

Aquastats

1999

Ontario Aquacultural Production in 1999

UNIVERSITY
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INDUSTRY SNAPSHOT 1999

Major Species Produced	- rainbow trout
Minor Species Produced	- tilapia, Arctic charr, brook trout, smallmouth and largemouth bass, cyprinid baitfish
Total Trout Production	- 3,850 tonnes
Farm-gate Value	- \$15.5 million Cdn.
Economic Contribution	- \$50 - 60 million Cdn.
Job Creation	- 240 person-years of direct and 250 person-years of indirect employment
Projected Trout Production	- 4,000 tonnes in the year 2000
Projected Total Production	- over 4,500 tonnes in the year 2000

SUMMARY

In 1999, the Ontario aquaculture industry produced approximately 3,850 tonnes (8.5 million pounds) of rainbow trout for human consumption, with a farm-gate, wholesale value of \$15.5 million. Limited quantities of tilapia, Arctic charr, brook trout, smallmouth and largemouth bass, yellow perch and walleye were also produced. The industry generated approximately 240 person-years of direct employment plus another 250 person-years of indirect employment. The total economic contribution of the aquaculture industry to Ontario's private sector is estimated at \$50 to \$60 million. We predict that annual production of rainbow trout for human food should exceed 4,000 tonnes in the year 2000. Tilapia and Arctic charr production are also expected to rise from their current levels of approximately 100 tonnes to 300-500 tonnes next year.

INTRODUCTION

This factsheet summarizes data collected through ongoing annual surveys of Ontario aquaculture production conducted by us since 1988¹. We present data to quantify the production output, economic value and employment generated by the food-fish sector of the Ontario aquaculture industry. Other important

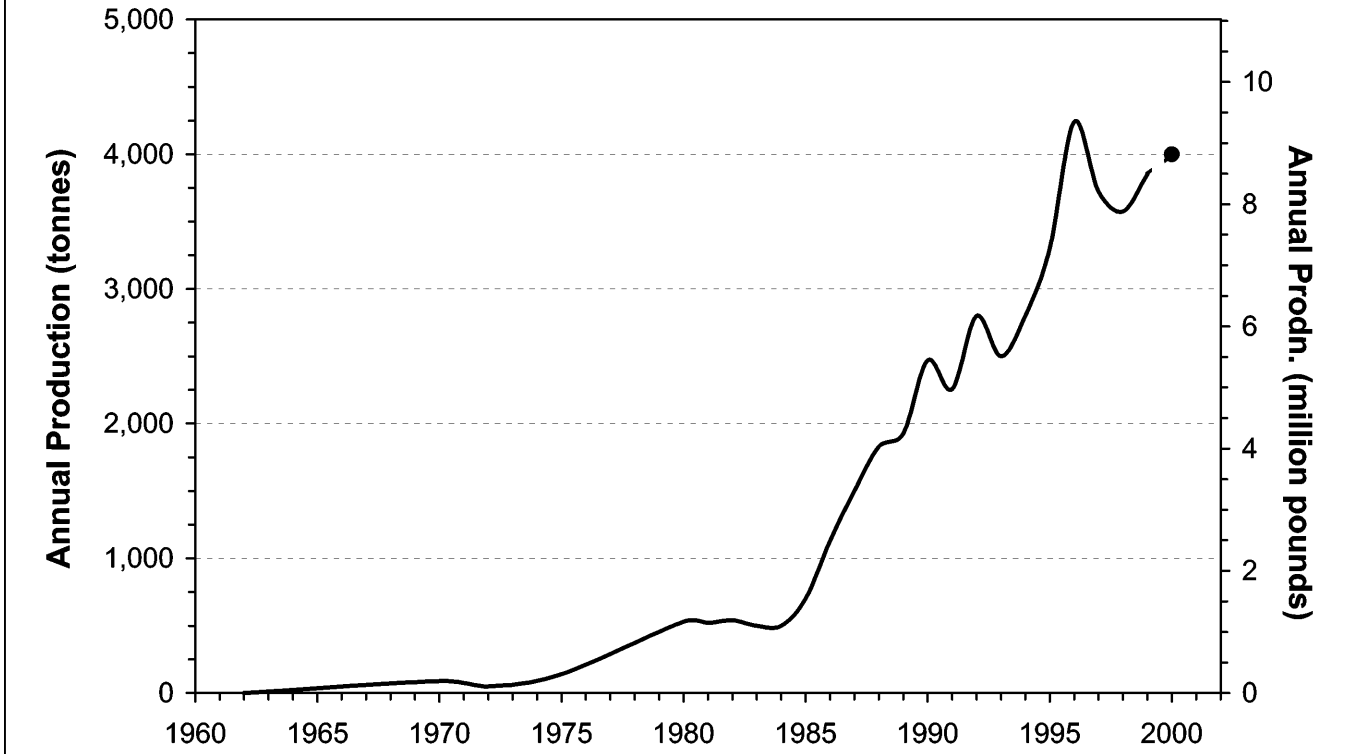
components of Ontario's aquaculture industry also exist, such as pond stocking, recreational fee-fishing, baitfish farming and the substantial aquarium-fish production trade, but these are not included in this survey due to our inability to collect data on these sectors. As a consequence, only limited information on these particular industry units is presented here (see Tables 1 and 2).

