CORRESPONDENCE/MEMORANDUM

State of Wisconsin

DATE: January 2, 20021 FILE REF: 3600

TO: Randy Schumacher

FROM: Sue Beyler and Steve Gospodarek

SUBJECT: Fall, 1999 electrofishing survey to assess walleye fingerling production on Lac La Belle, WBIC 0848800

ABSTRACT

A single-night electrofishing survey was conducted on 1,164 acre Lac La Belle on October 18, 1999 to assess production of fall young-of-year walleyes. We assess walleye production through fingerling catch rates within established survey stations. Lac La Belle is currently on an alternate-year walleye fingerling stocking schedule. No walleyes were stocked in 1999. Therefore, the present survey is intended to evaluate the presence of natural reproduction of walleyes.

Our 1999 fall walleye fingerling catch rate of 1.3 per acre is below average compared to all other surveys since 1981, but is only slightly below average for the unstocked years. Although some natural reproduction is occuring on Lac La Belle, the high angling pressure this lake receives for walleyes warrants continued stocking on alternate years at the current rate.

Apparent increase in the carp population, per our observations and angler reports, necessitates further investigation. We will reinstate our annual carp assessment on Lac La Belle in which we measure carp relative weight as a way to monitor carp density.

METHODS

Two survey stations were sampled using the pulsed D.C. electrofishing boat with two dip-netters. Our first station was a 1.5 mile timed-run random sample in which we attempted to capture all fish (Figure 1). Following that, we continued on to a 4.1 mile station in which we netted only gamefish species (walleye, northern pike, largemouth and smallmouth bass, musky, and catfish).

Fish were processed separately for the two stations. All fish were identified and measured to the nearest one-tenth inch in length before being released. Based on previous aging studies done on Lac La Belle, walleyes under 10 inches in length were counted as young-of-year.

Only a single-night survey was conducted on Lac La Belle this year, due to poor weather conditions on the second scheduled night. Netting conditions were good on the night of our survey. Water temperature was 54°F.


STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES
LAKE SURVEY MAP
Village of Lac La Belle
Monastery
JEFFERSON CO.
WAUKESHA CO.
R-16-E
R-17-E
C. M. ST. P. & P. R. R.
Rosenow Cr.
Oconomowoc River
OCONOMOWOC
Park
B.M.
Dam Head
Timed-run 1.5 mi.
Gamefish 4.1 mi.
EQUIPMENT RECORDING SONAR MAPPED AUGUST 1970
MONTH YEAR
TOPOGRAPHIC SYMBOLS
Brush
Partially wooded
Wooded
Cleared
Pastured
Agricultural
B.M. Bench Mark
Dwelling
Resort
Camp
Steep slope
Indefinite shoreline
Marsh
Spring
Intermittent stream
Permanent inlet
Permanent outlet
Dam
D.N.R. State owned land
LAKE BOTTOM SYMBOLS
P. Peat
Mk. Muck
C. Clay
M. Marl
Sd. Sand
St. Silt
Gr. Gravel
R. Rubble
Br. Bedrock
B Boulders
Stumps & Snags
Rock danger to navigation
T Submergent vegetation
Emergent vegetation
Floating vegetation
Brush shelters
SCALE
900' 0 900' 1,800' 2,700' 3,600'
Access
Access with Parking
Boat Livery
Drawn by: E. Eaton
Field work by: M. Gappa, J. Bakken
DEPTH

Figure 1. Lake survey map of Lac La Belle indicating fall electrofishing survey route.

RESULTS

Our catch rate of 1.3 fingerling walleyes per mile was below our average catch rate in surveys conducted since 1981 (Table 1). However, it is near average for the 5 years in which no walleyes were stocked.

Table 1. Catch of young-of-year walleyes in fall compared to stocking in Lac La Belle, 1981-1999.

Year	Fingerlings/Mile	Walleyes Stocked	Month and Method of Stocking
1981	1.6	2.2 mil fry	May – Shore
1982	4.5	68,000 fgl.	June – Shore
1983	0.2	None	
1984	10.5	48,930 fgl.	June – Shore
1985	3.9	49,230 fgl.	August – Shore
1986	10.0	40,355 fgl.	July – Boat
1987	9.7	37,700 fgl.	July – Boat
1988	0.7	11,000 fgl.	August – Shore
1989	No Survey	42,750 fgl.	June – Boat
1990	1.4	67,366 fgl.	July/Aug. – Boat/Shore
1991	12.4	50,000 fgl.	June – Boat
1992	5.8	50,600 fgl.	June – Boat
1993	0.4	None	
1994	2.3	51,330 fgl.	August – Shore
1995	3.6	None	
1996	4.3	60,145 fgl.	July – Boat
1997	5.1	None	
1998	2.5	116,000 fgl.	June – Boat
1999	1.3	None	
Average	4.5		

On the other hand, our catch of older walleyes (age 1 + and older) was well above average and was the highest catch rate of older walleyes seen in these surveys (Table 2). Total walleye catch was also above average.

