Vessels and Railways-Assessing Commercial Fishing Infrastructure in Coastal Georgia

Final Report

Prepared by

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Completed Project Objective:
Filled Vessel, Dock, and Infrastructure Data Gaps to better inform present and future Georgia Department of Natural Resources-Coastal Resources Division spending of federal/relief/disaster funding

Project Duration:
May 15, 2023- March 31, 2024

Project Overview:
Working waterfronts are critical to the long-term viability of Georgia's commercial fishing industry, specifically the shrimp fishery, which is the state's largest and most economically viable commercial fishing sector (Georgia Department of Natural Resources 2020). Many of the state's commercial shrimp vessels are in various stages of repair. These deficiencies are often the result of a combination of factors including, but not limited to age, past storm activity, daily tidal inundations, neglect, other financial burdens and/or regulatory constraints.

Despite the significance of these vessels, an in-depth assessment of conditions of Georgia's fleet had not been conducted in the state prior to this project. Such information can assist the Georgia Department of Natural Resources Coastal Resources Division (GADNR-CRD) in identifying and prioritizing the most critical repairs and enhancements needed to help sustain its commercial fishing industry through the use of directed disaster funds and other relevant disaster response funding mechanisms. The overall purpose of this project was to identify opportunities to improve industry sustainability in conjunction with environmental impacts, changing weather patterns, an aging fleet, and changing vessel needs.

The project focused on commercial shrimp vessels in Georgia, with researchers conducting semi-structured or unstructured interviews with 25 vessel owners/operators, two Georgia-based railway/boatyard facilities, and five out-of-state boatyard facilities about the status of repair needs and maintenance costs associated with shrimping vessels. This report contains stakeholder feedback and ideas as well as additional information collected from interviews that can assist the agency with future decisions regarding the distribution of federal disaster funds. The overarching questions that guided this project intended to provide greater insights into the condition of Georgia's commercial shrimp fleet were:
What is the current state of the commercial shrimp vessel fleet, including what repairs are commonly completed, how, where, and at what cost to commercial shrimpers?
How can GADNR-CRD best support the ongoing sustainability of the industry?

Methods
This project incorporated a purposive sample of commercial shrimpers in Georgia, selected for participation based on county of residence and vessel attributes. Participants engaged in semi-structured interviews that incorporated both qualitative and quantitative components to elicit information about vessel conditions and repair history and future needs. Each component of this methodology is described in detail below.

Prior to the creation of research instruments or a sampling frame, the research team presented the proposed project to the members of GA DNR-CRD's Shrimp Advisory Panel (SAP) in May of

2023, and feedback about the proposed project was solicited and incorporated into the research protocol. Slides from this presentation are attached in Appendix I.

Research Instruments:
The team crafted research instruments for this project in several steps.

Vessels: The team identified the key categories of data that were desired, including: (1) Vessel Information; (2) Vessel Haul-Out; (3) Repairs and Upgrades; (4) Work Details; (5) Vessel Worth & Future Directions. The research team consulted an existing NOAA research instrument, the Northeast Fishing Vessel Annual Cost Survey for 2011 (https://repository.library.noaa.gov/view/noaa/34436) and revised some of the questions in that survey to be culturally and industry appropriate to the Georgia context. The interview guide contained both qualitative questions to elicit participant perspectives beyond simple rankings or restricted answer choices, and quantitative questions to identify specific costs, frequencies, and financial trends. After drafting sample questions for sections 1,2,4, and 5, they consulted with local experts to craft section 3.

To create a useful set of questions to identify costs and significant accompanying data, the team first met with UGA economist Eugene Frimpong to identify the correct approach to question phrasing to meet with federal government guidelines (this approach was confirmed with Carolyn Belcher as well). Secondly, the research team organized and led a focus group with local experts (Captains Lindsey Parker, Herbert "Truck" McIver, and Marty Higgins) to craft an organized, detailed list of the types of work that vessels regularly undertook, the best ways to break down those costs into appropriate parts and labor, and the most logical ways to organize these items. Section 3 was crafted after this focus group, and then ground-truthed with Captain McIver to verify accuracy before deployment with stakeholders.

The research instruments contained both quantitative, close-ended questions about vessel repairs and maintenance conducted since January 2022 and open-ended qualitative questions about participants' viewpoints on the industry. More specifically, questions solicited feedback on the working status of the vessels, repair needs and estimated cost ranges for such repairs. Questions also solicited participants' perspectives about a potential program for funding vessel repairs through boatyards and/or railways, and the associated benefits and challenges associated with such an initiative. The draft research instrument was then shared with GA DNR-CRD staff to ensure questions met their criteria, and approval to proceed was granted. The vessel interview guide is included in Appendix II.

Railways: Interview guides for Railway Facilities were crafted after the vessel interviews were complete, and the questions included were guided by the new information gained via the vessel interviews. This interview guide was similar to the vessel guide, with a focus on typical and specialized types of maintenance repairs often performed on commercial vessels and their associated costs, as well as commonalities and conflicts between shrimper needs and railway capabilities. The key categories in this instrument were: Propulsion Engine; Deck Equipment and Machinery; Hull; Fishing Gear; Wheelhouse & Gear Electronics; and Safety Equipment. Each equipment category is then broken into two main columns: Repair & Maintenance Costs &

Time; and Upgrades & Improvements Costs & Time. This interview guide is included in Appendix III.

Ethics approval for the instruments and study design was granted by UGA in the summer of 2023.

Sampling Frame & Study Population:
Working from a 2023 list of 98 resident food trawler permit holders provided by CRD, the team performed several layers of refinement to the database. Guided by the overarching need to understand the primary research questions (**What is the current state of the commercial shrimp vessel fleet, including what repairs are commonly completed, how, where, and at what cost to commercial shrimpers? How can GADNR-CRD best support the ongoing sustainability of the industry?**), some permit holders in that database were removed from the study population. First, vessels less than 38 feet in length and with outboard engines were removed, as these vessels represent less than two percent of commercial landings reported to CRD (Julie Califf, personal communication to research team, July 3, 2023). Furthermore, it was assumed that vessel maintenance and repairs costs for these smaller, most often trailerable vessels would substantially differ from larger vessels (greater than 38 feet) with inboard diesel engines that are more commonly associated with Georgia's commercial shrimp fleet. Second, permit-holders who held more than one permit were reduced to a single entry on the database in order to target individuals who held permits, not the permits themselves.

The remaining 53 permit holders (Table 1) were sorted by county of residence rather than physical location of where individuals dock their vessel, as our prior experience in this community indicates that docking locations tend to change more frequently than residences. The short time frame of this project (less than one year) required a limited number of semi-structured interviews with permit-holders, and a goal of 25 interviews was set for the project.

As the team's objective was to interview 25 permit-holders (or their representatives), which accounts for approximately 29% of the permit-holder population, this sample is considered representative, particularly for a qualitative study. Due to the uneven distribution of permit-holders across the coastal counties, and to ensure fair representation from each county, the team initially calculated the proportion of permit holders in each county as a percentage of the population, then multiplied this percentage by the target sample of 25 to arrive at the number of permit holders to interview in each county. This population is shown in Table 1 below.

Table 1: Eligible Permit-Holders and Identified Study Population

Eligible permit holders per county		Proposed number of permit holders targeted to interview
Brantley	2	1
Bryan	1*	.5*
Camden	2	1
Candler	1*	.5*
Chatham	7	4
Effingham	1*	.5*
Glynn	8	3
Liberty	1*	.5*
McIntosh	26	12
Tattnall	1*	.5*
Toombs	2	1
Wayne	1*	.5*
TOTAL	**53**	**25**
*Counties with only one permit-holder were grouped into a single population, with a goal of 3 interviews total from *any* of those 6 included counties		

Recruitment

Eligible permit holders were initially recruited through phone calls or in-person interactions at commercial fish docks or industry-associated meetings by PI Fluech. Follow up communication, if needed, was done through phone calls, text messages or emails until a determined interview time and location was agreed up by the permit holder and team member. If an interview invitation was not specifically declined, team members followed up with participants at least twice before ending attempts and moving on to another permit holder on the list. In cases where team members were not able to interview the desired number of permit holders per county (i.e. scheduling conflicts, meetings declined, no responses, etc.) eligible permit holders from other counties were contacted until the team achieved their total number of desired number of interviews.

Data Collection:

The research team conducted 25 semi-structured interviews with commercial vessel captains/ owners between June of 2023 and February of 2024. Interviews took place at a location of the

participants choosing, ranging from conference rooms at the UGA Marine Extension/Georgia Sea Grant facility in Brunswick to a dock in Savannah to a home porch in Metter. Each interview took between 45 and 120 minutes, determined by participant interest and engagement. Interviews were audio recorded and notes jotted during the interview.

Interviews were conducted with railway operators of Georgia in February of 2024, again at a location of the participant's choosing. These interviews ranged from 60-90 minutes. Interviews were audio recorded and notes jotted during the interview.

For ground truthing purposes, we also spoke with managers at commercial haul out facilities in North Carolina, South Carolina and northeast Florida via telephone to ensure the validity of the information shared with us. These were not formal interviews, but unstructured conversations that centered around the topics introduced in the other interview guides.

Data Analysis:

Data collected in jotted notes during interviews was recorded into document files and a cost database. Audio files were transcribed in three steps: (1) machine or AI transcription, (2) corrections made to the AI transcript by a specially trained Anthropology student with experience in transcription, and (3) secondary review for edits and corrections by a separate trained student to verify accuracy. Qualitative and quantitative data were handled separately:

Quantitative analysis began by crafting a master database within which all data would be collated. This database included a "Repairs Table" wherein the type of equipment along with the time and cost of either repair or upgrade were recorded. This data was organized by type of work and cost, then reviewed for overarching themes evidenced in the different types of repairs and upgrades. The data comprise the "Master Repair and Price List" that can be found in Appendix VI, and are discussed below.

Qualitative analysis began with open coding, as described by Emerson, Fretz, and Shaw (2011) using the jotted notes and transcriptions as a data set. Co-PI Tookes engaged in careful reading and re-reading, line by line, looking for themes, patterns, and variations in the data. Once occurring ideas began to emerge, then the open coding commenced, by notating these ideas in conjunction with the text and beginning to identify analytic categories. Once all interview transcripts were open coded, the research team identified the overlap between the conceptual categories, reviewed them to identify the most common and predominant themes, then articulated them in statements that captured the commonalities. These themes embody the foundational qualitative data that illuminates answers to the research question and are put in conversation with the other qualitative data and quantitative findings as described below.

Results:

The research team was largely successful in securing interviews with the target sample population broken down by county. In a few cases, study participants in specific counties were not receptive to being interviewed, and participants from other counties were instead consulted. For example, responses from Chatham County were lower than desired (only 2 of the desired 4 individuals agreed to be interviewed), while interest from Camden and Toombs counties were higher than planned (both permit-holders in each of those counties volunteered to be

interviewed). Nonetheless, the total study population was the anticipated N of 25, as illustrated in Table 2 below.

