

Perceptions and Priorities for Shellfish and Sea Plant Aquaculture in Pictou County: Public Survey Report

Prepared for Pictou County Partnership

by

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Project context

Shellfish and sea plant aquaculture (low trophic aquaculture) can provide local food and contribute to sustainable livelihoods. It can also provide ecosystem benefits through the provision of regulating services including carbon sequestration, nutrient remediation, and coastal protection.¹

Despite potential for growth of low trophic aquaculture in Canada, the value of shellfish aquaculture in Nova Scotia remains low in comparison to New Brunswick and Prince Edward Island (2021 values: NS \$11.5 million, NB \$21.3 million, PEI \$54.7 million).² The coastal zone in Pictou County is already home to several shellfish farms and holds potential for further development of low trophic aquaculture.

The Pictou County Partnership and the Aquaculture Association of Nova Scotia are interested in exploring the possibility of an Aquaculture Development Area (ADA) for Pictou County to support the growth of ‘easier entry’ shellfish and marine plant aquaculture opportunities. Sometimes described as a ‘business park on the sea’, ADAs help identify areas for potential marine aquaculture development through a science-based collaborative review process and make entry into the aquaculture sector simpler for new entrants. The first ADA in Nova Scotia is nearing finalization in the Municipality of the District of Argyle.³

As a first step towards exploring aquaculture expansion through the establishment of an ADA, a survey was conducted to help understand community perceptions and priorities for aquaculture in Pictou County. Research in Nova Scotia suggests that environmental, social, and governance factors may affect perceptions or acceptance of marine aquaculture⁴⁻⁷, and research at the local level is needed to understand community perceptions of aquaculture.

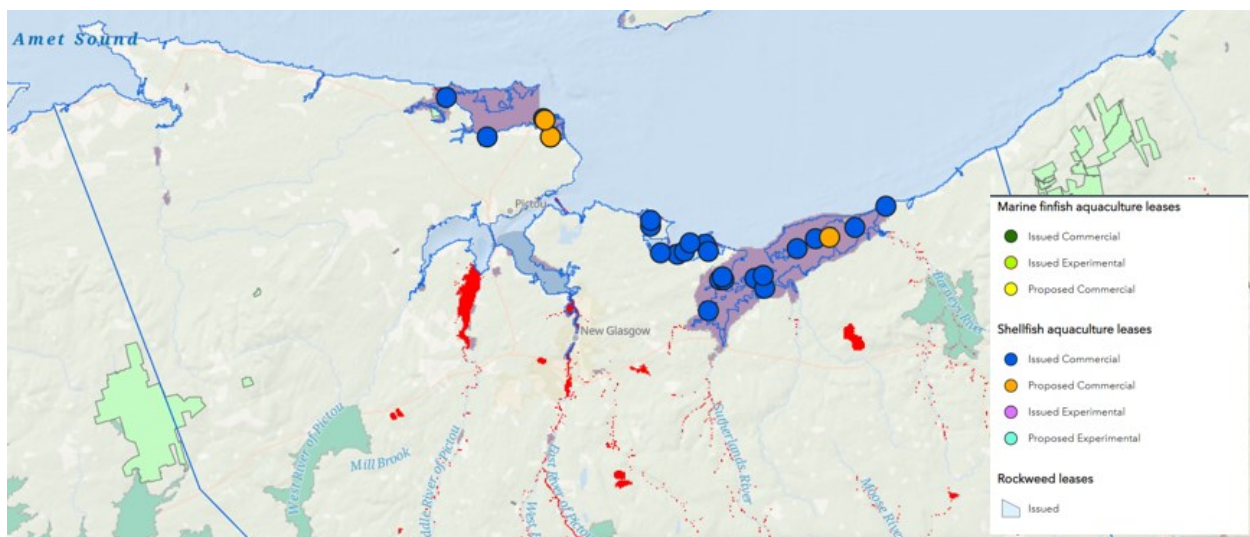


Figure 1. Aquaculture sites in Pictou County. *Source: Nova Scotia Department of Fisheries and Aquaculture*
<https://novascotia.ca/fish/aquaculture/site-mapping-tool/>

Survey

Recruitment

Participants were recruited to a survey about shellfish and sea plant aquaculture in Pictou County through a targeted mail campaign. Canada Post's Precision Targeter™ was used to create a mailing list targeting households in coastal areas of Pictou County (Figure 2). A postcard introducing the study and inviting recipients to participate using a web link or QR code was mailed to 6000 households. A link to the survey was also shared on the Pictou County Partnership, Pictou County Community Notices, and What's Going On in Pictou County & Surrounding Areas Facebook pages.

