

Seven Mile Pond (Lake Winyah)

Alpena County

Thunder Bay River watershed, last surveyed 2009

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Environment

Seven Mile Pond, also known as Lake Winyah, is a 1,530 acre impoundment located within the lower reaches of the Thunder Bay River in Alpena County (Figure 1). The impoundment was created in 1924 when a dam was located off Long Rapids Road in Maple Ridge Township. The stretch of Thunder Bay River impounded is relatively high gradient when compared to other parts of the lower watershed. The dam has been used for hydroelectric power generation since it was built, with the most recent license settlement agreement established in 1998 between the Federal Energy Regulatory Commission (FERC) and Thunder Bay Power Company. Current ownership of the dam is North American Hydro, though it is still managed by Thunder Bay Power Company. The drainage area of the pond is 1,200 square miles while storage of the pond is 6,000 acre-feet. The head of the dam is 37 feet, and no operating fish passage structure exists at the site. Downstream of this dam (referred to as Norway Dam) exists two more dams as the river approaches the city of Alpena and Thunder Bay, Lake Huron. Both of these structures (Four Mile and Ninth Street dams) are barriers to fish passage.

The positioning of Seven Mile Pond is unique in that it has three rivers that flow into it (Figure 1). The Thunder Bay River enters the northern arm of the impoundment from the west. This same northern arm also receives the North Branch Thunder Bay River. Both of these rivers are cool to warm-water systems that can be flashy. The Lower South Branch Thunder Bay River (Figure 1) enters the south arm of the pond directly west of the town of Alpena. This tributary starts in Hubbard Lake and flows north before joining the impounded waters of Seven Mile Pond. The Lower South Branch is larger than the North Branch, but smaller than the mainstem. Mean annual discharge of the mainstem just upstream of the impoundment average 463 cubic feet per second (Cwalinski et al. 2006). This mainstem nearly doubles in size by the time it reaches Alpena miles downstream. Cwalinski et al. (2006) also reported that the North Branch Thunder Bay River upstream of the pond has a mean annual discharge of 118 cubic feet per second. The only other significant tributary to Seven Mile Pond is Kingsbury Creek, a small cool-water stream which enters from the north.

Much of the shoreline of Seven Mile Pond is highly irregular and adjacent to forest and wetlands. The entire riparian zone is privately owned. Bottom substrate of the pond is primarily muck and sand, with gravel present in small amounts. Pond depths near the dam are as deep as 25 feet, while the old river channels in the pond are typically 6-15 feet deep. Most of the impounded area is less than 10 feet deep, but there are plenty of deeper (10-20 feet) refuges for fish. The dam serves as a sink for silt storage within Seven Mile Pond. Aquatic vegetation, algae, and deadhead stumps are a common occurrence in Seven Mile Pond and often act as a nuisance to recreational users while benefiting the aquatic life. The only public access located on Seven Mile Pond is near the dam on the north shore where a parking lot holds enough space for approximately ten boat trailers. It has a concrete ramp that allow for most sized boats to be launched, and enough parking for approximately five boat trailers. Other small private boat ramps occur along the lake. It was noted that 50 cottages existed on the pond in 1950, and it is believed

that this number has not changed today. Most development occurs near the dam and along the north arm where Long Rapids Road parallels the pond.

History

The first aquatic community assessment of Seven Mile Pond occurred in 1950 and was conducted by the Michigan Department of Conservation (MDOC). Many Michigan lakes were stocked prior to 1950 when this was a common practice. This occurred despite the fact that many of these lakes did not need to be stocked. No stocking records exist for Seven Mile Pond in these early years. This would not have been uncommon since managers of the time knew that the river systems feeding this newly created impoundment would keep it supplied with fish. In the 1950 survey, both the aquatic vegetation and fish communities were assessed. Twenty-one species of plant were identified and fair numbers of game fish were noted. The survey was done with experimental gill-nets and shoreline seining and was considered an initial "snap-shot" of the fish community. Nineteen species of fish were noted, most of which are still present in the Pond today. Non-game fish collected in 1950 included bluntnose minnow, blacknose and blackside darters, Iowa darters, logperch, and hornyhead chubs. These fish were not found in the recent 2009 survey, but it is assumed they are still there and that modern sampling techniques simply didn't catch these forage fish. Yellow perch, rock bass, and pumpkinseed sunfish were considered abundant in 1950, while northern pike, smallmouth and largemouth bass, and bluegill were noted as common. Walleye were not collected during the survey. The general reputation of the fishery in 1950 was "very good" according to early pond managers. Deadhead stumps and most types of aquatic vegetation (and algae) were considered abundant. Alkalinity was 150 ppm, and dissolved oxygen was uniform as expected throughout the water column. The dark stained water that is common today in Seven Mile Pond was also noted in 1950.

The next aquatic community survey conducted by MDOC within Seven Mile Pond occurred in June 1976. Alkalinity was 180 ppm and pH considered normal. Good dissolved oxygen was found throughout the water column near the dam and the temperature was slightly stratified from top to bottom. Fishing reports during this period were variable for northern pike, and fair for species such as black crappie and bullheads. Some anglers considered it an excellent seasonal pike fishery, while other anglers did not share such enthusiasm. Total fishing pressure was considered high in the summer, due in part to the pond's proximity to a National Guard Base.

Fish sampling effort from the 1976 survey consisted of 39 large-mesh trap-net lifts and 16 experimental gill-net lifts. Results showed a fish population dominated by white suckers and bullheads, species often associated with impounded reaches of rivers. These non-game species made up 70% of the catch by weight. Bullheads were known to be a common component of angler harvest. Northern pike were abundant in the 1976 survey and made up 13% of the total catch by weight. Growth for this species appeared normal compared to the statewide average. Both largemouth and smallmouth bass were caught in the survey, but neither species were considered abundant in 1976. Bass grew near or just above the statewide average at that time. Bluegills, pumpkinseed sunfish, rock bass, and black crappie were not considered abundant, although present. Yellow perch, however, were fairly abundant in this survey.

Recommendations from the 1976 survey report included a suggestion to form a lake association, to remap the lake following years of siltation, to complete aquatic vegetation surveys, an electrofishing

survey to better assess bass populations, and to improve public fishing access. It was even considered that chemical reclamation of the lake could be done and re-stocking be considered of most species. A public meeting in 1981 allowed anglers to express their concerns on a variety of issues regarding Seven Mile Pond. Many of the issues expressed in 1981 still exist today and are issues often associated with shallow river impoundments. Some of these concerns included: fish parasites; siltation and dredging; bank erosion; fish passage; overabundance of rough fish; weed and algae growth problems; and stumps which create hazards for boating. Other issues discussed included: fish stocking, walleye potential, bass seasons, boat access, a northern pike spearing ban, and water pollution.

