

Food Fish Consumer Survey

March 2021



Agricultural Utilization Research Institute

Contents



Executive Summary	3
Demographics	6
Findings	9
Consumption and Purchasing Behaviors	10
Minnesota-Raised Fish: Awareness and Demand	13
Purchasing Preferences and Decision-Making Factors	17
Information and Benefits of Minnesota-Raised Fish	22
Recommendations	32
Appendix	34

ABOUT AURI

The Agriculture Utilization Research Institute (AURI) has a mission to foster long-term economic benefit for Minnesota through value-added agricultural products. AURI helps businesses and entrepreneurs pursue innovative opportunities in biobased products, renewable energy, coproducts and food. This includes conducting extensive research about potential industries and supply chains that could bring additional jobs and economic stability to the state, in addition to advancing the agricultural field. Market expansion and process improvement are also impactful services AURI offers to the Minnesota agricultural industry.

Executive Summary



BACKGROUND

Food fish comprise a diverse category in Minnesota from its legendary walleye to trout. Besides wild caught fishing, which goes back many generations, commercially viable fish farm opportunities have been expanding as an interest area in recent years, creating employment, economic impact and growth for related sectors in the form of fish feed, fish health and byproducts. AURI retained research and strategic communications firm, Russell Herder, to undertake a consumer survey to better understand current fish consumption behaviors in Minnesota, perceptions of the food fish industry and market potential. The research findings will ultimately exist as part of a larger guide to serve as a resource and educational tool for decision makers, industry, academia and others to expand market opportunities in Minnesota, resulting in a positive shift in public perception, and serving to inspire successive projects with stakeholders' partners.

OBJECTIVES

This research:

- Informs and supports expansion of current work in the field;
- Creates actionable information for Minnesota aquaculture producers and related businesses;
- Identifies consumer demand and perceptions within Minnesota markets; and
- Determines necessary purchase drivers to grow the industry.

METHODOLOGY

To gain statistically reliable consumer insights, Russell Herder undertook a statewide telephone survey, on behalf of the Agricultural Utilization Research Institute, to assess market demand, current perceptions and purchasing barriers of food fish grown and/or sold in Minnesota. The surveying company completed a total of 352 interviews were completed with adult Minnesotans for a statistical reliability of +/-5.3 percent at the 95 percent confidence level. The survey sample took into consideration appropriate geographical distribution, age, income, race, etc. The surveys were conducted by phone between November 23 and December 2, 2020.

KEY FINDINGS

Respondents indicated they consume chicken and beef on a more regular basis than fish, with approximately half of consumers saying that they eat these meats more than once per week. Conversely, only three percent report eating salmon at this frequency, six percent consume shrimp and 11 percent eat other fish more than once per week.

Consumers feel fish is good for a healthy diet to a far greater extent than they are buying it. In fact, nearly two-thirds agree salmon (65%) and other fish (71%) are either somewhat or very important as a healthy, sustainable food choice.

Consumers most trust government, grocery stores and commercial fish producers when it comes to assuring the safety of the food fish they buy.

Consumers have little awareness of which breeds of fish are currently raised in Minnesota, but 46% are interested in learning more – especially online or at the place of purchase. Walleye and trout are the species most commonly perceived as being commercially raised local fish, with 50 percent identifying walleye and 36 percent saying trout. However, nearly one-fourth (22%) of consumers are unable to name any locally raised species, indicating a lack of awareness. Almost half (46%) of consumers indicate that they are interested in learning more about fish that are commercially raised in Minnesota.

There is strong potential for increasing purchase of Minnesota grown fish. Consumers say that they would not only buy more but could pay additional. If Minnesota-raised salmon was available in either restaurants or grocery stores, 37 percent of consumers report they would be either somewhat or very likely to increase their purchase of such. Similarly, 40 percent feel their purchase of shrimp would increase and 41 percent indicate their purchase of walleye would increase if raised and available in Minnesota.

Flavor is the factor rated as the highest priority when purchasing fish.

Nearly two-thirds (62%) of consumers indicate that they sometimes or always read the product label for information (beyond price) when making a purchase of salmon, fish or shrimp while grocery shopping.

Those who would be willing to pay more for Minnesota-raised fish place the greatest importance on nutritional value, sustainability and being locally raised. Over half (57%) of consumers agree that eating Minnesota-raised fish, salmon or shrimp is more sustainable, and 51 percent feel such would be safer to eat than other fish options.

Eight in 10 (82%) consumers agree that commercially regulated fisheries or fish farms in Minnesota are good for the local economy. Seventy percent feel that these businesses would provide products with a high nutritional value, and over half (56%) agree such would have a positive impact on the environment. Furthermore, nearly half (46%) of consumers report that they are willing to pay more for food fish products that would benefit the state's economy.

The top three perceived barriers to purchasing Minnesota-raised salmon, shrimp or other fish were overall quality (70%), taste (66%) and smell (58%). As well, 57 percent say that being able to locate Minnesota-raised fish and seafood products in stores or restaurants is a potential barrier to purchase (57%) and knowing how to cook it could also be a prohibitive factor (47%).

Those who would pay more for Minnesota-raised fish and seafood products are more likely to agree that commercially regulated fisheries and fish farms have a positive impact on the environment. Just over half (55%) agree commercially regulated fisheries or fish farms in Minnesota are a more sustainable method than wild caught.

RECOMMENDATIONS

Advance awareness, attitudes and understanding of the availability of Minnesota farm-raised fish and shrimp, by undertaking a consumer education campaign.

Share information about Minnesota aquaculture operations — when applicable — as environmentally friendly, healthy, sustainable, and energy efficient.

Clarify the economic advantages of expanding the aquaculture industry.

Ensure clear point-of-purchase information through accurate nutritional and source labeling, utilizing tools such as QR codes to increase traceability or identity preservation.

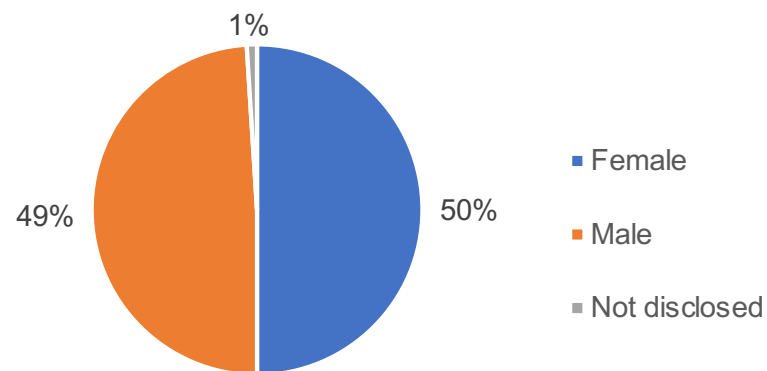
Establish centralized online information that provides detail about food fish aquaculture products available in Minnesota.

Increase the industry's profile of Minnesota aquaculture developments and the economic potential success could bring.

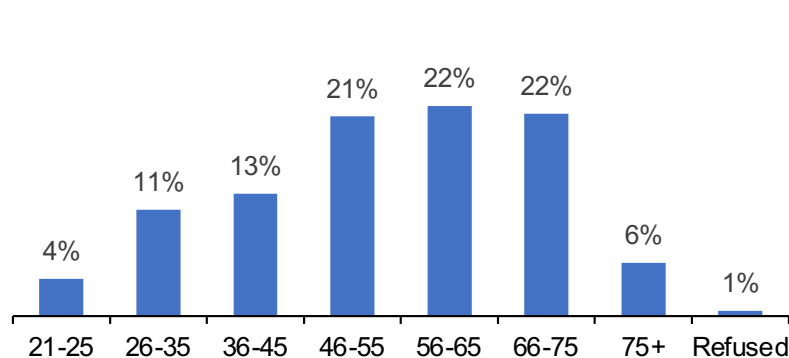
Demographics



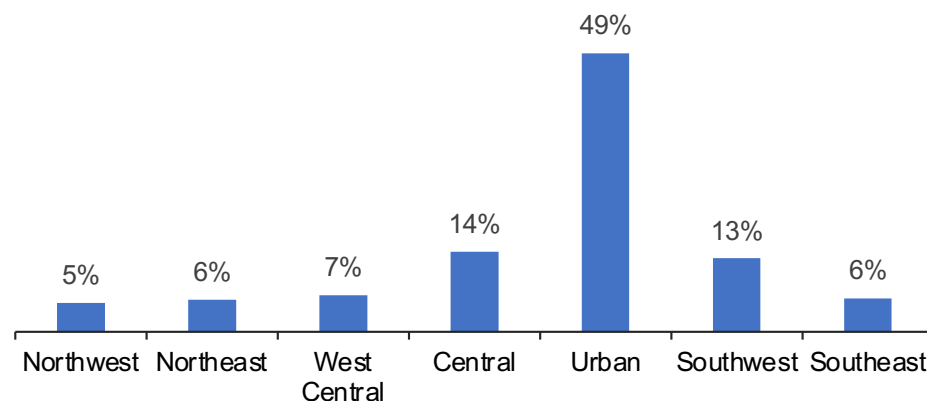
Of the 352 respondents interviewed, 49 percent identified as male, and 50 percent identified as female. Fewer than one percent preferred not to disclose their gender identity.



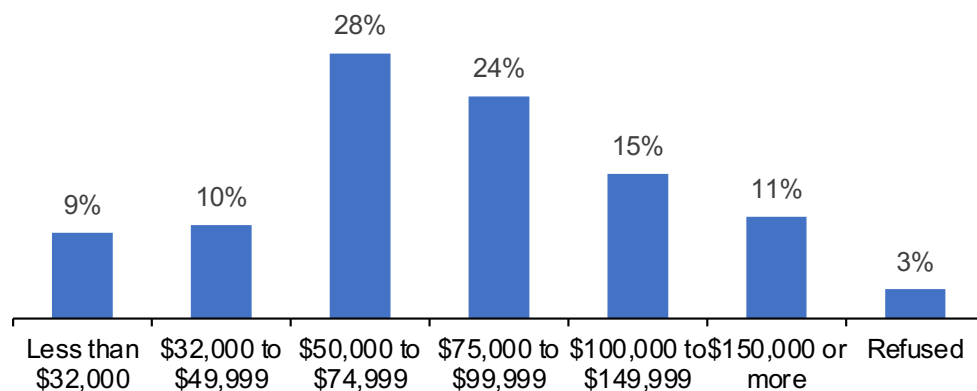
Twenty-eight percent of respondents were ages 45 or below. Sixty-five percent were between the ages of 46 and 75, and six percent were over 75.



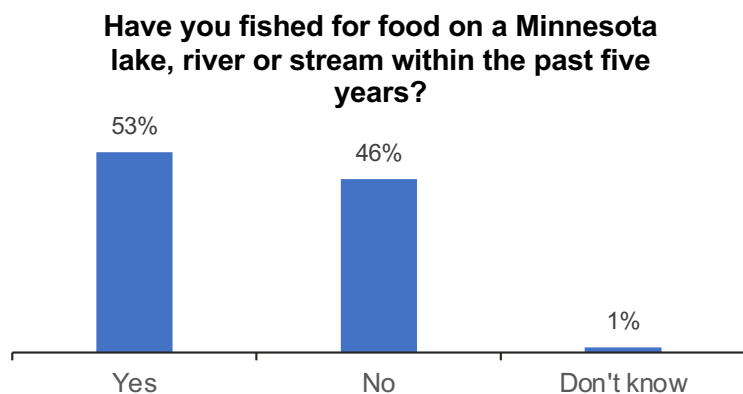
Forty-nine percent of consumers surveyed resided in the metro area of Minnesota. Fifty-one percent lived in regions other than urban. (A breakdown of region, by county, available in appendix)



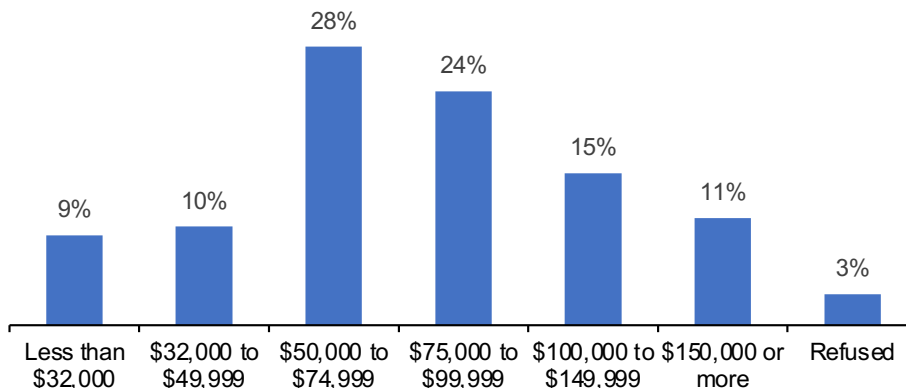
Nineteen percent of respondents reported an annual household income of \$49,999 or less. Fifty-two percent reported their annual income to be between \$50,000 and \$99,999. Twenty-six percent reported annual income over \$100,000, and three percent refused to answer.