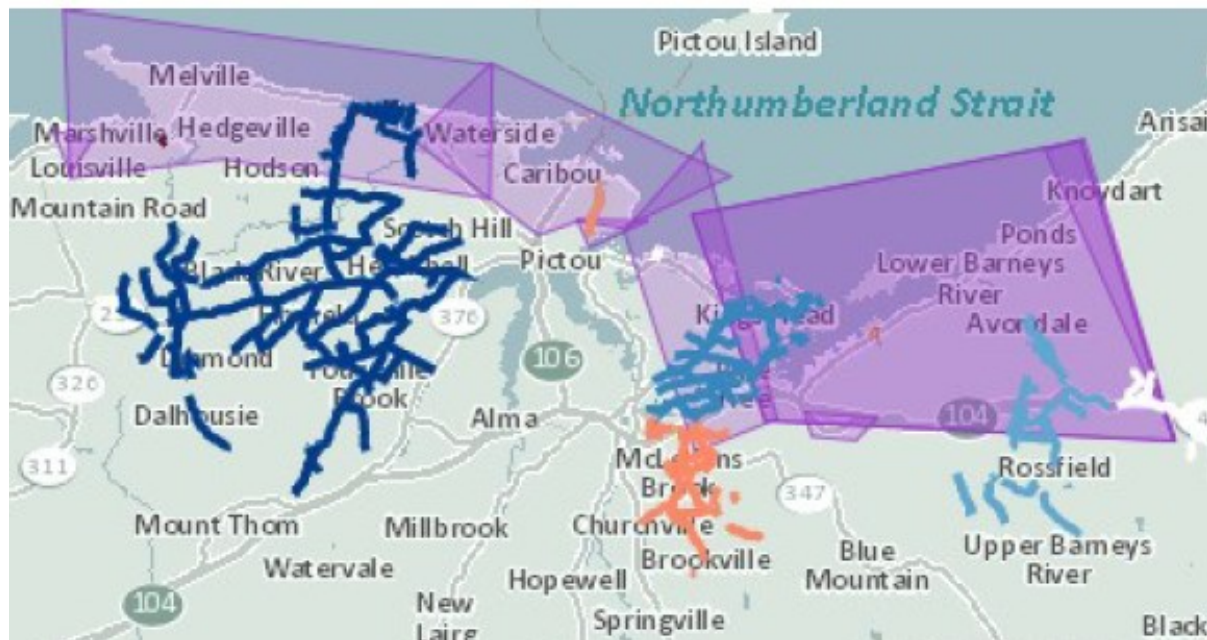


Figure 2. Selected areas and mailing routes included in postcard mailing list. Households, farms, and business addresses within the purple polygons as well as addresses on delivery routes shown in blue and orange were included in mailing list. *Source: Canada Post Precision Targeter™ tool.*

Participants

121 people participated in the survey which included people both from within and beyond the targeted coastal regions of Pictou County. Participants were asked to indicate which region of Pictou County they live in as indicated by polygons on a map included in the survey (Figure 3). The area with the highest number of participants was Area C, which is also the most densely populated area within the county and includes both the Town of Pictou and New Glasgow. Area A and B are combined in statistical analyses to allow for comparison in survey responses between regions.

The survey population skewed older than the population of Pictou County; the percentage of people over 55 in Pictou County was 35% in the 2021 census, compared to 58% within the survey population. Most participants indicated that they live in Pictou County year-round (98%). Some participants work in the aquaculture industry (11%), and many had family or friends who work in the aquaculture industry (40%) (Table 1).

