

Minnesota
Study 4
Job 849
March 2011

MINNESOTA DEPARTMENT OF NATURAL RESOURCES
DIVISION OF FISH AND WILDLIFE
SECTION OF FISHERIES

Completion Report

**Mail survey of angler attitudes pertaining to Northern Pike experimental
regulations in the vicinity of Grey Eagle, MN.**

by

Carl J. Bublitz

Little Falls Area Fisheries Office

Funded Under Federal Aid by the Sport Fish Restoration Act, F-29-R(P)-29, Study 4, Job 849.

Mail survey of angler attitudes pertaining to Northern Pike experimental regulations in the vicinity of Grey Eagle, MN.

ABSTRACT

A mail survey of angler attitudes was conducted during the winter of 2009-2010 in the vicinity of Grey Eagle, in central Minnesota. The purpose of this project was to assess angler attitudes pertaining to northern pike experimental slot limits in southern Todd, southern Morrison and northern Stearns counties. It was felt that the mail survey provided a low cost method of gathering human dimension data to aid in decision making ahead of end dates for experimental regulations. An initial mailing of 550 surveys was sent to anglers and spearers randomly selected from the 2008 DNR License Bureau database. A total of 315 response cards (58% response) were received out of a net total of 547 deliverable surveys. A high percentage of anglers (60%) and spearers (70%), indicated "yes" in response to the question: "Would you like to see more medium to large-sized pike on local lakes?" However, angler versus spearer support for experimental pike regulations (slot length limits) differed, with a 54% favorable response from anglers versus 28% support from spearers. Angler support for experimental pike regulations was consistently higher than opposition. Ice-anglers who sought northern pike, but did not spear, showed greater support (62%) than other anglers (50%). Although a majority of spearers opposed experimental pike regulations, 76% of them indicated that they had fished on a lake with a northern pike slot limit.

INTRODUCTION

The purpose of this project was to expand public input related to northern pike experimental slot limits in southern Todd/Morrison and northern Stearns Counties. The geographic scope of this survey was selected to gauge opinions in the vicinity of a cluster of three lakes where experimental pike slot limits are currently under evaluation: Big Birch (77-84), Big Swan (77-23) and Long (77-27). In an effort to inform the decision to continue, modify or discontinue these current regulations, Little Falls Area Fisheries wanted to appraise the opinions of a broader cross section of angling clientele than normally are present at public input meetings. The three lakes currently have an experimental 24-36 inch release slot (with one fish, of the three fish possession limit, exceeding 36 inches). Evaluation end dates for each lake are: Big Birch, March 2015, Big Swan and Long, March 2013.

Prior to current pike slot length limits, Big Birch and Big Swan initially had experimental 24-inch maximum regulations (1996-2006 and 1997-2007, respectively), which were each modified to the current 24-36 inch release slot. On Big Birch Lake, benefits from the 24-inch maximum regulation were somewhat inconclusive. A 2005 public input meeting was contentious. It was felt that the cross-section of opinions represented at that meeting was inadequate. On Big Swan, more conclusive benefits were documented from the 24-inch maximum regulation, but a similar pattern of opposition took place at a 2007 public input meeting.

A secondary objective of conducting this survey was to assess its utility for future evaluation of public sentiment toward pike management on other experimental waters as we consider recommendations from the updated DNR Fisheries long range Esocid plan (2008). Soliciting opinions and communicating survey results to stakeholders may be helpful in reconciling future conflicts resulting from the plan's stated goal to improve angling opportunities for large northern pike while continuing to provide opportunities for the sport of pike spearing.

METHODS

A database of 2008 licensed anglers was obtained from the Minnesota DNR License Bureau. The database contained 9,278 records comprised of licensed anglers (n=8,672) and spearers (n=606) within a 20-mile radius of the city of Grey Eagle (Figure 1). License records included name, address, zip code and license code. A subset of 500 anglers and 50 spearers were randomly selected from a Microsoft Excel spreadsheet.

An initial mailing of 550 surveys was done on November 30, 2009 with a follow up mailing of 315 surveys to non respondents occurring three weeks later. Twelve surveys were returned from the post office as undeliverable and a secondary mailing of 12 randomly selected, replacements was sent in mid December. Nine follow ups to the secondary mailing were sent out on January 4, 2010. Three undeliverable surveys from the follow up mailing resulted in a net total of 547 surveys sent out (Anglers, n=497; Spearers, n=50).

The survey consisted of eight questions printed on postage-paid post card stock (Figure 2) and included a letter of explanation (Figure 3). Each survey card contained a unique serial number printed under the return address label to help track survey

respondents and avoid counting duplicate surveys which occurred if cards were returned from both initial and follow up mailings.

