Seibert Lake Fall Walleye Index Netting Survey 2010

January 2011

SEIBERT LAKE

FALL WALLEYE INDEX NETTING SURVEY, 2010

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ABSTRACT

A Fall Walleye Index Netting (FWIN) survey was conducted at Seibert Lake in September 2010 utilizing half-length FWIN nets to assess the abundance and structure of the walleye (*Sander vitreus*) population, and to compare the results to previous FWIN surveys conducted in 2006 and 2000 in order to monitor the effects of management strategies for this fishery. In 2003, the angling regulation was changed from a daily limit of 3 walleye caught outside of a protected slot limit (42 – 53 cm) to one walleye over 50 cm.

The 2010 walleye catch rate was 15.0 fish·100m^{-2}·24hrs^{-1}. This catch rate is considered moderate (vulnerable status) based on current ASRD criteria, and shows little change from 14.8 fish·100m^{-2}·24hrs^{-1}in 2006. The catch rate in 2000 was 10.1 fish·100m^{-2}·24hrs^{-1}. The 2010 catch included one successful age-class (age 4) which represented 41% of the sample. All other population metrics (age-class distribution, stability, age-at-maturity and length-at-age) ranged from collapsed to stable. These metrics showed little change or trended slightly downwards from previous surveys. The overall walleye population status remains unchanged from a vulnerable status. There were few mature females under the 50 cm TL harvest threshold due to weak age-classes at 6 – 8 years of age which may complicate near future recovery and result in further erratic recruitment patterns.

Seibert Lake is also managed experimentally with a large minimum size limit for northern pike. In 2000, the regulation was changed from a daily limit of two over 90 cm to one over 100 cm. The northern pike population appears to be relatively unchanged from the 2000 FWIN other than a slight increase in the percentage of pike over 100 cm.

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INTRODUCTION

The Fall Walleye Index Netting (FWIN) survey (Morgan 2000) is a standardized method for indexing walleye (*Sander vitreus*) populations that has been adapted as a fisheries management standard by the Fisheries Management Branch of Alberta Sustainable Resource Development (ASRD). The FWIN protocol allows fisheries managers to compare population trends over time or between populations in order to monitor the effects of management strategies. Individual populations are assessed and classified as stable, vulnerable, or collapsed as per Alberta's Walleye Management and Recovery Plan (Berry 1995). Management strategies are implemented with the goal of recovering and/or maintaining stable, self-sustaining walleye fisheries.

Seibert Lake is home to endemic populations of walleye, northern pike (*Esox lucius*), burbot (*Lota lota*), yellow perch (*Perca flavescens*), lake whitefish (*Coregonus clupeaformis*), white sucker (*Catostomus commersoni*) as well as other small-bodied fish species. Current fishing pressure on the lake is in the form of recreational angler harvest. There has not been a commercial harvest since the 1950's (Mitchell and Prepas, 1990). The pressure on Seibert by Indian Domestic fishing would be classed as very light. Between 1999 and 2009, the lake has issued, on average, 4 domestic licenses per year and very little domestic activity has been observed (Wilcox 2007).

A slot-size limit was implemented for recreational walleye harvest in 1991 with a daily limit of three walleye – allowing one under 42 cm and two over 53 cm. The walleye population was classified as stable in 2000, however was downgraded to vulnerable in 2003 and the regulation was changed to a daily limit of one walleye over 50 cm. The slot limit was removed primarily because it failed to sufficiently protect walleye. Non-compliance by anglers was cited as the main reason for this failure (Sullivan 2002).

Seibert Lake was designated as a trophy pike lake in 1970 and a trophy license was required to harvest pike until 1998. A daily limit of two over 90 cm was in effect until 1999 (the majority of Alberta lakes had no size limit at that time). The regulation was changed in 2000 to a daily limit of one over 100 cm with the establishment of Alberta's Northern Pike Management and Recovery Plan (Berry 1999). The designation of "trophy" is no longer used in Alberta.

FWIN surveys at Seibert Lake have been conducted in 2006 (Ganton and Patterson 2007) and 2000 (Wilcox 2007). Other fisheries surveys include an angler survey in 2000

(Patterson 2001), and summer angler surveys in conjunction with test angling (Sullivan 1989-94 unpublished data, Makowecki 1973).

The Fisheries Management Branch conducted this FWIN survey at Seibert Lake on September 13 – 16, 2010 to obtain information regarding the current abundance and structure of the walleye population. Survey objectives included:

1. Determine the walleye catch rate (catch per unit effort) as an index of abundance.
2. Estimate other walleye population metrics including age-class distribution and stability, age-at-maturity, and growth rate.
3. Compare results to the previous FWIN surveys.
4. Utilize FWIN survey to determine relative abundance and other population metrics for northern pike.

STUDY AREA

Seibert Lake (Twp 66, Rge 9, W4M) is located approximately 265 km northeast of Edmonton and 100 km east of Lac La Biche, Alberta (Figure 1). The lake is situated in the Beaver River basin lying within the boreal forest natural region and is considered mesotrophic. The lake has a surface area of 3790 hectares with a historical maximum depth of 11 meters, and a mean depth of 6.9 meters. The lake water level is currently at a low stage, the maximum depth recorded at netting sites during this survey was 8.9 m (Appendix 1). There are several intermittent inlet streams though no permanent stream inlets. The lake has a dry outlet channel located at the south end of the lake which leads to the Sand River and eventually into the Beaver River.

Seibert Lake is within the boundaries of Lakeland Provincial Recreation Area. The lakeshore is undeveloped other than a Provincial Recreation Area campsite located in the southeast corner of the lake. The lake is accessed by a graded truck trail north of Highway 55.

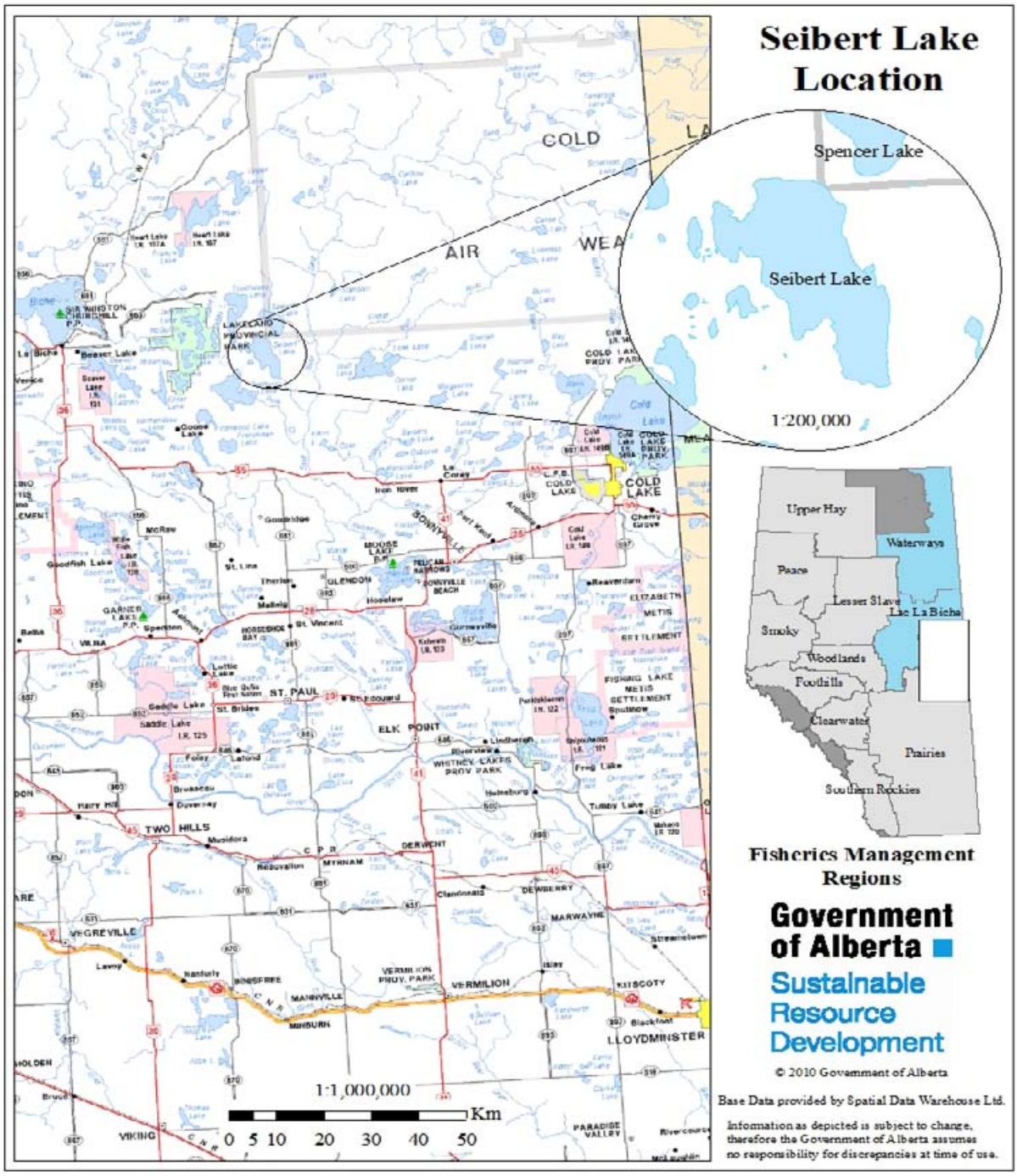


Figure 1. Seibert Lake is located in the Northeast Region, approximately 100 km east of Lac La Biche, Alberta.