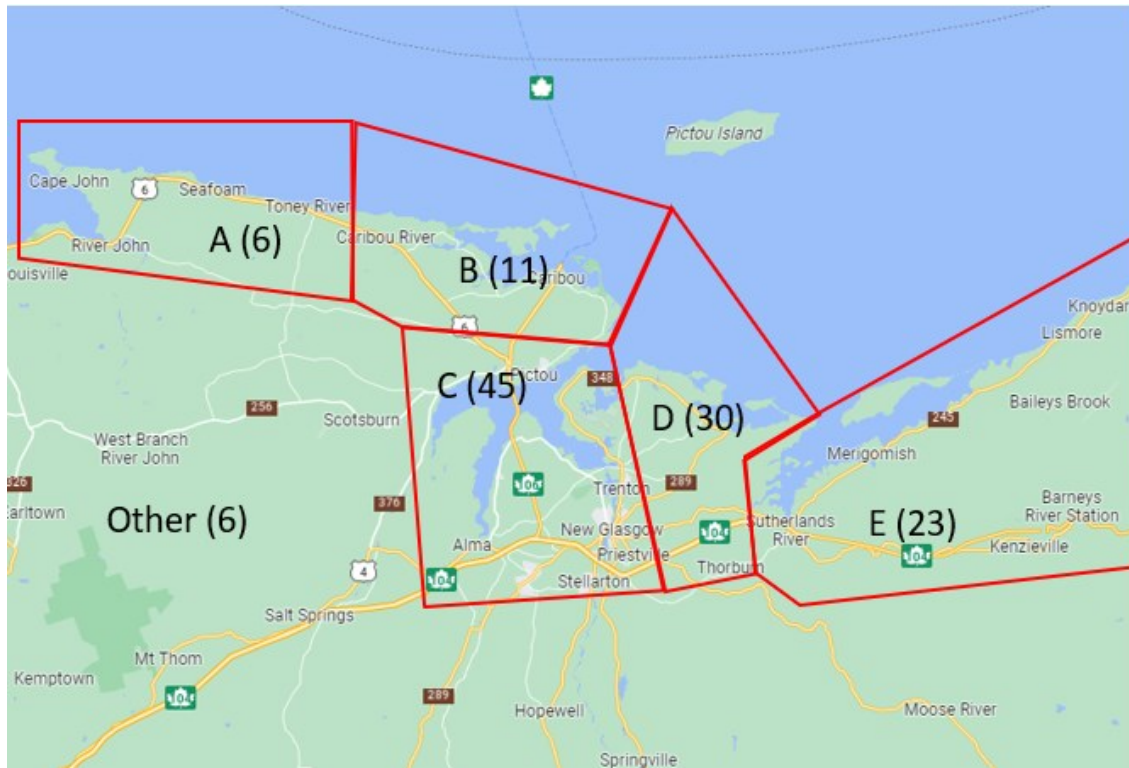


Figure 3. Survey participants by region.

Table 1. Survey participant demographics.

	#	%
Gender		
Female	59	49%
Male	62	51%
Age		
18-24	3	2%
25-34	14	12%
35-44	15	12%
45-54	19	16%
55-64	27	22%
65+	43	36%
Live >50% of year in Pictou County		
No	9	7%
Yes	112	93%
Work in aquaculture		
No	108	89%
Yes	13	11%
Friends/family work in aquaculture		
No	70	58%
Yes	49	40%
Prefer not to say	2	2%

Results

General perceptions of and support for marine aquaculture

Self-reported familiarity with aquaculture was statistically significantly higher for shellfish than marine plants amongst participants. The majority of participants reported a somewhat or very positive impression of both shellfish (66%) and marine plant (61%) aquaculture (Figure 4). Some participants disagreed or strongly disagreed that there should be more shellfish (24%) and marine plant (20%) aquaculture in their community.

