



SHELLFISH AQUACULTURE FEASIBILITY STUDY

Expanding Shellfish Culture in the NRAC Region – Constraints to existing industry expansion and an analysis of the economic feasibility of new, small-scale oyster culture businesses

Part I: Industry Survey

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- characterize the current business structure of shellfish aquaculture operations
- determine the interest or willingness of existing shellfish companies to expand
- identify company perceptions of the constraints to expand, if any
- identify costs and methods of production that can be used in new business start-up models

Other authors have investigated current and emerging issues related to shellfish aquaculture (Duff et al. 2003, Shumway & Kraeuter 2004) and developed methods to address such issues. Our objective was to collect qualitative data that would assist us in developing business management plans for shellfish aquaculture that would take into account certain impediments to existing operations. Part Two of the project consists of a business feasibility study for two different sized start-up oyster aquaculture companies. The two parts resulted in the development of business plans for new oyster companies including: a) small scale production and sales (100,000 market oysters/year) and b) medium scale production and sales (1,000,000 oysters/year). The business plans can be reviewed in the accompanying manuscript.

Methods

A survey was developed by Coastal Resource Specialists Inc. and extension agents at both the University of Connecticut and the University of Maine. A panel of three university-based agriculture economists from Connecticut and Maine reviewed a draft of the survey and provided recommendations. We targeted industry leaders and associations and then surveyed for further representation within those groups. We focused on business owners rather than the general workforce in order to standardize the sample. The final survey was mailed along with instructions to approximately 400 shellfish growers in the Northeast region.

The survey consisted of 64 ticking boxes (yes - no), closed form (multiple choices), or open-ended questions (Appendix 1) with topic areas including:

- farmland acquisition
- size of operation
- methods of production; scale
- business expansion

We also conducted several on-site and phone interviews to gather additional information from survey respondents.

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Results

Survey responses were used as the qualitative data for this study. We received 55 usable responses, a rate of 14%, out of 400 mailed surveys. These responses represented industry members in each of the Northeast coastal states with the exception of New Hampshire and Delaware where there is little commercial activity. The majority of respondents farmed oysters (*Crassostrea virginica*) or clams (*Mercenaria mercenaria*), often farming both on the same farm. Other species included blue mussels (*Mytilus edulis*), bay scallops (*Argopecten irradians*) and Belon oysters (*Ostrea edulis*).

Farmland Acquisition:

Of the survey participants, 72% utilized a leasing system rather than a grant. Some states have jurisdictional lines between state and town waters, whereas others do not specify local jurisdiction. We asked whether the growers worked in town or state waters or both. Many of the responses (61%) indicated that they utilize town waters (where available), but noted that leases or grants in town waters were significantly smaller allocations than those in state waters. The vast majority of respondents work in subtidal waters with the exception of Massachusetts and Maine, where intertidal flats are common. Additionally, respondents in MA (4), CT (2), ME (1) and NJ (1) said they work in both subtidal and intertidal waters.

Expansion of farmland was noted as dependent upon state or town laws, and acreage was limited to two acres in some states, while others allowed up to 100 acres. The largest leaseholds were in Connecticut and New Jersey. Greater than three-quarters (76%) of the respondents favored some sort of aquaculture zoning, with 88% preferring to determine their own site within an aquaculture zone.

Size of Operation

Nearly three-quarters of respondents (74%) businesses consist mainly of 'mom and pop' operations having ten or less employees, with New York and Connecticut as the exceptions. Larger businesses were characterized as operating with predominantly full-time rather than seasonal work; and hired laboratory scientists as well as a general labor force. In almost all cases, the owner/operator was involved in every aspect of the operation.

Methods of Production; Scale

Seventy-five percent of the respondents noted that they were not at what they considered full production, which ranged from 100,000 to 5,000,000 units, depending on business size. When asked if there were benefits to expansion, there was no consensus. The majority of respondents (>80%) said that adequate area for expansion was available, but that multiple conflicts exist which prevented them from securing the site. Major obstacles to expansion (>80% response) included: recreational boating, recreational fishing and navigation. Other obstacles not considered major, but noted by the respondents included: commercial fishing, poaching, aesthetics, and vandalism.

