Summary of Fisheries Surveys

Lipsett Lake

Burnett County, 1990 - 2007

WBIC Code (Lipsett Lake – 2678100)

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Executive Summary

Lipsett Lake provides an important multi-species sport fishery. This report compares data collected using similar methods over an 18 year period between 1990 and 2007.

Largemouth bass *Micropterus salmoides* and northern pike *Esox lucius* were the most abundant game fish species. Walleye *Sander vitreus* were a highly sought after species on Lipsett Lake by sport and tribal fishers despite low populations. Bluegill *Lepomis macrochirus* and black crappie *Pomoxis nigromaculatus* were the most abundant and sought after panfish species.

Angler harvest of walleye has been low. Projected angler harvest of walleye in the 1994-95, 1997-98 and 2004-04 creel survey was 24,188, and 85, respectively. The largest walleye harvest is related to good survival of a stocking of sub-adult walleye in 1994 which had recruited to legal size (15 in) by the 1997 season. Largemouth bass relative abundance has increased but growth rates decreased. Smallmouth bass *M. dolomieui* were present but rare. Northern pike and panfish populations have been relatively stable in terms of size structure, relative abundance and contribution to the creel. Muskellunge *Esox masquinongy* have been present in low numbers due to immigration from adjoining waters. A muskie stocking program began in 2001 which is expected to enhance sport fishing opportunities for this species.

Introduction

Lipsett Lake is a 393 acre eutrophic drainage lake in the Yellow River sub-basin of the St. Croix River in Burnett County. Lipsett Lake has 3.5 miles of shoreline and a maximum depth of 22 ft and an alkalinity of 73 ppm. (Blackman, Sather and Threinen 1966). There is one improved township owned boat landing with a concrete ramp, parking and vault toilet facilities on the south end of the lake. The only other access point is unimproved carry-in or walk-on from a town road that parallels the shoreline on the northwest side by the outlet stream. Lipsett Lake is a popular local fishing and recreation lake and supports a diverse fish community (Appendix Table 1).

Historic fisheries management of Lipsett Lake has included fish surveys and stocking. Season length, bag and length limits have mainly followed statewide or regional regulations rather than lake specific management. A 15 in minimum length limit statewide regulation for walleye has been in effect since 1990. A 12 in minimum length limit for largemouth and smallmouth bass was enforced from 1989 through 1996, and a 14 in minimum from 1998 to present (2008).

Lipsett Lake has a history of fish stocking that has focused on walleye. All other species present except muskellunge are self-sustaining. Walleye fingerlings and /or fry were stocked annually from 1940 through 1959, after which fingerling stocking occurred once every three years. All stocking was discontinued for a ten year period after 1971 because walleye stocking had resulted in only a modest population without establishing any natural walleye reproduction. Re-establishing a stocked walleye population began in 1982. Alternate year walleye stocking from Wisconsin Department of Natural Resources (WDNR) hatcheries has been supplemented by stocking from the St. Croix Chippewa

Tribe (Figure 1). In addition to summer small fingerling walleye stocking, 514 age II, (mean length 10 in) walleye were stocked in 1990 and 1,965 multiple age walleye were field transferred to Lipsett Lake in 1994.

Muskellunge were present in Lipsett Lake but they are not native to the Upper St. Croix River drainage. Muskellunge became fairly common in the Yellow River drainage after state hatchery operations began raising them adjacent to the Yellow River at Spooner in the 1930s. It is unknown to what extent the population is maintained by annual escapement from the hatchery or natural reproduction. Natural hybrid muskellunge (*E. masquinongy x E. lucius)* also occur in the system. A few muskellunge migrate up the outlet stream into Lipsett Lake. The first direct stockings of muskellunge fingerlings into Lipsett Lake occurred in 2001(N=200) and 2005 (N=157).

This report reviews surveys conducted by the WDNR Treaty Assessment Unit in 1994-1995, 1997-1998 and 2004-2005. Fall electrofishing surveys conducted by WDNR and Great Lakes Indian Fish and Wildlife Commission (GLIFWC) between 1990 and 2007 are also summarized for juvenile walleye and other game fish species. There is some risk combining electrofishing survey data from the two agencies because GLIFWC uses DC units and WDNR uses AC units. Also survey objectives may vary which could bias crew effort for particular species or size ranges. In this report these potential bias are not considered consequential. Fall walleye YOY counts were the primary objective of both agencies and generalizations made about walleye recruitment were supported regardless of survey type. Relative abundance (CPUE) and stock density of largemouth bass under one size limit period were based on GLIFWC surveys and the subsequent size limit

period on WDNR surveys. Basic trends over time should be valid even if absolute values of catch rates and stock densities between periods might not be.

Methods

Lipsett Lake was sampled during 1994-1995, 1997-1998 and 2004 -2005 following the Wisconsin Department of Natural Resources treaty assessment protocol (Hennessy 2002). This sampling included spring fyke netting and electrofishing to estimate walleye abundance, fall electrofishing to estimate year class strength of walleye young-of-the-year (YOY), and a creel survey (both open water and ice).