ANNUAL PRODUCTION

A total of 193 private-sector fish production facilities of various types were identified from our in-house records. Seventy-three facilities were surveyed between February and May 2000. These farms were selected to include those believed to produce at least 5,000 kg of fish or \$10,000 of sales per year. There was no attempt to survey farms producing less fish than this limit. Thirty-five facilities returned their questionnaires, although not all were complete. These responses were combined with additional information gathered from farm owners and service providers to establish the estimates reported here.

With all data available to us, we estimated that in 1999, Ontario fish farms produced 3,850 tonnes (8.492 million pounds) of rainbow trout, primarily for human consumption (Figure 1). This is a 7.5 % increase over the 3,580 tonnes produced in 1998.

Figure 1. Ontario trout production from 1962 until present, with projection for the year 2000.



Output from lake-based, cage production facilities continues to exceed land-based trout production systems, accounting for 2,790 tonnes, or approximately 72 % of the total provincial production of food-fish (Table 1). Trout production is expected to rise slightly, reaching approximately 4,000 tonnes in 2000. Tilapia production is expected to reach 200-300 tonnes by the end of 2000, and those involved in the tilapia sector report optimistic future growth opportunities. Arctic charr expansion remains slow, with relatively few farms producing this species, and legislative pressures constraining those that are already licensed.

While most of the food-fish production in Ontario comes from lake-based, cage culture operations in the Northern region, the land-based production is located primarily in the West, South and Central regions (Table 2), accounting for most of the remaining 28% of the food-fish production as well as most of the egg and fingerling supplies in Ontario. This is due to several factors, most important is the larger quantities of more easily accessible groundwater which are available in these parts of the province. As well, the land-based

farms are generally smaller operations which service mainly local niche markets and are, by necessity, closer to the bulk of the provincial population which exists in these three regions. Most of the hatcheries and fingerling suppliers are also located in these same three regions of the province (Table 2), also due to the fact that they utilize mainly groundwater sources in the holding of broodstock and in the production of eggs and fingerlings.

ECONOMIC VALUE

Twenty-seven farms, accounting for 1,400 tonnes (36 %) reported data on both the wholesale and retail price structure for trout. The total farm-gate, wholesale value of the 3,850 tonnes produced is estimated to be \$15.5 million. The reported farm-gate price of trout less than one pound averaged \$2.44/lb (\$5.38/kg); 1 to 2½ lb. trout averaged \$1.77/lb (\$3.90/kg); while trout over 2½ lbs. averaged \$1.65/lb (\$3.64/kg). There were too few farms reporting prices for charr and tilapia to permit valid price averages to be listed here. As a consequence, most of the economic valuation of the Ontario industry is

based on the trout production sector as it relates primarily to human food.

In 1999, the Ontario aquaculture industry is estimated to have generated a total of 240 person-years of direct, on-farm employment. This consisted of 176 person-years of full-time employment (ie. 40 hours per week for 12 months) and 64 person years of part-time employment. Indirect employment is conservatively estimated at 250 person-years.

Although we have records of at least 139 recreational fee-fishing facilities in Ontario (Tables 1 and 2), we have been unable to collect pertinent production or economic valuations for this sector to report here. These recreational fishing outlets are scattered across the province with a higher concentration located in the West and Central regions where the bulk of the population, and hence clientele, exist. Some of the operations are large and service many thousands of customers during the late spring through to the early fall periods, and their local economic impacts are likely significant. In future years we will be attempting to gather information to better quantify this small, but important, sector of the provincial aquaculture industry.

