

## 2016 Indiana Trout & Salmon Survey



Matt Burlingame  
Fisheries Biometrician

Indiana Division of Fish and Wildlife  
402 W. Washington St, Rm W273  
Indianapolis, IN 46204

2017

## **Acknowledgments**

This project was initiated by a small committee of Fisheries Section staff. Brian Breidert, Brianna Ciara, Tyler Delauder, Ben Dickinson, Steve Donabauer, Larry Koza, Neil Ledet, and Jeremy Price all provide valuable insight into the design of the sampling protocol and the questionnaire. Testing of the online and hard copy questionnaires was undertaken by the entire fisheries staff. Karl Eliason was instrumental in querying license sales data to obtain the sampling frame of anglers. Michelle Cain also helped with license data and promoted the survey through the Division's social media sites. Kevin Jordan of Coyote IT, LLC provided support with coding for construction of the online questionnaire.

## EXECUTIVE SUMMARY

- In December of 2016, 1,200 anglers that had purchased a 2016 Trout & Salmon Stamp were randomly selected to participate in a mixed-mode survey to allow the Fisheries Section to get better understanding of Indiana's trout and salmon program. Anglers were either mailed a hard copy of the questionnaire or received an email with a link to website asking them to complete the survey.
- A total of 380 anglers return questionnaires resulting in an overall response rate of 29.9%
- Anglers responding to the survey indicated they had a median age of 50.0 years and were predominately male (92%).
- Thirty-two percent (32%) of the anglers specifically fished for trout or salmon each of the last five years. However, over 21% of these anglers said they had not fished at all for trout or salmon during the same time period.
- Only a handful of the anglers belonged to a trout or salmon fishing/conservation organization (8%).
- Most anglers (87%) indicated that they had reliable internet access at home and preferred to receive information regarding the trout/salmon program via email.
- Of all the anglers that responded to the survey (n = 380), 34.5% were identified as Lake Michigan anglers compared to 30.8% being inland trout anglers. The remaining 34.7% could not be confidently identified or didn't fish for trout or salmon in 2016.
- When looking at only responses of anglers that fished for trout or salmon in 2016, 41% and 36% were identified as Lake Michigan and inland anglers, respectively. Twenty-three percent (23%) of the anglers could not be confidently identified as one or the other.
- Inland and Lake Michigan trout and salmon anglers were similar in regards to age, sex, awareness of DFW fishing events, home internet access, and preferred mode of communication. Anglers from both groups were males (>85%) and approximately 50 years old. Most anglers (>70%) were not aware of DFW fishing events, had reliable

internet access in their homes (>80%), and preferred to receive trout and salmon program information via email (~30%) or the DFW's website (~25%).

- Lake Michigan anglers fished more often for trout or salmon in the last five years than did inland anglers. Forty-five percent (45%) of the Lake Michigan anglers fished 5 out of the last 5 years compared to 34% of the inland anglers. Twenty-eight percent (28%) of the inland anglers and 16% of the Lake Michigan anglers fished for trout or salmon only 1 of the last 5 years. Similarly, Lake Michigan anglers fished for trout and salmon twice as many days in 2016 as did inland anglers (median = 10 days and median = 5 days, respectively).
- Inland anglers indicated that they spent the largest amount of their fishing time in 2016 fishing for percids (median = 40%). Lake Michigan anglers said they spent most of their time fishing for trout or salmon (median = 30%) and percids (median = 30%).
- Of the trout or salmon species available to Lake Michigan anglers, most of these anglers spent the largest percentage of their time fishing for winter-run steelhead (median = 33%) followed by Coho Salmon (median = 30%) and Skamania steelhead (median = 30%).
- The St. Joseph River was the tributary that Lake Michigan trout and salmon anglers spent most of their time fishing (median = 100%) followed by Trail Creek (median = 50%). Deep River was the received the least amount of pressure from Lake Michigan anglers (median = 33%).
- Thirty-seven percent (37%) of the Lake Michigan trout and salmon anglers indicated they would like to see Coho Salmon increased in the stocking program. Lake Trout (5%) were the least preferred species to see increased. Sixty-five percent (64.9%) of the inland anglers preferred to catch Rainbow Trout.
- Thirty-one percent (31%) to 52% of Lake Michigan boat, shore, and tributary anglers indicated that they had fished for trout or salmon 5 of the last 5 years. Shore anglers appeared to have fished less in the last 5 years compared to boat and tributary anglers.
- Lake Michigan tributary anglers fished more days (median = 10 days) for trout and salmon in 2016 than did boat (median = 7 days) or shore anglers (median = 6 days).
- Lake Michigan boat and shore anglers spent the largest percentage of their time fishing for Coho Salmon (median = 40% and median = 50%, respectively). Tributary anglers

spent more of their time fishing for winter-run steelhead (median = 50%) than any other trout or salmon species.

- Species preference differed among Lake Michigan boat, shore, and tributary anglers. Similar to the percentages of time they spent fishing for different species, boat and shore anglers clearly preferred Coho Salmon (50% and 62%, respectively), whereas tributary anglers chose winter-run steelhead (38%).
- Inland anglers from Management District 1 spent more days (median = 12 days) fishing for trout or salmon in 2016 than anglers from other Districts. Anglers from Districts 5 and 6 spent the fewest number of days fishing for salmonids (median = 3 days).
- Anglers from Districts 1 -5 spent a greater percentage of their time targeting Rainbow Trout than Brown Trout. District 6 anglers fished for Brown Trout and Rainbow Trout about the same amount of time (median = 50%).
- District 4 anglers indicated a greater preference for catch Brown Trout (52%) than Rainbow Trout (48%). Preference for Rainbow Trout (56%) was slightly higher than that of Brown Trout (45%) in District 5. Anglers from Districts 1 -3 clearly preferred to catch Rainbow Trout (100%, 75%, and 71% for District 1, District 2, and District 3, respectively).
- The Fisheries Section should send emails to trout and salmon anglers to disseminate program information dealing with fishing opportunities and stocking events. The emails should be targeted to anglers in specific management districts. It should also be noted that Lake Michigan shore anglers indicated high preference for receiving information via traditional newspapers. To effectively reach all constituents, the Section should consider posting notices in local papers when the information is pertinent to this group of anglers.
- Efforts to promote family trout fishing events may be better spent targeting newly recruited anglers. Survey results show that very few trout and salmon anglers attended these events even when they knew about them. New recruits would likely benefit more from the structure and assistance offered at these events than would traditional trout and salmon anglers.
- More deliberate marketing of trout opportunities could help increase license sales and create more consistent anglers. Many anglers indicated they fished only one or two

years out of the last five. Overall, only about one third of the trout and salmon anglers surveyed fished for specifically for trout or salmon each of the last five years.

- The Fisheries Section should consider the addition of Brown Trout fishing opportunities in Districts 4 and 5 instead of increasing, or at the expense of, Rainbow Trout stockings. Inland anglers from District 4 preferred to catch Brown Trout more than Rainbow Trout. Although anglers from District 5 showed preference for Rainbow Trout, the difference was only 8 percentage points between the two species.
- The Fisheries Section should continue efforts to expand Coho Salmon opportunities. The survey results show strong support for Coho Salmon by Lake Michigan anglers as a whole and among Lake Michigan boat and shore anglers.
- Lake Michigan anglers in general, as well as boat and shore anglers, fished most often for Skamania and preferred Skamania over winter-run steelhead. Conversely, tributary anglers fished most often for and indicated a greater preference winter-run steelhead. The Fisheries Section should address the demand by promoting steelhead fishing opportunities and educational efforts.
- The implementation of a small-scale angler surveys holds great potential for obtaining timely information from Indiana anglers. Similar in-house surveys should be conducted in the future to address the needs and concerns of the angling community.

## TABLE OF CONTENTS

	Page
EXECUTIVE SUMMARY .....	ii
LIST OF TABLES .....	vi
LIST OF FIGURES .....	vi
INTRODUCTION .....	1
METHODOLOGY .....	2
RESULTS.....	6
General Results.....	6
Inland vs. Lake Michigan Anglers.....	19
Lake Michigan: Comparison of Boat, Shore and Tributary Anglers .....	35
Inland Anglers: Comparison by Fish Management District .....	52
REFERENCES .....	71
APPENDICES .....	72

## TABLES

### Table

1. 2016 Indiana Trout & Salmon Survey response by Fisheries Management District ....5
2. Estimated license revenue generated by Indiana trout and salmon anglers as of December 2016..... 6

## FIGURES

### Figure

1. Plot of the percentile of percent of time anglers spent fishing inland against the percentile of the absolute number of days fished in inland waters. Points above the diagonal are inland anglers. Anglers below the diagonal are Lake Michigan anglers.. 4
2. Relative frequency (%) of Indiana trout and salmon angler residency by Fisheries Management District where D1 = Fisheries Management District 1, D2 = Fisheries Management District 2, D3 = Fisheries Management District 3, D4 = Fisheries Management District 4, D5 = Fisheries Management District 5, and D6 = Fisheries Management District 6 ..... 7
3. Relative frequency (%) of trout and salmon angler response to the question, “In the last 5 years, how many years did you fish specifically for trout or salmon in Indiana?” ..... 8
4. Median number of days of Indiana trout and salmon anglers specifically targeted trout and salmon in 2016.....9
5. Median percent of time Indiana trout and salmon anglers (n = 309) anglers spent fishing for each species group in 2016. Species groups with similar letters denote no significant difference ..... 10



6. Median percent of time that Indiana trout and salmon anglers (n = 309) spent fishing at inland lakes (InLakes; inland lakes, ponds, pits, and reservoirs), inland streams (InStreams; Big Blue River, Brookville Reservoir tailwater, Cobus Creek, Crooked Creek, Curtis Creek, Fawn River, Harden Reservoir tailwater, Little Elkhart River, Little Kankakee River, Mill Creek, Mississinewa River, Pigeon River, Potato Creek, Rowe-Eden Ditch, Solomon Creek, Spy Run, Turkey Creek), Lake Michigan (LakeMI), tributaries of Lake Michigan (LMTribs; Deep River, Little Calumet River/Burns Ditch, Salt Creek, St. Joseph River, Trail Creek, etc. NOT Pigeon River) in 2016. Locations with similar letters denote no significant difference.....	11
7. Relative frequency (%) of sex of Indiana trout and salmon anglers (n = 300)....	12
8. Median age of Indiana trout and salmon anglers.....	13
9. Relative frequency (%) of trout and salmon angler response (n = 302) to the question, “Are you currently affiliated with any trout or salmon fishing/conservation organization?” .....	14
10. Relative frequency (%) of Indiana trout and salmon angler response (n = 299) to the question, “Are you aware of Division of Fish and Wildlife trout fishing events such as the family trout fishing days at Morches Park (Columbia City), Schoaff Park (Fort Wayne), Pinhook Park (South Bend) and Maple Park (Terre Haute)?” .....	15
11. Relative frequency (%) of Indiana trout and salmon angler response (n = 224) to the question, “If YES, did you attend one of those events?” .....	16
12. Relative frequency (%) of Indiana trout and salmon angler response (n = 296) to the question, “Do you have reliable internet access in your home?” .....	17
13. Relative frequency (%) of Indiana trout and salmon angler response (n = 759) to the question, “What is the best way to communicate trout and salmon program information to you? Please rank your top three (3) choices where 1 is the first best and 3 is the third best.” .....	18
14. Median age of inland anglers (n = 116) and Lake Michigan (n = 125) anglers .....	19
15. Relative frequency (%) of sex by angler type (inland, n = 115 and Lake Michigan, n = 125). .....	20

16. Relative frequency (%) of residency by angler type (inland anglers, n = 117 and Lake Michigan anglers, n = 127) where D1 = Fisheries Management District 1, D2 = Fisheries Management District 2, D3 = Fisheries Management District 3, D4 = Fisheries Management District 4, D5 = Fisheries Management District 5, and D6 = Fisheries Management District 6 .....	21
17. Relative frequency (%) by angler type (inland anglers, n = 116 and Lake Michigan anglers, n = 125) for the question, “Are you currently affiliated with any trout or salmon fishing/conservation organization?” .....	22
18. Relative frequency (%) by angler type (inland anglers, n = 115 and Lake Michigan anglers, n = 124) for the question, “Are you aware of Division of Fish and Wildlife trout fishing events such as the family trout fishing days at Morches Park (Columbia City), Schoaff Park (Fort Wayne), Pinhook Park (South Bend) and Maple Park (Terre Haute)?” .....	23
19. Relative frequency (%) by angler type (inland anglers, n = 92 and Lake Michigan anglers, n = 87) for the question, “If YES, did you attend one of those events?” .....	24
20. Relative frequency (%) by angler type (inland anglers, n = 113 and Lake Michigan anglers, n = 127) for the question, “Do you have reliable internet access at home?” .....	25
21. Relative frequency (%) by angler type (inland anglers, n = 113 and Lake Michigan anglers, n = 127) for the question, “Do you have reliable internet access at home?” .....	26
22. Relative frequency (%) by angler type (inland anglers, n = 117 and Lake Michigan anglers, n = 127) for the question, “In the last 5 years, how many years did you fish specifically for trout or salmon in Indiana?” .....	27
23. Median number of days inland anglers (n = 116) and Lake Michigan anglers (n = 127) spent specifically targeting trout or salmon in Indiana. ....	28
24. Median percent of time inland (n = 117) anglers spent fishing for each species group in 2016. Species with similar letters denote no significant difference.....	29
25. Median percent of time Lake Michigan (n = 127) anglers spent fishing for each species group in 2016. Species with similar letters denote no significant difference.....	30
26. Median percent of time Lake Michigan (n = 127) anglers spent fishing for Brown Trout (BNT), Chinook Salmon (CHS), Coho Salmon (COS), Lake Trout (LKT), Skamania	

steelhead (SRRBT) and winter-run steelhead (WRRBT) in Lake Michigan or its tributaries in 2016. Species with similar letters denote no significant difference.... 31

27. Median percent of time Lake Michigan (n = 127) anglers spent fishing at Deep River (DEEP R), Little Calumet River/Burns Ditch (LCAL R), Salt Creek (SALT C), St. Joseph River (SJOE R), Trail Creek (TRAIL C) and Other (OTHER) in 2016. Areas with similar letters denote no significant difference. .... 32

28. Relative frequency (%) of Lake Michigan angler response (n = 93) to the question, “If Indiana changed its stocking program, which of the following species/strain would you want to see increased? Please select only ONE species or strain” where BNT = Brown Trout, COS = Coho Salmon, LKT = Lake Trout, SRBT = Skamania steelhead, and WRBT = winter-run steelhead.....33

29. Relative frequency (%) of inland angler response (n = 111) to the question, “When fishing for trout on Indiana’s inland lakes and streams, which species would you prefer to catch? Please select only ONE species” where BNT = Brown Trout and RBT = Rainbow Trout.....34

30. Median age of Lake Michigan boat (n = 38), shore (n = 16) and tributary (n = 44) anglers..... 35

31. Sex of Lake Michigan boat (n = 38), shore (n = 16) and tributary anglers (n = 44) anglers..... 36

32. Relative frequency (%) of residency by Lake Michigan angler type (boat, n = 39; shore, n = 16; and tributary, n = 43) where D1 = Fisheries Management District 1, D2 = Fisheries Management District 2, D3 = Fisheries Management District 3, D4 = Fisheries Management District 4, D5 = Fisheries Management District 5 and D6 = Fisheries Management District 6. .... 37

33. Relative frequency (%) by Lake Michigan angler type (boat, n = 39; shore, n = 16; and tributary, n = 44) for the question, “Are you currently affiliated with any trout or salmon fishing/conservation organization?” ..... 38

34. Relative frequency (%) by Lake Michigan angler type (boat, n = 38; shore, n = 16; and tributary, n = 43) for the question, “Are you aware of Division of Fish and Wildlife trout fishing events such as the family trout fishing days at Morches Park (Columbia City), Schoaff park (Fort Wayne), Pinhook Park (South Bend) and Maple Park (Terre Haute)?” ..... 39

35. Relative frequency (%) by Lake Michigan angler type (boat, n = 24; shore, n = 12; and tributary, n = 32) for the question, “If YES, did you attend one of these events?” ...	40
36. Relative frequency (%) by Lake Michigan angler type (boat, n = 38; shore, n = 16; and tributary, n = 44) for the question, “Do you have reliable internet access in your home?” .....	41
37. Relative frequency (%) by Lake Michigan angler type (boat, n = 39; shore, n = 16; and tributary, n = 44) for the question, “What is the best way to communicate trout and salmon program information to you? Please rank your top three (3) choices where 1 is the first best and 3 is the third best.” .....	42
38. Relative frequency (%) by Lake Michigan angler type (boat, n = 38; shore, n = 16; and tributary, n = 44) for the question, “In the last 5 years, how many years did you fish specifically for trout or salmon in Indiana?” .....	43
39. Median number of days Lake Michigan boat (n = 39), shore (n = 16) and tributary (n = 44) anglers spent specifically targeting trout or salmon in Indiana. ....	44
40. Median percentage of time Lake Michigan boat anglers (n = 39) spent fishing for bass, catfish, esocids, panfish, percids and trout/salmon in 2016. Similar letters denote no significant difference.....	45
41. Median percentage of time Lake Michigan shore anglers (n = 16) spent fishing for bass, catfish, esocids, panfish, percids and trout/salmon in 2016. ....	46
42. Median percentage of time Lake Michigan tributary anglers (n = 44) spent fishing for bass, catfish, esocids, panfish, percids and trout/salmon in 2016. Similar letters denote no significant difference.....	47
43. Median percentage of time Lake Michigan boat anglers (n = 39) spent fishing for Brown Trout (BNT), Chinook Salmon (CHS), Coho Salmon (COS), Lake Trout (LKT) and Skamania steelhead (SRRBT) in 2016. Similar letters denote no significant difference.....	48
44. Median percentage of time Lake Michigan shore anglers (n = 16) spent fishing for Brown Trout (BNT), Chinook Salmon (CHS), Coho Salmon (COS), Skamania steelhead (SRRBT) and winter-run steelhead (WRRBT) in 2016. ....	49
45. Median percentage of time Lake Michigan tributary anglers (n = 44) spent fishing for Brown Trout (BNT), Chinook Salmon (CHS), Coho Salmon (COS), Skamania steelhead	

(SRRBT) and winter-run steelhead (WRRBT) in 2016. Similar letters denote no significant difference. ....	50
46. Relative frequency (%) by Lake Michigan boat (n = 38) shore (n = 16) and tributary (n = 44) anglers for the question, "If Indiana changed its stocking program, which of the following species/strain would you want to see increased? Please select only ONE species or strain." .....	51
47. Median age of inland trout/salmon anglers in Fisheries Management Districts 1 (n = 10), 2 (n = 24), 3 (n = 30), 4 (n = 24), 5 (n = 24) and 6 (n = 16). ....	52
48. Sex of inland anglers from Fisheries Management District 1 (n = 10), 2 (n = 24), 3 (n = 30), 4 (n = 23), 5 (n = 24) and 6 (n = 16). ....	53
49. Relative frequency (%) by Fisheries Management District 1 (n = 10), 2 (n = 25), 3 (n = 30), 4 (n = 23), 5 (n = 24) and 6 (n = 16) for the question, "Are you currently affiliated with any trout or salmon fishing/conservation organization?" .....	54
50. Relative frequency (%) by Fisheries Management District 1 (n = 9), 2 (n = 25), 3 (n = 30), 4 (n = 24), 5 (n = 23) and 6 (n = 16) for the question, "Are you aware of Division of Fish and Wildlife trout fishing events such as the family trout fishing days at Morches Park (Columbia City), Schoaff Park (Fort Wayne), Pinhook Park (South Bend) and Maple Park (Terre Haute)?" .....	55
51. Relative frequency (%) by Fisheries Management District 1 (n = 9), 2 (n = 19), 3 (n = 22), 4 (n = 18), 5 (n = 20) and 6 (n = 11) for the question, "Are you aware of Division of Fish and Wildlife trout fishing events such as the family trout fishing days at Morches Park (Columbia City), Schoaff Park (Fort Wayne), Pinhook Park (South Bend) and Maple Park (Terre Haute)? If YES, did you attend one of these events?" .....	56
52. Relative frequency (%) by Fisheries Management District 1 (n = 10), 2 (n = 24), 3 (n = 29), 4 (n = 24), 5 (n = 22) and 6 (n = 14) for the question, "Do you know where to find information pertaining to Indiana's inland trout program?" .....	57
53. Relative frequency (%) by Fisheries Management District 1 (n = 10), 2 (n = 24), 3 (n = 29), 4 (n = 24), 5 (n = 22) and 6 (n = 14) for the question, "Are you aware that six (6) inland streams are stocked in May in addition to the trout stockings prior to the opening day?" .....	58
54. Relative frequency (%) by Fisheries Management District 1 (n = 10), 2 (n = 24), 3 (n = 29), 4 (n = 24), 5 (n = 22) and 6 (n = 14) for the question, "Are you aware that six (6)	

inland streams are stocked in May in addition to the trout stockings prior to the opening day?" .....	59
55. Relative frequency (%) by Fisheries Management District 1 (n = 10), 2 (n = 23), 3 (n = 30), 4 (n = 22), 5 (n = 24) and 6 (n = 16) for the question, "Do you have reliable internet access in your home?" .....	60
56. Relative frequency (%) by Fisheries Management District 1 (n = 24), 2 (n = 58), 3 (n = 77), 4 (n = 56), 5 (n = 59) and 6 (n = 12) for the question, "What is the best way to communicate trout and salmon program information to you? Please rank your top three (3) choices where 1 is the best and 3 is the third best." .....	61
57. Relative frequency (%) by Fisheries Management District 1 (n = 10), 2 (n = 25), 3 (n = 30), 4 (n = 24), 5 (n = 24) and 6 (n = 16) for the question, "In the last 5 years, how many years did you fish specifically for trout or salmon in Indiana?" .....	62
58. Median number of days anglers in Fisheries Management Districts 1 (n = 10), 2 (n = 25), 3 (n = 30), 4 (n = 24), 5 (n = 23) and 6 (n = 15) spent specifically targeting trout or salmon in Indiana in 2016. ....	63
59. Median percentage of time District 1 inland anglers spent fishing for Brown Trout (n = 4) and Rainbow Trout (n = 9) in 2016. ....	64
60. Median percentage of time District 3 inland anglers spent fishing for Brown Trout (n = 12) and Rainbow Trout (n = 24) in 2016. ....	65
61. Median percentage of time District 4 inland anglers spent fishing for Brown Trout (n = 13) and Rainbow Trout (n = 23) in 2016. ....	66
62. Median percentage of time District 5 inland anglers spent fishing for Brown Trout (n = 9) and Rainbow Trout (n = 19) in 2016. ....	67
63. Median percentage of time District 2 inland anglers spent fishing for Brown Trout (n = 14) and Rainbow Trout (n = 24) in 2016. ....	68
64. Median percentage of time District 6 inland anglers spent fishing for Brown Trout (n = 8) and Rainbow Trout (n = 13) in 2016. ....	69
65. Relative frequency (%) by Fisheries Management District 1 (n = 9), 2 (n = 14), 3 (n = 30), 4 (n = 23), 5 (n = 22) and 6 (n = 14) for the question, "When fishing for trout on Indiana's inland lakes and streams, which species would you prefer to catch? Please select only ONE species." .....	70

## INTRODUCTION

Trout have been an important part of Indiana's "inland" sport fishing since 1943 when the state first stocked these fish. After the construction of Curtis Creek State Fish Hatchery in 1956, trout have been reared and stocked in Indiana on an annual basis. Currently, trout can be found in 24 of Indiana's 92 counties. Most of these angling opportunities are in the northern glacial lakes regions, however, stockings have spread throughout the state to increase access to these fish.

In addition to inland trout, opportunities to capture trout and salmon also exist on Lake Michigan and its tributaries. In the mid-1960s Chinook and Coho Salmon were introduced into the Great Lakes. Coho Salmon were first stocked by Indiana in 1970. In addition to Lake Michigan, these two species are available to anglers in Trail Creek and the Little Calumet River system. Coho Salmon are also stocked in the St. Joseph River. Steelhead stockings also begin in the 1960s and 1970s. Since the 1980s a relatively consistent annual stocking of 1.4 million winter-run and summer-run steelhead has taken place on the St. Joseph River, Trail Creek, and the Little Calumet River system.

These stockings have led to the development of a popular program that results in the sale of approximately 25,000 trout/salmon stamps annually in Indiana. This equates to roughly 5% of Indiana's licensed anglers purchasing a Trout/Salmon stamp each year. In 2016, 84% (n = 23,070) of those stamps were sold to Indiana residents and nearly half of those (48%, n = 11,122) were purchased by anglers from Fisheries Management District 1.

Angler preference for trout and salmon has been relatively consistent over the last 30 years. In the 1987 statewide licensed angler survey participants indicated "trout" were the 9<sup>th</sup> most preferred species to fish for followed by "salmon" (11<sup>th</sup>) and steelhead (15<sup>th</sup>). Anglers identified as Lake Michigan anglers preferred steelhead (primarily Skamania) then Coho Salmon and Chinook Salmon. Inland trout anglers preferred Rainbow Trout over Brown Trout (Shipman 1987). Similar to 1987, anglers in 1994 ranked Rainbow Trout 11<sup>th</sup>, Coho Salmon 14<sup>th</sup>, Chinook Salmon 15<sup>th</sup>, and steelhead 16<sup>th</sup> in terms of preference. When asked which species they actually fished for most often, anglers ranked Rainbow Trout, steelhead, Coho Salmon, and Chinook Salmon as 11<sup>th</sup>, 12<sup>th</sup>, 14<sup>th</sup>, and 17<sup>th</sup>, respectively (Shipman 1994). Ten years later, anglers' views of trout seemed to drop slightly. In the 2005 statewide angler survey preference for Rainbow Trout dropped to 16<sup>th</sup>, steelhead to 17<sup>th</sup>, Lake Trout ranked 18<sup>th</sup>, and Coho and Chinook preference was at 20<sup>th</sup> and 21<sup>st</sup>, respectively. Despite this decline in preference for salmonid species, anglers indicated they still fished for them about as often as they did in 1994: Steelhead ranked 12<sup>th</sup> again and tied with Coho Salmon, and Chinook salmon increased three ranks to 14<sup>th</sup>. Rainbow Trout however fell to 19<sup>th</sup>. Brown Trout were the 15<sup>th</sup> most often fished for species in 2005 and Lake Trout ranked low at 21<sup>st</sup> (Broussard and Haley 2005). Finally, results of the recently completed 2016 Indiana statewide licensed angler survey showed anglers fishing most often fished for Rainbow Trout/steelhead (11<sup>th</sup>), followed by Coho Salmon (14<sup>th</sup>), Chinook Salmon (15<sup>th</sup>), Lake Trout (23<sup>rd</sup>), and Brown Trout (22<sup>nd</sup>; Responsive Management 2017).

Although trout and salmon are not the primary species preferred or sought after by Indiana's anglers, these species provide diverse angling opportunities utilized by thousands of Hoosiers. In the past, there has been little effort made to understand this group of Indiana

anglers and the impact they have on fishing in the state. The 2005 statewide licensed angler survey sampled 1,200 trout/salmon stamp holders in addition to the 1,200 sampled from each management district. While trout & salmon anglers' preferences and opinions were documented along with the other anglers, no questions regarding Indiana's trout & salmon program were specifically targeted to this group. Additionally, their responses were not analyzed independent of the other anglers that participated.

The 2016 Trout and Salmon Survey was initiated to gain a better understanding of how much effort anglers were expending on trout and salmon relative to other species and measure angler preferences pertaining to species targeted and stocked. To address these information needs, analyses were conducted on the trout and salmon anglers as a whole, inland versus Lake Michigan anglers, Lake Michigan anglers identifying as boat, shore, or tributary anglers, and comparing the responses of inland trout anglers across fisheries management districts. Additionally, this survey was done "in-house" to evaluate the staff's ability to conduct other small-scale surveys in the future.

## **METHODOLOGY**

In the 2005 Indiana statewide licensed angler survey, 1,200 licensed anglers were randomly selected from each of the Fisheries Section's management districts. In addition, 1,200 anglers that had purchased an Indiana Trout/Salmon stamp were also randomly selected to receive the statewide survey. It was decided in 2016 to conduct a trout & salmon survey independent of the statewide survey in order to ask more specific questions to trout and salmon anglers.

Approximately 25,000 trout/salmon stamps were sold in 2016. The sample of 1,200 anglers selected to receive the 2016 Indiana Trout & Salmon Survey was drawn proportionally to the number of trout/salmon stamps sold in each fisheries management district. An additional 120 and 72 trout/salmon stamps were randomly drawn from anglers from Illinois and other states (primarily Ohio and Michigan), respectively. These too were drawn proportional to the number of stamps sold in Illinois and all other states combined.

To help control costs, and evaluate the effectiveness of an online survey versus a traditional mail survey, each district sample was further stratified by contact method. Overall, approximately 60% of the trout/salmon stamp holders had an email associated with their name. Therefore, 60% of the anglers randomly selected from each district (as well as from Illinois and other states) would be asked to complete an online version of the questionnaire. The remaining 40% of the sample from each district (and Illinois and other states) would be mailed a hard copy of the questionnaire.

Trout/salmon stamp purchases from Fisheries Management District 6 represented only 1% of sample which resulted in a sample size of 10 anglers. Similarly, District 5 was only 4% of the sample and that equated to 40 anglers. Consequently, to ensure the return of a reasonable number of valid questionnaires, both D5 and D6 samples were increased to 100 anglers. For the analysis between Inland and Lake Michigan anglers, 10 and 40 valid questionnaires were randomly selected for D6 and D5, respectively, to keep the results representative of the true



population of anglers. All angler responses were included in the breakdown by fisheries management district.