Walleye abundance was determined for adult fish. Adult walleye are defined as being $\geq$ 15 in or sexable (Hennessy 2002). Serns' index (Serns 1983) was used to estimate YOY abundance and stocking survival rates. The 2002 stocking of walleye was chemically marked by oxytetratcycline (OTC) to differentiate contribution of stocking from natural recruitment.

Northern pike relative abundance was estimated with spring fyke net catch. Nets were set primarily to target walleye but the locations were similar in all surveys. Northern pike growth rates were only determined in 1994. Largemouth bass relative abundance was determined from fall electrofishing. Reported catch per hour includes all bass captured regardless of length. A population estimate of largemouth bass greater than stock length (8 in) was done in 2004 (Hennessy 2002).

Age and growth of walleye and largemouth bass longer than 12 in was determined from dorsal spine cross-sections viewed microscopically (Margenau 1982). Age and growth of other length groups or other fish species were determined by viewing acetate

scale impressions under a 30X microfilm projector. Growth information was collected for bluegill only in 1994. No growth information was collected for other panfish species.

Walleye young-of-the-year (YOY) were targeted in all fall electrofishing. Fall electrofishing occurred in 13 of the last 18 years by either WDNR or GLIFWC. The entire shoreline was shocked for walleye YOY. Effort for other species (e.g., bass) during the fall surveys was not always consistent.

Creel survey data was collected during the open water and ice fishing season in 1994-1995, 1997-1998 and 2001-2002 beginning the first Saturday in May and continuing through 1 March of the following year (the open season for game fish angling in Wisconsin). No creel survey data was collected during November. Angling pressure is very low in November because weather is too cold for open water angling and too warm for safe ice fishing. Creel survey methods followed a stratified random design as described by Rasmussen et al. (1998).

Exploitation rates were calculated for walleye. Angler exploitation is the percentage of the adult walleyes marked by fin clip during the spawning period that show up in creel survey that year. The percentage of marked fish in the sport angler creel is assumed to be proportional to the number of marked fish in the projected harvest. Tribal harvest and exploitation was based on creel census examination conducted at boat access points by GLIFWC creel clerks (Table 1).

Indices of proportional (PSD) and relative (RSD) stock densities were used to describe size quality of populations sampled (Anderson and Gutreuter 1983). The PSD and RSD values for a species are the percentage of the stock size fish sampled that are

equal to or greater than a quality length (PSD) or specified length (RSD; Appendix Table 2).

Results

Walleye.

Adult walleye density in Lipsett Lake was low in two of the three estimate years [N = 158 (CV = 0.39; 0.4 fish/acre) in 1994, N = 420 (CV = 0.083; 1.1fish/acre) in 1997, and N = 245 (CV = 0.079; 0.6 fish/acre) in 2004]. Walleye size structure was good but typifies a depressed population with low recruitment rather than a quality fishery. PSD values were 92, 71, and 63 and RSD-20 values were 33, 13 and 25 for 1994, 1997, and 2004, respectively (Figure 2). Walleye growth rates are well above the average for northern Wisconsin but slowed in older fish (Figure 3).

Walleye recruitment was dependent on stocking. No YOY walleye were captured in any of the five non-stocked survey years (Table 2). Also all 9 YOY sampled in 2002 bore the OTC mark given to stocked fingerlings that year. In 6 stocked years of fall electrofishing YOY counts averaged 6.8 per mile (range 2.6 to 13.7; Table 2). Survival to fall of summer stocked fingerlings averaged 2.7% (range 1 to 7.6%; Table 2). [Sampling years 1991 and 1994 are not included as stocked years in the averaging. In 1991 the number stocked was too small to be compared with normal stocking years. A field transfer of 1,965 mixed-age walleye (mean length 8 in) including many YOY just 20 days before the 1994 survey obscured the regular summer stocking contribution.]

Directed angler effort hours for walleye was relatively low at 978 (2.5 hrs/acre), 2,709

(6.9 hrs/acre) and 3,198 (8.1hrs/ acre) in 1994, 1997 and 2004, respectively (Table 3). Despite fairly low effort, angler exploitation rates were 9%, 18%, and 17%, respectively. Specific catch rates for walleye (range 0.03-0.11 fish/hr; Table 3) were below the average of 0.09 fish/hour for totally stocking dependent lakes in northern Wisconsin in 2 of the 3 creel years (unpublished data on 28 creels between 1990 and 2007 in Wisconsin's ceded territory, Jamison Wendell WDNR). Projected angler harvest was 24 (0.06 fish/acre), 188 (0.48fish/acre) and 85 (0.22 fish/acre) in 1994, 1997 and 2004 seasons, respectively. There was an additional tribal harvest of 28 walleye in 2004 bringing the total harvest estimate to 113 (0.28 fish/acre). No tribal harvest occurred in the other creel survey years. Lipsett Lake is in the ceded territory and has been subject to tribal harvest since 1985. Actual tribal harvest by spearing has only occurred in 10 years totaling 215 walleye and averaging 22 walleye per event (Table 1). The relatively good fishing and walleye population peak in 1997 appears to be the result of good survival of a 1994 field transfer of 1,965 (5 fish/acre) large, mixed age fingerlings. This mixture of 1,2,3,and 4 summer fish were in the 14 to 17 inch range by spring 1997 (Figure 2).