Business expansion

Approximately two-thirds of the respondents have access to credit and a skilled labor force, and half of those respondents do not feel as if this is a constraint on operations. Product prices, however, do have an influence on expansion according to the survey responses. Many respondents claimed that prices have risen in the case of oysters, and have remained constant or declined for clams (*Mercenaria mercenaria*). Respondents suggested that product price would influence their decision to expand but that price was not the only factor they would consider.

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Discussion

Through the responses to our survey, we have achieved a better understanding of the current business structure of the shellfish aquaculture operations, impediments to expansion, potential solutions, and how this relates back to business planning.

The results suggest that although some of the limitations to expansion are technology, marketing and regulatory constraints, use conflicts may also be impediments to expansion. Use conflicts emerge during the regulatory process to obtain a lease. Respondents noted public uses of their leased sites but half of them did not consider public use to be in conflict with their operation. Use conflicts can not be addressed through lab or field work, but rather by working with people (Mazur et al. 2005). Social research is becoming more important as our coastal areas are further developed for public use, however, many scientists and extension agents are not trained in conflict management which in itself can become a constraint to development.

Summary

The main objective of our two-part study was to develop business plans for economic sustainability; however, we can not stress enough the importance of growers developing socially-responsible business plans as well. Growers must take into account the current and potential uses of the coastal zone and work within their community to choose appropriate sites for their operations.

The information provided by individual respondents through surveys and interviews is confidential and was used solely to provide information for drawing up business plans for Part Two of the project. Although we received extensive information from surveys and personal interviews, we are careful not to state that these opinions are the same for those who did not complete the survey or participate in the interviews.

References

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Presentations

This research was presented at the following industry meetings:

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Northeastern Regional
AQUACULTURE
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NRAC Project No. **xxxx**

Produced for:

Northeast Regional Aquaculture Center
University of Massachusetts Dartmouth
Violette Building, Room 201
285 Old Westport Road
North Dartmouth, MA 02747-2300





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EXPANDING THE SHELLFISH AQUACULTURE INDUSTRY

A goal of the Northeast Regional Aquaculture Center (NRAC) is to double aquaculture production within a decade. In order to expand the shellfish component of the industry, NRAC funded a research proposal with a two-pronged approach. The first is to develop two model oyster start-up business plans for those wishing to enter the industry, one was for target production of 100,000 oysters per year and the other was for a million. The second task is to determine factors that pose constraints to expansion of the industry, and recommended strategies on how to overcome these constraints.

Dear Grower:

We are asking you to complete the following survey to help the Northeastern Regional Aquaculture Center better define constraints to expansion of the shellfish aquaculture industry in our area. Our project team members have collectively been involved in the shellfish industry for decades and all of us realize the sensitivity of the information we are requesting. Please be assured that we will maintain strict business confidentiality. Your answers will be part of an aggregate, and compiled so that individual company responses cannot be identified. We have designed our questions, and will report our results, in a manner that will respect your privacy.

We know the survey is lengthy but we believe that your responses will make a difference and help build a more robust industry. It is our hope that if constraints to business expansion can be identified, NRAC and other funding agencies can be encouraged to address these constraints. We are working on a tight time line, and we would really appreciate getting your response back to us as soon as possible. If we don't hear from you by November 10th we may contact you by phone or arrange to pay you a visit.

Finally, in order to ensure that the final document reflects an accurate assessment of the information provided in the survey, we want to obtain some feedback before making the report final. As a company that has participated in this survey, we will send you a draft of our report for your comments and suggestions.

We thank you for your time and candor.

