
PRIVATE POND TECHNICAL ASSISTANCE PROGRAM

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SURVEY CONDUCTED NOVEMBER 2022; REPORT COMPLETED APRIL 2023



INTRODUCTION

The Oklahoma Department of Wildlife Conservation (ODWC) has many programs that assist private landowners with management of their land. ODWC's fisheries division provides private pond technical assistance which allows private pond owners to reach out to fisheries biologists with management questions related to their private pond. This program also entails a free farm pond stocking program that thousands of Oklahoma landowners have participated in. ODWC identified program evaluation as a main priority during the agency's last strategic plan. This survey served as an evaluation tool to determine what fisheries is doing well and what could be improved upon within the technical assistance program. To obtain responses from

the appropriate audiences, we reached out to those who participated in the farm pond stocking program and a larger general list of private landowners that may or may not have a pond on their property. The survey contained a screener question to determine whether the respondent had a pond on their property before they were presented with any other questions. The results of this survey will streamline the technical assistance program and help fisheries division determine what parts of the program are beneficial to their long-term goals.

METHODS

We conducted this survey as an online only effort. We programmed the questionnaire into SurveyMonkey and used its email collector functionality to email invitations and track who responded so that we could appropriately send reminder emails to those who had not returned a completed survey. This function also reveals how many emails bounced thus showing how many people out of our target sample did not receive the invitation. We considered the bounce rate when calculating our effective response rate.

We selected two populations to send this survey to: farm pond stocking program participants and 'Your Side of the Fence' (YSOF) private landowner newsletter recipients. We sent an initial invitation email by the following schedule:

- ODWC's farm pond stocking program participants (1,085 invitations)
 - First contact: 11/4/22 & 11/7/22
 - Second contact: 11/10/22 & 11/17/22
 - Final contact: 11/21/22
- Your Side of the Fence (YSOF) newsletter recipients (13,212 invitations)
 - First contact: 11/8/22 & 11/9/22
 - Second contact: 11/14/22 & 11/15/22

We closed the survey to further responses on December 5, 2022 as no more responses were coming into the online system. We exported the results and cleaned the data by:

- Removing responses from all duplicate emails
- removed all responses that had no data other than that 'yes, they did own a pond'
- removed all those who did not own a pond
- Double-checked IPs but didn't make sense to remove any duplicate IP's as responses were vastly different.

Data analysis and the creation of figures was done in Tableau.

RESULTS

Respondent Characteristics

We received 1,525 responses to the private pond technical assistance program survey. We sent a total of 14,297 invitations for an overall response rate of 10.7%. Out of 14,297 invitations, 606 bounced. This means our true number of invitations received was 13,691 for an effective response rate of 11.1%. This varied by the population sampled as we received a response rate of 37% (351/953) from our farm pond stocking participant list and a response rate of 22% (2,742/12,738) from our YSOF list. Although, we only received usable responses from 1,174 individuals from the YSOF list as the other 1,568 said they did not own a private pond and were immediately disqualified from the survey for an effective response rate from the YSOF list of 9%.

Ninety-one percent of respondents held a fishing license at the time of the survey (n=1,226). Of those that hold a license, 63% hold a lifetime license, 15% hold an annual or 5-year license, 9% hold a senior license and 3% held a nonresident license. Nine percent of respondents stated they did not hold an Oklahoma hunting or fishing license. Respondents tended to be older with 49% falling within the baby boomer generation, followed by 32% within Generation X, 14% were millennials and 4% were of the silent generation. Only 0.3% of respondents were born in Generation Z.