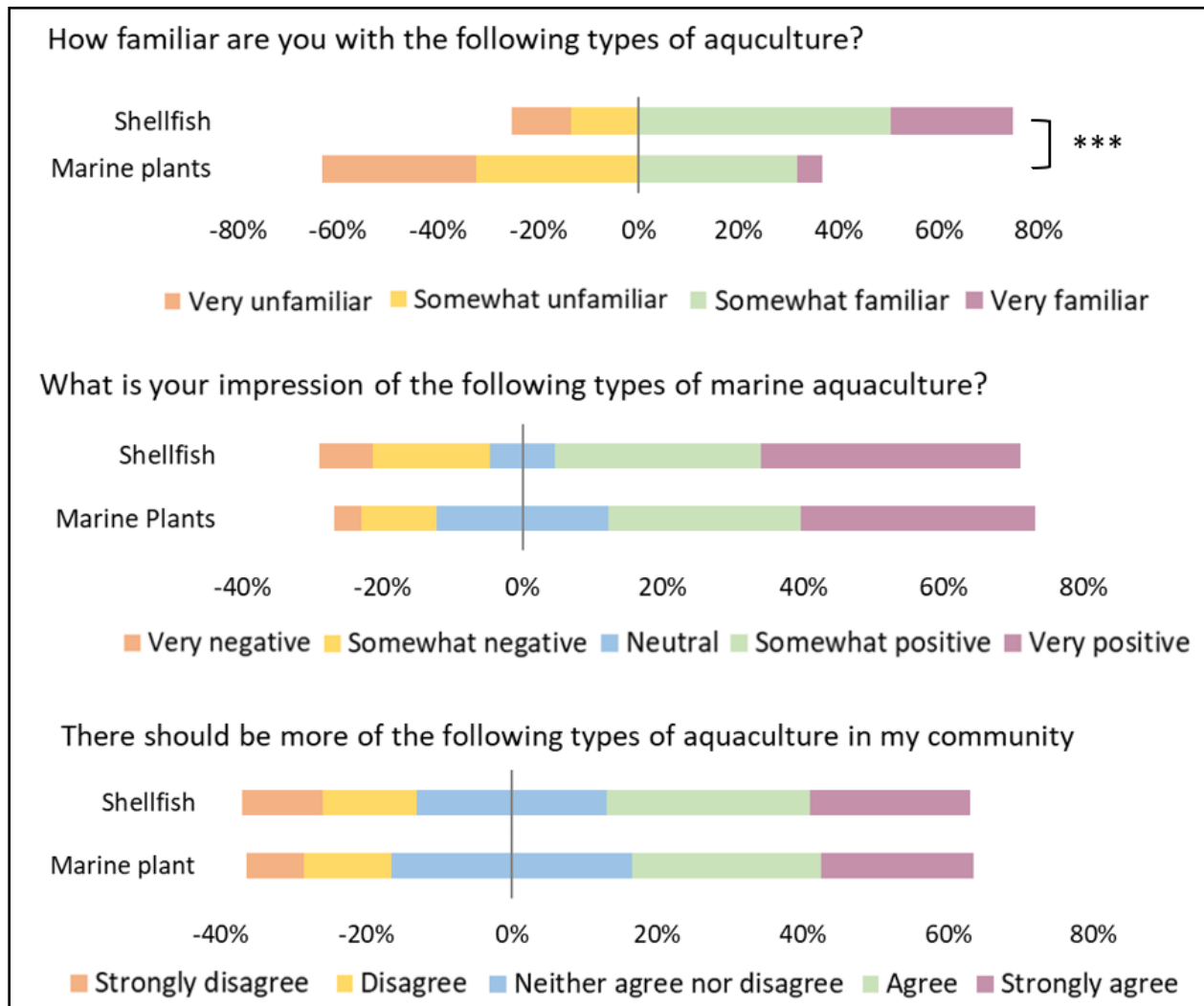


Figure 4. Familiarity with (n=119, 117), impression of (n=119, 102), and desire for more (n=116, 111) shellfish and marine plant aquaculture. *** $p < .001$

No strong preference for one type of aquaculture over another was observed, with 23% of participants preferring shellfish farms instead of marine plant farms in their community, and 16% of participants preferring marine plant farms instead of shellfish farms in their community (Figure 5).

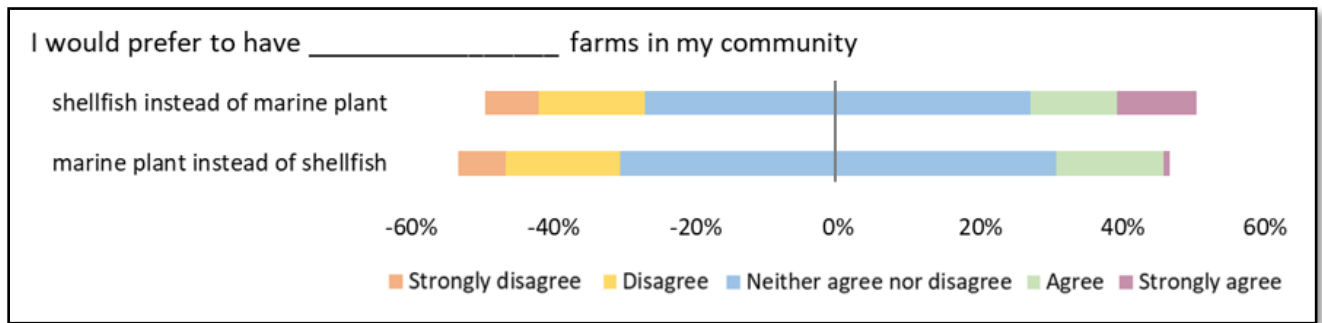


Figure 5. Preference for shellfish instead of marine plant (n=107) and marine plant instead of shellfish (n=106) aquaculture.

Comparison of coastal areas

Impression of aquaculture was more positively distributed in Area E, followed by Area C, A&B, and D for both shellfish and marine plant aquaculture; however, the only statistically significant difference between areas in impression of aquaculture was a more positive impression of shellfish aquaculture in Area E than area D (Figure 6).

