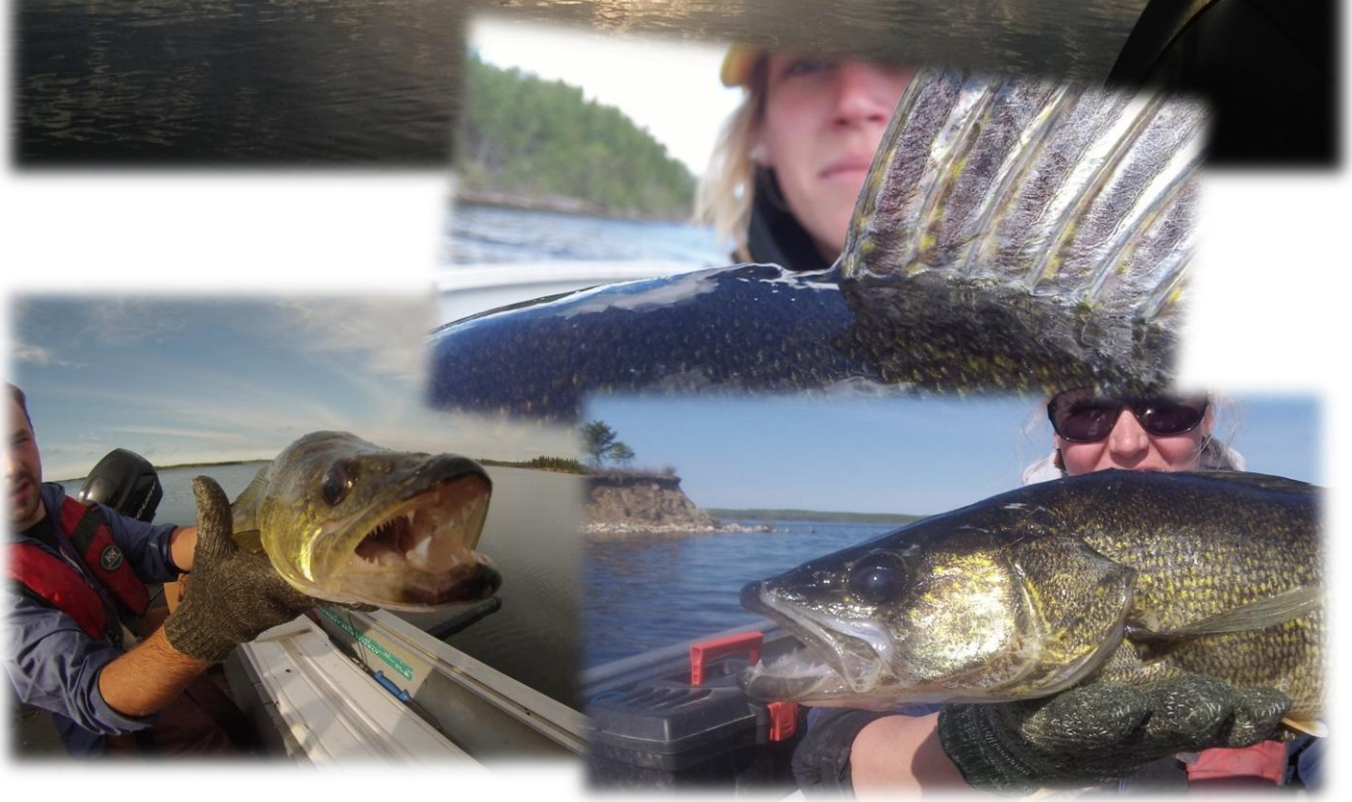
Bell Lake
&
North Steeprock Lake
Trap Netting

FEF Project 12-024



Swan Valley Sport Fishing Enhancement Inc.

Submitted by: Holly Urban & Brock Koutecky

November 2013

Summary

The purpose of conducting trap netting programs on Bell & North Steeprock Lake was to obtain a better understanding of the current fisheries in both waterbodies and to identify any management or enhancement actions required to maintain or develop self sustaining walleye fisheries.

Bell Lake was sampled in the spring in 2012 & 2013 and results indicated the walleye fishery has significantly developed with walleye being 47% of the species composition. The population estimates found a moderate population of 3.9 walleye/hectare. Size distribution frequencies within the walleye population are developing. Improvement to the number of mature fish does indicate walleye recruitment potential. Recommendations were made to address concerns of spawning habitat & fishing during the spawn once recruitment results are determined (FEF project 12-042). Pike size distributions and available forage were found to be a concern. Smaller pike numbers are increasing with a lack of medium sized pike for anglers to harvest and larger pike to control the smaller pike population(population estimated moderate at 5.6 pike/hectare). Forage diversity and abundance is considerably low and recommendation to pursue supplementing the forage base through stocking/transferring minnow species was identified.

North Steeprock Lake was sampled in the fall of 2012 & 2013. Results found walleye in Steeprock also dominate the species composition at 39%. This is considerably different from compositions found in past index netting results. Estimated walleye populations were also very similar with 3.8 walleye/hectare, although the size of walleye were far more distributed than Bell Lake walleye. There was a higher frequency of large walleye at Steeprock indicating a higher recruitment potential. Recent growth of Steeprock walleye was less then Bell Lake walleye. Once ages are determined better interpretation of this can be made. Concerns addressed for North Steeprock was the success of recruitment from the mature walleye population (FEF project 12-042 will help determine), effects of fishing pressure on spawning fish and the decline in the lake whitefish populations. Recommendations were made to include lake whitefish in management considerations & monitoring to ensure population growth. It was also recommended to promote catch and release during the spawn in spawning areas at this time. If recruitment results indicate low success in natural reproduction, and fishing mortality during the spawn becomes a concern, amending fishing regulations to protect fish during the spawn should be pursued.

The FEF project 12-042 - Evaluating the success of walleye recruitment was initiated in 2013. Part of the project’s objectives was to compare natural recruitment success to stocking success in both North Steeprock and Bell Lakes. The project, which will conclude in 2014 essentially captures young of the year walleye via electrofishing and seining. This project is a major contributing factor to this study and should be finalized by early 2015.

Both Bell and North Steeprock lake have the potential to offer and do offer exceptional walleye fishing during certain times of the year. North Steeprock’s walleye fishery is more established and spawning habitat has been identified. Walleye at Bell Lake appear to still be in the developing or recovering stage. This could be due to the lack of diversity and stability of the fishery and/ how vulnerable the fishery is to fishing pressure. Once future recruitment results are determined, future stocking practices can be implemented, recommendations applied, along with rotational monitoring on two popular lakes in the Porcupine Mountains.

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Project Objectives

Through funding received from Fisheries Enhancement Fund (FEF), SVSFE initiated the live release trap netting programs in 2012 for both Bell and Steeprock Lake (Project 11-035 – IFA#2). During these assessments, technicians collected baseline information on the species diversity and the current health of the fishery.

With successfully securing funding through FEF (Project 12-024), SVSFE repeated both trap netting programs in the spring and fall of 2013. Through two years of trap netting the following objectives were or will be achieved:

- population estimates
- growth analysis
- Identify patterns or concerns on both fisheries

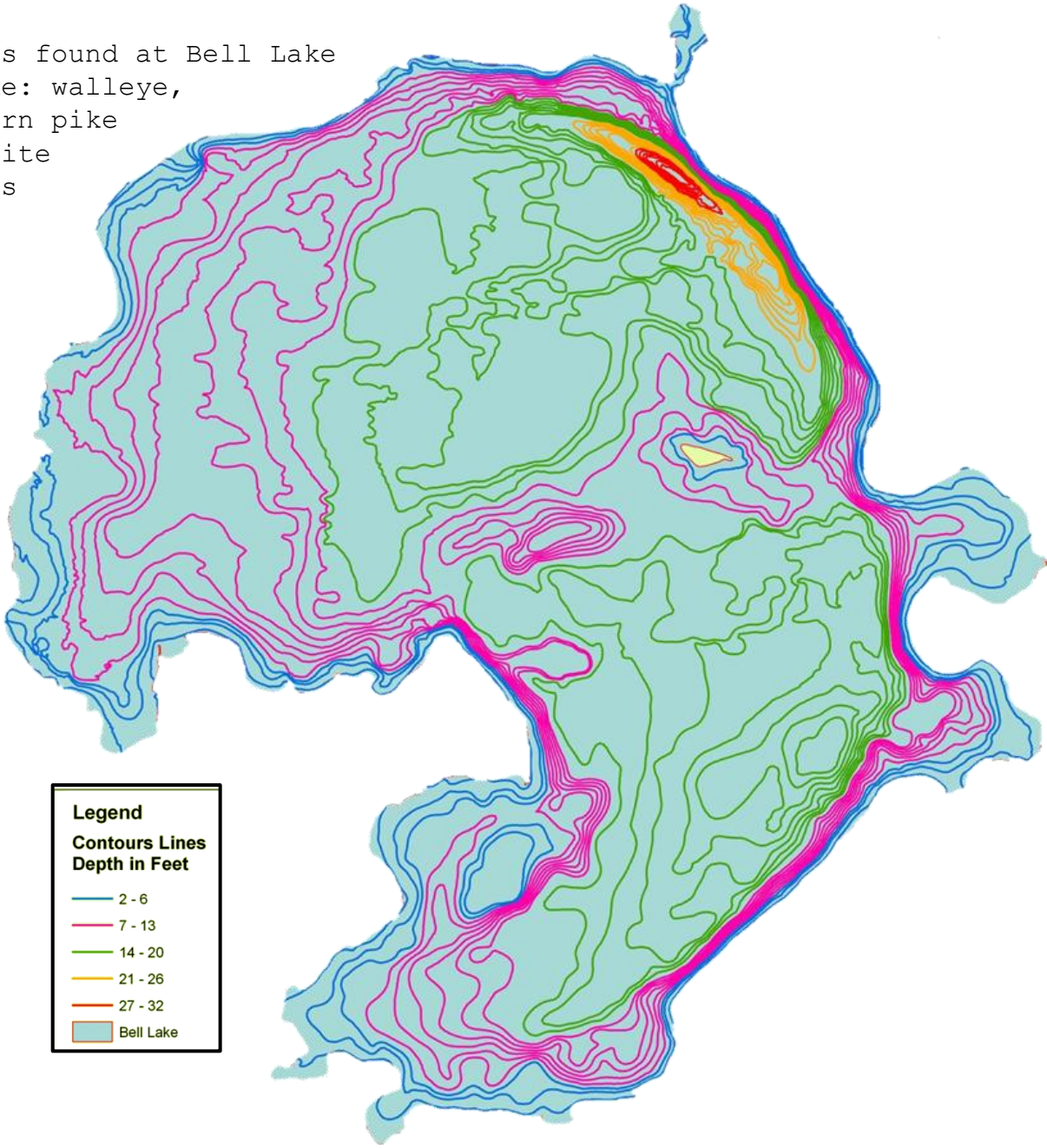
Combining results with past findings (C&WSD index netting, barrel counts, walleye telemetry 98'), angler surveys and the 2009 walleye study (FEF Project 09-010 & 011) provide a moderate scope on both fisheries. In addition, findings will be used to:

- improve, alter and/ validate SVSFE's stocking committee's future decision making for two popular walleye lakes in the Porcupine Mountains.
- indicate whether enhancement work is required to assist in ensuring self sustaining walleye fisheries.

Bell Lake

Bell Lake is located in the Porcupine Provincial Forest approximately 19 km west along PR 365. The lake was mapped in 2009 and holds a maximum depth of 10.1 meters and is 375 hectares. Services include; a campground (unserviced), washrooms, cook shack, filleting shack and boat launch.

Species found at Bell Lake include: walleye, northern pike and white suckers



Stocking:

Stocking at Bell Lake has been solely walleye stocking which was first introduced in 1959 with 500,000 eyed eggs. Comparing strong ages classes of walleye from all past and present studies help indicate successful stocking years.

Year	Number	Age
1959	500,000	Eyed Eggs
1976	500,000	Fry
1987	200,000	Fry
1990	300,000	Fry
1992	300,000	Fry
1994	300,000	Fry
1995	300,000	Fry
1996	300,000	Fry
1997	200,000	Fry
1997	16,036	Fingerlings
2000	200,000	Fry
2001	200,000	Fry
2002	200,000	Fry
2003	300,000	Fry
2004	300,000	Fry
2005	300,000	Fry
2006	300,000	Fry
2007	300,000	Fry
2008	300,000	Fry
2008	650	Fingerlings
2009	100,000	Fry
2010	100,000	Fry
2011	200,000	Fry
2012	300,000	Fry
2013	200,000	Fry
Total	**6,216,686**	

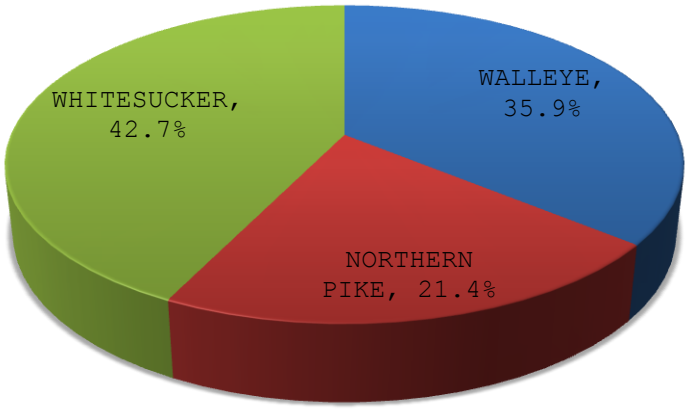
Historical Studies: Manitoba Water Stewardship – Bell Lake Survey 1992

The Bell Lake Survey 1992 - noted Bell Lake as being a fair to good walleye fishery over the past 10 years. Results previous to this study, from the 1978 test netting produced 19 walleye and forty-two northern pike. The 1992 study was conducted to evaluate the past stocking and to inventory the current fish stocks.

Two sets were made on July 20th and 21st with a composite gang of 1½, 2, 3, 3¾, 4¼ and 5 inch mesh. A total of 37 walleye, 22 northern pike and 44 white suckers were caught. Walleye displayed:

- Average Age of 4.8 years
- Mean Length of 382.9 mm (15")
- Mean Weight of 795.2 g (1.75lbs)
- Mean Condition Factor 1.4
- Immature sex ratio 3 females/male
- Mature sex ratio 2.3 females/male
- Overall sex ratio 2.6 females/male

BELL LAKE 1992 INDEX NETTING Species Composition



The study reported walleye were foraging on mayfly larvae, white suckers and amphipods, while pike stomach contents consisted of unidentified fish remains. Growth on walleye was noted to be considerably slower than North Steeprock walleye (also noting this was not a reliable fact with such a small sample size).

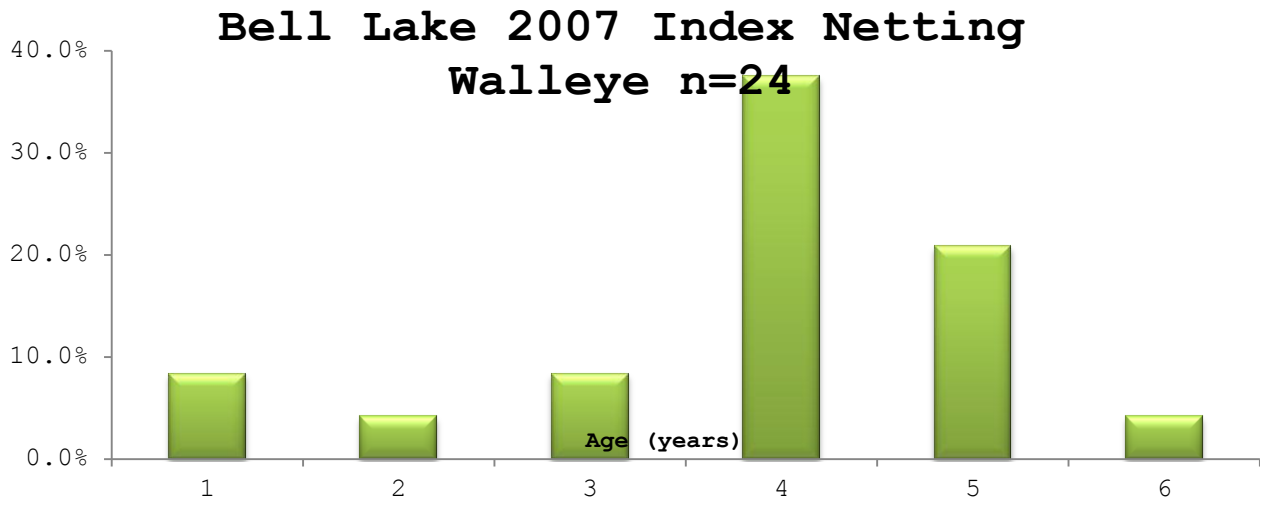
Conclusions;

Bell Lake provides a "reasonably good walleye fishery that has been maintained mostly by natural recruitment",

"slow growth and type of forage suggests that there is considerable intra-specific competition for available food as well as inter-specific competition"."Consideration could be given to the introduction of yellow perch to serve as a forage species as well as an additional sport fishing species.....Other forage species such as shiner or fathead minnows could also be introduced"

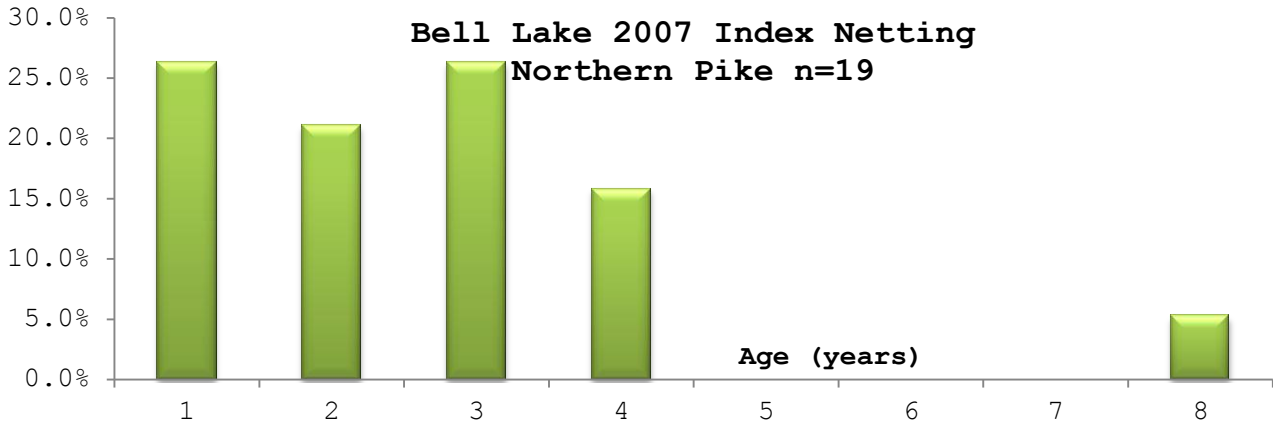
"Recruitment does not appear to be a problem", "observed numerous rocky shoals in the lake that appeared to be adequate for walleye spawning",

Historical Studies: Manitoba Water Stewardship – 2007 Index Netting



Walleye displayed:

- Average age of three years with a mean size of 369.5 mm (14.5”) fork length and 672.5 g (1.48lbs) in weight
- Maturity occurred at age 5 with a mature sex ratio of 0.7 females/male and an immature sex ratio of 1.33 females/males
- Mean Condition Factor of 1.0



Northern pike displayed:

- Mean age was 2.5 years of age, with the mean size of 420.1 mm (16.5”) fork length and 703.8 g (1.5 lbs) weight
- Maturity occurred at age four. With a mature sex ratio of 1.5 females/males and an immature sex ratio of 3 females/males.
- Mean Condition Factor of 0.93

Historical Studies: 2009 Creel Survey

Angler's participated in the 2009 survey by responding to interviews, using drop-off survey boxes and mailing in responses. SVSFE fishery technicians conducted surveys from May 9/2009 to August 30/2009.

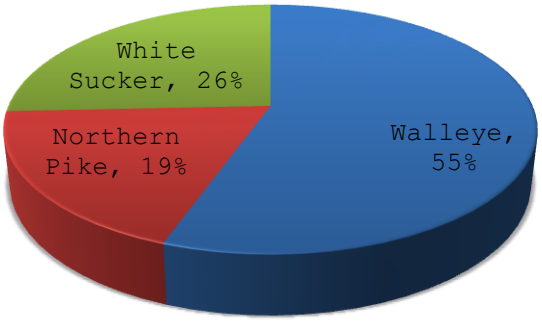
Surveys indicated the following Census for Bell Lake:

- Fishing Quality **2.1 Fish/Hour**
- When looking at specific species, **walleye** possessed the highest fishing quality at **1.17 fish/hour**. Followed by northern pike 0.39 fish/hour and white sucker 0.54 fish/hour
- Fishing Pressure was minimal with an average of 1.96 anglers/day
- Percentage of fish released is 79%
- Majority of fishing occurred on the weekend during the PM
- 76% of anglers interviewed were from the local area

Average Hours Fished	2.9
Weekday	40%
Weekend	60%
Evening	89%
Day	11%
Fished from Boat	92%
Fished from Shore	8%
Adult Anglers	50%
Senior Anglers	19%
Mixed Age Groups	19%
Unknown	13%

Composition of Species Angled

N= 292



38% of walleye caught were retained, with only 4% of pike caught being retained – anglers noted them being too small (no suckers were retained)

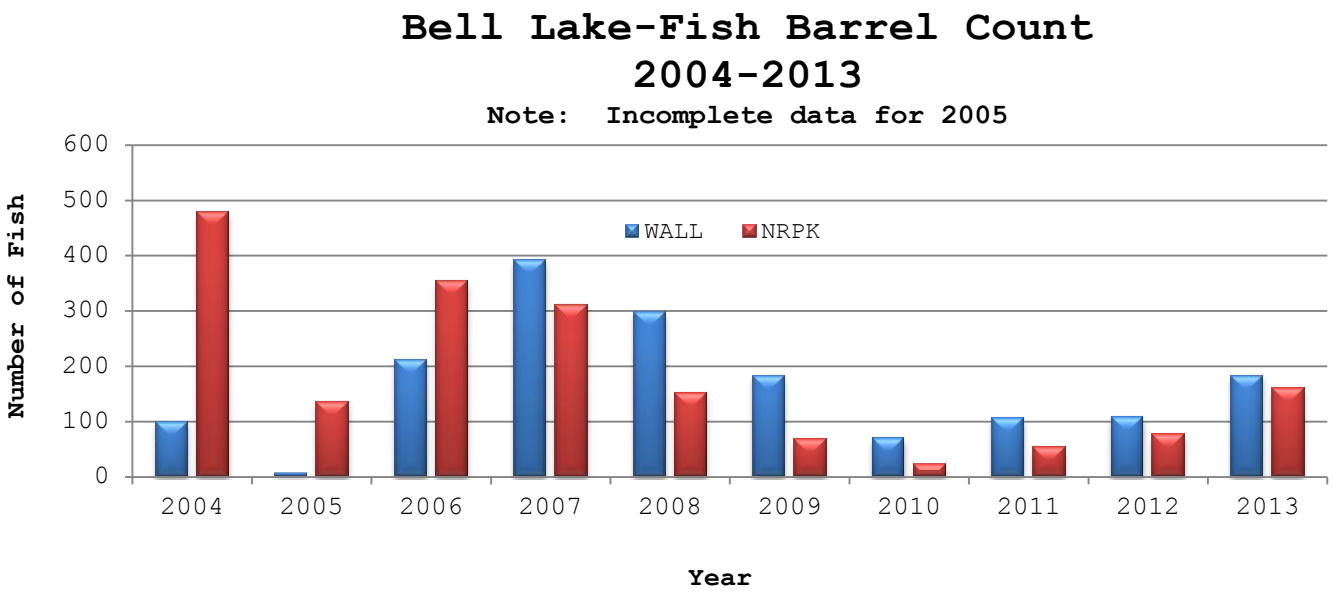
Type of Licence	
Regular	45%
Conservation	13%
Non-resident	5%
Treaty	7%
Senior	2%
Youth	11%
Unknown	16%

Residence	
Valley Resident	76%
Manitoba Resident	4%
Canadian Resident	7%
Non Resident	1%
Unknown	12%

Historical Studies:

Barrel Counts 2004 -2013

Since 2004, Fisheries Branch, Parks and SVSFE have worked together to collect information on the fish being harvested at Bell & North Steeprock Lake. Barrel counts not only help monitor the pressure on these fisheries but also provide a rough indication of fishing quality and stocking success.