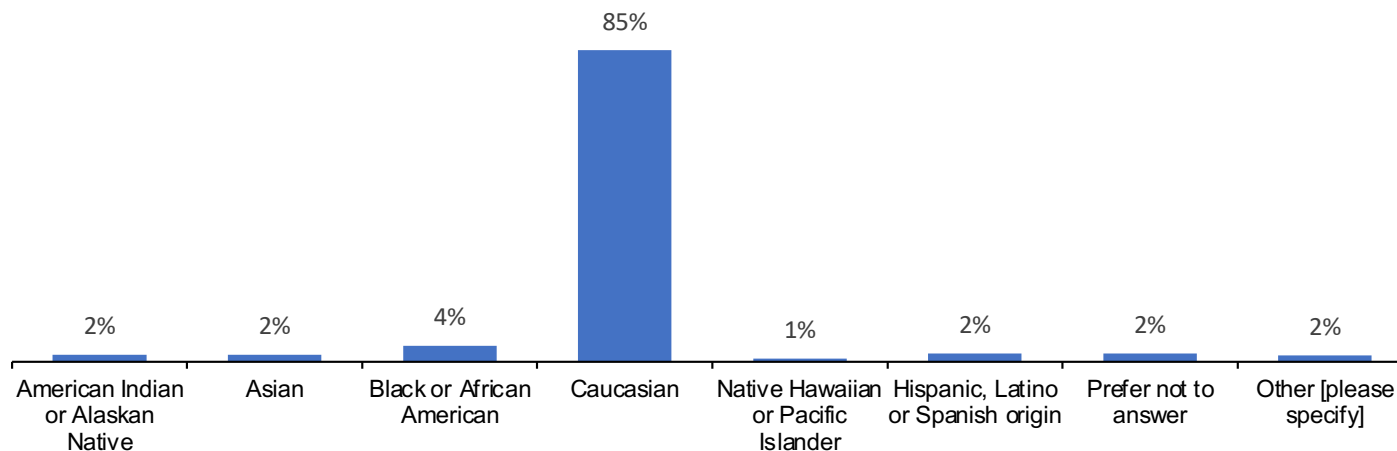
Just over half (53%) of consumers said that they have fished for food in Minnesota waters within the past five years and 46 percent said they have not.



Nineteen percent of respondents reported an annual household income of \$49,999 or less. Fifty-two percent reported their annual income to be between \$50,000 and \$99,999. Twenty-six percent reported annual income over \$100,000, and three percent chose not to answer.



Eighty-five percent of those interviewed indicated that they were Caucasian. Four percent reported they were Black or African American. Those who were Asian, American Indian or Alaskan Native, and Hispanic, Latino or Spanish origin comprised two percent each of the total respondents. One percent reported being Native Hawaiian or Pacific Islander. Two percent preferred not to answer and another two percent selected other. (*Other responses available in Appendix*)



Findings

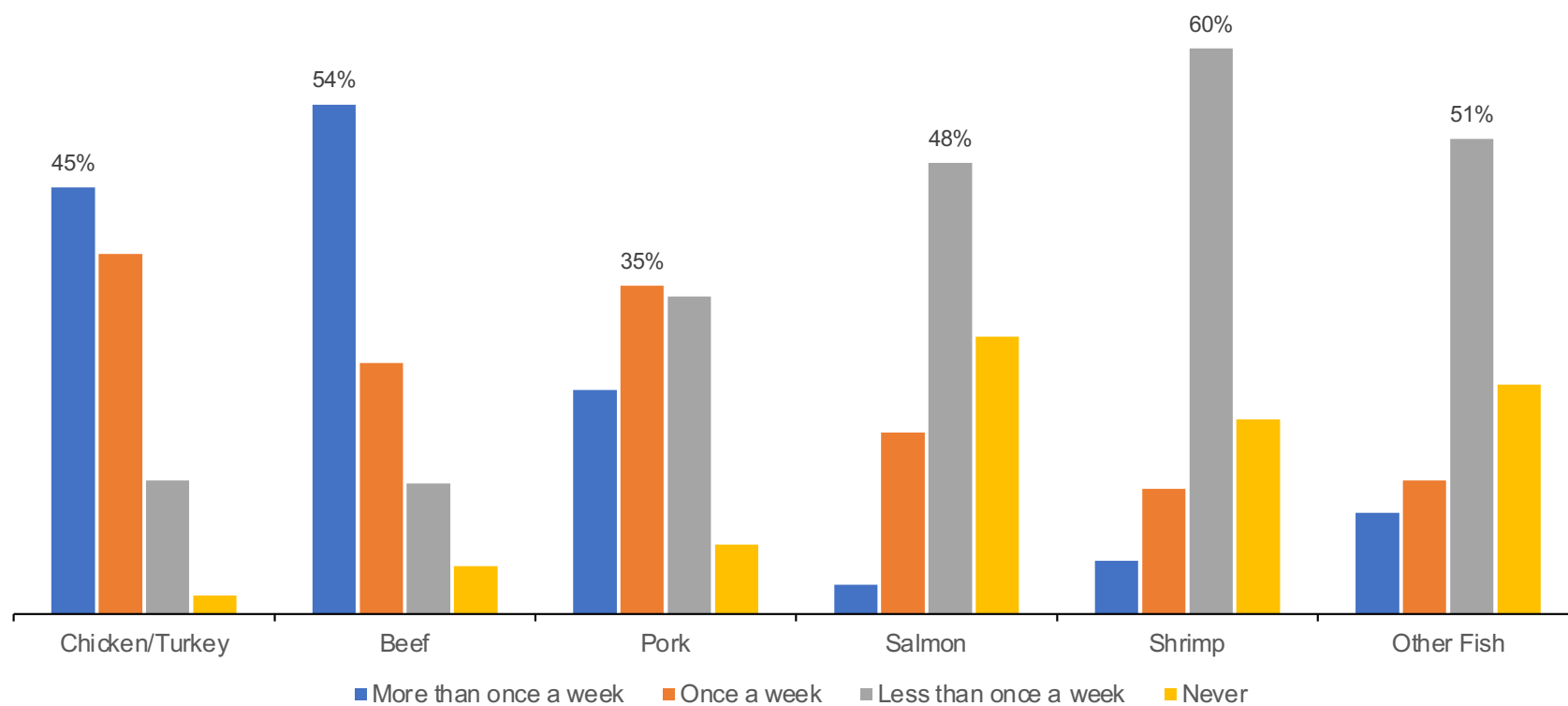


Consumption and Purchasing Behaviors

Over half (54%) of consumers reported having eaten beef more than once a week within the last twelve months. Similarly, nearly half (45%) reported they had eaten chicken more than once a week. Fewer indicated consuming pork at that frequency, with 35 percent saying they had eaten it just once a week.

Nearly one-fourth (22%) of all respondents reported having salmon once a week or more within the last twelve months. Comparably, 25 percent indicated they had eaten other fish at least once a week or more and 19 percent reported consuming shrimp at this frequency. However, of the options listed, salmon received the highest percentage (30%) of respondents indicating they had not consumed it at all within the past twelve months.

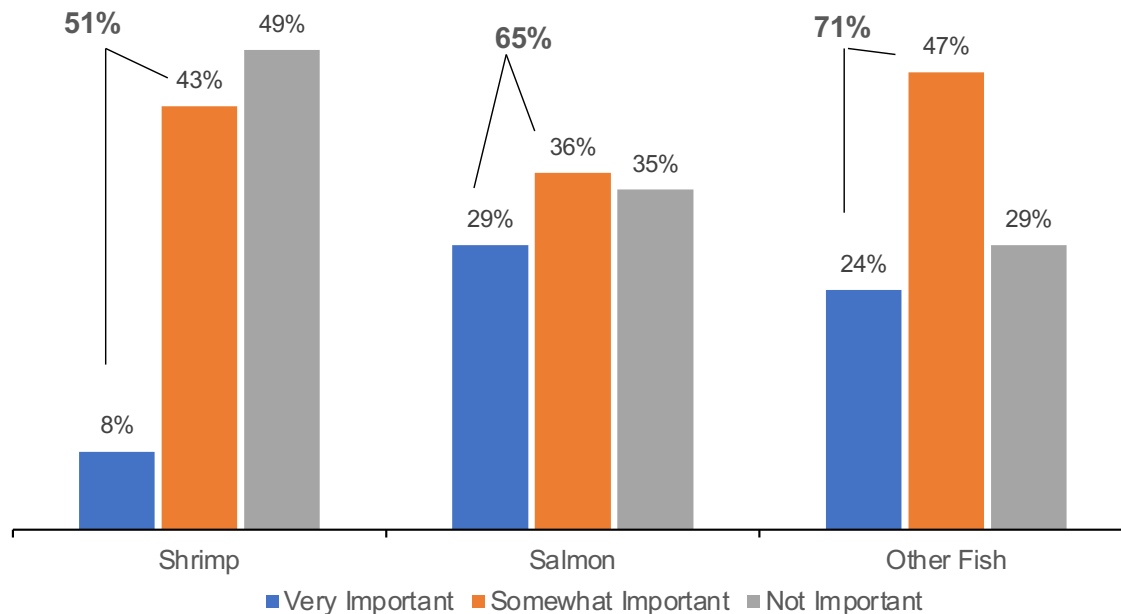
Within the past 12 months, how often have you eaten the following?



Awareness of the health benefits of eating fish is an important consideration.

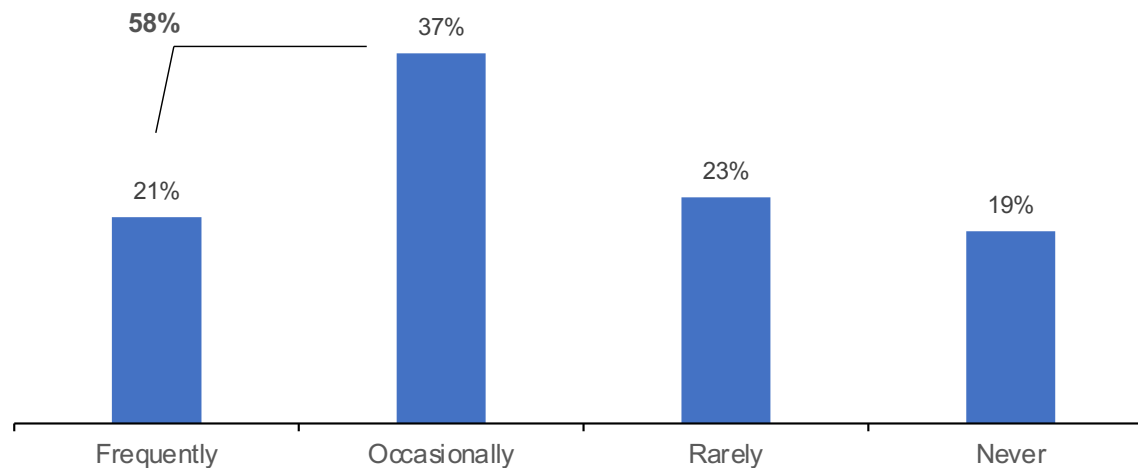
Nearly two-thirds (65%) felt salmon is either somewhat or very important as a healthy, sustainable food choice for their overall diet. Furthermore, 71 percent felt other fish are somewhat or very important additions to their diet as well. However, almost half (49%) of consumers indicated that they believe shrimp is not important as a healthy, sustainable food.

How important do you feel the following are as a healthy, sustainable food choice for your overall diet?



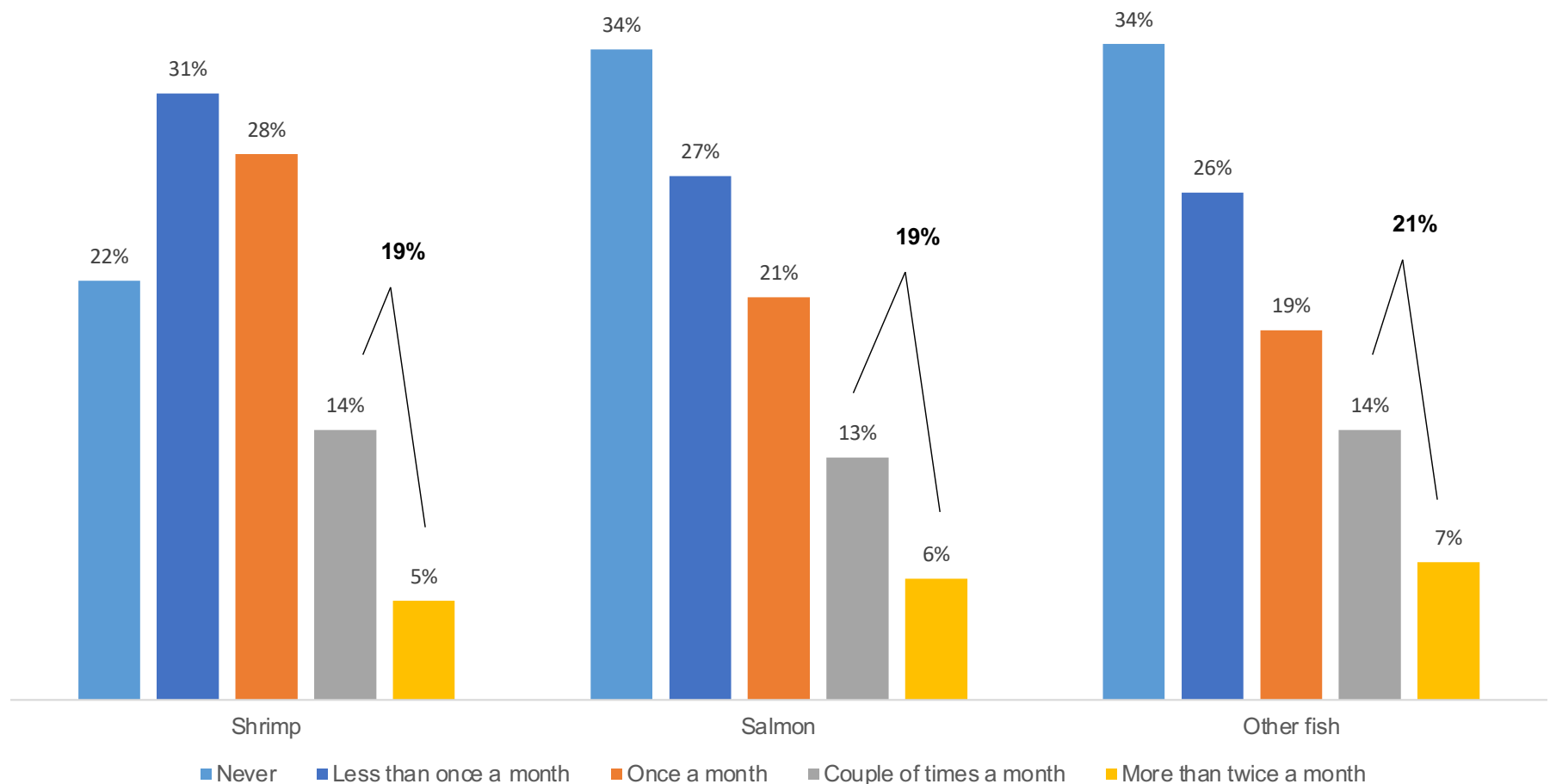
When asked how often they order fish, shrimp or salmon at a restaurant, 21 percent reported they do so frequently, and another 37 percent do occasionally. Less than one-fourth (23%) do so rarely and even fewer (19%) reported they never order fish, shrimp or salmon.