The 20-question survey was designed by the fisheries staff. Anglers were asked about the number of years and days they fished for trout/salmon, how often they fished certain waters, species preference, awareness of DFW trout program activities, and demographics. The fisheries staff also constructed a website and hosted the page at [www.indianaangler.site](http://www.indianaangler.site) on server space at HostGator.com. The server space was donated by an angler to assist with implementation of the online portion of the survey. The hard copy version mailed to anglers was a full-color 4-page booklet.

Initial invitations to participate in the survey were mailed or emailed. Follow-up reminders were sent to non-respondents one, two, and four weeks after the original solicitation. The first hard-copy mailing packet contained a letter explaining the purpose of the survey and asking the angler for their help with the project. Each angler was randomly assigned an identification (ID) number to facilitate follow-up reminders and confirm the survey had been completed. This ID number was included in the letter as well as printed on the questionnaire. In the letter, anglers were given the opportunity to complete the survey online at [www.indianaangler.site](http://www.indianaangler.site) and instructed how to do so. The packet also included a copy of the questionnaire. The email invitation was similar to the mailed letter but anglers were instead asked to link to [www.indianaangler.site](http://www.indianaangler.site) and complete the survey. Postcard follow-up reminders were mailed to anglers without email addresses. Similar to the original letter, postcard and email reminders were nearly identical content.

The final mailing included another letter and copy of the questionnaire. Likewise, the last email reminder reiterated the importance of the survey and each angler's participation. Additionally, both of these correspondences told the angler that if their questionnaire was not returned within the next week they would no longer have the opportunity to participate.

Hard copy questionnaires were returned to DFW via a postage paid return envelope included in the packet. In order to complete the survey online, the anglers' unique ID number needed to be entered in order for results to be included. Online survey responses were automatically stored in a MySQL database. This was exported to an Excel spreadsheet periodically. Returned hard copy surveys were keyed into Excel spreadsheet and later merged with the online responses. Results that did not include a valid ID number were removed from the database and not used in analysis. Likewise, if duplicate IDs were present, the ID with the most complete response was saved and the other(s) were deleted.

Analyses for this study would compare the results of Indiana's trout/salmon anglers between inland and Lake Michigan anglers, fish management districts, and Lake Michigan anglers identifying as boat, shore or tributary anglers.

To categorize anglers as either inland or Lake Michigan anglers, the percentage of time the anglers spent fishing in inland waters for trout/salmon was determined from each angler's responses, and then calculated the percentile for each of those anglers over the range of those percentages. Inland anglers spent more time fishing in inland waters so they ranked higher in the percentiles. The absolute number of days anglers fished in inland waters was then calculated. This was done by subtracting the number of days spent Lake Michigan fishing from number of days spent inland fishing (absolute number of days = inland days – Lake Michigan days). Therefore, anglers fishing more in Lake Michigan waters would have a negative number

of days fished. Anglers fishing more in inland waters would have a positive number of days fished. The percentile for each of those anglers' absolute number of days fished was then calculated. The two percentiles were plotted against each other with Percentile (abs # days fished) on the x-axis and Percentile (% time fished inland) on the y-axis. A diagonal was drawn across the 100 percentiles and anglers that fall above and to the right of the diagonal would be inland anglers and those falling below and to the left of the diagonal would be Lake Michigan anglers (Figure 1).

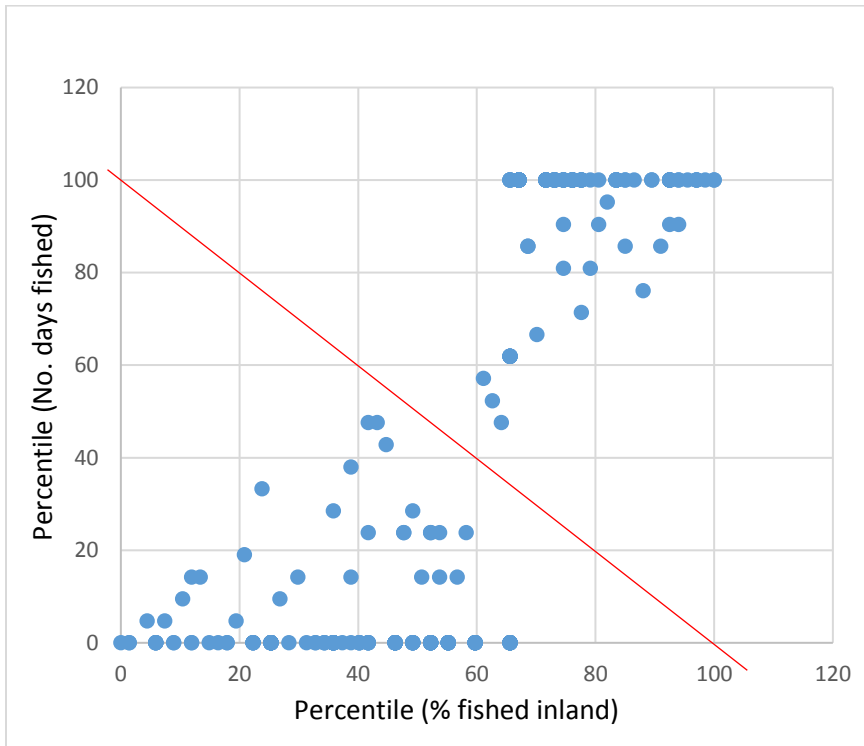


Figure 1. Plot of the percentile of percent of time anglers spent fishing inland against the percentile of the absolute number of days fished in inland waters. Points above the diagonal are inland anglers. Anglers below the diagonal are Lake Michigan anglers.

The Kruskal-Wallis rank sum test was used to test for differences between medians as well as the distribution of responses to ordinal data. Dunn's Test was used as a nonparametric multiple comparisons analysis where appropriate. Chi-square Tests of Independence were used to identify differences to nominal categorical responses. The significance level was set to  $p = 0.05$ .

The initial mailing of the survey took place on Wednesday December 21, 2016. Eight days later (Thursday December 29, 2016) anglers were sent either a postcard reminder or a second email seeking their participation. Approximately two weeks after the second mailing, on Tuesday January 17, 2017, the third and final contact was initiated.

In total, 1,350 questionnaires were mailed (n = 524) or emailed (n = 826) to trout and salmon anglers. Thirty-eight (38) survey packets were returned due to invalid addresses and another 40 emails were bounced back. This resulted in a corrected sample size of 1,272 anglers. The overall response rate was 29.9% (n = 380). Response by fisheries management district is displayed in Table 1. Response to the online survey was slightly better than that of the mailed survey.

Table 1. 2016 Indiana Trout & Salmon Survey response by Fisheries Management District.

<b>District</b>	<b>Email</b>	<b>Mail</b>	<b>Total (% response/District)</b>
1	52	50	102 (21.1%)
2	40	27	67 (30.2%)
3	28	21	49 (37.4%)
4	22	19	41 (33.9%)
5	25	15	40 (40.0%)
6	19	16	35 (35.0%)
OOS(w/ IL)	25	21	46 (24.0%)

## GENERAL RESULTS

- At the time of this survey, roughly 5.5% (n = 23,070) of Indiana’s resident licensed anglers purchased a Trout/Salmon Stamp. Revenue generated from the stamp sales was \$253,770. When broken down by license type and including the federal match, the total license revenue generated by Indiana trout and salmon anglers was \$890,848 (\$356,339 to the Division of Fish and Wildlife; Table 2)

Table 2. Estimated license revenue generated by Indiana trout and salmon anglers as of December 2016.

<b>License</b>	<b>Cost</b>	<b>No. Licenses</b>	<b>License Sales</b>	<b>Federal Match</b>	<b>Total Income</b>
1-Day	\$9.00	669	\$6,021.00	\$6,021.00	\$12,042.00
Annual Fish	\$17.00	18,088	\$317,900.00	\$168,300.00	\$486,200.00
Hunt/Fish Combo	\$25.00	3,738	\$93,450.00	\$33,642.00	\$127,092.00
Senior Fish Life	\$17.00	346	\$5,882.00	\$3,114.00	\$8,996.00
Vol. Senior Ann. Fish	\$3.00	21	\$63.00	\$189.00	\$252.00
Senior Ann. Fish	\$3.00	208	\$624.00	\$1,872.00	\$2,496.00
Trout/Salmon Stamp	\$11.00	23,073	\$253,770.00		\$253,770.00
<b>TOTAL</b>					<b>\$890,848.00</b>
			40% allocation adjustment =		<b>\$356,339.00</b>

- In the northern Districts, the impact of the trout and salmon program is more pronounced due to the greater number of trout and salmon anglers concentrated in those areas and more opportunities to capture these species. Most of the trout and salmon anglers were from Fisheries Management District 1 (33.0%, n = 102) and the percentage of anglers from each district decreased as distance from Lake Michigan increased (Figure 2).

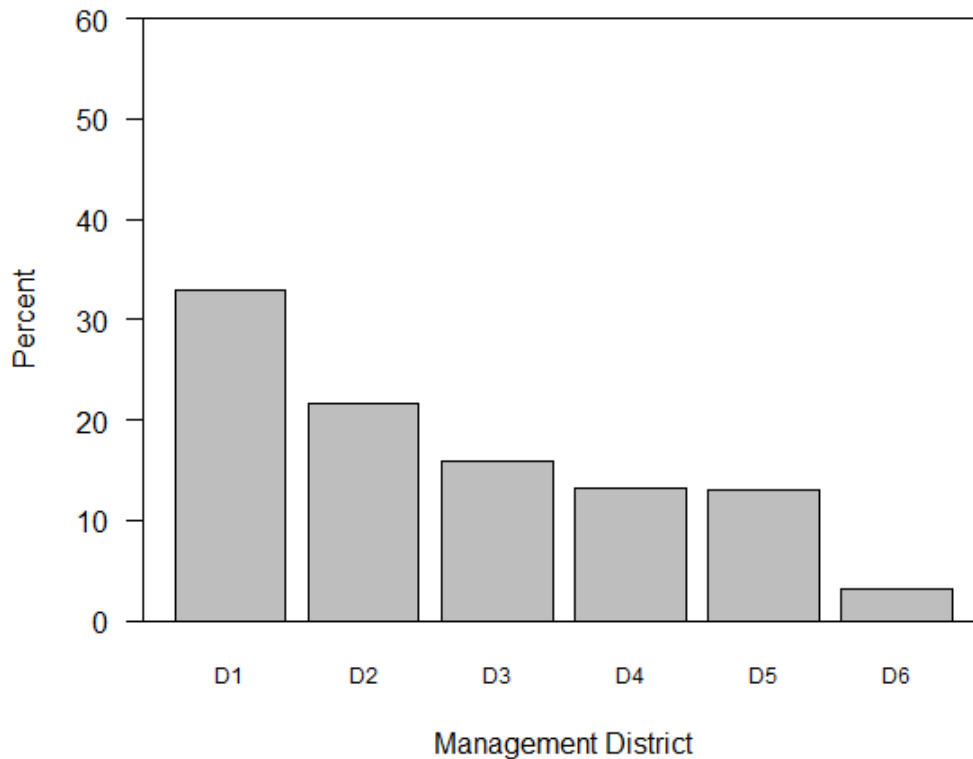


Figure 2. Relative frequency (%) of Indiana trout and salmon angler residency by Fisheries Management District where D1 = Fisheries Management District 1, D2 = Fisheries Management District 2, D3 = Fisheries Management District 3, D4 = Fisheries Management District 4, D5 = Fisheries Management District 5, and D6 = Fisheries Management District 6.

- Over 30% (32.0%, n = 99) of the trout/salmon anglers indicated that they fished each of the last 5 years for trout or salmon in Indiana. However, 21.4% (n = 66) indicated they had not fished for trout or salmon at all during the last 5 years (Figure 3).

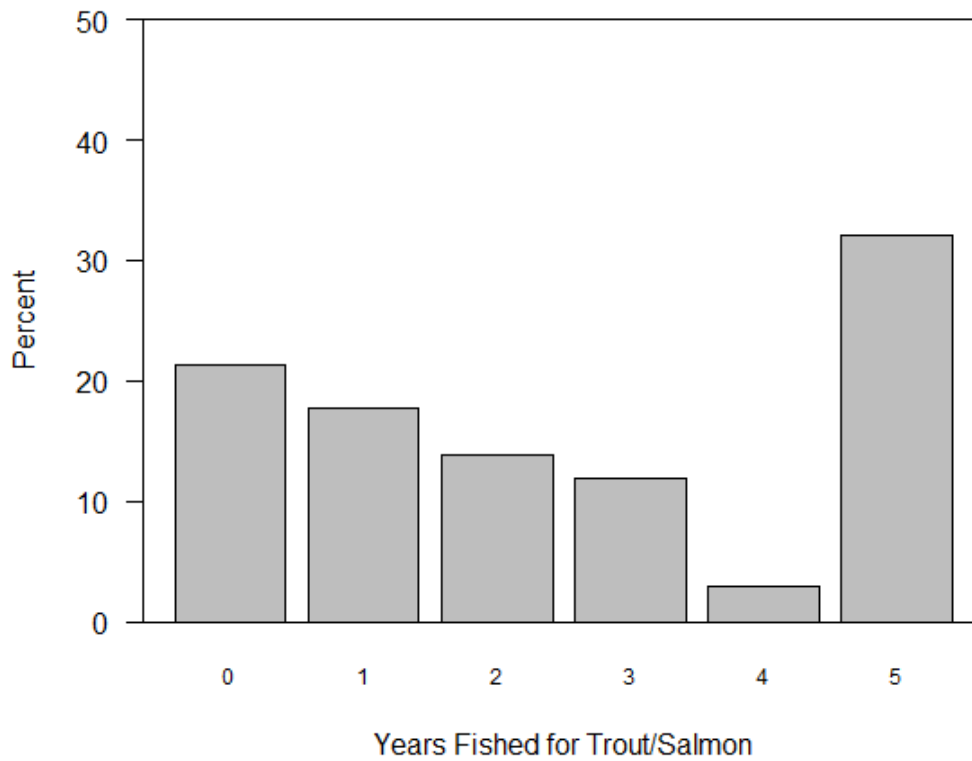


Figure 3. Relative frequency (%) of trout and salmon angler response to the question, "In the last 5 years, how many years did you fish specifically for trout or salmon in Indiana?"

- Indiana anglers who purchased a trout & salmon stamp specifically targeted these species a median of 6 days in 2016 (IQR = 3.0 – 20.0, n = 243; Figure 4).

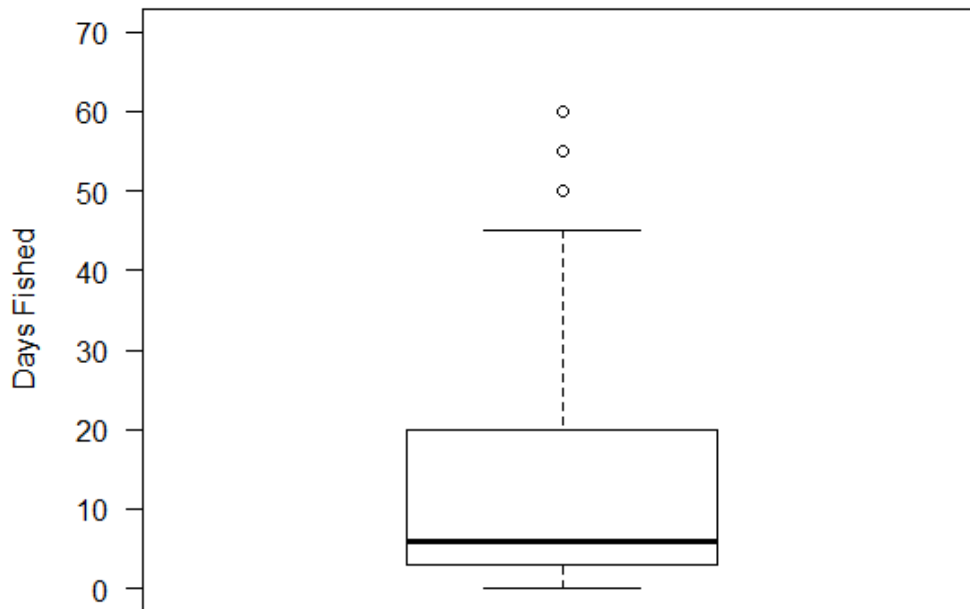


Figure 4. Median number of days of Indiana trout and salmon anglers specifically targeted trout and salmon in 2016.

- Indiana trout and salmon anglers indicated that in 2016 they spent highest percentage of their time fishing for percids (median = 31.5%, IQR = 15.0 – 50.0, n = 175) and bass (median = 25.0%, IQR = 10.0 – 50.0, n = 170). Trout and salmon and panfish both

received 20% of the anglers' times (IQR = 10.0 – 50.0, n = 75 and IQR = 8.0 – 42.0, n = 109, respectively). Esocids received the least amount of time from trout and salmon anglers in 2016 (median = 10.0, IQR = 5.0 – 15.0, n = 41; Figure 5).

- In comparison, anglers who responded to the 2016 Indiana Licensed Angler survey indicated they fished most often for sunfish (any kind, 80.4%), bass (any kind, 72.6%), catfish (any kind, 32.9%), percids (Walleye and Sauger combined, 11.8%), trout/salmon (Rainbow Trout, steelhead, Coho Salmon, Chinook Salmon, Brown Trout, and Lake Trout combined, 11.0%) and lastly, esocids (Muskellunge and Northern Pike combined, 4.1%; Responsive Management 2017).

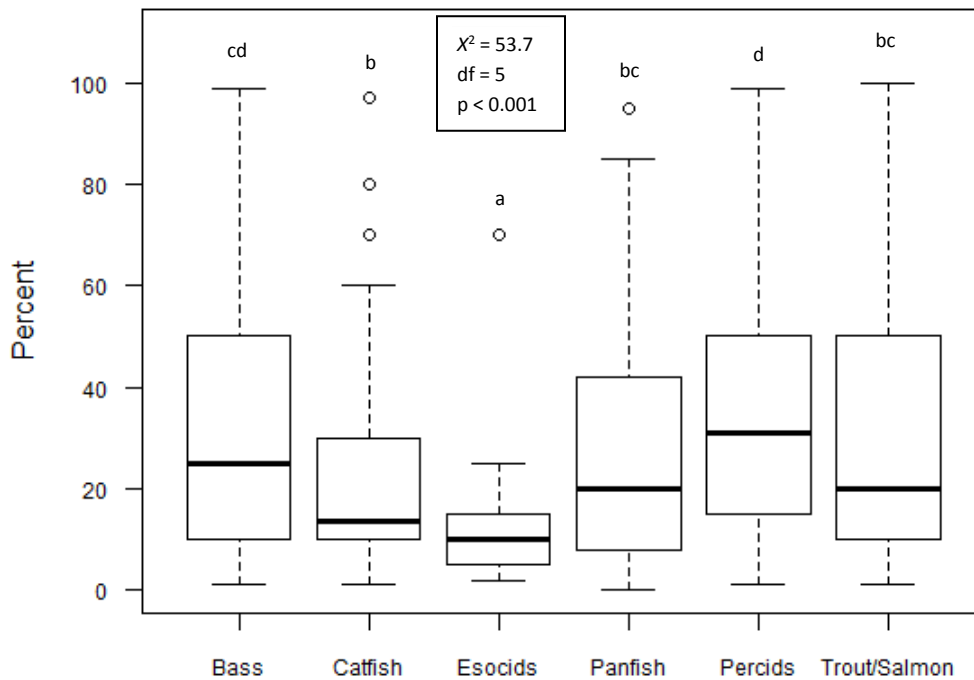


Figure 5. Median percent of time Indiana trout and salmon anglers (n = 309) anglers spent fishing for each species group in 2016. Species groups with similar letters denote no significant difference.



- Overall, anglers indicated that they spent the lowest percentage of their time fishing for trout and salmon in Lake Michigan tributaries (median = 50.0%, IQR = 20.0 – 100.0, n = 97). Anglers spent similar percentages of time fishing inland streams (median = 82.5%, IQR = 20 – 100.0, n = 80) and Lake Michigan (median = 90.0%, IQR = 50.0 – 100.0, n = 97: Figure 6).

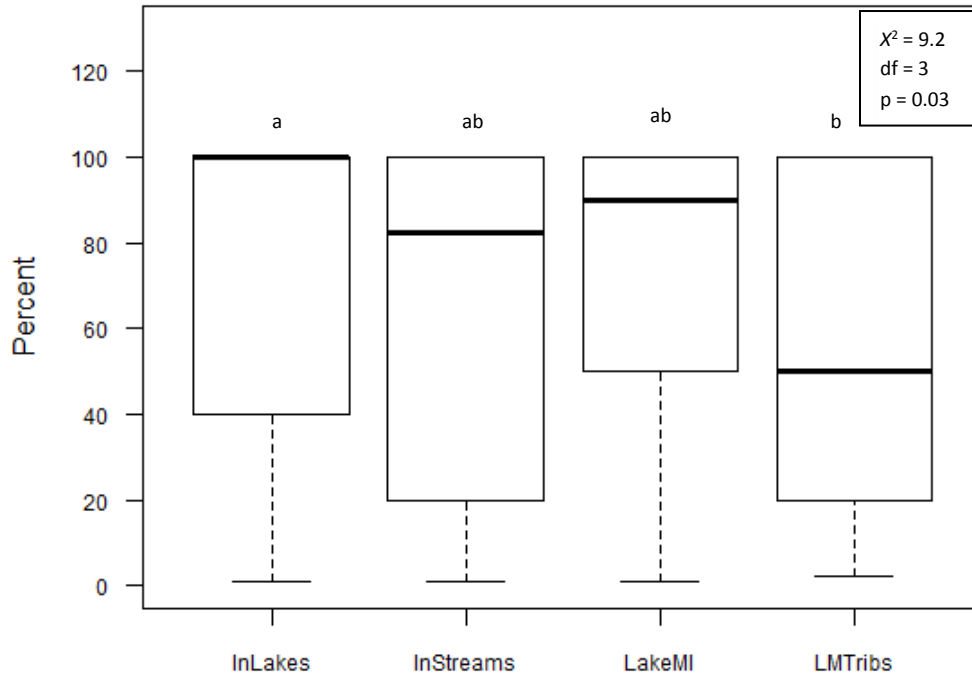


Figure 6. Median percent of time that Indiana trout and salmon anglers (n = 309) spent fishing at inland lakes (InLakes; inland lakes, ponds, pits, and reservoirs), inland streams (InStreams; Big Blue River, Brookville Reservoir tailwater, Cobus Creek, Crooked Creek, Curtis Creek, Fawn River, Harden Reservoir tailwater, Little Elkhart River, Little Kankakee River, Mill Creek, Mississinewa River, Pigeon River, Potato Creek, Rowe-Eden Ditch, Solomon Creek, Spy Run, Turkey Creek), Lake Michigan (LakeMI), tributaries of Lake Michigan (LMTris; Deep River, Little Calumet River/Burns Ditch, Salt Creek, St. Joseph River, Trail Creek, etc. NOT Pigeon River) in 2016. Locations with similar letters denote no significant difference.

- Indiana trout and salmon anglers were predominately male (91.7%, n = 275; Figure 7). Compared to the 2016 licensed angler survey, trout and salmon anglers were more likely to be males. Eighty-five percent (85%) of the anglers responding to the statewide survey were males (Responsive Management 2017).

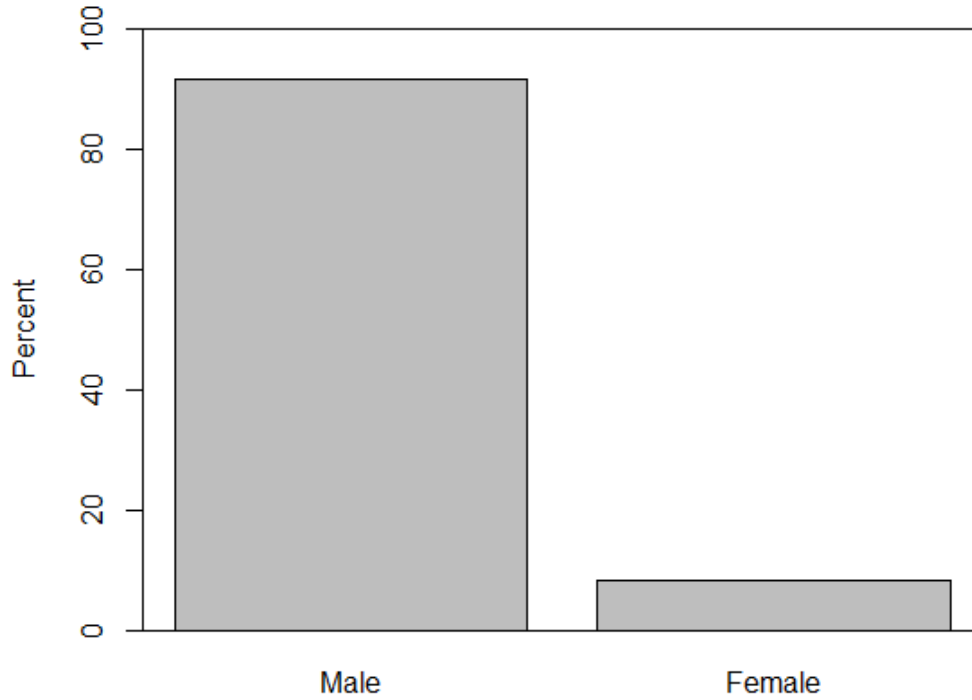


Figure 7. Relative frequency (%) of sex of Indiana trout and salmon anglers (n = 300).

- The median age of the trout and salmon anglers was 50.0 years old (IQR = 39.0 – 58.0, n = 00; Figure 8), making them slightly younger than Indiana’s general licensed angler. Most anglers (23%) in the 2016 statewide angler survey said they were 55-64 years old. Another 21% of those anglers indicated ages between 45 and 54 years (Responsive Management 2017).

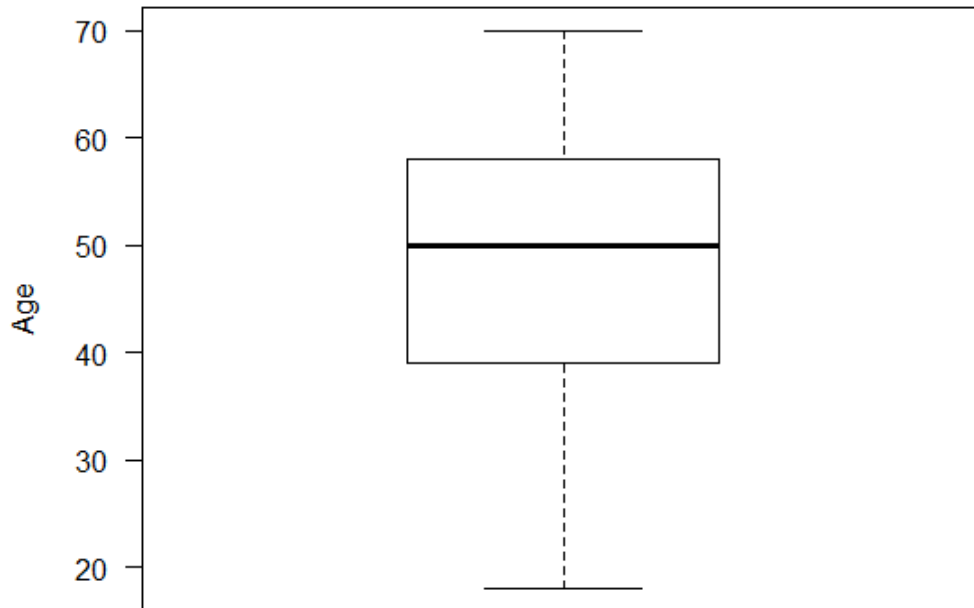


Figure 8. Median age of Indiana trout and salmon anglers.

- Only 7.6% (n = 23) of Indiana's trout/salmon anglers belonged to a trout or salmon conservation organization (Figure 9).

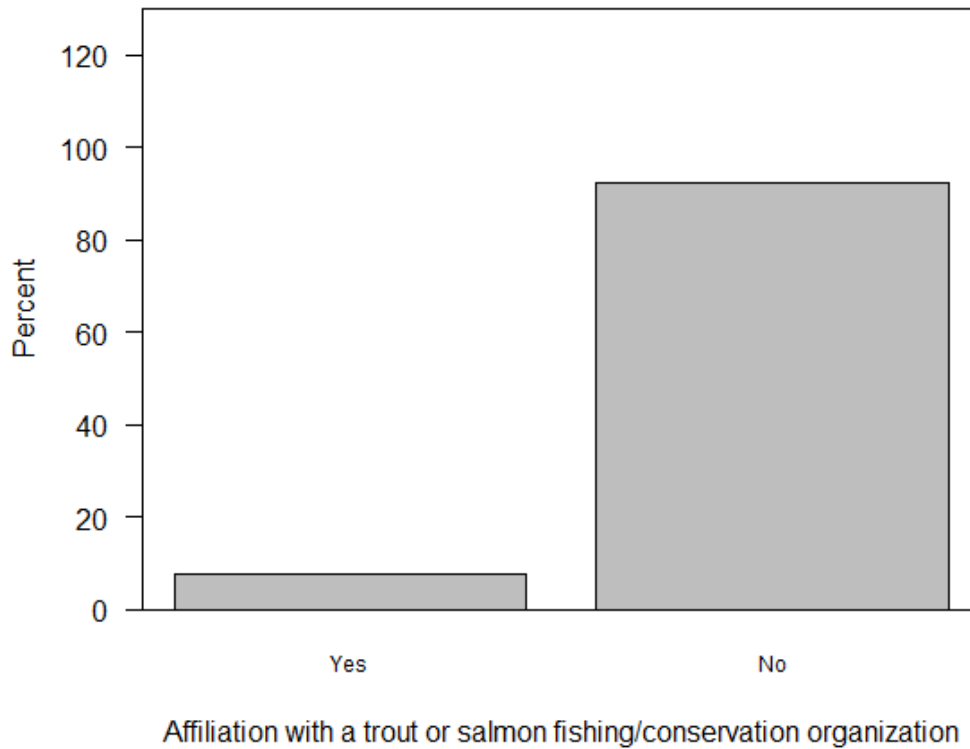


Figure 9. Relative frequency (%) of trout and salmon angler response (n = 302) to the question, "Are you currently affiliated with any trout or salmon fishing/conservation organization?"