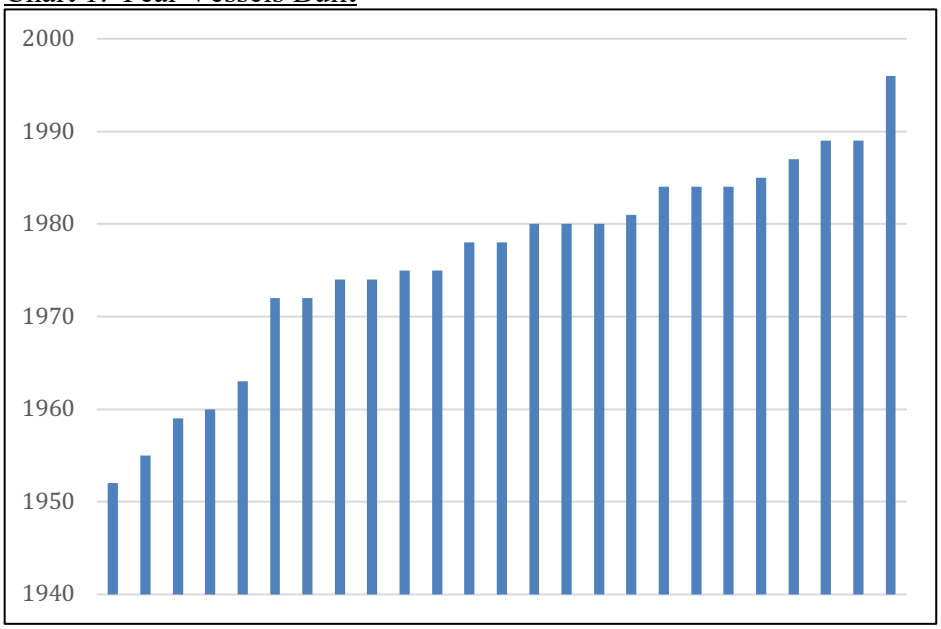
Table 2: Proposed Interview Participants and Completed Participants, by Permit and County

Eligible permit holders per county		Proposed number of permit holders targeted to interview	Actual number of permit holders interviewed
Brantley	2	1	1
Bryan	1*	.5*	1
Camden	2	1	2
Candler	1*	.5*	1
Chatham	7	4	2
Effingham	1*	.5*	0
Glynn	8	3	3
Liberty	1*	.5*	1
McIntosh	26	12	11
Tattnall	1*	.5*	0
Toombs	2	1	2
Wayne	1*	.5*	1
TOTAL	**53**	**25**	**25**
*Counties with only one permit-holder were grouped into a single population, with a goal of 3 interviews total from *any* of those 6 included counties			

Quantitative Results:

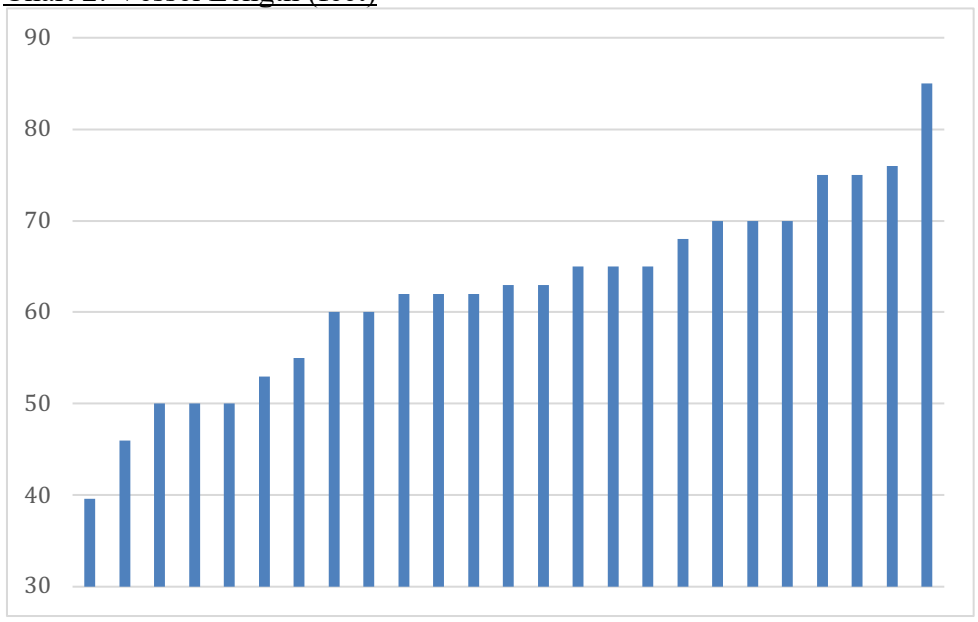
Quantitative data consists of information about vessel characteristics (age, length, composition, etc.), timing and frequency of vessel haul-out, possession of insurance, percentage of work they complete themselves, and vessel value assessment and vessel sale. This data is displayed below.

Chart 1: Year Vessels Built



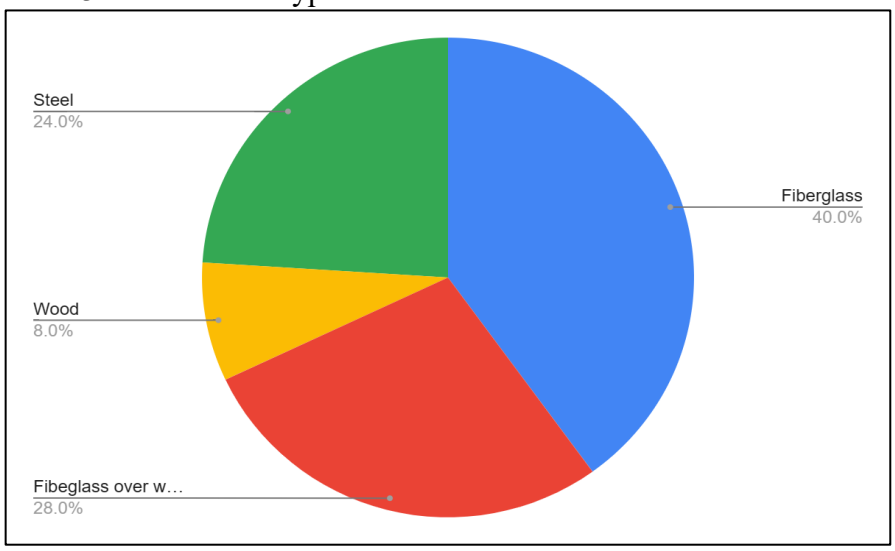
Mean vessel age: 47.8 years (*Range: 28-72 years)*

Chart 2: Vessel Length (feet)



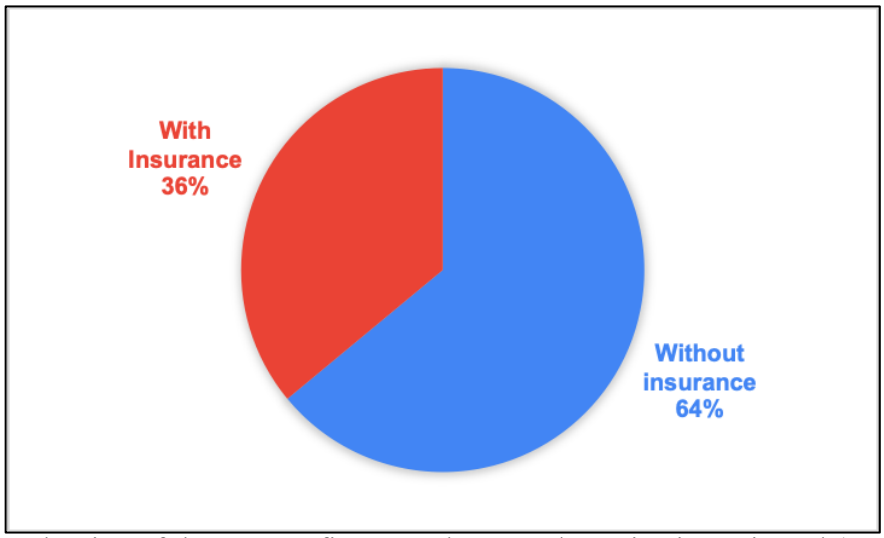
Mean vessel length 62.4 feet (*Range: 39.6- 85 feet*)

Chart 3: Vessel Hull Type



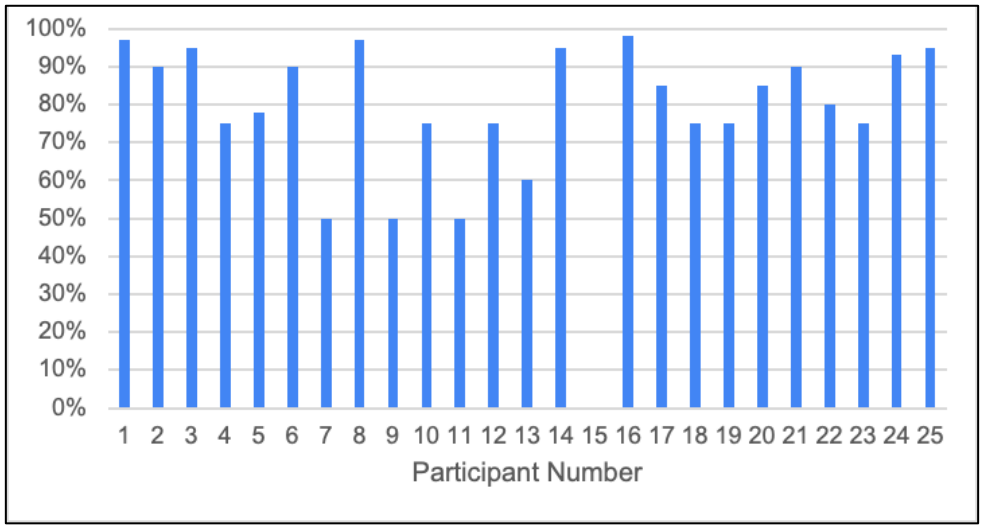
Vessel hull types: Fiberglass: 40%, Fiberglass over Wood: 28%, Steel: 24% Wood: 2%

Chart 4: Possession of Vessel Insurance



Only nine of the twenty-five vessel owners/captains interviewed (36%) indicated they posses some type of insurance for their vessel.

Chart 5: Vessel Maintenance and Repairs Conducted by Self/Crew



Only Participant 15 indicated that he himself did not complete any work on his vessel, but rather, that his hired captain and crew completed most of the needed work.

Vessel Haul Out

Sixty-four percent of the interviewed captains/owners hauled out their vessels at least once between 2022 and 2023. The average typical haul out frequency for all interview participants (N=25) was 2.16 years while the average ideal haul out frequency was 1.98 years. Nine of the captains/owners indicated they hauled out their vessel at the Valona Railway (36%), four indicated they hauled out at the Brunswick Railway (16%), three hauled out in North Carolina (16%), three hauled out at marinas in Darien or St. Marys and two participants (8%) did not provide a location for their last haul out. Common types of maintenance included scraping/painting, replacing zinc, repairing leaks as well as working on keel coolers, shafts/propellers. Table 3 summarizes vessel haul out details for the 25 owners/captains interviewed.

Table 3: Summary of Vessel Haul Out Information

Hull Type	**Hauled Out 2022-2023?**	**Typical Haul Out Frequency** (years)	**Ideal Haul Out Frequency** (years)	**Haul Out Location**	**Work Done**
Fiberglass	No (2019)	3	2	Valona	NA
Fiberglass	No (2019)	1	1	St. Mary's	General maintenance
Fiberglass	Yes, (2022 & 2023)	1	1	Brunswick	Painting, zincs, propellers
Fiberglass	Yes	1	3	North Carolina	Rudder damage
Fiberglass	No	3	1	NA	NA
Fiberglass	Yes,	3	3	Valona	Cleaning, clean keel cooler, engine running warm
Fiberglass	Yes (2022)	2	2	St. Marys	Outriggers, winches, Scrape, paint, zincs, keel cooler.
Fiberglass	Yes (2022)	1-1.5	1	Darien, Two Way Marina	Stern, zincs, bearing, leaks
Fiberglass	Yes (2022)	2	2	Valona	Zincs, paint, scraping.
Fiberglass	Yes (2023)	2	2	Valona	New engine, winch, paint and sanding
Steel	No	4	4	NA	NA
Steel	Yes	4	2	Valona	NA
Steel	Yes (2022)	3	3	Brunswick	Paint, transmission, shaft
Steel	Yes, (2022)	3	3	North Carolina	Propellers, steel, paint, zincs.
Steel	No (2021)	3	1	NA	NA
Steel	No (2019)	3.5-4.5	3.5-4.5	North Carolina	General maintenance
Wood/ Fiberglass	No (2021)	2.5	2.5	North Carolina	new engine
Wood/ Fiberglass	Yes (2022 & 2023)	2	1	Brunswick	Fiberglass leak, wood rotten
Wood/ Fiberglass	No	1.5	1.5	Valona	NA

Wood/ Fiberglass	Yes (2022 & 2023)	1	1	Valona	General maintenance
Wood/ Fiberglass	Yes (2022)	1	1	Brunswick	Holes, keel cooler
Wood/ Fiberglass	No (2021)	1	2	St. Marys	Zincs, wheel, rudder, shaft, painting and scraping.
Wood/ Fiberglass	Yes (2023)	1	3	Brunswick	Paint, zincs, propellers, patch work
Wood	Yes (2022)	1	1	Valona	Painting, zinc replacement
Wood	Yes	2	1	Valona	Scaping paint, several Leaks, zincs.

