

Aquaculture Producer Informational Needs Survey

Connecticut Sea Grant

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Conducted by



341 Mansfield Road
Storrs, CT 06269
860-486-6666

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Executive Summary

The Center for Survey Research and Analysis (CSRA) at the University of Connecticut worked with the Connecticut Sea Grant on an Aquaculture Producer Information Needs Survey. The survey is part of a project funded by the USDA Northeastern Regional Aquaculture Center (NRAC). CSRA conducted a survey of aquaculture producers who work in the Northeast via paper and web. A total of 326 aquaculture producers completed the survey between June 11 and September 14, 2007. The purpose of the survey was to gather opinions about aquaculture information needs related to production, marketing, the regulatory process, and business development.

The survey included questions that asked how the aquaculture producer currently obtains needed information, and how they would prefer to obtain it. CSRA and the Connecticut Sea Grant jointly developed the paper survey, which was mailed to over 1,500 current aquaculture producers. The survey contained a link and unique ID number, giving the producer the option to complete the survey on the web.

This section summarizes the key findings of the survey. More detail on these topics can be found in the following sections of this report.

Key Findings

Having various types of information available is important to the operations of aquaculture producers. Information related to the regulatory process is critical (34%) or important (56%) to almost all producers. Next in importance is production information (82%), followed by information about business development (63%), and marketing (50%). Less than 20% of aquaculture producers are very satisfied with the information available to them in their state. The findings suggest improvements can be made related to accessibility of information—half of producers indicate they are only somewhat satisfied, and one-third (33%) of respondents indicate some level of dissatisfaction with information available to them.

Peers are cited as the most commonly used source of information. The state government is seen as the best source of information related to the regulatory process, and is used by some for business development information. One-on-one consultation and group workshops are listed as preferred sources of information related to production, business development, and marketing information. Trade and non-trade publications and industry association newsletters are also cited as potential sources of information.

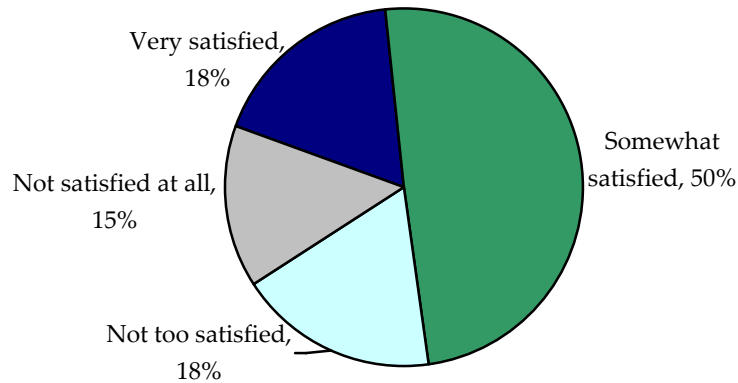
Eight-six percent of producers say that their state aquaculture association is in existence with 44% of producers citing membership to these associations.

Current and Preferred Sources of Information

There are opportunities for improvement related to the availability of information for aquaculture producers. Less than 20% of aquaculture producers are very satisfied with the information available to them in their state; one-third (33%) of respondents indicate some level of dissatisfaction with information available to them.

Although the majority of aquaculture producers say that information on the regulatory process (90%), production (82%), business development (63%), and marketing (50%) is critical or important to their operation, a third (33%) are not satisfied with the amount of aquaculture information available in their state. Fifteen percent are not satisfied at all.

Overall, how satisfied are you with the aquaculture information available in your state?



It is interesting to note that producers in Delaware seem to be the most satisfied with the amount of aquaculture information available to them, whereas Maryland seems to be the least satisfied.

Aquaculture association membership

Nearly nine in ten (86%) aquatic farmers report that their state aquaculture association is still in existence. Less than half of the respondents (44%) belong to a state aquaculture organization, association, or society. Thirteen percent belong to a regional organization with 14% belonging to a national organization. Only 5% report belonging to an international aquaculture organization.

Regulatory Process

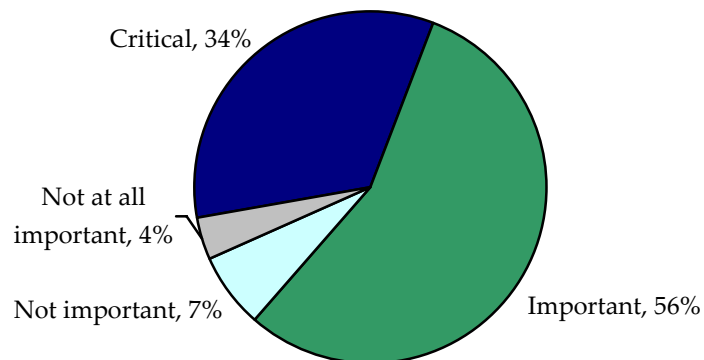
Nine in ten (90%) aquaculture producers say information on the regulatory process is either critical or important to their operation, with a third (34%) indicating it is critical. Sixty percent of aquaculture producers look to their state government for information on the regulatory process. Other aquaculture producers, the federal government, and extension personnel are seen as other sources of information on the regulatory process for many aquatic farmers. Eighty-four percent look toward the state government as either their first, second, or third source of information on the regulatory process.

| Top sources of information on the regulatory process | | |
|--|---|-----|
| First source | State government | 60% |
| Second source | Other aquaculture producers Federal government | 18% |
| Third source | Extension personnel | 17% |

Thirty-one percent of aquaculture producers would prefer to obtain their information on the regulatory process from regulatory guides or manuals. One in five (20%) prefer industry association newsletters as their second choice, and 18% again prefer a guide or manual as their third choice.

| Top preferred sources of information on the regulatory process | | |
|--|---------------------------------|-----|
| First preferred way | Regulatory guide or manual | 31% |
| Second preferred way | Industry association newsletter | 20% |
| Third preferred way | Regulatory guide or manual | 18% |

How important is information on the regulatory process for your operation?



