

A RISING TIDE?

The role of social networks for women aquaculture producers in Maine and New Hampshire

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MS Thesis Defense

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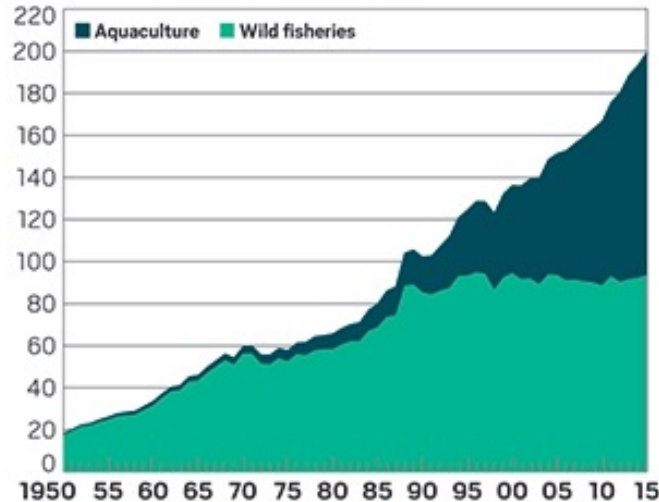


"Upweller"
Joanna Fogg (2022), Bar Harbor, ME

Aquaculture

Aquaculture provides more than half of the world's seafood.

Seafood production, million metric tons



91%

Share of seafood that is imported

Social
Social equity considerations for management decisions

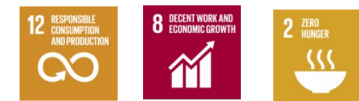


Environment
Oysters provide ecosystem services

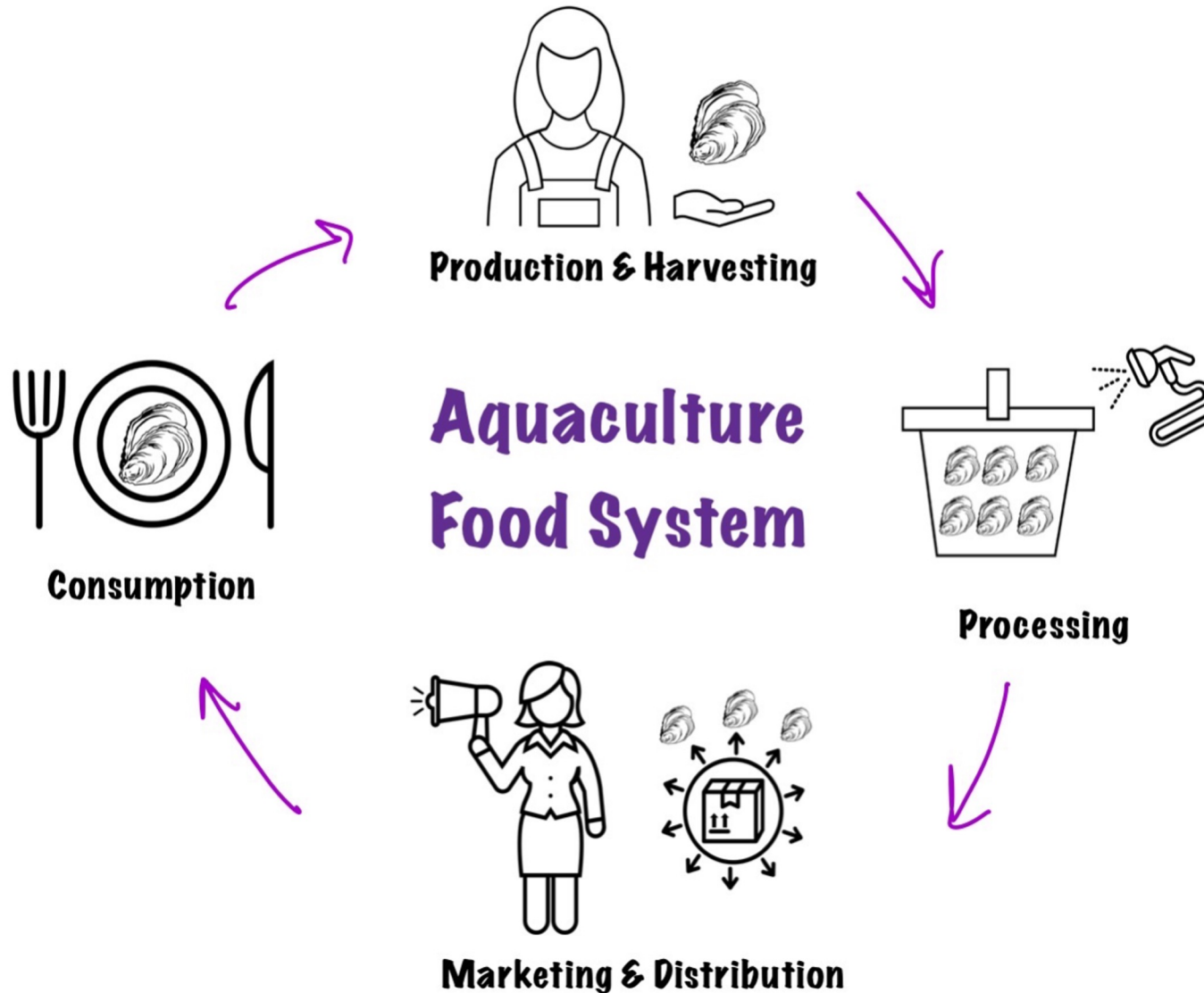


Sustainable Food System

Economic
Coastal economic development



Significance: The Invisible Half



- Globally, women make up 50% of the workforce in the seafood industry
- In US, demographic data are **not** collected by federal or state agencies that manage marine resources

Research Question + Objectives

Learn	Share stories about women's experiences as oyster producers
Analyze	Identify barriers and opportunities for women to work as producers by analyzing the ways in which social networks influence how women build businesses on the water
Apply	Make recommendations for gender integration into aquaculture policy

In what ways do women experience gender dynamics in aquaculture production in Maine and New Hampshire?

Analytical Framework

Institutional Analysis and Development

- Access to Resources
- Governance
- Actors
- Resource system:
 - People, organizations, networks
 - Aquaculture gear
 - Training opportunities
 - Funding opportunities

Johnson et al., 2019; Ostrom, 2009; Ostrom, 2011; Ribot and Peluso, 2003; Ferguson, 2021; Kruijssen et al., 2018

Social-Ecological Systems

- Conflicts between users
- Positions
- Leadership entrepreneurship

Agarwal, 2000; Johnson et al., 2019; Ostrom, 2009; Ostrom, 2011; Prell et al., 2009; Platrik and Taylor, 2006

Social Network

- Information sharing
- Network structure
- Rules and norms
- Self-organizing activity

Agarwal 2000; Johnson et al., 2019; Ostrom, 2009; Ostrom, 2011; Szymkowiak, Rhodes-Reese, 2020

Gender Analysis

- Access and control over resources
- Participation
- Gender norms
- Institutions and policies

Johnson et al., 2019; Ostrom, 2009; Ostrom, 2011; Kruijssen et al. (2018); Lawless et al., (2019); Szymkowiak, Rhodes-Reese (2020)

