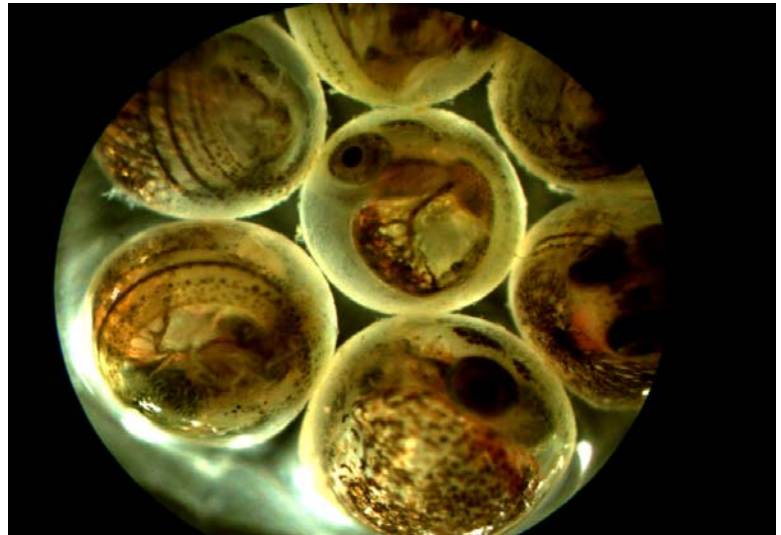


Cocahoe Minnow Survey Report



By

Christopher Green, Julie Anderson, Craig Gothreaux, and Sunny Brogan

LSU AgCenter-Aquaculture, Louisiana SeaGrant,
and Louisiana Department of Wildlife and Fisheries

September, 2010

Introduction

Live baitfish for saltwater angling is typically a seasonally available commodity due to the reliance in wild-caught animals. Of particular importance is the Gulf killifish, *Fundulus grandis* or cocahoe minnow, which is popular for many sportfish species within the Gulf of Mexico. Cultured cocahoe minnows could help supplement the wild-caught baitfish supply, thus serving as a viable revenue source for producers. The cocahoe minnow was selected based on several characteristics. First, there already exists a high demand by anglers, and second, wild-caught supply is seasonal resulting in low availability at times throughout the year. Finally, cocahoes are easy to spawn, and the young are relatively easier to handle from hatch compared to other minnow species.

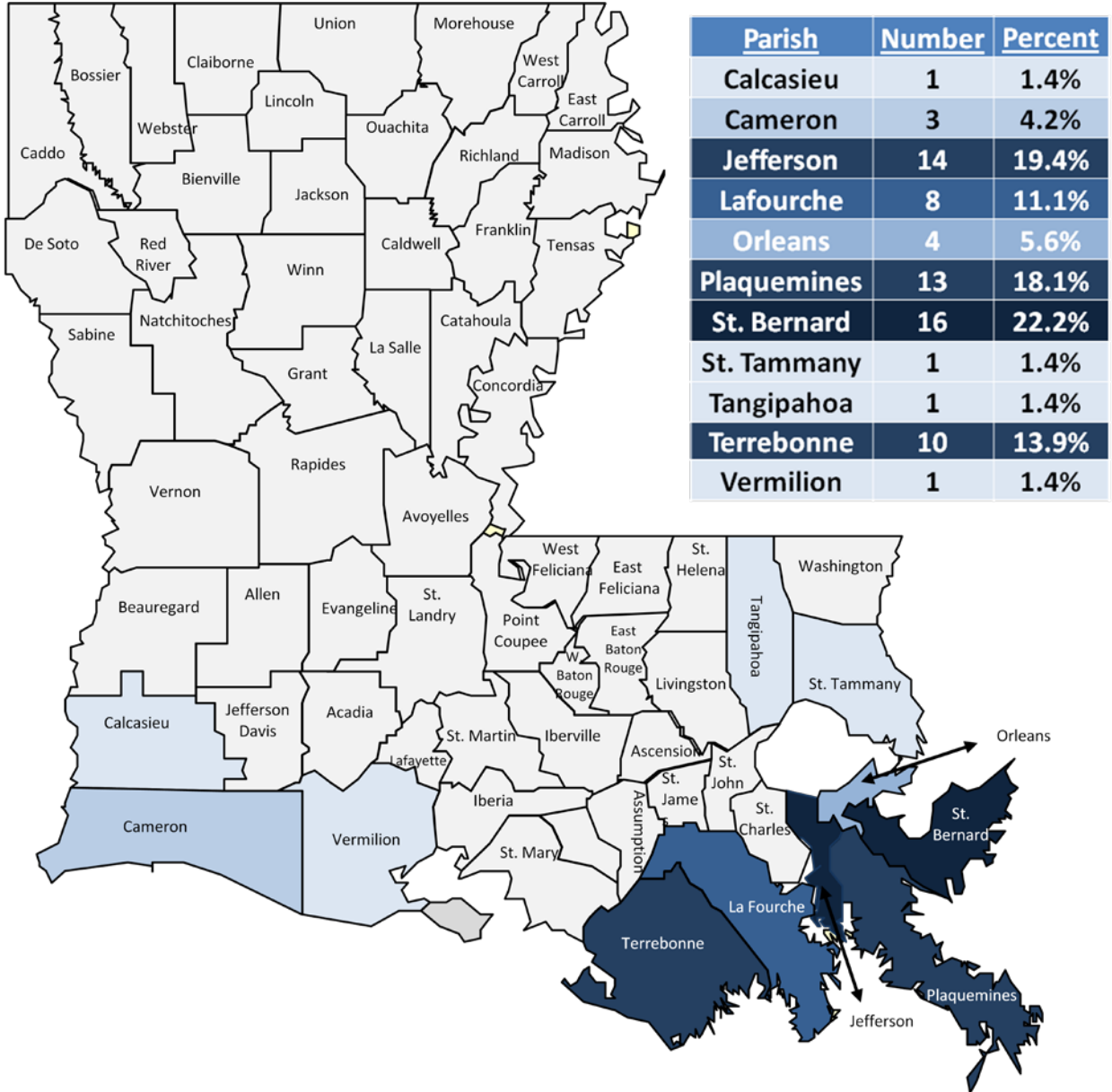
Staff from the LSU AgCenter, in conjunction with Louisiana Sea Grant, and especially with the help of Dr. Jack Isaacs from the Louisiana Department of Wildlife and Fisheries (LDWF), produced a survey titled "Growing Cocahoe Minnows for Bait". The goals of this survey were to: (1) identify interest, (2) identify site quality and capacity, (3) estimate market, (4) determine workshop format, and (5) create awareness of our activities.