- The majority of trout/salmon anglers were not aware of the DFW’s family trout fishing days (72.2%, n = 216; Figure 10). Of the 27% (27.8%, n = 83) that were aware of these days, very few (4.0%, n = 9) had attended one of the events (Figure 11).

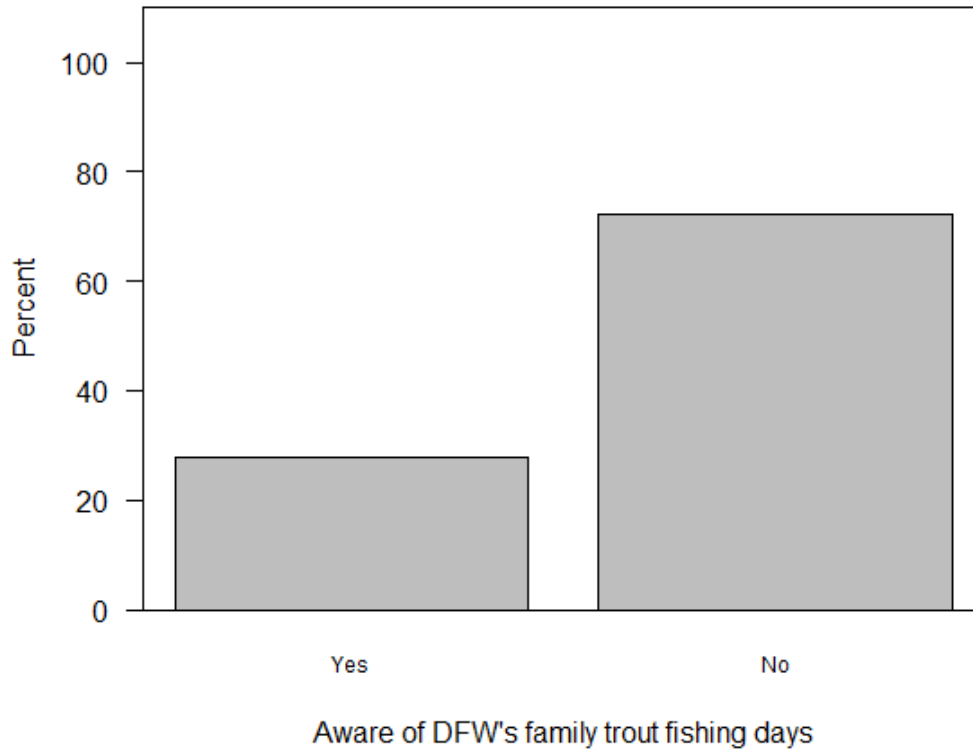


Figure 10. Relative frequency (%) of Indiana trout and salmon angler response (n = 299) to the question, “Are you aware of Division of Fish and Wildlife trout fishing events such as the family trout fishing days at Morches Park (Columbia City), Schoaff Park (Fort Wayne), Pinhook Park (South Bend) and Maple Park (Terre Haute)?”

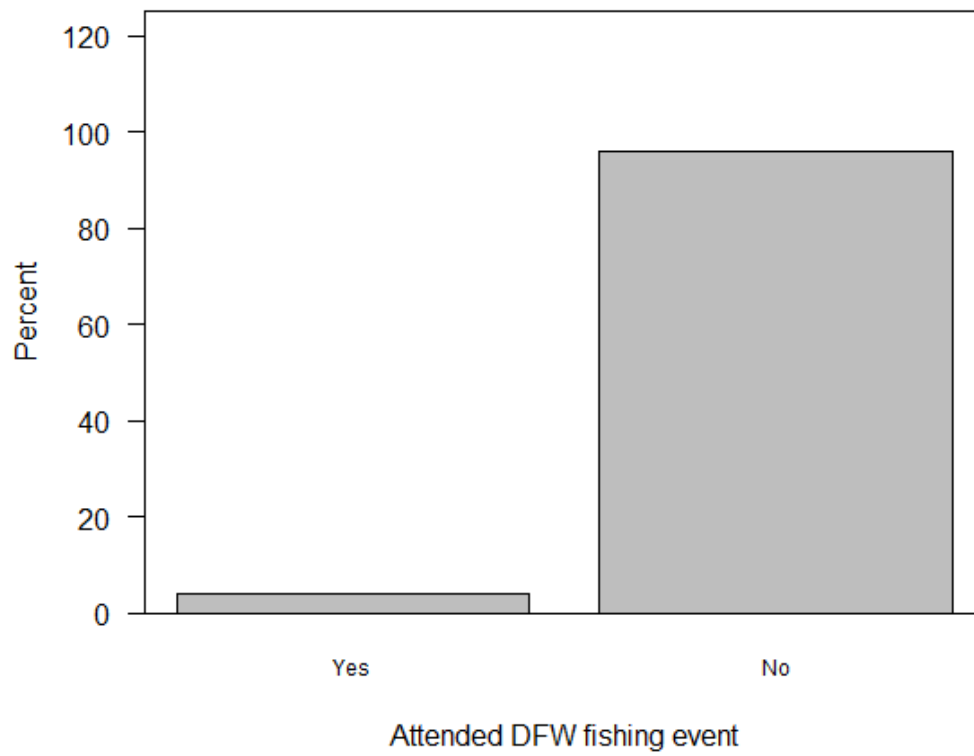


Figure 11. Relative frequency (%) of Indiana trout and salmon angler response (n = 224) to the question, "If YES, did you attend one of those events?"

- Nearly 90% (87.2%, n = 258) of the respondents had reliable internet access in their home (Figure 12).

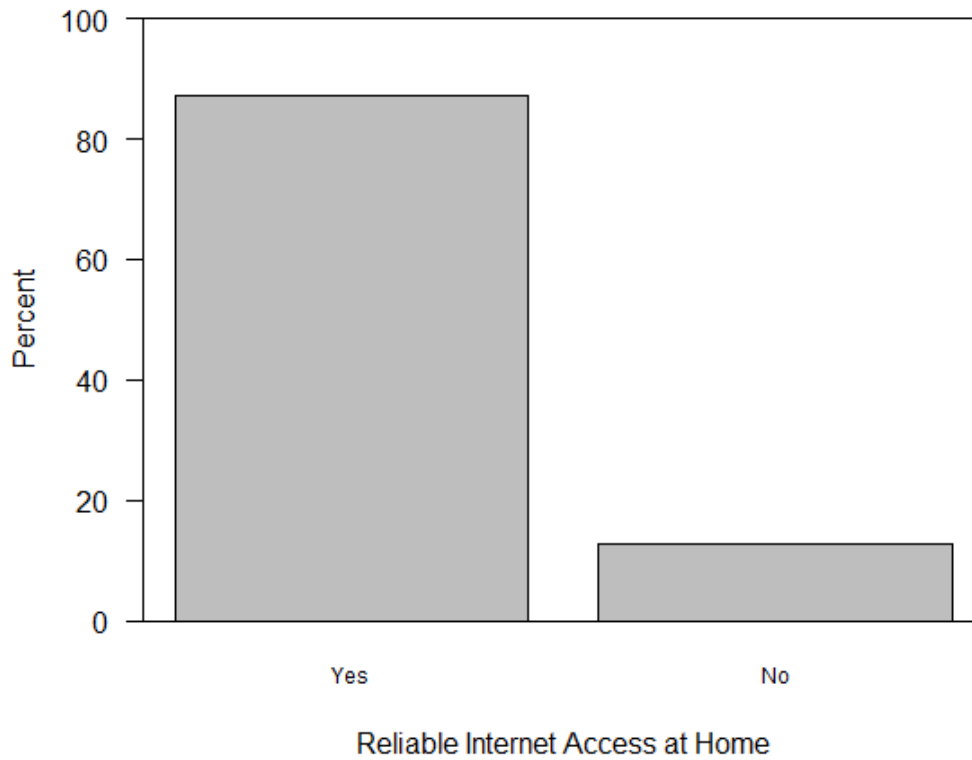


Figure 12. Relative frequency (%) of Indiana trout and salmon angler response (n = 296) to the question, "Do you have reliable internet access in your home?"

- Trout and salmon anglers preferred to receive information from the DFW via electronic sources. Twenty-nine percent (29.2%, n = 222) of the anglers said that email was the best way to communicate trout and salmon program information to them. The DFW website (24.6%, n = 187) was their second choice followed by Facebook (13.0%, n = 99) and the newspaper (11.7%, n = 89; Figure 13).

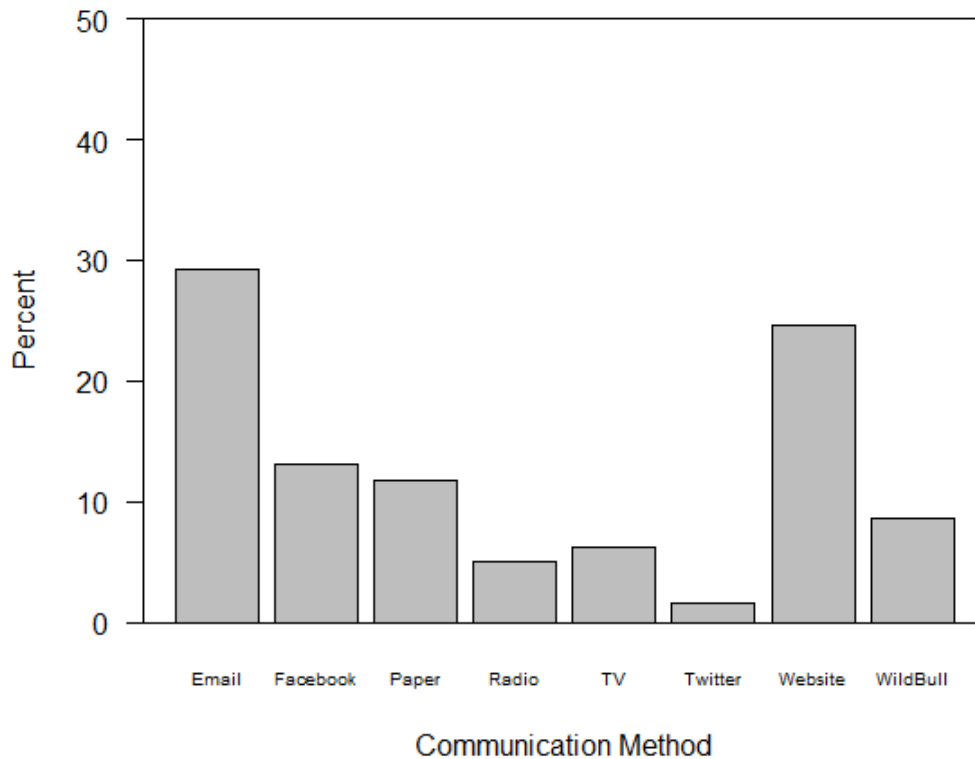


Figure 13. Relative frequency (%) of Indiana trout and salmon angler response (n = 759) to the question, “What is the best way to communicate trout and salmon program information to you? Please rank your top three (3) choices where 1 is the first best and 3 is the third best.”



## INLAND vs. LAKE MICHIGAN ANGLERS

- Trout anglers fishing inland and Lake Michigan waters were similar in regards to age and sex. The median age of inland trout anglers was slightly younger at 49.0 years compared to 50.0 years for Lake Michigan anglers (Figure 14).

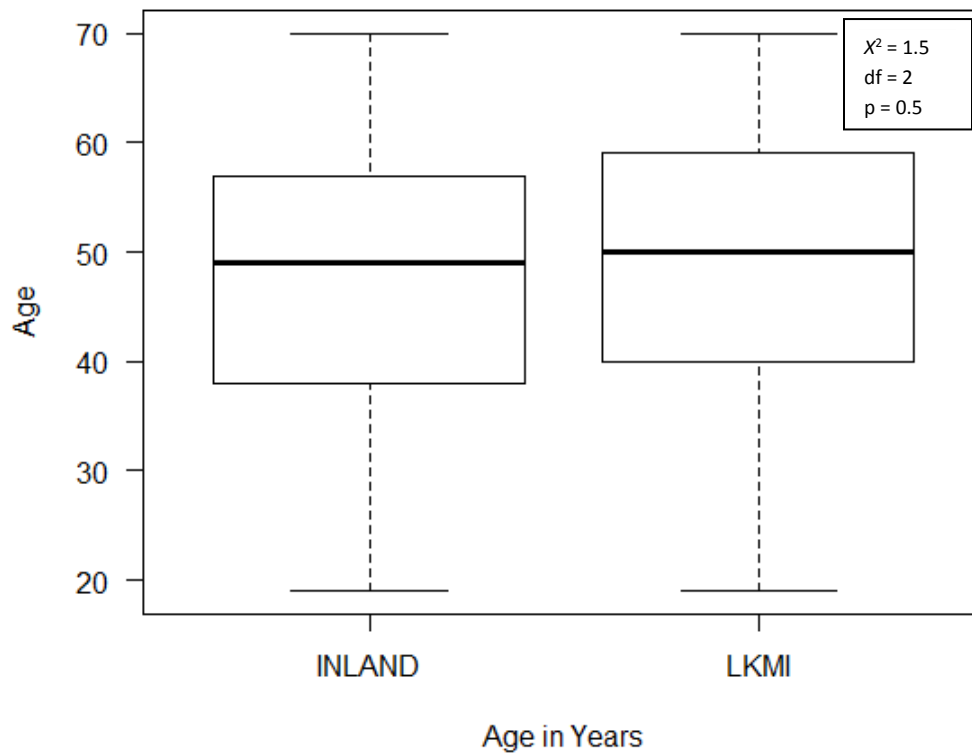


Figure 14. Median age of inland anglers (n = 116) and Lake Michigan (n = 125) anglers.

- Over 90% of the anglers from both groups were male (Figure 15).

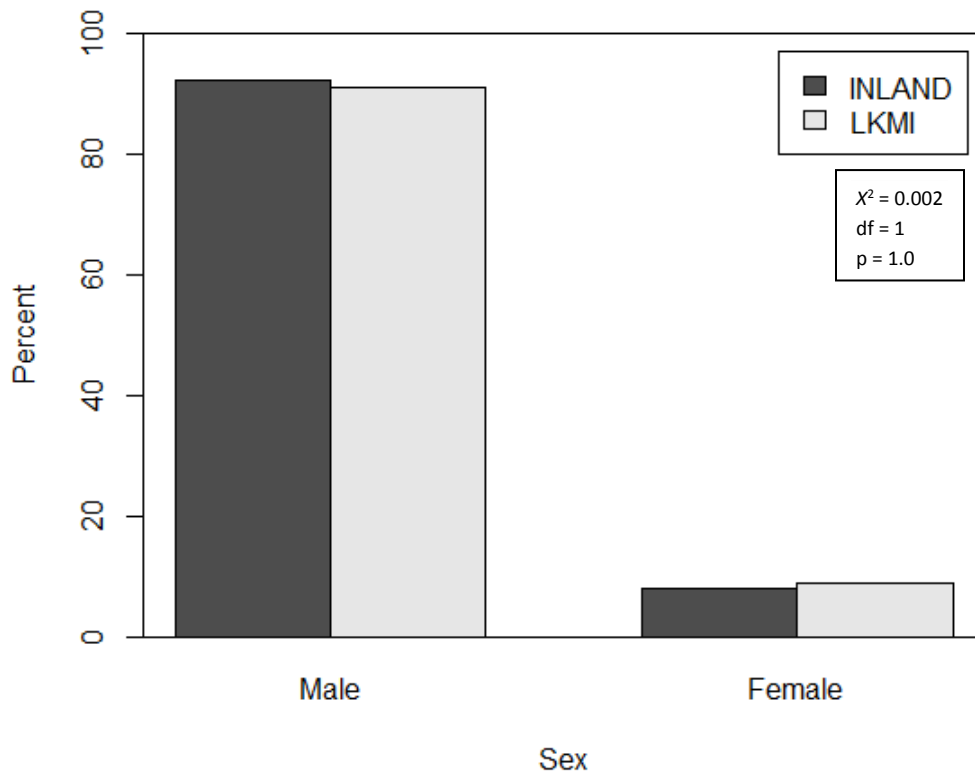


Figure 15. Relative frequency (%) of sex by angler type (inland, n = 115 and Lake Michigan, n = 125).

- Anglers from Fisheries Management Districts 3 - 6 were significantly more likely to be inland anglers ( $\chi^2 = 66.8$ ,  $df = 5$ ,  $p < 0.001$ ). Anglers from Districts 1 and 2 were primarily Lake Michigan anglers (Figure 16).

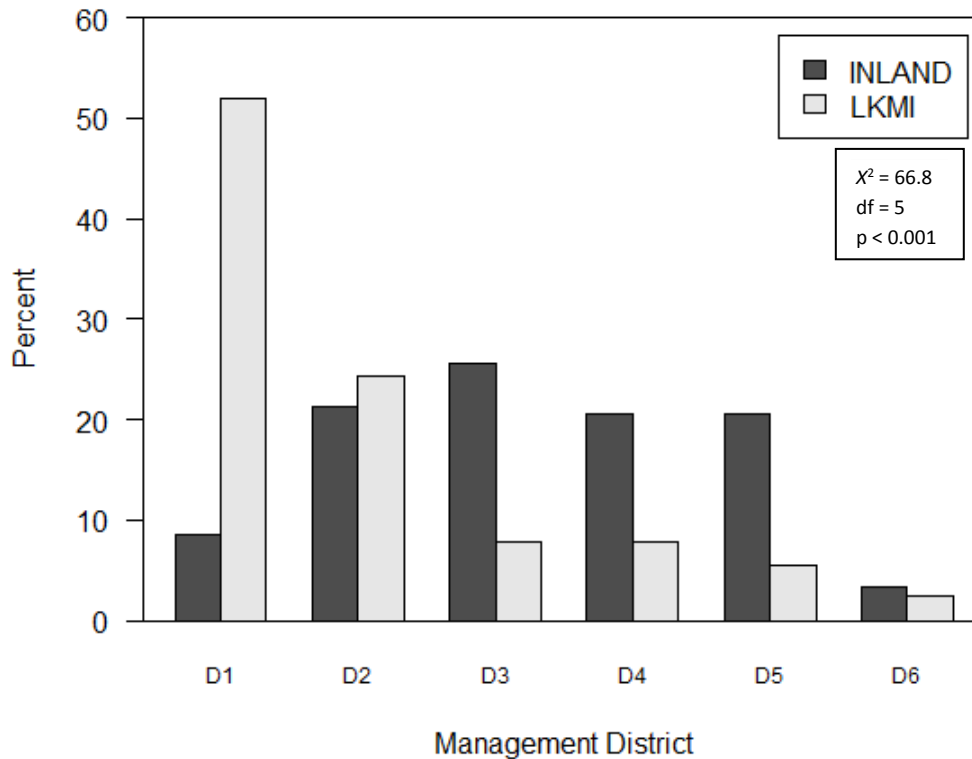


Figure 16. Relative frequency (%) of residency by angler type (inland anglers,  $n = 117$  and Lake Michigan anglers,  $n = 127$ ) where D1 = Fisheries Management District 1, D2 = Fisheries Management District 2, D3 = Fisheries Management District 3, D4 = Fisheries Management District 4, D5 = Fisheries Management District 5, and D6 = Fisheries Management District 6.

- The majority of anglers from both groups did not belong to a fishing or conservation organization. Only 10.3% (n = 12) of inland anglers and 7.2% (n = 9) Lake Michigan anglers indicated they were members of a fishing/conservation group (Figure 17).

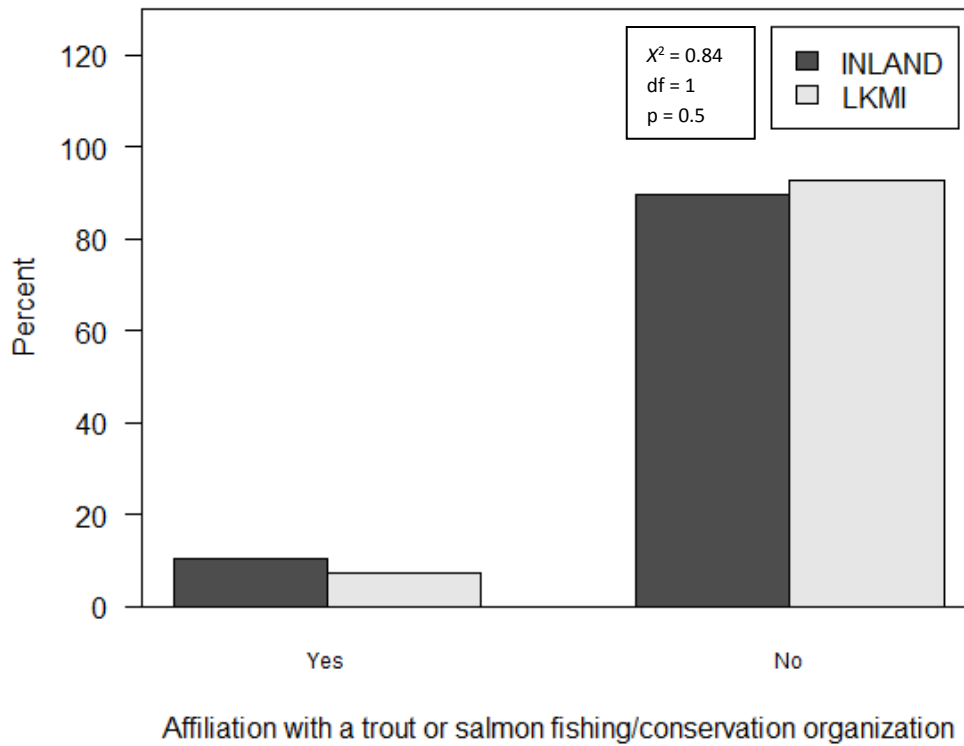


Figure 17. Relative frequency (%) by angler type (inland anglers, n = 116 and Lake Michigan anglers, n = 125) for the question, “Are you currently affiliated with any trout or salmon fishing/conservation organization?”

- Inland anglers (30.4%, n = 35) indicated they had more knowledge of DFW trout fishing events than Lake Michigan anglers (24.2%, n = 30). About 70% answered “No” to this question (Figure 18).

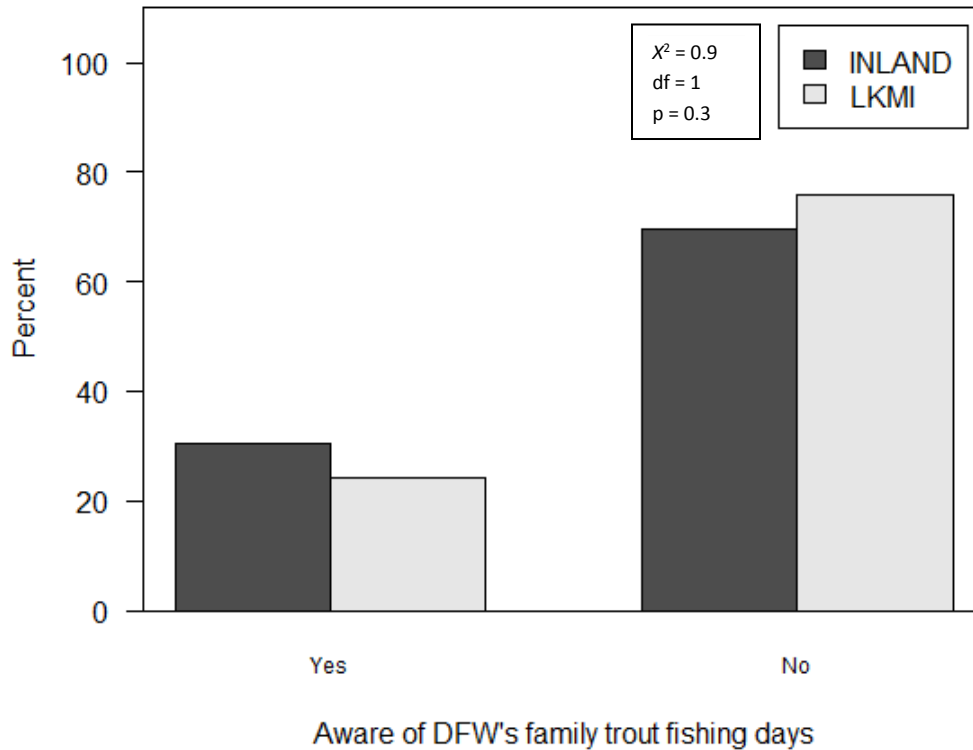


Figure 18. Relative frequency (%) by angler type (inland anglers, n = 115 and Lake Michigan anglers, n = 124) for the question, “Are you aware of Division of Fish and Wildlife trout fishing events such as the family trout fishing days at Morches Park (Columbia City), Schoaff Park (Fort Wayne), Pinhook Park (South Bend) and Maple Park (Terre Haute)?”

- Of those anglers that were aware of these events, less than 6% of the anglers from either group attended an event (Figure 19).

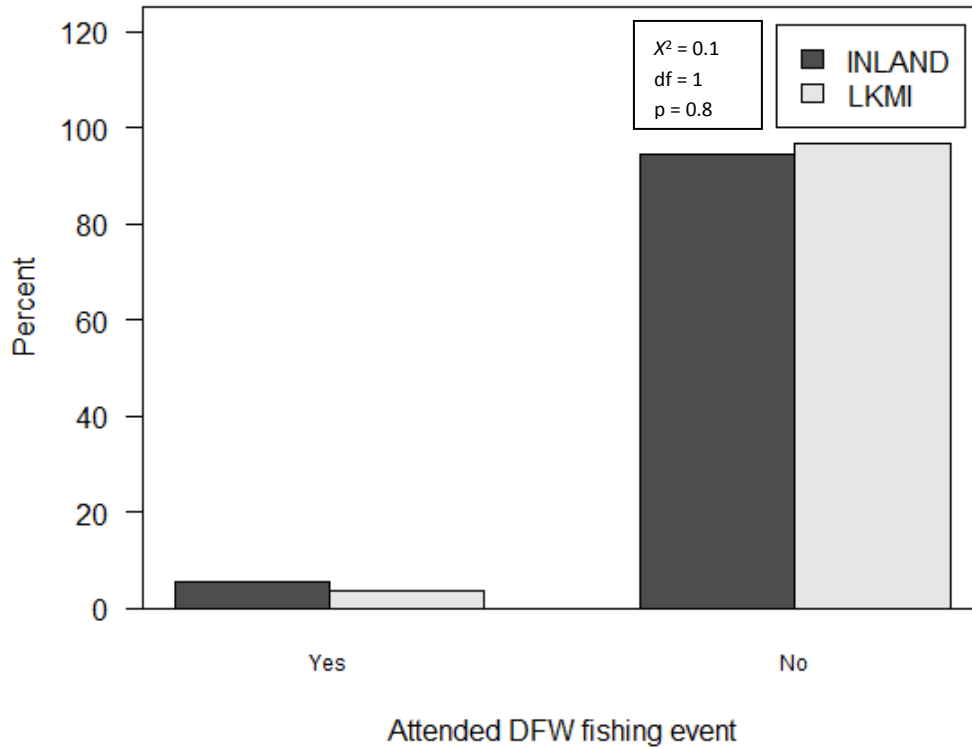


Figure 19. Relative frequency (%) by angler type (inland anglers, n = 92 and Lake Michigan anglers, n = 87) for the question, “If YES, did you attend one of those events?”

- The majority of inland and Lake Michigan anglers indicated that they had reliable internet access at home (Figure 20).

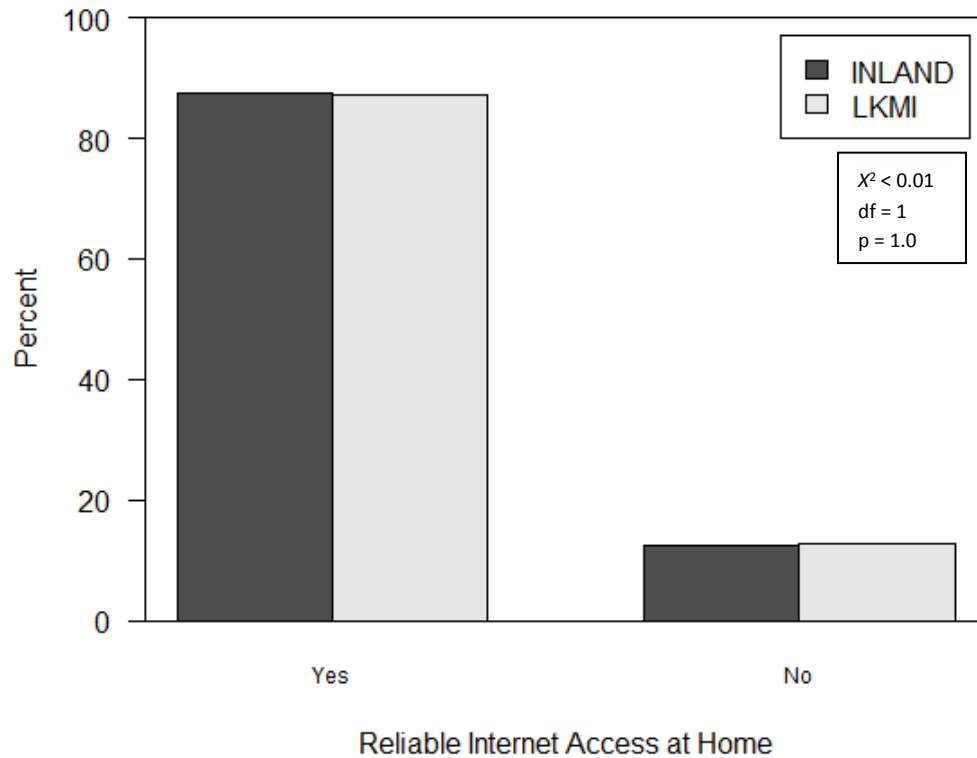


Figure 20. Relative frequency (%) by angler type (inland anglers, n = 113 and Lake Michigan anglers, n = 127) for the question, “Do you have reliable internet access at home?”