Table 2. Walleye catch rates (catch per mile) from Lac La Belle index stations, 1981 – 1999.

Year	Fingerling	Age 1 + and Older	All Walleyes
1981	1.6	0.1	1.7
1982	4.5	4.3	8.8
1983	0.2	5.3	5.5
1984	10.5	4.2	14.7
1985	3.9	7.3	11.2
1986	10.0	11.4	21.4
1987	9.7	6.6	16.3
1988	0.7	10.0	10.7
1989	-	No Survey	-

1990	1.4	5.5	6.9
1991	12.4	10.1	22.5
1992	5.8	9.8	15.6
1993	0.4	6.3	6.8
1994	2.3	6.1	8.4
1995	3.6	4.8	8.4
1996	4.3	5.3	9.6
1997	5.1	5.9	11.0
1998	2.5	3.8	6.2
1999	1.3	14.2	15.5
Average	4.5	6.7	11.2

The length frequency for the entire walleye samples ranged from 8 to 19 inches, with the length mode at 12 inches. These are age I+ walleyes from the 1998 year class.

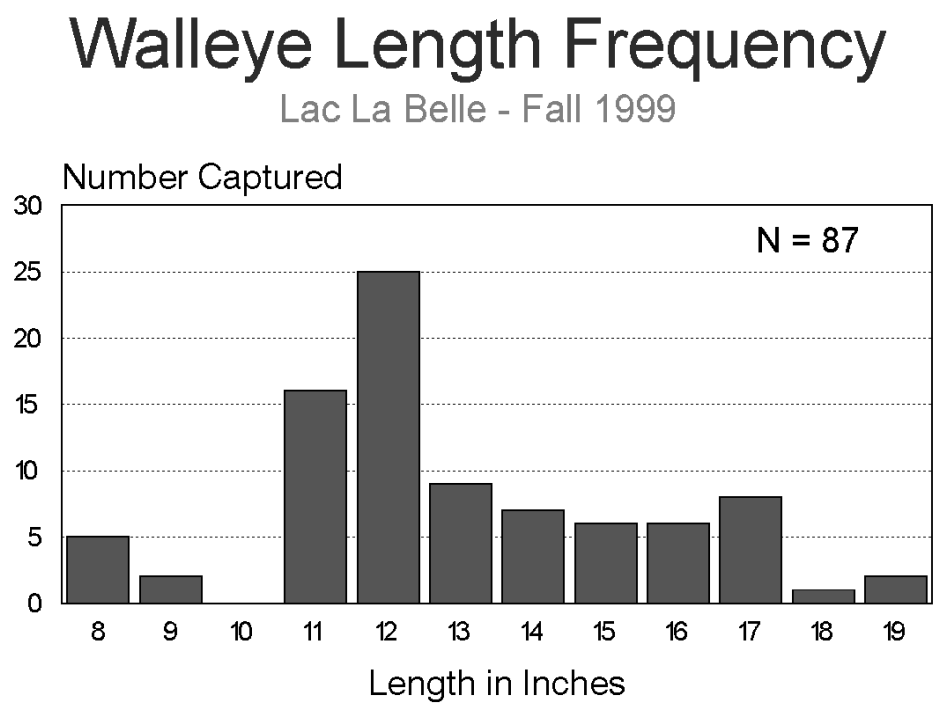

Figure 2. Length frequency of walleyes captured by electrofishing from Lac La Belle index stations, October 18, 1999.

Smallmouth bass were abundant in our index stations and, as in 1998, were the predominant species in our gamefish sample (Table 3).

Table 3. Gamefish captured in the gamefish-only station of Lac La Belle, October 18, 1999. Station Length = 4.1 miles, shocking time = 2.33 hours.				
Species	**Number Captured**	**Catch/Mile**	**Mean Length**	**Std. Dev.**

Walleye	68	16.6	13.6	2.51
Smallmouth Bass	106	25.9	9.8	2.12
Largemouth Bass	10	2.4	9.4	2.15
Northern Pike	2	0.5	23.1	5.87
Muskellunge	1	0.2	38.5	-
Flathead Catfish	1	0.2	17.8	-

Smallmouth in our combined gamefish and timed-run sample ranged from 6 to 16 inches, with the length mode at 8 to 9 inches (Figure 3). Catch rate and size structure of smallmouth populations have improved on several of our area lakes since the 14-inch minimum size limit took effect. Lakes which had only a remnant smallmouth population, now outnumber most other gamefish species.