Production

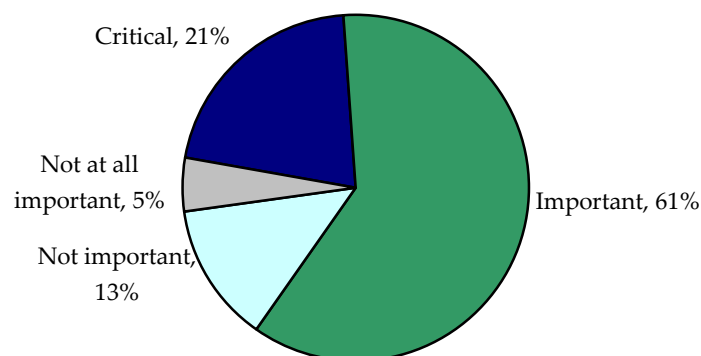
Eight in ten (82%) aquaculture producers say production information is either critical or important to their operation. Most aquaculture producers look to other aquatic producers or industry suppliers as their main sources for information on production. It is interesting to note that 13% of producers mention extension personnel as a second source of information. Six in ten (62%) of producers look to their peers as either their first, second, or third source of production information.

| Top sources of production information | | |
|---------------------------------------|-----------------------------|-----|
| First source | Other aquaculture producers | 40% |
| Second source | Industry suppliers | 14% |
| Third source | Other aquaculture producers | 11% |

When asked how they would prefer to receive information related to production, 31% of aquaculture producers identify one-on-one consultation as their first preferred way. Group workshops and non-trade publications are also preferred sources for many for production information. Non-trade (15%) is the top third preferred source for production information.

| Top preferred sources of production information | | |
|---|-------------------------|-----|
| First preferred way | One-on-one consultation | 31% |
| Second preferred way | Group workshop | 20% |
| Third preferred way | Non-trade publication | 15% |

How important is production information for your operation?



Business Development

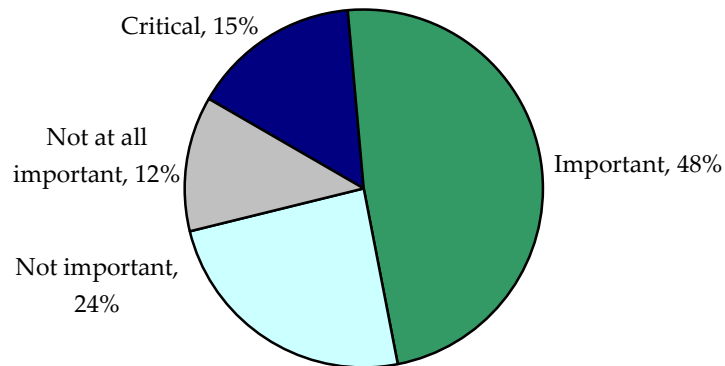
Sixty-three percent of aquaculture producers say business development information is either critical or important to their operation. Sixteen percent of aquaculture producers turn to their peers as their first source of information on business development. The state government, extension personnel, and industry associations are also widely cited sources of business development information for many aquaculture producers. It should be noted that 27% of aquaculture producers say that business development is not applicable to their job.

| Top sources of business development information | | |
|---|---|-----|
| First source | Other aquaculture producers | 16% |
| Second source | Other aquaculture producers State government | 12% |
| Third source | Extension personnel | 8% |

Aquaculture producers prefer to obtain their information on business development from one-on-one consultation, group workshops, and industry association newsletters. Once again, one-quarter (25%) of aquaculture producers say that obtaining business development information is not applicable to their job.

| Top preferred sources of business development information | | |
|---|--|-----|
| First preferred way | One-on-one consultation | 20% |
| Second preferred way | Group workshop | 13% |
| Third preferred way | Industry association newsletter Internet search | 10% |

How important is business development information for your operation?



Marketing

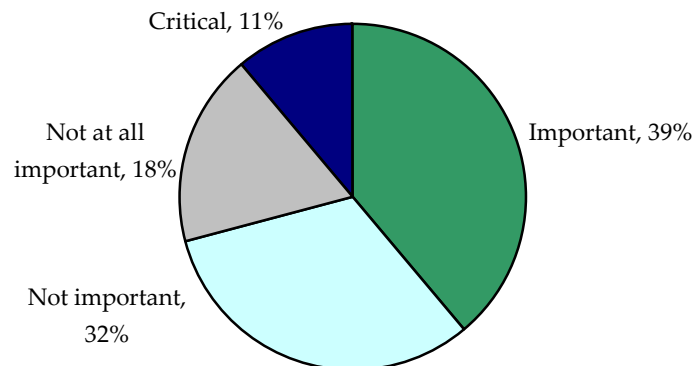
Half of aquaculture producers (50%) say marketing information is either critical or important to their operation; about one in five (18%) note it is not at all important. Most aquaculture producers turn to fellow colleagues and industry suppliers for information on marketing; 42% turn to their colleagues as either their first, second, or third source of information on marketing. Over one-third of aquaculture producers (34%) responding to the survey say that marketing is not applicable to their job.

