



LANDSCAPE ANALYSIS OF AQUACULTURE OUTREACH

Results from a survey

Ocean Literacy and Aquaculture (North Atlantic and Arctic) are two of the priority themes identified in the transatlantic cooperation established by the Galway Statement and operationalized through the Atlantic Ocean Research Alliance (AORA) among Canada, the European Union and the United States of America. The Galway Statement Implementation Committee's Ocean Literacy Working Group and Aquaculture Working Group are working together to address public perception of aquaculture by examining the current state of aquaculture outreach and recommendations to encourage more consistent messaging about aquaculture across diverse stakeholder groups.



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Summary

This brief survey was developed for educators and institutions that specialize in ocean literacy and seafood businesses that provide information to their customers. The objective of the survey was to create a landscape overview of efforts to communicate about marine aquaculture across diverse networks. Specifically, this survey was created to determine:

1. Who is sharing information about aquaculture?
2. In what context are they sharing information about aquaculture?
3. How are they sharing information? What channels are they using?
4. What tools and resources are most useful to various stakeholder groups to share information about aquaculture to their audiences?

This overview will help shape recommendations, which will lead to the development of tools and resources targeted to cohesive, science-based public education about marine aquaculture.

Ocean Literacy and Aquaculture (North Atlantic and Arctic) are two of the priority themes identified in the transatlantic cooperation established by the Galway Statement and operationalized through the Atlantic Ocean Research Alliance (AORA) among Canada, the European Union, and the United States of America. The Galway Statement Implementation Committee's Ocean Literacy Working Group and Aquaculture Working Group are working together to address public perception of aquaculture by examining the current state of aquaculture outreach and recommendations to encourage more consistent messaging about aquaculture across diverse stakeholder groups.

Key Takeaways

- **Information about aquaculture** is being presented to the public by **diverse** stakeholder groups.
- The general trend in terms of **tone is positive or neutral** across stakeholder groups for the various types of aquaculture production.
- Most respondents believe they have **access to adequate information** to educate their audiences about aquaculture and its potential as a conservation tool.
- There are real and perceived **information gaps** among some stakeholder groups that may impact an organization's confidence in terms of public engagement about marine aquaculture.
- **Images and video, summary reports from multi-stakeholder workshops, and the ability to tour farms** were cumulatively identified as the most helpful communication tools for those who do not believe there are real or perceived information gaps.

- Among those who do believe there are information gaps, **communications toolkits that translate the science for educators** was the most selected as a helpful communications tool.
- **Connections to producers** and **university and government scientists** also ranked high as communication resources across stakeholder groups.

The strongest information in terms of the amount of data came from U.S. *Education, Producer, and Aquarium, Museum, or Public-Facing Science Education Institution* groups. Data was limited for the supply and consumer-facing stakeholder groups (e.g. chefs, retailers, and suppliers). Researchers expressed concern about participation in the survey, since they are generally expected to remain objective. Most of the respondents came from U.S.-based organizations. These results are therefore very U.S.-centric. More data is needed for all European and Canadian stakeholder groups.

Survey Results

The survey was conducted over a period of three months from January 23, 2018, to March 19, 2018. The survey was available on a site hosted by the Aquarium of the Pacific’s Seafood for the Future program in four languages: English, French, Spanish, and Portuguese. The link was distributed via email invitation to individuals identified by working group members and affiliated organizations and promoted at Aquaculture Americas (February 2018).

A total of 150 responses were received from 18 nations (Table 1) and 5 continents (North America, South America, Europe, Asia, and Oceania). Respondents were from a variety of backgrounds representing 10 broad organization categories (Table 2).

Table 1: Location of Respondents

Country	Total Responses
Canada	16
European Union	21
USA	105
Other*	8
Total	150

*Other Countries: Australia, Bangladesh, Brazil, Chile, Ecuador, New Zealand, and Saudi Arabia.

Table 2: Organization of Respondents

Organization Categories	Grand Total
Aquarium, museum, or public-facing science education institution	17
Chef/ Restaurateur	4
Consulting	12

Education	47
Government organization	17
Nongovernment organization (NGO)	27
Producer	18
Research and Development	4
Retailer	1
Supplier/distributor	3
Total	150

Data was analyzed to compare results among regions. Most of the data was received from North America (n=121) and Europe (n=21), so data was examined to include all regions together.

Some important notes about this survey:

- The information is biased toward U.S. participants.
- Stakeholder groups were self-selected and not clearly defined.
- “The public” was not clearly defined, and definitions likely vary widely by stakeholder group.
- Some stakeholder groups (e.g. chef and retailers) did not have strong participation.
- Public researchers were concerned about participation in this survey because they are generally supposed to remain neutral on the topic as they are generally mandated to provide objective information on the science and research.
- Marine aquaculture and aquaculture were often used interchangeably.
- Most of the *Education* respondents are from universities. There was only one K-12 participant.

Who is engaging the public about aquaculture?

One of the primary objectives of this survey was to identify who is talking to the public about marine aquaculture. Most of the stakeholder groups (see Table 2) surveyed are engaging the public in dialogue about aquaculture. The results are shown for all regions in Figure 1. In total 150 responses were received, with 125 responding “Yes,” they do engage the public about aquaculture, and 25 “No” responses.

Twenty-five respondents indicated that they do not engage the public about aquaculture. The following organization categories had the highest percentage of “No” responses: *Research and Development (75%); Aquarium, Museum, or Public-Facing Science Education Institutions; Consulting; Government Organization; and Supplier/ Distributor.*

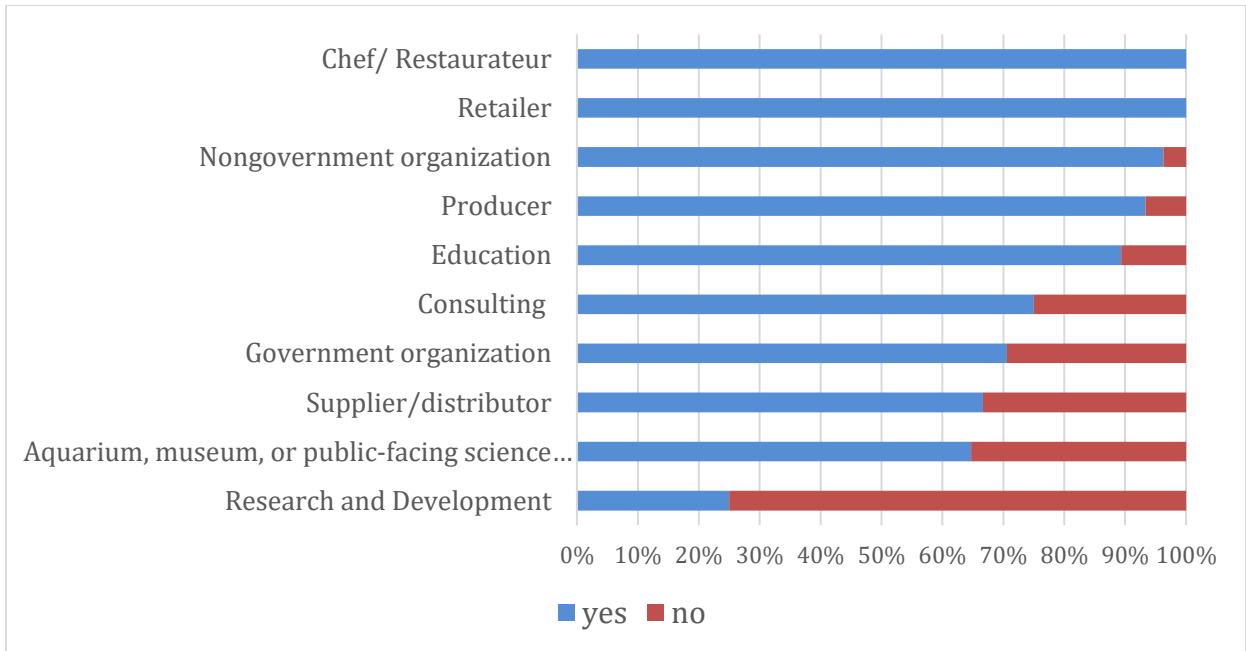


Figure 1 - Q1: Does your institution engage the public with messaging about aquaculture? - All Regions

