

**North Wabasca Lake
Creel Survey
Summer 2001**



Alberta Conservation
Association

*Funded by Alberta Anglers, Hunters,
and Other Conservationists*

by:

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February, 2002

Executive Summary

A creel survey was conducted on North Wabasca Lake from May 18 – September 2, 2001. The purpose of the survey was to collect data on the recreational angling effort, harvest rates, sportfish population dynamics and determine current status of the walleye and pike fisheries.

Effort was estimated at 4,609 anglers or 13,011 hours (1.3 hours / ha). The highest angler effort occurred in June. The Campground site accounted for 48% of the angling pressure. The majority of the walleye harvest (55%) and pike harvest (37%) also occurred in the month of June. The total sport harvest of walleye was estimated at 3,299 kg (0.33 kg/ha), of which 2,461 fish (2,953 kg or 0.30 kg/ha) were legal harvested walleye and 336kg (0.04 kg/ha) were dead walleye (assuming 5% hooking mortality). The mean weight of harvested walleye was 1.2 kg. The estimated number of released sub-legal and legal walleye was 12,412 and 589 respectively. The total catch per unit (CPUE) was estimated at 1.21 walleye / hour. The harvest rate on legal-sized walleye was calculated at 0.198 kept / hour. The CUE on released sub-legal and legal walleye was 0.97 and 0.05 walleye released / hour. Good recruitment with low densities of older walleye was evident. Based on criteria used to classify walleye stocks in Alberta, the walleye population in North Wabasca Lake is in a stable condition.

The total harvest of legal-sized pike was estimated at 445 fish (934 kg). The mean weight of harvested pike was 2.1 kg. There were also an estimated 5,202 sub-legal and 650 legal pike released. Due to size limits imposed on sport anglers and the predominant targeting of walleye, the northern pike biological data collected during this creel survey is not representative of the true pike population in North Wabasca Lake.

Acknowledgements

The author wishes to acknowledge the following individuals, agencies, and corporations for their contributions and assistance in delivering the project. The creel survey attendants at North Wabasca Lake, Jody McIver and Deanne Miskew conducted the angler interviews. Their reliable and conscientious efforts are greatly appreciated. Alberta Conservation Association (ACA) would like to acknowledge the cooperation of Sustainable Resource Development, Lands and Forest Service, Wabasca District staff, that was received throughout the creel program. The use of their office and warehouse space is appreciated. Thanks is also extended to Bill Patterson of the Alberta Conservation Association (Edmonton), for his expert advice with statistical analysis and Paul Hvenegaard of the Alberta Conservation Association (Peace River) for reviewing the manuscript and providing helpful comments. This study was made possible by the generous financial support of the Municipal District of Opportunity No. 17 and the Fisheries Management Enhancement Program of the Alberta Conservation Association.

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1.0 Introduction

Walleye (*Stizostedion vitreum*) populations in Alberta have been subject to heavy fishing pressure for many years. Most populations show signs of over-harvest, with many experiencing significant declines (Berry 1995). To aid the recovery of these fisheries, a new walleye management strategy was implemented in 1996 (Berry 1995). This strategy requires that each walleye population is evaluated as to its degree of exploitation and is then classified into one of the following categories: trophy, stable, vulnerable, or collapsed (Sullivan 1994). In 1996, the walleye fishery at North Wabasca Lake was assigned a stable status. A 43 cm total length (TL) minimum size and a 3 fish daily bag limit on walleye was therefore implemented at the fishery. Northern pike (*Esox lucius*) regulations have also undergone changes. Effective April 1, 1999, a 63 cm total length (TL) minimum size and a 3 fish daily bag limit on pike was implemented province-wide. Adjustment of pike regulations will occur in the future based on a lake-by-lake assessment.

This report describes the creel survey conducted at North Wabasca Lake during the summer of 2001. The purpose of the survey was to collect data on the recreational angling effort, harvest rates, sportfish population dynamics and determine current status of the walleye and pike fisheries.

2.0 Study Area

North Wabasca Lake is located approximately 125 kilometers north-east of the town of Slave Lake. The lake has a surface area of 9,948 hectares. Situated on the south-east corner of the lake, near the channel connecting North and South Wabasca Lake, is the hamlet of Wabasca. Located on the north shore of South Wabasca Lake is the hamlet of Desmarais. A map of the study area is shown in Figure 1.

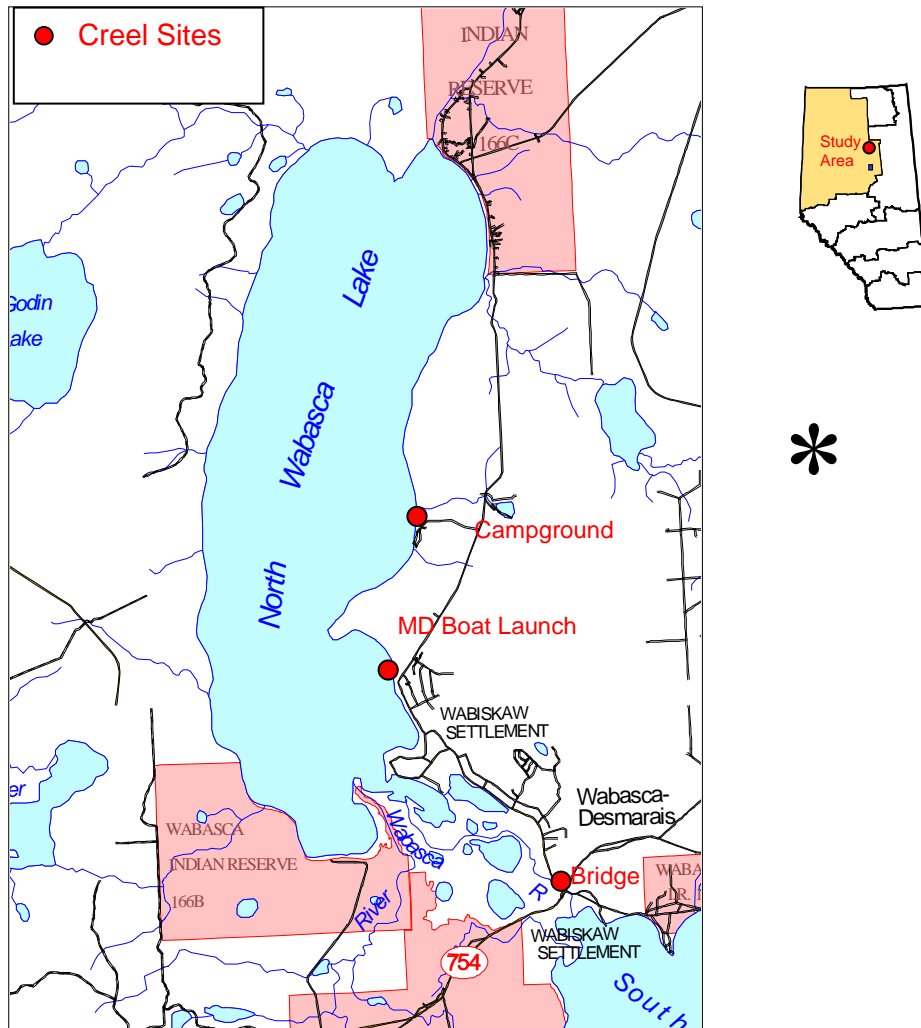


Figure 1. Map of study area showing location of creel sites.

One public campground (operated by the Lions Club) and day-use area is located on the east side of the lake (see map). The main boat launching facilities for the entire lake is located just north of the Wabasca settlement. This launch site was developed by the Municipal District of Opportunity No. 17 two years ago and has become the preferred site for launching boats.

Most of the inflowing water enters North Wabasca Lake from the southeast corner via the Wabasca River. The low lying area of land between North and South Wabasca Lakes provides excellent waterfowl habitat, but has slowly decreased in size due to low water levels that have been prevalent over the past few years. The single outflow of North Wabasca Lake is the continuation of the Wabasca River at the extreme north end of the lake. The Wabasca River then flows in a northerly direction and empties into the Peace River near Fort Vermilion.

3.0 Methods

One creel survey crew (two biotechnicians) collected information at three access points between May 18 – September 2, 2001. The three sites were Lions Club Campground, MD Boat Launch and the Bridge (located at the intersection of Highways 754 and 813). The Campground and MD boat launch sites provide the only locations where anglers could launch their boats. The Bridge site is traditionally a popular fishing spot for shore anglers (Aurora North Consulting Group, 1992). A previous creel survey in 1986 determined that the campground and townsite (close to the present day MD Launch) locations accounted for 83% of the fishing effort, with the Bridge site receiving 17% (Aurora North Consulting Group, 1992). The Campground and MD Boat Launch sites were sampled equally on alternate days with all weekends surveyed. The Bridge site incorporated a two-stage random sampling technique (Pollock et al, 1994). Two sampling days per 10 day shift were randomly chosen (primary sampling unit, PSU), then the day was divided into AM or PM shifts (secondary sampling unit, SSU). The AM shift started at 0900 hrs and ended at 1500 hrs. The PM shift was from 1500 hrs to 2100 hrs. The PSU and SSU's were chosen with equal probability. The creel sampling schedule is shown in Appendix 1. The work schedule consisted of 10 survey days

(Friday to Sunday) on, followed by 4 days off. This cycle was repeated 8 times during the survey period. Both creel clerks worked together and had the same days off.

The survey technicians interviewed each angler returning to the survey site during all survey days (24 hour survey). Anglers were approached and asked a series of questions regarding their time spent angling, the number of each species kept or released, gear type, target species, use of electronic equipment and residence.

As time permitted during the survey period, sport fish retained by anglers were sampled for biological information. The fork length (± 1 mm), weight (± 10 gm), sex and state of maturity was recorded for each fish. In addition, the appropriate structures were retained for age determination (Mackay et al. 1990). The complete biological data set for walleye, northern pike and yellow perch are reported in this study. The full data set is stored in the Alberta Conservation Association (ACA) and the Alberta Sustainable Resource Development (SRD), Fisheries Management Branch files, Peace River office.

In the Alberta Guide to Sportfishing Regulations (1999), the size limits for walleye are described in terms of maximum total length (TL max) with the tail pinched. A fork length (FL) - maximum total length (TL max) conversion was necessary to determine the number of legal and sub-legal walleye in the creel and the test fisheries. This conversion was $TL(max) = 1.0413FL + 7.3977$ (lengths in mm, $r^2 = 0.99$, $n = 768$ walleye, Touchwood, Wolf and Seibert lakes, 1989, M.G. Sullivan, unpublished data). A length measurement of 430 mm TL(max) was equivalent to 406 mm FL.

An angling test-fishery was used to collect additional information regarding the size frequency distribution of walleye in the population. Data from sport-harvested walleye could not provide this information, due to the minimum size limit for walleye at this lake. Creel survey technicians, volunteer anglers, and fisheries staff (ACA and SRD) participated in the collection of these data. Test fisheries occurred during creel survey days from May 21 to August 15, 1999. The test fishery catch rate (CUE) was not used in the calculation of angler effort or CUE.

The ratio of protected-size: legal-size walleye in the sport fishery was assumed to be equal to the similar ratio in the test fishery. However, confidence in the test fishery results was low. The number of sampling events was small and the majority of test angling participants were not avid anglers. Poor test fishing data provides inaccurate sub-legal to legal ratios and ultimately an increase in the exaggeration rate. Because anglers may release legal-sized walleye, the number of legal-sized walleye that was

observed harvested will not represent the actual number of legal-sized walleye that were caught by anglers. In this study, anglers reported releasing legal-sized walleye. Since the test fishery ratio is not accurate, the reported released legal and sub-legal walleye is assumed to be true.