Two survey questions were chosen to gauge perceptions about the objective to increase the number of medium to large pike: "Would you like to see more medium to large-sized pike on local lakes?" and measure support for our current management strategy: "Do you support the use of slot limits to manage northern pike populations?"

One question was selected to measure the level of awareness and participation on pike regulated lakes: "Have you fished a lake with a northern pike slot limit?" Another question was chosen to gain perspective on the amount of fishing effort targeting northern pike: "What percentage of your total angling/spearing time do you seek northern pike?" And the question "How many fishing trips per year do you typically make?" was used to get a sense of how actively engaged an individual was in their sport.

Survey response data were entered into a database with each record containing a serial number to connect results to the 2008 angler database. Data queries were utilized to tabulate survey results by three groups: all anglers, northern pike ice anglers, and spearers. Response data from anglers were sorted separately from spearers according to how an individual responded to the question: "Do you spear northern pike?" This was done because a moderate number of surveys (n=54) were received from individuals who indicated that they had speared pike, but were not licensed as spearers in 2008. Non-spearers were partitioned by how they responded to the question: "Do you ice-fish for northern pike?" to differentiate this group of pike anglers from other anglers.

Ninety-five percent confidence intervals were calculated for overall responses to the first seven survey questions using a Normal Distribution:

Where:

p = (sample estimate of the proportion) e.g. number of "yes" or "no" responses to question number 3 / n (total responses)

$SE(p)$ (Standard Error of the proportion) = $\sqrt{p(1-p)/n}$

CI (Normal Distribution) = $p \pm Z*SE(p)$

RESULTS / DISCUSSION

A total of 315 survey responses were received by the February 8, 2010 study end date. This represented 58% of the net number of surveys mailed out. The initial mailing resulted in 236 responses and another 79 surveys were received after the follow up mailing of 315 surveys. Responses from two surveys were classified as invalid because no questions were answered. Participation was consistently high across 15 postal codes selected for this study, with all but two communities having greater than a 50% response rate (Table 1).

The subset of spearers licensed in 2008 had somewhat higher survey participation (66%; n=33) than the overall response rate. Twenty-eight percent of all survey respondents (n=87) indicated that they had gone spearing for northern pike (Table 2), suggesting that many more individuals participated in spearing than were represented by

the 2008 license data. A total of 226 non-spearers responded to the survey. Angler type was further parsed into ice anglers who fished northern pike (n=87) and all other anglers (n=139). Half of all survey respondents (n=157) indicated that they had ice-fished for northern pike (Table 3). Most spearers indicated they had ice-fished pike (81%, n=70), but survey responses from spearers were tallied and reported separately from other ice-anglers who targeted pike.

A large number of survey participants either did not seek northern pike (22%, n=69) or sought pike 1-10% of the time (25%, n=78) (Table 4). Anglers accounted for the majority of this faction expressing less interest in pike fishing (n=130). Thirty percent of all survey respondents indicated they targeted pike >30% of the time. Fifty-three percent of spearers (n=45) indicated they spent >30% of their total effort targeting pike whereas 22% (n=48) of non-spearers directed >30% of their total angling effort toward pike (Figure 4). However, for the subset of anglers who ice-fished pike, the proportion targeting pike >30% of the time was higher (35%, n=31).

Largest number of responses to the question: "How many fishing trips per year do you typically make?" was 1-5 trips/year (35%, n=108) and was followed by >20 trips/year (29%, n=88) (Table 5). A small number either wrote in a zero, did not answer the question, or one individual- who indicated that he did not fish or spear during the current year. The concept of a "fishing trip" may have been misunderstood by a few respondents who may have perceived a trip as traveling and/or going to a resort on a fishing trip. We recommend "How many days do you typically fish/spear per year" for future surveys to avoid this confusion.

As a group, spearers tended to partake in a greater number of fishing/spearing trips per year compared to non-spearers. The proportion of spearers >10 trips/year (63%; n=53) and >20 trips/year (44%, n=37) was higher than anglers (40% and 24%, respectively). Responses from anglers who ice-fished for pike, were similar to spearers- with 62% (n=54) participating in >10 trips/year and 37% (n=32) >20 trips/year (Figure 5).

Sixty-three percent of all respondents, including a majority of both anglers (60%; n=135) and spearers (70%; n=60), responded "yes" to the question: "Would you like to see more medium to large-sized pike on local lakes?" (Table 6, Figure 6). Highest positive response came from the subset of anglers who ice-fished for pike (85%, n= 73). Anglers expressed "no opinion/don't know" to this question in greater proportion (28%) than spearers (10%). The higher occurrence of a "no opinion/don't know" likely reflected upon the large number of anglers who either were not interested in pursuing pike or targeted pike \leq 10 percent of the time (58%, n=130).