Value Assessments

Only eight of the 25 interviewed captains/owners (32%) indicated they have had their vessel assessed for value at some point, and all but one participant provided estimates; Value estimates ranged from $200,000 to $450,000 with an average value of $367,000. (Table 4)

Table 4. Vessel Value Assessment

Vessel Value Assessment	Year Assessed
NA	2017
$200,000	NA
$300,000	NA
$350,000-$360,000	NA
$400,000	2020
$425,000	NA
$440,000	NA
$450,000	2022

Maximum/Minimum Price for Sale

Participants were asked what they thought would be highest price they realistically could get for their vessel in its present condition as well as what would be the lowest amount they would accept in the current market. (Table 5)

Table 5. Maximum and Minimum Price Assessments.

Maximum Price	Minimum Price	Price Difference
$60,000	$60,000	$0
$250,000	$250,000	$0
$50,000	$40,000	$0
275,000	$275,000	$0
NA	NA	NA

NA	NA	NA
$80,000	$50,000	$30,000
$275,000	$300,000	-$25,000
$100,000	$75,000	$25,000
$200,000	$200,000	$0
$120,000	$85,000	$35,000
$50,000	NA	$50,000
$220,000	$110,000	$110,000
$50,000	$25,000	$25,000
$1	$30,000	-$29,000
$550,000	NA	$550,000
$300,000	$225,000	$75,000
$30,000	$25,000	$5,000
$500,000	$400,000	$100,000
$42,000	$30,000	$12,000
$150,000	$50,000	$100,000
$150,000	$125,000	$25,000
$300,000	$250,000	$50,000
20,000	$15,000	$5,000
$90,000	$70,000	$20,000

Master Repair/Price List

Using the data collected from their interviews, Fluech and Tookes also developed a Master Repair/Price List containing price ranges received. This is attached in Appendix VI.

Qualitative Results: Vessel Interviews

The open-ended, semi-structured interviews ensured that while the desired topics were covered, other information was offered as well. The main themes offered as well as the interview foci are detailed below.

Volunteered Topics:

1. There is an ever-widening gap between the expenses associated with running a shrimp vessel effectively for the long-term, and the profits that can be made in the current economic conditions. This discrepancy impacts the types of repairs and maintenance that are possible for many shrimpers.

Sample Responses
"My main issue with shrimping is, of course the fuel price kills me. You know if you can basically get for shrimp what you're getting for a gallon of fuel. You can't make it…Well I mean I buy $9 gallon for fuel, Thankfully three or four days pay for that, I mean you know, just the fuel and I'm not making any money till I pay for my fuel."

"Obviously the US economy sucks, and when you import for this price, and our price, wild caught at this price, is below what we can really make any money at."
"You've gotta always keep in the back in your damn mind all the damn time if you don't-- that's why so many people go under in this business they don't ever get ahead to hold nothing back–" Interviewer: "They just spend what's in their pocket." "They don't have no help, [can't] get none."

2. The rate and quality of repair and replacement to vessel components varies by financial security of the vessel owner, which is linked to fishing success. The range between types, quantities, and costs of work performed on vessels can be tens or even hundreds of thousands of dollars difference depending on the vessel owner and type of vessel..

Sample Responses
"That's why so many people go under in this business they don't ever get ahead to hold nothing back–their biggest damn problem is buying rigs and getting on the railway. To me, that's what I see. 'I can't afford to do this. I can't afford to do that.' And they're pulling around junky shit so they never get caught up."
"He's done a lot of preventative maintenance…it started years ago when he got the boat, but he's had to [redo] his ice hold! If you have a wood boat, you're going to take care of it, and that means you have to be proud of it."

3. The accessibility, affordability, and quality of parts for use on vessels has declined dramatically over the past few decades. Products are difficult to obtain, as stores that carried these parts have closed. The costs of needed parts have increased dramatically even while the quality of the parts has decreased substantially. In many cases, people are choosing to refurnish or rebuild parts that are years or even decades old because the quality will be higher than a newly purchased part.

Sample Responses
"I said 'I'd rather have them wheels.' He said 'They're 20 years old! I said 'Each time you [re]build them, they're better…if they were brand new they lasted three seasons…you rebuild them I got five seasons out of 'em!' "I said 'I can't get a set of wheels for that kind of money to last me five years, so please rebuild my wheels... I'll bring you the money right now, don't question [it]!' Then he finished my wheels and they look … better when he gets through with them, they're better than they are when they're new!"
"I used to have GMs and I would always go with GM parts because they seem to last much longer. They were made better. And nowadays, you can get all parts from foreign countries and stuff a lot cheaper, but they're made out of cheap metal and just made

cheaper. Which is understandable so they can sell them cheaper, but they don't last, just don't last."

4. Vessel owners are choosing to use non-marine parts in creative ways to circumvent unavailable items or poor quality parts.

Sample Responses
"[What] we used to use for a deck pump was a brass Jobbsco pump, and you all you had to do is replace the rubber impeller in it, and they used to be a couple of hundred. Now this was many years ago and then they went up to $500, went up to $600, and went to $800, and to where they're just so expensive anymore to buy the good stuff. [It's] just about unreasonable. When I put a generator on my boat, I went to Home Depot … and bought a sprinkler system pump. It was $250 bucks. I got 17 years out of it. I still can't wait to try the one I got at the house, it's a Jacuzzi pump. Got it out of a old Jacuzzi about to go into the trash!"
"You can get a magnetic clutch, it's really expensive. And it's like your air conditioner clutch on your vehicle, goes in and out… with a switch. And when they just kept getting higher, and higher, and higher, and higher…they price themselves [out]!... You can go pay less than $200 for a sprinkler pump and one of those are $600, $700, $800. And that's not including [another component]...It ain't no rocket science. It's just a matter of getting in there and doing it."

5. Shrimpers were pleased to be asked for their input, but warned that despite best efforts it is unlikely that GA-DNR-CRD will be able to please everyone. They also provided contextual information to explain some of the difficulties they observe in the industry.

Sample Responses
"You know, somebody's always gonna be unhappy no matter…Even the best plan you come up with."
"That's a pretty good question. I never had to rely on them to support me."
"Like you're doing here? You're actually talking to the shrimper. I think that's a real good thing. Because, you know, NOAA and DNR faces all this stuff, they do, but they don't really know the actual [experience]."

Responses to Research Foci

During the interview, participants were asked: "If future funding were to become available to support commercial shrimping in Georgia, and direct payouts were not allowed by the federal government (as the maximum allowable direct payment was already given), what could DNR invest in that would support the industry as a whole, in a fair manner? What advice would you give to them in that situation?" Responses to this question coalesced around six key themes that address what should be funded, and three criteria for funding, al of which are described in detail, and accompanied by qualitative data, below.

What should be funded?

1. Initial responses usually centered around the most commonly purchased consumable products or dire needs. In most cases, respondents immediately pointed to funding needs for fuel, nets, rigging, or other items that are most rapidly worn out or destroyed while fishing as being the most immediately useful funding opportunities.

Sample Responses
"Fuel and equipment…nets, doors… Like they can buy engines, they could buy new engines, fuel efficient engines… I tell you what, maybe dock space or a railway too, you know, that could be something."
"Some kinds of vouchers or subsidies for fuel, nets, cables … the items that it takes to run a boat, to operate a commercial fishing boat with. Zincs, the things you could use for maintenance… Subsidized fuel… a voucher for 1000 gallons of fuel or something like that. 1000 gallons of fuel right now is $34- $3,800 worth of fuel!"
"They couldn't hand the money out, give it maybe net vouchers or something—that would help. That would go a long way. And you know, you got nets, you had two years ago, but there's still good nets, but you got to have them patch and dipped with and all this stuff, you know, so a voucher, stuff like that."
"Stuff on the riggings is about the biggest thing, and the railway, that's your main thing."
"Now, I would think the most important thing would be helping somebody with sharks. Webbing, nets…shooters, or something, because sharks just eat you up."
"I say they can do an equipment fund, for rope, shackles, nets, doors, cables… … Because a lot of people in this business right now, the way things are going, [if] you get behind the eight ball a little bit, and you get another thing happen? You're done. Say if you got everything fixed, and you go out and tear up a net, and you only got one good net—if there was somebody to give you a net on credit, you [could] go out there, you can pay for that net, and then still keep going forward."

2. A second common theme focused on the cost of bycatch reduction devices. They argued that as these are gear that are being mandated *for* them, not selected *by* them, that funding of those items would free up their financial resources in order to focus on items involved in the actual landing of shrimp.

Sample Responses
"I guess fish eyes, y'all want us to pull them so bad, y'all pay for them. Yeah, the BYRDs. They want us with all this reflective tape, and I've always thought 'Okay, who comes up with these laws, and then who makes this stuff? You're gonna charge me $20 for a piece of tape, that long and that wide, it goes on this life jacket that reflects. He is the family of this one over here that made this law. He's got a job forever. And a good one.'"
"You know we pull TEDs for turtles, And that's a government issue, why should we have to buy the TEDs? Well, like TEDs or fisheyes and you know … the TED has got outrageous for the price of those--$800. Might be more than that."

Sample Responses
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"all these restrictions on the nets— they can compensate on the TEDS and stuff like that…which the government makes us pull. We have to or we don't go fishing…have them put in, or taken out, or provide ones that we need for the certain conditions because they're the ones that's worried about the damn– [turtles]."

3. Safety equipment was a common suggestion across the interviews. Many suggested that were GA-DNR-CRD to provide funding for safety equipment, or other Cost Guard required items, this would free up their financial resources to be spent on more urgent repairs or maintenance. In particular, they were frustrated by the need to regularly replace or replenish items solely because of expiration dates, not based on use or actual problems with the items.

Sample Responses
"A lot of these boats don't have these life rafts. They're all supposed to have EPIRBs, I think a lot of them don't because you can see whenever the Coast Guard comes around, you can tell the ones that don't have what you're supposed to have because they take up and go to the top…You know, maybe [fund] some safety equipment…a lot of guys are not [carrying] safety equipment, it's not really a priority for them, but…" Interviewer: Would they turn it down if it was offered to them? "I don't think they would."
"There's certain things I don't argue with them about because I want them on my boat. But there's some things [safety equipment] they have gotten ridiculous. It costs us an average of about $1800 if you stay up with everything they want you to do, you'll spend $1800 to $2000 every year, average."
"It's stuff that [they're] just forcing on us…I'm talking about over the years…When I first started fishing …we went from life jackets, fire extinguishers, life rings, a lifeboat…and now there's about 20 things or 25– versus what we used to do with four or five. Do you think that helps us any? No."
"They want you to have stuff that you got to have for safety, [they could fund] stuff like that. Help to pay for …some of that stuff. They make us have it and they don't understand that you ain't got no money to buy all that, and then they gonna come and write your ticket if you don't have it."

"All the safety gear you got to have —you know how much that life raft is?...A six person one? We just need a four person one but …I don't even know if they make those anymore, but even if you go to try and order one, it's out of stock… look they can help out on the safety equipment that has to go on the boats."
"If you're gonna make me have this life raft, buy this life raft for me. If you're gonna make me … have all the safety stuff, you buy it. Let the government pay for it, if you want me to be so safe, then you pay for all the safety stuff…Nobody wants to go out there and be unsafe. but if you don't have the money, you're not going to take the money from your family, or your children, or Christmas, or whatever, to buy a life jacket, or to buy a life raft, or a flare. Because you're thinking 'I'm going fishing and if I make it back good, if I don't then… that stuff happens.'"

4. A very common suggestion for funding was centered on keeping railways and docks open and functional. Participants expressed concern about the viability of maintaining commercial fish docks in the face of increasing gentrification, property taxes, and offers to purchase the property. Of note is that none of the interview participants spoke *against* the idea of somehow supporting the docks and railways in the state, and many spoke specifically in favor of this support.