All field data were recorded in pencil on field data forms (Appendix 5). These data were then entered into the Provincial Fisheries Management Information System (FMIS). Biological samples were verified by plotting weight measurements against the dependent variable of length, and length measurements against the dependent variable of age. Outlying values were investigated and eliminated if measurement error was suspected.

Creel data categories (i.e. # anglers, # hours fishing, # walleye harvested) were separated into daily weekday/weekend totals. Weekdays included Monday (day 1) through Thursday (day 4). Weekends included Friday (day 5) through Sunday (day 7) and long weekends (day 8) either on a Monday or a Friday.

To determine sport fishery parameters specific to the creel survey site, the following equations were modified from Sullivan (1984):

Equation (1)

$$H_p = (H_{we}) + (H_{wd}) + (\# \text{weekend days missed (mean } H_{we})) + (\# \text{weekdays missed (mean } H_{wd}))$$

H_p = estimated primary site harvest

H_{we} = observed weekend day harvest

H_{wd} = observed weekday harvest

Total effort and harvest estimates were calculated for each survey site. A cumulative total was then calculated for the whole lake estimate during the entire survey period. Variances and standard errors of these combined estimates were calculated following Pollock et al. (1994).

All statistical analyses and graphics were done on a personal computer using Microsoft Office Professional software.

An attempt was made to compare the effort and harvest estimates from this creel survey to the 1986 creel survey that was prepared by the Aurora North Consulting Group. Calculations used in 1986 to estimate effort and harvest were drastically different than the equations used in 2001. The 1986 survey utilized boat counts to determine

fishing effort. The following are examples taken directly from the 1986 report (Aurora North Consulting Group, pages 43 and 50):

Projected effort (hours) = mean number of boats x mean boat occupancy x number of sampling events

Projected fishing harvest = projected effort (hours) x actual C.U.E.'s for each species of fish

These calculations result in very high estimations, which make it difficult to accurately compare effort and harvest data. Comparison to the 1986 creel survey will be done where appropriate and only with non-projected values.

4.0 Results and Discussion

4.1 Angler Survey

During the survey period, May 18 – September 2, 2001, there were 1,615 anglers interviewed (Table 1 and Appendix 1). The total number of anglers for the entire survey period was estimated at $4,609 \pm 645$ with an estimated effort of $13,011 \pm 1676$ angler-hours (Table 2). Angling effort was greatest in June (estimated $6,231 \pm 1,126$ angler-hours) followed by July (estimated $2,845 \pm 612$ angler-hours) (Table 3). The majority of the walleye harvest (55%) and pike harvest (37%) occurred in the month of June (Figure 2). The Campground site received the greatest proportion (48%) of angling pressure, an estimated $6,299 \pm 971$ angler-hours. The MD Boat Launch site received 45% of the angling pressure (estimated $5,810 \pm 1260$ angler-hours).

Table 1: Observed catch rates of anglers, North Wabasca Lake, 2001 and 1986.

CREEL DATA	2001	1986
# days surveyed	81	110
# anglers interviewed	1615	1366
# angling hours reported	4968	6304
WALLEYE DATA		
Walleye kept / angler-hour	0.20	0.23
Walleye rel. (< 43 cm TL) / angler-hour	0.97	na
Walleye rel. (> 43 cm TL) / angler-hour	0.05	na
Total Walleye rel. / angler-hour	1.01	0.15
NORTHERN PIKE DATA		
Pike kept / angler-hour	0.03	0.23
Pike rel. (< 63 cm TL) / angler-hour	0.38	na
Pike rel. (> 63 cm TL) / angler-hour	0.05	na
Total Pike rel. / angler-hour	0.43	0.42
YELLOW PERCH DATA		
Yellow Perch kept / angler-hour	0.01	0.02
Perch released / angler-hour	0.00	0.00

Table 2. Angler survey summary, North Wabasca Lake, 2001

	2001 Lake Estimate (95%CI)
# Anglers	4,609 (± 645) (1,615 interviewed)
# Hours	13,011 ($\pm 1,676$)
Hours / hectare	1.31
# walleye (legal-size) harvested	2,461 (± 470) (>43 cm TL max)
# pike (legal-size) harvested	445 (± 120) (>63 cm TL max)
# perch harvested	136 (± 53)

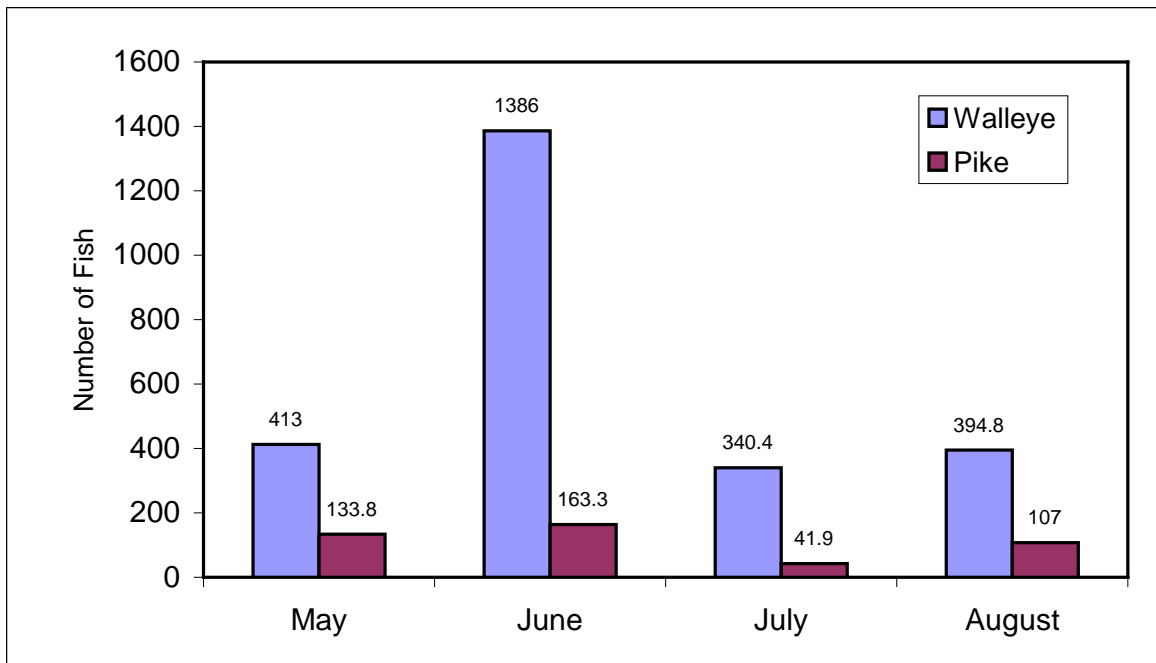


Figure 2. Comparison of estimated harvest by month for the North Wabasca Creel, 2001

Table 3. Estimated site totals by month for North Wabasca Lake Creel 2001

		Anglers	Hours	Wall kept	wa rel sub.	wa rel legal	Pike kept	np rel sub.	np rel legal	Perch kept	Perch rel
Campground	May	168.0	456.2	129.5	302.2	0.0	45.5	210.0	28.0	2.3	0.0
	June	892.0	2850.5	540.0	2980.0	26.0	92.0	1364.0	82.0	32.0	6.0
	July	387.8	1168.3	150.8	1076.0	14.0	24.3	413.8	32.0	12.5	2.0
	August	619.2	1786.8	280.8	1838.0	281.0	96.8	837.0	115.4	14.2	0.0
	Totals	2067.0	6261.7	1101.1	6196.2	321.0	258.6	2824.8	257.4	61.0	8.0
MD Boat Launch	May	379.8	1014.6	283.5	516.3	7.0	40.3	339.5	145.3	26.3	7.0
	June	940.0	3205.0	846.0	3776.0	234.0	50.0	1088.0	236.0	24.0	8.0
	July	427.4	1284.7	189.6	1089.6	8.0	17.6	238.2	31.8	7.4	6.0
	August	198.6	502.8	114.0	836.4	0.0	10.2	221.0	31.2	0.0	0.0
	Totals	1945.8	6007.1	1433.1	6218.3	249.0	118.1	1886.7	444.3	57.7	21.0
Bridge	May	112.0	283.5	0.0	0.0	0.0	48.0	256.0	0.0	0.0	0.0
	June	148.7	175.7	0.0	0.0	0.0	21.3	174.0	0.0	10.7	0.0
	July	371.0	392.0	0.0	21.0	0.0	0.0	28.0	0.0	0.0	0.0
	August	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Totals	631.7	851.2	0.0	21.0	0.0	69.3	458.0	0.0	10.7	0.0
Grand Totals		4644.4	13119.9	2534.2	12435.4	570.0	445.9	5169.5	701.7	129.4	29.0

The Bridge accounted for only 7% of the angling pressure with an estimated 902 ± 527 angler-hours (Figure 3 and Table 4).

Angler survey data are presented in Appendix 2. Biological samples were collected from 227 walleye (138 angler harvest and 89 test fishery samples), 82 northern pike (38 angler harvest and 44 test fishery samples) and 20 yellow perch (16 angler harvest and 4 test fishery samples). Summaries of the biological data for walleye, pike and perch from the sport and test fisheries are presented in Appendices 3 and 4.

4.2 Walleye

The estimated harvest of legal-sized walleye was $2,461 \pm 470$ fish (Table 4). The estimated release of sub-legal and legal walleye was $12,412 \pm 1,959$ and 589 ± 332 respectively. The yield of harvested walleye was estimated at 2,953 kg (0.30 kg/ha). Assuming 5% release mortality, the yield of released, but dead walleye was 336 kg or 0.04 kg/ha ($12,412 \times 0.05$ mortality \times 0.5 kg mean weight + 589×0.05 mortality \times 1.2 kg mean weight). The total estimated sport yield of walleye during the period of this survey was therefore 3,299 kg or 0.33 kg/ha, of which 10% was released, dead walleye.

The distribution of harvests and catches for walleye are shown in Appendices 1.2 and 1.3.

Test fisheries were conducted on 20 days, from May 18 to September 2, 2001. A total of 89 walleye were caught and measured for fork length. Sixty-two (62) walleye were sampled for ageing information. Of the 89 walleye, 68 were sub-legal (less than 43 cm TL max) and 21 were legal (43 cm TL max and larger). Sport fishermen were observed to harvest 130 legal walleye and 3 sub-legal walleye. Anglers reported releasing 4,809 sub-legal and 233 legal walleye.

4.2.1 Status of the Walleye Fishery

Characteristics of the walleye fishery at North Wabasca Lake are compared to the parameters listed for Alberta's walleye stock classification criteria in Table 5.