| Top sources of marketing information | | |
|--------------------------------------|-----------------------------|-----|
| First source | Other aquaculture producers | 23% |
| Second source | Other aquaculture producers | 11% |
| Third source | Other aquaculture producers | 7% |

One-on-one consultation, group workshops, and trade publications top the list of preferred sources of information on marketing for most aquaculture producers. Nine percent mention non-trade publications or association newsletters as their third preferred way of obtaining marketing information. Once again, almost one-third (32%) note that marketing is not applicable to their job.

| Top preferred sources of marketing information | | |
|--|-------------------------|-----|
| First preferred way | One-on-one consultation | 19% |
| Second preferred way | Group workshop | 13% |
| Third preferred way | Trade publication | 10% |

How important is marketing information for your operation?



Additional Findings

Production of organisms

Of the total responses when asking what species are you presently working with:

- 48% are finfish
- 45% are shellfish
- 3% are invertebrates
- 2% are plants or algae
- 2% do not fall into any of these categories

When asking what other species would you be interested in working with:

- 41% are shellfish
- 21% are finfish
- 21% are invertebrates
- 9% are plants or algae
- 7% do not fall into any of these categories

Massachusetts and New Jersey subgroup analysis

Massachusetts and New Jersey were the top two responding states to the survey (28% and 15%, respectively). Due to the small sample sizes, these states were the only ones that could be examined and compared through subgroup analysis. Findings of note are listed below.

- New Jersey producers are less likely to be very satisfied and more likely to be not too satisfied with the amount of aquaculture information available in their state compared to Massachusetts producers.
- Aquaculture producers in New Jersey are more likely to report that production information is critical to their operation compared to Massachusetts producers.
- Producers in Massachusetts are more likely to find information on business development as either critical or important to their operation compared to New Jersey producers.

Demographics

Facts of note:

- 27% of producers that responded to the survey work in Massachusetts
- 15% are from New Jersey
- 64% are commercial producers
- 64% culture their organisms for food
- 46% produce the Eastern Clam
- 29% produce the Northern Quahog Clam

When asked what method they use for hatchery:

- 37% report using land-based hatcheries
- 20% use recirculating tanks

Almost one-quarter (24%) report using ADPI bags during the nursery stage of production.

During grow-out:

- Nearly three in ten (29%) use ADPI bags
- 28% use shellfish cages

Twenty-six percent report using recirculating tanks during the depuration stage.

Most aquaculture producers responding to the survey have been in business for over a decade (53%) and typically employ five people or less (87%).

Methodology

The Connecticut Sea Grant commissioned the Center for Survey Research and Analysis (CSRA) at the University of Connecticut to conduct a paper and Internet survey of Northeast aquaculture producers to assess their informational needs. CSRA mailed paper surveys to 1507 current aquaculture producers. The paper survey included the web address and a unique ID number, should the producer prefer to complete the survey via the Internet.

To encourage a high return rate, a pre-notification postcard was mailed to producers one week prior to the first survey mailing (June 11). To increase response rates, a second survey packet was mailed to non-respondents on July 24th. A total of 326 surveys were completed by the aquaculture producers, a 22% rate of response. SPSS software was used to analyze the dataset.

The survey has a margin of error of +/-4.8 percentage points with a 95% level of confidence and a finite population. This means that there is less than a one in twenty chance that the findings will deviate more than ± 4.8 percentage points from the actual population parameters. This error could be larger for subgroups.

Appendix A contains detailed results for each question asked in the survey. Open-ended responses to question can be found in Appendix B.

Appendix A: Annotated Results

Q1. In what state do you primarily work in the field of aquaculture?

| | Total | Count |
|----------------------|--------------|--------------|
| Massachusetts | 28% | 89 |
| New Jersey | 15% | 50 |
| Pennsylvania | 11% | 34 |
| Maryland | 11% | 34 |
| Maine | 10% | 32 |
| Connecticut | 9% | 30 |
| New York | 6% | 19 |
| Rhode Island | 4% | 12 |
| West Virginia | 4% | 12 |
| New Hampshire | 2% | 5 |
| Vermont | 2% | 5 |
| Delaware | 1% | 2 |
| Count | | 324 |

Q2. What is your primary role in the field of aquaculture?

| | Total | Count |
|--|--------------|--------------|
| Commercial producer | 64% | 198 |
| Research/Education | 10% | 30 |
| Retailer | 7% | 21 |
| Wholesaler | 4% | 13 |
| Shellfish Commission/Constable/Warden | 4% | 12 |
| Processor | 1% | 2 |
| Not Listed | 11% | 33 |
| Count | | 308 |

Q3. For what purpose(s) do you culture your organisms?

| | Total | Count |
|----------------------------|--------------|--------------|
| Food | 64% | 188 |
| Stock enhancement | 20% | 58 |
| Research/Education | 14% | 42 |
| Habitat restoration | 11% | 32 |
| Bait | 9% | 27 |
| Fee fishing | 9% | 26 |
| Ornamental | 7% | 21 |
| Not listed | 7% | 21 |

