

Interactions of Shellfish Aquaculture and the Environment: Focus on the Northeastern United States

Northeast Aquaculture Extension Network – USDA NRAC

Host: Gregg Rivara, Cornell Cooperative Extension

Evaluation Summary

Accomplishments/Impact

A fact sheet, “Environmental Effects of Shellfish Aquaculture in the Northeast” authored by Michael Rice of the University of Rhode Island was developed in the previous (2006-2008) NRAC Extension project and fostered a great deal of discussion in the region. It was recognized that while there existed a great deal of science on this subject, the science had not been communicated to industry. Therefore, the Extension Network offered a seminar and Q&A session on this topic.

The purpose of this workshop was to increase participant knowledge with respect to the science of environmental effects of shellfish culture. We thought it was important that there was a basic level of understanding so that industry members, Extension and researchers could communicate about the implications of the current research and the research gaps. While the majority of participants felt that they could answer simple questions related to this topic, they did not feel the same about answering more complex questions until after participating in our workshop.

Following this workshop, an integrated proposal on the subject was submitted to and funded by USDA NRAC. From that project, a bibliography on the environmental effects of shellfish aquaculture was assembled by Sandra Shumway and Kari Heinonen of the University of Connecticut and Tessa Getchis and Anoushka Concepcion of Connecticut Sea Grant. This was shared with the NRAC office and is to be placed on their website.

Demographics

Seventy-four professionals attended this workshop, including five speakers. Thirty-five evaluations were filled out, a 50% return rate. The same evaluation was used for both speakers and attendees and the following summary reflects the results of the evaluations that were filled out and returned. From here on out both the speakers and attendees will be referred to as attendees.

Nearly all of the attendees were from the northeast including Maryland. Majority of the attendees were from research and industry (53% combined). About 35% included shellfish commissions, students, restoration volunteers, advocates, and retired educators.

Knowledge base

Nearly all of the attendees (86%) had heard of the Northeast Regional Aquaculture Center. Additionally, about half of the attendees were either extremely familiar (46%) or very familiar (11%) with NRAC’s role in aquaculture.

Before attending this workshop, 90% of attendees agreed that they felt comfortable answering simple questions related to the environmental effects of shellfish aquaculture, with over half (60%) strongly agreeing. Following the workshop, over 90% agreed strongly (70%) or somewhat (21%) that they felt comfortable answering these simple questions. The remaining 11% could already answer these simple questions before attending this workshop.

Creating a Balance: Understanding the Benefits and Risks of Seafood Consumption

Northeast Aquaculture Extension Network – USDA NRAC

Host: Doris Hicks, University of Delaware

Evaluation Summary

Accomplishments/Impacts

The Dietary Guidelines for Americans (DGA), created jointly by the U.S. Department of Agriculture (USDA) and US Department of Health and Human Services, establishes healthy eating and physical activity patterns. The Guidelines encourage people to make informed food choices to attain and maintain healthy weight, reduce their risk of chronic disease, and promote overall health. By law (Public Law 101-445, Title III, 7 U.S.C. 5301 et seq.), Dietary Guidelines for Americans is reviewed, updated if necessary, and published every 5 years.

The purpose of this workshop was to improve participant knowledge in this area and provide resources those individuals could use to educate stakeholders in their respective states.

As a result of this effort, science-based information on the benefits and risks of seafood consumption was shared and new knowledge gained among participants. New professional contacts were made leading to the network of Extension professionals being sought out by the Registered Dietitian of the National Fisheries Institute, to provide expert comment and clarification to the U.S. Dietary Guidelines Advisory Committee regarding the safety of consuming aquaculture products. These comments were documented through the federal Public Comment process. The 2010 Dietary Guidelines for Americans now includes aquacultured species such as catfish, salmon, trout, clams, mussels, oysters and shrimp, alongside other recommended seafood protein choices.

In addition, two Extension staff began offering train-the-trainer courses using the *Seafood at its Best* curriculum, design to encourage specific audiences to consumer more seafood.

Survey Response Rate

Twenty three professionals attended this workshop, including seven speakers. 16 evaluations were filled out, a 70% return rate. The same evaluation was used for both speakers and attendees and the following summary reflects the results of the evaluations that were filled out and returned. From here on out both the speakers and attendees will be referred to as attendees.

Demographics

Nearly all attendees (93%) were from the northeast, including westward to Pennsylvania and southward to Maryland. Idaho (7%) was the only state represented out of the region. Almost all attendees (88%) were in the field of extension. Of these extension specialists, 19% were split with other professions--two thirds were split between extension and research; the remaining third were split between extension, research, and education. Administration professionals and industry representatives represented the occupations with the least representation at only six percent

Knowledge base

All of the attendees had heard of the Northeast Regional Aquaculture Center. Additionally, all attendees were either extremely familiar (94%) or very familiar (6%) with NRAC's role in aquaculture.

Before attending this workshop, 94% of the attendees agreed that they felt comfortable answering simple questions related to the benefits and risks of seafood consumption, with over half (54%) strongly

agreeing. Following the workshop, 81% strongly agreed that they could answer the same simple questions. The remaining 19% could answer these simple questions before attending this workshop.