This survey was mailed to 72 bait dealer license holders and marina owners in Louisiana. The survey was designed to get input from the bait dealers and marina owners in order to expand the research and outreach details of the project to best fit their needs. Over 50% of the surveys were completed and returned, indicating a high level of interest in the program. Additionally, surveys were distributed to other parties that expressed interest, of which six more completed surveys were received.

The following report is a summary of the responses from the survey (n=42). The report begins with graphs and tables illustrating the location of where surveys were mailed, and where the respondents are located. The subsequent format consists of questions from the survey (in shaded box) followed by a graphical and textual representation of the responses for that question. The last section of the report contains a summary of information gained from the survey, as well as the past actions and current state of the cocahoe minnow culture project.

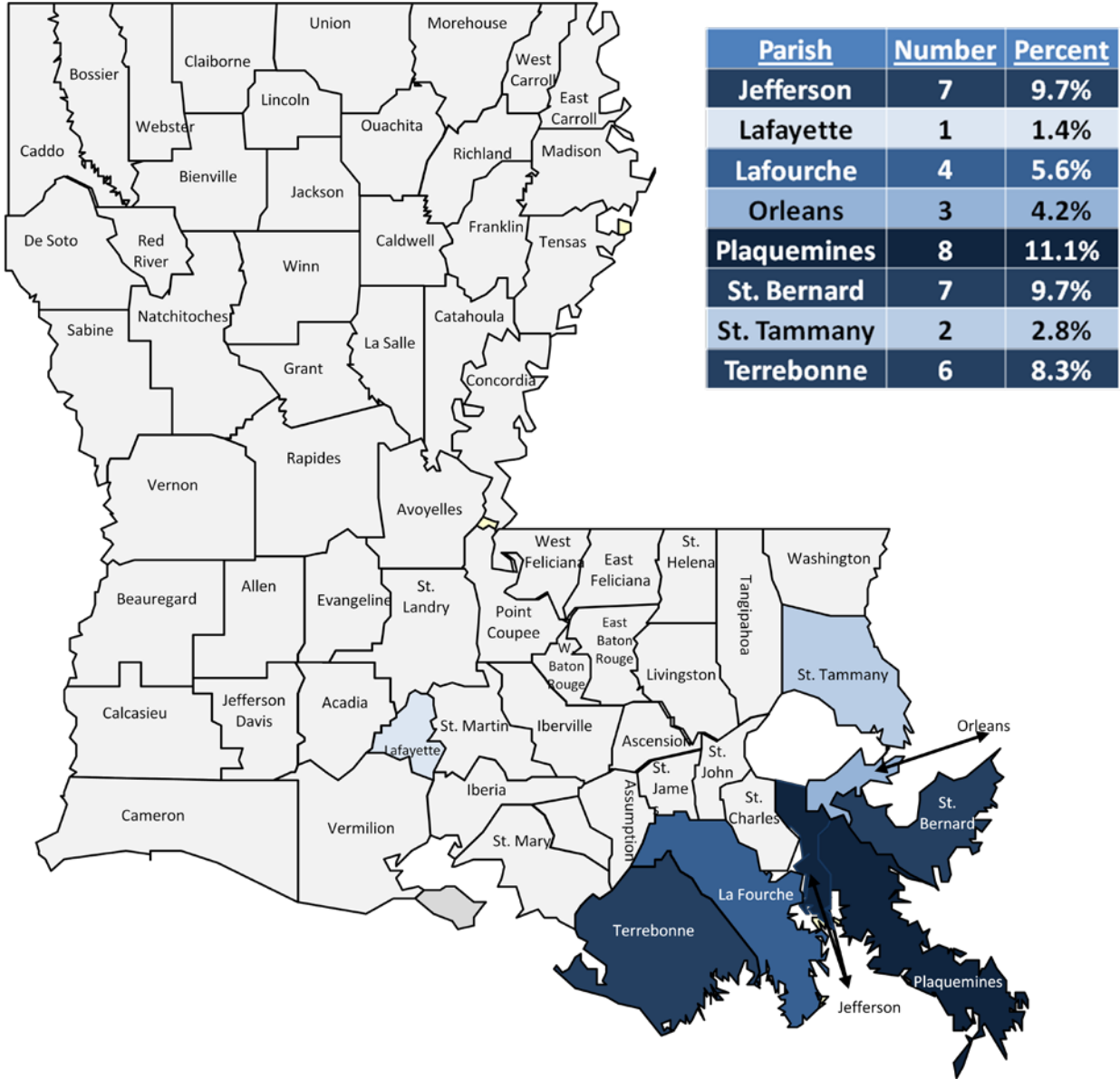
Growing Cocahoe Minnows for Bait – 2009 Survey Questionnaire

