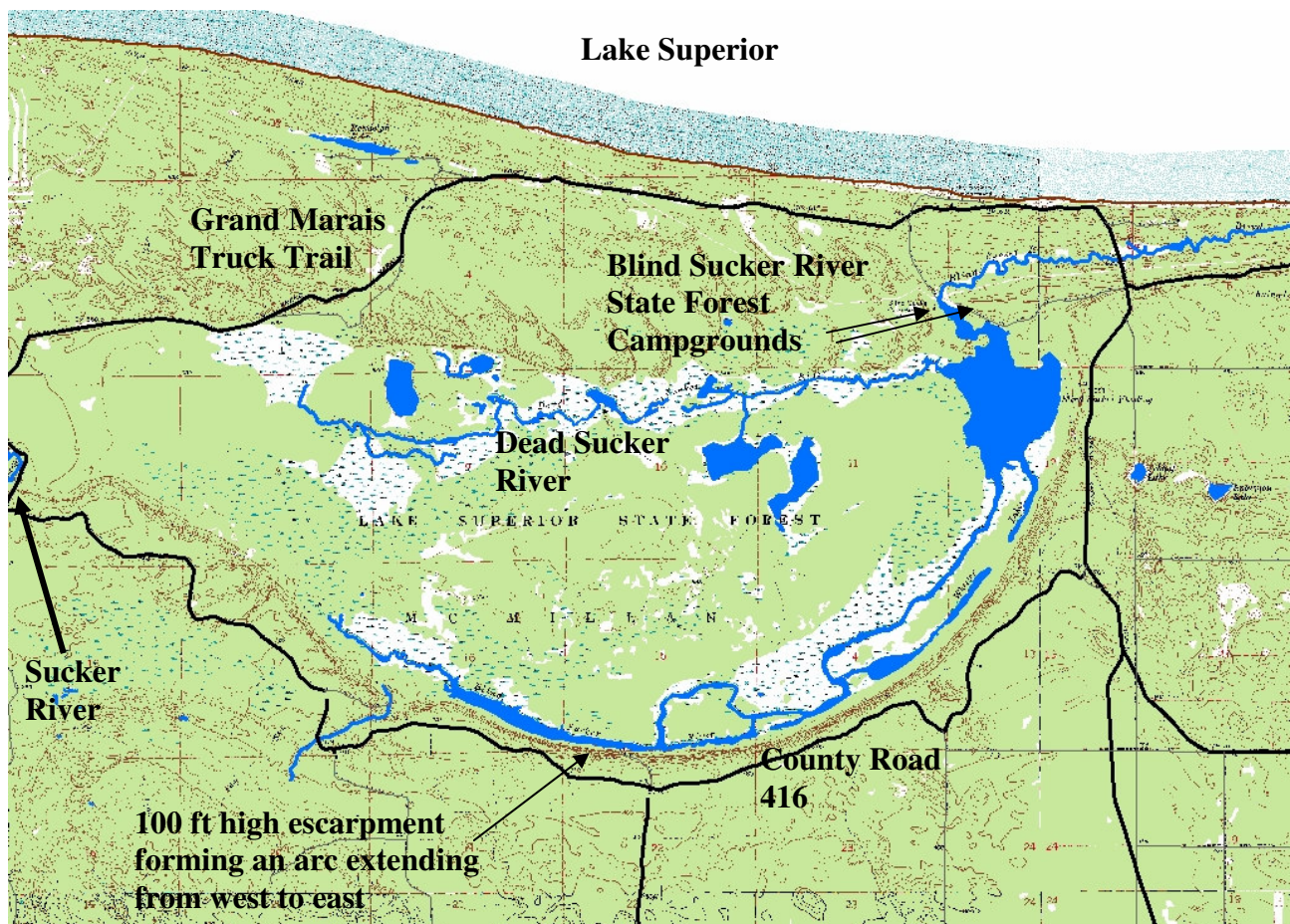


Figure 2. Topographic map of Blind Sucker Flooding. Escarpment is shown along the south arc of the flooding, while high hills and varied terrain lie to the north. The existing Sucker River is barely visible at the west edge of the map.