Fisheries management at Seven Mile Pond continued in 1982 when fishing pressure was determined to be 12 boat angler hours per acre (Ryckman and Lockwood 1985) for the open water season based on an on-site creel survey. This estimate was low compared to many other natural lakes and impoundments in the area. A fish survey was also conducted in August of 1982 when MDNR (Michigan Department of Natural Resources) used alternating current boomshocking gear to cover one-third of the Seven Mile Pond shoreline at night. It was noted that dense aquatic vegetation hampered the efforts. Despite this, 12 species of fish were collected with most abundant species being yellow perch, pumpkinseed sunfish, black crappie, and rock bass. Most panfish were regarded as small, yet growth rates were recorded as near or slightly below state averages for each species. No bluegill, walleye, or northern pike were collected during the effort, yet the latter two species are typically less abundant and even less vulnerable to electrofishing gear. Few specimens of bass were also collected.

In 1986, the MDNR initiated a walleye spring fingerling stocking program for Seven Mile Pond (Table 1). All stocking efforts have been made directly into Seven Mile Pond at various unknown locations along the north shore. In 1986, fingerlings were stocked at a higher rate (65 fingerlings per acre) than what is normally prescribed. Stocking efforts continued on and off from 1990 through 1999 and the MDNR utilized different strains of walleye (Table 1), based on availability. Throughout this stocking period natural reproduction was considered limited. It is believed that Seven Mile Pond was also receiving surplus walleye from an upstream walleye rearing pond maintained by the MDNR and Thunder Bay Walleye Club. This pond is located approximately 20 miles upstream of the pond near the confluence of the Thunder Bay River mainstem and Upper South Branch Thunder Bay River. This walleye rearing pond is pumped full with Thunder Bay River water, and drains directly back into the same river. Walleye fingerlings captured from this pond were used to stock a variety of northern Michigan waterbodies. After walleye were successfully removed from the pond and stocked into area lakes, the pond is drained directly back into the Thunder Bay River with an unknown number of remaining spring fingerling walleyes. It is believed that this number was highly variable but could have been as many as 25,000 spring fingerlings annually. This draining process is considered to be an alternate stocking strategy for walleye fingerlings in Seven Mile Pond. In addition, surplus walleye released into the river from this pond were marked with the chemical oxytetracycline (OTC) from 1997 through 2006.

Anglers and local interest groups were unhappy by the late 1980s about fluctuating water levels of the pond and excessive levels of submersed aquatic vegetation. Additionally, the dam was aging and repairs were mandated by FERC. To complete the repairs, the pond was drawn down to approximately 40 acres in 1989 and 1990 (Cwalinski et al. 2006). Anglers believed that the drawdown limited northern pike reproduction and increased angling mortality because fish were more concentrated. The

local impoundment association asked for a spearing ban on northern pike to protect larger fish. Despite this, some anglers opposed a possible spearing ban. This request continued for many years into the decade of the 1990s. The request was not imposed by MDNR, but northern pike were eventually stocked into the impoundment in both 1990 and 1991. Ten-thousand spring fingerlings were stocked both years (Table 1.). By the mid 1990s, good fishing reports for pike, panfish, and even walleye were received. In addition, a new license agreement was established by FERC in 1998 which mandated a run-of-river mode dam operation. This change meant that the dam would be operated by the natural river flow and therefore less water level fluctuations moving forward (Kyle Kruger MDNR, personal communication).

The next fish community survey at Seven Mile Pond was conducted by the MDNR in mid-May of 1998. Sampling effort consisted of 34 trap-net lifts, 4 fyke-net lifts, and 4 experimental gill-net lifts. Results from this survey suggested that the pond had a balanced fish community. The walleye population appeared strong with many size and year classes present. Fish 11-31 inches were collected and many year classes were represented. After these results were assessed by MDNR biologists it was assumed that both stocking (directly and non-directly into the pond) and natural reproduction were contributing to the population of walleye. Both smallmouth and largemouth bass were also found in Seven Mile Pond, but were not considered abundant. Growth rates for bass were near statewide average, and many year classes were represented in the survey. The northern pike population was considered stable with nine year classes represented and growth rates above the statewide average. Pike larger than 24 inches were not as common as smaller fish which was considered typical.

Based on the 1998 survey results, panfish diversity was considered high at Seven Mile Pond. Pumpkinseed sunfish were abundant and black crappie were becoming a significant part of the fish community. Bluegill, yellow perch, and rock bass were also considered common. Most panfish tended to be smaller with growth rates near average for all species. Some large yellow perch and black crappie were available to anglers, but most other panfish were less than 8 inches in length.

Additionally, bowfin became a significant part of the Seven Mile Pond fish community in 1998. Bowfin 14-29 inches long were collected and fish 21-26 inches were very common. This was the first time bowfin were documented in survey nets for the pond which represented a significant predator addition to the fish community. Bullheads and white suckers, as expected, were also very common in the 1998 survey catches.

Following the 1998 survey, MDNR biologists decided to stop stocking spring fingerling walleye directly into Seven Mile Pond. It was believed that past and future indirect walleye releases upstream as well as natural reproduction was satisfactorily supplying enough walleye to create a fishery in Seven Mile Pond. This variable and indirect stocking regime has continued to near the current time period with the exception of the year 2006 when over 50,000 surplus fingerling walleye were stocked directly into the pond (Table 1). It should also be noted that due to concerns over the spread of Viral Hemorrhagic Septicemia (VHS) the MDNR has not used the James Farm walleye rearing pond upstream since 2006 (MDNR website, 2009).

Recently a plan to re-introduce muskellunge upstream of Norway Dam was created after being identified in the Thunder Bay River Assessment management options (Cwalinski et al. 2006). Currently, there are no known populations of muskellunge (Great Lakes strain) upstream of this

location although they were believed to have existed prior to dam construction on the lower Thunder Bay River. Reports continue to arise of muskellunge caught in Ninth Street Pond, which is between the first and second dams on the river, within the city of Alpena. These reported fish are presumed to be Great Lakes strain. MDNR does not currently have a stocking program for Great Lakes strain muskellunge, but it does produce a limited number annually of Northern strain muskellunge (native to western Upper Peninsula). The current prescription for this species in Seven Mile Pond is to stock fall fingerlings at a rate of 3 per acre for three successive years, then followed up with stocking in alternate years. The goal of this stocking is to produce a quality muskellunge fishery near the town of Alpena, and to introduce a close relative to an extirpated species upstream of Norway Dam. This plan began in the year 2005 (Table 1) though at lower stocking rates than recommended. Northern strain muskellunge fall fingerlings have been stocked on three occasions since 2005 and are prescribed when fish are available for stocking. It was believed that the habitat upstream of Seven Mile Pond would be ideal for muskellunge growth and survival, and possible natural reproduction in the future. Such habitat includes aquatic vegetation, multiple river arms and channels, submersed roots, and plenty of sucker and small panfish forage.