Before attending this workshop 94% of the attendees either somewhat agreed (75%) or neither agreed or disagreed (19%) that they could answer complex questions related to the benefits and risks of seafood consumption. After the workshop, 94% of the attendees agreed strongly (31%) or somewhat (63%) that they could answer these complex questions. The remaining six percent could already answer these complex questions before attending the workshop.

Over half (54%) of the attendees had never attended a workshop or conference on this topic before. Of those that had, these were the workshops that they attended (n=6):

- 33% NOAA workshop in Washington, D.C., 2006
- 33% University of New Hampshire workshop, 2008
- 17% Seafood and Health, 2005
- 17% Session at Aquaculture America, 2007
- 17% Seafood Sense workshops (several)
- 17% Rutgers University workshop
- 17% Northeast Farmed Fish Health Management Workshop invited speakers (Charles Santerre, Purdue; Cathy Roheim, URI; Alex Trent, Salmon of the Americas)

Referring stakeholders

The ability to refer stakeholders to a specialist knowledgeable on the benefits and risks of seafood consumptions before attending this workshop was agreed upon by nearly all of the attendees (94%), with half strongly agreeing. Only six percent of the attendees neither agreed nor disagreed that they could refer stakeholders to a specialist. After attending this workshop, the same number still did not agree nor disagree that they could refer stakeholders. However, 69% strongly agreed that they could and 25% revealed that they could easily refer stakeholders to a specialist knowledgeable on the benefits and risks of seafood consumption before attending this workshop.

Accessing web resources

Seventy-five percent of the attendees agreed--44% strongly and 31% somewhat--that they could easily access web-based information related to the benefits and risks of seafood consumption before attending this workshop. The remaining quarter of the attendees either disagreed somewhat (6%) or neither agreed nor disagreed (19%). After the workshop, all attendees that could not easily access web-based information related to the benefits and risks of seafood consumption agreed strongly (63%) or somewhat (19%) that they could now. Nineteen percent of the attendees could already perform this task before attending the workshop.

The next step...

In response to being able to conduct a "train-the-trainer" workshop for other outreach professionals on the benefits and risks of seafood consumption before this workshop, only 37% of the attendees agreed that they could, and only 6% strongly agreed. Forty four percent disagreed (25% somewhat disagreed and 19% strongly disagreed) and 13% could neither agree nor disagree that they could provide such a workshop before attending this one. As a result of this workshop, 19% still could not agree nor disagree that they could conduct a "train-the-trainer" workshop for other outreach professionals on the benefits and risks of seafood consumption. However, the remaining 81% agreed that they could (25% strongly agreed and 56% somewhat agreed). No attendees disagreed that they could perform such a workshop after attending this one.

Workshop Experience

All attendees agreed that the overall program was good, and most (75%) strongly agreed. In addition, all attendees agreed, with 69% strongly agreeing, that they had ample opportunities to interact with other participants and speakers. Some attendees (13%) felt that the workshop was too long. However, the rest felt that it was an appropriate length. In addition, some attendees (19%) felt that the individual presentations were too long. But again, the majority felt that they were of an appropriate length. Most of the attendees (82%) agreed that the workshop was announced far enough in advance, but 13% somewhat disagreed and 6% did not find the question applicable to them. The value of the workshop being worth the cost of registration was mostly agreed upon (88%). The remaining 12 percent either did not find this question applicable or could neither agree nor disagree. It is most likely that these last responses came from presenters who did not have to pay for the workshop.

All of the attendees agreed that they would recommend this workshop to their peers, with 81% strongly agreeing that they would do so. When asked if they would consider attending this type of workshop in the future, 82% agreed that they would (69% strongly agreed, 13% somewhat agreed). Six percent strongly disagreed that they would not attend a similar workshop, and the remaining 12% were not sure or could neither agree nor disagree that they would consider attending this type of workshop again in the future.

Other topics of interest/ follow up

Most of the additional topics that attendees would have liked to see covered were health related. Concern for seafood allergies was voiced, both generically and also toward crab- or clam-specific allergies. More in-depth nutritional information was also desired. Requests included a discussion about dosage of Omega-3 supplements in typical diet and more information about best companion nutrients for assimilation of Omega-3's. In addition, a breakdown of the term "seafood" into finfish, crustaceans, bivalve mollusks, etc. in regard to their risks/benefits and nutritional information was desired. More information on seafood preparation was also requested.

Seafood safety topics were also wished for, including HACCP of shellfish, COOL, and issues with foreign seafood safety compliance. Other topics that attendees would have like to see covered were post harvest processing, import issues, and world trends. Finally, a suggestion was made to hold a similar workshop with a focus on environmental impacts of aquaculture

Additional comments

- Lori did good setup. Should have been allocated bit more time as have stayed within given period to keep on time. NFI - good presentation. NOAA - not great. Gary - best. Good job on developing new materials. Beutel - not sure it fit well with topic.
- On some of my comments I listed answers as 'somewhat agree' with respect to being able to access information and provide answers. This is not a reflection of a shortcoming in the workshop, but more like a recognition of the complexity of the issue. This was a great program.
- I'm sorry that I missed some of the workshop in order to participate in mandatory training related to my role with the NACE field trips the following day.
- The structuring of the program in terms of speaker order- i.e. logical flow of topics was excellent
- Thanks for the CD - great resource! Great agenda! Learned a lot more about wild seafood and shellfish. Can "train the trainer" better now. Made more contacts.
- Excellent collection of topics/ presenters
- Know more specialists knowledgeable on the benefits and risks of seafood consumption. Know better web-based information related to the benefits and risks of seafood consumption.
- Would not consider attending this type of workshop (seafood safety) again unless it was about suggested/other topics.
- Good presentations as usual. Some more time for discussion would be nice.

