

Ministry of Northern Development, Mines, Natural Resources and Forestry

2019 Pike Lake Angler Diary Program Results

Presented on behalf of NDMNRF and
PLCA

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2019 Pike Lake Angler Diary Program

Outline

- Quick Intro – Fishery’s History, FMO’s, Angler Diary Information Collected, Assumptions
- Program Results:
 - Total Catch
 - Angling Effort
 - Walleye
 - All Fish Species
- Conclusions and Recommendations:
 - General Observations
 - Walleye Specific
 - Other Fish Species

Pike Lake Fishing Diary

Instructions

1. Please record catch once daily. Do not rely on memory.
2. Fish to be released only estimate length.
3. Fish to be kept, measure before cleaning. Measure total length of fish to the nearest centimetre.
4. Record time of catch (approximate).
5. Record each day you fish whether you catch or not.



On behalf of the
Pike Lake Community Association
and the
Ontario Ministry of Natural Resources and
Forestry,
thank you for helping with the Pike Lake Fishery
Assessment Program.

Your contribution will enable us to better evaluate
fishing opportunities and provide the best quality,
sustainable fish populations.

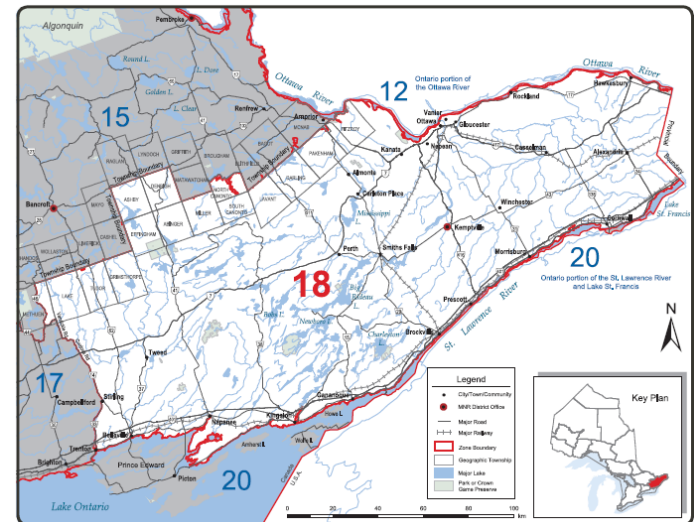
Angler's Name _____ You _____
Address _____
Postal _____

Date	Time		Length (centimetres)	English Release
	Start	End		

Date: _____
 Name: _____
 Length: _____
 Effort: _____

NOTE: Please return to program. A signature for
 program use will be required to complete the records
 for release.

All fish of one sex (Black/BW) please send results to:
 C/O Pike Lake Board at
 Indian Harbour
 (distance to by
 road) nr. P.O.
 2498 Pike Lake Rd #17
 Perth Ont.
 K7H 1A5



Introduction

Pike Lake's Historical Fishery

Former Native Lake Trout Fishery

- Subsequently stocked with LT (1922-1936)
- Then stocked with Bass and Walleye
- Last stocking event: 1979 (Walleye-eyed eggs)
- Healthy Walleye Pop. reported in the 1970's – early '80's
- Potential Pop. crash late 1980's & 90's
 - Potential causes: eutrophication, predation/competition, habitat changes (spawning & vegetation growth), over-fishing, water levels.

Fisheries Management Objectives (FMZ 18)

Increase Walleye abundance and the number of sustainable populations.

- Reduce harvest - implement harvestable slot limit (40-50 cm).
- Develop public/partner opportunities to measure fishing pressure and harvest rates (e.g. volunteer angler diary programs).

Increase natural Walleye population recruitment.

- Encourage angler harvest of predator/competitor species (e.g. bass, panfish)
- Work with partners to conduct spawning surveys / identify new spawning locations

Introduction contn'd

Angler Diary Details

Recreational Fishing Efforts and Catches reported on forms

- Date
- Fishing Start and End Time
- Individual Fish Species captured
- Estimate Total Length of individual fish species captured
- Fate (kept or released) of the individual fish species captured

Program Objectives:

- Assess status of Walleye population, relative to entire fish community
- Determine recruitment rates

Assumptions (Data Analysis)

- Walleye is always the main targeted species
- Zero “0” catches are always reported
- Other fish species captured are also reported
- Significantly higher Walleye catch rates are expected in the Spring, and in late evening (the latter time period which is often not fished)
- Reported fish sizes relatively accurate.