Keeping some of these local railways open … that would be good for the majority of the fishermen."
"The docks, we need to help them so they can help us. Like, you know, repairs…I feel like where we're at … there can be some big repairs done and that could be a good dock. I mean, he's trying to run this dock… half the time he can't run the ice machine because he can't afford to pay the light bill."
"I mean, I would love for a check if you want to send them out. [But] that's not keeping me afloat, keeping me afloat for the next 20 years, it's gonna be a demand for our product, where we can go out there and work and sell. Now I do think ultimately: a railway. Keeping a railway somewhere local is gonna be an important [thing]."
"You've got like, Pat down at Lazaretto that's got a dock… I mean, it's not hard to spend $100,000 working on a dock. And he's got the majority of the boats on this whole north end of the state and some in South Carolina that unload with him. So if someone like him was to get some help to fix his dock up, it not only benefits him but it benefits all the boats that are there… It could, it could be something to look at, certainly, where the most of the shrimp are being unloaded, as far as trying to do something to help the folks that own the dock because right now they're in the same situation we're in, if the boats aren't going fishing, they're not making any money and they're under huge amounts of pressure from developers"

"Like in South Carolina. I'm sure you've seen that article where they're spending that money. A couple million, maybe a little more to fix up that Port Royal dock and I know that they actually bought a dock in, I guess it's Bluffton, that Larry Tumor had. They paid him a huge amount of money, the state of South Carolina, a huge amount of money for the dock and their only stipulation was, "you stay here, keep it open for shrimping, keep it open for oysters." Because it's part of the heritage, I guess. So, South Carolina, they operate differently than we do, because they've done a couple of different pretty big projects that they kind of help keep the fishing industry alive."

5. Increasing training for and/or collaboration with environmental enforcement was a topic suggested by several participants. There is frustration with the timing of enforcement interactions taking place while on the water shrimping, particularly when it appears that new officers are being trained during these on-the-water interactions, extending the interaction time far beyond a normal enforcement check. However, one also offered a potential way to collaborate with enforcement officials for the benefit of all, to improve training.

Sample Questions
Shrimper: "They could be a little bit more professional about boarding a vessel when we're trying to make a living and do this crap at the dock, instead of shutting our money source down in the daytime. That's why we get so ugly with them…I could lose $1,000, $2,000 from one boarding." Interviewer: "Would you want them to invest money in better training of the enforcement officers?" Shrimper: "Yep I would say better training, that way they don't have to teach them when they come on the boat. If they want to board us that bad, if the state makes them do that, then get on our boat and 'bada bing, bada boom, okay, we're gonna let you guys get back to work!' But they hold us up sometimes, way too long. And they're not real professional about it. …When they brought that guy on the boat with XXX the other day, *they was training the guy*!" Interviewer: That makes sense…do you think other shrimpers would feel the same way?" Shrimper: "Absolute'y." Interviewer: "Like "yeah, that's a good investment of money.'" Shrimper: "Absolutely. Absolutely."
"They need to look to *us* as much as they do SeaTow or US Tow, whenever they have people lost out on the water… That could be that could be part of an income for us to go out there and help find people when they wrecked, or sunk, or missing, broken down. You know, the SeaTow and US Tow they is very, very expensive. We could help do it for a lot cheaper … We could set up different things for them. Like whenever they're training, say how they go on boats and look for drugs and whatnot? We could get together with a commanding officer and go and hide some shit on the boat, and have them come out here and find it. And if they didn't find it, well, I don't think they did their job!"

6. A popular theme in many of the interviews was the idea of a marketing campaign, or a coordinated, branded effort to educate consumers about the value of wild caught Georgia shrimp in contrast to non-local products. Some participants argued that this type of support would in fact help the industry to regain their footing and be able to carry on unsupported in a sustainable manner beyond any granting period.

Sample Questions
"So I don't want a hand out, what I want to see [is] our product become valuable again…because … off this Georgia coast, we've got the best…premium product available. What we're getting for it… we're down in $3 range on 26- 30s and it's getting to the point where we're probably …just gonna be working those moons…We can we can get rid of $20,000—a $20,000 handout is not really going to help us in the big scheme of things. I would rather see us be able to get enough for our product to make a decent living and be able to keep our stuff up without having to rely so much on…[BF- "handouts"?] Yeah."
"I think advertisement [about] the difference between farm raised shrimp…that's gonna help you be able to make more money so you can keep your boats up. Marketing is the only way to make our shrimp different. We can't … compete against farm raised or foreign shrimp. We've got … USA wild caught shrimp, [it] has to be marketed differently and it has to be an entity of its own. It's got to be when you go to eat at a restaurant, you got to know what you're getting …Commercials, the internet, you know all the different ways to get the word out to the public. Let the consumer know what it's getting such as when you buy organic or farm raised—let the public know that." "I would rather see billboards 'Eat well, eat local Georgia wild shrimp' coming down 75 in Atlanta, [that] would probably be more beneficial than sending everybody $2,500 checks."

How should funding be operationalized?

1. One section of the interview participants argued that any potential investment by GADNR-CRD into the industry should provide the same items or same dollar amount of investment for each permit-holder. They mentioned "allowances," "receipts," and "vouchers" as ways to operationalize this effort.

Sample Responses
"It could be the same amount…everybody … should get the same thing or whatever…I say treat everybody equal." (BF suggested dollar amount) "That'd be beneficial, that'd help…Anything, any kind of assistance will help."
"Allowance at the railway--you'd have to get with them and say, 'Hey, this guy's coming down there, I'm gonna give him $1,000 allowance or something.'"
"That'd be a good grant, or money for for…safety. If you … bring your receipt have each boat gets $2,500 allotment for new safety equipment. If you go look at 90 of the people's rafts on their boats, I wouldn't let my dog float 'em. But we're required to buy it…$3000 just putting flares and just maintenance on safety stuff that keep it up…it all adds up."

"Some kinds of vouchers or subsidies for fuel, nets, cables … the items that it takes to run a boat, to operate a commercial fishing boat with. Zincs, the things you could use for maintenance… Subsidized fuel… a voucher for 1000 gallons of fuel…"
"I say they can do an equipment fund, for rope, shackles, nets, doors, cables…A railway fund to help the guys out with zincs and bottom paint and hauling the boat. And stop the boats from sinking, you know, a railway fund, because if there's somebody to help them, take care of them, and keep them from leaking? Yeah, that's a big deal… Say if you got everything fixed, and you go out and tear up a net, and you only got one good net—if there was somebody to give you a net on credit, you [could] go out there, you can pay for that net, and then still keep going forward."

2. A second common response centered around effort. Shrimpers who maintain a long-term vision for their vessel and their careers in the industry, are engaging in levels of maintenance and work that they feel exceeds what some other members complete. They explain that they think the funding in vessels should be based on effort in the industry, that is most often explained as being linked to landings. They also urge tight control and oversight be kept on this funding.

Sample Responses
"I mean, if you could help people with their maintenance, but I'm kind of like a capitalist. You know, they're either gonna make it or not, I don't know. Would that be fair to everyone? Because, you know, some people know how to do their own maintenance and other people don't. {Have to] force it to where you knew that money was spent on what you're providing it for."
"Allowance at the railway--you'd have to get with them and say, 'Hey, this guy's coming down there, I'm gonna give him $1,000 allowance or something.' Everybody wants the same amount… You know, I don't shrimp as hard as these people do. I mean, I don't really think I need $2,000 of grant money when they could use it."
"I think you'd have to show something, [like] pounds, gallons of gas bought and pounds caught. see there's a formula…Yeah, if you show that you bought this many gallons…. I think that would be the [answer]."
"My financials might look like I'm doing better, well, I *am* doing better. I've learned I put way more money in my boat to get more power etc. so my production might be going up. I might even make the same amount of money, but I've worked my ass off and spent all my money to get there. So, should I get less money because somebody sat at the dock all season? Some of the ways they base these checks that they give out for relief, it's not fair."
"I think you should have to be able to prove is your primary source of income. Because in North Carolina, you do. I mean, there you have to prove that is your primary source of income to receive anything from like what you're trying to do here. You can't have a guy that's got a little skip that goes when it's good…When it's bad like this, if you're gonna be successful, and you're gonna put money back in your boat, you have to put two more hours a day in. You have to get up an hour [earlier] in order to try to make up for it, and you've gotta always trying to be in the best of it. So, you might have to run every other night, you might have to run 20 or 30 miles. I mean, you're just having to

do more all the way around…. [So] I think it would be a good thing to … get the landings So y'all can see all that, and y'all can determine…whoever's catching the most, clearly wants to be in it, has the drive, and cares about it for the future. So instead of… a bunch of these people that are worried about $100… they're not worried about a half a million ten years from now."
"Well, if they have a way of donating a certain amount per boat they got up, or something to help pay for some of it…these guys are leaving their boats in the water, some of them till it just eats their shit…they would they just have to do a certain amount per person and that's it. [When they] take it on the railway, that's the only fair way to do it. If you're 100% in the shrimping business. They would have they can look at their landings to see if that's what you were doing."

3. In addition to the effort and landings explanations offered above, other commonly suggested ways to determine eligibility for funding assistance, or the quantities deserved by each permit-holder, centered around the following criteria:
    b. Georgia residency (for a set number of years)
    c. Number or type of licenses held (out of state, in-state)
    d. Home port
    e. Number of violations on record

Qualitative Results: Railway Interviews

After all vessel interviews were completed, the research team conducted semi-structured, in-depth qualitative interviews with owner/operators from the two remaining railways in Georgia: R&R Railway in Brunswick, and Valona Railway in Valona. Common themes arose around the ways that railways operate (both logistically and financially), the types of work completed on the railways, and their interests in supporting future GADNR-CRD investment in the shrimping industry through collaboration with the railways. These are described in detail below.

1. There is a complex and sometimes unspoken system to determining the timing of access to the railways. When a vessel can be hauled out is often the result of a calculation by the railway operator that is based on the urgency of a particular vessel's needs, tides and size of boat, number of boats ahead of them, and their reputation for timely payment of past railway bills.

Sample Responses
"In the fall, twice a month on your full moon and your new moon…but one tide this time a year it won't reach a seven [or] six [foot depth]. Next moon is a seven foot tide…like I say it's all on the bow too, the main thing's the draft on the bow. If he's deep on the bow he runs into the beam, because the railway's coming down at a slope, he'll run [into it] before he can get where we need… You can't have too much boat hanging here or there… the tide will last… for two or three days. It'll build, peaks, and then starts dropping back."
"Emergencies, [when they say] 'I'm sinking!' and that …might happen once, twice a year, but like a broke shaft or something. [He'll tell other boats] 'You're not sinking, I'm sorry, I'll get you as soon as I can. I might bump somebody, 'You can go fishing, he can't go fishing, cause he can't run…I will do that, as far as emergencies [go]."

"They don't want to do it unless they have to do it in shrimping season which is understandable. So, your downtime is from mid-January to mid-March, because everybody wants to get done and back in before roe shrimp starts. But they want schedule it at the end of the season like in January and February… everybody wants to get go as long as they can. And then they want to try to get done as quick as they can, just to make to make the season opener.

2. There is a high level of trust involved in the financial aspect of the railway business. Deposits on work to be performed are uncommon, and in many cases, bills of many thousands of dollars are not paid until all work is complete. Partial payments are uncommon unless a job drags on for an unusually long time or develops a reputation for non-payment. This may change in the near future for one railway, as recent operators have been less reliable.

Sample Responses
"I mean when I do a long job. That was spending *my* money. [Then he says] 'Okay, give me some money.'"
"I hand 'em a bill and then they write me a check and go up the ladder and get on the boat… I [had one] bad check, I got it straight made him bring the cash."
"Some guys will say 'Well, we're gonna be up there six days, and then it's a month… we had one we worked with who ended up stopping payment on the check. And we chased that around for a little bit." Interviewer: So they don't have to do a deposit up front? Operator: "No, thinking about doing that. We have had some problems. [The old railway owner] used to have a sign up there that said "No cash, no splash!" And that sign needs to really be back up.

