

New Hampshire Residents' Perceptions of Aquaculture Show Opportunities for Education

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Aquaculture in New Hampshire: An Evolving Landscape

Over the past decade, aquaculture—the farming and cultivation of aquatic species—has experienced significant growth globally and in the U.S. Northeast to meet market demands for seafood.¹ Growth of this sector depends on a combination of factors, with public perceptions playing a key role. Aquaculture is considered a sustainable method of seafood production and can provide both economic and environmental benefits to coastal environments and communities.² In the state of New Hampshire, a small but growing aquaculture industry has emerged, primarily focused on cultivated oysters in Little Bay and Hampton-Seabrook Estuary.³ In fact, oyster aquaculture is the fastest growing seafood industry in the state,⁴ providing sustainable food and environmental benefits to coastal communities.

Yet despite ongoing and growing investments in technological and biological research to advance sustainable aquaculture production, challenges remain. One such challenge is related to public willingness to consume aquaculture products as well as acceptance of farm siting in communities. Most aquaculture farms currently operate in coastal waters which are common-pool resources and require a federal, state, or municipality-issued lease agreement to operate. Likewise, proposals for land-based aquaculture operations typically require permits that must be approved through municipal boards. Because of this, community members are

Key Findings



Positive perceptions of aquaculture are significantly related to familiarity and knowledge of aquaculture.



One of the most important predictors of positive perceptions of aquaculture is how frequently respondents eat seafood.



The majority of New Hampshire residents are unfamiliar with aquaculture and are not aware that there is aquaculture in the state.



The findings in this study underscore a unique educational and community engagement opportunity in New Hampshire given the relatively low familiarity with aquaculture yet strong link between favorability, awareness, and seafood consumption.



Strengthening aquaculture literacy can help build the confidence necessary for the public to engage meaningfully in conversations about aquaculture planning and development.

key parties and play a significant role in industry outcomes. Thus, how the public feels about aquaculture development matters. Currently in New Hampshire, little is known about residents'

perceptions of aquaculture outside anecdotal stories, exposing a gap in knowledge that has implications for the future of the industry. Although research conducted elsewhere shows that public sentiment is more favorable among people who eat seafood more often and among those who are more familiar with aquaculture, it is not yet known whether those relationships hold true in New Hampshire.⁵

Understanding Aquaculture Perceptions in the Granite State

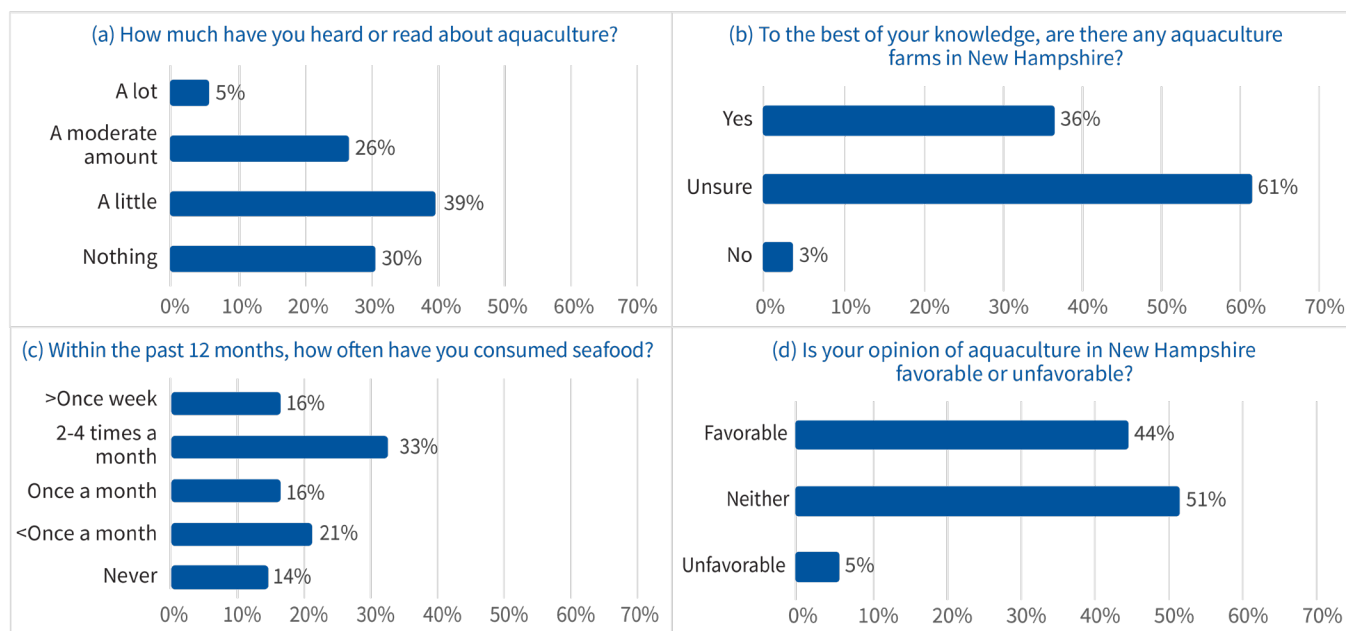
To understand perceptions of aquaculture, the University of New Hampshire's Survey Center conducted a representative statewide survey of New Hampshire residents in June 2024 on behalf of New Hampshire Sea Grant. In part, participants were asked to note how much they had heard or read about aquaculture, and their knowledge of aquaculture farms in New Hampshire.

