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# Assessing the impacts of the 2020 Virginia Sea Grant COVID-19 Response and Supplemental Activities

*January 9th to February 10th, 2022, survey*

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## Introduction

In response to the COVID-19 Pandemic, a project was initiated through a partnership between the Virginia Seafood Agricultural Research and Extension Center (VSAREC), the Virginia Institute of Marine Science Marine Advisory Program (VIMS MAP), the Virginia Coastal Policy Center (VCPC), and Old Dominion University (ODU) to address a variety of topics related to seafood marketing and new marketing channels. From this project several resources pertaining to direct-to-consumer marketing, online sales, COVID-19 at the workplace, and general requirements within the industry were created and made available to Virginia seafood producers and allied businesses. Resource descriptions can be found in Table 1.

During the same period of time, relief funding opportunities for seafood businesses were made available by agencies such as the United States Department of Agriculture (USDA) and the National Oceanographic and Atmospheric Administration (NOAA). Descriptions of relief funding opportunities can be found in Table 4.

Most individuals could not predict the COVID-19 Pandemic and the severe impacts associated. It is critical to determine useful strategies for assisting the Virginia seafood industry in the event a similar crisis occurs in the future. Likewise, it is important to determine the best methods to disseminate critical information and resources to industry members. Therefore, the purpose of this follow-up study is to determine what actions and resources were most useful to the Virginia seafood industry during the COVID-19 Pandemic.

An additional goal of this study was to identify any lingering challenges faced by the Virginia seafood industry, as well as any anticipated challenges for the future due to the COVID-19 Pandemic. Identifying these persistent and anticipated challenges will enable industry and researchers to address these issues and work toward solutions.

## Methods

The data for this study was collected through an online survey, administered through QuestionPro. During the development of the survey instrument, industry personnel were consulted to assist with pre-testing the instrument. This was done to ensure relevancy of questions asked, clarity of questions asked, and efficiency in completion.

Questions included in the survey were designed to capture general business information (i.e. business type, location, species farmed/fished), awareness and use of resources made available as a result of the 2020 Virginia Sea Grant COVID-19 Response and supplemental activities, awareness and use of relief funding opportunities made available during the COVID-19 Pandemic, current challenges faced due to the pandemic, and anticipated challenges due to pandemic. The survey was launched on January 9th, 2022, and closed on February 10th, 2022. Survey responses were exported from QuestionPro for further analysis using Microsoft Excel.

# Results

## Characterization of Respondents

The survey closed with 118 recorded responses on February 10th, 2022. Of those responses, 86 were 100% complete, and 32 being more than 50% complete.

The greatest percentage of respondents (40.8%) indicated they operated commercial fishing businesses (Figure 1). This was followed by 29.3% operated aquaculture farms, 13.2% who operated seafood dealer/wholesale businesses, 7.5% who operated seafood processing businesses, 5.7% who operated seafood distribution businesses, and 3.4% who operated other seafood related businesses. Through analysis, it was determined that 29.7% of respondents operated more than one of the mentioned businesses.

Of the respondents who operated commercial fishing and aquaculture businesses, 40.6% of respondents farmed or fished for oysters (Figure 2). This was followed by 26.5% who fished for crabs, 16.1% who farmed or fished for marine finfish, 11.6% for clams, 2.6% for freshwater finfish, 1.9% for shrimp, and 0.6% who farmed or fished other species. Through analysis, it was determined that 41.5% of respondents farmed or fished for more than one species.

The greatest percentage of respondents (30.4%) reported their businesses were located on the Eastern Shore of Virginia (Figure 3). This was followed by 25.6% whose businesses were located on the Northern Neck, 16.8% located on the Virginia Peninsula, 14.4% on the Middle Peninsula, 9.6% in the Southern Virginia Region, and 3.2% located in other regions of Virginia.

## Scale of farms/businesses

Virginia survey respondents were asked to identify the scale of their businesses, in terms of gross business revenue in 2021 (Figure 4). The greatest percentage of respondents (31.8%) reported gross business revenue of $5,001 to $50,000. This was followed by 21.2% who reported $50,0001 to $100,000 in gross business revenue, 12.9% who reported less than $5,000, 11.8% who reported $100,001 to $250,000, 9.4% who reported more than $1 million, 7.1% who reported $500,001 to $1 million, and 5.9% who reported $250,001 to $500,000.

# Key Findings

## Awareness of resources developed (VSG COVID-19 Response and Supplemental Activities)

According to the data, 26.9% of Virginia survey respondents were made aware of Virginia Cooperative Extension Fact Sheets, which were developed as a result of the Virginia Sea Grant COVID-19 Response and Supplemental Activities (Figure 5). This was followed by 23% who were made aware of E-commerce consulted offered by CSG consulting and VIMS, 20% who were made aware of fact sheets on strategies for direct-to-consumer sales, 17.8% who were made aware of AquaCulture.org, 17.5% who were made aware of aquaculture-va.com, and 5.4% who were made aware of other resources. Other resources include guidance offered by the USDA to facilitate safe workplace and customer interactions during the COVID-19 Pandemic, along with other unidentified resources.

Of those who were made aware of fact sheets on strategies for direct-to-consumer sales, the greatest percentage (33%) indicated they were made aware through extension staff (Table 2). For all other resources, the greatest percentages of respondents indicated they were made aware through state or federal agencies, such as the Virginia Marine Resource Commission (VMRC), the Virginia Department of Agriculture and Consumer Services (VDACS), and the USDA.

## Utilization and Benefits Experienced from Resources Developed

Of those respondents who were made aware of the resources developed as a result of the Virginia Sea Grant COVID-19 Response and Supplemental Activities, 75% reported they utilized other resources not listed in the survey. This was followed by 48.3% who utilized the Virginia Cooperative Extension fact sheets, 42.1% who utilized E-commerce consulting offered by CSG consulting and VIMS, 36.8% who utilized fact sheets on strategies for direct-to-consumer sales, 31.8% who utilized AquaCultured.org, and 23.1% who utilized aquaculture-va.com (Figure 6).

Table 3 describes the benefits experienced by Virginia survey respondents who utilized the resources made available as a result of the 2020 Virginia Sea Grant COVID-19 Response and Supplemental activities. The greatest percentages of respondents (33.3% each) found the E-commerce consulting offered by CSG Consulting and VIMS useful for acquiring general information and guidance on how to deal with COVID-19, as well as acquiring general information about the industry.

Equal proportions of respondents (33.3% each) found Aquaculture-va.com useful for acquiring general information and guidance on how to deal with COVID-19, acquiring general information about available resources, and acquiring general information about the industry.

Similarly, 33.3% of respondents found AquaCultured.org useful for acquiring general information and guidance on how to deal with COVID-19. Additionally, equal proportions (22.2% each) found this resource useful for acquiring general information about available resources, as well as acquiring increased access to markets and consumers.

The majority of respondents who utilized the Virginia Cooperative Extension fact sheets (56.3%) indicated this resource was useful for acquiring general information and guidance on how to deal with COVID-19. This was followed by 31.3% who acquired general information about the industry, and 12.5% who acquired general information about the industry from this resource.

The majority of respondents who utilized fact sheets on strategies for direct-to-consumer sales (66.7%) found this resource useful for acquiring general information about available resources. This was followed by 33.3% who indicated this resource was useful for acquiring increased access to markets and consumers.

In general, the responses from Virginia survey participants suggest that the resources developed as a result of the Virginia Sea Grant COVID-19 Response and Supplemental Activities were mostly useful for providing general information about how to deal with COVID-19, available resources, and information about the industry.

## Awareness of Relief Funding Opportunities

According to the data, 58.8% of Virginia survey respondents were made aware of the 2020 NOAA COVID-19 Fisheries Relief (Figure 7). This was followed by 49% who were made aware of the 2021 NOAA COVID-19 Fisheries Relief, 28% who were made aware of the 2020 USDA Coronavirus Food Assistance Program 1 (CFAP 1), 27.8% who were made aware of the 2021 USDA CFAP 2, and 11.3% who were made aware of other relief funding opportunities. Other opportunities specified include Small Business Association (SBA) low interest business loans, Virginia Fisheries Grant, USDA COVID-19 Grant, and USDA Pandemic Response and Safety (PRS) Grant.

Table 5 describes the information outlets through which 2022 Virginia survey respondents were made aware of relief funding made available during the COVID-19 Pandemic. For all relief funding opportunities, the majority of respondents (48% to 62%) indicated they were made aware through state and federal agencies, such as the Virginia Marine Resource Commission (VMRC), the Virginia Department of Agriculture and Consumer Services (VDACS), and the USDA.

## Application and approval for Relief Funding Opportunities

Figure 8 illustrates the percentages of respondents who applied for relief funding made available during the pandemic.

Of those who applied for 2020 NOAA COVID-19 Fisheries Relief , 66.7% received funding (Figure 9). Likewise, 57.1% of respondents who applied for 2021 NOAA COVID-19 Fisheries relief received funding.

Of those who applied for 2020 USDA CFAP 1 relief funding, 54.2% received funding. In the following year, 22.2% of respondents who applied for USDA CFAP 2 relief received funding. According to the data, 16.7% of respondents who applied for other forms of relief received funding.

## Utilization and Benefits Experienced from Relief Funding Opportunities

Table 6 describes the experienced benefits from relief funding made available during the COVID-19 Pandemic. In general, the greatest percentages of respondents (40% to 79%) indicated the relief funding mentioned helped businesses cover operating expenses. This was followed by 16% to 24% who indicated the funding helped businesses retain employees. Other lesser benefits included hiring new employees, purchasing new equipment, establishing new marketing channels, and purchasing equipment and infrastructure to protect from COVID-19.

Thirty percent of respondents who received funding from other sources indicated it assisted with retaining employees. This was followed by 20% who indicated the funding helped establish new marketing channels, 20% who indicated it enabled them to purchase equipment and infrastructure to protect from COVID-19, 10% who indicated it helped cover operating expenses, 10% who indicated it enabled them to hire new employees, and 10% who indicated it allowed them to purchase new equipment.

## Awareness of Risks, Challenges, and Potential Disruptions to Farm/Business

Respondents were asked “Has your experience with the COVID-19 Pandemic increased your awareness of risks, challenges, or potential disruptions to your operations of business?” (Figure 10). The majority of respondents (68.9%) answered “yes”. This was followed by 16.5% who answered, “not sure”, and 14.6% who answered “no”.

When asked to explain further, many respondents who responded “yes” suggested their experiences made them aware of vulnerabilities surrounding their markets, supply chains, employment, and the overall economy. Some important takeaways mentioned were the need to diversify sales channels, keep accurate records, participate in association/organization activities, and plan for unforeseen disruptions like the COVID-19 Pandemic.

Several respondents who responded “no” indicated that they were already exposed to similar disruptions and were prepared. Other disruptions or challenges experienced include seasonality and closures implemented by the Department of Shellfish Sanitation (DSS) with the Virginia Department of Health (VDH)

### Persistent Challenges

Virginia survey respondents were asked to identify any challenges still experienced, even though they may no longer experience the immediate impacts of the COVID-19 Pandemic (Figure 11). In response, 83.7% of respondents indicated they still experienced increased operating costs. Other challenges identified include reduced market value of products sold (53.1%), lost sales and/or markets (49.5%), lost opportunities (40.8%), transportation of products to market (22.8%), other challenges not specified (13.9%), and obtaining inputs for production (13.2%).

Additionally, 30.7% of respondents indicated challenges to retain current employees, and 28.4% indicated challenges to hire new employees. Survey respondents were asked to specify challenges related to retaining and hiring employees. The greatest percentage of respondents (26.5%) indicated they could not offer full-time employment to current employees (Figure 12). Other challenges regarding the retainment of employees include inability to pay competitive salaries (20.4%), inability to offer competitive benefits (14.3%), inability to provide flexibility offered by other job opportunities (14.3%), other unspecified challenges (14.3%), and inability to obtain documentation for undocumented workers (10.2%).

In regard to challenges to hire new employees, 31.2% of respondents indicated they could not find individuals interested in their line of work (Figure 13). Other challenges regarding hiring new employees include difficulties finding quality employees (15.6%), inability to offer competitive benefits (14.3%), inability to offer full-time employment (11.7%), inability to offer competitive salaries (10.4%), inability to provide flexibility offered by other job opportunities (9.1%), and inability to obtain documentation for undocumented workers (6.5%).

Regarding the persistent challenges mentioned, Virginia survey respondents were asked to identify potential solutions. These solutions are illustrated in Figures 13 through 22. Across all challenges, significant percentages of respondents believed additional relief funding opportunities would provide solutions. On the other hand, significant portions of respondents were not sure of any potential solutions to their challenges.

## Anticipated Challenges

Virginia survey respondents were asked to identify any challenges they anticipated experiencing over the next 12 months (Figure 23). Eighty-seven percent of respondents indicated they anticipated increased operating costs over the next 12 months. This was followed by 37% who anticipated lost sales and/or markets, 35.9% who anticipated reduced market value of products sold, 31.9% who anticipated lost opportunities 26.1% who anticipated challenges retaining current employees, 24.4% who anticipated challenges hiring new employees, 24.1% who anticipated challenges obtaining inputs for production, and 16.5% who anticipated challenges transporting products to market.