3. Much of the repair and maintenance work performed on vessels happens *off* the railway. Railway work is hull-centric, and only work that *cannot* be performed in the water happens on the railway. While on the railway, it is common for the owner/operator or their captain/crew to assist with the labor on the vessel.

Sample Responses
"When we first started out, we took care of basically everything we'd supply the paint. We'd paint whatever you need, and zincs, whatever you needed. But, some of the guys can't afford to hire somebody to do everything. They got to be hands on. So we've changed it up and got papers and stuff, to get them out of out of insurance part of it. Because we couldn't be liable for them, not knowing nothing about them…we told him 'You can work along with my guys. You can't run the show, but you can work along with us to help him get off of [the railway] to save you some lay days or whatever …but you had to sign a paper saying that if anything happens, when you're doing anything on a boat, or to the boat or railway, that railway is not responsible."
"We do fiberglass patches. Your fiberglass boats in general, not much to do to 'em, scrape, wash, paint, zincs…Most of the leaks got to be fixed on [the railway]. Other than that, you know, that's the main reason they get on the railway— or a leak or just general maintenance. That's the main reason they come up."

"Most people come up here to clean and paint, that's the basic things…just generally, maintenance is zincs and painting… the propeller will last a while unless I hit something or break a blade or sling a blade."

4. The railways in Georgia have limits on the size boats they can pull out of the water for work, but this is generally related to features beyond the length of the vessel.

Sample Responses
"You would have to extend it out in deeper water, which really wouldn't be feasible where I'm at, because you got the dock and it would intrude with the boats…get[ing] to the dock. But ….you'd have to get permits to let you go do that, if they would let you. You'd have to extend the track on out, the farther you go back, the more water you got. If you could get the permit, *and* the money to have stuff built…You have [to get] pylons drove, and then you get the timber under there to put down and the track on top."
"Really depends on the keel and the depth… like the Joanne Bee, if it didn't draw a eleven-twelve foot of water, we could pull it. We pulled Reggie Sawyer's boat that only drew eight foot of water and is bigger than the Joanne Bee we can pull 85-90 foot boat, depending on how much water she draws."

5. There is vast diversity in the types of work each vessel needs during haul-out, and even great variation in the cost of doing similar work on different vessels.

Sample Responses
"It would depend on what they wanted to pay for, how much work or whatever. Because like every boat that comes up is all different. This might be [two] grand, this might be four grand. You don't know [until] you get to see what you got to do."

6. There is interest in collaborating with GADNR-CRD to operationalize a way to fund vessel work through the railways, but participants were careful to indicate that the details would need to be worked out in advance of beginning any project like this.

Sample Responses
"The railway would be a prime tool to use, like you say, to keep it to keep the fleet up you got to have railways…it's just is coming up with a way that's kind of somewhat fair…I'll go along with anything, you know, [but] I don't want to do anything for nothing, it is my property…[and this] railway has not been very profitable working just with shrimp boats."
"Payment-wise, will, the state will guarantee that y'all go and do the work and we'll get the money in a couple months?"
"I would be willing to talk to them and see what they could come up with. That would work. I'd have to see. Money's pretty much the whole object here with the railway. I gotta make money. I gotta pay the lease, I gotta pay insurance."

Qualitative Results: Regional Haul Out Facilities

Several commercial haul out facilities in neighboring coastal states were contacted for ground truthing purposes to help researchers verify information shared with them during their interviews. As in Georgia, participants commented that it has become increasingly difficult to find suitable locations outside the state where they are able to haul out their vessels for maintenance and/or repairs especially if they do not have a steel hull or they do not have vessel insurance.

The facilities contacted perform a number of services ranging from basic hull work (scraping/painting) to electronics and engine work depending on the site. All but one facility contacted use a travel lift rather than a railway to pull vessels. Most locations also require that their own staff work on the vessels rather than allow vessel crews to do the work for liability reasons.

Jarrett Bay Boatworks (Beaufort, NC)

Jarrett Bay Boatworks was mentioned as a preferred haul out facility by several interview participants. They provide comprehensive service from basic scraping/painting and other basic hull services to electronics, engines or any other types of maintenance/repairs needed for a commercial vessel. Jarrett Bay requires vessel insurance to pull any boats. Once pulled, they subcontract all additional work to Powell Boatyard, which is also located on their property and specialize on working on commercial fishing vessels. All work is performed by on-site staff or contractors: Vessel crews are not allowed to do their own work. Jarret Bay staff confirmed they do get shrimp boats from Georgia, but overall less than 10% of their total business is from the commercial fishing industry.

Hilton Head Marine Railway (Hilton Head, SC)

While none of our interviewed captains/vessels owners indicated they have taken their boat there, Hilton Head Marine Railway, was identified as one of the closer commercial railways to Georgia. Vessel crews can do their own maintenance, but the railway does have staff who can help with maintenance if needed. Vessels must also have insurance to be pulled on their railway. It should be noted that the manager that the research team spoke to said he "*wouldn't care if he ever sees another shrimp boat ever again*" after being "burned" by several shrimpers in the past.

Deytens Shipyard (Charleston, SC)

Detyens Shipyard provides comprehensive service for ship maintenance and repairs. They are more catered towards working on large ocean-going ships and would be more than capable of handling the range of sizes commonly seen in commercial shrimp vessels. However, while the staff member the research team spoke to said they will take steel hulled fishing vessels if they have insurance, they don't typically work with many commercial fishermen anymore.

Stevens Towing Shipyard (Charleston, SC)

Staff that the research team spoke to said they will work on shrimp trawlers, but "trust" is a big factor with their team, and they will not just allow anyone to haul out there. They require vessels to sign a hold harmless agreement and individuals must be insured if they do any work on their site. They had a railway, but pulled it for liability reasons. They now haul out vessels using a travel lift.

St. Johns Boat Yard (Jacksonville, FL)
St. Johns Boat Yard has a 150 travel lift and will work on commercial shrimp trawlers, but vessels must have insurance to be hauled out here. The operation can do comprehensive repairs and maintenance on vessels, and they have their own crews to do the work.

Discussion:
These vessel and interview railways took place over the course of 10 months across the coastal counties of Georgia. Despite the shared fishery, tight time frame, and common geography, a very diverse set of opinions arose. There is no "shrimper opinion" that can reliably speak for the majority of the industry, only commonalities within the group can be identified, but even those overarching themes are by no means unanimous.

Because of this diversity in opinions, it is very unlikely that GADRN-CRD could carry out any project that would please the industry as a whole. The agency should anticipate unhappiness from many because of this diverse set of perspectives. Often the first response to our interview query was a comment about there not being any way to make everyone happy—this became even more evident with every interview. *However*, there was also genuine appreciate expressed by many for the effort being made by the agency to consult genuinely with the industry, which was evident in one comment made to us (also included above in this report): "Like you're doing here? You're actually talking to the shrimper. I think that's a real good thing."

Despite these potentially divisive approaches, one topic was agreed upon frequently: The method of payment will be an important component. It is crucial to the industry that they be reimbursed in a timely manner, whether that funding is going to railways, vendors, or directly to shrimpers.

Railways and docks are crucial to the ongoing success of the shrimp industry of Georgia. However, these interviews also demonstrated that there is a large unseen labor force that keeps shrimpers on the water. The vast majority of the work carried out on these shrimp boats happens while at the dock, during downtime at sea, or when self-beached on a sandbar during low tide (referred to as the "poor man's railway"). While many major vessel repairs have to be completed on the railways, railways are NOT the only place where work takes place. In some cases, crucial work is completed as far afield as Gordon's Net Works in North Carolina, or with "Cajun Joe" in Jacksonville, Florida. Skilled individuals are just as critical to the continued functionality of the fleet, but are seldom associated with larger businesses or companies. Supporting these artisans to keep making nets, refashioning turtle excluder devices, and rebuilding propellers is important to the ongoing sustainability of the industry. These businesses are summarized in Appendix IV.

In many cases, these small-scale craftsmen are the ones keeping the fleet functional. They are repairing and rebuilding parts and gear that is no longer accessible, or affordable. This related to a key finding of this project: Despite the project goal of determining common price points for common repairs and parts, the data collection instead revealed that there are very few common price points, and very few common repairs. Parts and components wear out and break in unique ways on each vessel, and the solutions to these problems are often just as unique. Shrimpers fix parts themselves, work on vessels themselves, turn to their personal networks to barter for older parts or informal labor, and find ways to keep moving. Because of this unique set of responses to

each needed repair, it is virtually impossible to craft a common price list. The same part might cost one shrimper $500 because of his personal skills and connections, while it costs another shrimper $5000 because he is forced to simply replace that part with a new one. Each situation is unique.

However, there are some needs that are common. In its own unique way, each vessel does have needs for nets, TEDs and BRDs, zincs, paint, and safety gear. These items were raised as common to all boats, and represent a potential avenue for funding support for the industry.

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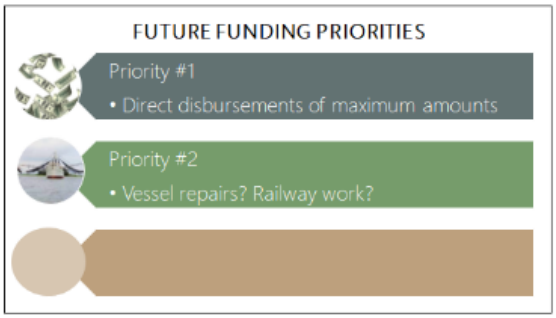
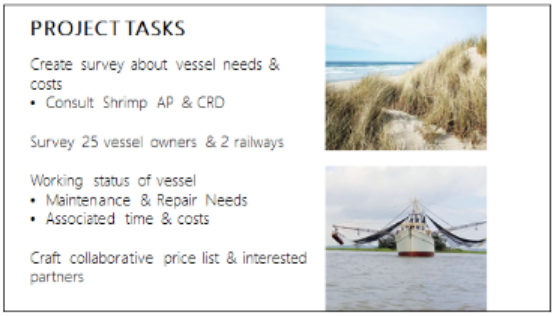
Appendix I

May 2023 Presentation Slides to GA DNR Shrimp Advisory Panel





APPENDIX II

Vessel Interview Guide

Demographic
Owner/Operator Name:
Phone Number:
Mailing Address:
Email Address:
DOB:

Vessel Info

1. What is your vessel's name?

2. What is the hull-type?

3. Vessel length?

4. Year built?

5. Where does it primarily dock?

6. In what year did you acquire this vessel?

7. What did you pay for this vessel at that time?

Vessel Haul-Out

8. Was this vessel hauled out in 2022 or 2023 for any reason? (Possible reasons include regular repair and maintenance, emergency haul-out, long term storage, etc.)
   a. If not, when was it last hauled out?

   b. How long was it out?

   c. Where was it hauled out?

   d. Is there a haul-out facility in this state that can handle your vessel?

   e. Why was it hauled out?

9. What is the typical haul-out frequency for this vessel?
Every year __Every other year_____ Every ____years Every ____months

10. Is this the ideal frequency for this vessel? (if not, why not more often)

11. Do you have Vessel Insurance? What was the premium for this vessel in 2022?

Repairs & Upgrades Table

Next, we will address repair/maintenance and upgrade/improvement costs that were made to the vessel since January of 2022 and 2023.