Ed Rhodes, Rob Garrison, Sandra MacFarlane, Dana Morse and Tessa Getchis
Shellfish Research Team, Northeastern Regional Aquaculture Center

Please return your survey to: Tessa Getchis
Connecticut Sea Grant
1080 Shennecossett Road
Groton, CT 06340-6048

Location of Operation(s)

- 1. In what state(s) do you grow shellfish?
CT DE MA MD ME NH NY RI

- 2. Where are your farm sites located?
<town waters> <state waters> <both>
<contiguous areas> <scattered areas>

- 3. Are your farm sites considered one of the following areas:
<lease> <grant> <deed> <combination>

Species

- 4. What shellfish do you culture? Please list species
<oysters> _____ <clams> _____
<mussels> _____ <scallops> _____
<other> _____

Farm Size

- 5. What is the size of your total lease holdings in acres?
<1-10> <11-50> <51-100> <101+>

- 6. How many acres do you use for each of the species you grow?
Species name Acres
_____ <1-10 acres> <11-50 acres> <51-100 acres> <101+ acres>
_____ <1-10 acres> <11-50 acres> <51-100 acres> <101+ acres>

Employment

- 7. How many people do you employ?
<1-5> <6-10> <11-20> <21-50> <51+>

- 8. How many of your staff members are employed:
Seasonally:
<1-5> <6-10> <11-20> <21-50> <51+>
Year round:
<1-5> <6-10> <11-20> <21-50> <51+>
Full-time:
<1-5> <6-10> <11-20> <21-50> <51+>
Part-time:
<1-5> <6-10> <11-20> <21-50> <51+>

- 9. How many of your staff are involved in the following:
Management:
<1-5> <6-10> <11-20> <21-50> <51+>
Scientist/Researcher:
<1-5> <6-10> <11-20> <21-50> <51+>
Labor:
<1-5> <6-10> <11-20> <21-50> <51+>
Other:
<1-5> <6-10> <11-20> <21-50> <51+>

Methods of Production

10. Is your farm:
 <intertidal> <subtidal> <both>
11. How do you access your site?
 <boat> <vehicle> <both>
12. Please describe your production methods:
- a. hatchery/seed purchase

 - b. nursery

 - c. grow-out

 - d. harvest

Production

13. What is your current production? (Use a separate page if you grow more than two species.)

Species:	less than 100,000	100K-500K	500K-1M	1M-5M	5M+
Hatchery Production					
Nursery Production					
Grow-out Production					

Species:	less than 100,000	100K-500K	500K-1M	1M-5M	5M+
Hatchery Production					
Nursery Production					
Grow-out Production					

14. Are you at what you consider full production?
 <yes> <no>
15. If no, what is your target production number?
 <less than 100,000> <100K-500K> <500K-1M> <1M-5M> <5M+>

Marketing

16. What percentage of product do you sell to the following:
- <wholesaler> _____% <retailer> _____% <fish market> _____%
 <restaurant> _____% <direct> _____% <through dealer> _____%
 <other> _____%
17. What percentage of your product is sold to the following markets?
 <local/regional> _____% <national> _____% <international> _____%

18. Are you involved in a marketing cooperative?
 <yes> <no>
19. Have you developed a “niche” market, for example, value-added products?
 <yes> <no>
20. Is your “niche” market based on area where your product is cultured, i.e. trade name or brand?
 <yes> <no>

Expansion

21. If you could expand the physical size of (acreage) your operation, would you?
 <yes> <no>
22. If you expanded your business, how large would you grow it in 10 yrs?
 _____ acres
23. Would there be benefits, other than financial, to expanding? If so, what would they be?
 <yes> <no> <examples>

24. What are some of the items preventing you from expanding your operation?

Criteria for Expansion

Location/Siting:

25. Does your state, county or town allow you access to suitable sites for the following:
 nursery culture <yes> <no>
 grow-out area <yes> <no>
 land-based operations <yes> <no>
26. What is the maximum acreage your state, county or town allows for aquaculture businesses?
 _____ acres
27. Is your operation at maximum acreage allowed?
 <yes> <no>
28. Could you obtain a lease site in a different area?
 <yes> <no>
29. Would multiple lease areas be calculated as part of the maximum area allowed?
 <yes> <no>
30. Is sub-leasing an acceptable practice in your state, county or town?
 <yes> <no>