Diary Program Results – Total Catch

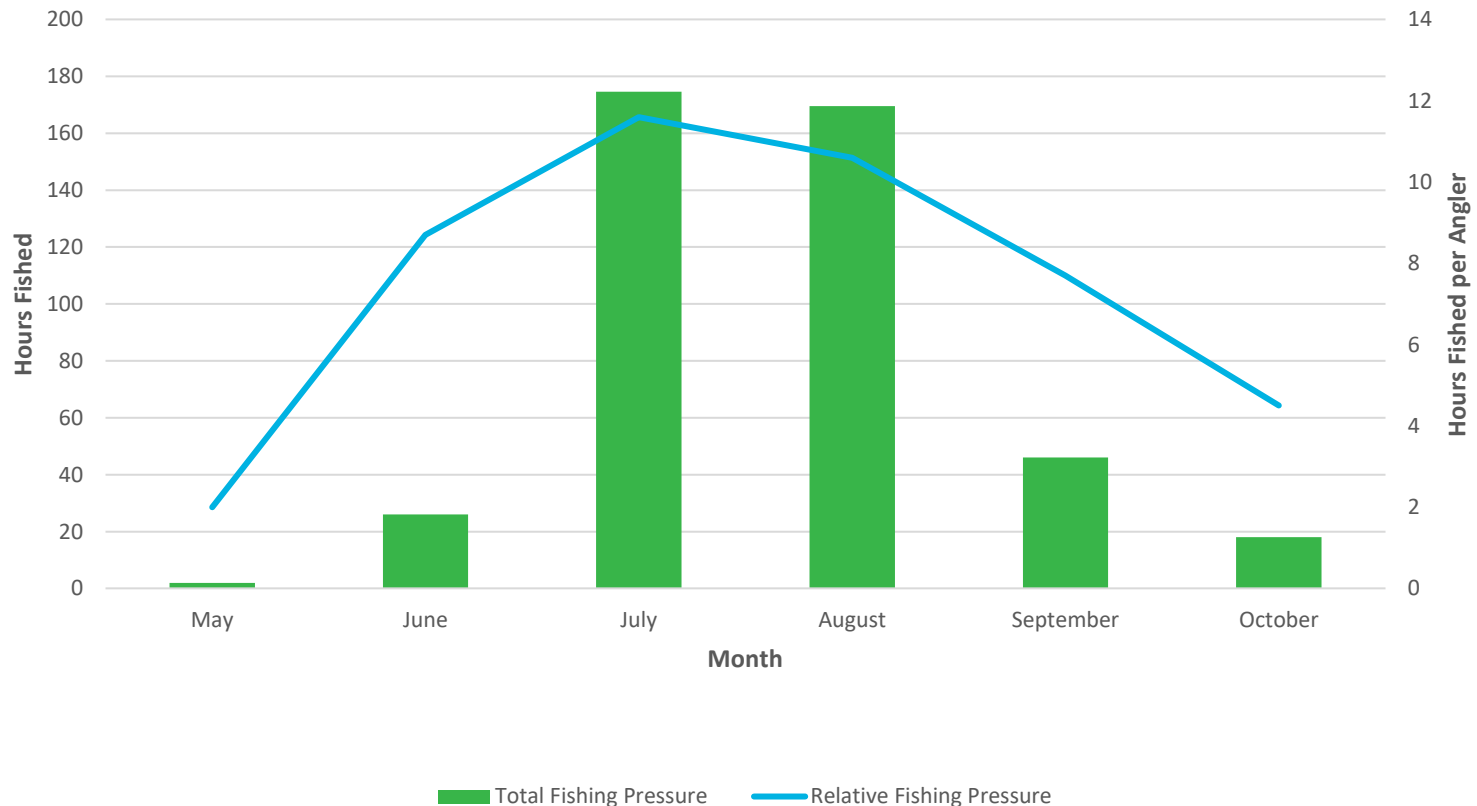
- 599 fish captured (8 species), carried out from May 11 to October 18
- Overall catch rate: 1.31 fish (all species) per hour of fishing