Table 4. Estimated lake totals for North Wabasca Lake Creel 2001

	Anglers	Hours	Wall kept	wa rel sub.	wa rel legal	Pike kept	np rel sub.	np rel legal	Perch kept	Perch rel
Campground										
Total Estimate	2074.8	6298.9	1105.4	6242.7	348.4	263.2	2843.0	267.4	61.0	8.2
Est. variance	26912.1	245545.5	12174.3	391789.6	18252.0	626.3	64119.7	1769.4	89.7	3.8
Est. se	164.0	495.5	110.3	625.9	135.1	25.0	253.2	42.1	9.5	1.9
Est. 95% CI	321.5	971.2	216.3	1226.8	264.8	49.1	496.3	82.4	18.6	3.8
Est. 95% CI as %	15.5	15.4	19.6	19.7	76.0	18.6	17.5	30.8	30.4	46.7
MD Boat Launch										
Total Estimate	1879.3	5810.1	1355.9	6141.8	240.9	108.2	1822.1	382.2	52.3	21.5
Est. variance	31914.2	413417.1	45278.8	605900.4	10360.5	282.0	66266.7	5261.4	111.5	19.3
Est. se	178.6	643.0	212.8	778.4	101.8	16.8	257.4	72.5	10.6	4.4
Est. 95% CI	350.1	1260.2	417.1	1525.7	199.5	32.9	504.5	142.2	20.7	8.6
Est. 95% CI as %	18.6	21.7	30.8	24.8	82.8	30.4	27.7	37.2	39.5	40.1
Bridge										
Total Estimate	655.0	902.1	0.0	27.8	0.0	73.4	536.7	0.0	22.8	0.0
Est. variance	49617.1	72441.9	0.0	772.5	0.0	2851.9	105204.9	0.0	519.8	0.0
Est. se	222.7	269.2	0.0	27.8	0.0	53.4	324.4	0.0	22.8	0.0
Est. 95% CI	436.6	527.5	0.0	54.5	0.0	104.7	635.7	0.0	44.7	0.0
Est. 95% CI as %	66.7	58.5	0.0	195.8	0.0	142.6	118.4	0.0	196.0	0.0
Lake Estimate										
Total Estimate	4609.1	13011.0	2461.3	12412.4	589.3	444.9	5201.7	649.6	136.1	29.6
Est. variance	108443.4	731404.5	57453.2	998462.5	28612.5	3760.2	235591.3	7030.8	721.1	23.1
Est. SE	329.3	855.2	239.7	999.2	169.2	61.3	485.4	83.8	26.9	4.8
Est. 95% CI	645.4	1676.2	469.8	1958.5	331.5	120.2	951.3	164.3	52.6	9.4
Est. 95% CI as %	14.0	12.9	19.1	15.8	56.3	27.0	18.3	25.3	38.7	31.8

Note: Figures are not adjusted for site and day-type probabilities

Table 5. Criteria for classifying status of walleye fisheries; North Wabasca Lake, 2001.
(Sullivan 1994)

	Trophy	Stable	Vulnerable	Collapsed
Age-class Distribution	Wide 8 or more age-classes mean age > 9	Wide 8 or more age-classes mean age = 6 - 9	Narrow 1 - 3 age-classes mean age = 4 - 6 few old (10 years) fish	Wide or narrow Mean age = 6 - 10
North Wabasca Lake	Angler harvest ~ 9 age-classes mean age = 10.2 yrs.	Test Fishery ~9 age-classes mean age = 7.0 yrs.		
Age-class Stability	Very Stable	Relatively Stable	Unstable 1 - 3 age-classes support fishery	Stable or unstable Recruitment failures
North Wabasca Lake		9 age-classes support sport fishery Strong recruitment (4 year olds)		
Length-at-age	Very slow 50 cm (FL) in 12 - 15 years	Slow 50 cm (FL) in 9 - 12 years	Moderate 50 cm (FL) in 7 - 9 years	Fast 50 cm (FL) in 4 - 7 years
North Wabasca Lake		50 cm in 11 years		
Catch rate	Total = > 2 / h >43 cm (TL max) = > 1 / h	Total = > 1 / h >43 cm (TL max) = > 0.3 / h	Total = 0.5 - 1 / h >43 cm (TL max) = < 0.3 / h	Total = < 0.1 / h >43 cm (TL max) = < 0.02 / h
North Wabasca Lake		Total CUE = 1.21 / hour	Observed legal-sized (>43cm TL) = 0.198 / hour	
Age-at-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 Ages will vary with Age-class distribution
North Wabasca Lake	Male mean age = 10.7 (n=21)	Female mean age = 10.2 (n=97)		

4.2.2 Age-class Distribution

The age-class distribution of walleye harvested by anglers is shown in Figure 3. This is a relatively wide distribution with low densities of older fish (walleye older than age 11). The mean age of walleye in the angler harvest was 10.2 years (n=133). The mean age of the walleye from the test fishery was 7.0 years (n=62). The age-class distribution and mean age from the test fishery is likely more representative of the population, due to size limits imposed on sport anglers. These age-class distributions are indicative of a walleye stock with a stable status.

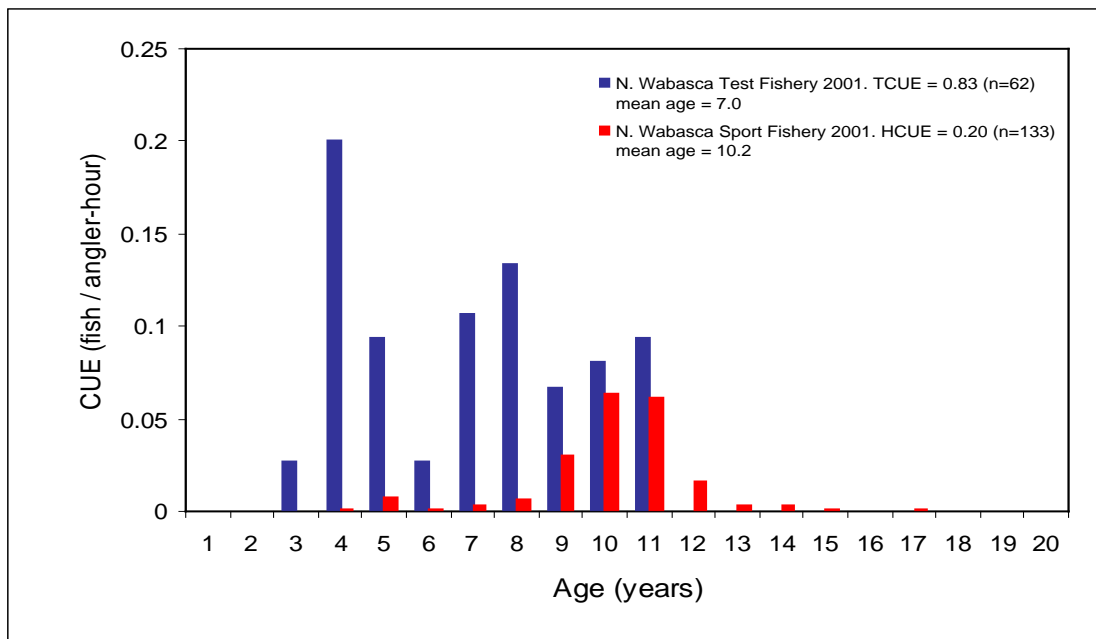


Figure 3. Age-class distribution of walleye from North Wabasca Lake Creel, 2001.

4.2.3 Age-class Stability

The test fishery data shows a strong 4 year-old age-class with an absence of walleye aged 12 and older. It appears the recruitment of sub-legal walleye has been strong in past years (1993, 1994, 1996 and 1997 year-classes) and will recruit into the sport fishery harvest within the next one to five years. The 1995 year-class (6 year-olds) was relatively weak in both the test fishery and sport fishery. The sport fishery harvest was dominated by two year-classes (1990 and 1991). The low densities of older walleye may not be a result of angling pressure as domestic and commercial fisheries also

harvest this population. The stability of this age-class distribution is indicative of a walleye population with a stable status. The fork length histogram of walleye sampled in the sport and test fisheries is shown in Figure 4.

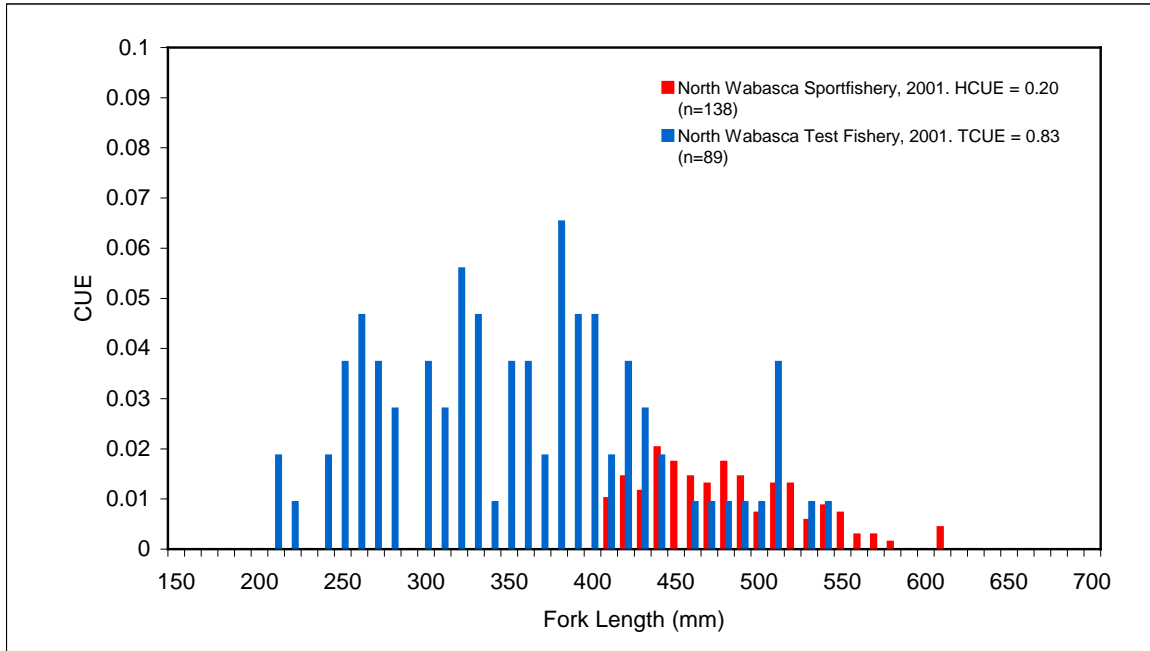


Figure 4. Fork length histogram of walleye from North Wabasca Lake Creel, 2001.

4.2.4 Index of Growth

The length-at-age of walleye from North Wabasca Lake (Figure 5) suggests a slow growth rate (Table 6). The approximate age of a 50 cm fork length (FL) walleye from North Wabasca Lake is 11 years old. This growth rate is indicative of a walleye stock with a stable status (Sullivan 1994).

4.2.5 Catch Rate

The observed sport harvest rates on legal and sub-legal walleye was 0.198 and 0.004 walleye kept / hour, respectively. The reported release rate on sub-legal walleye was 0.968 walleye released / hour. The reported release rate on legal walleye was 0.047 walleye released / hour. The total CUE on all sizes of walleye would therefore be 1.217

(0.198 + 0.004 + 0.968 + 0.047). The low legal-sized sport harvest catch rate (0.198) and strong recruitment is indicative of a stable – vulnerable fishery.