	Repair and Maintenance Costs & Time: total repair and maintenance costs incurred since January 2022, and how long each R&M took to complete *Repair and maintenance costs are incurred to keep your vessels and gear in working order.*	***Upgrade and Improvement Costs: total upgrade and improvement costs incurred since January 2022, and how long each U&I took to complete*** *Upgrade and improvement costs add value to or extend the life of your vessel and gear.*
Propulsion Engine	**Cost // Time (hours over span of time)**	**Cost // Time (hours over span of time)**
Transmission / Marine Gear / Reduction Gear /Clutch		
Power take-off/ Auxiliary Drive Engine		
Wheel / Shaft / Propeller		
Exhaust / Coolant System		
Generator		
Oil filters		
Deck equipment / Other machinery	**Cost // Time (hours over span of time)**	**Cost // Time (hours over span of time)**
Winches		
Generators		
Hydraulics		
Compressors		
Pumps		
Hull	**Cost // Time (hours over span of time)**	**Cost // Time (hours over span of time)**
Apply fiberglass / "Glass"		
Deck		

Keel / Shoe		
Wheelhouse/ Pilothouse		
Running Lights / Nav Lights		
Steering		
Rigging		
Fish holds / Freezer		
Fuel tanks		
Fishing Gear	**Cost // Time (hours over span of time)**	**Cost // Time (hours over span of time)**
Codend / Bag		
Nets		
TEDS/ BRDS		
Trawl / Doors		
Cables / Shackles / Ropes / Blocks		
Wheelhouse & Gear Electronics	**Cost // Time (hours over span of time)**	**Cost // Time (hours over span of time)**
Radar		
GPS plotter / Computer		
VMS / AIS		
Sounder / Depth recorder		
Radio / Phone / Satellite phone		
Safety Equipment	**Cost // Time (hours over span of time)**	**Cost // Time (hours over span of time)**
EPIRBs		
Rafts / “shark feeders”/ life floats		
Fire extinguishers		

Work Details

12. How much of your boat repair do you do yourself?

13. Do you have a friend or someone else who does work for you? (other than a railway– specific details– what work exactly, why that person)

14. Why did you do that work yourself/have someone other than a railway complete the work for you?

15. Do you have to use parts or materials not intended for a boat in order to repair or maintain your vessel?

16. Do you think it is easier or faster to do work yourself or via the railway? Which do you prefer, and why?

17. Were these repairs/maintenance and/or upgrades/improvements typical for your usual year with this vessel, or was it an unusual year?

18. Would you consider the work you did on the vessel in the last year to be about average compared to other vessels? If not, why not?

19. What repairs/maintenance and/or upgrades/improvements do you think you will want to or need to do in the next year or two? How much do you estimate each item will cost? (top 3 or top 5 that are the most urgent?)

Vessel Worth & Future Directions

20. Has your vessel ever been assessed for value? (if so, when & what was the value)

21. What do you realistically think is the highest price for which you could sell your vessel for right now?

22. What is the lowest amount you would accept for it?

23. What should we know about vessel repair and improvements that we didn't ask you about? (E.g. what should we know that we don't know?)

24. If future funding were to become available to support commercial shrimping in Georgia, and direct payouts were not allowed by the federal government, what could DNR invest in that would support the industry as a whole, in a fair manner? What advice would you give to them in that situation?

Appendix III

Railway Interview Guide

CONTEXT: "Fluech and Tookes will further consult with existing commercial railway/boat yard facilities and interview owners/operators about typical and specialized types of maintenance repairs often performed on commercial vessels and their associated costs. This will allow the team to co-create a repair and price list from their previous interviews. For ground truthing purposes, Fluech and Tookes will also consult with one to two facilities in South Carolina and Northeast Florida to ensure the information they have received is valid. Finally, as with the other stakeholders, interviewees will be asked about their thoughts on funding vessel repairs through railways/boat yards, and potential consequences." (Proposal p. 2)

GOAL: Consult boatyards/railways/repair facilities—conduct interviews and co-create repair and price list.

1. Can you tell me how this railway works? How long has it been here, who operates it, how do you find people to work on the vessels?

2. What do you think this business really excels at? What are some of the challenges?

3. Tell me about the vessels you work on. What types of work do you tend to do here?

4. What types of work do owners/captains tend to do on their own, away from the railway?

5. What does yearly vessel maintenance ON the railway involve and cost? Do all vessels tend to use some of the same materials (e.g. zincs, fiberglass, lightbulbs, etc.) or is it specialized to each boat?

6. What are the common repairs that fall outside of that?

7. If a vessel hasn't been maintained, what types of things might be needed to bring it up to speed?

8. What is the timeline for your railway? How long do people wait, how do you decide who's next?

9. What happens if emergency repairs are needed?

10. What would help you be productive and/or successful with this business?

11. If future funding were to become available to support commercial shrimping in Georgia, from the federal government (and direct payouts were not allowed/already maxed out), what could DNR invest in that would support the industry as a whole, in a fair manner? What advice would you give to them in that situation?

    a. What if that money had to be specifically spent only on vessels, what would you recommend?

12. IF DNR wanted to invest in vessel repairs by working with the railways in the state, what could this look like? How could this be set up? How could it be arranged so it's fair to all the vessel owners?

13. What would be the pros and cons of this program? What should the agency be aware of?

14. Would your railway be interested in cooperating with CRD to make this happen?

    a. How could this work?

    b. Would you agree to work within the price ranges listed today?

    c. Who would be the person for them to coordinate with if this goes forward?

15. Is there anything else that they should know about this idea or potential plan?

Appendix IV: Individuals/Businesses Commonly Referenced During Vessel Repairs/Maintenance Interviews

ENGINE	
Transmission Power Inc, (Jacksonville, FL) "Cajun Neal"	Transmission/Clutch
Charlie Collins (McIntosh)	Clutch
Marty Higgins (Glynn)	Clutch
Dominey Machine and Propeller Jack Dominey (Brunswick)	Wheel/Shaft/Propellers
Tyler Dominey Propeller Tyler Domoney (Brunswick)	Propellers
Jeff Todd (McIntosh)	Engine work
Marty Hatcher (McIntosh)	Engine work
Jimmy Byrd- Ellis Marine (Brunswick)	Propellers
Coastal Alloy (Brunswick)	Fuel systems
DECK EQUIPMENT	
Beaufort Marine Supply, Inc. (Beaufort, SC)	Pumps
Leo Ross (Brunswick)	Winch
HULL	
Frankie Gale-City Market (Brunswick)	Fiberglass
Motion Industry (Jacksonville, FL)	Steering
FISHING GEAR	
Ricky Dubberly (Yulee, FL)	Nets/bags, TEDS/BRDS, trawl doors, cables/shackles/ropes/blocks
Billy Burbank Burbank Trawl Makers (Fernandina, FL)	Nets/bags, TEDS/BRDS
Gary Pittman (McIntosh)	Nets/bags

Robin Adams (McIntosh)	Nets/bags
Robert Everson (McIntosh)	Nets/bags
Gordon's Net Works (Shallot, NC)	Nets/bags
Beaufort Marine Supply, Inc. (Beaufort, SC)	Cables/shackles/ropes/blocks
First Georgia Hardware & Marine (Darien)	Cables/Shackles/Ropes/Blocks
WHEELHOUSE & GEAR ELECTRONICS	
Dean Electronics (Jacksonville, FL)	Radar, computer, plotter, depth finder, Radio/phone/satellite phone
West Marine	Radar, computer, plotter, depth finder, Radio/phone/satellite phone
Walmart | Save Money. Live better.	Computer
SAFETY EQUIPMENT	
River Supply (Savannah, GA)	Rafts, throw rings, EPIRBs, flares/flare kits, life jackets
Datrex (Jacksonville, FL)	Rafts, throw rings, life jackets, survival suits
Beaufort Marine Supply, Inc. (Beaufort, SC)e	Flares/flare kits, life jackets
First Georgia Hardware & Marine (Darien)	Life jackets
A&A Fire Protection (Brunswick)	Fire extinguishers

Appendix V: Modeling of Participant Ideas for DNR Support of Shrimp Vessels in Georgia

	1	2	3	4	5	6	7	8	9
Model	***Equal Money for All***	***Equal Fixes for All***	***Matching Funds****	***Triage***	***Support the Productive***	***Maintain the High-Functioning***	***Emergency Funds***	***Regulatory Support***	***Outside the Scope***
Definition	Each person gets the same amount of money to spend on needed repairs	Each person gets the same element fixed, even if amount needed to fix is not equal	For money spent on approved things/ at approved places, DNR matches that money (either reimbursement to shrimper or direct pay to the vendor)	Invest in getting the least functional vessels up to speed in order to preserve the fleet	Utilize a percentage of landings to determine the more productive members of the fleet, and invest in them at a higher rate than other vessels	Invest primarily on the higher-functioning vessels, as indicated by landings.	Reserve DNR funding for handling unexpected and sudden repairs	DNR funding for required items that are not essential for vessel function would free up shrimper funds to invest back into vessel repairs and upkeep	Initial responses often centered around issues that can likely not be solved by increased DNR CRD investment
Example	Direct payment to vendor (railway, net building or repair, electrical vendor, etc.)	This could cover all the zincs, or fiberglass, or paint that each vessel needs, regardless of quantity	If $X is paid to the railway, DNR could reimburse for half; OR if shrimper pays $X to railway, DNR pays railway the same amount	Repair and rehabilitate the least functional vessels so they can continue shrimping	A "sliding scale" model that ensures those who are actively shrimping (and are therefore most likely depending on this income) are able to continue to do so	Use one of the models in #1-3 to make sure the most successful vessels who have invested most heavily in their own businesses and boats are rewarded for that foresight and dedication	If someone loses an engine or catches on fire they likely don't have funds set aside to deal with this	Provision every vessel with the same excluder devices or safety gear, OR, provide vouchers for the gear to a local vendor so they can replace when needed	Many shrimpers raised concerns about imported shrimp, lack of tariffs, area closures, and the cost of fuel

Pros & Cons	May not be sufficient to actually get a vessel in decent shape; varying levels of ongoing maintenance means some people will get to upgrade while others will struggle to stay afloat (or the amount might even be insufficient to get some boats back on the water)	Some vessels will get more $$ spent on them by virtue of size or ongoing neglect; Simplicity of DNR simply paying vendor to keep specific items in stock to be used as needed	Someone will be left waiting for DNR reimbursement; assumes shrimper has any money to invest	This could "reward" neglect; market is so bad that the investment might not result in improved results for the shrimper	This might further disenfranchise shrimpers who are struggling; indicates less "interest in" or "support for" some portions of the fleet	Lots of potential frustration from other shrimpers; same concerns as Model 5.	Vessels that are well-maintained likely have fewer emergencies and poorly-maintained vessels are more prone to sudden catastrophic events	A considerable amount of money goes into TEDs, life rafts, flares, etc. All are required and pricey, but don't help maintain a vessel in order to make money.	Marketing

**A few participants referenced other states using disaster funds to match industry member purchases of relevant gear or repairs, but could not provide specific details. Tookes and Fluech did not find a program exactly like what is described above, but the South Carolina Department of Natural Resources (SCDNR) is allocating part of their 2018 shrimp disaster funding for a competitive grants program. Eligible commercial shrimpers and seafood dealers can apply for grants to pay for relevant repairs, equipment or gear that will support their ability to continue operating (Chris McDonough is the main SCDNR point of contact for the grants).*

Appendix VI

Master Repair and Price List

survey #	PROPULSION ENGINE			
"-88"= no response	Repairs/Maintenance			
	what	cost	time	who
2	Replaced main engine mufflers	$3,000	-88	self and Brother
8	Rebuilt Entire Engine	$15,000	-88	Jeff Todd
18	New Engine	$10,000	3 Months	Micky Hatcher
19	Engine Rebuild	$30,000	2 weeks	-88
	Engine expenses ranged from a			
	Engine rebuilds ranged from $15-			
10	Clutch	$2,800	1.5 Days	Self
14	Clutch	$3,000	-88	-88
20	Clutch (used)	$6,500	2 hrs	Marty Higgins
7	Rebuilt Clutch	$8,000	-88	-88
12	Clutch repair X 2	12000 ($5-$6K each time)	4-6 Weeks Each	Charlie Collins and Self
6	Clutch overall	$15,000		Cajun Neal
16	Clutch	$15,000	3-4 days	
	Clutch expenses ranged from $2,800 to $8,000			
	$15,000 estimates were for overhalls and did not include labor			
16	Transmission	$4,000	2-3 Weeks	-88
8	New Transmission	$13,000	-88	Self and Help
10	Rebuilt Transmission	$15,000	3 days	Self
21	Rebuilt Transmission	$18,000	2 weeks	-88
7	Wheel	$2,500	-88	-88
12	Rebuilt Wheel	$6,000	1 year	Jimmy Bird
13	RebuiltWheel	$3,000	3 days	Matt Linton
18	Wheel	$3,400	1 hr	-88
9	Wheel	$14,000	-88	-88
6	Wheel	$17,000-$20,000		
4	Replaced Shaft And Drive Bearings	$29,000		Bruce
6	Shaft	8,000		
8	Shaft	$12,000	-88	-88
6	Propeller	$8,000		
7	Propeller	$5,000	-88	-88
17	Propeller	$10,800	-88	Mexico
8	Propeller	$3,500	-88	Josh Bishop
16	Wheel/Shaft/Propeller	$3,500	-88	-88
22	Wheel/Shaft/ Propeller	$10,000	2 weeks	Railway
25	Wheel/Shaft/Propeller	$10,000	3 days	-88
	Expenses for propeller/wheel/shaft work varied whether worked on seperately or together. Work on wheels ranged from $2500-			
	Propeller work ranged from $3,500-$10,800, and shaft work ranged from $8000-$29,000			
18	Generator	$350	-88	-88
7	Generator	$1,050	-88	-88
21	Generator	$8,500	-88	-88
6	Generator	$10,000		
19	Generator	$17,000	Few Hrs	-88
8	Generator	$23,000	-88	Coastal Alloy

