

Aquaculture in Rhode Island

1999 Yearly Status Report



Rhode Island

Coastal Resources Management Council

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Wakefield, RI 02879-1900

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Executive Summary

The calendar year 1999 had mixed results for aquaculture in Rhode Island. The total farm gate value for aquaculture dropped by approximately \$83,000. Accounting for this decrease was the closing of two finfish farms along with one shellfish farm which reported 100% mortality. Yet 1999 was also a year of growth for aquaculture in Rhode Island with: 1) increases in the harvest of oysters (both American and European) and quahogs; 2) increases in the number of farms and acreage in production, 3) the permitting of a 250 tons per year summer flounder grow-out facility, 4) the groundbreaking of the first shellfish hatchery in the state, now under construction with planned sales in the spring of 2000, 5) the hiring of an Aquaculture Coordinator by the RI Coastal Resources Management Council (CRMC), 6) the initiation of a Memorandum of Agreement with the RI DEM Division of Agriculture to work together to coordinate and facilitate upland aquaculture permitting for agriculture interests; 7) the formation of a working group on biointegrity, which will be made up of industry, academia, representatives from the neighboring states of Connecticut and Massachusetts, and regulatory agencies, and which is to advise CRMC on issues such as aquaculture disease, invasive species, and other issues that will arise where outside expertise and coordination between states will be beneficial, and 8) the formation of a working group on aquaculture regulations made up of industry and regulators to discuss how regulations affect the local industry, thus increasing communication between the traditional fisheries community and the emerging aquaculture industry.

The 1999 shellfish harvest from farms in Rhode Island is attributed to just eight of the 15 leases. One of the remaining lease holders reported 100% mortality this year. The other six leases are new and hope to be productive in the coming year. The harvest figures for next year, due to the number of new leases that should be producing, should show significant growth. In addition, the operation of a shellfish hatchery and a finfish grow-out operation should give the industry an additional boost. Interest in new lease sites shows continued strength, with an estimated six additional acres now in the permit process.

The future indicates steady growth for this industry. The year 1999 showed mixed results, but a foundation is being prepared for significant growth in an emerging industry. The aquaculture industry in Rhode Island displays the characteristics of a start-up industry; overall steady growth with a few “bumps” in the growth curve. People will soon realize that aquaculture is a “green” industry that can contribute significantly to a diverse economic base and coexist with traditional marine-based industries.

Introduction

The calendar year 1999 had mixed results for aquaculture in Rhode Island. The total farm gate value for aquaculture dropped by approximately \$83,000. Accounting for this decrease was the closing of two finfish farms along with one shellfish farm which reported 100% mortality. Yet 1999 was also a year of growth for aquaculture in Rhode Island with: 1) increases in the harvest of oysters (both American and European) and quahogs; 2) increases in the number of farms and acreage in production, 3) the permitting of a 250 tons per year summer flounder grow-out facility, 4) the groundbreaking of the first shellfish hatchery in the state, now under construction with planned sales in the spring of 2000, 5) the hiring of an Aquaculture Coordinator by the RI Coastal Resources Management Council (CRMC), 6) the initiation of a Memorandum of Agreement with the RI DEM Division of Agriculture to work together to coordinate and facilitate upland aquaculture permitting for agriculture interests; 7) the formation of a working group on biointegrity which will be made up of industry, academia, representatives from the neighboring states of Connecticut and Massachusetts, and regulatory agencies, and which is to advise CRMC on issues such as aquaculture disease, invasive species, and other issues that will arise where outside expertise and coordination between states will be beneficial, and 8) the formation of a working group on aquaculture regulations made up of industry and regulators to discuss how regulations affect the local industry, thus increasing communication between the traditional fisheries community and the emerging aquaculture industry.

1999 Status

The total farm gate value of the aquaculture harvest fell for the first time in five years, from \$296,980 in 1998 to \$213,861 in 1999 (graph 1). This decrease in reported farm gate value was due to the closure of Koi Villa in Foster, RI. Koi Villa was a grower and retailer of ornamental fish and plants and a builder of ornamental fish ponds. Last year Koi Villa reported sales of fish and plants totaling \$120,000. The second fish producer which closed its doors this year was Eastern Fish Farms of Tiverton, RI. Eastern Fish Farms was a marginal producer of fish, it's major product being hydroponically grown lettuce. Eastern Fish Farms reported no sales last year so its closure did not affect the reported sales figures. Taking into account the decrease in reported fish sales from Koi Villa (\$120,000), the fact that the total reported farm gate value of product harvested from the state's aquaculture farms decreased only \$83,119 was due to an increase in the

harvest of shellfish. The farm gate value of the shellfish harvest increased from \$178,698 to a reported \$213,861, an increase of \$35,163 (19.7%) (graph 1).

Graph 2 shows the break down, by species, of the reported farm gate value of the shellfish harvest. Culture of the american oyster is by far the leading product, with the quahog bringing in about a quarter of the value. Value of the american oyster harvest was reported to be almost \$160,000, while the quahog harvest brought in almost \$45,000. The only other reported harvest was of european oysters, which was worth slightly more than \$8,000. Also evident from the graph is the steady increase in reported dollar value. The harvest value of american oysters has shown steady increases each year since 1995, going from approximately \$65,000 in 1995 to almost \$160,000 in 1999. The harvest of quahogs showed a slight decline in 1996, when the reported value was less than \$20,000. Since 1996 the harvest value has shown a steady increase to the present valuation of almost \$45,000. This is the first year the european oyster has been reported in the harvest.