Q4. From the list below, please mark all the species that you presently work with:

| | Total | Count |
|--------------------------------------|--------------|--------------|
| Oyster, Eastern | 47% | 151 |
| Clam, Northern Quahog | 31% | 101 |
| Trout, Rainbow | 15% | 47 |
| Clam, Soft-Shell | 12% | 37 |
| Trout, Brook | 11% | 35 |
| Bass, Largemouth | 9% | 30 |
| Trout, Brown | 9% | 30 |
| Scallop, Bay | 8% | 27 |
| Minnow, Fathead | 7% | 21 |
| Shiner, Golden | 6% | 20 |
| Catfish, Channel | 6% | 18 |
| Sunfish, Bluegill (or hybrid) | 5% | 16 |
| Mussel, Blue | 5% | 16 |
| Perch, Yellow | 5% | 15 |
| Bass, Striped | 5% | 15 |
| Goldfish | 4% | 14 |
| Plants, Aquatic | 4% | 14 |
| Carp, Grass | 3% | 9 |
| Tilapia, Nile | 3% | 9 |
| Bullhead, Brown | 3% | 9 |
| Bullfrog | 3% | 9 |
| Bass, Smallmouth | 3% | 8 |
| Crappie, Black | 3% | 8 |
| Salmon, Atlantic | 3% | 8 |
| Walleye | 3% | 8 |
| Crab, Blue | 2% | 7 |

| | Total | Count |
|-----------------------|--------------|--------------|
| Scallop, Sea | 2% | 7 |
| Catfish, Blue | 2% | 6 |
| Lobster, American | 2% | 6 |
| Oyster, European Flat | 1% | 4 |
| Bass, Black Sea | 1% | 4 |
| Bullhead, Black | 1% | 4 |
| Flounder, Summer | 1% | 4 |
| Char, Arctic | 1% | 3 |
| Crappie, White | 1% | 3 |
| Shrimp, White | 1% | 3 |
| Carp, Common | 1% | 2 |
| Barramundi | 1% | 2 |
| Mummichog | 1% | 2 |
| Flounder, Winter | 1% | 2 |
| Sucker, White | 1% | 2 |
| Bass, White | 0% | 1 |
| Bullhead, Yellow | 0% | 1 |
| Cod, Atlantic | 0% | 1 |
| Other | 20% | 65 |

Q4. From the list below, please mark all the species that you presently work with:

| | Total | Count |
|----------------------|--------------|--------------|
| Finfish | 48% | 366 |
| Shellfish | 46% | 346 |
| Invertebrates | 3% | 22 |
| Plants/algae | 2% | 15 |
| Other | 1% | 11 |

Q5. Is there a species not listed above that you would be interested in working with in the future?

| | Total | Count |
|--------------|--------------|--------------|
| Yes | 24% | 65 |
| No | 76% | 207 |
| Count | | 272 |

Q6. What species, not listed above, would you be interested in working with?

Note: Detailed results are provided in Appendix B.

| | Total | Count |
|----------------------|--------------|--------------|
| Shellfish | 41% | 23 |
| Finfish | 21% | 12 |
| Invertebrates | 21% | 12 |
| Plants/algae | 9% | 5 |
| Other | 7% | 4 |
| Count | | 56 |

Q7. What culture method(s) do you currently use?

| | Hatchery | Nursery | Grow-Out | Depuration |
|--|----------|---------|----------|------------|
| ADPI bag or similar | 4% | 24% | 29% | 9% |
| <i>Count</i> | 5 | 40 | 78 | 3 |
| Cage, Shellfish | 2% | 19% | 28% | 18% |
| <i>Count</i> | 3 | 31 | 75 | 6 |
| Collection, Shellfish larvae/spar | 7% | 7% | 4% | 3% |
| <i>Count</i> | 9 | 11 | 12 | 1 |
| Float, Shellfish | 1% | 10% | 10% | -- |
| <i>Count</i> | 2 | 16 | 28 | 0 |
| Collection, finfish egg/fingerling/fry | 5% | 2% | 3% | -- |
| <i>Count</i> | 7 | 4 | 7 | 0 |
| Hatchery, land-based | 37% | 11% | 5% | 6% |
| <i>Count</i> | 51 | 18 | 14 | 2 |
| Longline, Shellfish | 1% | 2% | 6% | -- |
| <i>Count</i> | 1 | 3 | 15 | 0 |
| Net Pen | -- | 1% | 4% | -- |
| <i>Count</i> | 0 | 1 | 10 | 0 |
| Nets, Lantern/Pearl | -- | 3% | 3% | -- |
| <i>Count</i> | 0 | 5 | 8 | 0 |
| On-bottom, Shellfish (no gear) | 1% | 4% | 24% | 24% |
| <i>Count</i> | 2 | 6 | 65 | 8 |
| On-bottom, Shellfish (predator netting) | 3% | 9% | 23% | 6% |
| <i>Count</i> | 4 | 15 | 63 | 2 |

