

# The Role of Private Ponds in Recruiting the Next Generation of Anglers

**Leslie M. Burger**, *Mississippi State University, Box 9690, Department of Wildlife, Fisheries and Aquaculture, Mississippi State, MS 39762*

**J. Wesley Neal**, *Mississippi State University, Box 9690, Department of Wildlife, Fisheries and Aquaculture, Mississippi State, MS 39762*

**Robert D. Lusk**, *Pond Boss Magazine, Post Office Box 12, Sadler, TX 76264*

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*Abstract:* Angling participation has stagnated or declined in many regions, threatening the political and financial support for fisheries management. Angler recruitment programs aim to counteract these trends, but most are public programs targeting public water bodies. There are about 4.5 million small ponds and lakes in the United States, most of which are privately owned. These systems may play a major yet hidden role in angler recruitment. Using an online survey of avid pond owners and managers, we explored the ideas that private waters are providing youth angling opportunities, increasing fishing participation, and contributing to angler recruitment. Survey results indicated that pond owners are engaged in angler recruitment and retention by providing youth fishing opportunities to friends and family beyond that generally available in traditional recruiting events on public waters. About 90% of respondents had at least one child (persons <18 years old) fish their pond in the past year, most of whom were immediate family and children of friends and neighbors. Pond owners and managers actively fished with children on the property as well as took children fishing on other private and public waters. This process of mentoring and activity reinforcement appeared to lead to angler recruitment in that 75% of children who had fished in respondents' ponds continued to fish on their own. Agencies tasked with addressing angler recruitment and retention rates should consider implementing programs that support youth fishing outreach on privately owned ponds and lakes as another tool to combat declining participation rates.

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*Key words:* angler recruitment, angler retention, online survey, children

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Fishing is one of the most popular outdoor recreational activities in the United States. In 2016, 35.8 million people aged 16 years old or older participated in fishing, spending an average of US\$1290 per angler (U.S. Fish and Wildlife Service [USFWS] and U.S. Census Bureau 2017). Expenditures related to fishing represent not only a significant financial influx for local and state economies, they also represent the primary mode of direct fisheries management funding in the United States (USFWS 2000). Anglers are also important to fisheries conservation because they provide vocal political and social support for angling and aquatic resources conservation and management. Most people currently support the right to hunt and fish, even if they do not choose to do so themselves (Responsive Management 2011). However, as anti-fishing sentiment within the non-angling public expands (e.g., Arlinghaus et al. 2012), anglers are increasingly called upon to mobilize against these threats. Unfortunately, angling participation in recent decades has been stagnant or declining in many areas of the United States (USFWS and U.S. Census Bureau 2012). If these trends persist, they could have serious implications for fisheries management programs that depend on anglers for political and financial support. In response, many fisheries management agencies have made angler recruitment, retention, and reactivation (often referred to as R3) a primary goal (e.g., Walsh et al. 2008, Woltmann et al. 2008).

Recruitment of new anglers generally begins at an early age, as more than half of new anglers begin fishing by age 15 (Leonard and Aiken 2015). Concurrent with trends in declining angling participation, the fishing initiation rate for children has been declining nationally. In 1990, 53% of children ages 6–19 years old had participated in fishing, compared to only 43% in 2010 (Leonard and Aiken 2015). A number of directed public programs have been created to target youth and underrepresented populations (Eades et al. 2008), as well as casual anglers that lapse from the license data base (DiCenzo 2016). Although there has been a recent uptick in angling participation (USFWS and U.S. Census Bureau 2017), it is not yet clear if R3 efforts are responsible.

One potential recruitment mechanism that has not been explored is the role of private pond owners in exposing youths to fishing. There are an estimated 4.5 million ponds and small lakes ( $\leq 40$  ha) in the continental United States, and the vast majority are privately owned (Willis and Neal 2012). These systems can provide quality fishing and support angling opportunities. In fact, small ponds usually support substantially greater fish density than public waters (Willis and Neal 2012), offering better fishing quality and higher catch rates for novice anglers. A past survey indicated more than one-third of all adult anglers fish annually in these systems (USFWS and U.S. Census Bureau 1993). However, current data on angling activity on private waters are limited, and it is un-

clear what impact private systems may have on the recruitment of new anglers. Therefore, we conducted a preliminary exploration of the role of private waters in providing youth angling opportunities, increasing fishing participation, and contributing to the recruitment of new anglers.