Blind Sucker Flooding northern pike growth comparison

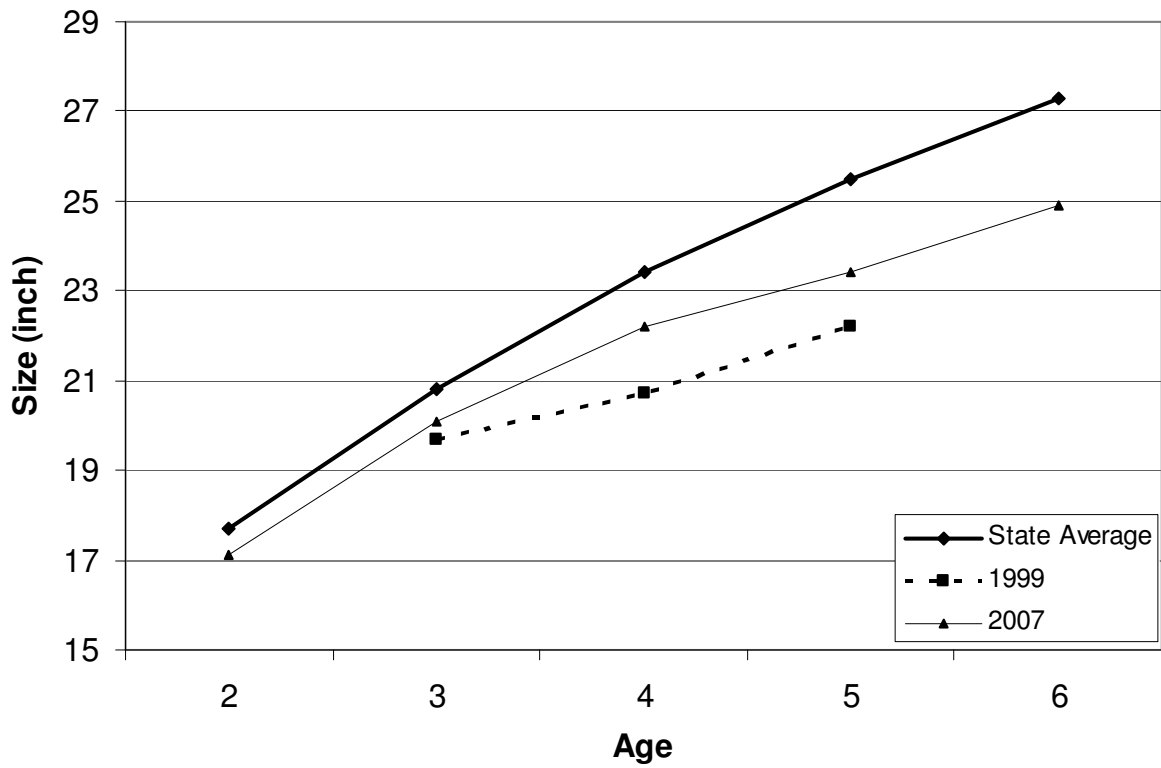


Figure 3. Comparison of size at age of northern pike in the Blind Sucker Flooding, from fish captured during netting surveys in 1999 and 2007, with the state average size at age.

Table 1 – Number, weight, and length by species for the Blind Sucker Flooding, Luce County, from a status and trends survey using fyke, trap, and mini-fyke nets May 16-20, 2007, and boomshocking, August 29, 2007.