Forty-seven percent (n=146) of all survey respondents indicated support for experimental (slot) pike regulations, while 31% (n=97) were in opposition and 22% (n=68) had no opinion (Table 7). Support for pike regulations was higher among anglers (54%; n=122) than spearers (28%; n=24) (Figure 7). Scope of support was consistently higher than opposition across various angler segments or categorizes. Sixty-five percent of anglers that fished more than 10 trips/year supported pike slot limits (n=55). Sixty-eight percent of avid pike anglers, that targeted pike >30% of their overall angling time, favored experimental regulations (n=32). Support by ice- anglers who sought pike (but did not spear), was higher (62%) than anglers who did not ice-fish pike (50%). Northern pike ice-anglers comprised 71% (n=22) of the group of avid pike anglers and 64% (n=54) of the set of anglers with >10 trips/year.

A majority of survey respondents (62%, n=192) indicated they had fished on a lake with northern pike slot length regulations (Table 8). A higher proportion of spearers (76%, n=66) than anglers (56%, n=127) had fished or speared on a pike slot limit lake, while 20% of anglers (n=45) did not know whether they had fished on a slot lake. Overall response to this question by anglers that ice-fished pike was similar to responses by spearers (Figure 8).

MANAGEMENT IMPLICATIONS

The mail survey provided a low cost method of gathering a cross-section of local public opinion beyond what can be obtained through public input meetings. Good survey participation implied a high level of local interest in northern pike fishing and spearing.

Results from this survey showed that angler support for northern pike slot length limits was consistent across various angler categories. Support by anglers who ice-fished pike (but did not spear), provided an interesting contrast to the opinions of spearers. Although spearers generally did not support protective pike regulations, large numbers of them had fished or speared on regulated pike waters and indicated that they would like to see more medium to large-sized pike on local lakes. Recent changes to statewide regulations provided increased opportunities for individuals to ice-fish for pike while engaging in the sport of spearing. Under this rule, a person has the flexibility to use a tip up while spearing or ice-fish for pike using a sucker “minnow” as both bait for angling and as a spearing decoy. Adapting changing tactics to the tradition of spearing has both its challenges and its opportunities. Lakes with restrictive pike regulations are less appealing for many spearers due to problems associated with judging legal sized fish. However, some spearers recognize the benefits of improved size structure of pike on regulated waters and appear willing to employ angling methods to overcome the burden of restrictive regulations.

Sharing survey results with stakeholders will lend transparency to the decision-making process where public trust often appears compromised by misperceptions about where the public stands on experimental pike regulations. Adopting a similar strategy of evaluating local angler attitudes may be valuable in making management decisions in other geographic areas prior to the end dates of experimental regulations. This approach may also prove useful to assess public input prior to proposing length or bag limit changes for other species such as panfish.

In a long-term evaluation of northern pike experimental regulations, Pierce (2010), stressed the importance of building angler support and awareness of the value of length limits to maintain compliance. Support observed in our survey, in a mostly rural setting, suggests substantial angler acceptance of regulations with the goal of managing for large fish. Comparing results of local public input and a pending publication of a statewide northern pike survey conducted by the University of Minnesota will provide a more comprehensive perspective on the scope of angler opinions.

Literature Cited

Minnesota Department of Natural Resources. 2008. Long range plan for muskellunge and large northern pike management through 2020. Minnesota Department of Natural Resources, Section of Fisheries, St. Paul.

Pierce, R.B. 2010. Long-term evaluations of northern pike experimental regulations in Minnesota lakes. Minnesota Department of Natural Resources, Division of Fish and Wildlife Investigational Report 556, St. Paul.

Table 1: Overall mail survey responses to question “What is your home residence city or zip code?” (Winter 2009-2010).

What is your home Residence City or Zip Code?	Number Mailed	Number of Responses	% Response
Albany 56307	77	39	51%
Bowlus 56314	17	12	71%
Burtrum 56318	26	20	77%
Flensburg 56328	3	3	100%
Freeport 56331	28	13	46%
Greenwald 56335	3	2	67%
Grey Eagle 56336	41	24	59%
Holdingsford 56340	25	18	72%
Long Prairie 56347	95	51	54%
Melrose 56352	84	56	67%
New Munich 56356	3	2	67%
Sauk Centre 56378	116	61	53%
Swanville 56382	23	12	52%
Upsala 56384	5	1	20%
West Union 56389	1	1	100%
Total	547	315	58%

Table 2: Overall mail survey responses to question: “Do you spear Northern Pike?” (Winter 2009-2010).

Do you spear Northern Pike?	Number of Responses	% Response	95% confidence interval
Yes	87	28%	[23-33]
No	225	72%	[67-77]
Total (valid responses)	312		
Invalid	3	----	

Table 3: Overall mail survey responses to question: “Do you ice-fish for Northern Pike?” (Winter 2009-2010).