The american oyster is the predominantly cultured species (graph 3) with slightly more than 350,000 animals being harvested. Almost 250,000 quahogs and 15,000 european oysters were harvested in 1999. The lines on graph 3 seem to point to a trend of increasing numbers of quahogs being harvested in relation to oysters, with a possible crossing of the curves in a few years. However, the relative worth of the individual animal as related on graph 2 shows that the oyster harvest is still worth much more to the farmers in the state.

The final graph (graph 4) relates the growth of farms and acreage under cultivation in the state of Rhode Island. Both have shown steady growth with the number of permitted farms growing from five in 1995 to 15 in 1999. This graph does not include any land-based operations, i.e., shellfish hatcheries or finfish grow-out facilities, but is limited to permits and leases used for shellfish culture.

The aquaculture research and educational front has also had a mixed year in Rhode Island. The number of experimental lease sites has shown a slight decrease this year. Funding for the URI aquaculture extension agent and the non-credit "Introduction to Aquaculture" adult education class, which has been offered for the last few years, was cut in 1999. The non-credit "Shellfish Culture" adult education course is still being offered. In addition to the University of Rhode Island's traditional research role, Roger Williams

University in Bristol, RI is increasing the educational offerings. Roger Williams University now has a flow-through research facility on campus and a learning platform in Mount Hope Bay. There researchers are working with a variety of fishes in an educational setting. The RI Seafood Council also has a project in conjunction with various secondary schools in the state culturing shellfish for public enhancement and education.

In 1999 state regulatory agencies have tried to keep up with a rapidly evolving aquaculture industry. The lead agency on aquaculture permitting, the Coastal Resources Management Council (CRMC), has hired an aquaculture coordinator who has been charged with all aspects of aquaculture policy and permitting. CRMC has also initiated the process of drafting a memorandum of agreement with the RI DEM Division of Agriculture which will deal with the permitting of upland aquaculture sites in the state. Discussions are also underway between RI DEM Division of Agriculture and the CRMC to work together for the promotion the industry in the state. The two agencies are also planning joint meetings with all growers in the state so that they will be aware of the needs of the growers and possible help that can be provided by the agencies.

The CRMC has also initiated the formation of two working groups, one on aquaculture regulations and the other on biointegrity. The working group on aquaculture regulations is designed to have interested parties in the aquaculture, fisheries and regulatory communities meet and exchange views on possible directions regulations in the state might proceed. The topics up for discussion will include: limits on lease sizes, wet storage, siting, and other subjects that the group believes will be valuable to discuss. The working group on biointegrity will be made up of representatives from regulatory agencies (including Rhode Island, Massachusetts and Connecticut), industry (fisheries and aquaculture), and academia. As the subject matter shifts from the initial emphasis on disease and invasive species, other experts will be invited. The emphasis on both working groups is to supply the CRMC with the information needed to make informed decisions. A secondary product of these group meetings is the possible building of a consensus that will allow the state to continue meeting the demands of a very diverse group of interests.

Conclusion

The 1999 shellfish harvest from farms in Rhode Island is attributed to just eight of the 15 leases. One of the remaining lease holders reported 100% mortality this year. The other six leases are new and hope to be productive in the coming year. The harvest figures for next year, due to the number of new leases that should be producing, should show significant growth. In addition the operation of a shellfish hatchery and a finfish grow-out operation should give the industry an additional shot-in-the-arm. Interest in new lease sites shows continued strength, with an estimated six additional acres now in the throes of the permit process.

The future indicates steady growth for this industry. The past year showed mixed results, but a foundation is being prepared for significant growth in an emerging industry. The aquaculture industry in Rhode Island displays the characteristics of a start-up industry; overall steady growth with a few “bumps” in the growth curve. People will soon realize that aquaculture is a “green” industry that can contribute significantly to a diverse economic base and coexist with traditional marine-based industries.

Caveats

All harvest figures for this report came from the “Annual Report of Aquaculture in Rhode Island 1999” compiled by Mr. A. Ganz at the Coastal Fisheries Laboratory of the RI DEM, Division of Fish and Wildlife. This report is produced yearly from reports supplied by the individual farmers who hold “Special Permits for Aquaculture” from RI DEM. All reports are taken at face value and no further queries are made of the farmers.