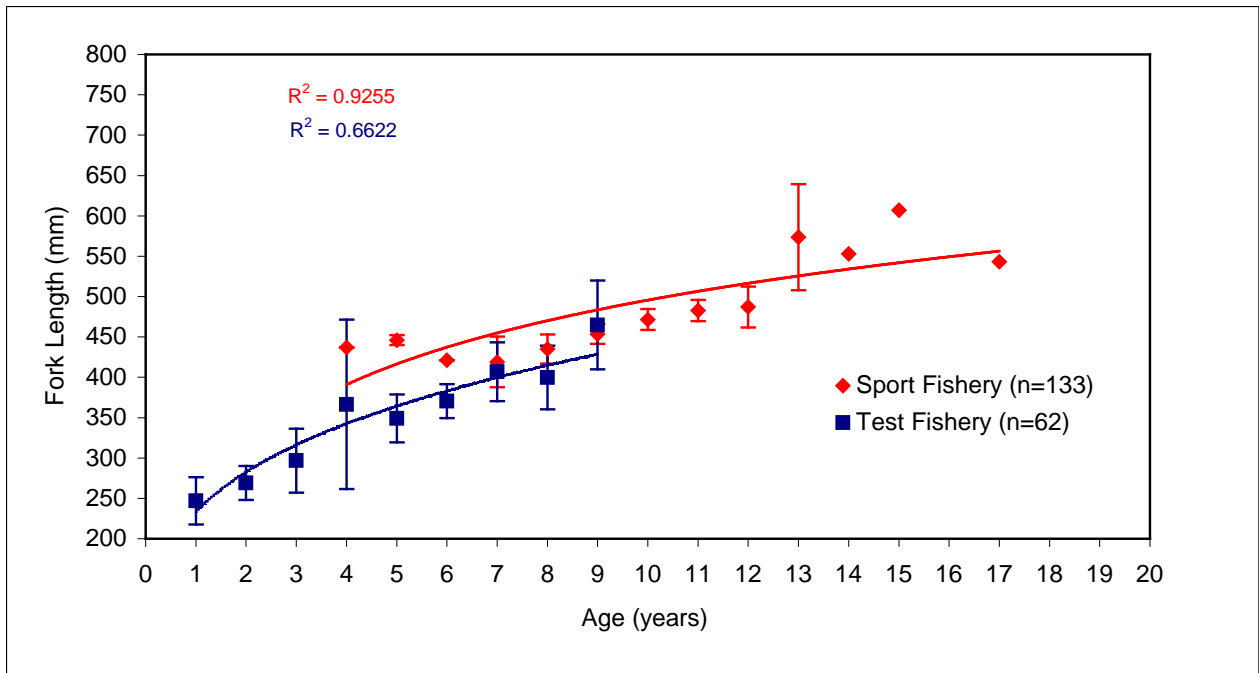


Figure 5. Length-at-age of walleye from North Wabasca Lake Creel, 2001.

4.2.6 Age-at Maturity

The distribution of age-at-maturity (Figure 7) from angler harvested walleye is biased because of the minimum size limit requiring anglers to release all sub-legal walleye. Female walleye were first mature at age 4 and the mean age of mature females was 10.2 years (n = 97). Male walleye were first mature at age 9 and the mean age of mature males was 10.7 years (n = 21). The small sample size for male walleye (21) may give misleading results. Only 5 immature walleye (1 male and 4 females) were harvested. The ages are indicative of a walleye stock with a stable to trophy status.

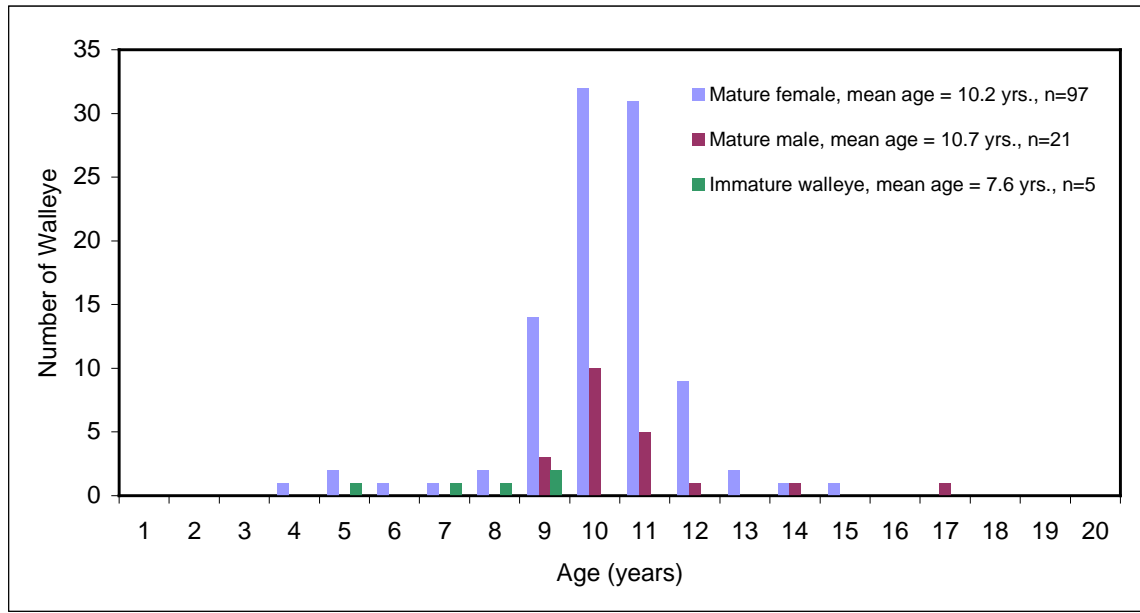


Figure 6. Age-at-maturity of walleye from North Wabasca Lake Creel, 2001.

4.3 Northern Pike

During the creel survey at North Wabasca Lake, the observed harvest of pike was 152 fish, with 1,887 sub-legal (<63 cm TL max) and 248 legal pike reported released. The estimated harvest of legal-sized pike was 445 ± 120 fish (Table 4). With the mean weight of harvested pike at 2.1 kg, the estimated yield of harvested pike was 934 kg. There were also 5,202 sub-legal and 650 legal pike estimated released. Biological samples were collected from 82 northern pike (38 angler harvest and 44 test fishery samples). The distribution of harvest and catch for pike are shown in Appendices 1.4 and 1.5. The characteristics of the pike fishery are compared to the parameters which follow the “Draft Strategy for Classifying Pike Fisheries” (Sullivan 1998) in Table 6.

The extremely low (0.03 pike / hour) harvest rate and low (0.46 pike / hour) reported total catch rate suggests a vulnerable to collapsed pike fishery. However, the majority (99.2%) of the anglers were fishing for walleye and only 0.6% were specifically targeting pike. Therefore, the parameters CUE (kept), CUE (total) and corresponding number of measurable age-classes does not convey an accurate picture of the pike status in North Wabasca Lake and should not be used when classifying the pike population. Even though pike were not the most sought after species, 61% of the 1,615

anglers were successful in catching at least one. The age-class distribution of pike harvested by anglers is shown in Figure 8. This is a relatively narrow distribution with few pike older than age 8. Fifty-four percent (54%) of the harvest was composed of mature 7 and 8 year-old pike. The test fishery data shows a strong 4 year-old age-class with an absence of pike aged 9 and older. The fork length histogram of pike sampled in the sport and test fisheries is shown in Figure 9.

Table 6. Criteria for classifying status of pike fisheries; North Wabasca Lake, 1999.
(from Sullivan 1998)

METRIC	TROPHY	STABLE	VULNERABLE (No Risk)	VULNERABLE (Low Risk)	COLLAPSED
CUE (kept) N. Wabasca 2001	> 0.8	> 0.8	0.3 – 0.8	0.1 – 0.3	< 0.1 0.03
CUE (total) N. Wabasca 2001	2	1 – 2	0.5 – 1	0.2 – 0.5 sport fishery 0.46 test fishery 0.41	< 0.2
SUCCESS (% anglers) N. Wabasca 2001	100	> 70	> 40 61% of anglers caught a pike	20 – 40	< 20
MEAN WT (kg) N. Wabasca 1999 (testnet)	> 2	1 – 2 1.2 kg	< 1	0.5 – 1.5	0.5 – 3.5
# MEASURABLE AGE-CLASSES (> 0.02 /h) N. Wabasca 2001	> 10	7 – 12	3 – 7	1 – 2	Almost none NONE in sport fishery
GROWTH RATE N. Wabasca 2001	Slow	Slow 63cm in: 6.2 yrs. (2001) 5.5 yrs. (1999)	Increasing	Increasing	Fast
PSD (%) N. Wabasca 2001	> 80	> 40 59 (1999 testnet)	< 40	Variable (> 0.1 / h)	Variable (< 0.1 / h)
RSD (stock – quality) N. Wabasca 2001	< 20	< 50	> 50 95.4 (1999 testnet)	Variable (> 0.1 / h)	Variable (< 0.1 / h)

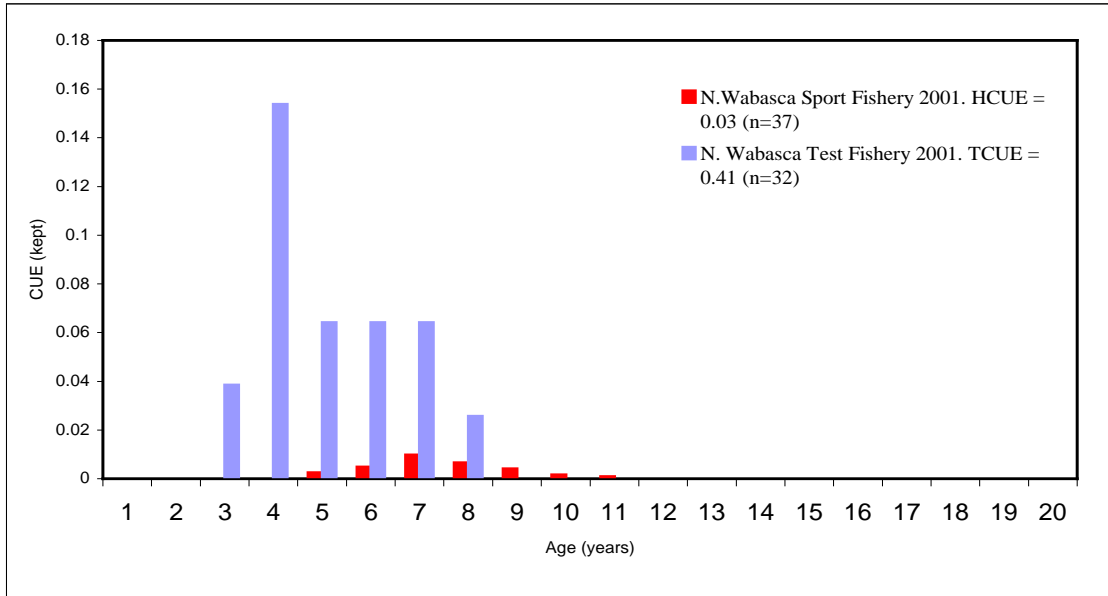


Figure 7. Age-class distribution of northern pike from North Wabasca Lake Creel, 2001.

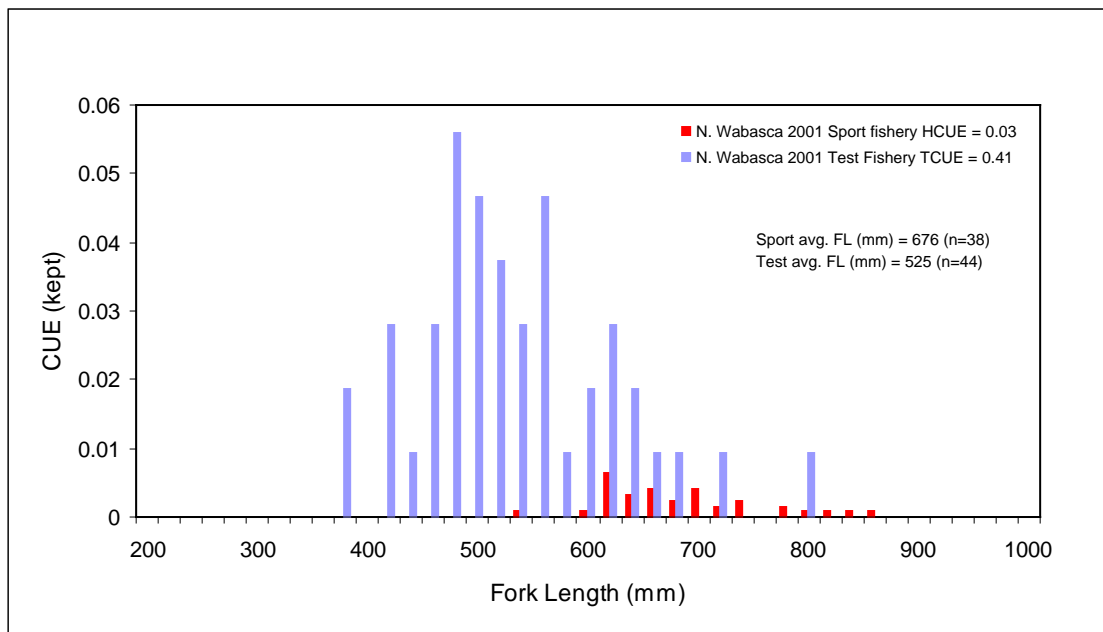


Figure 8. Fork Length histogram of northern pike from North Wabasca Lake Creel, 2001.