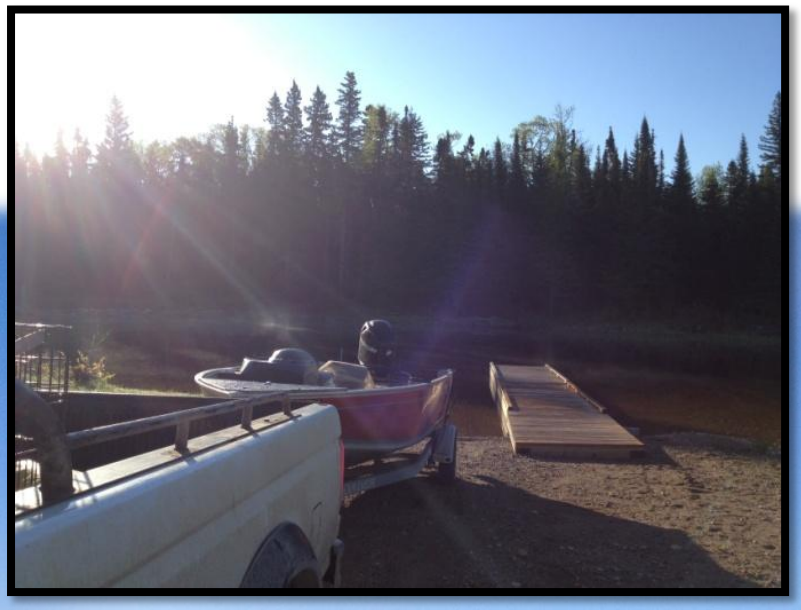


FUN FACT: Comparing the barrel counts from the past 10 years to the time of year, one can assume **fishing pressure** or **quality** for walleye and pike are at the highest during the **month of July**. Being 44% walleye and 34% northern pike were caught in July.

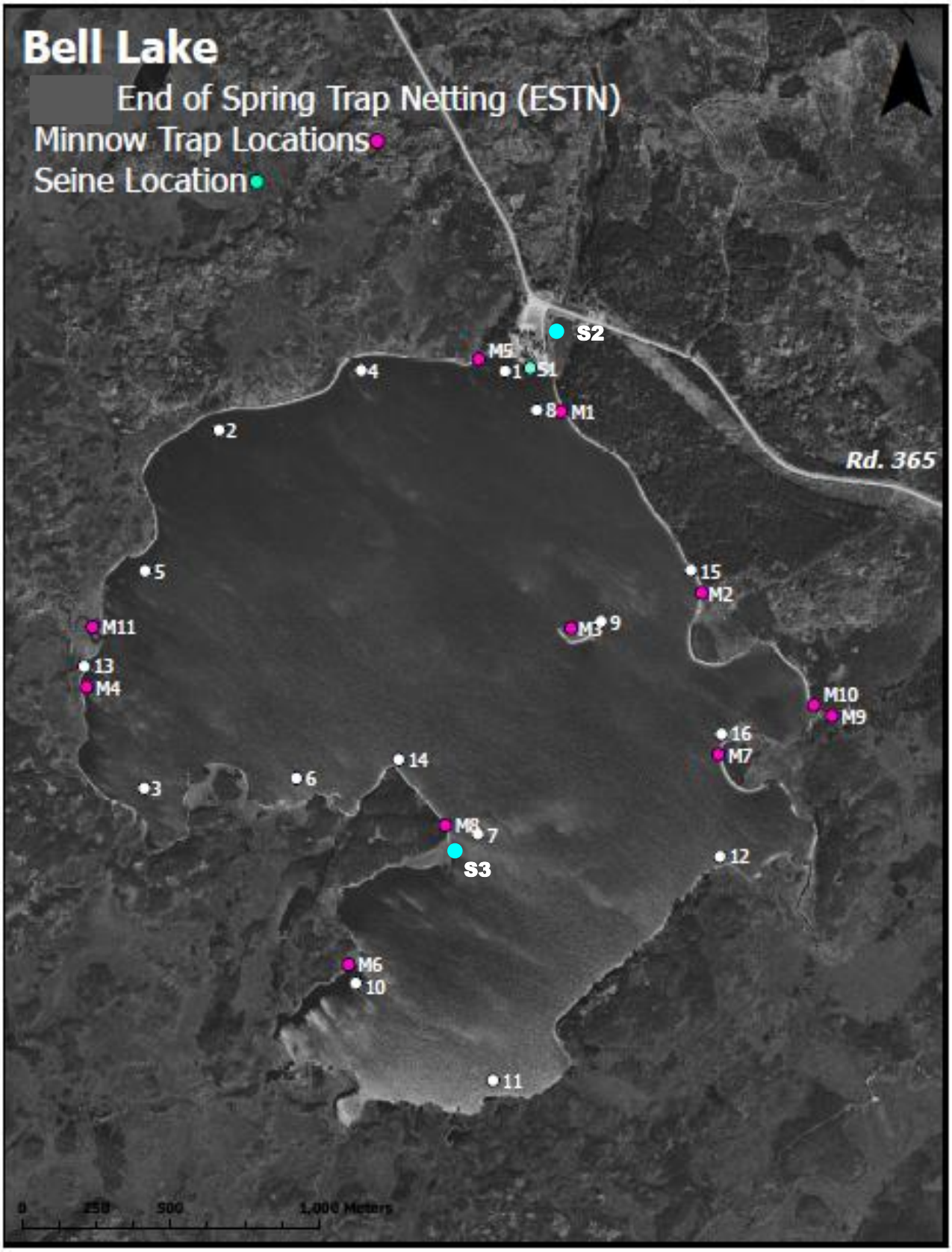
When looking at the harvest over the years it is apparent there was a large decrease following 2007-08. Limit and size regulations were put in place in 2009, which may have steered anglers to other waterbodies with higher walleye limits, but this drop could also indicate a decrease in fish populations.

Trap Netting Results: Study Period

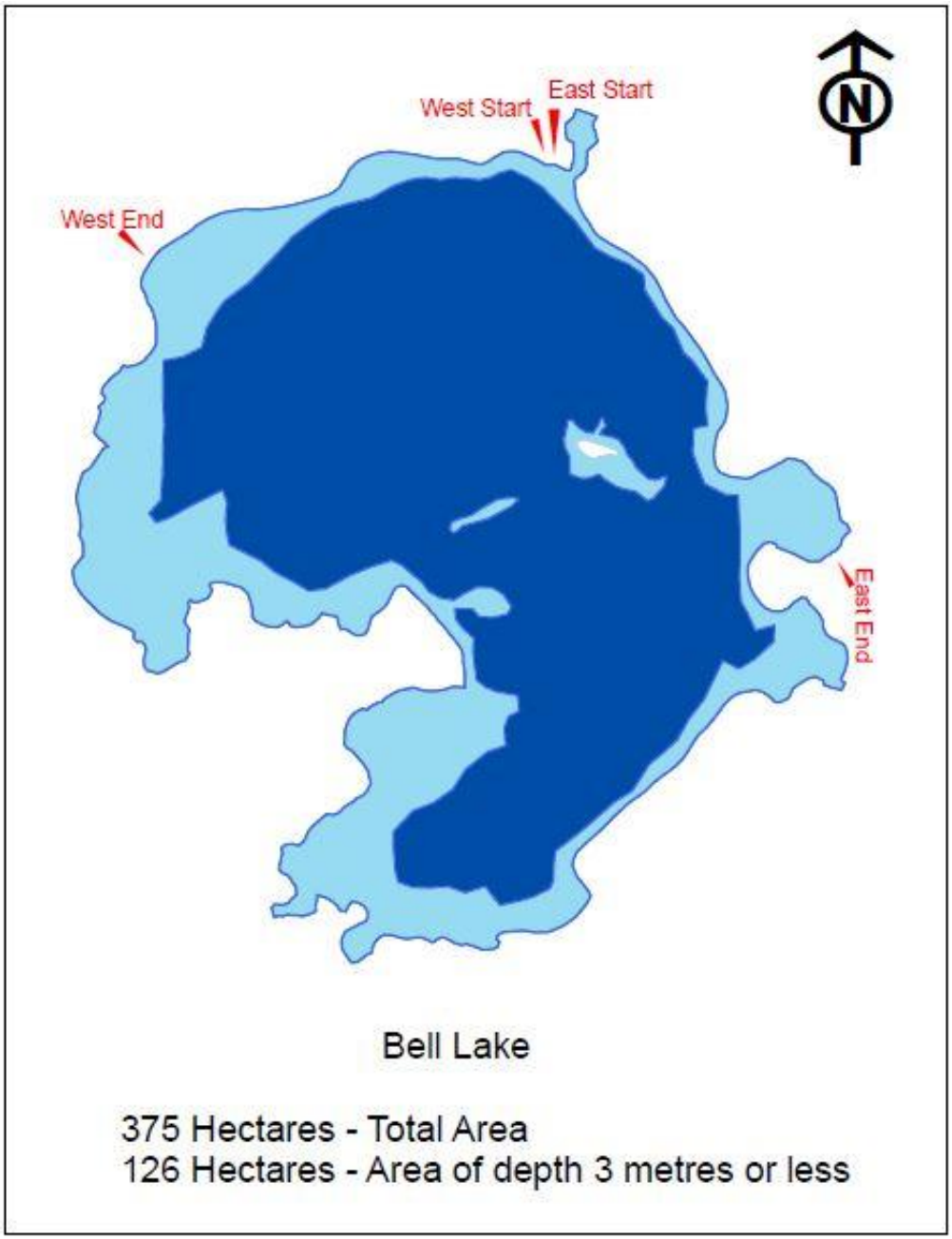
Trap netting was conducted between May 16th – 22nd during 2012 and May 29th – June 12th during 2013. Effort was made to use water temperature as the parameter to replicate sampling between both years. Temperatures ranged between 9.9 to 15 °C with an average temperature of 11.9°C. 2013 had a late ice melt but mild weather caused water temperatures to rapidly increased compared to 2012, which remained below the average 11°C.



Trap Netting Results: Study Area



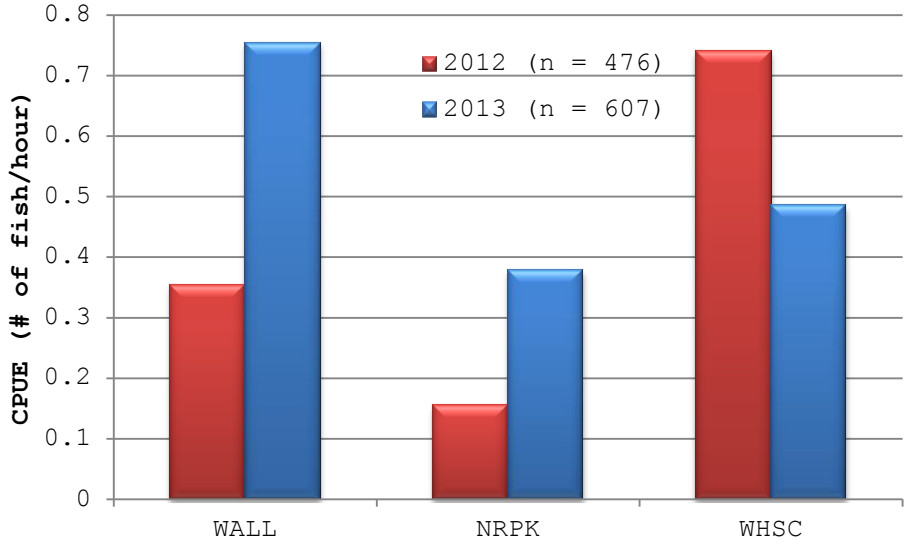
Littoral Zones:



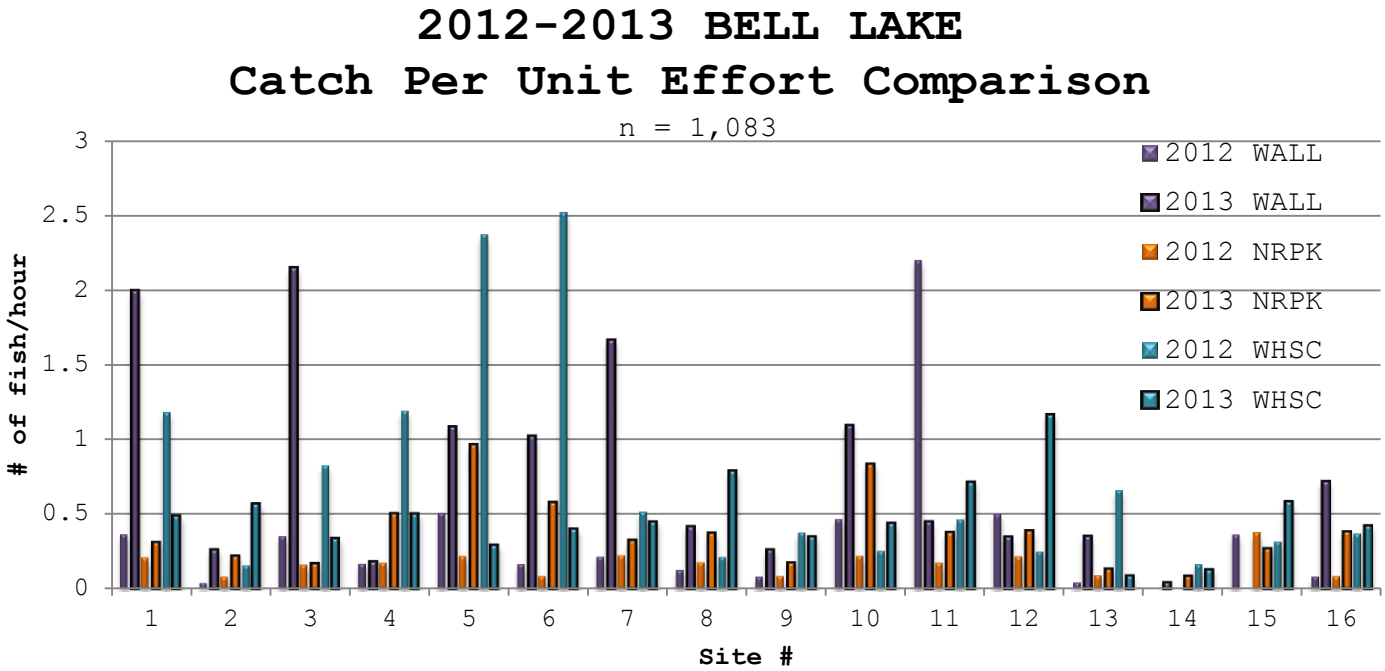
The littoral zone is the near shore area where sunlight penetrates all the way to the sediment and allows aquatic plants (macrophytes) to grow (Unknown 2004). The littoral zones of lake are important habitat for some or all life history stages of many fishes (Beauchamp 1994). Littoral zones were computed by Gary Slack (GIS Specialist) using the 2009 bathymetric data collected by SVSFE. Knowing the area of littoral habitat available in Bell Lake will help determine valuable stocking rates and aid in lake management.

Trap Netting Results: CPUE

Catch Per Unit Effort by Species



Catch per Unit Effort CPUE is only a rough indictor of relative abundance and identifies changes in population densities (Schneider, 2000). Both predatory fish (walleye & northern pike) display an increase in abundance while white suckers have declined. Below is CPUE by site. There was no apparent relation between site and CPUE.

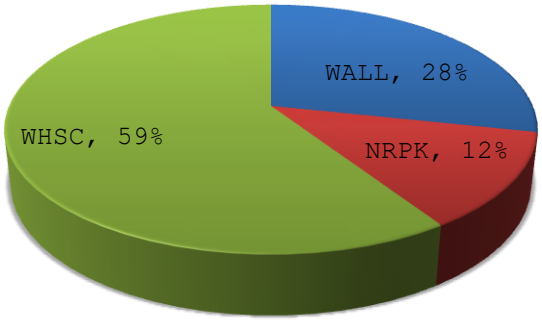


Trap Netting Results: Composition

Community composition on a weight basis is less variable and more useful statistic than community composition on a number basis (Schneider, 1981), Both weight and number compositions have pros and cons so we have compared both.

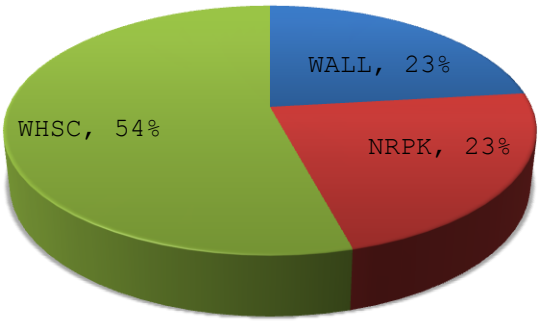
2012 Species Composition by Number

n=476



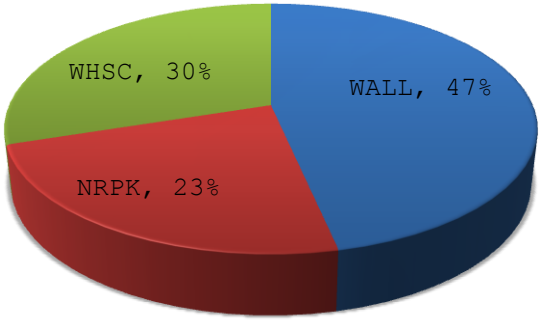
2012 Species Composition by Weight

n=476



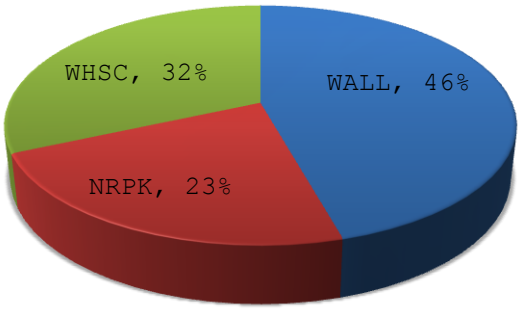
2013 Species Composition by Number

n=607



2013 Species Composition by Weight

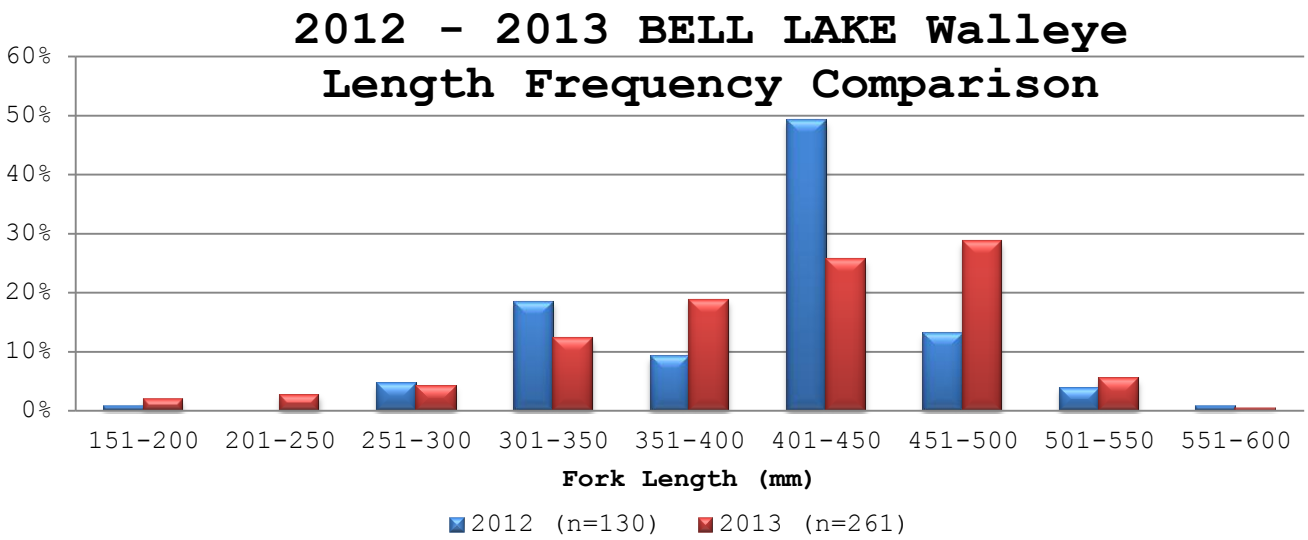
n=607



When comparing the species composition from 2012 & 2013, one can see relative walleye abundance has increased. Species compositions in a population fluctuate and causes of change vary including; intraspecific dynamics, competition, predation, fishing and environmental fluctuations. The increase in walleye could indicate a change in predator and intraspecific dynamics. The increase in pike is only noted when comparing species composition by number as the biomass of this species remains the same.