METHODS

Sampling Design

In general, the sampling design followed the Fall Walleye Index Netting (FWIN) protocol (Morgan 2000). A stratified random sampling design was employed. The lake was stratified by depth (shallow 2 – 5 m; deep 5 – 15 m) and sampling effort was allocated proportionately to the surface area of the depth stratum. A progressive sampling approach was used to ensure a minimal number of nets were set to reach precision levels adequate to detect biologically meaningful differences in the catch rate of walleye. Desired precision levels (< 20% relative standard error), and adequate biological samples were found after 24 sample sites: 7 sites were in the shallow stratum and 17 of the sample sites were in the deep stratum.

The FWIN nets used in this survey were *half the standard length*; consisting of eight panels of different mesh sizes (25, 38, 51, 64, 76, 102, 127, and 152 mm stretched mesh) sewn together in ascending order of size, 1.8 m deep x 3.8 m long with a total net length of 30.5 m and an area of 54.9 m^2 (the standard panel has an area of 109.8 m^2). Utilizing half-length FWIN nets has been validated as having a near 1:1 capture ratio per unit area for walleye when compared to full length FWIN nets (Pruden and Davis 2006) and reduces lethal fish sampling impacts.

The nets included additional small mesh panels of 12 and 19 mm separated from the standard gang by ten meter leads to collect data on juveniles and small fish species. For the purposes of this report, only fish caught in the eight half-length panels are reported.

Nets were set perpendicular to depth contours at each sample site. Net locations (Figure 2) were identified with handheld GPS units, minimum and maximum depths for each net gang were identified by sonar. Surface water temperature was also recorded at most net locations. Nets were set for 24 hrs (+/- 3 hrs) before being retrieved and cleared of fish before being set at a new location.

Biological Data

All fish species caught were collected, bagged and tallied at each sample site by mesh size. Upon sampling each site's fish, biological data collected included: fork length (FL), total length (TL), weight, sex, maturity, gonad weight (mature female walleye only), and stomach contents.. Otoliths were collected from walleye for ageing and prepared following Watkins and

Spencer (2009). Cleithrums were collected from northern pike for ageing and prepared following Mackay et al (1990). Fish ages were determined and verified by A. Foss and D. Latty.

Data Analysis

Walleye catch per unit effort (CUE) was reported as fish·100m^{-2}·24hrs^{-1} and calculated for each sample site:

$$CUE = No.\ of\ fish \times \left(100\ m^2 / (109.8\ m^2 / 2)\right) \times (24\ hrs / set\ time\ hrs)$$

The CUEs were bootstrapped (50,000 replications) to determine upper and lower confidence intervals to 95% (Haddon 2001). The overall catch rate was calculated as a maximum likelihood estimate (MLE).

Walleye total length and age distributions, age-at-maturity and length-at-age (growth rate) were determined to assess the stock status according to modified guidelines of the Walleye Management and Recovery Plan (Berry 1995, Sullivan 2003). Growth rate was estimated using the Von Bertalanffy growth equation and parameters were calculated using FAST 2.1 software (Slipke and Maceina 2001).

Northern pike data was also analysed for CUE, total length distribution, age distribution, age-at-maturity and length-at-age (growth rate) to compare to earlier surveys. FWIN is designed specifically for monitoring walleye populations, and northern pike data must be interpreted with caution.

All data were analysed and reported on Microsoft Office 2000 or 2007. The data set for this study is stored in the ASRD Fisheries and Wildlife Management Information System (FWMIS) provincial database under project number 14475, waterbody ID # 5776.

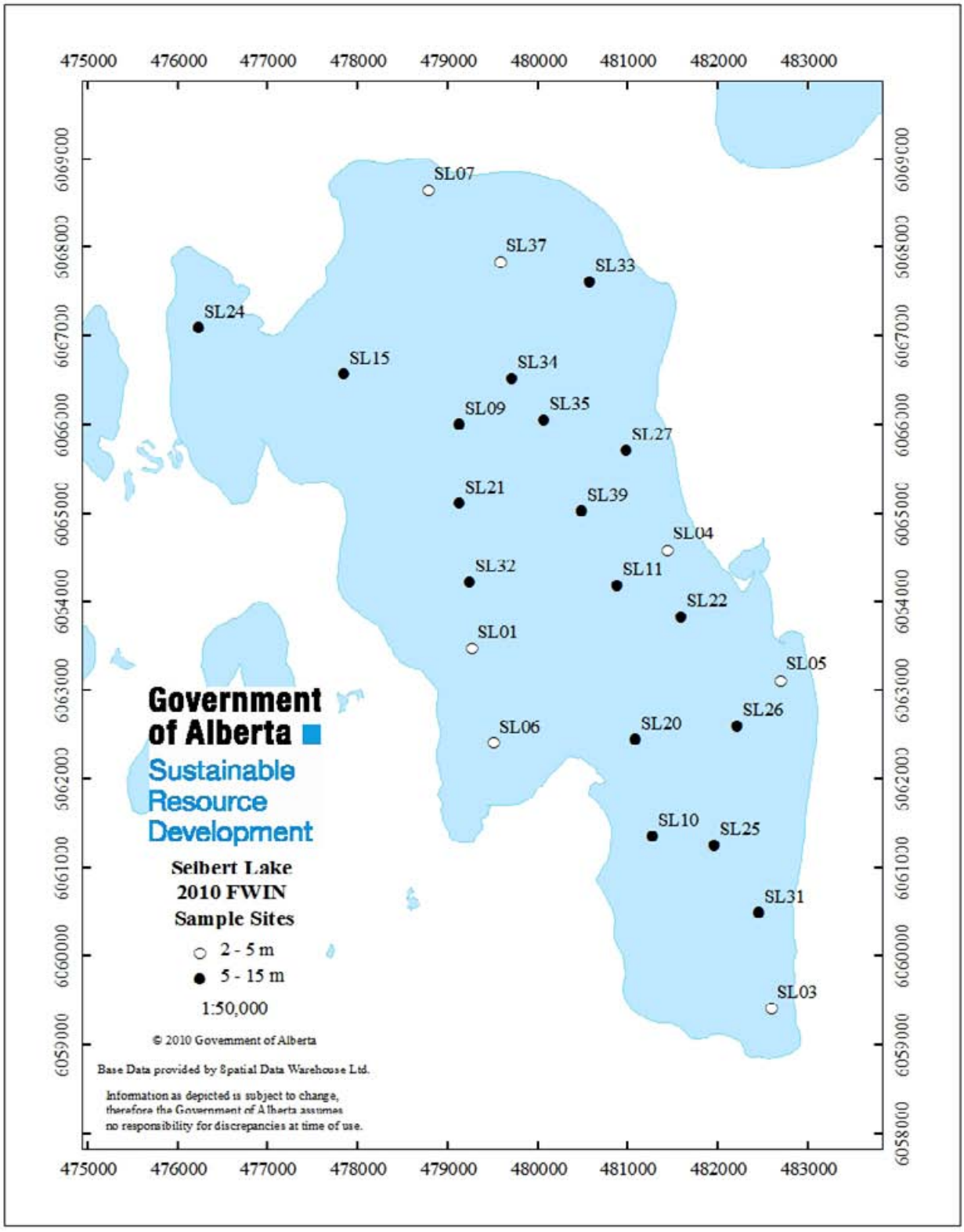


Figure 2. Seibert Lake 2010 FWIN survey net site locations.

RESULTS AND DISCUSSION

The 2010 FWIN survey at Seibert Lake was conducted September 13 – 16, 2010. Water temperatures ranged between 11-14 ºC. Twenty-four half-length nets were set with a mean soak time of 23.3 hours, ranging from 22.3 to 24.3 hours (Appendix 1).

Overall Catch

A total of 529 fish representing six species were caught with walleye comprising 36% of the catch (n = 193) and northern pike 8% (n = 42). The remainder of the catch was composed of 27% yellow perch (n = 144), 23% lake whitefish (n = 121), 5% white sucker (n = 28), and spottail shiner (n = 1) (Appendices 2 – 4).

An additional 731 fish were captured in the non-FWIN small mesh nets. Yellow perch at 48% (n = 349) and spottail shiner at 46% (n = 339) made up the majority of the small mesh catch. The remainder of the small mesh catch included walleye at 5% (n = 39), and small numbers of northern pike (n = 2), lake whitefish (n = 1) and white sucker (n = 1). Fish captured in the non-FWIN nets are excluded from analysis and are tabulated in Appendices 2 – 4.