| | Hatchery | Nursery | Grow-Out | Depuration |
|---|----------|---------|----------|------------|
| Pond, Open | 17% | 11% | 17% | 12% |
| <i>Count</i> | 23 | 18 | 45 | 4 |
| Pond, Cage Culture | 1% | 2% | 4% | -- |
| <i>Count</i> | 1 | 4 | 12 | 0 |
| Purchase, Shellfish Larvae | 14% | 6% | 3% | -- |
| <i>Count</i> | 19 | 10 | 7 | 0 |
| Purchase, Finfish egg/fingerling/fry | 6% | 1% | 2% | -- |
| <i>Count</i> | 8 | 1 | 6 | 0 |
| Raceway | 15% | 10% | 6% | 9% |
| <i>Count</i> | 21 | 16 | 17 | 3 |
| Raft, Shellfish | 1% | 5% | 6% | 3% |
| <i>Count</i> | 2 | 9 | 15 | 1 |
| Tank, single-pass | 14% | 8% | 6% | 18% |
| <i>Count</i> | 19 | 13 | 15 | 6 |
| Tank, recirculating | 20% | 20% | 12% | 26% |
| <i>Count</i> | 28 | 32 | 33 | 9 |
| Tray, Shellfish | 1% | 8% | 10% | 3% |
| <i>Count</i> | 2 | 13 | 28 | 1 |
| Upweller, Floating | 4% | 21% | 4% | -- |
| <i>Count</i> | 5 | 35 | 12 | 0 |
| Upweller, Land-based | 7% | 13% | 1% | -- |
| <i>Count</i> | 10 | 21 | 3 | 0 |
| Total | 137 | 164 | 270 | 34 |

Q8. Including yourself, how many people (part-time, full-time, and seasonal) do you typically employ at this location?

| | Total | Count |
|--------------|--------------|--------------|
| 1-5 | 87% | 265 |
| 6-10 | 10% | 31 |
| 11-50 | 2% | 7 |
| 51+ | 1% | 2 |
| Count | | 305 |

Q9. How many years have you been in business?

| | Total | Count |
|---------------------------|--------------|--------------|
| Less than 1 year | 3% | 10 |
| 1 to 5 years | 23% | 71 |
| 6 to 10 years | 21% | 65 |
| More than 10 years | 53% | 166 |
| Count | | 312 |

Q10. Which aquaculture organizations, associations, or societies, if any, do you belong to?

| | Total | Count |
|---|--------------|--------------|
| State Organizations | 44% | 114 |
| Regional Organizations | 13% | 42 |
| National Organizations | 14% | 45 |
| International Organizations | 5% | 16 |
| I do not belong to any aquaculture organizations, associations, or societies | 56% | 145 |
| Count | | 326 |

Q11. From the following possibilities, please select the top three sources where you currently obtain information related to PRODUCTION (e.g., new growing practices, new gear)?

| | 1 st Source | Count | 2 nd Source | Count | 3 rd Source | Count |
|------------------------------|---------------------------|-------|---------------------------|-------|---------------------------|-------|
| Other aquaculture producers | 40% | 115 | 11% | 32 | 11% | 32 |
| Extension personnel | 10% | 28 | 13% | 37 | 8% | 24 |
| State Government | 10% | 28 | 12% | 36 | 6% | 17 |
| Industry suppliers | 8% | 23 | 14% | 40 | 7% | 21 |
| Municipal or City Government | 5% | 13 | 2% | 6 | 4% | 13 |
| Researcher personnel | 5% | 13 | 9% | 26 | 7% | 19 |
| Federal Government | 3% | 8 | 4% | 11 | 4% | 11 |
| Industry association | 3% | 8 | 9% | 27 | 9% | 27 |
| Non-government organization | 2% | 6 | 2% | 7 | 7% | 9 |
| Other | 6% | 17 | 1% | 3 | 3% | 8 |
| Not applicable to my job | 10% | 30 | -- | -- | -- | -- |

Q12. From the following list of possibilities, please select the top three ways you would *prefer* to obtain information related to PRODUCTION (e.g., new growing practices, new gear)?

| | 1 st Preferred Way | Count | 2 nd Preferred Way | Count | 3 rd Preferred Way | Count |
|---------------------------------|-------------------------------------|-------|-------------------------------------|-------|-------------------------------------|-------|
| One-on-one consultation | 31% | 90 | 5% | 14 | 5% | 16 |
| Trade publication | 16% | 47 | 13% | 39 | 12% | 36 |
| Group workshop | 11% | 33 | 20% | 58 | 7% | 21 |
| Internet search | 9% | 25 | 9% | 26 | 14% | 41 |
| E-mail listserv | 6% | 20 | 6% | 19 | 5% | 15 |
| Non-trade publication | 6% | 19 | 11% | 31 | 15% | 43 |
| Industry association newsletter | 5% | 16 | 10% | 30 | 9% | 27 |
| Instructional DVD | 2% | 7 | 5% | 15 | 4% | 13 |
| Podcast | -- | 0 | 0% | 1 | -- | 0 |
| Other | 2% | 5 | 1% | 3 | -- | 0 |
| Not applicable to my job | 11% | 33 | -- | -- | -- | -- |

Q13. From the following list of possibilities, please select the top three sources where you currently obtain information related to MARKETING (e.g. packaging, labeling, value-added products).