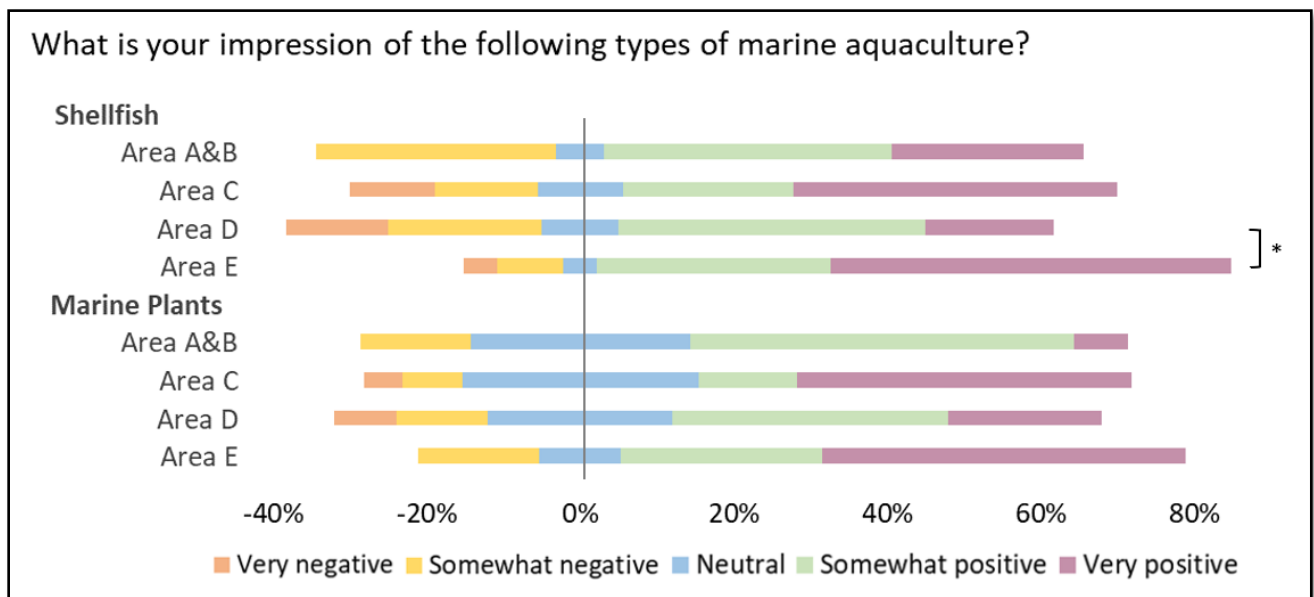


Figure 6. Impression of shellfish (n=114) and marine plant (n=97) aquaculture within coastal areas. *p<.05

Agreement that there should be more shellfish and marine plant aquaculture in communities followed a similar pattern to impression of types of marine aquaculture with the highest level of agreement in Area E, followed by Area C, A&B, and D; however, the only significant difference

between areas was a higher level of agreement that there should be more shellfish aquaculture in Area E than Area D. (Figure 7).