## Methods

### Survey Instrument

An online survey of pond owners and managers was conducted using directed questions regarding youth angling access to private waters and the role of pond owners in encouraging youth angling. We developed a 33-item, multiple-choice survey instrument designed to minimize time burden to participants and increase completion rates. The survey was designed to assess number and use of privately-owned ponds by anglers, describe demographic characteristics of the survey participants, and determine participants' role in recruiting children to use these ponds. For this survey, children were defined as persons less than 18 years old. Example questions included: "Who is allowed to fish in the ponds you own, lease, or manage?"; "Approximately how many children fished in your pond(s) last year?"; "Are there any children currently living in your household?"; and; "If you have ever taken children fishing, what was their relationship to you?" One open-ended question prompted respondents to share comments about children and fishing. We conducted the survey using Qualtrics, an online survey software program.

### Sampling Universe

The survey instrument targeted avid pond owners who actively managed their ponds for quality fishing opportunities. 'Avid' was defined as those who actively seek information via pond management media or online discussion groups, or regularly purchased fish feed from commercial producers. To reach these individuals, we published an advertisement for the survey in Pond Boss Magazine, a bi-monthly publication (4200 subscriptions) dedicated to helping readers care for their private ponds and lakes. We also linked the survey to the Pond Boss webpage (10,000–15,000 unique visitors per month), discussion forum (approximately 14,600 members), and Facebook page. A survey invitation was also sent to those on the Pond Boss email list of 5000 valid addresses. In addition, a major fish food company placed an advertisement for the survey on a targeted Facebook page with an audience of approximately 50,000 people. Those who purchased fish food from this company were also invited to participate in the survey via another mailing list server with an estimated 20,000 email addresses.

Given the survey distribution methods, responses could have been solicited from individuals who did not own, lease, or manage

ponds or small lakes or from those associated with aquaculture facilities that did not allow recreational fishing. To prevent bias from non-target participants, the survey questions and structure were designed to remove these individuals early in the survey process. The survey was available during 20 June–1 September 2016. Two email reminders were sent at approximately one-month intervals to recruit greater participation.

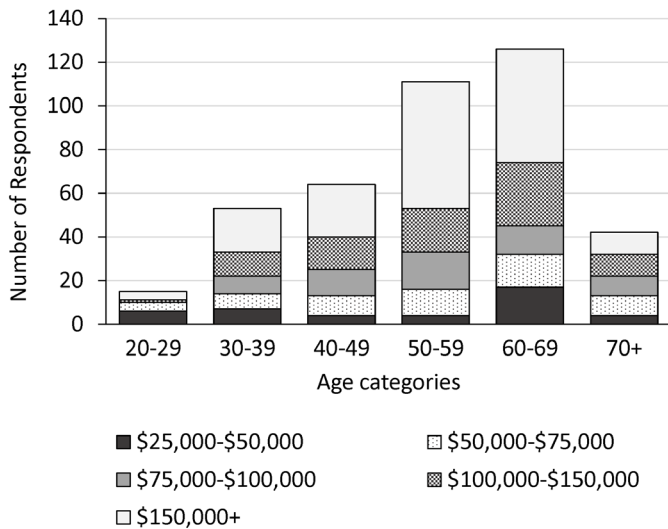
Our target population was pond owners engaged in active management that sought information or management resources from one or more of our target sources. Because survey participants were self-selected and voluntary respondents, our sampled population is not random and the degree to which it represents the target population is unknown, thus we restricted our inferences to respondents.

## Results

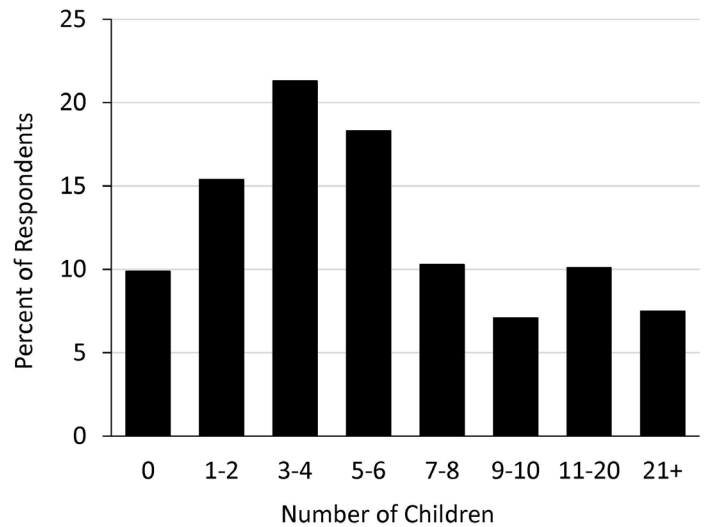
A total of 731 responses were obtained in the nearly 10 weeks the survey was available. Surveys that were unfinished ( $n=166$ ) or from those who did not own, lease, or manage ponds or small lakes ( $n=48$ ) were removed from the data set. Data from 8 of the 13 surveys from aquaculture enterprise owner or managers were removed because recreational fishing was disallowed. Sample statistics on the remaining 509 survey responses were determined using IBM Corporation SPSS Statistics for Windows, Version 24.

