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A PROFILE OF AQUACULTURE OPERATIONS
IN PENNSYLVANIA

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SUMMARY

Commercial aquaculture operators throughout Pennsylvania were interviewed by telephone in early Summer 1994. The 65 operators responding have been grouped into three categories for this report.

Future Prospects

The respondents viewed the future of aquaculture in Pennsylvania optimistically. Three-fourths rated its future good or excellent, with the highest ratings coming from the trout/raceway operators.

Trout/Raceway Operations

The 32 trout producers using raceways in production varied widely in size. While there were a number of small operations, 9 operators reported annual sales of \$100,000 or more. Five of the 29 operations reporting indicated that their profits were increasing and 18 reported that they were stable. About half reported water supply problems and about one-quarter reported water quality problems. Controlling disease was reported as a problem by about one-third. Slightly under one-half sold their products out-of-state. The most frequently named destinations were New York state and New Jersey-Delaware. Ten reported problems with federal permitting and licensing and an equal number reported problems with state regulations.

Bait Operations

Most of the 12 bait operations were smaller, part-time producers with older operators. Seven of the 11 operations reporting indicated that their annual sales were under \$5,000. Five of the 11 operations reported stable profits, while only 1 reported increasing profits. Few reported operating problems. One-third reported problems with federal and state permitting and licensing, while one-quarter indicated local problems.

Other Operations

The 21 operations in this category used ponds along with other technologies. Commonly produced species were: catfish, bass, sunfish, trout and blue gills. Many operations were recently started, with half in existence less than 4 years. Sales varied widely with 10 operations indicating sales under \$15,000 per year, and 4 indicating sales over \$100,000. Seven of the 18 operations reporting indicated increasing profits, while 5 indicated stable profits. Most reported no problems with water supply or quality but about one-third reported problems in controlling disease. Nine reported selling products out-of-state. Over one-third reported problems with federal permitting and licensing, slightly fewer reported problems with state regulation.

A PROFILE OF AQUACULTURE OPERATIONS IN PENNSYLVANIA¹

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Pennsylvania aquaculture operations differ widely in size and in the products produced. In order to provide a more accurate picture of the industry, production operations were classified into three categories:

- * trout producers using raceways and, in some cases, other production technologies
- * bait producers using ponds and, in some cases, other production technologies
- * other operations producing a variety of species and using ponds and other technologies

This report is based on data obtained from 65 commercial aquaculture producers located throughout the Commonwealth of Pennsylvania. The data were collected in telephone interviews conducted in early Summer 1994.

TROUT / RACEWAY OPERATIONS

A total of 32 producers were classified in the trout/raceway category. Of these 13 were located in the east central part of the state and 10 were located in the west and west central region. Seven were located in the southeast and the remaining 2 were located in the southwest part of the state.

All the operations in this category had raceways. Many also used other production technologies including 20 who also had ponds. Of the 32 respondents, 3 indicated that they had indoor recirculating systems and 3 indicated that they used outdoor recirculating systems. Three were using cage systems in production.

Fifteen of the operations were associated with a farm enterprise, while 5 were associated with a nonfarm business. Nineteen were operated as sole proprietorships, 3 as partnerships and 10 were incorporated. Many of the operations had been in existence for some time. Half had been operating for more than 12 years.

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Production and Products

All the operations in this category produced trout. In addition, some other species were produced. The number of producers by species were as follows:

Blue Gill	2
Catfish	2
Bass	1
Sunfish	1
Perch	1
Tilapia	1
Other species	1

The producers in this category differed widely in production volume. Of the 20 who reported on production, the median production was 500 pounds per week, with half of the operations producing more and half producing less than this amount. The weekly production volumes reported were:

Under 40 lbs. per week	4 operations
60 - 175 lbs.	3
250 - 500 lbs.	3
750 - 1,000 lbs.	2
2,000 - 3,000 lbs.	5
8,000 lbs. or more	3

All the operations reported selling mature fish, 19 sold brood fish or eggs and 23 sold fingerlings. In addition to fish for food use, 4 also produced bait fish and 1 produced ornamental fish. A total of 10 had pay-to-fish activities as part of their operations.