Parishes Where Surveys Were Mailed



Growing Cocahoe Minnows for Bait – 2009 Survey Questionnaire

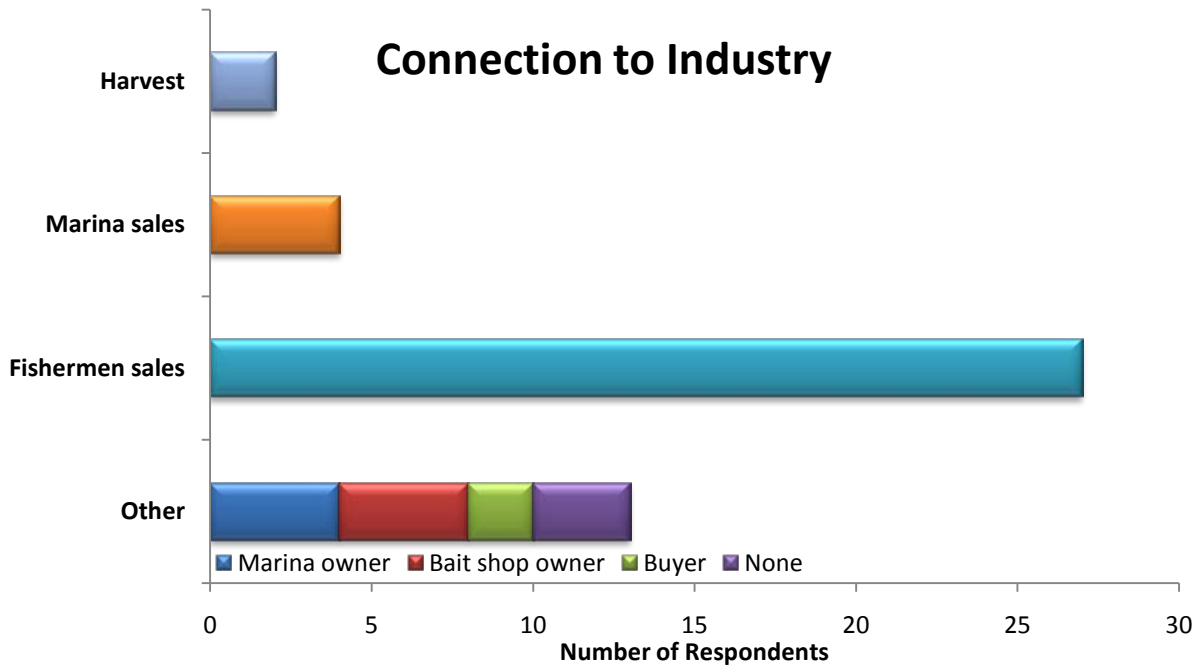
Parishes Where Surveys Were Received



Growing Cocahoe Minnows for Bait – 2009 Survey Questionnaire

1. How are you connected to the live bait industry (circle all that apply)?

- a. Harvest
- b. Sales to marinas/bait shops
- c. Sales to fishermen
- d. Other: _____

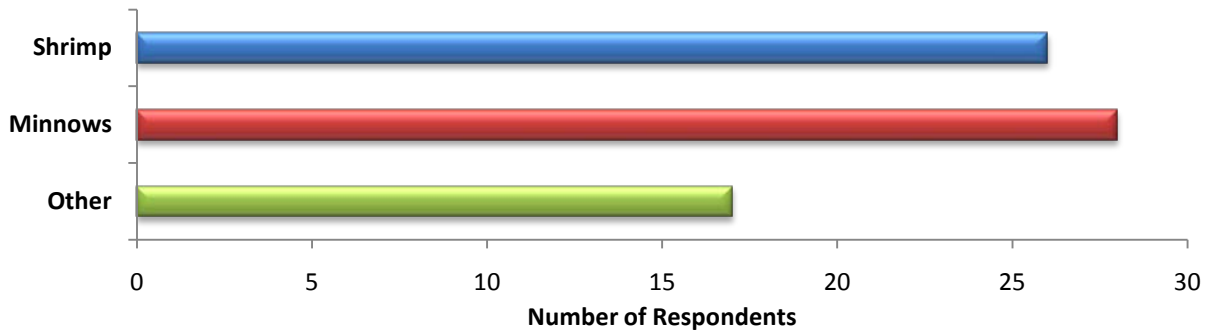


Of the survey respondents, the majority were involved with sales of live bait to fishermen (n=27). The next highest response was “other”, which was comprised of four replies: marina owner (n=4), bait shop owner (n=4), live bait buyer (n=2), no connection (n=3). Few respondents sold to marinas or bait shops (n=4). The lowest response was live bait harvesters (n=2).