Do you ice-fish for Northern Pike?	Number of Responses	% Response	95% confidence interval
Yes	157	50%	[44-56]
No	155	50%	[44-56]
Total (valid responses)	312		
Invalid	3	----	

Table 4: Overall mail survey responses to question: “What % of your total angling/spearing time do you seek Northern Pike?” (Winter 2009-2010).

What % of your total angling/spearing time do you seek Northern Pike?	Number of Responses	% Response	95% confidence interval
0%	69	22%	[17-27]
1-10%	78	25%	[20-30]
11-20%	40	13%	[9-17]
21-30%	30	10%	[7-13]
31-40%	12	4%	[2-6]
41-50%	38	12%	[8-16]
more than 50%	43	14%	[10-18]
Total (valid responses)	310		
Invalid	5	----	

Table 5: Overall mail survey responses to question: “How many fishing trips per year do you typically make?” (Winter 2009-2010).

How many fishing trips per year do you typically make?	Number of Responses	% Response	95% confidence interval
0	7	2%	[0.4-3.5]
1-5	108	35%	[30-40]
6-10	55	18%	[14-22]
11-20	50	16%	[12-20]
more than 20	88	29%	[24-34]
Total (valid responses)	308		
Invalid	7	----	

Table 6: Overall mail survey responses to question: “Would you like to see more medium to large-sized Northern Pike on local lakes you fish?” (Winter 2009-2010).

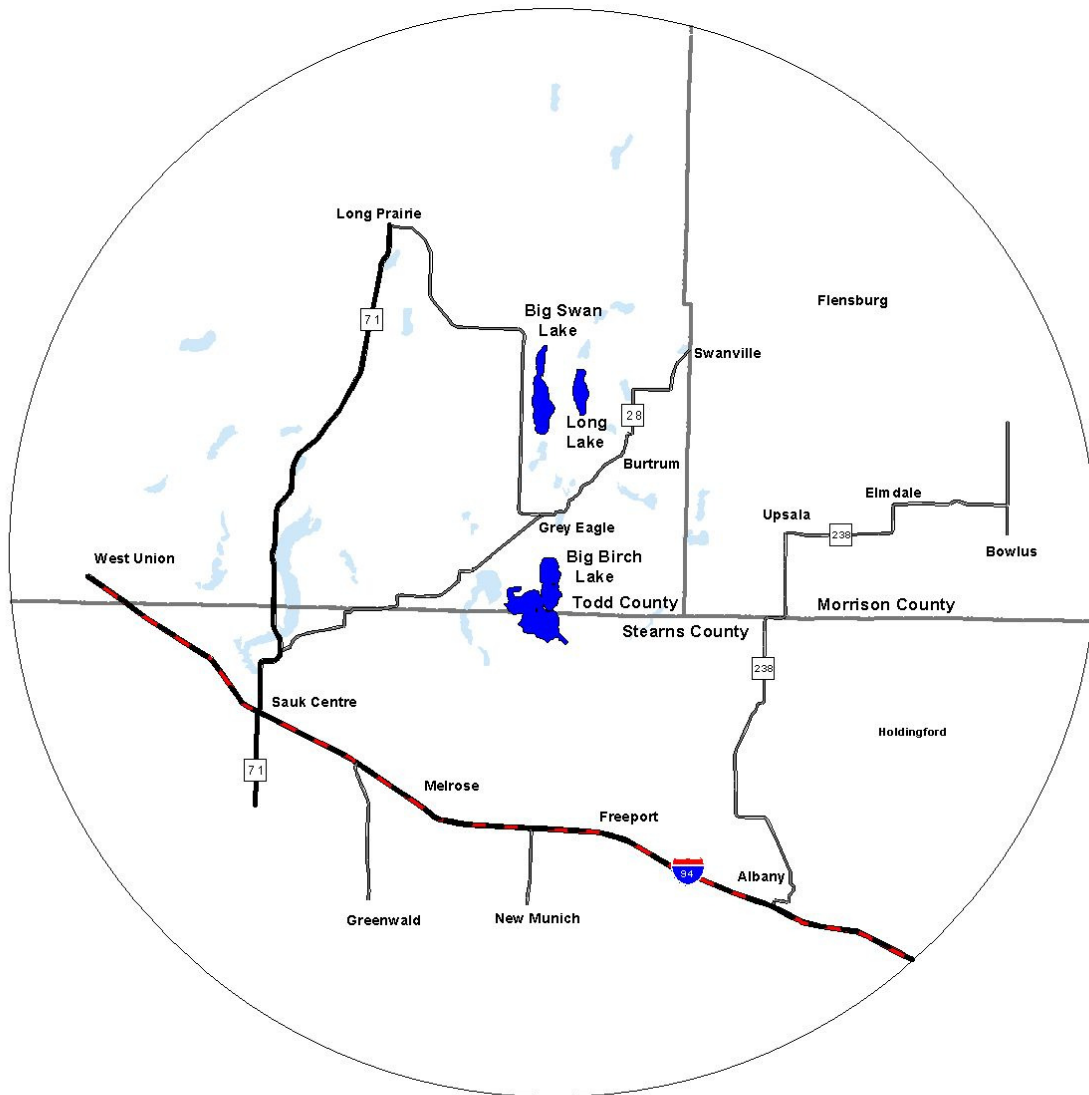
Would you like to see more medium to large-sized Northern Pike on local lakes you fish?	Number of Responses	% Response	95% confidence interval
Yes	195	63%	[58-68]
No	43	14%	[10-18]
No opinion/don't know	72	23%	[18-28]
Total (valid responses)	310		
Invalid	5	----	