When you order food from a restaurant, how often do you order fish, shrimp or salmon?



Approximately one in five consumers indicated that they purchase fresh or frozen shrimp (19%), salmon (19%) or other fish (21%) from the grocery store more than once a month. However, over one-third (34%) reported they never buy salmon or other fish, while 22 percent reported never buying shrimp.

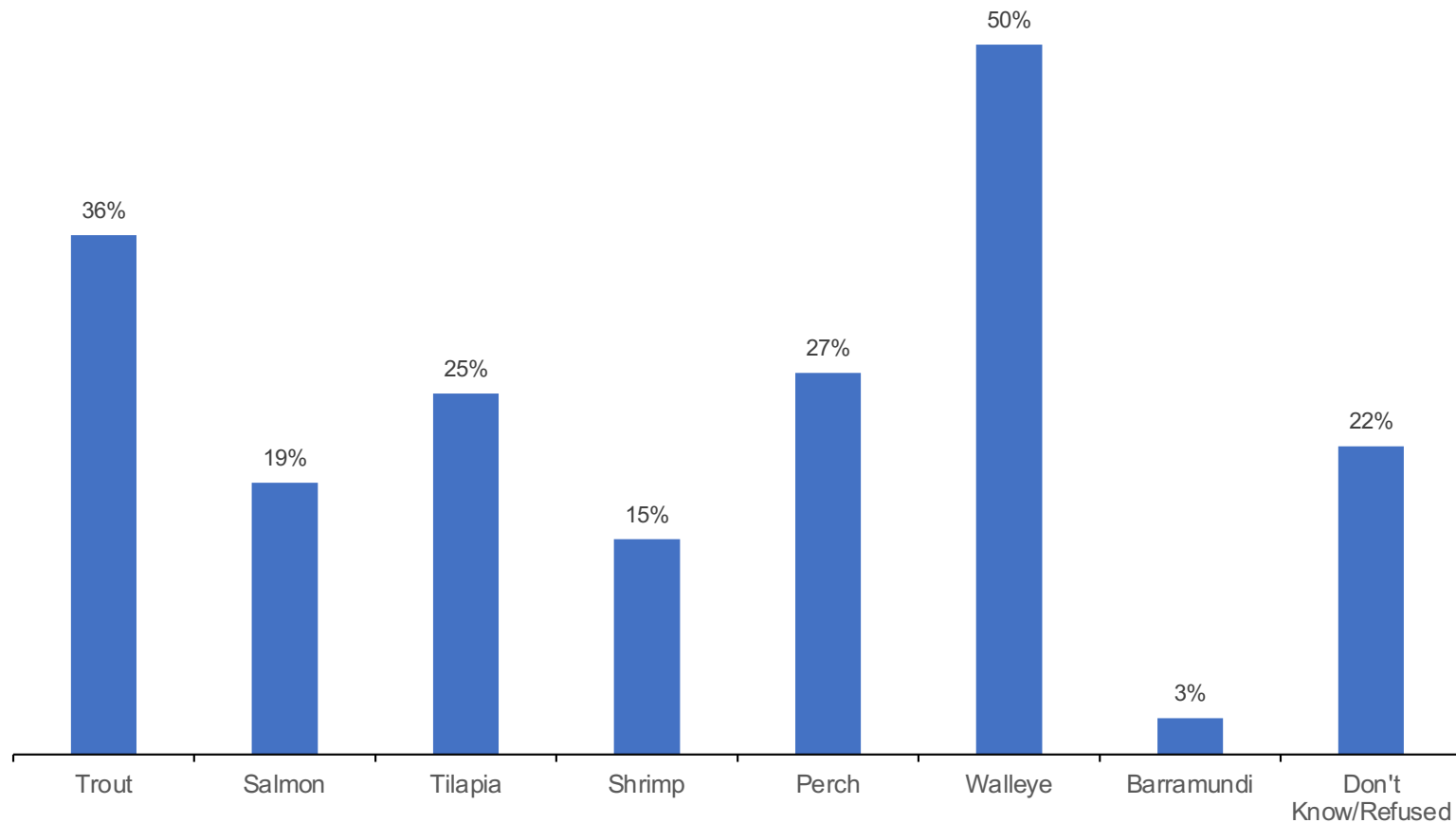
How often do you buy the following at a grocery store, either fresh or frozen?



Minnesota-Raised Fish: Awareness and Demand

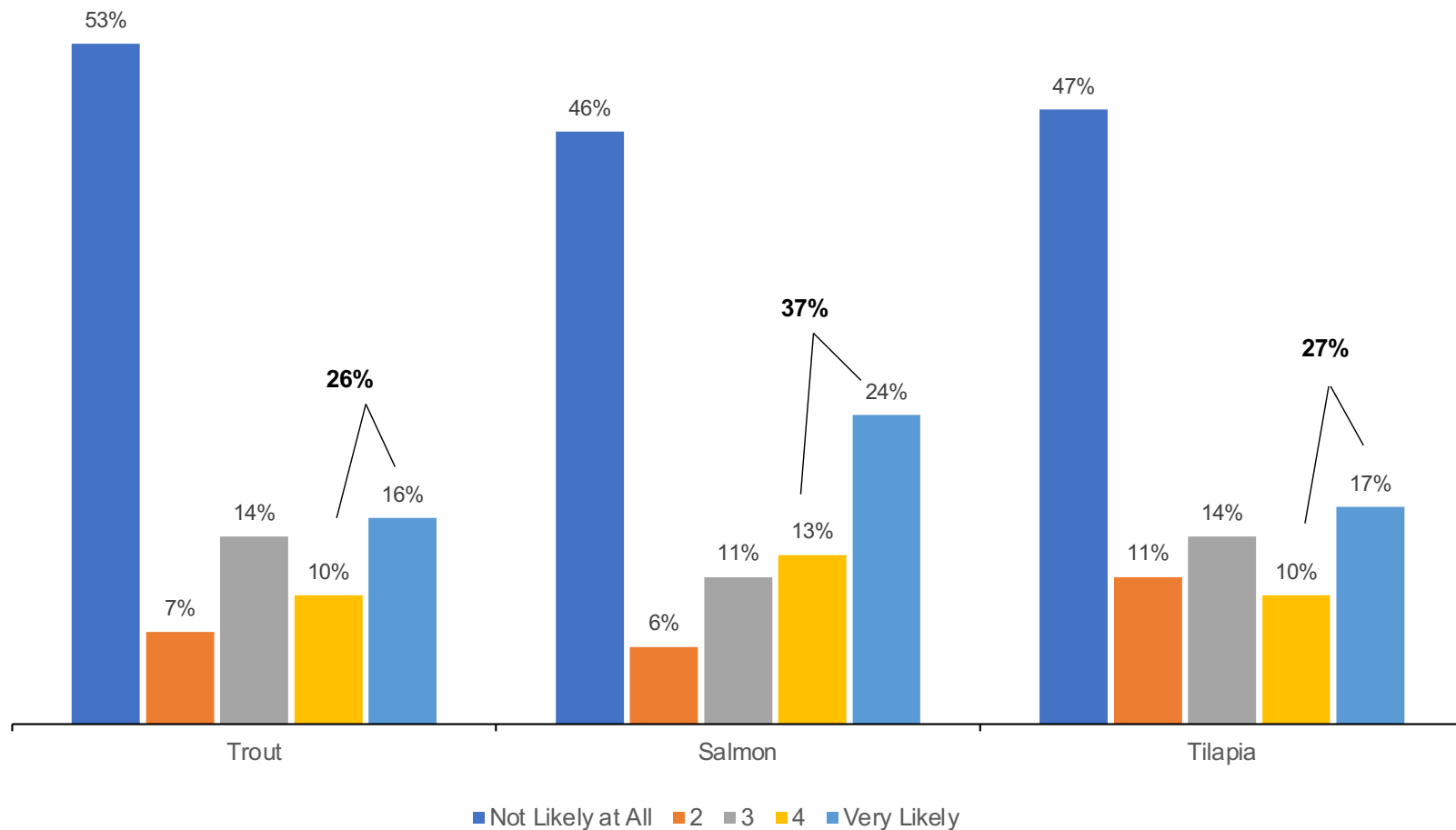
When asked to identify which species of fish they thought were commercially raised for food in Minnesota, consumers chose walleye most frequently at 50 percent. Over one-third (36%) also identified trout as a species commercially raised in Minnesota, and over a quarter (27%) identified perch. Fewer respondents believed that salmon (19%), tilapia (25%), and shrimp (15%) are species commercially raised in Minnesota. Nearly one-fourth (22%) did not know or chose not to answer the question, potentially an opportunity to further educate consumers of the commercial food fish market potential in this state.

Which of these species of fish do you believe are commercially raised for food in Minnesota?



Nearly one-fourth (24%) of consumers reported that they would be very likely to increase their purchases of salmon if a Minnesota-raised option were available in a grocery store or restaurant they frequent. An additional 13 percent indicated they would be somewhat likely to do so. Twenty-six percent reported that if Minnesota-grown trout were available in a grocery store or restaurant, they would be likely to somewhat likely to increase their purchases of such. Similar responses were seen for tilapia with 27 percent reporting their purchasing behaviors would likely increase.

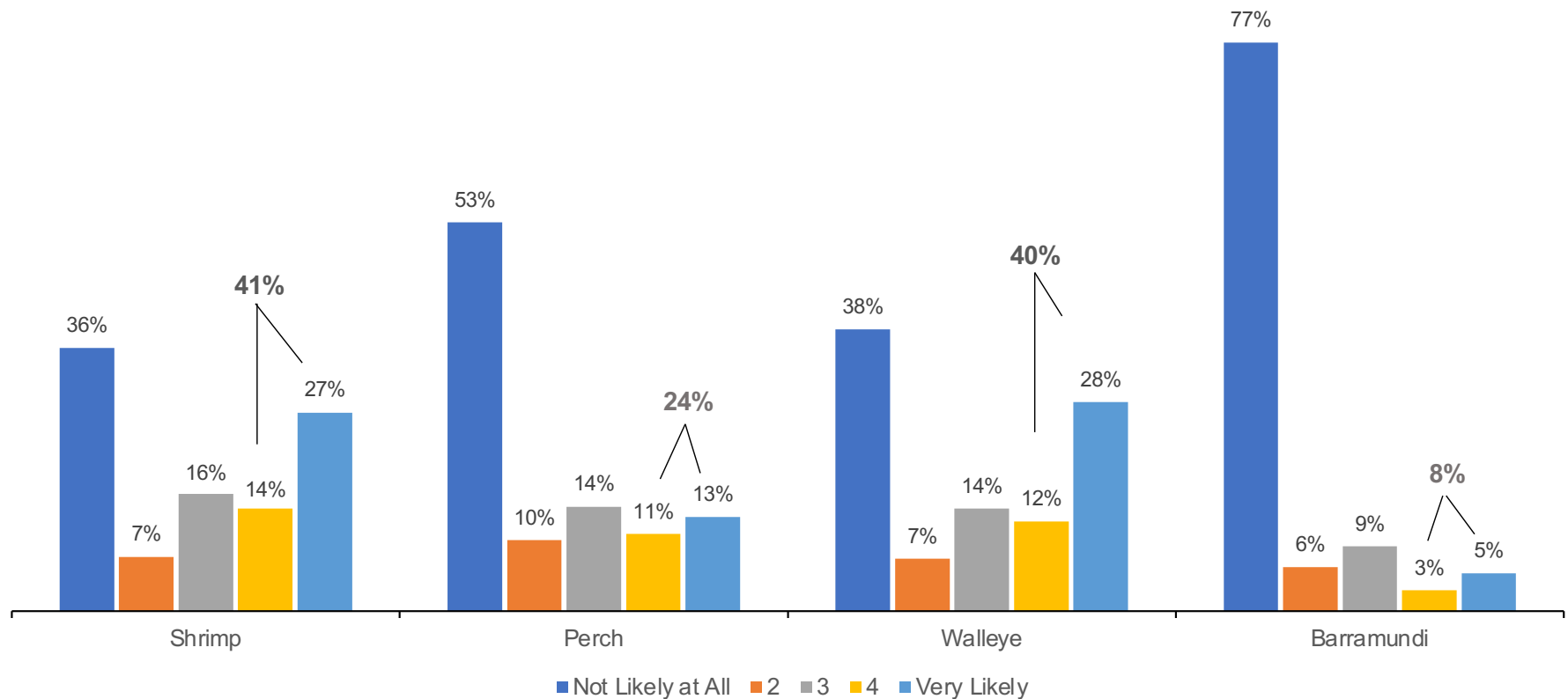
How likely is it that you would increase your purchase of Minnesota grown fish, if it were available in a grocery store or restaurant you frequent?



In addition to salmon, shrimp (41%) and walleye (40%) were the two species that yielded the highest percentage of consumers reporting that they would be somewhat or very likely to increase their purchases of such, if Minnesota-grown options were available in grocery stores and restaurants.