| | 1 st Source | Count | 2 nd Source | Count | 3 rd Source | Count |
|------------------------------|---------------------------|-------|---------------------------|-------|---------------------------|-------|
| Other aquaculture producers | 23% | 68 | 12% | 35 | 7% | 21 |
| State Government | 9% | 25 | 5% | 14 | 4% | 13 |
| Industry association | 9% | 27 | 8% | 24 | 4% | 12 |
| Industry suppliers | 6% | 17 | 11% | 31 | 6% | 18 |
| Extension personnel | 5% | 16 | 7% | 20 | 6% | 18 |
| Municipal or City Government | 3% | 9 | 3% | 8 | 2% | 7 |
| Non-government organization | 2% | 5 | 2% | 5 | 6% | 17 |
| Federal Government | 2% | 5 | 2% | 5 | 1% | 4 |
| Researcher personnel | 0% | 1 | 1% | 4 | 4% | 11 |
| Other | 7% | 20 | 2% | 5 | 1% | 3 |
| Not applicable to my job | 34% | 101 | -- | -- | -- | -- |

Q14. From the following list of possibilities, please select the top three ways you would *prefer* to obtain information related to MARKETING (e.g., packaging, labeling, value-added products).

| | 1 st Preferred Way | Count | 2 nd Preferred Way | Count | 3 rd Preferred Way | Count |
|---------------------------------|-------------------------------------|-------|-------------------------------------|-------|-------------------------------------|-------|
| One-on-one consultation | 19% | 56 | 4% | 12 | 4% | 12 |
| Trade publication | 13% | 38 | 11% | 32 | 10% | 28 |
| Industry association newsletter | 8% | 24 | 8% | 24 | 8% | 22 |
| Group workshop | 8% | 23 | 13% | 37 | 6% | 16 |
| E-mail listserv | 7% | 19 | 4% | 13 | 3% | 10 |
| Internet search | 5% | 15 | 5% | 14 | 7% | 21 |
| Non-trade publication | 4% | 12 | 9% | 25 | 8% | 22 |
| Instructional DVD | 1% | 4 | 3% | 8 | 4% | 12 |
| Podcast | -- | 0 | 0% | 1 | 0% | 1 |
| Other | 2% | 5 | -- | 0 | 0% | 1 |
| Not applicable to my job | 32% | 93 | -- | -- | -- | -- |

Q15. From the following list of possibilities, please select the top three sources where you currently obtain information related to the REGULATORY PROCESS (e.g. permitting, policy).

| | 1st Source | Count | 2nd Source | Count | 3rd Source | Count |
|-------------------------------------|----------------------------------|--------------|----------------------------------|--------------|----------------------------------|--------------|
| State Government | 60% | 177 | 17% | 50 | 7% | 21 |
| Municipal or City Government | 11% | 33 | 7% | 20 | 5% | 16 |
| Other aquaculture producers | 9% | 25 | 18% | 54 | 16% | 47 |
| Industry association | 6% | 17 | 9% | 27 | 10% | 30 |
| Federal Government | 3% | 10 | 18% | 54 | 9% | 27 |
| Extension personnel | 3% | 10 | 8% | 23 | 17% | 49 |
| Other | 1% | 4 | 1% | 3 | 1% | 3 |
| Not applicable to my job | 6% | 19 | -- | -- | -- | -- |

Q16. From the following list of possibilities, please select the top three ways you would *prefer* to obtain information related to REGULATORY PROCESS (e.g. permitting, policy).

| | 1st Preferred Way | Count | 2nd Preferred Way | Count | 3rd Preferred Way | Count |
|--|---|--------------|---|--------------|---|--------------|
| Regulatory guide or manual | 31% | 91 | 15% | 45 | 18% | 53 |
| One-on-one consultation | 23% | 67 | 4% | 12 | 8% | 23 |
| Industry association newsletter | 12% | 35 | 20% | 57 | 11% | 33 |
| Group workshop | 10% | 29 | 13% | 37 | 10% | 28 |
| E-mail listserv | 9% | 26 | 11% | 33 | 8% | 23 |
| Internet search | 4% | 12 | 11% | 32 | 9% | 25 |
| Other | 2% | 6 | 0% | 1 | 1% | 2 |
| Not applicable to my job | 9% | 25 | -- | -- | -- | -- |

Q17. From the following list of possibilities, please select the top three sources where you currently obtain information related to BUSINESS DEVELOPMENT (e.g., crop insurance, grants, loans).

| | 1 st Source | Count | 2 nd Source | Count | 3 rd Source | Count |
|------------------------------|---------------------------|-------|---------------------------|-------|---------------------------|-------|
| Other aquaculture producers | 16% | 46 | 12% | 34 | 7% | 22 |
| State Government | 15% | 44 | 12% | 34 | 5% | 16 |
| Extension personnel | 13% | 39 | 10% | 29 | 8% | 25 |
| Industry association | 9% | 25 | 11% | 31 | 7% | 21 |
| Municipal or City Government | 5% | 15 | 2% | 5 | 5% | 14 |
| Non-government organization | 5% | 14 | 2% | 7 | 4% | 12 |
| Federal Government | 5% | 14 | 7% | 22 | 6% | 17 |
| Industry suppliers | 3% | 8 | 4% | 12 | 4% | 12 |
| Researcher personnel | 1% | 3 | 2% | 7 | 4% | 13 |
| Other | 2% | 6 | 1% | 2 | 1% | 4 |
| Not applicable to my job | 27% | 80 | -- | -- | -- | -- |