- Nearly 30% of all anglers indicated the preferred to communicate with the Division via email (29.1%, n = 83 for inland and 30.3%, n = 101 for Lake Michigan anglers, respectively) followed closely by using the DFW website (26.0%, n = 74 and 24.9%, n = 83 for inland and Lake Michigan anglers, respectively). Anglers for both groups also indicated that Twitter was the least preferred method of communication (Figure 21).

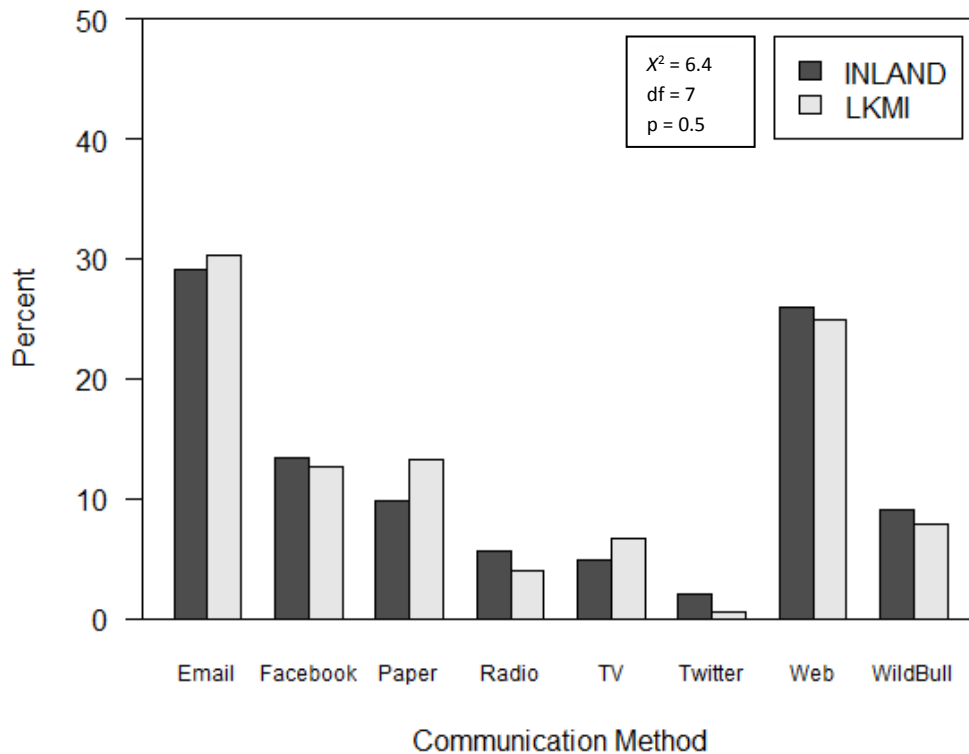


Figure 21. Relative frequency (%) by angler type (inland anglers, n = 113 and Lake Michigan anglers, n = 127) to the question, “What is the best way to communicate trout and salmon program information to you? Please rank your top three (3) choices where 1 is the first best and 3 is the third best.”



- The number of years an angler fished for trout or salmon in the last five years was significantly different between the two groups ( $\chi^2 = 4.0$ ,  $df = 5$ ,  $p = 0.05$ ). While more than 34% of the anglers from both groups indicated they fish for trout or salmon five out of the last five years, more inland anglers indicated they fished less often than Lake Michigan anglers. Forty-five percent (44.9%,  $n = 57$ ) of Lake Michigan anglers fished all five years compared to only 34.2% ( $n = 40$ ) of the inland anglers. Conversely, 28.2% ( $n = 33$ ) of the inland anglers only fished one out of the last five years for trout or salmon compared to 15.7% ( $n = 20$ ) of the Lake Michigan anglers (Figure 22).

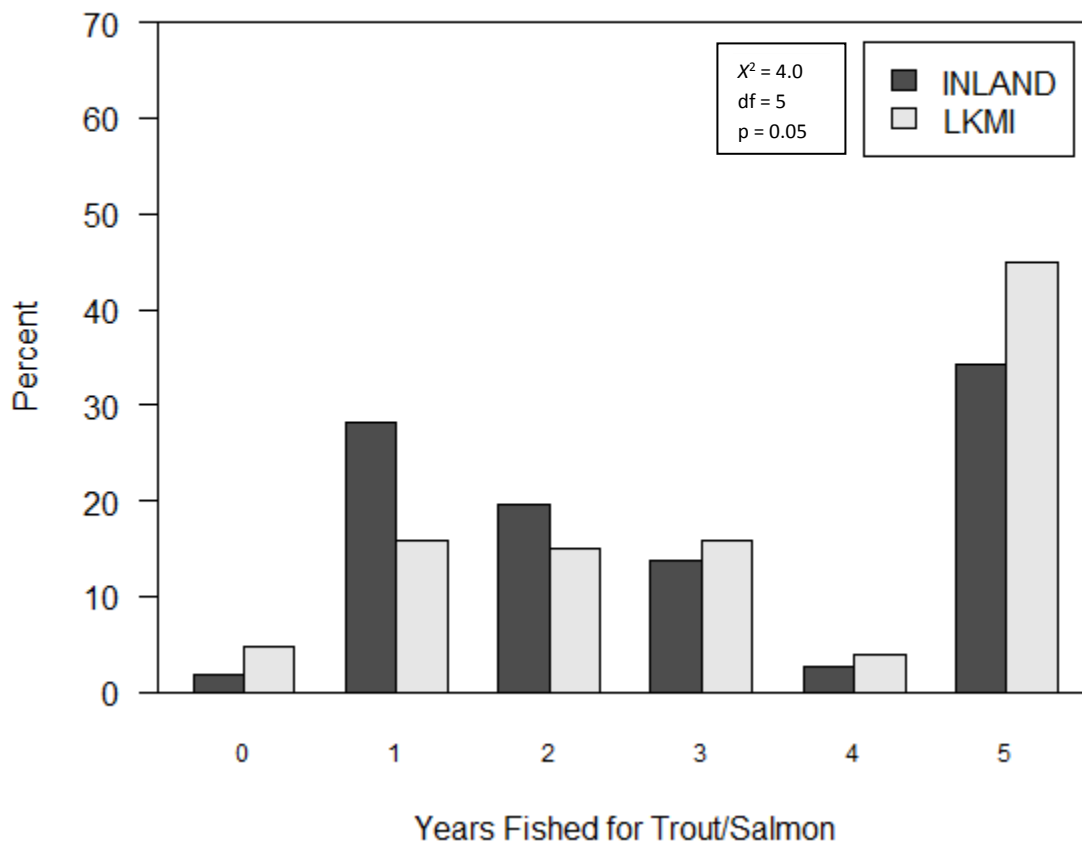


Figure 22. Relative frequency (%) by angler type (inland anglers,  $n = 117$  and Lake Michigan anglers,  $n = 127$ ) for the question, “In the last 5 years, how many years did you fish specifically for trout or salmon in Indiana?”

- Lake Michigan anglers also spent significantly more days in 2016 targeting trout or salmon than inland anglers (Figure 23). The median number of days Lake Michigan anglers fished for trout or salmon was 10.0 (IQR = 4.0 – 20.0, n = 116) compared to only 5 days (IQR = 2.0 – 12.0, n = 127) for inland anglers.

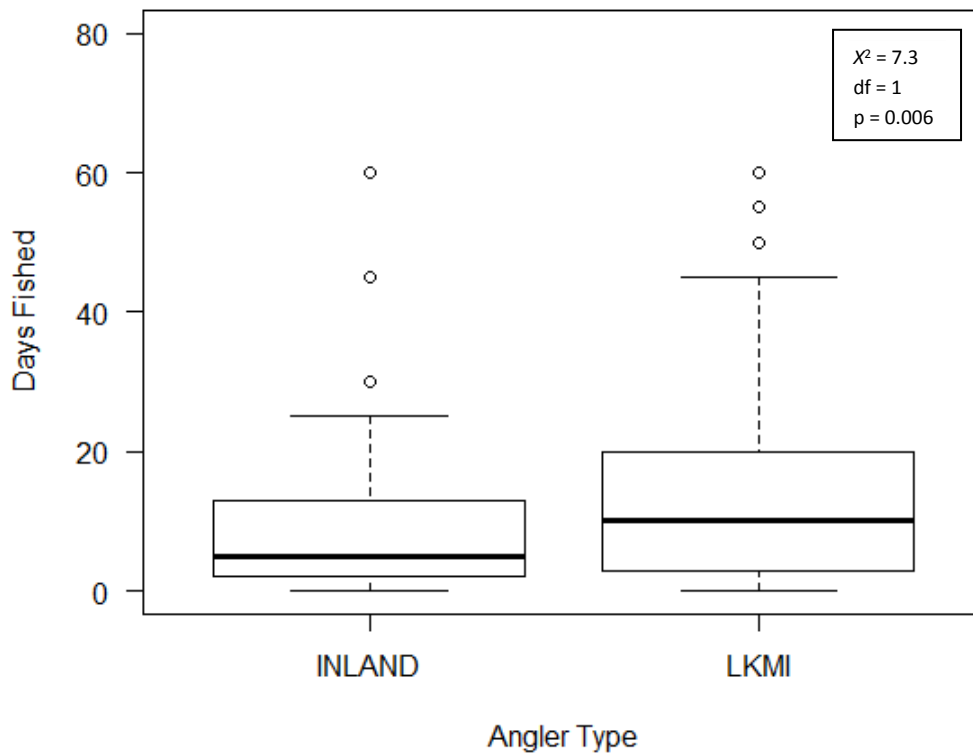


Figure 23. Median number of days inland anglers (n = 116) and Lake Michigan anglers (n = 127) spent specifically targeting trout or salmon in Indiana.

- Inland anglers spend the majority of their time fishing for percids (median = 40.0%, IQR = 20.0 – 60.0, n = 76) followed by bass (median = 25.0%, IQR = 10.0 – 50.0, n = 99), panfish (median = 25.0%, IQR = 10.0 – 46.3, n = 54) and catfish (median = 20.0%, IQR = 10.0 – 31.5, n = 55). Trout/Salmon (median = 10.0%, IQR = 5.0 – 25.0, n = 124) and esocids (median = 9.0%, IQR = 5.0 – 17.5, n = 16) were the least sought after species (Figure 24).

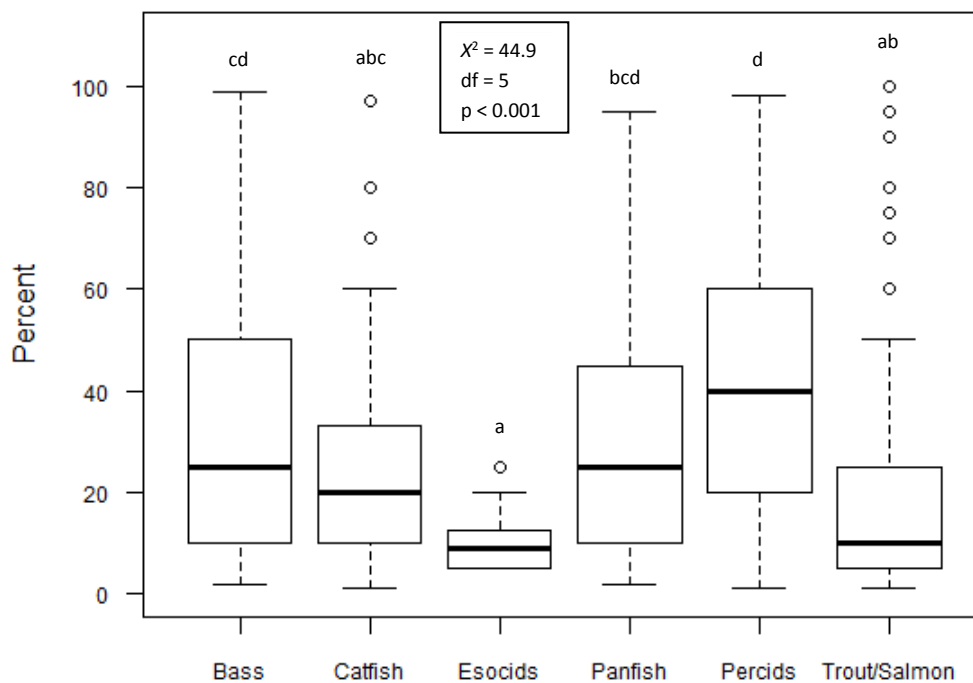


Figure 24. Median percent of time inland (n = 117) anglers spent fishing for each species group in 2016. Species with similar letters denote no significant difference.

- Lake Michigan anglers indicated that they fished most often for trout/salmon (median = 30%, IQR = 10.0 – 80.0, n = 142) and percids (median = 30.0%, IQR = 10.0 – 50.0, n = 92) followed by bass (median = 25.0%, IQR = 10.0 – 50.0, n = 90). The median amount of time fishing for panfish, catfish and esocids was significantly less (Figure 25).

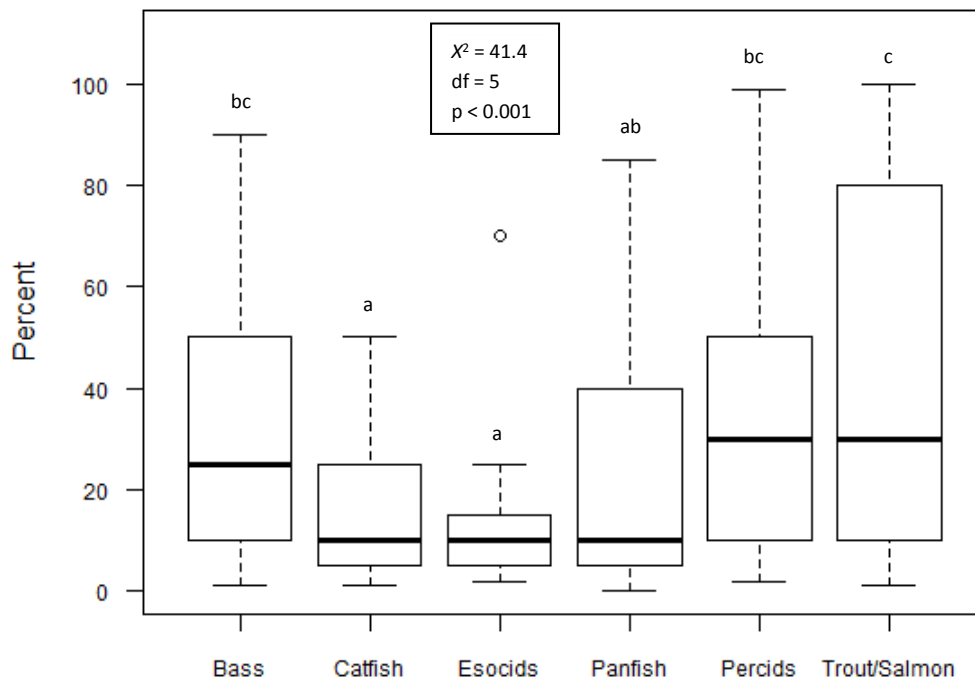


Figure 25. Median percent of time Lake Michigan (n = 127) anglers spent fishing for each species group in 2016. Species with similar letters denote no significant difference.

- Lake Michigan anglers were asked to indicate what percentage of their time they spent fishing for six different species in Lake Michigan and its tributaries in 2016 (Figure 26). Anglers indicated that most of their time was spent fishing for winter-run steelhead (median = 33.0%, IQR = 20.0 – 50.0, n = 66) followed by Coho Salmon (median = 30.0%, IQR = 20.0 – 50.0, n = 102), summer-run steelhead (median = 30.0%, IQR = 20.0 – 50.0, n = 89), Chinook Salmon (median = 27.5%, IQR = 20.0 – 43.8, n = 76), Brown Trout (median = 20.0%, IQR = 7.5 – 30.0, n = 49) and Lake Trout (median = 20.0%, IQR = 14.5 – 25.0, n = 41).

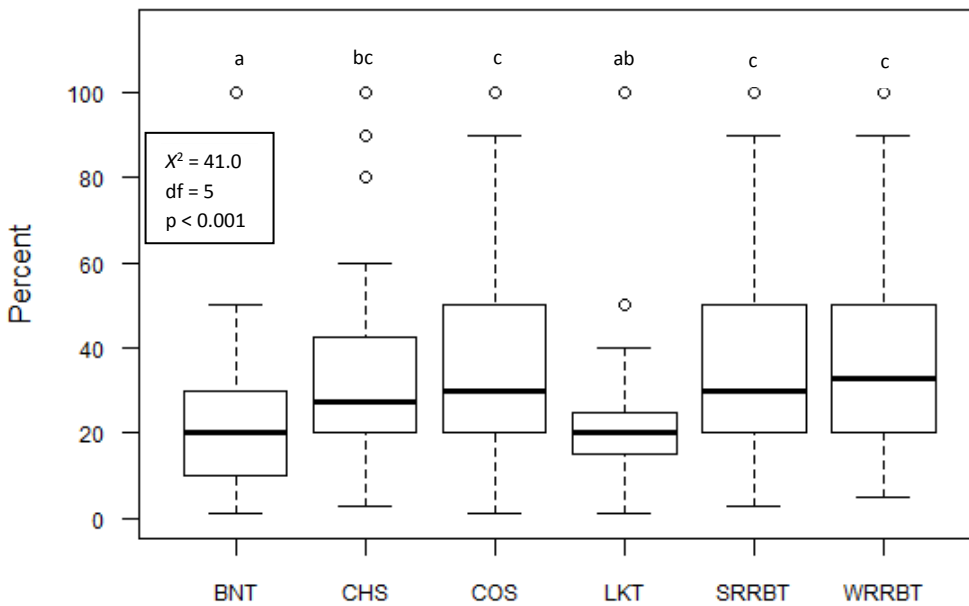


Figure 26. Median percent of time Lake Michigan (n = 127) anglers spent fishing for Brown Trout (BNT), Chinook Salmon (CHS), Coho Salmon (COS), Lake Trout (LKT), summer-run Skamania steelhead (SRRBT) and winter-run steelhead (WRRBT) in Lake Michigan or its tributaries in 2016. Species with similar letters denote no significant difference.

- The St. Joseph River (median = 100.0%, IQR = 60.0 – 100.0, n = 43) received significantly more effort by Lake Michigan anglers than other tributaries. Anglers spent 50% (IQR = 22.5 – 100.0, n = 53) of their time fishing Trail Creek. Salt Creek (median = 33.3%, IQR = 20.0 – 50.0, n = 29) and Deep River (median = 33.0, IQR = 22.5 – 50.0, n = 9) received the least amount of effort (Figure 27).

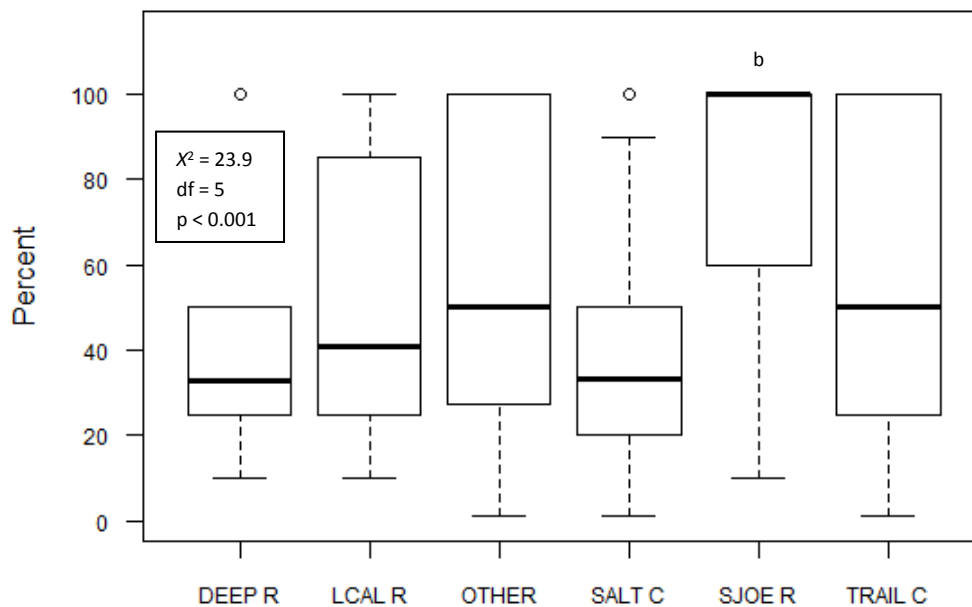


Figure 27. Median percent of time Lake Michigan (n = 127) anglers spent fishing at Deep River (DEEP R), Little Calumet River/Burns Ditch (LCAL R), Salt Creek (SALT C), St, Joseph River (SJOE R), Trail Creek (TRAIL C) and Other (OTHER) in 2016. Areas with similar letters denote no significant difference.

- Lake Michigan anglers the greatest preference for Coho salmon (37.6%, n = 39) and summer-run steelhead (29.0%, n = 27) as species they would most want to see increased (Figure 28). Lake Trout (5.4%, n = 5) and brown trout (8.6%, n = 8) were the species Lake Michigan anglers least preferred.

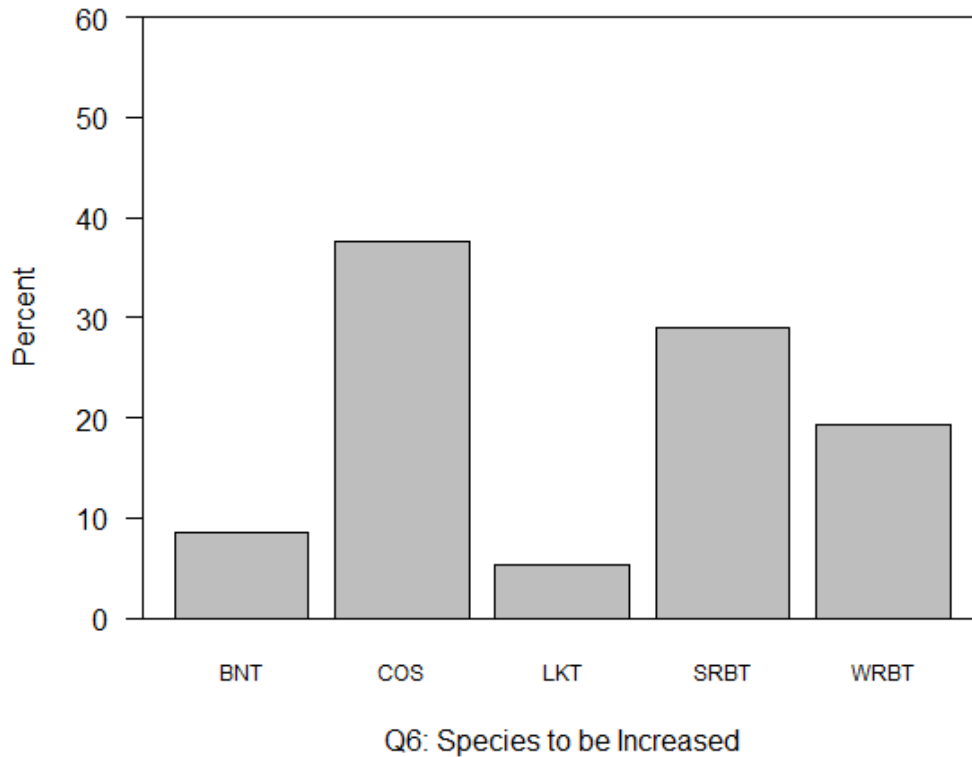


Figure 28. Relative frequency (%) of Lake Michigan angler response (n = 93) to the question, “If Indiana changed its stocking program, which of the following species/strain would you want to see increased? Please select only ONE species or strain” where BNT = Brown Trout, COS = Coho Salmon, LKT = Lake Trout, SRBT = summer-run Rainbow Trout, and WRBT = winter-run Rainbow Trout.

- Inland anglers indicated a greater preference for Rainbow Trout than Brown Trout. Nearly 65% (64.9%, n = 73) of the inland anglers selected Rainbow Trout compared to only 35% (35.1%, n = 39) choosing Brown Trout as their most preferred species to catch (Figure 29).

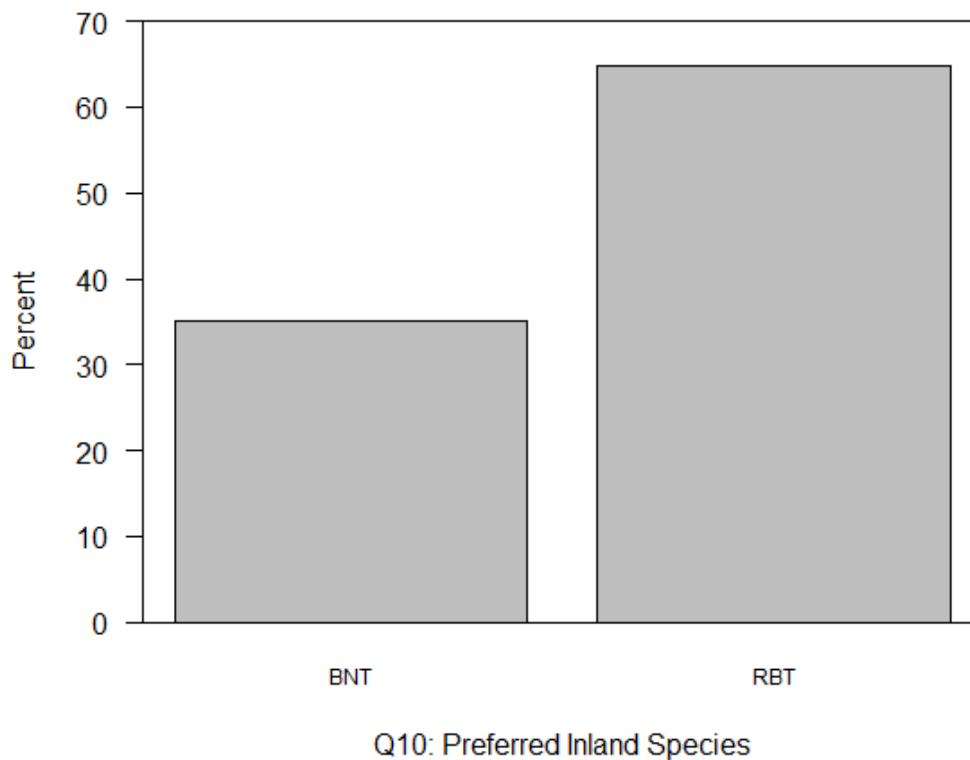


Figure 29. Relative frequency (%) of inland angler response (n = 111) to the question, “When fishing for trout on Indiana’s inland lakes and streams, which species would you prefer to catch? Please select only ONE species” where BNT = Brown Trout and RBT = Rainbow Trout.

#### LAKE MICHIGAN: COMPARISON OF BOAT, SHORE AND TRIBUTARY ANGLERS:



- Anglers that were identified as Lake Michigan anglers (Indiana residents) were further categorized into Lake Michigan boat anglers, Lake Michigan shore anglers and Lake Michigan tributary anglers. This resulted in 98 number of anglers for this analysis (Lake Michigan boat anglers = 39, 39.4%; Lake Michigan shore anglers = 16, 16.2%; and Lake Michigan tributary anglers = 44, 44.4%). From this point forward, these anglers will be referred to as boat, shore, and tributary anglers.
- Median ages ranged from 49 to 56 years with shore anglers (median = 56.0, IQR = 41.3 – 59.0, n = 16) being slightly older and boat anglers being the youngest (median = 49.0 IQR = 40.0 – 59.0, n = 38;  $\chi^2 = 0.8$ , df = 2, p = 0.7). Tributary anglers median age was 51.0 years (IQR = 37.8 – 58.0, n = 44; Figure 30).