As presented in Figure 1, a majority of New Hampshire respondents (65 percent) had read or

heard at least a moderate amount about aquaculture. Only 5 percent of New Hampshire residents said they had heard or read a lot about aquaculture, while 30 percent of respondents said they had read or heard nothing about aquaculture. A majority of respondents (61 percent) were unsure if there was aquaculture in New Hampshire, and only 36 percent of New Hampshire residents responded correctly that there is aquaculture in the Granite State. When asked if New Hampshire had any shellfish or finfish aquaculture, the same pattern remained. In fact, residents were more unsure that there was shellfish aquaculture in New Hampshire (73 percent) than they were of general aquaculture, even though shellfish is the overwhelming majority of farms in the state.

Participants were also asked to respond with how often they consumed seafood within the past 12 months to understand how this factor might influence their views, demonstrated in Figure 1c. The most common response (33 percent) was that respondents had consumed seafood an

Figure 1. Descriptive Results from Questions Related to Aquaculture Knowledge and Familiarity



Note. Descriptive results from questions gauging familiarity with aquaculture (1a: $n=1,199$), knowledge of aquaculture in New Hampshire (1b: $n=1,191$), consumption of seafood (1c: $n=1,196$) and sentiment of aquaculture in New Hampshire (1d: $n=1,202$). **Source:** New Hampshire Granite State Poll, June 2024.

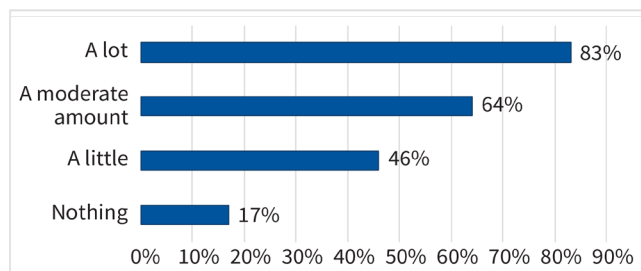
average of 2–4 times per month, while 21 percent consumed seafood less than once a month. Only 14 percent of New Hampshire residents never consumed seafood within the past 12 months, while 16 percent said they consumed seafood more than once a week.

Lastly, participants were asked whether their opinion about aquaculture in New Hampshire was favorable or unfavorable on a 5-point scale. Just over half (51 percent) of respondents had no opinion regarding favorability of aquaculture, while 44 percent were somewhat or very favorable. Only 5 percent felt either somewhat or very unfavorable of aquaculture.

Effects of Familiarity, Knowledge, and Seafood Consumption on Favorable Public Sentiment of Aquaculture

To investigate how familiarity and knowledge affect public sentiment in New Hampshire, we used regression modeling. Results demonstrated that how much a respondent has read or heard about aquaculture, whether they are aware that there is aquaculture activity in New Hampshire, and frequency of seafood consumption are all significant predictors of aquaculture sentiment, even after accounting for differences based on social characteristics. Figure 2 visualizes the

Figure 2. Aquaculture Favorability by How Much Participants Have Heard or Read About Aquaculture

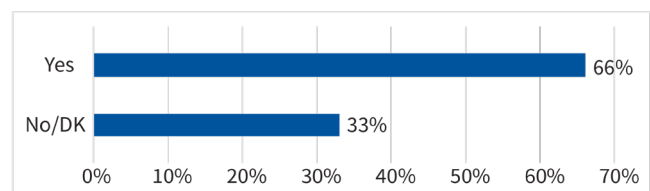


Note. Weighted percent of respondents who feel somewhat or very favorable about aquaculture by how much they have read or heard about aquaculture, $p < 0.001$, ($n = 1,199$). **Source:** New Hampshire Granite State Poll, June 2024.

relationship between how often New Hampshire residents had heard or read about aquaculture and aquaculture sentiment. Eighty-three percent of those who had heard or read “a lot” about aquaculture also felt somewhat or very favorable compared to only 17 percent who had heard or read “nothing” about aquaculture. Clearly, there is a strong, positive relationship between familiarity with aquaculture and positive sentiment among New Hampshire residents.