Fish Species	Scientific Name	Number captured (n)	Catch Per Unit Effort (CUE) (# fish/angler hr.)
Rock Bass	Ambloplites rupestris	136 (23%)	0.29
Walleye	Sander vitreus	131 (22%)	0.28
Smallmouth Bass	Micropterus dolomieu	112 (19%)	0.24
Sunfish (Pumpkinseed & Bluegill)	Lepomis gibbosus & Lepomis macrochirus	78 (13%)	0.17
Largemouth Bass	Micropterus salmoides	60 (10%)	0.13
Northern Pike	Esox Lucius	53 (9%)	0.11
Yellow Perch	Perca flavescens	21 (4%)	0.05
Black Crappie	Pomoxis nigromaculatus	8 (1%)	0.02

Diary Program Results – Angling Effort

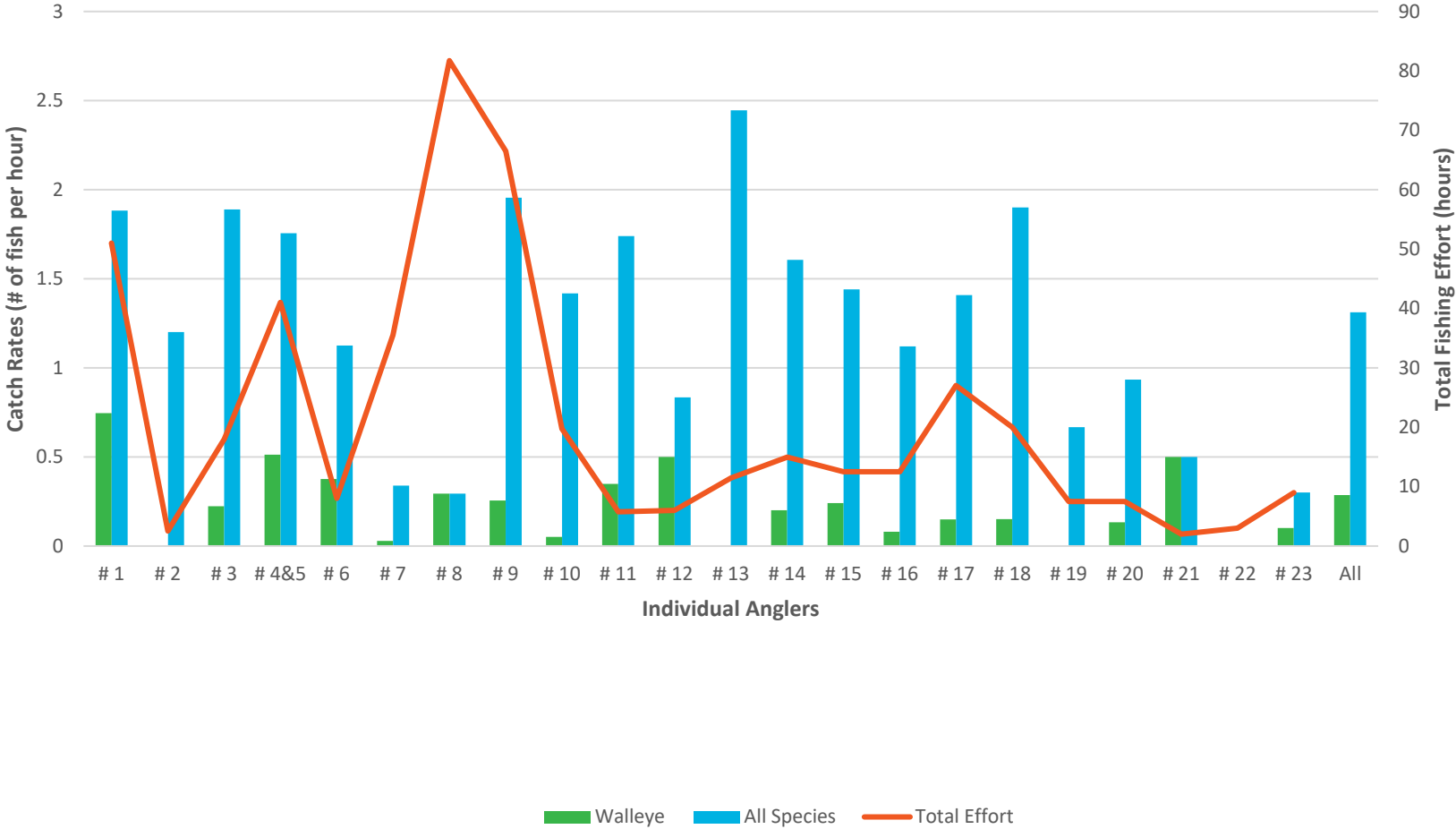
- Total Fishing Effort: 23 anglers, 463 angler hours (average of 20.1 angling hours per participant)