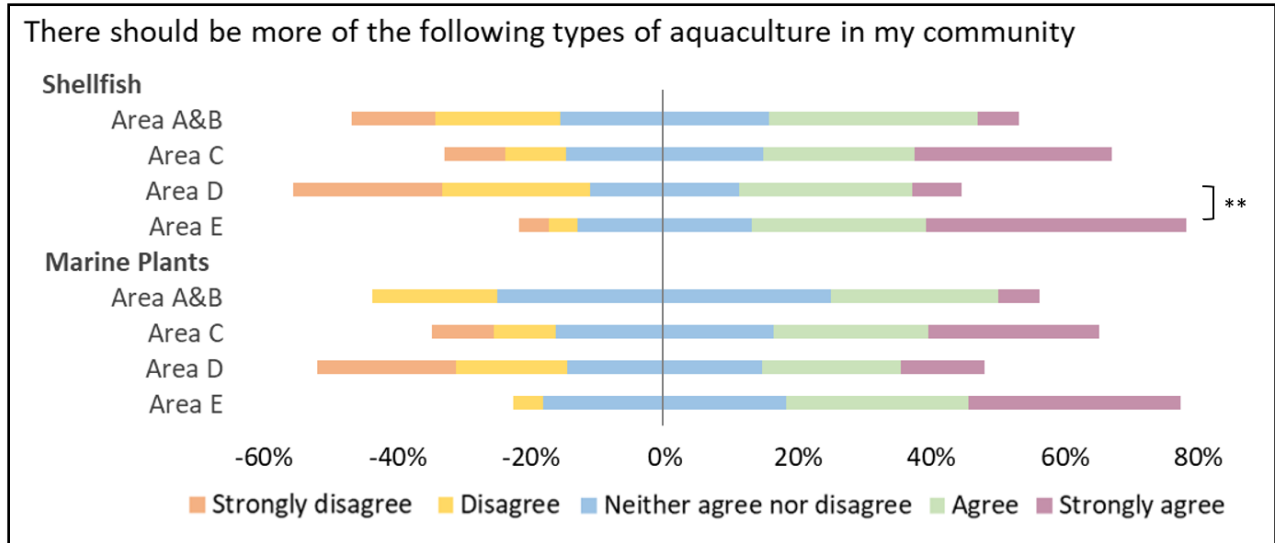


Figure 7. Desire for more shellfish (n=110) and marine plant (n=105) aquaculture within coastal areas. ** $p < .01$

Participants in Area E reported a preference for shellfish instead of marine plant farms in their community indicated by a statistically significant difference in response to questions about preference for shellfish instead of marine plant, and marine plant instead of shellfish farms. Preference for shellfish instead of marine plant farms was also higher in Area E than Area D (Figure 8).

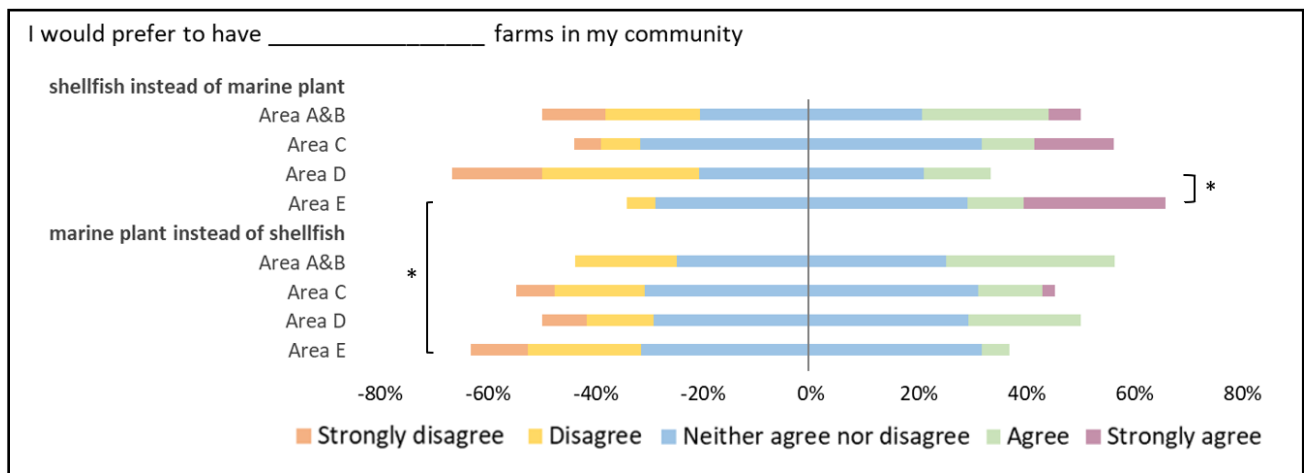


Figure 8. Preference for shellfish instead of marine plant (n=101) and marine plant instead of shellfish (n=101) aquaculture within coastal areas. * $p < .05$

Community perceptions and priorities

Level of agreement with statements about specific perceptions and preferences related to the impacts and management of aquaculture were similar for shellfish and marine plant aquaculture.

The majority of participants agreed or strongly agreed that shellfish (67%) and marine plant (60%) farms could clean the waters they operate in, recognizing the potential positive environmental impact of marine farming on the environment. Amongst potential negative environmental impacts, approximately half of participants disagreed or strongly disagreed that shellfish (50%) and marine plant (53%) aquaculture activities do not have impacts on coastal ecology, and some participants agreed or strongly agreed that they were concerned that shellfish (32%) and marine plant (27%) cause pollution and changes on the ocean bottom (Figure 9).