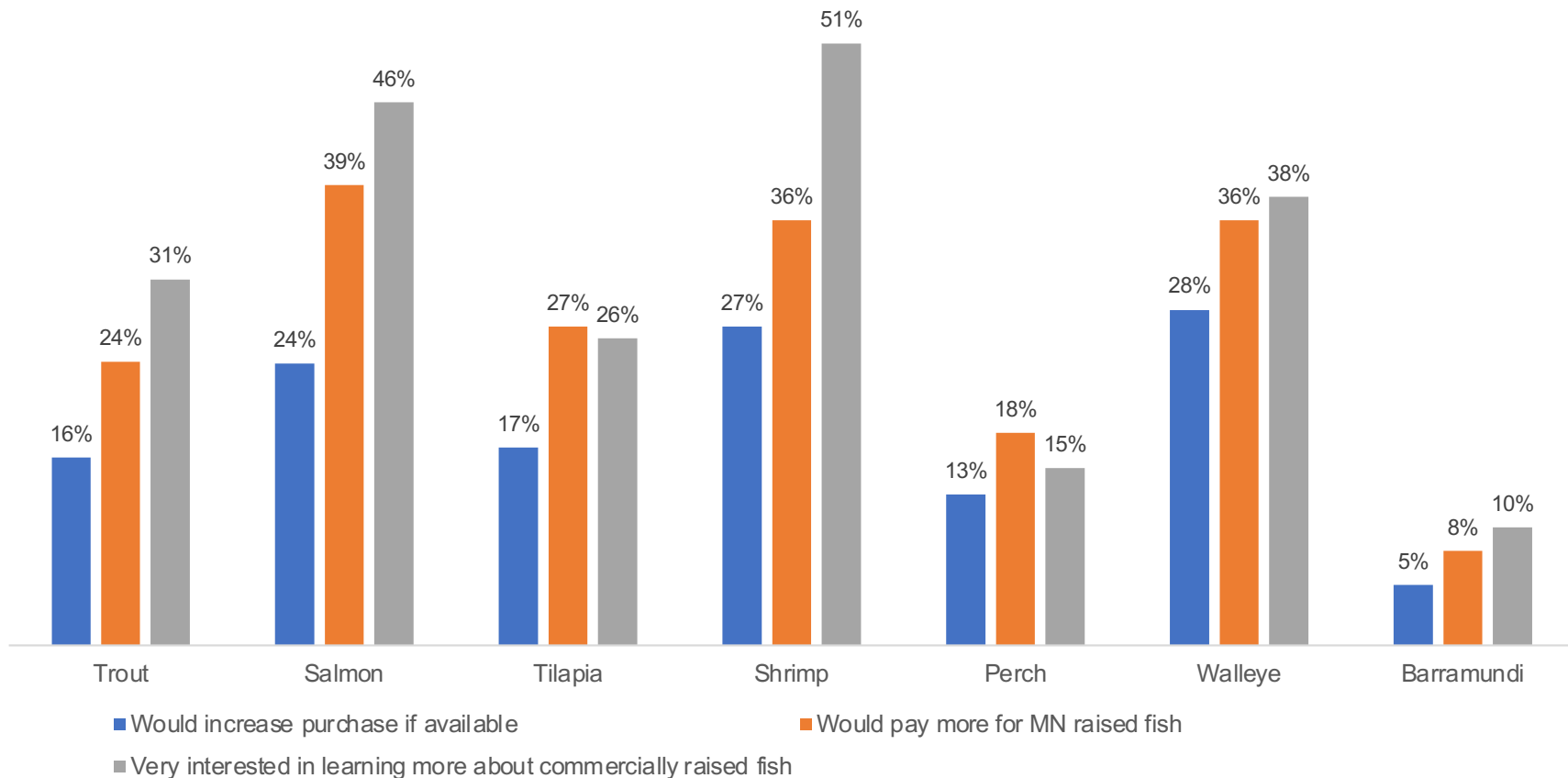
Twenty-four percent felt that the availability of Minnesota-grown perch would increase their purchasing of such. Similarly, Only eight percent of consumers indicated they would not be at all likely to increase their purchases of Minnesota-grown barramundi.

How likely is it that you would increase your purchase of Minnesota-grown fish, if it were available in a grocery store or restaurant you frequent?



Market potential for Minnesota-raised fish and seafood products exists. Consumers who indicated they are very interested in learning more about fish commercially raised in Minnesota had higher percentages report that they would be very likely to purchase Minnesota trout (31%), salmon (22%), shrimp (51%) and walleye (38%) if such were available. These higher percentages identify consumer preferences and fish and seafood species with the highest market potential.

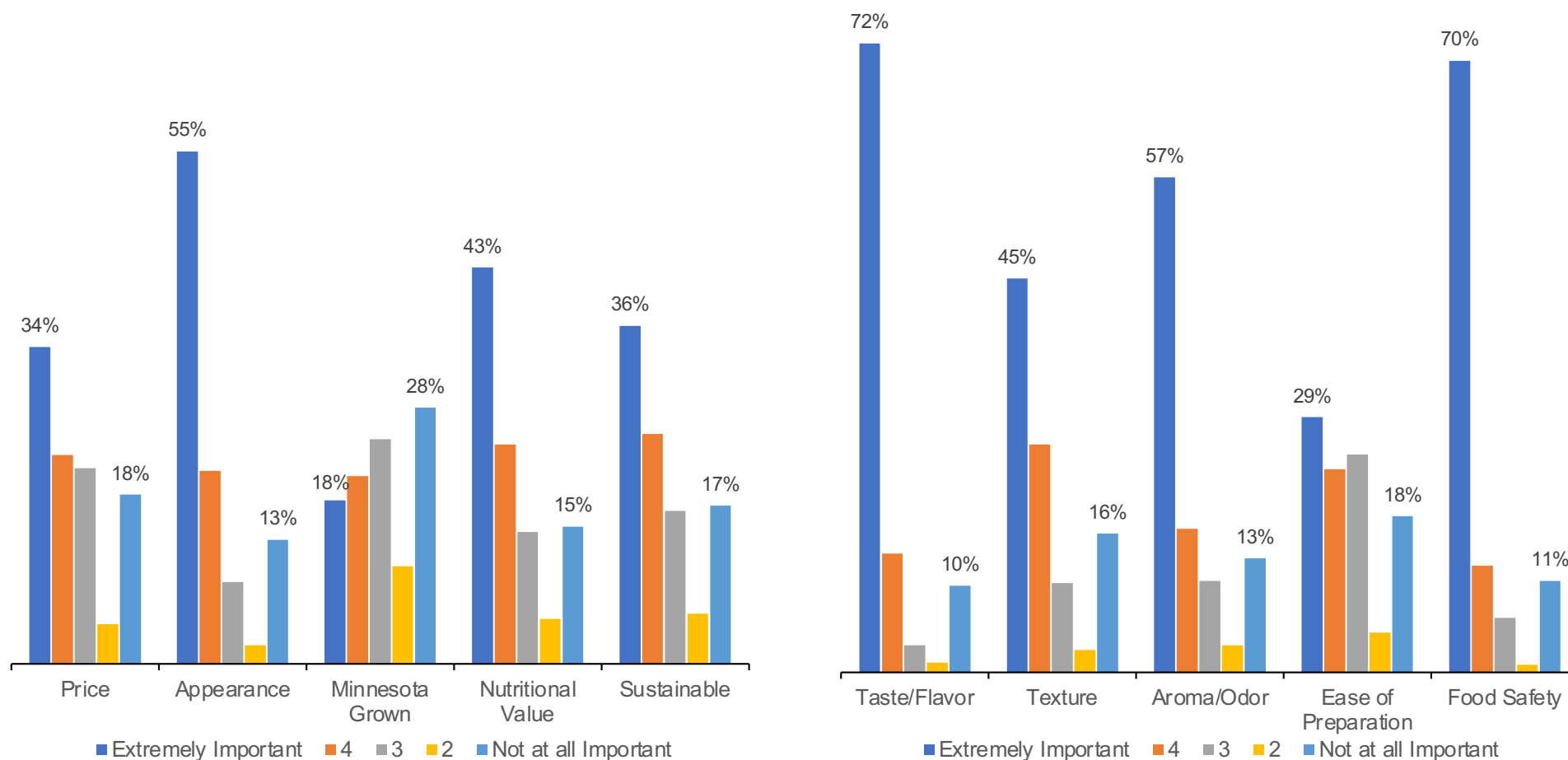
Very likely to increase purchase of Minnesota grown fish if it were available



Purchasing Preferences and Decision-Making Factors

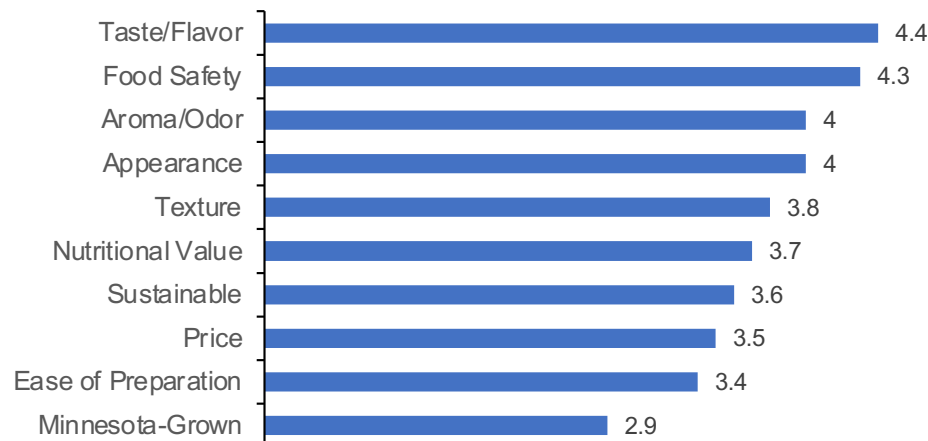
When asked how important various factors are when making a fish or seafood purchase, the strongest drivers were taste/flavor (72%), food safety (70%), aroma/odor (57%), and appearance (55%).

How important are the following when you are making a fish or seafood purchase?



Furthermore, when averaging the importance scores, with one being not at all important and five being extremely important, taste/ flavor was the top ranked factor with an average score of 4.4. Factors seen as less important by consumers include price (3.5), ease of preparation (3.4), and Minnesota-grown (2.9).

How important are the following when you are making a fish purchase?



When comparing the average ratings of importance of these factors, there were differences seen across the various segments of respondents. Those who had indicated they would pay more for Minnesota-grown fish and seafood products placed more importance on nutritional value (4.1), sustainability (3.9) and, of course, Minnesota-grown (3.5). Interestingly, Minnesota origin still received the lowest average score on importance within this group.

Those who had indicated they would be very interested in learning more about commercially raised fish and seafood products in Minnesota rated every factor as more important than the overall total scores.

How important are the following when you are making a fish purchase? (1 not at all important – 5 extremely important)				
	Total Avg	Would pay more for MN fish	Very interested in learning more	Fished in MN
Taste/Flavor	4.4	4.6	4.9	4.5
Food Safety	4.3	4.5	4.7	4.3
Appearance	4	4.2	4.5	4.1
Aroma/Odor	4	4.2	4.4	4.1
Texture	3.8	4	4.3	3.9
Nutritional Value	3.7	4.1	4.4	3.8
Sustainable	3.6	3.9	4.1	3.5
Price	3.5	3.6	3.6	3.5
Ease of Preparation	3.4	3.6	3.8	3.3
Minnesota-Grown	2.9	3.5	3.1	2.9

Purchasing opinions varied between men and women. Overall, women tended to rank each of the factors as more important, particularly food safety, texture, nutritional value, sustainability, ease of preparation and being Minnesota-grown. Nearly half of women (45%) ranked sustainability as an extremely important factor when making a purchase, while only 28 percent of men felt the same.

How important are the following when you are making a fish purchase? (1 not at all important – 5 extremely important)		
	Male	Female
Taste/Flavor	4.3	4.5
Food Safety	4.1	4.5
Appearance	3.9	4.1
Aroma/Odor	3.9	4.1
Texture	3.6	4
Nutritional Value	3.5	4
Sustainable	3.4	3.8
Price	3.4	3.6
Ease of Preparation	3.2	3.6
Minnesota-Grown	2.7	3.1

While taste and flavor had the highest average importance rating for nearly all the income brackets, food safety rated the highest for individuals with an annual household income of less than \$32,000, with an average score of 4.2 compared to 4.1 for taste and flavor.

Price and ease of preparation were considerably less important factors to those who reported a household income over \$150,000 than for all other income segments. Similarly, as household income levels increased, the importance of Minnesota-grown fish or seafood products decreased.

How important are the following when you are making a fish purchase? (1 not at all important – 5 extremely important)						
Annual Household Income	Less than \$32,000	\$32,000 to \$49,999	\$50,000 to \$74,999	\$75,000 to \$99,999	\$100,000 to \$149,999	\$150,000+
Taste/Flavor	4.1	4.3	4.5	4.2	4.6	4.3
Food Safety	4.2	4.3	4.4	4.2	4.4	4.1
Appearance	4	3.9	4.1	3.9	4.2	4
Aroma/Odor	4	3.9	4.1	3.9	4	4
Texture	3.5	3.9	3.9	3.7	4	3.7
Nutritional Value	4	4.1	3.8	3.4	3.7	3.6
Sustainable	3.6	4.1	3.7	3.3	3.4	3.7
Price	3.5	3.5	3.7	3.5	3.5	2.8
Ease of Preparation	3.6	3.4	3.5	3.3	3.5	2.9
Minnesota-Grown	3.3	3	3.1	2.7	2.8	2.5

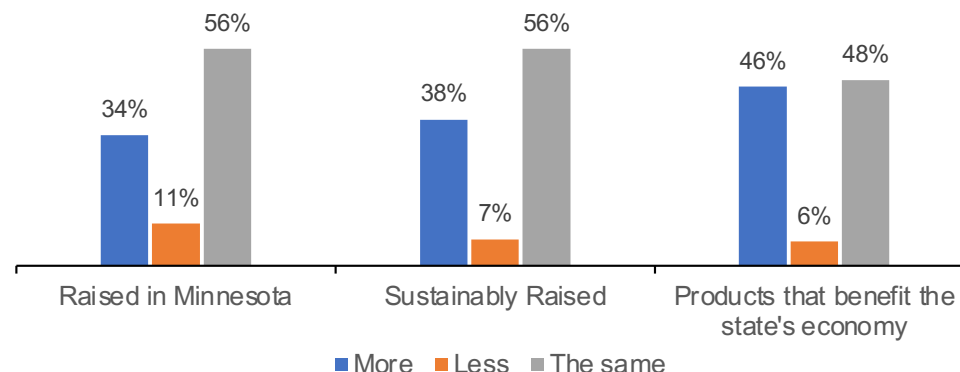
To provide a degree of context regarding buyer price sensitivity, consumers interviewed were asked whether they felt they would be willing to pay more, less or the same for fish, salmon or shrimp with certain attributes. It should be noted that for the purposes of this study, the question was asked without actual pricing comparisons, relying instead on perceptual responses.