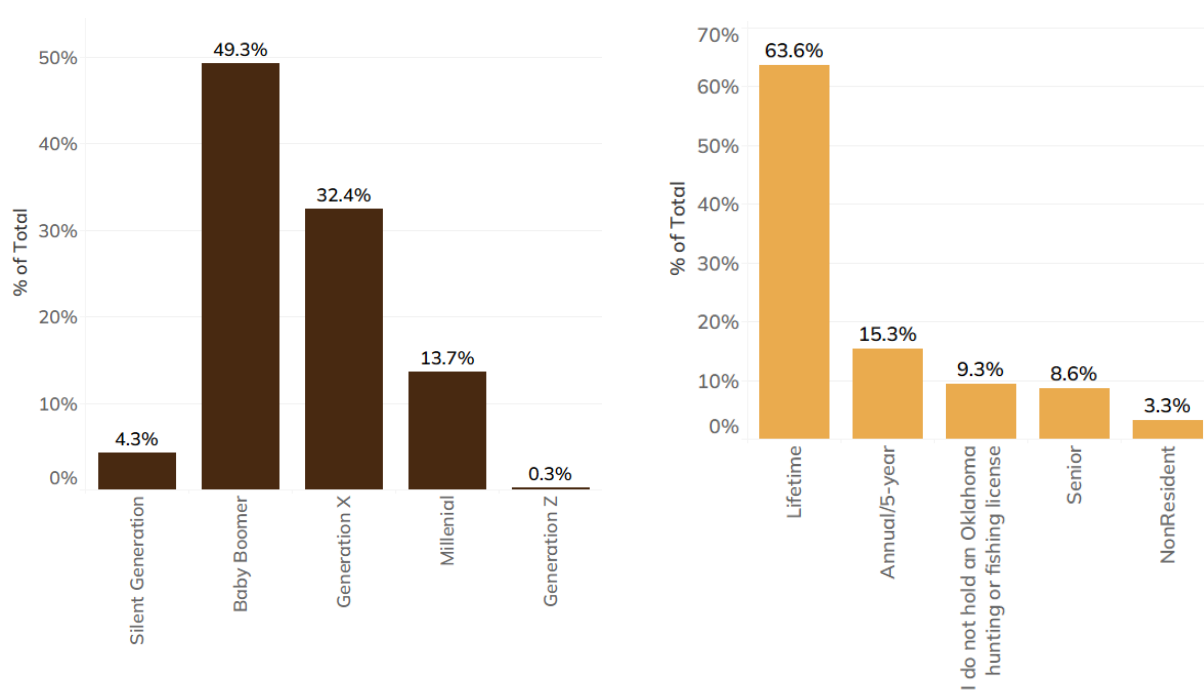


Figure 1: Breakdown of respondents by generation and license type.

Respondents reported their total household income, and the most often selected answer was \$150,000 or more. The median household income in 2021 in Oklahoma was \$56,956 (census.gov). Sixty-seven percent of respondents to this survey reported a household income over \$75,000 leading to the assumption that our survey sample is more affluent than the general Oklahoma population. Those who had not had fish

stocked from ODWC and had either paid for fish or stocked from another source were less affluent than those that used ODWC to stock their ponds (discussed in further detail below; figure 9).

Characteristics of Private Ponds in Oklahoma

The plurality of ponds in Oklahoma are one acre or less (39%) while only 5% of pond owners own a pond over 10 acres. Pond size did not follow any geographical pattern. Size varied in that YSOF list respondents had significantly more respondents than farm pond stocking list respondents stating their ponds were less than one acre ($p < 0.05$). Thirty percent of respondents stated that they do not actively manage their ponds. Of those that do manage their pond, we asked how long they had been actively managing and it was spread across age categories. The plurality selected 16 years or more (18%) followed by 16% who have been managing 2 years or less and 16% said 3-5 years, lastly, 13% said 6-10 years. Farm pond stocking program participants were significantly more likely than YSOF list participants to NOT select 'I do not actively manage my pond' ($p < 0.05$).