Northern Pike.

Catch per net lift of northern pike was 2.9 in 1994, 7.2 in 1997 and 2.5 in 2004. The netting catch rates probably reflect relative adult pike abundance in Lipsett Lake but should not be used to compare Lipsett Lake with other northern pike waters where surveys specifically targeted northern pike. Projected northern pike harvest in the creels (Table 3) of 426, 616 and 375 respectively correlate well the netting catch rates.

Northern pike size structure was very poor in all three fyke net surveys (Figure 4). PSD values were 14, 5, and 6 and RSD-28 values were 1, 0 and 0 in 1994, 1997, and 2004, respectively.

Growth of northern pike in 1994 was well below the northern region average in the statewide data base. However, all northern pike growth interpretations were done using scale impressions. Scales from northern pike have been difficult to accurately determine age because of irregular growth and resorbtion or erosion on the midlateral region (Casselman 1990). Hence, northern pike growth rates reported should be viewed with caution until accuracy can be verified.

Despite poor size quality, northern pike were a very popular sport fish for anglers on Lipsett Lake. Angler effort, catch and harvest rates of northern pike from Lipsett Lake were higher than the average of 55 northern pike lakes in northern Wisconsin (Margenau et al. 2003), but mean length of harvested northern pike was lower (Table 4).

Largemouth bass.

Changes in population abundance and size structure of largemouth bass occurred after the 12 in minimum length limit was imposed in 1989, and again after the minimum was raised to 14 inches in 1998. Catch per mile and PSD values doubled and RSD-15 increased from 0 to 7.8 by 1997 under the 12 in minimum (Table 5). Fall electrofishing catches rates doubled again under the 14 in minimum to 30 fish/mile by 2002. CPUE stayed relatively stable through 2007 but PSD and RSD-15 values declined through time (Table 5). Largemouth bass abundance ($\geq$ 8 in) in 2004 was 3,407 (CV = 0.19) or 8.7 fish/acre. Only 6.6% of the population (0.30 fish/acre) exceeded the 14 in minimum

length limit. Only 2% (0.1fish/acre) exceeded 15 in. Both spring and fall electrofishing surveys in 2007 had the same low proportions of legal fish available for harvest.

Creel surveys also showed a decrease in size structure over time. Six percent of the harvest in 1994 was greater than 19 in under a 12 minimum length limit, but no fish greater than 17 in were harvested in the later creels (1997 and 2004).

Average length of largemouth bass harvested increased from 13.9 to 14.3 in between 1994 and 1997 under a 12-in minimum length limit. After seven years of 14 in length limit protection, the average length of largemouth bass harvested in the 2004 creel only increased from 14.3 to 14.6 in (Table 3). One would expect the average size harvested to increase at least an inch just because 12 and 13 fish were protected and no longer part of the harvest. Angler effort directed toward largemouth bass remained similar between 1997 (4,810 hrs) and 2004 (4,423 hrs) but specific catch rate increased by 280% (Table 3). However, overall harvest of largemouth bass decreased by 59% (Table 3) and the projected number of bass $\geq$ 14 harvested decreased by 38%. Higher length limits and a declining harvest of legal fish have resulted in poorer rather than better size structure.

Growth of adult bass has declined substantially since size limits were imposed (Figure 5). High size limit protection for largemouth bass in Lipsett Lake has resulted in a density dependent growth reduction that prevents bass from reaching more desirable sizes.

Panfish.

Creel surveys in 1994-1995, 1997-1998 and 2004-2005 indicate that Lipsett Lake sustains significant fisheries for bluegill and black crappie. Angler effort and success

rates, size quality and harvest per acre compare favorably to other popular panfish lakes in the area (Tables 6 and 7). Size quality of harvested bluegill was stable through the study period. Mean length of angler harvested bluegill was 7.4 in with 13 to 15% of harvested bluegills $\geq$ 8 inches in all three creels. Despite good average size in the angler harvest, bluegill growth rates in 1994 were below average for northern Wisconsin (Figure 6). Harvested black crappie averaged 9.2 in (range 8.9 to 9.4) and the proportion of harvested black crappie $\geq$ 10 in was cyclic at 30, 11 and 32% during the three survey years, respectively. Pumpkinseed *Lepomis gibbosus*, rock bass *Ambloplites rupestris*, pumpkinseed X bluegill hybrids *L.gibbosus X L.macrochirus* and yellow perch *Perca flavecens* also contribute to the sport fish harvest but are not nearly as abundant or sought after as bluegill and black crappie.

Muskellunge.

Although not native or managed for, several large muskellunge of 42 in and 39.4 in were captured in 1994 and 1997 fyke net surveys, respectively. Three juvenile muskellunge between 17.5 and 19.9 in were captured in the 1994 fall electrofishing survey. These fish likely immigrated from a 1993 stocking made in Rice Lake located approximately ¾ mile downstream. In 2004, eight muskellunge between 22.5 and 42.5 in were captured during fyke netting. Although no age interpretation was done, four of these fish were between 25.5 and 27.5 in, likely age 4 fish from the first direct stocking in 2001. They averaged 26 in long, slightly better than state and regional growth rates from the statewide data base. Although some anglers targeted muskellunge, directed effort was less than 1% in all 3 creel years (Table 3).