Table 7: Overall mail survey responses to question: “Do you support the use of slot limits (such as a 24-36” release regulation) to manage Northern Pike populations?” (Winter 2009-2010).

Do you support the use of slot limits (such as a 24-36” release regulation) to manage Northern Pike populations?	Number of Responses	% Response	95% confidence interval
Yes	146	47%	[41-53]
No	97	31%	[26-36]
No opinion/don't know	68	22%	[17-27]
Total (valid responses)	311		
Invalid	4	----	

Table 8: Overall mail survey responses to question: “Have you fished on a lake with a Northern Pike slot limit (such as a 24-36” release regulation)?” (Winter 2009-2010).

Have you fished on a lake with a Northern Pike slot limit (such as a 24-36” release regulation)?	Number of Responses	% Response	95% confidence interval
Yes	193	62%	[57-67]
No	72	23%	[18-28]
Don't know	48	15%	[11-19]
Total (valid responses)	313		
Invalid	2	----	



Lakes with experimental northern pike slot length limit regulations

Figure 1: Angler attitude survey study area within 20 miles from Grey Eagle, MN (Winter 2009-2010).

1. **What % of your total angling/spearing time do you seek Northern Pike?**
0% 1-10% 11-20% 21-30% 31-40% 41-50% more than 50%
2. **Do you ice-fish for Northern Pike?**
YES NO
3. **Do you spear Northern Pike?**
 YES NO
4. **Would you like to see more medium to large-sized Northern Pike on local lakes you fish?**
YES NO NO OPINION / DON'T KNOW
5. **Have you fished on a lake with a Northern Pike slot limit (such as a 24-36" release regulation)?**
YES NO DON'T KNOW
6. **Do you support the use of slot limits (such as a 24-36" release regulation) to manage Northern Pike populations?**
 YES NO NO OPINION / DON'T KNOW
7. **How many fishing trips per year do you typically make?**
 1-5 6-10 11-20 more than 20
8. **What is your home residence City or Zip Code? _____**

><{{{{"> *Thank-you for participating!* ><{{{{">

The results of this survey will be posted upon completion on the DNR Fisheries Little Falls Area Web Page
<http://www.dnr.state.mn.us/areas/fisheries/littlefalls/index.html>

Figure 2: Angler attitude survey questions (Winter 2009-2010).

Minnesota Department of Natural Resources

DNR Fisheries-Little Falls Area
16543 Haven Road, Little Falls, MN 56345
Telephone: (320) 616-2450 ext 234, Fax: (320) 616-2473



December 14, 2009

Dear Interested Angler:

Northern pike experimental regulations are in place on **Big Birch, Big Swan, and Long (Burtrum) Lakes**. The regulations are slot limits that require anglers to release pike between 24 and 36". The goal of the regulation is to improve the size structure of northern pike.

Minnesota Dept. of Natural Resources, Little Falls Area Fisheries is conducting a survey to assess angler attitudes about northern pike experimental fishing regulations.

Please complete the attached survey and return the postage paid card.

Please contact Little Falls Area Fisheries Supervisor, Eric Altena with questions regarding this survey or other comments about our fisheries.

Phone: (320) 616-2450 Ext.225 or Email: eric.altena@state.mn.us

Thank you for your participation in this project. We value your opinion.