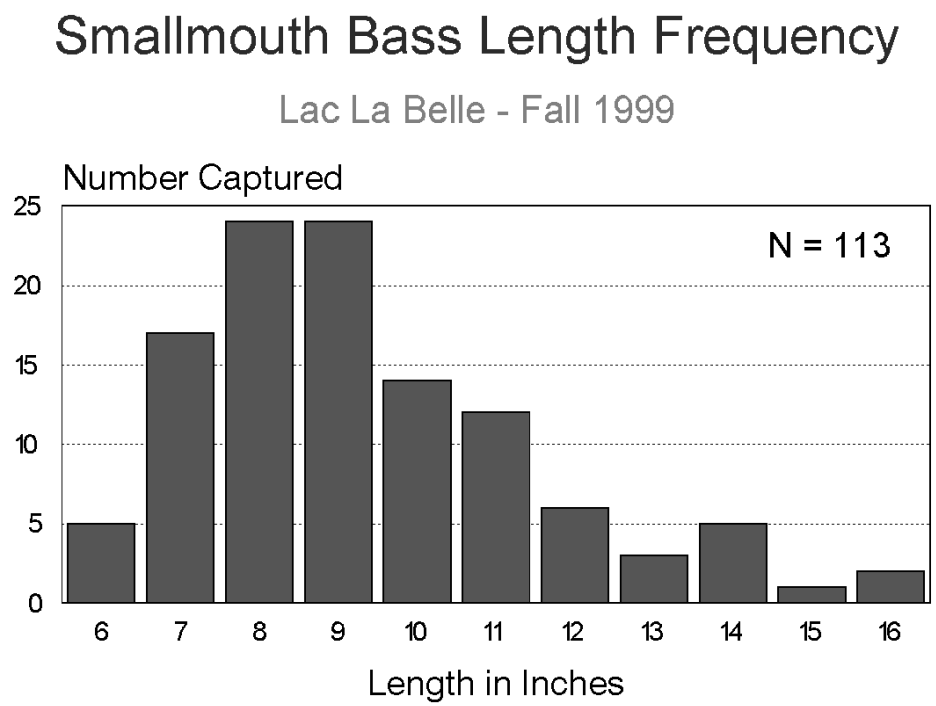

Figure 3. Length frequency of smallmouth bass captured by electrofishing from Lac La Belle index stations, October 18, 1999.

Yellow bass dominated our timed-run random sample (Table 4). Yellow bass are cyclical in this lake, and have been in the high part of the cycle in recent years. Unfortunately, they never seem to achieve a size desirable to anglers.

The bluegill population continues to struggle in this lake. After an infusion of nearly one-half million in the late 1980's, bluegill numbers have declined to pre-stocking levels. The scarcity of aquatic vegetation and overabundant carp combine to limit their reproductive success. Further reduction in the carp population, by way of partial chemical treatments, may be warranted in the near future. Commercial harvest of carp on Lac La Belle has been unsuccessful due to lack of interest by experienced commercial fishers.

Table 4. Fish captured from the timed-run random sample station of Lac La Belle, October 18, 1999. Survey length = 1.5 miles, shocking time = 0.75 hour.				
Species	**Number Captured**	**Catch/Mile**	**Mean Length**	**Std. Dev.**
Walleye	19	12.7	12.8	2.67
Smallmouth Bass	7	4.7	9.6	3.35
Largemouth Bass	3	2.0	8.2	0.40
Bluegill	12	8.0	5.1	0.88
Yellow Perch	13	8.7	3.4	0.66
Black Crappie	1	0.7	8.1	-
Rockbass	7	4.7	6.2	1.71
Yellow Bass	106	70.7	4.0	0.93
Carp	7	4.7	16.9	4.00

DISCUSSION AND MANAGEMENT RECOMMENDATIONS

As in 1997, this year's survey indicates the presence of some natural reproduction of walleyes in Lac La Belle. Placing a 20-inch minimum size limit on walleyes has allowed the adult walleye population, especially females, to increase in density to the point where natural reproduction can occur. However, angling pressure is high on Lac La Belle, and it is unlikely that the current level of reproduction is sufficient to maintain a fishable walleye population in the lake without supplemental stocking. Therefore, we recommend continuing the alternate-year stocking at 100 fingerlings per acre.

Carp numbers are low in our timed-run station, but carp are more numerous along the east shoreline gamefish station. Our observations, plus anecdotal information from anglers and riparians, indicate a possible upsurge in carp. We will reinstate our annual spring carp sample on Lac La Belle and downstream in the Oconomowoc River to monitor carp condition (a benchmark used in recent years to assess carp density). If carp are indeed increasing, we may need to conduct partial rotenone treatments to reduce carp numbers.

Matt Coffaro – Regional Fisheries Biologist

Randy Schumacher – Upper Illinois-Fox Sub-basin Supervisor