The growth rate of pike (sport and test fishery samples combined) is shown in Figure 10. Pike are first reaching the 63 cm TL (59.4 cm FL) minimum size by age 6. All of the pike sampled during the 2001 creel survey were mature.

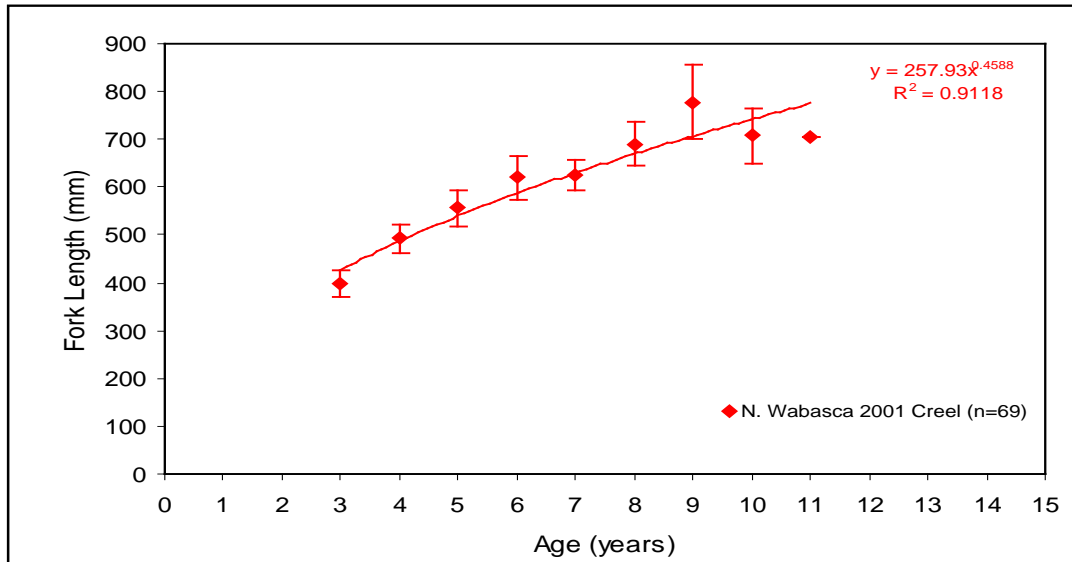


Figure 9. Length-at-age of northern pike from North Wabasca Lake Creel, 2001.

Due to size limits imposed on the sport anglers, the age-class distribution, Proportional Stock Density (PSD) and Relative Stock Density (RSD) from the creel survey is not representative of the true pike population in North Wabasca Lake. Based on the strategy for assessing pike fisheries and information gathered during this creel survey, the status of the pike population is unknown.

4.4 Yellow Perch

During the creel survey, the observed harvest of perch was 46 individuals and 14 reported released. The estimate of harvested and released perch was 136 ± 53 and 28 ± 9 fish respectively. Biological samples were collected from 16 perch that were sampled during the creel survey. There was no analysis conducted on yellow perch due to the low sample size.

5.0 Summary

Of the three survey sites, the Campground received 48% of the angling pressure with the MD Boat Launch receiving 45%. The bridge site received only 7% of the angling effort, which is Angling effort was greatest in June. The majority of the walleye and pike harvest also occurred in June.

Based on the criteria used to classify walleye stocks in Alberta (sullivan 1994), the walleye population in North Wabasca Lake is stable. The age-class distribution of walleye from the sport and test fisheries is wide with low densities of mature walleye older than age 11. The test fishery data shows good recruitment of young, sub-legal sized walleye. The 1997 year-class (4-year-olds) was strong and will enter into the sport fishery harvest in a few years. The length-at-age of North Wabasca Lake walleye suggests a slow growth rate. The observed CUE on harvested walleye was low to moderate.

It is difficult to accurately classify the pike population in North Wabasca Lake into one of the provincial categories. Analysis of the creel survey data correlates with various classifications. Even though North Wabasca Lake is predominantly a walleye fishery with northern pike rarely sought after, 61% of anglers were successful in catching a pike. The extremely low CUE 's for pike harvest will continue as long as anglers harvest walleye and the walleye population remains stable. According to the test fishery data, there is a strong 4-year-old age-class with an absence of larger pike available for harvest.

6.0 References

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7.0 Appendices

Appendix 1. Schedule for North Wabasca Lake Creel Survey, 2001

Day	Day-type	Site	Day	Day-type	Site
May			July		
18	WE	Campground	13	WE	Campground
19	WE	MD Launch (Bridge pm)	14	WE	MD Launch (Bridge am)
20	WE	Campground	15	WE	Campground (Bridge pm)
21	WE/HOL	MD Launch	16	WD	MD Launch
22	WD	Campground	17	WD	Campground
23	WD	MD Launch	18	WD	MD Launch
24	WD	Campground	19	WD	Campground
25	WE	MD Launch (Bridge pm)	20	WE	MD Launch
26	WE	Campground	21	WE	Campground
27	WE	MD Launch	22	WE	MD Launch
June			July/August		
1	WE	MD Launch	27	WE	MD Launch (Bridge am)
2	WE	Campground	28	WE	Campground
3	WE	MD Launch	29	WE	MD Launch (Bridge pm)
4	WD	Campground (Bridge am)	30	WD	Campground
5	WD	MD Launch (Bridge pm)	31	WD	MD Launch
6	WD	Campground	1	WD	Campground
7	WD	MD Launch	2	WD	MD Launch
8	WE	Campground	3	WE	Campground
9	WE	MD Launch	4	WE	MD Launch
10	WE	Campground	5	WE	Campground
			6	WE/HOL	MD Launch
June			August		
15	WE	MD Launch (Bridge pm)	10	WE	Campground
16	WE	Campground	11	WE	MD Launch
17	WE	MD Launch	12	WE	Campground (Bridge am)
18	WD	Campground (Bridge am)	13	WD	MD Launch
19	WD	MD Launch	14	WD	Campground
20	WD	Campground	15	WD	MD Launch
21	WD	MD Launch	16	WD	Campground
22	WE	Campground	17	WE	MD Launch
23	WE	MD Launch	18	WE	Campground (Bridge am)
24	WE	Campground	19	WE	MD Launch
June/July			Aug./Sept.		
29	WE	MD Launch (Bridge am)	24	WE	MD Launch
30	WE	Campground	25	WE	Campground
1	WE	MD Launch	26	WE	MD Launch
2	WE/HOL	Campground	27	WD	Campground
3	WD	MD Launch	28	WD	MD Launch (Bridge am)
4	WD	Campground	29	WD	Campground
5	WD	MD Launch (Bridge pm)	30	WD	MD Launch
6	WE	Campground	31	WE	Campground
7	WE	MD Launch	1	WE	MD Launch
8	WE	Campground	2	WE	Campground (Bridge am)

WE - Weekend
 WD - Weekday
 WE/HOL - Weekend/Holiday

Bridge am period is from 9:00 am to 3:00 pm
 Bridge pm period is from 3:00 pm to 9:00 pm

Appendix 2.1. Daily summary of angler survey data. North Wabasca Lake, 2001

Month	Day	# Anglers	# Hours	# Walleye Kept	# Walleye Released < 43 cm TL max	# Walleye Released > 43 cm TL max	# Pike Kept	# Pike Released < 63 cm TL max	# Pike Released > 63 cm TL max	# Perch Kept	# Perch Released
5	18	0	0	0	0	0	0	0	0	0	0
5	19	9	13.5	1	4	0	0	3	0	0	0
5	20	43	117	27	41	0	9	38	2	1	0
5	21	42	111	38	65	0	6	80	1	6	2
5	22	9	25.5	14	40	0	0	19	6	0	0
5	23	31	81	27	30	1	4	22	19	2	0
5	24	5	14.5	1	11	0	5	11	0	0	0
5	25	49	149.25	15	106	0	4	39	6	1	2
5	26	8	18.5	6	12	0	3	7	0	0	0
5	27	0	0	0	0	0	0	0	0	0	0
6	1	98	342	30	164	3	4	91	3	2	0
6	2	49	197.5	21	94	0	6	121	6	3	1
6	3	43	129	6	58	0	3	34	0	0	0
6	4	24	56.5	14	36	0	4	25	1	1	0
6	5	12	19.25	2	13	0	0	6	0	0	0
6	6	19	58.5	18	78	0	3	31	6	2	0
6	7	7	17	4	83	0	1	6	6	0	0
6	8	72	241.5	48	155	5	10	135	6	2	0
6	9	43	155	70	152	3	7	64	44	0	0
6	10	23	48.75	0	16	0	0	22	0	0	0
6	15	18	28.5	6	61	0	3	7	2	2	2
6	16	53	164.5	50	127	3	5	40	7	3	1
6	17	39	129	38	242	1	0	24	26	4	0
6	18	23	95	10	130	2	3	46	2	1	0
6	19	20	52.5	9	156	2	1	22	3	2	1
6	20	41	111.5	22	189	0	2	68	0	0	0
6	21	28	128.5	28	64	0	0	79	7	0	0
6	22	22	67.5	13	56	1	1	22	2	0	0
6	23	93	377.5	187	572	106	4	90	11	0	0
6	24	0	0	0	0	0	0	0	0	0	0
6	29	9	14.5	0	7	0	0	9	0	0	0
6	30	29	85.5	10	176	0	4	32	2	2	1
7	1	22	39.5	2	4	0	0	6	0	1	0
7	2	38	138	12	98	2	3	28	3	1	0
7	3	32	79	17	111	0	0	9	0	0	0
7	4	29	56	6	55	0	0	19	0	1	0
7	5	11	9	0	0	0	0	0	0	0	0
7	6	12	47	9	25	0	2	13	1	1	0
7	7	13	43	12	57	0	1	6	1	1	1