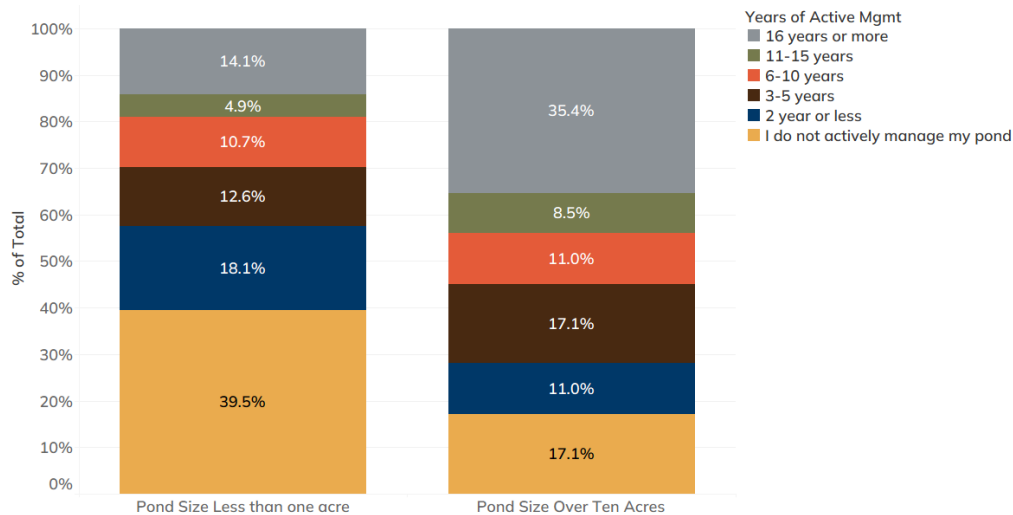


Figure 2: Years of active management by pond owner by size of pond

Respondents reported both what their home zip code is as well as the zip code of their pond. Twenty-eight percent of respondents reside in the same zip code as the pond that they own. Of those that wrote in different counties, we analyzed the distance between the two zip codes by measuring between the centroids of the zip codes and the direct distance. On average, respondents reside 59 miles away from their ponds.



Final Zip Code Responses: Pond & Home Distances by Zip Code Centroids

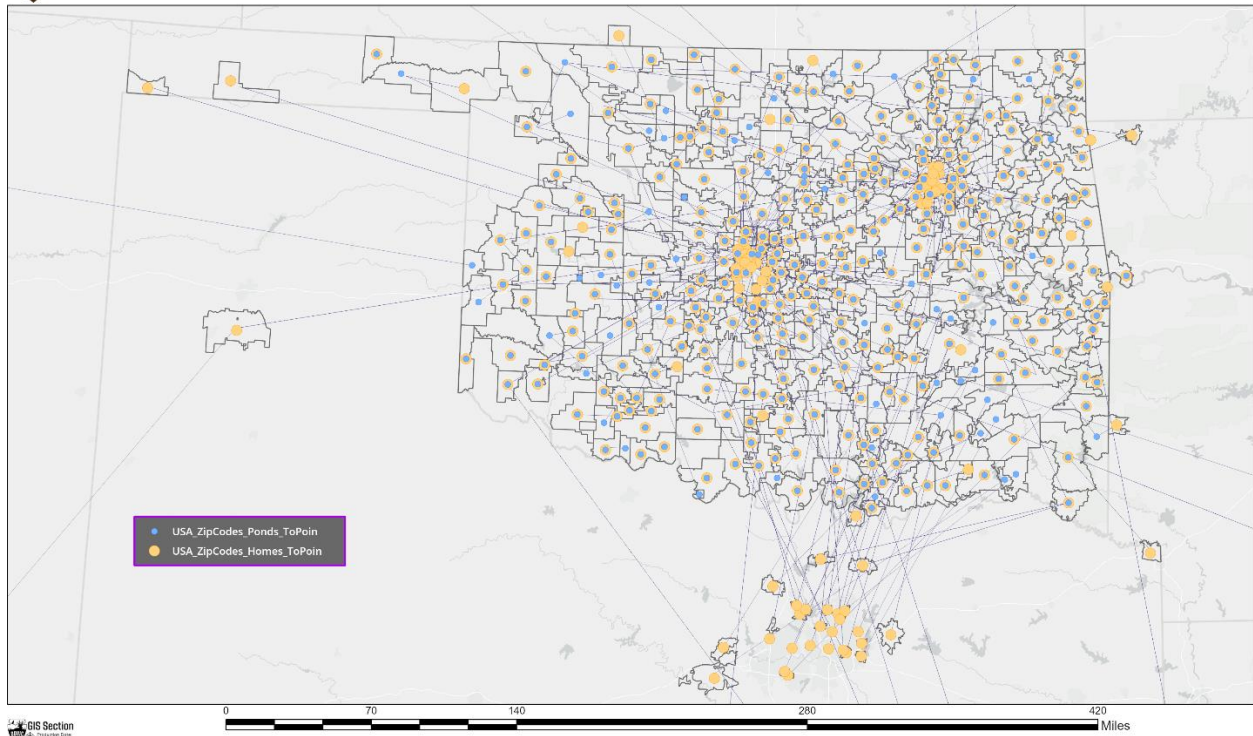


Figure 3: Location of home zip codes (yellow dots) and zip code of pond location (blue dots) with distance calculated between the two.

Use of Ponds in Oklahoma

We presented pond owners with a list of ways in which they may use their ponds and asked them to what extent the reasons are important or unimportant to them. The reason selected most often as why people felt their pond is important was for recreational fishing (50% selecting very important), as a water source for wildlife (50% very important), interest in wildlife watching (43% very important) and as a water source for livestock (40% very important). Water source for crops was selected as not important at all by 68% of respondents. Importance level in all categories increased for larger ponds.