31. If yes, could you expand your business through that mechanism?
 <yes> <no>
32. Do you believe that state, county or town designated aquaculture “zones” can be used to assist with siting?
 <yes> <no>
33. Do you favor finding your own suitable site?
 <yes> <no>
34. Would you prefer to find a site under a zoning system, or to find a site on your own?
 <Zoning preferable>_____ <Self siting preferable>_____
35. Are other commercial or recreational uses allowed on your site?
 <yes> <no>
36. If yes, what are they?
 <recreational boating> <recreational fishing> <commercial fishing>
 <beachcombing> <navigation> <other>
37. Do you consider public use of your lease an obstacle :
 a. to your current operation? b. to expansion of your operation
 <yes> <no> <yes> <no>

Conflict:

38. Are there “user conflicts” on or adjacent to your site?
 <yes> <no>
39. What are they?
 <Loss of public resource> <poaching> <vandalism>
 <“Not in my backyard” complaints> <aesthetics> <other>

Credit:

40. Do you have access to increased capital from lending institutions for business expansion?
 <yes> <no>
41. If not, does your lending institution allow for any aquaculture loans?
 <yes> <no>

Employment:

42. Do you have access to skilled labor force in your state, county or town?
 <yes> <no>
43. If no, do you consider that a constraint to your operation?
 <yes> <no>
44. Does the cost of labor in your state, county or town preventing expansion?
 <yes> <no>

Management:

- 45. To what degree are you involved in management?
<involved in every aspect of operation>
<involved in most aspects of operation>
<some involvement in management, but use staff to manage several aspects of operation>
<little to no involvement in management of operation>

- 46. Would you feel comfortable turning over management responsibilities to another individual in order to expand?
<yes> <no>

Marketing:

- 47. What is the current range of prices you receive for your products?
<Retail per piece> _____ <Retail per bushel> _____
<Wholesale per piece> _____ <Wholesale per bushel> _____

- 48. How has that changed since you have been in business?
<increase> <decrease> <no change>

- 49. Would higher market prices influence your decision about expansion?
<yes> <no>

Expansion:

- 50. Are there other restrictions on your operations such as gear use, noise, etc.? Please list.
<yes> <no>

- 51. Do you have suggestions of how shellfish aquaculture can be expanded?

Additional Questions for Oyster Growers

52. What is the survival rate of your product from seed to market?

<0-10%> <11-25%> <26-50%> <51-75 %> <75-100%>

53. What types of nursery systems do you use? Please list.

54. What type of grow-out systems do you use? Please list.

55. Do you own a hatchery as part of your operation?

<yes> <no>

56. If not, what size seed do you buy?

<less than 1mm> <1-10mm> <11-20mm> <20mm+>

57. How much money was required to start up the business?

<0-\$4,999> <\$5,000-\$9,999> <\$10,000-\$24,999>
<\$25,000-49,999> <\$50,000-\$99,999> <\$100,000-\$499,999>
<\$500,000+>

58. What percentages of your start-up costs are dedicated to the following:

<Labor> _____ <Equipment> _____ <Supplies> _____ <Permits> _____
<Consulting> _____ <Insurance> _____ <Construction> _____ <Other> _____

59. How much does it cost to run the business for a year at your current production level?

<0-\$4,999> <\$5,000-\$9,999> <\$10,000-\$24,999>
<\$25,000-49,999> <\$50,000-\$99,999> <\$100,000-\$499,999>
<\$500,000+>

60. How much does it cost to run the business for a year at full production?

<0-\$4,999> <\$5,000-\$9,999> <\$10,000-\$24,999>
<\$25,000-49,999> <\$50,000-\$99,999> <\$100,000-\$499,999>
<\$500,000+>

61. What percentages of your operation, at full production, are dedicated to the following?

<Labor> _____ <Equipment> _____ <Supplies> _____ <Permits> _____
<Consulting> _____ <Insurance> _____ <Construction> _____ <Seed> _____
<Other> _____

62. What is the average market price for the following:

<Retail per piece> _____ <Retail per bushel> _____
<Wholesale per piece> _____ <Wholesale per bushel> _____

63. Is there more than one grade of oyster? If so, please list.

<yes> <no>

64. Do you have a wholesale dealers permit?

<yes> <no>



EXPANDING THE SHELLFISH AQUACULTURE INDUSTRY

A goal of the Northeast Regional Aquaculture Center (NRAC) is to double aquaculture production within a decade. In order to expand the shellfish component of the industry, NRAC funded a research proposal with a two-pronged approach. The first is to develop two model oyster start-up business plans for those wishing to enter the industry, one was for target production of 100,000 oysters per year and the other was for a million. The second task is to determine factors that pose constraints to expansion of the industry, and recommended strategies on how to overcome these constraints.