- Could have been trimmed in time. Some repetitive. Overall, reasonable workshop with useful information.
- Good CD resources. Good discussion.
- I never thought to contact my local dietician as an information source; this was a great recommendation. I have to admit that I never read the joint FDA/EPA advisory because I relied on my state's seafood advisory literature.

Exploring Risk Management Opportunities for Shellfish Aquaculture Producers in the Northeast U.S.

Northeast Aquaculture Extension Network - USDA NRAC

Host: Tessa Getchis, University of Connecticut

Evaluation Summary

Accomplishments/Impacts

The objective of this workshop was to increase participant knowledge on the subject of risk management for shellfish aquaculture. The majority of participants responded having a significantly greater understanding of products currently available and the hurdles to increase participation in programs for which shellfish producers are currently ineligible. We expect that as a result of knowledge gained in this workshop, individuals will consider and implement new risk management strategies and products. Tracking these changes in business practice will be the responsibility of the program host and is beyond the scope/timeline of this project.

As a result of this workshop and others previously sponsored by the Connecticut Sea Grant program, progress is being made towards increasing producer eligibility for USDA Farm Service Agency's Non-insured crop disaster Assistance Program (NAP). The issue has been communicated to the Connecticut Delegation and as a result, the *Shellfish Equity Act* has been submitted to the legislature. If signed into law, this bill would greatly increase the number of risk management programs open to the shellfish aquaculture industry.

Survey Response Rate

Fifteen individuals attended this workshop. Nine evaluations were completed- a 60% return rate.

Demographics

Participants were from Connecticut, Maine, Massachusetts, New York and Rhode Island and Washington DC. They included Extension professionals, representatives from state and federal government agencies and educators.

Questions:

Before this workshop, I felt comfortable answering SIMPLE questions about risk management and shellfish aquaculture (e.g. can identify government programs)

- 11% strongly agree
- 44% somewhat agree
- 22% somewhat disagree
- 22% strongly disagree

4) As a result of this workshop, I can answer SIMPLE questions about risk management and shellfish aquaculture (e.g. can identify government programs)

- 56% strongly agree
- 44% somewhat agree

5) Before this workshop, I felt comfortable answering COMPLEX questions related to about risk management strategies for shellfish producers (e.g. how government programs work, eligibility requirements, etc.)

- 22% somewhat agree
- 11% neither agree nor disagree
- 44% somewhat disagree
- 22% strongly disagree

6) As a result of this workshop, I can answer COMPLEX questions related to about risk management strategies for shellfish producers (e.g. how government programs work, eligibility requirements, etc.)

- 11% strongly agree
- 75% somewhat agree
- 11% somewhat disagree

7) Before this workshop, could easily refer stakeholders to a specialist knowledgeable on risk management strategies for shellfish aquaculture

- 44% somewhat agree
- 56% neither agree nor disagree

8) As a result of this workshop, I can easily refer stakeholders to a specialist knowledgeable on risk management strategies for shellfish aquaculture

- 33% strongly agree
- 56% somewhat agree
- 11% neither agree nor disagree

9) The quality of this workshop was good

- 89% strongly agree
- 11% somewhat agree

10) I had ample opportunities to interact with other participants and speakers

- 100% strongly agree

11) The length of the workshop was:

- 100% appropriate

12) The workshop was advertised far enough in advance

- 100% strongly agreed

13a) Have you attended other workshops and or conferences on this topic?

- 22% Yes
- 78% No

13b) If yes, please state workshop and date(s)

- General risk management meetings - not specifically aquaculture related
- don't remember title (2008; 2009)

14) What other topics would you like see covered?

None

15) Any other comments?

- Excellent meeting! Important work!

16) Have you heard of the Northeastern Regional Aquaculture Center (NRAC)?

- 89% Yes
- 11% No

17) Rate your familiarity with NRAC's role in aquaculture

- 44% extremely familiar
- 11% very familiar
- 33% somewhat familiar
- 11% not familiar

Open Ocean Aquaculture Workshop

Northeast Aquaculture Extension Network - USDA NRAC

Host: Joseph Buttner, Salem State College and Richard Langan, University of New Hampshire

Evaluation Summary

Accomplishments/Impacts

The objective of this workshop was to increase participant knowledge on mussel culture technology with respect to the offshore environment. We expect that as a result of knowledge gained in this workshop, individuals will consider initiating a new business in this field. Tracking new business will be the responsibility of the program host and is beyond the scope/timeline of this project.

As of this date, the host reported that two individuals who attended this workshop went on to initiate offshore mussel culture operations in Massachusetts and New Hampshire.