2019 Pike Lake Angler Diary Program



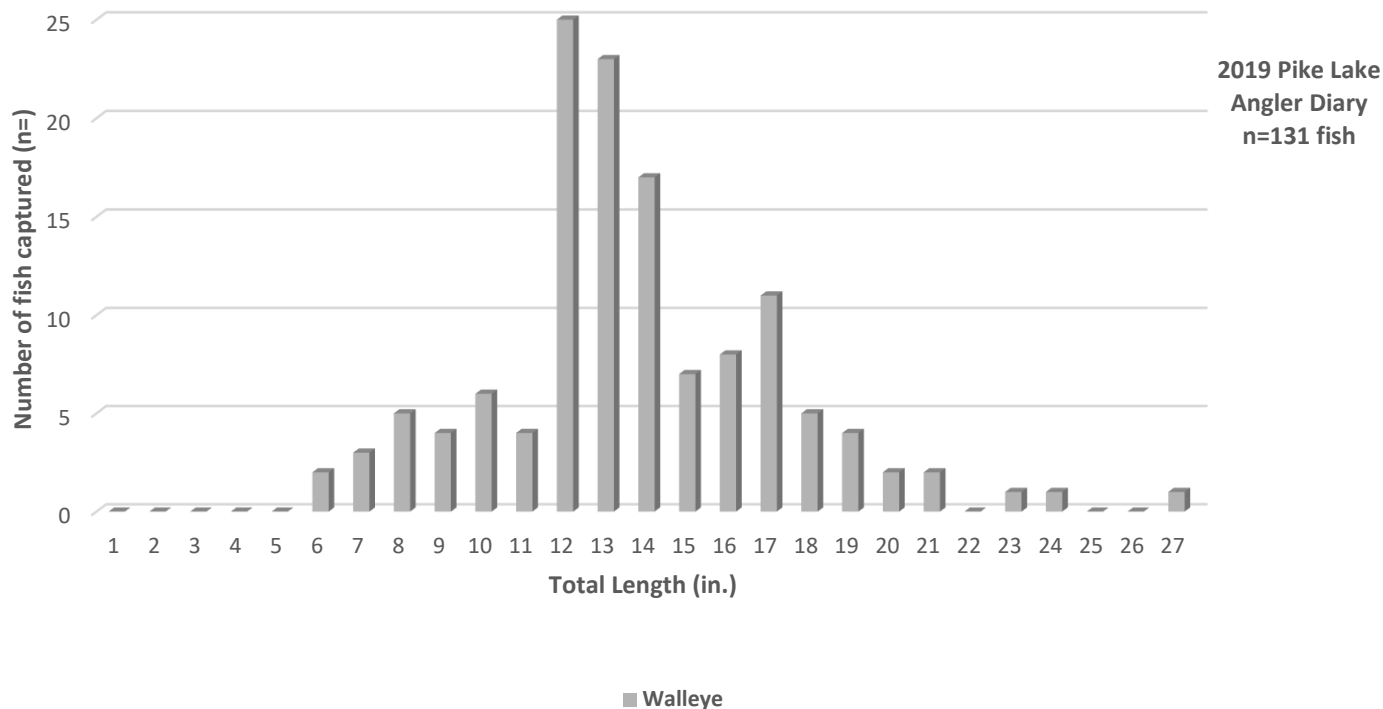
Diary Program Results – Angling Effort

2019 Pike Lake Angler Diary

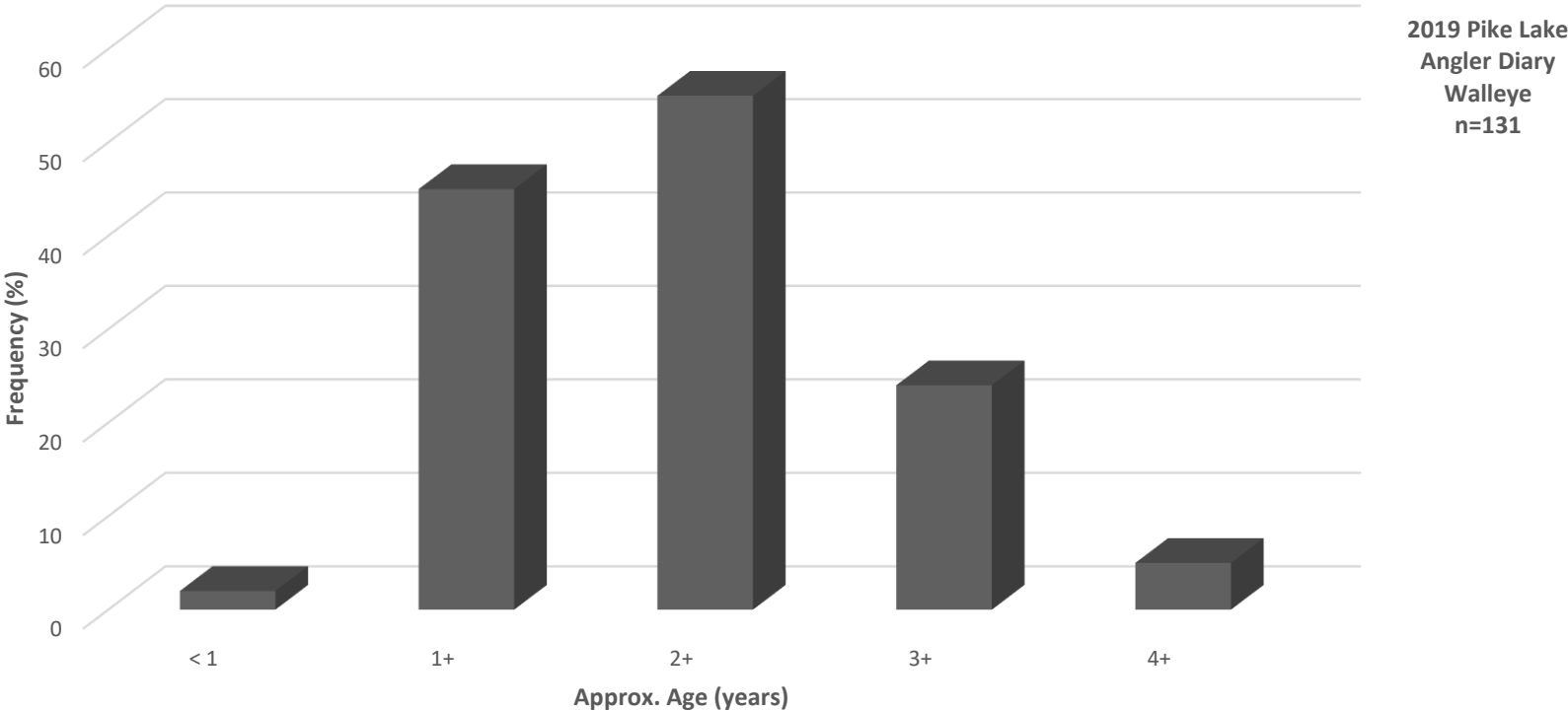


Diary Program Results – Walleye

- Catch rate: 0.28 fish per hour (0.23 fish per hour, Creel Surveys 1970-1997, range: 0.10 – 0.42)
- Potentially smaller size class overall at mean TL of 13.7 inches (349 mm) (406 mm males, and 415 mm females at zone level w/netting gear)