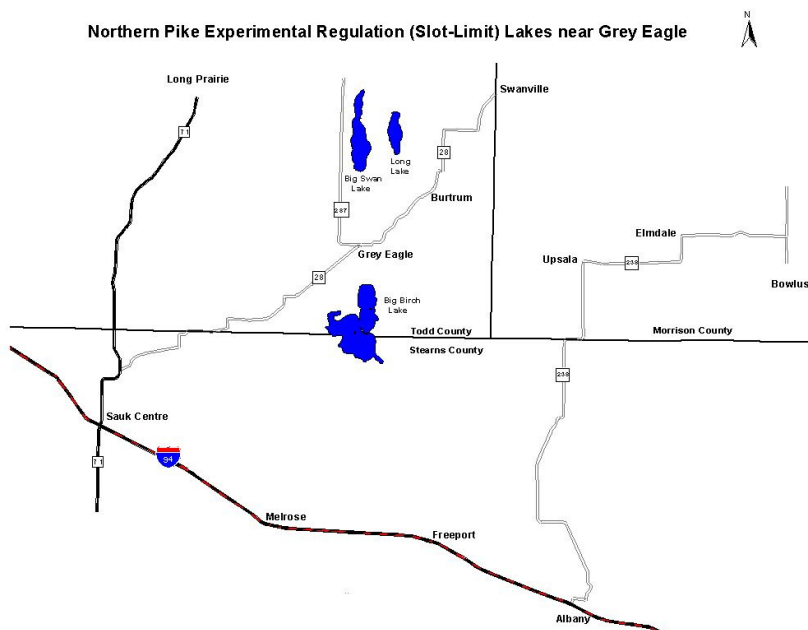


Figure 3: Angler attitude survey letter of explanation.

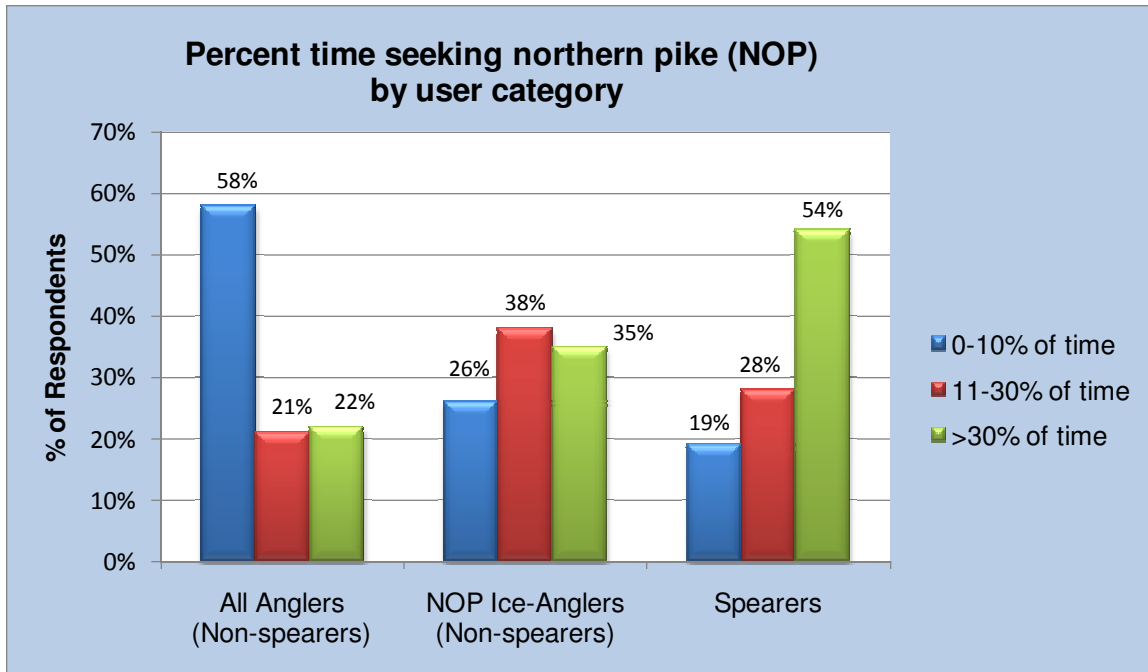


Figure 4: Percent of total angling/spearfing time seeking northern pike by user category (Winter 2009-2010).

