

## Respondee Information

1. Name (optional, but encouraged)

2. Affiliation (optional, but encouraged)

3. Region

- Northeastern U.S.
- Southern U.S.
- North Central U.S.
- Western U.S.
- Tropical and Subtropical U.S.

4. Type of organization

- Private for profit
- Private not for profit
- Public not for profit
- Privately funded University
- Other (please specify)
- State funded University
- State funded Agency/Center
- Federally funded Agency/Center
- Tribal Agency

Broodstock

5. What is the broodstock availability?

- Wild Caught
- Farm raised 1st generation
- Farm raised less than 5 generations
- Farm raised greater than 5 generations
- Do not know

6. What is the common rearing system?

- Recirculating tank system
- Flow through tanks
- Ponds
- Other (please specify)
- Cages
- Net pens
- Do not know

7. Has directed selective breeding been implemented?

- Yes
- No
- Do not know

If Yes, selective breeding has been implemented, what traits are receiving focus (e.g., disease resistance)?

8. What is the spawning method?

- Tank spawn with hormone induced ovulation
- Tank spawn without hormone induced ovulation
- Strip spawn with hormone induced ovulation
- Strip spawn without hormone induced ovulation
- Do not know

9. If spawning agent is used, which one(s) have been used successfully? Fill in and specify dose and timing:

10. How is pre-ovulation conditioning accomplished?

- Natural light and temperature
- Artificial lighting and temperature control
- Do not know
- Other - Describe in general terms (10 words or fewer)

11. What is the size of the eggs at ovulation? Fill in size, specify units (e.g.,  $\mu\text{m}$ ):

12. What is the typical spawning season?

13. Is technology available to control spawning frequency?

- Yes, some experimental success
- Yes, regular success
- No current success
- Do not know

14. What is the approximate frequency of spawning during spawning season?

- < Weekly
- Weekly
- Monthly
- Multiple times annually but < monthly
- Annually
- > Annually
- Do not know

15. If egg production is less than year round, what is the percentage of the year with egg production?

16. What is the optimal temperature range for conditioning broodstock (if known)? Specify C or F degrees.

17. What is the optimal salinity range (ppt) for conditioning broodstock (if known)?

18. Are there "unique" water quality requirements? (e.g., hardness, sensitivity to heavy metals)

19. Are commercially produced broodstock diets being used?

- Yes
- No
- Do not know

20. Is there a need for the development of species-specific, commercially produced broodstock diets?

- Yes
- No
- Do not know

21. Is there reliable, cost effective commercially produced feed available?

- Yes
- No
- Do not know

22. What type of feed is used?

- |   |   |
|---|---|
| <input type="checkbox"/> Moist            | <input type="checkbox"/> Fresh (live or frozen)           |
| <input type="checkbox"/> Dry sinking      | <input type="checkbox"/> Generic off the shelf dried feed |
| <input type="checkbox"/> Dry floating     | <input type="checkbox"/> Species specific feed            |
| <input type="checkbox"/> Dry slow-sinking | <input type="checkbox"/> Do not know                      |

23. What are the typical protein and lipid percentages for the diet?

Protein - Fill in:

Lipid - Fill in:

Write 'Do Not Know' if you do not know:

24. Are there specific disease concerns that need to be addressed?

- Yes (specify below)
- No
- Do not know

If yes, please specify:

25. Are vaccines or therapeutics (drugs or chemicals) being used?

- Yes (specify below)
- No
- Do not know

If yes, please name which vaccines or therapeutics are being used:

Hatchery

26. At what stage of development is the hatchery and larval rearing technology and methods?

- Non-existent
- Experimental
- Technically feasible
- Commercial
- Do not know

27. What is the length of the larval stage? Fill in, specify units (e.g., days)

28. What is the source of feed for larval stage?

- |   |  |
|---|--|
| <input type="checkbox"/> Wild harvested plankton (includes phytoplankton and zooplankton) | <input type="checkbox"/> Artemia             |
| <input type="checkbox"/> Ciliates   | <input type="checkbox"/> Live enriched       |
| <input type="checkbox"/> Copepods   | <input type="checkbox"/> dry commercial feed |
| <input type="checkbox"/> Rotifers   | <input type="checkbox"/> Do not know         |
| <input type="checkbox"/> Other (please specify)   |  |

29. What type of weaning diet is used?

- Generic dry commercial feed
- Species specific dry commercial feed
- Live feed
- None
- Do not know
- Other (please specify)

30. Are there specific disease concerns that need to be addressed?

- Yes (specify below)
- No
- Do not know

If yes, please specify

31. Are vaccines or therapeutics (drugs or chemicals) being used?

- Yes (specify below)
- No
- Do not know

If yes, please name please name which vaccines or therapeutics are being used:

32. What is the optimal temperature range for raising larvae (if known)? Specify C or F degrees.

33. What is the optimal salinity range (ppt) for raising larvae (if known)?

34. Are there "unique" water quality requirements?

35. From where are eggs and larvae obtained?

- |  |   |
|--|---|
| <input type="checkbox"/> Research hatchery | <input type="checkbox"/> Outside the U.S. |
| <input type="checkbox"/> State hatchery    | <input type="checkbox"/> Not available    |
| <input type="checkbox"/> Private hatchery  | <input type="checkbox"/> Do not know      |

36. What is the typical survival realized from eggs to metamorphosed juveniles?

- <1%
- 1-5%
- 6-10%
- 11-30%
- 31-50%
- >50%
- Do not know



**Nursery**

37. Where are juvenile fish available from?

- |  |   |
|--|---|
| <input type="checkbox"/> Research hatchery | <input type="checkbox"/> Outside the US |
| <input type="checkbox"/> State hatchery    | <input type="checkbox"/> Not available  |
| <input type="checkbox"/> Private hatchery  | <input type="checkbox"/> Do not know    |

38. What is the principal type of system used?

- |   |                                      |
|---|--------------------------------------|
| <input type="checkbox"/> Recirculating          | <input type="checkbox"/> Cages       |
| <input type="checkbox"/> Flow through           | <input type="checkbox"/> Net pens    |
| <input type="checkbox"/> Pond                   | <input type="checkbox"/> Do not know |
| <input type="checkbox"/> Other (please specify) |                                      |

39. Are there specific disease concerns that need to be addressed?

- Yes (specify below)
- No
- Do not know

If yes, please specify:

40. Are vaccines or therapeutics (drugs or chemicals) being used?

- Yes (specify below)
- No
- Do not know

If yes, please name please name which vaccines or therapeutics are being used:

41. What is the optimal temperature range for raising juveniles (if known)? Specify C or F degrees.

42. What is the optimal salinity range (ppt) for raising juveniles (if known)?

43. Are there "unique" water quality requirements?

44. Is commercially produced feed available?

- Yes
- No
- Do not know

45. If available, is the feed reliable and cost effective?

- Yes
- No
- Do not know

46. What type of feed is used?

- |  |  |
|--|--|
| <input type="checkbox"/> Commercial moist            | <input type="checkbox"/> Fresh (live or frozen)                      |
| <input type="checkbox"/> Commercial dry sinking      | <input type="checkbox"/> Generic off the shelf dried commercial feed |
| <input type="checkbox"/> Commercial dry floating     | <input type="checkbox"/> Species specific commercial feed            |
| <input type="checkbox"/> Commercial dry slow-sinking | <input type="checkbox"/> Do not know                                 |

47. What are the typical crude protein and lipid contents (percentages) for the diet?

Protein - Fill in:

Lipid - Fill in:

Write 'Do Not Know' if you do not know:

Growout

48. What is most common commercial size for market? Specify unit.

49. Is the species reaching sexual maturity before market size?

- Yes
- No
- Do Not Know

If yes, are there impacts of sexual maturation on production characteristics or product quality (e.g., behavior, flesh quality, food conversion)?

50. What is the grow-out time (egg to market) to this commercial size?

- Less than 12 months
- 12-18 months
- 18-24 months
- Do not know
- Other (please specify)

51. What type of system is used?

- |  |                                      |
|--|--------------------------------------|
| <input type="checkbox"/> Recirculating tank system | <input type="checkbox"/> Cages       |
| <input type="checkbox"/> Flow-through tanks        | <input type="checkbox"/> net pens    |
| <input type="checkbox"/> Ponds                     | <input type="checkbox"/> Do not know |
| <input type="checkbox"/> Other (please specify)    |                                      |

52. Are there specific disease concerns that need to be addressed?

- Yes
- No
- Do not know

If yes, please specify

53. Are vaccines or therapeutics (drugs or chemicals) being used?

- Yes (specify below)
- No
- Do not know

If yes, please name please name which vaccines or therapeutics are being used:

54. What is the optimal temperature range for growout (if known)? Specify C or F degrees.

55. What is the optimal salinity range (ppt) for growout (if known)?

56. Are there "unique" water quality requirements?

57. Is commercially produced feed available?

- Yes
- No
- Do not know

58. If available, is the feed reliable and cost effective?

- Yes
- No
- Do not know

59. What type of feed is used?

- |  |   |
|--|---|
| <input type="checkbox"/> Commercial moist            | <input type="checkbox"/> Fresh (live or frozen)           |
| <input type="checkbox"/> Commercial dry sinking      | <input type="checkbox"/> Generic off the shelf dried feed |
| <input type="checkbox"/> Commercial dry floating     | <input type="checkbox"/> Species specific commercial feed |
| <input type="checkbox"/> Commercial dry slow-sinking | <input type="checkbox"/> Do not know                      |