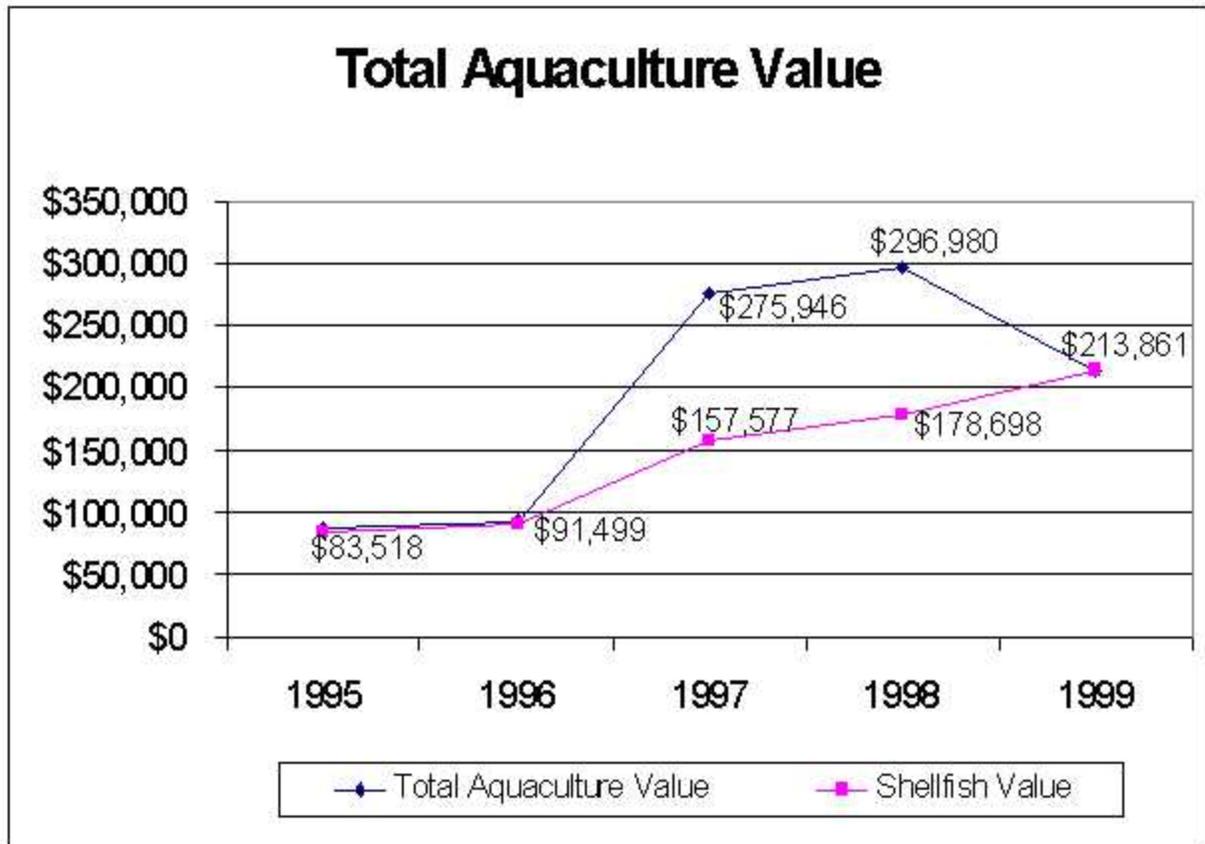
Monetary figures for this report were obtained by getting an estimated yearly average price from multiple sources and averaging them. This was then multiplied by the figures reported by growers in the yearly DEM report to arrive at the figures used in this report.

Acknowledgments

Thanks to Mr. A. Ganz, RI DEM; Mr. J. Willis, RI CRMC; Mr. K. Cute, RI CRMC Dr. R. Rheault, Spatco Inc.; and Mr. R. Silkes, American Mussel Harvesters Inc., and all of the aquaculture lease holders for their help in putting this report together.

Graph 1

The total farm gate of aquaculture harvest fell for the first time in five years, from a 1998 value of \$296,980 to a 1999 value of \$213,861. This decrease in reported farm gate value was due to the closure of Koi Villa in Foster, RI. Koi Villa was a grower and