Walleye Catch Rate

The catch per unit effort (maximum likelihood estimate) for walleye was 15.0 fish·100m^{-2}·24hrs^{-1} (95% C.I. 11.6 – 18.4) (Figure 3) and is considered moderate. This catch rate indicates a stock status of vulnerable (Table 1). The 2010 catch rate indicates little change from the 2006 catch rate of 14.8 fish·100m^{-2}·24hrs^{-1} (95% C.I. 11.0 – 18.0). The catch rate was 10.1 fish·100m^{-2}·24hrs^{-1} (95% C.I. 8.0 – 12.1) in 2000. The 2010 catch rate included one large age-class (age 4) which represented 41% of the sample. The 2010 catch rate for Seibert Lake ranks below the provincial average of 18.4 fish·100m^{-2}·24hrs^{-1} (Figure 4).

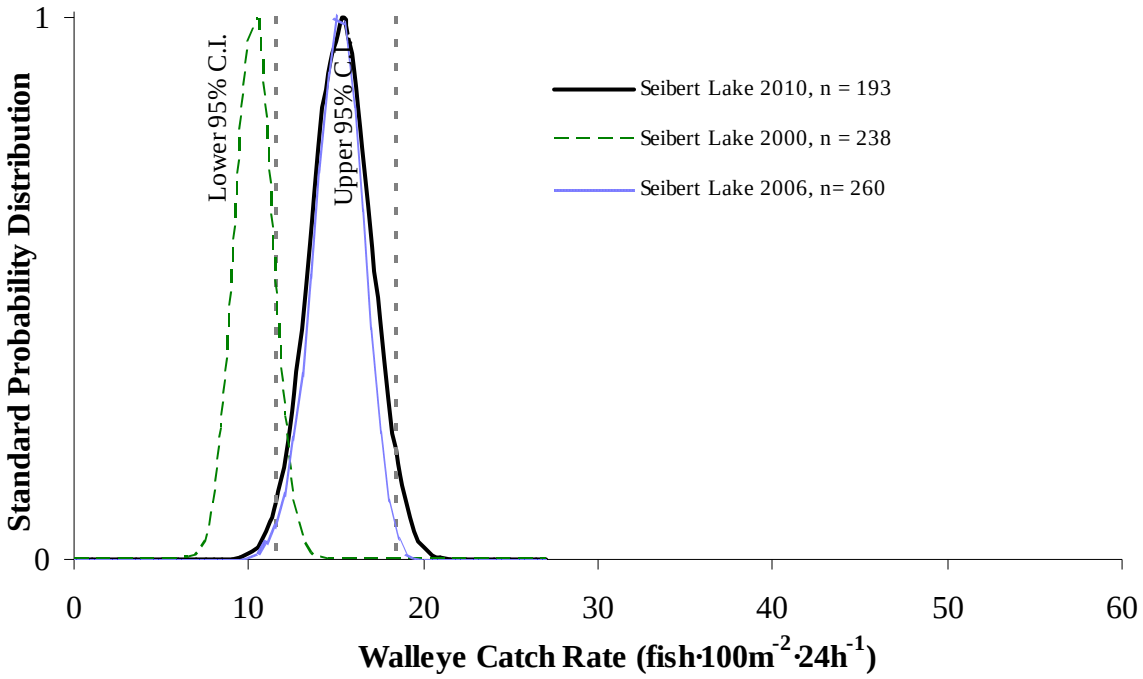


Figure 3. Walleye catch rate Seibert Lake 2010 FWIN survey compared with the Seibert 2000 and 2006 surveys. The 2010 catch rate (MLE) = 15.0 fish·100m^{-2}·24hrs^{-1} (95% C.I. 11.6 – 18.4, n = 193). 95% confidence intervals are indicated by the grey hatched lines.

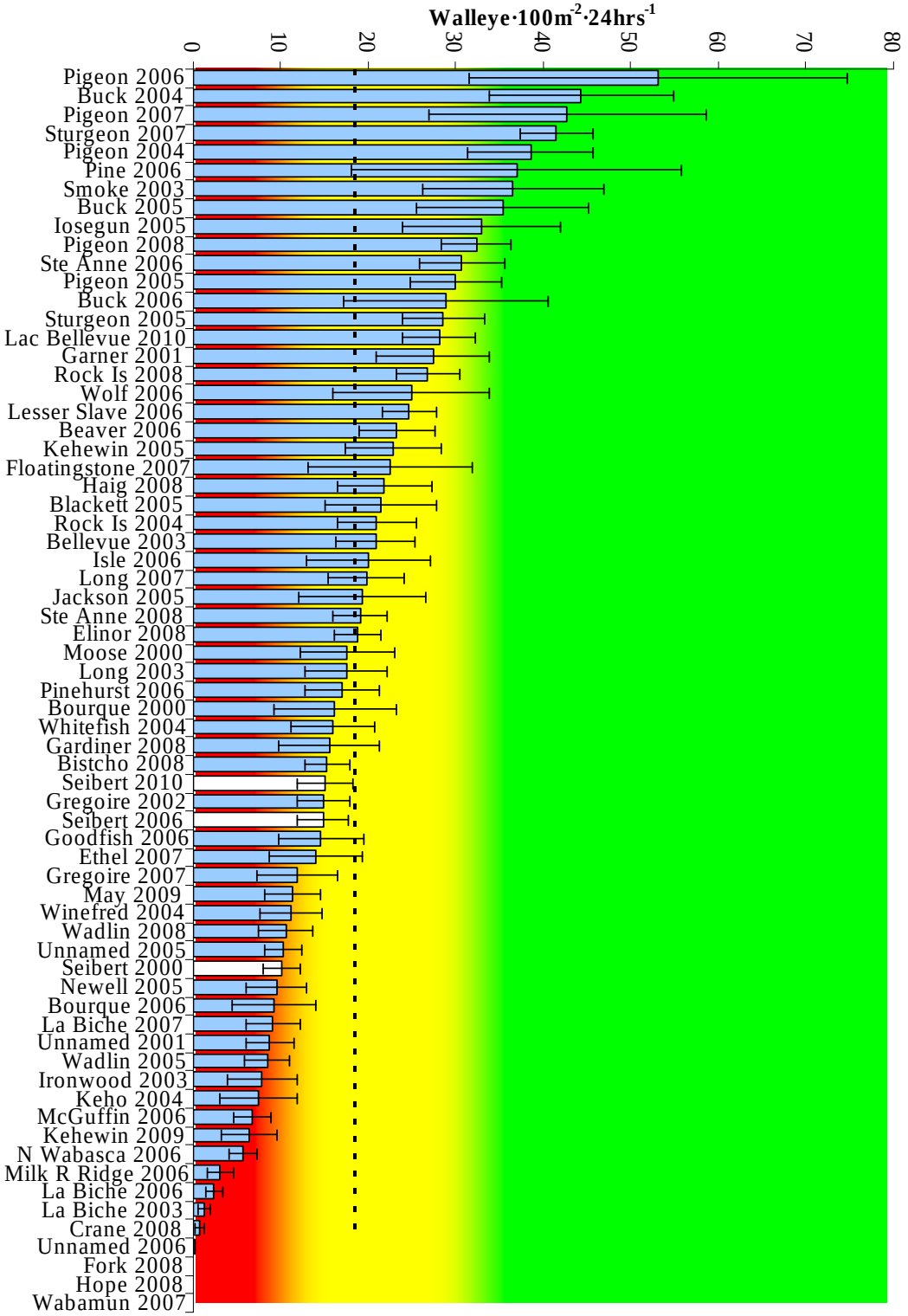


Figure 4. FWIN catches of walleye from Seibert Lake 2010, 2006, 2000 surveys and other Alberta FWIN surveys (with 95% CI bars). The dashed line represents the mean provincial catch rate of 18.4 fish·100m^{-2}·24hrs^{-1}. Collapsed, vulnerable, and stable catch rate ranges are indicated by red, yellow and green backgrounds.

Walleye Total Length Distribution

Walleye total lengths ranged from 102 – 595 mm TL with a mean of 414 mm (n = 192) (Figure 4). Total length distribution was relatively narrow with the majority of walleye between 340 – 410 mm, primarily consisting of the age 4 cohort. Walleye over 500 mm TL made up 21% of the sample, with no walleye over 600 mm.