60. What are the typical crude protein and lipid contents (percentages) for the diet?

Protein - Fill in:

Lipid - Fill in:

Write 'Do Not Know' if you do not know:

**Market / Business Characteristics**

61. What is the level of aquaculture development for the farming of this species?

- Experimental
- Technologically feasible
- Commercially ready
- Commercially produced
- Do not know

62. Is the species on the market as an aquaculture species?

- Yes
- No
- Do not know

63. What is the typical product form?

- Live
- Whole
- Fillet
- Steak
- Do not know
- Other (please specify)

64. Preferred market size whole fish from the farm?

- < 1 lb
- 1-1.5 lb
- 1.5-2 lb
- 2-3 lb
- > 3 lb
- Do not know

65. What is the general perceived market value?

- High value
- Mid value
- Low value
- Do not know

66. What is the production supply to serve the current market?

- Experimental
- Adequate
- Not available year round
- Available year round
- Do not know

67. What is the geographic location of this market?

- |   |  |
|---|--|
| <input type="checkbox"/> Domestic, Local    | <input type="checkbox"/> Foreign, Export to a small array of countries |
| <input type="checkbox"/> Domestic, Regional | <input type="checkbox"/> Foreign, Export to a large array of countries |
| <input type="checkbox"/> Domestic, National | <input type="checkbox"/> Do not know                                   |

68. What is the source and level of competition in the market place?

- |                                      |   |
|--------------------------------------|---|
| <input type="checkbox"/> Limited     | <input type="checkbox"/> Foreign            |
| <input type="checkbox"/> Moderate    | <input type="checkbox"/> Aquaculture        |
| <input type="checkbox"/> Substantial | <input type="checkbox"/> Commercial fishery |
| <input type="checkbox"/> Domestic    | <input type="checkbox"/> Do not know        |

69. Is there a comprehensive economic analysis for the different stages of production of the species?

- Yes, Current
- Yes, Outdated
- No, there is no analysis available
- Do not know

70. Is there a comprehensive market analysis for this species?

- Yes, Current
- Yes, Outdated
- No, there is no analysis available
- Do not know



**General**

71. Are there existing U.S. aquaculture farms for this species?

- Yes, experimental/pilot scale
- Yes, small scale
- Yes, medium scale
- Yes, large scale
- No
- Do not know

72. Are there existing aquaculture farms outside the U.S. for this species?

- Yes, experimental/pilot scale
- Yes, small scale
- Yes, medium scale
- Yes, large scale
- No
- Do not know

73. Are you working on this species?

- Yes, Experimentally
- Yes, Commercially
- No
- Do not know

74. Are others working with this species?

- Yes, Experimentally
- Yes, Commercially
- No
- Do not know
- If yes (experimentally or commercially), please detail:

75. Is there technical support to assist in the successful farming of the species?

- Yes, Cooperative Extension Service
- Yes, Regional/State/Federal Agency
- Yes, University
- Yes, Private Consultants
- No
- Do not know

76. Are there any impediments to realizing production increases for this species?

- Yes
- No
- Do not know

77. If yes, what are the impediments?

- |  |  |
|--|--|
| <input type="checkbox"/> Feed Availability           | <input type="checkbox"/> Public image or social license                |
| <input type="checkbox"/> Water resources             | <input type="checkbox"/> Outreach                                      |
| <input type="checkbox"/> Land resources / conflicts  | <input type="checkbox"/> Technical expertise and assistance            |
| <input type="checkbox"/> Land Costs                  | <input type="checkbox"/> Capitalization issue (bank loans / insurance) |
| <input type="checkbox"/> Energy Costs                | <input type="checkbox"/> Stable market/demand                          |
| <input type="checkbox"/> Multiple user conflict      | <input type="checkbox"/> Market Price                                  |
| <input type="checkbox"/> Federal / state regulations | <input type="checkbox"/> Do not know                                   |

78. Is there an overall need for...

- A National Aquaculture Office in Washington, D.C.
- A new domestic policy review of aquaculture and its future development at the federal level
- An aquaculture caucus for strong advocacy at the congressional level
- Federally established organic aquaculture standards
- Periodic meetings of the United States Aquaculture Society in Washington, D. C.
- Other (please specify)