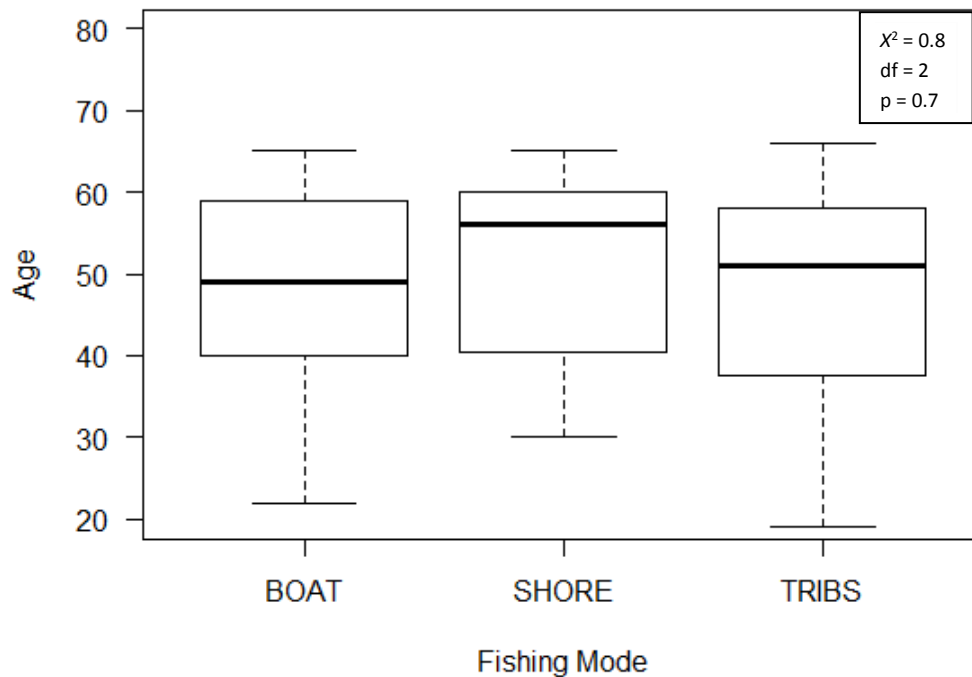


Figure 30. Median age of Lake Michigan boat (n = 38), shore (n = 16) and tributary (n = 44) anglers.

- The vast majority of anglers from all three groups were male ( $\chi^2 = 0.9$ ,  $df = 2$ ,  $p = 0.6$ ; Figure 31).

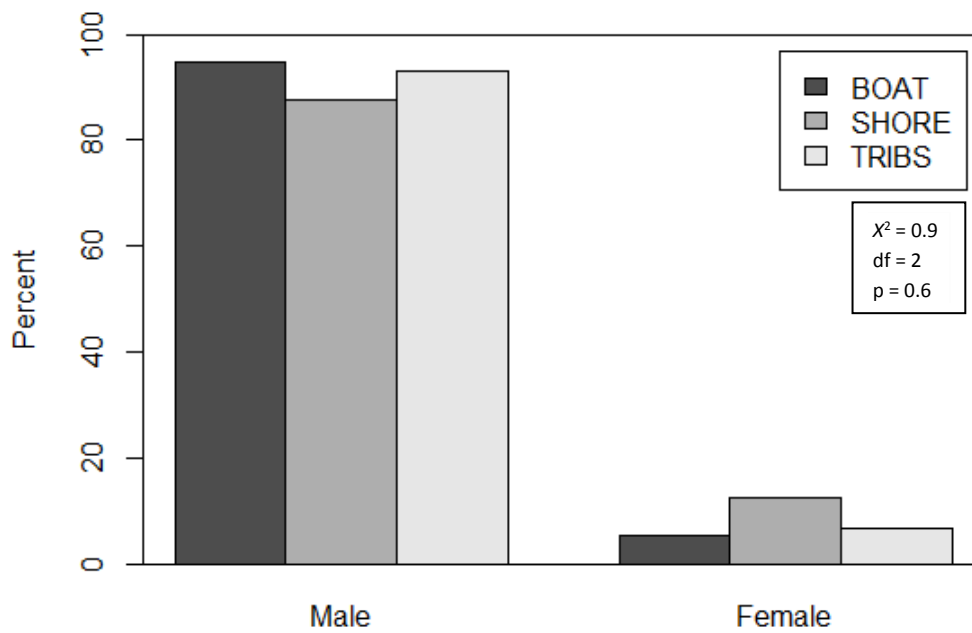


Figure 31. Sex of Lake Michigan boat (n = 38), shore (n = 16) and tributary anglers (n = 44) anglers.

- Although no significant differences were detected, substantially more District 2 anglers fished tributaries than from a boat or the shore. Similarly, people from District 1 were more likely to be boat or shore anglers ( $\chi^2 = 2.5$ ,  $df = 2$ ,  $p = 0.3$ ; Figure 32).

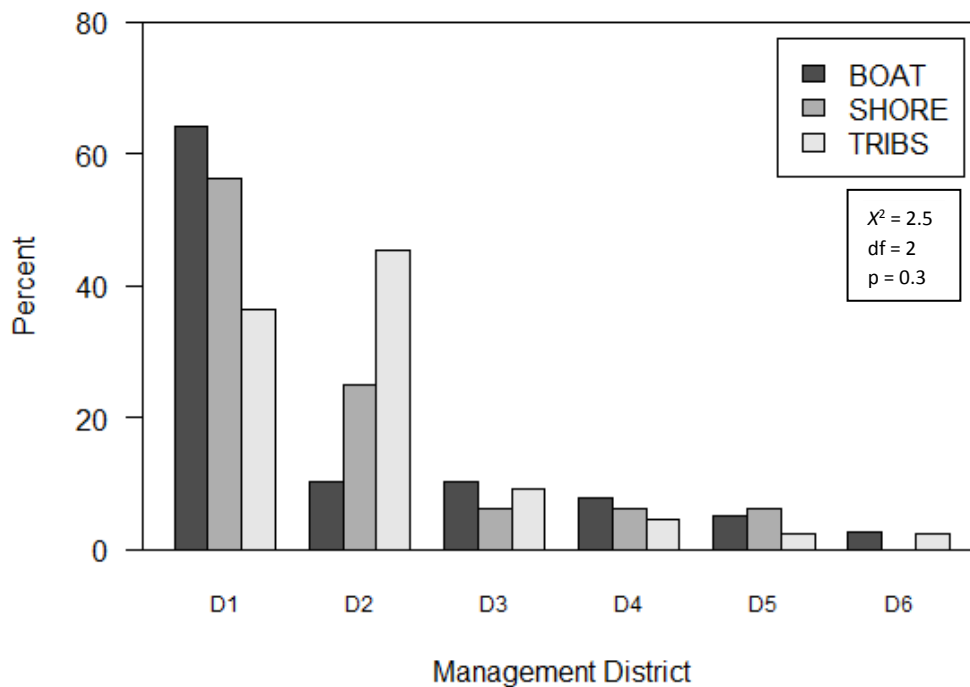


Figure 32. Relative frequency (%) of residency by Lake Michigan angler type (boat,  $n = 39$ ; shore,  $n = 16$ ; and tributary,  $n = 43$ ) where D1 = Fisheries Management District 1, D2 = Fisheries Management District 2, D3 = Fisheries Management District 3, D4 = Fisheries Management District 4, D5 = Fisheries Management District 5 and D6 = Fisheries Management District 6.

- Boat anglers were also more apt to belong to a fishing or conservation organization (Figure 33). While only 12.8% (n = 5) of boat anglers belonged to an organization, none of the shore anglers and 5% (4.5%, n = 2) of the tributary anglers were members of a fishing/conservation group.

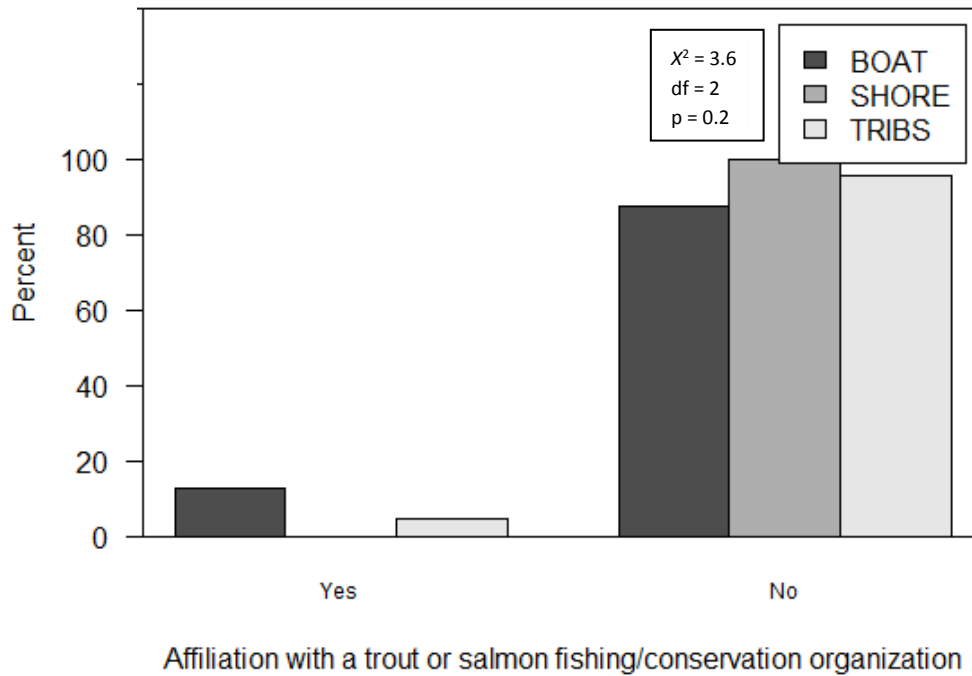


Figure 33. Relative frequency (%) by Lake Michigan angler type (boat, n = 39; shore, n = 16; and tributary, n = 44) for the question, “Are you currently affiliated with any trout or salmon fishing/conservation organization?”

- Nearly 70% of anglers from all three groups were not aware of the DFW's trout fishing events ( $\chi^2 = 1.9$ ,  $df = 2$ ,  $p = 0.4$ ; Figure 34). However, 32.6% ( $n = 14$ ) of tributary anglers said they were aware of these events compared to only 21.1% ( $n = 8$ ) and 18.8% ( $n = 3$ ) of boat and shore anglers, respectively.

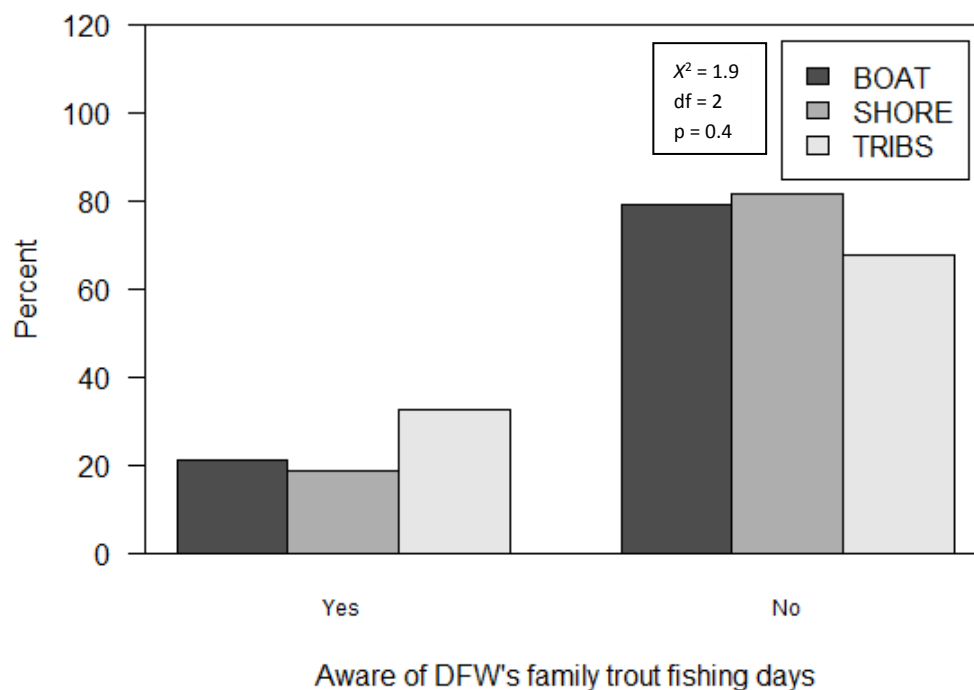


Figure 34. Relative frequency (%) by Lake Michigan angler type (boat,  $n = 38$ ; shore,  $n = 16$ ; and tributary,  $n = 43$ ) for the question, “Are you aware of Division of Fish and Wildlife trout fishing events such as the family trout fishing days at Morches Park (Columbia City), Schoaff park (Fort Wayne), Pinhook Park (South Bend) and Maple Park (Terre Haute)?”

- Of those anglers who were aware of the trout events, only one angler from each group indicated that they had attended a DFW trout event ( $\chi^2 = 0.6$ ,  $df = 2$ ,  $p = 0.8$ ; Figure 35).

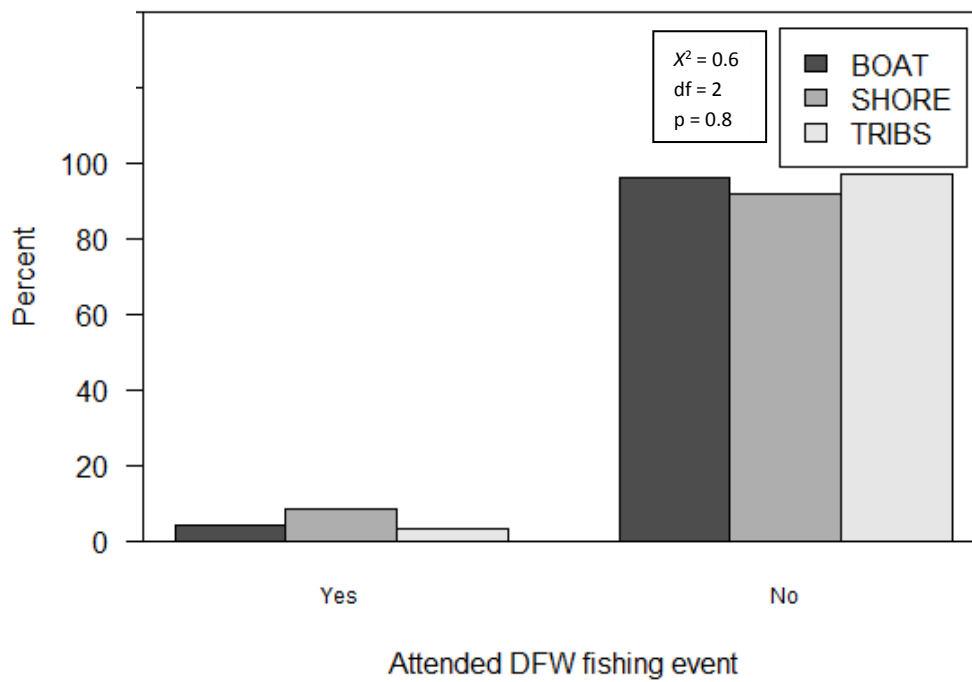


Figure 35. Relative frequency (%) by Lake Michigan angler type (boat,  $n = 24$ ; shore,  $n = 12$ ; and tributary,  $n = 35$ ) for the question, “If YES, did you attend one of these events?”

- The majority of all anglers had reliable internet access at home ( $\chi^2 = 3.8$ ,  $df = 2$ ,  $p = 0.2$ ; Figure 36). At least 75% of the anglers indicated this was true. Shore anglers were less likely to have internet access (25.0%,  $n = 4$  saying “No”) compared to 15.8% ( $n = 6$ ) of boat and 6.8% ( $n = 3$ ) of tributary anglers responding the same.

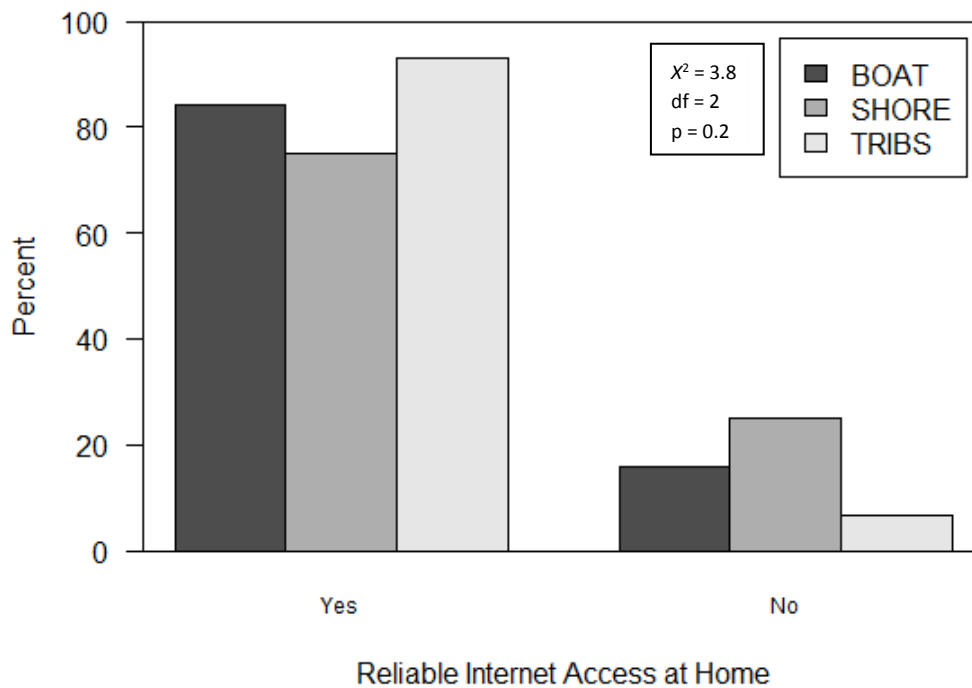


Figure 36. Relative frequency (%) by Lake Michigan angler type (boat,  $n = 38$ ; shore,  $n = 16$ ; and tributary,  $n = 44$ ) for the question, “Do you have reliable internet access in your home?”

- Preferred communication method, however, was dependent on angler type ( $\chi^2 = 32.6$ ,  $df = 14$ ,  $p = 0.003$ ; Figure 37). Boat anglers selected email (36.3%,  $n = 41$ ), DFW website (30.1%,  $n = 34$ ) and Facebook (11.5%,  $n = 13$ ) as their most preferred modes of communication. Tributary anglers preferred the same methods of communication. Shore anglers indicated that newspaper (28.8%,  $n = 1$ ) and email (28.8%,  $n = 15$ ) were the best way to communicate with them followed by the DFW's website (21.12%,  $n = 11$ ). Twitter was the least preferred method of communication among all three groups.

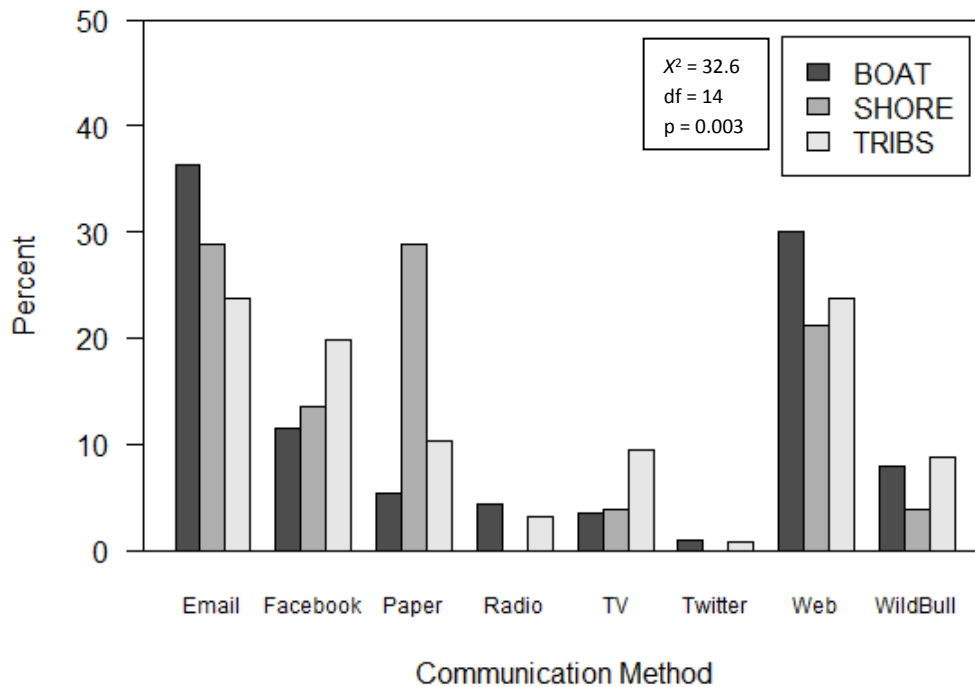


Figure 37. Relative frequency (%) by Lake Michigan angler type (boat,  $n = 39$ ; shore,  $n = 16$ ; and tributary,  $n = 44$ ) for the question, “What is the best way to communicate trout and salmon program information to you? Please rank your top three (3) choices where 1 is the first best and 3 is the third best.”



- More than a third of all anglers indicated that they had fished specifically for trout or salmon each of the last five years. This measure of avidity did not differ significantly between groups ( $\chi^2 = 1.3$ ,  $df = 2$ ,  $p = 0.5$ ; Figure 38). Forty-four percent (43.5%,  $n = 17$ ) of boat anglers and 52.3% ( $n = 23$ ) of tributary anglers fished all of the five previous years compared to 31.3% ( $n = 5$ ) of the shore anglers. Shore anglers were more likely to fish for trout or salmon two or three of the last 5 years than boat or tributary anglers.

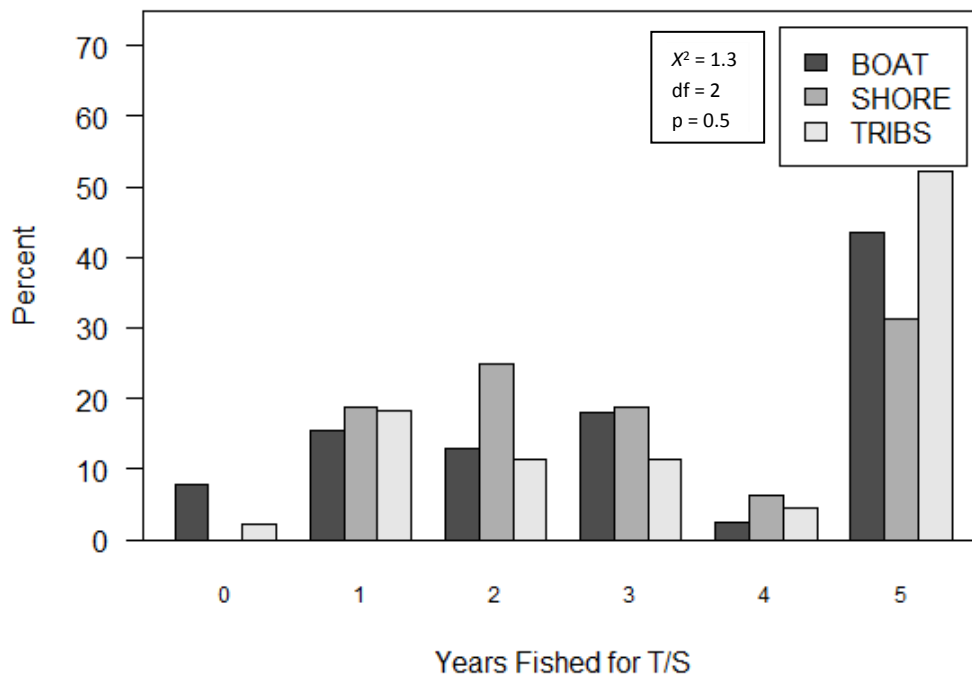


Figure 38. Relative frequency (%) by Lake Michigan angler type (boat,  $n = 38$ ; shore,  $n = 16$ ; and tributary,  $n = 44$ ) for the question, “In the last 5 years, how many years did you fish specifically for trout or salmon in Indiana?”

- Tributary anglers had a higher median number of days fished (median = 10.0, IQR = 5.0 – 22.0, n = 44) in 2016 for trout or salmon compared to shore (median = 6.0, IQR = 3.0 – 16.3, n= 16) and boat anglers (median = 7.0, IQR = 3.0 – 20.0, n = 39; Figure 39). These differences were small and not significant ( $X^2 = 2.6$ ,  $df = 2$ ,  $p = 0.3$ ).

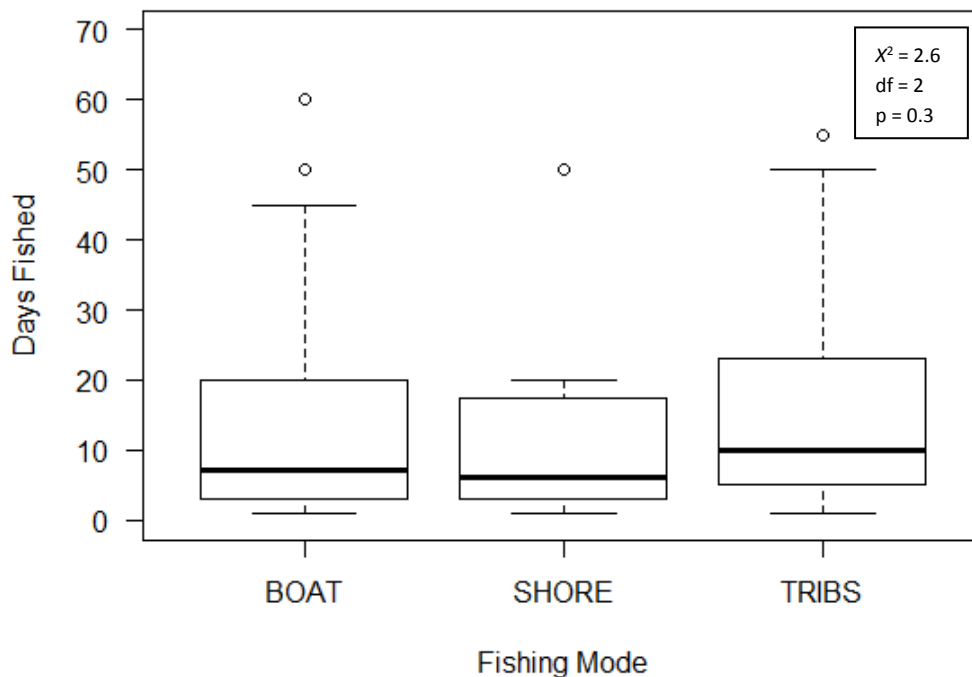


Figure 39. Median number of days Lake Michigan boat (n = 39), shore (n = 16) and tributary (n = 44) anglers spent specifically targeting trout or salmon in Indiana.

- Lake Michigan boat anglers indicated they spent the largest percentage of their time fishing for percids (median = 35.0%, IQR = 9.5 – 50.0, n = 29) followed by trout/salmon (median = 27.5%, IQR = 8.8 – 91.3, n = 38) and bass (median = 20.0%, IQR = 10.0 – 50.0, n = 38). Catfish (median = 10.0%, IQR = 5.0 – 23.8, n = 8) and esocids (median = 5.0%, IQR = 4.5 – 12.5, n = 6) were the least sought after species by boat anglers. These anglers spent 20% (IQR = 7.5 – 35.0, n = 17) of their time fishing for panfish ( $\chi^2 = 11.0$ , df = 5,  $p = 0.05$ ; Figure 40).

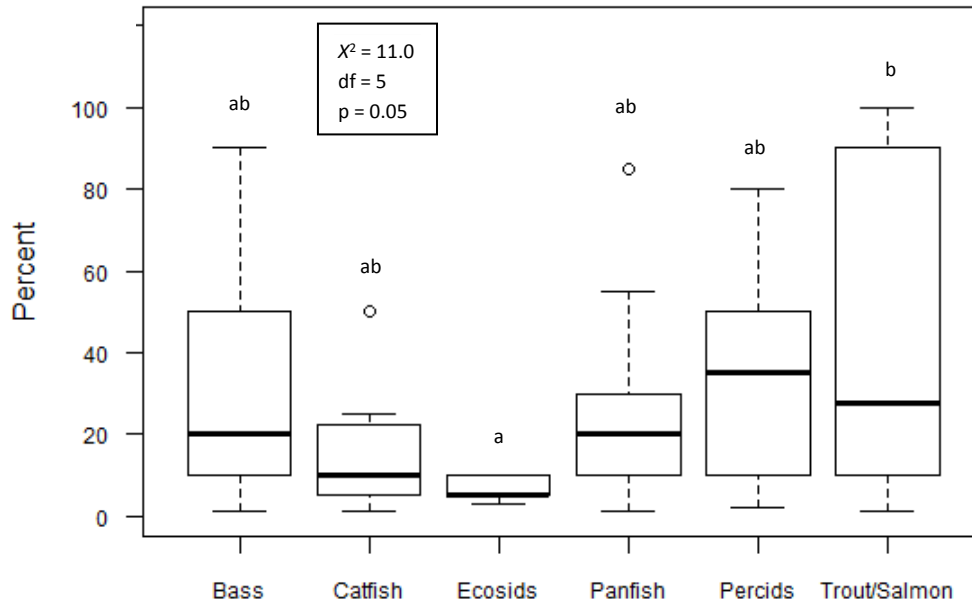


Figure 40. Median percentage of time Lake Michigan boat anglers (n = 39) spent fishing for bass, catfish, esocids, panfish, percids and trout/salmon in 2016. Similar letters denote no significant difference.

- Shore anglers also spent the most time fishing for percids (median = 40.0%, IQR = 28.8 – 72.5, n = 10). However, these anglers spent twice as much time fishing for bass (median = 25.0%, IQR = 10.0 – 45.0, n = 13) as they did trout/salmon (median = 12.5%, IQR = 5.0 – 36.3, n = 16). The amount of time Lake Michigan shore anglers spent fishing for catfish (median = 20.0%, IQR = 10.0 – 42.0, n = 7), esocids (median = 20.0%, IQR = 5.0 – 25.0, n = 3) and panfish (median = 15.0%, IQR = 10.0 – 41.5, n = 3) was similar ( $\chi^2 = 8.4$ ,  $df = 5$ ,  $p = 0.1$ ; Figure 41).