2013 Trap Netting Results: Walleye

Walleye caught in 2013 represent a fair distribution between size classes with close to 34% of the population being within the protected slot size. With the number of mature fish slowing increasing, recruitment potential should increase. The decrease in 401-450 mm length category (strongest in 2012) is likely due to fishing mortality within this size category and the increase of fish within the next category (moving up). Once ages are analyzed, growth can be compared to past studies.



Recaptures from 2012 provide actual growth of walleye over the past year. Of the 261 walleye caught, 47 were recaps, with 19 being tagged recaps from 2012.

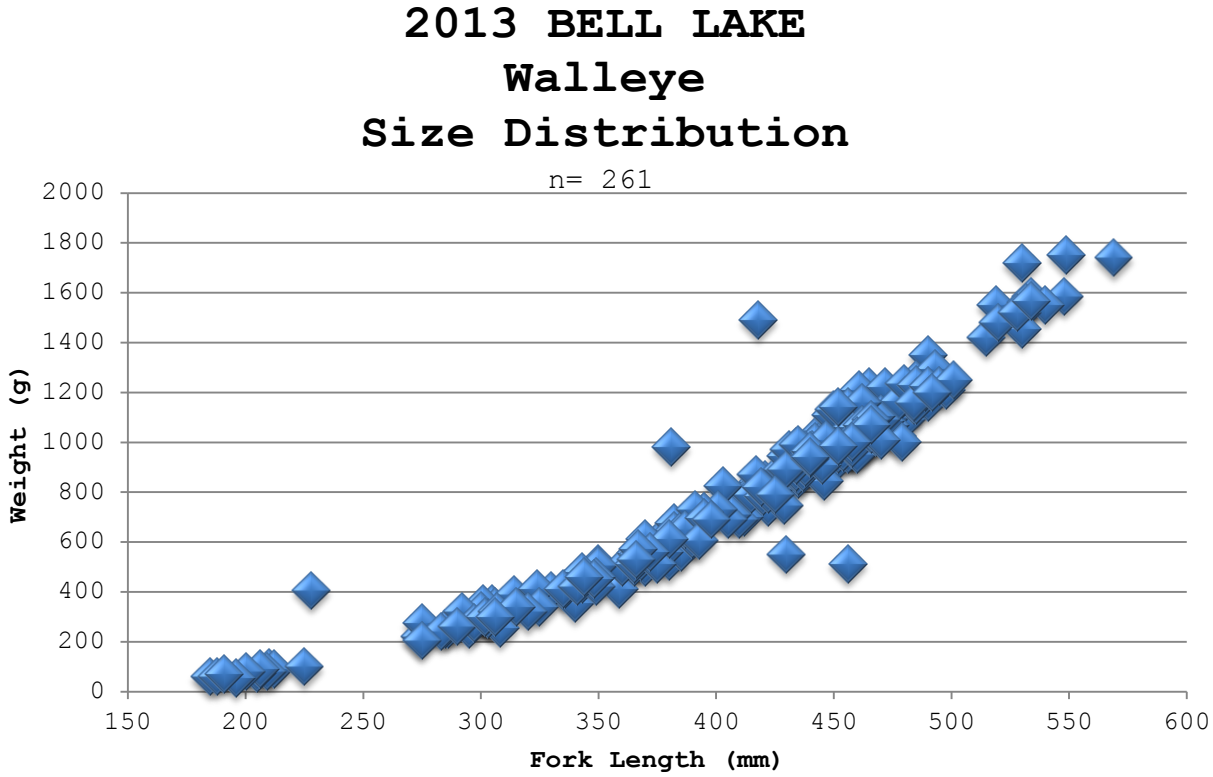
To properly analyze the growth of walleye each recap was placed into length categories as fish grow at different rates at different sizes in their life. The smaller sized walleye displayed good growth at 57 mm (2.2”)and 256 g (0.56lbs) during the year.

	mm/day	mm/year	grams/day	grams/year
Average growth of walleye 300 - 400 mm	0.157	57.394	0.702	256.392
Average Growth of walleye 401 - 500 mm	0.067	24.338	0.464	169.296
Average growth of All Walleye	**0.076**	**27.873**	**0.489**	**178.611**

2013 Trap Netting Results: Walleye

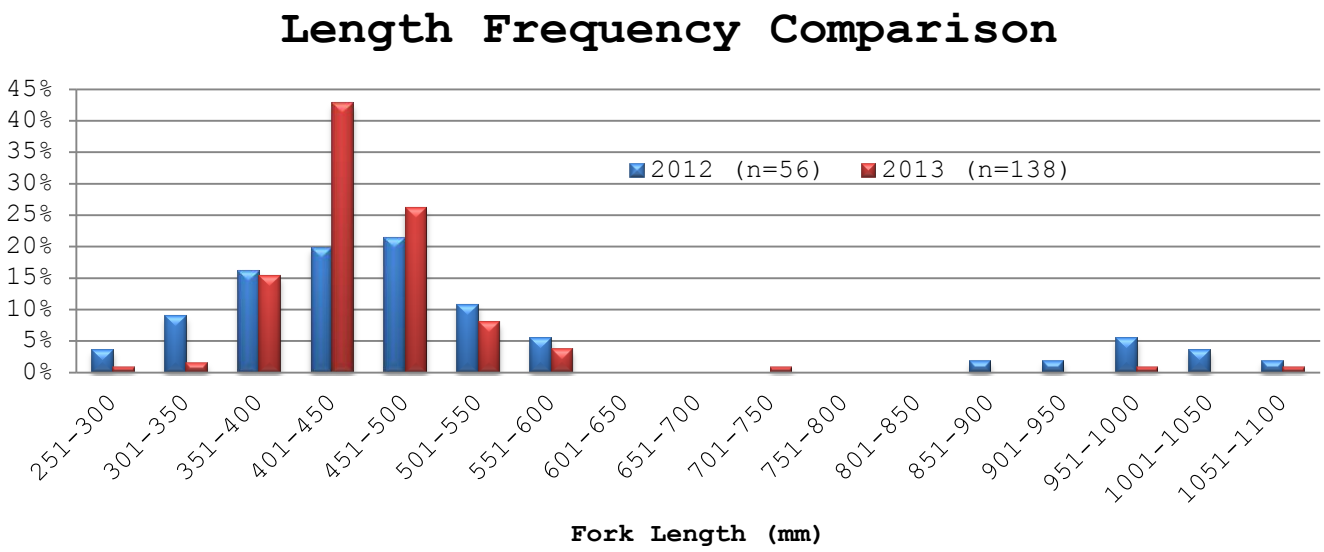
The relative robustness, or degree of well-being, of a fish is expressed by "coefficient of condition"(also known as condition factor, or length-weight factor). Variations in a fish's coefficient of condition primarily reflect state of sexual maturity and degree of nourishment. Condition values may also vary with fish age, and in some species, with sex (Williams J.E., 2000).

When analyzing the condition factor of Bell Lake's walleye population, 2013 walleye possessed an average condition factor of 0.898, which is slightly lower than 2012 at 1.034. This could be contributed to the size, age and sex differences between walleye sampled from one year to the other. Another factor could be the time of year, as spawning can immensely affect the condition of the fish. Again without age information and sampling time varying, results can not be accurately compared to the 1992 and 2007 data by age class, but in relation to the average condition, walleye condition factors have decreased from the 1.4 found in 1992 and 1.0 in 2007. This is not a concern as conditions are within fair levels.



2013 Trap Netting Results:

Northern Pike



Northern pike from 2013 still display an unbalanced size distribution (average size 453 mm). Smaller pike numbers are increasing with a lack of medium sized pike for anglers to harvest and larger pike to control the smaller pike population.

These results correlate with comments and results from the 2009 Creel Census. Many anglers stated the pike they were catching were too small to keep. Only 4% of pike caught during the 2009 census were retained. It is apparent that something in the past has/is affecting the pike population in Bell Lake (ie, over fishing) and the impacts will take several years to recover from this.

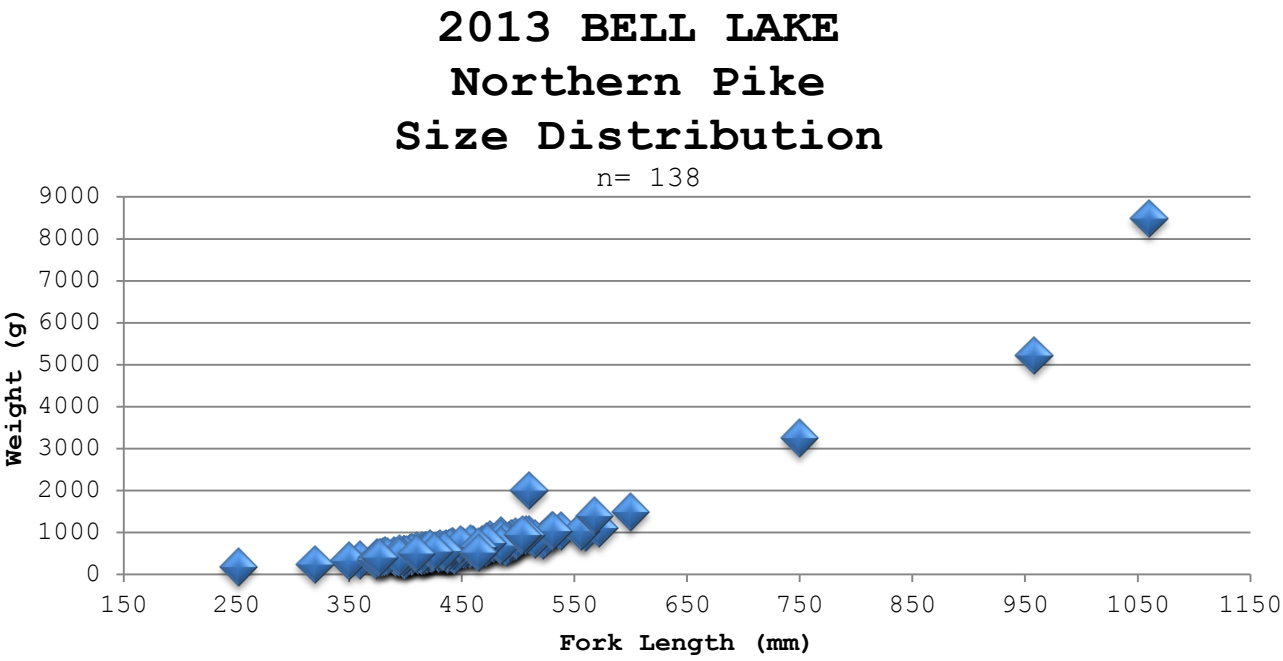
With the increase number of smaller pike within the fish population, concerns might be raised as past surveys stated "slow growth (in walleye) and type of forage suggests that there is considerable intra-specific competition for available food as well as inter-specific competition". Although the walleye populations seem to be establishing well, an increase in populations of smaller pike may cause changes to future walleye populations.

2013 Trap Netting Results:

Northern Pike

When analyzing the condition factor of Bell Lake's northern pike population, 2013 pike possessed an average condition factor of 0.699, slightly higher than 2012 at 0.670. Average conditions are comparable to 2007 at 0.6 and slightly lower then conditions found in 1992 at 0.939.

In 2007 18 of the 19 pike caught were under 505 mm (average size 420 mm) and in 1992 21 of the 22 pike were under 600 mm (average size 451 mm). In 21 years the size dynamics have not altered much, indicating some type of pressure or mortality on pike of this size in Bell Lake. Although the current regulations protect pike 70 cm and above, larger pike are still vulnerable to domestic fishing pressure.



2013 Trap Netting Results:

Population Estimates

Estimated populations were calculated from trap netting recaptures using the Chapman - Petersen method. Of the 607 fish sampled during 2013, 28 were recaptures from the previous year indicating the estimated walleye population contains 1,398.2 (density of 3.9 walleye/hectare). The statistical error is relatively large with 95% certainty the true number lies between 961 to 2113. Walleye populations are characterized to have a fair density with frequencies of mature fish increasing.

The pike population was estimated to contain 2,002 fish (density of 5.6 pike/hectare, 95% confidence level 817 – 5,005). Populations are considered also moderate to high. Angling pressure may be causing an affect on the current dynamics of the size of fish in the population as smaller pike are found to be the stronger classes (anglers keeping the larger pike). The larger pike (low frequencies) play an important role in the population balance.

There are many factors to consider when determining a "healthy" population; lake type, water conditions, available habitat, spawning, species composition (which can change over time), competition, predator/prey relationships, fishing pressure, stocking, etc. Because of these factors, defining the magic number that equals a healthy population is difficult and is lacking in resource information, but monitoring these populations over time with angling quality, monitoring fishing pressure and trap netting programs will help determine this value.

In a walleye study in Ontario on Henderson Lake, walleye populations of 10.4 fish/hectare with strong year classes was considered a high density of adult fish and a healthy population. (Amtstaetter, 2004). Walleye and pike populations appear to be fair to moderate in comparison the Henderson Lake densities.

Maximum Sustainable Yield:

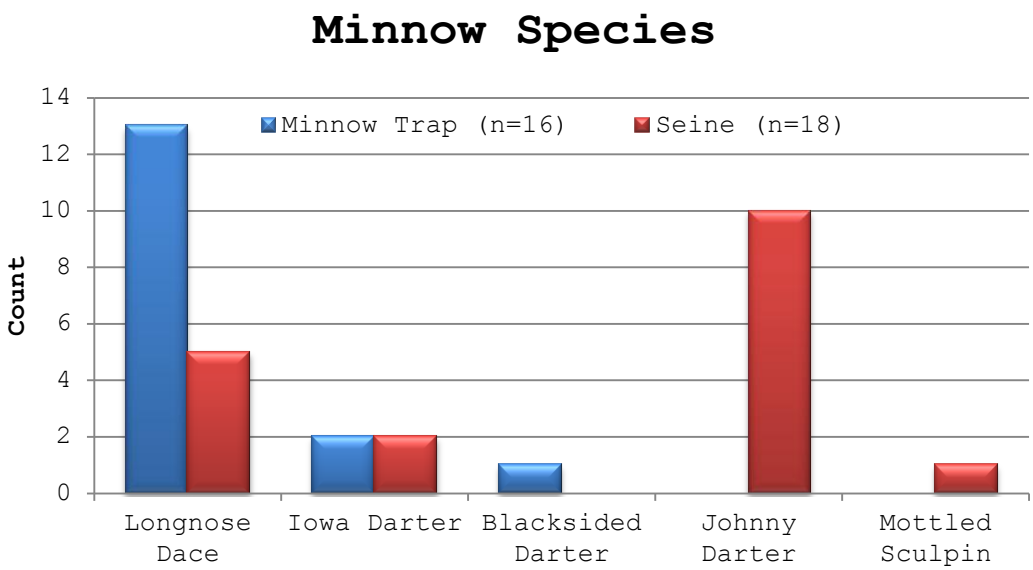
Maximum sustainable yield or **MSY** is, theoretically, the largest yield/catch that can be taken from a species' stock over an indefinite period. Under the assumption of logistic growth, the MSY will be exactly at half the carrying capacity of a species, as this is the stage at when population growth is highest (Unknown, 2013).

The MSY for walleye utilized by managers in the western region is 1 kg/hectare per year, which would be 375 kg/year for Bell Lake. MSY in most modern fisheries models occurs at around 30% of the unexploited population size. This fraction differs among populations depending on the life history of the species and the age-specific selectivity of the fishing method (Unknown, 2013). With the trap netting data; population estimates and average weight of walleye were utilized to calculate whether the value of 1 kg/hectare was accurate and comparable to the 30% MSY. Results found that the MSY of 375 kg/hectare for Bell Lake is 33% of the estimated walleye population biomass, which makes 1 kg/hectare an acceptable MSY value.

Data from barrel counts, creel census and trap netting was used to calculate an estimated kg harvested/year. Estimates found 160.3 kg of walleye were harvested in 2013 open water season. 2007 possessed the highest estimated harvest close to the MSY at 343.4 kg during the open water season. This high harvest rate could very well explain the drops in barrel counts and indicate the was population affected by overfishing.

Low fishing mortality and low biomass is said to be a degraded or recovering stage (4) of a fishery. During this state, it is indicated that the stock was probably overexploited in the past and anglers are expected to likely shift their effort to other lakes. If fishing remains low, a gradual shift to a healthy stage (1) occurs, which is the state expected during early stages of fishery development (Kerr, 2004).

2013 Trap Netting Results: Forage



From the 2012 seining and minnow trap results, concerns were raised on the quantity and quality of forage available for fish(only 1 species found). Effort was made to assess forage available. The 2013 results raised similar concerns. The abundance of minnow species is very sparse with only 34 minnows caught out of 16 minnow traps and 5 seining locations.

Other forage species observed; Freshwater shrimp (scuds/ amphipods), giant diving beetles, caddissfly larvae, mayfly larvae, leeches, dragonfly larvae, chronomids, snails, damselfly larvae and boatmen.

During the trap netting program, it was apparent walleye were heavily feeding on mayfly larvae as they frequently regurgitated the invertebrate's remains during sampling. These forage species provide essential nutrition for fish but low abundance and low diversity in minnow species can indicate less stable and productive fisheries.

2013 Trap Netting Results:

Conclusion / Recommendations

1) Introducing a forage species suitable for the habitat found at Bell Lake is recommended. This could include spottail shiners or fathead minnows (recommended in 1992 study). Fish growth depends on the quality and availability of forage (2004, Kerr et al). All pros and cons should be intensely reviewed before introducing yellow perch as forage as these fish could easily cause competition to the current fish populations. Yellow perch introduction is currently not recommended.
2) The slot size regulation appears to be protecting a portion of the walleye population (>30% within slot). Once results are received from the 2013 recruitment project, SVSFE will have a better understanding on the walleye recruitment at Bell Lake. SVSFE may want to consider walleye fingerling stocking in the future and identifying spawning habitat for walleye if needed. Continual monitoring of this fishery is strongly recommended.
3) Users groups should be aware of the status of pike size distribution and the impacts fishing can have on it. SVSFE could promote catch and release of all larger sized pike (even under 75 cm) to help decrease the gap within size. This is a species which would respond quickly from decreased fishing pressure. Again future monitoring should be conducted to better understand the functions and patterns of this fishery and influencing factors.

2013 Trap Netting Results:

Conclusion / Recommendations

4) Spawning of walleye and white suckers occurred during both the 2012 & 2013 netting programs (either initiating the spawn or mid spawn). This is something the group may want to address as both sampling times were following the opening of the fishing season.

Several lakes in the Porcupine Mountain display later spawning periods in relation to opening day and the group should either promote catch and release to anglers during this time or initiate regulation changes on waterbodies of concern. It is also uncertain where walleye spawn in Bell Lake. There is available spawning habitat within the lake but no specific areas appear to be preferred over others at this time. It is recommended to monitor Bell Lake for now as the spring fishing pressure is currently minimal and promotes responsible fishing practices during the spawn.

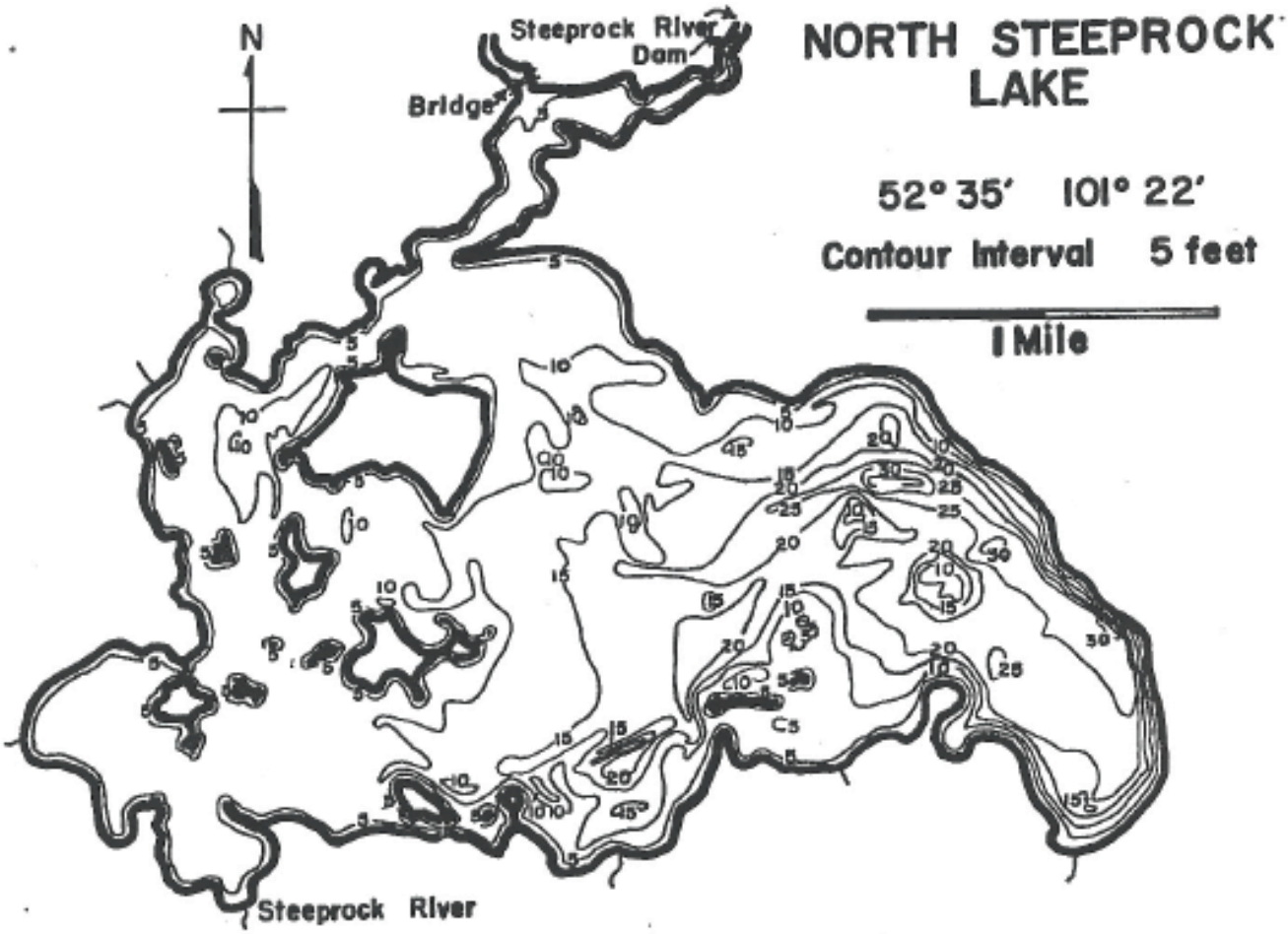
5) Fluctuating water levels during the spawn should also be investigated. Bell Lake's outflow is controlled by Manitoba Infrastructure & Transportation and water levels vary greatly depending on the runoff and the amount being released through the control structure. Minimum and maximum levels should be determined to aid in providing fish with suitable and stable spawning habitat.