As a follow-up, respondents were asked if their anticipated challenges could be prevented or reduced (Table 7). Greater percentages of respondents indicated challenges such as increased operating costs, hiring new employees, and transporting products to market cannot be prevented or reduced. On the other hand, greater percentages of respondents indicated challenges such as lost sales, lost opportunities, retaining current employees, and obtaining inputs for production could be reduced. Additionally, a greater percentage of respondents indicated reduced market value for products sold could be prevented.

Potential methods to prevent or reduce anticipated challenges specified by producers include federal subsidies, increased catch limits, stricter import policies on seafood products, increased marketing of Virginia's seafood industry, increased access to H2B employment, government action to reduce inflation and fuel costs, and employee training workshops.

## Discussion and Conclusion

The results from the study suggest that Virginia seafood businesses were not effectively made aware of resources generated as a result of the 2020 Virginia Sea Grant COVID-19 Response and Supplemental Activities. The Virginia Cooperative Extension fact sheets were most popular in regard to industry awareness, with 26.9% of respondents being made aware of this resource. Additionally, no more than half of the respondents who were made aware of the resources available utilized them.

It appears that industry members may have been inundated with high volumes of announcements and resources related to COVID-19 from entities involved with the seafood industry. Our data suggests that industry members may have been confused or unable to remember how they were made aware of certain resources made available during the pandemic. In particular, for all resources besides fact sheets on strategies for direct-to-consumer sales, greater percentages of respondents indicated they were made aware of the resources through communication with state and federal agencies. Government agencies, such as VMRC, VDACS, and USDA, were not involved in the dissemination of resources developed through the

2020 Virginia COVID-19 Response and Supplemental Activities. Additionally, few respondents were made aware of the resources through seafood organizations such as associations and cooperatives. Industry members, in general, look toward these organizations for guidance and relevant information pertaining to their businesses. Therefore, it appears these resources were not effectively shared with associations and cooperative, to further disseminate to their members.

As indicated by the data, those who chose to utilize the resources made available experienced the benefits of increased information and guidance on how to deal with COVID-19, as well as increased information about the industry and available resources. While some participants indicated they benefited from increased access to markets and consumers through resources such as E-commerce consulting and fact sheets on direct-to-consumer sales, the data pertaining suggests that these resources were not as effective as intended. Information regarding relief funding opportunities was received primarily though state or federal agencies. However, large percentages of respondents were not made aware of these opportunities. Likewise, large percentages of respondents did not apply for these relief funding opportunities. In general, those who did apply and receive relief funding utilized the funds to cover operating expenses and retaining employees.

Persistent challenges identified by large percentages of respondents include increased operating costs, reduced market value of products sold, lost sales and/or markets, and lost opportunities to expand and enter new markets. Respondents were largely unsure of how to solve these persistent challenges, with some suggesting increased exposure to available suppliers, increased representation in the political realm, and additional relief funding opportunities could be of assistance.

Persistent challenges to retain and hire employees were identified, as well. Responses suggest that these challenges stem from the inability to find individuals interested in the type of work required, as well as the inability to offer competitive pay, full-time employment, and other incentives to compete with other job opportunities. Industry respondents were largely unsure of how to solve these issues, with some suggesting additional relief funding opportunities, partnerships with institutions like vocational schools and community colleges, and increased access to documentation for undocumented workers could be of assistance.

Anticipated challenges for the next twelve months, again, include increased operating costs, lost sales and/or markets, reduced market value of products sold, and lost opportunities to expand or enter new markets. The majority of respondents did not believe these anticipated challenges could be prevented. As stated previously, potential methods to reduce the impact of these anticipated challenges include federal subsidies, increased catch limits, stricter import policies on seafood products, increased marketing of Virginia's seafood industry, increased access to H2B employment, government action to reduce inflation and fuel costs, and employee training workshops.

In conclusion, the data suggests that better dissemination of industry resources is necessary. This could include building better relationships with industry associations and cooperatives, as well as building better relationships with seafood industry workers that we are in contact with. Additionally, building stronger relationships and communicating with industry members can provide additional insights to the challenges they face, leading the development of more effective research and resources developed. At the same time, it is important to not overwhelm industry members with resources and information, as it can become difficult to keep track of and identify necessary information for their challenges. With the knowledge gained through this study, research that targets persistent and anticipated challenges due to the COVID-19 Pandemic can be conducted. Topics to consider include work force development, market development, and risk management.

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2023 AAEC-322NP / VSG-23-11

# Appendix

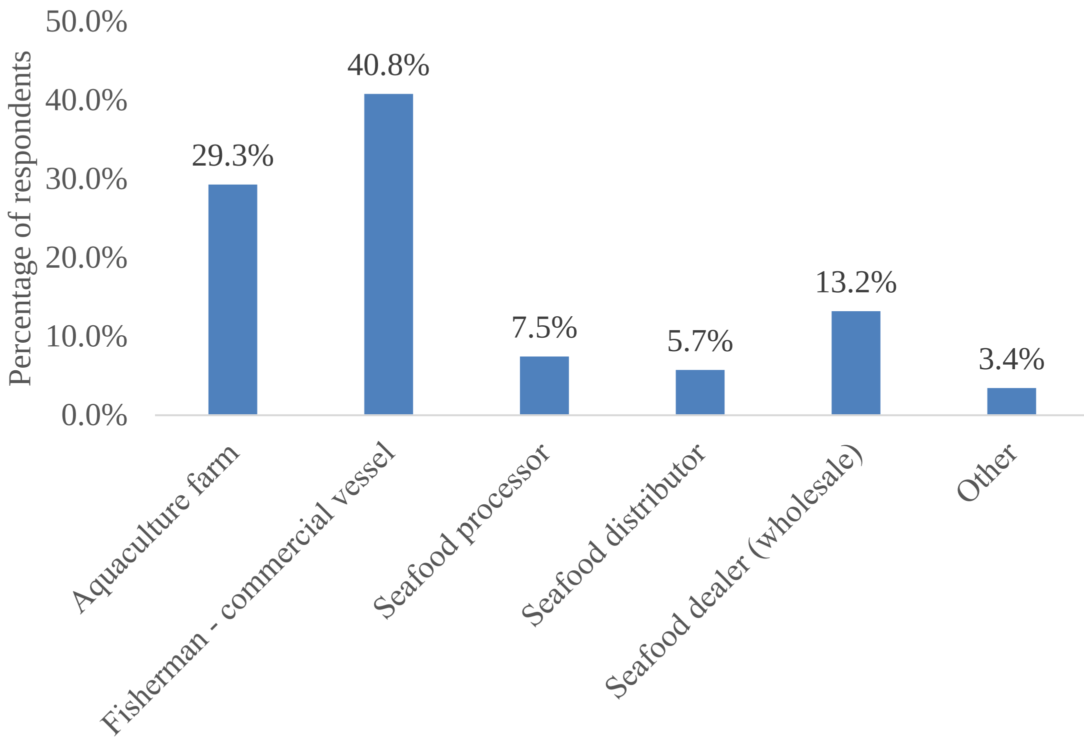


Figure 1. Percentage of 2022 Virginia seafood survey respondents by business type.

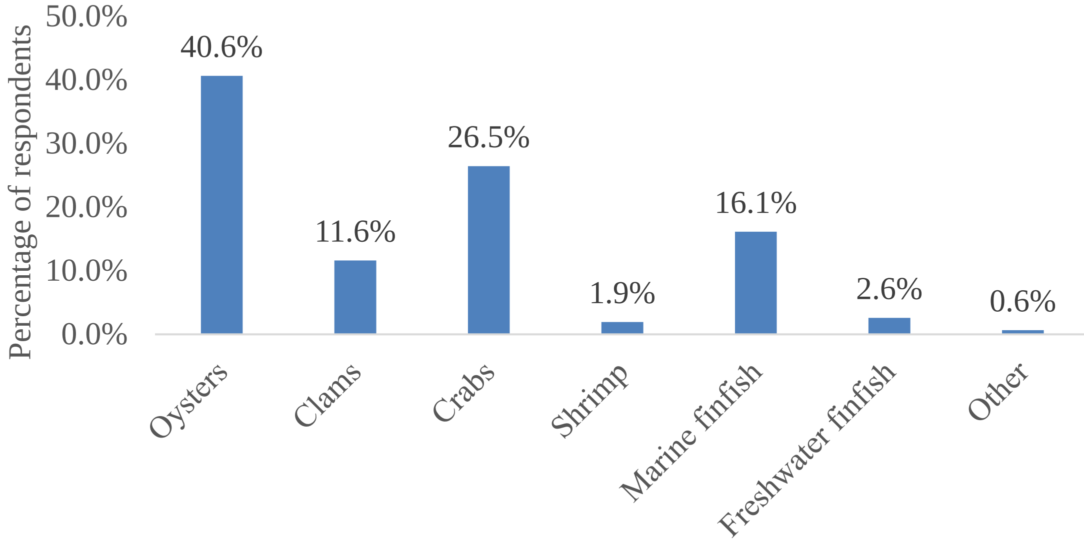


Figure 2. Percentage of 2022 Virginia seafood survey respondents by species farmed/fished.

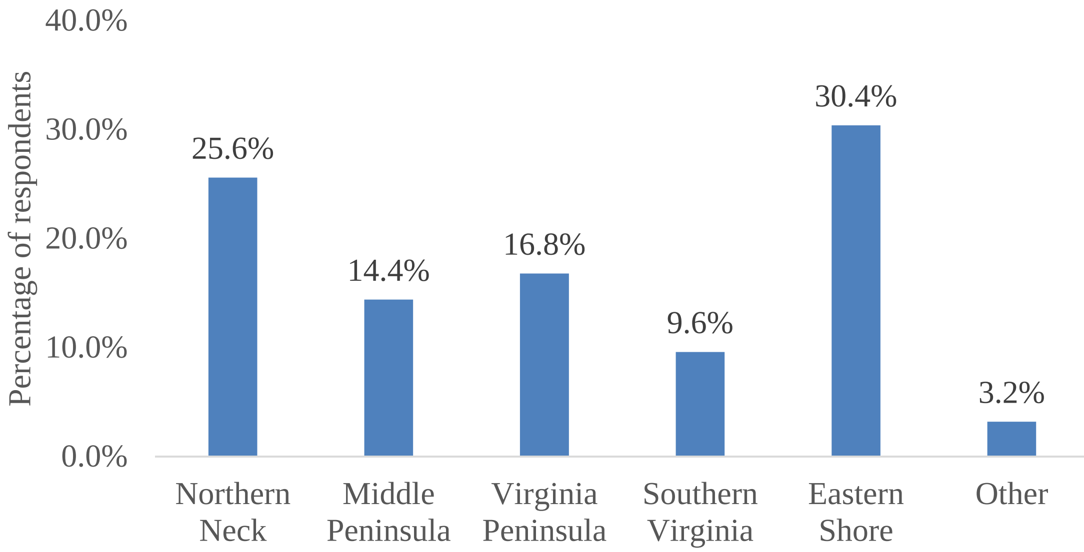


Figure 3. Percentage of 2022 Virginia seafood survey respondents by business location.

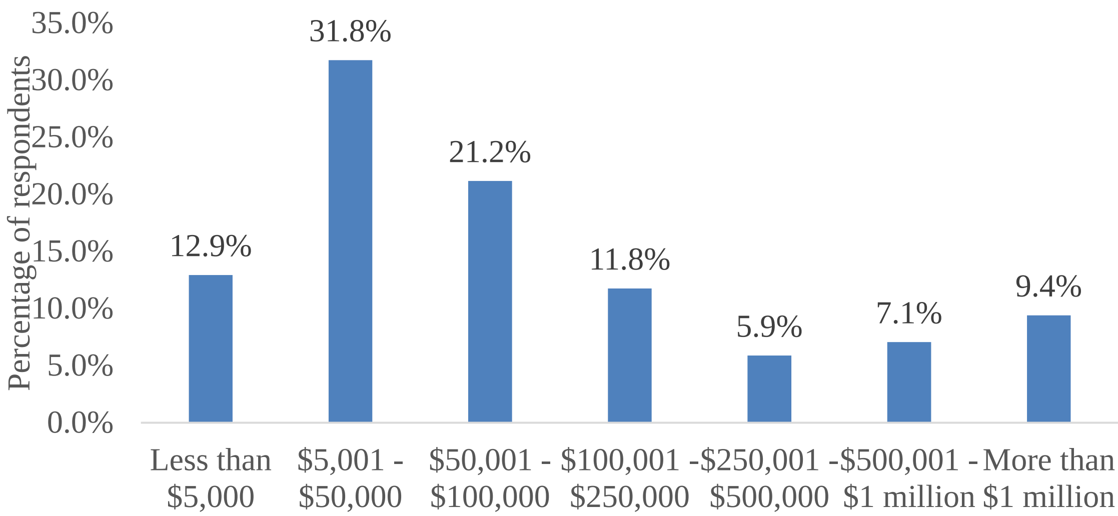


Figure 4. Percentage of 2022 Virginia seafood survey respondents by gross business revenue in 2021.