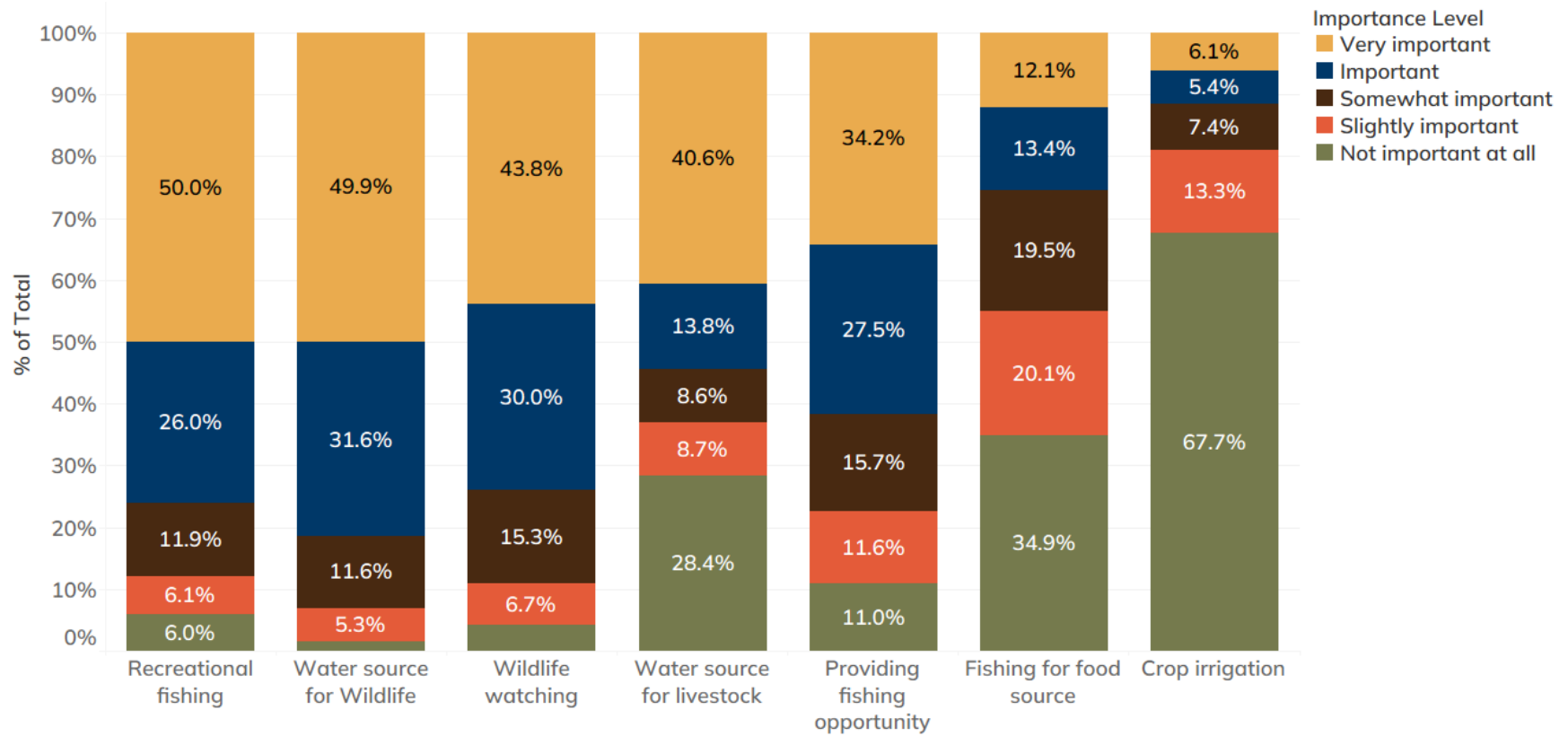


Figure 4: Importance level by reasons to have a private pond

Use of and Satisfaction with Private Pond Technical Assistance Program

Only 21% (316 participants) of respondents had ever reached out to ODWC with questions about their private pond. This varied by respondent list with farm pond stocking program participants using technical assistance at a rate of 46.2% and YSOF list participants using assistance at a rate of 13.1%. Forty percent of those who had received assistance had not used on-site visits. In terms of aspects of the program, people were most satisfied with free pond stocking and a quarter of respondents were neutral on their feelings about our online resources. Effectiveness of assistance was consistent across types of assistance received.