Species	Number	Percent by number	Weight (lbs.)	Percent by weight	Length range (in.) ¹	Average length (in.)	Percent legal size ²
Bluntnose minnow	20	3.9	0.1	0	1 – 3	2.0	100
Blacknose shiner	63	12.4	0.2	0.1	1 – 3	2.1	100
White sucker	70	13.8	183.6	55.6	2 – 24	17.6	100
Golden Shiner	31	6.1	0.3	0.1	1 – 3	3.1	100
Iowa darter	1	0.2	0	0	2 – 2	2.5	100
Central mudminnow	1	0.2	0	0	4 – 4	4.5	100
Northern pike	54	10.6	122.5	39.1	6 - 42	20.8	22
Pumpkinseed	90	17.1	4.0	1.2	1 – 6	3.7	1
Rock bass	11	2.2	0.6	0.2	3 – 6	4.1	9
Yellow perch	158	31.0	12.1	3.7	2 – 8	5.6	7

¹ Note some fish may be measured to 0.1 inch, others to inch group: e.g., “5” = 5.0 to 5.9 inches, “12” = 12.0 to 12.9 inches, etc.

² Percent legal or acceptable size for angling.

Table 2 - Catch summary of selected fish from the Blind Sucker Flooding Status and Trends survey using fyke, trap, and mini-fyke nets, and seines, May 16-20, 2007, and boomshocking August 29, 2007.

Species	White sucker		Northern pike		Pumpkinseed sunfish		Rock bass		Yellow Perch	
Legal size (in)	>=		>=24		>=6		>=6		>=7	
Avg. length (in)	17.6		20.8		3.7		4.1		5.6	
Avg. weight (lb)	2.6		2.3		0.0		0.1		0.1	
	No.	Lb.	No.	Lb.	No.	Lb.	No.	Lb.	No.	Lb.
Total	70	183.6	54	122.5	90	4.0	11	0.6	158	12.1
No. legal	70		12		1		1		11	
% Legal size	100%		22%		1%		9%		7%	
% Total catch	14%	56%	11%	39%	18%	1%	2%	0%	31%	4%
CPE	3.9	10.2	3.0	7.2	5.0	0.2	0.6	0.0	8.8	0.7
Inch group										
0										
1										
2										
3										
4										
5	3	0.2			3	0.4	1	0.1	74	4.9
6	2	0.2	2	0.1	1	0.2	1	0.2	39	4.3
7	1	0.2							9	1.6
8										
9	4	1.3							2	0.5
10	2	0.9								
11	2	1.2	1	0.3						
12	2	1.5								
13	1	1.0								
14	1	1.2	1	0.6						
15	3	4.4	2	1.5						
16										
17	1	2.1	2	2.3						
18	7	17.4	3	4.0						
19	9	26.2	6	9.5						
20	13	43.9	4	5.6						
21	11	42.9	5	8.6						
22	4	17.9	4	7.4						
23	3	15.3	7	19.9						
24	1	5.8	5	16.2						
25										
26										
	42		1	18.3						
Sample total:	70	183.6	54	122.5	90	4.0	11	0.6	158	12.1
All species total:	Number:		509	Weight:		322.8				

Table 3 - Average total length (inches) at age, and growth relative to the state average, for four species of fish from Blind Sucker Flooding, Luce County, with trap, fyke, and mini-fyke nets, May 16-20, 2007, and boomshocking August 29, 2007. Number of fish aged is given in parentheses.

Species	Ages										Mean Growth Index*
	I	II	III	IV	V	VI	VII	VIII	IX	X	
Northern pike	13.9 (2)	17.1 (9)	20.1 (11)	22.2 (15)	23.94 (7)	24.9 (5)	23.3 (1)		42.0 (1)		-1.3
Pumpkinseed	3.5 (2)	3.9 (23)	4.7 (6)								+0.1
Rock bass		3.5 (5)	4.6 (2)	5.7 (1)	6.6 (1)						-0.4
Yellow perch	4.3 (4)	5.4 (22)	5.7 (21)	7.1 (8)	7.9 (3)						-0.3

* Mean growth index is the average deviation from the state average length at age.