Table 1. Brief descriptions of resources made available as a result of the 2020 Virginia Sea Grant COVID-19 Response.

| Resource | Description | Date made available |
|---|---|---|
| **E-commerce consulting (CSG Consulting and VIMS)** | Provided custom solutions for industry members looking to take advantage of new or existing E-commerce business strategies. | September 1, 2020 – August 31, 2021 |
| **Aquaculture-va.com** | Webpage created to provide COVID-19 Resources for industry. | March 31, 2021 |
| **AquaCultured.org** | Webpage designed to promote Virginia shellfish and seafood-related events, provide marketing information to growers, and provide purchasing information to consumers. | January 1, 2021 |
| **Virginia Cooperative Extension fact sheets** | Strategies to control the spread of COVID-19 at Seafood Processing Plants:<br>• Social distancing and physical barriers<br>• Cleaning and disinfection<br>• Employee health<br>• Handwashing and personal protective equipment<br>• Shared transportation and housing | All fact sheets were made available between July 15 and July 21, 2023 |
| **Fact sheets on strategies for direct-to-consumer sales** | Provided information for seafood producers to take advantage of new or existing opportunities for direct-to-consumer sales. | August 31, 2021 |

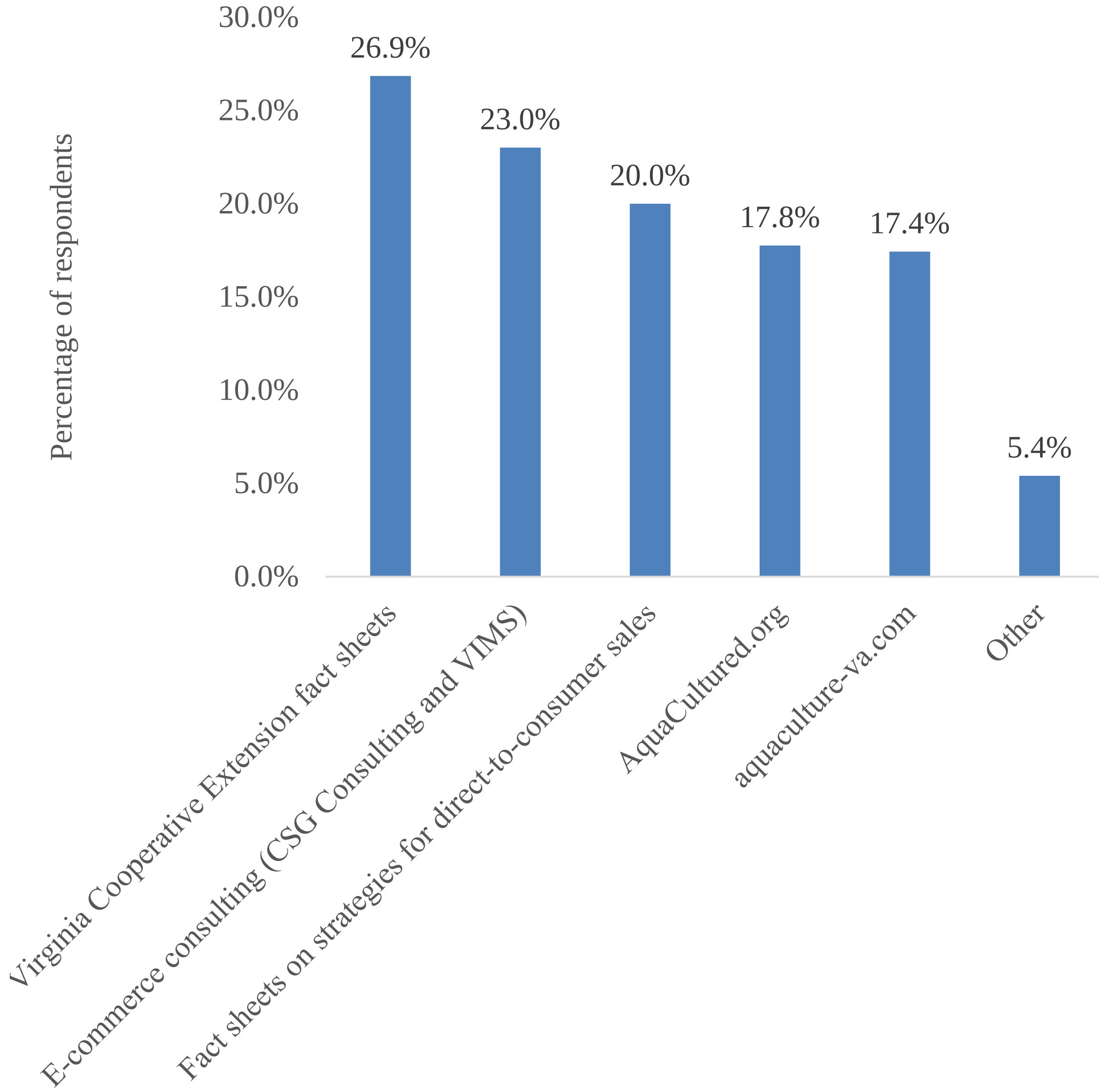


Figure 5. Percentage of respondents who were made aware of resources made available as a result of the 2020 Virginia Sea Grant COVID-19 Response.

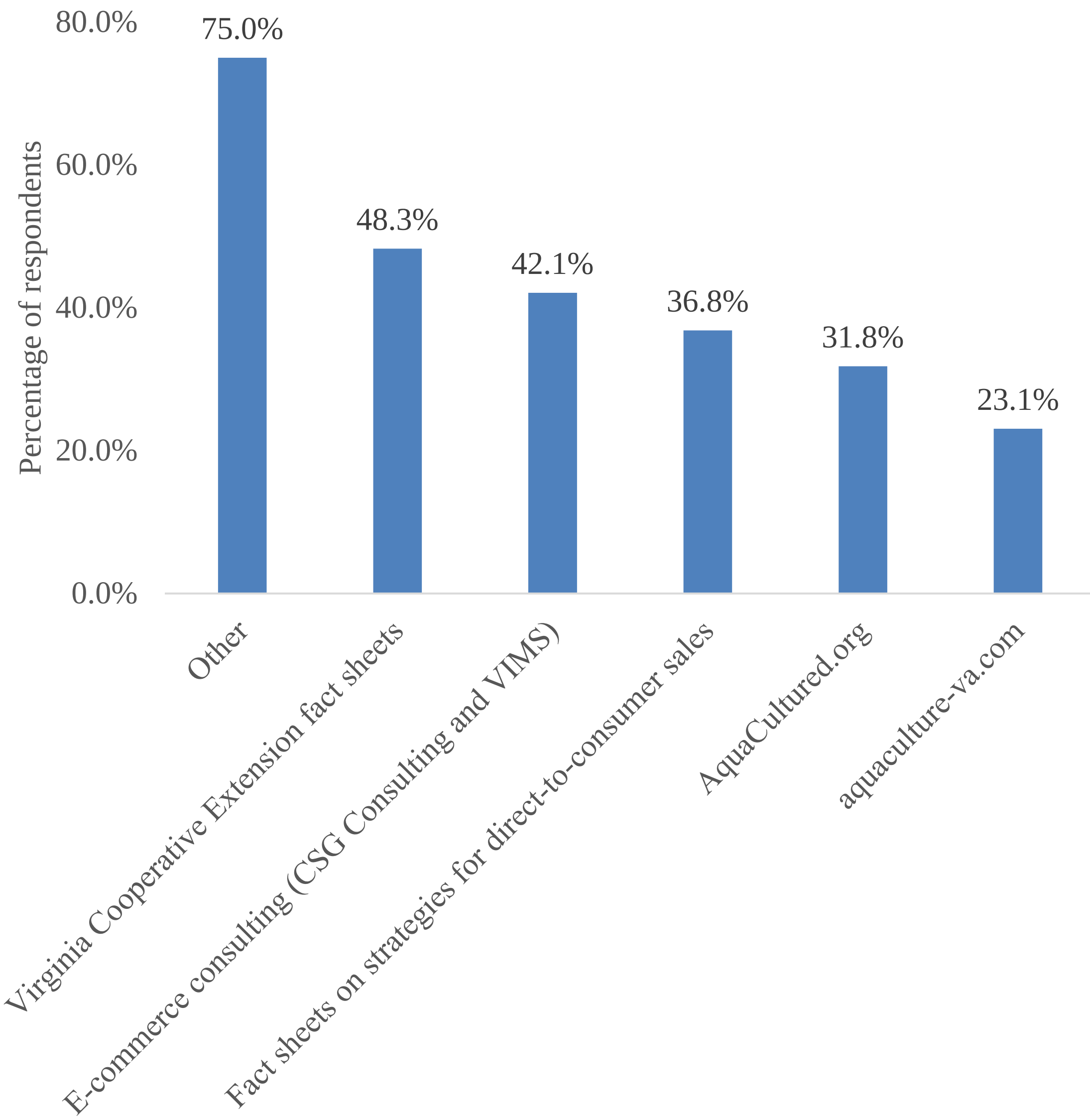


Figure 6. Percentage of respondents who utilized resources made available as a result of the 2020 Virginia Sea Grant COVID-19 Response.

Table 2. Information outlets through which respondents were made aware of resources made available as a result of the 2020 Virginia Sea Grant COVID-19 Response.

Table

| | % of respondents | | | | | |
|---|---|---|---|---|---|---|
| **Information outlet** | **E-commerce consulting (CSG Consulting and VIMS)** | **Aquaculture-va.com** | **AquaCultured.org** | **Virginia Cooperative Extension fact sheets** | **Fact sheets on strategies for direct-to-consumer sales** | **Other** |
| **Extension staff (i.e. Virginia Sea Grant, Virginia Cooperative Extension, etc.)** | 17% | 25% | 24% | 19% | 33% | 11% |
| **Seafood-related organization (association, cooperative, etc.)** | 28% | 6% | 6% | 0% | 5% | 0% |
| **State or federal agency (i.e. VMRC, VDACS, USDA, etc.)** | 44% | 44% | 41% | 44% | 19% | 78% |
| **Other seafood producer or business** | 6% | 13% | 12% | 11% | 10% | 0% |
| **Newsletters** | 6% | 13% | 18% | 22% | 19% | 0% |
| **Family or friends not in the seafood industry** | 0% | 0% | 0% | 0% | 10% | 0% |
| **Social media post** | 0% | 0% | 0% | 4% | 5% | 11% |

3.

Experienced benefit(s) from resources made available as a result of the 2020 Virginia Sea Grant COVID-19 Response.

| | % of respondents | | | | | |
|---|---|---|---|---|---|---|
| **Information outlet** | **E-commerce consulting (CSG Consulting and VIMS)** | **Aquaculture-va.com** | **AquaCultured.org** | **Virginia Cooperative Extension fact sheets** | **Fact sheets on strategies for direct-to-consumer sales** | **Other** |
| **General information and guidance on how to deal with COVID-19** | 33.3% | 33% | 33.3% | 56.3% | 0% | 20.0% |
| **General information about available resources** | 22.2% | 33% | 22.2% | 31.3% | 66.7% | 20.0% |
| **General information about the industry** | 33.3% | 33% | 11.1% | 12.5% | 0% | 40.0% |
| **Increased access to markets and consumers** | 0% | 0% | 22.2% | 0% | 33.3% | 10.0% |
| **Other** | 11.1% | 0% | 11.1% | 0% | 0% | 10.0% |

Table 4. Brief descriptions of relief funding made available to seafood businesses during the COVID-19 Pandemic.

| Funding | Description | Date made available |
|---|---|---|
| **2020 NOAA COVID-19 Fisheries Relief** | | |
| **2021 NOAA COVID-19 Fisheries Relief** | | |
| **2020 USDA Coronavirus Food Assistance Program 1 (CFAP 1)** | | |
| **2021 USDA Coronavirus Food Assistance Program 2 (CFAP 2)** | | |

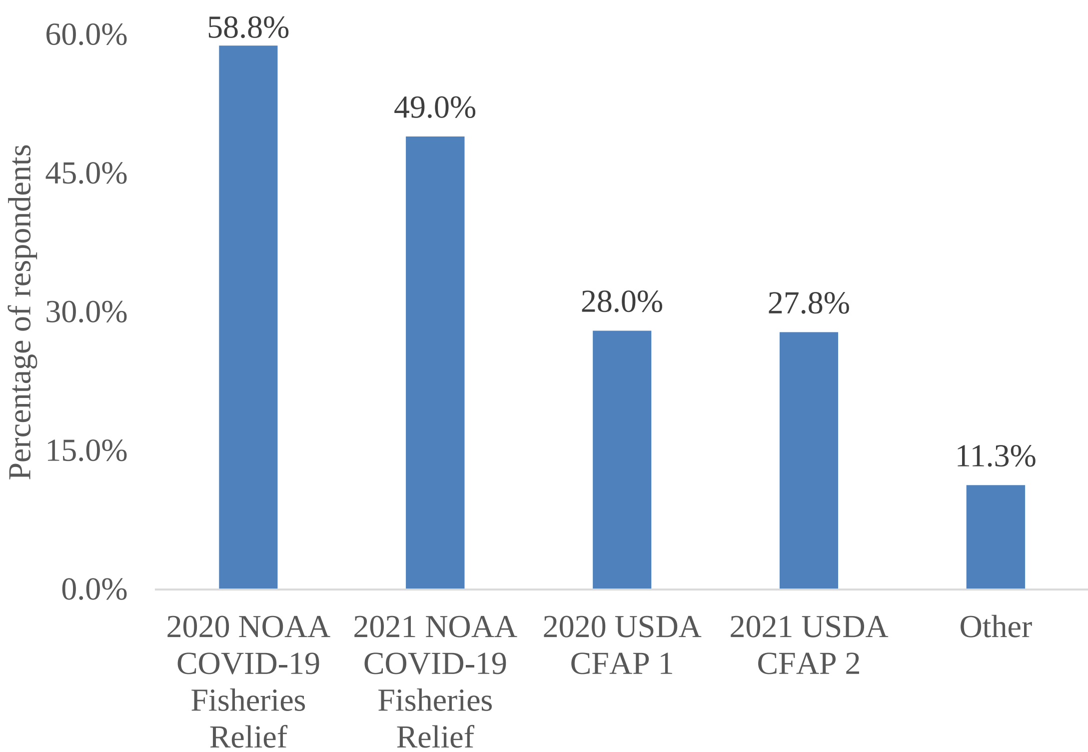


Figure 7. Percentage of respondents who were made aware of relief funding available during the COVID-19 Pandemic.