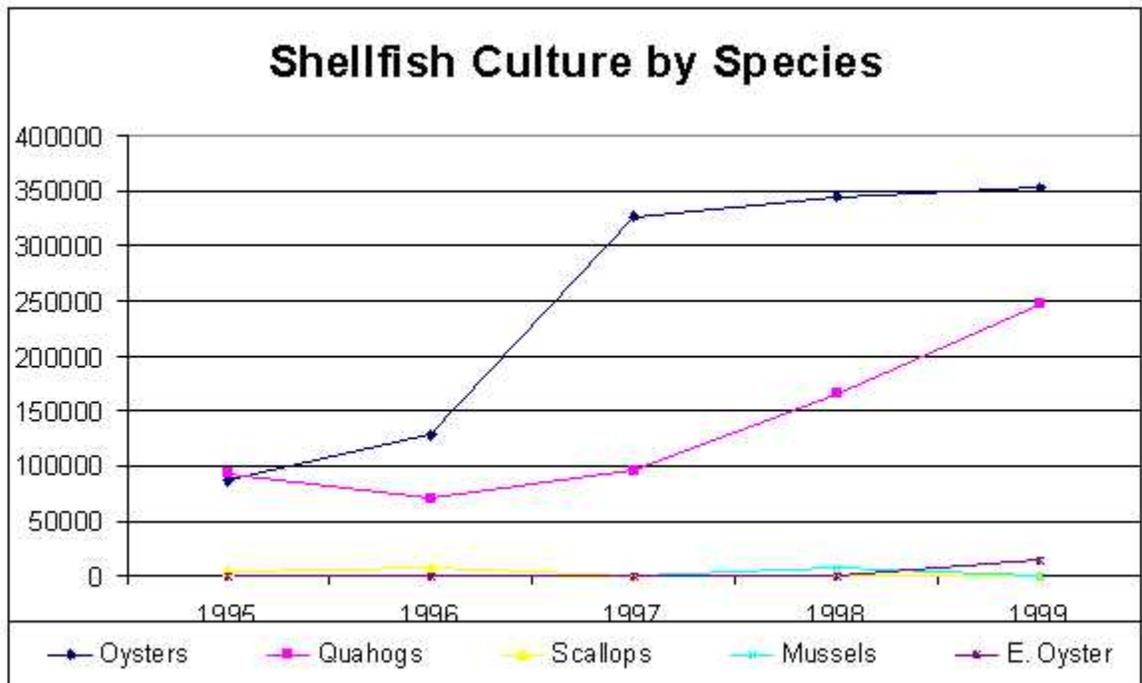
retailer of ornamental fish and plants and a builder of ornamental fish ponds. Last year Koi Villa reported sales of fish and plants totaling \$120,000. The second fish producer which closed its doors this year was Eastern Fish Farms of Tiverton, RI. Eastern Fish Farms was a marginal producer of fish, it's major product being hydroponically grown lettuce. Eastern Fish Farms reported no sales last year so its closure did not affect the reported sales figures. Taking into account the decrease in reported fish sales from this closure (\$120,000), the fact that the total reported farm gate value of product harvested from the state's aquaculture farms decreased only \$83,119 was due to an increase in the harvest of shellfish. The farm gate value of the shellfish harvest increased from \$178,698 to a reported \$213,861, an increase of \$35,163.

Graph 2



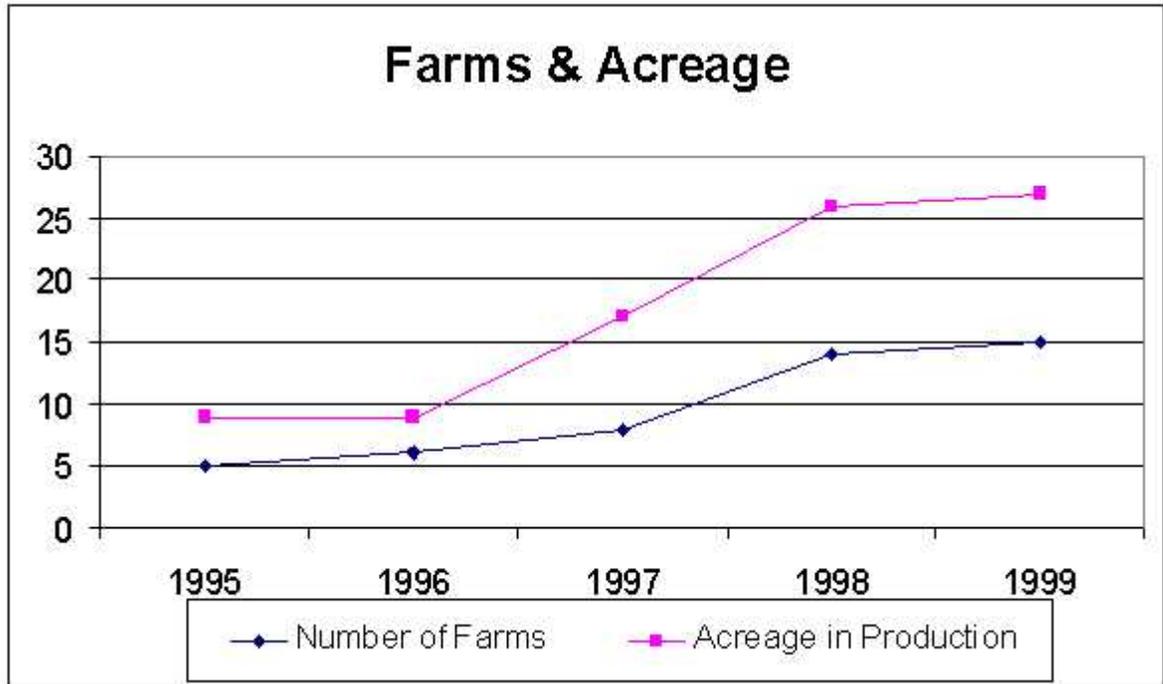
The break down, by species, of the reported farm gate value of the shellfish harvest. Culture of the American oyster is by far the leading product, with the Quahog bring in about a quarter of the value. The only other harvested species reported this year was the European oyster. Value of the American oyster harvest was reported to be almost \$160,000, while the Quahog harvest brought in almost \$45,000. The only other reported harvest was of European oysters, which was worth more slightly than \$8,000. Also evident from the graph is the steady increase in reported dollar value. The harvest value of American oysters has shown steady increases each year since 1995, going from approximately \$65,000 in 1995 to almost \$160,000 in 1999. The harvest of Quahogs showed a slight decline in 1996, when the reported value was less than \$20,000. Since 1996 the harvest value has shown a steady increase to the present valuation of almost \$45,000. This is the first year the European oyster has been reported in the harvest.