Dear Grower:

We are asking you to complete the following survey to help the Northeastern Regional Aquaculture Center better define constraints to expansion of the shellfish aquaculture industry in our area. Our project team members have collectively been involved in the shellfish industry for decades and all of us realize the sensitivity of the information we are requesting. Please be assured that we will maintain strict business confidentiality. Your answers will be part of an aggregate, and compiled so that individual company responses cannot be identified. We have designed our questions, and will report our results, in a manner that will respect your privacy.

We know the survey is lengthy but we believe that your responses will make a difference and help build a more robust industry. It is our hope that if constraints to business expansion can be identified, NRAC and other funding agencies can be encouraged to address these constraints. We are working on a tight time line, and we would really appreciate getting your response back to us as soon as possible. If we don't hear from you by November 10th we may contact you by phone or arrange to pay you a visit.

Finally, in order to ensure that the final document reflects an accurate assessment of the information provided in the survey, we want to obtain some feedback before making the report final. As a company that has participated in this survey, we will send you a draft of our report for your comments and suggestions.

We thank you for your time and candor.

Ed Rhodes, Rob Garrison, Sandra MacFarlane, Dana Morse and Tessa Getchis
Shellfish Research Team, Northeastern Regional Aquaculture Center

Please return your survey to: Tessa Getchis
Connecticut Sea Grant
1080 Shennecossett Road
Groton, CT 06340-6048

Location of Operation(s)

- In what state(s) do you grow shellfish?
CT DE MA MD ME NH NY RI
- Where are your farm sites located?
<town waters> <state waters> <both>
<contiguous areas> <scattered areas>
- Are your farm sites considered one of the following areas:
<lease> <grant> <deed> <combination>

Species

- What shellfish do you culture? Please list species
<oysters> _____ <clams> _____
<mussels> _____ <scallops> _____
<other> _____

Farm Size

- What is the size of your total lease holdings in acres?
<1-10> <11-50> <51-100> <101+>
- How many acres do you use for each of the species you grow?
Species name Acres
_____ <1-10 acres> <11-50 acres> <51-100 acres> <101+ acres>
_____ <1-10 acres> <11-50 acres> <51-100 acres> <101+ acres>

Employment

- How many people do you employ?
<1-5> <6-10> <11-20> <21-50> <51+>
- How many of your staff members are employed:
Seasonally:
<1-5> <6-10> <11-20> <21-50> <51+>
Year round:
<1-5> <6-10> <11-20> <21-50> <51+>
Full-time:
<1-5> <6-10> <11-20> <21-50> <51+>
Part-time:
<1-5> <6-10> <11-20> <21-50> <51+>
- How many of your staff are involved in the following:
Management:
<1-5> <6-10> <11-20> <21-50> <51+>
Scientist/Researcher:
<1-5> <6-10> <11-20> <21-50> <51+>
Labor:
<1-5> <6-10> <11-20> <21-50> <51+>
Other:
<1-5> <6-10> <11-20> <21-50> <51+>

Methods of Production

10. Is your farm:
 <intertidal> <subtidal> <both>
11. How do you access your site?
 <boat> <vehicle> <both>
12. Please describe your production methods:
- a. hatchery/seed purchase

 - b. nursery

 - c. grow-out

 - d. harvest

Production

13. What is your current production? (Use a separate page if you grow more than two species.)

Species:	less than 100,000	100K-500K	500K-1M	1M-5M	5M+
Hatchery Production					
Nursery Production					
Grow-out Production					

Species:	less than 100,000	100K-500K	500K-1M	1M-5M	5M+
Hatchery Production					
Nursery Production					
Grow-out Production					

14. Are you at what you consider full production?
 <yes> <no>
15. If no, what is your target production number?
 <less than 100,000> <100K-500K> <500K-1M> <1M-5M> <5M+>