In fall 2006, efforts were made to detect survival of recently stocked muskellunge and walleye in Seven Mile Pond. MDNR used fall nighttime electrofishing along part of the shoreline but neither species was collected. It was assumed, however, that aquatic vegetation hindered efforts to effectively capture these species. From 2006-2008, fishing reports for Seven Mile Pond indicated good northern pike catches annually while walleye fishing was good seasonally. Bluegill, pumpkinseed sunfish, and yellow perch catches were good while black crappie catches were variable. Many anglers continued to express concerns over the excessive amount of aquatic vegetation in Seven Mile Pond.

Current Status

In 2009 MDNR Fisheries Division conducted a fish community survey at Seven Mile Pond. Effort consisted of 9 large-mesh trap-net lifts, 5 large-mesh fyke-net lifts, 6 small-mesh fyke-net lifts, 6 maxi-mini fyke-net lifts, and 9 experimental gill-net lifts. Lead lengths for the larger mesh trap and fyke-nets were 75-100 feet. Sampling effort followed the Status and Trends sampling protocol established by Fisheries Division. The survey was done from May 11 through May 14 during a colder than normal spring. Water temperature during the survey was in the middle 50s Fahrenheit, which is considered somewhat low for an effective survey.

Seventeen different species of fish and a total of 1,580 fish were collected during the 2009 survey (Table 2). Large predator fish including bass, walleye, northern pike, and muskellunge made up 10% of the catch by number, while non-game species such as bowfin, bullheads, white suckers, and carp made up 69% of the catch by number. Weight for every fish sampled was not collected but would have been dominated by the non-game species. The panfish community of Seven Mile Pond is diverse and dominated by bluegill, black crappie, pumpkinseed sunfish, rock bass, and yellow perch. Because the survey was done early in the spring (cold period), we believe the relative proportions of panfish in the catch are skewed low overall and that many panfish were not near-shore yet and vulnerable to our sampling gear. It is probable that pumpkinseed sunfish, bluegill, and yellow perch are the dominant panfish, while black crappie and rock bass are secondary panfish species. Panfish represented 20% of the total catch for this survey and would probably have been higher if the survey was completed later in the spring. Thus, a summary of catches by number for the May 2009 survey were non-game large species (69%), large game species (10%), and panfish (20%). These figures are comparable to the 1998

survey which was completed from May 11 through May 20 when percentages were 77%, 4%, and 19%, respectively.

Bluegill were the most abundant panfish caught during the 2009 survey (Table 2). However, bluegill were not the dominant catch in 1998 when black crappie and pumpkinseed sunfish were the most abundant panfish captured. Bluegill size in 2009 ranged from 1 through 7 inches, with 4-5 inch fish dominant (Table 3). Bluegill grow about a half-inch slower in Seven Mile Pond than the same species across the State of Michigan. This species grows about 1 1/4 inches per year in the pond (Table 4), and because of this it takes this species a long time to reach a size that is attractive (larger than 7 inches) to anglers. Very few fish larger than 7 inches were collected in the survey gear in the recent survey. This was also the case during previous surveys (Table 3).

Pumpkinseed sunfish are a common component of the Seven Mile Pond panfish community. Despite this, their catch in 2009 was relatively low compared to previous surveys. This species prefers heavily vegetated areas and the aquatic vegetation was not fully established during the recent survey in Seven Mile Pond. Pumpkinseed sunfish ranged from 3 through 9 inches, with 4-5 inch fish most abundant (Table 3). Growth for this species in Seven Mile Pond is similar to that for bluegill, although it appears that pumpkinseed can live longer (up to age 11) compared to bluegill (age 7) (Table 4). It is assumed that pumpkinseed have an affinity for aquatic vegetation and may evade predators better than bluegills. Due to their longevity, some pumpkinseed sunfish can reach larger lengths (7-9 inches) in Seven Mile Pond.

Black crappie are an important component to the panfish population in Seven Mile Pond and were commonly captured during the 2009 survey (Table 2). Black crappie often thrive within impoundments because they prefer cover associated with deadhead stumps, river channels, darker water, and aquatic vegetation. Survey results indicate that growth of black crappie in Seven Mile Pond is very slow, nearly two-inches slower here than the statewide average. Ten year classes of crappie were represented in the 2009 survey catch. This is comparable to the 1976 and 1998 surveys (Table 4), but not to the 1982 survey when very few crappie were collected. An age-frequency analysis shows that the 2001 and 2004 year classes of this species were good (Table 4) and will be providing anglers with quality catches for a few years (7-10 inches currently). Some black crappie can attain larger sizes in Seven Mile Pond, but fish over 10 inches are currently rare. Larger crappie were more evident during the 1998 survey (Table 3).

Rock bass are a common species throughout northern Michigan lakes and rivers. This species has been commonly captured in all fish surveys conducted within Seven Mile Pond (Table 3). Growth of rock bass is rather slow and they do not generally grow larger than 8 inches in Seven Mile Pond. An age frequency analysis reveals that growth of rock bass is approximately one inch per year. Yellow perch are common in the pond, but not abundant. This may be due to the warmer temperatures that the fish are subjected to in this shallow impoundment. Yellow perch ranged from 3 through 10 inches in the 2009 survey. Growth was also slow, nearly one-inch below the statewide average. More ages and larger sizes of perch were collected during the 1976 survey (Table 4), which was prior to any walleye stocking efforts.

The predator population of Seven Mile Pond is dominated by northern pike, walleye, largemouth and smallmouth bass. Muskellunge can also be found in the pond following recent stocking efforts.

Northern pike are an important part of the predator base and popular among anglers. Pike ranged in length from 18 through 39 inches and represented 4% of the total catch (Table 2). Pike between 21 and 24 inches were most abundant (Table 3). Pike smaller than 18 inches were collected in previous surveys but were not collected in 2009 (Table 3). Forty-five percent of the northern pike collected were legal size (24 inches) or larger. However, pike growth is about a half-inch below statewide average and is similar to past surveys (Table 4). Slow growth in Seven Mile Pond may be a result of a lack of coolwater refuges during the hot summer months. Eight year classes of this species were represented in the catch and ages 3 through 6 fish were most common.