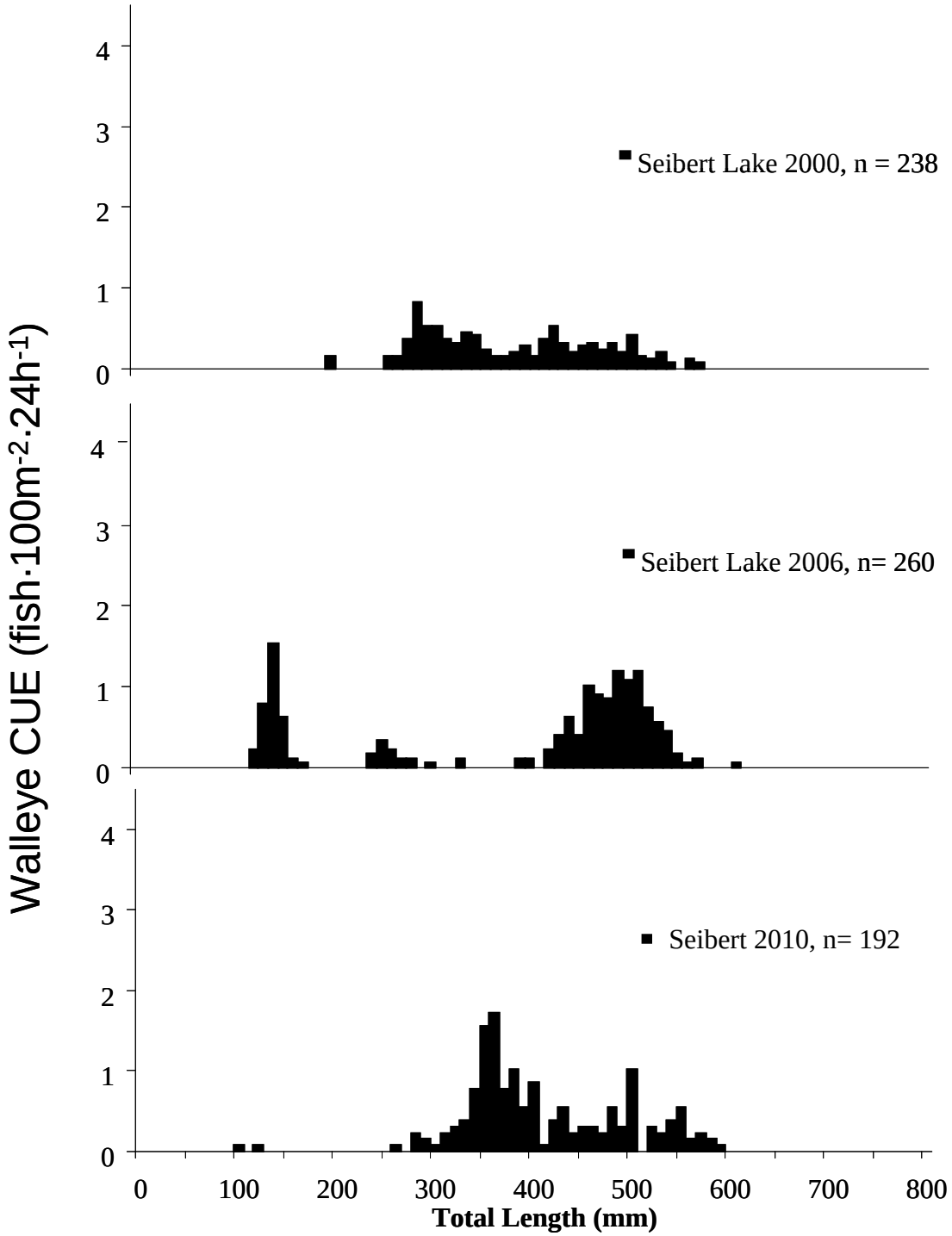


Figure 5. Walleye total length frequency distributions for Seibert Lake 2000, 2006 and 2010 FWIN surveys.

Walleye Age-Class Distribution and Stability

The catch included walleye of 14 ages from 0 to 17. The mean age was 6.2 years (n = 174). There was 1 juvenile age-class (age 4) meeting the measurable age-class threshold of ≥ 3 fish·100m^{-2}·24hrs^{-1} (Figure 6). There were no measurable mature age-classes to support the population; however there were 9 under-represented mature age-classes present (ages 6 – 17).

The age-class distribution was characterized by a large cohort of 4 year olds (2006 year class) which made up approximately 41% of the sample. The successful 2006 year-class has not been followed with other successful recruitment years. Recruitment appears to be generally poor and erratic with a possible recent recruitment failure in 2009 (age 1). A review of the non-FWIN small mesh net data indicated no additional age 1 walleye.

The 2010 walleye catch in Seibert Lake displayed a narrow (vulnerable) and unstable (collapsed) age-class distribution with an apparent recruitment failure (Table 1). In the 2006 and 2000 FWIN surveys the walleye population displayed similar narrow and unstable age-class distributions.

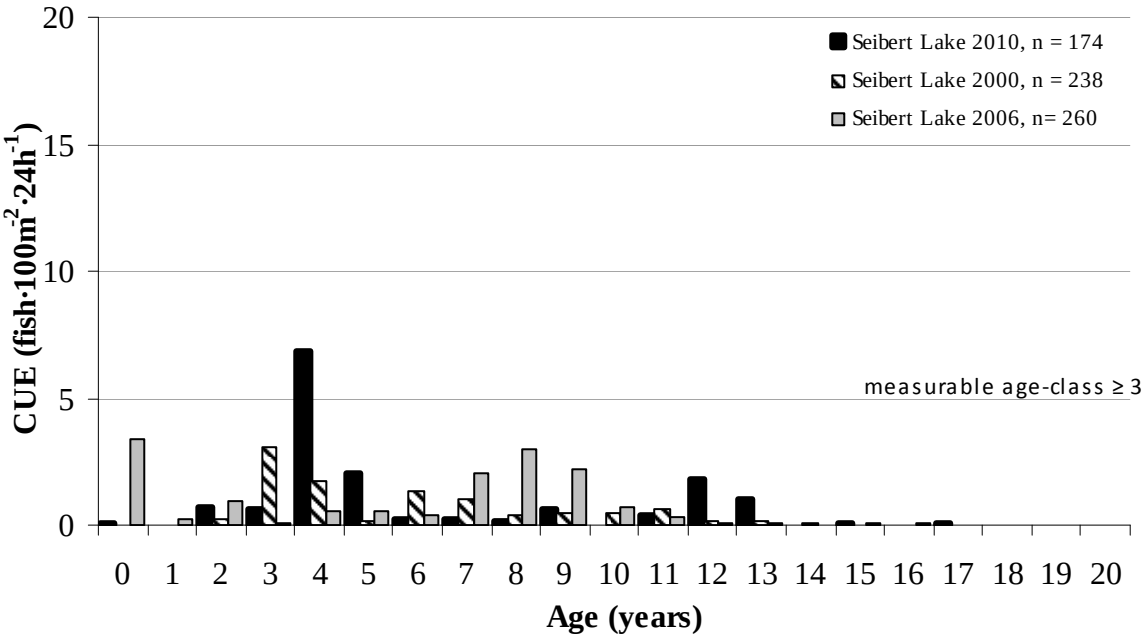


Figure 6. Walleye age frequency distribution, Seibert Lake 2010, compared with the 2000 and 2006 FWIN surveys.

Walleye Age-at-Maturity

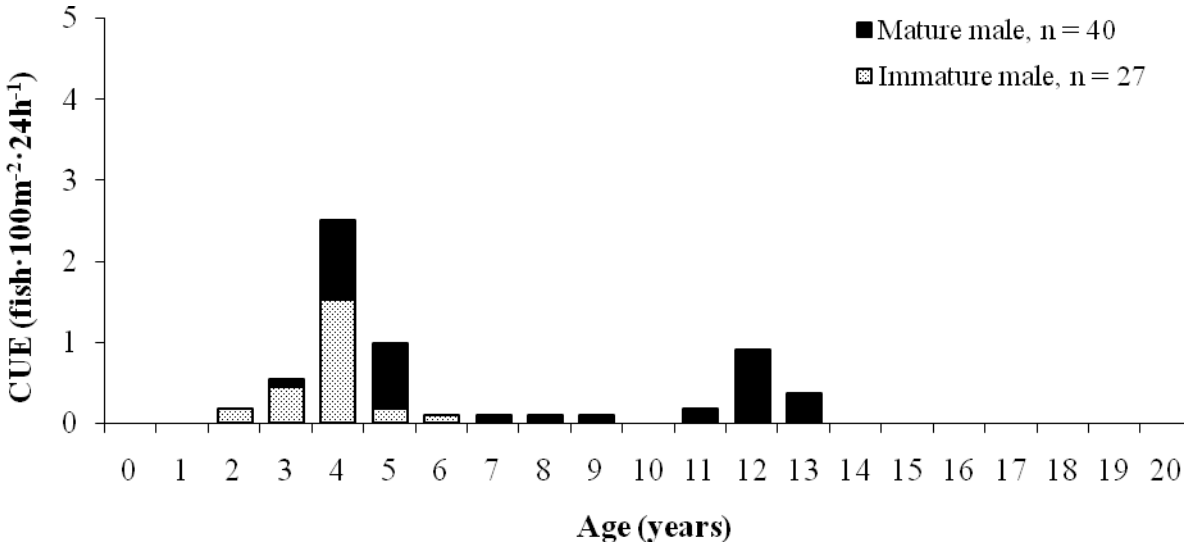
A total of 168 walleye were identified to age, gender and sexual maturity. Mature female walleye (n = 34) ranged in ages from 4 – 17 (Figure 7). The minimum age-at-maturity for female walleye was age 4, 50% maturity was at age 6 – 8, and all females in the sample were mature by age 11. There were an insufficient number of mature females in ages 6 – 8 to determine age-at-maturity parameters for females. In 2006 the 50% maturity threshold was age 6 and in 2000 was age 7.