Appendix 2.1 con't

Month	Day	# Anglers	# Hours	# Walleye Kept	# Walleye Released < 43 cm TL max	# Walleye Released > 43 cm TL max	# Pike Kept	# Pike Released < 63 cm TL max	# Pike Released > 63 cm TL max	# Perch Kept	# Perch Released
7	8	15	33	12	69	0	1	7	0	0	0
7	13	15	43	4	51	0	0	14	1	0	0
7	14	10	11.5	0	0	0	0	2	0	0	0
7	15	10	39.5	6	46	0	0	17	0	0	0
7	16	9	22	4	27	0	0	4	1	0	0
7	17	8	27	4	19	0	1	14	0	1	0
7	18	24	87.5	12	64	0	3	9	6	1	0
7	19	2	10	1	6	0	0	6	0	0	0
7	20	14	71	15	69	2	0	21	1	0	1
7	21	10	20	2	14	0	0	9	1	0	0
7	22	36	130	8	51	2	1	45	2	0	1
7	27	4	16.5	0	3	0	0	4	0	0	0
7	28	14	67.5	7	65	5	4	36	10	0	1
7	29	0	0	0	0	0	0	0	0	0	0
7	30	0	0	0	0	0	0	0	0	0	0
7	31	6	17	1	12	0	1	1	0	0	0
8	1	36	106	23	100	4	3	34	10	0	0
8	2	10	25	8	37	0	2	14	4	0	0
8	3	35	113.5	21	133	16	3	41	9	1	0
8	4	10	35	11	30	0	0	8	0	0	0
8	5	34	97.5	9	97	10	5	21	10	0	0
8	6	0	0	0	0	0	0	0	0	0	0
8	10	36	85	3	28	0	4	28	0	0	0
8	11	12	62.5	7	62	0	0	30	2	0	0
8	12	22	59.5	25	57	4	1	29	3	0	0
8	13	19	33	8	105	0	1	17	1	0	0
8	14	23	60.5	8	78	47	3	38	9	2	0
8	15	10	19	4	24	0	0	4	3	0	0
8	16	13	29.5	4	60	14	1	25	1	1	0
8	17	5	8	4	11	0	0	1	0	0	0
8	18	16	37.5	6	43	0	8	34	0	0	0
8	19	0	0	0	0	0	0	0	0	0	0
8	24	0	0	0	0	0	0	0	0	0	0
8	25	3	11	0	25	0	1	11	0	0	0
8	26	0	0	0	0	0	0	0	0	0	0
8	27	6	16	0	3	0	0	1	1	0	0
8	28	0	0	0	0	0	0	0	0	0	0
8	29	10	45	7	39	0	5	17	0	0	0
8	30	0	0	0	0	0	0	0	0	0	0
8	31	14	52.5	5	60	0	6	59	0	1	0
9	1	6	15	1	33	0	0	12	0	0	0
9	2	0	0	0	0	0	0	0	0	0	0
Totals		1615	4967.75	1003	4809	233	152	1887	248	46	14

Appendix 2.2. Catch frequency distribution of harvested walleye. North Wabasca Lake, 2001

# WALL Kept	# Anglers	% Anglers	Harvest	% WALL Harvested	Cumulative % WALL Harvested
0	965	59.8	0	0	0
1	402	24.9	402	40.1	40.1
2	144	8.9	288	28.7	68.8
3	103	6.4	309	30.8	99.6
4	1	0.1	4	0.4	100.0
5	0	0.0	0	0.0	
>5	0	0.0	0	0.0	
Totals	1615	100.0	1003	100	

Appendix 2.3. Catch frequency distribution of released walleye. North Wabasca Lake, 2001

# WALL Released	# Anglers	% Anglers	# WALL Released	% WALL Released
0	417	25.8	0.0	0.0
1	340	21.1	340.0	6.7
2	242	15.0	484.0	9.6
3	150	9.3	450.0	8.9
4	90	5.6	360.0	7.1
5	108	6.7	540.0	10.7
6	43	2.7	258.0	5.1
7	34	2.1	238.0	4.7
8	47	2.9	376.0	7.5
9	11	0.7	99.0	2.0
10	58	3.6	580.0	11.5
11	8	0.5	88.0	1.7
12	10	0.6	120.0	2.4
13	8	0.5	104.0	2.1
14	1	0.1	14.0	0.3
15	17	1.1	255.0	5.1
16	4	0.2	64.0	1.3
17	2	0.1	34.0	0.7
18	1	0.1	18.0	0.4
19	6	0.4	114.0	2.3
20	4	0.2	80.0	1.6
> 20	14	0.9	426.0	8.4
Totals	1615	100.0	5042.0	100.0

Appendix 2.4. Catch frequency distribution of harvested pike. North Wabasca Lake, 2001

# PIKE Kept	# Anglers	% Anglers	Harvest	% PIKE Harvested	Cumulative % PIKE Harvested
0	1479	91.6	0	0	0
1	120	7.4	120	78.9	78.9
2	16	1.0	32	21.1	100.0
3	0	0.0	0	0.0	
4	0	0.0	0	0.0	
5	0	0.0	0	0.0	
>5	0	0.0	0	0.0	
Totals	1615	100.0	152	100	

Appendix 2.5. Catch frequency distribution of released pike. North Wabasca Lake, 2001

# PIKE Released	# Anglers	% Anglers	# PIKE Released	% PIKE Released
0	672	41.6	0.0	0.0
1	461	28.5	461.0	21.6
2	216	13.4	432.0	20.2
3	115	7.1	345.0	16.2
4	46	2.8	184.0	8.6
5	32	2.0	160.0	7.5
6	37	2.3	222.0	10.4
7	12	0.7	84.0	3.9
8	7	0.4	56.0	2.6
9	1	0.1	9.0	0.4
10	9	0.6	90.0	4.2
11	4	0.2	44.0	2.1
12	0	0.0	0.0	0.0
13	0	0.0	0.0	0.0
14	0	0.0	0.0	0.0
15	0	0.0	0.0	0.0
16	3	0.2	48.0	2.2
17	0	0.0	0.0	0.0
18	0	0.0	0.0	0.0
19	0	0.0	0.0	0.0
20	0	0.0	0.0	0.0
>20	0	0.0	0.0	0.0
Totals	1615	100.0	2135.0	100.0

Appendix 2.6. Residency of anglers fishing at North Wabasca Lake, 2001.

Residence	# Anglers	% Anglers	# Hours
Wabasca/Desmarais	641	39.7	1694
Edmonton and area	484	30.0	1585.3
Athabasca/Lac La Biche/St.Paul	160	9.9	527.75
Grande Prairie/Valleyview	86	5.3	240
Calgary and area	71	4.4	297
Red Deer and area	62	3.8	196.5
Slave Lake	31	1.9	122.5
Out of Province	27	1.7	120
Swan Hills/Whitecourt	22	1.4	53.5
Edson/Hinton	12	0.7	44
Fort McMurray	6	0.4	29
Lethbridge and area	3	0.2	24
High Level/ Manning	2	0.1	4
Unknown	2	0.1	7.5
Wembley	2	0.1	3
Peace River/Fairview	2	0.1	12
Barrhead	1	0.1	2.5
Rocky/Nordegg	1	0.1	5
Totals	1615		4967.5

Appendix 3. Summary of biological data from the sport fishery. North Wabasca Lake, 2001.

Date	Location	Sample #	Species	Fork Length	Weight	Sex	Maturity	Age	Aging Stru
19-May-2001	MD Boat Launch	1	WALL	460.00		U			Fin Ray
20-May-2001	Campground	2	WALL	509.00	1400	F	Mature	10	Fin Ray
20-May-2001	Campground	3	WALL	561.00	1740	F	Mature	10	Fin Ray
20-May-2001	Campground	4	NRPK	735.00	2590	F	Mature	8	Cleithrum
20-May-2001	Campground	5	WALL	512.00	1270	M	Mature	10	Fin Ray
20-May-2001	Campground	6	WALL	479.00	990	F	Mature	9	Fin Ray
20-May-2001	Campground	7	WALL	468.00	960	F	Mature	10	Fin Ray
20-May-2001	Campground	8	WALL	445.00	830	F	Mature	9	Fin Ray
20-May-2001	Campground	9	WALL	422.00	730	M	Immature	9	Fin Ray
20-May-2001	Campground	10	WALL	408.00	760	F	Mature	10	Fin Ray
20-May-2001	Campground	11	WALL	476.00	1230	F	Mature	12	Fin Ray
20-May-2001	Campground	12	WALL	607.00	2340	F	Mature	15	Fin Ray
20-May-2001	Campground	13	WALL	607.00	2320	F	Mature	13	Fin Ray
20-May-2001	Campground	14	WALL	512.00	1160	F	Mature	11	Fin Ray
20-May-2001	Campground	15	NRPK	699.00	1160	U	Unknown	6	Fin Ray
20-May-2001	Campground	16	NRPK	856.00	4550	U	Unknown	9	Fin Ray
21-May-2001	MD Boat Launch	17	WALL	501.00	1310	F	Mature	11	Fin Ray
21-May-2001	MD Boat Launch	18	WALL	472.00	1080	F	Mature	11	Fin Ray
21-May-2001	MD Boat Launch	19	WALL	483.00	1100	F	Mature	9	Fin Ray
21-May-2001	MD Boat Launch	20	NRPK	688.00	2310	F	Mature	6	Fin Ray
21-May-2001	MD Boat Launch	21	NRPK	645.00	1710	F	Mature	8	Fin Ray
21-May-2001	MD Boat Launch	22	WALL	447.00	970	F	Mature	11	Fin Ray
21-May-2001	MD Boat Launch	23	WALL	462.00	1000	F	Mature	10	Fin Ray
21-May-2001	MD Boat Launch	24	NRPK	667.00	2000	M	Mature		Fin Ray
21-May-2001	MD Boat Launch	25	NRPK	815.00	3400	M	Mature	8	Fin Ray
21-May-2001	MD Boat Launch	26	YLPR	248.00	230	F	Mature	7	Fin Ray
21-May-2001	MD Boat Launch	27	WALL	460.00	990	F	Mature	12	Fin Ray
21-May-2001	MD Boat Launch	28	YLPR	275.00	320	F	Mature	12	Fin Ray
21-May-2001	MD Boat Launch	29	YLPR	255.00	240	F	Mature	7	Fin Ray
21-May-2001	MD Boat Launch	30	WALL	483.00	1290	F	Mature	11	Fin Ray
21-May-2001	MD Boat Launch	31	YLPR	264.00	250	F	Mature	8	Fin Ray
22-May-2001	Campground	32	WALL	419.00	1600	M	Mature	10	Fin Ray
22-May-2001	Campground	33	WALL	405.00	1680	M	Mature	10	Fin Ray
22-May-2001	Campground	34	WALL	416.00	1680	M	Mature	10	Fin Ray
22-May-2001	Campground	35	WALL	426.00	1860	F	Mature	11	Fin Ray
22-May-2001	Campground	36	WALL	421.00	1600	M	Mature	10	Fin Ray
22-May-2001	Campground	37	WALL	419.00	1580	M	Mature	9	Fin Ray
22-May-2001	Campground	38	WALL	415.00	1780	M	Mature	10	Fin Ray
22-May-2001	Campground	39	WALL	494.00	2400	M	Mature	10	Fin Ray
22-May-2001	Campground	40	WALL	428.00	1920	F	Unknown	9	Fin Ray
23-May-2001	MD Boat Launch	41	WALL	514.00	1420	F	Mature	10	Fin Ray
23-May-2001	MD Boat Launch	42	NRPK	599.00	1380	F	Mature	7	Fin Ray
23-May-2001	MD Boat Launch	43	YLPR	267.00	260	F	Mature	9	Fin Ray
23-May-2001	MD Boat Launch	44	WALL	537.00	1470	F	Mature	12	Fin Ray
23-May-2001	MD Boat Launch	45	WALL	504.00	1270	F	Mature	10	Fin Ray
23-May-2001	MD Boat Launch	46	WALL	420.00	750	M	Mature	9	Fin Ray
23-May-2001	MD Boat Launch	47	YLPR	265.00	260	F	Mature	8	Fin Ray
23-May-2001	MD Boat Launch	48	WALL	512.00	1350	F	Mature	10	Fin Ray
23-May-2001	MD Boat Launch	49	WALL	480.00	1070	F	Mature	9	Fin Ray
23-May-2001	MD Boat Launch	50	WALL	546.00	1660	F	Mature	12	Fin Ray
23-May-2001	MD Boat Launch	51	WALL	420.00	790	F	Immature		Fin Ray
23-May-2001	MD Boat Launch	52	WALL	437.00	840	F	Mature	4	Fin Ray
23-May-2001	MD Boat Launch	53	WALL	450.00	940	F	Mature	11	Fin Ray
23-May-2001	MD Boat Launch	54	WALL	538.00	1340	F	Mature	10	Fin Ray
23-May-2001	MD Boat Launch	55	WALL	412.00	640	F	Mature	8	Fin Ray
23-May-2001	MD Boat Launch	56	WALL	459.00	950	F	Mature	11	Fin Ray
24-May-2001	Campground	57	WALL	544.00		U		11	Fin Ray
24-May-2001	Campground	58	NRPK	736.00		U		10	Fin Ray
24-May-2001	Campground	59	NRPK	729.00		U		8	Fin Ray
24-May-2001	Campground	60	NRPK	765.00		U		7	Fin Ray
25-May-2001	Bridge (Hwy.754)	61	NRPK	688.00	2200	F	Mature	8	Fin Ray
25-May-2001	Bridge (Hwy.754)	62	NRPK	687.00	2200	F	Mature	6	Fin Ray
25-May-2001	Bridge (Hwy.754)	63	NRPK	840.00	4500	F	Mature	9	Fin Ray
25-May-2001	MD Boat Launch	64	WALL	512.00	1410	F	Mature	11	Fin Ray
25-May-2001	MD Boat Launch	65	YLPR	261.00	220	F	Mature	9	Fin Ray
25-May-2001	MD Boat Launch	66	WALL	521.00	1360	F	Mature	11	Fin Ray