Marketing

16. What percentage of product do you sell to the following:
 <wholesaler> _____% <retailer> _____% <fish market> _____%
 <restaurant> _____% <direct> _____% <through dealer> _____%
 <other> _____%
17. What percentage of your product is sold to the following markets?
 <local/regional> _____% <national> _____% <international> _____%

18. Are you involved in a marketing cooperative?
<yes> <no>
19. Have you developed a “niche” market, for example, value-added products?
<yes> <no>
20. Is your “niche” market based on area where your product is cultured, i.e. trade name or brand?
<yes> <no>

Expansion

21. If you could expand the physical size of (acreage) your operation, would you?
<yes> <no>
22. If you expanded your business, how large would you grow it in 10 yrs?
_____ acres
23. Would there be benefits, other than financial, to expanding? If so, what would they be?
<yes> <no> <examples>

24. What are some of the items preventing you from expanding your operation?

Criteria for Expansion

Location/Siting:

25. Does your state, county or town allow you access to suitable sites for the following:
nursery culture <yes> <no>
grow-out area <yes> <no>
land-based operations <yes> <no>
26. What is the maximum acreage your state, county or town allows for aquaculture businesses?
_____ acres
27. Is your operation at maximum acreage allowed?
<yes> <no>
28. Could you obtain a lease site in a different area?
<yes> <no>
29. Would multiple lease areas be calculated as part of the maximum area allowed?
<yes> <no>
30. Is sub-leasing an acceptable practice in your state, county or town?
<yes> <no>

31. If yes, could you expand your business through that mechanism?
 <yes> <no>
32. Do you believe that state, county or town designated aquaculture “zones” can be used to assist with siting?
 <yes> <no>
33. Do you favor finding your own suitable site?
 <yes> <no>
34. Would you prefer to find a site under a zoning system, or to find a site on your own?
 <Zoning preferable>_____ <Self siting preferable>_____
35. Are other commercial or recreational uses allowed on your site?
 <yes> <no>
36. If yes, what are they?
 <recreational boating> <recreational fishing> <commercial fishing>
 <beachcombing> <navigation> <other>
37. Do you consider public use of your lease an obstacle :
 a. to your current operation? b. to expansion of your operation
 <yes> <no> <yes> <no>

Conflict:

38. Are there “user conflicts” on or adjacent to your site?
 <yes> <no>
39. What are they?
 <Loss of public resource> <poaching> <vandalism>
 <“Not in my backyard” complaints> <aesthetics> <other>

Credit:

40. Do you have access to increased capital from lending institutions for business expansion?
 <yes> <no>
41. If not, does your lending institution allow for any aquaculture loans?
 <yes> <no>

Employment:

42. Do you have access to skilled labor force in your state, county or town?
 <yes> <no>
43. If no, do you consider that a constraint to your operation?
 <yes> <no>
44. Does the cost of labor in your state, county or town preventing expansion?
 <yes> <no>

Management:

- 45. To what degree are you involved in management?
<involved in every aspect of operation>
<involved in most aspects of operation>
<some involvement in management, but use staff to manage several aspects of operation>
<little to no involvement in management of operation>

- 46. Would you feel comfortable turning over management responsibilities to another individual in order to expand?
<yes> <no>

Marketing:

- 47. What is the current range of prices you receive for your products?
<Retail per piece> _____ <Retail per bushel> _____
<Wholesale per piece> _____ <Wholesale per bushel> _____

- 48. How has that changed since you have been in business?
<increase> <decrease> <no change>

- 49. Would higher market prices influence your decision about expansion?
<yes> <no>

Expansion:

- 50. Are there other restrictions on your operations such as gear use, noise, etc.? Please list.
<yes> <no>

- 51. Do you have suggestions of how shellfish aquaculture can be expanded?