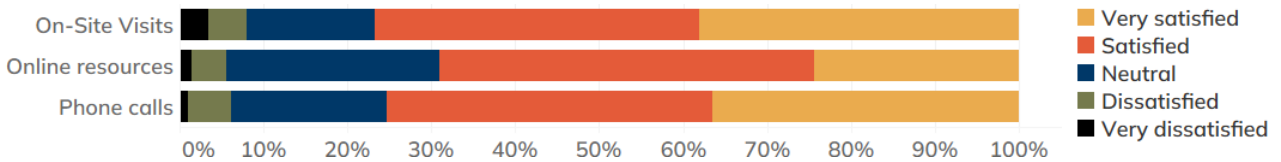


Figure 5: Satisfaction level with various aspects of the technical assistance program

We asked respondents in what way they would most prefer to receive technical assistance information. The most popular answer was online how-to's followed by online articles and in-person visits from ODWC. As online avenues took the top two spots, and this is the area in which the most improvement could be made for current satisfaction, this would be where we should focus our initial efforts.

Respondents felt that they would like the most information about dealing with pond weeds, alleviating pond muddiness and trophy fish management. These results are similar to a 2020 study conducted by Oklahoma State University pond management extension specialist Marley Beem. In that study he surveyed pond professionals across Oklahoma and asked what these professionals receive the most calls about. Pond weeds topped the list as the most frequent pond problem expressed by the public.

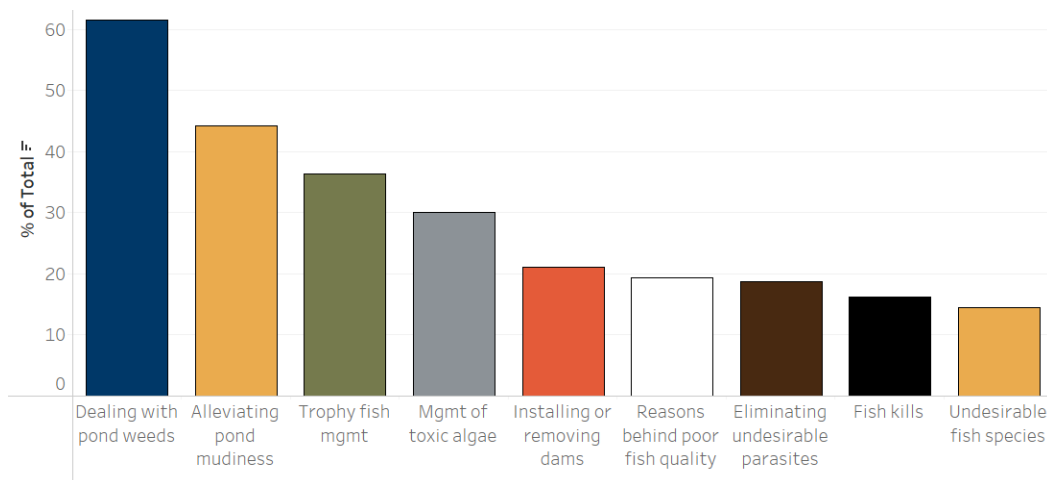


Figure 6: Percent of respondents selecting each of the proposed issues that they have as a pond owner

For those who hadn't reached out to ODWC for assistance, 74% of respondents said that they were not aware that ODWC provided this assistance. This creates a large opportunity for us to communicate about the assistance that we provide while also creating a large group of people that may use the service if they

knew about it. This brings into consideration our internal capacity issues with assisting more of our constituents.

Stocking of Private Ponds in Oklahoma

We asked all respondents if they stock their pond with fish either from ODWC, a private company and/or a public waterbody. Sixty-one percent of respondents had stocked their pond. Thirty-nine percent of those used ODWC as their resource. This differed by list surveyed with 52% of YSOF respondents having stocked. Senior license holders stocked their pond at a slightly higher rate (67%) than annual/5-year (61%) and lifetime license holders (62%). Interestingly, when asked what year they stocked their pond, the most often selected answer was 2020 (9% of respondents). This may be due to the pandemic making people want to recreate closer to home.