Summary and Discussion

Lipsett Lake provides a significant fishery for a number of popular sport fish. A 15 in length limit for walleye implemented in 1990 did not help increase walleye abundance. Walleye here are being limited by lack of recruitment coupled with relatively high exploitation of the adult stock. There is no natural reproduction and stocked fingerlings have not survived in adequate numbers to support a very vibrant walleye fishery. A single stocking of relatively few sub-adult walleyes in 1994 appears to have tripled the adult walleye population 3 years later. Stocking sub-adults or advanced size fingerling could increase the population and improve fishing for sport and tribal users.

The most noteworthy change over the study period (1994-2004) has been the increasing dominance of largemouth bass in the fish community. The 12 in bass length limit implemented in 1989 and the 14 in minimum length limit beginning in 1998 were effective in first doubling and then redoubling largemouth bass relative abundance. Largemouth bass abundance is 3 times higher than the state's strategic goal of 10/mile in fall electrofishing surveys in northern Wisconsin. However stock quality is way below the goal with only 6% instead of 30% being $\geq$ 14 in._A consequence of higher populations has been a precipitous decline in largemouth bass growth rates. High abundance over time results in overexploitation of forage resources. Growth rates are reduced preventing largemouth bass from reaching the quality sizes desired by sport anglers.

Largemouth bass no longer meet the minimum growth standards established in NR 20.35 of Wisconsin Administrative Code (state growth standards) which qualifies the

lake for a length limit exemption. Removing the minimum length limit should result in better bass growth rates which would subsequently improve the quality, if not quantity, of the bass fishery. Also largemouth bass have been shown to be much more effective predators on walleye fingerlings than muskellunge, northern pike or even smallmouth bass (Fayram 2005). Walleye recruitment from stocking efforts may improve if largemouth abundance can be reduced. Liberal bass regulations will at the very least permit better angler utilization of the most abundant game species available. However, angler attitudes toward bass have become oriented to live release. Regulations can not guarantee harvest will be adequate to improve growth rates or change walleye recruitment. The actual effects of this regulation change will need to be determined in future assessments.

Bluegill and black crappie are the dominate panfish species and provide a better than average fishery. Angling effort and success rates, size quality and harvest per acre for these species compares favorably to other popular panfish lakes in the area.

Northern pike exhibit poor size structure and slow growth. This is very typical for pike populations in centrarcid dominated fish communities in this part of the state. Still they are popular with anglers and contribute significantly to the total gamefish harvest.

Muskellunge were present in Lipsett Lake. Until recently the population has been dependant on immigration from other waters which limited development of a viable sport fishery. The low intensity stocking program begun in 2001 will allow for a modest population to become established and provide better angler opportunities for this popular fish. The management objective for muskellunge is for a relatively low density population to maintain growth potential and minimize inter-species conflicts. It is not

expected that muskellunge will have an effect on walleye abundance based on muskellunge diet studies conducted in Wisconsin (Bozek et al. 1999).

Management Recommendations

1. A no minimum length limit bass regulation should be implemented as soon as possible.
2. Once the bass size limit has been removed, alternate year stockings of extended growth walleye fingerlings at a 5/acre rate is recommended to assure that walleye, rather than other species, are present to fill the niche opened as bass population is reduced. After 3 extended growth stockings, standard maintenance stocking of small walleye fingerlings at a rate of 35 fish/acre should resume with a goal of maintaining an adult walleye population of 1 fish/acre or greater. Walleye stocking should be discontinued if bass populations can not be reduced and/or the average fall electrofishing CPUE is less than 5 YOY walleye per mile in stocked years.
3. Muskellunge stocking should continue at a rate of 0.5 fall fingerlings per acre every other year. The management goal would be to establish and maintain a modest density population of 80-90 adults $\geq$ 30 in (0.2 fish/acre) with 20% greater than 40 in by 2017.
4. The primary panfish species, bluegill and black crappie, are providing better than average fisheries. No change in management is warranted at this time.
5. Macrophytic aquatic vegetation is of key ecological importance to the productivity and stability of Lipsett Lake. Preserving a robust and diverse native macropyhte community should be the central focus of water resource planning and management

efforts by the Department, local zoning and riparian property owners. Best management practices to control of nutrient and sediment loading through voluntary or regulatory means are important to support. Chemical or mechanical control should be discouraged and inadvertent damage to native macrophytes by boat traffic (Asplund 1997) should not be over looked as an issue here.

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Table 1. GLIFWC census of tribal walleye harvest on Lipsett Lake,

BurnettCounty,Wisconsin.

Year	Harvest	Year	Harvest
1989	33	1998	0
1990	28	1999	0
1991	32	2000	25
1992	10	2001	26
1993	0	2002	0
1994	0	2003	27
1995	0	2004	28
1996	0	2005	4
1997	0	2006	2
			Total 215

Table 2. Relative abundance of age-0 walleye in fall electrofishing surveys compared to summer fingerling stocking.