As a result of information requested at this workshop, two peer-reviewed fact sheets were developed: "Cultured Mussels of the Northeast" authored Michael Rice of the University of Rhode Island and "Mussel Aquaculture in the Northeast" co-authored by Dana Morse of the University of Maine and Michael Rice. These publications were posted to the NRAC website. The web master tracks web page hits and downloads using web statistics.

Survey Response Rate

Of the 12 participants of the Northeast Regional Aquaculture Offshore Aquaculture workshop, 7 returned anonymous evaluations. The following summary reflects the responses of this sample group.

Background experience of participants

All but one of those that responded had never visited an offshore facility, aquaculture related or not. However, 71% had offshore experience as follows: 60% had fisheries experience, 60% had other experience (which include island living and recreational boating experience), and 60% had aquaculture experience. A third of those with aquaculture experience had more than 5 years experience and the remaining two-thirds had less than one year of experience.

Knowledge Base

Most of the participants (84%) found that 40% or more of the information was new to them. Furthermore, most of them (72%) felt that they acquired much valuable information. None of those that attended felt that anything should be eliminated from the workshop or given less emphasis. However, there were several topics they would like to see added to the workshop, including:

- a. Economics analysis
- b. Conversation with growers
- c. Overview of UNH's role in promoting aquaculture in the northeast
- d. Overview of programs UNH is involved in (in addition to mussel farming)
- e. More description of the finfish projects seen in the second day would have provided some context
- f. Harvesting and cleaning of mussels
- g. Overview on raising mussels from start to finish and equipment used for processing

In addition, the areas that they would have liked to have more emphasis included:

- a. Economics of offshore mussel aquaculture including market demand/supply for mussels and other shellfish
- b. Mortality issues such as predation and disease

- c. Marketing/coop development
- d. Overview of finfish efforts

After attending the workshop

Most (71%) of the participants agreed that they felt confident in understanding the concepts related to offshore aquaculture engineering, and the remainder were either neutral or disagreed. More than half (57%) of the participants felt neutral in understanding the concepts related to offshore aquaculture feed technology, and only 28% agreed while the remainder disagreed. More than half (57%) of the participants agreed that they felt confident in understanding the concepts related to offshore aquaculture husbandry techniques, and only 28% felt neutral while the remainder disagreed.

Topics of interest that participants would like to see in the future included:

- a. Bay scallops (n=2)
- b. Oyster aquaculture/ pond culture (n=2)
- c. Finfish aquaculture
- d. New products
- e. Razor clams
- f. Emerging technologies for reducing environmental impact
- g. Reducing energy consumption in various aquaculture settings

Workshop experience

All of the attendees had a good or better experience at the workshop and most (86%) had a very good or excellent experience. Most of the participants (86%) agreed or strongly agreed that the workshop facilities onshore were good and all of them agreed or strongly agreed that the on-board facilities were good. A majority of the attendees (57%) strongly agreed that the workshop materials were well organized and presented in a logical order. The time allowance for the onshore presentations Q&A was sufficient (86% satisfaction) as well as the on-board presentations Q&A (100% satisfaction). All attendees agreed or strongly agreed that question and discussion were encouraged and that questions were answered completely and clearly. The majority (67%) agreed that presentation notes and handouts helped with understanding of the workshop material, although 17% were neutral and wanted more materials and 17% disagreed altogether. Outside of one complaint of AV/technical problems, there were no other outstanding dislikes of the workshop. The areas of the workshop that were enjoyed the most included:

- a. Visiting the offshore mussel farm (n=3)
- b. Networking with other stakeholders (n=2)
- c. Witnessing the process(ing) and the equipment used (n=2)
- d. Meeting the grower/ crew (n=2)

67% of the participants agreed or strongly agreed that they would pay to attend a similar workshop and the remainder were neutral. Most (72%) would only be willing to spend \$25-50 on a similar workshop while the rest would be willing to spend \$50-100.

Actual responses

1. Have you previously attended a presentation about an offshore aquaculture facility?
 (n=7): 86% answered yes
 14% answered no

2. Have you previously visited an offshore facility?
 (n=7): 86% answered no
 14% answered yes

3. Do you have any experience working in an offshore environment?
(n=7): 71% answered yes
29% answered no
4. What type of experience? (aquaculture, fisheries, other)
(n=5): 60% had aquaculture experience
60% had fisheries experience
60% had other experience
5. If your answer to #4 was aquaculture, then about how much experience do you have?
(n=3): 66% had <1 year experience
33% had >5 years experience
6. How much information covered in this workshop was new to you?
(n=7): 28% answered 40%
28% answered 60%
28% answered 80%
14% answered 20%
7. How would you describe your experience with this workshop?
(n=7): 43% answered very good
43% answered excellent
14% answered good/fair
8. What, if anything should we add to the workshop?
 - a. Economics analysis
 - b. Conversation with growers
 - c. Overview of UNH's role in promoting aquaculture in the northeast
 - d. Overview of programs UNH is involved in (in addition to mussel farming)
 - e. More description of the finfish projects seen in the second day would have provided some context
 - f. Harvesting and cleaning of mussels
 - g. Overview on raising mussels from start to finish and equipment used for processing
9. What, if anything, should we consider eliminating from the workshop?
Unanimous "nothing"
10. Is there any area of the workshop that should have more emphasis?
 - a. Economics of offshore mussel aquaculture including market demand/supply for mussels and other shellfish
 - b. Mortality issues such as predation and disease
 - c. Marketing/coop development
 - d. Overview of finfish efforts
11. Is there any area of the workshop that should have less emphasis?
Unanimous "no"
12. Did we allow enough time for the onshore presentations and the Q&A session?
(n=7) 86% answered YES
14% answered NO