On average, pond owners reported fishing an average of 29.16 days at their ponds per year. By comparison, respondents reported fishing on average 21.41 days on public waters per year. This equates to an average of 65.7% of all days fishing reported are done at private ponds. This varied slightly by who the pond owner stocked from with non-ODWC stocking equating to 63.1% of days fished at a pond compared to those who stocked with ODWC spending 70.0% of their total fishing days at private ponds. For context, on the 2014 angler survey, the average number of days fishing was 31, in 2019 the average was 36 days fishing. When asked what those who fish at their pond would do if their pond were no longer available to fish at, 25% of respondents solely selected that they would not fish at all. Of the 75% remaining (n=588), they were able to select either that their anglers would fish public water, other private ponds, or both. Forty-nine percent selected a different private pond and 65% selected public waters (28% selecting both). These percentages were consistent when breaking down by what entity stocked their pond (ODWC vs. private vs. self).

When asked who fishes their private ponds, on average, owners reported that 5 non-immediate family over the age of 16 fish, 5 immediate family over the age of 16 fish, and 7 people under the age of 16 fish. The average total number of anglers per pond was 16.35. As private ponds are seen as a recruitment tool, if we look at the average proportion of people under the age of 16 that are using these ponds, 38% of users are under the age of 16 (non-licensed immediate family make up on average 37% of users and licensed non-family make up 25% of users). The proportion of children is slightly less for ponds stocked by ODWC with 35% of anglers on ODWC stocked ponds being under 16 and 39% of anglers on non-ODWC stocked ponds being under 16. I also analyzed these numbers by resident pond owners compared to non-resident pond owners and resident pond owners had more average anglers across every category compared to nonresident pond owners.

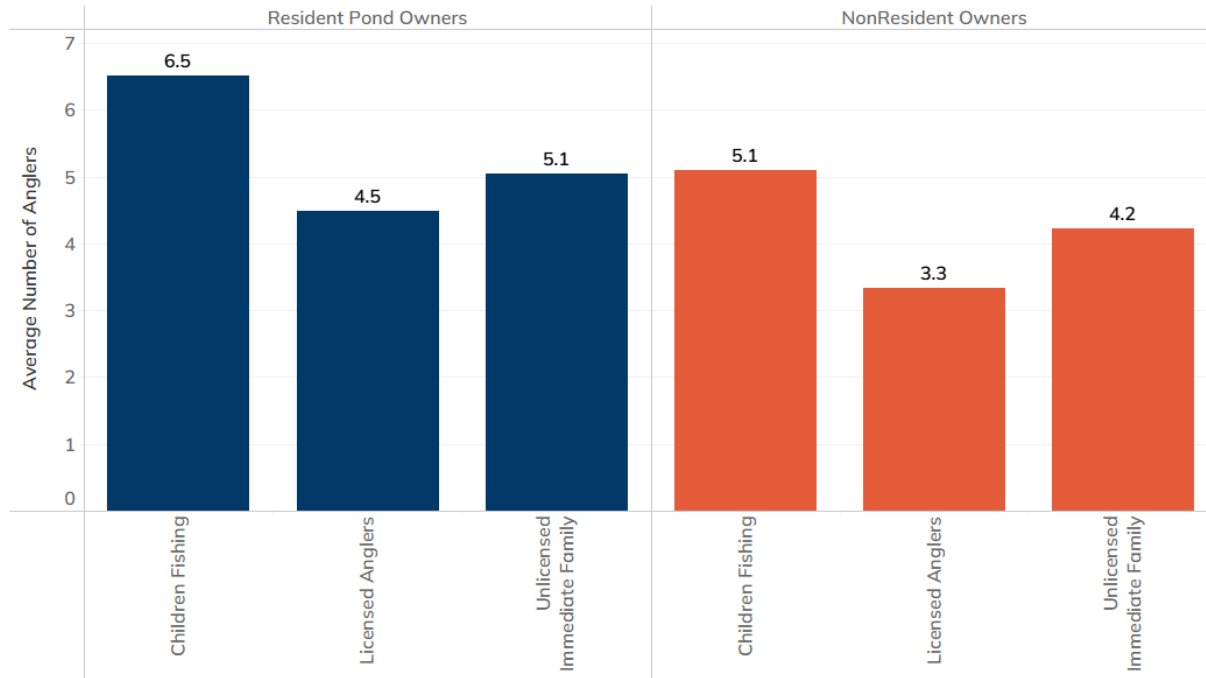


Figure 7: Average number of different groups of anglers at resident owned private ponds compared to non-resident owned ponds in Oklahoma.