Growing Cocahoe Minnows for Bait – 2009 Survey Questionnaire

2. If you sell live bait, what types do you sell (circle all that apply)?
- a. Shrimp
 - b. Minnows (Please list types: _____)
 - c. Other: _____

Types of Bait Sold



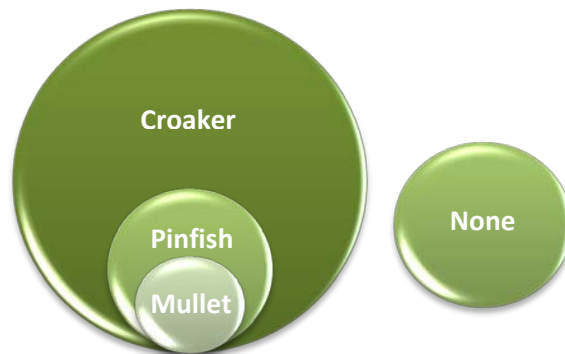
Of the respondents, the majority sell minnows (n=28), which is closely followed by live shrimp (n=26). Of these, 22 sell both live shrimp and minnows, with 4 only selling shrimp and 6 only selling minnows.

Sell Minnows



Of the 28 respondents that sell live minnows, 17 provided the type of minnows sold. All 17 of them sell cocahoe minnows, and 5 also sell storm minnows.

Sell Other



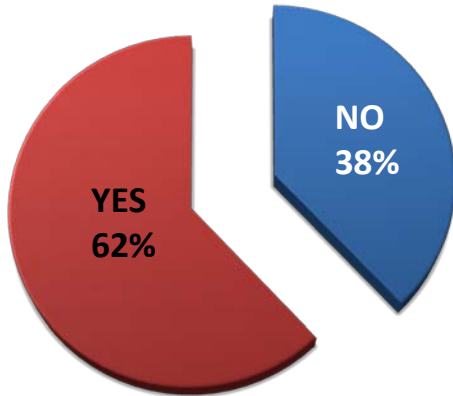
Of those that responded "other" (n=17) a few do not sell live bait (n=5), while the rest sell croaker (n=12); two of these sell pinfish, and one also sells mullet.

Growing Cocahoe Minnows for Bait – 2009 Survey Questionnaire

3. Do you currently sell live cocahoe minnows?

- a. Yes
- b. No (If no, proceed to question 6)
- c.

Sell Cocahoe Minnows

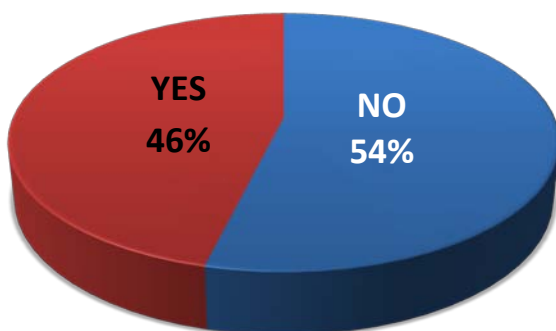


Of the 42 total survey respondents, all answered question 3; 26 currently sell cocahoe minnows (62%) while 16 do not currently sell cocahoe minnows (38%). Those that answered yes to question 3 proceeded to answer questions 4 and 5.

4. If your answer to question 3 was "Yes", are you able to get enough cocahoe minnows during the year to meet the demand at your business?