Appendix 3. con't

Date	Location	Sample #	Species	Fork Length	Weight	Sex	Maturity	Age	Aging Stru
25-May-2001	MD Boat Launch	67	WALL	549.00	1700	F	Mature	11	Fin Ray
25-May-2001	MD Boat Launch	68	WALL	431.00	860	F	Immature	8	Fin Ray
25-May-2001	MD Boat Launch	69	WALL	564.00	1670	F	Mature	11	Fin Ray
25-May-2001	MD Boat Launch	70	WALL	479.00	1130	M	Mature	9	Fin Ray
25-May-2001	MD Boat Launch	71	WALL	484.00	1240	M	Mature	10	Fin Ray
26-May-2001	Campground	72	NRPK	632.00	1620	F	Mature	7	Fin Ray
26-May-2001	Campground	73	NRPK	703.00	2480	F	Mature	11	Fin Ray
02-Jun-2001	Campground	74	WALL	461.00	1030	F	Mature	10	Fin Ray
02-Jun-2001	Campground	75	YLPR	254.00	227	M	Mature	9	Fin Ray
02-Jun-2001	Campground	76	WALL	438.00	970	F	Immature	5	Fin Ray
02-Jun-2001	Campground	77	YLPR	246.00	200	F	Mature	7	Fin Ray
02-Jun-2001	Campground	78	WALL	428.00	800	F	Mature	9	Fin Ray
02-Jun-2001	Campground	79	NRPK	645.00	1860	F	Mature	5	Fin Ray
04-Jun-2001	Campground	80	WALL	445.00	930	F	Immature	9	Fin Ray
04-Jun-2001	Campground	81	WALL	480.00	1250	F	Mature	12	Fin Ray
04-Jun-2001	Bridge (Hwy.754)	82	YLPR	288.00	450	F	Mature	8	Fin Ray
06-Jun-2001	Campground	83	WALL	433.00	850	F	Mature		
06-Jun-2001	Campground	84	WALL	543.00	1550	M	Mature	17	Fin Ray
06-Jun-2001	Campground	85	WALL	430.00	780	F	Mature	10	Fin Ray
06-Jun-2001	Campground	86	WALL	417.00	860	M	Mature	11	Fin Ray
06-Jun-2001	Campground	87	WALL	498.00	1310	F	Mature	11	Fin Ray
06-Jun-2001	Campground	88	WALL	450.00	940	F	Mature	11	Fin Ray
06-Jun-2001	Campground	89	WALL	475.00	1120	F	Mature	10	Fin Ray
06-Jun-2001	Campground	90	WALL	502.00	1280	F	Mature	10	Fin Ray
06-Jun-2001	Campground	91	WALL	510.00	1410	F	Mature	11	Fin Ray
06-Jun-2001	Campground	92	WALL	485.00	1090	F	Mature	11	Fin Ray
06-Jun-2001	Campground	93	NRPK	611.00	1550	F	Mature	7	Fin Ray
06-Jun-2001	Campground	94	YLPR	273.00	310	F	Mature	8	Fin Ray
06-Jun-2001	Campground	95	WALL	465.00	1160	F	Mature	10	Fin Ray
08-Jun-2001	Campground	96	NRPK	678.00	1710	F	Mature	6	Fin Ray
08-Jun-2001	Campground	97	WALL	476.00	1120	F	Mature	12	Fin Ray
08-Jun-2001	Campground	98	WALL	451.00	930	F	Mature	9	Fin Ray
08-Jun-2001	Campground	99	WALL	473.00	1100	F	Mature	9	Fin Ray
08-Jun-2001	Campground	100	WALL	461.00	1060	F	Mature	10	Fin Ray
08-Jun-2001	Campground	101	NRPK	610.00	1880	M	Mature	6	Fin Ray
08-Jun-2001	Campground	102	WALL	497.00	1100	F	Mature	9	Fin Ray
09-Jun-2001	MD Boat Launch	103	WALL	549.00	1710	M	Mature		Fin Ray
09-Jun-2001	MD Boat Launch	104	NRPK	617.00	1500	F	Mature	6	Fin Ray
09-Jun-2001	MD Boat Launch	105	WALL	483.00	1190	F	Mature	11	Fin Ray
09-Jun-2001	MD Boat Launch	106	WALL	528.00	1510	F	Mature	10	Fin Ray
09-Jun-2001	MD Boat Launch	107	WALL	493.00	1160	F	Mature	11	Fin Ray
09-Jun-2001	MD Boat Launch	108	WALL	575.00	1750	F	Mature	11	Fin Ray
09-Jun-2001	MD Boat Launch	109	WALL	540.00	1580	F	Mature	13	Fin Ray
09-Jun-2001	MD Boat Launch	110	WALL	510.00	1460	F	Mature	9	Fin Ray
09-Jun-2001	MD Boat Launch	111	WALL	490.00	1310	F	Mature	11	Fin Ray
09-Jun-2001	MD Boat Launch	112	WALL	438.00	780	F	Mature	10	Fin Ray
16-Jun-2001	Campground	113	WALL	535.00	1280	F	Mature	12	Fin Ray
16-Jun-2001	Campground	114	NRPK	610.00	1480	F	Mature	7	Fin Ray
16-Jun-2001	Campground	115	NRPK	678.00	2000	M	Mature	10	Fin Ray
16-Jun-2001	Campground	116	NRPK	644.00	1740	F	Mature	8	Fin Ray
17-Jun-2001	MD Boat Launch	117	WALL	489.00	1230	M	Mature	11	Fin Ray
17-Jun-2001	MD Boat Launch	118	WALL	485.00	1150	F	Mature	10	Fin Ray
17-Jun-2001	MD Boat Launch	119	YLPR	240.00	180	F	Mature	7	Fin Ray
17-Jun-2001	MD Boat Launch	120	WALL	403.00	670	F	Immature	7	Fin Ray
20-Jun-2001	Campground	121	WALL	516.00	1490	F	Mature	10	Fin Ray
20-Jun-2001	Campground	122	WALL	458.00	940	F	Mature	11	Fin Ray
20-Jun-2001	Campground	123	WALL	464.00	1050	F	Mature	9	Fin Ray
20-Jun-2001	Campground	124	WALL	432.00	820	F	Mature	10	Fin Ray
20-Jun-2001	Campground	125	WALL	447.00	860	F	Mature	10	Fin Ray
20-Jun-2001	Campground	126	WALL	507.00	1350	F	Mature	10	Fin Ray
20-Jun-2001	Campground	127	WALL	551.00	1850	F	Mature	10	Fin Ray
20-Jun-2001	Campground	128	WALL	512.00		F	Mature	11	Fin Ray
30-Jun-2001	Campground	129	WALL	410.00	890	F	Mature	10	Fin Ray
30-Jun-2001	Campground	130	WALL	438.00	900	F	Mature	9	Fin Ray
30-Jun-2001	Campground	131	YLPR	251.00	240	F	Mature	8	Fin Ray
30-Jun-2001	Campground	132	WALL	401.00	700	M	Mature	10	Fin Ray
30-Jun-2001	Campground	133	NRPK	610.00	1520	F	Mature	8	Fin Ray
30-Jun-2001	Campground	134	NRPK	795.00	3480	F	Mature	9	Fin Ray