North Steeprock Lake

North Steeprock Lake is a 991 hectares lake located in the Porcupine Provincial Forest approximately 29 km west along PR 365. The lake was mapped in 2013 which displayed a maximum depth of 12.7 meters. This is somewhat deeper than the past map which displayed a maximum depth of 10 meters. The new map is currently in the production process.

There is a small development of cabins located on the north shore of the lake. Services provided at Steeprock Lake include; seasonal & daily campgrounds (unserviced), picnic area, beach, washrooms, shower, playgrounds, cook shack, filleting shack and two boat launches.

Species found at Steeprock include: walleye, northern pike, lake whitefish, burbot, yellow perch and white suckers



Historical Studies: Stocking

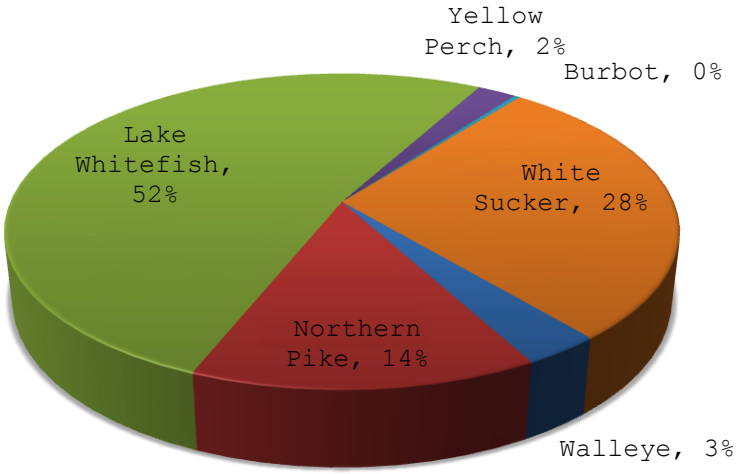
Walleye stocking was first introduced in 1959 with 500,000 eyed eggs. Other species incidentally introduced include splake and lake trout in 1986 when problems were encountered with a proposed stocking of Armit Lake (no evidence of survival of these species)(Steeprock, 1992).

Year	Species	Number	Age
1959	Walleye	500,000	Eyed Eggs
1986	Splake	50,000	Fingerlings
1986	Lake Trout	30,000	Fingerlings
1990	Walleye	500,000	Fry
1994	Walleye	12,000	Fingerlings
1995	Walleye	200,000	Fry
1995	Walleye	24,166	Fingerlings
1996	Walleye	62,967	Fingerlings
1997	Walleye	24,844	Fingerlings
1999	Walleye	150,000	Fry
2002	Walleye	400,000	Fry
2003	Walleye	300,000	Fry
2004	Walleye	200,000	Fry
2013	Walleye	400,000	Fry
•Total Walleye Fingerlings		**123,977**	
•Total Walleye Fry & Eggs		**2,650,000**	

Steeprock was historically important for it’s populations of whitefish, which were commercially fished for several years (Yake, 1998). The commercial fishery was closely monitored and a total of 47,646 kg of whitefish were harvested over the 11 years it was fished in the 70’s and 80’s. Eventually commercial fishing was closed and Steeprock Lake was allocated to sport fishing only.

Historical Studies: Manitoba Water Stewardship – 1992 Lake Survey

NORTH STEEPROCK LAKE 1992 INDEX NETTING Species Composition

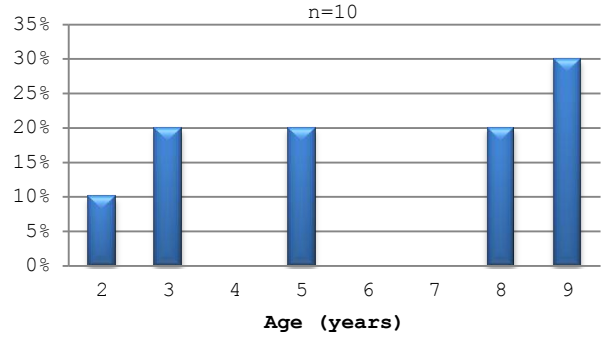


Six sets were set between July 20th and 24th with a composite gang of 1½, 2, 3, 3¾, 4¼ and 5 inch mesh. A total of 10 walleye, 44 northern pike, 163 lake whitefish, 7 yellow perch, 1 burbot and 89 white suckers were caught.

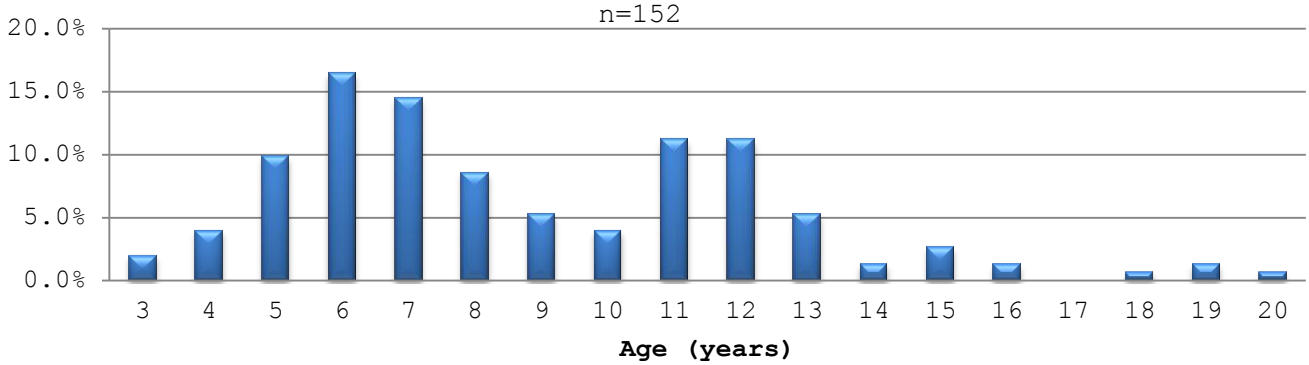
Walleye displayed:

- Average Age of 6.1 years
- Mean Length of 472.8 mm (18.5”)
- Mean Weight of 1591 grams (3.5 lbs)
- Mean Condition Factor 1.2
- Immature sex ratio (Only females)
- Mature sex ratio 6 females/male
- Overall sex ratio 9 females/male

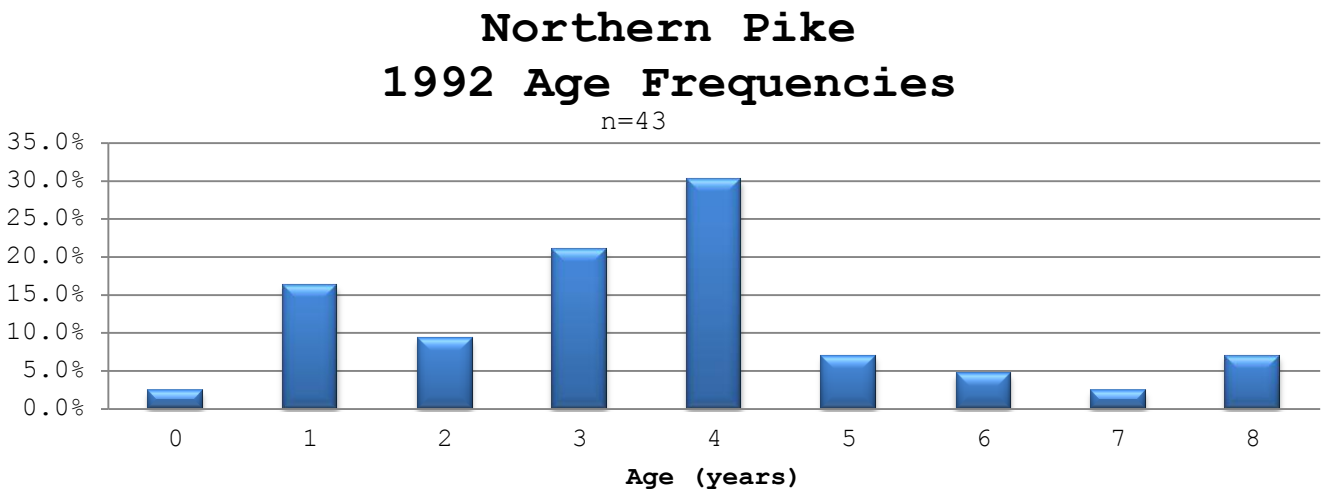
Walleye
1992 Age Frequencies



Lake Whitefish
1992 Age Frequencies



Historical Studies: Manitoba Water Stewardship – 1992 Lake Survey



The study reported; **whitefish** were foraging on clams and snails, while **pike** were eating perch, white suckers, crayfish, whitefish and leeches and **walleye** stomachs contained only whitefish and unidentifiable fish remains. At the time numerous reefs and shoals were observed and considered suitable for walleye and whitefish spawning.

Conclusions: Whitefish were still the dominant species, followed by northern pike. The report stated the 1990 stocking had limited success but stated it may be premature to use the netting results as conclusive. Pike were not abundant in the lake. There was consideration to remove pike to enhance walleye populations but stated it would likely have limited effect. The study identified recruitment of walleye as a problem which may be due to; poor spawning habitat and / poor fry survival after spawning; low productivity level due to poor zooplankton production

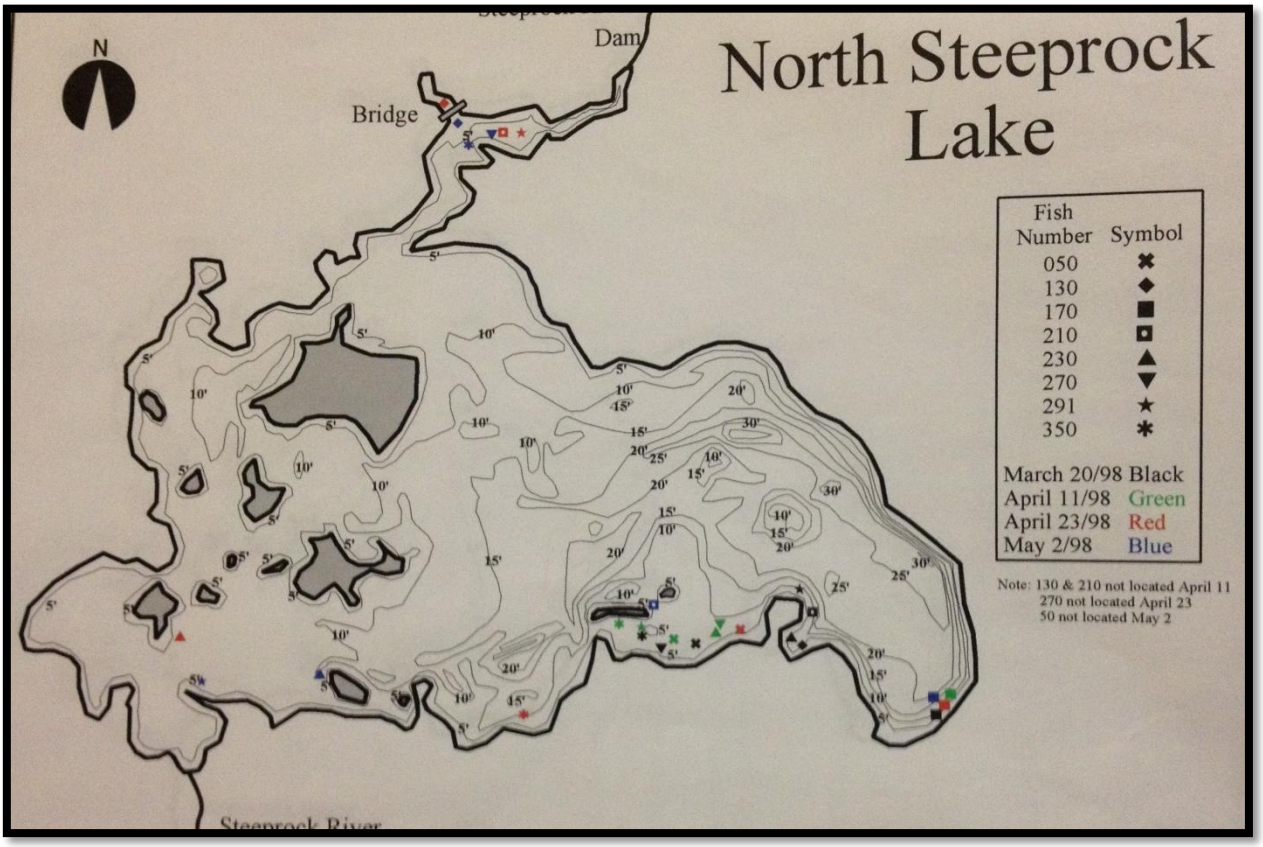
Recommendations:

- re-attempt rearing walleye in North Lake
- possible reef construction at the inflow stream from Deep and Red Shack Lake for spawning habitat improvement.

Historical Studies: SVSFE & WSD

1997 - 1998 Walleye Telemetry

The intent of the Walleye Telemetry study conducted in 1997-98 was to identify spawning areas used by walleye. In a previous telemetry project an important spawning area was identified approximately one mile north of the lake on a inflowing river. Five of the eight fish from the 1997-98 study were located in or near this river at the approximate time of spawning (Yake, 1998).



The study found walleye stayed in the same general area from when they were tagged (October) up to approximate spawning time (April 23). During post spawn most fish remained in relatively shallow water as late as July 19, 1998 (Yake, 1998).

Again it was suggested that the area just downstream of the culverts (inflowing river) could be enhanced with suitable material so the fish would be able to utilize the area for spawning during high water flows.

Historical Studies: SVSFE & WSD Walleye Rearing Project – North Lake

The walleye rearing project was started with the intention of stocking large numbers of fingerlings in Steeprock Lake. Between 1993 and 1998, 2.5 million walleye fry were stocked in North Lake. In that same period 157,307 walleye fingerlings were recovered from North Lake for a recovery success of 6.29%. Most of the fingerlings, 123,977 were stocked in North Steeprock Lake (Yake, 2003).

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Fishful thinking

By Christine Landry

Glen Roberts has caught over 60,000 fish in the past couple of months but he has yet to fillet a single one.

That's because the fish Roberts catches are fingerlings, baby Walleye raised for the purpose of stocking neighboring lakes.

Since late August, Roberts, a founding member of the Swan Valley Sport Fishing Enhancement group (SVSFE), has been volunteering his time to help keep the restocking project going.

"I do this because I guess I have an interest in keeping some fish around for our grandchildren," he said.

In conjunction with Manitoba Fisheries, Roberts and his assistant George Chartrand, regularly head up to a rearing pond near Bell Lake, where earlier this year 400,000 fry (young fish) were placed and where they have grown to a size suitable for transfer to other lakes.

The fry, which are provided by Manitoba Fisheries are placed in the pond when they are only 24 hours old.

"They're about the size of a mosquito when they go in," said Roberts. Once they reach the fingerling stage (about four or five inches in length), they are ready to be transferred to a lake where they will grow to maturity.

The project is four years old and was originally started by Manitoba Fisheries. The SVSFE came on board three years ago when fisheries was no

Historical Studies: Manitoba Water Stewardship – 1998 & 2003 Index Netting

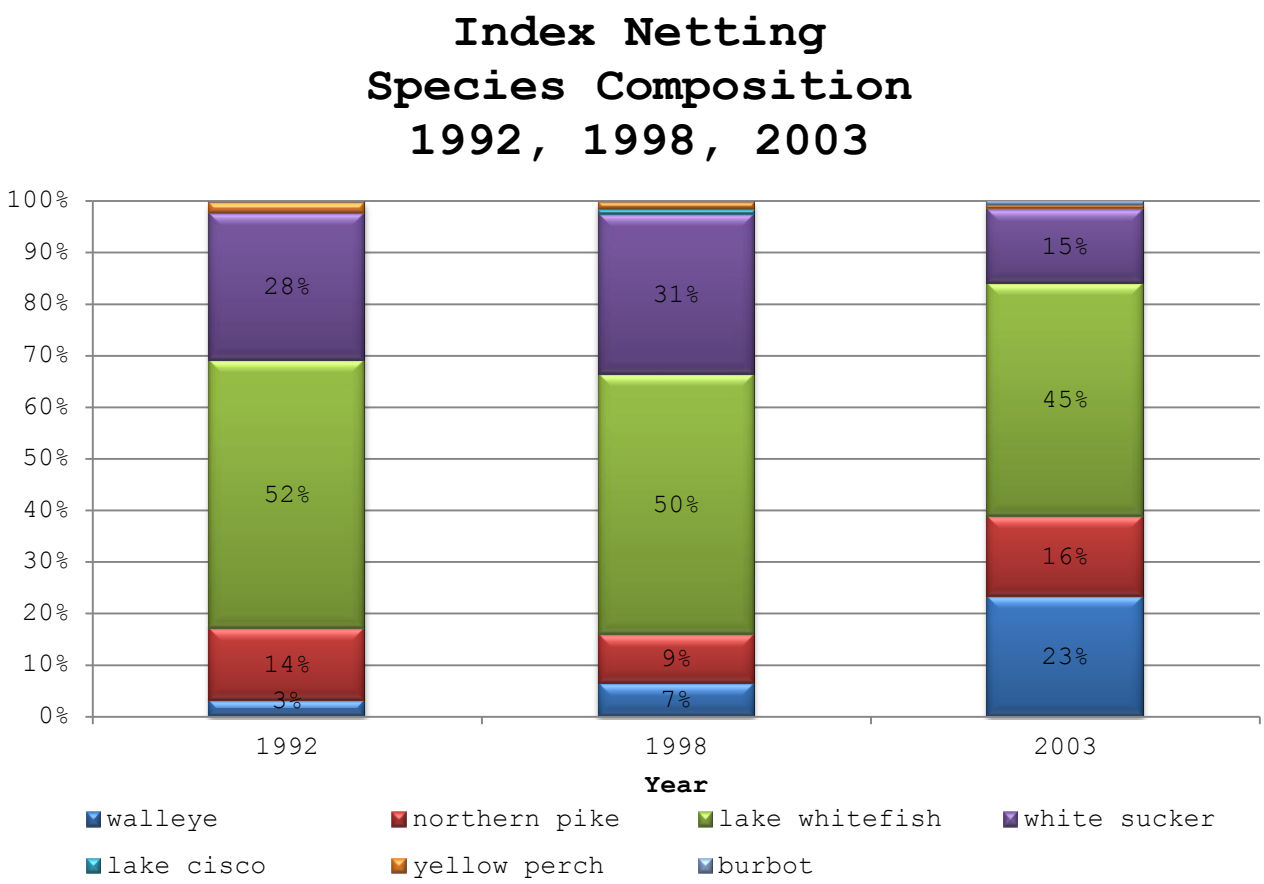
The 1992 index netting was replicated in both 1998 & 2003. A total of 414 and 508 fish were caught in 1998 and 2003 respectively.

Catch Comparison by Gang – 1992, 1998, 2003.