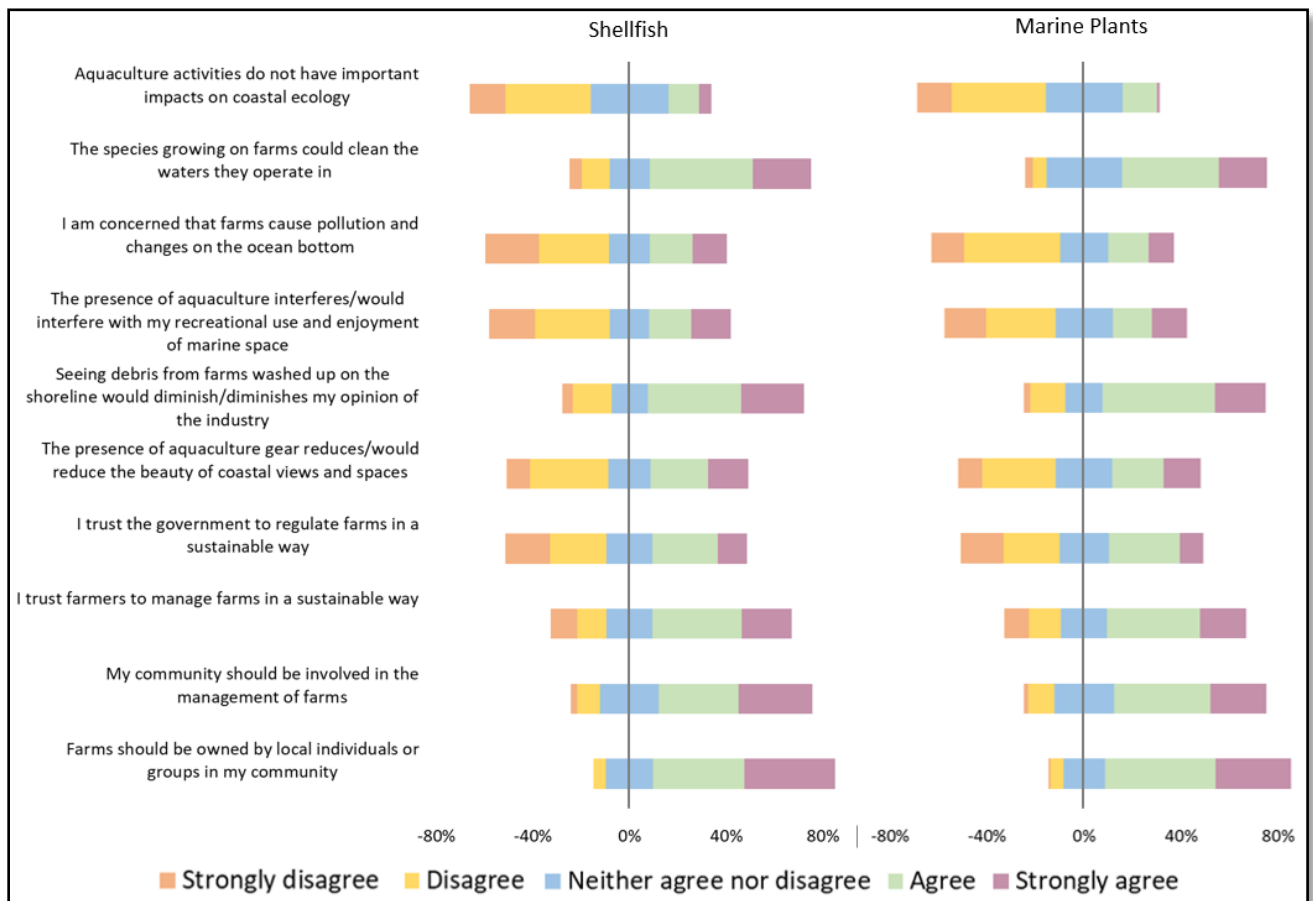


Figure 9. Community perceptions and priorities for shellfish aquaculture.

The majority of participants agreed or strongly agreed that seeing debris from shellfish (65%) and marine plant (67%) farms on the shoreline would diminish their opinion of the industry. Some participants also indicated that farms may interfere with recreational use, enjoyment, and the aesthetic value of the coastline as indicated by a response of agree or strongly agree that shellfish (34%) and marine plant (31%) farms interfere or would interfere with their use and enjoyment of marine space, and that shellfish (40%) and marine plant (36%) farms would reduce the beauty of

coastal views and spaces. This concern was also evident within additional comments submitted at the end of the survey, where some participants expressed concern about the current and potential impact of the accumulation of shells on their use the shoreline (Figure 9).