Use of ODWC Farm Pond Stocking Program vs. Private Companies

Thirty-nine percent of respondents that had a stocked pond stated that it had been stocked by ODWC (61% stocked from either a private company or another water source). We asked those that had not stocked from ODWC why they decided to stock from a different source. The only reason that had any significant influence was that they were not aware of the possibility to receive fish from the Wildlife Department. This is another aspect of the technical assistance program that if advertised and communicated to a broader audience could be popular but depends on the capacity of the fisheries division to provide this service.

Table 1: Rate at which each of the proposed reasons were influential on the respondent choosing to not use ODWC to stock their pond

	Not at all influential	Slightly Influential	Somewhat influential	Influential	Very influential
Did not like the requirements to stock that ODWC has in place	67%	5%	7%	8%	13%
Preferred larger fish	62%	11%	12%	8%	7%
Wanted a species that ODWC does not provide	84%	5%	5%	2%	4%
Was not aware of the free farm pond stocking program	31%	4%	11%	15%	39%

Respondents stated higher levels of satisfaction with ponds stocked by ODWC than those not stocked by ODWC.

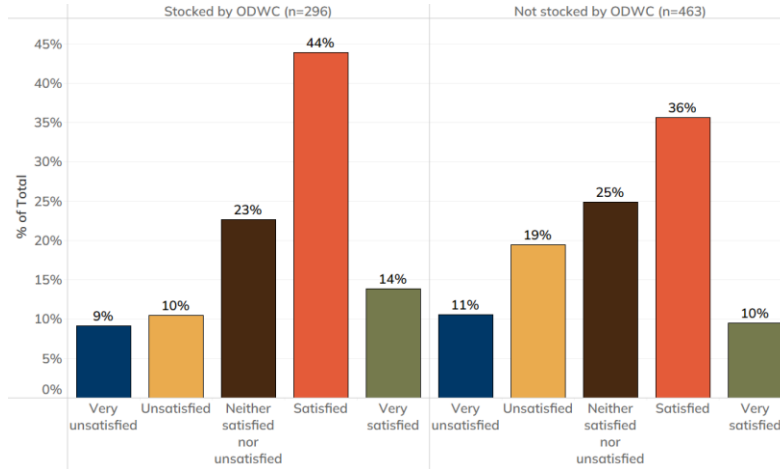


Figure 8: Satisfaction level of fishing quality provided by their pond by whether or not they used ODWC to stock their pond

For those that did stock from ODWC, we asked what they would have done if ODWC did not provide free fish. Sixty-seven percent stated they would have purchased fish from a private company. Only 15% stated they would not have stocked their pond at all. Those 15% of respondents had the lowest median number of visitors to their ponds and the lowest proportion of children that used their pond and the highest proportion of unlicensed adults. This likely means that they are not very avid anglers and avid anglers will stock fish from another source if needed.

We estimate our free fish stocking program would cost about \$337.50 per acre (\$110/acre for largemouth bass, \$65.00/acre for catfish, \$162.50/acre for bluegill) through a private company. We asked anglers what they would be willing to pay for fish if they had to stock from another source. This was a broad question with no qualifier of per acre, per pound, type of fish, or size of fish. People with a pond less than one acre would be willing to pay about what we estimate our services cost. However, people with larger ponds are willing to pay less per acre. The following chart describes the average willingness to pay for fish by the size of their pond with standard error bars depicting the possible spread from the average.



Figure 9: Average willingness to pay for fish to stock their pond based on pond size.

When looking at income level by stocking, those that used ODWC to stock had a higher income level than those that used other sources to stock their ponds.