	Generator expenses for steel hull vessels (> 63 feet in length) ranged from $8,500 to $23,000			
	Generator expenses for wood/fiberglass hull vessels (<62 feet in length) ranged from $350-$10,000			
1	Power Take Off Repair	$200	12 hrs	Self
7	Power Take-off	$1,000	2 hrs	Self
20	Power takeoff	$2,500	3 days	-88
18	Fuel Filters	$24		
14	Fuel Filters	$60 each	-88	-88
15	Fuel Filters	$150/ Year	-88	-88
12	Fuel Sensor	$500	1 day	Allen's Brother
4	Fuel Systems	$1,800		Coastal Alloy Welding
13	Turbo	$200	2-3 hrs	Marty Hatcher
9	Tune-ups/ Turbo/ Changed two	$6,800	1 day	labor
14	Turbo	$12,000	2 month	-88
1	Oil Changes	$200 X 6	1 hr	-88
1	Generator Oil	$50/month	500 hrs total (1hr each)	self
2	Oil Changes	$1000/month and a half	1.5 hours	self
3	Oil Filters	$ 650/year	1.5 hrs each	self
4	Valves and Oil Filters	$1,000	-88	-88
6	Oil Filters	$500/Year		
7	Oil/ Filters	$250	-88	-88
8	Oil Filters	$8,000	4 hours each time	Self
9	Oil Filters	$280	-88	self
10	Oil Filters	$5,500	5 times a year, 200 hrs	Self
11	Oil Filters	$350	1 hr each	Self
12	Oil Filters	$1,200	1 day X4	Self
13	Oil filters	$3,300	1 hr each time	-88
14	Generator Oil Filters	$200/ month	-88	-88
15	Oil Filters	$360/ Every 3 Months	-88	-88
16	Oil/ Filters	$2,000	-88	-88
17	Oil Filters	$500	-88	-88
18	Oil	$36	Every 2 months	-88
19	Oil Filters	$600	3/Year	-88
20	Oil Monthly (Filters too)	3900/year	-88	-88
21	Oil Filters	$ 300/ 2 weeks	-88	-88
22	Oil Cooler	$3,000	200 hrs/Year	-88
23	Oil/Filters	$350/400 hrs	-88	-88
24	Oil Filters	$500/ Y	-88	-88
25	Oil Filters	$250	6-7 times per year	-88
	Captains/owners reported changing oil and replacing filters from every two weeks to every 3-4 months depending on how much they ran their boats and the vessel size. Expensese ranged from $500/year to over $8,000/year.			
1	Keel Cooler Leak	$500	1 day	self plus help
16	Keel Cooler	$1,200	2 weeks	-88

9	Water pump (used no new)	$5,000	1 month	-88
10	Water Pump	$300	2 hrs	Self
14	Manifold Exhaust	$3,000-$4,000	-88	-88
18	Exhaust Hose	$600 for 2	Few Hrs	Strickland Hoses
22	Exhaust Parts	$1,000	-88	-88
14	Used Head	$500	-88	-88
15	Head Job	$6,000	-88	-88
1	Air Filters	$200	1 hr	self
3	Hydraulic Pump	1,200	2 days	Repair shop in Jax
5	Adjust valves and Run Rack	$250	2.5 hrs	cummin's machanic- Jeff
8	Rudder	$20,000	1 Week	-88
9	Bucket	$900	4-5 month	Labor
12	Dropped Valve	$2,000	2 days	Self and Jeff Todd
12	Injector Pumps	$2,500	2 days	Allen's Brother
12	Starter/Altenator	$700	2 days	Self and Bass Electric
14	autopilot	$300	-88	-88
16	Piggyback Hydrolics	$4,500	-88	-88
20	Manifold	$700	-88	-88

survey #	Deck & Deck Machinery			
"-88" = no response	Repairs/Maintenance			
	what	cost	time	who
1	winch maintenance	$20/month	30 mins	-88
6	Winches	$10-15,000		
8	Winches, Grapple, Splice Cable	$4,000/Year	100 hrs/year	Self
11	Rebuilt Winch	$10,000	5 days	Self and Mechanist
15	Used Winches	$3,000		
17	Hydrolics for Winches	$3,200	-77	-77
18	Winches	$5,000	-88	Leo Ross
22	Winches	$15,000	-88	Beaufort Marine
25	Winches	$1,000	-88	Ricky
	Basic maintenance seems to be anywhere around $300/year			
	Rebulding around $5K-15K			
18	Water Pumps	-88	-88	-88
5	fresh water pump	$200	2 hrs	self
8	Water Pump	$3,000-$4,000/Year	20 hrs/year	Self and Crew
13	Freshwater Pumps	$300	1 hr	self
	Freshwater pumps either $2-300 or $3-4K			
5	Bilge Pump	$250	1.5 hrs	self
10	Bilge Pumps	$250	2 hrs	Self
16	Bilge Pump	$3,200	-88	Beaufort Marine
17	Bilge Pumps	$175	-88	-88
23	Bilge Pump	$600	1 hr/ 4 x a year	-88
	Bilge pump work averages about $300/year			
13	Deck Pump	$350	1 hr	self
17	Deck Pumps	$250	-88	-88
9	Pumps	$300-$600/ Year	-88	-88
24	Pumps	$140	-88	-88
25	Pumps	$120	-88	-88
5	Intake Pump	$500	3 hrs	self
17	Brass Pump	$1,500	-88	-88
5	wash down pump	$300	3 hrs	self
21	Replace pumps	$500	-88	-88

1	Generator Oil Seal Leak	$30	2 Days	Self
16	Rebuild Generator	$15,000	-77	-77
24	Generator	$2,500	2 Weeks	self
4	Deck & Bridge	$2,500		self and crew
12	Repoured Bearings	$100 + Fish	1.5 Days	-77
13	Air Conditioner	$1,000	1 day	-88
18	Hydrolic Hoses	$400	-88	-88

survey #	Wheelhouse and Gear Electronics			
"-88" = no response	Repairs/Maintenance			
	what	cost	time	who
7	Radar	$1,500	1 day	self
11	Radar	$3,000	-88	-88
17	Magnatrem on Radar	$863	1 day	Offshore Monroe, NC
18	Radar and Moniter	$1,600	-88	-88
20	Radar	$800	-88	-88
25	Radar	$3,000	-88	-88
	Radar prices range roughly from $800-$3,000/ each			
4	VHF Radio	$350	-88	self
11	Radio	$400	-88	-88
12	Radio	$400	-88	-88
18	VHF Radio	$189	-88	West Marine
25	FM Radio	$200	-88	-88
	Radio expense roughly range from $200-$400/ each			
6	Mushroom GPS/Comp	$200	-88	Lindsy Parker
8	Computer System, Sim R	$12,500	-88	Self and Dean Electronics
12	Computer	$300	-88	-88
13	Repurposed Old Comput	$750	1 day X2	-88
20	Computer	$2,500	-88	-88
	Quality/capacity of computers vary significantly; can get basic/refurbished computerfor under			
11	Plotter	$1,500	-88	-88
20	Plotter	$2,100	-88	Bill
21	Wind Plotter	$2,000	-88	-88
24	GPS Plotter	$400	-88	Walmart
25	GPS	$1,000	-88	-88
	Average stated price for plotter is roughly $1,400			
11	Autopilot	$1,500	-88	-88
16	Autopilot	$7,700	-88	Tommy
20	Autopilot	$1,200	-88	Family, Kurt
19	Depth Finders	$4,000	1 hr	-88

22	Depth Recorder	$8,000	-88	-88
24	Sounder/Depth Recorder	$300	-88	-88
4	Antennae	$4,700	-88	Dean's Marine elect Jax
12	Antennae	$600	-88	-88
1	Phone	$800	-88	Self
4	Replace Transluce	$1200 Yearly	-88	self and Hill V Divers
9	EPIRBs	$500	-88	Self
9	Safety Equipment	$2000/Year	-88	-88
9	Life Floats	$1,500	-88	-88
9	Fire Extinguisher	$300	-88	-88
11	Labor (Install)	$3,000	-88	-88
25	Laptop	$200	-88	-88
25	VHF	$100	-88	-88

survey #	HULL			
"-88" = no response	Repairs/Maintenance			
	what	**cost**	**time**	**who**
1	Running lights, NAv Lights	$300	6 hrs	Self
4	lights	$2,000	2 hrs	self
7	Deck Lights	$8,000-$10,000		-88
8	Running Lights	$1,000/Year	4-5 Days	Self
9	Lights/Bulbs (2/Year)	-88	-88	-88
13	Deck Lights	$500	1 week	Matt
21	Deck Lights	$1,000	-88	-88
25	LED Lights	$40	-88	-88
	Deck lighting expenses can range fro several hundred to up to a few thousand a year			
1	Rigging	$20,000	3 weeks	self and help
2	Rigging	$5,000	3 Weeks	Self
6	Rigging Sprocket	$100	-88	-88
8	Rigging	$2,000	8 hrs	-88
15	Used Rigging	$2,500	-88	-88
16	Rigging	$4,000	-77	-77
18	Rigging	$2,000	-88	-88
21	Rigging	$1,400	-88	-88
23	Topside point, Rigging	$2,000	weeks in winter	-88
	Rigging seems to be in the several thousands range.			
1	Paint	$1,000	1.5 Weeks	self and labor
3	Bottom Paint	$750	2 days	self
3	Paint sides and Deck	$450	1 day	self
7	Paint	$1,000-$1,500/ Year		self
9	Paint	$7,000	2 hrs	Self and Crew
10	Paint	$12,000	Summer	Self and Labor
12	Paint	$2,400	Few Days	Paid Labor
13	Paint, Zincs, Labor	$5,000	1 week	Matt
14	Paint	$5000/year	-88	-88
16	Paint	$1,200	-88	-88
17	Chipping/ Painting/ Rigging/ Top	$102 X 25	1.5-2 weeks	-77
25	Paint	$1,500	-88	Marty Hatcher
	Vessel paint types vary by captain, but generally costs in the thousands of dollars to completely			
3	Zincs	$90	1.5 hrs	self
6	Zinc	$540		

9	Zincs	$3,000	-88	-88
10	Zincs	-77	-77	-77
12	Zincs	$700	-88	-88
14	Zincs	$550	-88	-88
	Number of zincs per vessel varries... price per zinc around $40-$50/piece			
6	Glass Application	$380 +$345 +$500	Split payments	-88
11	Glass Application	$1,200	-88	Paid Crew
12	Fiberglass Patches	$500	-88	-88
14	Rails and Fiberglass Repair	$5,000	-88	-88
15	Railing and Reglass	$3,000	3-4 Weeks	-88
16	Reglassed Fuel Tanks	$2,000	-88	-88
20	Glass, Bow, Stern,	$8,000	Over 1 month	Frankie Gale
24	Rib/Glass Repair	$5,000	2 Weeks	-88
25	Fiberglass	$140	-88	Frankie Gale
	Regular reapplications are common.			
6	Steering	$150	-88	-88
8	Steering Oil	$1,500/Year	-88	-88
22	Steering	$100	-88	-88
23	Hydrolic Steering	$12,000	3-4 days	-88
24	Steering Maintenance	$800	1 Day	-88
9	Keel Cooler Scrape	$900	1 Day	-88
15	Keel Cooler	-88	-88	-88
16	Keel/ Shoe	$2,000	3-4 days	Labor
18	Keel	$5,000	2-3 hrs	Capt. Freddy
19	Keel/ Shoe/Metal Ground	$10,000	-88	-88
21	Keel Coolers/Cleaning	$500	-88	-88
22	Keel Cooler	-88	1 hr	-88
24	Keel Cooler	$1,200	2 days	-88
7	Ice Hold	$20,000	4 Months (-77)	Frankie Gale
14	Ice Hold	$1,000	Week	-88
19	Fish hold/Freeze	$5,000	four weeks	-88
20	Fish Holds	$400	1 day	Bubba