Year	Number Age-0	Number /Mile	Serns' #/Acre	Estimated # Age-0	Number Stocked	Percent Survival
1990	0	0	0	0	0	-----
1991	0	0	0	0	4,850	0
1992	48	13.7	3.2	1258	32,448	3.9
1993	No Survey				0	-----
1994	52	14.9	3.5	1,376	*11,871	N.A.
1995	No Survey				0	-----
1996	No Survey				14,755	-----
1997	0	0	0	0	0	-----
1998	10	2.8	0.6	236	20,970	1.1
1999	No Survey				0	-----
2000	No Survey				19,650	-----
2001	46	13.1	3.1	1218	16,035	7.6
2002	9	2.6	0.6	236	21,293	1.0
2003	0	0	0	0	0	-----
2004	13	3.7	0.9	354	27,594	1.3
2005	0	0	0	0	0	-----
2006	16	4.6	1.1	432	37,835	1.1
2007	0	0	0	0	0	-----

* Of the total 1,965 were large fingerlings stocked 20 days before the survey.

Table 3. Comparison of angler catch and harvest information for game fish for 3 creel years on Lipsett Lake, Burnett County, Wisconsin.

Creel Year By Species	Directed Effort (Hours)	% Total Effort	Projected Catch	Specific Catch Rate (Fish/ Hour)	Projected Harvest	Mean Length
1994-95						
walleye	978	9.6	34	0.0347	24	19.8
northern pike	4,040	39.8	1,214	0.2775	426	20.2
muskellunge	40	0.4	0	0.0000	0	-----
largemouth bass	860	8.5	450	0.4809	126	13.9
1997-98						
walleye	2,709	9.2	3 30	0.1101	188	17.7
northern pike	5,839	19.7	4,213	0.5425	616	19.9
muskellunge	78	0.3	7	0.0000	0	-----
largemouth bass	4,810	16.3	2,887	0.3848	387	14.3
2004-05						
walleye	3,198	12.9	143	0.0424	85	19.2
northern pike	3,542	14.2	3,271	0.5771	375	19.9
muskellunge	183	0.7	11	0.0000	0	-----
largemouth bass	4,423	17.8	7,598	1.0760	159	14.6

Table 4. Comparison of northern pike angler catch and harvest statistics on Lipsett Lake, Burnett County, Wisconsin compared to 55 northern Wisconsin lakes (Margenau et al. 2003). Standard error is in parentheses.

	Directed Effort (Hr/acre)	Specific Catch (# /hr)	Harvest (# /acre)	Specific Harvest (# /hr)	Mean Length (Inches)
Lipsett Lake					
1994-95	10.3	0.28	1.1	0.10	20.2
1997-98	14.8	0.54	1.6	0.09	19.9
2004-05	9.0	0.57	0.9	0.10	19.9
55 northern WI lakes	9.3 (0.90)	0.25 (0.02)	0.9 (0.12)	0.07 (0.004)	21.6 (0.23)

Table 5. Fall largemouth bass (LMB) electro-fishing catch rates and stock densities on Lipsett Lake, Burnett County, Wisconsin.

Year	Agency	LMB Catch/Mile	Length Range	PSD	RSD-15
1990	GLIFWC	8.9	3.0 - 13.9	24.0	0.0
1991	GLIFWC	25.7	4.0 - 14.4	6.1	0.0
1994	GLIFWC	18.6	5.0 - 16.4	45.1	7.8
1997	WI-DNR	17.7	2.0 - 17.4	12.7	5.0
2002	WI-DNR	30.0	3.5 - 16.9	52.4	4.8
2004	WI-DNR	39.1	1.5 - 19.4	47.3	3.6
2007	WI-DNR	34.9	6.0 - 16.4	38.5	2.7

Table 6. Bluegill angling effort, catch and harvest on Lipsett Lake, Burnett County, compared with 7 other area lakes.

Lake	County	Creel Year	Directed Angler Hours/ Acre	Specific Harvest Rate (Fish/Hour)	Mean Length (Inches)	Projected Harvest/ Acre
Lipsett	Burnett	1994-95	8.2	1.6	7.4	12.7
Lipsett	Burnett	1997-98	18.1	1.7	7.3	31.1
Lipsett	Burnett	2004-05	18.0	1.3	7.4	24.3
Long	Washburn	1994-95	19.7	0.7	7.0	13.8
Long	Washburn	2001-02	8.8	1.4	7.1	12.7
Chetak	Sawyer	1997-98	38.0	0.6	7.6	24.1
Devils	Burnett	1995-96	10.0	2.0	7.3	23.2
Devils	Burnett	2000-01	21.3	2.1	7.5	44.9
Middle-McKenzie	Washburn	2003-04	8.1	0.9	7.3	7.3
Nancy	Washburn	1998-99	10.8	1.5	7.1	16.9
Shell	Washburn	1999-00	3.5	1.4	7.5	5.2

Table 7. Black crappie angling effort, catch and harvest on Lipsett Lake, Burnett County, compared with 7 area lakes.