Q18. From the following list of possibilities, please select the top three ways you would *prefer* to obtain information related to BUSINESS DEVELOPMENT (e.g., crop insurance, grants, loans).

| | 1 st Preferred Way | Count | 2 nd Preferred Way | Count | 3 rd Preferred Way | Count |
|---------------------------------|-------------------------------------|-------|-------------------------------------|-------|-------------------------------------|-------|
| One-on-one consultation | 20% | 58 | 4% | 11 | 4% | 11 |
| Group workshop | 13% | 37 | 13% | 38 | 7% | 19 |
| Trade publication | 13% | 38 | 10% | 30 | 8% | 24 |
| Industry association newsletter | 8% | 23 | 10% | 30 | 10% | 29 |
| E-mail listserv | 8% | 23 | 7% | 21 | 7% | 21 |
| Internet search | 4% | 12 | 7% | 19 | 10% | 29 |
| Non-trade publication | 4% | 10 | 8% | 22 | 7% | 21 |
| Instructional DVD | 4% | 10 | 5% | 14 | 2% | 6 |
| Podcast | -- | 0 | 0% | 1 | 1% | 2 |
| Other | 2% | 6 | 1% | 2 | 0% | 1 |
| Not applicable to my job | 25% | 71 | -- | -- | -- | -- |

Q19. Is your state aquaculture association still in existence?

| | Total | Count |
|--------------|--------------|--------------|
| Yes | 86% | 216 |
| No | 14% | 35 |
| Count | | 251 |

Q20. Overall, how satisfied are you with the aquaculture information available in your state?

| | Total | Count |
|-----------------------------|--------------|--------------|
| Very satisfied | 18% | 53 |
| Somewhat satisfied | 50% | 150 |
| Not too satisfied | 18% | 55 |
| Not satisfied at all | 15% | 44 |
| Count | | 302 |

IQ21. How important are the following types of information for your operation?

Q21. Production (e.g. information on new growing practices, new gear)

| | Total | Count |
|-----------------------------|--------------|--------------|
| Critical | 21% | 67 |
| Important | 61% | 197 |
| Not Important | 13% | 41 |
| Not at all Important | 5% | 17 |
| Count | | 322 |

Q22. Marketing (e.g. information on packaging, labeling, value-added products)

| | Total | Count |
|-----------------------------|--------------|--------------|
| Critical | 11% | 35 |
| Important | 39% | 125 |
| Not Important | 32% | 104 |
| Not at all Important | 18% | 57 |
| Count | | 321 |

Q23. Regulatory Process (e.g. permitting, policy)

| | Total | Count |
|-----------------------------|--------------|--------------|
| Critical | 34% | 109 |
| Important | 56% | 180 |
| Not Important | 7% | 21 |
| Not at all Important | 4% | 12 |
| Count | | 322 |

Q24. Business Development (e.g., crop insurance, grants, loans)

| | Total | Count |
|-----------------------------|--------------|--------------|
| Critical | 15% | 48 |
| Important | 48% | 154 |
| Not Important | 24% | 77 |
| Not at all Important | 12% | 39 |
| Count | | 318 |

Q25. How often do you use the internet to search for aquaculture information?

| | Total | Count |
|---|--------------|--------------|
| Multiple times a day | 5% | 16 |
| Once a day | 4% | 12 |
| A few times a week | 17% | 54 |
| Once a week | 12% | 38 |
| Less than once a week | 46% | 148 |
| I do not have access to the Internet | 16% | 51 |
| Count | | 319 |

Q26. How often do you check e-mail?

| | Total | Count |
|---|--------------|--------------|
| Multiple times a day | 32% | 102 |
| Once a day | 23% | 73 |
| A few times a week | 16% | 51 |
| Once a week | 5% | 17 |
| Less than once a week | 7% | 22 |
| I do not have and e-mail account | 17% | 56 |
| Count | | 321 |

Q27. Which of the following workshops or conferences on aquaculture do you attend?

| | Total | Count |
|--|--------------|--------------|
| Milford Aquaculture Seminar | 16% | 48 |
| Northeast Aquaculture Conference & Exposition (NACE) | 13% | 41 |
| Fish Expo | 13% | 40 |
| Maryland Waterman's Show | 11% | 33 |
| Maine Fisherman's Forum | 5% | 15 |
| Recirculating Aquaculture Conference | 4% | 12 |
| Annual Meeting of the National Shellfisheries Association | 4% | 13 |
| Northeast Fish and Wildlife Conference | 2% | 5 |
| Annual Meeting of the US Aquaculture Society | 2% | 6 |
| Annual Meeting of the American Fisheries Society | 2% | 5 |
| Annual Meeting of the National Aquaculture Association | 1% | 4 |
| Other | 18% | 54 |
| I do not attend workshops or conferences on aquaculture. | 47% | 143 |
| Count | | 307 |

Appendix B: Open-Ended Responses

Q4. What species do you currently work with?