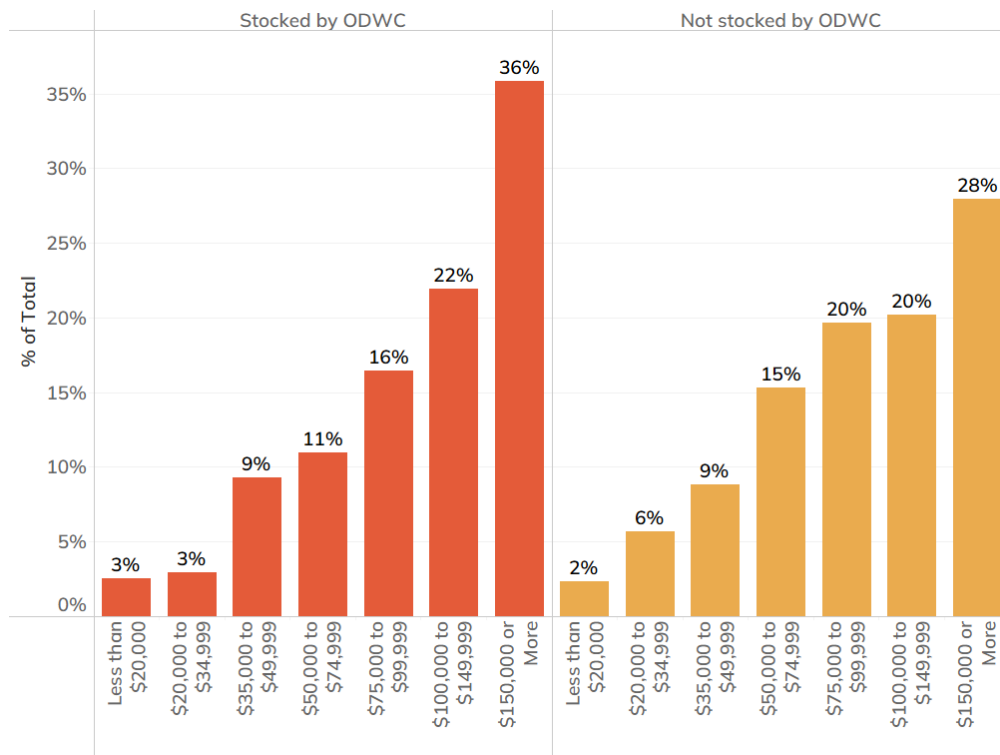
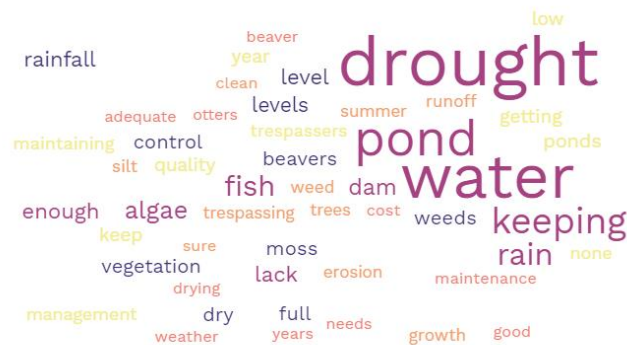


Figure 10: Income level by those who did or did not use ODWC's free farm pond stocking program

Looking at characteristics of those that used the farm pond stocking program, we asked about their pre and post stocking maintenance. Out of all pond owners that stocked from ODWC, 49% stated that they did receive an on-site assessment from an ODWC staff member before stocking. There was no trend determined by looking at year stocked compared to on-site assessment received. Post stocking, 63% are supplying additional forage, 57% are supplementally feeding with a pellet diet, and only 10% are keeping a logbook of harvest. Time and financial input are high for those that stocked from ODWC. Per year, on average, pond owners are spending \$917, and 38 hours.

Open-Ended Feedback

Pond owners were asked what the greatest challenge is they face as a pond owner. The most common response had to do with drought and the difficulty with keeping their pond levels to a sufficient level to maintain fish. Challenges remained consistent when comparing between the two sampled lists of pond owners as well as when comparing those who stocked with ODWC versus a private company.



We also asked what expectations respondents have for their state fish and wildlife agency to assist with pond management. The most often reported answer was that they do not have any expectations of ODWC to assist them. Other common answers were that they would like us to answer questions when called, which is a service we already provide. This may go along with the previous reported response in which people do not know the types of assistance we currently provide and would make much more use of the program if they knew of its existence. Sixty-five percent of respondents stated we are meeting the expectations, if any, that they have of us. For those 35% that we are not meeting their expectations, the most common sentiment as to why we aren't meeting expectations is they feel they should have known about the programs we were asking about. An increase in communication about services offered would increase the feeling that we are meeting expectations.

Suggested Actions

- Determine internal capacity for this program
- Determine return on investment
- If capacity is not sufficient, determine which aspects of the program do not meet programmatic goals
- Once focused on which aspects of the program are moving forward, create communication plans to publicize what is available to private pond owners.
- Consider charging for this service
- Improve online content related to pond management