The tone (Figure 2) and context in which organizations are sharing information is also important. Almost all types of aquaculture are encouraged by most respondents. The exception was freshwater shellfish, which the majority selected, “Do not address this type of aquaculture.” The only “Discourage” responses came from North American respondents (U.S. and Canada). The highest discourage response was for **Closed containment** (n=5) followed by **Coastal marine finfish** (n=3), **Aquaponics** (n=2), **Marine aquaculture – broadly** (n=1), and **Integrated multi-trophic aquaculture** (n=1). Most respondents identified the following as the contexts in which they encourage or discourage aquaculture, with each having relatively even distribution across stakeholder groups for each type of aquaculture (categories were provided and respondents were asked to select all that apply):

- Conservation
- Environmental
- Feeding a growing population
- Human health & nutrition
- Social/economic
- Other/NA

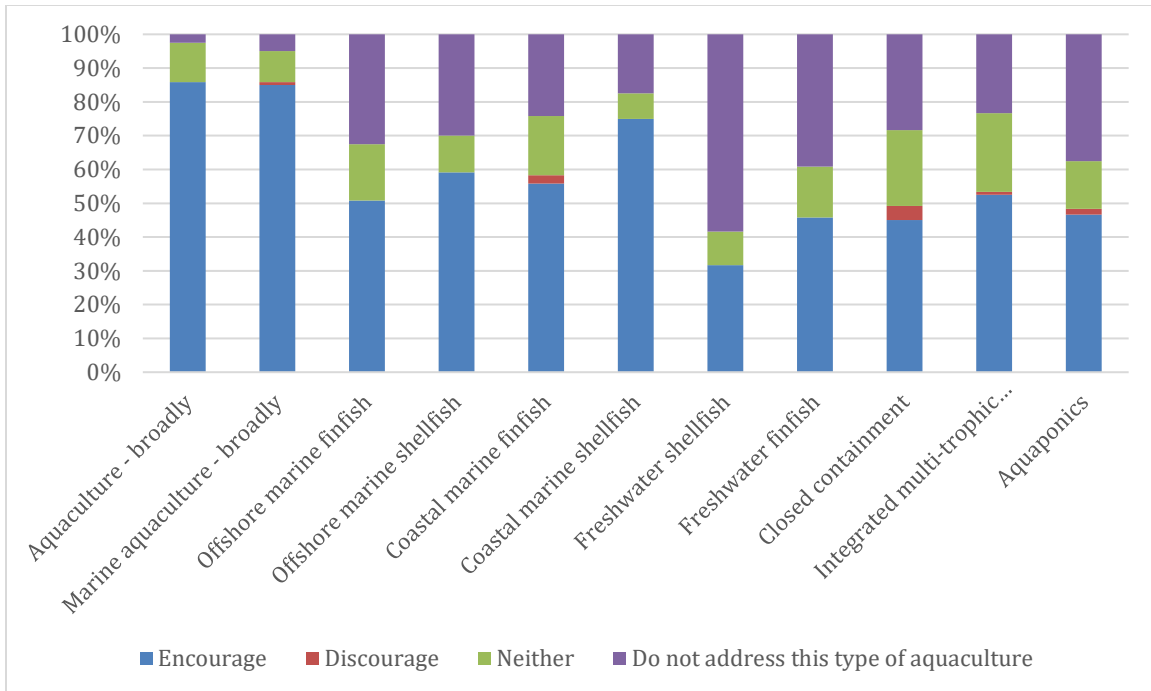


Figure 2 - Q3: Please indicate the tone of messages your organization uses for the following types of aquaculture. - All Regions

Communication Tools and Resources

In order to develop effective communication strategies, it is important to understand if groups feel that they have access to adequate information and resources to educate the public about aquaculture, its role in the sustainable food supply and its potential as a conservation tool. Figure 3 shows the result from a total of n=125 respondents, with 94 responding “Yes,” they do feel that they have access to adequate information, and 31 responding “No,” they don’t feel that they have access to adequate information.

Producers provided the most responses in the “No” category, indicating that they do not feel that they have adequate access to information (see Question 8 in Appendix A).

Other “No” responses included:

- *Producers*
(41% of the total number of producer responses to question 8, n=17)
- *Nongovernment Organizations*
(35% of the total number of this group’s responses to question 8, n=26)
- *Chefs/Restaurateurs*
(25% of the total number of this group’s responses to question 8, n=4)
- *Education*
(24% of the total number of this group’s responses to question 8, n=42)
- *Aquariums, museums, or public-facing science education institutions*
(18% of the total number of this group’s responses to question 8, n=11)

There were no respondents representing *Research and Development, Retailers, or Supplier/ Distributors* in this group, since they all answered that they do feel that they have access to adequate information and resources to educate the public about aquaculture and its potential as a conservation tool.