Total lengths of mature females ranged from 374 – 595 mm. The majority of mature females (86%) were older (age 9 – 13) and larger than the 500 mm TL harvest threshold. The small portion of mature females less than 500 mm (14%) is due to the weak age-classes at 6 – 8 years of age which may complicate walleye recovery and exacerbate erratic recruitment patterns in the short-term.

Mature male walleye (n = 40) ranged in age from 3 – 13 (Figure 7). The minimum age-at-maturity for male walleye was age 3, >50% maturity at age 5 and all males were mature by age 7. Total lengths of mature males in the sample ranged from 345 – 547 mm with 77% of mature males under the 500 mm TL harvest threshold.

Catch rates were similar for mature females (3.0 fish·100m^{-2}·24hrs^{-1}) and males (3.6 fish·100m^{-2}·24hrs^{-1}).

Maturation for males at age 5 and females at age 6 – 8 is considered low and is indicative of a collapsed population. Although there were minor differences in maturation rates between the 2010, 2006, and 2000 FWIN, surveys the age-at-maturity (> 50%) remained relatively constant at age 4 – 5 for males and 6 – 8 for females.



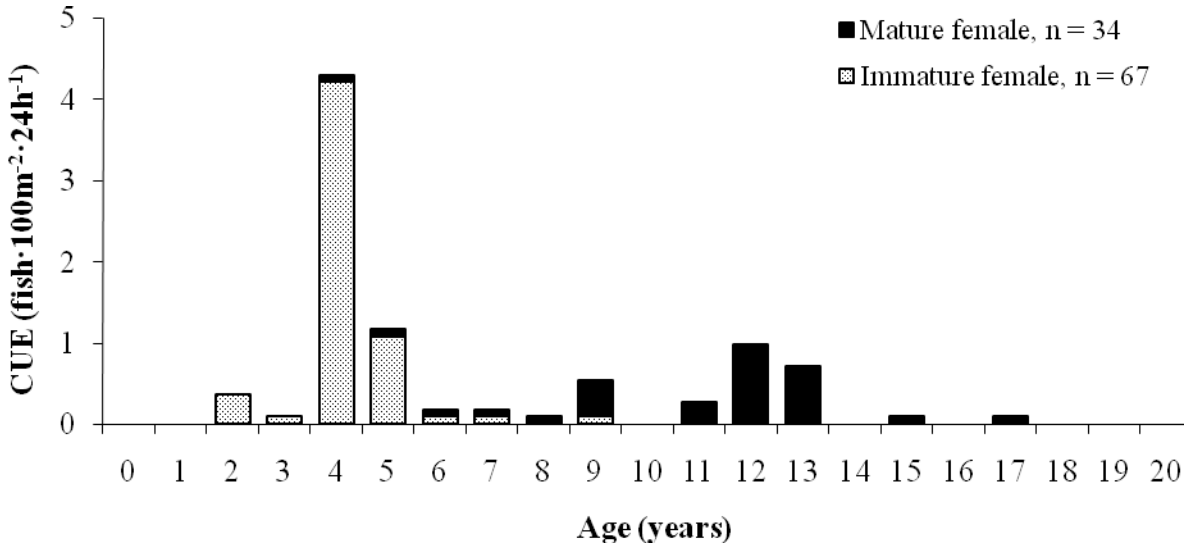


Figure 7. Age-at-maturity distribution for male and female walleye from Seibert Lake 2010 FWIN survey.

Walleye Length-at-Age

The length-at-age growth curve for the 2010 survey indicates a growth rate of 500 mm TL in approximately 9 yrs (Figure 8). This is considered a slow to moderate growth rate indicative of a stable/vulnerable population (Table 1). Growth rates have remained relatively consistent between surveys at approximately 9 to 10 years. Slow growth in Seibert Lake walleye has been noted historically and largely attributed to their diet consisting of a small percentage of fish (Wilcox 2007).

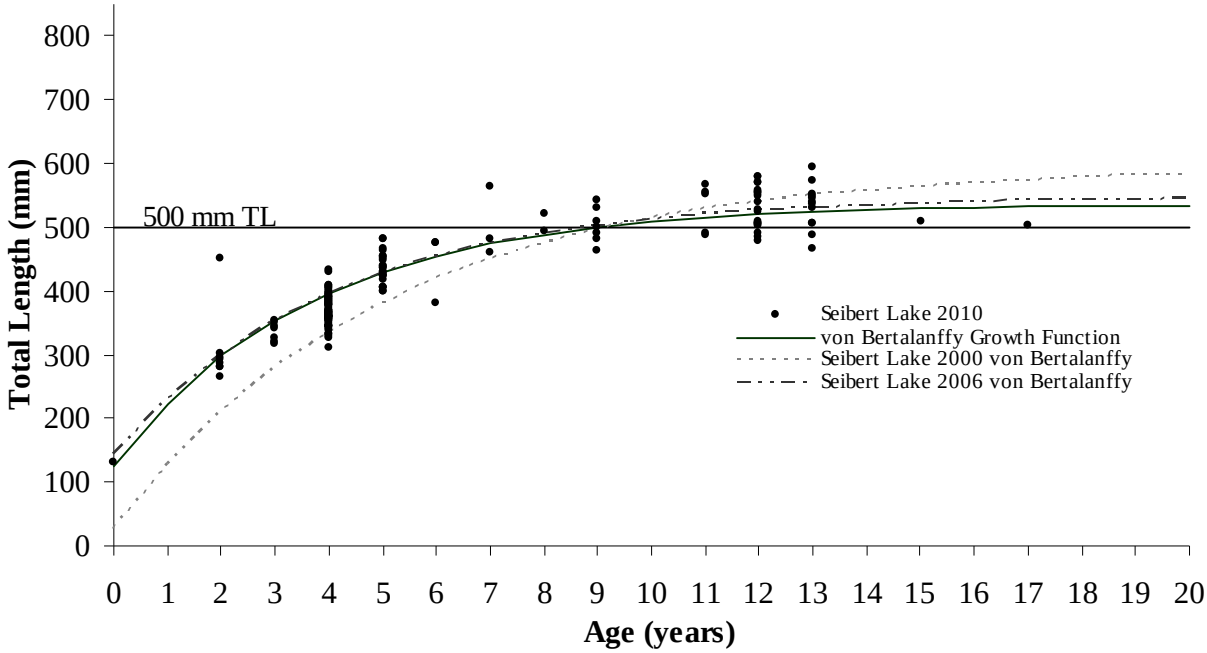


Figure 8. Walleye length-at-age from Seibert Lake 2010 FWIN survey (L_{inf} = 535.7, K = 0.3, t_o = -1.0, R^2 = 1.0, n = 174) compared with results from the 2000 and 2006 FWIN surveys.

Table 1. Walleye population status indices for Seibert Lake 2010. Criteria for classifying Alberta walleye fisheries modified for FWIN analysis (Sullivan 2003).

STATUS OF STOCK **Catch Rate (CUE)**	**TROPHY[1]**	**STABLE** High >30	**VULNERABLE** Moderate 10-30	**COLLAPSED** Low <10
2010			**15.0 (11.6 – 18.4)**	
2006			14.8 (11.0-18.0)	
2000			10.1 (8.0-12.1)	
Age class[2] Distribution	Wide *>8 age-classes* *Mean age >9*	Wide *>8 age-classes* *Mean age = 6-9*	Narrow *1-3 age-classes* *Mean age = 4-6* *Few old fish (>10 yr)*	Wide or Narrow *Mean age = 6-10*
2010				**1 measureable age-class, few old fish;mean age = 6.2**
2006			2 age-classes; mean age = 5.7	
2000			1 age-class; mean age = 5.7	
Age class[2] Stability	Very Stable *1-2 age-classes out of smooth catch curve*	Relatively Stable *2-3 age-classes out of smooth catch curve*	Unstable *1-2 age-classes support fishery*	Stable or Unstable *recruitment failures*
2010				**No measurable mature age-cl., Possible 2009 recruitment failure**
2006			1 mature age-class	
2000			1 mature age-class	
Age-at-Maturity (50% Maturity)	Females 10-20 Males 10-16	Females 8-10 Males 7-9	Females 7-8 Males 5-7	Females 4-7 Males 3-6
2010				**F = ?; M = 5**
2006				F = 6; M = 4
2000				F = 7; M = 5
Growth (Length-at-Age)		Slow 50cm (TL) in 9-12 years	Moderate 50cm (TL) in 7-9 years	Fast 50cm (TL) in 4-7 years
2010		**9 yrs**		
2006		9-10 yrs[3]		
2000		9 yrs		

[1] Trophy (old growth) fisheries are sensitive populations that support low densities of large old walleye.