Alewife, shad
American shod
Atlantic Sturgeon
Black banded sunfish
Blue fin
Blue gill (4 mentions)
Blue tilapia
Clam, Razor
Common shiners (2 mentions)
Coral, Marine Ornaments
Crawfish
Crayfish (6 mentions)
Eastern silvery minnows
Eel
Fathead minnow
Freshwater
Giant Rosenbergi Prawn/freshwater
Gigas oyster
Golden Pond Shiner
Golden Trout
Guppies
Horseshoe Crab, American
Jonah Crabs
Koi (12 mentions)
Lake Trout, Lake sturgeon
Macroalgae (2 mentions) & Microalgae Marine
Ornaments (2 mentions)
Predators
Rainbow smelt (3 mentions)
Red Claw Crayfish
Sand Worms (2 mentions)
Sea Urchins
Sikamega oyster
Snails
Snapping turtles
Surf clam (2 mentions)
Tiger trout
Turtles
White perch

Q6. What species, not listed above, would you be interested in working with?

American eel
Asian oysters (2 mentions)
Bait fish (Emerald shiners, Creek chubs)
Blood worms (2 mentions)
Blue back trout
Blue crab,
Butter clams
Corydoras
Cod
Crayfish
Eastern oyster
Eel
Haddock
Horseshoe crab (2 mentions)
Israeli carp
Kumamoto oysters
Muskellunge
Northern Quahog oyster(2 mentions)
Ornamentals
Oyster, European flat
Oysters
Pickerel
Rainbow smelt
Razor clam (12 mentions)
Red cherry shrimp
Sea scallops
Sea urchin (4 mentions)
Sea worms
Seaweed (5 mentions)
Shrimp
Smallmouth buffalo or possibly blow mouth
Snails
Sturgeon (3 mentions)
Surf clam (5 mentions)
Tautog
Trout

Q10. Which aquaculture organizations, associations, or societies, if any, do you belong to?

State Organizations

Aquaculture Council of Pennsylvania Agricultural Industries
Cape Cod Farm Bureau
Capital Cichlid Association
Connecticut Guilford Shellfish Commission
Connecticut Seafood Council (2 mentions)
Cornell Marine Extension
DE Aquaculture Association
East End Marine Farmer's Association (5 mentions)
Florida Tropical Fish Farming Assoc.
MAA (10 mentions)
Maine Aquaculture Association (12 mentions)
Maine Aquaculture innovation Center
Maine Ice Anglers Association
Maryland Waterman (2 mentions)
Massachusetts Aqua Growers
Massachusetts Aquaculture Association (30 mentions)
Massachusetts Farm Bureau
Massachusetts Farm Bureau (2 mentions)
Massachusetts Shellfish Officers Association (2 mentions)
MOGG
MSGA
NEMAC
New Hampshire Aquaculture Association (2 mentions)
New Jersey Aquaculture Association (3 mentions)
New Jersey Department of Agriculture (2 mentions)
New Jersey Farm Bureau
New Jersey Planters & Packers Association (2 mentions)
New Jersey Seafood Association
New Jersey Shellfish Association (8 mentions)
Ocean State Aquaculture Association (6 mentions)
Pennsylvania Aquaculture Association (10 mentions)
Pennsylvania Trout Farmers
Potomac Valley Aquarium Society
Salem State, Salem MA & UMASS, Amherst MA
SEMAC (6 mentions)
Trout organization
Wellport
West Virginia Aquaculture Association (6 mentions)
Western Massachusetts Center Sustainable Aquaculture

Regional Organizations

Barnstable
Boothbay Region Land Trust
Delaware Bay Oyster Planters and Packers Association
East Coast Shellfish Growers Association (30 mentions)
Freeport Shellfish Conservation Commission
ISS
Northeastern Regional Aquaculture Association (2 mentions)
PCSGA
Pennsylvania Trout Farmers
Plymouth County Farm Bureau
West Virginia

National Organizations

American Fisheries Society (10 mentions)
Aquaculture Engineering Society
Conservation District
Farm Bureau
ISSC
MAICC
National Aquaculture Association (5 mentions)
National Association of Pond Professionals
National Fisheries Institute
National Shellfisheries Association (16 mentions)
US Trout Farmers Association (9 mentions)

International Organizations

Canadian Aquaculture Association (3 mentions)
EAS
GAA
IAA
International Water Gardening Society (2 mentions)
Mail-order Gardening Association
SOTA
World Aquaculture Association (11 mentions)

Q27. Which of the following workshops or conferences on aquaculture do you attend?

Annual Gathering of Shellfish Commissioners
Annual Striped Bass for Penn Farm Bureau
Aquaculture America (2 mentions)
Boston Seafood Show (5 mentions)
Connecticut Shellfish Commission Meetings
Delaware Bay Shellfish Council Meetings
Delaware Extension Class
Extension Seminars
Hasken Research Lab.
International Shellfish Restoration Conference
ISSC (3 mentions)
IWGS
Local workshops (4 mentions)
Marine Aquarium Conference of North America
Maryland Aquaculture Coordinating Council
Massachusetts Aquaculture Association meetings (4 mentions)
Massachusetts Lobstermen's Show
Massachusetts Shellfish Officers Association
NC State
New Hampshire Aquaculture Association
Northeast Farmed Fish Health Management Workshop (2 mentions)
NRAC (2 mentions)
OCC
Pennsylvania Aquaculture Conference (3 mentions)
Sportsman Show
Stock Assessment Workshop Meetings
UMass Aquaculture Meetings
UNH Extension Workshops
United States Trout Farmers Association (5 mentions)
WV Aquaculture Association
WAS (3 mentions)

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