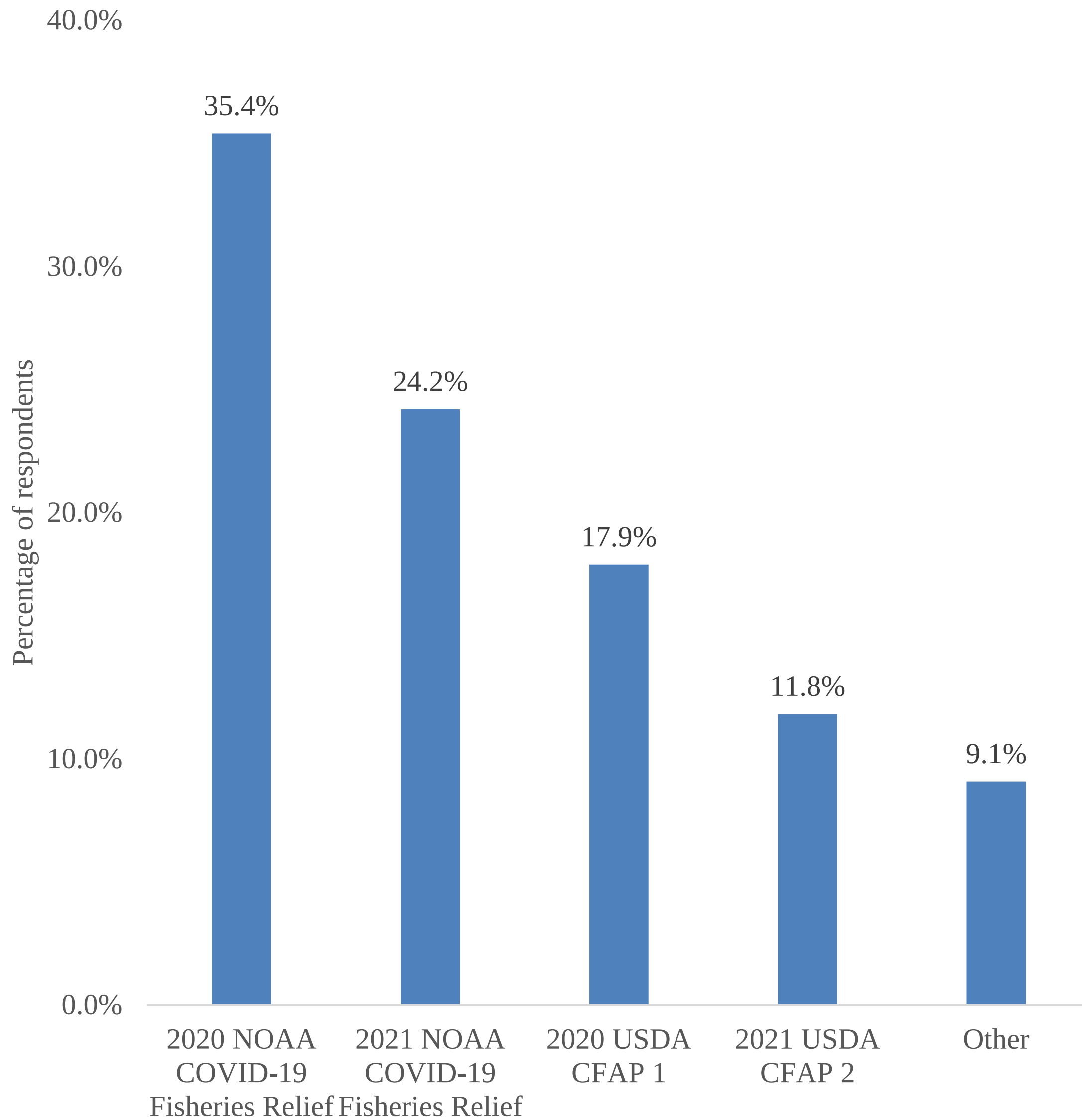


Figure 8. Percentage of respondents who applied for relief funding available during the COVID-19 Pandemic.

Table 5. Information outlets through which 2022 Virginia seafood survey respondents were made aware of relief funding available during the COVID-19 Pandemic.

| | % of respondents | | | | |
|---|---|---|---|---|---|
| **Information outlet** | **2020 NOAA COVID-19 Fisheries Relief** | **2021 NOAA COVID-19 Fisheries Relief** | **2020 USDA CFAP 1** | **2021 USDA CFAP 2** | **Other** |
| **Extension staff (i.e. Virginia Sea Grant, Virginia Cooperative Extension, etc.)** | 13% | 12% | 19% | 15% | 8% |
| **Seafood-related organization (association,** | 13% | 14% | 22% | 22% | 8% |
| **State or federal agency (i.e. VMRC, VDACS, USDA, etc.)** | 62% | 62% | 48% | 52% | 62% |
| **Other seafood producer or business** | 5% | 2% | 0% | 0% | 8% |
| **Newsletters** | 4% | 2% | 7% | 7% | 8% |
| **Family or friends not in the seafood industry** | % | 5% | 0% | 0% | 8% |
| **Social media post** | 2% | 2% | 4% | 4% | 0% |

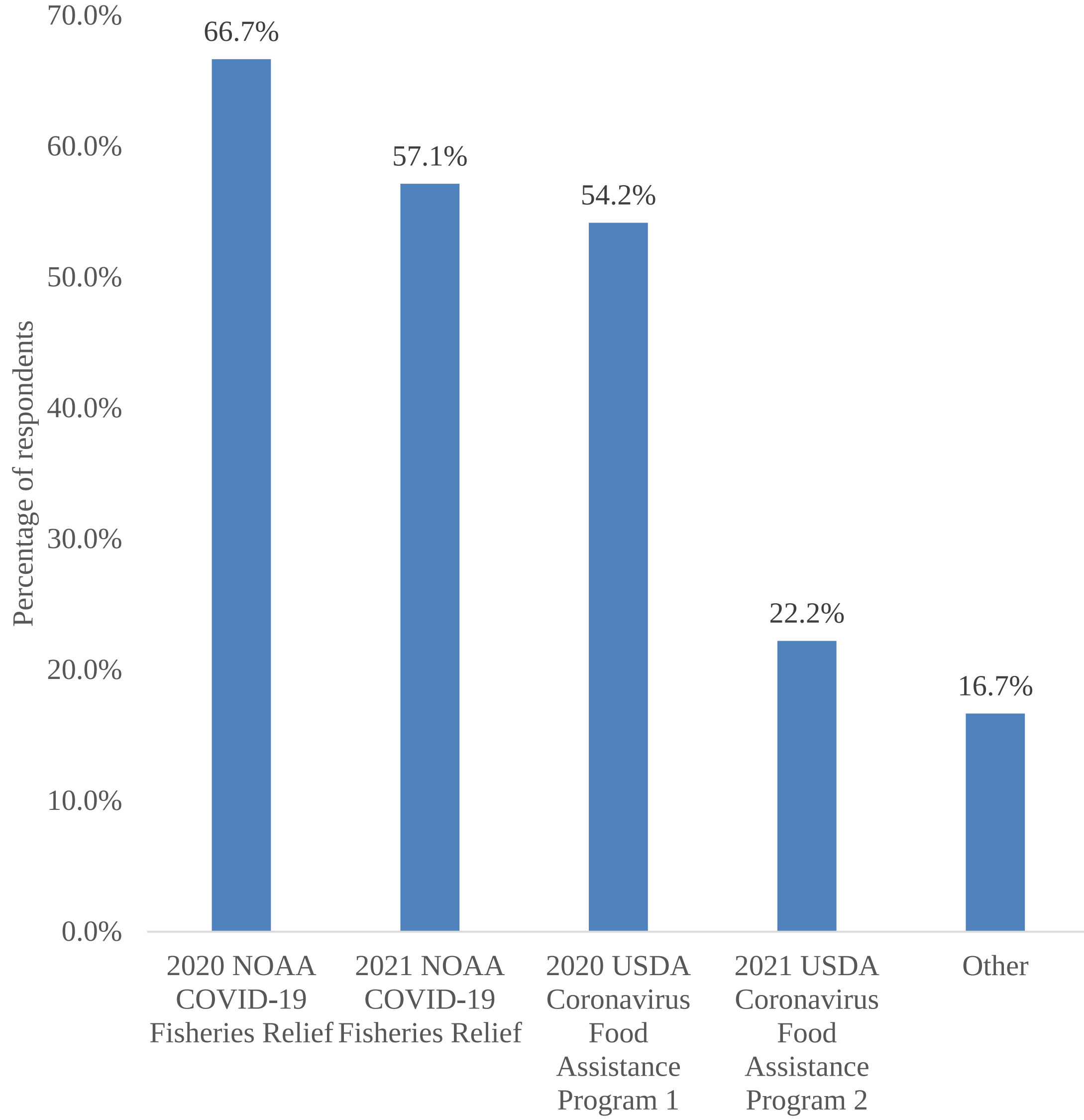


Figure 9. Percent of relief funding applicants surveyed who received relief funding available during the COVID-19 Pandemic.

Table 6. Experienced benefit(s) of relief funding available during the COVID-19 Pandemic.

| | % of respondents | | | | |
|---|---|---|---|---|---|
| **Experienced benefit(s)** | **2020 NOAA COVID-19 Fisheries Relief** | **2021 NOAA COVID-19 Fisheries Relief** | **2020 USDA CFAP 1** | **2021 USDA CFAP 2** | **Other** |
| **Cover operating expenses** | 64% | 79% | 52% | 40% | 10% |
| **Retain employees** | 17% | 16% | 24% | 20% | 30% |
| **Hire new employees** | 0% | 0% | 5% | 10% | 10% |
| **Purchase new equipment** | 14% | 5% | 0% | 0% | 10% |
| **Establish new marketing channels** | 3% | 0% | 4% | 10% | 20% |
| **Purchase equipment and infrastructure to protect from COVID-19** | 3% | 0% | 14% | 20% | 20% |

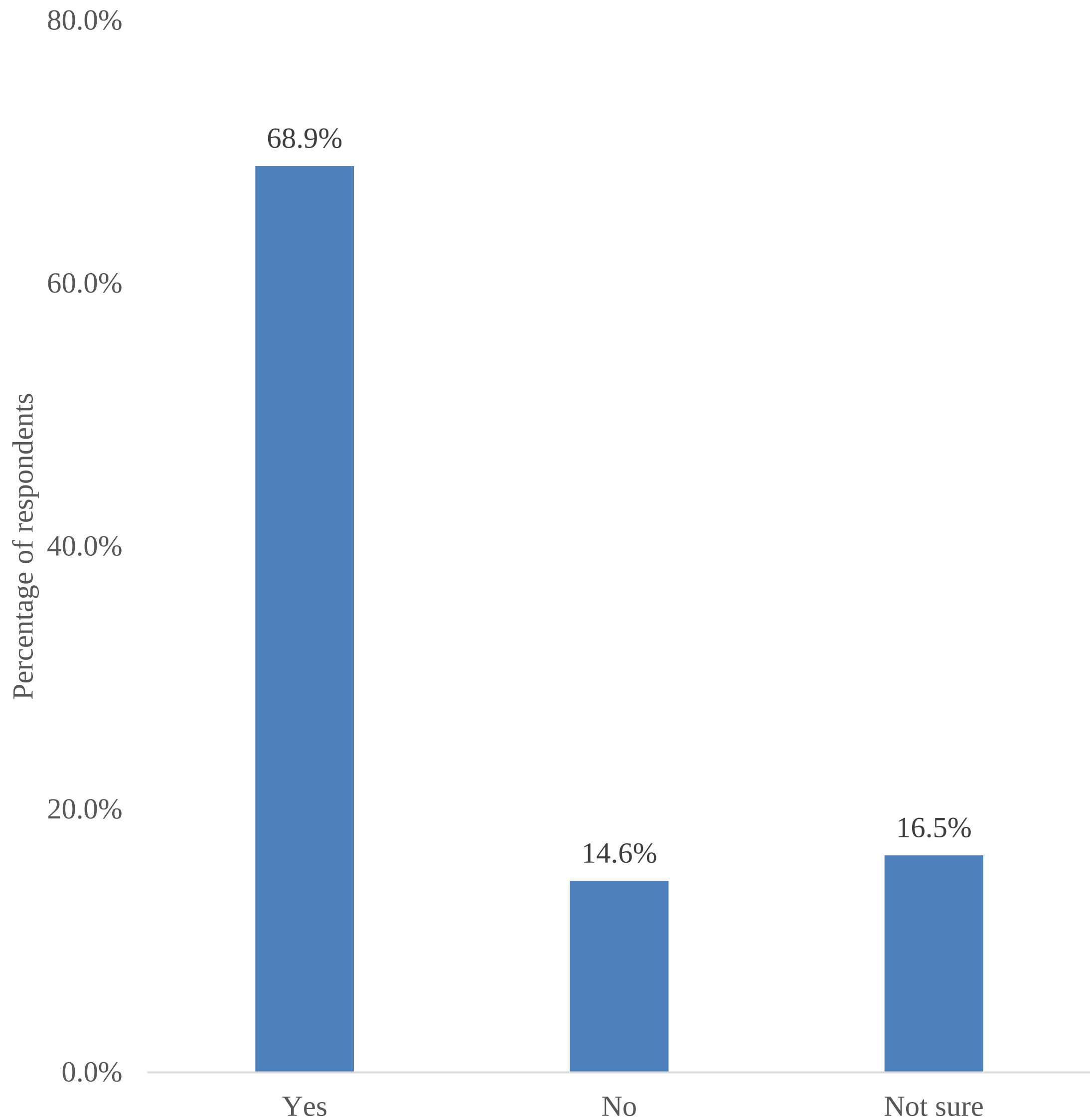


Figure 10. Responses of 2022 Virginia seafood survey participants when asked “Has your experience with the COVID-19 Pandemic increased your awareness of risks, challenges, or potential disruptions to your operations or business?”