13. Did we allow enough time for the on-board presentations and the Q&A session?
(n=6) 100% answered YES

14. What, if anything, did you enjoy the most about the workshop?
a. Visiting the offshore mussel farm (n=3)
b. Networking with other stakeholders (n=2)
c. Witnessing the process(ing) and the equipment used (n=2)
d. Meeting the grower/ crew (n=2)

15. What, if anything, did you dislike the most about the workshop?
(n=1) "serious A/V problems"

(For the following questions the selection was offered: strongly agree, agree, neutral, disagree, strongly disagree)

16. I acquired much valuable information.
(n=7) 72% answered "Agree"
28% answered "Strongly Agree"

17. Workshop materials were well organized and presented in a logical order.
(n=7) 57% answered "Strongly Agree"
14% answered "Agree"
14% answered "Neutral"
14% answered "Disagree"

18. Questions and discussion were encouraged.
(n=7) 57% answered "Strongly Agree"
43% answered "Agree"

19. Questions were answered completely and clearly.
(n=7) 57% answered "Agree"
43% answered "Strongly Agree"

20. Presentation notes and handouts helped me understand the material.
(n=6) 67% answered "Agree"
17% answered "Neutral" (Wanted more material)
17% answered "Disagree"

21. I feel confident that I understand the concepts related to offshore aquaculture engineering.
(n=7) 71% answered "Agree"
14% answered "Neutral"
14% answered "Disagree"

22. I feel confident that I understand concepts related to offshore aquaculture feed technology.
(n=7) 57% answered "Neutral"
28% answered "Agree"
14% answered "Disagree"

23. I feel confident that I understand concepts related to offshore aquaculture husbandry techniques.
(n=7) 57% answered "Agree"
28% answered "Neutral"
14% answered "Disagree"
24. The workshop facilities onshore were good.
(n=7) 71% answered "Agree"
14% answered "Strongly Agree"
14% answered "Neutral"
25. The workshop facilities on-board were good.
(n=7) 57% answered "Agree"
43% answered "Strongly Agree"
26. I would pay to attend a similar workshop.
(n=6) 50% answered "Agree"
33% answered "Neutral"
17% answered "Strongly Agree"
27. I would be willing to pay up to the following amount (excluding travel related expenses) to attend a similar workshop (<\$25, \$50, \$100, \$150, \$200).
(n=7) 43% would be willing to pay \$50
29% would be willing to pay less than \$25
14% would be willing to pay \$50-100
14% would be willing to pay \$100
28. We would like your help in identifying some aquaculture topics that we could develop workshops to address. Please identify topics of interest to you:
- a. Bay scallops (n=2)
 - b. Oyster aquaculture/ pond culture (n=2)
 - c. Finfish aquaculture
 - d. New products
 - e. Razor clams
 - f. Emerging technologies for reducing environmental impact
 - g. Reducing energy consumption in various aquaculture settings

Northeast Aquaculture Conference and Exposition 2010

Workshop Session 1 Finfish Disease Diagnostics

Workshop Session 2 Shellfish Diagnostics

Workshop Session 3 Ocean Acidification

Workshop Session 4 Risk Management

Northeast Aquaculture Extension Network - USDA NRAC

Host: Chris Davis, Maine Aquaculture Innovation Center

Evaluation Summary

Accomplishments/Impacts

The Northeast Aquaculture Conference and Exposition is the area's only region wide aquaculture conference. The event has been hosted for over a decade by Extension professionals and others with outreach responsibilities and now attracts between 200 and 350 participants. In addition to the traditional topic areas, there were four special sessions held at the most recent NACE (2010): Finfish Disease Diagnostics (hosted by Paul Bowser of Cornell University), Shellfish Diagnostics (Hosted by Dale Leavitt and Roxanna Smolowitz of Roger Williams University), Ocean Acidification (Hosted by Robert Rheault of the East Coast Shellfish Growers Association and Tessa Getchis of the University of Connecticut), and Risk Management (Hosted by Tessa Getchis).

The first two topics were presented based on request by the Extension network. Many individuals claimed that they were asked to respond to questions about finfish and shellfish diagnostics but few had formal training and some had no training at all in this area. The participants were given training and resources for use in their state Extension programs. The second two topics were offered to provide an update on the status of risk management programs and eligibility requirements and status of the research on ocean acidification and shellfish to industry.

While participants reported an increase in knowledge in the various subjects, it was obvious that a two hour window was not enough time to provide a basic understanding of these complex subjects. Therefore, it is suggested that these sessions be offered somewhat frequently at NACE and other regional meetings. In addition, a fact sheet on these topics may be appropriate.