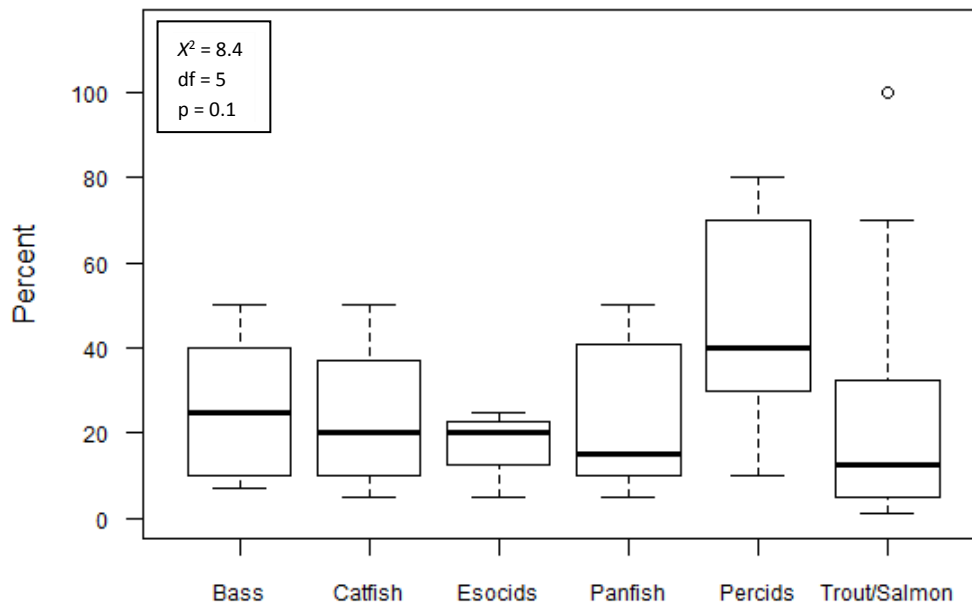


Figure 41. Median percentage of time Lake Michigan shore anglers (n = 16) spent fishing for bass, catfish, esocids, panfish, percids and trout/salmon in 2016.

- Trout/salmon (median = 30.0%, IQR = 10.0 – 80.0, n = 44) and bass (median = 30.0%, IQR = 20.0 – 50.0, n = 27) are the species tributary anglers spent the highest percentage of their time fishing for. These anglers fished for percids about 23% (median = 22.5%, IQR = 10.0 – 50.0, n = 26) of the time followed by panfish (median = 10.0%, IQR = 5.0 – 47.5, n = 16), catfish (median = 10.0%, IQR = 3.5 – 22.5, n = 9) and esocids (median = 10.0, IQR = 5.0 – 17.5, n = 9;  $\chi^2 = 18.1$ ,  $df = 5$ ,  $p = 0.003$ ; Figure 42).

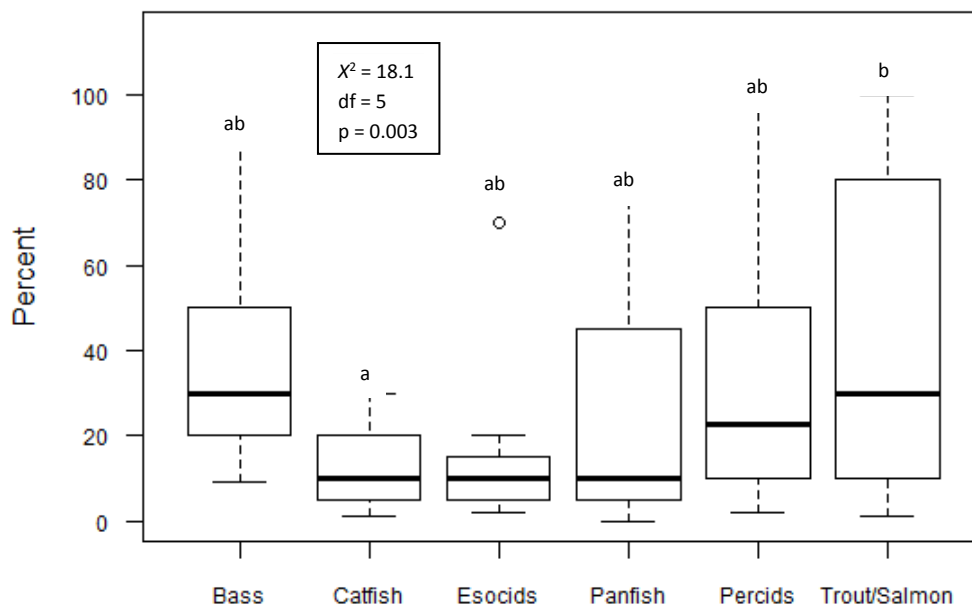


Figure 42. Median percentage of time Lake Michigan tributary anglers (n = 44) spent fishing for bass, catfish, esocids, panfish, percids and trout/salmon in 2016. Similar letters denote no significant difference.

- Coho Salmon (median = 40.0%, IQR = 10.0 – 33.0, n = 34) was the species of trout/salmon that Lake Michigan boat anglers spent most of the time fishing for (Figure 43). These anglers pursued Chinook Salmon next (median = 33.0%, IQR = 25.0 – 50.0, n = 23) followed by Skamania steelhead (median = 25.0%, IQR = 20.0 – 40.0, n = 22), Brown Trout (median = 20.0%, IQR = 10.0 – 33.0, n = 15) and Lake Trout (median = 20.0%, IQR = 10.0 – 5.0, n = 23;  $\chi^2 = 20.9$ , df = 5,  $p < 0.001$ ). Winter-run steelhead were removed from the analysis due to a small number of responses (median = 17.5%, IQR = 11.3 – 23.8, n = 4).

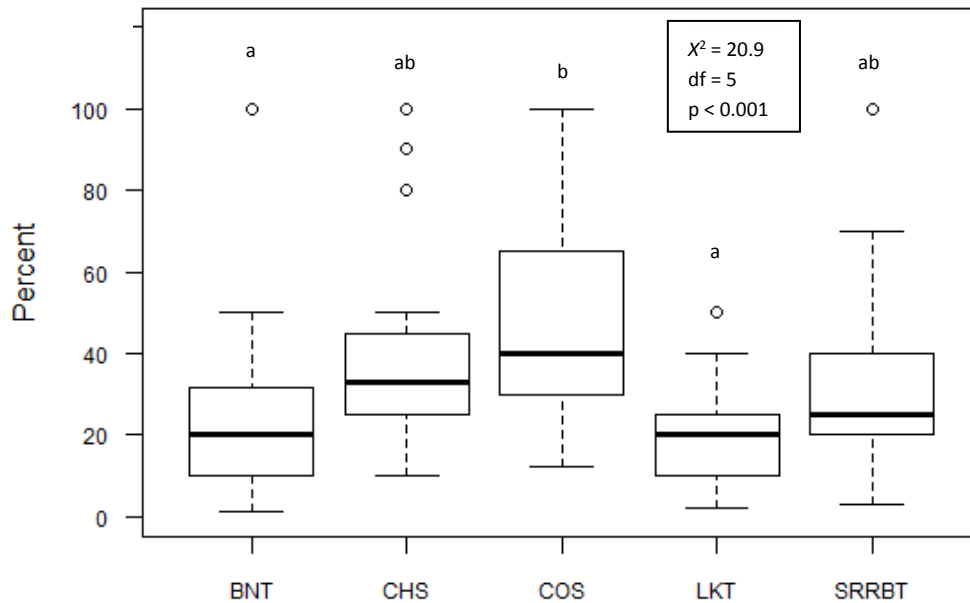


Figure 43. Median percentage of time Lake Michigan boat anglers (n = 39) spent fishing for Brown Trout (BNT), Chinook Salmon (CHS), Coho Salmon (COS), Lake Trout (LKT) and Skamania steelhead (SRRBT) in 2016. Similar letters denote no significant difference.

- Lake Michigan shore anglers indicated that they spent most of their time fishing for Coho Salmon (median = 50.0%, IQR = 22.5 – 50.0, n = 13; Figure 44) followed by Skamania steelhead (median = 30.0%, IQR = 25.0 – 75.0, n = 9). Twenty percent (20%) of shore anglers' time was spend fishing for Brown Trout (IQR = 8.8 – 25.0, n = 10), winter-run steelhead (IQR = 10.0 – 40.0, n = 7) and Chinook Salmon (IQR = 8.8 – 50.0, n = 6). Lake Trout were removed from the analysis due to a small number of responses (median = 20.0%, IQR – 22.5 – 32.5, n = 5). Differences in time spent fishing for these species were significant ( $\chi^2 = 11.1$ ,  $df = 5$ ,  $p = 0.02$ ) but a multiple comparison test did not differentiate between species.

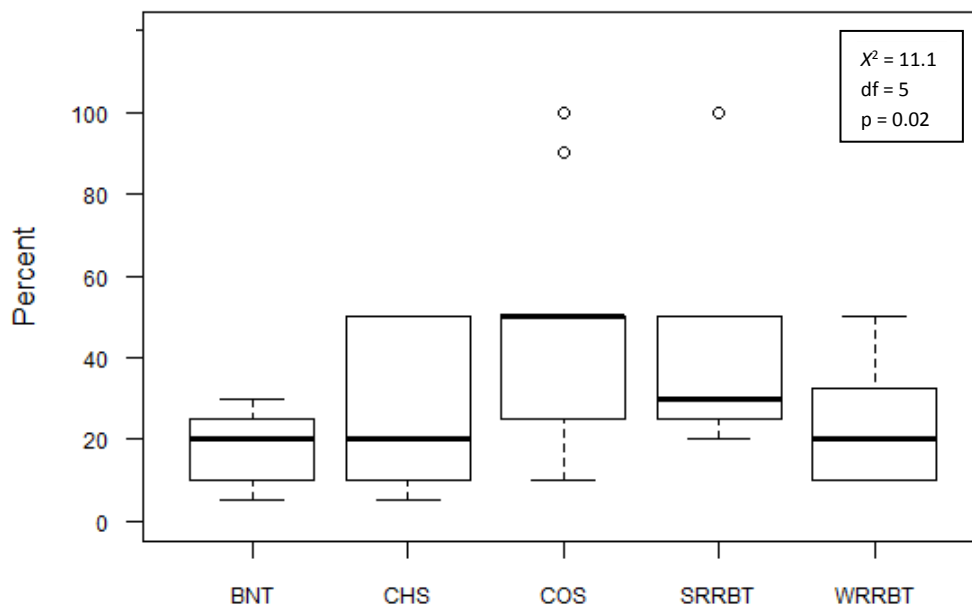


Figure 44. Median percentage of time Lake Michigan shore anglers (n = 16) spent fishing for Brown Trout (BNT), Chinook Salmon (CHS), Coho Salmon (COS), Skamania steelhead (SRRBT) and winter-run steelhead (WRRBT) in 2016.

- Anglers fishing Lake Michigan tributaries spent most of their time fishing for Skamania steelhead (median = 50.0%, IQR = 2.50 – 57.5, n = 29;  $\chi^2 = 25.7$ , df = 5,  $p < 0.001$ ; Figure 45). Winter-run steelhead (median = 45.0%, IQR = 29.0 – 77.5, n = 24) were the second most sought after species. Tributary anglers also spent 25% of their time searching for Coho Salmon (IQR = 10.0 – 40.0, n = 17) and Chinook Salmon (IQR = 10.0 – 50.0, n = 14). Brown Trout (median = 5.0%, IQR = 2.0 – 25.0, n = 7) were the least sought after species. Lake Trout were removed from the analysis due to a small number of responses (median = 22.5%, n = 2).

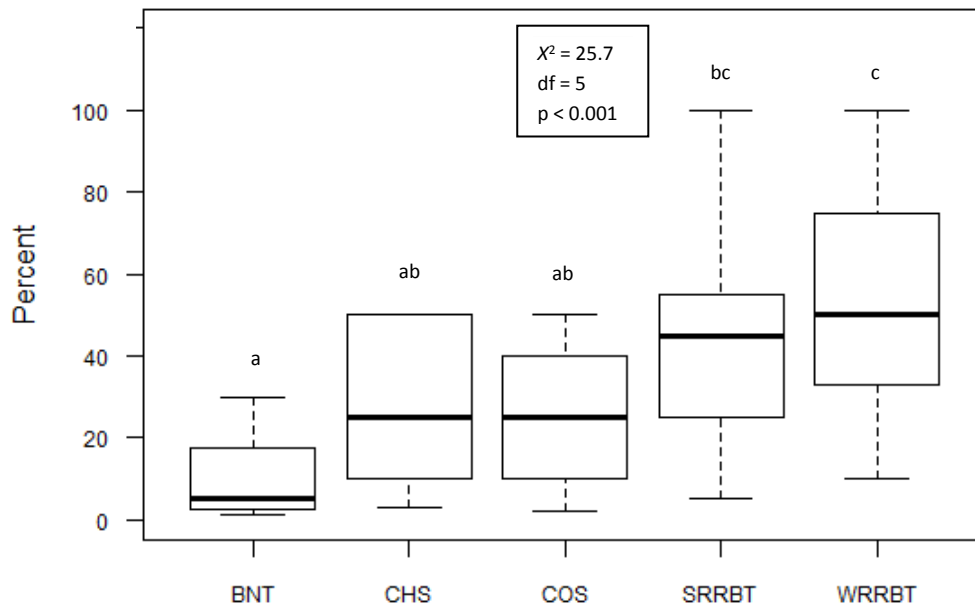


Figure 45. Median percentage of time Lake Michigan tributary anglers (n = 44) spent fishing for Brown Trout (BNT), Chinook Salmon (CHS), Coho Salmon (COS), Skamania steelhead (SRRBT) and winter-run steelhead (WRRBT) in 2016. Similar letters denote no significant difference.



- Stocking preference was dependent on angler type ( $\chi^2 = 21.9$ ,  $df = 8$ ,  $p = 0.005$ ; Figure 46). Similar to effort expended for certain species, tributary anglers indicated a strong preference for winter-run and Skamania steelhead. Over 65% (66.7%,  $n = 28$ ) of these anglers indicated that they would want to see these species increased. No shore anglers and only two (5.3%) boat anglers selected winter-run steelhead. Conversely, 50% ( $n = 19$ ) of boat anglers and 61.5% ( $n = 8$ ) shore anglers indicated preference for Coho Salmon compared to only 19.1% ( $n = 8$ ) of tributary anglers. Anglers from all three groups showed low interest in Brown Trout and Lake Trout stockings. However, shore anglers exhibited a slightly higher preference for Lake Trout than did the other two groups of anglers.

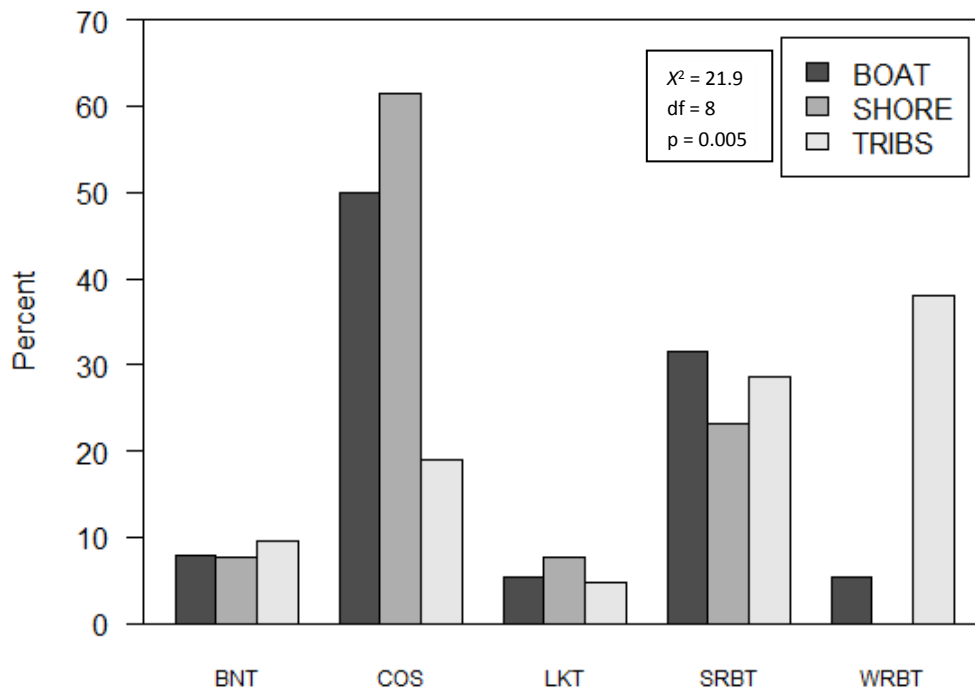


Figure 46. Relative frequency (%) by Lake Michigan boat ( $n = 38$ ) shore ( $n = 16$ ) and tributary ( $n = 44$ ) anglers for the question, “If Indiana changed its stocking program, which of the following species/strain would you want to see increased? Please select only ONE species or strain.”

**Inland Anglers: Comparison by Fish Management District:**

- Median age of anglers differed significantly between fish management district ( $\chi^2 = 11.5$ ,  $df = 5$ ,  $p = 0.04$ , Figure 47). Anglers from District 2 were noticeably younger (median = 37 years, IQR = 24.5 – 39.0,  $n = 24$ ) than all other anglers. District 6 anglers were the oldest (median = 54.5 years, IQR = 45.3 – 60.0,  $n = 16$ ) followed by anglers from District 1 (median = 52.5 years, IQR = 49.5 – 59.5,  $n = 10$ ), District 4 (median = 52.5 years, IQR = 41.8 – 59.0,  $n = 24$ ), District 5 (median = 49.5 years, IQR = 37.8 – 57.3,  $n = 24$ ) and District 3 (median = 48.0 years, IQR = 42.8 – 56.5,  $n = 30$ ). Despite the significant difference, the multiple comparison test did not differentiate between Districts.

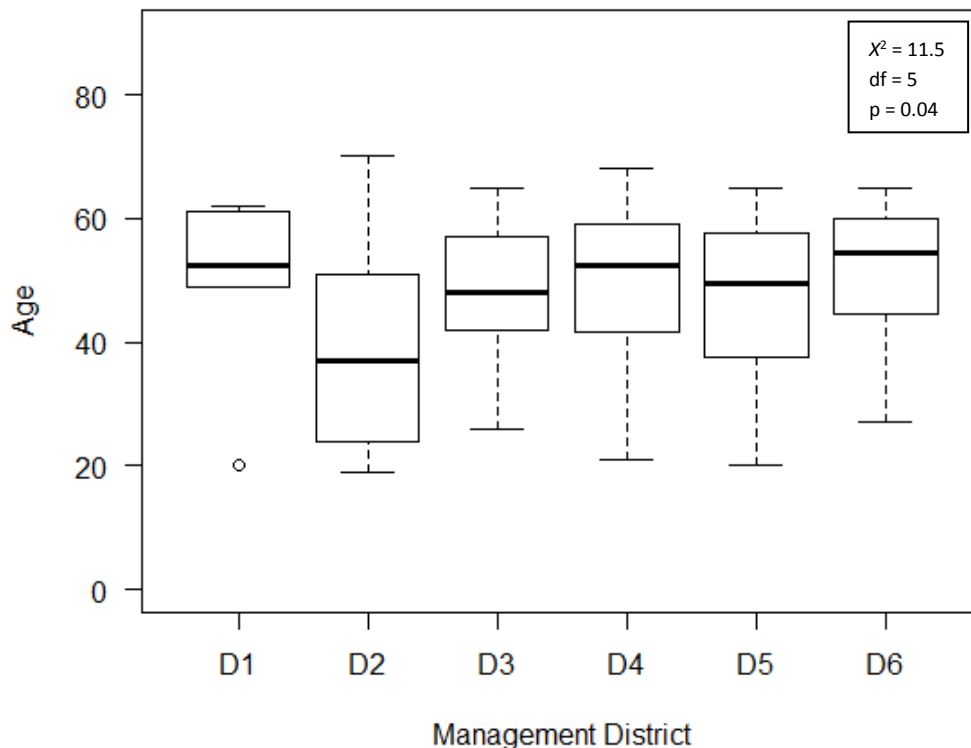


Figure 47. Median age of inland trout/salmon anglers in Fisheries Management Districts 1 ( $n = 10$ ), 2 ( $n = 24$ ), 3 ( $n = 30$ ), 4 ( $n = 24$ ), 5 ( $n = 24$ ) and 6 ( $n = 16$ ).

- The majority of anglers from all Districts (greater than 90%) were males ( $\chi^2 = 2.4$ ,  $df = 5$ ,  $p = 0.8$ ; Figure 48).

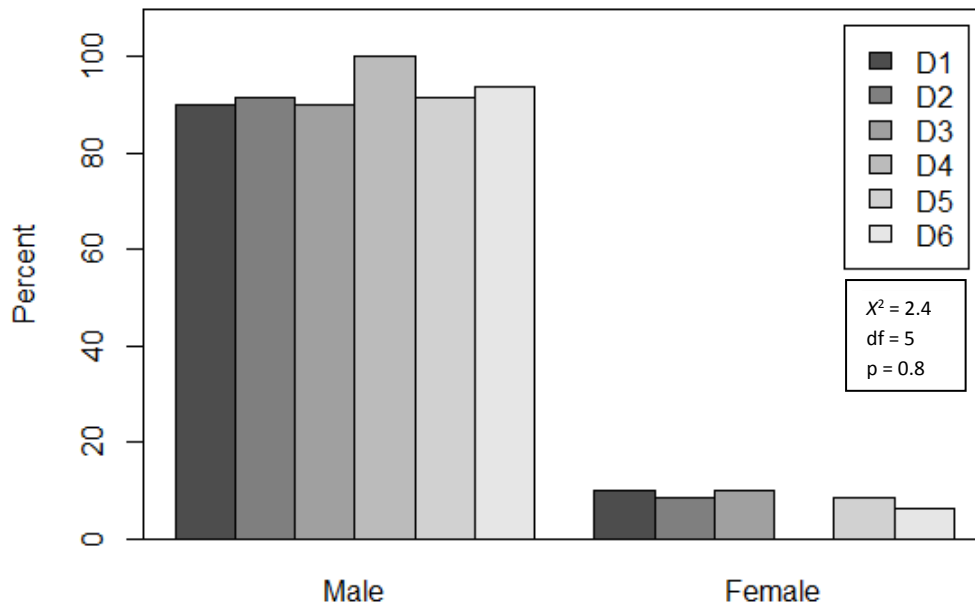


Figure 48. Sex of inland anglers from Fisheries Management District 1 (n = 10), 2 (n = 24), 3 (n = 30), 4 (n = 23), 5 (n = 24) and 6 (n = 16).

- At least 78% of the anglers did not belong to a fishing or conservation organization ( $\chi^2 = 5.4$ ,  $df = 5$ ,  $p = 0.4$ ; Figure 49).

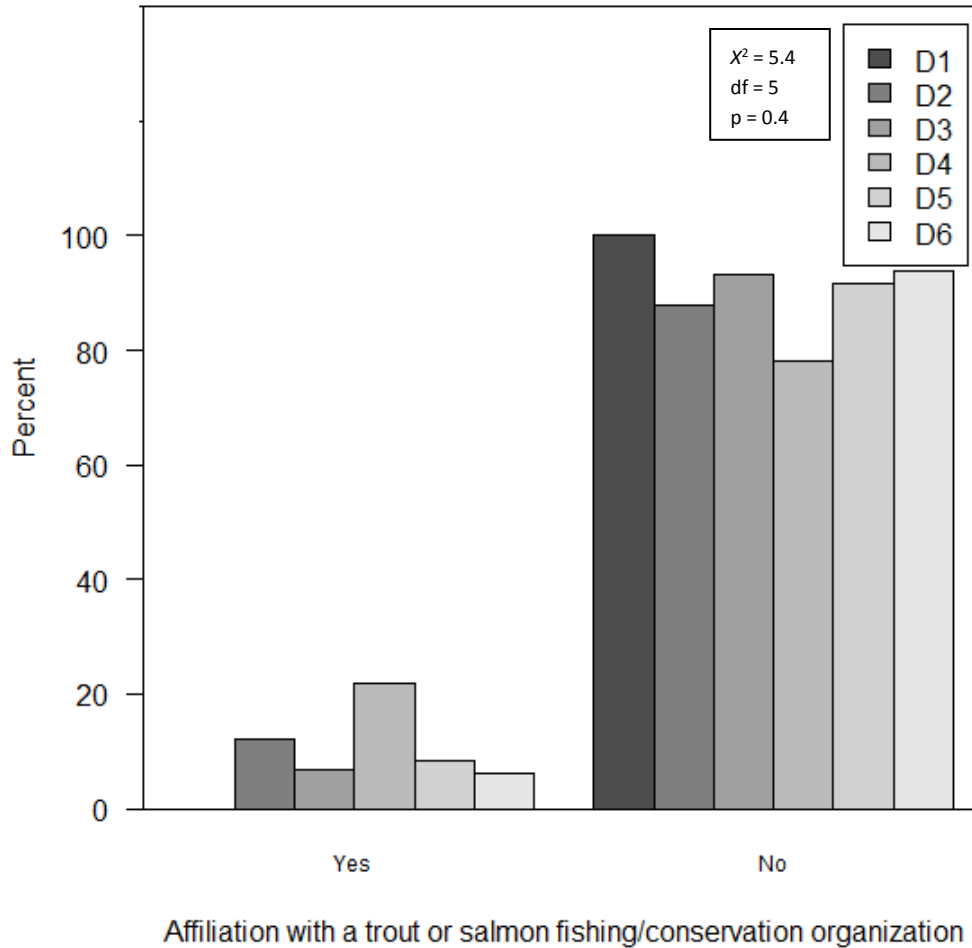


Figure 49. Relative frequency (%) by Fisheries Management District 1 (n = 10), 2 (n = 25), 3 (n = 30), 4 (n = 23), 5 (n = 24) and 6 (n = 16) for the question, “Are you currently affiliated with any trout or salmon fishing/conservation organization?”

- Anglers from Districts 3, 4 and 5 were more aware of the DFW's trout fishing events. Roughly 40% of the anglers from District 3 (40.0%, n = 12) and District 5 (39.1%, n = 9) were aware of the DFW trout events. Twenty-nine percent (29.2%, n = 7) of District 4 anglers indicated the same. However, at least 60% of all the anglers were not aware of these trout fishing opportunities ( $\chi^2 = 7.4$ ,  $df = 5$ ,  $p = 0.2$ ; Figure 50).

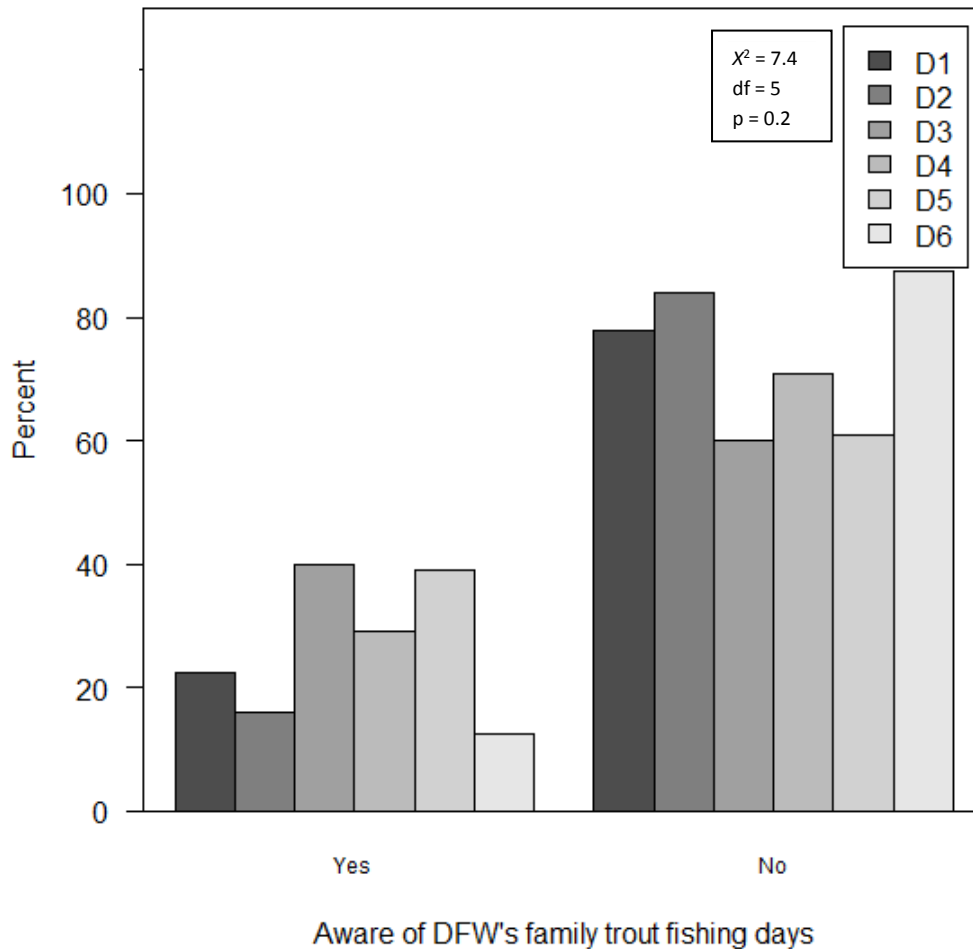


Figure 50. Relative frequency (%) by Fisheries Management District 1 (n = 9), 2 (n = 25), 3 (n = 30), 4 (n = 24), 5 (n = 23) and 6 (n = 16) for the question, “Are you aware of Division of Fish and Wildlife trout fishing events such as the family trout fishing days at Morches Park (Columbia City), Schoaff Park (Fort Wayne), Pinhook Park (South Bend) and Maple Park (Terre Haute)?”

- More anglers from District 3 and District 5 attended one of those events. However, over 85% of all anglers, if aware of the events, did not attend one ( $\chi^2 = 7.4$ ,  $df = 5$ ,  $p = 0.2$ ; Figure 51).