- a. Yes
- b. No

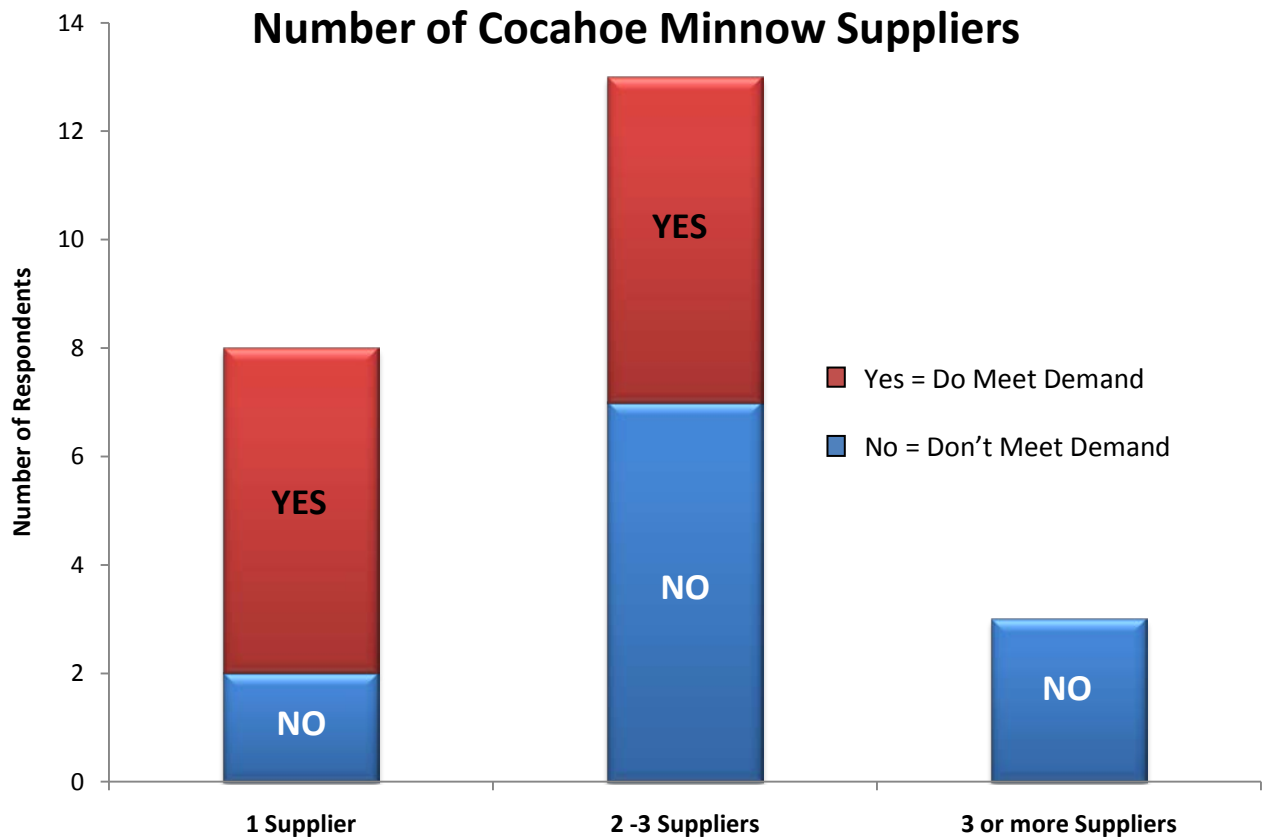
Able to Meet Demand for Cocahoes



Of the 26 respondents that currently sell cocahoe minnows, over half (54%) are not able to get enough cocahoe minnows throughout the year to meet demand.

Growing Cocahoe Minnows for Bait – 2009 Survey Questionnaire

5. If your answer to question 3 was "Yes", how many suppliers do you usually use?
- a. 1
 - b. 2-3
 - c. More than 3

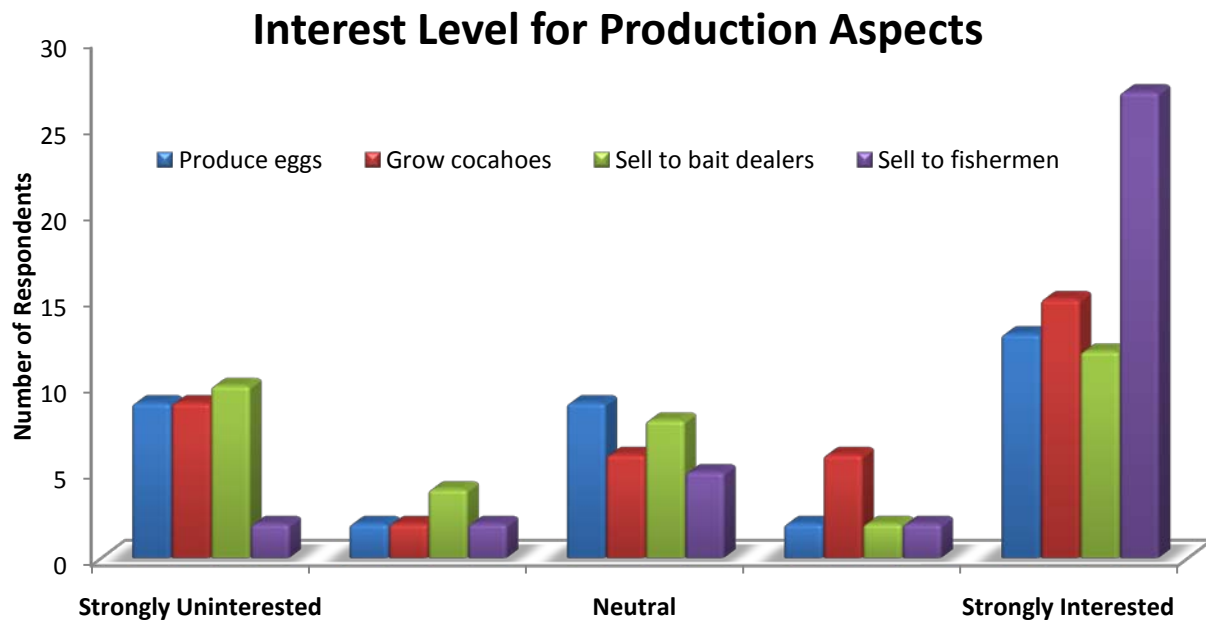


Of the 26 respondents that currently sell cocahoe minnows, 24 answered question 5. The majority (n=13) use 2 to 3 suppliers; however, over half (54%) are still not able to meet their demand. For the respondents that only use 1 supplier (n=8), the majority (75%) are able to meet their demand. All of the respondents that use 3 or more suppliers (n=3) report that they are not able to meet demand.

Growing Cocahoe Minnows for Bait – 2009 Survey Questionnaire

6. Please indicate your level of interest in aspects of cocahoe minnow production by circling the corresponding number:

Cocahoe Production	Strongly Uninterested		Neutral		Strongly Interested
Producing cocahoe eggs	1	2	3	4	5
Growing cocahoe minnows	1	2	3	4	5
Selling cocahoe minnows to bait dealers	1	2	3	4	5
Selling cocahoe minnows to fishermen	1	2	3	4	5

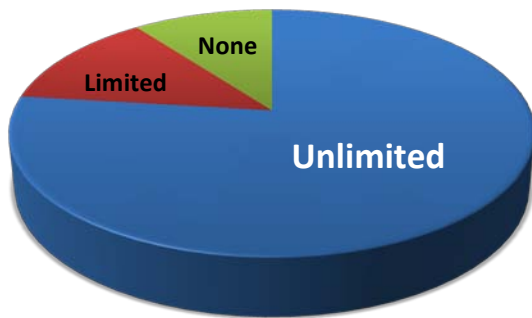


Of the respondents to producing cocahoe eggs (n=35), a slight majority was strongly interested compared to uninterested or neutral. For respondents to growing cocahoe minnows (n=38), more were strongly interested compared to uninterested or neutral. While the same trend held, there difference for respondents to selling cocahoes to bait dealers (n=36) was less pronounced. The vast majority of respondents to selling cocahoes to fishermen (n=38) were strongly interested.