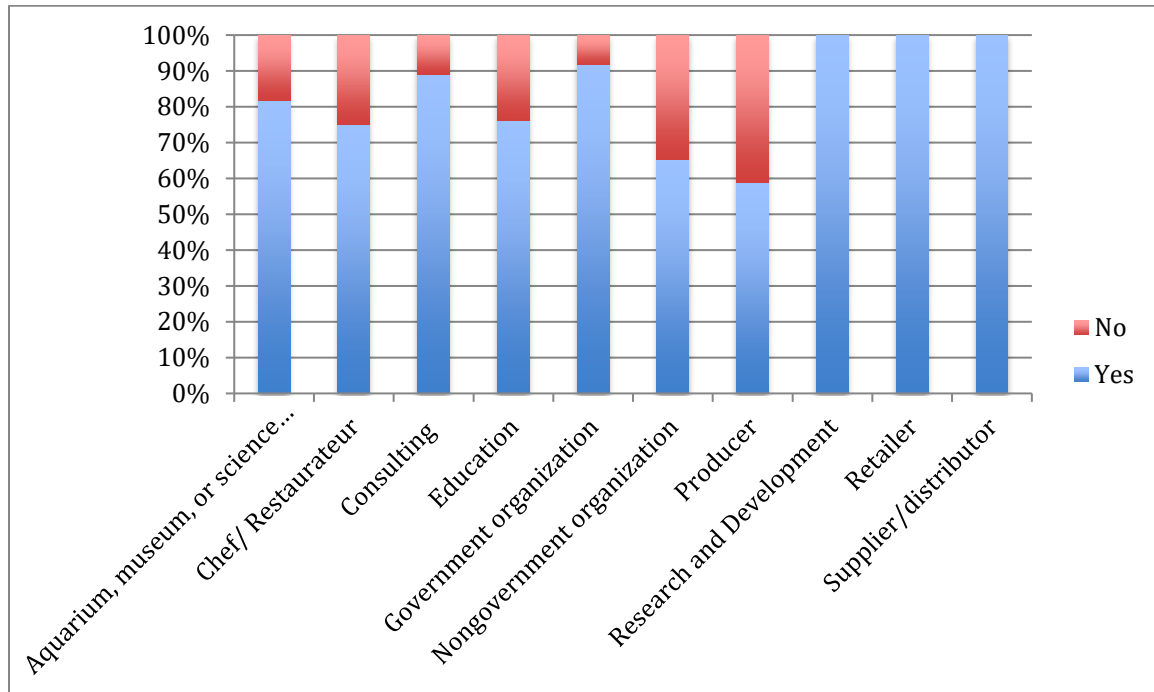


Figure 3 - Q8: Do you have access to adequate information and resources to educate the public about aquaculture and its potential as a conservation tool? - All Regions

Participants were also prompted to answer an open-ended question, ***Are there information gaps that need to be filled in order for your institution to educate the public about marine aquaculture?*** There were 71 responses. Some key themes from the responses:

- The public is largely uninformed about aquaculture. There is a need to educate the public about aquaculture. (n=27, total n=71).
 - Some organizations don't have the resources to do public outreach (time and communication tools, such as images and video).
 - Some specific topics respondents thought the public should know include:
 - What aquaculture is and the different methods used to farm seafood
 - Economic and social dimensions of aquaculture
 - Ecosystem and conservation benefits and concerns
 - Understanding historical milestones for aquaculture and its role in the global food supply

- There are information gaps that need to be filled for some groups to feel confident in sharing information about aquaculture with the public (n=41, total n=71).

Some topics that were mentioned:

- Fish health (including antibiotics and treatments)
- How the management of aquaculture varies domestically and internationally
- Potential environmental impacts
- The technologies and best practices available to support responsible production

A key element to this survey was to identify communication tools and resources that can help various groups engage the public about aquaculture. Ten tools and resources were listed in the survey:

- Communications toolkits that translate the science for educators
- Images and video
- Connections to university scientists with relevant expertise
- Connections to government scientists with relevant expertise
- Connections to NGO scientists with relevant expertise
- Connections to aquaculture producers
- Ability to tour aquaculture farms
- Summary reports from multi-stakeholder meetings and workshops on relevant topics
- Traditional and cultural knowledge
- Other

The chart below shows how the different groups ranked communication tools based on how helpful they are for conveying information about aquaculture to the public. The percentages are based on total responses for each group (“Yes” and “No” responses from question 8, see Appendix A). The question was a *select all that apply* format, so the numbers are higher than the total number of survey participants. The number of responses from each stakeholder group for each communication category was divided by the total number of responses for all communication tools for the stakeholder group identified. Communication tools that received more than 10% of the identified group’s responses were included in this chart. A chart with the full results is available in Appendix B and Appendix C – Figures 10-12.

Table 3: Communication tools ranked by stakeholder group (Cumulative average across stakeholder groups) - All Regions

Stakeholder Group	Communication Tools Identified As Most Helpful
Aquarium, museum, or public-facing science education institution Total responses: n=67	<ul style="list-style-type: none"> • Ability to tour farms (15%) • Connection to university scientists (13%) • Connection to government scientists (13%) • Traditional and cultural knowledge (12%)
Chef/ Restaurateur Total responses: n=23	<ul style="list-style-type: none"> • Images and video (17%); • Connection to producers (17%); • Ability to tour farms (13%)
Consulting Total responses: n=49	<ul style="list-style-type: none"> • Connection to government scientists (16%) • Connection to producers (16%) • Images and video (14%) • Summary reports from workshops (14%) • Connection to university scientists (12%)
Education Total responses: n=216	<ul style="list-style-type: none"> • Connections with government scientists (16%) • Connection to producers (13%) • Ability to tour farms (13%) • Images and video (12%) • Connection to university scientists (11%)
Government organization Total responses: n=56	<ul style="list-style-type: none"> • Summary reports from workshops (18%) • Connection to university scientists (16%) • Connections to producers (14%) • Connections with government scientists (14%) • Ability to tour farms (13%)
Nongovernment organization Total responses: n=124	<ul style="list-style-type: none"> • Connections to government scientists (17%) • Connection to producers (14%) • Summary reports from workshops (14%) • Connections to university scientists (11%) • Ability to tour farms (11%)
Producer Total responses: n=85	<ul style="list-style-type: none"> • Connections with government scientists (15%) • Connection to producers (14%) • Images and video (13%) • Ability to tour farms (13%) • Connections to university scientists (12%)

	<ul style="list-style-type: none"> • Connection to NGO scientists (11%) • Summary reports from workshops (11%)
Supplier/Distributor Total responses: n=4	<ul style="list-style-type: none"> • Connection to producers (40%) • Images and video (20%) • Connections to government scientists (20%) • Ability to tour farms (20%)
Research and Development	Not enough data
Retailer	Not enough data

It should be noted that among the group that answered, “No” to part 1 of question 8, **Images and Videos** and **Communications toolkits that translate the science for educators** were selected the most, indicating that these may be useful communication tools for those who feel that they don’t have access to adequate information about aquaculture. The other tools identified (e.g. **Connections to producers** and **Connections to government scientists**) were consistent with the “Yes” group identified above.

Discussion

The “public” was not defined in this survey. Some respondents may have considered the general public rather than their specific audiences as a part of the public, making recommendations for what they think should happen in terms of public engagement rather than what they are doing to address it. This is a likely scenario for some of the results, including the large number of producers who responded that they don’t feel that they have access to adequate information to inform the public about aquaculture, its role in the sustainable food supply and its potential as a conservation tool (Figure 3). It may also be a factor for the government organizations and producers who selected **Connections to government scientists** and **Connections to producers** (respectively) as a top choice for communication tools (Table 3).

Some researchers were concerned about participation in this survey because the nature of their work often requires them to provide objective information on the science and research. Some government organizations also approach this topic from a more neutral perspective. There is debate among some of these organizations as to where the line is between neutrality and promoting the results of research, which may indicate that aquaculture is a benefit or not a benefit, depending on the context and scope in which it is being studied. It falls into the broader question of what the social role is for researchers, which can differ between countries due to the difference in the perceived contract between the State and the citizens. This conflict may also affect if or how some aquariums and science institutions engage their audiences on this topic.

While most researchers don't spend a lot of time engaging the public, their research is the critical foundation upon which all messaging on this topic should be built. On that note, peer-reviewed research needs to be more accessible to ensure that communicators have access to it. It is also critical to help some groups that have expressed real and perceived information gaps that may influence if or how they convey information about aquaculture to their audiences. Nongovernment organizations and aquariums can provide a platform to help researchers share their work with a broader public, as appropriate.