Research Design + Methodology

Food System Survey

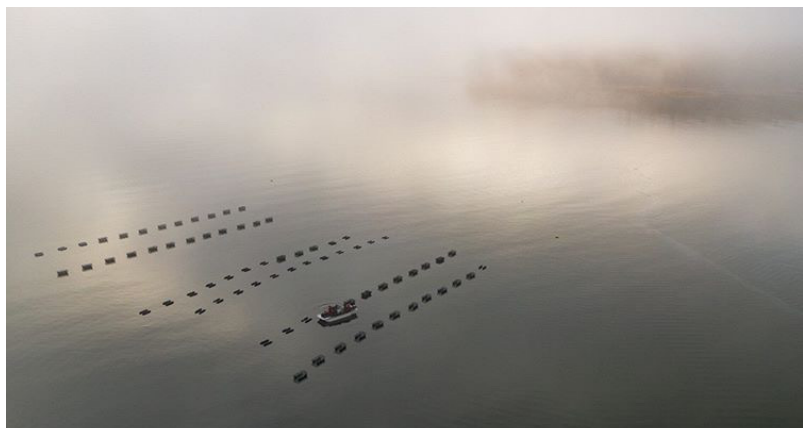
- Response rate: 51% (n= 42)
- Qualtrics via email communication
- Random and purposive sampling:
 - Maine (n=30)
 - New Hampshire (n=12)
- Chi square analysis
- Lease structure analysis

Photovoice Case Study

- 4 women participants
- Maine (n=3), NH (n=1)
- Participatory Action Methodology
 - Photos
 - Narratives
 - Interviews
 - Focus group
 - Public exhibit: website
- Purposive sampling



“Big Sale, Big Mistake”, Alicia Gaiero (2022), Yarmouth, ME

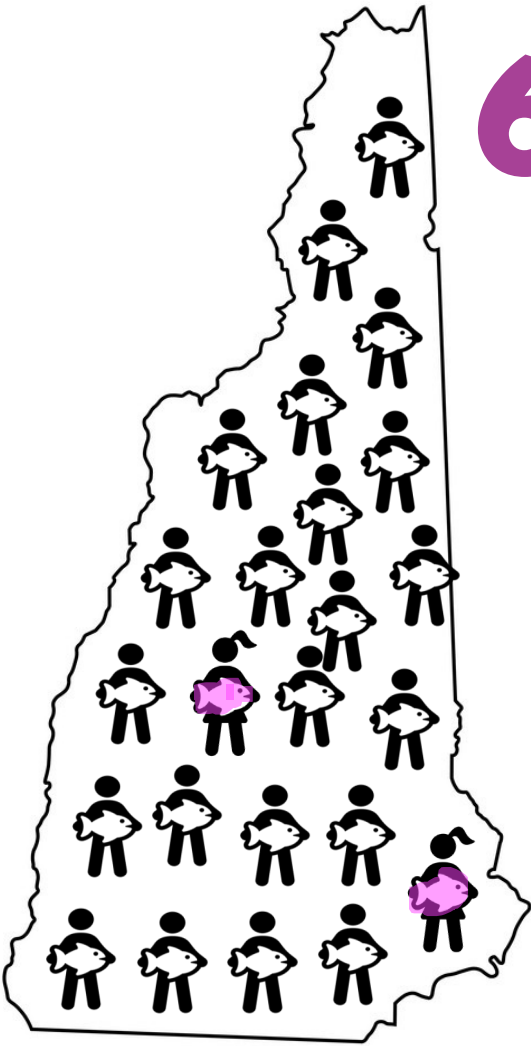


Oyster Aquaculture in Maine and New Hampshire

Aquaculture Lease & License Landscape

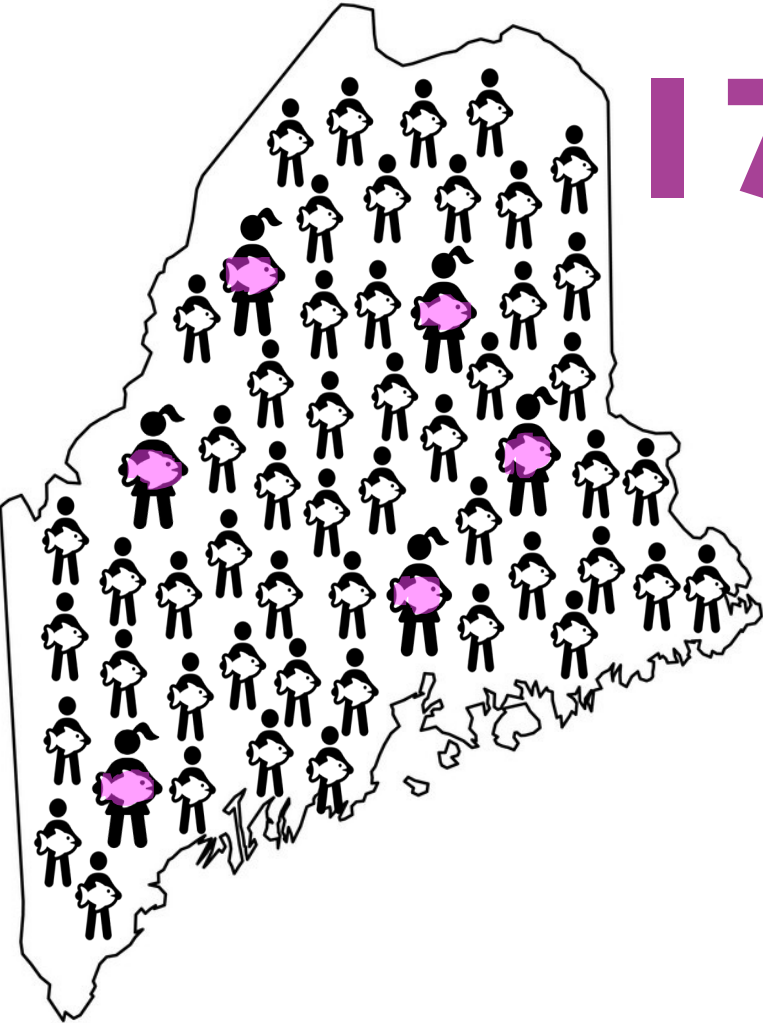
Maine's Tiered Leasing System:

6%



Oyster Aquaculture Licenses = 27
Woman-owned Licenses = 2

17%



Oyster Aquaculture Leases = 71
Woman-owned Leases = 6

Standard Lease

\$500 to apply
Up to 100 acres
20 years
Transferable

Experimental Lease

\$100 to apply
Up to 4 acres
3 years
Non-renewable

Limited Purpose License

\$100 to apply
400sqft
1 year, renewed annually
Required training

Survey Results

- **Gender Identification:**



Women & nonbinary participants (n=13)



Men participants (n=26)

- **Race Identification: 100% White**

- **Average time in the industry: 4-10 years**

- **Primary Income:**



38% 30%

- **Food System Participation:**

- ✓ **Pre-harvest**
- ✓ **Harvest**
- ✓ **Post-Harvest**
- ✓ **Business & Marketing**
- ✓ **Research & Development**



Maine:

- **Leasing system is a barrier**
- **NIMBY**
- **Farm access**



New Hampshire:

- **Low level of state agency support**
- **NIMBY & oyster poaching**
- **Farm access, processing facilities**

