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Measuring impacts of marine aquaculture partnerships

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Financing of startup operations and research still needed

Partnerships that link government, researchers, the aquaculture industry, environmental groups and other parties are working to address issues that face marine aquaculture.

To overcome barriers in the expansion of marine aquaculture in the United States, partnerships have emerged that bring together various and often diverse interests associated with the development of the aquaculture industry. These partnerships typically include participants from government, the aquaculture industry, environmental groups, research or scientific organizations, commercial fisheries, land owners and other parties.

The authors performed a survey of partnership participants to understand their perceptions of problems associated with the expansion of U.S. aquaculture, as well as the impacts of partnerships on addressing these problems.

Methods

From 2009 through 2010, an online survey was administered to current and former participants in aquaculture partnerships as well as individuals who closely followed the work of the partnerships. In all, 198 individuals received e-mail invitations to participate in the online survey, and 123 responded, yielding an overall response rate of 62 percent.

The following partnerships were studied:

- California Aquaculture Development Committee
- Florida Aquaculture Review Council
- Florida Net Pen Working Group
- Maine Aquaculture Advisory Council
- Maine Fish Health Technical Committee
- Maryland Aquaculture Coordinating Council

- New Jersey Aquaculture Advisory Council
- Pacific Aquaculture Caucus
- Rhode Island Aquaculture Working Group
- Washington State Shellfish Aquaculture Regulatory Committee.

Results

To capture perceptions of marine aquaculture-related problems, respondents were asked to rate the seriousness of specific problems associated with the expansion of the U.S. marine aquaculture industry using a scale from 1 to 5, with 1 indicating a topic was “not serious at all” and 5 noting a “very serious” problem.

Table 1 shows the mean and median averages of all responses ranked from most serious to least serious. Respondents identified the most serious problems associated with marine aquaculture as the dissemination of misinformation, lack of adequate research financing, negative public perceptions, insufficient permitting and leasing policies, and lack of financing for facility startups. The least serious issues included the threat of disease outbreaks, water pollution from aquaculture facilities and threats to the genetic purity of wild stocks.

Calanni, Perceived problems, Table 1

	Mean	Median
1. Dissemination of misinformation about marine aquaculture	3.9	4
2. Lack of adequate financing for research	3.6	4
3. Negative public perceptions	3.5	4
4. Insufficient policies for granting long-term leases, licenses and/or permits for aquaculture facilities	3.4	4
5. Lack of adequate financing for starting up operations	3.4	3
6. Inappropriate regulations	3.3	3
7. Distrust among stakeholders	3.1	3
8. Lack of good science to make sound decisions regarding siting and facility operations	2.6	2
9. Visual pollution from coastal aquaculture facilities	2.4	2
10. Lack of ecologically sustainable feed supplies	2.3	2
11. Negative impacts on the socio-economic health of local fishing-dependent communities	2.1	2
12. Threats to the genetic purity of wild fish stocks	2.0	2
13. Water pollution	1.9	2
14. Disease outbreaks in wild populations	1.9	2

Scale: 1 = Not serious at all, 5 = Very serious

Table 1. Perceived problems related to marine aquaculture.

To address the effectiveness of marine aquaculture partnerships, respondents were asked to indicate whether, for each problem in Table 1, their partnerships had any impacts. The rating scale went from minus-2 for “made the issue much worse” to 2, indicating “made the issue much better.” Table 2 shows the mean scores of all respondents, ordered from biggest to smallest impacts.

As Table 2 indicates, the partnerships were perceived to have had some overall positive impacts on most issues associated with the marine aquaculture industry in the United States. The areas of highest positive impact included dissemination of misinformation about marine aquaculture, insufficient permitting and leasing policies, the lack of good science for decision-making purposes and distrust among stakeholders. The areas where partnerships were perceived to have had the least impact included the financing of startup operations and lack of ecologically sustainable supplies of aquaculture feed.

Calanni, Partnership impacts, Table 2

	Mean	Median
1. Dissemination of misinformation about marine aquaculture	0.8	1
2. Insufficient policies for granting long-term leases, licenses and/or permits for aquaculture facilities	0.7	1
3. Lack of good science to make sound decisions regarding siting and facility operations	0.7	1
4. Distrust among stakeholders	0.7	1
5. Inappropriate regulations	0.6	1
6. Negative public perceptions	0.6	1
7. Disease outbreaks in wild populations	0.5	0
8. Water pollution	0.4	0
9. Visual pollution from coastal aquaculture facilities	0.3	0
10. Negative impacts on the socio-economic health of local fishing-dependent communities	0.3	0
11. Threats to the genetic purity of wild fish stocks	0.3	0
12. Lack of adequate financing for research	0.3	0
13. Lack of ecologically sustainable feed supplies	0.2	0
14. Lack of adequate financing for starting up operations	0.1	0

Scale: -2 = Made issue much worse, 2 = Made issue much better

Table 2. Partnership impacts on problems related to marine aquaculture.

Perspectives

The marine aquaculture partnerships studied in this project indicated having positive impacts on some of the most important problems facing the industry, such as dissemination of misinformation as well as insufficient policies regarding leases, licenses and permits.

Partnership participants reported little to no impacts on other issues, such as financing of startup operations and research. Given the results are perceptions, among the next steps is to validate these impacts with non-perceptual measures and develop strategies for impacting other problems.

Editor's Note: Additional findings from the study are available on the Aquaculture Partnerships Project website at www.ucdenver.edu/academics/colleges/SPA/Buechner Institute/Centers/WOPPR/Pages/ AquaculturePartnershipsProject.aspx.

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