Appendix 3. con't

Date	Location	Sample #	Species	Fork Length	Weight	Sex	Maturity	Age	Aging Stru
06-Jul-2001	Campground	135	WALL	437.00	900	F	Mature	10	Fin Ray
06-Jul-2001	Campground	136	YLPR	284.00	360	F	Mature	11	Fin Ray
07-Jul-2001	MD Boat Launch	137	WALL	435.00	860	F	Mature	7	Fin Ray
07-Jul-2001	MD Boat Launch	138	WALL	468.00	1160	F	Mature	10	Fin Ray
07-Jul-2001	MD Boat Launch	139	WALL	474.00	1090	F	Mature		
07-Jul-2001	MD Boat Launch	140	WALL	476.00	1150	F	Mature	10	Fin Ray
07-Jul-2001	MD Boat Launch	141	WALL	469.00	1150	F	Mature	10	Fin Ray
07-Jul-2001	MD Boat Launch	142	WALL	442.00	890	M	Mature	11	Fin Ray
07-Jul-2001	MD Boat Launch	143	YLPR	230.00	80	M	Mature	4	Fin Ray
07-Jul-2001	MD Boat Launch	144	WALL	534.00	1580	F	Mature	10	Fin Ray
07-Jul-2001	MD Boat Launch	145	WALL	501.00	1360	M	Mature	14	Fin Ray
07-Jul-2001	MD Boat Launch	146	WALL	433.00	890	M	Mature	11	Fin Ray
07-Jul-2001	MD Boat Launch	147	WALL	557.00	1760	F	Mature	11	Fin Ray
07-Jul-2001	MD Boat Launch	148	WALL	525.00	1690	F	Mature	11	Fin Ray
07-Jul-2001	MD Boat Launch	149	NRPK	540.00	1050	M	Mature	5	Fin Ray
20-Jul-2001	MD Boat Launch	150	WALL	442.00	930	M	Mature	12	Fin Ray
20-Jul-2001	MD Boat Launch	151	WALL	447.00	980	F	Mature	11	Fin Ray
20-Jul-2001	MD Boat Launch	152	WALL	426.00	780	F	Mature	11	Fin Ray
20-Jul-2001	MD Boat Launch	153	WALL	460.00	1030	F	Mature	10	Fin Ray
20-Jul-2001	MD Boat Launch	154	WALL	434.00	900	F	Mature	12	Fin Ray
20-Jul-2001	MD Boat Launch	155	WALL	415.00	820	F	Mature	9	Fin Ray
20-Jul-2001	MD Boat Launch	156	WALL	449.00	930	U	Immature	5	Fin Ray
22-Jul-2001	MD Boat Launch	157	NRPK	646.00	1650	F	Mature	7	Fin Ray
28-Jul-2001	Campground	158	WALL	420.00	750	F	Mature	11	Fin Ray
28-Jul-2001	Campground	159	NRPK	681.00	2450	M	Mature	7	Fin Ray
28-Jul-2001	Campground	160	NRPK	605.00	1570	M	Mature	7	Fin Ray
28-Jul-2001	Campground	161	NRPK	618.00	1770	F	Mature	7	Fin Ray
28-Jul-2001	Campground	162	NRPK	644.00	1980	M	Mature	7	Fin Ray
31-Jul-2001	MD Boat Launch	163	NRPK	703.00	2440	F	Mature	7	Fin Ray
01-Aug-2001	Campground	164	WALL	451.00	900	F	Mature	5	Fin Ray
03-Aug-2001	Campground	165	WALL	605.00	2360	F	Mature	14	Fin Ray
11-Aug-2001	MD Boat Launch	166	WALL	441.00	930	F	Mature	9	Fin Ray
11-Aug-2001	MD Boat Launch	167	WALL	409.00	700	F	Mature	11	Fin Ray
11-Aug-2001	MD Boat Launch	168	WALL	421.00	790	F	Mature	6	Fin Ray
11-Aug-2001	MD Boat Launch	169	WALL	458.00	1050	F	Mature	11	Fin Ray
12-Aug-2001	Campground	170	WALL	439.00				5	Fin Ray
12-Aug-2001	Campground	171	WALL	514.00				11	Fin Ray
12-Aug-2001	Campground	172	WALL	491.00				11	Fin Ray
12-Aug-2001	Campground	173	WALL	533.00				12	Fin Ray
12-Aug-2001	Campground	174	WALL	456.00				8	Fin Ray
12-Aug-2001	Campground	175	WALL	524.00				11	Fin Ray
12-Aug-2001	Campground	176	WALL	485.00	1300			11	Fin Ray
12-Aug-2001	Campground	177	WALL	488.00		F	Mature	11	Fin Ray
12-Aug-2001	Campground	178	WALL	408.00	800	M	Mature	11	Fin Ray
13-Aug-2001	MD Boat Launch	179	WALL	439.00	1070	F	Mature	12	Fin Ray
13-Aug-2001	MD Boat Launch	180	NRPK	638.00	1830	F	Mature	8	Fin Ray
14-Aug-2001	Campground	181	WALL	512.00	1500	M	Mature		
14-Aug-2001	Campground	182	YLPR	202.00	150	M	Immature	5	Fin Ray
14-Aug-2001	Campground	183	WALL	502.00	1400	F	Mature	10	Fin Ray
17-Aug-2001	MD Boat Launch	184	WALL	453.00	1020	F	Mature	5	Fin Ray
17-Aug-2001	MD Boat Launch	185	WALL	472.00	1060	F	Mature	10	Fin Ray
17-Aug-2001	MD Boat Launch	186	WALL	465.00	1120	F	Mature	11	Fin Ray
17-Aug-2001	MD Boat Launch	187	WALL	440.00	920	M	Mature	10	Fin Ray
31-Aug-2001	Campground	188	WALL	455.00		F	Mature	9	Fin Ray
31-Aug-2001	Campground	189	NRPK	636.00				7	Fin Ray
31-Aug-2001	Campground	190	NRPK	631.00	1900	F	Mature	9	Fin Ray
31-Aug-2001	Campground	191	WALL	441.00		F	Mature	8	Fin Ray
31-Aug-2001	Campground	192	NRPK	770.00				9	Fin Ray
31-Aug-2001	Campground	193	NRPK	601.00				5	Fin Ray

Appendix 4. Summary of biological data from the test fishery. North Wabasca Lake, 2001.

Activity Date	Capture Method	Number of Anglers	Hours Fished	Location Source	Location	Start UTM Easting	Start UTM Northing	NAD	UTM Ref. Mer.	Total Caught	Of Species	Number of Fish Released	Sample #	Species	Fork Length (mm)	Weight (g)	Sex	Maturity	Age (yrs)
01-Jun-2001	Test Angling	2	3.50	GPS	Bay by Big Pt.	319359.0	6210952.0	NAD83	-111										
16-Jun-2001	Test Angling	4	2.00	GPS	Bay by Big Pt.	319359.0	6210952.0	NAD83	-111										
26-Jun-2001	Test Angling	2	6.50	GPS	Big Point	317697.0	6212024.0	NAD83	-111	36	WALL	36	1	WALL	245.00				4
										10	NRPK	10	2	WALL	510.00				11
										1	YLPR	1	3	WALL	300.00				4
													4	WALL	262.00				3
													5	WALL	480.00				9
													6	WALL	383.00				9
													7	WALL	378.00				4
													8	WALL	358.00				7
													9	WALL	395.00				9
													10	WALL	416.00				7
													11	WALL	370.00				5
													12	WALL	374.00				5
													13	WALL	297.00				5
													14	WALL	390.00				10
													15	WALL	391.00				11
													16	WALL	317.00				7
													17	WALL	279.00				4
													18	WALL	328.00				10
													19	WALL	500.00				11
													20	WALL	212.00				4
													21	WALL	503.00				11
													22	WALL	324.00				8
													23	WALL	385.00				8
													24	WALL	347.00				7
													25	WALL	440.00				10
													26	WALL	490.00				11
													27	WALL	280.00				4
													28	WALL	243.00				4
													29	WALL	420.00				6
													30	WALL	469.00				10
													31	WALL	259.00				4
													32	WALL	409.00				7
													33	WALL	309.00				
													34	WALL	208.00				
													35	WALL	301.00				4
													36	WALL	207.00				4
													37	NRPK	550.00				5
													38	NRPK	449.00				4
													39	NRPK	525.00				4
													40	NRPK	790.00				8
													41	NRPK	635.00				6
													42	NRPK	595.00				5
													43	NRPK	480.00				4
													44	NRPK	481.00				7
													45	NRPK	656.00				6
													46	NRPK	538.00				5
													47	YLPR	239.00				8
26-Jun-2001	Test Angling	3	5.00	GPS	All over lake	317697.0	6212024.0	NAD83	-111	10	WALL	10	48	WALL	275.00				
										7	NRPK	7	49	WALL	412.00				
													50	WALL	375.00				
													51	WALL	294.00				
													52	WALL	425.00				
													53	WALL	248.00				
													54	WALL	260.00				
													55	WALL	414.00				
													56	WALL	357.00				
													57	WALL	374.00				
													58	NRPK	560.00				
													59	NRPK	498.00				
													60	NRPK	492.00				
													61	NRPK	598.00				
													62	NRPK	605.00				
													63	NRPK	465.00				
													64	NRPK	710.00				
28-Jun-2001	Test Angling	1	1.50	GPS	Campground	320844.0	6213468.0	NAD83	-111	1	WALL	1	65	WALL	300.00				4
										1	NRPK	1	66	NRPK	434.00				4
28-Jun-2001	Test Angling	1	0.75	GPS	N.End of lake	321961.0	6224058.0	NAD83	-111	2	NRPK	2	67	NRPK	405.00				3
													68	NRPK	445.00				4

Appendix 4. con't

Activity Date	Capture Method	Number of Anglers	Hours Fished	Location Source	Location	Start UTM Easting	Start UTM Northing	UTM Ref. Mer.	Total Caught	Of Species	Number of Fish Released	Sample #	Species	Fork Length (mm)	Weight (g)	Sex	Maturity	Age (yrs)										
01-Jul-2001	Test Angling	3	3.50	GPS	Big Point	317697.0	6212024.0	NAD83	-111	12	WALL	12	69	WALL	363.00			8										
										5	NRPK	5	70	WALL	530.00			11										
										2	YLPR	2	71	WALL	265.00			4										
													72	WALL	330.00			11										
													73	WALL	398.00			9										
													74	WALL	380.00			10										
													75	WALL	373.00			8										
													76	WALL	268.00			4										
													77	WALL	240.00			4										
													78	WALL	379.00			9										
													79	WALL	428.00			8										
													80	WALL	345.00													
													81	NRPK	603.00			4										
													82	NRPK	504.00			6										
										02-Jul-2001	Test Angling	1	5.00	GPS	Big Point	317697.0	6212024.0	NAD83	-111	5	WALL	5	88	WALL	393.00			8
2	NRPK	2	89	WALL	259.00			5																				
			90	WALL	325.00			7																				
			91	WALL	303.00			7																				
			92	WALL	232.00			3																				
			93	NRPK	509.00			5																				
			94	NRPK	575.00			6																				
			95	WALL	318.00			7																				
			96	WALL	387.00			8																				
			97	WALL	385.00			8																				
03-Jul-2001	Test Angling	2	2.50	GPS	Big Point	317697.0	6212024.0	NAD83	-111											3	WALL	3	98	WALL	337.00			
																							99	WALL	312.00			
																							100	WALL	358.00			
																							101	WALL	347.00			
																							102	WALL	320.00			
													103	WALL	405.00													
													104	WALL	440.00													
													105	WALL	502.00													
													106	WALL	510.00													
													107	WALL	535.00													
													108	NRPK	513.00													
													109	NRPK	489.00													
													110	NRPK	520.00													
													111	YLPR	245.00													
										21-Jul-2001	Test Angling	3	1.00	GPS	MD Launch	320308.0	6210704.0	NAD83	-111	1	WALL	1	112	WALL	269.00			5
1	NRPK	1	113	NRPK	419.00			3																				
28-Jul-2001	Test Angling	2	1.25	GPS	MD Launch	320308.0	6210704.0	NAD83	-111	1	WALL	1	114	WALL	344.00													
										4	NRPK	3	115	NRPK	472.00			6										
													116	NRPK	482.00			4										
													117	NRPK	371.00			3										
													118	NRPK	602.00	1420	F	Mature	8									
													119	NRPK	558.00			4										
31-Jul-2001	Test Angling	2	0.50	GPS	Campground	320844.0	6213468.0	NAD83	-111	1	NRPK	1	120	WALL	250.00													
01-Aug-2001	Test Angling	1	1.75	GPS	MD Launch	320308.0	6210704.0	NAD83	-111	2	WALL	2	121	WALL	392.00			5										
										1	NRPK	0	122	NRPK	680.00	2110	F	Mature	10									
04-Aug-2001	Test Angling	3	2.00	GPS	Campground	320844.0	6213468.0	NAD83	-111	3	WALL	1	123	WALL	460.00			7										
										2	NRPK	2	124	WALL	430.00													
													125	WALL	330.00													
													126	NRPK	410.00													
													127	NRPK	380.00													
17-Aug-2001	Test Angling	3	0.75	GPS	MD Launch	320308.0	6210704.0	NAD83	-111																			
18-Aug-2001	Test Angling	4	1.75	GPS	Campground	320844.0	6213468.0	NAD83	-111																			
18-Aug-2001	Test Angling	2	1.25	GPS	Campground	320844.0	6213468.0	NAD83	-111	4	WALL	4	128	WALL	258.00			5										
29-Aug-2001	Test Angling	2	1.375	GPS	MD Launch	320308.0	6210704.0	NAD83	-111	1	WALL	1	129	WALL	313.00			8										
										5	NRPK	5	130	WALL	313.00			6										
													131	WALL	260.00			4										
													132	WALL	353.00			8										
													133	NRPK	554.00			7										
													134	NRPK	625.00			7										
													135	NRPK	465.00			4										
													136	NRPK	521.00			7										
													137	NRPK	549.00			4										