[2] Measurable age-class ≥ 3 fish·100m^{-2}·24hrs^{-1}
[3] Adjusted from FL to TL.

Northern Pike Catch Rate

The catch per unit effort (maximum likelihood estimate) for northern pike catch was 3.5 fish·100m^{-2}·24hrs^{-1} (95% C.I. 1.8 – 5.2) (Figure 9). The 2000 catch rate was 4.3 (95% C.I. 3.1 – 5.5). The confidence interval for 2010 and 2000 strongly overlapped and the difference in catch rates may not indicate change. The 2006 FWIN did not track northern pike population metrics.

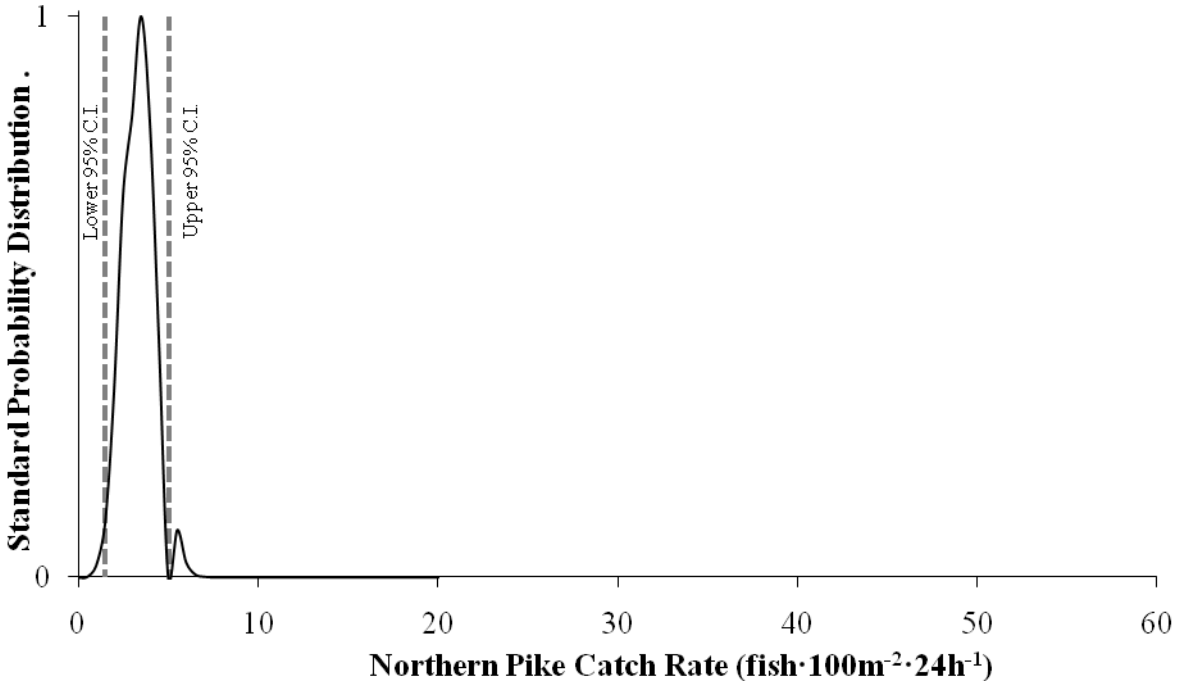


Figure 9. Northern pike catch rate, Seibert Lake 2010 FWIN survey. Catch rate (MLE) = 3.5 fish·100m^{-2}·24hrs^{-1} (95% C.I. 1.8 – 5.2).

Northern Pike Total Length Distribution

Northern pike total lengths ranged from 410 – 1100 mm TL with a mean of 786 mm (n = 42) (Figure 10). Total length distribution was dominated by fish larger than 640 mm with an almost complete absence of pike below this size. In the 2000 FWIN the majority of northern pike were between 500 – 640 mm. Northern pike with a total length greater than 1000 mm increased from four percent of the sample in 2000 to nine percent in 2010.

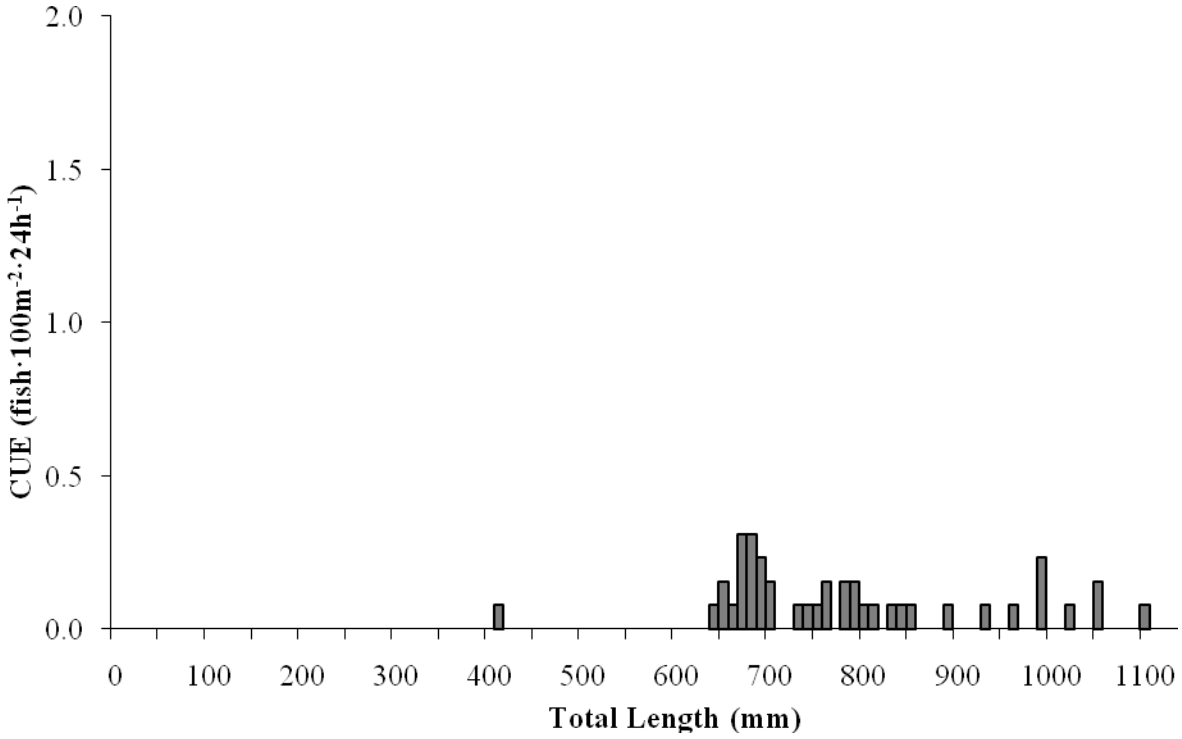


Figure 10. Northern pike total length frequency distribution, Seibert Lake 2010 FWIN survey.

Northern Pike Age-Class Distribution and Stability

The catch included northern pike of 11 ages from 2 to 13. The mean age was 7.9 (n = 42). All age-classes were weak with ≥ 1 fish·100m^{-2}·24hrs^{-1} (Figure 11). The largest age-class was age 8.

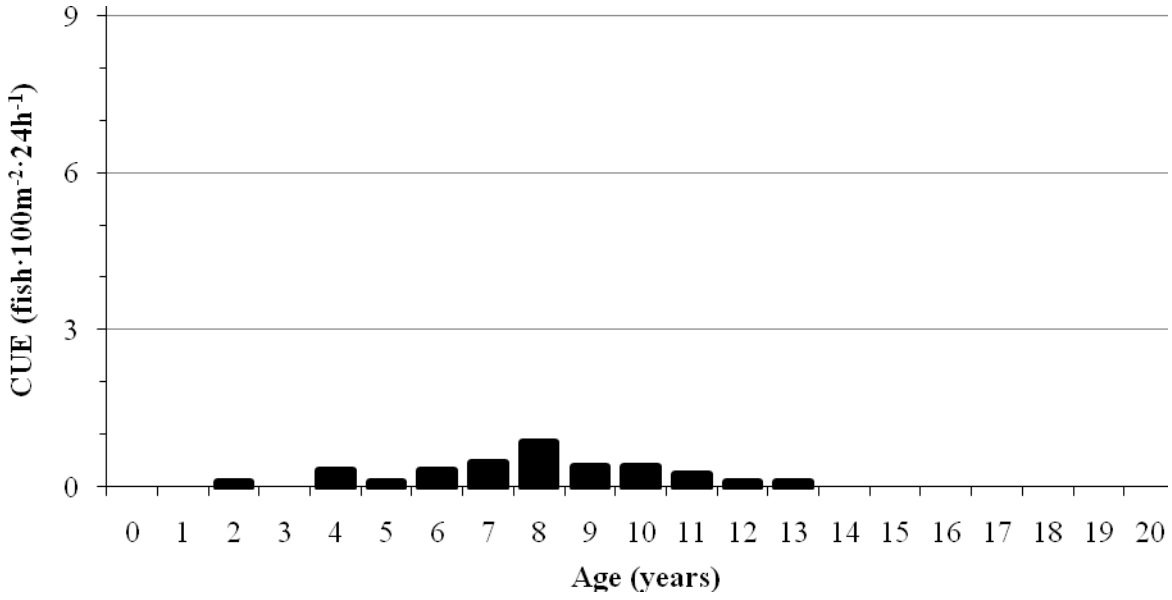


Figure 11. Northern pike age frequency distribution, Seibert Lake 2010 FWIN survey.