The majority of consumers interviewed (56%) reported they would pay the same amount for fish or shrimp regardless if it were raised in Minnesota or if it was sustainably raised. However, nearly half (46%) also reported they would be willing to pay more for products that would benefit the state's economy. Just over one-third indicated they would pay more for fish or shrimp raised in Minnesota (34%), or those raised sustainably (38%). In comparison to the overall totals, a markedly higher percentage of those who said they would pay more for fish and seafood products raised in Minnesota said they would be very likely to increase their purchase of Minnesota-grown salmon (39%), tilapia (27%) and walleye (36%), if it were available.

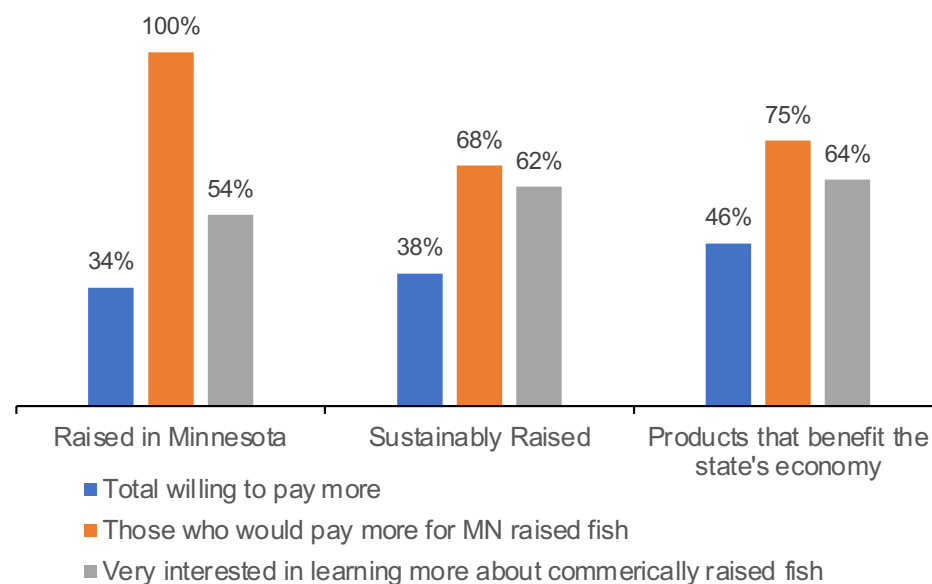
In comparison to the overall totals, those who reported they are very interested in learning more about commercially raised fish and seafood products in Minnesota were also more likely to be willing to pay more for fish or shrimp raised in Minnesota (54%), sustainably raised (62%), and products that benefit the state's economy (64%). Sixty-eight percent of those who indicated that they would pay more for fish or shrimp raised in Minnesota also indicated they would pay more for sustainably raised fish or shrimp. Three-fourths (75%) of these individuals reported they would be willing to pay more for products that benefit the state's economy as well.

Interestingly, those who indicated they had fished in Minnesota for the purposes of food within the last five years were less likely to be willing to pay more for either sustainably raised fish (35%) or products that benefit the state's economy (45%) when compared to overall totals of 38 percent and 46 percent, respectively.

Would you be willing to pay more, less or the same for fish, salmon or shrimp with these attributes?

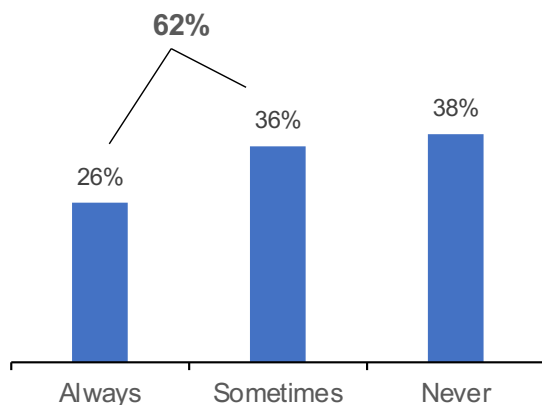


Willing to pay more for fish with these attributes



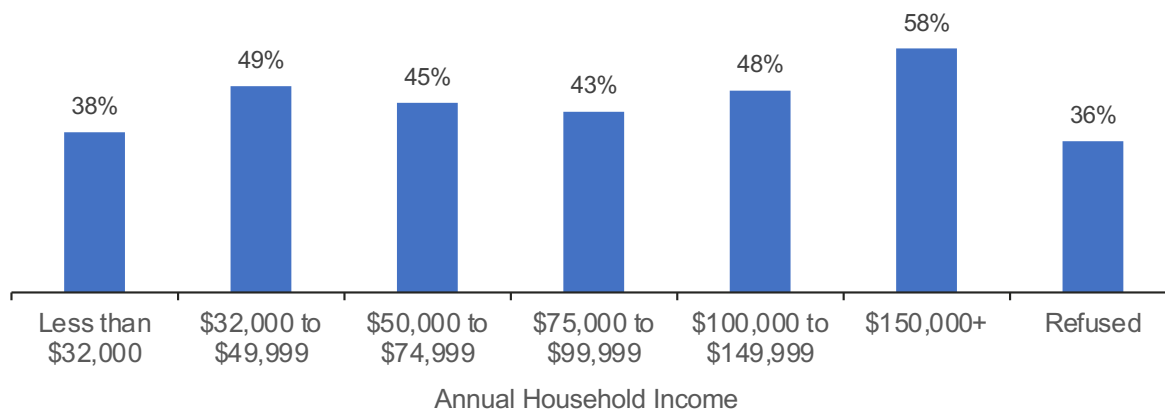
Sixty-two percent of consumers reported that they either sometimes or always read the labels while grocery shopping for fish, salmon or shrimp.

How often do you read fish, salmon or shrimp product labels while grocery shopping, other than for price?



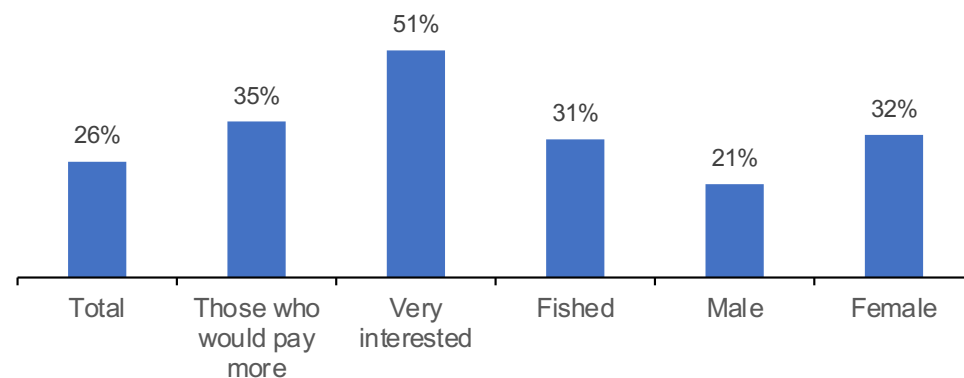
While the percentage of individuals who indicated that they would be willing to pay more for fish or shrimp raised in Minnesota and raised sustainably remained fairly consistent regardless of annual household income, there was a noticeable difference in the percentage that indicated a willingness to pay more for products that benefit the state's economy. Only 38 percent of those who have an annual income of less than \$32,000 reported a willingness to pay more for these products. On the other hand, of those who reported an annual income of \$150,000 or more, 58 percent indicated a willingness to pay more for products that are beneficial to the Minnesota economy. This identifies an opportunity to increase demand of Minnesota-grown fish or shrimp by educating consumers on how it benefits the state.

Willing to pay more for products that benefit the state's economy



When looking at the various segments, the survey identified certain groups as being more likely to read labels when purchasing fish, salmon, or shrimp. While only one-fourth (26%) of total respondents reported they always read the label, over one-third (35%) of those who are willing to pay more for Minnesota-grown fish or shrimp do so. Over half (51%) of those who indicated they are very interested in learning more about commercial fish or seafood operations in Minnesota reported they always read the label. The segment that is less likely than others to read the label were men, with only 21 percent reporting they always do so.

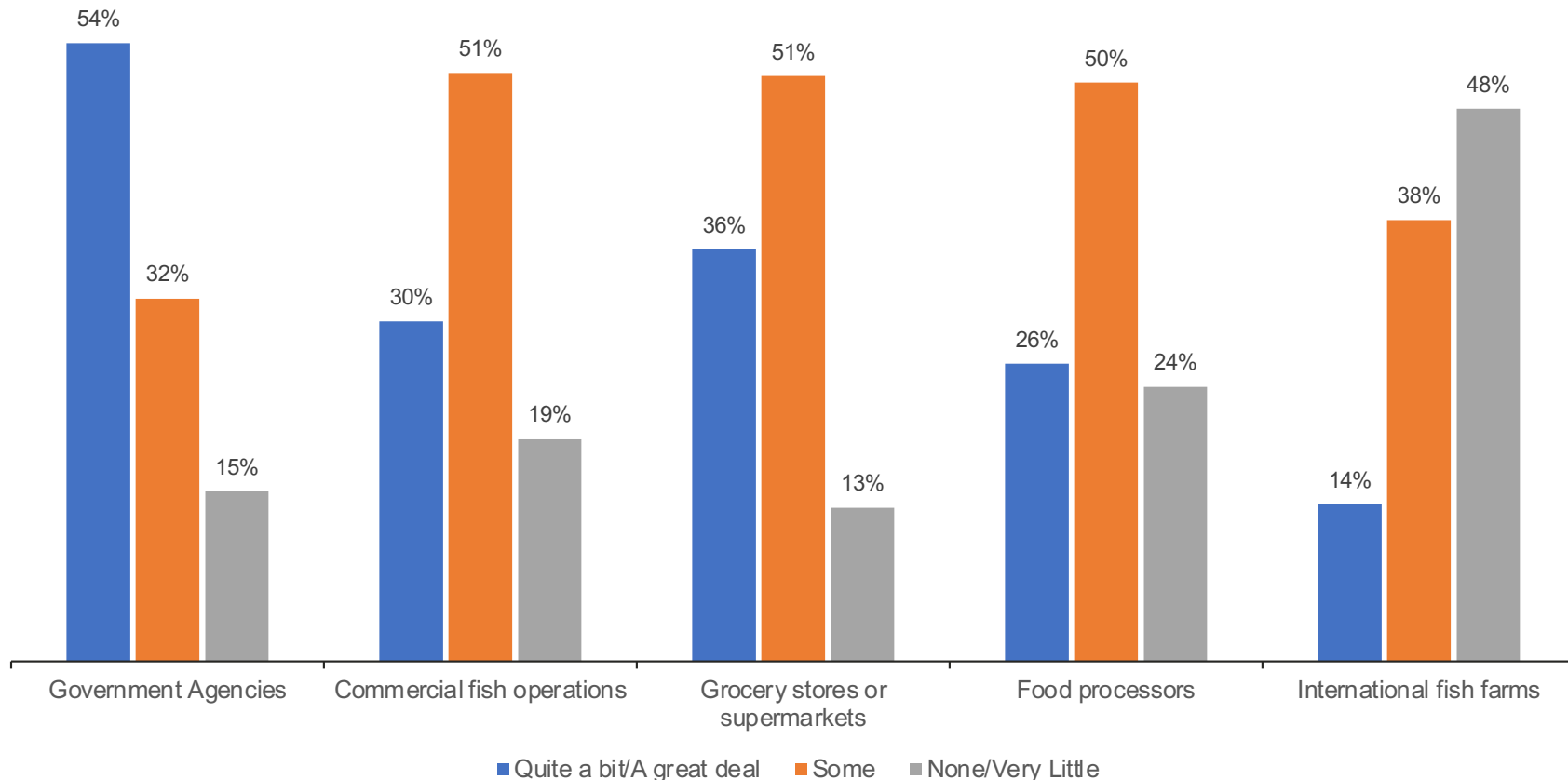
Always read the label



Information and Benefits of Minnesota-Raised Fish

Consumers have distinct opinions about who they trust to keep the fish and seafood they buy safe. The entity engendering the most trust by the majority (54%) were government agencies. Over half reported having some trust in commercial fish operations (51%), grocery stores or supermarkets (51%), and food processors (50%). The least trust related to international fish farms, with nearly half (48%) reporting they had none or very little belief in their willingness to keep food fresh and safe.