Growing Cocahoe Minnows for Bait – 2009 Survey Questionnaire

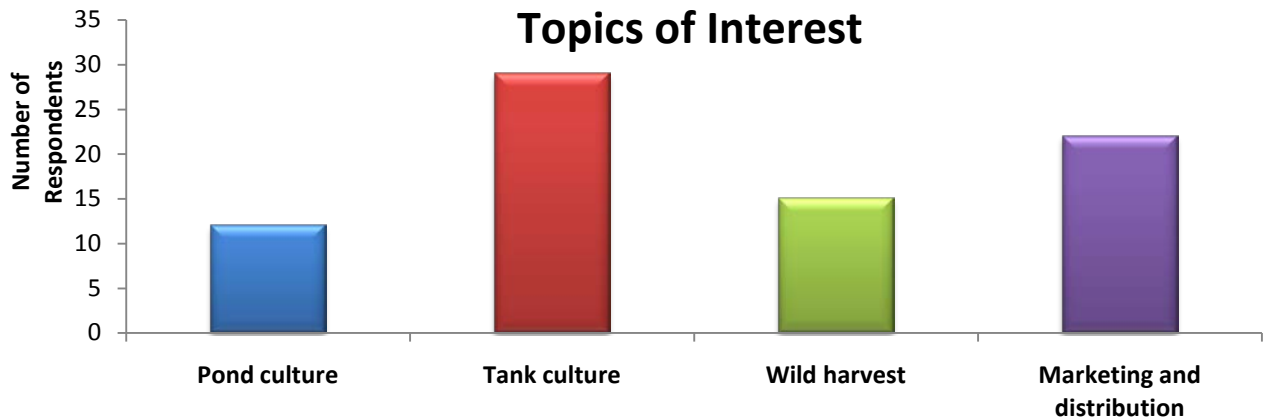
7. *What is your current access to salt water for production of live minnows?*
- Unlimited access*
 - Limited or intermittent access*
 - No access*

Access to Salt Water



The majority (n=31) of respondents to question 7 (n=39) have unlimited access to salt water. A smaller number of respondents report they have limited access (n=5), or no access to salt water (n=4).

8. *Please indicate topics on cocahoe minnow production that might interest you (circle all that apply):*
- Pond culture*
 - Tank culture*
 - Wild harvest*
 - Marketing and distribution*

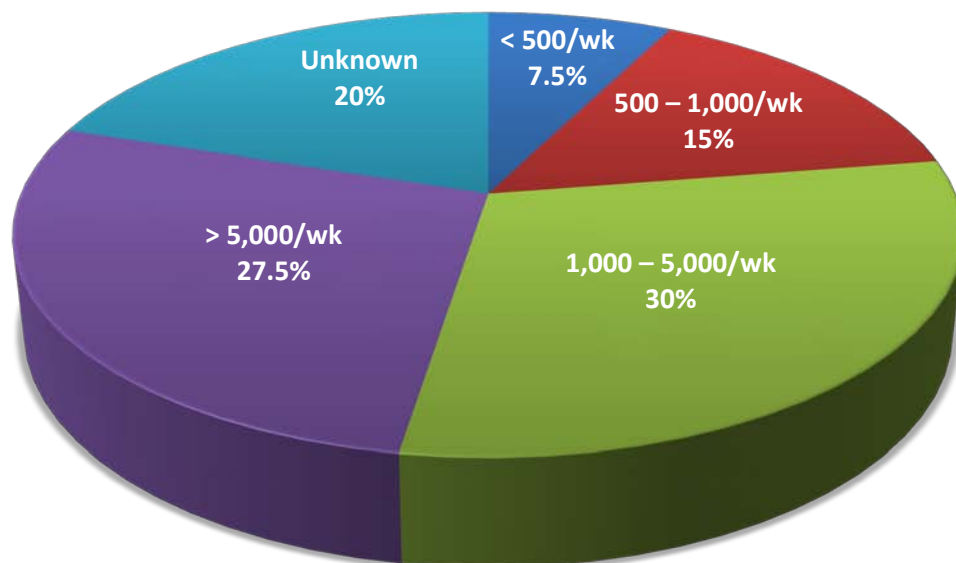


Of the respondents to question 8, the majority (n=29) were interested in tank culture, which was followed closely by interest in marketing and distribution (n=22). Pond culture interest (n=12) was slightly lower than wild harvest interest (n=15).

Growing Cocahoe Minnows for Bait – 2009 Survey Questionnaire

9. *If you are interested in sale of cocahoe minnows to fishermen and/or other bait dealers, how many do you think you would sell in a week?*
- a. *Less than 500 per week*
 - b. *500-1,000 per week*
 - c. *1,000 – 5,000 per week*
 - d. *More than 5,000 per week*
 - e. *Don't know*

Expected Sales



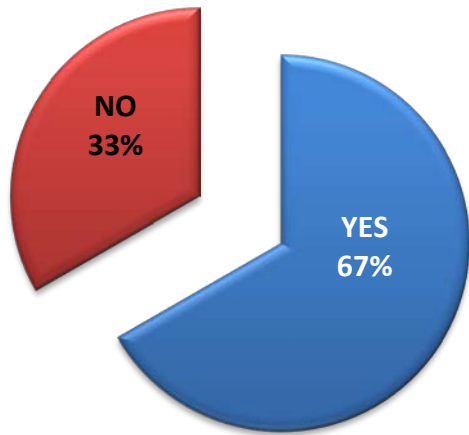
Of the 40 respondents to question 9, eight (20%) did not know how many they could sell per week. Three (7.5%) reported less than 500 per week, six (15%) reported 500 – 1,000 per week, twelve (30%) reported 1,000 – 5,000 per week, and eleven (27.5%) reported more than 5,000 per week.