The majority of survey responses came from individuals who replied to an email invitation (56%) or a Pond Boss magazine advertisement (26%). The remaining responses came from those who encountered the survey opportunity via a website (9.7%), discussion forum (3.8%), or multiple venues (4.2%). Residents of 36 states participated in the survey, with most replies coming from Texas (operations base for Pond Boss, 28%), followed by Illinois (6.7%), Ohio (5.4%), Oklahoma (4.9%), and Louisiana (4.9%). The majority of survey respondents were male (94.1%) and white (97.8%); most (75.5%) were currently employed, and the remainder were retired. Most respondents were between the ages of 40 and 70 years old, and individuals with annual household incomes of \$100,000 or more comprised the majority of most age groups (Figure 1). Most were well-educated and held post-secondary degrees (associate's: 11.6%; baccalaureate: 40.0%; master's: 14.5%; doctoral: 12.4%). Only 4.1% of survey participants leased ponds or small lakes owned by others; the rest had their own. More than half (55.2%) had just one pond or lake. Fewer respondents had two or three ponds (19.3% and 10.7%, respectively), and the remainder owned four or more ponds.

Survey participants commonly used their water resources in support of youth angling. About 90% reported at least one child fished in their pond in the past year, and approximately 7% of re-



**Figure 1.** Age and income brackets of participants ( $n = 509$ ) in an online survey of avid pond owners and managers.



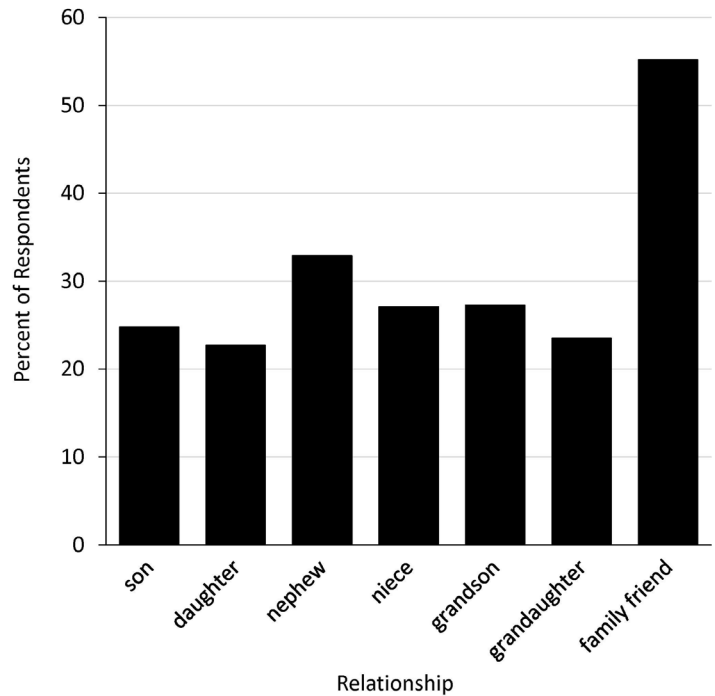
**Figure 2.** Number of children less than 18 years old who fished in the past year in ponds owned or leased by participants in an online survey of avid pond owners and managers ( $n = 509$ ).

spondents indicated they allowed more than 20 children to fish (Figure 2). A majority (55%) allowed friends’ children to fish their pond, as well as family members including nieces/nephews (30%) and grandchildren (25%). Surprisingly, 10.8% used their waters to host youth fishing events such as fishing derbies.

Respondents were asked to record the number of times they personally took a child fishing in the past year, and the open-ended structure of the survey item yielded a wide variation in responses. For example, there were eight cases in which the number of recorded fishing trips with children exceeded 40 trips in the past year. Overall, 94% of respondents personally took a child fishing on their pond in the past year, with a mean of 12.50 ( $SD = 12.52$ ) trips reported. Survey respondents’ angling interactions with children extended beyond their own private waters. Nearly one-fifth (18.9%) of respondents reported taking a child fishing on private ponds other than their own in the past year, and reported a mean of 5.20 trips ( $SD = 5.64$ ). A slightly higher percentage (28.7%) of survey participants took children fishing on public waters an average of 5.15 trips ( $SD = 7.43$ ) in the past year.

When asked about all angling activity with children, respondents indicated their most frequent young fishing partners were family friends (Figure 3). Male relatives were taken fishing an average of 9% more frequently than female relatives. Three-fourths of children who were taken fishing by a survey participant continued to fish on their own, either as a youth or an adult; however, 17.1% of survey respondents did not know whether the children that fished their ponds continued to fish. Only 7.3% reported no continued angling by these youth.