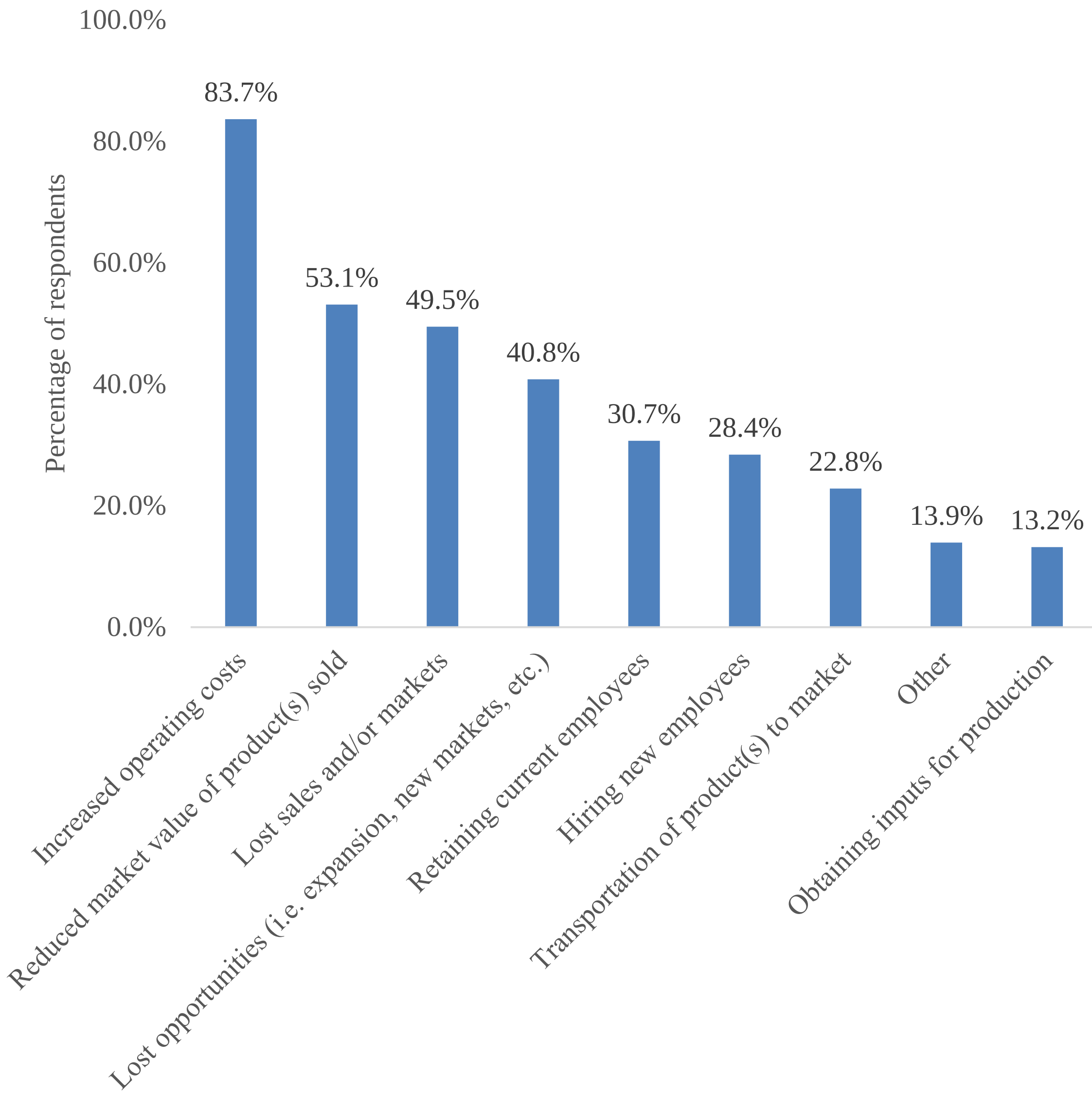


Figure 11. Challenges still experienced by 2022 survey respondents due to the COVID-19 Pandemic.

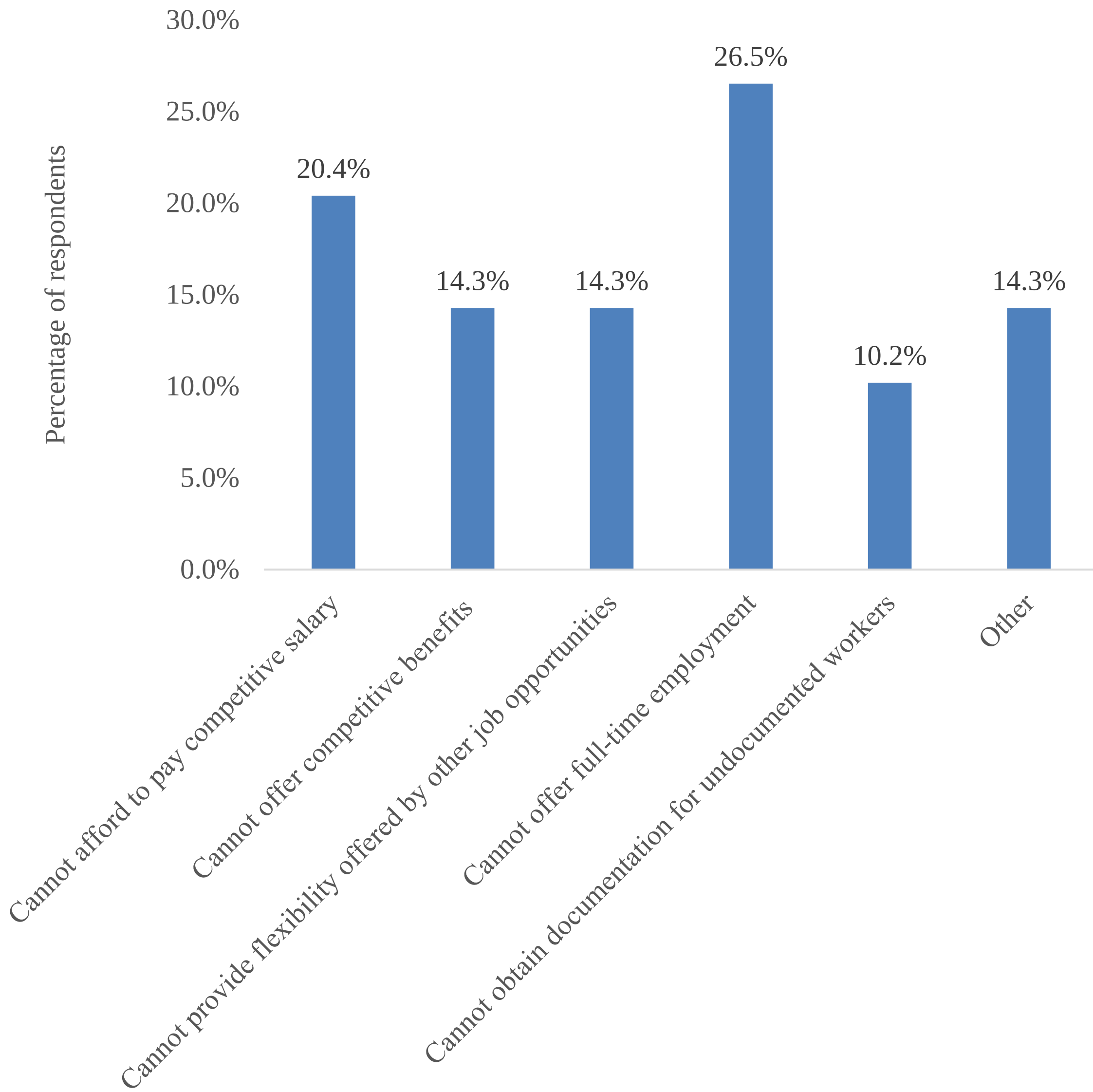


Figure 12. Specified challenges of respondents who indicated they are still experiencing difficulty retaining current employees.

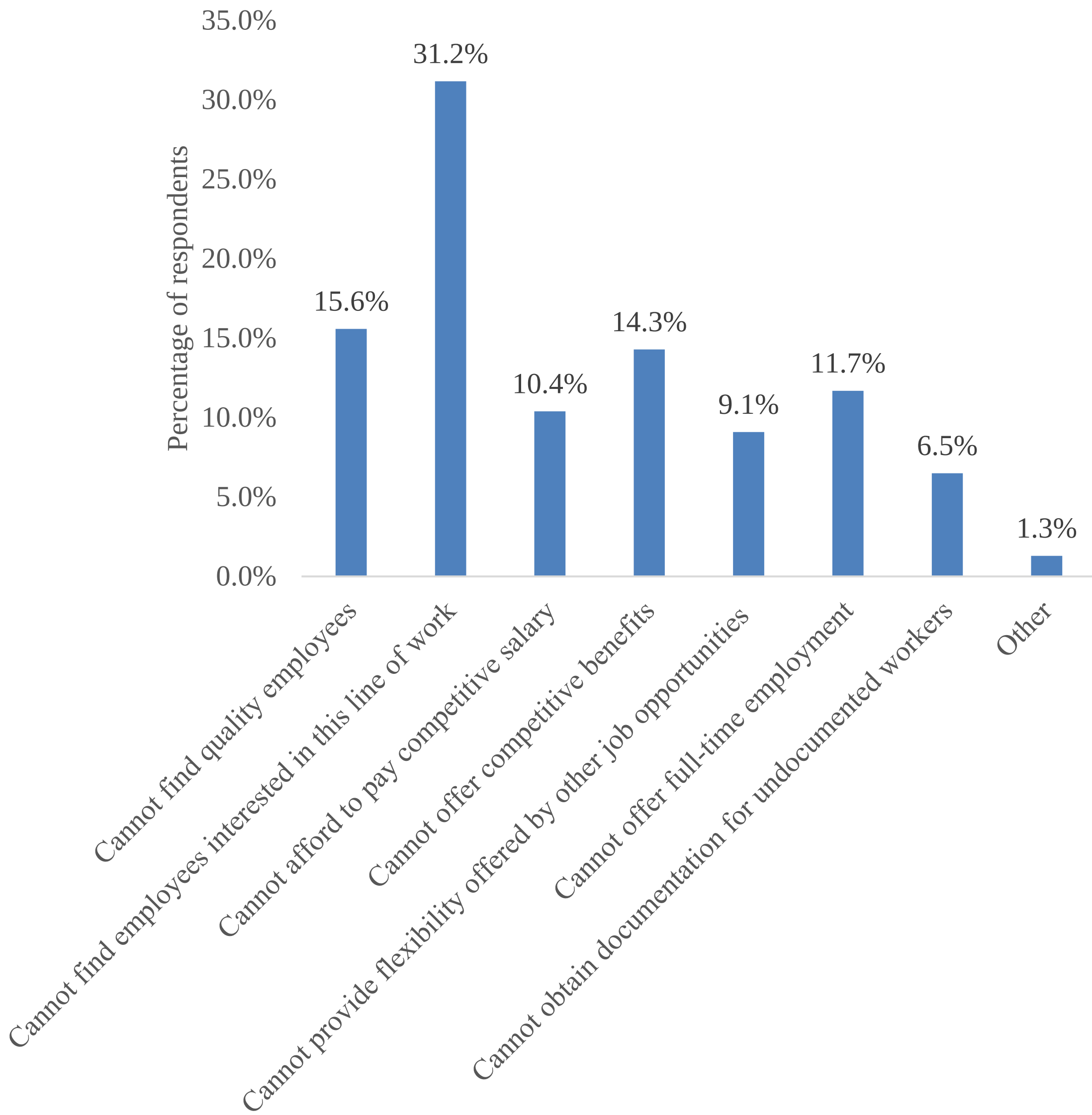


Figure 13. Specified challenges of respondents who indicated they are still experiencing difficulty hiring new employees.