Growing Cohoe Minnows for Bait – 2009 Survey Questionnaire

10. *Would you be interested in attending a free 8-hour workshop on coahoe production and selling?*

- a. *Yes*
- b. *No (if no, go to question 13)*

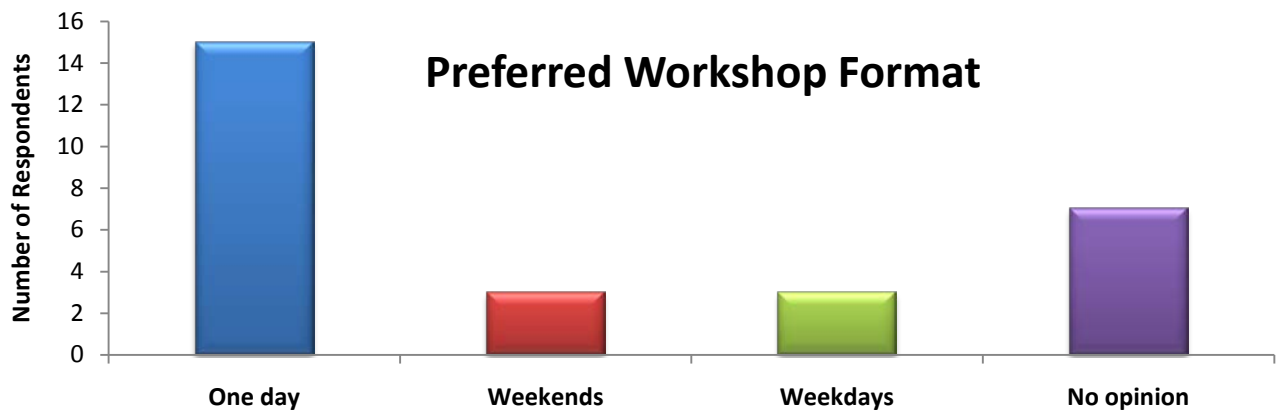
Workshop Interest



Of the 39 respondents to question 10, 13 (33%) were not interested in attending a free workshop on coahoe production, but 26 (67%) were interested.

11. *If your answer to question 10 was “Yes”, which format would you prefer?*

- a. *Two four-hour sessions conducted on the same day*
- b. *Two four-hour sessions conducted one day each over two weekends*
- c. *Three three-hour sessions conducted on consecutive weeknights*
- d. *No opinion*

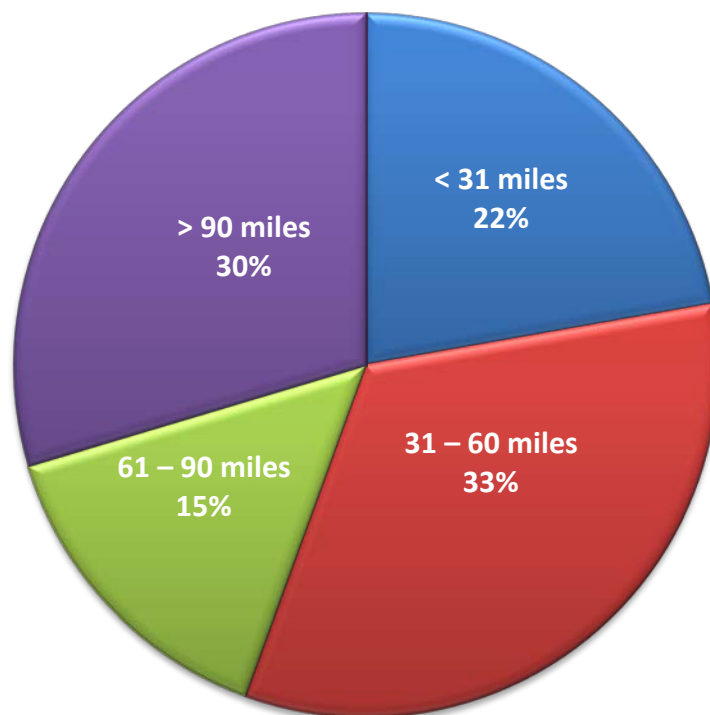


Of the 27 respondents to question 11, the vast majority (n=15) preferred the workshop format to be two 4-hr sessions conducted on the same day.

Growing Cocahoe Minnows for Bait – 2009 Survey Questionnaire

12. *If your answer to question 10 was “Yes”, what is the maximum distance you would be willing to travel to attend a workshop on cocahoe production and selling?*
- a. *30 miles or less*
 - b. *31 – 60 miles*
 - c. *61-90 miles*
 - d. *Over 90 miles*