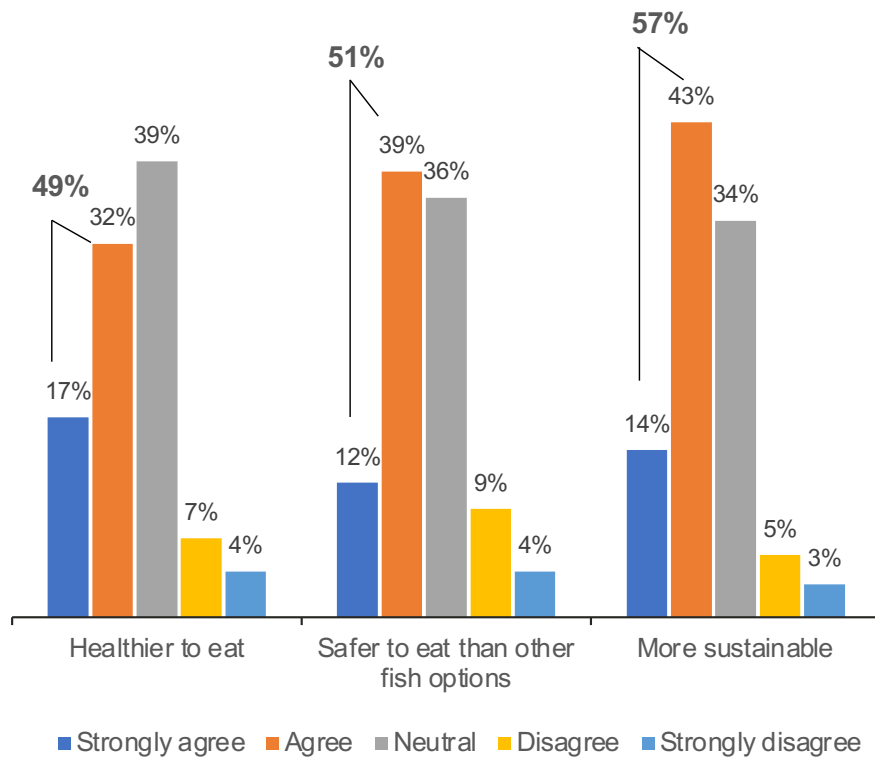
How much do you trust the following entities to keep the fish sold in restaurants and stores safe?



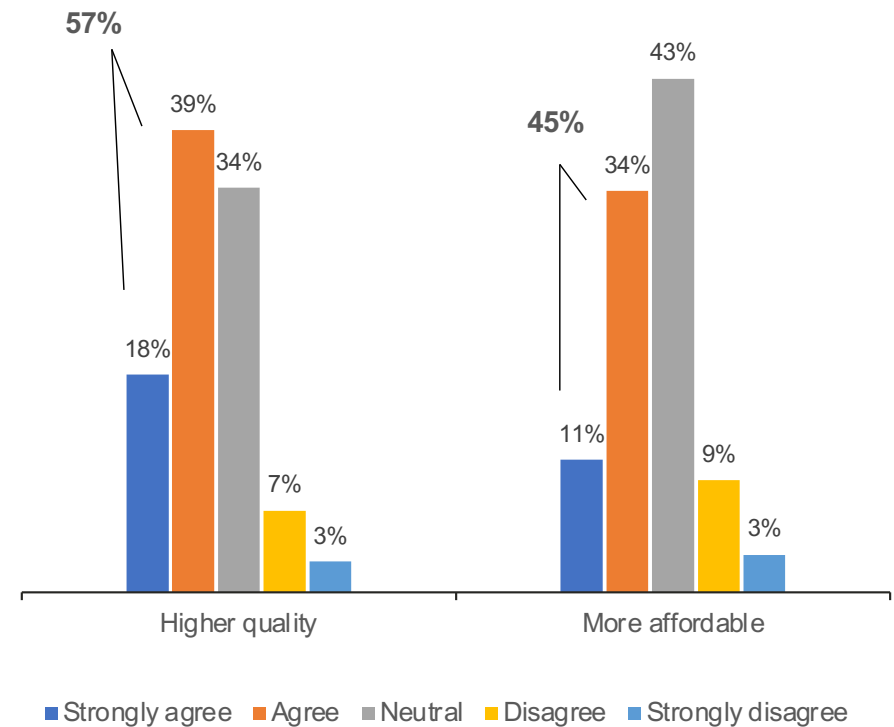
Fifty-seven percent of consumers agreed that eating Minnesota-raised fish, salmon or shrimp is more sustainable, and 51 percent agreed it would be safer to eat than other fish options. Nearly half (49%) also agreed that such would be healthier to eat.

Comparably, 57 percent also agreed that Minnesota-raised fish, salmon, or shrimp would be higher quality. However, there was less confidence in Minnesota-raised products being more affordable, with 43 percent feeling neutral about it.

What, if any, benefits do you feel there are to eating Minnesota-raised fish or shrimp?



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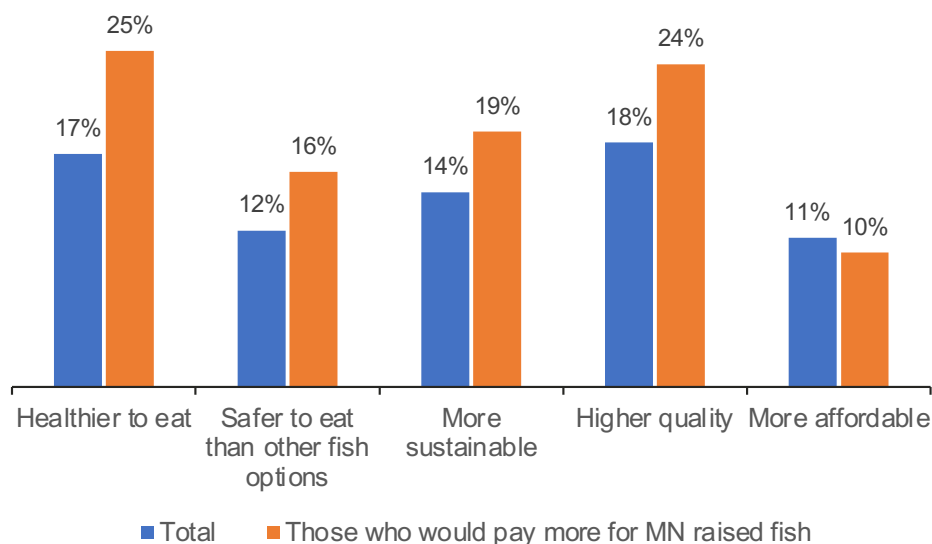


Overall, those who would pay more for fish or shrimp raised in Minnesota and those who are very interested in learning more about commercially raised fish were more likely to agree with the benefits of eating Minnesota-grown product. While just 17 percent of total consumers strongly agreed that eating Minnesota-grown fish or shrimp was healthier to eat, one-fourth (25%) of those who would pay more and nearly one-third (31%) of those who are very interested in learning more strongly agreed with this sentiment.

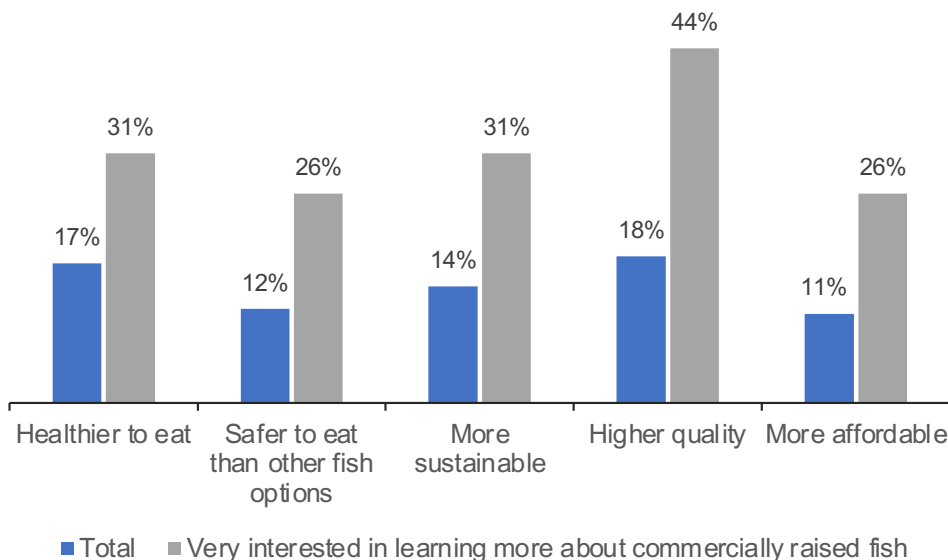
Similarly, a higher percentage of both groups strongly agreed eating Minnesota-grown fish or shrimp would be safer to eat than other fish options, with those who pay more being four percentage points higher than the overall and those who are very interested in learning more 14 percentage points higher. This trend continues for almost every other benefit listed, suggesting those who would pay more for Minnesota-raised fish or shrimp and those who are interested in learning more about commercially raised fish in Minnesota feel more confident in the benefits of eating Minnesota-grown fish or shrimp.

However, interestingly, those who indicated they would pay more for fish or shrimp raised in Minnesota were less likely than the total percentage of respondents to strongly agree such would be more affordable, with only 10 percent indicating such.

Strongly agree about the benefits of eating Minnesota-grown fish



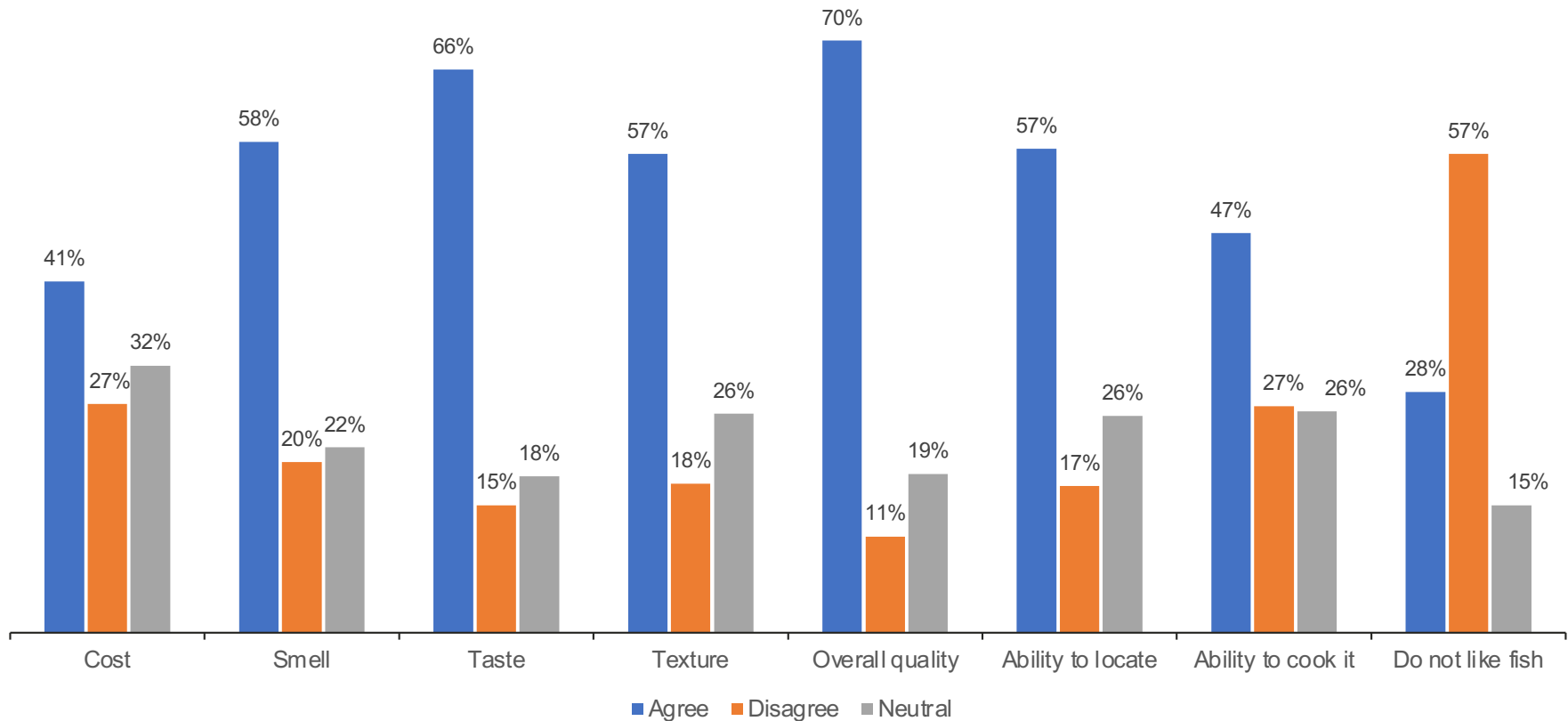
Strongly agree about the benefits of eating Minnesota-grown fish



Potential Barriers

When asked about barriers to purchasing Minnesota-raised salmon, shrimp or other fish, only 28 percent said that they had a dislike for fish. The potential barriers identified most frequently included overall quality (70%), taste (66%), smell (58%), texture (57%), and ability to locate (57%). These findings align with the previous responses suggesting taste/texture is the most important factor when making a purchase. Similarly, food safety, aroma, appearance, and texture were among the top factors affecting this decision. (*Other responses available in Appendix*)

Are any of the following barriers to you, if you were to consider purchasing Minnesota-raised salmon, shrimp or other fish?



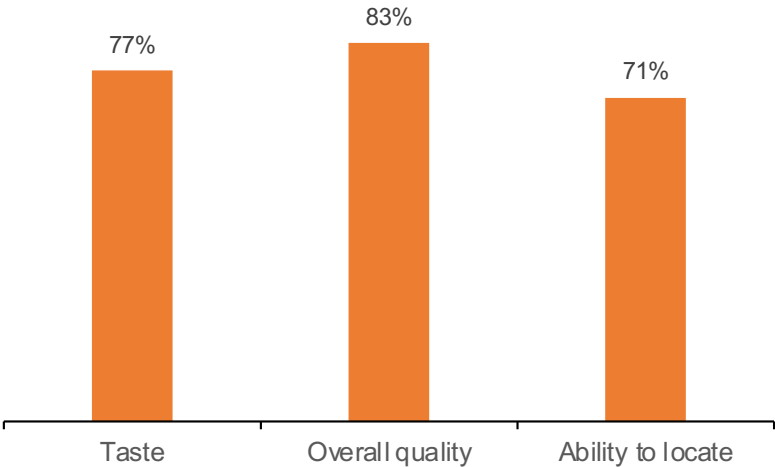
There were minimal differences across audience segments regarding barriers to potentially purchase Minnesota-raised salmon, shrimp, or other fish. The three obstacles that did show slight differentiation, when compared to those who would pay more for fish or shrimp raised in Minnesota, those who were very interested in learning more about commercially raised fish or shrimp in Minnesota, and those who had fished for food in Minnesota within the last five years were taste, overall quality and ability to locate.