SPECIES	YEAR	GANG NUMBER 1	2	3	4	5	6	TOTALS
Walleye	1992	0	2	2	1	5	0	10
	1998	5	7	8	5	1	1	27
	2003	11	21	7	28	34	17	118
Northern Pike	1992	10	5	9	5	10	5	44
	1998	2	10	7	4	8	8	39
	2003	10	18	9	17	15	11	80
Lake Whitefish	1992	18	13	42	42	30	20	165
	1998	30	49	27	31	29	43	209
	2003	23	107	32	36	14	16	228
White Sucker	1992	22	13	10	12	24	9	90
	1998	22	10	30	10	29	27	128
	2003	5	8	3	24	11	23	74
Lake Cisco	1992	0	0	0	0	0	0	0
	1998	0	3	1	0	0	0	4
	2003	0	0	0	0	0	0	0
Yellow Perch	1992	4	0	3	0	0	0	7
	1998	0	0	2	2	0	2	6
	2003	1	1	0	0	1	1	4
Burbot	1992	0	0	0	1	0	0	1
	1998	0	0	0	1	0	0	1
	2003	0	1	1	2	0	0	4
TOTALS	1992	54	33	66	61	69	34	317
TOTALS	1998	59	79	75	53	67	81	414
TOTALS	2003	50	156	52	71	75	68	508

(Yake, Kitch 2003)

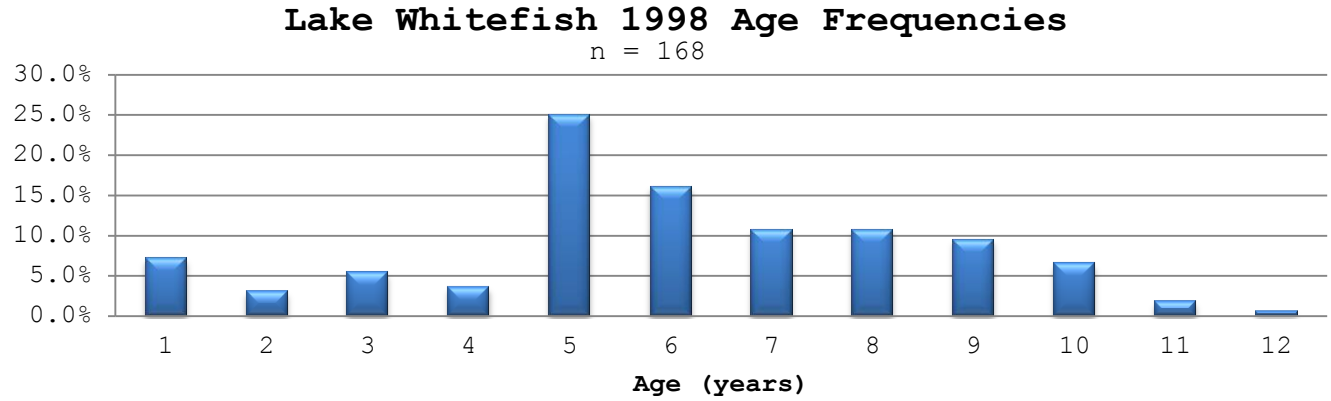
Historical Studies: Manitoba Water Stewardship – 1998 & 2003 Index Netting

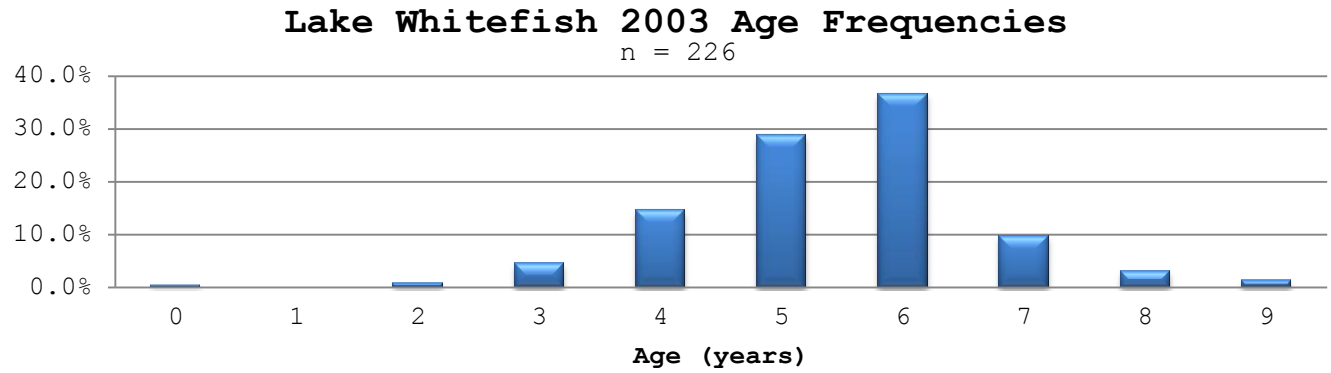


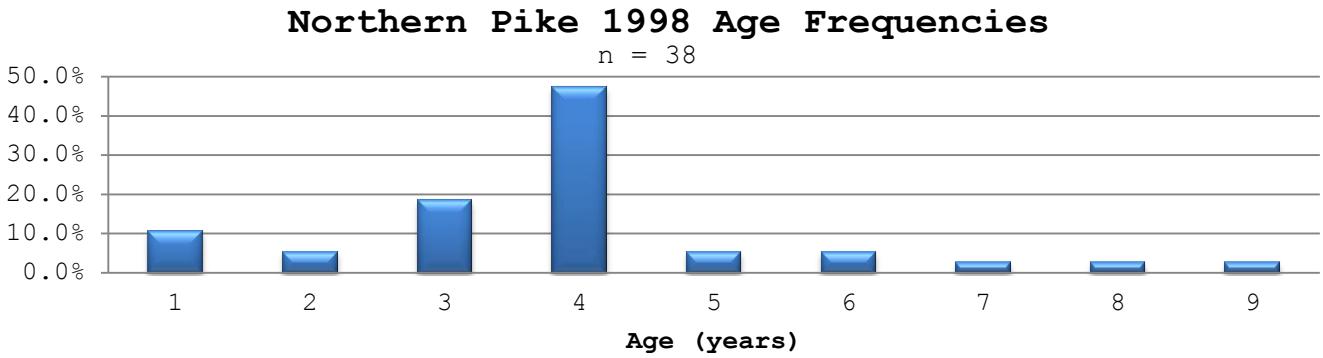
Lake whitefish were remained the dominant species (45% - 52%) and averaged around 361 mm (14.2”) and 745 grams (1.6 lbs) in size and 6 years old in 98 followed by 350 mm (13.7”) and 530 grams (1.2 lbs) and 5.4 years old in 2003.

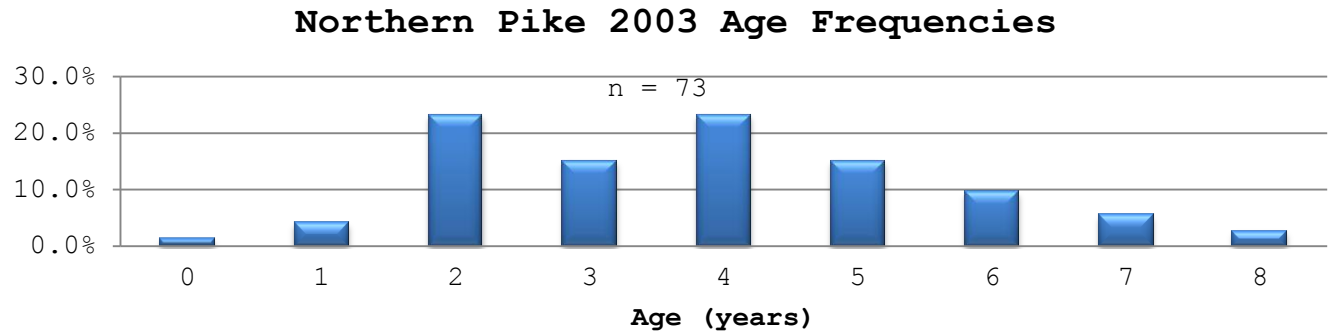
Pike composition stayed fairly consistent ranging between 9% and 16%. The mean size of pike sampled in 1998 was 450 mm (17.7”), 663 grams (1.4 lbs) and 3.8 years old with a mean condition factor of 0.73. The mean size of pike sampled in 2003 was 457 mm (17.9”), 646 grams (1.4 lbs) and 3.8 years old with a mean condition factor of 0.67.

Historical Studies: Manitoba Water Stewardship – 1998 & 2003 Index Netting







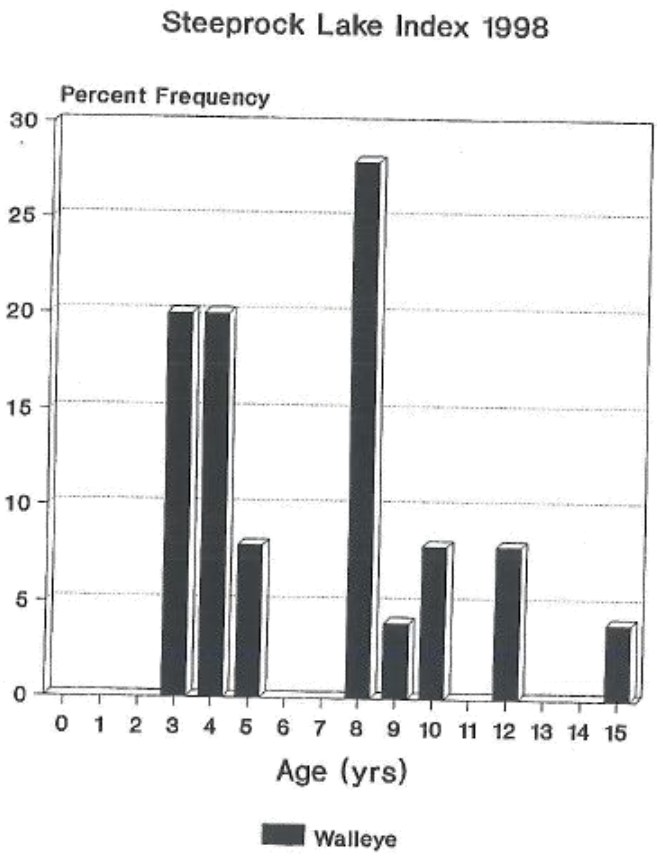


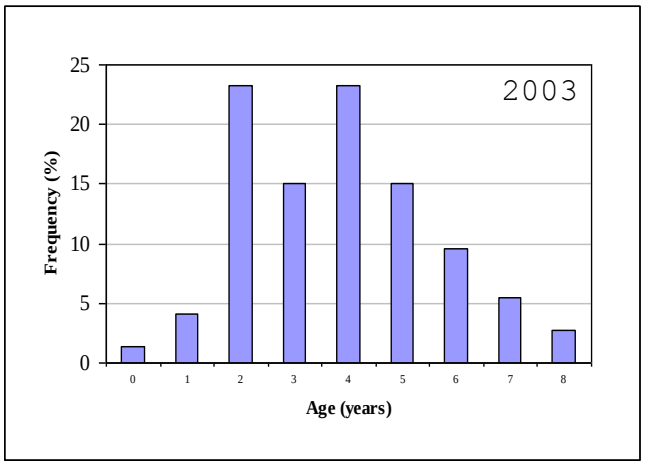
Historical Studies: Manitoba Water Stewardship – 1998 & 2003 Index Netting

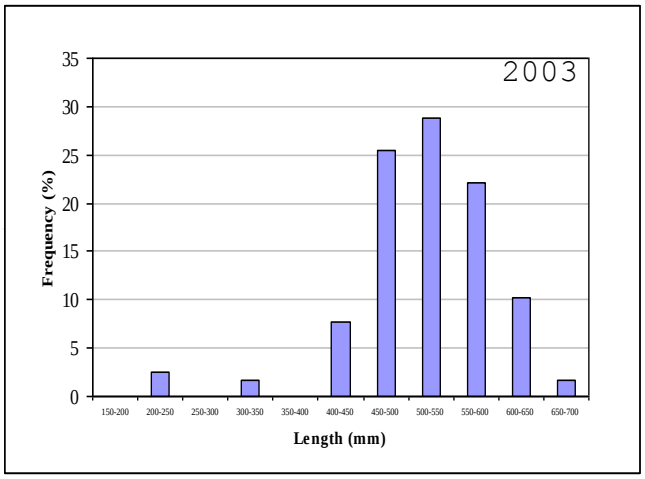
Walleye recruitment displayed improvement. Between 1992 to 2003 walleye composition increased from 3% to 23% of the total population.

Walleye in 1998; mean length 441 mm (17.3”), mean weight 1413.6 grams (3.1 lbs), mean age 6.76 years, mature and immature sex ration 4 females/male, mean condition factor 1.65

Walleye in 2003; mean length 514 mm (20.2”), mean weight 1659 grams (3.6 lbs), mean age of 6.9 years, mature sex ratio 2 females/males, immature ratio of 3 females/males, mean condition factor of 1.2





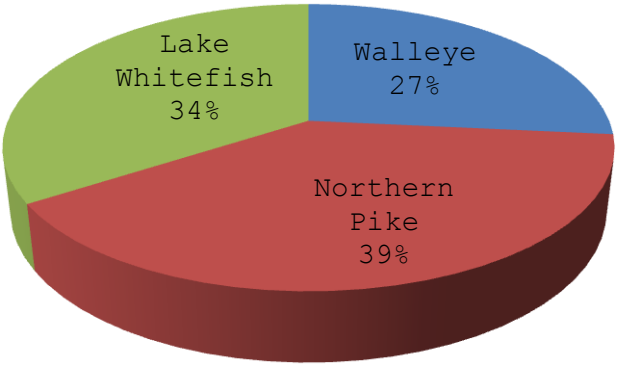


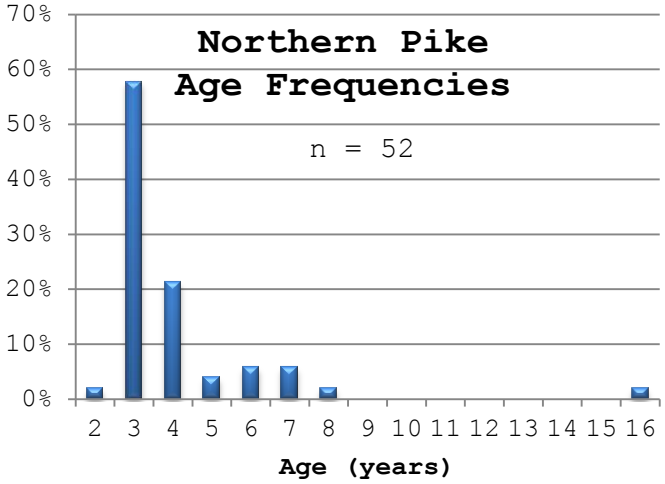
Conclusions:

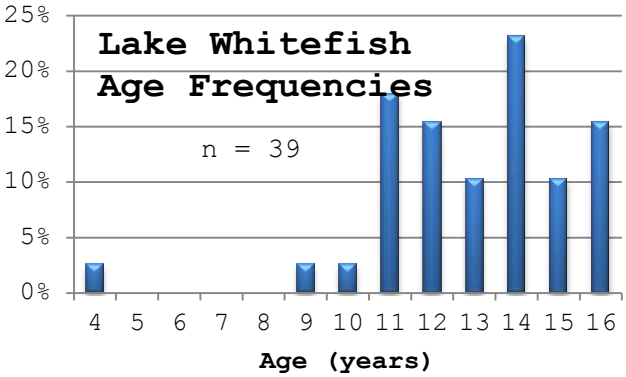
- Even though there were no exceptionally strong year classes, the 1990 (stocked) fish were most numerous in the test nets (2003, Yake).
- Suggested to continue stocking walleye fry versus using North Lake to rear walleye as; the results didn’t appear to provide much better success than fry stocking and noted the rearing project was very labour intensive and expensive.
- Re-visited the idea of a reef being constructed near the inflowing culvert.

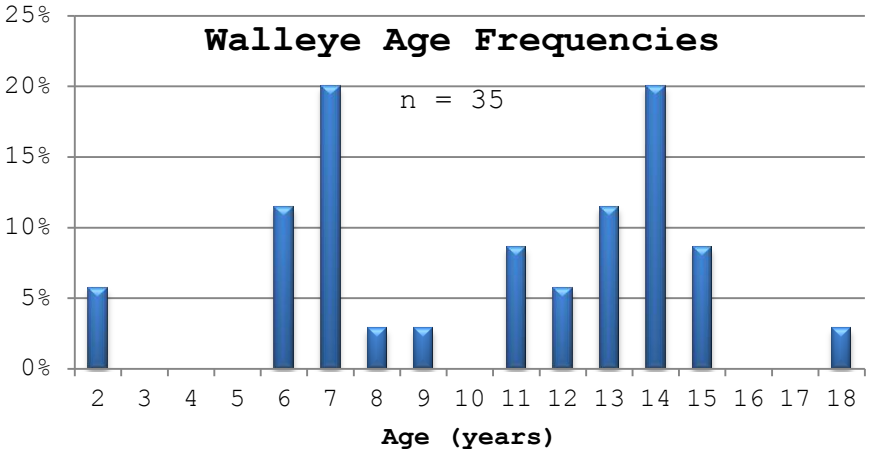
Historical Studies: Manitoba Water Stewardship – 2008 Index Netting

Between 2003 and 2008 the species composition in North Steeprock took a change in course. Whitefish numbers drastically decreased and northern pike became the dominant species









The 2008 netting results display age gaps within the walleye population. When compared to the stocking records the rearing project again proves less successful compared to fry stocking but also some of the more recent fry stocking also displayed poor recruitment from the 2003 and 2004 stocking. Many factors can influence recruitment success (ie weather, fry/fingerling condition) and may not be directly influenced by stocking methods.

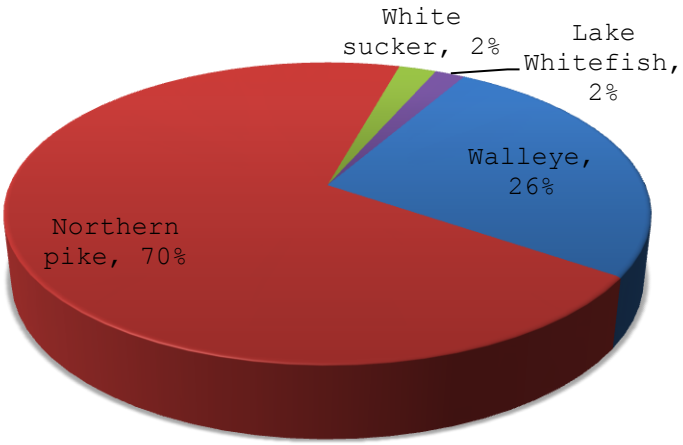
Historical Studies: 2009 Creel Survey

SVSFE fishery technicians conducted surveys from May 9/2009 to August 30/2009.

Surveys indicated the following Census for North Steeprock Lake

- Fishing Quality **2.1 Fish/Hour**
- When looking at specific species, **pike** possessed the highest fishing quality at **1.25 fish/hour**. Followed by walleye 0.47 fish/hour, lake whitefish 0.03 fish/hour and white sucker 0.04 fish/hour
- Average Fishing Pressure was 4.8 anglers/day
- Percentage of fish released is 69%

Composition of Species Angled



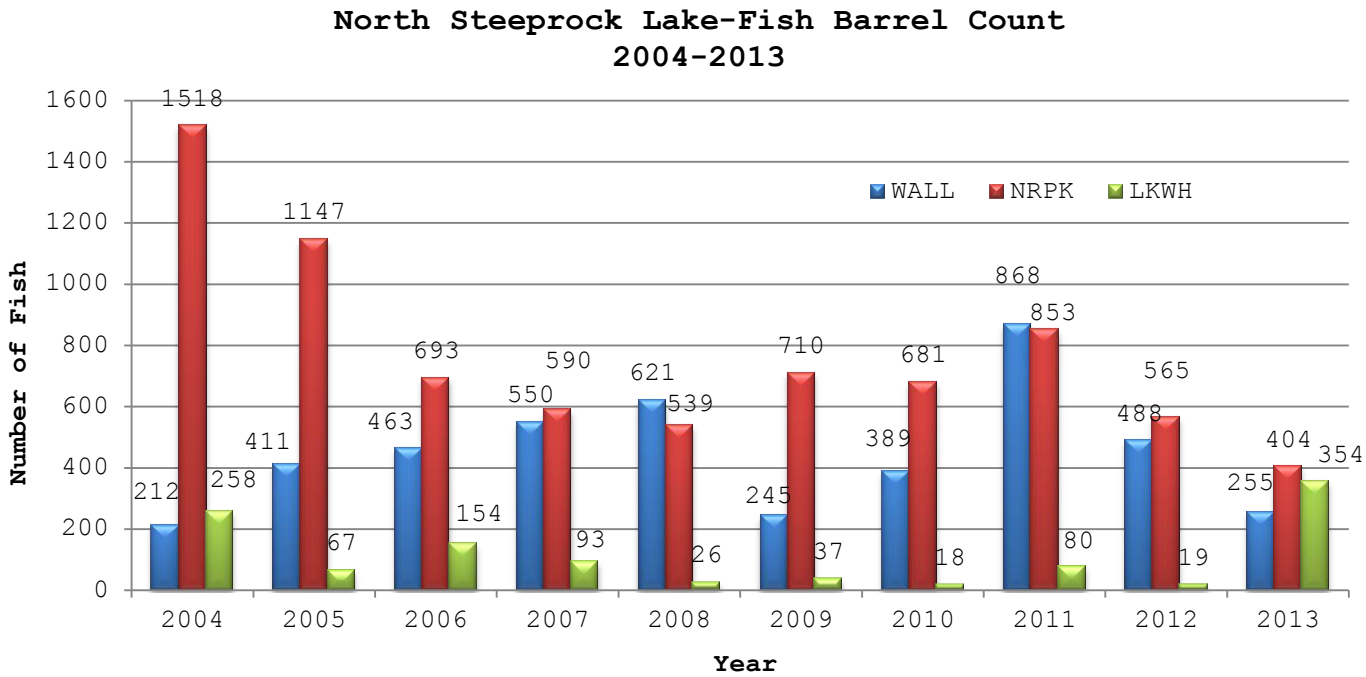
Of the 176 walleye caught, 30% were retained. Percent retained for pike, lake whitefish and white suckers were 29%, 92% and 40%, respectively.

Average Hours Fished	3.09
Weekday	21%
Weekend	79%
Evening	88%
Day	2%
All Day (am & pm)	9%
Fished from Boat	78%
Fished from Shore	22%
Women Anglers	8%
Men Anglers	47%
Mix Genders in groups	34%
Adult Anglers	62%
Senior Anglers	7%
Mixed Age groups	13%
Unknown Ages	17%

Type of Licence	
Regular	48%
Conservation	11%
Senior	2%
Treaty	6%
Youth	9%
Non-resident	1%
Unknown	23%

Historical Studies:

Barrel Counts 2004 - 2013



When looking at the harvest over recent years, **northern pike** possess the highest harvest rate. Harvests range for 404 (2013) – 1,518 (2004) fish. Reasons could be either pike are one of the most sought out species to angle or the fishing quality of pike is higher than other species at North Steeprock Lake (as stated in the 2009 creel census).

Walleye harvests range from 212 (2004) – 868 (2011) fish. Limit and size regulation changes were put in place in 2009, which may explain the decrease in walleye counts in the 2009 barrels. Reasons of recent declines in barrel counts could vary, but may be explained by angler's comments received through recap submissions; "all the walleye we catch are too big". Slot regulations protect walleye between 45 – 70 cm and higher catches of walleye of this size can display a decline in harvest but fishing quality would remain the same or better.