Largemouth and smallmouth bass are both common in Seven Mile Pond, though not abundant. Results from previous surveys corroborate this similar low abundance trend for both species of bass in Seven Mile Pond (Table 3). Both species exhibit very slow growth in Seven Mile Pond, growing between 1 and 2 inches slower than their respective statewide averages. Despite this, some bass can live long and grow to larger sizes. There is plenty of angling opportunity in the lake for legal size (14 inches) largemouth and smallmouth bass. Year class distribution (Table 4) of largemouth bass is fairly even across ages in 2009 except for a larger proportion of fish from the 2002 year class.

Walleye comprised 3% of the total catch by number in Seven Mile Pond in 2009 (Table 2). They were the second most abundant large game predator fish in the pond behind northern pike and ranged in length from 10-27 inches. Seventy-eight percent of the walleyes captured were legal size (15 inches and larger) in 2009, compared to 95% in 1998. Walleye were not collected in Seven Mile Pond prior to the 1998 survey (Table 3). Eleven year classes of walleye were represented in the catch (Table 4). Interestingly, older walleye (age 10-12) were very common in the catch and may represent the stocking events (directly into Seven Mile Pond) of the mid to late 1990s (Table 1). The 2003 and 2004 year classes of walleye were relatively strong as well, but no direct stocking efforts were made in those years into the pond. These fish may have been from previous upstream rearing pond releases of walleye which may have trickled into the impoundment as they matured. Large fish (20 inches and larger) were represented well in the catch as were legal fish in the 15 inch range. Results from the 2009 survey suggest that Seven Mile Pond will continue to maintain a good walleye fishery into the future. The last direct stocking year for walleye in Seven Mile Pond was 2006 and the rate of stocking was moderate (Table 1). Despite this, three year old fish (11-13 inches) were not well represented in the catch (Table 4). It is believed that walleye stocking and natural reproduction currently contribute to the walleye fishery in Seven Mile Pond. The relative proportion between these two sources is unknown. Walleye longevity is good in Seven Mile Pond, but growth is very poor. This species grows two inches slower in Seven Mile Pond compared to the statewide average for this species. Thus, it takes a walleye approximately five years to reach the legal size of 15 inches.

Three young muskellunge ranging in length from 28-30 inches were collected during the 2009 survey. These were age-4 fish based on scale analysis and thus a product of the 2005 stocking effort (Table 1). Age-3 and age-1 muskellunge were not collected although they were most likely less vulnerable to the sampling gear. Reports from anglers and resort owners during the survey (and later in 2009) indicated that muskellunge in a similar size range (30-35 inches) were frequently caught by anglers and that some anglers were actively seeking this species.

Large non-game species are a significant portion of the Seven Mile Pond fish community. Bullhead species (comprised of brown and yellow bullhead) were 59% of the current survey catch by number.

This family of catfish has always been prominent in the pond according to past survey results and thrive in the shallow, warm, and silt filled waters. Bowfin have maintained a significant presence to the fish community of Seven Mile Pond. This large predator is also common in shallow and warmer waters where aquatic vegetation is prominent. They were first documented in the pond during the 1998 survey and were equally abundant then as they were in 2009. Thus, this species appears to have found a balance. Bowfin can grow quite large and probably attain maximum lengths in the pond of near 30 inches. Other species such as common carp are found in the pond in low numbers. White suckers are still abundant in Seven Mile Pond and serve as an important forage fish for the variety of predators in the lake, particularly for northern pike and muskellunge.

Analysis and Discussion

The 2009 fish community of Seven Mile Pond may be characterized as having the following: 1) a diverse panfish community considered slow growing and dominated by pumpkinseed sunfish, bluegill, and black crappie, 2) a diverse predator population dominated by northern pike, 3) a slow growing walleye population sustained by past stocking efforts and low levels of natural reproduction, 4) a quality northern pike population with average growth rates and sustained through natural reproduction, 5) a newly established muskellunge population sustained through stocking efforts when fish are available, 6) a non-game fish community comprised of bullheads, bowfin, carp, and white suckers which dominated the 2009 fish community survey by both weight and number, 7) an impoundment environment with large amounts of silt and aquatic vegetation.

The Seven Mile Pond panfish community is high in diversity but slightly poor in quality. Species available to anglers include black crappie, bluegill, pumpkinseed sunfish, rock bass, and yellow perch. Panfish densities may be fairly high since growth rates are below statewide averages. Excessive amounts of aquatic vegetation may also reduce predation efficiency, thus increasing competition for resources among panfish. Reduced predation may occur in hot summers, or other periods when vegetation becomes dense. Vegetation amounts and reduced predation on panfish may be less of an issue in the winter or even in cold summers when vegetation growth is less dense or prolific.

The predator base of Seven Mile Pond is dominated by northern pike. Also available to anglers are walleye, smallmouth and largemouth bass. The bass species, particularly largemouth bass, are important as keystone predators since they help keep other species in balance. Bass, particularly largemouth bass, have long evolved to prey on panfish which are possibly above their carrying capacity for this pond. Northern pike are the key game fish in the pond and are actively pursued by anglers throughout the year. A variety of forage species exist within the pond that are suitable for pike. Walleye also feed on a variety of prey and are an important part of the Seven Mile Pond fishery. Reports from resort owners indicate walleye as a popular part of the Seven Mile Pond fishery. Walleye grow very slow in the pond, but are able to attain older ages and therefore a larger size. Walleye stocking efforts in the 1990s were made directly into the pond and releases upstream in the Thunder Bay River are assumed to have sustained this population.

The non-game warm water fish community within Seven Mile Pond is typical for a Michigan impoundment. Carp are low in abundance while white suckers are common. Bowfin have become a new predator on the scene in the last decade and another species which may help to reduce panfish densities. Bullheads are extremely abundant and are assumed to continue to be so as long as this impoundment exists.

Non-native organisms such as zebra mussels, Eurasian water milfoil, and rusty crayfish all exist in Seven Mile Pond. They are all present upstream in Fletcher Pond, which also feeds this system. Crayfish are known to feed on aquatic vegetation, but probably will have little positive effect in the pond. The extent of zebra mussels are presently unknown in Seven Mile Pond.

Management Direction

1) The aquatic community of Seven Mile Pond is complex and should be monitored on a fairly consistent basis. A complete fish community survey documenting changes should be accomplished every 10-15 years. Periodic checks of the walleye population could be made as well, but should involve traditional sampling with experimental gill nets, trap net gear, and possibly even shoreline seining. Day or nighttime electrofishing is not a good method used on this lake due to sampling inefficiencies caused by root structures and aquatic vegetation.