The proportion of participants who agreed or strongly agreed that they trust farmers to manage shellfish (58%) and marine plant (57%) farms in a sustainable way was higher than the proportion of participants who agreed or strongly agreed that they trust the government to manage shellfish (39%) and marine plant (39%) farms in a sustainable way. The majority of participants agreed or strongly agreed that their community should be involved in the management of shellfish (63%) and marine plant (63%) farms, and most participants agreed or strongly agreed that shellfish (75%) and marine plant (77%) farms should be owned by local individuals or groups (Figure 9).

	Shellfish				Marine plants			
	A&B	C	D	E	A&B	C	D	E
Aquaculture activities do not have important impacts on coastal ecology	2	3	3	2	3	3	2	2
The species growing on farms could clean the waters they operate in	3.5	4	4	4	4	4	3 ^a	4 ^a
I am concerned that farms cause pollution and changes on the ocean bottom	3	2	3 ^a	2 ^a	3	2	3	2
The presence of aquaculture interferes/would interfere with my recreational use and enjoyment of marine space	2.5	2 ^b	4 ^{a,b}	2 ^b	3	2 ^b	4 ^{a,b}	2 ^{a,b}
Seeing debris from farms washed up on the shoreline would diminish/diminishes my opinion of the industry	4	4	4	4	3	3	4	2.5
The presence of aquaculture gear reduces/would reduce the beauty of coastal views and spaces	3	3 ^b	4 ^{a,b}	2.5 ^a	4	4	4	4
I trust the government to regulate farms in a sustainable way	3	3	2	2.5	3	3	2	2.5
I trust farmers to manage farms in a sustainable way	3	4	3	4	3	4	3.5	4
My community should be involved in the management of farms	4	4	4	3	4	4	3	4
Farms should be owned by local individuals or groups in my community	4	4	4	5	4	4	4	4

Table 2. Median response to community perceptions and priorities questions by coastal areas where 1=strongly disagree, 2=disagree, 3=neither agree nor disagree, 4=agree, 5=strongly agree. ^asignificant difference in distribution of responses between Area D and Area E at $p<.05$ and ^bsignificant difference in distribution of responses between Area C and Area D at $p<.05$.

Some responses to statements about community perceptions and priorities differed across coastal areas. This was especially true for statements regarding negative impacts on the use, enjoyment, and aesthetic value of coastal spaces where a higher level of agreement was reported in Area D (Table 2). A higher level of agreement was reported in Area D than Area E and Area C for the following statements: “The presence of shellfish aquaculture interferes/would interfere with my recreational use and enjoyment of marine space”, “The presence of shellfish farming gear reduces/would reduce the beauty of coastal views and spaces”, and “The presence of marine plant aquaculture interferes/would interfere with my recreational use and enjoyment of marine space”. A higher level of agreement was also reported in Area D than Area E for the statement “I am concerned that shellfish farms cause pollution and changes on the ocean bottom”. Finally, a lower level of agreement was reported in Area D than Area E for the statement “Marine plants growing on farms could clean the waters they operate in”.

Additional considerations for aquaculture development

Participants were also asked about community benefits and participation in aquaculture. Community benefits associated with aquaculture were important to participants; half of participants (50%) agreed or strongly agreed that they would be more likely to support aquaculture if their community received more benefits from farming. Some participants agreed or strongly agreed that they would be more likely to support aquaculture if they were able to participate (28%) (Figure 10).

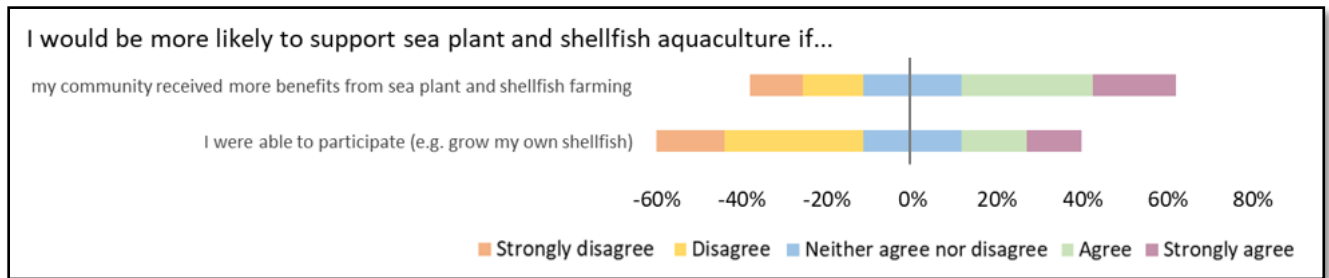


Figure 10. Community benefits and participation in shellfish and marine plant aquaculture.

References

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