Almost all reported year-round operations. Nineteen of the producers had part-time workers, with most having 1 or 2 workers. Twenty-three producers had full-time workers. The majority had 1 or 2 full-time workers. Two, however, had sizable numbers of workers.

Sales

Sales varied widely among the operations reporting. A total of 28 of the operations reported on their annual sales, while 4 did not supply this information. The responses by category were:

Under \$5,000	6 operations
\$5 - 15,000	4
\$15 - 25,000	3
\$25 - 50,000	5
\$50 - 100,000	1
Over \$100,000	9

Six of the operations reported that they engaged in "niche marketing," supplying products which their customers could not get elsewhere, or serving special groups of customers whose needs were not being met by other producers.

Almost half (n=15) of the raceway trout producers reported selling their products out-of-state. The destinations included:

New York state	11 reporting
New Jersey-Delaware	9
Maryland-District of Columbia	4
Massachusetts	1
Other New England states, not including Massachusetts	5
Ohio and other midwestern states	3
Virginia and other southern states	4

Of the 15 operations reporting out-of-state sales, 3 reported sales of eggs, 10 reported sales of fingerlings and 14 reported sales of grown-out fish. Seven reported experiencing problems in selling out-of-state because of state health regulations.

Slightly less than half of the respondents indicated that they would be interested in joining an aquaculture marketing cooperative. Interest in a cooperative was not found to be related to the annual sales of an operation.

Financial Situation

Most of the operators in this category appeared to be in a satisfactory financial situation. Of the 29 operations reporting, 5 reported that their profits were increasing and 18 reported that profits were staying about the same. Only 6 reported that their profits were declining.

A large group (n=11) reported that both their sales revenues and profits were staying about the same. Twelve reported increasing sales, with varying effects on profits:

- 6 reported that their profits were about the same
- 3 reported increasing profits
- 3 reported declining profits.

The four who reported declining sales revenues also had varying profit experiences:

- 1 reported their profits were about the same
- 1 reported increasing profits
- 2 reported declining profits.

The respondents also were asked how their rate of profit compared to other businesses in their area with similar levels of investment. Most (n=14) felt that their rate of profit was about the same. Five felt that it was higher and 6 felt it was lower, while 6 did not know and 1 did not respond to the question.

As a follow-up question, the respondents were asked how risky they felt their operation was compared to other businesses in their area. Over half (n=16) felt it was more risky. Of the remaining group, 8 said the risk was about the same, while 6 said their operation was less risky.

Water Sources and Quality

Most of the operations obtained water from more than one source. The most frequently reported water source was spring water (n=28). Stream water (n=19) also was widely used, while use of well water (n=14) was somewhat less common. None of these operations reported the use of water from a city or rural water line.

While half of the raceway/trout producers were experiencing no problems with water supply (n=16), the other half did report experiencing problems. Of the half who indicated that they were experiencing supply problems, 9 indicated serious supply problems and 7 indicated somewhat serious problems.

A sizable majority (n=23) indicated no water quality problems. Nine producers were, however, experiencing problems. Four indicated serious quality problems and 5 indicated somewhat serious problems.

Operating Problems

In addition to the questions about water supply and quality problems, the respondents were questioned about other problems which could limit their production or growth. The control of disease was the problem mentioned most frequently. Twelve operations indicated that this was somewhat of a problem and 1 indicated that it was a serious problem. The disposal of waste was mentioned as a somewhat serious problem by 5 respondents and as a serious problem by 2.

Other problems appeared to be less common. Finding buyers was indicated to be somewhat of a problem by 4 operations and as a serious problem by 2. Getting enough or the right kind of workers was a somewhat serious problem for 4 operations and a serious problem for 1. Getting credit was mentioned as a somewhat serious problem by 4 operations and as a serious problem by 1. Shipping out-put was indicated to be a somewhat serious problem by 1 operation and as a serious problem by 1.