2) Continue to rely on natural reproduction of walleye in Seven Mile Pond while periodically stocking surplus walleye to supplement natural reproduction. The 2009 population has many older fish which may be the result of stocking efforts in the 1990s. Angler reports will provide information on young walleye abundance in the future, especially between survey years. Supplemental stocking of small fingerling walleye will continue to support a strong population of this fish, and such efforts should be done directly into the impoundment. To avoid spillway loss, fingerling walleye should be stocked away from the dam.

3) Northern pike are native to Seven Mile Pond and a popular part of the fishery based on angler reports. Abundances appear to be stable and self-sustaining and may be the result of the dam operating by run-of-river mode which creates a more stable environment. Harvest of pike appears to be significant since the length-frequency distribution indicates many fish present below the minimum size limit of 24 inches. However, a few large pike were sampled indicating the possibility of catching a trophy in Seven Mile Pond.

4) Northern strain muskellunge will continue to be stocked when fish are available. The muskellunge stocking prescription for Seven Mile Pond will be switched to the Great Lakes strain if and when MDNRE Fisheries Division establishes a Great Lakes strain brood stock source. Promising reports of muskellunge catches were obtained in 2009 and it appears there is a suitable niche in the pond for this species. We will continue to manage this fishery for now based on angler reports. This species is growing in popularity among many anglers and this population could establish a quality fishery in the Alpena area, where such a fishery is lacking. Also, the success of this program here could lead managers to re-establish or strengthen the muskellunge population further downstream in Thunder Bay and the lower Thunder Bay River. Proper spawning habitat exists and natural reproduction in Seven Mile Pond and its tributaries may be possible for muskellunge once populations are established. "Know The Difference" signs will need to be checked annually at boat launch and campground sites. These signs help anglers distinguish between muskellunge (42 inch minimum size limit) and northern pike (24 inch minimum size limit).

5) Smallmouth and largemouth bass are native to Seven Mile Pond and offer anglers an additional quality fishery opportunity. Neither bass species is overly abundant in the lake, but are common and

self-sustaining. Both species will continue to be important predators of the overabundant panfish populations.

6) The self-sustaining panfish populations of Seven Mile Pond are prolific and diverse. Factors that control panfish populations and their slow growth are predator abundance and aquatic vegetation. Maintaining good numbers of predators in this pond will help panfish growth.

7) We encourage the formation of a fish committee within the Seven Mile Impoundment Association. Fish community surveys will not occur regularly for this waterbody. Quality angler information and catches can be gathered by managers from such a committee. These committees are successful throughout Michigan and they are a conduit of information between Fisheries Division and local anglers.

8) The standard suite of State of Michigan fishing regulations is appropriate for Seven Mile Pond. A spearing ban was previously investigated at this impoundment. There may be minor conflicts that arise from illegal spearing of muskellunge (anglers thinking they were pike), but this is common and expected. This does not warrant establishment of a spearing ban.

9) Anglers should be encouraged to legally harvest the abundant non-game species in Seven Mile Pond such as bowfin, carp, and bullheads.

References

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Ryckman, J.R., and R.N. Lockwood. 1985. On-site creel surveys in Michigan. Michigan Department of Natural Resources, Fisheries Division, Research Report 1922, Ann Arbor.

Figure 1 – Location of Seven Mile Pond (Lake Winyah)

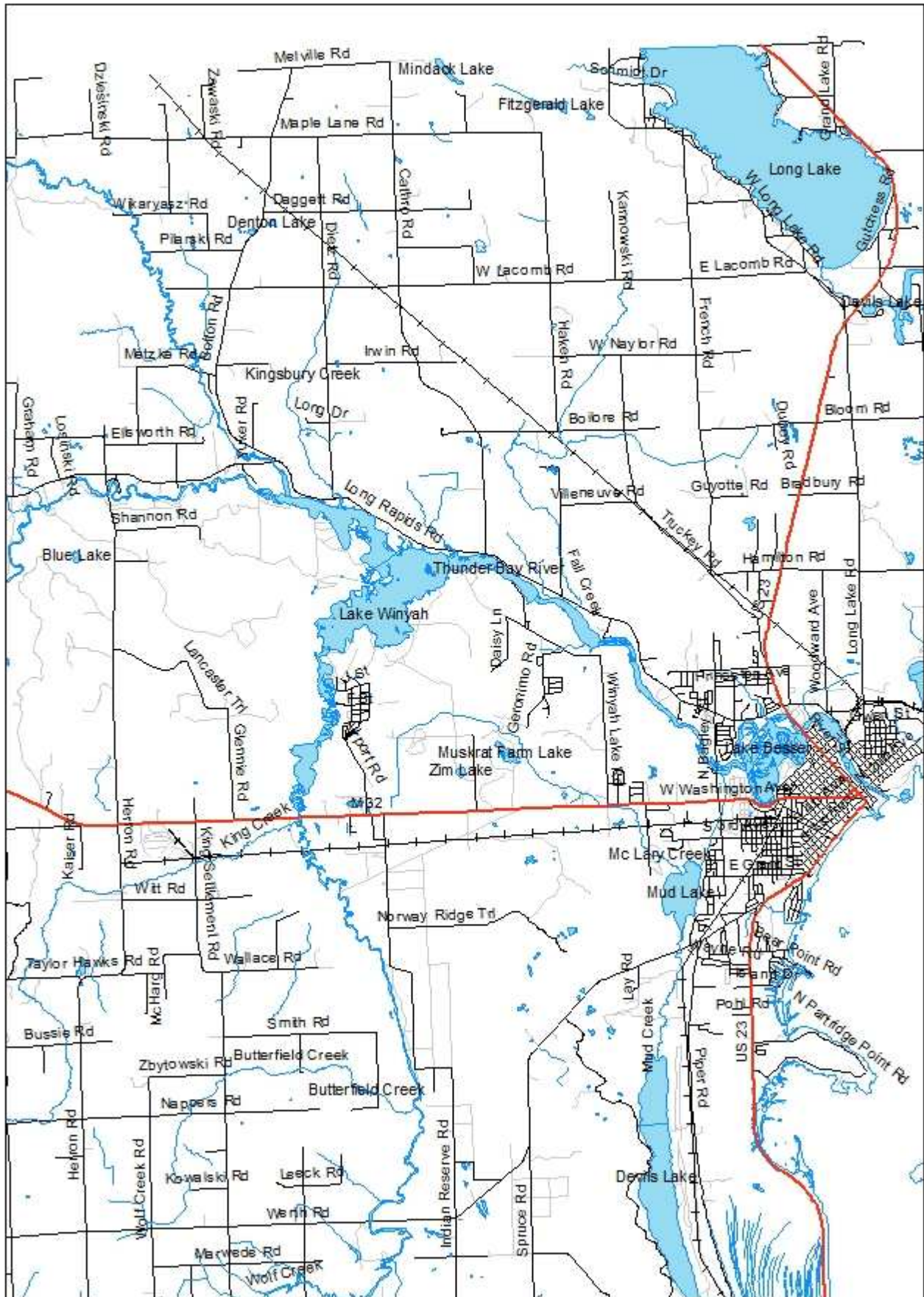


Table 1.-Recent walleye and muskellunge stocking history for Seven Mile Pond, Alpena County.