Survey Results: Gender Discrimination

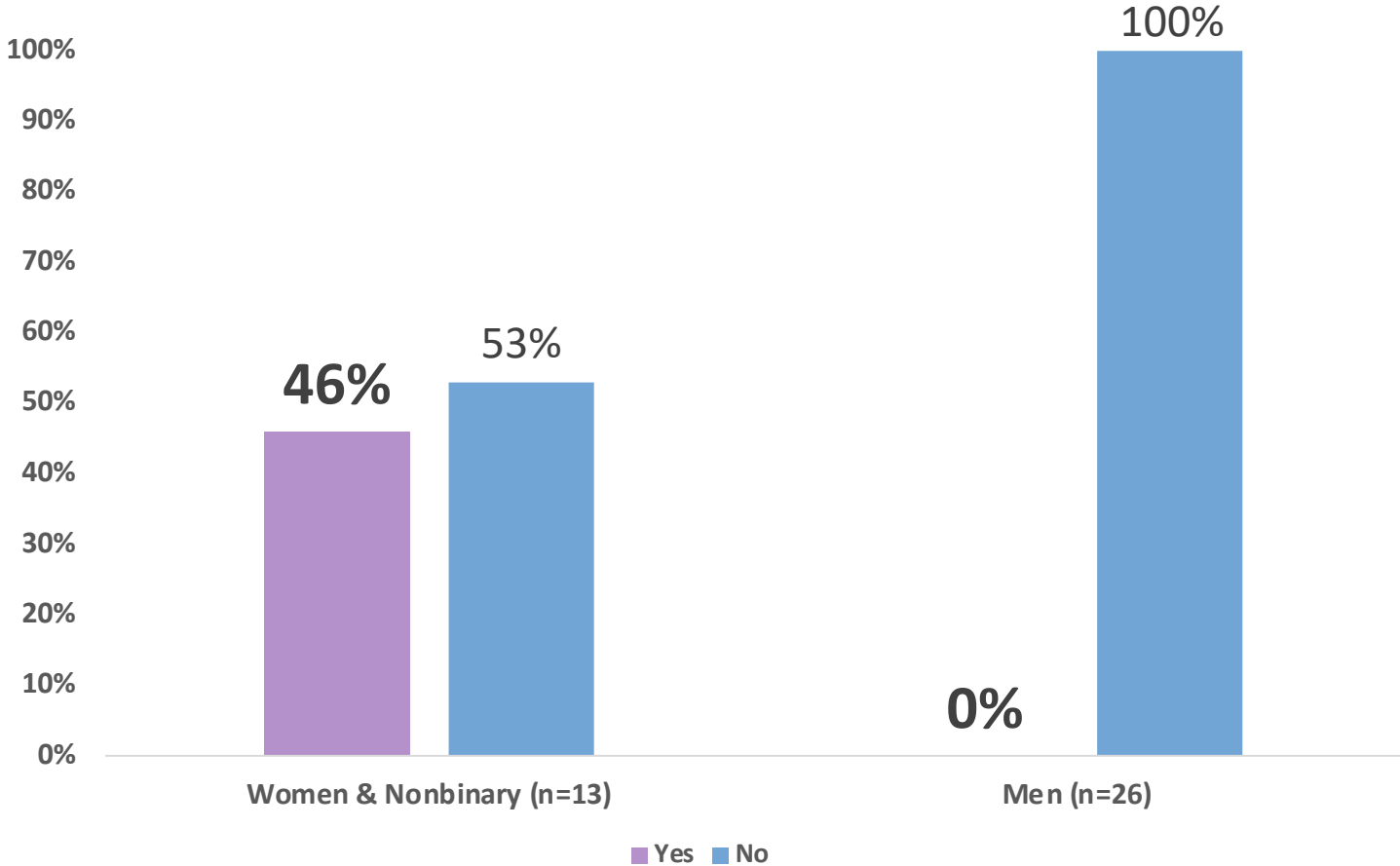


Figure I. Percent of survey respondents reporting differential treatment at work in the oyster aquaculture industry in ME and NH by gender ($p < 0.001$).

Survey Results: People, Organizations, & Networks

Resource

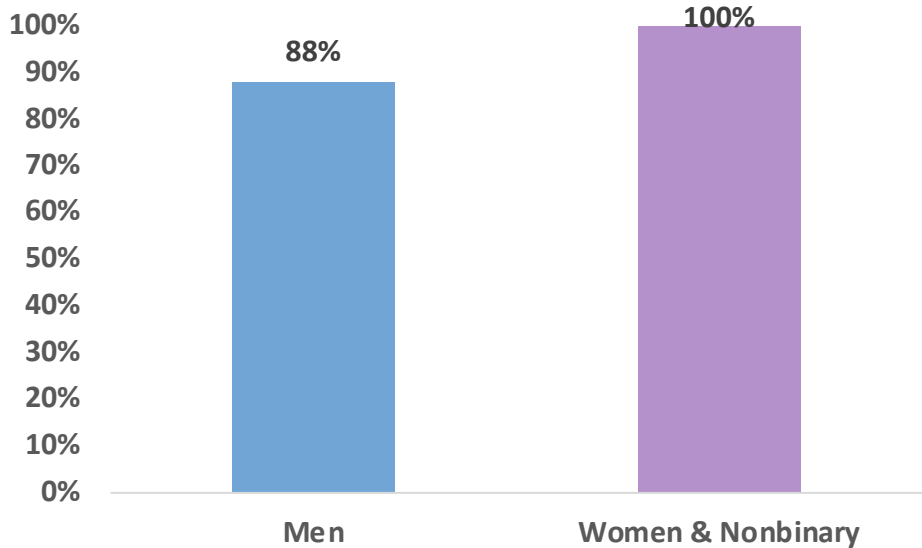


Figure 2. Percent of survey respondents that identified people, organizations and networks as a resource for their oyster aquaculture business in ME and NH by gender (p=0.44).

Barrier

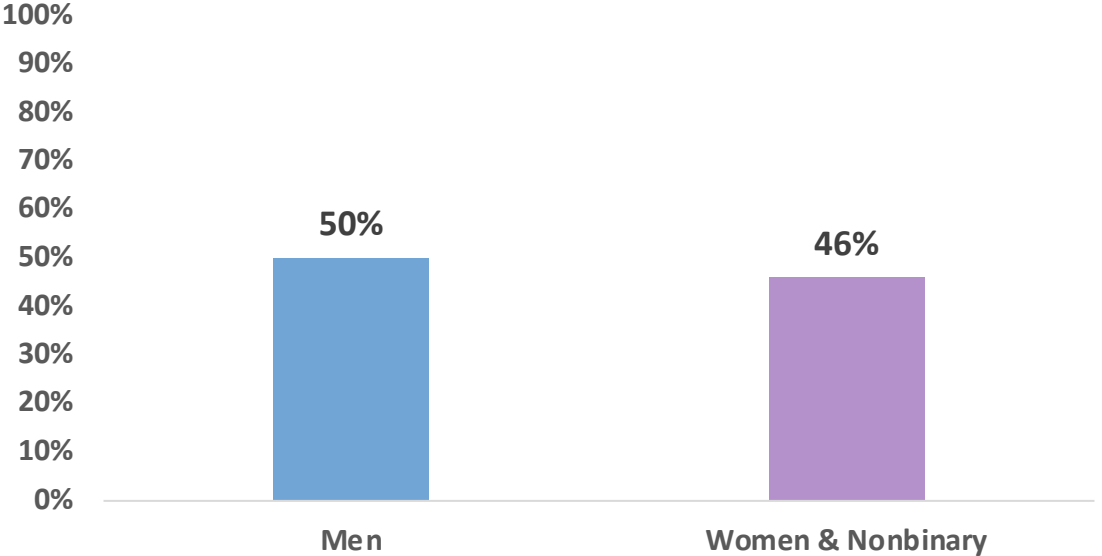
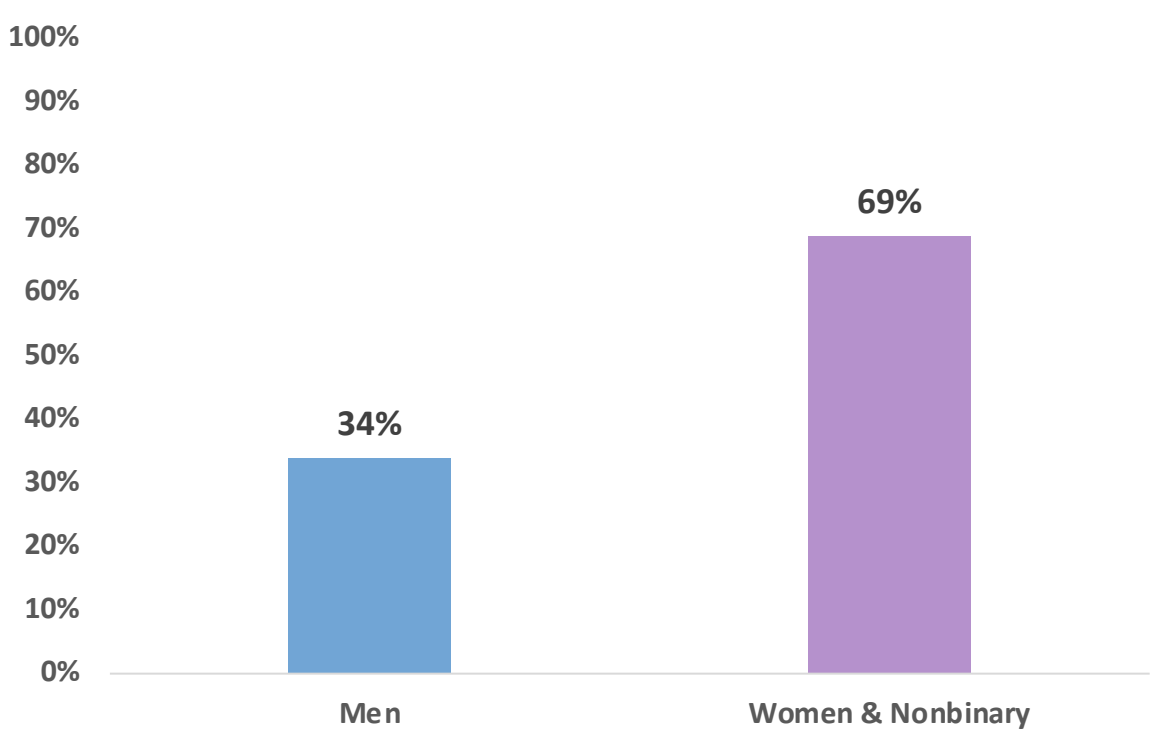