Graph 3



The American oyster is the predominantly cultured species with slightly more than 350,000 being harvested. Almost 250,000 Quahogs were harvested in 1999, and a reported 15,000 European oysters. The lines on graph 3 seem to point to a trend of increasing numbers of Quahogs being harvested in relation to oysters, with a possible crossing of the curves in a few years. However, the relative worth of the individual animal as related on graph 2 shows that the oyster harvest is still worth much more to the farmers in the state.

Graph 4



Graph 4 relates the growth of farms and acreage under cultivation in the state of Rhode Island. Both have shown steady growth with the number of permitted farms growing from five in 1995 to 15 in 1999. This graph does not include any land-based operations, i.e., shellfish hatcheries or finfish grow-out facilities, but is limited to permits and leases used for shellfish culture.

Appendix A

R.I. DIVISION OF FISH AND WILDLIFE
COASTAL FISHERIES LABORATORY
1231 SUCCOTASH ROAD
WAKEFIELD, RI 02879
January 2000

ANNUAL REPORT OF
AQUACULTURE
IN
RHODE ISLAND
1999

by
Arthur R. Ganz
Aquaculture Coordinator
D.E.M.
Division of Fish and Wildlife

Summary:

Total number of permitted aquaculture facilities: 19
Operations in production: 14
Operations in development: 2
Operations under C.R.M.C. permit review: 1

Number of permitted experimental/research/educational aquaculture facilities: 3
Number of acres leased for aquaculture: 28.25
Number of land based aquaculture facilities: 3

Reported annual harvest from aquaculture:
Shellfish:
American Oysters: 352,775 count
Bay Quahogs: 246,642 count
European Oysters: 15,000 count

This amount was grown and sold by eight (8) aquaculturist
Production from five culture operations have not reached market size

No finfish were cultured for sale in 1999

AQUACULTURE PRODUCTION 1996-1999 STATEWIDE

Based on individual annual reports

	1996	1997	1998	1999
PERMITS				
TOTAL	6	8	14	22
COMMERCIAL	6	6	10	19
EXPERIMENTAL		2	4	3
LEASED ACRES	9	17	26	28.25
LAND BASED	0	1	1	3
PRODUCTION (pcs)				
AmOyster	126000	192225	343700	352775
Quahog	187629	160886	165456	246642
EuroOyster	2000	9125	0	15000
Scallop	7000	0	0	0
Finfish		0	0	0

Appendix B

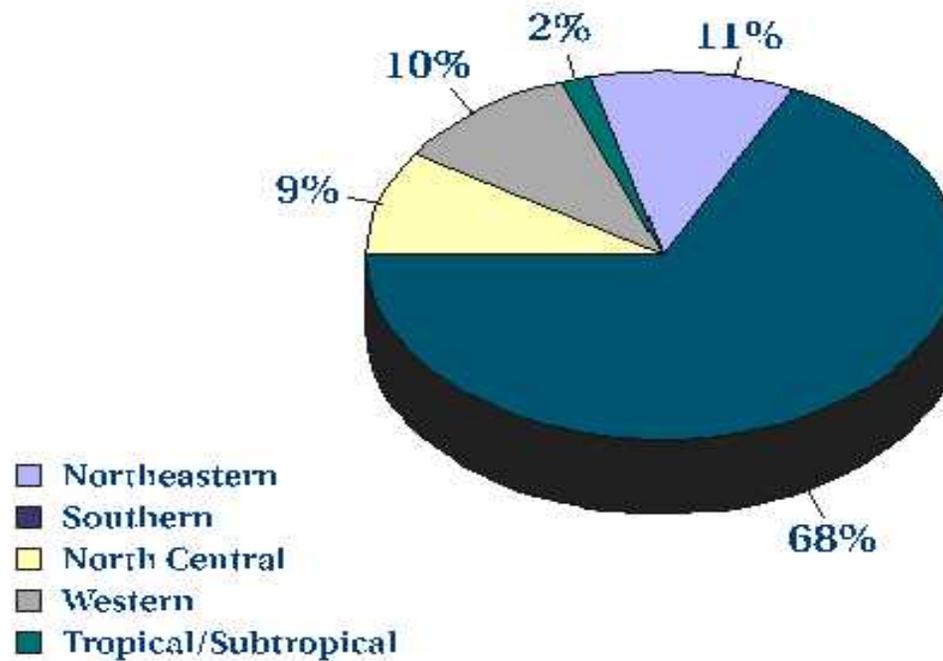
The following information, charts, graphs, were supplied by the United States Department of Agriculture, National Agricultural Statistics Service. The *1998 Census of Agriculture* was the first national census of aquaculture production taken for the nation. The census was conducted by the U.S Department of Agriculture, national Agricultural Statistics Service (NASS). The 1997 Census of Agriculture collected a variety of data, some of which have relevance to the aquaculture industry. The 1998 aquaculture census was conducted to expand the aquaculture data collected from the 1997 Census of Agriculture. The aquaculture census collected detailed information relating to on-farm aquaculture practices, size of operation bases on water area, production, sales, method of production, sources of water, point of first sale outlets, cooperative agreements and contracts, and aquaculture distributed for restoration or conservation purposes.