Open-ended comments from respondents unanimously ex-



**Figure 3.** Relationship of avid pond owners and managers to the children less than 18 years old that they have taken fishing. Percentages exceed 100% because more than one relationship category could have been selected ( $n = 509$ ).

pressed support for youth angling and the need for recruiting new anglers. Several respondents reported that their pond construction and management was directed towards youth fishing. For example, one respondent wrote, “I’m currently building a 10-acre lake on my land and plan to take many kids fishing” while another stated “I care for my fishing pond with future family in mind.” One

respondent demonstrated the recruitment potential of private waters by commenting “Watching a child fish is an amazing feeling ... now my four daughters regularly take their children and their young friends fishing to pass on the joys.” Another expressed the value of angling to society, stating “Kids being outdoors helps everyone’s future!”

## Discussion

Our goal for this survey was to determine whether actively managed private waters and avid owners are contributing to angler recruitment and retention. Outcomes of the exploratory online survey appear to support this premise. Participating pond owners provided angling access to their own children and children of friends and family, as well as repeatedly engaged in fishing with the youths themselves. Most survey respondents reported that children who fished in their privately-owned ponds have continued fishing on their own, implying that youth were recruited and retained through the efforts of survey participants. However, it was beyond the scope of this study to determine if these anglers purchased fishing licenses and thus added to revenues of state fishing agencies.

Survey participants provided a wide range of responses to the questions about the number of fishing trips taken with children. Seemingly excessive values may have resulted from inflation due to recall or prestige bias (e.g., Hartill et al. 2012), or they may be accurate data that reflect respondents’ generally greater discretionary income, older-adult lifestyles, and access to private fishing venues. Although this uncertainty may have caused an overestimation of the annual mean number of fishing trips in this study, the median trip number of 10.1 yr<sup>-1</sup> indicated that avid pond owners are still highly engaged in mentoring children in angling. Future studies along this line of research should consider survey methods that allow respondents to be more accurate in their reported trips.

The apparent recruitment and retention of anglers associated with fishing with avid pond owners may result from the presence of family fishing socialization agents, in particular, close family and friends (Dann 1993, Freeman and Zabriskie 2002). Cordell (2010) reported youth were most often introduced to outdoor recreation by their parents and close friends. These personal connections, familial ties, and personal mentoring may form stronger, more positive associations with angling (Ewert et al. 2005) than what would be possible through public water outreach events staffed with agency personnel with limited one-on-one interaction. Pond owners can also provide more frequent exposure to angling than that associated with one-time recruiting events such as fishing derbies. Regular access to ponds owned by family or friends offers greater fishing opportunities and may be supporting retention.

Because adolescent leisure activities are predictive of adult leisure activity (Yoesting and Christiansen 1978, Scott and Willits 1998, Wells and Lekies 2006), repeated engagement of youth in angling activities may increase the likelihood of continued participation into adulthood.

A survey conducted by The Nature Conservancy indicated that youth having meaningful experiences in nature are more likely to be environmentally engaged, including spending time outdoors and supporting environmental protection over economic development (The Nature Conservancy 2011). However, that survey and others (e.g., Culp 1998, Larson et al. 2011) reported that lack of access was an important obstacle to engaging youth outdoors. Because many people living in the southeastern United States live close to one or more small ponds, private pond owners are able to remove this barrier if they choose, opening the way for young people to have meaningful outdoor experiences that may translate into political, recreational, and social support for angling in later life.

However, we noted that gender may be another potential barrier to youth angling. Whether an unconscious bias in pond owners or personal preference in children, more male children were taken fishing by pond owners. This may have important implications to future angler recruitment with the increase in percent of single-mother households, especially for Black and Hispanic children who were more likely to live with one parent than white or Asian children (Vespa et al. 2013). Mothers who did not fish as children may be less likely to take their own children fishing. Private pond owners as well as public fisheries managers should intentionally engage female children and women to improve future angler participation rates.

This study was designed to broadly gather data of an exploratory nature. Based on the apparent patterns revealed in this project, future studies using a statistically rigorous survey instrument are warranted. However, our results highlighted an overlooked opportunity for recruitment. Participants in this survey were primarily well-educated, computer-literate, white males over the age of 50 with incomes in excess of \$100,000 and who owned their own pond or lake property. Targeting these avid pond owners, who may have the financial, social, and land resources to contribute to state-sponsored R3 efforts, may yield positive local outcomes. Given the number of private ponds and lakes and the long-term R3 potential that exists through the efforts of avid pond owners, state resource agencies tasked with managing fisheries should partner with private pond owners to develop outreach programs that support youth fishing on private waters as a mechanism to build local support for fishing. If only 10% of ponds in the United States recruit just one new angler each year, 450,000 new anglers would be added annually.

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