Figure 3. Percent of survey respondents that identified people, organizations, and networks as a barrier for their oyster aquaculture business in ME and NH by gender (p=0.5).

Survey Results: Funding Opportunities

Resource



Barrier

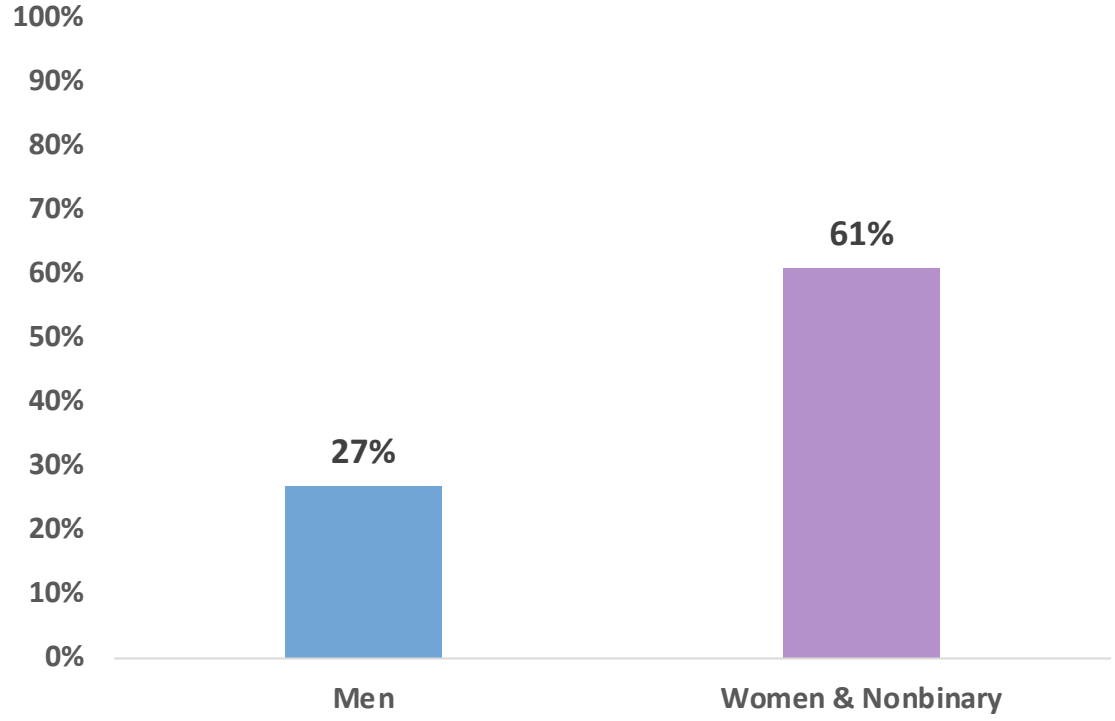


Figure 4. Percent of survey respondents that identified funding opportunities as a resource for their oyster aquaculture business. (p=0.04).

Figure 5. Percent of survey respondents that identified funding opportunities as a barrier for their oyster aquaculture business. (p=0.07).

Survey Results: Gear

Resource

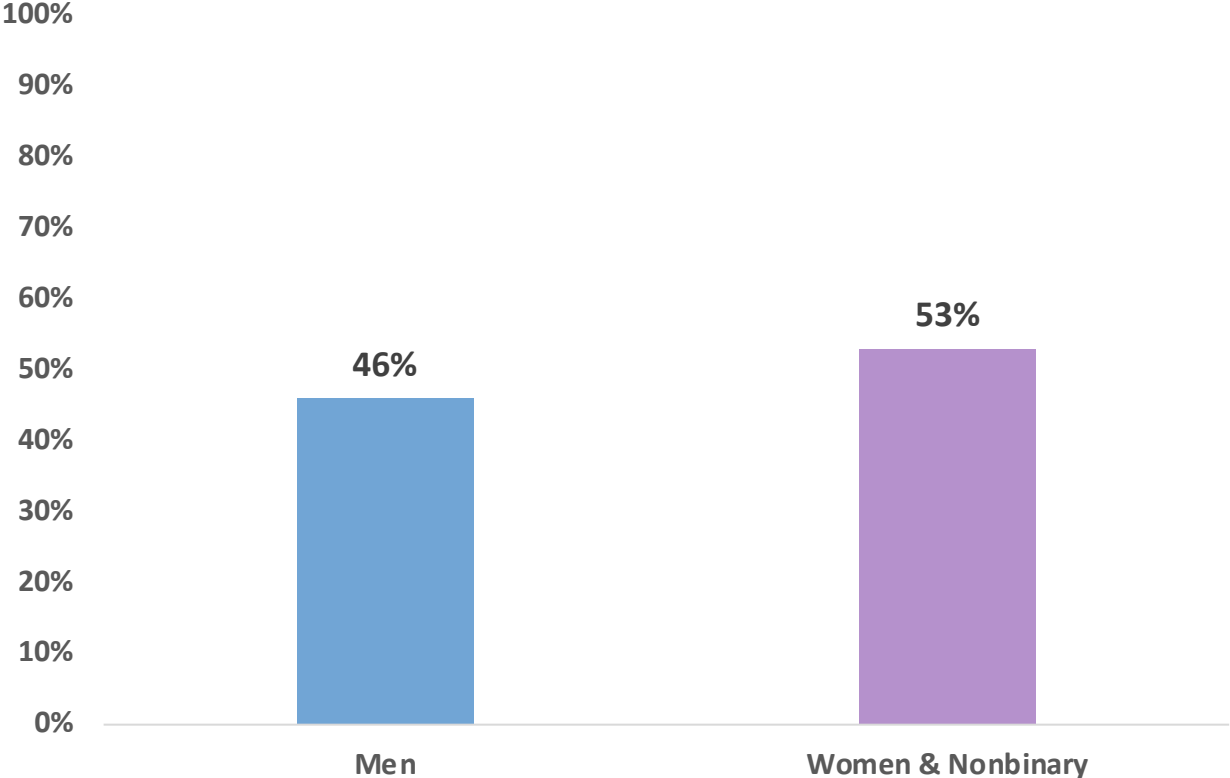


Figure 6. Percent of survey respondents that identified gear as a resource for their oyster aquaculture business. (p=0.48).