The desire to connect with producers and university and government scientists was highly ranked by most groups. In many cases, they out-ranked connections with NGO scientists. It is likely that this is because NGOs are generally better at public and stakeholder outreach and tend to be more proactive in connecting with various stakeholder groups. Producers are hard at work on their farms and running their businesses. Public engagement may not be a realistic endeavor for some farmers. Some university and government scientists are excellent at stakeholder and public engagement, but others lack the time, resources, or access to these audiences. NGOs, Aquariums, and Science Institutions can play a critical role to help make these connections.

More data is needed to determine what tools and resources are most valuable for the supply and consumer-facing groups (Chefs/Restaurateurs, Retailers, Suppliers/Distributors). The Chef and Supplier groups were included in Table 3 because the few who did participate should be represented. However, this should be considered a starting point for discussion with these groups to get more information about who they need the most help targeting and what communication tools would be most helpful for them to do so. Representatives from this group may not feel the need to engage their audience, since they are already buying farmed seafood. Farmed seafood accounts for more than half of the global seafood supply and continues to increase. It is the fastest growing food production sector in the world. Price and quality remain the top reasons people choose one seafood item over another.

While the "discourage" rate was low (Figure 2), it was producers in some cases who discouraged different types of aquaculture. It is important to engage producers to ensure they are providing their audiences with accurate information about marine aquaculture and its role in the food supply in addition to their specific marketing messages. Throwing a different type of aquaculture "under the bus" using inaccurate information to improve sales of a specific product could undermine the global economic and conservation benefits and nutritional security that the growth and expansion of responsible aquaculture can support.

Recommendations

The results from this survey should be used in conjunction with other research and efforts to address public perceptions about aquaculture to ensure that stakeholder groups have the ability and confidence to effectively communicate information about aquaculture to their audiences. Collaborative strategies need to be developed and executed to create and distribute the tools and resources as appropriate. Some recommended next steps include:

- Work with NGOs and aquariums to provide multi-stakeholder platforms for researchers, producers, government and university scientists to connect with each other and the public.
- Create a communications repository where stakeholders can get access to images and b-roll video footage from farms, lectures, fact sheets, reports from multi-stakeholder workshops, and other communication tools and resources that could help organizations engage the public in conversations about aquaculture.
- Follow up with groups that answered that they do not have access to adequate information about aquaculture to determine what the specific gaps are, compile information that already exists to provide more information, and work with researchers to support efforts to fill the information gaps where appropriate.
- Analyzing the (social) role of research institution in the different areas of the Galway Statement, acknowledging historical and cultural differences, in order to facilitate the engagement in communications activities.
- Further work to collect the perception from Canadian and European stakeholders, especially consumer-facing stakeholder groups.
- Facilitate access to farms. This will require strategic planning to ensure that the farm operations are not impacted. Demonstration farms could be a solution.

The Galway working group will review the results and leverage them make decisions on follow-up actions in order to further public understanding of aquaculture products and operations.

Conclusion

The results show that there is a great potential to amplify scientifically accurate messaging about aquaculture and its role in supporting a sustainable food supply and conservation initiatives across diverse stakeholder networks. For the most part, organizations agree that we should be engaging more people about aquaculture in a positive way and are already doing so. It is clear that efforts to connect various stakeholder groups with appropriate scientists and experts can be useful to build confidence in their ability to engage their audience with accurate information. Providing access to communication tools, such as images and video from farms, will also be useful to reach broader audiences and amplify messages more consistently across diverse networks.

Appendix

Appendix A – Survey Questions

If Answer Yes to Question 1:

1. Does your institution engage the public with messaging about aquaculture?

Yes

No

2. What topics are typically featured in your institution’s public-facing communications about aquaculture? (check all that apply)

- Environmental issues
- Ecosystem services
- Human health & nutrition
- Food security
- Human rights issues
- Technology advancement
- Solutions for environmentally responsible aquaculture
- Solutions for socially responsible aquaculture
- Feed
- Policy
- Economics
- Trade/imports
- Livelihoods
- Traditional and cultural knowledge
- Other:

3. Please indicate the tone of messages your organization uses for the following types of aquaculture.

Type of Aquaculture	Encourage	Discourage	Neither	Do not address this type of aquaculture
Aquaculture - broadly				
Marine aquaculture - broadly				

Offshore Marine Finfish				
Offshore Marine Shellfish				
Coastal Marine finfish				
Coastal Marine Shellfish				
Freshwater Shellfish				
Freshwater Finfish				
Closed Containment				
Integrated multi-trophic aquaculture				

Based on your answers above, in what context do you encourage or discourage different types of aquaculture? (check all that apply).

Type of Aquaculture	Environmental	Social/ Economic	Conservation	Human health & nutrition	Feeding a growing population	Other/ NA
Aquaculture - broadly						
Marine aquaculture - broadly						
Offshore Marine Finfish						
Offshore Marine Shellfish						
Coastal Marine finfish						

Coastal Marine Shellfish						
Freshwater Shellfish						
Freshwater Finfish						
Closed Containment						
Integrated multi-trophic aquaculture						
Aquaponics						

4. Who is the target audience for your institution's aquaculture communications and messaging? (check all that apply)

- Pre-school
- K-12 (US and CA)
- College/University (US and CA)
- Primary school (EU)
- Secondary School (EU)
- Higher Education (EU)
- Adult
- Seniors
- Chefs/Restaurateurs
- Retailers
- Seafood suppliers and distributors
- Feed producer
- Feed distributor
- Other Industry
- Media
- Educators (formal and informal)
- Policy makers
- Consumers
- Other:

5. What is the potential reach (individuals) for your aquaculture communications and outreach efforts on an annual basis?

- <1,000
- 1,000-5,000
- 5,000-10,000
- 10,000-100,000
- 100,000-500,000
- 500,000-1,000,000
- > 1,000,000

6. What is the geographic footprint of your institution's communication outputs? (If internationally please list the country and region as other)

- Local
- Regional
- Statewide (US Only)
- National
- International
- European Union

7. What tools does your institution use to communicate with the public about aquaculture? (Check all that apply)

- Digital media - websites, video, infographics, etc.
- Social Media
- Print media - flyers, handouts, etc.
- Events - booths, lectures, conferences, etc.
- Programming – incorporate into shows, education activities, interactives, etc.
- Classroom – curriculum, interactive projects, teacher training, invited lectures etc.
- Demonstration projects
- Farm tours
- Advocacy Campaigns
- Other (if other, please briefly explain):

8. Do you have access to adequate information and resources to educate the public about aquaculture and its potential as a conservation tool?

Yes

No

You answered YES to:

Do you have access to adequate information and resources to educate the public about aquaculture and its potential as a conservation tool?

What tools and resources are most helpful to you? (check all that apply)

- Communications toolkits that translate the science for educators
- Images and video
- Connections to University scientists with relevant expertise
- Connections to Government scientists with relevant expertise
- Connections to NGO scientists with relevant expertise
- Connections to aquaculture producers
- Ability to tour aquaculture farms
- Summary reports from multi-stakeholder meetings and workshops on relevant topics.
- Traditional and cultural knowledge
- Other (please specify)

You answered NO to:

Do you have access to adequate information and resources to educate the public about aquaculture and its potential as a conservation tool?