Survey Response Rate

Approximately 223 researchers, students, and industry members attended the conference, including 62 speakers and 22 vendors. 66 evaluations were filled out (25 hard copies and 41 online), a 30% return rate. The same evaluation was used for both speakers and attendees and the following summary reflects the results of the evaluations that were filled out and returned. From here on out both the speakers and attendees will be referred to as attendees.

Demographics

Approximately half (47%) of the attendees were from Massachusetts, 21% being from Maine and 8% being from Canada. Connecticut, New York, New Hampshire, Rhode Island and New Jersey were represented by 8%, 3%, 3%, 8%, and 2% of the attendees. 37% of attendees were researchers, while 19% listed themselves as being extension agents and another 19% considered themselves as other.

Conference

Over half of the attendees (64%) strongly agreed that NACE 2010 included topical sessions in their area of interest while 30% somewhat agreed. Majority of attendees (71%) felt that the quality of the overall program was good while 21% somewhat agreed. Majority of attendees (80%) strongly agreed that they had ample opportunities to interact with other participants while 19% somewhat agreed.

While 94% of attendees felt that the length of the conference was appropriate, 90% felt that the length of the individual sessions and workshops were also appropriate. In addition, 76% of attendees felt that the length of the individual presentations were also appropriate.

NACE Website

Approximately half of attendees (48%) strongly agreed that the NACE website was easy to navigate, while 36% of attendees somewhat agreed. Approximately half of attendees (56%) strongly agreed that the NACE website contained everything they needed to know about the conference, while 24% somewhat agreed.

Hotel

Majority of attendees (81%) strongly agreed that travel to and from the Plymouth Radisson Hotel was simple while 17% somewhat agreed. Approximately half of attendees (25%) strongly agreed and (25%) somewhat agreed that the Plymouth Radisson Hotel was an appropriate venue for the conference.

Trade Show

Majority of attendees (36% strongly and 43% somewhat) agreed that the trade show was interesting and educational. While 30% of attendees strongly agreed that they would be more willing to buy products from the trade show vendors rather than aquaculture vendors they have not met in person, 39% of attendees said it was not applicable.

Although the majority of attendees (87%) did not attend the tour, the majority of attendees (81%) would consider attending NACE again in the future. 76% of attendees strongly agree that they would recommend the NACE conference to their peers. 77% of attendees would not likely attend if NACE was held at the same location every biennium.

Sponsors

When asked if they had heard of the Northeast Regional Aquaculture Center, approximately all attendees (95%) said they did, however, only 27% said that they were extremely familiar with NRAC's role in aquaculture, while 27% said that they were only very familiar, and 24% said that they were somewhat familiar with NRAC's role in aquaculture.

When asked if they had heard of the Sea Grant Program, approximately all attendees (95%) said that they did, however, only 33% said that they were extremely familiar, 25% said that they were very familiar, and another 25% said that they were somewhat familiar with the Sea Grant's role in aquaculture.

When asked if they had heard of the Cooperative Extension System, the majority of attendees (85%) said that they did, however, only 29% of attendees were extremely familiar and 30% were very familiar with the Cooperative Extension System's role in aquaculture.

NRAC Special Sessions

Finfish Disease Diagnostics

Less than half (43%) of attendees neither agreed nor disagreed that as a result of the workshop they can answer questions related to what constitutes a good quality diagnostic specimen, while 32% said that they already could answer what constitutes a good quality diagnostic specimen. Less than half (44%) of attendees neither agreed nor disagreed that as a result of the workshop they can answer questions related to how to properly pack and ship specimens to a fish disease diagnostic lab, while 30% said that they already could answer these questions.

Shellfish Diagnostics

When attendees were asked if the workshop provided a helpful introduction to the anatomy and diseases of commercially important bivalves, 32% strongly agreed while 39% said the introduction was not applicable to them. When attendees were asked if the workshop gave them a better understanding of how to respond to a morbidity and/or mortality event, approximately half (49%) of attendees said it was not applicable to them, while only 23% strongly agreed. When attendees were asked if the workshop gave them a better understanding of biosecurity issues involved in bivalve aquaculture, approximately half (49%) of attendees said it was not applicable to them, while only 32% strongly agreed.

Ocean Acidification

When attendees were asked if the workshop provided a helpful overview of ocean acidification and its causes, less than half of attendees (41%) strongly agreed while 35% said it was not applicable to them. When attendees were asked if the workshop provided a better understanding of the potential consequences of ocean acidification with respect to shellfish aquaculture, 39% strongly agreed while another 39% said it was not applicable to them.

Risk Management

When attendees were asked if the workshop provided a helpful introduction to risk management products available to shellfish producers, approximately half of attendees (49%) said it was not applicable to them. When asked if the workshop provided a better understanding of the eligibility requirements of such risk management products, 26% of attendees somewhat agreed, 37% neither agreed nor disagreed, and 22% said they were already aware of such products. When attendees were asked as a result of the workshop, would they be more willing to utilize one or more of the risk management products, more than half (59%) neither agreed nor disagreed.