| Species | Month | Year | Strain | Number | Number/Acre | Avg. Length (in) |
|---------|-------|------|---------------|---------|-------------|--------------------|
| walleye | June | 1986 | -- | 100,000 | 65 | Spring fingerlings |
| walleye | June | 1990 | Muskegon | 10,000 | 7 | 1.4 |
| walleye | June | 1991 | Muskegon | 40,000 | 26 | 1.6 |
| walleye | June | 1993 | Muskegon | 46,549 | 30 | 1.6 |
| walleye | June | 1995 | Bay De Noc | 46,250 | 30 | 1.8 |
| walleye | June | 1997 | Tittabawassee | 45,000 | 29 | 1.4 |
| walleye | June | 1999 | Muskegon | 25,000 | 16 | 1.7 |
| walleye | June | 2006 | Tittabawassee | 50,016 | 33 | 2.0 |
| | | | | | | |
| n. pike | May | 1990 | -- | 10,000 | 7 | 3.5 |
| n. pike | June | 1991 | -- | 10,000 | 7 | 3.4 |
| | | | | | | |
| musky | Oct | 2005 | Northern | 2,373 | 1.6 | 10.0 |
| musky | Oct | 2006 | Northern | 2,638 | 1.7 | 10.8 |
| musky | Oct | 2008 | Northern | 3,880 | 2.5 | 10.9 |

Table 2.-Species and relative abundance of fishes collected with survey gear at Seven Mile Pond, May 11-14, 2009.

| Common Name | Number | Percent | Length Range (inches) | Growth* (in) |
|----------------------|--------------|---------|--------------------------|-----------------|
| Bullhead species | 930 | 59% | 7 - 13 | |
| Bluegill | 99 | 6% | 1 - 7 | -0.5 |
| Black crappie | 91 | 6% | 4 - 11 | -1.7 |
| White sucker | 80 | 5% | 8 - 23 | |
| Bowfin | 77 | 5% | 17 - 27 | |
| Northern pike | 69 | 4% | 18 - 39 | -0.4 |
| Pumpkinseed | 58 | 4% | 2 - 9 | -0.5 |
| Rock bass | 45 | 3% | 1 - 7 | -1.0 |
| Walleye | 40 | 3% | 10 - 27 | -2.0 |
| Yellow perch | 25 | 2% | 3 - 10 | -1.0 |
| Largemouth bass | 25 | 2% | 8 - 18 | -1.6 |
| Smallmouth bass | 24 | 2% | 11 - 20 | -1.2 |
| Carp | 7 | <1% | 21 - 33 | |
| Johnny darter | 4 | <1% | 1 - 2 | |
| Northern muskellunge | 3 | <1% | 28 - 30 | |
| Banded killifish | 2 | <1% | 1 - 2 | |
| Chub species | 1 | <1% | 1 | |
| TOTAL | 1,580 | | | |

* growth is compared to statewide average for that species

Table 3.-Length-frequency distribution of certain game fishes collected during the 1976, 1998, and 2009 netting survey at Seven Mile Pond. Netting effort was variable between years.

| Length (in) | N. pike 76 | N. pike 98 | N. pike 09 | Walleye 76 | Walleye 98 | Walleye 09 |
|------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| 1 | | | | | | |
| 2 | | | | | | |
| 3 | | | | | | |
| 4 | | | | | | |
| 5 | | | | | | |
| 6 | | | | | | |
| 7 | | | | | | |
| 8 | | | | | | |
| 9 | | | | | | |
| 10 | | | | | | 1 |
| 11 | | 1 | | | 1 | 1 |
| 12 | 2 | 4 | | | 1 | 1 |
| 13 | 2 | 1 | | | 2 | 4 |
| 14 | 2 | 1 | | | 3 | 2 |
| 15 | 5 | | | | 5 | 4 |
| 16 | 3 | 3 | | | 10 | 6 |
| 17 | 3 | 3 | | | 14 | 2 |
| 18 | 9 | 2 | 1 | | 4 | |
| 19 | 8 | 4 | 4 | | 5 | 2 |
| 20 | 9 | 5 | 8 | | 5 | 2 |
| 21 | 1 | 8 | 11 | | 5 | 2 |
| 22 | 3 | 9 | 7 | | 4 | 2 |
| 23 | 2 | 4 | 7 | | 9 | 4 |
| 24 | 1 | 6 | 13 | | 5 | 3 |
| 25 | 1 | 5 | 7 | | 2 | 1 |
| 26 | | 4 | 4 | | 1 | 1 |
| 27 | 2 | 1 | 4 | | 2 | 2 |
| 28 | 1 | 1 | | | 1 | |
| 29 | 1 | | 1 | | 1 | |
| 30 | | 1 | | | | |
| 31 | | | | | 1 | |
| 32 | | 2 | | | | |
| 33 | | | | | | |
| 34 | | | | | | |
| 35 | 1 | | 1 | | | |
| 36 | | 1 | | | | |
| 37 | | | | | | |
| 38 | | | | | | |
| 39 | | | 1 | | | |
| 40 | | 1 | | | | |
| 41 | | | | | | |
| 42 | | | | | | |
| 43 | | | | | | |

