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 From: Ken Clodfelter
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 Subject: Fish Survey

Lost Nation Lake Survey Report for 2011

Lost Nation was surveyed on October 4, 2011 by Ken Clodfelter and Rick O’Neil. The sampling method was DC electro fishing. A total 3 electro fishing stations were conducted for a total of 60 minutes. The weather was beautiful. The air temperature was 76 degrees and the wind was calm. In 2009 the weather was cold rainy and windy. The stations sampled were the traditional sample areas near the boat ramp and the dam. In 2007 we sampled more on the east end or where the water enters the lake. With the beautiful weather the efficiency was good and an excellent sample was obtained. We collected 746 fish representing 15 fish species. The 7 dominate species in order of abundance were: Green sunfish, bluegill, Gizzard shad, Largemouth bass, carp, Walleye, and smallmouth bass. The bluegill and largemouth bass survey have been similar since the 2002 survey. The main difference in recent years is a decrease in the CPUE of gizzard shad. Gizzard shad numbers have dropped from 17.2 per minute in 2004 to 4.6 per minute in 2007 to 0.08 per minute in 2009. The lower shad numbers in 2009 may have been partially explained by the fact that the water temperature was only 57 degrees and shad may have moved out to deeper water. However in 2011 the water temperature was also 57 degrees and gizzard shad were collected at 4.0 per minute. This is similar to the rate collected in 2007. Quality-Sized Sport fish were collected at a high rate in 2011 especially walleye and largemouth bass.

Largemouth Bass Table comparing results of last 6 samples

LMB	LMP	Rating	2011	2009	2007	2004	2003	2002	2001
PSD	40-60	Good	67.8	77.8	74.2	65.2	88.9	72.0	70.0
RSD14	15-25	Good	42.6	42.6	64.2	50.0	68.9	36	51
RSD15	5-15	Good	56.0	38.9	32.9	43.4	37.8	38.8	16.0
Wr	90-110	Good	101.8	101.3	102.3	101.2	99.2	109.0	104.0
CPUEALL	>60F/Hr	Good	103	75	80	73	61	143	287
CPUE>12"	>30F/Hr	Good	50	42	52	30	53	68	40
YAR	1-5	Poor	0.2	0.3	0.2	0.4	0.0	0.1	3.3

Bluegill Table comparing results of last 6 samples

BLG	LMP	Rating	2011	2009	2007	2004	2003	2002	2001
PSD	20-40	Good	46.4	53.6	46.0	48.1	45.0	33	35.5
RSD7	10-15	Good	11.8	13.6	15.3	7.1	14.3	8.4	4.0
RSD8	5-10	Poor	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Wr	90-110	Good	105.4	108.4	103.7	105.8	104	107	97.0
CPUEALL	60-300	Good	298	125	101	158	104	260	430
CPUE > 6"	>45/Hr	Good	51	67	46	74	47	90	98

Largemouth Bass:

A total of 103 largemouth bass were collected in the 2011 survey. They ranged in size from 2.5 to 19.5 inches. Of the bass that were at least 8 inch, 42.6 % of them were greater than 14 inches and 17.3 % were greater than 16 inches. The lake has an excellent bass population with a lot of larger bass present. The body condition or Relative Weight (Wr) is excellent, especially for the larger bass. The body condition of the smaller bass in previous years was only average. This is to be expected because of competition for food between the small bass and the gizzard shad. However, the body condition of the small bass in 2009 was also excellent. This may further validate that the shad population was down in 2009. The small bass body condition was still good in 2011 despite the increase in gizzard shad numbers. The only problem with the bass population is the poor recruitment of the small bass. If you look at the bass table and go across to the YAR this is the Young Adult Ratio in a lake. We would like to see this value be between 1 and 5. The last year this was achieved was 2001. With very little vegetation cover, largemouth bass recruitment may be a problem. There is no indication however that significant over harvesting is occurring. There is ample brood bass that are in excellent body shape that should produce adequate bass to keep the bass population strong. If you notice two weak year class in a row, then you may want to stock 900 bass fingerlings greater than 5 inches.