Diary Program Results – Walleye



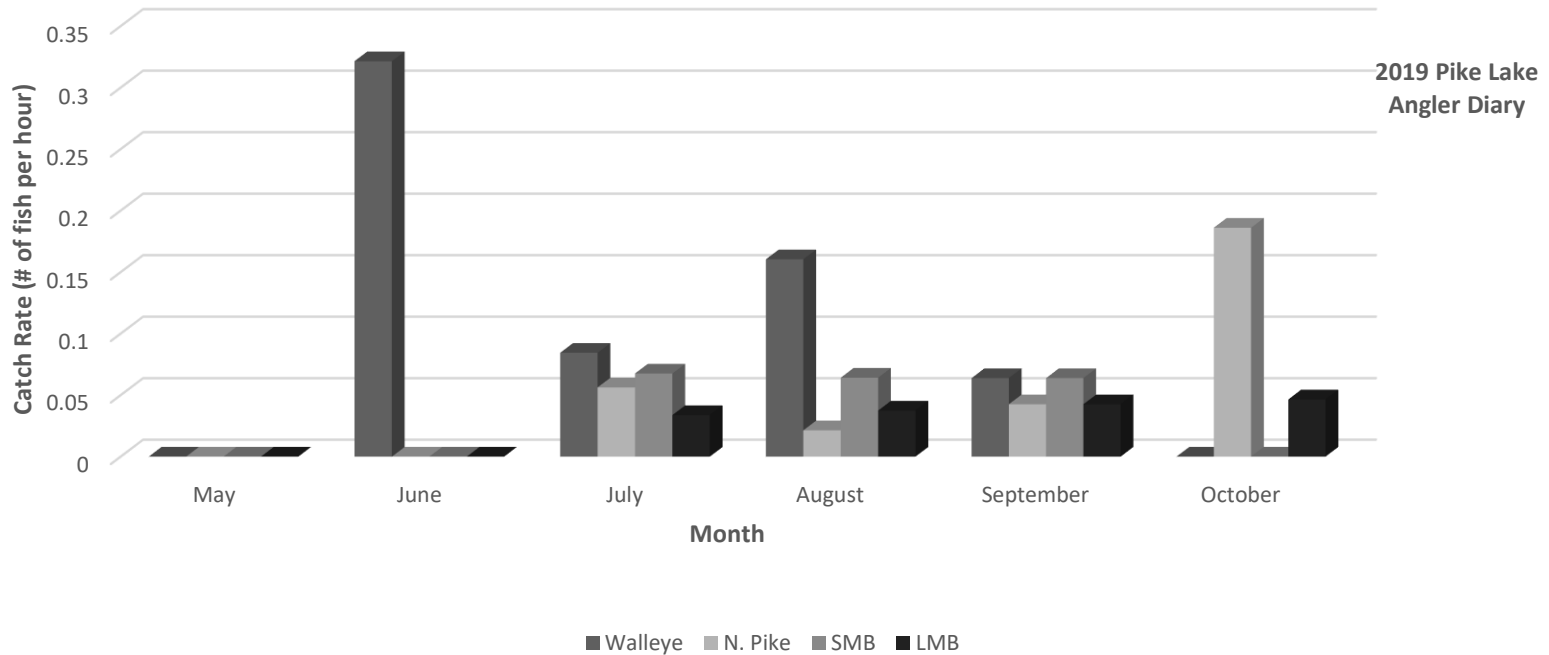
Diary Program Results – All Species

Fish Species	Mean CUE (Rod hrs) 1970-1997	2019 Mean CUE (Rod hrs)	Trend
Walleye	0.23	0.28	↑ 22%
Smallmouth Bass	0.04	0.24	↑ 600%
Largemouth Bass	0.01	0.13	↑ 1300%
Northern Pike	0.08	0.11	↑ 38%
Yellow Perch	0.08	0.05	↓ 38%
Sunfish (Bluegill + Pumpkinseed)	0.22	0.17	↓ 23%
Rock Bass	No data	0.29	n/a