Barrier

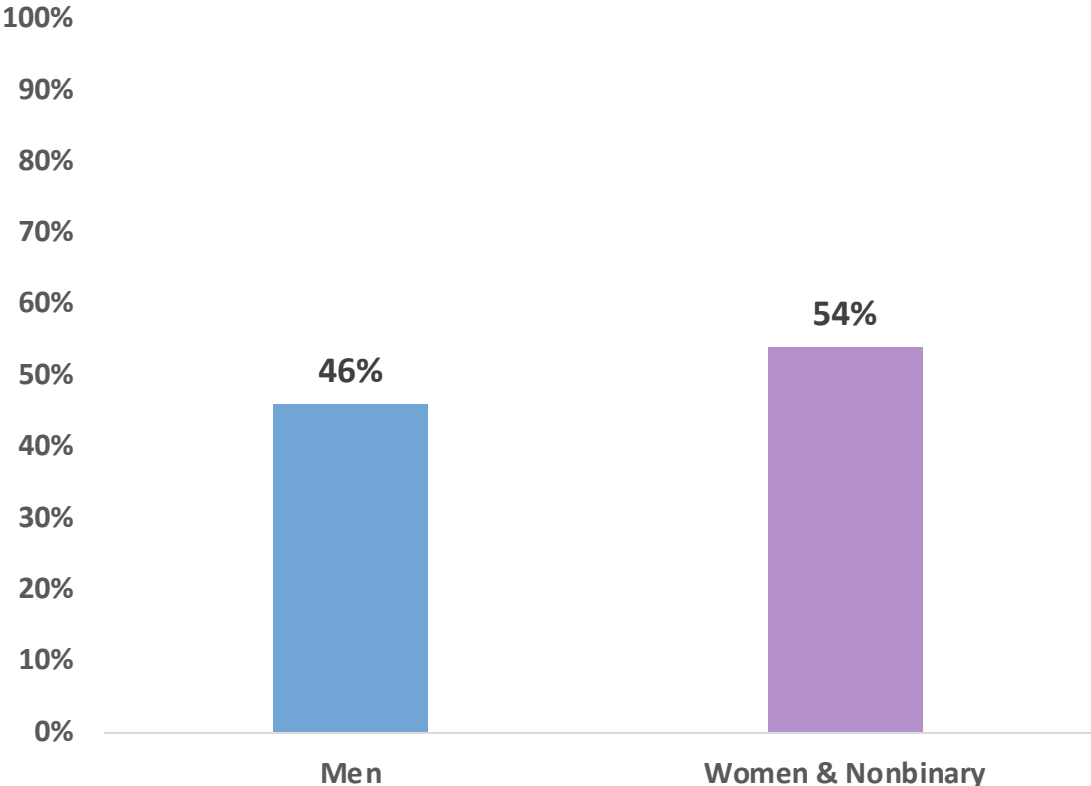


Figure 7. Percent of survey respondents that identified gear as a barrier for their oyster aquaculture business. (p=0.5).

Survey Results: Training Opportunities

Resource

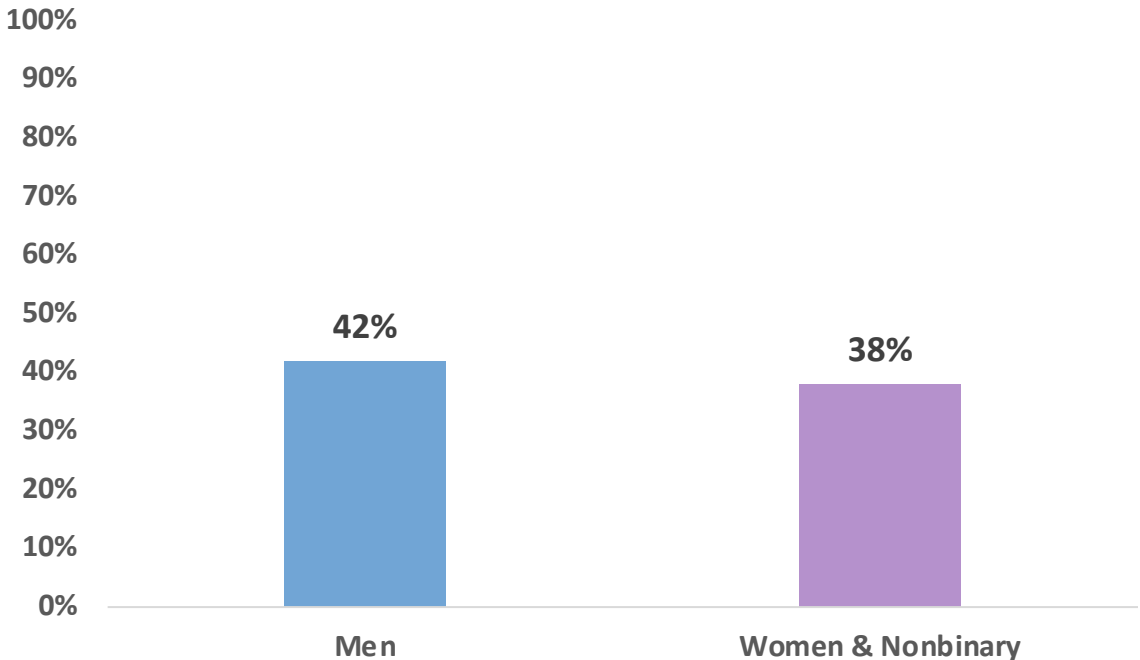


Figure 8. Percent of survey respondents that identified training opportunities as a resource for their oyster aquaculture business. (p=0.4).

Barrier

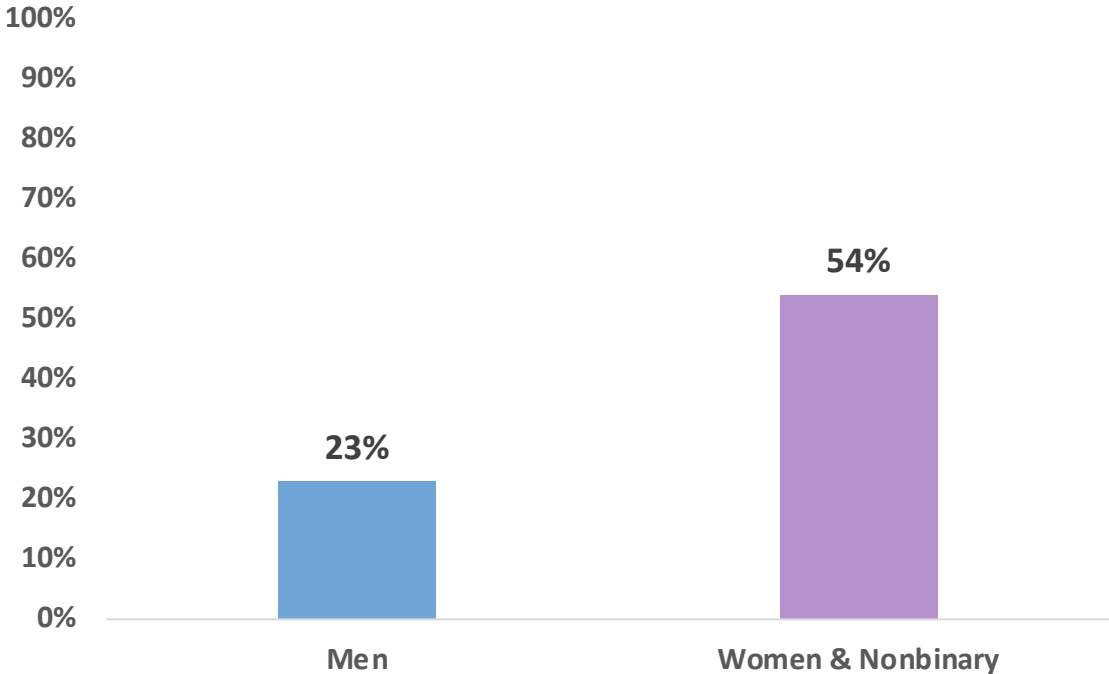


Figure 9. Percent of survey respondents that identified training opportunities as a barrier for their oyster aquaculture business. (p=0.06).