While just two-thirds (66%) of consumers agreed that taste could be a barrier to purchase, more than three-fourths (77%) of those willing to pay more for fish or shrimp raised in Minnesota felt taste could be a barrier. Quality was also more important to this audience, with 83 percent identifying it as a possible barrier to purchase compared to just 70 percent of the total audience.

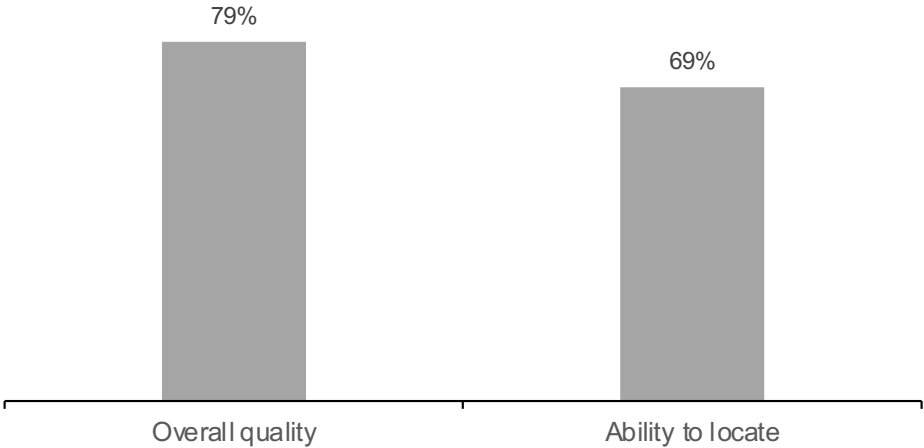
Furthermore, those who are very interested in learning more about commercially raised fish in Minnesota were also more likely to agree to overall quality being a barrier, with 79 percent in agreement. This data suggests overall quality may be more important to those who are willing to pay more for Minnesota-raised fish or shrimp and those who are very interested in learning more about commercially raised fish than the total population.

Respondents indicated the ability to locate Minnesota-raised salmon, shrimp, or other fish as a potential barrier to purchase by just over half (57%) of total respondents, but by over two-thirds of those who would pay more for Minnesota-raised fish or shrimp (71%) and those who are very interested in learning more about commercially raised fish in Minnesota (69%). This could be indicative that those who are willing to pay more or are more interested in learning about Minnesota-raised fish or shrimp believe Minnesota-raised fish and seafood products are scarcer, causing them to be willing to pay more or seek further information on such.

Barriers to purchasing Minnesota-raised salmon, shrimp or other fish among those who would pay more for Minnesota-raised fish



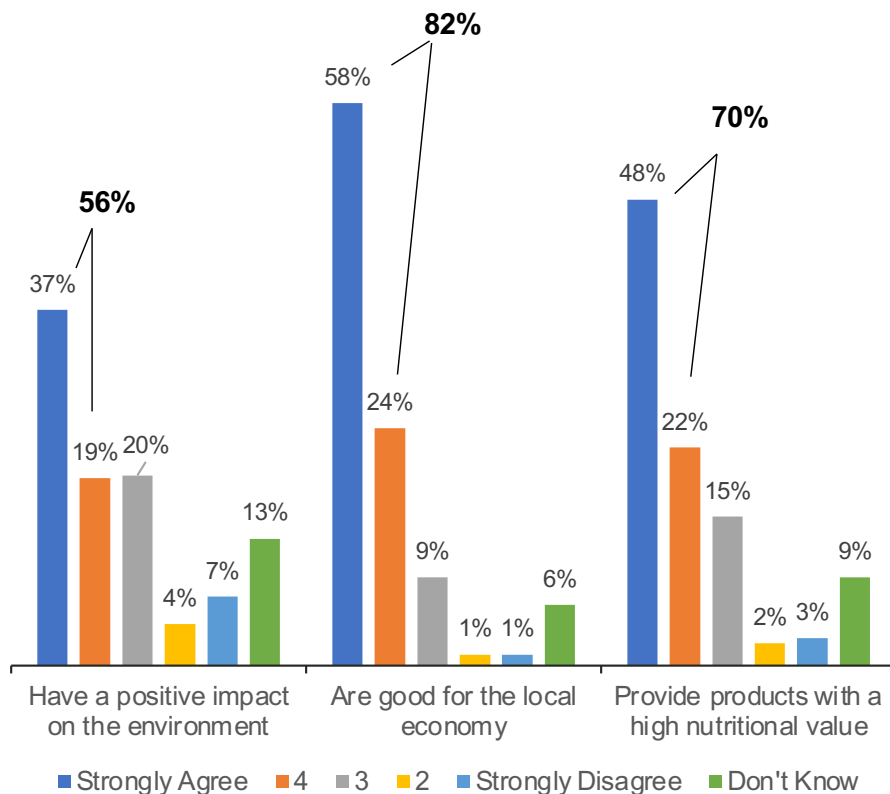
Barriers to purchasing Minnesota-raised salmon, shrimp or other fish among consumers very interested in learning more about commercially raised fish



Positive Benefits

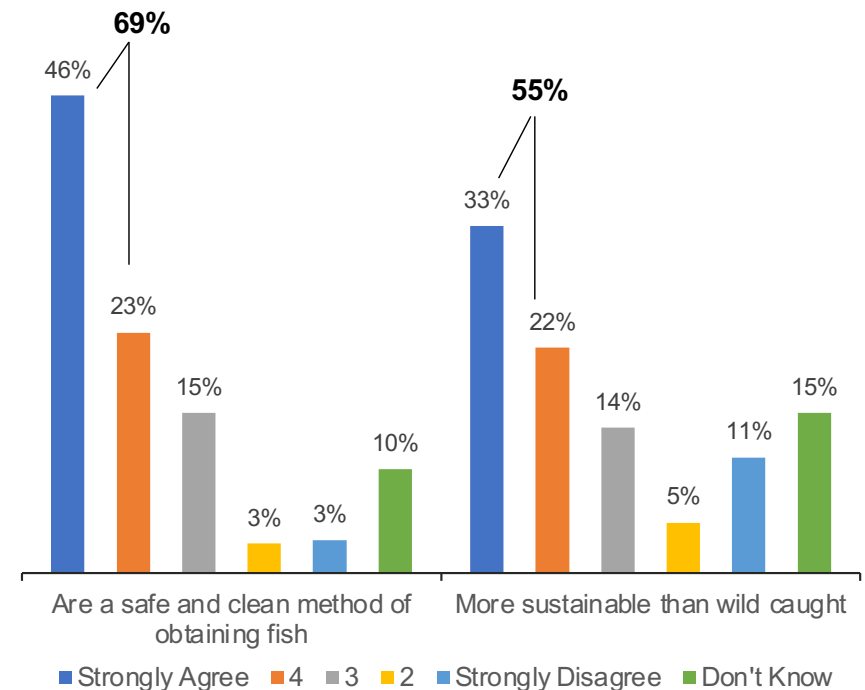
The majority (58%) of consumers strongly agree that commercially regulated fisheries or fish farms in Minnesota are good for the local economy. Seventy percent either agreed or strongly agreed that these businesses provide products with a high nutritional value, and over half (56%) agree or strongly agree they would have a positive impact on the environment.

To the best of your knowledge how much do you agree with the following regarding commercially-regulated fisheries or fish farms in Minnesota?



Over two-thirds (69%) agreed or strongly agreed that commercially regulated fisheries or fish farms in Minnesota are a safe and clean method of obtaining fish. Just over half (55%) feel such operations are a more sustainable method than wild caught.

To the best of your knowledge how much do you agree with the following regarding commercially-regulated fisheries or fish farms in Minnesota?

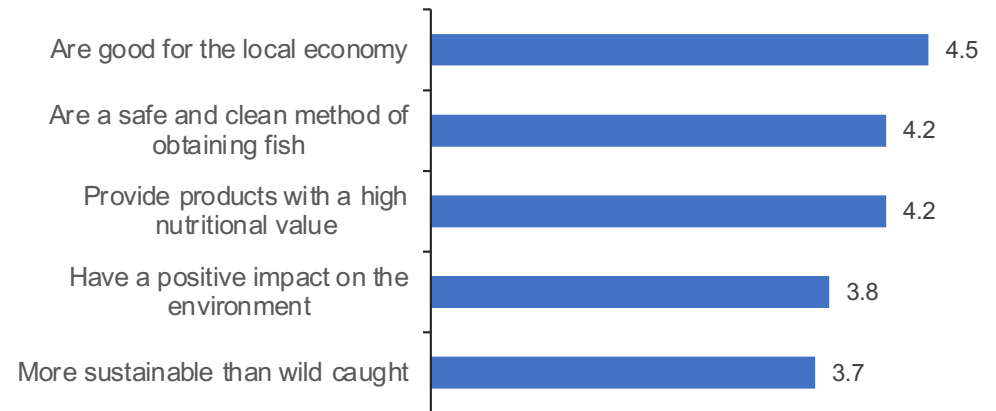


When asked to what level they agreed with the following statements, with one being strongly disagree and five being strongly agree, there was the highest level of acceptance that commercially regulated fisheries and fish farms are good for the local economy. The statement with the least acceptance was that fisheries and fish farms are more sustainable than wild caught, with a score of 3.7. Based on previous data, nearly half (46%) indicated they would pay more for products that benefit the state's economy, therefore leading to the conclusion that the belief these farms are good for the economy will increase market demand.

Those who would pay more for Minnesota-raised fish or shrimp averaged a higher level of agreement with the perception that commercial fish positively impact on the environment.

Furthermore, those who were very interested in learning more about commercially raised fish in Minnesota were in stronger agreement that commercial fisheries are more sustainable than wild caught. They also were more likely to agree that commercially regulated fisheries provide products with a high nutritional value and are a safe, clean method of obtaining fish.

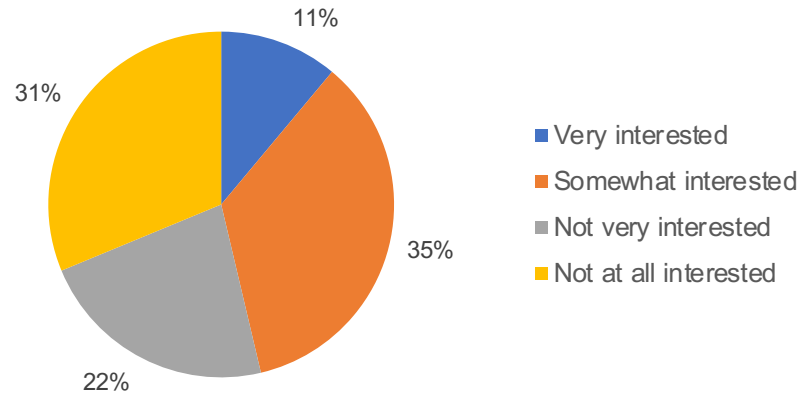
To the best of your knowledge how much do you agree with the following regarding commercially-regulated fisheries or fish farms in our state?



**How much do you agree with the following regarding commercially regulated fisheries or fish farms in our state?
(1 strongly disagree – 5 strongly agree)**

	Total Avg	Would pay more for MN fish	Very interested in learning more	Fished in MN
More sustainable than wild caught	3.7	3.9	4.4	3.8
Have a positive impact on the environment	3.8	4.1	4	3.9
Provide products with a high nutritional value	4.2	4.4	4.5	4.3
Are a safe and clean method of obtaining fish	4.2	4.4	4.5	4.3
Are good for the local economy	4.5	4.6	4.6	4.6

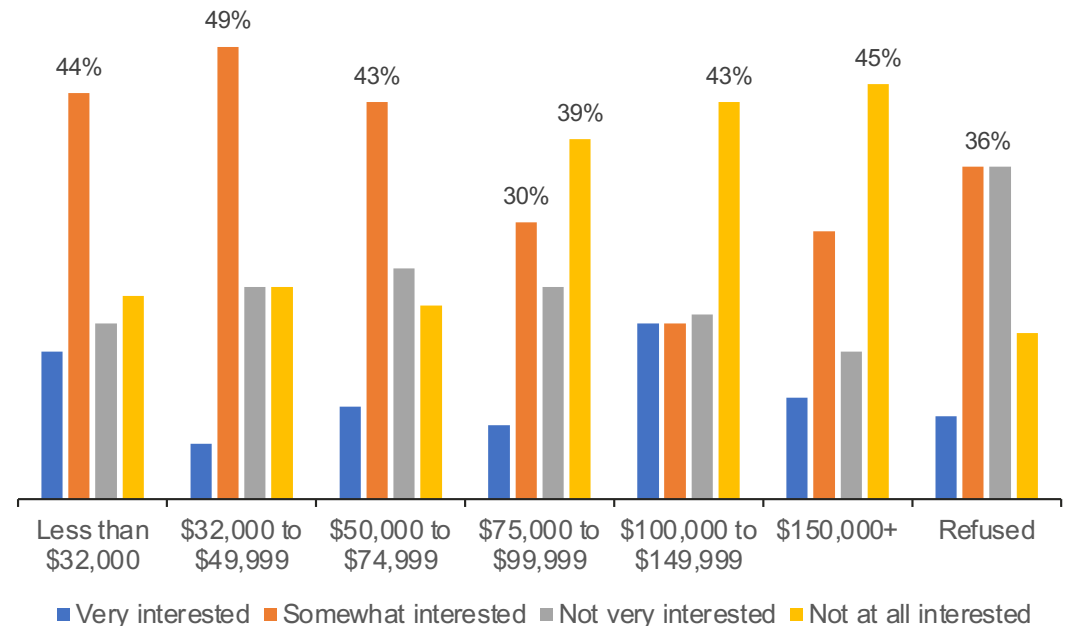
How interested would you be in learning more about fish that are commercially raised in Minnesota?



According to the results, almost half (46%) of consumers indicated they are somewhat or very interested in learning more about fish commercially raised in Minnesota.