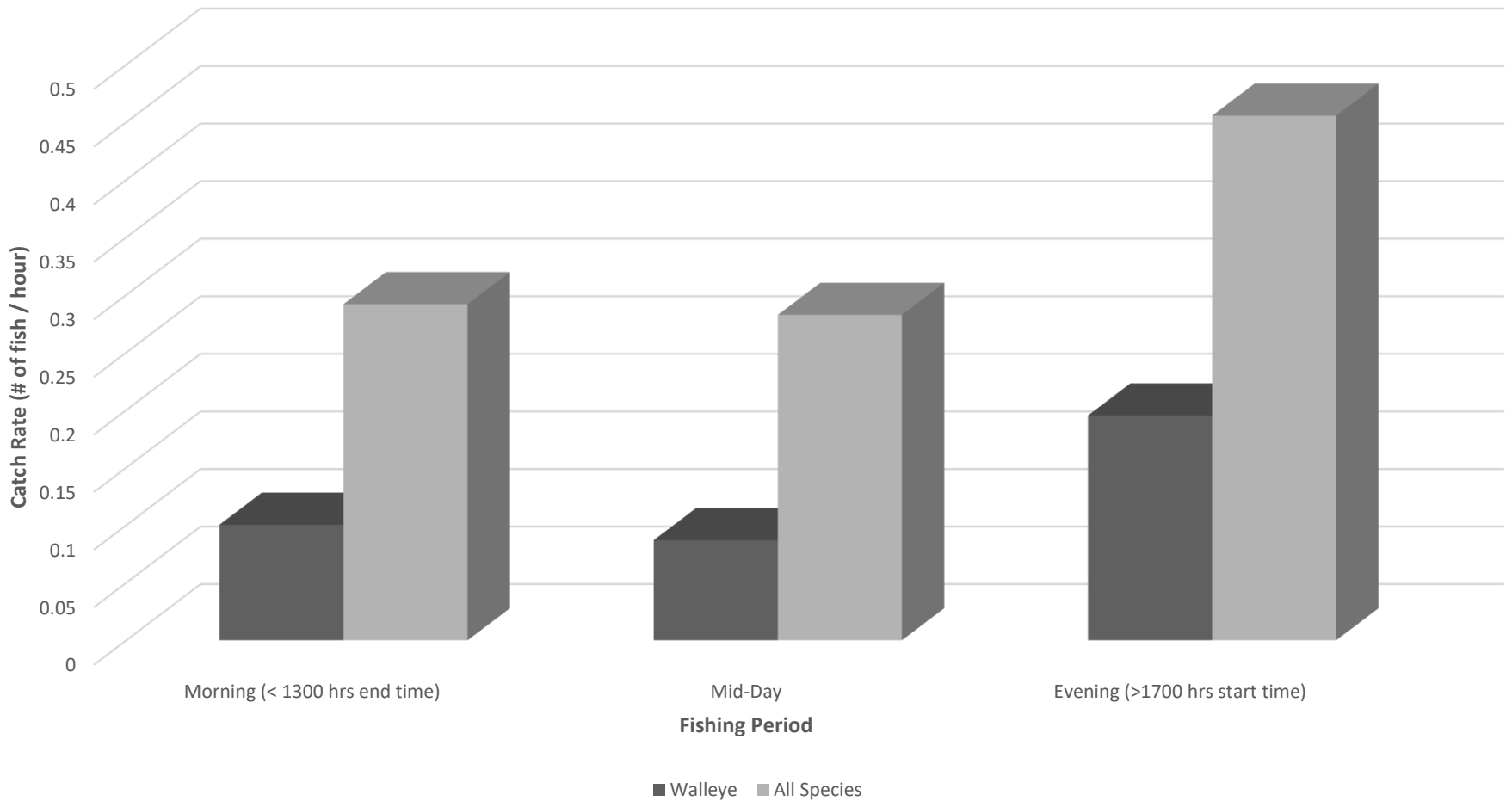
Fish Species	Mean Total Length (in.)	Total Length Range (in.)
Walleye	13.7	6 - 27
Smallmouth Bass	12.8	6 - 18
Largemouth Bass	13.1	4 - 20
Northern Pike	18.2	10 - 30
Yellow Perch	7.2	5 - 12
Sunfish (Bluegill + Pumpkinseed)	4.7	3 - 10
Rock Bass	7.1	3 - 11
Black Crappie	10.6	9 - 12