What tools and resources would be helpful for your organization to educate your public about marine aquaculture? (check all that apply)

- Communications toolkits that translate the science for educators
- Images and video
- Connections to University scientists with relevant expertise
- Connections to Government scientists with relevant expertise
- Connections to NGO scientists with relevant expertise
- Connections to aquaculture producers
- Ability to tour aquaculture farms
- Summary reports from multi-stakeholder meetings and workshops on relevant topics.
- Other (please specify)

9. Are there information gaps that need to be filled in order for your institution to educate the public about marine aquaculture?

Yes

NO

You answered YES to:

Are there information gaps that need to be filled in order for your institution to educate the public about marine aquaculture?

Please Describe

End of Survey

If Answer No to Question 1:

1. Does your institution engage the public with messaging about aquaculture?

Yes

No

2. Do you have any interest in engaging and educating your audience about marine aquaculture?

Yes

NO

You answered YES to:

Do you have any interest in engaging and educating your audience about marine aquaculture?

What tools and resources would be helpful for your institutions to integrate messaging about marine aquaculture and its potential as a conservation tool into your programming?

You answered NO to:

Do you have any interest in engaging and educating your audience about marine aquaculture?

What prevents your organization from providing information about marine aquaculture to your audience? (Please select all that apply)

- The topic of marine aquaculture does not align with our mission/vision.
- We are interested, but need more information.
- There is too much conflicting information.
- Other (Please specify):

3. Who is the target audience for your institution's education and outreach efforts? (check all that apply)

- Pre-school
- K-12 (US and CA)
- College/University (US and CA)
- Primary school (EU)

- Secondary School (EU)
- Higher Education (EU)
- Adult
- Seniors
- Chefs/Restaurateurs
- Retailers
- Seafood suppliers and distributors
- Feed producer
- Feed distributor
- Other Industry
- Media
- Educators (formal and informal)
- Policy makers
- Consumers
- Other:

4. What is the potential reach for your education and outreach efforts on an annual basis?

- <1,000
- 1,000-5,000
- 5,000-10,000
- 10,000-100,000
- 100,000-500,000
- 500,000-1,000,000
- > 1,000,000

5. What is the geographic footprint of your institution's education and outreach outputs?

- Local
- Regional
- Statewide (US Only)
- National
- International
- European Union

6. What tools does your institution use to educate and engage the public on ocean and/or conservation-related topics? (Check all that apply)

- Digital media - websites, video, infographics, etc.
- Print media - flyers, handouts, etc.
- Events - booths, lectures, conferences, etc.
- Programming – incorporate into shows, education activities, interactives, etc.

- Classroom – curriculum, interactive projects, teacher training, invited lectures etc.
- Demonstration projects
- Other (if other, please briefly explain):

Appendix B

The information in Appendix B shows how the different groups ranked communication tools based on how helpful they are for conveying information about aquaculture to the public. The percentages are based on total responses for each group (“Yes” and “No” responses from question 8, see Appendix A and Appendix C – Figures 10-12).

Aquarium, museum, or public-facing science education institution

Ability to tour aquaculture farms	15%
Connections to university scientists with relevant expertise	13%
Connections to government scientists with relevant expertise	13%
Traditional and cultural knowledge	12%
Images and video	10%
Connections to aquaculture producers	10%
Connections to NGO scientists with relevant expertise	9%
Communications toolkits that translate the science for educators	9%
Summary reports from multi-stakeholder meetings and workshops on relevant topics.	7%
Other	0%

Chef/Restaurateur

Images and video	17%
Connections to aquaculture producers	17%
Ability to tour aquaculture farms	13%
Connections to university scientists with relevant expertise	9%
Connections to government scientists with relevant expertise	9%
Traditional and cultural knowledge	9%
Connections to NGO scientists with relevant expertise	9%
Communications toolkits that translate the science for educators	9%
Summary reports from multi-stakeholder meetings and workshops on relevant topics.	9%
Other	0%

Consulting

Connections to aquaculture producers	16%
Connections to government scientists with relevant expertise	16%
Images and video	14%
Summary reports from multi-stakeholder meetings and workshops on relevant topics.	14%
Connections to university scientists with relevant expertise	12%
Ability to tour aquaculture farms	8%

Traditional and cultural knowledge	6%
Connections to NGO scientists with relevant expertise	6%
Communications toolkits that translate the science for educators	6%
Other	0%

Education

Images and video	16%
Connections to aquaculture producers	13%
Connections to university scientists with relevant expertise	13%
Ability to tour aquaculture farms	12%
Connections to government scientists with relevant expertise	11%
Summary reports from multi-stakeholder meetings and workshops on relevant topics.	10%
Communications toolkits that translate the science for educators	9%
Traditional and cultural knowledge	9%
Connections to NGO scientists with relevant expertise	7%
Other	0%

Government organization

Summary reports from multi-stakeholder meetings and workshops on relevant topics.	18%
Connections to government scientists with relevant expertise	16%
Images and video	14%
Connections to aquaculture producers	14%
Connections to university scientists with relevant expertise	13%
Ability to tour aquaculture farms	9%
Communications toolkits that translate the science for educators	7%
Traditional and cultural knowledge	5%
Connections to NGO scientists with relevant expertise	4%
Other	0%

Nongovernment organization

Images and video	17%
Summary reports from multi-stakeholder meetings and workshops on relevant topics.	14%
Connections to aquaculture producers	14%
Connections to government scientists with relevant expertise	11%
Connections to university scientists with relevant expertise	11%
Ability to tour aquaculture farms	10%
Communications toolkits that translate the science for educators	9%
Connections to NGO scientists with relevant expertise	9%

Traditional and cultural knowledge	6%
Other	0%

Producer

Images and video	15%
Connections to aquaculture producers	14%
Connections to university scientists with relevant expertise	13%
Ability to tour aquaculture farms	13%
Connections to government scientists with relevant expertise	12%
Summary reports from multi-stakeholder meetings and workshops on relevant topics.	11%
Connections to NGO scientists with relevant expertise	11%
Traditional and cultural knowledge	7%
Communications toolkits that translate the science for educators	5%
Other	0%

Supplier/Distributor

Connections to aquaculture producers	40%
Images and video	20%
Connections to university scientists with relevant expertise	20%
Ability to tour aquaculture farms	20%
Connections to government scientists with relevant expertise	0%
Summary reports from multi-stakeholder meetings and workshops on relevant topics.	0%
Connections to NGO scientists with relevant expertise	0%
Traditional and cultural knowledge	0%
Communications toolkits that translate the science for educators	0%
Other	0%