The respondents also were questioned about problems with federal, state and local permitting and regulations. Four indicated that federal permitting and regulations had been somewhat of a problem and 6 indicated that they had been a serious problem. Five indicated at state

regulations and permitting had been somewhat of a problem and 5 indicated that they had been a serious problem. Local permitting and regulations were a less frequent problem. Two reported that they had been somewhat of a problem and 2 reported that they had been a serious problem.

Information Needs

The respondents were questioned about their knowledge of five major operational areas: biology, marketing, finance, engineering and labor management. When asked about their knowledge of biology and water chemistry, 47 percent (n=15) classified their knowledge as only "fair" or "poor." The same number (n=15) classified their knowledge of marketing as only "fair" or "poor." When asked about their knowledge of finance, 11 indicated only "fair" or "poor" knowledge. Only 8 said their knowledge of engineering and construction was "fair" or "poor." Ten indicated their knowledge of labor management was "fair" or "poor."

An analysis was done to determine if those reporting management problems also reported lower levels of knowledge in those areas. The results indicate that those who reported problems in finding buyers for their output did not rate their knowledge of marketing lower than those who did not report problems. Similarly, those who reported disease problems did not rate their knowledge of biology and water chemistry lower than those who did not report problems. Similar results also were found for problems in getting credit and knowledge of finance.

Future Prospects

Looking to the future, the respondents were asked if they would like to expand their operations. Thirteen indicated they would like to expand, while 17 indicated they would like to remain the same size. All but one of the operations planned to continue to be in business in one year's time. All but 3 expected to be in business in 5 years.

When the respondents were asked for their views of the future prospects of aquaculture in Pennsylvania, the responses were as follows:

Excellent	15
Good	13
Fair	3
Poor	1

BAIT OPERATIONS

A total of 12 of the producers surveyed produced only bait. Of the operations in this category 7 were located in the east central region and two were located in the west and west central region. Two were located in the southeast and 1 in the southwest.

All the operations in this category used ponds. One also had indoor facilities with a recirculating system.

Five of the bait producers operated in conjunction with a farm enterprise. Five operated in conjunction with a nonfarm business. Eleven of the 12 operations were sole proprietorships and 1 was incorporated. Half of the operations had been in existence for 8 years or less. The median age of the owner/managers was 64, with half this age or older.

Production and Products

Most of the bait-only producers were small part-time operations. Of the 10 producers who reported on their production volume, half the operations produced 5 pounds or less per week and half produced more. The outputs per week reported were as follows:

1 - 3 lbs. per week	3 operations
5 - 10 lbs.	4
20 - 40 lbs.	2
100 lbs. or more	1

Almost all of the operations sold mature fish (n=10), while 1 sold fingerlings and one sold brood fish/eggs.

Two-thirds operated on a year-round basis. Eight of the operations had part-time workers. Most of these producers had 1 worker. Five producers had full-time workers. All of these had 1 or 2 workers.

Sales

The sales revenues of the bait operations reflect their typically smaller size. Eleven of the twelve operations reported on their annual sales. The 11 reporting fell into two categories:

Under \$5,000	7 operations
\$5 - 15,000	4

Only 1 operation reported making out-of-state sales. Two destinations were reported: Maryland-District of Columbia and Virginia and other southern states. They reported no problems with state fish health regulations. The sales were of grown-out fish.

Only 3 of the bait operations expressed interest in joining an aquaculture marketing cooperative.

Financial Situation

Some of the bait producers surveyed appear to be under some financial pressure. Their reports on profit trends were as follows:

Declining profits	5
Stable profits	5
Increasing profits	1

The 1 operation which reported increasing sales revenues also reported increasing profits. For the five firms reporting declining sales, 4 reported declining profits while 1 reported stable profits. Of the five firms that reported stable sales, four reported that profits were remaining about the same, while 1 reported declining profits.

Water Sources and Quality

Most of the operations got water from multiple sources. The principal source was spring water (n=11). Wells used by some operators (n=4), while streams also were used (n=3). Only one operator reported using water from a city or rural water line.

Most of the bait operations reported no problems with water supply (n=9). However, 3 did reported somewhat serious water supply problems. None reported problems with water quality.