Additional Questions for Oyster Growers

52. What is the survival rate of your product from seed to market?

<0-10%> <11-25%> <26-50%> <51-75 %> <75-100%>

53. What types of nursery systems do you use? Please list.

54. What type of grow-out systems do you use? Please list.

55. Do you own a hatchery as part of your operation?

<yes> <no>

56. If not, what size seed do you buy?

<less than 1mm> <1-10mm> <11-20mm> <20mm+>

57. How much money was required to start up the business?

<0-\$4,999> <\$5,000-\$9,999> <\$10,000-\$24,999>
<\$25,000-49,999> <\$50,000-\$99,999> <\$100,000-\$499,999>
<\$500,000+>

58. What percentages of your start-up costs are dedicated to the following:

<Labor> _____ <Equipment> _____ <Supplies> _____ <Permits> _____
<Consulting> _____ <Insurance> _____ <Construction> _____ <Other> _____

59. How much does it cost to run the business for a year at your current production level?

<0-\$4,999> <\$5,000-\$9,999> <\$10,000-\$24,999>
<\$25,000-49,999> <\$50,000-\$99,999> <\$100,000-\$499,999>
<\$500,000+>

60. How much does it cost to run the business for a year at full production?

<0-\$4,999> <\$5,000-\$9,999> <\$10,000-\$24,999>
<\$25,000-49,999> <\$50,000-\$99,999> <\$100,000-\$499,999>
<\$500,000+>

61. What percentages of your operation, at full production, are dedicated to the following?

<Labor> _____ <Equipment> _____ <Supplies> _____ <Permits> _____
<Consulting> _____ <Insurance> _____ <Construction> _____ <Seed> _____
<Other> _____

62. What is the average market price for the following:

<Retail per piece> _____ <Retail per bushel> _____
<Wholesale per piece> _____ <Wholesale per bushel> _____

63. Is there more than one grade of oyster? If so, please list.

<yes> <no>

64. Do you have a wholesale dealers permit?

<yes> <no>

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Direct Costs										
Manager	50,000	51,500	53,045	54,636	56,275	57,964	59,703	61,494	63,339	65,239
Asst Manager	35,000	36,050	37,132	38,245	39,393	40,575	41,792	43,046	44,337	45,667
Field Workers	20,594	52,103	60,444	67,200	67,200	67,200	67,200	67,200	67,200	67,200
Sales/Shipping Coordinator			35,000	36,050	37,132	38,245	39,393	40,575	41,792	43,046
Payroll Taxes	8,448	11,172	14,850	15,691	16,000	16,319	16,647	16,985	17,333	17,692
Employee Benefits	21,250	21,888	31,294	32,233	33,200	34,196	35,222	36,278	37,367	38,488
Contract Services	3,500	3,605	3,713	3,825	3,939	4,057	4,179	4,305	4,434	4,567
Seed Costs	7,500	7,725	7,957	8,195	8,441	8,695	8,955	9,224	9,501	9,786
Equipment										
Boat	12,000	12,000								
Truck	5,000							5,000		
Generator	2,500					2,500				
Grader	7,500									
Pressure Washer (2)	1,400		1,400		1,400		1,400		1,400	
Barge		20,000								
Upwellers (10)	100,000									
Culture Gear	40,824	62,461	16,534	13,392						
Walk-in cooler		10,000								
Freight/Packaging			6,075	44,955	53,812	53,812	53,812	53,812	53,812	53,812
Supplies	20,000	20,600	21,218	21,855	22,510	23,185	23,881	24,597	25,335	26,095
Total Direct Costs	335,516	309,104	288,661	336,277	339,303	346,748	352,184	362,516	365,850	371,592
Overhead										
Administration/Bookkeeping	20,000	20,600	21,218	21,855	22,510	23,185	23,881	24,597	25,335	26,095
Advertising & Marketing			4,000	4,120	4,244	4,371	4,502	4,637	4,776	4,919
Dues and Subscriptions	200	206	212	219	225	232	239	246	253	261
Internet Fees	600	618	637	656	675	696	716	738	760	783
Licenses and Permits	400	412	424	437	450	464	478	492	507	522
Maintenance & Repairs	8,000	8,240	8,487	8,742	9,004	9,274	9,552	9,839	10,134	10,438
Rent (land-based facilities)	10,000	10,300	10,609	10,927	11,255	11,593	11,941	12,299	12,668	13,048
Rent (packing facility)	-	15,000	15,450	15,914	16,391	16,883	17,389	17,911	18,448	19,002
Postage and Delivery	300	300	2,000	2,060	2,122	2,185	2,251	2,319	2,388	2,460
Telephone	2,000	2,060	2,122	2,185	2,251	2,319	2,388	2,460	2,534	2,610
Travel & Conferences	3,000	3,090	6,000	6,180	6,365	6,556	6,753	6,956	7,164	7,379
Utilities	1,200	1,236	1,273	1,311	1,351	1,391	1,433	1,476	1,520	1,566
Fuel	3,500	3,605	3,713	3,825	3,939	4,057	4,179	4,305	4,434	4,567
Miscellaneous	3,000	3,090	3,183	3,278	3,377	3,478	3,582	3,690	3,800	3,914
Depreciation	21,261	21,899	22,556	23,232	23,929	24,647	25,387	26,148	26,933	27,741
Total Overhead	73,461	90,656	101,884	104,940	108,089	111,331	114,671	118,111	121,655	125,304
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10