Survey Results: Social Networks

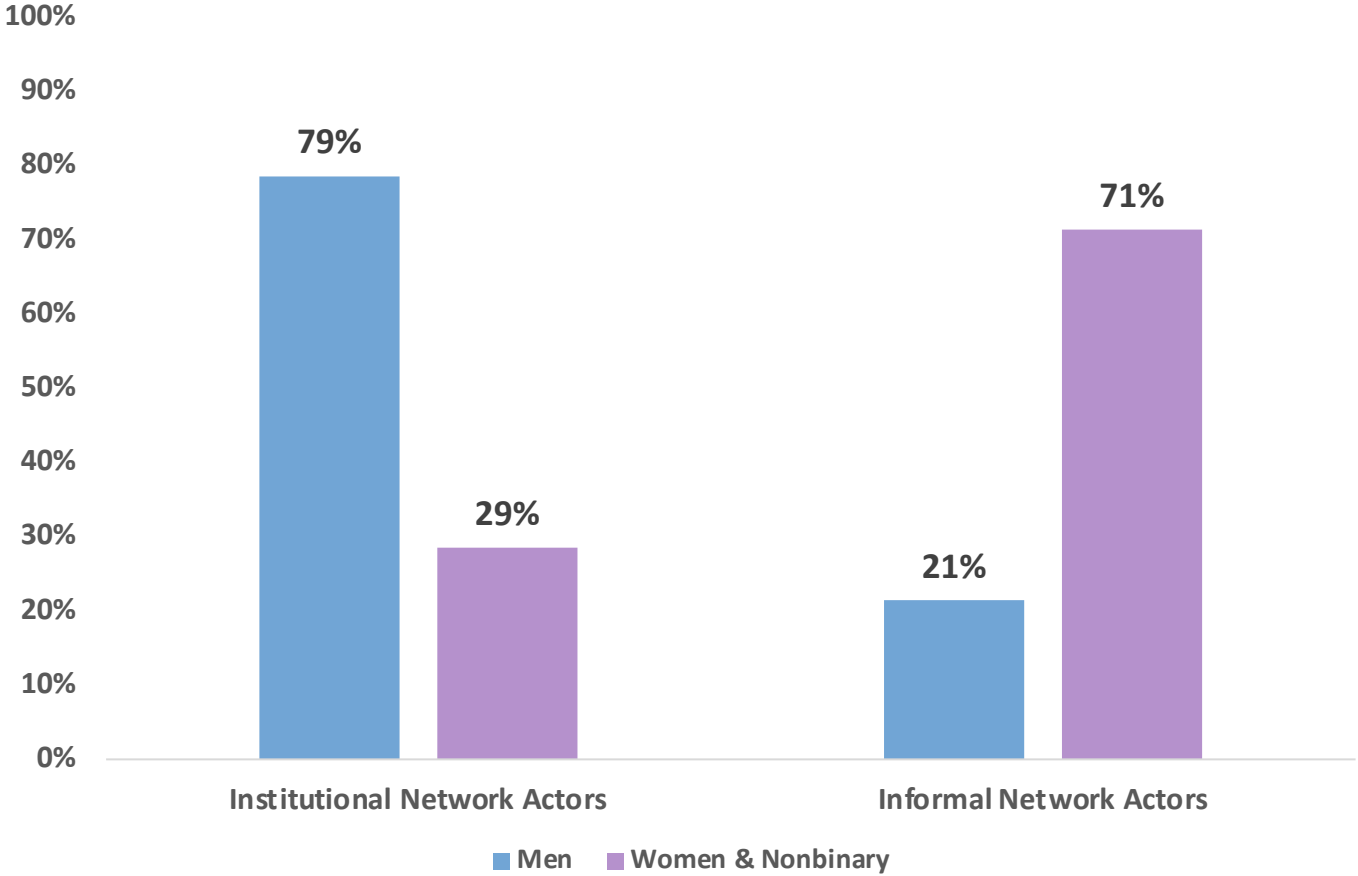
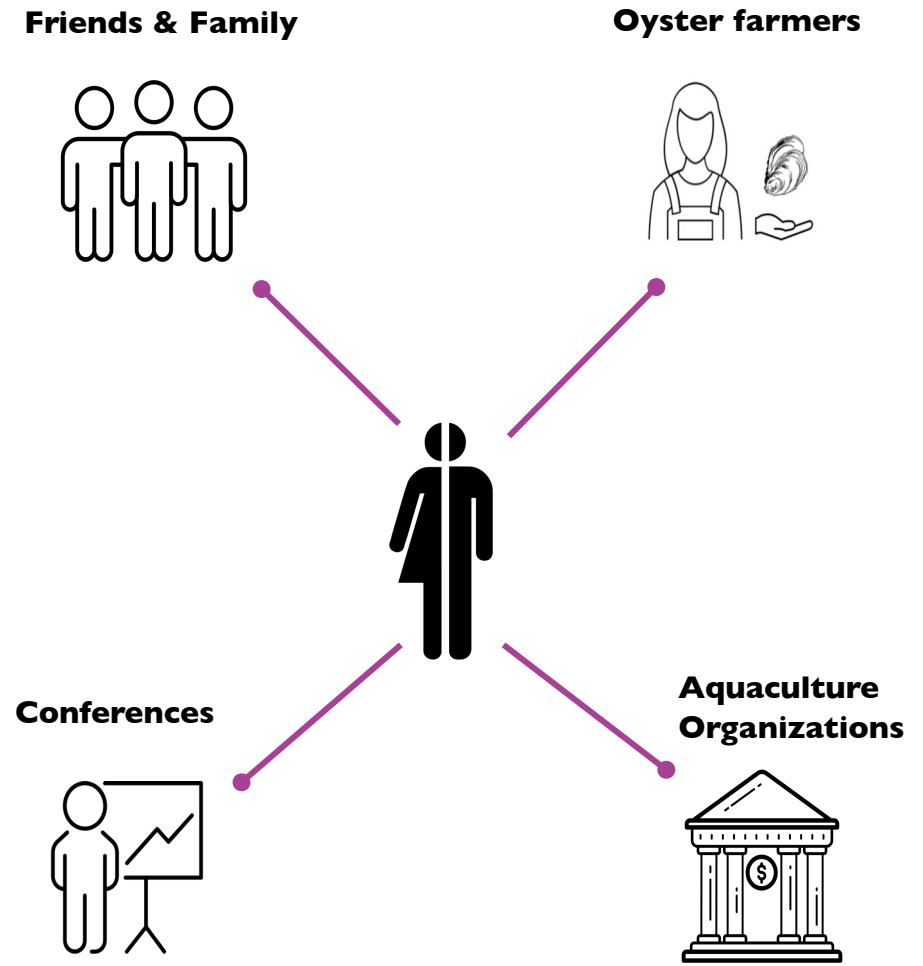
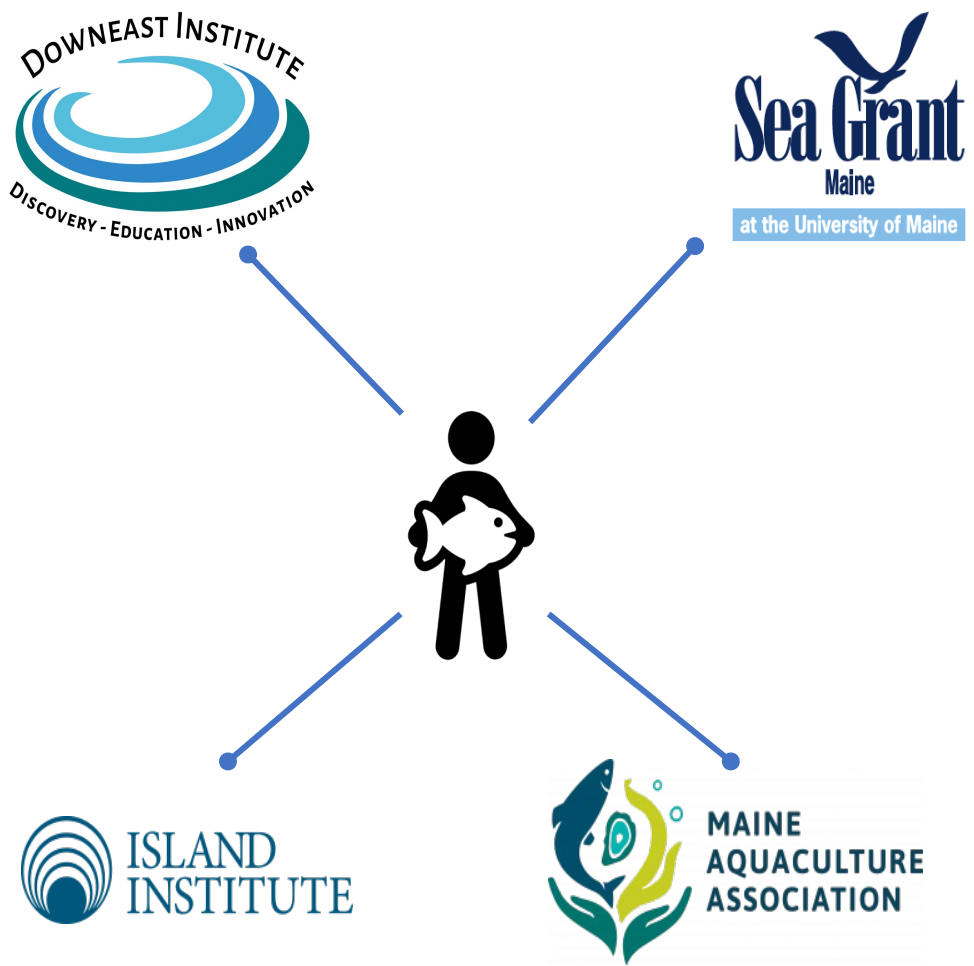