Table 3.-Continued

| Length (in) | L. bass 76 | L. bass 98 | L. bass 09 | S. Bass 76 | S. Bass 98 | S. Bass 09 |
|----------------|------------|------------|------------|------------|------------|------------|
| 1 | | | | | | |
| 2 | | | | | | |
| 3 | | | | | | |
| 4 | | | | | | |
| 5 | | | | | | |
| 6 | | | | | 3 | |
| 7 | | | | | 2 | |
| 8 | | | 1 | 3 | 4 | |
| 9 | | 1 | | 1 | 4 | |
| 10 | | | | 1 | 3 | |
| 11 | 3 | | | 3 | 7 | 1 |
| 12 | 1 | 4 | 4 | | | 2 |
| 13 | | 2 | 5 | | 6 | 1 |
| 14 | | 2 | 4 | 1 | 2 | 2 |
| 15 | | 6 | 5 | 1 | 4 | 8 |
| 16 | | 7 | 3 | | 4 | 2 |
| 17 | 1 | 7 | 2 | | 2 | 1 |
| 18 | | 1 | 1 | | | 3 |
| 19 | 1 | | | | | 1 |
| 20 | | | | | | 3 |
| 21 | | | | | | |
| 22 | | | | | | |
| 23 | | | | | | |
| 24 | | | | | | |
| 25 | | | | | | |
| 26 | | | | | | |
| 27 | | | | | | |
| 28 | | | | | | |
| 29 | | | | | | |
| 30 | | | | | | |
| 31 | | | | | | |
| 32 | | | | | | |
| 33 | | | | | | |
| 34 | | | | | | |
| 35 | | | | | | |
| 36 | | | | | | |
| 37 | | | | | | |
| 38 | | | | | | |
| 39 | | | | | | |
| 40 | | | | | | |
| 41 | | | | | | |
| 42 | | | | | | |
| 43 | | | | | | |

Table 3.-Continued

| Length (in) | Pump. 76 | Pump. 98 | Pump. 09 | Bluegill 76 | Bluegill 98 | Bluegill 09 |
|------------------------|-----------------|-----------------|-----------------|--------------------|--------------------|--------------------|
| 1 | | | | | 4 | 1 |
| 2 | | | 7 | | | 4 |
| 3 | | 2 | 6 | 1 | | 10 |
| 4 | 24 | 108 | 15 | | | 46 |
| 5 | 51 | 151 | 11 | 13 | 14 | 18 |
| 6 | 37 | 153 | 7 | 65 | 53 | 13 |
| 7 | 7 | 20 | 3 | 4 | 8 | 7 |
| 8 | | 2 | 6 | | | |
| 9 | | | 3 | 1 | | |
| 10 | | | | | | |
| 11 | | | | | | |
| 12 | | | | | | |
| 13 | | | | | | |
| 14 | | | | | | |
| 15 | | | | | | |
| 16 | | | | | | |
| 17 | | | | | | |
| 18 | | | | | | |
| 19 | | | | | | |
| 20 | | | | | | |
| 21 | | | | | | |
| 22 | | | | | | |
| 23 | | | | | | |
| 24 | | | | | | |
| 25 | | | | | | |
| 26 | | | | | | |
| 27 | | | | | | |
| 28 | | | | | | |
| 29 | | | | | | |
| 30 | | | | | | |
| 31 | | | | | | |
| 32 | | | | | | |
| 33 | | | | | | |
| 34 | | | | | | |
| 35 | | | | | | |
| 36 | | | | | | |
| 37 | | | | | | |
| 38 | | | | | | |
| 39 | | | | | | |
| 40 | | | | | | |
| 41 | | | | | | |
| 42 | | | | | | |
| 43 | | | | | | |

Table 3.-Continued

| Length (in) | Black crappie 76 | Black crappie 98 | Black crappie 09 | Rock bass 76 | Rock bass 98 | Rock bass 09 |
|------------------------|-----------------------------|-----------------------------|-----------------------------|-------------------------|-------------------------|-------------------------|
| 1 | | | | 9 | | 1 |
| 2 | | | | 18 | | |
| 3 | | | | 20 | | |
| 4 | 24 | 3 | 4 | 15 | | 11 |
| 5 | 51 | 17 | 4 | 4 | 19 | 20 |
| 6 | 37 | 58 | 18 | | 18 | 6 |
| 7 | 7 | 87 | 20 | | 15 | 7 |
| 8 | | 64 | 22 | | 4 | |
| 9 | | 36 | 13 | | 1 | |
| 10 | | 36 | 9 | | | |
| 11 | | 27 | 1 | | | |
| 12 | | 5 | | | | |
| 13 | | 4 | | | | |
| 14 | | 1 | | | | |
| 15 | | | | | | |
| 16 | | | | | | |
| 17 | | | | | | |
| 18 | | | | | | |
| 19 | | | | | | |
| 20 | | | | | | |
| 21 | | | | | | |
| 22 | | | | | | |
| 23 | | | | | | |
| 24 | | | | | | |
| 25 | | | | | | |
| 26 | | | | | | |
| 27 | | | | | | |
| 28 | | | | | | |
| 29 | | | | | | |
| 30 | | | | | | |
| 31 | | | | | | |
| 32 | | | | | | |
| 33 | | | | | | |
| 34 | | | | | | |
| 35 | | | | | | |
| 36 | | | | | | |
| 37 | | | | | | |
| 38 | | | | | | |
| 39 | | | | | | |
| 40 | | | | | | |
| 41 | | | | | | |
| 42 | | | | | | |
| 43 | | | | | | |

Table 4.-Comparison of mean length (inches) at age for various game fishes of Seven Mile Pond from 1950 to 2009. Number in parentheses represents number aged.

| Species | Age group | Aug 1950 | June 1976 | Aug 1982 | May 1998 | May 2009 |
|--------------|-----------|----------|-----------|----------|-----------|----------|
| Yellow perch | I | 3.3 (2) | -- | 4.0 (16) | -- | -- |
| | II | 5.6 (2) | 5.7 (8) | 5.2 (12) | 5.5 (10) | 3.3 (2) |
| | III | 7.1 (7) | 6.3 (27) | 6.4 (5) | 6.5 (12) | 5.9 (5) |
| | IV | 7.8 (6) | 7.2 (14) | -- | 7.1 (3) | 6.1 (9) |
| | V | 8.7 (5) | 8.1 (3) | -- | 8.6 (3) | 7.9 (4) |
| | VI | 8.8 (3) | 8.7 (4) | -- | 10.5 (4) | 8.8 (2) |
| | VII | 10.6 (5) | 9.9 (11) | -- | -- | 9.5 (2) |
| | VIII | -- | 10.8 (22) | -- | 12.9 (1) | -- |
| | IX | -- | 12.3 (6) | -- | -- | -- |
| | X | -- | 12.1 (5) | -- | -- | -- |
| Walleye | I | -- | -- | -- | -- | -- |
| | II | -- | -- | -- | 11.9 (2) | 10.7 (1) |
| | III | -- | -- | -- | 14.2 (6) | 12.1 (2) |
| | IV | -- | -- | -- | 16.0 (11) | 13.6 (1) |
| | V | -- | -- | -- | 17.2 (17) | 14.9 (8) |
| | VI | -- | -- | -- | 19.4 (11) | 16.2 (9) |
| | VII | -- | -- | -- | 21.1 (7) | 16.5 (1) |
| | VIII | -- | -- | -- | 22.6 (7) | 20.0 (2) |
| | IX | -- | -- | -- | 23.4 (7) | 21.4 (2) |
| | X | -- | -- | -- | 25.3 (6) | 22.7 (5) |
| | XI | -- | -- | -- | 26.7 (4) | 24.4 (3) |
| | XII | -- | -- | -- | 29.5 (1) | 25.7 (6) |
| | XIII | -- | -- | -- | -- | -- |
| | XIV | -- | -- | -- | 31.3 (1) | -- |
| Bluegill | I | -- | -- | -- | -- | -- |
| | II | -- | 3.8 (1) | -- | -- | 3.0 (8) |
| | III | 6.9 (6) | 6.3 (80) | -- | -- | 4.3 (11) |
| | IV | -- | -- | -- | 6.0 (17) | 5.6 (16) |
| | V | -- | 7.4 (3) | -- | 6.5 (5) | 6.6 (8) |
| | VI | -- | -- | -- | 7.3 (5) | 7.0 (1) |
| | VII | -- | 9.8 (1) | -- | 7.8 (1) | 7.2 (3) |
| | VIII | -- | -- | -- | -- | -- |
| | IX | -- | -- | -- | -- | -- |
| | X | -- | -- | -- | -- | -- |