Bluegill:

The bluegill population has remained very consistent for the last few years. Researchers have found in lakes with consistently good bluegill populations the PSD should be between 20 and 50. The PSD is calculated by totaling all the bluegill collected that are at least 3 inches long and dividing them by those that are at least 6 inches. As stated before, this value should be between 20 and 50 percent. On your BLG Table this is the PSD column. You can see yours have been in the desired range every year except in 2009 when the value was just above the 50. This is a result of a large year class reaching 6 inches in length in 2009. The lake also has a good population of 7 inch bluegill. The only criterion that wasn't in the desired range was the percent of bluegill at least 8 inches. The failure to achieve the RSD8 is quite common in lakes with shad, crappie and green sunfish. The inter-specific competition for food causes a decrease growth rate of bluegill

especially the first two years. The lake should have good bluegill fishing in 2013 as the number of bluegill at least 6.7 inches was up in 2011.

Walleye:

A tremendous walleye sample was obtained in 2009 and 2011. In 2009 we collected 30 walleye between 12 and 27 inches. Two of the walleye collected were just under 9 pounds. When I compared the length x weights or body condition of your walleye with the State wide average the majority were good to excellent condition. In 2011 we collected 71 walleye between 12 and 27 inches. This is probably one of the best day samples for walleye I have ever collected. Walleye will feed heavily on gizzard shad. The cloudy and windy day helped the walleye survey. On clear, calm days walleye are normally in deeper water. This is what makes the 2011 sample so incredible is that it was sunny out. No walleye were collected in the sample in 2007. However this is to be expected because of the sample location and time of sample. The best area and time to sample this fish species by electro fishing is by the dam and the best time is at night. The walleye likes to stay in the deep water during the daytime. Gill nets set in April are also very effective at sampling walleye. Even though walleye females develop eggs the walleye population has to be maintained by supplemental stocking. We don't get any natural recruitment even on are larger State Lakes. I would recommend the same number and sizes that you have been stocking. The stocking program is working and they help control the gizzard shad.

Muskie and Northern Pike

We don't recommend stocking both northern pike and muskie. With no vegetated marshy areas I would recommend the muskie but that is my personal preference. Both of these run the risk of escaping over the spillway during high waters. I have sampled a few nice muskie just East of the Grand Detour bridge in the Rock River that I figured came from Lost Lake. With gizzard shad in the lake both of these species are important predators. Muskie will feed heavily on gizzard shad.

Channel Catfish:

The channel catfish population appears to be fine. We collected 9 that ranged from ½ of a pound to 5.0 pounds in 2009 and 4 that ranged from 1.25 pounds to 3.5 pounds. All sizes were fat and fast growing. You would expect this in a lake that has a lot of shad. The catfish will predate fairly heavy on the shad. I don't have the stocking records for the last three years but if you haven't stocked any since then, it appears you are getting successful recruitment in your lake. I would continue to stock the channel catfish at 25, 8-10 inch per acre every 3 to 4 years depending on the exploitation rate.

Crappie:

Crappie are usually very difficult to sample by electro fishing because they occupy the deeper water the majority of the time. Your lake has both black and white crappie. The best time to sample crappie is the end of April or early May by trap nets. At this time of the year they are in close to the shore spawning. Previous surveys have shown the lake to have a decent crappie

population. In 2009 we obtained an excellent sample of white crappie and a good sample of black crappie. The white crappie survey resulted in the collection of 66 fish that ranged from 8 to 11 inches. The majority of the crappie were right around 10 inches or a half of a pound. The black crappie were slightly small than the white crappie they averaged between 8 and 9 inches. In 2011 we collected only 10 black crappie and 9 white crappie in the hour survey. As I stated before the sample size can vary a lot on crappie depending if you catch them in near shore. All sizes of both species of crappie had excellent body condition or plumpness. They were fast growing crappie. Crappie fishing will vary with dominate year classes. As a huge year class gets older the crappie fishing will be great. Then you may not have another year class for a few years and the crappie fishing will be poor until another big year class is produced. Crappie fishing in 2012 should be good as some of the crappie collected in 2011 were near a pound.