Figure 10. Percent of qualitative survey respondents by gender that identified social network actors

Survey Results: Social Network Actors



Photovoice Results: Themes



Gender Norms



Training Opportunities



Gear



Social Network

Participant Identification Of Gender Norms

Gender Norms:

Childcare responsibilities

Perception of the maritime industry as male dominated

Differential treatment as a woman

Outcomes:

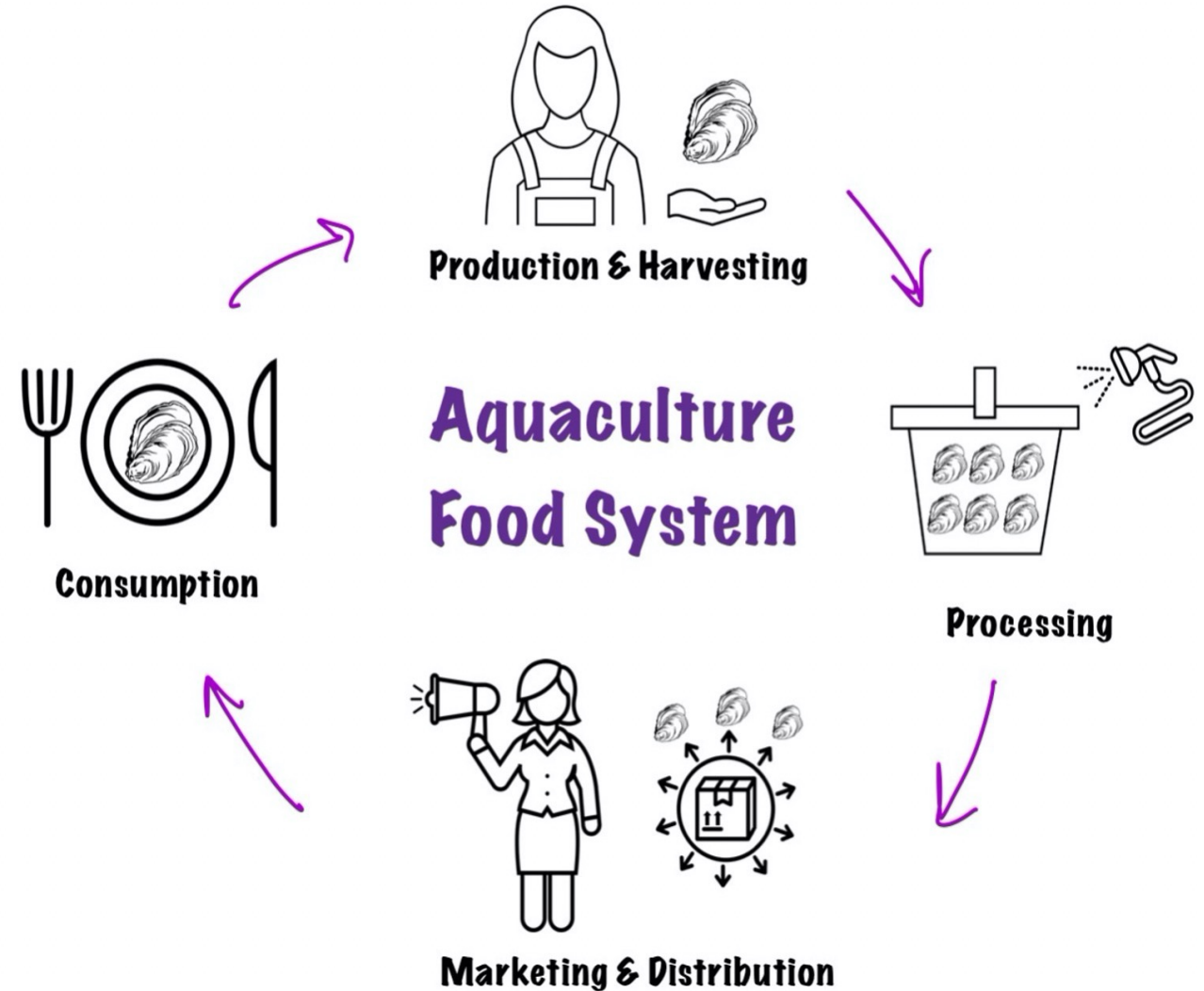
Participant owns and operates oyster farm to tailor schedule around childcare duties

Women are often overlooked or not recognized as stakeholders of the aquaculture industry

Sexual harrassment in the workplace

Overcoming Gender Norms

“I surround myself with women in general, and I wonder if part of it is because I want to make sure people know it's my farm.”



Barrier: Gear + Equipment



“Most boats and equipment have not been designed or built for us. It is hard to work at a table that requires you to have your hands above your shoulders all day. It’s hard to stand out by being the only one that doesn’t fit. These are things we are working to change.”

Solution: Hiring Women Staff



“Sea farming is physically demanding work. The limits of my small frame can be very evident in the course of day on the water. Finding innovative ways to maneuver and learning to work collaboratively is a big part of our daily life. I have found working with women particularly rewarding because we have an aptitude for finding unconventional ways to get things done and we expect to help each other by towing the same line, pulling the same cage.”

Barrier: Training Opportunities

“The Top Gun aquaculture program, I was the only woman participant...I felt really, really out of place, because the way I conduct business is so different from the way that they wanted me to conduct business and I just felt like I'm not doing things right if I'm not scaling up and fitting in this mold of what I feel like a lot of people want to see in me in aquaculture.”