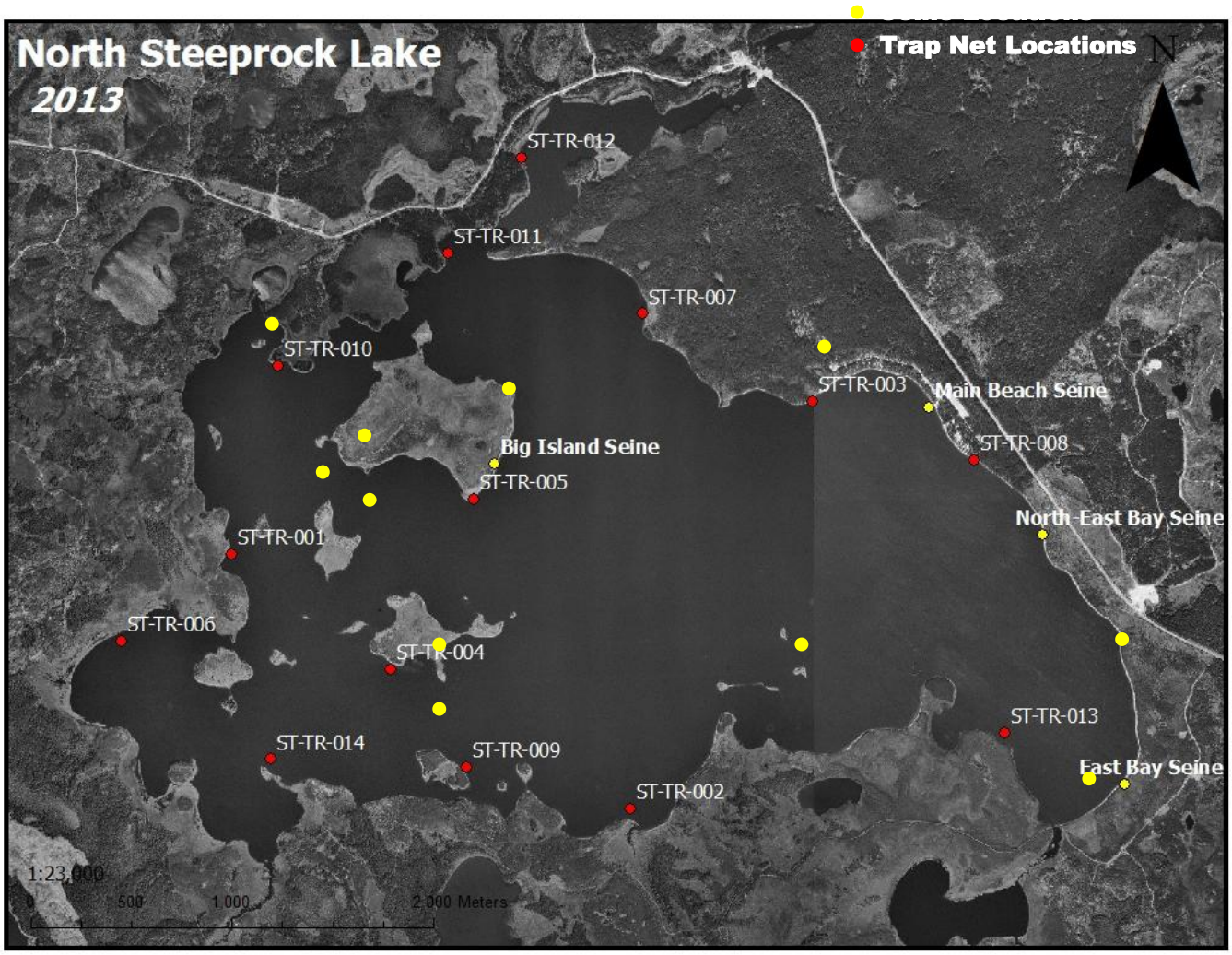
Whitefish harvests were remarkably higher in 2013 which demonstrates they are a species anglers value as a sport fish. Harvests of this species should be closely monitored and incorporated into management strategies.

When comparing the barrel counts over the past 10 years to the time of year, one can assume fishing pressure or quality for walleye and pike are at the highest during the months of June & July, while August is highest for lake whitefish.

2013 Trap Netting Results:

Study Period & Area

Trap netting was conducted between September 4th – 14th in 2012 and September 3rd – 10th in 2013. Water temperatures ranged between 10°C – 18°C with an average temperature of 14.5°C. Similar to Bell Lake, the 2013 sampling period experienced milder weather which therefore had slightly higher water temperatures than 2012.



Littoral Zones

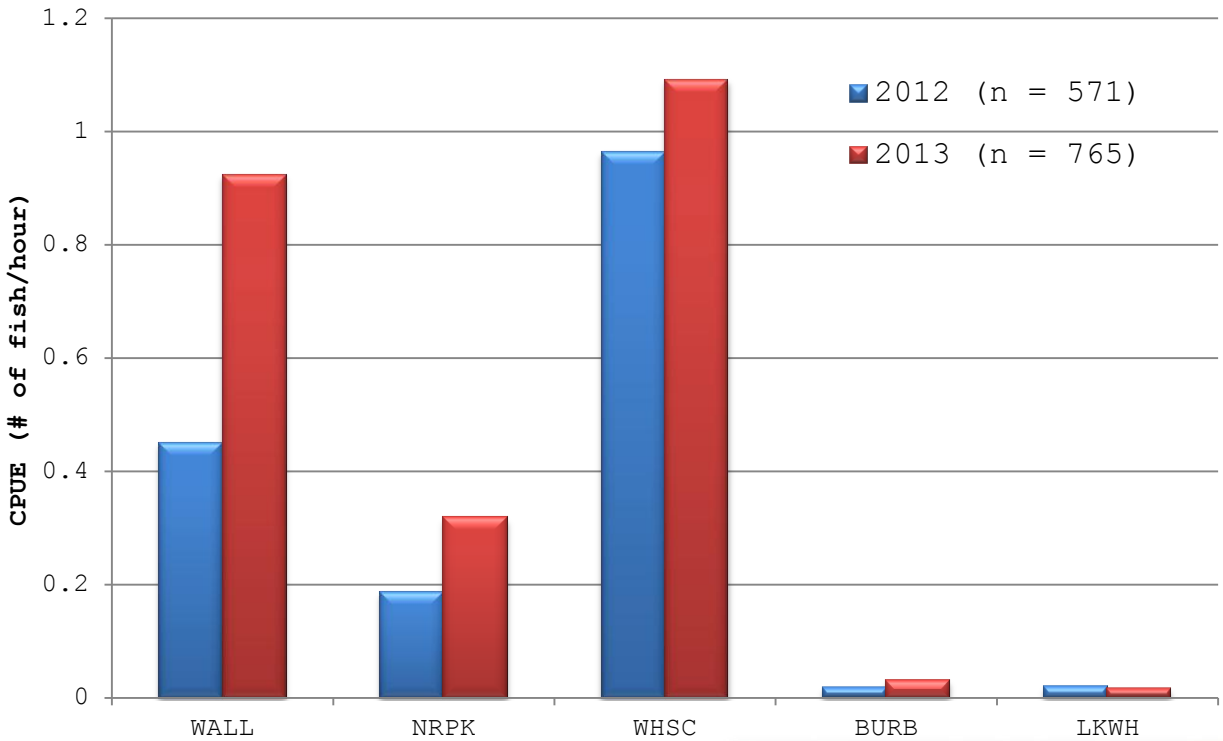
Steeprock Lake

968 Hectares - Total area
474 Hectares - Area of depth 3 metres or less

The littoral zones of lake are important habitat for some or all life history stages of many fishes (Beauchamp 1994). Littoral zones were computed by Gary Slack (GIS Specialist) using the 2013 bathymetric data collected by SVSFE. Knowing the area of littoral habitat available at North Steeprock Lake will help determine valuable stocking rates and aid in lake management.

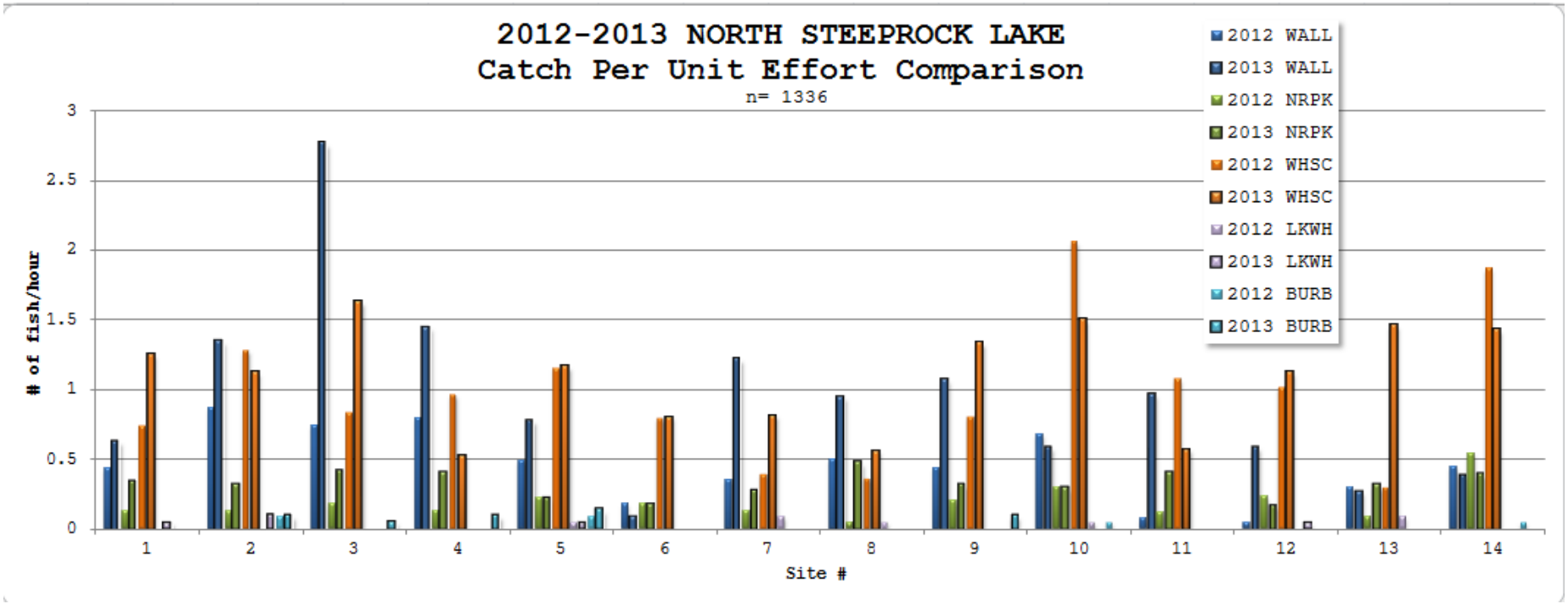
2013 Trap Netting Results: CPUE

Catch Per Unit Effort by Species



Catch per Unit Effort (CPUE) is a rough indictor of relative abundance. Relatively large catches imply large populations, but catch rate is influenced by many factors other than population density (Schneider, 2000). Catch per effort is much more reliable for reflecting changes in population density within a lake (Schneider, 1998b) than differences in density between lakes. These changes are clearly indicated with an increase of relative abundance in all species, excluding lake whitefish. Walleye abundance displays the largest increase from 2012. CPUE by site can be found on the following page.

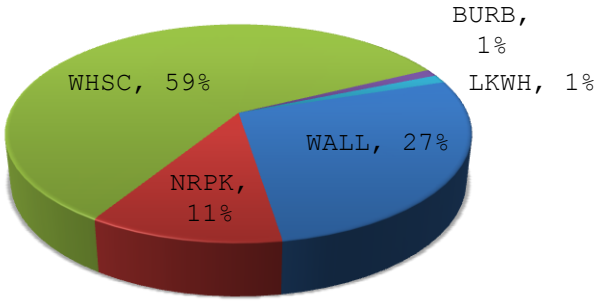
2013 Trap Netting Results: CPUE



2013 Trap Netting Results: Composition

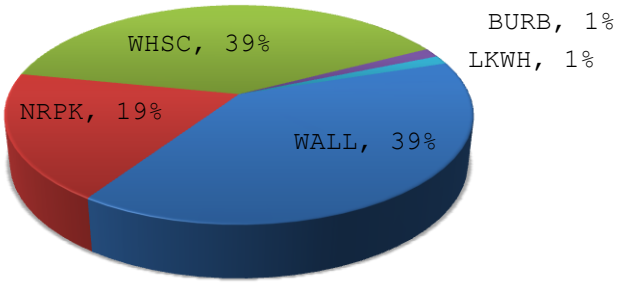
2012 Species Composition by Number

n=571



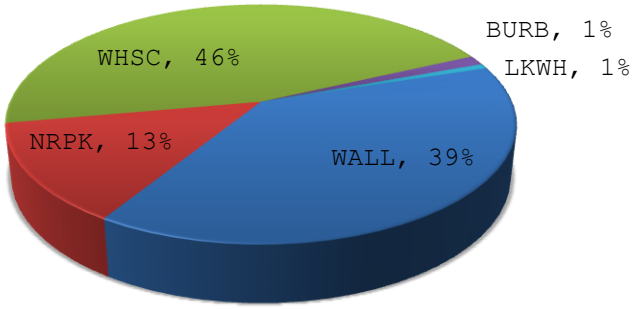
2012 Species Composition by Weight

n=571



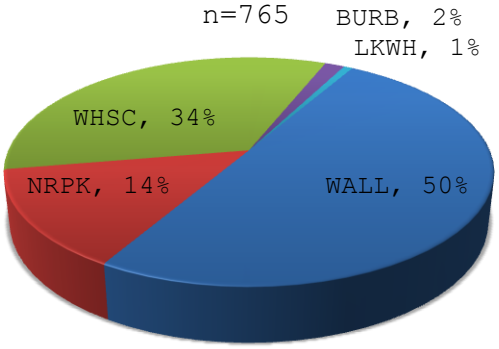
2013 Species Composition by Number

n=765



2013 Species Composition by Weight

n=765



note: white sucker compositions was calculated utilizing an average weight/fish from 2009 data

When comparing composition data from trap netting (2012 & 2013) to past index netting, the dynamics have changed. Methods and sampling time of year differ, therefore it is difficult to identify any trends or definite conclusions, although one notable change is the decline of lake whitefish. The recent increase in barrel counts indicate this species is still pursued by anglers and should be monitored in future studies to identify if there are any true concerns.

North Steeprock Lake

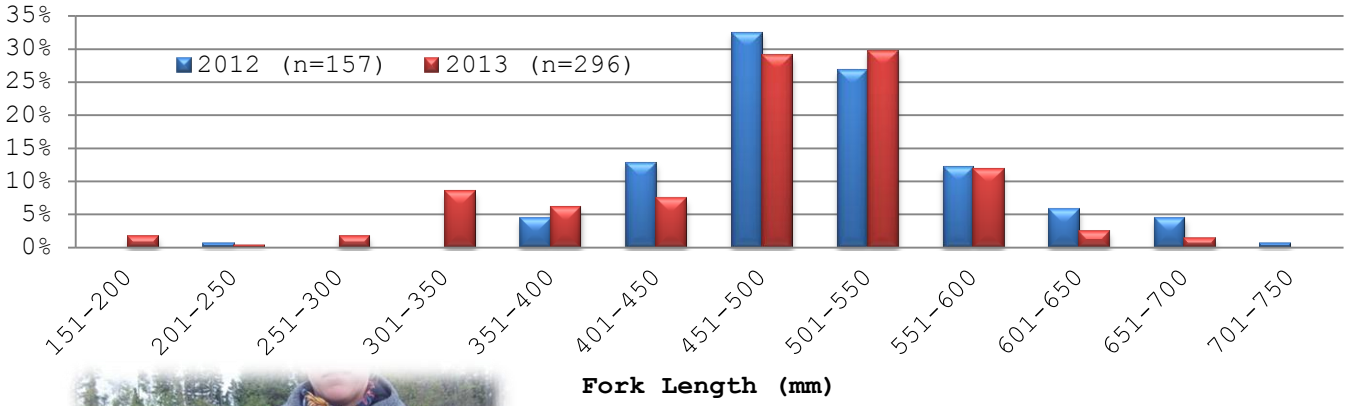
Pike compositions have remained consistent even since the 2003 study (16%). Walleye and white sucker compositions have increased. Comparing composition by weight and by number, creates a slightly different breakdown of walleye composition. This is an indication of large walleye within the population. Stocking efforts and indirect habitat enhancement may have played a big part in walleye success.

In 2004 Spruce Products Ltd replaced washed out culverts with a bridge at the north inlet (previously identified spawning grounds in telemetry study). This now allows fish to migrate to suitable habitat during the spawn regardless of spring water levels. During the 2009 walleye abundance study SVSFE technicians found walleye, northern pike and white suckers utilizing this stream for spawning purposes.

2013 Trap Netting Results: Walleye

Walleye possess strong length frequencies for both years within the protected slot. These mature fish represent the potential for a strong recruitment fishery and potential for high fishing quality. Large fish can also indicate low mortality and longevity of a population. Smaller walleye were less frequent which is relatable to angler's previous comments that "all the walleye are too big". Lower numbers of smaller walleye could indicate recent challenges with recruitment success. Results from the walleye recruitment project will help identify challenges.

2012 - 2013 NORTH STEEPROCK LAKE Walleye Length Frequency Comparison



Recaptures from 2012 and 2009 provide actual growth of walleye over time. When comparing the growth of walleye, results were required to be separated into two categories; ***recaptures from 2012*** and ***recaptures from 2009 tagging***. This was the only way to determine growth differences of different length classes of walleye and of different aged fish (ages only available for 2009 tagged walleye).

Recaptures of 2012 tagged walleye:

Size in 2012	mm/day	mm/year	grams/day	grams/year
Average Growth of Walleye - Fork Length 300 - 400 mm	0.057	20.941	0.287	104.704
Average Growth of Walleye - Fork Length 401 - 500 mm	0.055	19.943	0.441	160.995
Average Growth of Walleye - Fork Length 501 - 600 mm	0.007	2.521	-0.159	-57.926
Average growth of All 2012 Walleye recaps	**0.021**	**7.704**	**0.009**	**3.152**

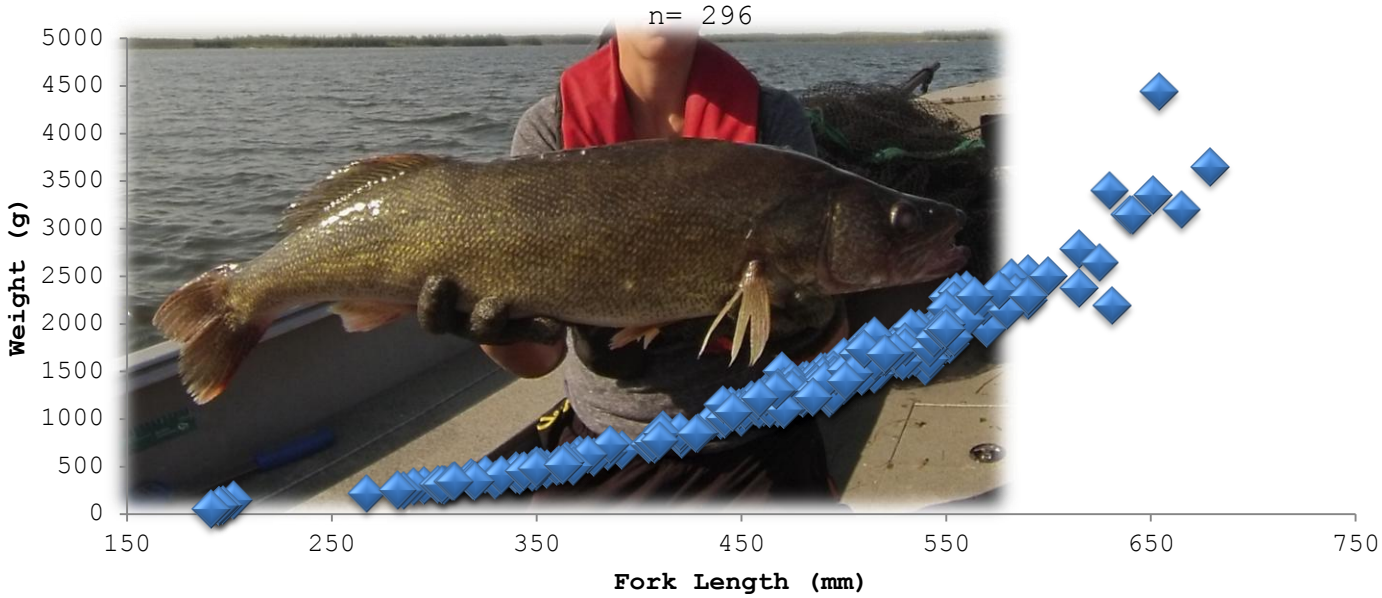
Recaptures from 2012 tagged walleye indicate the larger walleye display minimal growth and a decrease in weight while the smaller walleye on average grew approximately 20 mm and gained 100 g/year. Case studies on individual lakes indicate that walleye growth is density dependant – there is an inverse relationship between walleye growth rate and population density (Kerr, 2004). This may indicate that populations of large walleye are high or intra-specific competition between larger walleye is present.

Recaptures of 2009 tagged walleye:

Walleye Recaps from 2009 to 2013	Average Fork Length Growth (mm)	Average Weight Increase (g)	Average Growing Days	mm/day	grams/ days
Age 3 (in 2009) (n=1)	129.00	965.00	1473.8	0.088	0.655
Age 4 (in 2009) (n=4)	146.75	1066.25	1511.2	0.097	0.706
Age 6 (in 2009) (n=2)	90.50	1027.50	1532.5	0.059	0.670
Age 8 (in 2009) (n=1)	35.00	375.00	1531.6	0.023	0.245
Age 11 (in 2009) (n=1)	6.00	125.00	1522.6	0.004	0.082

Recaptures from 2009 are harder to interpret as there is four years growth between sampling and to state they grew an average each year is inaccurate because growth each year would be different from the other. Ages were known at the time of tagging in 2009 and this is how the walleye were grouped to analyze growth. Growth comparisons indicate walleye who were at the age of 4 in 2009 (now 8) exerted the most growth over the fours years. This is the age when walleye start maturing, therefore an increase in growth is highly expected.

2013 NORTH STEEPROCK LAKE
Walleye
Size Distribution



Michigan State Standard - Length Weight Relationships (Walleye)		Average Weight of Steeprock Walleye (g)	Difference (g)
Length (mm)	Weight (g)		
317	285	377.5	**92.5**
342	358	428.3	**70.3**
368	444	519.4	**75.4**
393	548	656.0	**108.0**
419	662	806.5	**144.5**
444	789	1022.9	**233.9**
469	934	1229.8	**295.8**
495	1097	1400.5	**303.5**
520	1279	1636.9	**357.9**
546	1478	1791.1	**313.1**
571	1696	2080.6	**384.6**
596	1935	2357.7	**422.7**
622	2195	2605.0	**410.0**
647	2476	3047.0	**571.0**
673	2785	3820.0	**1035.0**
698	3116	3650.0	**534.0**

One defined observation made during the trap netting program was the size of walleye found in North Steeprock Lake. The average condition of all walleye was 0.99 which is fair but lower than past results of 1.45 and 1.65. This could be contributed to sample sizes and time of year and number & size of fish sampled.