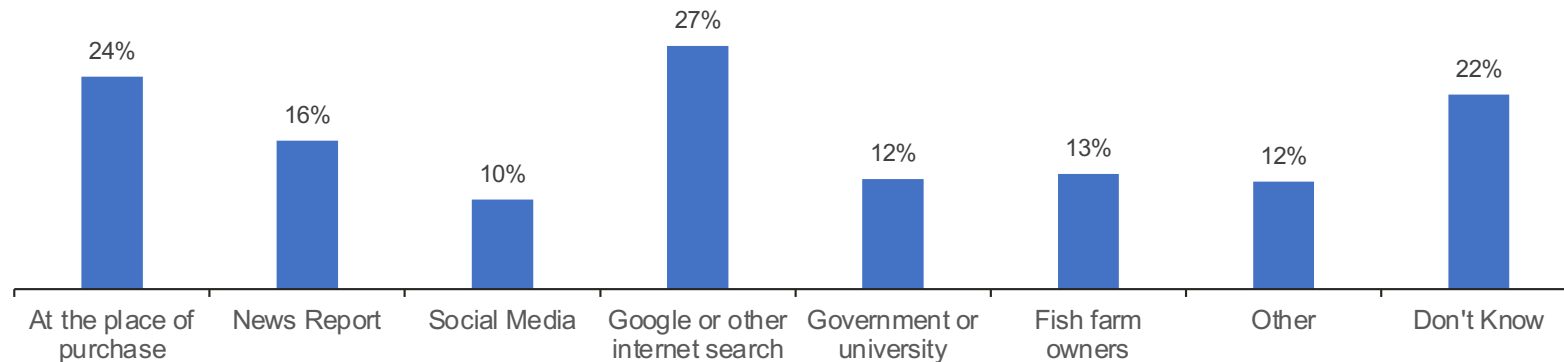
Interest in learning more about fish that is commercially raised in Minnesota

There was a notable shift in opinion as annual household income levels increased. While 44 percent of those with an annual income of less than \$32,000, nearly half (49%) of those with an income between \$32,000 and \$49,999, and 43 percent of those with an income between \$50,000 to \$74,999 indicated they were somewhat interested in learning more, a higher percentage (39%) reported being not at all interested once income levels reached \$75,000 or higher. This pattern continued with 43 percent of those with an annual income between \$100,000 and \$149,999 and almost half (45%) of those with an income at or above \$150,000 reporting they are not at all interested in learning more about this subject.



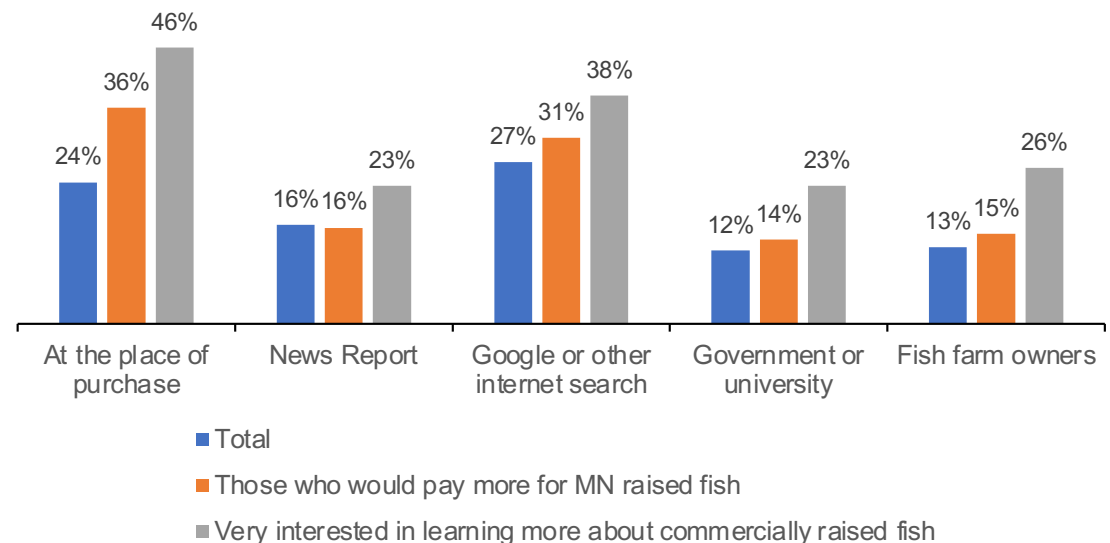
When asked where they would like to receive information about Minnesota fish farmers and commercial operations, the highest percentage (27%) reported that Google or other internet search would be preferred. The second most popular option was at the place of fish purchase (24%). (Other responses available in Appendix)

From where would you like to learn more about fish that is commercially raised in Minnesota?



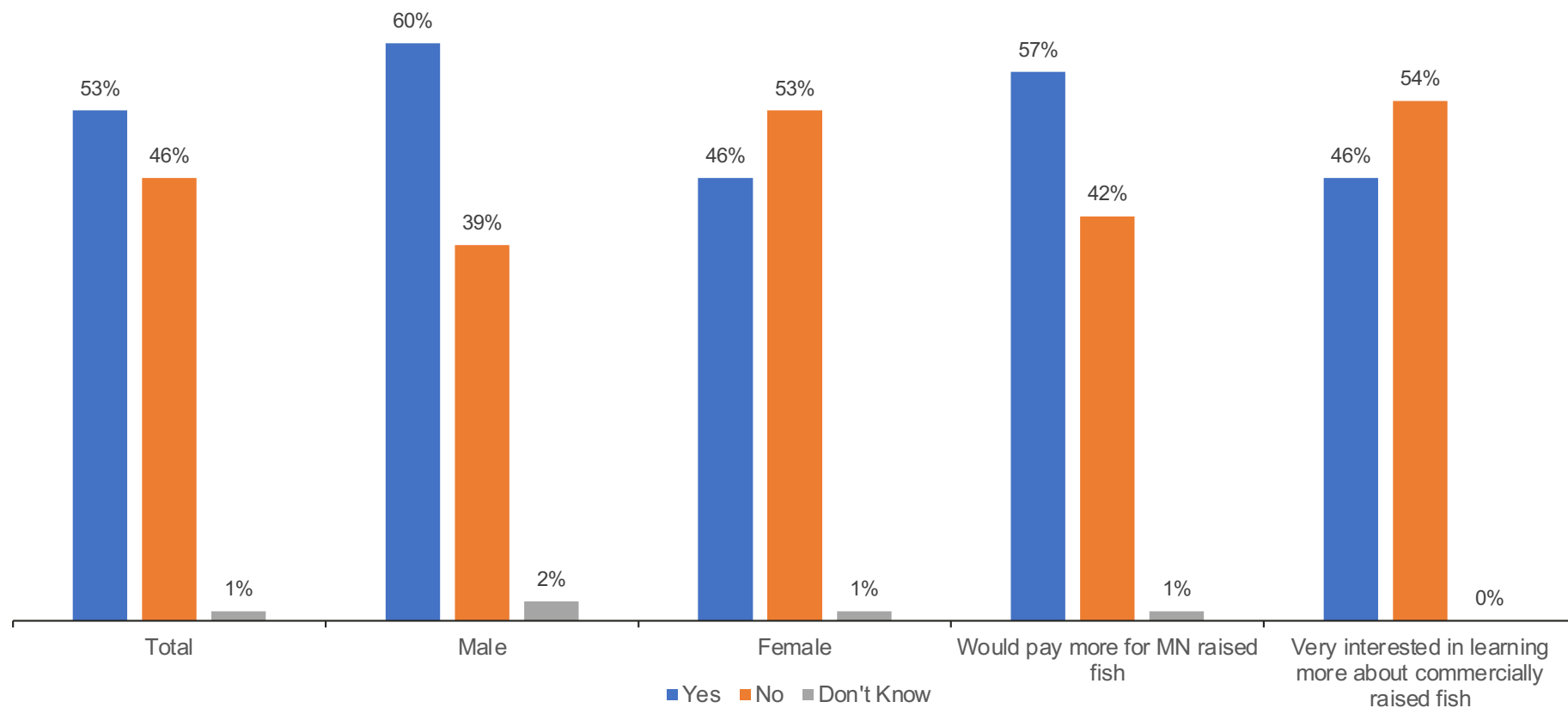
Those who would pay more for Minnesota fish or shrimp and those who were very interested in learning more about commercially raised fish in Minnesota both had a higher percentage who prefer to receive this information at the place of purchase, with 36 percent and 46 percent respectively reporting such. There was also a considerably higher percentage of those who were very interested in this information preferring to receive such from news reports at 23 percent compared to just 16 percent of overall respondents. Comparably, over one-third (38%) would like to receive this information via a Google or other internet search versus just 27 percent of the total population. Government or universities, and fish farm owners were also identified as reasonable sources.

Where would you like to receive this information



Those who would pay more for Minnesota-raised fish or shrimp were slightly more likely to have fished for food within the past five years, with 57 percent reporting having done so. Those who identified as male were also slightly more likely than the total population to have done so at 60 percent reporting they had.

Have you fished for food in Minnesota within the past five years?



Recommendations



Findings from this study shed new light on consumer opinions about food fish purchasing and preferences – information that should serve to provide guidance to the aquaculture industry in Minnesota. More in-depth recommendations will be included in the upcoming, more extensive AURI food fish report; however, the following are offered as considerations based upon consumer study research results.

EDUCATE

Proactively advance awareness and understanding of the availability of Minnesota farm-raised fish and shrimp, and the inherent benefits for consumers, retailers/restaurants, and the financial and agricultural communities by undertaking a public education and outreach campaign.

Accurately position aquaculture operations and products in Minnesota, whenever feasible, as being environmentally friendly, a good source of protein, sustainable and energy efficient.

Emphasize the economic advantages of expanding the aquaculture industry within Minnesota across all educational touchpoints.

COMMUNICATE

Ensure clear point-of-purchase information through accurate nutritional and source labeling. To reassure consumers of the safety of the product, indicate such on the labels and emphasize the local aspect to increase credibility and trust.

Establish a centralized online destination that provides clear information about food fish aquaculture products available in Minnesota and how to cook them, among other information.

Highlight the health benefits of food fish products on labels, advertising, the aquaculture website, and point-of-purchase materials to remind consumers of this healthy alternative to other meat products.

PROMOTE

Aggressively raise the industry's profile about Minnesota aquaculture developments and the economic potential of success.

Position Minnesota aquaculture products as environmentally friendly, sustainable and healthy as compared to imported, competitive products, and promote fish raised locally in an environmentally sustainable way.

Appendix



Breakdown of region by Minnesota county [page 7]



Northwest	Northeast	West Central	Central	Urban	Southwest	Southeast
Beltrami	Aitkin	Becker	Benton	Anoka	Big Stone	Blue Earth
Clearwater	Carlton	Clay	Cass	Carver	Chippewa	Brown
Hubbard	Cook	Douglas	Chisago	Dakota	Cottonwood	Dodge
Kittson	Itasca	Grant	Cow Wing	Hennepin	Jackson	Faribault
Lake of the Woods	Koochiching	Otter Tail	Isanti	Ramsey	Kandiyohi	Filmore
Mahnomen	Lake	Pope	Kanabec	Scott	Lac Qui Parie	Freeborn
Marshall	St. Louis	Stevens	Mille Lacs	Washington	Lincoln	Goodhue
Norman		Traverse	Morrison		Lyon	Houston
Pennington		Wilkin	Pine		McLeod	Le Sueur
Polk			Sherburne		Meeker	Martin
Red Lake			Stearns		Murray	Mower
Roseau			Todd		Nobles	Nicollet
			Wadena		Pipestone	Olmstead
			Wright		Redwood	Rice
					Renville	Sibley
					Rock	Steele
					Swift	Wabasha
					Yellow Medicine	Waseca
						Watonwan
						Winona

Are you... *[Other responses, page 8]*



- Other
- Pali Pali
- Italian
- Native American
- Something else

Are any of the following barriers if you were considering a purchase of Minnesota-raised salmon, shrimp or other fish? *[Other responses, page 25]*



- I would need it to be delivered because of disability
- Method of storage, either frozen, and the location.
- I would need to know how it is raised and the mercury content because I know that fresh water fish has high mercury content so I would need more information about that.
- Freshness if it wasn't raised in pens no antibiotics no disease
- Size of packaging
- It depends on who does it if the Indians up north are doing it and then the commercial people I would
- The fact we don't have a real ocean the lack of salt water
- I specifically purchase wild caught fish
- Packaging
- Said nothing about catfish
- My husband doesn't like it
- Prefer wild caught
- Appearance in the package or the meat shelf where ever you get from
- Available in the are where I'm at
- Availability living in the rural area
- Mercury in the lakes
- Safety
- Walleye will have to travel to get it
- I'll catch it
- Price
- Physical ability
- Safety of the product
- Allergic to sodium phosphate
- My wife doesn't like fish
- Do not cook
- Freshness
- Freshness
- Mercury level
- I would be real worried about the mercury content if it was wild caught
- The location to having it available and not going 45 mins away to find it
- Me being a fisherman and catching my own fish rather than buying it from a store
- Fish allergy
- It has to be not farmed
- Packing
- Environmental impact of the fish farming
- How they were raised and what they look like
- There are no salmon or fish raised in Minnesota. There's certain types of salmon on the borders of Minnesota but they're not raised in a farm.
- The quality
- Turned off by phrase 'organic'
- Freshness
- None
- Traveling distance
- Availability and awareness
- The fact that wild caught fish are more sustainable
- Fish allergy
- Vegetarian.

From where would you like to learn information about Minnesota fish farmers? *[Other responses, page 29]*



- I don't do social media and get most of my information from TV or radio
- Sent to my house
- Any of them
- Email
- The State of Minnesota
- The grocery stores
- Journals peer review type of stuff
- I don't want to learn more
- An email
- Not interested. Do not like any kind of fish or shrimp
- News paper
- DNR
- Advertise how they raise and sell them
- University of Minnesota
- Nowhere
- Public knowledge



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