SITUATION OUTLOOK

Ontario's aquacultural production (food-fish only)

showed slow growth in 1999 due to a variety of factors. These factors included continued opposition from anti-aquaculture groups coupled with an uncertain and highly dynamic regulatory environment that have limited both farm expansions as well as new farm starts. In addition, increased competition from the salmon farming sector as well as other meat commodities has kept the wholesale and retail price of trout relatively static over recent years. This, combined with gradually increasing costs of production have lead to marginal profitability in many farms which has essentially constrained the growth of the industry. In general, Ontario's farming economy has been soft during the last few years, and this limits investment in newer technologies as well as diversification into non-traditional livestock species.

Above average water temperatures and below average snow and rainfall also had a negative impact on some facilities during 1998 and 1999. Some land-based farms experienced well-water availability problems due to lowered water table levels, and high surface water temperatures hampered cage production in some areas as well. Although animal health problems are a constant management issue in livestock production, Ontario has been fortunate not to have to deal with any large-scale epizootics in its farmed fish populations.

Table 1. Summary of aquacultural finfish production by type of facility

Type of facility	No.*	Production (tonnes)	Employment (person-years)	Value (Million \$)
Hatcheries	14	NA	15	1.4
Land-based: ponds & race-ways	62	1,100	110	4.7
Lake-based: cages	11	2,800	115	10.7
Fee-fishing (private & public)	139	200 - 800	unknown	unknown
Warm-water (recirculation)	4	100 - 200	unknown	unknown
TOTAL	193	4,200 – 4,900	over 240	over 16.8

* Note: some facilities operate under more than one category

Table 2. Number of aquacultural production types in Ontario by geographical region†.

Production type	South	West	Central	East	North	TOTAL Number
Hatcheries & Stocking	6	16	6	3	1	32
Food Producers (land-based)	16	25	10	3	1	55
Food Producers (lake-based)	0	2	1	0	8	11
Fee-fishing (private & public)	16	46	41	18	18	139
Warm-water (recirculation)	1	0	3	0	0	4
TOTAL Number *	31	67	48	20	27	193

† Geographical regions defined as per Ontario Ministry of Agriculture, Food and Rural Affairs.

* Note: some facilities operate under more than one category

Trout production is expected to exceed 4,000 tonnes for the year 2000, with an additional 300-500 tonnes of tilapia and Arctic charr anticipated. Small-scale production (less than 10 metric tonnes) of walleye and yellow perch is anticipated to come on-line in 2000, and there seems to be very little interest in the private sector in diversification to other fish species at this time. So for the foreseeable future, Ontario's aquaculture industry will continue to be characterised as a trout production sector with the primary outlet being sales to the human food market.

With the advent of more sophisticated and economical water treatments technologies, there is expanded use of surface water for fingerling production in various parts of Ontario, as well as increasing use of recirculation technologies for warm-water fish farming. Although the warmwater sector of the province's aquaculture industry is still small, it is likely to slowly expand as recirculation

systems become more economical and the industry exploits niche markets for different types of fish species, notably tilapia. However, because production of many of these warmwater fish also continues to expand in other countries, many of which do not rely on sophisticated water treatment technologies, the recirculation sector will likely remain a relatively small component of Ontario's aquaculture industry for the foreseeable future.

In summary, Ontario aquaculture production is expected to continue its slow but steady expansion over the next few years, being characterized essentially as a trout producing region of Canada that uses a variety of land-based, recirculation and cage-culture technologies to raise fish. Environmental opposition, regulatory issues and marginal profitability continue to be the main challenges which confront aquaculture here, and which will constrain more rapid growth of this agriculture sector in Ontario.



- 1 Moccia, R.D. and D.J. Bevan. Aquastats-1988 (FS89-113); Aquastats-1989 (FS91-007); Aquastats-1990 (FS91-050); Aquastats-1991 (FS92-150); Aquastats-1992 (FS94-001); Aquastats-1993 (FS95-001); Aquastats-1995 (FS96-001); Aquastats-1996 (FS97-006); Aquastats-1997 (FS98-025); Aquastats-1998 (FS99-002).

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