To illustrate the robustness these walleye possess, average weight of walleye at certain lengths was compared to Michigan State Standards. It is easily seen Steeprock walleye are considerably "larger" then the standard length/weight relationships. This can be contributed to the age of these fish as northern lakes typically have much older fish.

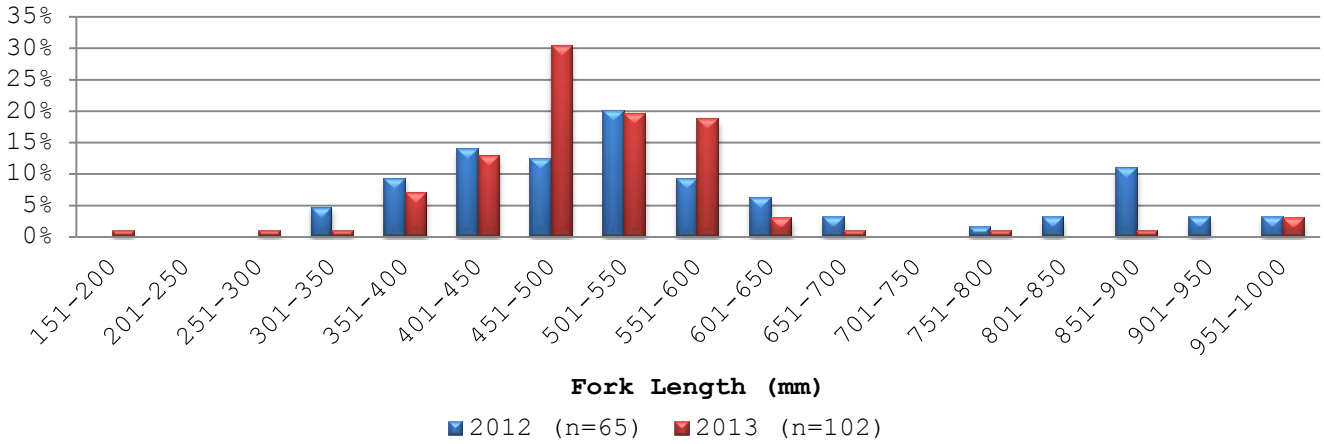
2013 Trap Netting Results:

Northern Pike

Frequencies of large and small pike are fairly low, with the average pike measuring 514 mm (20.2 inches). Minnesota DNR state pike populations with an average lengths of 18 -22 inches (usually less than 21 inches) indicate moderate recruitment in the lake.

The lower frequencies of larger pike indicate a moderate mortality for these fish whether it be from natural causes or fish mortality. A size limit regulation (since 2009) states all pike over 75 cm must be released. This limit was intended to improve the densities of medium to large sized pike for future recruitment and to balance the density of the smaller pike populations. These regulations should aid pike populations (above 750 mm) to sustain and/ increase over time, as long as overharvesting of pike between 600 – 750 mm does not occur.

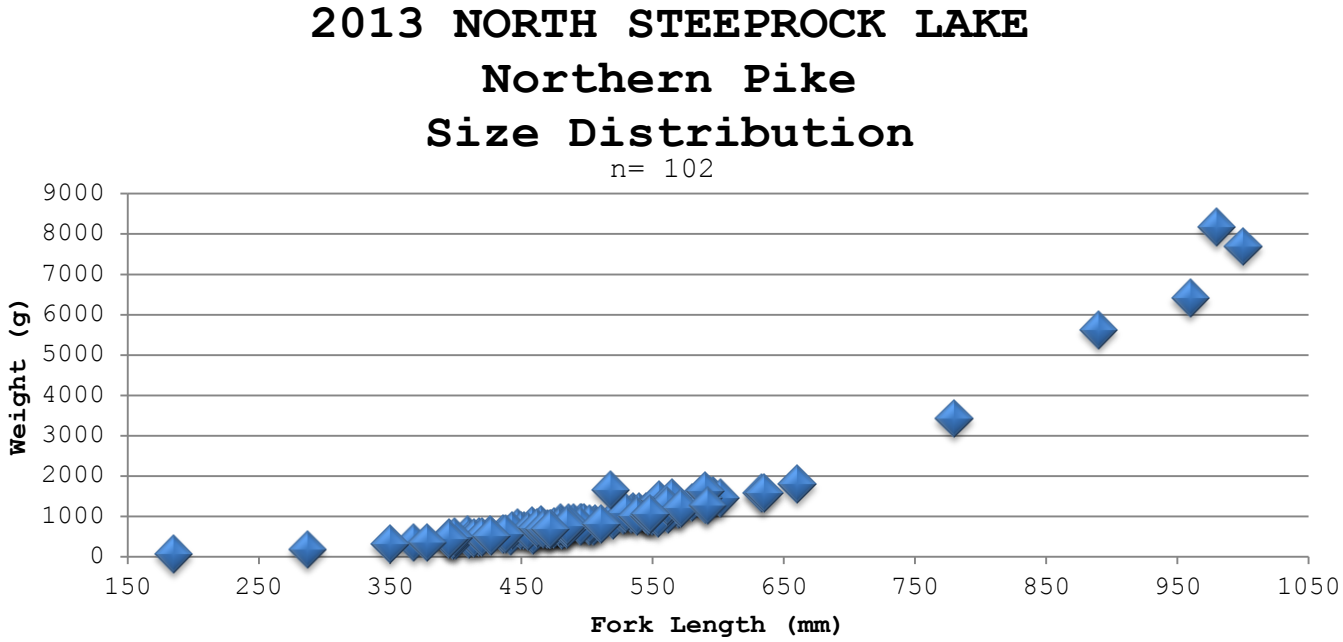
2012 - 2013 NORTH STEEPROCK LAKE
Northern Pike
Length Frequency Comparison



Of the 102 pike caught in 2013 only two where recaps tagged from 2012. From the two pike recaps(size 547 & 635 mm) growth ranged between 22 - 55 mm and 155 - 215 grams in one year, with the large pike displaying more growth.

2013 Trap Netting Results:

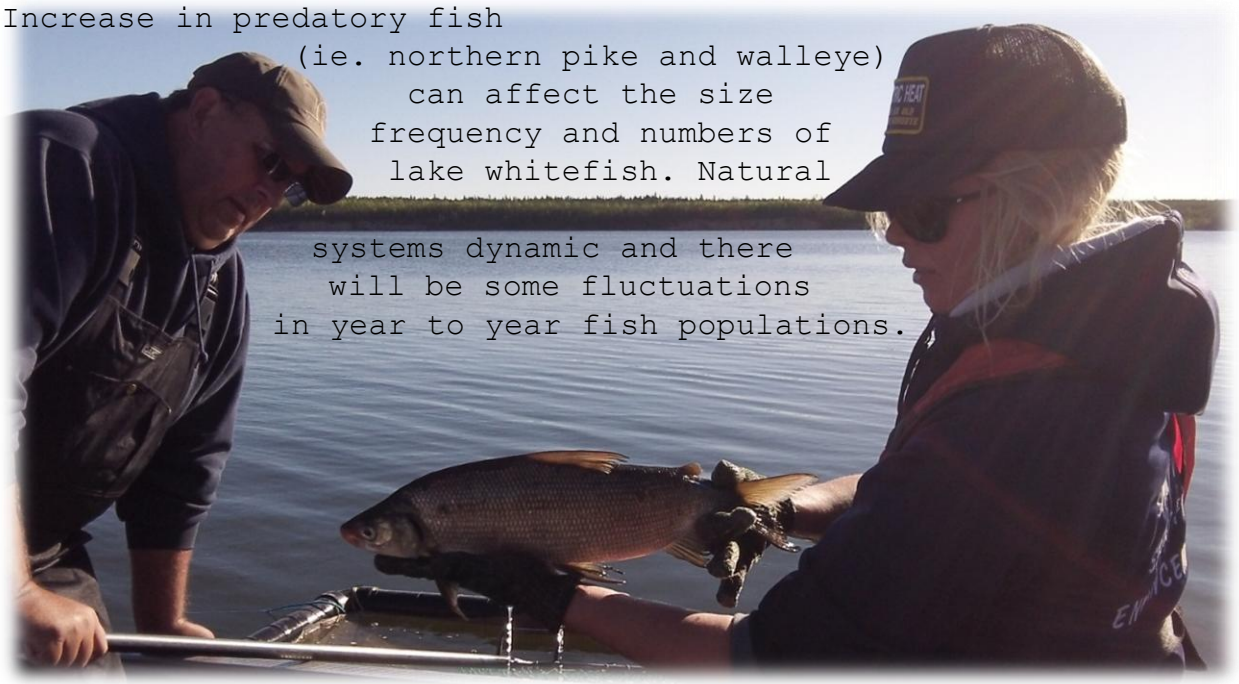
Northern Pike



2013 Trap Netting Results:

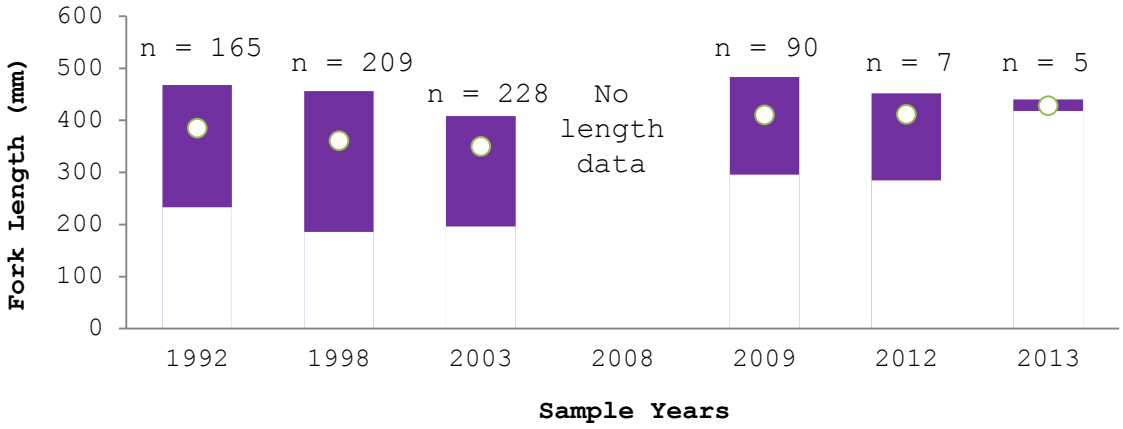
Lake Whitefish

All lake whitefish (n=5) were similar in size, 418 – 440 mm in fork length with weights ranging from 1110 - 1210 grams. During both years of trap netting the whitefish have represented only 1% of the species composition. Managers should be aware of the perceived decline in the lake whitefish population at Steeprock and include them in future management. It is unsure if the method of sampling is affecting the catch in lake whitefish (2012 & 2013 were trap netting), but we suggest to closely monitor the harvest and future populations of this species. Increase in predatory fish (ie. northern pike and walleye) can affect the size frequency and numbers of lake whitefish. Natural systems dynamic and there will be some fluctuations in year to year fish populations.



Lake Whitefish

Min, Max, Mean Fork Length



2013 Trap Netting Results:

Burbot

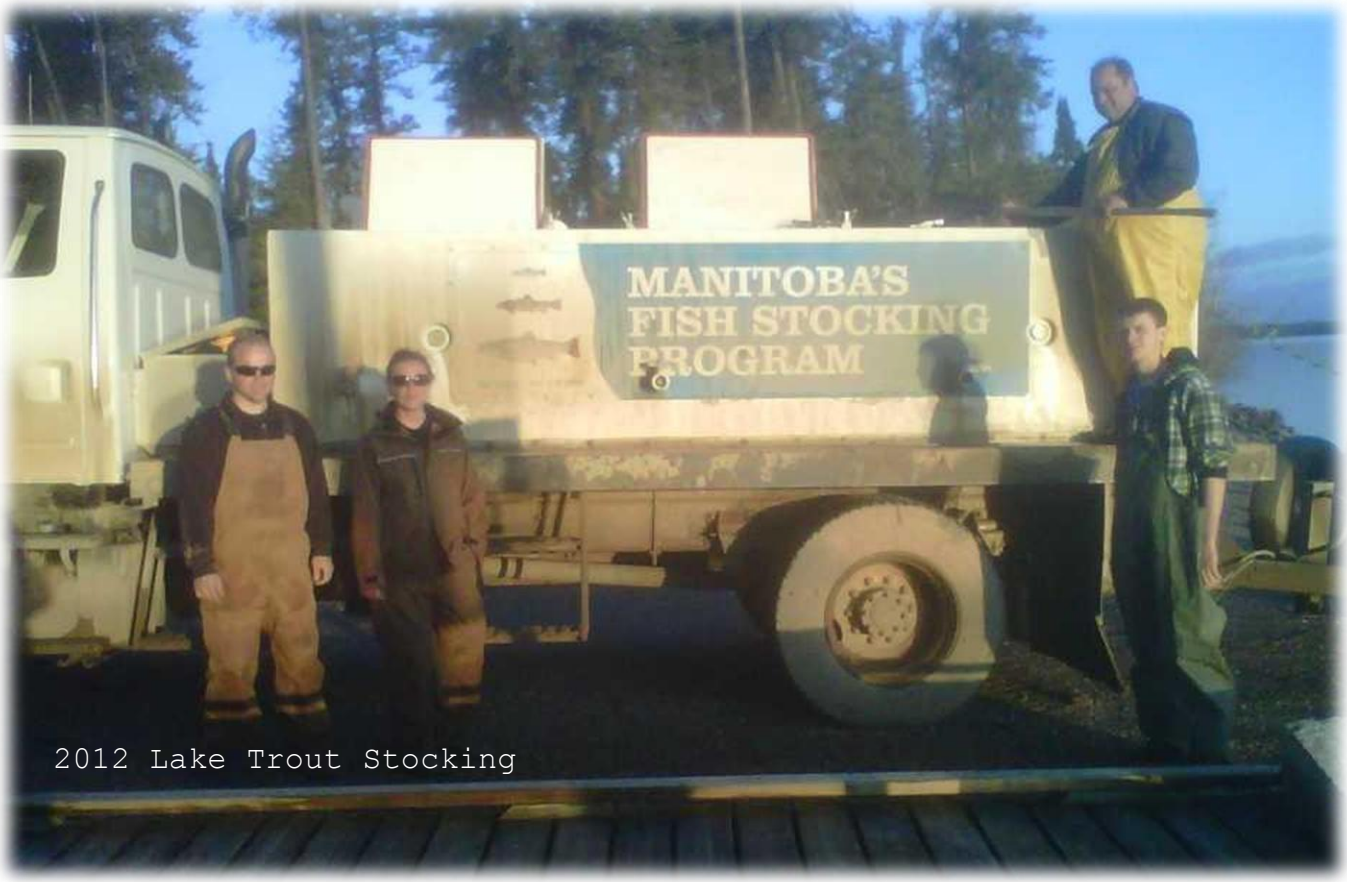
Burbot also made up a small portion of species found in Steeprock (1%). There is little diversity in the size of burbot caught in both 2012 & 2013, but the burbot have a tremendous reproductive potential. Individual females often produce hundreds of thousands of eggs, and the larger females (over 25 inches long) can produce over 1 million eggs (Burbot, BC). Ten of the twelve fish caught ranged between 600 – 700 mm in length. Burbot are not typically sought out by anglers and with low frequencies many are not aware that they are present at Steeprock. If relative abundance increases in the future this species should be promoted to anglers as a valuable sport fish.

2013 Trap Netting Results:

Lake Trout

Although lake trout were stocked in recent years there was no evidence of this species in trap netting results. This could be a result of unsuccessful stocking, method of sampling or the size of the fish.

Future investigations should include assessing potential lake trout spawning habitat in the fall and incorporating survey protocols specific to lake trout to better assess the status of this species and other fall spawners (ie. lake whitefish). Both would aid in future management of North Steeprock Lake.



2012 Lake Trout Stocking

2013 Trap Netting Results:

Population Estimates

Estimated populations were calculated from trap netting recaptures using the Chapman - Petersen method. Of the 765 fish sampled during 2013, 33 were recaptures from previous years (2012 & 2009), indicating the estimated walleye population contains 3,692.1 fish (density of 3.73 walleye/hectare). The statistical error was relatively large with 95% certainty the true number lies between 2,625 and 5,370. Walleye populations are characterized to have a fair to moderate density with larger fish being the average size.

The pike population was estimated to contain 2,069 fish (density 2.08 pike/hectare with a 95% confidence level of 757 and 5,173 fish). Populations are considered low to fair at this time. There is strong evidence stating fishing pressure and predation are the main variables influencing population size.

There were no recaptures in burbot, lake whitefish or white suckers.

There are many factors to consider when determining a "healthy" population; lake type, water conditions, available habitat, spawning, species composition (which can change over time), competition, predator/prey relationships, fishing pressure, stocking etc). Again, because of these factors defining the magic number that equals a healthy population is difficult and is lacking in resource information, but monitoring these populations over time with angling quality and harvests will help determine this value specific to that lake.

In a walleye study in Ontario on Henderson Lake, walleye populations of 10.4 fish/hectare with strong year classes was considered a high density of adult fish and a healthy population. (Amtstaetter, 2004). Walleye populations appear to be fair to moderate in comparison the Henderson Lake densities.

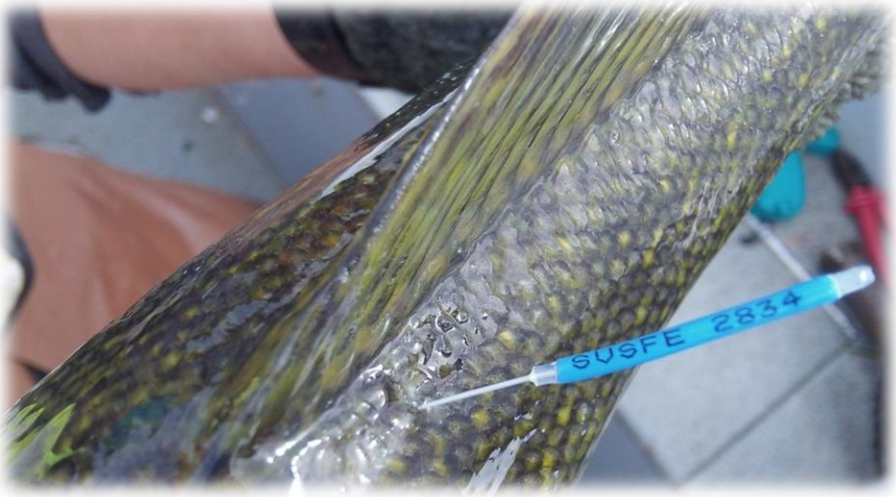
2013 Trap Netting Results:

Maximum Sustainable Yield

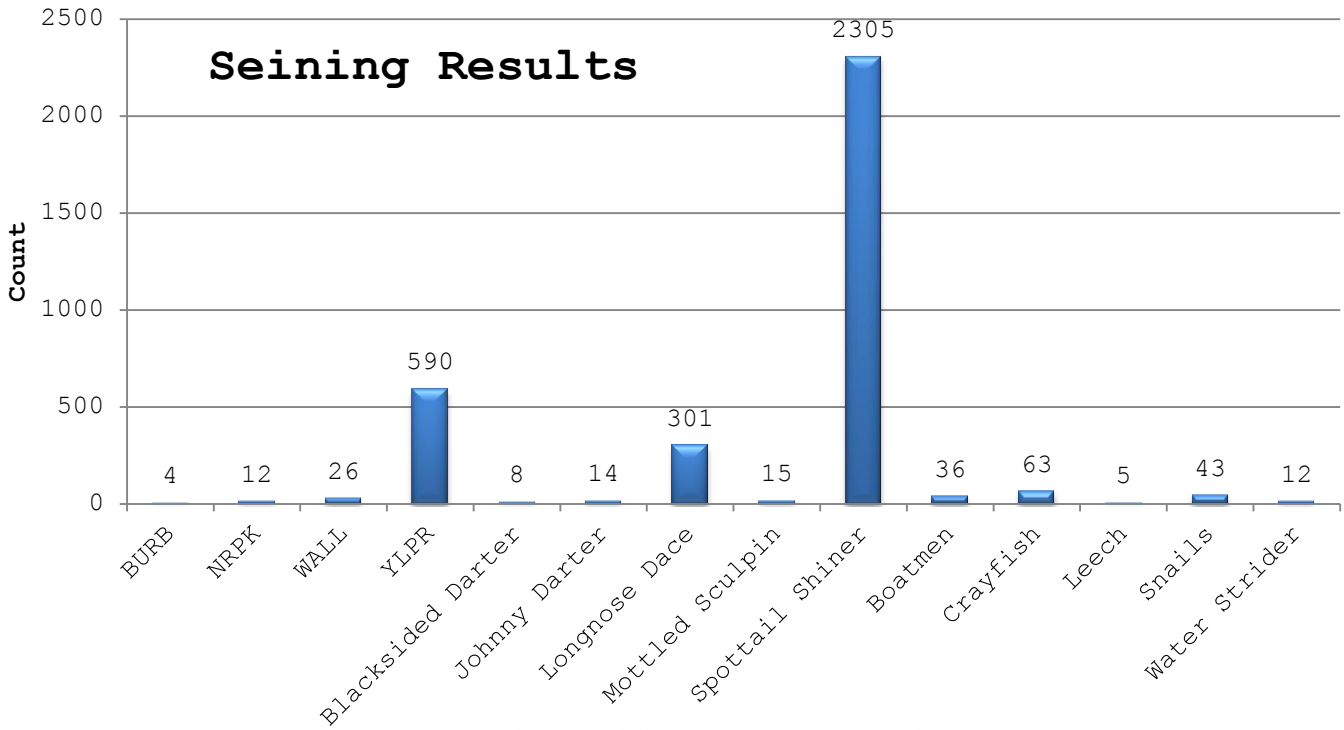
Maximum sustainable yield or **MSY** is, theoretically, the largest yield/catch that can be taken from a species' stock over an indefinite period. Under the assumption of logistic growth, the MSY will be exactly at half the carrying capacity of a species, as this is the stage at when population growth is highest (Unknown, 2013).