Northern Pike Age-at-Maturity

A total of 39 northern pike were identified to age, gender and sexual maturity. Mature female northern pike (n = 24) ranged in ages from 4 – 17 (Figure 7). The minimum age-at-maturity for female northern pike present in the sample was age 4 and all females in the sample were mature by age 5. There were an insufficient number of females less than 8 years old to accurately determine age-at-maturity parameters. Total lengths of mature females ranged from 688 – 1100 mm with 83% of the mature females under the 1000 mm TL harvest threshold.

Mature male northern pike (n = 13) ranged in age from 4 – 8 (Figure 7). The minimum age-at-maturity for male northern pike present in the sample was age 4. There were an insufficient number of male northern pike less than 6 years old to accurately determine age-at-maturity parameters. Total lengths of mature males ranged from 648 – 743 mm with all mature males under the 1000 mm TL harvest threshold.

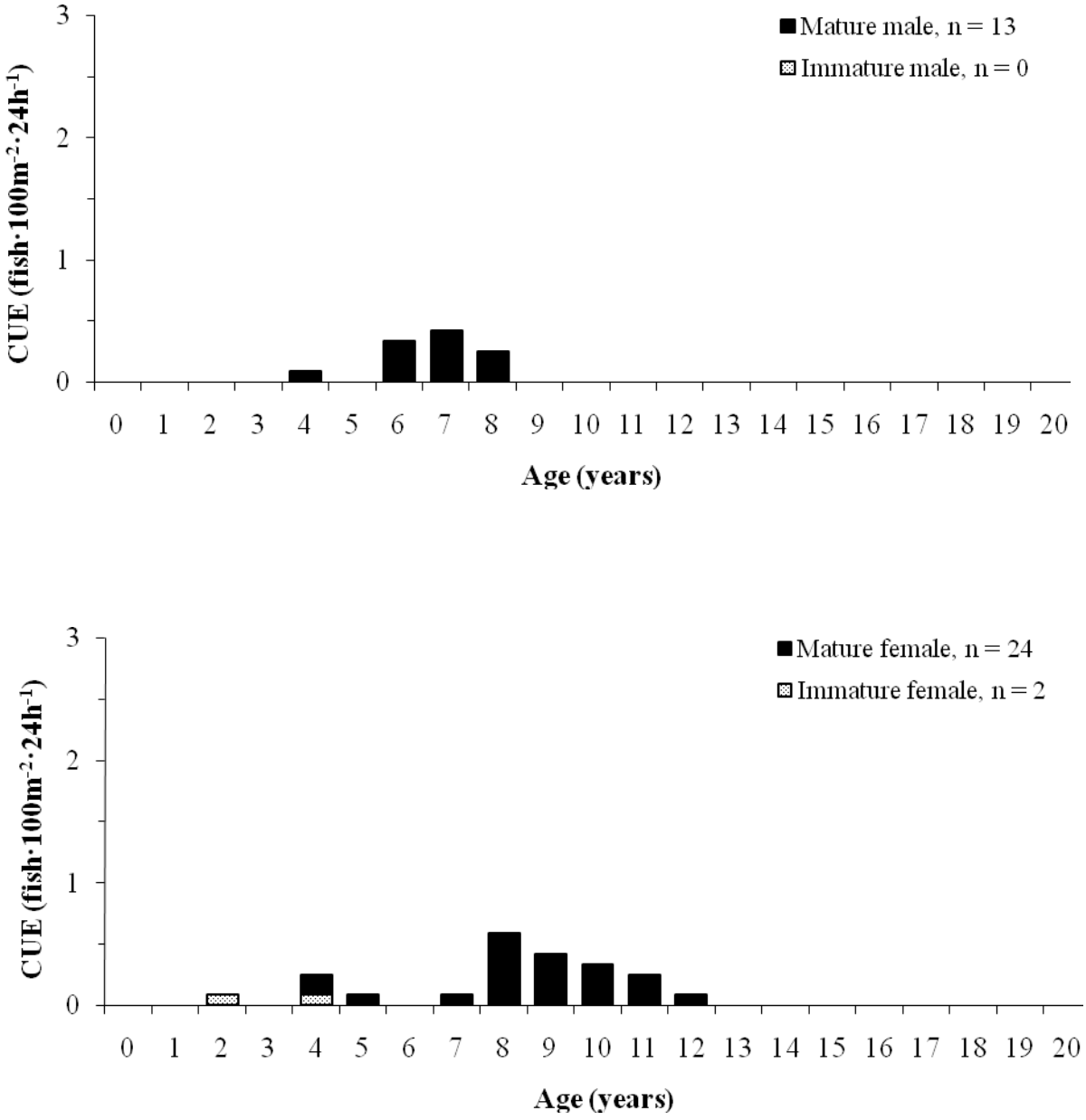


Figure 12. Age-at-maturity distribution for male and female northern pike from Seibert Lake 2010 FWIN survey.

Northern Pike Length-at-Age

The length-at-age growth curve for the 2010 survey indicates a growth rate of 630 mm TL in approximately 4 – 5 years and to 1000 mm in approximately 12 years (Figure 13). Growth rates in the 2000 FWIN survey were 600 mm at 4 years and 1000 mm in approximately 15 years.

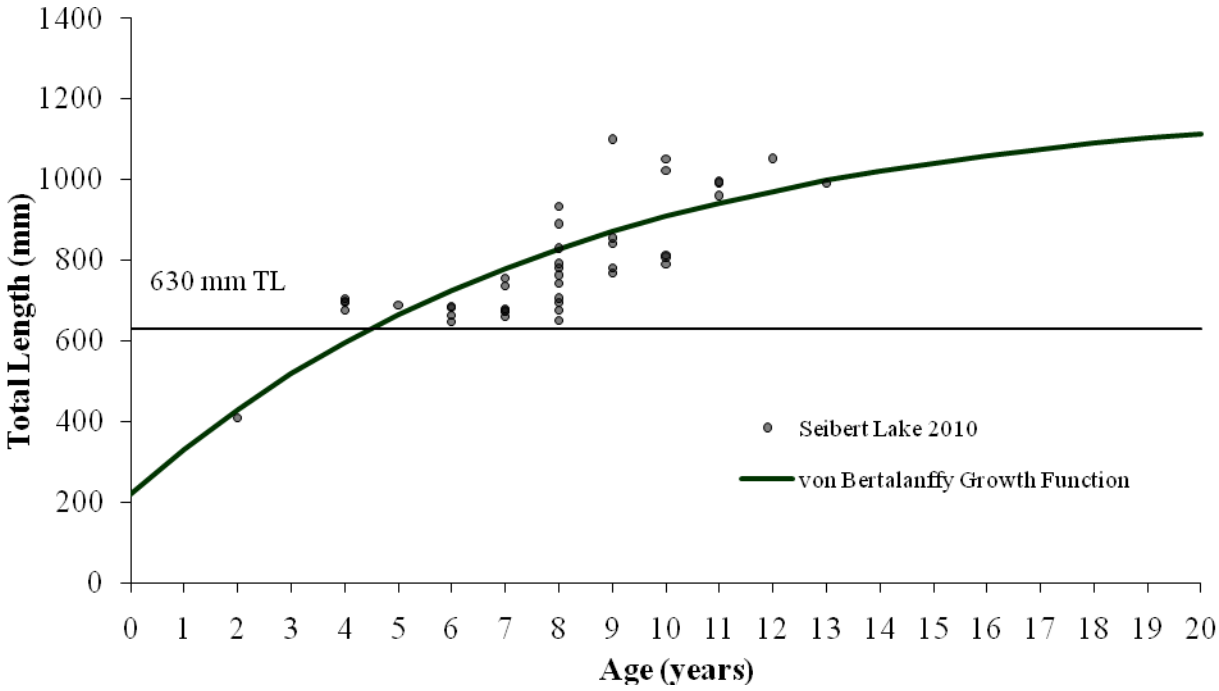


Figure 13. Northern pike length-at-age from Seibert Lake 2010 FWIN survey (L_{inf} = 1200.0, K = 0.1, t_o = -1.7, R^2 = 0.9, n = 42).