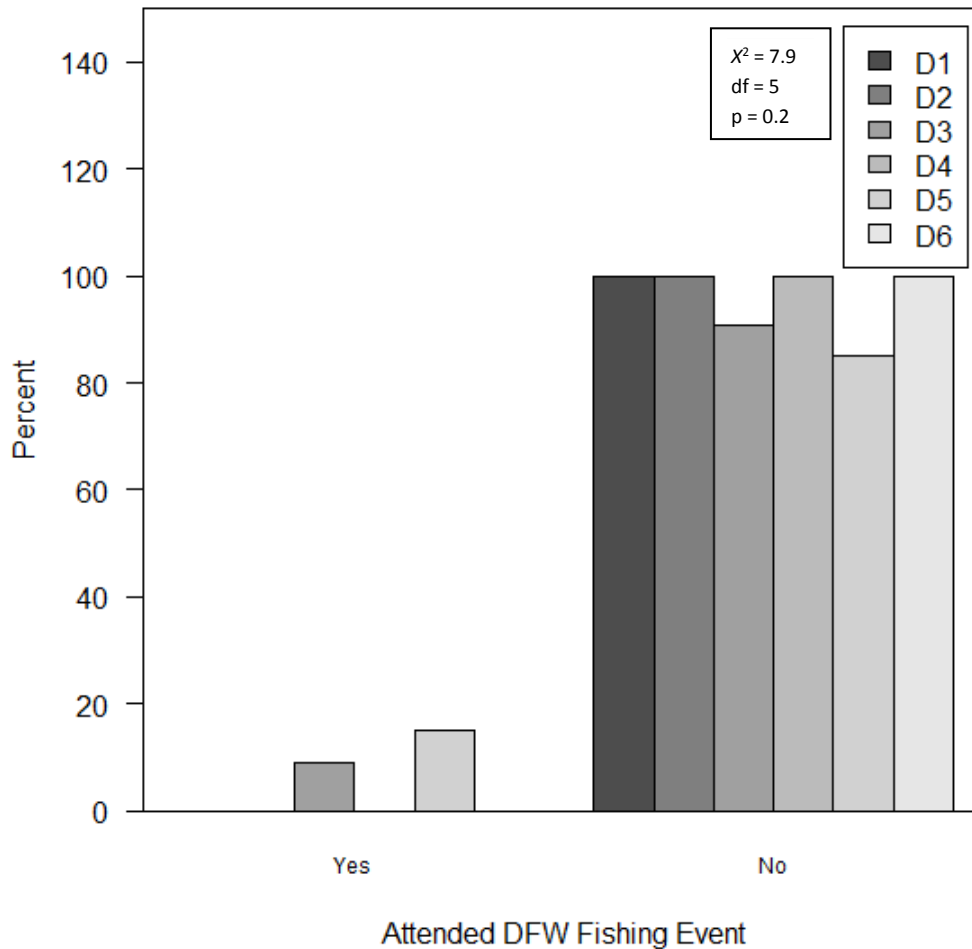


Figure 51. Relative frequency (%) by Fisheries Management District 1 (n = 9), 2 (n = 19), 3 (n = 22), 4 (n = 18), 5 (n = 20) and 6 (n = 11) for the question, “Are you aware of Division of Fish and Wildlife trout fishing events such as the family trout fishing days at Morches Park (Columbia City), Schoaff Park (Fort Wayne), Pinhook Park (South Bend) and Maple Park (Terre Haute)? If YES, did you attend one of these events?”

- Although not significantly different ( $\chi^2 = 10.5$ ,  $df = 5$ ,  $p = 0.06$ ; Figure 52), more anglers from Districts 3, 4, 5 and 6 knew where to find information pertaining to Indiana’s trout program. At least 62% of anglers from those Districts knew where to obtain information compared to only 40.0% (n = 4) of District 1 anglers and 41.7% (n = 10) of District 2 anglers.

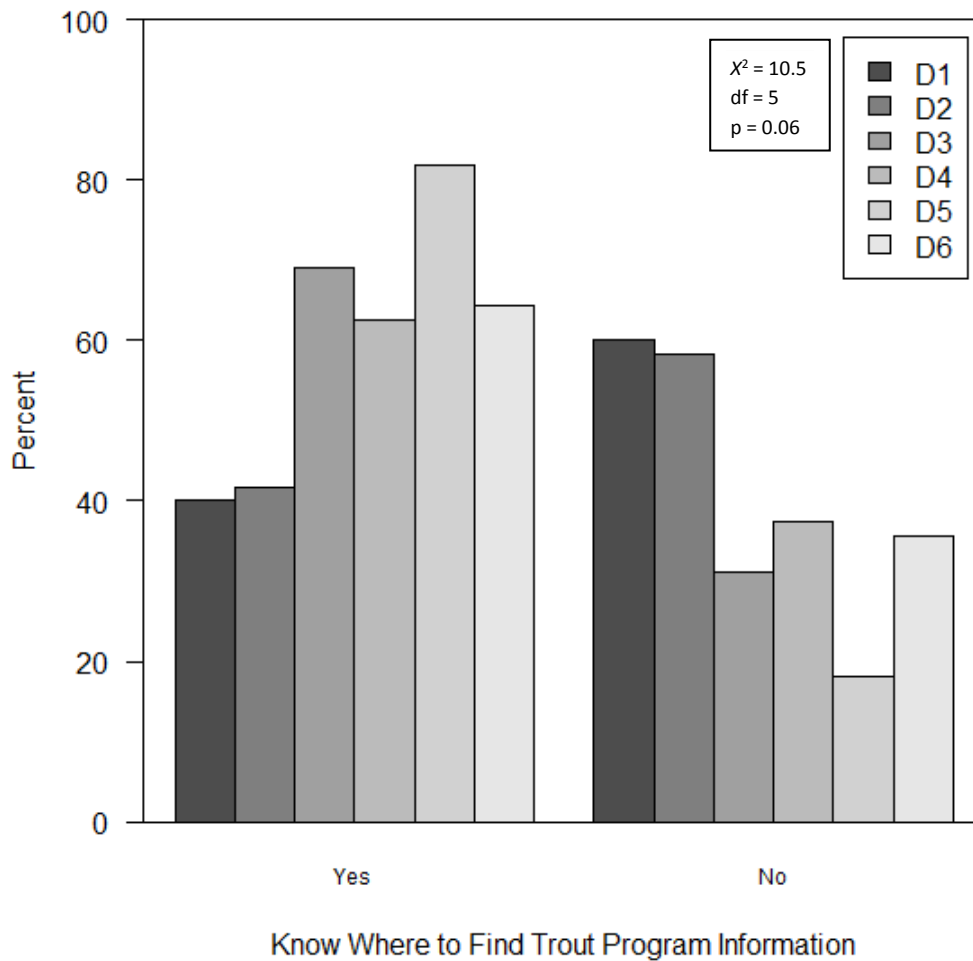


Figure 52. Relative frequency (%) by Fisheries Management District 1 (n = 10), 2 (n = 24), 3 (n = 29), 4 (n = 24), 5 (n = 22) and 6 (n = 14) for the question, “Do you know where to find information pertaining to Indiana’s inland trout program?”

- There was considerable variation regarding anglers' knowledge of six streams stocked in May in addition to the trout stocked prior to opening day (Figure 53). Despite these variations however, no significant differences were detected ( $\chi^2 = 10.3$ ,  $df = 5$ ,  $p = 0.07$ ). Anglers in District 3 (65.5%,  $n = 19$ ) and District 5 (50.0%,  $n = 11$ ) were more aware of these stockings than anglers from other Districts. Eighty percent (80.0%,  $n = 80$ ) of District 1 anglers were unaware of these six stockings.

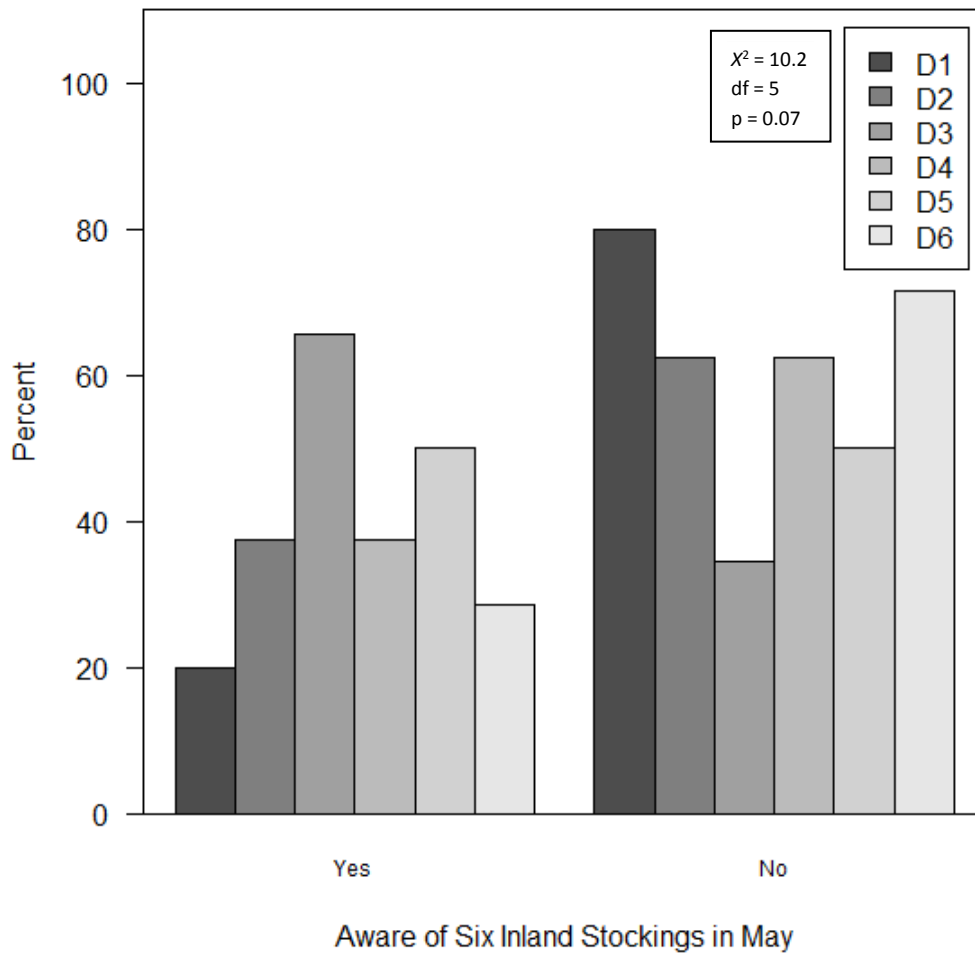


Figure 53. Relative frequency (%) by Fisheries Management District 1 ( $n = 10$ ), 2 ( $n = 24$ ), 3 ( $n = 29$ ), 4 ( $n = 24$ ), 5 ( $n = 22$ ) and 6 ( $n = 14$ ) for the question, "Are you aware that six (6) inland streams are stocked in May in addition to the trout stockings prior to the opening day?"



- The majority of anglers from all Districts were did not know about the three southern Indiana lakes stock with trout in October (Figure 54). District 5 (30.0% n = 50) and District 6 (33.3%, n = 6) anglers were most aware of these stockings ( $\chi^2 = 3.9$ ,  $df = 5$ ,  $p = 0.6$ ).

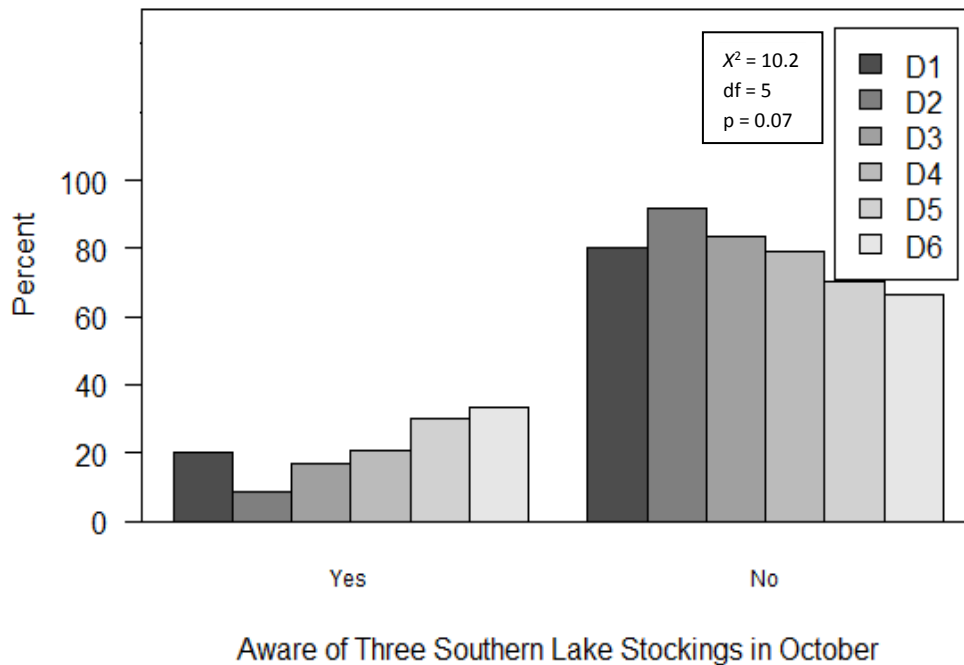


Figure 54. Relative frequency (%) by Fisheries Management District 1 (n = 10), 2 (n = 24), 3 (n = 29), 4 (n = 24), 5 (n = 22) and 6 (n = 14) for the question, “Are you aware that six (6) inland streams are stocked in May in addition to the trout stockings prior to the opening day?”

- Access to a reliable internet connection at home was dependent on which District anglers were from ( $\chi^2 = 14.1$ ,  $df = 5$ ,  $p = 0.01$ ; Figure 55). More anglers from Districts 1 and 2 (40.0%,  $n = 4$  and 26.1%,  $n = 6$ , respectively) indicated they did not have reliable home internet access compared to anglers from other districts. Over 81% of the anglers from Districts 3 - 6 said they did have reliable internet service at home.

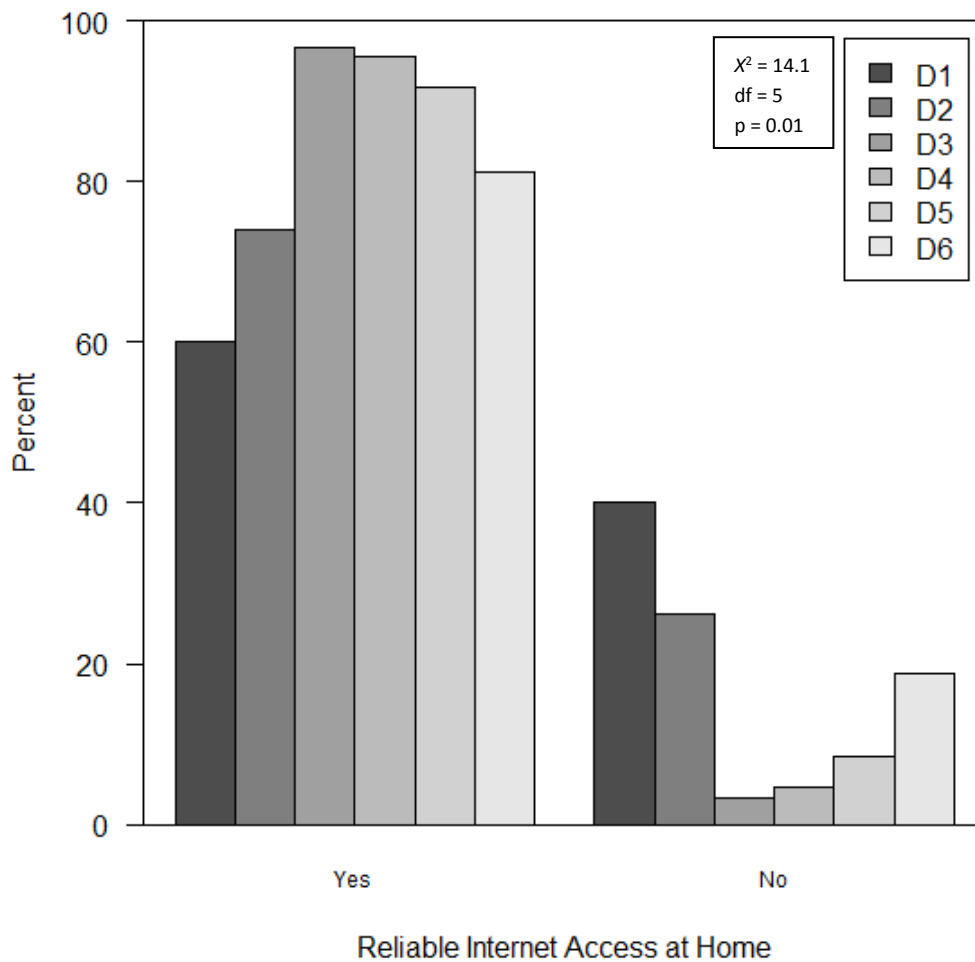


Figure 55. Relative frequency (%) by Fisheries Management District 1 ( $n = 10$ ), 2 ( $n = 23$ ), 3 ( $n = 30$ ), 4 ( $n = 22$ ), 5 ( $n = 24$ ) and 6 ( $n = 16$ ) for the question, “Do you have reliable internet access in your home?”

- Anglers indicated that email and the DFW’s website was the best way to communicate with them regarding trout & salmon information ( $\chi^2 = 17.3$ ,  $df = 35$ ,  $p = 1.0$ ; Figure 56). Radio, television, and Twitter were the least preferred means of communication.

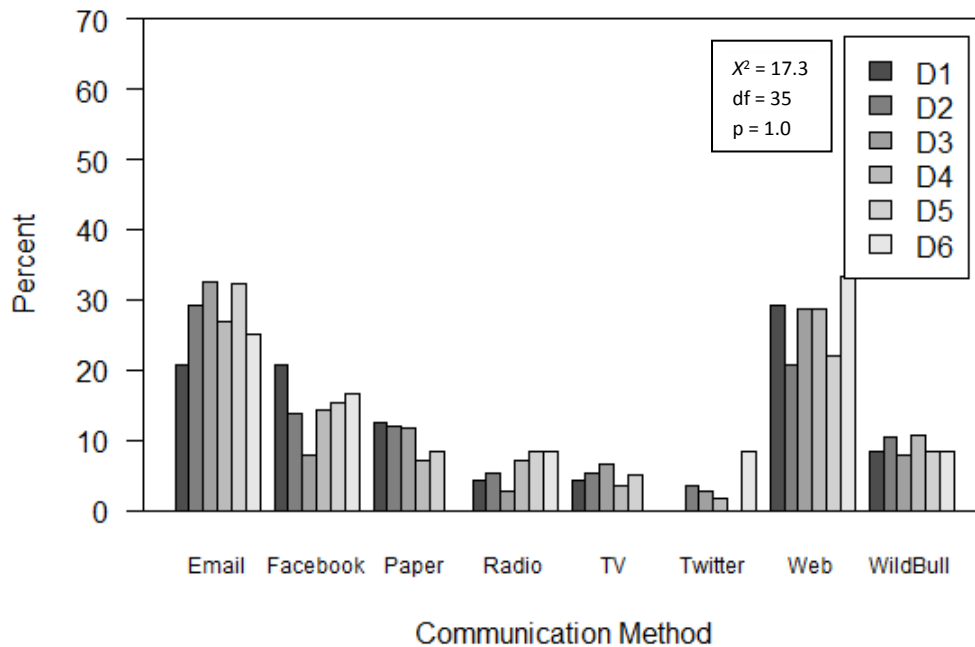


Figure 56. Relative frequency (%) by Fisheries Management District 1 (n = 24), 2 (n = 58), 3 (n = 77), 4 (n = 56), 5 (n = 59) and 6 (n = 12) for the question, “What is the best way to communicate trout and salmon program information to you? Please rank your top three (3) choices where 1 is the best and 3 is the third best.”

- When asked how many years of the last five had anglers fished, responses were inconsistent across management district but not significantly different ( $\chi^2 = 7.3$ ,  $df = 5$ ,  $p = 0.2$ , Figure 57). At least 24% of all anglers indicated that they had fished for trout each of the last five years. Anglers from District 2 (36.0%,  $n = 9$ ) and District 6 (50.0%,  $n = 8$ ) said they only fished once out of the last five years for trout. The majority of District 1 anglers indicated they fished three out of five (40.0%,  $n = 4$ ) or five out of five years (40.0%,  $n = 4$ ). Very few anglers from any district indicated that they had not fished for trout at all in the last five years.

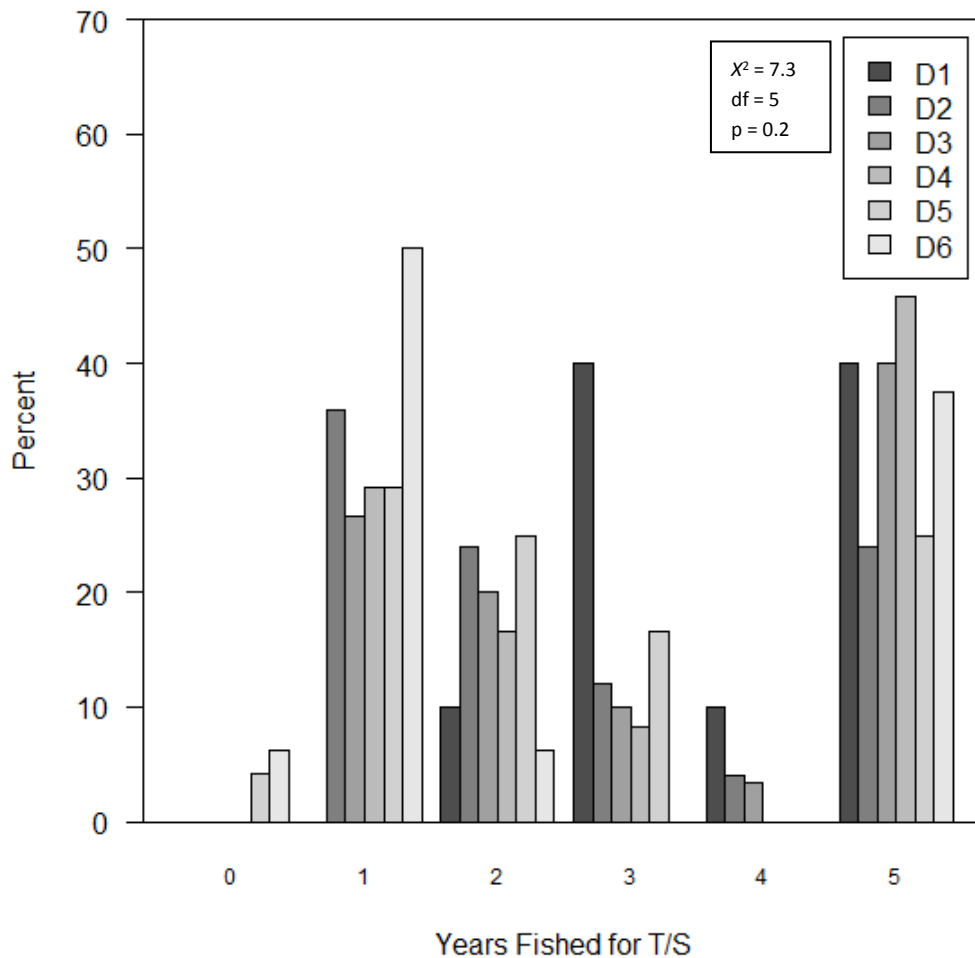


Figure 57. Relative frequency (%) by Fisheries Management District 1 ( $n = 10$ ), 2 ( $n = 25$ ), 3 ( $n = 30$ ), 4 ( $n = 24$ ), 5 ( $n = 24$ ) and 6 ( $n = 16$ ) for the question, “In the last 5 years, how many years did you fish specifically for trout or salmon in Indiana?”

- Anglers in District 1 (median = 12.0 days, IQR = 8.5 – 18.8, n = 10) and District 2 (median = 8.0 days, IQR = 1.0 – 20.0, n = 25) fished the greatest number of days for trout in 2016 followed by anglers in District 4 (median = 5.0 days, IQR = 3.0 – 16.3, n = 24), District 3 (median = 3.5 days, IQR = 2.0 – 6.8, n = 30), District 5 (median = 3.0 days, IQR = 2.0 – 11.0, n = 24) and District 6 (median = 3.0 days, IQR = 2.0 – 6.5, n = 16;  $\chi^2 = 8.3$ , df = 5, p = 0.1; Figure 58).

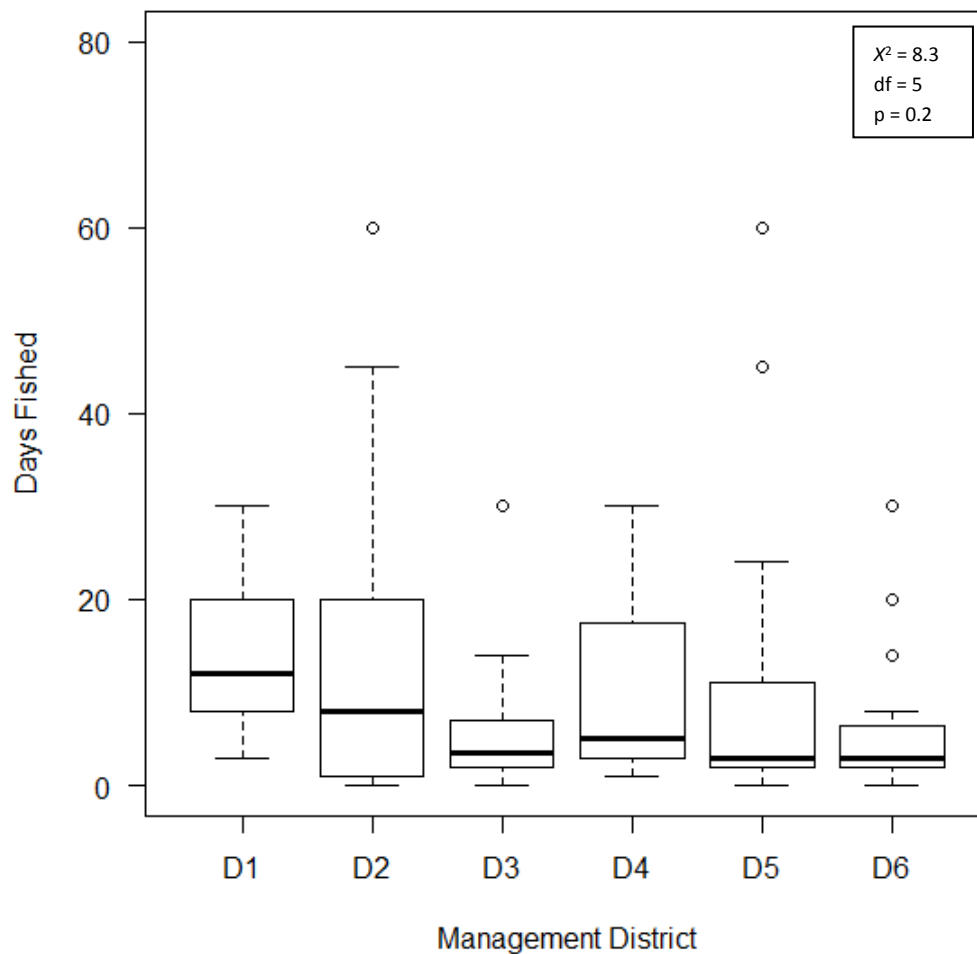


Figure 58. Median number of days anglers in Fisheries Management Districts 1 (n = 10), 2 (n = 25), 3 (n = 30), 4 (n = 24), 5 (n = 23) and 6 (n = 15) spent specifically targeting trout or salmon in Indiana in 2016.

- Rainbow Trout received substantially more targeted effort than did Brown Trout. With the exception of District 6, this was consistent across all districts.
- Effort for Rainbow Trout was very high in District 1 (median = 100%, IQR = 50.0 – 100.0, n = 9; Figure 59), District 3 (median = 100%, IQR = 80.0 – 100.0, n = 29; Figure 58), District 4 (median = 90.0%, IQR = 50.0 – 100.0, n = 23; Figure 59) and District 5 (median = 100%, IQR = 50.0 – 100.0, n = 19; Figure 60). In comparison, the median percentage of time District 2 anglers targeted a Rainbow Trout was 65.0% (IQR = 50.0 – 100.0, n = 24; Figure 60).

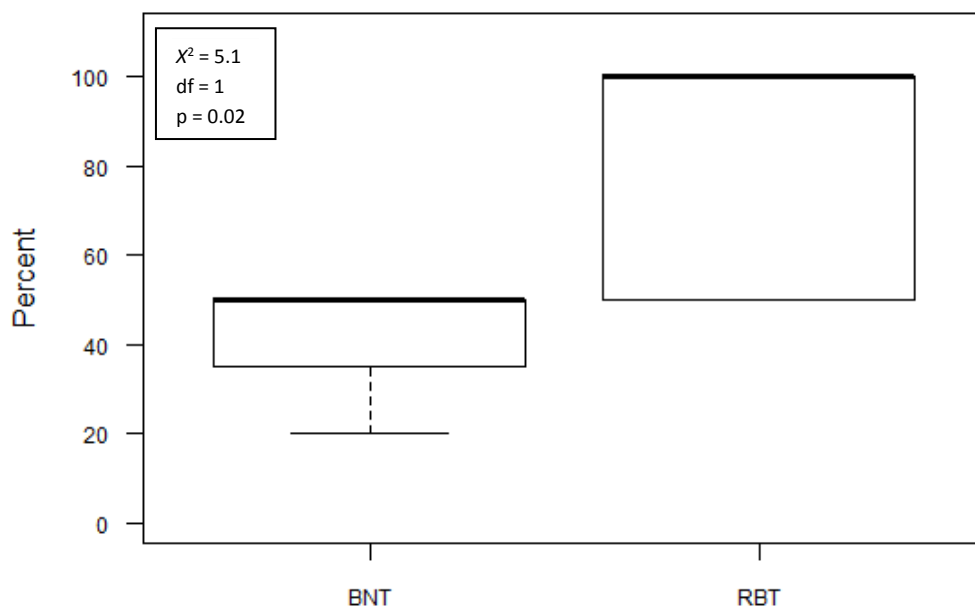


Figure 59. Median percentage of time District 1 inland anglers spent fishing for Brown Trout (n = 4) and Rainbow Trout (n = 9) in 2016.