Research and Development

Not enough data

Retailer

Not enough data

Appendix C – Additional Figures

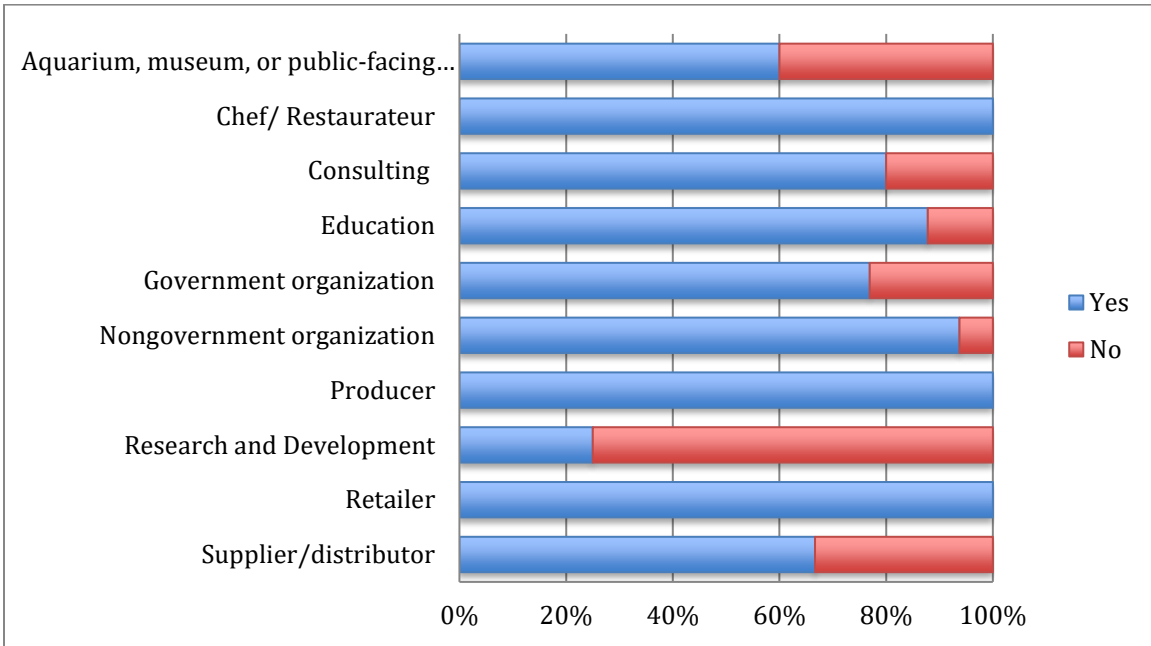


Figure 1: Results Question 1 – North America Region

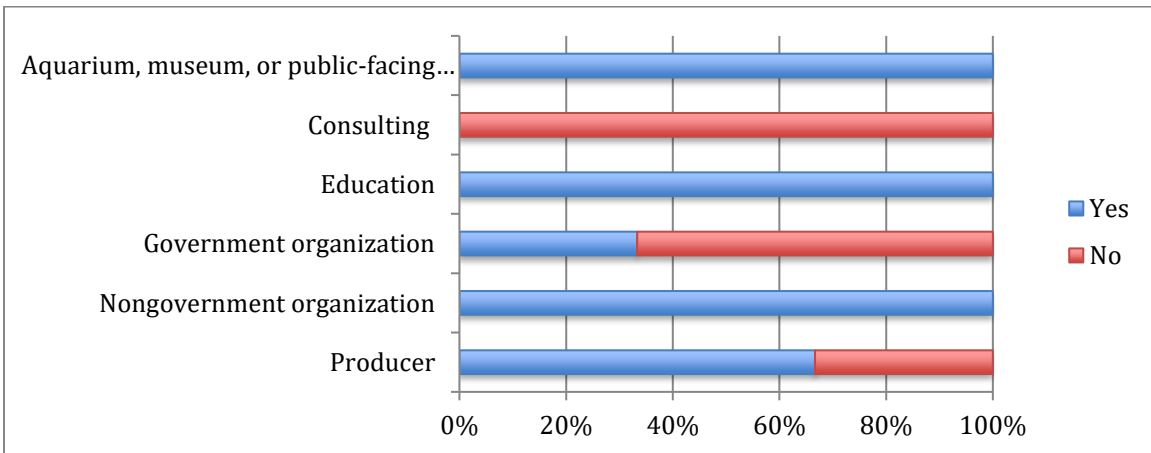


Figure 2: Results Question 1 – Europe Region

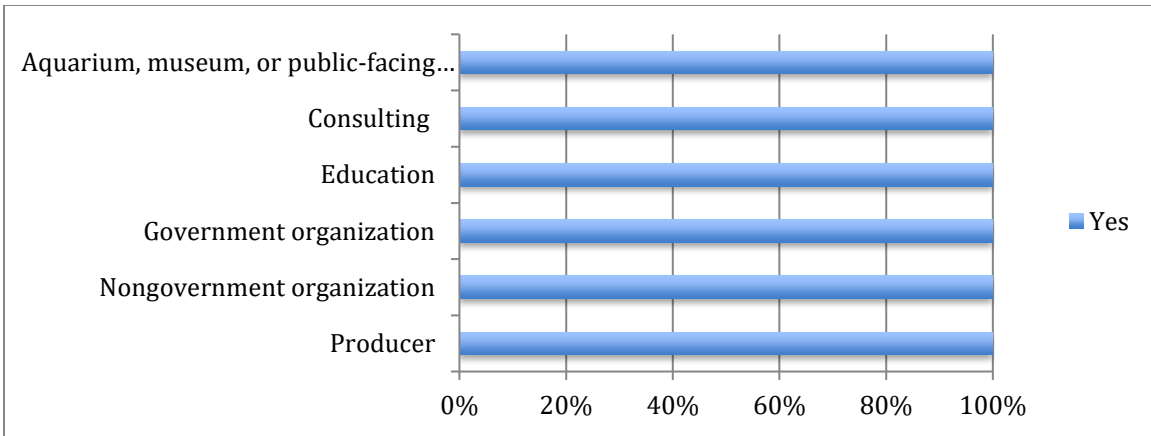