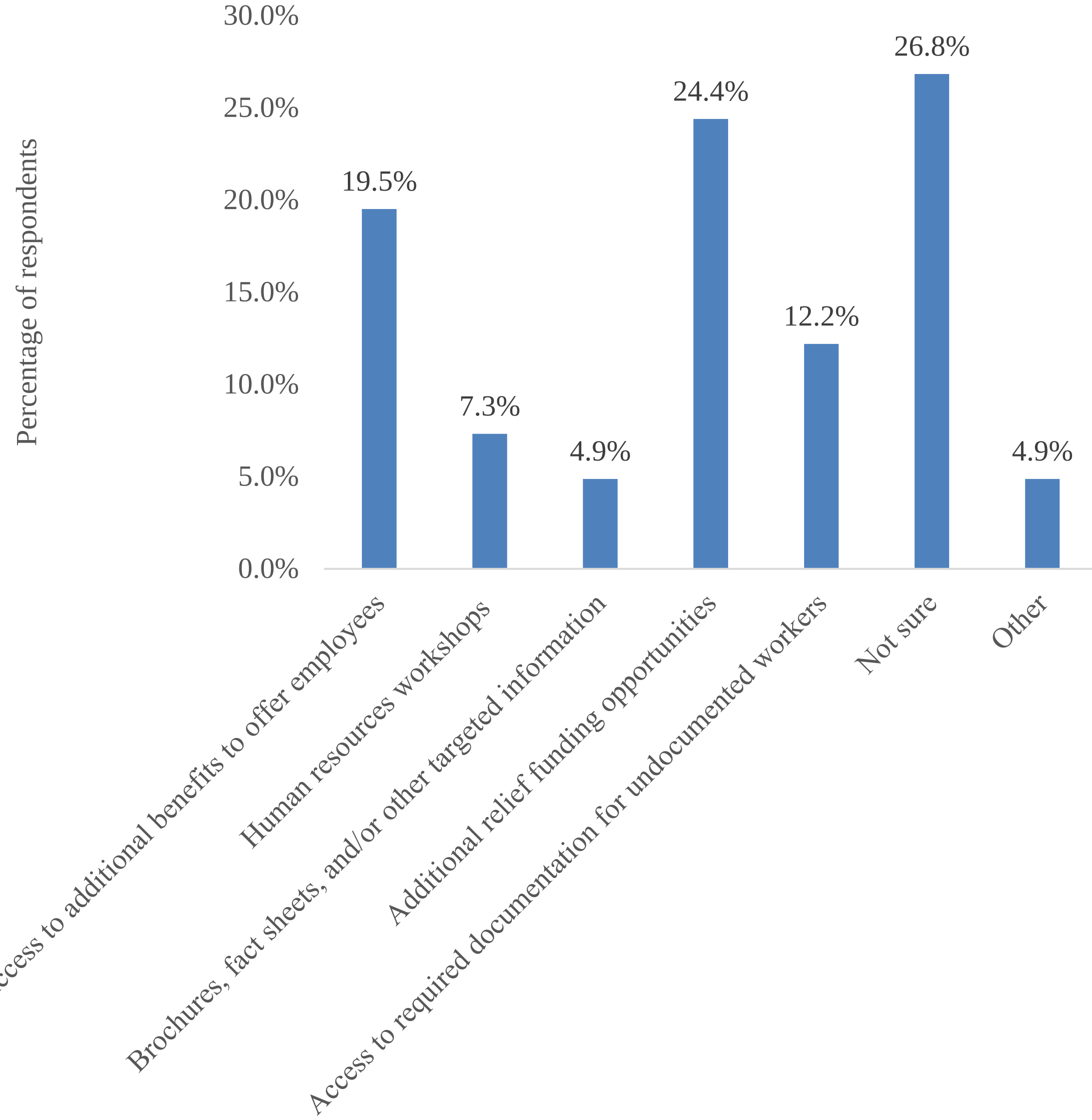


Figure 14. Potential solutions for challenges to retain employees according to 2022 Virginia seafood survey respondents.

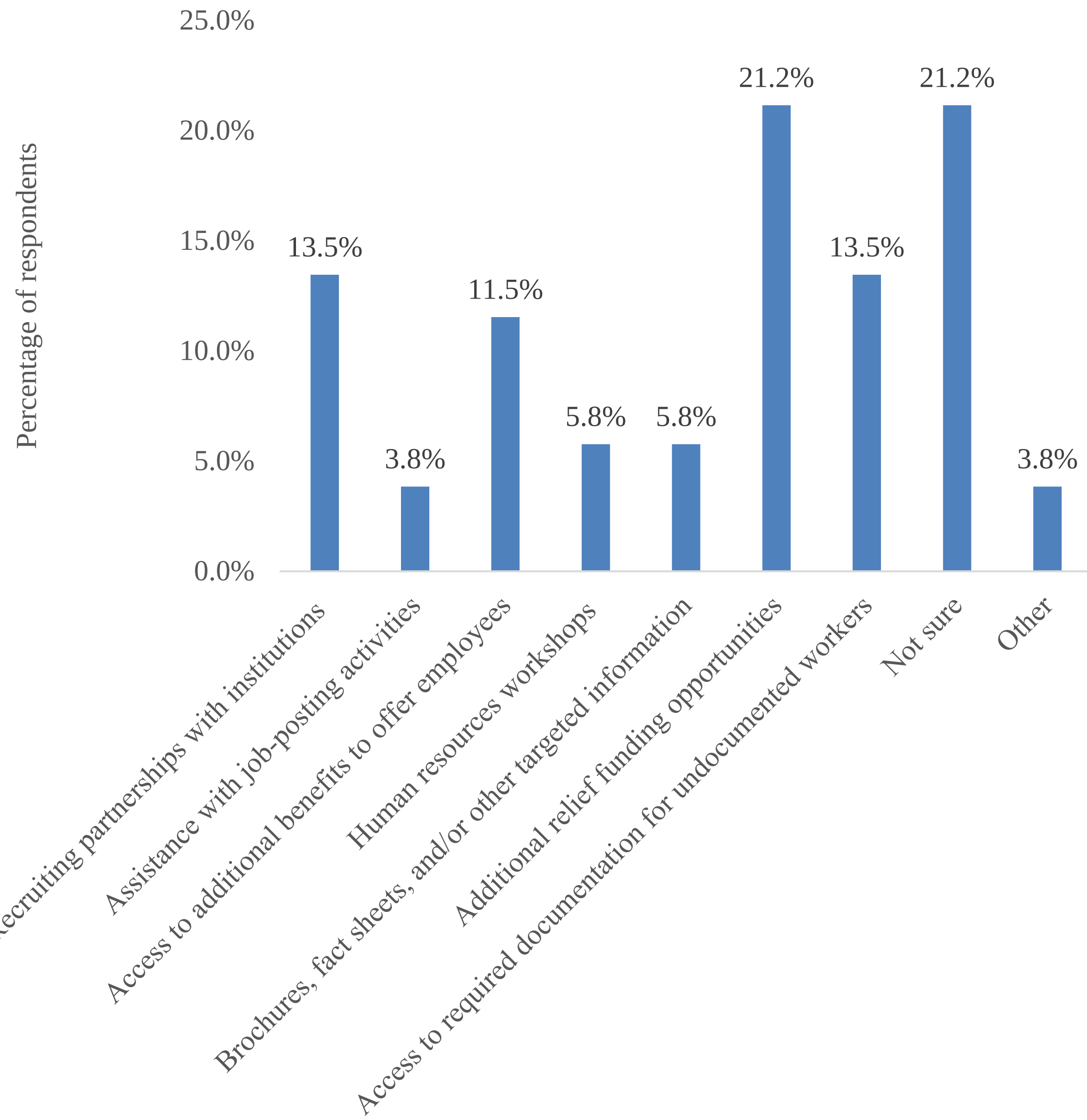


Figure 15. Potential solutions for challenges to hire new employees according to 2022 Virginia seafood survey respondents.

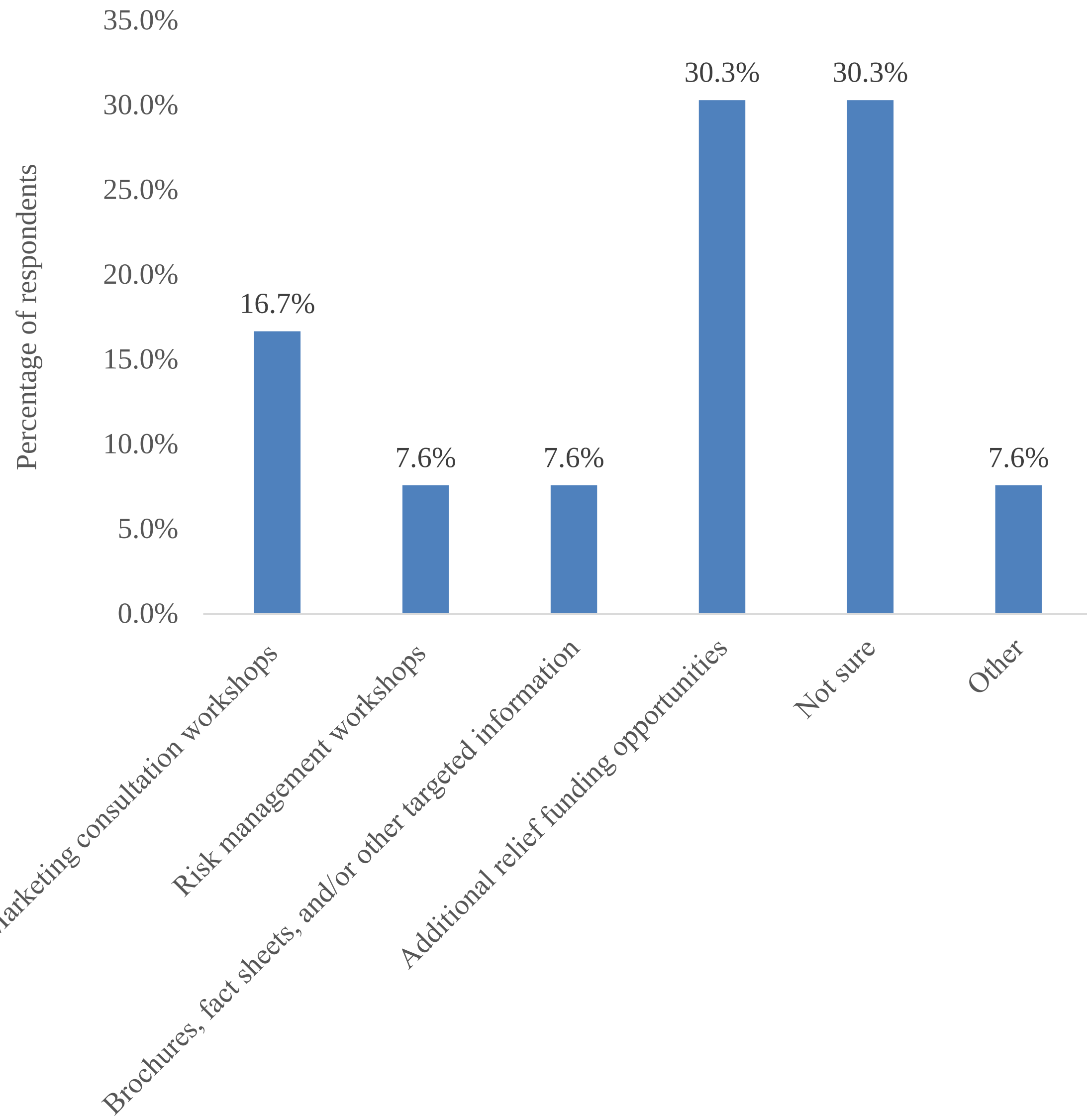


Figure 16. Potential solutions for lost sales and/or markets according to 2022 Virginia seafood survey respondents.