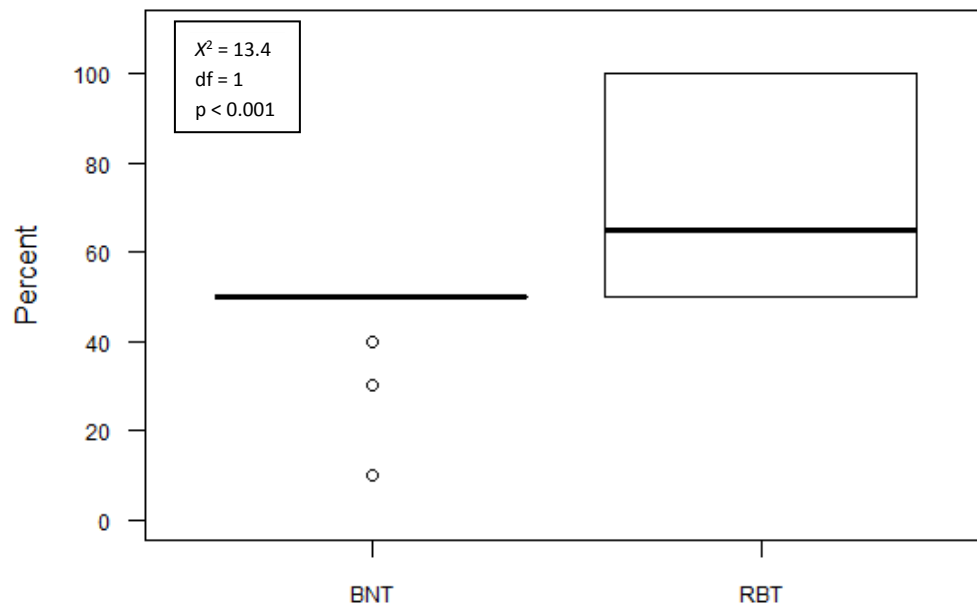


Figure 60. Median percentage of time District 2 inland anglers spent fishing for Brown Trout (n = 14) and Rainbow Trout (n = 24) in 2016.

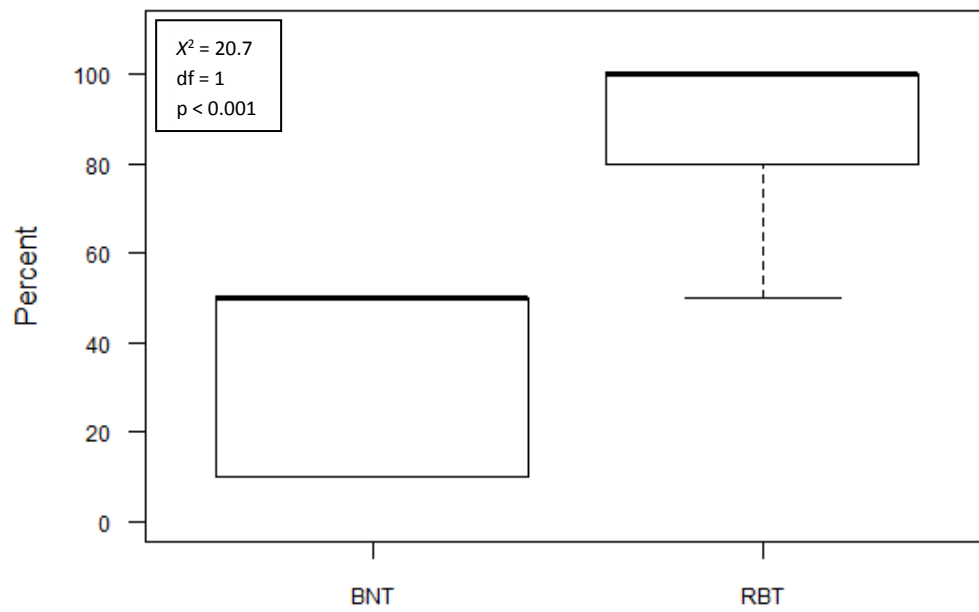


Figure 61. Median percentage of time District 3 inland anglers spent fishing for Brown Trout (n = 12) and Rainbow Trout (n = 24) in 2016.



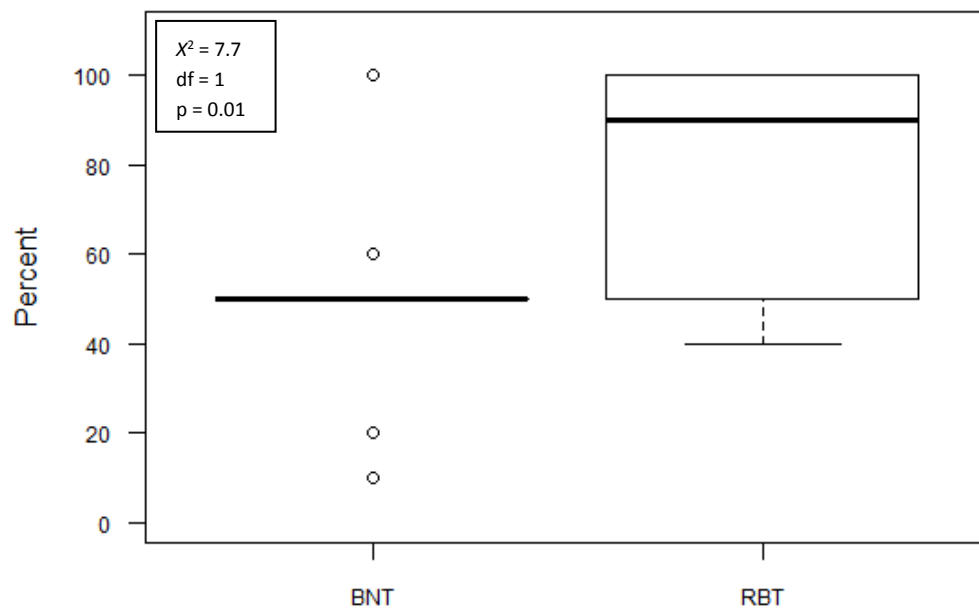


Figure 62. Median percentage of time District 4 inland anglers spent fishing for Brown Trout (n = 13) and Rainbow Trout (n = 23) in 2016.

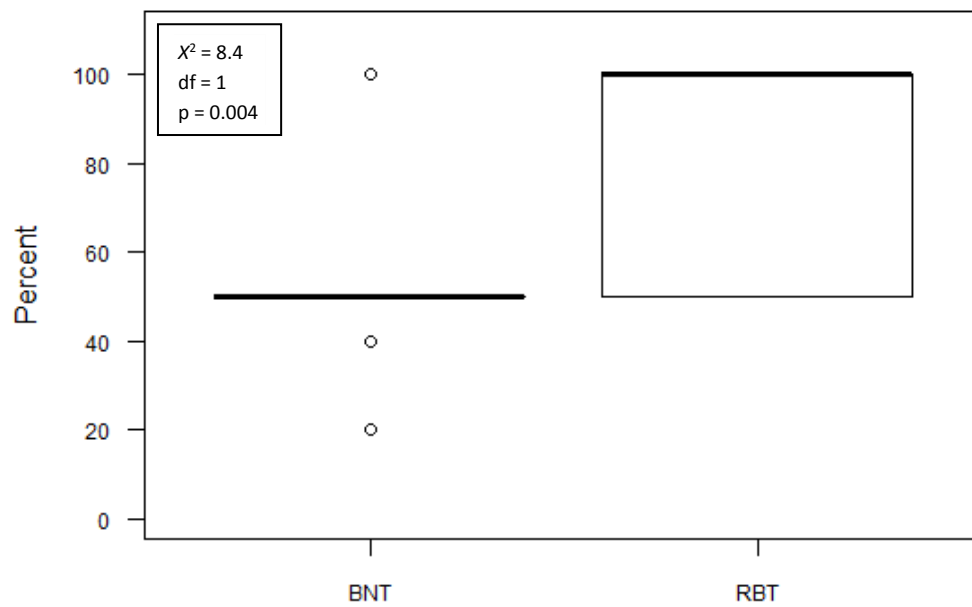


Figure 63. Median percentage of time District 5 inland anglers spent fishing for Brown Trout (n = 9) and Rainbow Trout (n = 19) in 2016.

- District 6 anglers indicated that they spent similar amounts of time targeting Brown Trout (median = 50.0%, IQR = 50.0 – 52.5, n = 8) and Rainbow Trout (median = 50.0%, IQR = 50.0 – 100.0, n = 13; Figure 64).

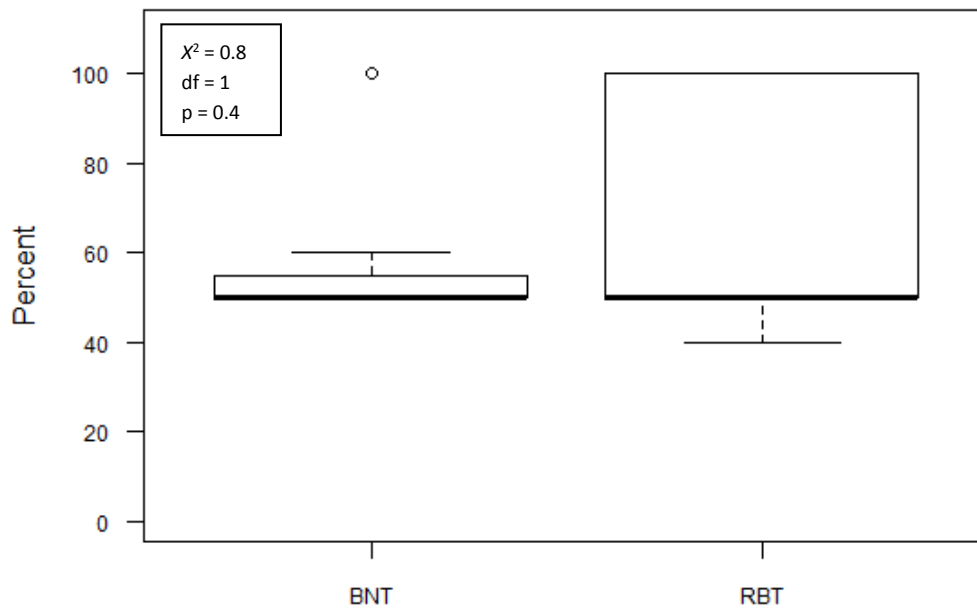


Figure 64. Median percentage of time District 6 inland anglers spent fishing for Brown Trout (n = 8) and Rainbow Trout (n = 13) in 2016.

- Preference to catch either Brown Trout or Rainbow Trout was not dependent on Fisheries Management District ( $\chi^2 = 20.6$ ,  $df = 5$ ,  $p = 0.4$ ; Figure 65). However, all of the anglers from District 1 (100%,  $n = 9$ ) selected Rainbow Trout as their preferred species to have stocked. District 4 anglers indicated a slight preference for Brown Trout (52.2%,  $n = 12$ ) over Rainbows (47.8%,  $n = 11$ ). Anglers from Districts 2 (75.0%,  $n = 18$ ), 3 (63.3%,  $n = 19$ ), 5 (54.4%,  $n = 12$ ) and 6 (71.4%,  $n = 10$ ) showed preference for Rainbow Trout.

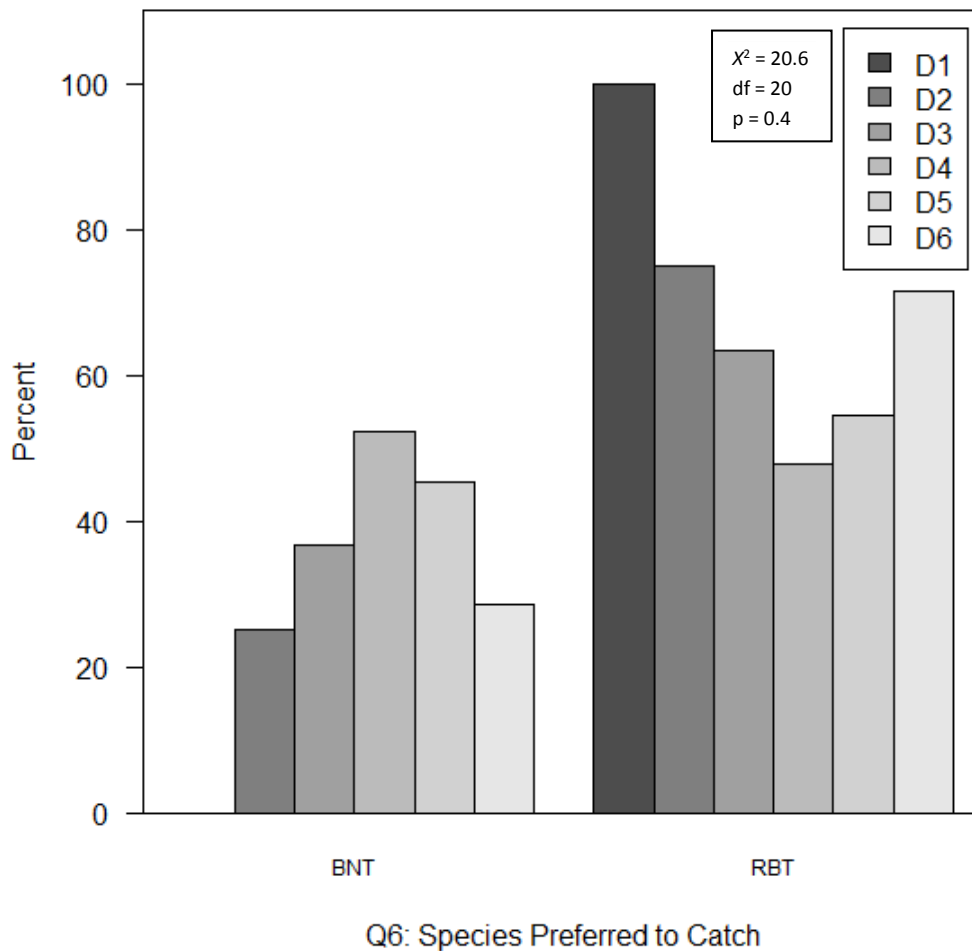


Figure 65. Relative frequency (%) by Fisheries Management District 1 ( $n = 9$ ), 2 ( $n = 14$ ), 3 ( $n = 30$ ), 4 ( $n = 23$ ), 5 ( $n = 22$ ) and 6 ( $n = 14$ ) for the question, “When fishing for trout on Indiana’s inland lakes and streams, which species would you prefer to catch? Please select only ONE species.”

## REFERENCES

Broussard, Shorna R. and Alicia Haley. 2005. 2005 Indiana Licensed Angler Survey. Purdue University, West Lafayette, Indiana.

Responsive Management. 2017. Indiana Anglers' Fishing Participation and Their Opinions on Fishing Management Issues. Harrisonburg, Virginia.

Shipman, Stuart. 1987. Indiana Fishing: Results of a Statewide Fisherman Questionnaire. Indiana Division of Fish and Wildlife. Indianapolis, Indiana

Shipman, Stuart T. 1996. Indiana Fishing: Results of a 1994 Statewide Angler Survey. Indiana Division of Fish and Wildlife. Indianapolis, Indiana.

## APPROVAL

Submitted by: Matt Burlingame  
Fisheries Biometrician  
August 18, 2017



---

Approved by: Steven B. Donabauer  
Fisheries Program Manager  
August 25, 2017



---

## **APPENDIX 1**

19 December, 2016

Dear,

You are receiving this letter because you purchased an Indiana Trout/Salmon stamp earlier this year. We appreciate your support of fishing in Indiana and value the opinions of our anglers.

Periodically, it's important to review programs to ensure they are meeting customer needs. Angler input is a critical piece of any program evaluation. Whether your trout and salmon fishing interests lie on Lake Michigan and its tributaries or with stocked trout on inland lakes, streams, or park ponds, we would like your input in shaping the future of Indiana's Trout and Salmon program.

This survey has 20 questions and should take approximately 10 minutes to complete. Please take some time to answer these questions and help provide direction for future of Indiana's trout & salmon program. *It is important that YOU answer the questions. Please do not pass this along to someone else!* All answers are confidential.

Once completed, please place the survey in the return envelope provided and drop it in the mail. Alternatively, you can complete an online version of the survey by going to [www.indianaangler.site](http://www.indianaangler.site). You will need to enter this Access Code 0 to complete the survey online. If you have any questions regarding the survey, please contact our Fisheries Biometrician, Matt Burlingame, at [mburlingame@dnr.in.gov](mailto:mburlingame@dnr.in.gov) or (260) 244-6805.

THANK YOU for your time and helping with the management of your fisheries resources.

Sincerely,



Jeremy Price  
North Region Fisheries Supervisor

**Burlingame, Matthew N**

---

**From:** Burlingame, Matthew N  
**Sent:** Wednesday, December 21, 2016 2:38 PM  
**To:**  
**Subject:** Indiana Trout & Salmon Survey!

Dear

You are receiving this email because you purchased an Indiana Trout/Salmon stamp earlier this year. We appreciate your support of fishing in Indiana and value the opinions of our anglers.

Periodically, it's important to review programs to ensure they are meeting customer needs. Angler input is a critical piece of any program evaluation. Whether your trout and salmon fishing interests lie with trout and salmon on Lake Michigan and its tributaries or with stocked trout on inland lakes, streams, or park ponds, we would like your input in shaping the future of Indiana's Trout and Salmon program.

This survey has 20 questions and should take approximately 10 minutes to complete. Please take some time to answer these questions and help provide direction for future of Indiana's trout & salmon program. *It is important that YOU answer the questions. Please do not pass this along to someone else!* All answers are confidential.

To complete this online survey, please navigate to [www.indianaangler.site](http://www.indianaangler.site). You will need to enter this Access Code <2234> in order for your results to be submitted. If you have any questions regarding the survey, please contact our Fisheries Biometrician, Matt Burlingame, at [mburlingame@dnr.in.gov](mailto:mburlingame@dnr.in.gov) or (260) 982.6805.

THANK YOU for your time and helping with the management of your fisheries resources.

Sincerely,

Jeremy Price  
North Region Fisheries Supervisor

Matt Burlingame  
Fisheries Biometrician  
Northeast Regional Office  
1353 S. Governors Drive  
Columbia City, IN 46725  
(260) 244-6805



Dear Indiana Angler,

Last week you received a letter and survey pertaining to Indiana's Trout and Salmon Program.

If you have already mailed the survey back, THANK YOU very much for your participation. If you have not yet done this, please take a couple minutes to complete and return the survey. We value your opinions and your feedback is important.

We appreciate your support of fishing in Indiana!

Sincerely,



Jeremy Price  
North Region Fisheries Supervisor  
Indiana Division of Fish & Wildlife



**Burlingame, Matthew N**

---

**From:** Burlingame, Matthew N  
**Sent:** Thursday, December 29, 2016 9:43 AM  
**To:**  
**Subject:** IN Trout/Salmon Survey!!

Dear Kevin,

Last week you received an email pertaining to Indiana's Trout and Salmon Program. I was asking you to please take some time and complete the short survey we are conducting.

If you have already been to [www.indianaangler.site](http://www.indianaangler.site) and completed the survey, THANK YOU very much for your participation. If you have not yet done this, please take a couple minutes to go to the website and take the survey. Your Access Code is <1546>. It's only 20 questions and will only take about 10 minutes of your time. We really do value your opinions. Your feedback is important! If you have any questions please contact our Fisheries Biometrician, Matt Burlingame, at [mburlingame@dnr.in.gov](mailto:mburlingame@dnr.in.gov) or 260.244.6805 I appreciate your support of fishing in Indiana!

Sincerely,

Jeremy Price

North Region Fisheries Supervisor  
Indiana Division of Fish & Wildlife

Matt Burlingame  
Fisheries Biometrician  
Northeast Regional Office  
1353 S. Governors Drive  
Columbia City, IN 46725  
(260) 244-6805



17 January, 2017

Dear Heather,

About three weeks ago I wrote you seeking your thoughts on trout and salmon fishing in Indiana. As of today we have not yet received your completed survey. We have undertaken this study because of the belief that anglers play an important role in fish management. We believe our findings will offer the Division of Fish and Wildlife, anglers, and the public important insights into our Trout & Salmon Program as the Division moves forward.

Your name was one of only 1,300 names randomly drawn from over 27,000 anglers who purchased a Trout & Salmon Stamp in 2016. Consequently, we need everyone who receives this survey to tell us about their fishing experiences this past year. Even if you only went trout fishing once – or not at all – that information is needed. Your participation is important to our project and the future of trout and salmon fishing in Indiana.

Please take some time to answer these questions and help provide direction for future of Indiana's trout & salmon program. It will only take you a few minutes. *It is important that YOU answer the questions. Please do not pass this along to someone else!* All answers are confidential.

Once completed, please place the survey in the return envelope provided and drop it in the mail. Alternatively, you can complete an online version of the survey by going to [www.indianaangler.site](http://www.indianaangler.site). You will need to enter this Access Code (1013) to complete the survey online. If you have any questions regarding the survey, please contact our Fisheries Biometrician, Matt Burlingame, at [mburlingame@dnr.in.gov](mailto:mburlingame@dnr.in.gov) or (260) 244-6805.

THANK YOU for your time and helping with the management of your fisheries resources.

Sincerely,

Jeremy Price  
North Region Fisheries Supervisor

## **Burlingame, Matthew N**

---

**From:** Burlingame, Matthew N  
**Sent:** Wednesday, January 18, 2017 10:30 AM  
**To:**  
**Subject:** Trout/Salmon - Last Chance!

Dear Jeffrey,

About three weeks ago I emailed you seeking your thoughts on trout and salmon fishing in Indiana. As of today we have not yet received your completed survey. We have undertaken this study because of the belief that anglers play an important role in fish management. We believe our findings will offer the Division of Fish and Wildlife, anglers, and the public important insights into our Trout & Salmon Program as the Division moves forward.

Your name was one of only 1,300 names randomly drawn from over 27,000 anglers who purchased a Trout & Salmon Stamp in 2016. Consequently, we need everyone who receives this survey to tell us about their fishing experiences this past year. Even if you only went trout fishing once – or not at all – that information is needed. Your participation is important to our project and the future of trout and salmon fishing in Indiana.

Please take some time to answer these questions and help provide direction for future of Indiana's trout & salmon program. It will only take you a few minutes. *It is important that YOU answer the questions. Please do not pass this along to someone else!* All answers are confidential.

To complete the survey please go to [www.indianaangler.site](http://www.indianaangler.site). You will need to enter this Access Code (1011) to complete the survey online. It is imperative that you use this Access Code. If you don't, your responses will not be counted. There is only a week left to participate!

If you have any questions regarding the survey, please contact our Fisheries Biometrician, Matt Burlingame, at [mburlingame@dnr.in.gov](mailto:mburlingame@dnr.in.gov) or (260) 244-6805.

THANK YOU for your time and helping with the management of your fisheries resources.

Sincerely,



Jeremy Price  
North Region Fisheries Supervisor

Matt Burlingame  
Fisheries Biometrician  
Northeast Regional Office  
1353 S. Governors Drive  
Columbia City, IN 46725  
(260) 244-6805

## **APPENDIX 2**

# 2016 Indiana Trout & Salmon Survey

1013

1. In the last 5 years, how many years did you fish specifically for trout or salmon in Indiana?

0 years    1 year    2 years    3 years    4 years    5 years

If you have NOT fished for trout or salmon in the last 5 years OR did NOT fish for trout or salmon in Indiana in 2016, please skip to Question 14.

2. In 2016, approximately how many days did you specifically target trout or salmon in Indiana?

\_\_\_\_\_ Days spent specifically targeting trout or salmon in Indiana

3. In 2016, what percentage of the time did you fish for each of the species groups listed below? (Percentages should add to 100%)

\_\_\_\_\_ % bass  
\_\_\_\_\_ % catfish  
\_\_\_\_\_ % muskellunge and/or northern pike  
\_\_\_\_\_ % panfish (bluegill, crappie, redear, yellow perch)  
\_\_\_\_\_ % walleye and/or sauger  
\_\_\_\_\_ % trout and/or salmon

4. In 2016, what percentage of your trout and salmon fishing effort was spent at each of these locations? (Percentages should add to 100%)

\_\_\_\_\_ % Lake Michigan  
\_\_\_\_\_ % Tributaries of Lake Michigan (i.e., Deep River, Little Calumet River/Burns Ditch, Salt Creek, St. Joseph River, Trail Creek, etc. NOT Pigeon River)  
\_\_\_\_\_ % Inland streams (Big Blue River, Brookville Reservoir tailwater, Cobus Creek, Crooked Creek, Curtis Creek, Fawn River, Harden Reservoir tailwater, Little Elkhart River, Little Kankakee River, Mill Creek, Mississinewa River, Pigeon River, Potato Creek, Rowe-Eden Ditch, Solomon Creek, Spy Run, Turkey Creek)  
\_\_\_\_\_ % Inland lakes, ponds, pits, & reservoirs

If you DID NOT fish for trout or salmon on Lake Michigan or its tributaries in 2016, please skip to question 9.

**5. Of the time you spent fishing trout and salmon on Lake Michigan and its tributaries during 2016, what percentage of time did you spend fishing for each of the following species? (Percentages should add to 100%)**

- \_\_\_\_\_ % brown trout
- \_\_\_\_\_ % chinook salmon
- \_\_\_\_\_ % coho salmon
- \_\_\_\_\_ % lake trout
- \_\_\_\_\_ % winter-run steelhead
- \_\_\_\_\_ % summer-run (Skamania) steelhead

**6. If Indiana changed its stocking program, which of the following species/strain would you want increased? Please select only ONE species or strain.**

- brown trout     coho salmon     lake trout     winter-run steelhead
- summer-run (Skamania) steelhead

**7. In 2016, what percentage of your time fishing trout and salmon on Lake Michigan and its tributaries was by each of these modes? (Percentages should add to 100%)**

- \_\_\_\_\_ % Lake Michigan from a boat
- \_\_\_\_\_ % Lake Michigan from the shore
- \_\_\_\_\_ % tributaries to Lake Michigan (from a boat or shore)

**8. In 2016, what percentage of your time spent fishing trout or salmon on Lake Michigan tributaries did you spend at these locations? If you did not fish at any of these locations, please select (write in 100) "I did not fish Lake Michigan locations in 2016." (Percentages should add to 100%)**

- \_\_\_\_\_ % Deep River
- \_\_\_\_\_ % Little Calumet River/Burns Ditch
- \_\_\_\_\_ % Salt Creek
- \_\_\_\_\_ % St. Joseph River
- \_\_\_\_\_ % Trail Creek
- \_\_\_\_\_ % Other (please write in) \_\_\_\_\_
- \_\_\_\_\_ I did not fish Lake Michigan tributaries in 2016

If you DID NOT fish for trout on inland lakes and streams as described in Question 4, please skip to question 14.

9. In 2016, what percentage of your time did you spend specifically fishing for each of the following species on Indiana's inland lakes and streams? (Percentages should add to 100%)

\_\_\_\_\_ % brown trout  
\_\_\_\_\_ % rainbow trout

10. When fishing for trout on Indiana's inland lakes and streams, which species would you prefer to catch? Please select only ONE species.

brown trout       rainbow trout

11. Do you know where to find information pertaining to Indiana's inland trout program?

YES       NO

12. Are you aware that six (6) inland streams are stocked in May in addition to the trout stock prior to the opening day?

YES       NO

13. Are you aware that three (3) southern Indiana lakes are stocked with trout in October?

YES       NO

ALL anglers, please answer the remaining questions.

14. Are you aware of Division of Fish and Wildlife trout fishing events such as the family trout fishing days at Morsches Park (Columbia City), Schoaff Park (Fort Wayne), Pinhook Park (South Bend) and Maple Park (Terre Haute)?

YES       NO

If YES, did you attend one of these events?

YES       NO

15. Are you currently affiliated with any trout or salmon fishing/conservation organization?

YES       NO

If YES, please tell us which one \_\_\_\_\_



16. What is the best way to communicate trout and salmon program information to you? Please rank your top three (3) choices where 1 is the first best and 3 is the third best.

- \_\_\_\_\_ Email
- \_\_\_\_\_ Division of Fish and Wildlife website
- \_\_\_\_\_ News release in local newspaper
- \_\_\_\_\_ News release on local radio station
- \_\_\_\_\_ News release on local TV station
- \_\_\_\_\_ Facebook (official Division of Fish & Wildlife page)
- \_\_\_\_\_ Twitter (official Division of Fish & Wildlife feed)
- \_\_\_\_\_ Wild Bulletin
- \_\_\_\_\_ Other (Please write in) \_\_\_\_\_

17. Do you have reliable internet access in your home?

- YES  NO

18. What is your sex?

- Male  Female

19. What is your age?

\_\_\_\_\_ years

20. In the space provided, please tell us **ONE** suggestion that you think would improve the value of your trout and/or salmon fishing opportunities.



Services brought to you by hunters, anglers, and rappers through the sale of hunting, fishing, and trapping licenses and the Wildlife and Sportfish Restoration Program, a user-pay, everyone benefits program.