Figure 3: Results Question 1 – Other Region

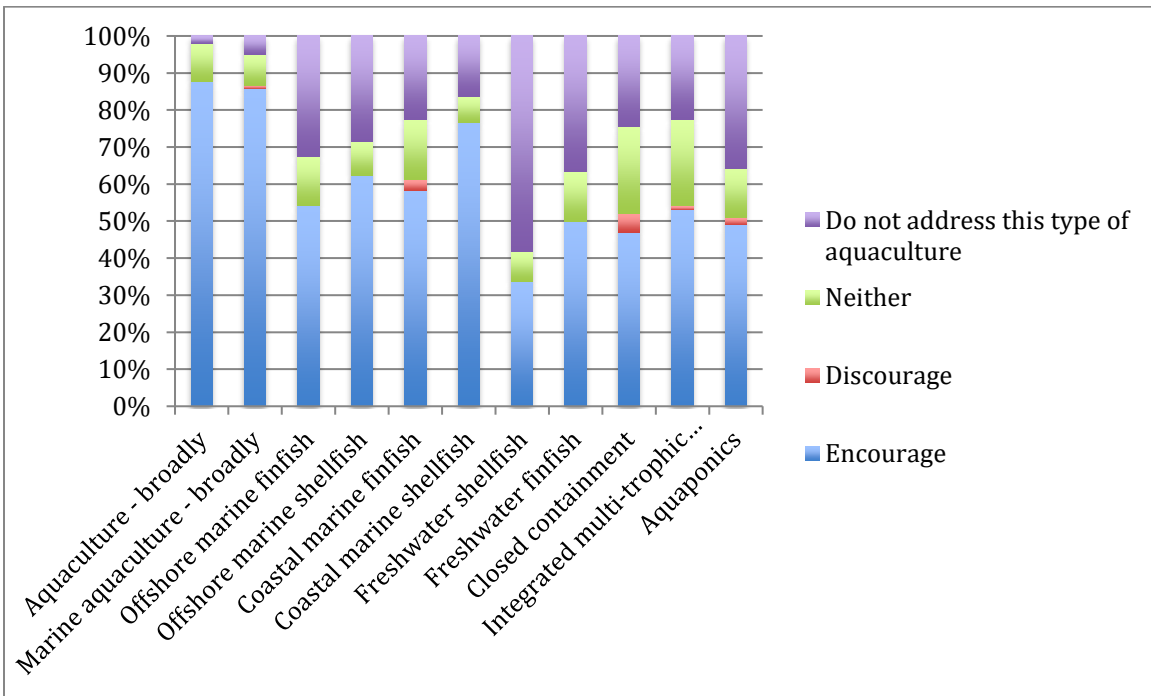


Figure 4: Results for Question 3 Part 1 - North America Region

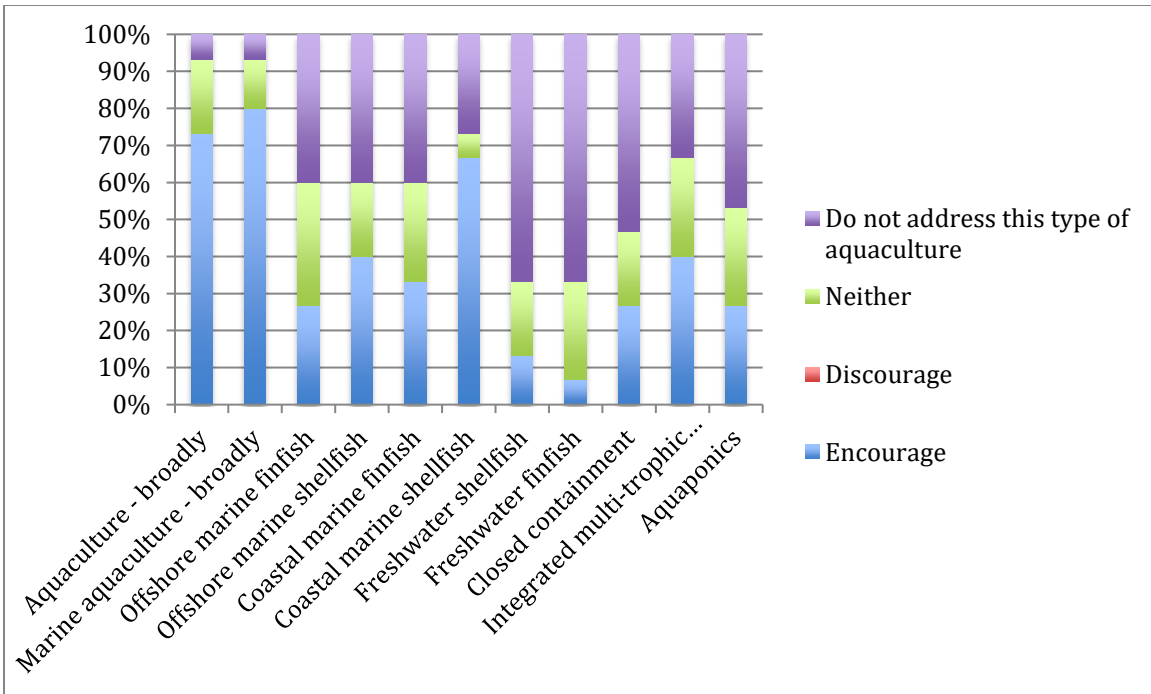


Figure 5: Results for Question 3 Part 1 - Europe Region

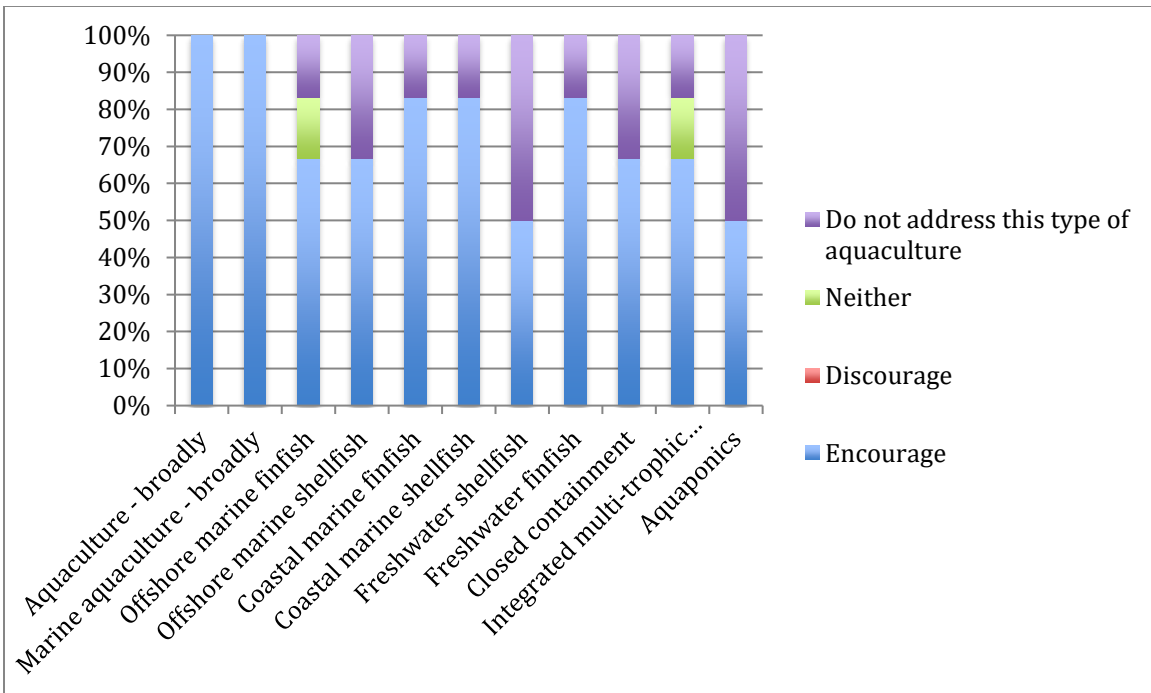


Figure 6: Results for Question 3 Part 1 - Other Region