Operating Problems

The bait producers reported relatively few operating problems. One reported that controlling disease was a serious problem and one reported that this was somewhat of a problem. Two reported that getting enough or the right kind of personnel was somewhat of a problem. One reported that shipping product was somewhat of a problem.

Problems with federal, state and local regulations and permitting were, however, somewhat more common. Three operations reported serious problems with federal regulations and permitting and 1 reported somewhat serious problems. Three reported serious problems with state permitting and regulations and one reported somewhat serious problems. Only 1 reported serious problems with local permitting and regulations and 2 reported somewhat serious problems.

Information Needs

When they were asked about their knowledge of key operating areas, many of the respondents for bait-only operations indicated only limited knowledge. The numbers indicating "fair" or "poor" knowledge were as follows:

Biology and water chemistry	8
Marketing	7
Finance	7
Engineering and construction	5
Labor management	2

Reports of problems in finding buyers, disease control and getting credit were not found to be related to lower levels of reported knowledge of marketing, biology or finance.

Future Prospects

When asked if they would like to expand their operations, 4 respondents indicated they would like to expand, while 7 indicated they would like to stay the same size. All expected to continue to be in business in one year. Nine expected to be in business in five years while 2 did not expect to be and 1 was uncertain.

Most of the respondents in this category were optimistic about the future of aquaculture production in Pennsylvania. Their ratings were as follows:

Excellent	6
Good	2
Fair	1
Poor	2
Don't know	1

OTHER OPERATIONS

The third category of operations was more diverse and included a total of 21 producers. Twelve of the operations in this category were located in the east central part of the state. Five were located in the southeast, 2 in the southwest and 2 in the west and west central region.

Most of these operations in this category utilized ponds for production (n=17). One had a raceway. Four reported use of indoor facilities with recirculating systems. Five had outdoor recirculating systems.

Eleven of the operations in this category were conducted in conjunction with a farm enterprise. Three were conducted in conjunction with a nonfarm enterprise. Thirteen of the operations were sole proprietorships, 6 were corporations and 2 were partnerships.

Production and Products

Operations in this category reported producing a variety of species, with most reporting

several. The most widely produced was catfish (n=12), followed by bass (n=9), sunfish (n=7) and blue gill (n=6). Trout also were produced by operators in this category (n=7). In addition, 3 operations produced perch and 1 produced tilapia. Five operations reported producing other species. Most of these operations sold mature fish (n=19). Ten sold fingerlings and 7 sold brood fish or eggs.

Only 9 of the 21 operations in this category reported on their volume of production. Of the 9 operations reporting, the median output was 300 pounds of fish per week with half reporting more and half reporting less. The outputs reported were:

5 - 50 lbs. per week	4
300 - 400 lbs.	3
2,000 lbs. or more	2

Of the operations in this category, 7 produced bait and 5 produced ornamental fish. In addition, 3 had pay-to-fish operations. Most were year-round operations (n=17).

Many of the operations in this category had begun operating relatively recently. Half had been in existence for 4 years or less. Five had, however, been in operation for 20 years or more. Fifteen operations had part-time workers, with most having 1 or 2 part-time workers. Fourteen operations had full-time workers. Of these, 9 had 1 or 2 full-time workers, while 2 had 10 or more workers.

Sales

The sales revenues reported by the operations in this category varied widely. Most of the operations reporting were relatively small, although there were some larger firms. For the operations reporting, the number of firms by annual sales category were:

Under \$5,000	6
\$5 - 15,000	4
\$15 - 25,000	1
\$25 - 50,000	1
\$50 - 100,000	1
Over \$100,000	4

Nine of the 21 firms in this category reported that they engaged in "niche marketing," supplying products that their customers could not get elsewhere, or serving special groups of customers whose needs were not being met by other producers.