Lake	County	Creel Year	Directed Angler Hours/ Acre	Specific Harvest Rate (Fish/Hour)	Mean Length (Inches)	Projected Harvest/ Acre
Lipsett	Burnett	1994-95	2.3	0.8	9.4	2.5
Lipsett	Burnett	1997-98	10.6	0.8	8.9	8.9
Lipsett	Burnett	2004-05	6.3	0.2	9.3	1.8
Long	Washburn	1994-95	6.3	0.7	9.2	4.6
Long	Washburn	2001-02	9.4	1.1	9.5	11.2
Chetak	Sawyer	1997-98	27.8	0.7	10.0	18.6
Devils	Burnett	1995-96	1.8	1.0	9.1	2.4
Devils	Burnett	2000-01	9.7	0.7	8.9	7.6
Midddle-McKenzie	Washburn	2003-04	2.7	0.2	10.4	0.6
Nancy	Washburn	1998-99	1.6	0.1	10.9	0.2
Shell	Washburn	1999-00	1.1	<0.1	10.6	0.1

Table 8. Walleye exploitation rates for selected northwest Wisconsin lakes.*

Year	Lake	County	% Exploitation		
			Angler	Tribal	Total
1994	Lipsett	Burnett	9	0	9
1997	Lipsett	Burnett	18	0	18
2004	Lipsett	Burnett	17	11	28
1992	Yellow	Burnett	3	<1	4
2000	North Sand	Burnett	11	8	19
1996	Big McKenzie	Burnett	3	11	14
2000	Bear	Barron	14	4	18
1990	Teal	Sawyer	16	3	19
2001	Lac Courte Oreilles	Sawyer	7	3	11
2000	Grindstone	Sawyer	1	8	9
1999	Chippewa Fl.	Sawyer	18	3	21
1998	Round	Sawyer	8	10	18
1997	Chetac	Sawyer	2	5	7
1997	Sissabagama	Sawyer	17	2	19
1994	Long	Washburn	23	4	26
2001	Long	Washburn	9	7	16
1999	Shell	Washburn	2	5	7
1998	Nancy	Washburn	10	3	13
1990-2000	Ave. 55 NW WI lakes*		8	5	13

*Source, J. Wendel, WDNR, unpublished data.

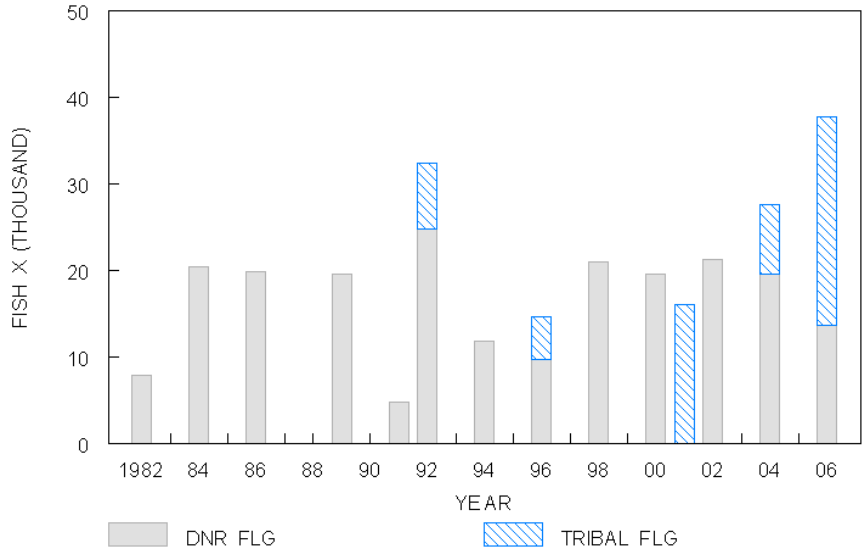

Figure 1. State and tribal walleye fingerling stocking history for Lipsett Lake, Burnett County, Wisconsin