Mummichog Culture Workshop

Sponsor: Northeast Aquaculture Extension Network – USDA NRAC

Host: Dennis McIntosh, Delaware State University

Evaluation Summary

Accomplishments/Impacts

The objective of this workshop was to increase participant knowledge on the subject of Mummichog culture. We expect that as a result of knowledge gained in this workshop, individuals will consider initiating a new business in this field. Tracking new businesses will be the responsibility of the program host and is beyond the scope/timeline of this project.

As a result of this workshop and interest expressed by stakeholders in the region, a peer-reviewed fact sheet “An Overview of Baitfish Culture in the Northeast” was co-authored by Dennis McIntosh of Delaware State University. This publication was posted to the NRAC website. The web master tracks web page hits and downloads using web statistics.

There is interest in further developing the baitfish industry in the region, and a proposal to do so has been submitted to the USDA NRAC office.

Survey Response Rate

5 evaluations completed and returned (24% return rate)

Demographics

Attendance = 21 (exclusive of speakers)

Three states represented (DE, n = 17; NC n = 1; VA, n = 3)

All states of residence were in the NRAC region

Two families attended the workshop, one with three children

Knowledge Base

Only 20% of responding attendees had heard of the Northeast Regional Aquaculture Center; which translated into poor understanding and/or appreciation of NRAC’s role. However, information shared at the workshop as well as the overall workshop experience was favorably assessed:

Question	% yes
Before this workshop, I felt comfortable answering SIMPLE questions related to Mummichog Culture	40
As a result of this workshop, I can answer SIMPLE questions related to Mummichog Culture	100
Before this workshop, I felt comfortable answering COMPLEX questions related to Mummichog Culture	0
As a result of this workshop, I can answer COMPLEX questions related to Mummichog Culture	20
Before this workshop, I could easily refer people to a specialist knowledgeable on Mummichog Culture	0

As a result of this workshop, I can easily refer people to a specialist knowledgeable on Mummichog Culture	100
The quality of the overall program was good	100
I had ample opportunities to interact with other participants and speakers	100
The workshop was advertised far enough in advance	50
I would consider attending this type of workshop again in the future	100
I would recommend this workshop to my peers	100

Workshop Experience

All attendees agreed that the overall program was good and that they had ample opportunities to interact with the speakers. Half of the attendees felt that the workshop was too long; but, the other half judged it of appropriate length. Most attendees (75%) felt that the individual presentations of appropriate length. Half of the attendees agreed that the workshop was announced far enough in advance, the other half were ambivalent.

All of the attendees agreed that they would recommend this workshop to their peers, with 80% strongly agreeing that they would do so. When asked if they would consider attending this type of workshop in the future, all agreed that they would (40% strongly agreed).

Other topics of interest/ follow up

Maintenance of live-bait.

Small Scale Marketing of Aquaculture Products

Northeast Aquaculture Extension Network - USDA NRAC

Host: Dana Morse, University of Maine

Evaluation Summary

Accomplishments/Impacts

The objective of this workshop was to increase participant knowledge on the subject of small-scale marketing. The majority of participants responded having a significantly greater understanding of marketing methods for small-scale businesses. We expect that as a result of knowledge gained in this workshop, individuals will consider and implement new methods for marketing their cultured product. Tracking these changes in business practice will be the responsibility of the program host and is beyond the scope/timeline of this project.

As of result of this workshop and interest expressed by stakeholders in the region, a peer-reviewed fact sheet, "Small Scale Marketing Opportunities for Aquaculture Products in the Northeast" co-authored by Andrew Lazur, University of Maryland, Gef Flimlin, Rutgers University and Dana Morse of the University of Maine. This publication was posted to the NRAC website. The web master tracks web page hits and downloads using web statistics.

Survey Response Rate

Fifty three professionals attended this workshop, including eight speakers. 17 evaluations were completed- a 32% return rate. The same evaluation was used for both speakers and attendees and the following summary reflects the results of the evaluations that were filled out and returned. From here on out both the speakers and attendees will be referred to as attendees.

Demographics

Nearly all of the attendees were from New England with over half being from Maine (57%). Attendees from Maine represented the following counties: Cumberland (33%), Lincoln (25%), and Knox (8%). Majority of the attendees were producers (64%), with 21% listing themselves as other (retired educator, marine supplies). 85% of attendees were male with 92% of attendees classifying themselves as white. 8% classified themselves as Native American.

85% of attendees heard about the workshop via email with 15% hearing from other venues (fish forum, ECSGA List Serve).

Knowledge base

Over half of the attendees (65%) had heard of the Northeast Regional Aquaculture Center. However, only 25% were extremely familiar and 8% were very familiar with NRAC's role in aquaculture.

Before attending this workshop, over half of the attendees (24% strongly agree and 35% somewhat agree) that they felt comfortable with their knowledge related to marketing cultured fish. Following the workshop, over 62% strongly agreed and 31% somewhat agreed that they felt comfortable with their knowledge related to marketing cultured fish. The remaining 6% neither agreed nor disagreed.