8	Wheelhouse/Pilothouse	$5,000	1 week	SC
16	Wheelhouse	$10,000	-88	Josh coastal Alloy
19	Account (Wheelhouse)	$5,000	-88	-88
23	Wheelhouse	$1,200	Few hrs	Self
	Extent of wheelhouse work varied but often several thousand dollars			
9	Rope/propeller	$450	1 day each	-88
11	Replace Stay wires	$2,000	1 day	-88
5	Capt Chair	$150 (welder)	6 hrs	Frankie Gale
22	Take off Chair	$500	-88	-88
2	Freezer Plates and Brine Tank	$8,000	John Stein (Islands Refrigeration)	
8	Freezer System/Compressor	$7,500	2 days	Charlie Smith
4	rebuilt trawl doors with bulets an	$6,500 self and crew	-88	self and crew
5	Door Rack	$150 (glass/gel coat)	8 hrs	self
5	hatch	$400	2 days	self
5	dash and instrument panel	$700	2 days	self
6	Fuel Valve	$50	-88	-88
8	Deck/Sides	$3,500	2 weeks	self and crew
10	Tune-ups	-77	-77	-77
10	Stern Steady	-77	-77	-77
13	Anchors	$4,000	-88	-88
14	Floats	$800	-88	-88
14	Stablizers	$1,000	-88	Brothers rebuilt
18	Replace Plywood	$400	-88	-88
20	Steel Mast	-88	-88	John Tyre
21	Cut bulk Outs	$200	-88	-88
24	Roof Repair	$2,000	Week	-88
25	Sprockets	$300	-88	-88

survey #	Fishing Gear			
"-88" = no response	Repairs/Maintenance			
	what	**cost**	**time**	**who**
1	Building New Nets	$3,500	2 Weeks	Robin Adams
1	Nets	$300	30hr/week for 1 month	self
1	Dip Nets	$ 200 X 10	-88	-88
2	Nets	$5,000	-88	Self and Family
3	New Nets (Backups)	$2,500	-88	Billy Burbank
3	In Use Nets	$11,500	-88	Ricky Dubberly
4	Nets	$16,500	2 days	Ricky Dubberly
5	Nets	$3,000	1hr	-88
6	Nets	$3,100	2-3 hrs	-88
7	Nets	1,000	-88	Ricky Dubberly
8	Nets (12)	$28,000	-88	Billy Burbank and Garry Pitman
9	Nets	$1,600 +$800	-88	-88
10	Net Repair	$1,700	-88	Hired Crew
11	Nets	9 X 3500	1 hr for 2 nets	self
12	Fabricated Nets/Bag	$900	few days	Self
12	Nets	$5,000	4 days to Build and Dip	-88
13	Nets	$12,000	1 Month	Gary Pittman
14	Nets/Bags	$5,100	few days	Robin Adams
15	Bags (2), Nets (2) TEDS (2)	$5,000	-88	Ricky
17	Nets (2 Sets Yearly)	$3,400	-88	-88
18	Doors, Cables, Nets	$6,000	1 week	Ricky Dubberly
19	NETS	$4,000	-88	-88
20	Nets	$3,000	-88	Ricky
21	NETS	$130,000	-88	Gorden Nets and Supplies
22	Nets	$6,000	-88	-88
23	Nets/Bags	$22,000	-88	Gorden Network LLC
24	Nets	$3,000	68 hrs	Beaufort Marine
25	Nets	$3,500	-88	Rick Dubberly
	Net/ Bag replacement varies on size/material but roughly averaged $3,000-$4,000/net			
	Issue of shark damage to nets commonly mentioned; need for replacements			
1	Ropes/Spool/ Nylon, Outrigger Rc	$1,000	-88	Self
2	Ropes, anchor, whip line	$5,000	10 hrs/ year	
3	Ropes	$700	1/2 day	self
5	outrigger ropes	$300	4 hrs	-88
8	ropes and Cables	$5,000/Year	1 Week	Self and Crew
11	Ropes	$4,000	-88	-88
13	Ropes, Shackles, Tickle chains	$5,000	6 days	Self
25	Ropes	$400	-88	Ricky Dubberly, Marine Hardware
	Ropes, anchor lines, chains etc ranged from $300 to $5,000/year depending on amount purchased			
4	TEDS	$5,000	-88	Burbank
6	TEDS	2 X $1300	-88	-88
8	TEDS (8)	$8,000	40 hrs	self
9	TEDS	$200	4 days	Self
9	BRDS	$100	1/5 day	self
11	TEDS	$500	-88	-88
12	TEDS	$2,800	-88	Ricky Dubberly
13	TEDS	$4,000	1-2 days	-88
16	TEDS	$4,800	-88	-88
17	TEDS	$800	-88	-88
18	TEDS	$1,000	-88	-88
19	TEDS/BRDS	$5,000	-88	-88
20	TEDS	$900	-88	Rick Dubberly

22	TEDS/BRDS	$500	-88	-88
23	TEDS	$5,000	-88	-88
25	TEDS/BRDS	$2,000	-88	Rick Dubberly
	Required by law; many captains report using fixed angle TEDS in their nets. Range in price *roughly* $1,000/each if new			
3	Trawl Doors	$1,200	1 day	self
4	Trawl Doors	$5,500	-88	-88
6	Trawl Doors	$3,000	-88	-88
7	Trawl Doors	)00 Every Two Years	-88	-88
11	Trawl Doors	4 X $750	1 day	-88
15	Trawl Doors	$5,000	-88	-88
17	Trawl Doors	$800	-88	-88
21	Trawl Doors	$6,000	-88	-88
1	Boards on Hull Doors	$50	4 hours	self
8	Wood Doors	$5,600	40 hrs	self
9	Trawl Doors	$3,000 X 4	2 days	NC
16	2 Trawl Doors	$5,000	-88	-88
20	Trawl Doors	$2,700	-88	-88
22	Trawl Doors	$30,000	-88	-88
25	Door	$1,000	-88	-88
	Trawl door expenses will vary based on size/material but can roughly range from $500-$3000/door			
9	Custom Made Bag	$800	-88	Self
13	Bags	$1,600	-88	Gary Pittman
17	Bag	$800	-88	Rick Dubberly
20	Bags	$1,100	-88	-88
22	Bags	$500	-88	-88
	Will vary based on material/size, but bag alone be roughly around $800/ each			
7	Block	$450	-88	self
18	Blocks	$165	-88	-88
25	Blocks	$120	-88	-88
1	Spliced Cables	-88	5 hours	Self and Crew
12	Cable/Anchor	$700	-88	-88
24	Cables	$450	-88	Robert Everson
3	Shackles	$200	-88	-88
14	Shakles	$80	-88	-88
17	Stainless Shackles	$250	-88	-88
5	Laylines	$500	-88	-88
6	Tickle Chains	$1,200	-88	-88
9	Radar	$2,400	-88	-88
10	VHF Radio	$400	-88	Self
10	Repair Auto-pilot	$500	-88	Paid Tech
14	Chains	$200	-88	-88
16	Fixed Glass	$1,000	-88	-88
16	Repairs	$14,000	week	-88
23	Misc Hardware	$80	every 2 months	-88

survey #	Safety Equipment			
"-88" = no response	Repairs/Maintenance			
	what	**cost**	**time**	**who**
2	EPIRBs	$100	-88	Self
3	EPIRBs	$700	-88	self
6	EPIRBs	$80	-88	Lindsey Parker
7	EPIRBs	$2500 Every 3 Years	-88	-88
8	EPIRBs	$600	-88	Self
10	EPIRBs	$900	-88	Self
13	EPIRBs	$1,500	-88	-88
14	EPIRBs	$600	-88	-88
16	EPIRBs	$1,200	-88	-88
17	EPIRBs	$700	-88	-88
18	EPIRBs	$600	-88	-88
20	EPIRBs	$700	-88	-88
21	EPIRBs	$800	-88	-88
22	EPIRBs	$1,500	-88	River Services and Rafts
23	EPIRBs	$800	-88	-88
	New EPIRBs range roughly $600-$900/each			
1	Fire Extinguishers	$300	-88	-88
2	Fire Extinguishers	$300 inspect	-88	-88
4	Fire Extinguishers	$850	-88	local Guys in Brunswick
6	Fire Extinguishers	$375	-88	A & A
7	Fire Extinguishers	$300-900	-88	-88
8	Fire Extinguishers	$1,000/Year	-88	-88
11	Fire Extinguishers	$300	-88	-88
12	Fire Extinguishers	$120	-88	-88
13	Fire Extinguishers	$500	-88	-88
14	Fire Extinguishers	$300	-88	-88
18	Fire Extinguishers	$150	-88	-88
19	Fire Extinguishers	$600	-88	-88
21	Fire Extinguishers	$500	-88	-88
24	Refilled Fire Extinguishers	$50	-88	Waycross
25	Fire Extinguishers	$300	-88	-88
	Number of fire extinguishers/vessel will vary on size and captain's preference; average price roughly $50-$100/piece depending			
1	Flares	$300	-88	-88
4	New Flares	$250	-88	West Marina
6	Flares	$400	-88	-88
11	Flares	$500	-88	-88
12	Flares	$600	-88	-88
13	Flares	$400	-88	-88
14	Flares	$270	-88	-88
15	Flare Kits	$300	-88	-88
16	Flare Kit & Lights for Ves	$400	-88	-88
18	Flares	$300	-88	-88

19	Flares	$500	-88	-88
20	Flares	$200	-88	-88
21	Flares	$489	-88	-88
22	Flares	$500	-88	-88
24	Flares	$400	-88	-88
25	Flares	$600	-88	-88
	Flare kits will roughly range $300-$500 on average			
4	Life Raft	$250 pack	-88	-88
4	Replaced white life rings	$300	-88	-88
8	Life Raft	$3,000	-88	-88
10	Life Boat	$1,500	-88	Labor
12	Life Raft	$1,000	-88	-88
14	Raft	$40	-88	-88
16	Raft	$6,000	-88	-88
17	Shark Feeder	$1,300	-88	River Supply
18	Throw Rings	$100	-88	-88
20	Refill Life Raft	$1,200	-88	-88
21	Life Rafts	$1,000	-88	-88
23	Raft	$3,000	-88	-88
	Life raft will vary by size/type but roughly in the $1,000-$,3000+ range. Refill/repack prices can be several hundred to $1,000+ depending on type: throw rings can be roughly $100-$300			
6	Life Jackets	$50	-88	-88
7	Life Jackets	$55 X Crew members	-88	-88
11	Life Floats	$2,000	-88	-88
14	Life Jackets	$200	-88	-88
20	Life Jackets	$300	-88	-88
21	Lights for Life Jackets	$100	-88	-88
23	Life jackets	$75 each	-88	-88
	Life jackets can roughly range from $50-$150/each depending on type			
1	Battery	-$88	-88	self
11	Battery	$600	-88	-88
18	Battery Replacement	$300	-88	-88
1	Cleaning hull	$400	-88	-88
2	Unspecified Repair	$1400/ Yearly	-88	
4	replaced AC Ducts	$8,500	-88	-88
10	Pull in/Out Costs	$2,800	-88	--88
11	River Supply	$300	-88	-88
15	Paint	$1,500	-88	-88
16	Piggyback Pump	$1,500	-88	-88
18	Shackles	$20,000	-88	-88
25	Servers	$1,100	-88	-88