The *1998 Census of Aquaculture* was conducted in response to the intense need for accurate measurement of the aquaculture sector. The data collected are the most comprehensive sources of statistics and provide a complete statistical picture of aquaculture farms in the United States. These data are available in printed and electronic formats.

NASS Customer Service Center
Telephone 1-800-727-9540
E-mail nass@nass.usda.gov
Internet <http://www.usda.gov/nass/>

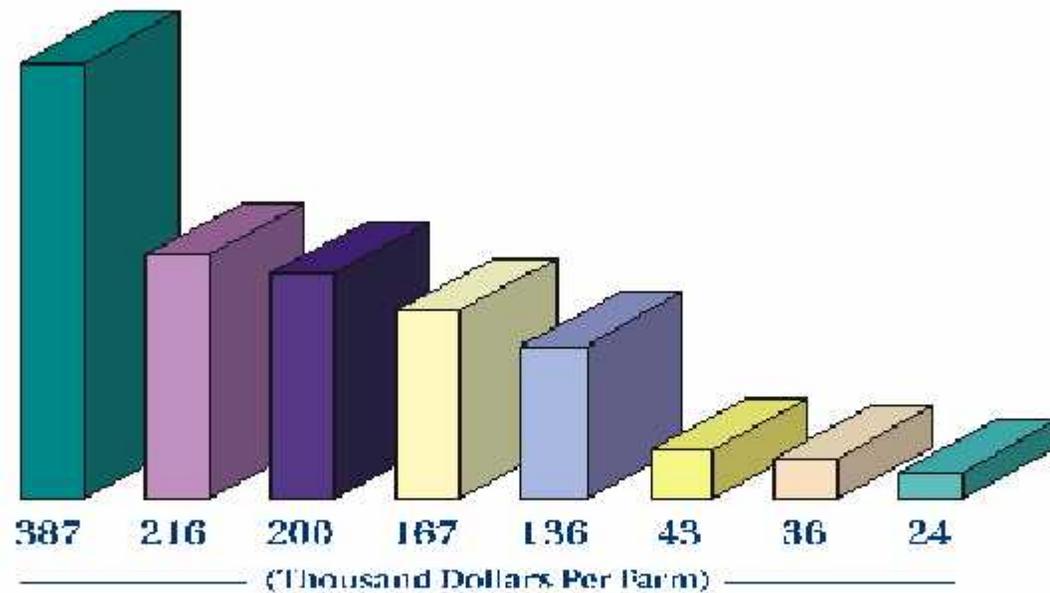
Aquaculture Farms by Region

U.S. Total Farms = 4,028



Source: 1998 Census of Aquaculture, USDA-NASS