SUMMARY

The 2010 walleye catch rate was 15.0 fish·100m^{-2}·24hrs^{-1}. This catch rate is considered low -moderate and shows little change from 14.8 fish·100m^{-2}·24hrs^{-1} in 2006. The catch rate in 2000 was 10.1 fish·100m^{-2}·24hrs^{-1}. The catch included one stronger age-class (age 4) which represented 41% of the sample. Other indicators; age-class distribution, stability, age-at-maturity, were best categorized as collapsed. Only age-at-length was considered stable but previous surveys at Seibert Lake have also seen slow growth and this may be reflective of colder weather patterns and a lower productivity system. Early maturation rates with males maturing at age 5 and females between age 6 – 8, is indicative of a collapsed population. The age-class distribution was considered narrow and unstable with only one measurable juvenile age-class. No measurable mature age-classes were observed, and multiple year-class failures could be observed in the age distribution.

These metrics trend downwards from the previous 2006 survey. The walleye population status has declined and would best be categorized as a population in-between vulnerable and collapsed. Most concerning are the low catch rates coupled with weak recruitment and a majority of the population (41%) being contained in one year-class (age 4's). There were few mature females under the 50 cm TL harvest threshold due to weak age-classes at 6 – 8 years of age which may complicate near future recovery and result in further erratic recruitment patterns.

Seibert Lake is also managed for large northern pike. In 2000 the regulation was changed from a daily limit of two over 90 cm to one over 100 cm. The northern pike population appears to be relatively unchanged from the 2000 FWIN other than a slight increase in the percentage of pike over 100 cm.

The lack of recovery response from both walleye and northern pike to restrictive regulations may suggest either a higher than accounted for angler effort with more catch and release mortality, or a higher illegal harvest rate. Without a recent creel survey it is not possible to know the angler effort and harvest at this time. Based upon its perceived remote nature and from discussion with Tourism, Parks and Recreation officers, illegal harvest may indeed be one of the issues holding back a more firm recovery.

Improvements have also been made to the road access to Seibert in the last 15 years as has a new boat launch been developed in 2010. These types of developments may lead to increased angler effort which will need to be considered by managers.

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APPENDICES

Appendix 1. Seibert Lake 2010 FWIN net locations and site data.

Site	UTM Easting[1]	UTM Northing[1]	Lift Date	Soak Time (h)	Depth Stratum	Min Depth (m)	Max Depth (m)
SL1	479264	6063465	14-Sep-10	22.92	Shallow	1.9	2.2
SL10	481275	6061351	14-Sep-10	23.45	Deep	5.6	5.8
SL11	480884	6064182	16-Sep-10	22.72	Deep	7.6	7.7
SL15	477851	6066567	14-Sep-10	24.35	Deep	5.0	5.0
SL20	481081	6062441	15-Sep-10	24.00	Deep	5.4	6.4
SL21	479132	6065112	14-Sep-10	23.75	Deep	7.0	7.2
SL22	481597	6063825	14-Sep-10	24.03	Deep	5.6	6.0
SL24	476237	6067096	15-Sep-10	23.13	Deep	5.2	5.4
SL25	481958	6061248	16-Sep-10	22.52	Deep	7.6	8.9
SL26	482221	6062592	14-Sep-10	22.68	Deep	7.6	7.8
SL27	480981	6065711	16-Sep-10	23.12	Deep	5.5	6.3
SL3	482593	6059405	14-Sep-10	22.33	Shallow	1.8	2.0
SL31	482454	6060481	15-Sep-10	24.07	Deep	6.6	6.7
SL32	479242	6064223	15-Sep-10	24.23	Deep	6.3	6.7
SL33	480582	6067605	16-Sep-10	23.35	Deep	5.1	5.3
SL34	479715	6066513	15-Sep-10	23.08	Deep	5.6	6.5
SL35	480067	6066047	14-Sep-10	23.78	Deep	7.7	7.8
SL37	479587	6067828	15-Sep-10	22.92	Shallow	3.7	4.1
SL39	480489	6065015	16-Sep-10	22.77	Deep	7.2	7.7
SL4	481444	6064581	16-Sep-10	23.13	Shallow	2.2	2.6
SL5	482698	6063104	15-Sep-10	23.55	Shallow	2.1	4.1
SL6	479510	6062399	15-Sep-10	23.17	Shallow	2.0	2.2
SL7	478789	6068642	16-Sep-10	23.67	Shallow	2.2	2.3
SL9	479134	6065997	16-Sep-10	23.17	Deep	6.3	6.3

[1] Universal Transverse Mercator grid, NAD 83.

Appendix 2. Walleye catch summary at Seibert Lake FWIN 2010.

Set ID	FWIN Nets, Mesh size (mm) [1]									Non-FWIN nets, Mesh size (mm) [2]		
	25	38	51	63	76	102	127	152	Totals	12	19	Totals
SL1						3			3		1	1
SL10		2	1	2	1	3	1		10	2	1	3
SL11	1	1	2	6	4				14		1	1
SL15		2	2	2	2	2			10	2	3	5
SL20	1	1	3	4	4	2			15	2	1	3
SL21			4	4	1	2			11	1	1	2
SL22	1		1	3	3				8	1	2	3
SL24					1	1			2			
SL25			1	3	2	1	2		9		1	1
SL26		1	2	2	8	2			15		2	2
SL27			2	3	2	1			8	1	1	2
SL3					2				2			
SL31			5	6	3				14	1	1	2
SL32	2	1	2	4	5	1			15	1		1
SL33			4	3					7	1	3	4
SL34		1	1		1	1	1		5	1	1	2
SL35	2		1				1		4	2		2
SL37		1	1		4	2	1		9		2	2
SL39	1		4	1	2		1		9		1	1
SL4			3			2	1		6			
SL5									0		1	1
SL6				1	1				2			
SL7					3				3			
SL9	2		3	2	2	3			12	1		1
Totals	10	10	42	46	51	26	8		193	16	23	39

[1] FWIN nets are half-length standard FWIN gang.
[2] Non-FWIN nets are additional small mesh experimental panels.

Appendix 3. Northern pike catch summary at Seibert Lake FWIN 2010.

Set ID	FWIN nets, Mesh size (mm) [1]									Non-FWIN nets, Mesh size (mm) [2]		
	25	38	51	63	76	102	127	152	Totals	12	19	Totals
SL1												
SL10						1			1			
SL11												
SL15			1	1	1	2		1	6			
SL20						1	1		2			
SL21												
SL22		1							1			
SL24												
SL25					1				1			
SL26			1						1			
SL27					1				1			
SL3				1					1			
SL31												
SL32												
SL33						1			1			
SL34				1	1	1			3			
SL35		1	1	1	1				4			
SL37		1			1				2			
SL39				1	1				2	1		1
SL4					1				1			
SL5		2	1	3	3	1	1		11		1	1
SL6				1					1			
SL7				1		1			2			
SL9								1	1			
Totals		5	4	10	11	8	2	2	42	1	1	2

[1] FWIN nets are half-length standard FWIN gang.
[2] Non-FWIN nets are additional small mesh experimental panels.

Appendix 4. Catch summary of yellow perch (YLPR), lake whitefish (LKWH), white sucker (WHSC) and spottail shiner (SPSH) at Seibert Lake FWIN 2010.

Set ID	FWIN nets[1]					Non-FWIN nets[2]				
	YLPR	LKWH	WHSC	SPSH	Totals	YLPR	LKWH	WHSC	SPSH	Totals
SL1		9	1		10	7			37	44
SL10	3	12	1		16	16			7	23
SL11	4	4	1		9	3			4	7
SL15	8	4	2		14	27			20	47
SL20	4	5			9	19			19	38
SL21	3	9	2		14	11			1	12
SL22	5	6	7		18	15			15	30
SL24	9	5	1		15	5			11	16
SL25	6	3	1		10	5			10	15
SL26	6	2	1		9	22			6	28
SL27	5	7	1		13	6			14	20
SL3	1				1	6	1		8	15
SL31	2	1	2	1	6	3			17	20
SL32	17	7	2		26	4			6	10
SL33	3	9			12	4		1	12	17
SL34	11	6	1		18	10			6	16
SL35	1	12	1		14	11			6	17
SL37	4	1	1		6	2			19	21
SL39	10	7			17	6			9	15
SL4			1		1				7	7
SL5	32				32	132			51	183
SL6		1			1	12			22	34
SL7		2	1		3	9			25	34
SL9	10	9	1		20	14			7	21
Totals	144	121	28	1	294	349	1		339	689

[1] FWIN nets were half-length standard FWIN gang (25, 38, 51, 63, 76, 102, 127, 152 mm).
[2] Non-FWIN nets are additional small mesh (12, 19 mm) experimental panels.