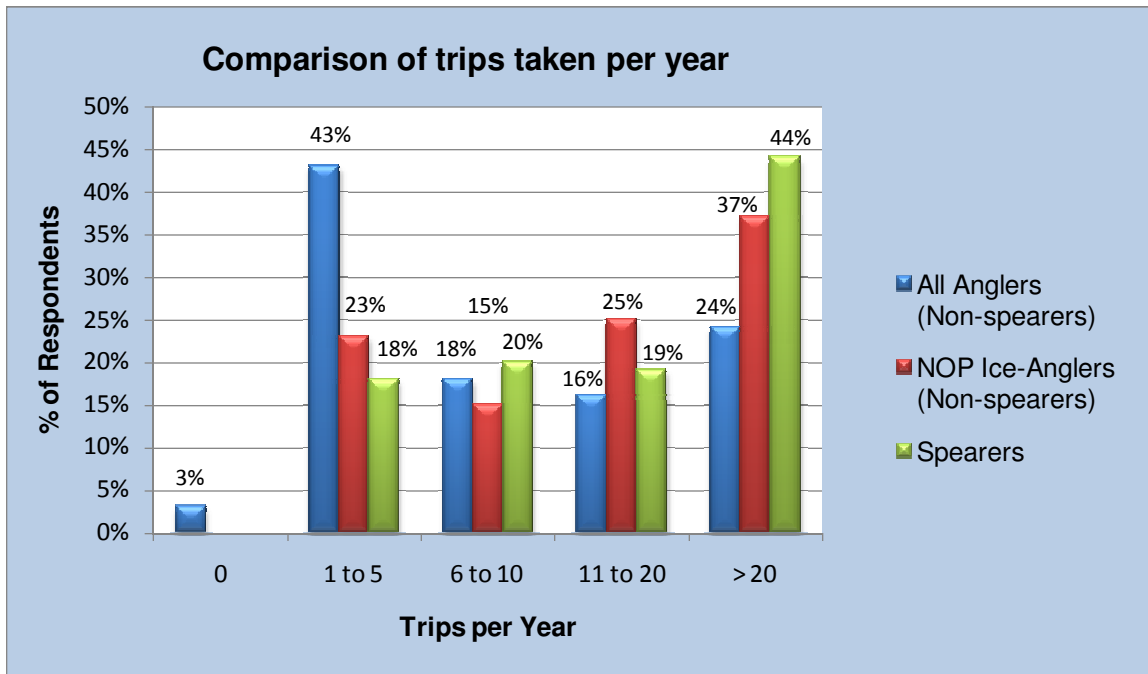


Figure 5: Number of fishing trips per year by user category (Winter 2009-2010).

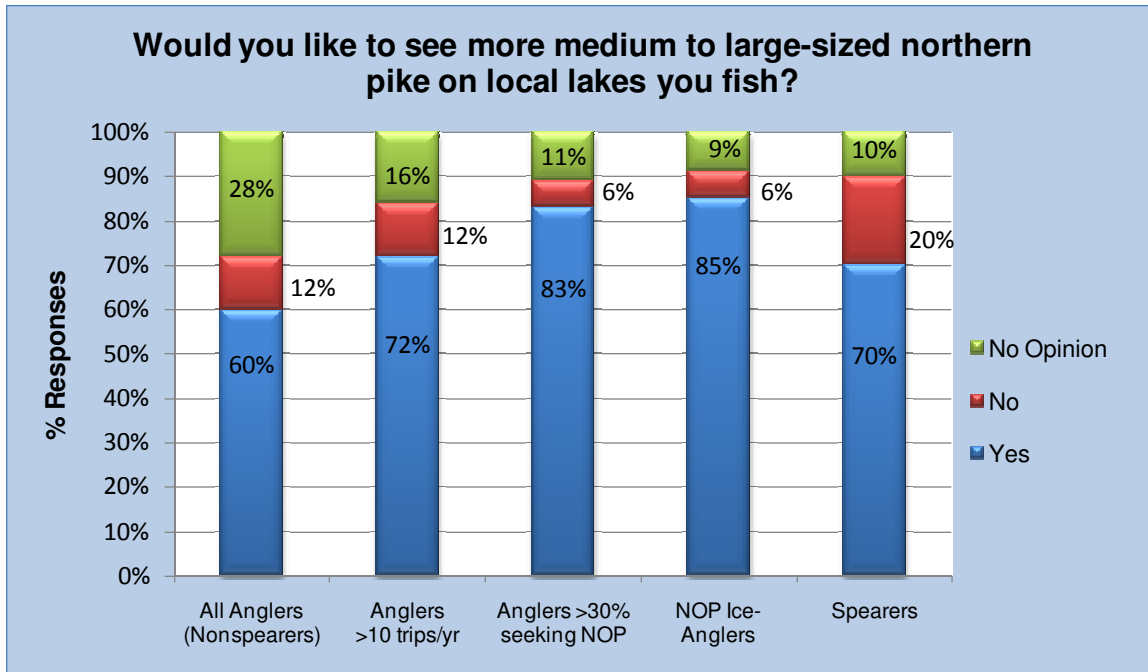


Figure 6: Response by user category to question pertaining to medium to large-sized northern pike (Winter 2009-2010).