Sales										
Units	0	121,500	899,100	1,076,247	1,076,247	1,076,247	1,076,247	1,076,247	1,076,247	1,076,247
Unit Selling Price		\$0.675	\$0.695	\$0.716	\$0.738	\$0.760	\$0.783	\$0.806	\$0.830	\$0.855
Revenue	\$0	\$82,037	\$625,284	\$770,937	\$794,065	\$817,887	\$842,424	\$867,696	\$893,727	\$920,539
Profit (Loss) and Cash Flow										
Revenue (Sales)	\$0	\$82,037	\$625,284	\$770,937	\$794,065	\$817,887	\$842,424	\$867,696	\$893,727	\$920,539
Direct costs	335,516	309,104	288,661	336,277	339,303	346,748	352,184	362,516	365,850	371,592
Indirect costs	73,461	90,656	101,884	104,940	108,089	111,331	114,671	118,111	121,655	125,304
Gross Profit (loss)	(408,977)	(317,723)	234,740	329,719	346,674	359,808	375,568	387,069	406,223	423,643
Cumulative cash	(408,977)	(726,700)	(491,960)	(162,241)	184,433	544,240	919,809	1,306,878	1,713,101	2,136,744

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Direct Costs										
Seed Cost	1,000	1,030	1,061	1,093	1,126	1,159	1,194	1,230	1,267	1,305
Equipment										
Boat	10,000									
Truck	5,000							5,000		
Pressure Washer	700			700			700			700
Upweller	10,000									
Culture Gear	4,800	4,800	2,400							
Freight/Packaging			1,000	3,500	5,000	5,000	5,000	5,000	5,000	5,000
Supplies	3,000	3,090	3,275	3,374	3,404	3,435	3,466	3,497	3,528	3,560
Total Direct Costs	33,500	7,890	8,363	8,614	8,692	8,770	8,849	8,929	9,009	9,090
Overhead										
Insurance	500	500	500	500	500	500	500	500	500	500
Advertising & Marketing			400	412	424	437	450	464	478	492
Licenses and Permits	400	412	437	450	463	477	492	506	521	537
Maintenance & Repairs	1,000	1,030	1,092	1,125	1,158	1,193	1,229	1,266	1,304	1,343
Postage and Delivery	50	50	100	103	106	109	113	116	119	123
Telephone	600	618	655	675	695	716	737	759	782	806
Fuel	1,200	1,236	1,310	1,349	1,390	1,432	1,475	1,519	1,564	1,611
Miscellaneous	300	309	328	337	347	358	369	380	391	403
Total Overhead	3,550	3,655	3,874	3,991	4,110	4,234	4,361	4,491	4,626	4,765
Total Expenses	37,050	11,545	12,238	12,605	12,802	13,004	13,210	13,420	13,635	13,855
Sales										
Units		20,000	70,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000
Unit Selling Price		0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55
Revenue		\$15,200	\$49,700	\$55,000	\$55,000	\$55,000	\$55,000	\$55,000	\$55,000	\$55,000
Net Income (loss)	(37,050)	3,655	37,462	42,395	42,198	41,996	41,790	41,580	41,365	41,145