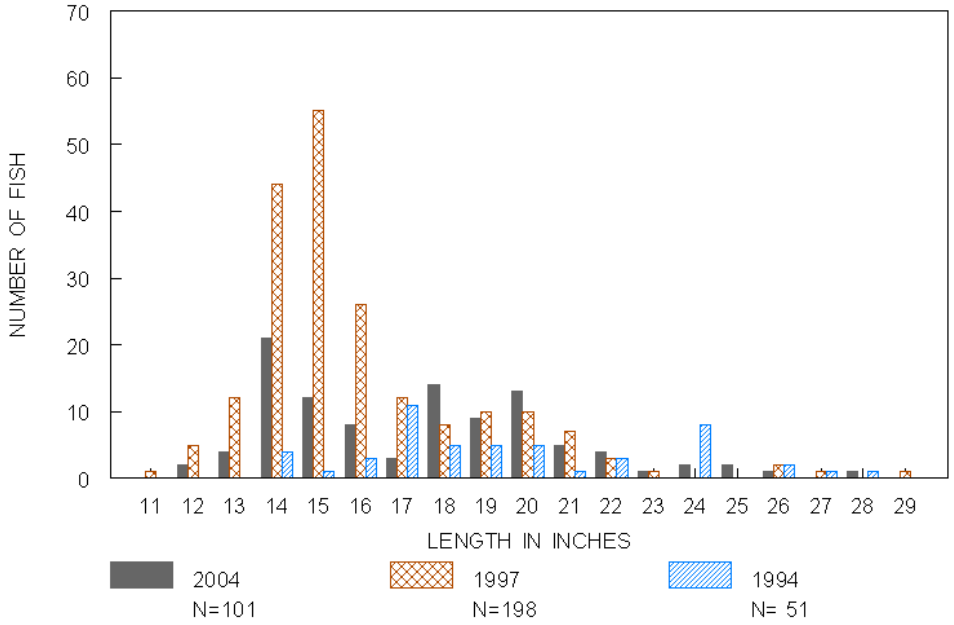

Figure 2. Comparison of adult walleye length frequencies from spring fyke nets on Lipsett Lake, Burnett County, Wisconsin

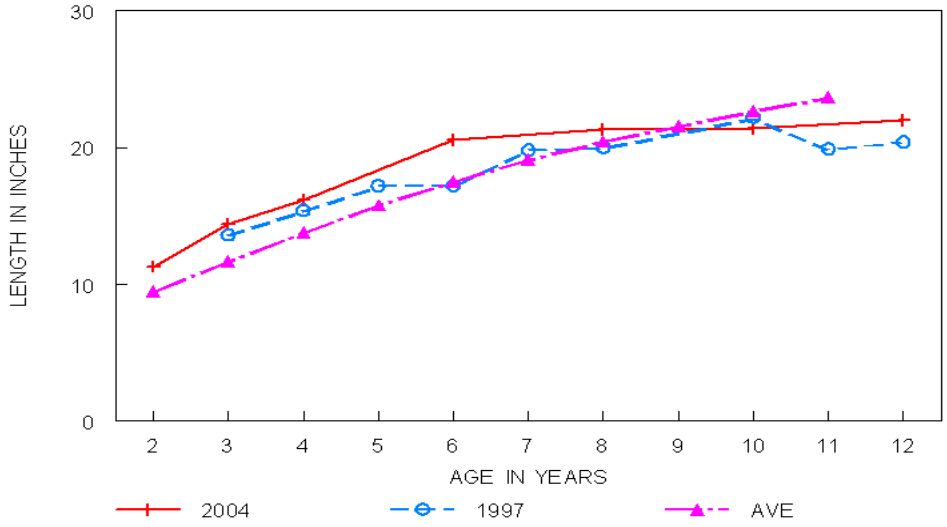

Figure 3. Walleye growth rates on Lipsett Lake, Burnett County, compared to northern Wisconsin average from Fish Management Data Base 2006.

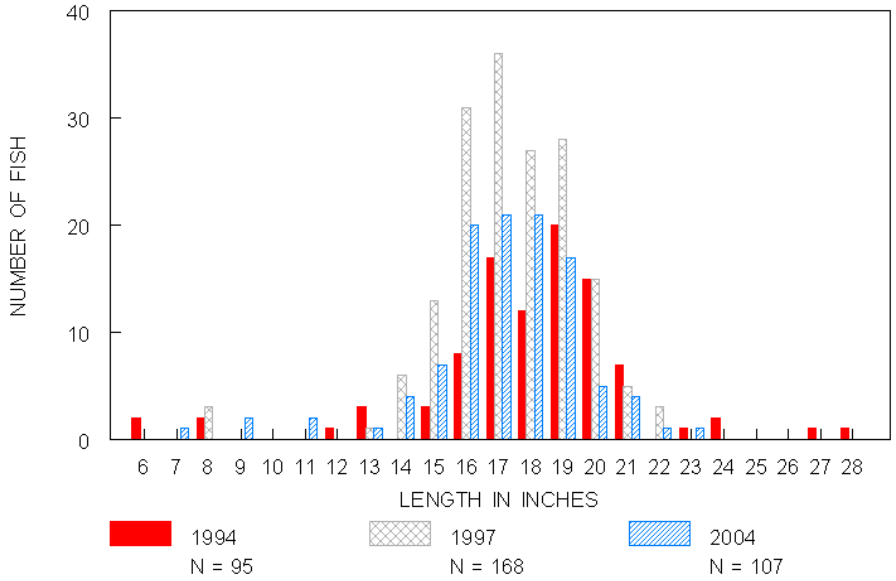

Figure 4. Northern pike length frequencies from spring fyke net surveys on Lipsett Lake, Burnett County, Wisconsin