Nine of the 21 operations reported that they were selling products outside of Pennsylvania. The destinations included:

New York state	6
New Jersey-Delaware	5

Maryland-District of Columbia	4
Massachusetts	4
Other New England states not including Massachusetts	2
Ohio and other midwestern states	4
Virginia and other southern states	4
Western states	2

Of the 9 firms reporting out-of-state sales, 3 sold fingerlings and 7 sold grown-out fish. Only 1 of the operations which sold products outside the state reported experiencing problems with the state fish health regulations of other states.

Seven of the operations in this category expressed interest in joining an aquaculture marketing cooperative. Interest was not related to volume of annual sales.

Financial Situation

Most of the operations in this category appeared to be in a satisfactory financial situation. Seven of the 18 operations indicated that they were experiencing increasing profits, while 5 indicated that their profits were stable. Only 4 indicated declining profits. Two operations were recently opened and had no basis for comparison.

Seven operations reported increasing sales. Of these, the profit experience was as follows:

- 5 reported increasing profits
- 1 reported stable profits
- 1 reported declining profits.

Six reported stable sales, with the following results:

- 4 reported stable profits
- 1 reported increasing profits
- 1 reported declining profits.

Only 2 operations reported declining sales and declining profits.

Water Sources and Quality

The most widely used water source in this category was spring water, 17 operations reported its use. Wells were used as a source by 7 operations, and streams were used by 6. Two operations reported the use of water from city or rural water lines.

Most reported no problems with water supplies (n=15). However, 1 reported somewhat

serious supply problems and 5 reported serious problems. Almost all (n=19) reported no water quality problems. One operation reported somewhat serious quality problems and 1 reported serious quality problems.

Operating Problems

Six of the operations reported that controlling disease was a problem. Two indicated that it was a serious problem, while 4 rated it as somewhat serious. Getting credit was rated as a problem by four operations. Two indicated that it was a serious problem and two indicated that it was somewhat serious. One operation indicated that finding buyers was a serious problem, while 4 rated this as a somewhat serious problem.

Other problems appeared to be less common. One operation indicated that finding enough or the right kind of personnel was a serious problem and 1 indicated that this was a somewhat serious problem. One operation indicated that shipping product was a serious problem and one indicated that this was a somewhat serious problem. None of the operations responding indicated that waste disposal was a problem.

Eight of the respondents indicated problems due to federal regulations and permitting. Four rated these problems as serious and 4 rated them as somewhat serious. Six respondents indicated problems due to state regulations and permitting. Two rated these as serious and 4 rated them as somewhat serious. Only 2 operations reported problems due to local permitting and regulations. One rated these problems as serious and one rated them as somewhat serious.

Information Needs

When asked about their knowledge of key operating areas, a number of the respondents in this category indicated that their knowledge was only "fair" or "poor." The numbers indicating "fair" or "poor" knowledge were as follows:

Biology and water chemistry	11
Marketing	7
Finance	7
Engineering and construction	7
Labor management	3

Reports of problems in finding buyers and getting credit were not found to be related to reported knowledge of marketing and finance. A weak relationship was found between reported problems in controlling disease and lower levels of knowledge of biology.

Future Prospects

When asked if they would like to expand their operations in the future, 16 respondents indicated that they would. Two said they would like to stay the same size and 2 said they did not plan to continue to be in business. When asked if they planned to be in business in one year, 19 indicated that they did. When asked if they planned to be in business in five years, 17 indicated that they did, 2 said they did not and 2 said they did not know.

When asked their view of the future of aquaculture in Pennsylvania, most of the respondents were fairly optimistic. Their responses were as follows:

Excellent	9
Good	6
Fair	5
Don't know	1

INFORMATION ON THE SAMPLE USED

The list of aquaculture operations to be interviewed for this study was developed from a list created by the Pennsylvania Fish and Boat Commission. The list targeted for interviews included 121 producers that appeared to operate on a for-profit basis. Non-commercial producers such as governmental agencies, educational institutions and rod and gun clubs were not included in the interview list.

This list of 121 operations was contacted by TMR Inc., a commercial telephone interviewing firm, with the following results:

Refused to be interviewed	9
Unable to make contact	21
Formerly a producer	11
Not a producer	15
Completed interviews	65

The responses contained in the 65 completed interviews are the basis of this report.