Smallmouth Bass

The survey in 2009 resulted in the best smallmouth bass survey in the lakes history that I could find. We collected a total of 21 smallmouth ranging from 5.5 inches to 15.5 inches. The plumpness or body condition of the smallmouth bass compared with the State wide average was good for all sizes. Many times the smallmouth bass will be skinny in smaller lakes especially the larger bass. In are survey even the larger smallmouth bass were in good shape. There appeared to be some natural reproduction occurring in your lake. You had 4 year-classes present and I don't think you have stocked it the last 3 years. In 2011 we collected smallmouth bass at 15 per hour and 5 were young of the year. The young of the year were between 3 and 4 inches. Smallmouth reproduction will be low in this lake because the habitat is more favorable for largemouth bass. The habitat by the dam is more suitable for the smallmouth bass.

Carp

We collected 68 carp in the 2009 survey ranging in size from 18.0 to 26.0 inches. This is a lot of carp for a 60 minute sample. Most of the carp were in the 4-7 pound range. In 2011 we collected 87 carp in 60 minutes this is a lot. The good news is that there was no sign of successful carp recruitment the last 2 years. Encourage the removal of any carp caught. They have a high reproduction rate and they keep the water turbid which prevents weed growth, light penetration and hurts the growth rate of all the predators in your lake (except channel catfish) because they are sight feeders.

Other Species:

Other fish species collected were: white sucker, gizzard shad, yellow bullhead, bigmouth buffalo, quillback and green sunfish. Twenty green sunfish were collected. They ranged from 2.5 to 7.0 inches. We recommend the removal of green sunfish when you catch them. The green sunfish is too much of a predator. We prefer the bluegill. A total of nine white suckers between 10 inches and 21.5 inches were collected. The white sucker is an excellent forage species for the muskie and northern pike. They probably entered the lake from the watershed or bait bucket. The bullheads, quillback and bigmouth buffalo were just incidental catches.

Management Recommendations:

The fish kill didn't seem to have much of a negative effect on the sport fish population. An excellent sample was obtained in the 2009 and 2011 survey. We actually had our best survey for smallmouth bass and walleye.

1. Keep regulations as they are. They are doing a good job at this time of keeping your predator x prey in balance.

2. Continue stocking the walleye and muskie as you have been doing. Both species will have to be maintained by supplemental stockings. These two species are very important in controlling the shad population and neither will successfully reproduce in your lake. If you haven't been stocking catfish the last few years they appear to be reproducing at a level high enough to maintain their population levels.

3. If you want to develop the weed beds in the lake you need to try and control the carp population. Carp will prevent weeds by uprooting the weeds and causing the water to be muddy. My advice is similar to what it was a couple of years ago. Remove as many carp as you can. Have carp tournaments, allow bow fishing for them in May and June in the shallow water areas where spawning occurs and encourage anglers to not release any carp back into the lake. You may want to see if you can get a commercial fisherman to fish in late fall or late spring for them. They are very susceptible at these times of year.

4. You can build some brush piles to provide some cover for the small fish. You can build these on the ice or drop some unwanted tree species near the shoreline.

5. If you want a quality smallmouth fishery you will have to stock this species also. Smallmouth bass have a different spawning requirement than largemouth bass. They will spawn in a lake but they prefer a gravel and rock bottom. They don't like spawning on mud or mucky bottoms. So you may get some spawning near the dam but that is probably limited.

6. Because you don't have control of what enters your lake from the watershed the supplemental stockings are especially important. You have to maintain a large predator population to control the shad, carp, quillback, golden shiners, white suckers and silver red horse coming into your lake.

7. To get a better handle on the stocking success of the walleye and muskie, you may want to have a group of anglers that target these 2 species maintain an angler diary or have a short creel form at the boat ramp anglers can fill out and drop in a survey box.

Overall, you have done an excellent job of maintaining a quality sport fisheries in your lake. The suggestions above are only to help you improve or maintain the sport fishery. If you have any

questions my email is: ken.clodfelter@illinois.gov Sorry for the delay but with the Asian carp problem near Lake Michigan and short so many people it is hard to find any time.