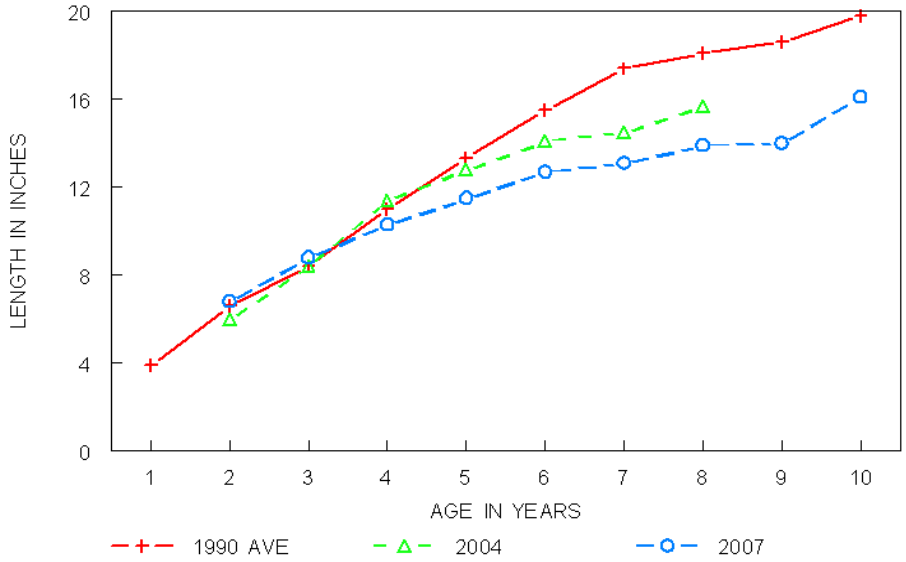

Figure 5. Growth of largemouth bass on Lipsett Lake, Wisconsin compared to pre-size limit average in Burnett and Washburn Counties from the Fish Management Reference Book 1990.

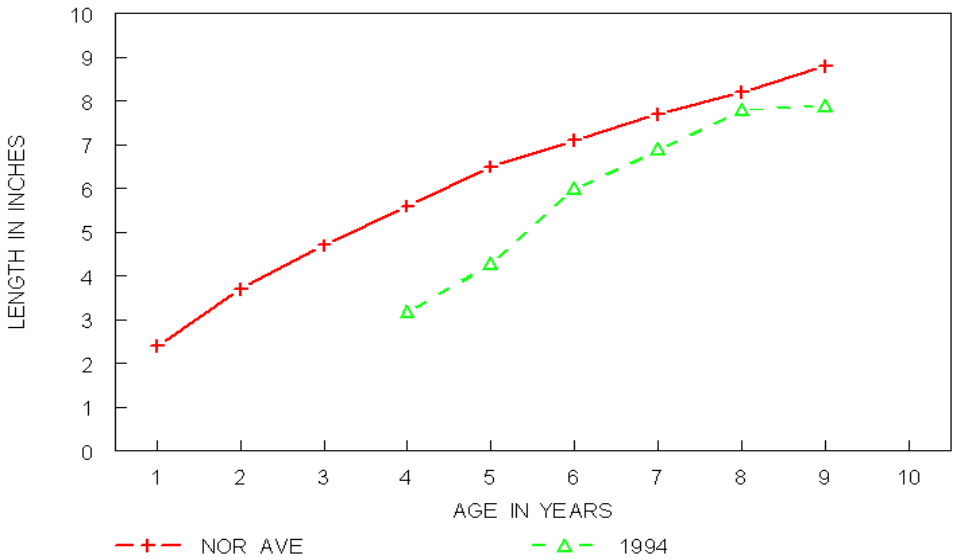

Figure 6. Growth of bluegill in Lipsett Lake, Burnett County, Wisconsin compared to Northern Region average from the State Wide Data base.

Appendix Table 1. Fish species found in Lipsett Lake, Burnett County, Wisconsin.

Common Name	Scientific Name	Relative Abundance
	Gamefish	
Walleye	Sander vitreus	Present
Northern pike	Esox lucius	Abundant
Muskellunge	Esox masquinongy	Present
Largemouth Bass	Micropterus salmoides	Abundant
Smallmouth Bass	Micropterus dolomieui	Rare
	Panfish	
Bluegill	Lepomis macrochirus	Abundant
Black crappie	Pomoxis nigromaculatus	Abundant
Pumpkinseed	Lepomis gibbosus	Common
Rock bass	Amblopites rupestris	Common
Yellow perch	Perca flavecens	Common
Brown bullhead	Ictalurus nebulosus	Present
Yellow bullhead	Ictalurus natalis	Present
	Forage and other species	
Bowfin	Amia calva	Common
White sucker	Catostomus commersoni	Common
Common Carp	Cyprinus carpio	Present
Golden shiner	Notemigonus crysoleucas	Present
Common shiner	Notropis cornutus	Present
Spottail shiner	Notropis hudsonius	Common
Blacknose shiner	Notropis heterolepis	Present
Blackchin shiner	Notropis heterodon	Present
Log perch	Percina caproides	Present
Iowa darter	Etheostoma exile	Present
Johnny darter	Etheostoma nigrum	Present
Brook silverside	Labidesthes sicculus	Common
Bluntnose minnow	Pimephales notatus	Present

Appendix Table 2. Proportional and relative stock density values.

Species	Stock Size (in)	Quality Size (in)	Preferred Size (in)
Largemouth Bass	8	12	15
Northern Pike	14	21	28
Walleye	10	15	20