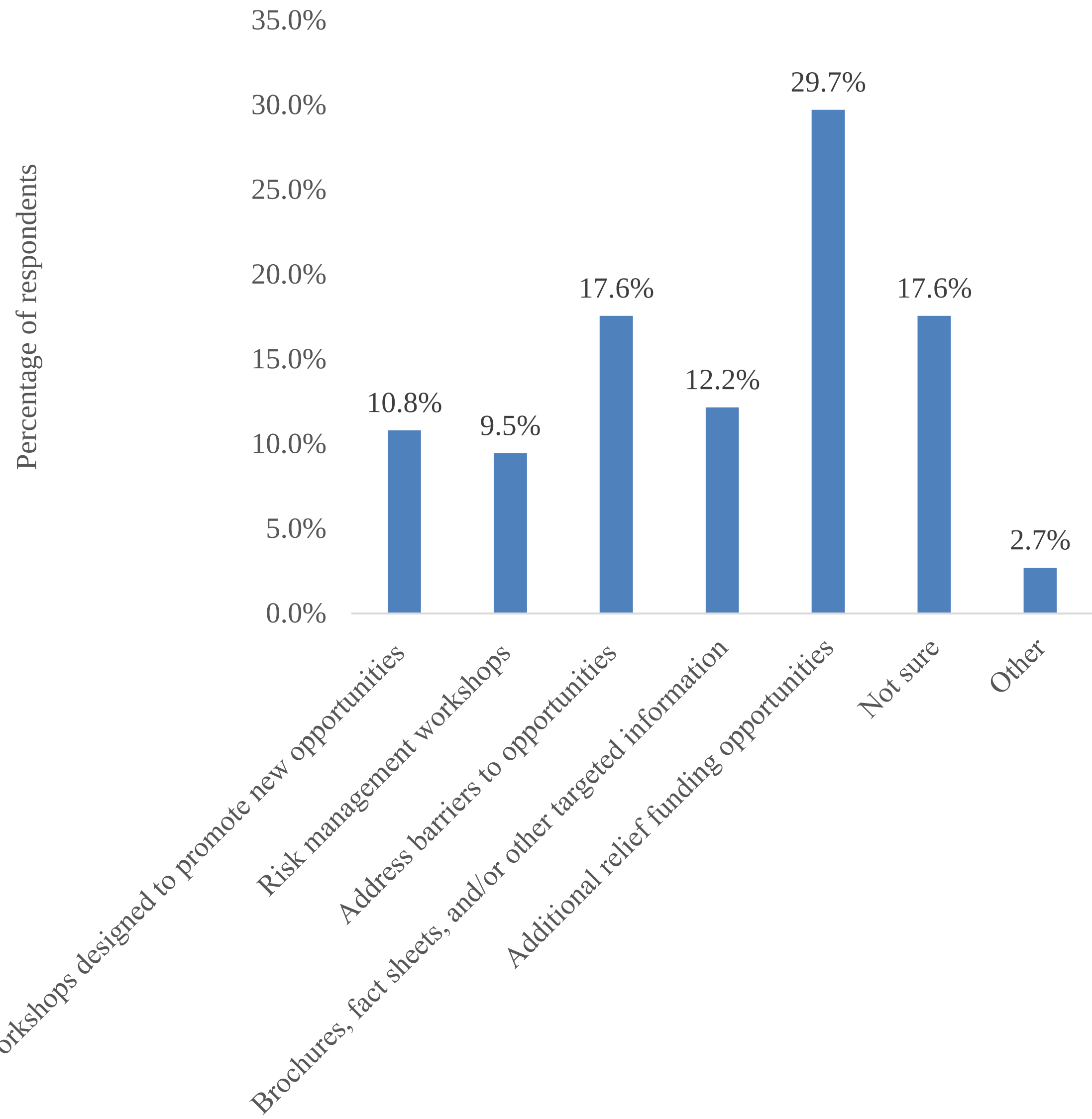


Figure 17. Potential solutions for lost opportunities according to 2022 Virginia seafood survey respondents.

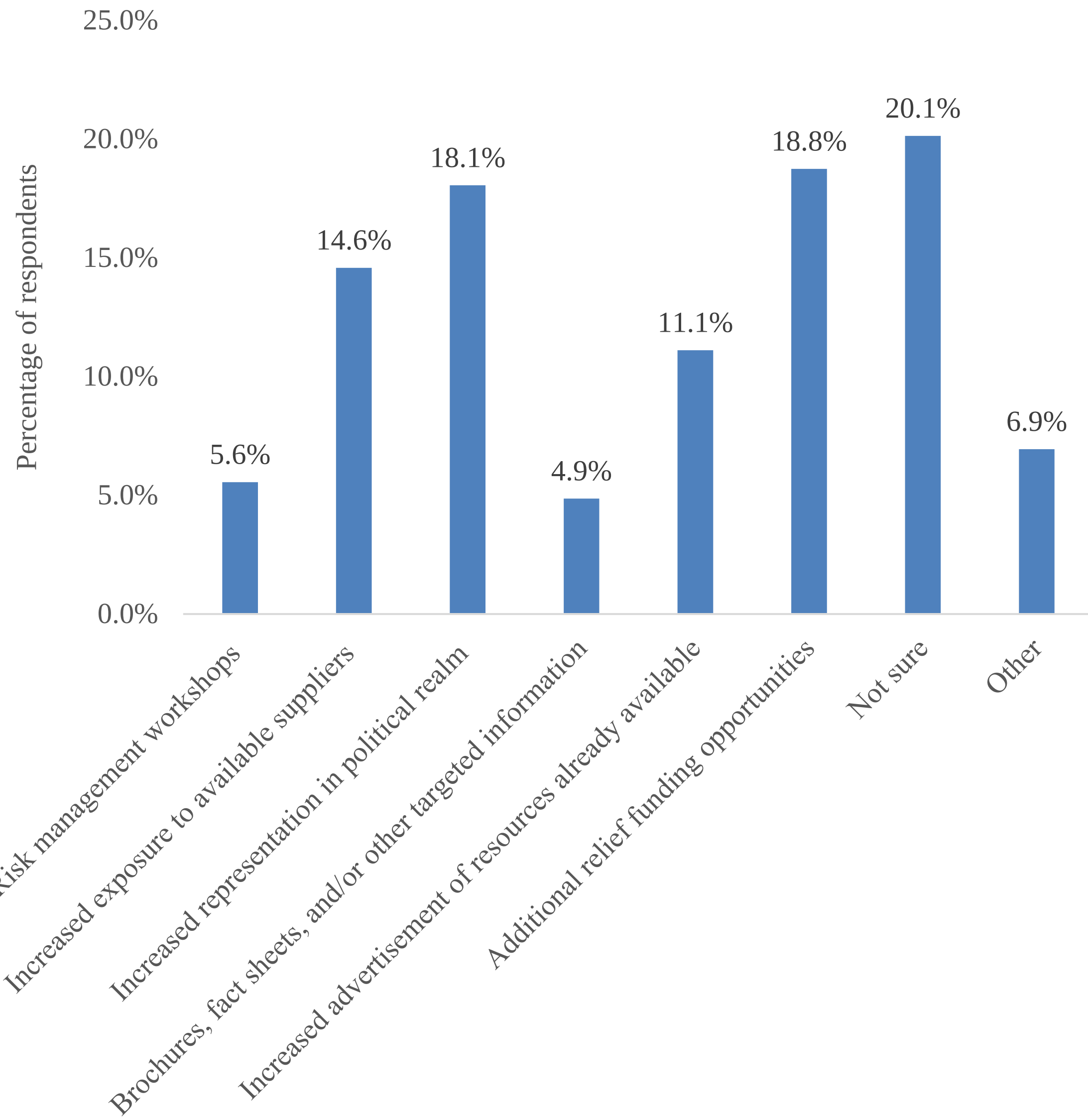


Figure 18. Potential solutions for increased operating costs according to 2022 Virginia seafood survey respondents.

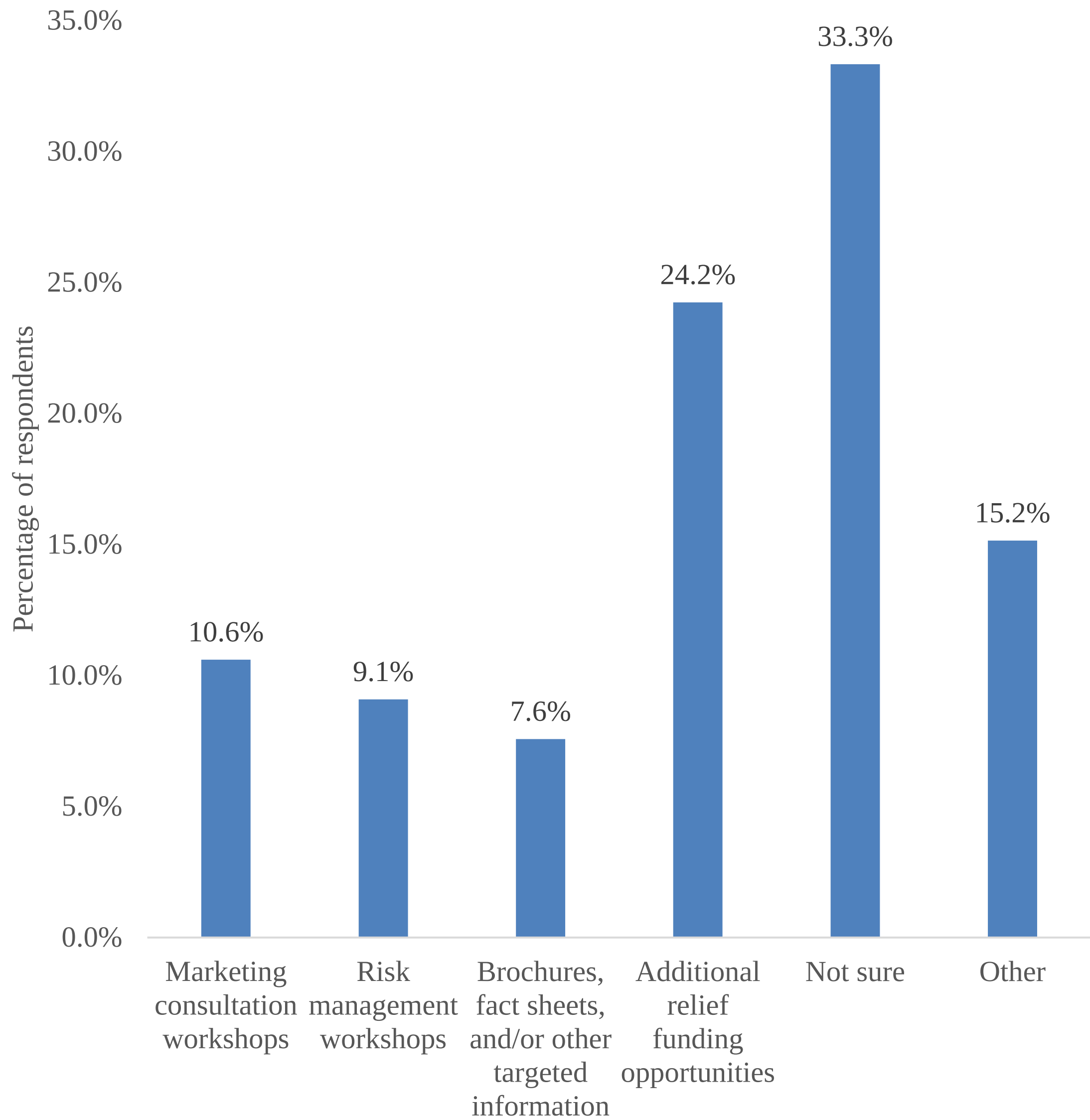


Figure 19. Potential solutions for reduced market value of product(s) sold according to 2022 Virginia seafood survey respondents.

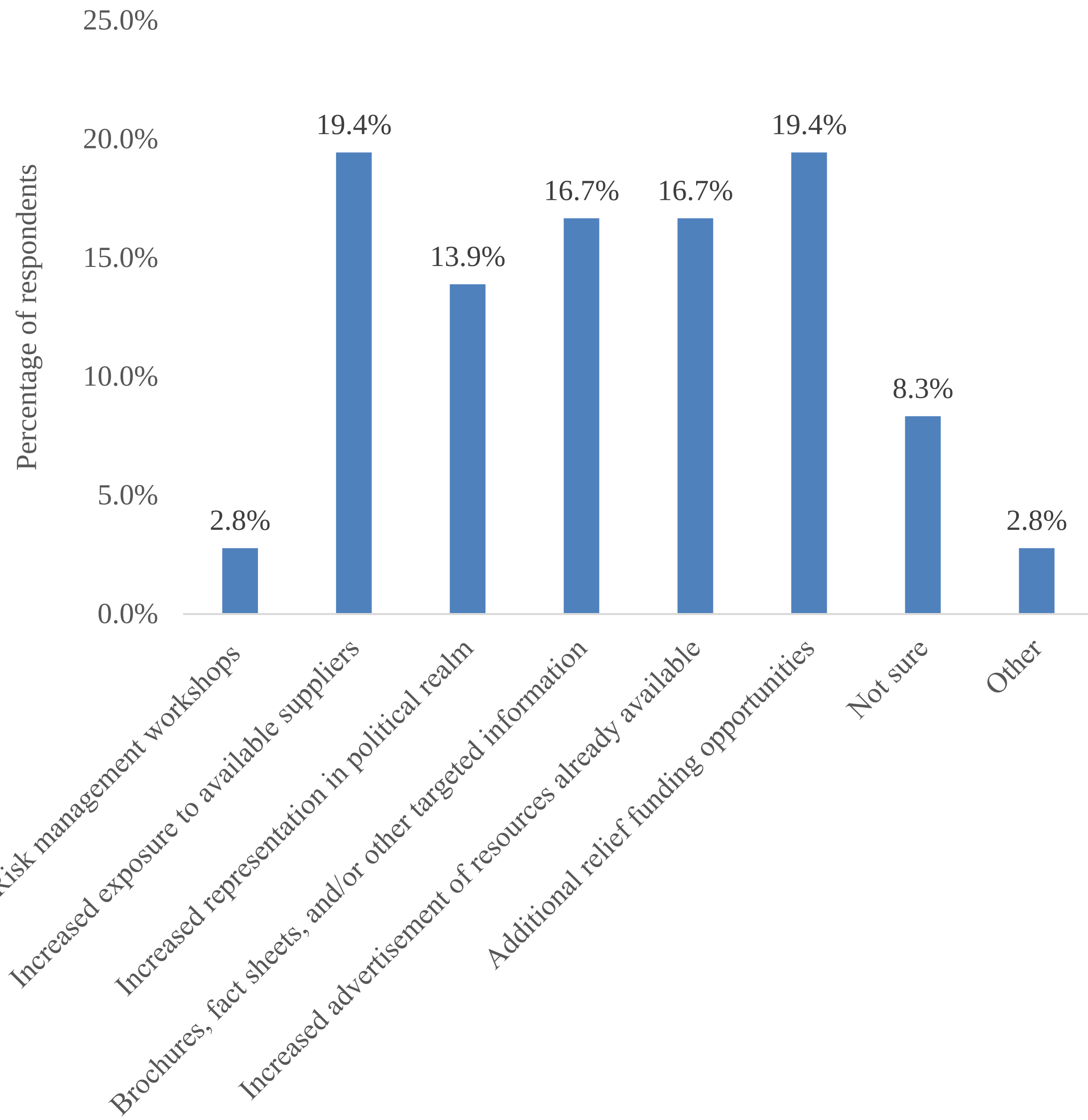


Figure 20. Potential solutions for challenges to obtain inputs for production sold according to 2022 Virginia seafood survey respondents.