Average Value of Products Sold By Type

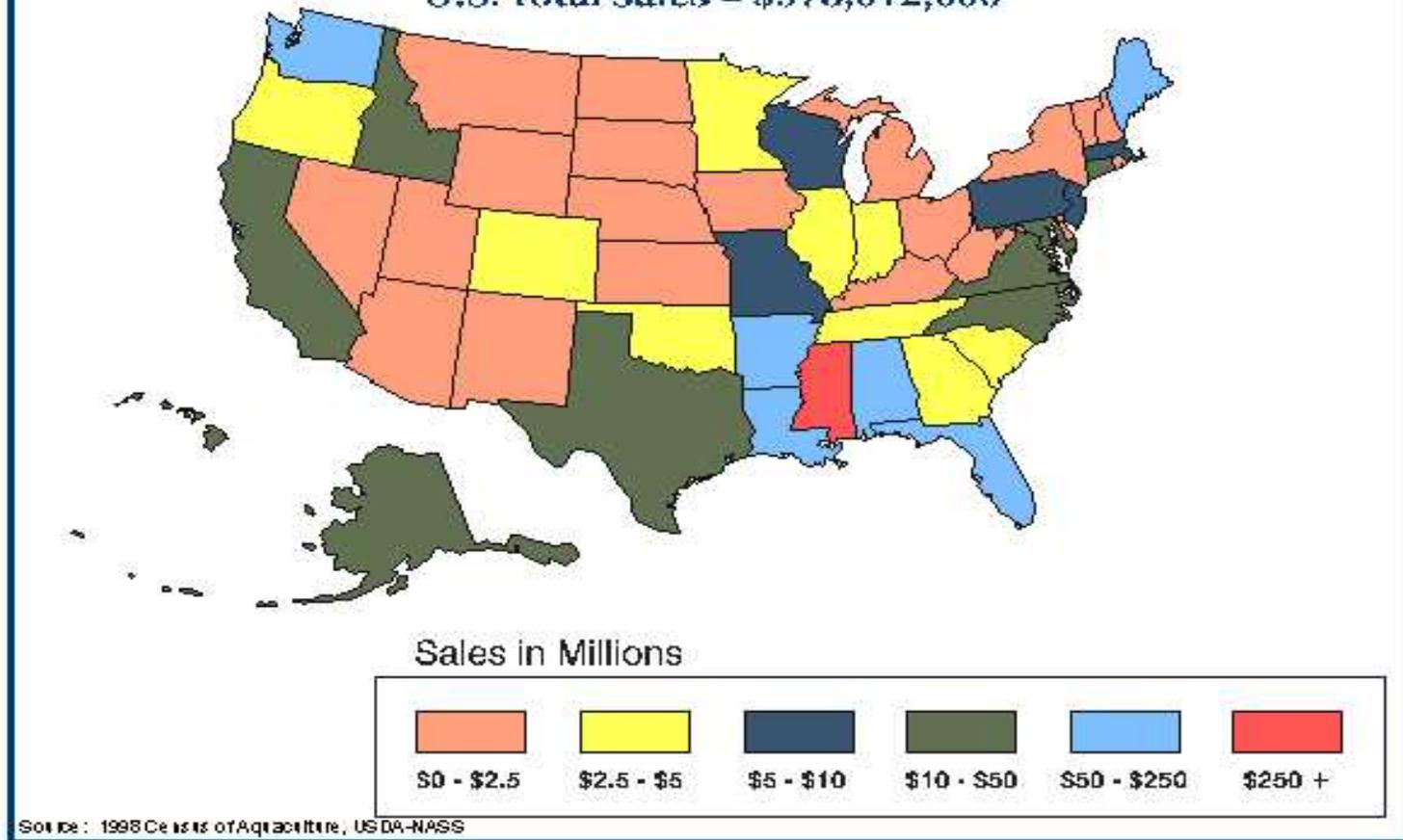


- Food Fish
- Baitfish
- Ornamental Fish
- Sport/game fish
- Other fish
- Crustaceans
- Mollusks
- Other animal aquaculture & algae & sea vegetables

Source: 1998 Census of Aquaculture, USDA-NASS

Aquaculture Sales

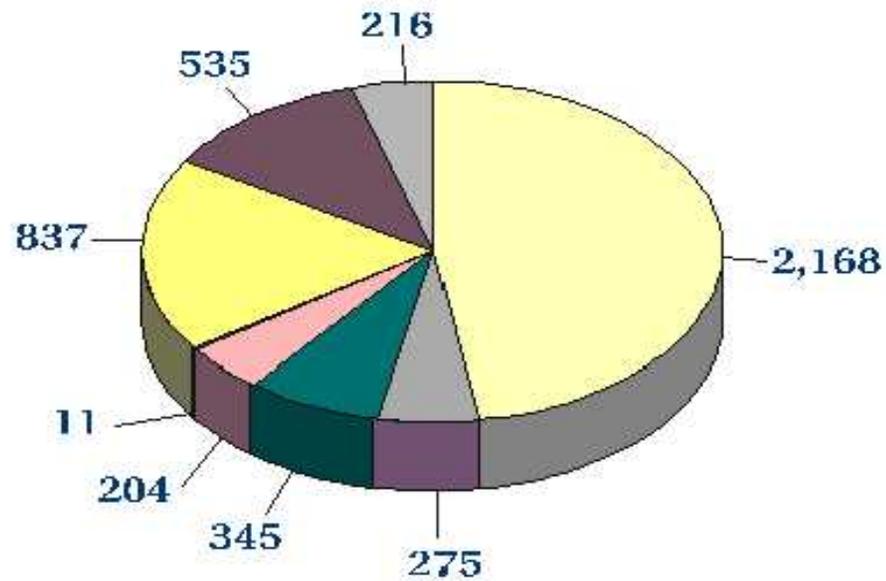
U.S. Total Sales = \$978,012,000



Top 10 States Value of Aquaculture Products Sold (\$1,000)	
Mississippi	\$290,382
Arkansas	\$84,120
Florida	\$76,696
Maine	\$66,610
Alabama	\$59,694
Washington	\$56,646
Louisiana	\$53,220
California	\$43,509
Idaho	\$35,919
Virginia	\$24,629