Before attending this workshop, only 12% of attendees strongly agreed and 41% somewhat agreed that they could easily identify people and resources helpful to marketing cultured shellfish. After the

workshop, 62% of attendees strongly agreed and 31% somewhat agreed that they are better equipped to identify people and resources helpful to marketing cultured shellfish

When attendees were asked about their reasons for attending this workshop, 15% said it was to learn about the experiences of the Keynote Speaker. 16% of attendees said it was to learn about basic practices and principles of marketing cultured shellfish. 12% of attendees said it was to learn about cooperatives for shellfish producers. 12% of attendees said it was to learn about product branding, certifications and eco-labeling. 12% said it was to learn about finding new customers and knowing how to get their product there. 13% said it was to learn about how to keep their customers satisfied and improving customer service. Finally, 19% said it was to learn about gaining new contacts and improve their network of producers and other professionals.

When attendees were asked about how this workshop improved their knowledge, 13% said it improved their knowledge about experiences of the Keynote Speaker. 19% of attendees said it improved their knowledge of basic practices and principles of marketing cultured shellfish. 11% said it improved their knowledge of cooperatives for shellfish producers. 17% said it improved their knowledge of product branding, certifications and eco-labeling. 14% said it improved their knowledge in finding new customers and knowing how to get their product there. 6% said it improved their knowledge on how to keep their customers satisfied and improving customer service. Finally, 19% said it improved their knowledge in gaining new contacts and improving their network of producers and other professionals.

Over half (76%) of the attendees had never attended a workshop or conference on this topic before. Of those that had, these were the workshops that they attended (n=3):

- Darling Center 2008 and 2009
- Various WAS and NACE meetings
- NRAC Portland

Workshop Experience

The majority of attendees strongly agreed (81%) that the overall program was good, with 12% somewhat agreeing and 6% neither agreeing nor disagreeing. In addition, the majority of attendees (62%) strongly agreed that they had ample opportunities to interact with other participants and speakers, with 31% somewhat agreeing and 6% neither agreeing nor disagreeing that they had ample opportunities to interact with other participants and speakers. All attendees (100%) felt that the length of the workshop was appropriate however, only the majority of attendees (94%) felt that the length of the individual presentations was appropriate, with 6% feeling that individual presentations were too long. The majority of the attendees (95%) agreed that the workshop was announced far enough in advance with 88% strongly agreeing and 7% somewhat agreeing. However, 5% were in somewhat disagreement that the workshop was advertised far enough in advance.

All of the attendees agreed that they would recommend this workshop to their peers, with 94% strongly agreeing and 6% somewhat agreeing. When asked if they would consider attending this type of workshop in the future, all of the attendees agreed with 71% strongly agreeing and 29% somewhat agreeing.

Other topics that attendees would like to see covered

- Brand handling – How to pick a good name and a good brand and keep opinion high
- Oyster gear, seed info, oyster growth
- More dedicated treatment of Risk Management
- More info re: certifications/licenses
- If the Maine growers would be interested in cooping
- Adhering to DMR laws/regs; local contact list: packages, shipping, marketers
- Pollution, red tide and protecting Maine's advantage (cleaner water). We may be losing more than advantage

Additional comments

- Good having Bruce Chamberlain there to point out the certification issues!

Before attending this workshop, 63% of the attendees either strongly agreed (17%) or somewhat agreed (46%) being able to answer complex questions related to the environmental effects of shellfish aquaculture. After the workshop, 80% of the attendees agreed strongly (40%) or somewhat (40%) that they could answer complex questions related to the environmental effects of shellfish aquaculture.

About half (56%) of the attendees had never attended a workshop or conference on this topic before. Of those that had, these were the workshops that they attended (n=4):

- 25% 30th Milford Aquaculture Seminar
- 25% conference on Cape Cod
- 25% NAAS 2006
- 25% Nutrient Remediation, Dec 2009, Stamford, CT

Referring stakeholders

The ability to refer stakeholders to a specialist knowledgeable on the environmental effects of shellfish aquaculture was about 70%, with 31% in strong agreement and 40% in somewhat agreement. After attending the workshop, a large majority of the attendees (88%) either strongly agreed (56%) or somewhat agreed (32%) in their ability to refer stakeholders to a specialist knowledgeable on the environmental effects of shellfish aquaculture. About 9% could easily refer stakeholders before attending this workshop.

Workshop Experience

All attendees agreed that the overall program was good, and most (77%) strongly agreed. In addition, all attendees (91%) agreed, with more than half (59%) strongly agreeing, that they had ample opportunities to interact with other participants and speakers. All attendees (94%) felt that the length of the workshop and length of the individual presentations (83%) was appropriate. However, about 17% felt that the individual presentations were too long. More than half of the attendees (63%) agreed that the workshop was announced far enough in advance with 40% strongly agreeing and 23% somewhat agreeing. However, 20% were in somewhat disagreement.

All of the attendees agreed that they would recommend this workshop to their peers, with 63% strongly agreeing and 37% somewhat agreeing. When asked if they would consider attending this type of workshop in the future, 94% agreed they would (60% strongly agreed, 34% somewhat agreed). Only 8% neither agreed nor disagreed.

Other topics that attendees would like to see covered

- Overview of shellfish diseases
- More money to fund similar workshop
- More information on web sites

- Other bivalve shellfish

Additional comments

- It was great that it was paired with the MAS. It makes it possible for me to attend
- interesting and informative group of presentations
- poorly advertised; speakers could have been more appropriately chosen (overviews not primary research), seemed very simple even for outreach.
- not enough time during breaks