Workshop Travel Distance

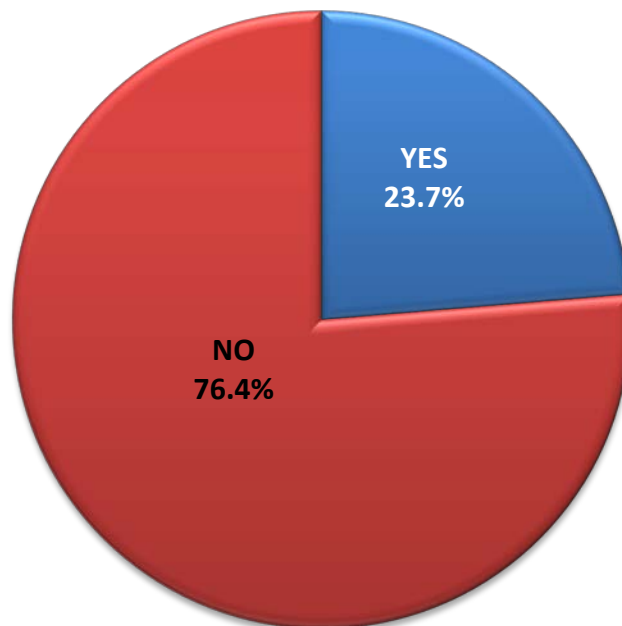


Of the 27 respondents to question 12, a slight majority (n=9) indicate the maximum travel distance for a workshop would be 31-60 miles, which was followed closely by those willing to travel more than 90 miles (n=8). Six answered that they were only willing to travel 30 miles or less, while four were willing to travel 61-90 miles.

Growing Cocahoe Minnows for Bait – 2009 Survey Questionnaire

14. Do you know someone else that may be interested in taking this survey or learning more about production and/or sale of cocahoe minnows?
- a. Yes (If yes, please share with them enclosed business cards)
 - b. No

Others Interested



Of the 38 respondents to question 14, the majority (n=29) report that they do not know of anyone else that would be interested in taking this survey, but some (n=9) indicate they know someone else that may be interested.

Growing Cocahoe Minnows for Bait – 2009 Survey Questionnaire

If you have any comments, suggestions, or questions about cocahoe minnow production and distribution, please write them in this section.

Seven of the survey respondents wrote in the last section. A synopsis of their responses follows:

"Thanks, I don't use cocahoe's offshore and am not set up for retail bait sales."

"Due to damages from Hurricane's Katrina and Rita, I am currently unable to pursue opportunities such as minnows. If the state would be willing to assist with the setup and development of minnows at my marina I would be interested in cooperating. Please let me know of any grants or assistance available to assist in the production and sale of minnows."

"I once cultured bull minnows at Hopedale in a 2-acre pond. I was able to have them reproduce but many problems curtailed my project."

"We lost everything to Katrina. Would appreciate any information on resources available for reconstruction of bait boxes, water circulation systems, etc..."

"We would like to get into selling to fishermen that use our marina, but at this time we are still in rebuilding process."

"I have been in the seafood business since 1947. I am interested in the storm minnows, also in cocahoe. I have a few thousand storm minnows right now which I use for my own use and friends."

"I have no buildings just launch and campsites at this time. Would like to know more."

Growing Cocahoe Minnows for Bait – 2009 Survey Questionnaire

Summary

The high level of responses to the survey indicates that there is interest in the “growing cocahoe minnows for bait” project. The majority of respondents are involved in sales of live bait to fishermen, of which a large part currently sell cocahoe minnows. While many respondents get their supply of cocahoe minnows from multiple wild-caught sources, the majority are not able to get enough to satisfy demand throughout the year. Thus the supply of cultured cocahoe minnows could help to fulfill the demand that is currently unmet.

Of those surveyed, most were interested in the various aspects of cocahoe minnow production (producing eggs, growing the fish, sales). Additionally the vast majority have unlimited access to salt water for cocahoe culture and holding. The expected volume of cocahoe minnow sales is quite high, with the majority estimating weekly sales greater than 1,000 fish, and over 25% estimate weekly sales to be greater than 5,000 fish. This potentially represents a large market that is currently undersupplied.

The majority of respondents are interested in attending free workshops focusing on cocahoe minnow production, specifically tank culture, pond culture, marketing, and distribution. The majority preferred a one-day format; however, the distance they were willing to travel for the workshop varied. As a result, a series of short (2-4 hr) micro-workshops were organized and conducted throughout the state (New Iberia, 11/09; Belle Chase, 12/09; Galliano, 3/10; Lake Charles, 4/10; Lacombe, 6/10). These micro-workshops consisted of a series of presentations on water quality, bait holding and handling, past and current research on cocahoe minnow production, and culture systems and scenarios. It concluded with a question and answer session allowing a chance for the audience to pose specific questions to the researchers.

An all day workshop was undertaken on October 5, 2010 at the Aquaculture Research Station, LSU AgCenter facility in Baton Rouge. This large, hands-on workshop covered people from a large region of the state – there were attendees from Lake Charles to Leesville. The 22 attendees were provided a workshop packet containing five fact sheets about growing cocahoe minnows. The packets also contained two articles on growing cocahoe minnows, contact cards, and other materials to assist them with the workshop. Topics presented and discussed at the workshop included: History of Cocahoe Culture; Infrastructure Considerations; Water Quality; Hauling, Holding, and Handling; Fish Nutrition; Diseases of Cocahoes; Marketing and Alabama Perspectives. The workshop also included a tour of the Aquaculture Research Station and four round robin stations. The round robin stations included hands-on demonstrations of broodstock care, egg collection, air incubation of eggs, larval and juvenile care, stocking, and grow out. The workshop ended with a round-table discussion to answer questions. Attendees filled out a post-workshop survey to determine knowledge retained, interest, and future research and extension goals.

Christopher C. Green
LSU Agricultural Center
Aquaculture Research Station
2410 Ben Hur Road
Baton Rouge, Louisiana 70820
225.765.2848
cgreen@agcenter.lsu.edu

Julie A. Anderson
Louisiana Sea Grant
School of Renewable Natural Resources
LSU RNR Building, Room 114
Baton Rouge, Louisiana 70803
225.578.0771
janderson@agcenter.lsu.edu