Similarly, we found that knowledge of aquaculture activity in New Hampshire is also linked to New Hampshire residents’ favorability of aquaculture, even after accounting for how much respondents have read or heard. As shown in Figure 3, those aware of aquaculture in New Hampshire were more likely to hold somewhat or very favorable views (66 percent) than those who were unsure or said that there was no aquaculture in the state (33 percent). Since there is aquaculture activity in New Hampshire, “don’t know” and “no” were combined, though analysis with the original three categories offered similar conclusions: knowledge of aquaculture in New Hampshire is positively associated with sentiment.

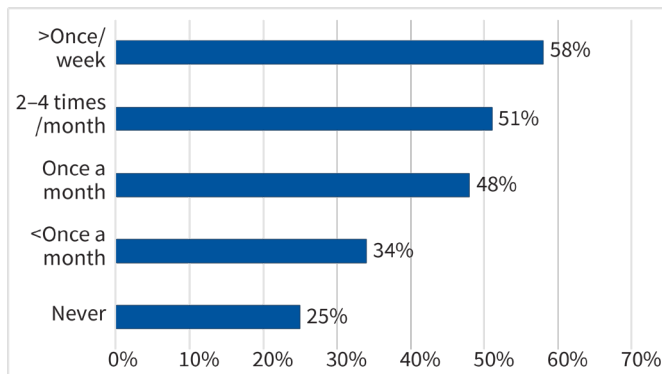
Figure 3. Aquaculture Favorability By Whether Participants Know That There Is Aquaculture Activity in New Hampshire



Note. Weighted percent of respondents who feel somewhat or very favorable about aquaculture by whether they know that there is aquaculture activity, $p < .01$, ($n = 1,191$). **Source:** New Hampshire Granite State Poll, June 2024.

Lastly, survey results reveal a relationship between frequency of seafood consumption and how respondents feel about aquaculture. As shown in Figure 4, over half of respondents (58 percent) who consumed seafood more than once a week during the past year felt somewhat or very favorable about aquaculture. On the other hand, only one-quarter of respondents who never consumed seafood were favorable to aquaculture. Interestingly, this relationship is even more pronounced when looking more specifically at frequency of consumption *at home*. In both cases, more frequent consumption of seafood is strongly linked to positive aquaculture sentiment.

Figure 4. Aquaculture Favorability By Frequency of Seafood Consumption



Note. Weighted percent of respondents who feel somewhat or very favorable about aquaculture by frequency of seafood consumption, $p < 0.05$, ($n = 1,196$). **Source:** New Hampshire Granite State Poll, June 2024.

Next Steps: Policy Implications for New Hampshire

Global, national, and regional trends all point to the growing role aquaculture will play in the coming years in meeting demand for seafood products.⁶ It is essential that the industry's development unfolds in a way that is environmentally, economically, and socially beneficial to the surrounding communities. The findings in this study underscore a unique educational and community engagement opportunity in New Hampshire given the relatively low familiarity

with aquaculture yet strong link between favorability, awareness, and seafood consumption.

We found that positive perceptions of aquaculture are significantly related to familiarity and knowledge of aquaculture. We also found that one of the most important predictors of positive perceptions of aquaculture is how frequently respondents eat seafood. Considering most New Hampshire residents are unfamiliar with aquaculture, these findings have important implications for the future of the industry and underscore the importance of education and exposure to aquaculture products through seafood consumption.

Taken in concert with other unique characteristics of New Hampshire residents (for example the state ranks sixth in the nation for rates of attending public meetings and seventh for “talking about important political, societal, or local issues with friends and family”⁷), the results of this survey provide new ways to think about aquaculture education and community participation. Strengthening aquaculture literacy can help build the confidence necessary for the public to engage meaningfully in conversations about aquaculture planning and development.⁸ Continued, socially sustainable growth of the industry will require an engaged and informed public. These findings indicate opportunities for industry members, regulatory agencies, researchers, and other partners to work together to develop approaches to build two-way dialogs to increase public familiarity with this important sector within New Hampshire's coastal economy.

Methods

The June 2024 Granite State Poll, conducted by the University of New Hampshire Survey Center, was a web-based survey of Granite State Panel Members who are recruited by calling a random sample of cellular and landline phones, texting a random sample of phones, and mailing a random sample of New Hampshire addresses, and only included New Hampshire residents over the age of 18. After an invitation email was sent to Granite State Panel members on June 13th, 2024,

the survey concluded with 1,202 responses. Data was weighted by respondent sex, age, education, and region of the state to target the most recent American Community Survey conducted by the Census Bureau, and was also weighted by party registration levels. New Hampshire Sea Grant included five questions about aquaculture in the survey that explored familiarity with aquaculture, knowledge of aquaculture in New Hampshire, frequency of seafood consumption, and public sentiment.

Endnotes

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