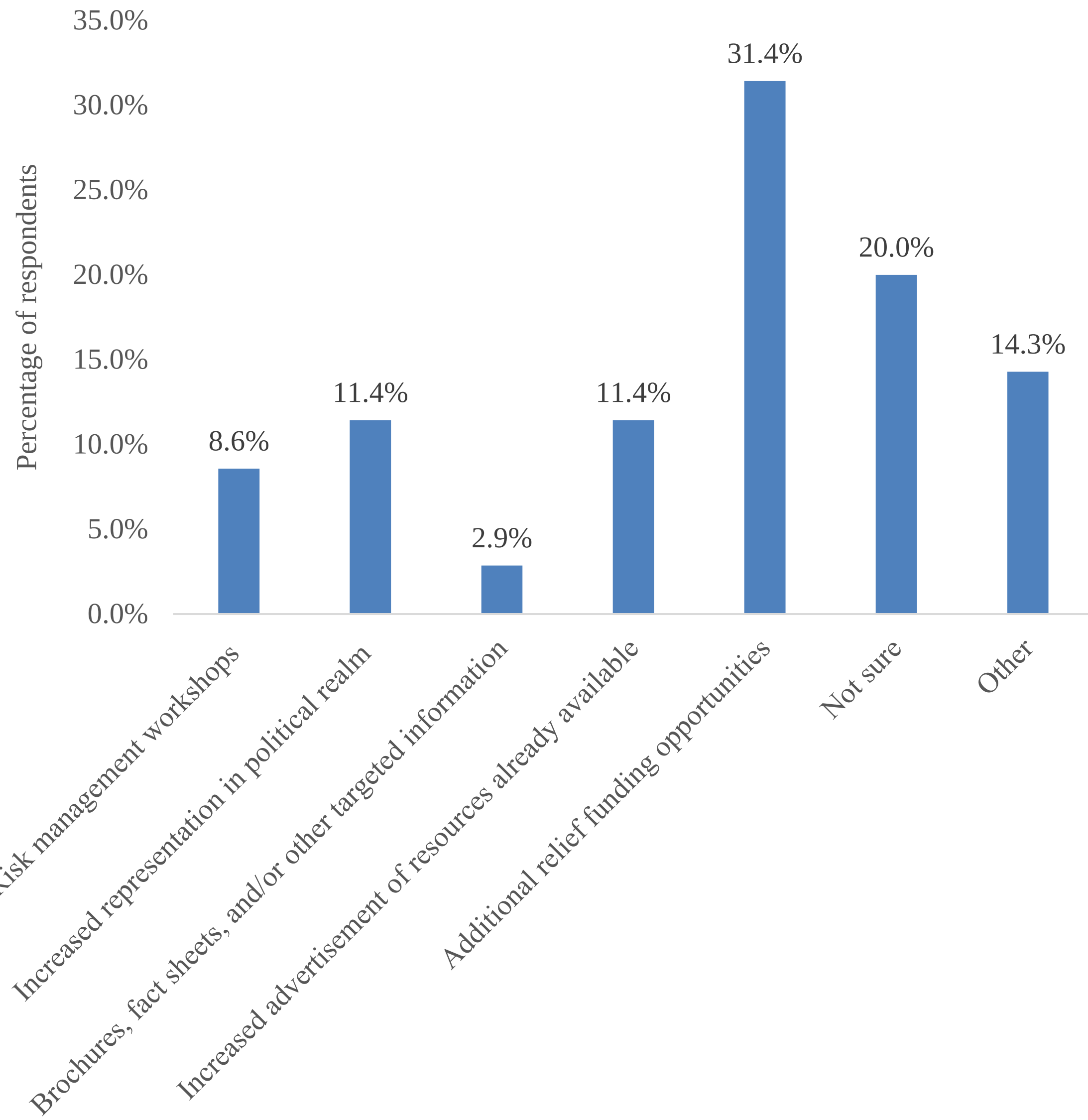


Figure 21. Potential solutions for challenges to transport product(s) to market according to 2022 Virginia seafood survey respondents.

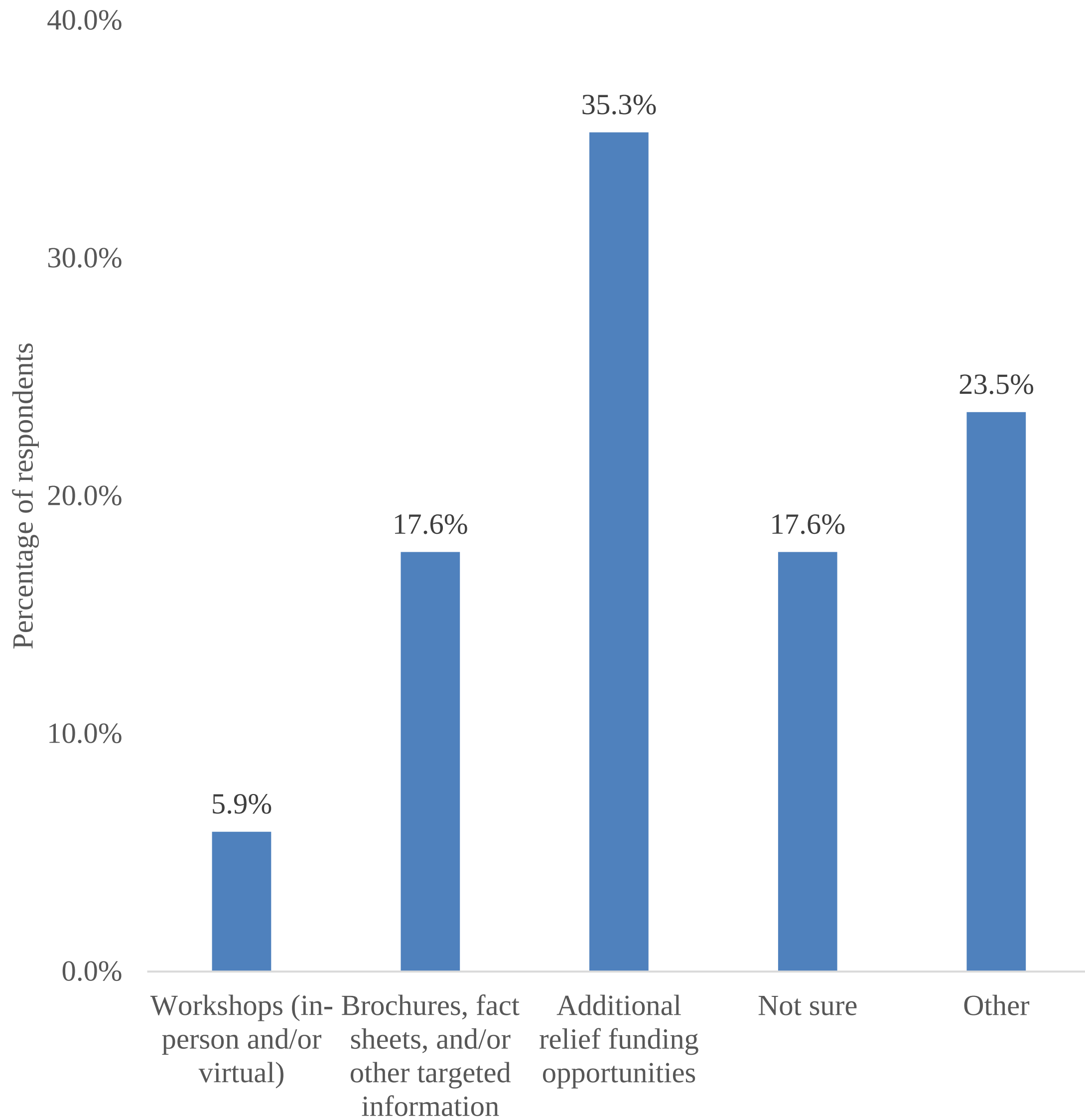


Figure 22. Potential solutions for other specified challenges according to 2022 Virginia seafood survey respondents.

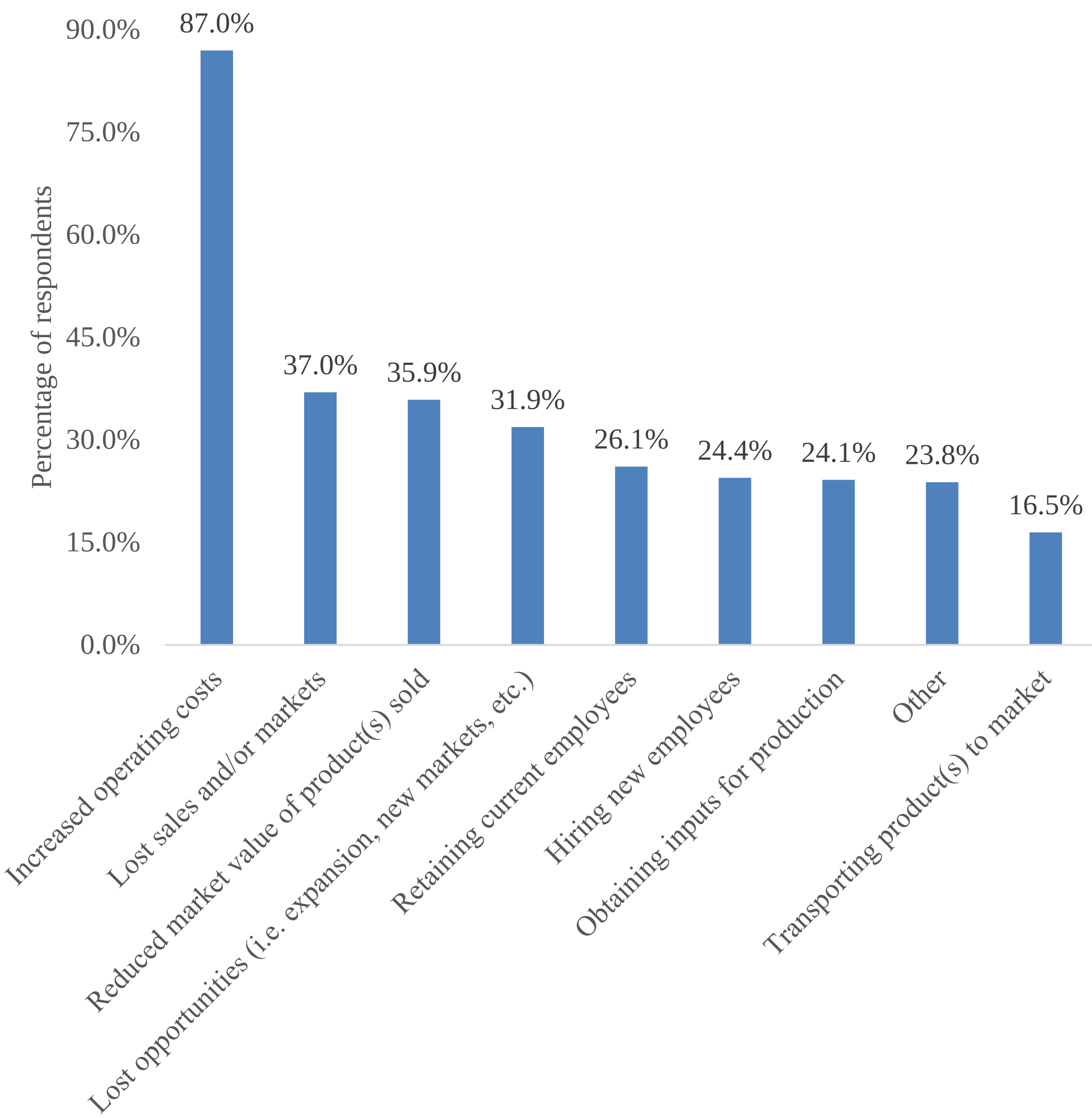


Figure 23. Challenges anticipated for the next 12 months due to the COVID-19 Pandemic, according to 2022 survey respondents.

Table 7. Percentages of 2022 Virginia seafood survey respondents who believe challenges anticipated for the next 12 months can be prevented, reduced, or cannot be prevented or reduced.

| Challenges | Can be prevented | Can be reduced | Cannot be prevented or reduced |
|---|---|---|---|
| **Increased operating costs** | 12% | 37% | 51% |
| **Lost sales and/or markets** | 28% | 56% | 16% |
| **Reduced market value for product(s) sold** | 40% | 20% | 40% |
| **Lost opportunities (i.e. expansion, new markets, etc.)** | 28% | 48% | 24% |
| **Retaining current employees** | 23% | 41% | 36% |
| **Hiring new employees** | 32% | 23% | 45% |
| **Obtaining inputs for production** | 17% | 33% | 15% |
| **Transporting product(s) to market** | 13% | 31% | 56% |
| **Other** | 21% | 43% | 36% |