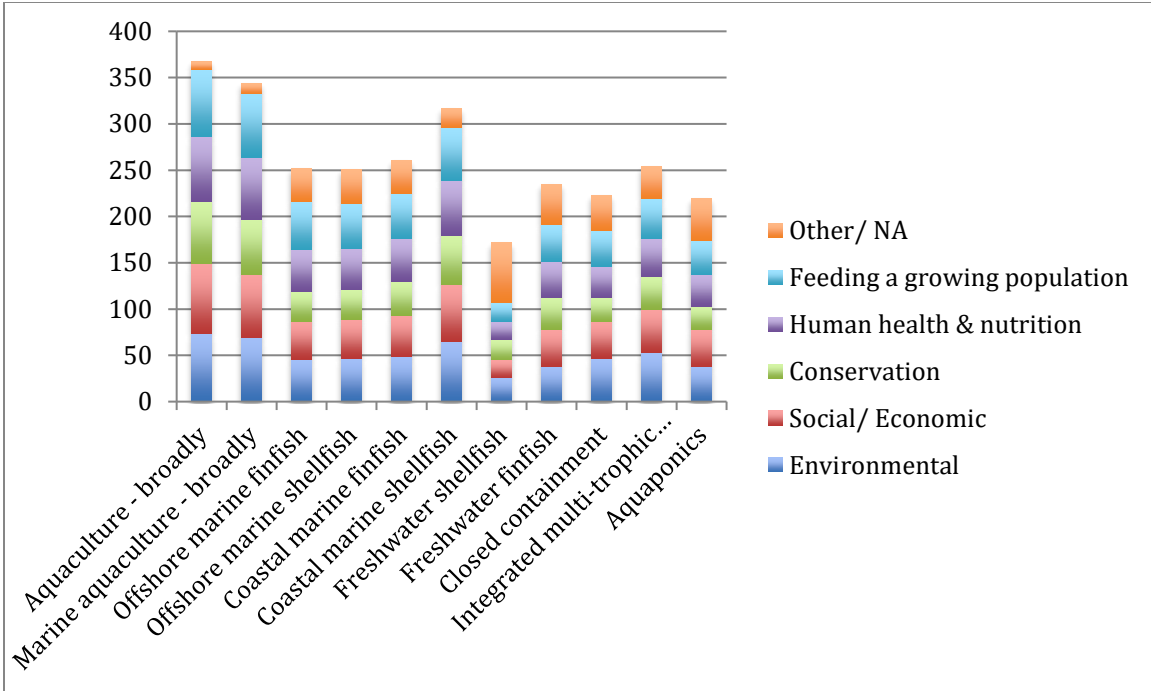


Figure 7: Results for Question 3 Part 2 - North America Region



Figure 8: Results for Question 3 Part 2 - Europe Region

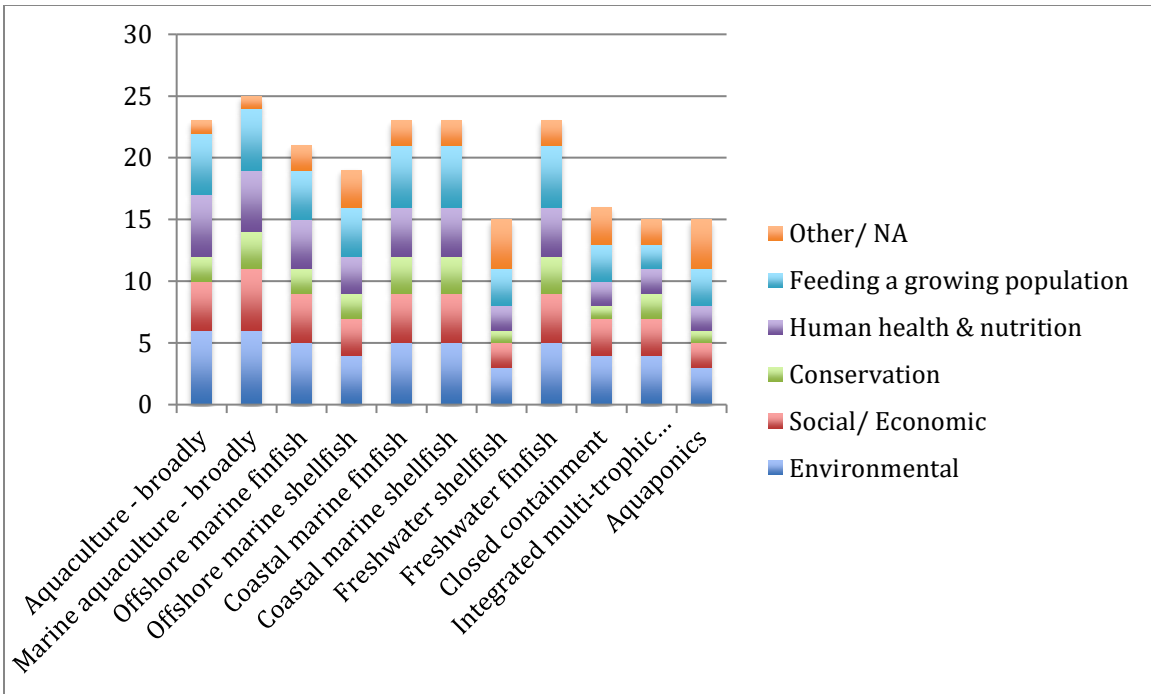


Figure 9: Results for Question 3 Part 2 - All Region

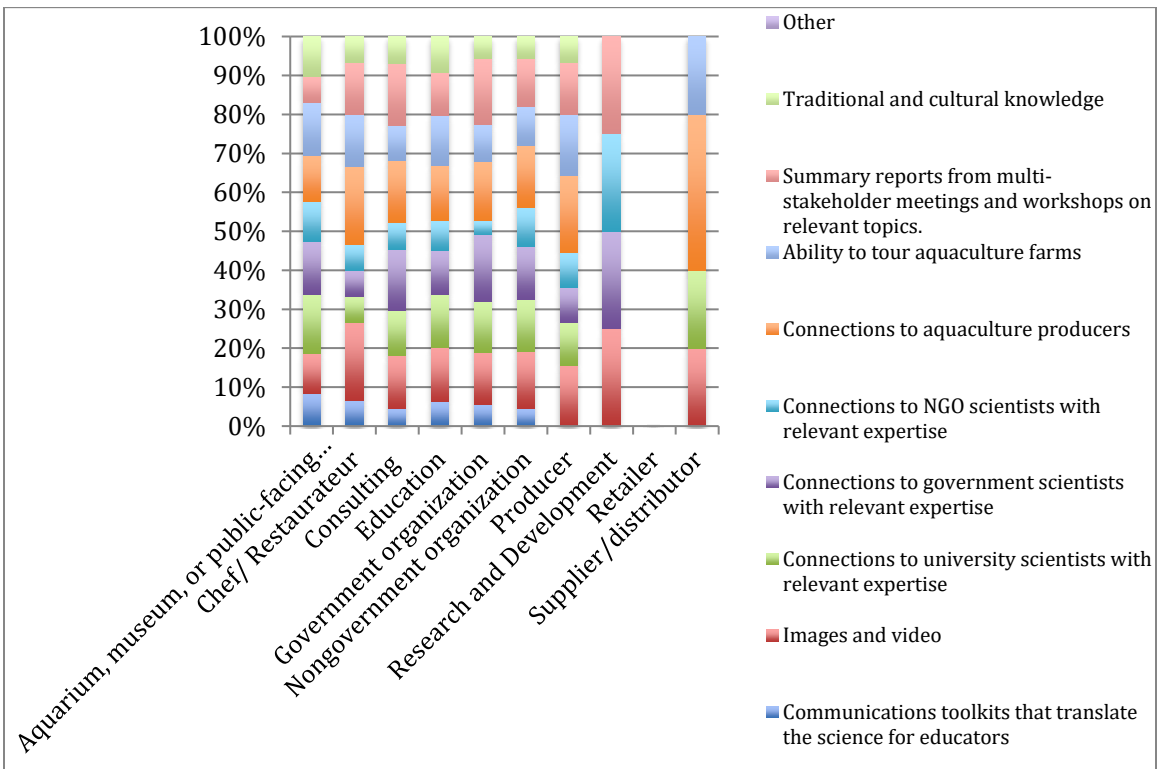


Figure 10: Results for Question 8 - Answered Yes - All Regions