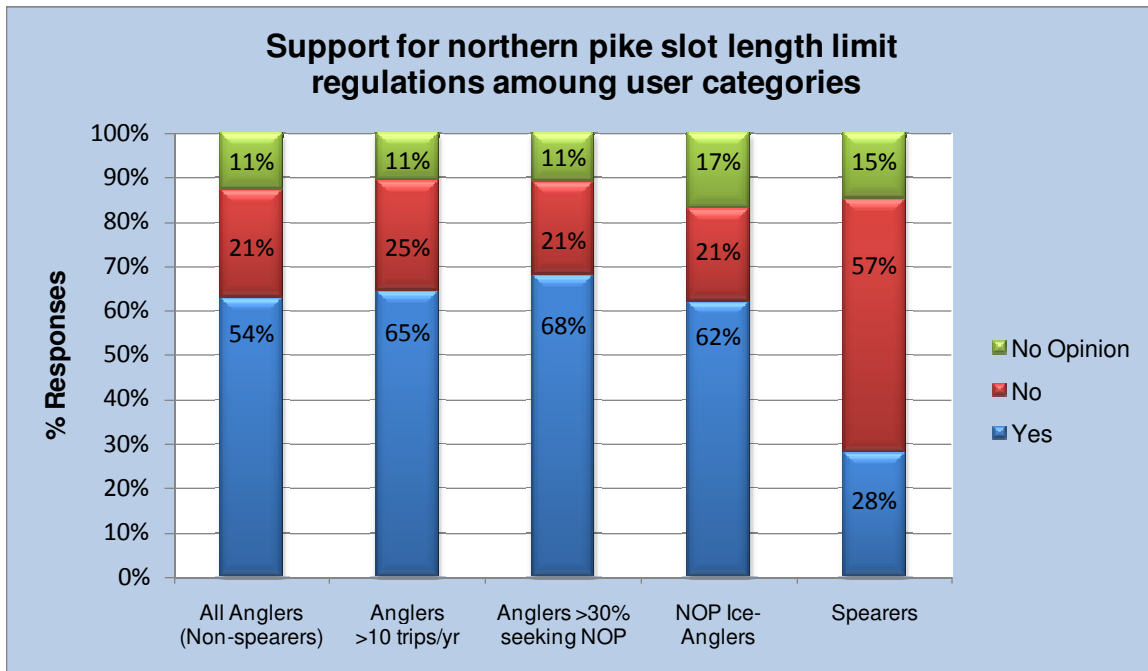


Figure 7: Response by user category to question pertaining to support for northern pike slot length limits (Winter 2009-2010).

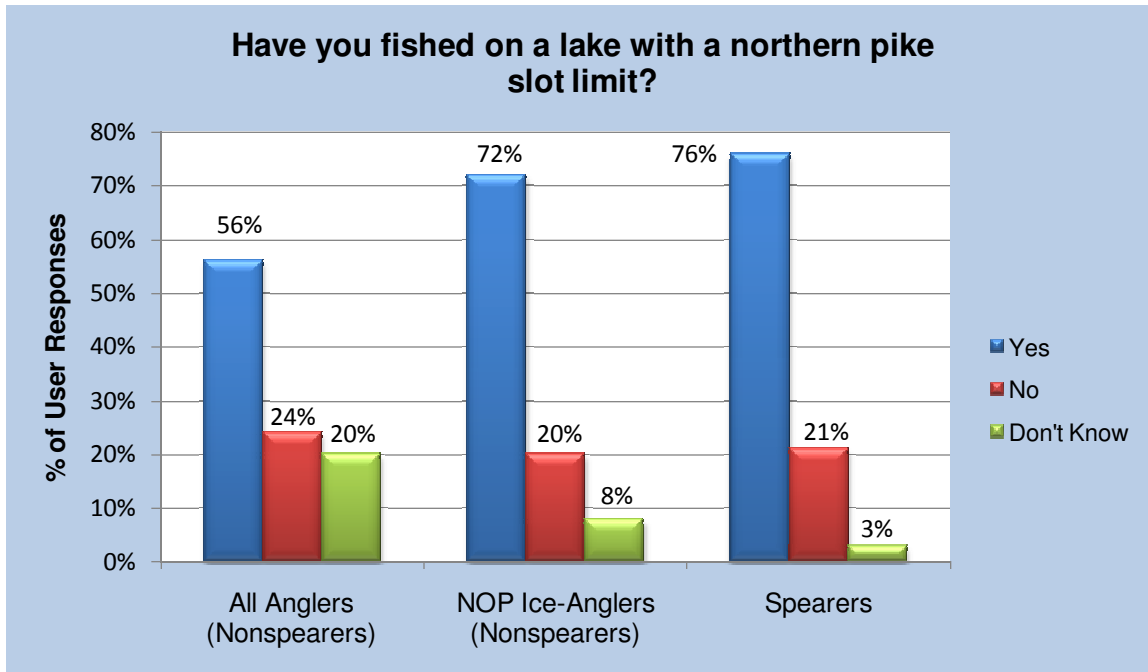


Figure 8: Response by user category to question about having fished a lake with northern pike slot length limits (Winter 2009-2010).