The MSY for walleye utilized by managers in the western region is 1 kg/hectare per year, which would be 955 kg/year for North Steeprock Lake. MSY in most modern fisheries models occurs at around 30% of the unexploited population size. This fraction differs among populations depending on the life history of the species and the age-specific selectivity of the fishing method (Unknown, 2013). With the trap netting data; population estimates and average weight of walleye were utilized to calculate whether the value of 1 kg/hectare was accurate and comparable to the 30% MSY. Results found that the MSY of 955 kg/hectare for North Steeprock Lake is 18% of the estimated walleye population biomass. Using 1 kg/hectare as a low MSY value. From the 2013 estimated biomass a value 1.6 kg/hectare would be 30% MSY of the population. Additional monitoring is required to validate any of these assumptions.

Data from barrel counts, creel census and trap netting was used to calculate an estimated kg harvested/year. Estimates found 238 kg of walleye were harvested in 2013. 2011 possessed the highest estimated harvest of 810 kg during the open water season. Walleye harvests collected from the barrel counts have all remained below the MSY of 1 kg/hectare since 2004. These values do not include domestic fishing or fish not disposed in the barrels by anglers.



2013 Trap Netting Results: Forage



During both years spottail shiners were the only species found to occur in both minnow traps and seine catches. Spottails are apparently the dominant forage species and provide an important value as a forage base for the fishery.

Where ample numbers of individuals (spottails) are present, increased competition with other species that have the same diet can occur. These competitors can include other species of shiners or yellow perches(Hartman,1992).

2013 Trap Netting Results:

Conclusion / Recommendations

1) Lake Whitefish in North Steeprock – Recent declines in lake whitefish populations bring some concerns. It is unsure if the method of sampling is affecting the catch in lake whitefish (2012 & 2013 were trap netting compared to index netting), but we suggest to closely monitor the harvest and future populations of this species. Managers should investigate further declines and integrate into management considerations as this species is historically and currently a popular fish species to anglers at North Steeprock Lake.
2) Recruitment of Walleye – With evidence of a growing walleye population and a fair distribution of that population being mature spawning fish within the protect slot, recruitment potential is presumed high for North Steeprock Lake. Comments from anglers stating there is a lack of keeper sized walleye at Steeprock Lake raises questions. Results from current and future walleye recruitment assessments will help identify whether stocking of fry/fingerlings is necessary/effective and help to identify natural spawning & stocking success/failures. If natural recruitment is found to be fairly productive, these fry can be allocated to other areas in need. Future monitoring of fish harvest & populations is strongly recommended.

2013 Trap Netting Results:

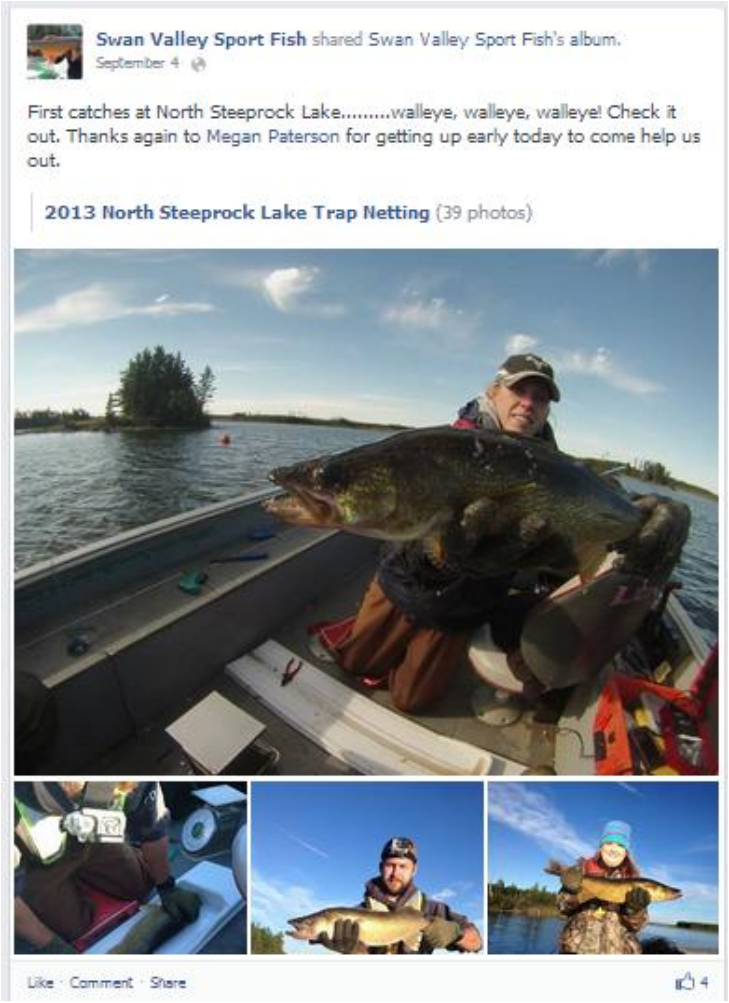
Conclusion / Recommendations

3) Spawning Habitat – Promote the importance of respecting spawning habitat at North Steeprock. The main tributary on the northwest end of the lake has been identified as preferred spawning habitat for many species. This area is a common fishing spot for anglers during the opening of the season as the lake is most often still ice covered. Users should be aware of this and it is recommended SVSFE place signage promoting catch and release in this area during the spawn. If recruitment results indicate low success in natural reproduction, **and** fishing mortality during this time becomes a concern, amending fishing regulations to protect this area during the spawn should be reviewed.
4) Fluctuating water levels during the spawn should also be investigated. North Steeprock's outflow is controlled by Manitoba Infrastructure & Transportation and water levels vary greatly depending on the runoff and the amount being released through the control structure. Minimum and maximum levels should be determined to aid in providing fish with suitable and stable spawning habitat.

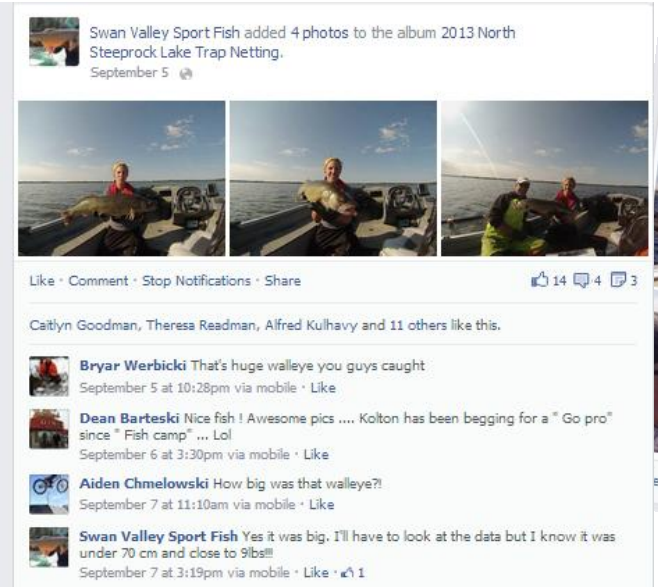


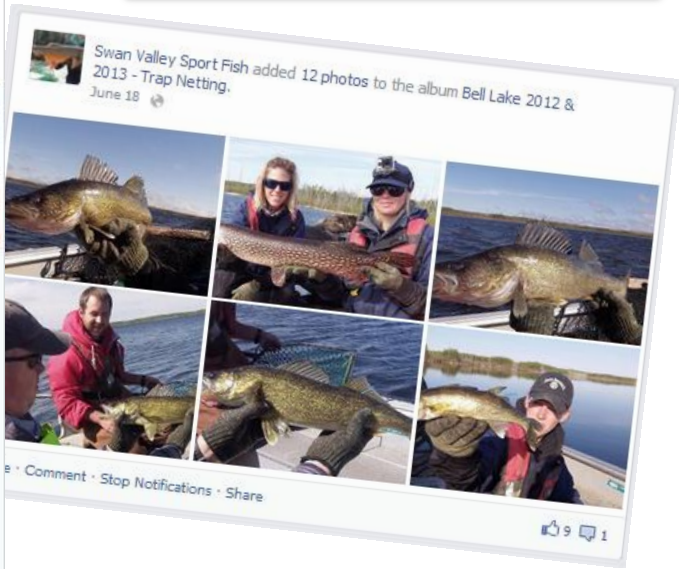



Public Awareness



Facebook has become a great venue for communicating with the public and keeping them involved in what we do. This also creates a lot of interest in our local fisheries





Public Awareness

SPRING 2013 — WESTERN MANITOBA FISHING GUIDE — PAGE 21

From humble beginnings group has become a leader

The Swan Valley Sport Fishing Enhancement project manger/fisheries technician Holly Urban with a walleye.

By Twyla Machan
Swan Valley Star and Times

It all started with a small group of men who were concerned with the state of fisheries throughout the Swan Valley back in 1985.

The Swan Valley Sport Fishing Enhancement Inc. (SVSFE) was born with the objective of educating youth and the public about the importance of healthy fisheries.

"If I can make (the fishery) better for my kids, it's better for everybody," said Duane Whyte, a SVSFE founding member, nearly 30 years ago.

Incorporated two years later in 1987, the organization – including Louis Marleau, Whyte, Glenn Roberts and Roger Gregorie and Manitoba fisheries staff – was the first group in Canada formed with the sole focus of improving sport fishing.

Their mandate included education regarding methods, needs and advisability of preserving and improving habitat for game fish species. Research encouraging scientific-based studies focused on the enhancement of game fish habitat, and fund-raising with a focus on events promoting fisheries enhancement, research and education.

The first SVSFE banquet catered to 100 people, and raised $6,000 toward the organization's first projects, which included assisting conservation with assessment and stocking fish.

"In the early days government funding was more available and applications were a little simpler," said Whyte, who is currently a SVSFE director. "The SVSFE resourced grants such as the Manitoba Lotteries' Special Conservation Fund and the Fisheries Enhancement Initiative to help accomplish projects initiated by the group."

Throughout its first 15 years, the organization was a role model for many developing groups including Fish Futures, FLIPPR, and Intermountain Sport Fishing Enhancement (ISFE), and as such, was awarded the 1997 Recreational Fisheries Award of Canada.

"As the groups partnerships grew, their range of activities stretched far beyond the SVSFE's borders. SVSFE supported FLIPPR for its first fly fishering tournament, assisted Child's Lake Cottage Association in the Child's Lake lake trout spawning reef project and lobbying for regulation changes to protect fish populations within the province," said SVSFE project manger/fisheries technician Holly Urban.

Of course, the focus of SVSFE during its early years also included extensive education of local youth.

"SVSFE has always been solidly behind projects that involved children in fishing activities that teach our children respect for our natural resources, proper angling techniques, use and care of equipment, conservation practices and environmental awareness," said Urban.

Part of education included getting school children outdoors experiencing fishing first hand. SVSFE also sponsored or donated funds towards other fishing related events such as the Royal Canadian Legion Athletic Camp – Fishing Camp held at the International Peace Garden Athletic Camp and Sport Fish Camp run by the Swan River Indian and Metis Friendship Centre.

"The group also brought Don Lamont, host of the television show Complete Angler on the Outdoor Network to speak to students to promote fishing as a fun recreational activity and to help increase environmental awareness among young people," said Urban. "The group was also involved in providing seminars for the public to instruct anglers on how to better catch what they are going after. This process was designed to interest more people in fishing and keep them aware of the latest fishing technologies and trends."

Fast forward to today, SVSFE continues to be a leader of sport fishing enhancement.

With the help of Urban, and fellow SVSFE fisheries technician Melissa Badger, education of local youth continues with the Stewards of the Future program designed by SVSFE, which focuses on preserving and improving habitat for game fish species.

FOCUS Page 22

Focus is on the future

From Page 21

"This program is hands on as students raise trout in the classroom and receive lessons pertaining to all aspects of fisheries including identifying fish anatomy and their functions, understanding fish habitat and how easily humans can impact it, reviewing the life cycle of a fish and the challenges it faces before it becomes an adult fish big enough to eat, the history of fishing in Manitoba and the value this information plays in today's practices," said Urban, noting presentations were also made by Natural Resource officers regarding why regulations are important.

"And of course students have the opportunity to go fishing, some even for the first time."

SVSFE also introduced a Fish Camp in the summer of 2011, with the intention of getting youth motivated to pursue protecting, reconnecting, restoring and sustaining fisheries.

Today the SVSFE continues to sponsor and support school fishing field trips, having fishery technicians make classroom presentations, having high school students taking environmental management classes assist in lake stocking efforts, and offering Fishing Fun Nights at Whitefish Lake.

Throughout the years, SVSFE has formed partnerships with the Water Stewardship Branch, other sport fishing groups, local outfitters, the Swan Valley School Division and surrounding post-secondary education institutions.

"Creating strong relationships with groups with the same passion and objectives, this is what makes SVSFE so strong," said Urban. "These partnerships were created in the past and have continued well into the future."

Reflecting on the importance of SVSFE, Urban said the organization is about taking a proactive management approach.

"Lakes and streams in our area are being actively managed in a lake-specific manner," she said. "Meaning every waterbody is a little different from the other and with this type of approach we can succeed in creating a sustainable fishery now and for the future."

There are many ways to become involved with SVSFE, including becoming a director, and offering your insights for projects and activities; donating to the group either monetarily or by volunteering; completing creel surveys where available and submitting tagged fish information.

Western Manitoba Fishing Guide was a special edition guide developed by the Dauphin Herald, the Roblin Review, the Swan Valley Star & Times, the Russell Banner and Opasquia Times. This was an opportunity for SVSFE to promote the work the group has accomplished over the 25 plus years they have been in operation and to promote the benefits FEF has to offer.

Public Awareness

Local Newspaper Star & Times

C2- THE STAR & TIMES Tuesday, June 25, 2013

Sports

SVSFE completes trap netting project at Bell Lake

Twyla Machan
SWAN VALLEY STAR AND TIMES

With the ice breaking, Swan Valley Sport Fishing Enhancement Inc. (SVSFE) Fisheries Technicians Holly Urban, Melissa Badger, and Brock Koutecky along with Manitoba Water Stewardship Fisheries Branch Biologist Ian Kitch were eager to get back on the water earlier this month (May 28-June 2) for year two of a Live Release Trap Netting Program at Bell Lake in the Porcupine Provincial Forest.

"The live release trap netting program is designed to provide trend through time on the relative abundance of a fish stock, and other biological measures to assess the status of fish populations such as age structure, growth rates, general condition and spawning success," said Urban (who was also the project manager), noted the endeavour was funded by the Fisheries Enhancement Fund (FEF).

The large trap net, which is approximately six feet deep with a 46 metre lead and is set at a depth of approximately 3.5 metres, has huge potential for catching large amounts of fish.

"Picture a large box under the water with the opening facing shore. This box has wings on either side and a long lead (46 meters) attached to the centre of the trap running all the way to shore," said Urban. "Fish swimming along the shoreline follow the lead out to the trap and are funnelled in by the wings. Once the fish are in they cannot find their way out. The nets are set for maximum 24 hours and we do 16 sets per lake usually.

"When the nets are pulled, fish are dipped out and placed into a holding pen. From there they are dipped one at a time, sampled (measured for length, weight, age structure taken, and tagged) and then released back into the water.

Swan Valley Sport Fishing Enhancement (SVSFE) Project Manager/Fisheries Technician and SVSFE Fisheries Technician Holly Urban and Melissa Badger hold up a Walleye as they continued trap netting at Bell Lake earlier this month along with fellow fisheries technician Brock Koutecky, and Manitoba Water Stewardship – Fisheries Branch biologist Ian Kitch. *– Submitted photo*

"We have caught over 300 fish in some lakes and it's known to hold even more," continued Urban.

This year's trap netting project ran smoothly, with more than 400 fish sampled for a total of more than 600 fish including – species of Walleye, Northern Pike and White Suckers – sampled throughout the two year project at Bell Lake.

"The size of the Walleye sampled this year was well distributed including younger fish, keeper sized ones and more mature slot size Walleye," said Urban.

Data from the 2013 sampling period is currently being compiled, and information will be distributed to the public regarding the two-year project.

• Trap netting hasn't been the only work completed on Bell Lake – in 2009 a depth data and creel surveys were collected during the Bell and Steeprock Creel Survey Project, which was also funded by the FEF.

During this project the lake was mapped by SVSFE technicians. The data was sent to a student from Assiniboine Community College who created an up-to-date depth map for anglers to use while also providing the young student with practical experience.

SVSFE continues to collect creel data with a survey hosted in the filleting shack at the Bell Lake boat launch. The data collected informs managers on the fishing quality. Barrel counts are also collected on a yearly basis by Parks staffs which are a huge contribution to management as these counts indicate angler harvest rates.

• Future plans for Bell Lake include the assessment of Walleye recruitment – natural reproduction versus supplement stocking. SVSFE technicians will be seining various locations of the lake this summer for young of the year Walleye and sampling young of the year Walleye using the FEF's electro fishing boat in September. This project will be in partnership with Water Stewardship and is another project funded by FEF.

In order for SVSFE to assess fish populations and health of a fishery, every single fish sampled by technicians is tagged with a numbered floy tag. This tag gives these fish a name and SVSFE can better understand the growth and success of a fishery through repeated sampling and recaptures by anglers. This is a way for the public to be a part of managing our fisheries by providing valuable data. Tagged fish information can easily be submitted through the SVSFE website and technicians can provide anglers with information on the fish they caught.

"Our overall objective as SVSFE technicians is to provide fish for the future," said Urban. "In order to do this we strive to establish natural reproduction, educate the public on conservation and work in partnership with Water Stewardship – Fisheries Branch

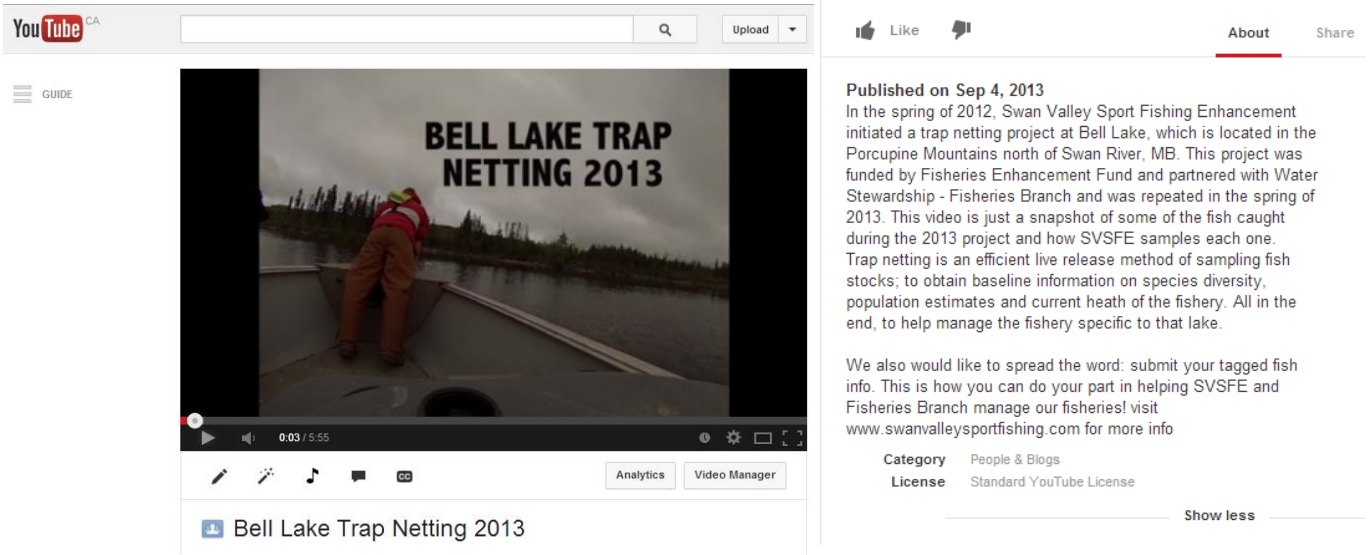
Onsite Signage informing the public of the studies being done and how to participate by submitting information on tagged fish caught.

Public Awareness

SVSFE Banquet This is our main fundraiser which brings in over 600 members each year. These members get a chance to see what SVSFE has and is doing and how they can become involved.

You Tube SVSFE recently purchased a Gopro to document and share the work which is being accomplished by technicians on FEF projects and for work completed by the group. Bell Lake trap netting is one of the first videos created to show the public a snapshot of what trap netting is all about. This also is a great way to promote our local fisheries.

Bell Lake Video - http://youtu.be/pfnYrdgph0Y



Project Partners/Sponsors & Thank Yous

Fisheries Enhancement Fund – Provided SVSFE with funding to contribute to fisheries management of Bell & North Steeprock Lake. We would like to acknowledge the importance and benefits the FEF brings to our recreational fishery. The stamp is always a reminder that a portion of the license fee helps fund projects to educate the public and to ensure that future generations will enjoy fishing as much as the present population does!

Manitoba Water Stewardship – Thank you to Fisheries Branch for their continued support in all of our initiatives and for their endless direction on fisheries management. The partnership we have created will continue to enhance our fisheries for the future. Special thanks to Ian Kitch (Regional Fisheries Biologist) for being a major part in the project. None of this would be possible without your committed support, direction and knowledge towards these projects.

Thank you Lloyd Rowe (Fisheries Technician) for you endless advise, knowledge and support towards our projects. Also to Jon Stephens (Fisheries Biologist – Western Region) for assisting in the Steeprock Lake trap netting and Ken Kansas (Fisheries Biologist - Eastern Region)for the assistance in trap netting, for added direction and support with our projects and for the use of your song for our trap netting video (Ken Kansas and the Roaring River Rangers).

Manitoba Conservation – To parks staff for accommodating us while staying at the lake to conduct field work. Also for promoting our projects to the campground users and assisting in creel, tagged fish submissions and barrel counts. Special thanks to Allan Moore & A.J Sutherland for continual maintenance of boats and trailers used for our projects. Thank you to Gary Slack for the hours contributed in developing littoral zone maps for both lakes.

Volunteers - A big thank you to everyone who came to lend a hand in our trap netting program; Dave Chetrybuk, Leanne Kalinowich, Megan Paterson and Jessica Urban. Also to Rick and Ellen Riehl for your strong interest in what we do and dedication to reporting tagged fish recaptures for both lakes.... You are truly dedicated to being a part of our studies. Thank you to Trevor Urban for helping on the windiest day trap netting at Bell Lake and for installing signage. Thank you to George Dvorak for letting us park our boat numerous times at your cabin. We hope everyone enjoyed seeing what both of these fisheries have to offer.

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