Source: 1998 Census of Aquaculture, USDA-NASS

Farm Count by Category

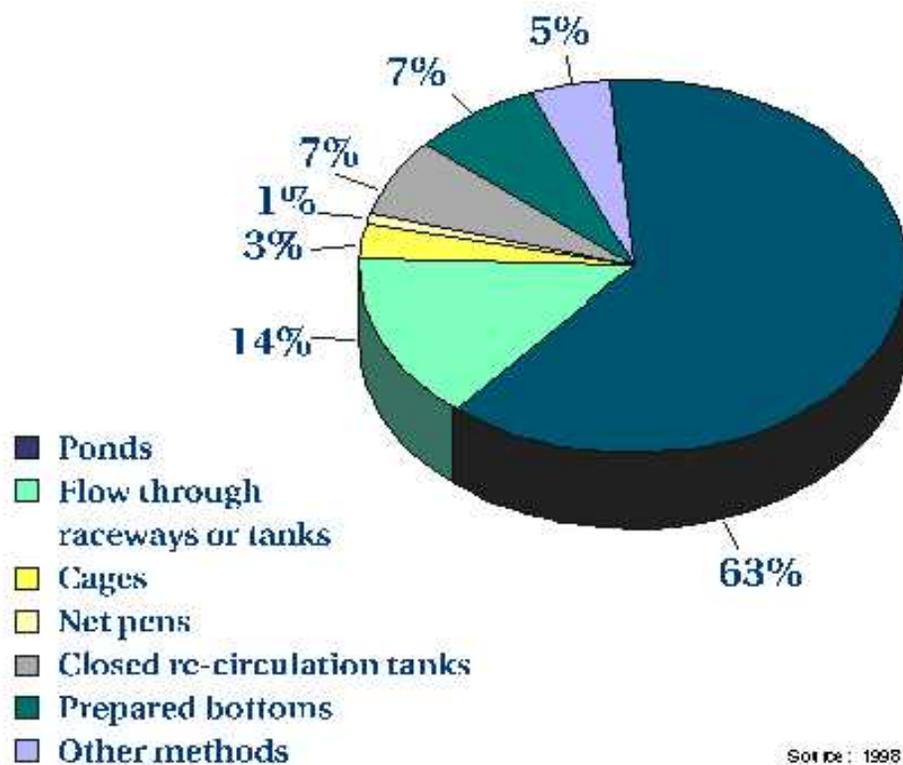


- Food fish
- Baitfish
- Ornamental fish
- Sport/game fish
- Other fish
- Crustaceans
- Mollusks
- Other animal aquaculture & algae & sea vegetables

* Farms can be included in more than one category.

Source: 1998 Census of Aquaculture, USDA-NASS

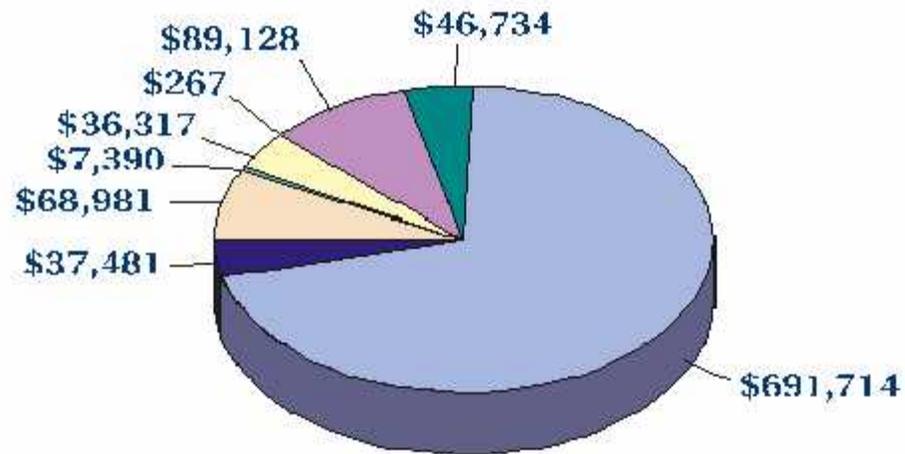
Farms by Method of Aquaculture Production Used



Source: 1998 Census of Aquaculture, USDA-NASS

Value of Aquaculture Products Sold by Category

U.S. Total Sales = \$978,012,000
(\$1,000)

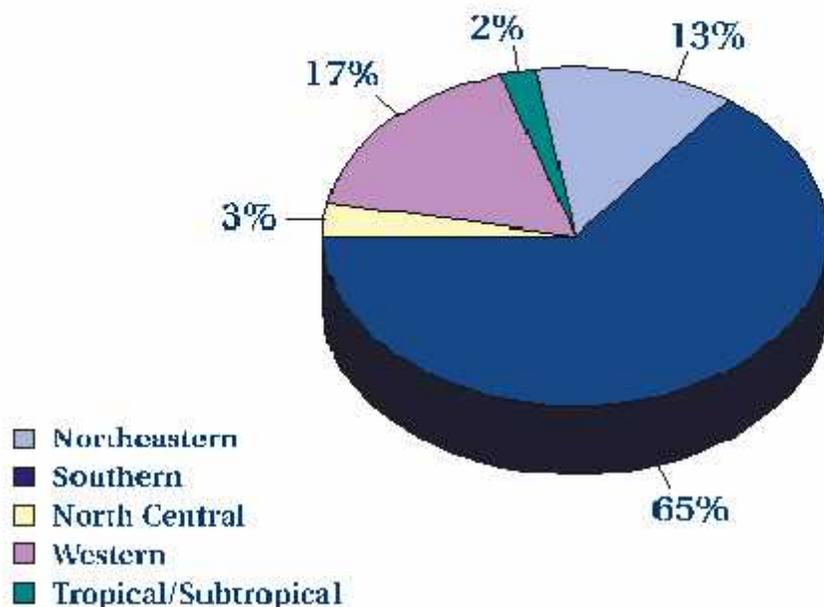


- | | | |
|-------------------|-------------------|---|
| □ Food Fish | □ Sport/game fish | □ Mollusks |
| □ Baitfish | □ Other fish | □ Other animal aquaculture & algae & sea vegetables |
| □ Ornamental Fish | □ Crustaceans | |

Source: 1998 Census of Aquaculture, USDA-NASS

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U.S. Total Sales = \$978,012,000



Source: 1998 Centers of Aquaculture, US DA-NASS