Diary Program Results – All Species

- May: 1 angler = 2 hours of fishing
- June: 3 anglers = 26 hours of fishing

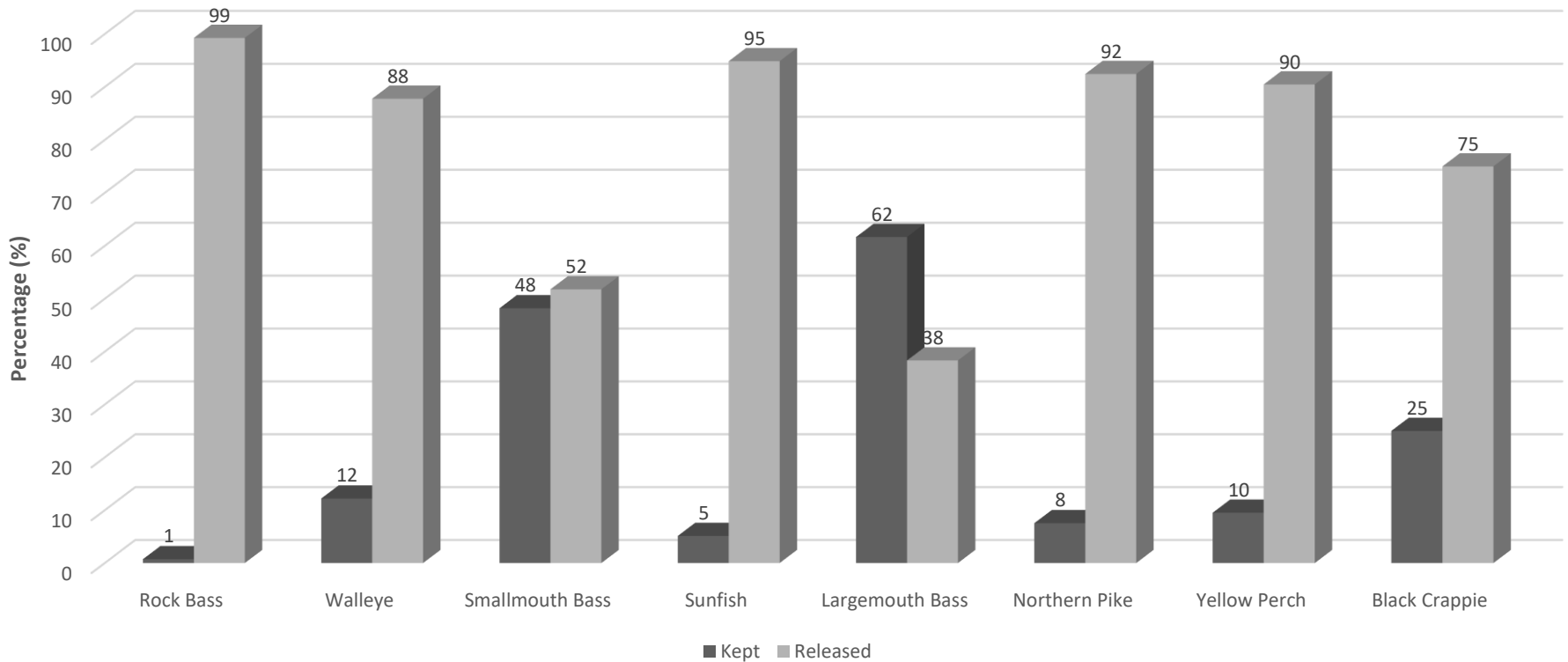


Diary Program Results – All Species



Diary Program Results – All Species

2019 Pike Lake Angler Diary Program
Total Harvest vs. Release Rates



Conclusions and Recommendations

Conclusions:

- A wide range of anglers participated and provided for a great cross-representation for this type of program (“random” sampling)
- Majority of angling effort took place in July & August (cottagers, summer visitors)
- The Walleye catch rates are likely underestimated:
 - Only 2 hours of fishing reported in May
 - Only 1 angler fished throughout the entire month of June.
 - The local, avid Walleye anglers were not likely represented.
- Clear evidence of very good to excellent Walleye population recruitment occurring (i.e. likely at least 7-8 age classes of fish captured, including many young, back to back year classes), provided by a considerable brood stock successfully spawning.
- The proportion of larger size Walleye is likely under-represented (angling vs. netting).

Conclusions and Recommendations

Conclusions contn'd:

- Some of the factors that potentially contributed to the decline of the Walleye population in the 1980's – 1990's are still a concern:
 - Eutrophication (in combination with climate change = challenge!)
 - Predation/competition by other species
- The size of many Rock Bass reported was likely grossly overestimated, but if not...
- In summary, Pike Lake likely has a relatively healthy Walleye population and should be well sustained by the current size limit regulation: harvestable slot size of 40-50 cm.
- Walleye (and to some extent, Northern Pike) already is or potentially will be the top predator in Pike Lake, keeping the other populations in check, bearing in mind that all the other species combined, still represented ~70% of the total catch!

Conclusions and Recommendations

Recommendations:

- First and foremost, anglers need to significantly increase the harvest of Rock Bass, and maintain, but most likely increase the harvest of Smallmouth Bass, Black Crappie, and to a lesser extent, increase the harvest of Largemouth Bass and sunfish.
- Walleye Spawning habitat:
 - Known and potential, suitable spawning sites should be surveyed to determine which ones are being highly utilized by spawning fish; and
 - Determine if the latter utilized sites (i.e. shoals/rocky shorelines) need to be rehabilitated (cleaned of silt/vegetation and/or be further expanded).

Conclusions and Recommendations

Recommendations:

- Nutrient enrichment from all previously documented pathways (causing excessive eutrophication):
 - Potentially leading to increased abundance of aquatic vegetation and fish habitat modifications.
 - Significant impact on the structure of the fish community and existing sport fish populations.
- Conduct another angler diary program in 5 years, include local angler participants targeting Walleye in May-June.
- The results of this angler diary program do not indicate a need to rehabilitate the lake's Walleye population (i.e. stock fish) , especially now that more restrictive size limit restriction regulations have been in place since 2013.
 - **“IF YOU STOCK IT, THEY WILL COME!”**