Table 4.-continued

| Species | Age group | Aug 1950 | June 1976 | Aug 1982 | May 1998 | May 2009 |
|-----------------|-----------|----------|-----------|----------|-----------|-----------|
| Northern pike | I | -- | 15.1 (15) | -- | 12.4 (6) | -- |
| | II | -- | 19.5 (24) | -- | 18.2 (13) | 19.3 (5) |
| | III | -- | 21.1 (11) | -- | 21.6 (3) | 20.6 (11) |
| | IV | -- | 25.9 (3) | -- | 23.5 (11) | 22.8 (19) |
| | V | -- | 29.0 (2) | -- | 26.0 (7) | 23.9 (19) |
| | VI | -- | -- | -- | 27.3 (4) | 26.1 (10) |
| | VII | -- | 35.4 (1) | -- | 32.7 (2) | 29.8 (1) |
| | VIII | -- | -- | -- | 36.2 (1) | -- |
| | IX | -- | -- | -- | -- | -- |
| | X | -- | -- | -- | 40.5 (1) | 35.4 (1) |
| | XI | -- | -- | -- | -- | -- |
| | XII | -- | -- | -- | -- | 39.5 (1) |
| Largemouth bass | I | -- | -- | -- | -- | -- |
| | II | 8.4 (16) | -- | -- | -- | -- |
| | III | 13.3 (3) | 11.7 (5) | -- | 9.1 (1) | 8.8 (1) |
| | IV | 15.9 (1) | -- | 14.8 (1) | 12.5 (2) | 12.3 (1) |
| | V | 16.5 (1) | -- | -- | 12.8 (3) | 12.7 (3) |
| | VI | -- | 17.3 (1) | -- | 15.0 (8) | 13.1 (4) |
| | VII | -- | -- | -- | 16.3 (6) | 14.7 (9) |
| | VIII | -- | -- | -- | 17.0 (9) | 15.9 (3) |
| | IX | -- | 19.1 (1) | -- | 18.0 (1) | 17.4 (2) |
| | X | -- | -- | -- | -- | -- |
| | XI | -- | -- | -- | -- | 18.2 (1) |
| Pumpkinseed | I | -- | -- | 3.0 (6) | -- | -- |
| | II | 4.0 (5) | 4.7 (4) | 4.1 (14) | 3.1 (1) | 2.7 (2) |
| | III | 5.2 (15) | 5.2 (80) | 5.6 (10) | 4.7 (15) | 4.0 (13) |
| | IV | 5.6 (4) | 6.4 (22) | 5.5 (2) | 5.5 (8) | 5.2 (9) |
| | V | 6.3 (4) | 6.9 (11) | -- | 6.6 (7) | 5.5 (4) |
| | VI | 6.5 (1) | 7.1 (4) | -- | 7.1 (10) | 6.5 (6) |
| | VII | -- | 7.8 (1) | -- | 7.1 (3) | 7.8 (1) |
| | VIII | -- | -- | -- | 8.0 (1) | -- |
| | IX | -- | -- | -- | 8.3 (1) | 8.6 (2) |
| | X | -- | -- | -- | -- | 8.7 (4) |
| | XI | -- | -- | -- | -- | 9.0 (4) |

Table 4.-continued

| Species | Age group | Aug 1950 | June 1976 | Aug 1982 | May 1998 | May 2009 |
|---------------|-----------|----------|-----------|----------|-----------|----------|
| Black crappie | I | -- | | 4.2 (13) | -- | -- |
| | II | -- | 5.9 (1) | 6.0 (4) | 5.1 (13) | 4.7 (5) |
| | III | -- | 7.6 (7) | 8.0 (3) | 6.8 (18) | 6.0 (6) |
| | IV | -- | 7.9 (7) | 8.7 (1) | 8.4 (16) | 6.5 (6) |
| | V | -- | -- | -- | 9.5 (6) | 7.7 (22) |
| | VI | -- | 10.6 (1) | -- | 10.5 (19) | 8.6 (5) |
| | VII | -- | 10.9 (5) | -- | 11.3 (4) | -- |
| | VIII | -- | 10.8 (2) | -- | 11.8 (6) | 9.3 (10) |
| | IX | -- | 12.2 (2) | -- | 12.4 (12) | 9.9 (2) |
| | X | -- | -- | -- | 13.3 (4) | 10.3 (5) |
| | XI | -- | -- | -- | 14.1 (1) | 10.7 (4) |
| | XII | -- | -- | -- | -- | 11.5 (1) |
| Rock bass | I | -- | -- | 2.7 (12) | -- | -- |
| | II | 4.0 (1) | 3.9 (3) | 3.6 (7) | -- | -- |
| | III | 5.0 (16) | 4.9 (15) | 4.3 (8) | -- | 4.4 (5) |
| | IV | 6.1 (4) | 5.7 (8) | 5.3 (4) | 5.4 (16) | 5.4 (11) |
| | V | 6.4 (8) | 6.2 (14) | -- | 6.2 (15) | 6.2 (5) |
| | VI | 8.0 (5) | 6.9 (18) | -- | 7.1 (13) | 6.1 (3) |
| | VII | 6.6 (1) | 7.6 (6) | -- | 7.6 (7) | 7.1 (4) |
| | VIII | 7.0 (1) | 8.5 (4) | -- | 8.1 (4) | 7.5 (6) |
| | IX | -- | -- | -- | 9.9 (1) | -- |