Solution: Mentorship From Women Farmers



“Here I am with another oyster farmer, doing some reconnaissance for her upcoming standard lease hearing. From the air, we look so small, which is odd because that’s not how I feel when I’m out there. Of all the people I work with in the area, her and my friend Emily are the easiest to get along with and the most inspiring and relatable. They are both supportive, tenacious, and independent.”

- Amanda Moeser, Lanes Island Oyster

Overcoming Barriers: Alternative Social Networks

“I'm more likely to call up someone that I know or to respond to someone that seems like smaller, just more comfortable...like another farmer that I know as opposed to trying to get through an association that might be a bit more intimidating”



“Shuck-Em” Amanda Moeser, 2022

Overcoming Barriers with Alternative Social Networks

Gender Norms → dismantle norms by cultivating a social network made of other women

Training → engage with other women farmers to learn different growing methods and business designs for their gender specific needs

Gear → work with other women farmers to develop new (safer) harvesting techniques

Access To Capital → use informal social network actors for free farm labor



No demographic data collection



Gender norms of the fisheries and aquaculture sector



Gender-specific barriers in gear, training, and funding



Women rely on alternative social networks to fill in institutional gaps



Conclusion

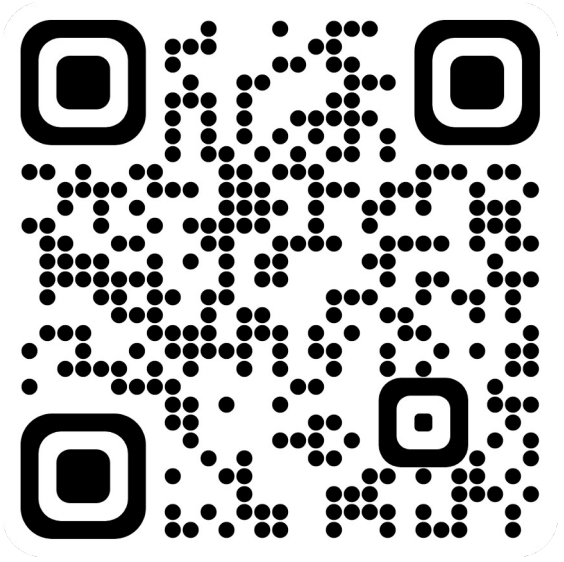
- The industry maintains strong gender norms and does not recognize the contributions of women's participation due to lack of demographic data collection
- Participants in this research experience gender-based barriers in oyster farming gear, training, and funding opportunities provided by aquaculture organizations
- To adapt to gender norms and barriers, women participants engage in alternative networks, primarily made up of women

Policy Recommendations

1. Invest in the network
2. Offer women-specific training and funding programs
3. Collect demographic data



Photovoice Website



Read Their Stories



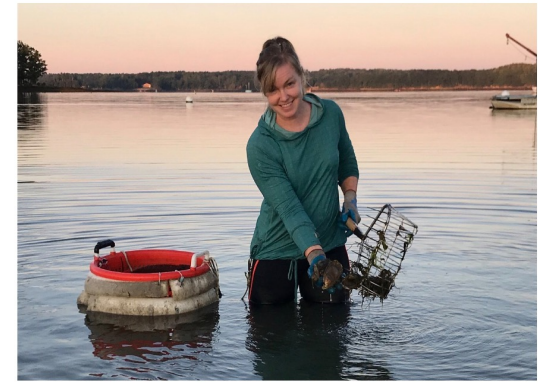
Alicia



Joanna



Amanda



Laura

Next Steps



Continue sharing research with NH Sea Grant and state agency staff



Publish thesis and journal article



2023 Knauss Marine Policy Fellowship:
Ocean Acidification Program



Continue UNH NRES PhD Program

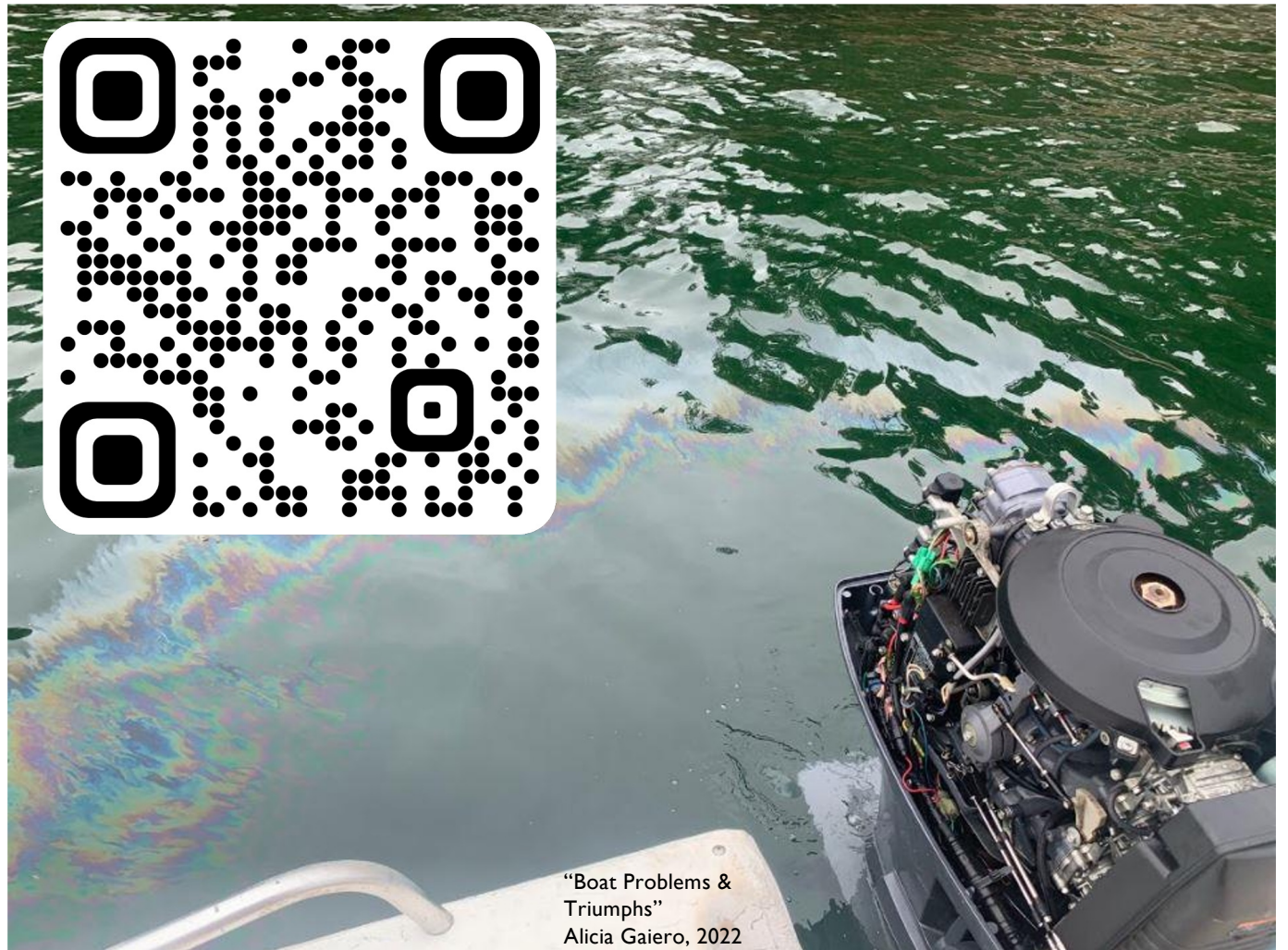


"Erosion" Laura Brown, 2022

Questions?



“Joanna and Iona
Near the Tiller”
Joanna Fogg, 2022



“Boat Problems &
Triumphs”
Alicia Gaiero, 2022

Special thanks to my EPPS lab members and research participants!

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