

AQUASTATS

1996

Ontario Aquacultural Production in 1996 and Situation Outlook

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Summary

In 1996, the Ontario aquaculture industry produced approximately 4,240 tonnes (9.35 million pounds) of rainbow trout for human consumption, with a farm-gate value of \$ 18.0 to 21.2 million. This represents an increase of 29 % over 1995's production output, and is due primarily to expanded capacity in the cage-culture sector of the industry. Limited quantities of Arctic charr, tilapia, cyprinid baitfish and bass were also produced. The industry generated approximately 260 person-years of direct employment at the farm level, plus another 250 person-years of indirect employment. Total economic contribution of the industry to Ontario's private sector is estimated at \$65 million. Our predictions are that annual aquaculture production of primarily rainbow trout should exceed 5,000 tonnes in 1997, and reach 7,000 tonnes by the year 2000. The recreational fee-fishing sector is also significant in Ontario, although we did not attempt to quantify its size or economic value in this survey.



OVERVIEW

This factsheet summarizes data collected since 1988 during annual surveys of the Ontario aquaculture industry. These surveys were conducted by the Aquaculture Extension Centre, University of Guelph, in consultation with federal and provincial government agencies as well as representatives of the private sector in Ontario¹. The information in this factsheet compliments, and adds to, our earlier reports on production statistics for the province of Ontario². In addition to food-fish production, there is also significant culture of numerous ornamental and tropical fish species in Ontario (mostly by home-hobbyists), as well as of gamefish species in government fish culture facilities, however, these are not included in our survey. Therefore, this factsheet describes the current status of the food-fish aquaculture industry in Ontario, and presents a situation outlook and future predictions about its growth potential until the year 2000.

A total of 208 private-sector, fish production facilities were identified from Ontario Ministry of Natural Resources licence records, as well as in-house data files compiled since 1988. Responses to our survey questionnaire were combined with information gathered from farm owners and other service providers, to arrive at the final production estimates given in this report.

Rainbow trout continues to dominate food-fish production in Ontario, although other species are raised in very limited quantities including, Arctic charr, *Tilapia sp.*, brook trout, largemouth and smallmouth bass, Atlantic salmon, and cyprinid baitfish. Of these additional species, Arctic charr and *Tilapia sp.* exhibit strong potential for significant growth in the next 5 years, and there is likely to be start-up of extensive yellow perch farming systems in the next 2-3 years.



ANNUAL PRODUCTION ESTIMATES

In 1996, we estimated that private sector Ontario fish farms produced 4,240 tonnes (9.35 million pounds) of rainbow trout, mostly for human consumption and pond stocking. This represents a significant increase of 28.5% over 1995 production figures. This value was determined from a primary survey of the 78 larger farms in the province, conducted between March and October, 1997. This primary survey was made up of those farms that were known to produce over 5 tonnes (11,000 pounds) annually in 1995², or, new facilities that were expected to produce more than 5 tonnes in 1996. This group of 78 farms accounted for approximately 94 % of the province's entire production of food-fish. In addition, a parallel survey of farms representing those known to produce less than 5 tonnes per year was conducted during the same period. Although the total fish production from these smaller farms is modest in total tonnage, they provide a diversification in the production base.

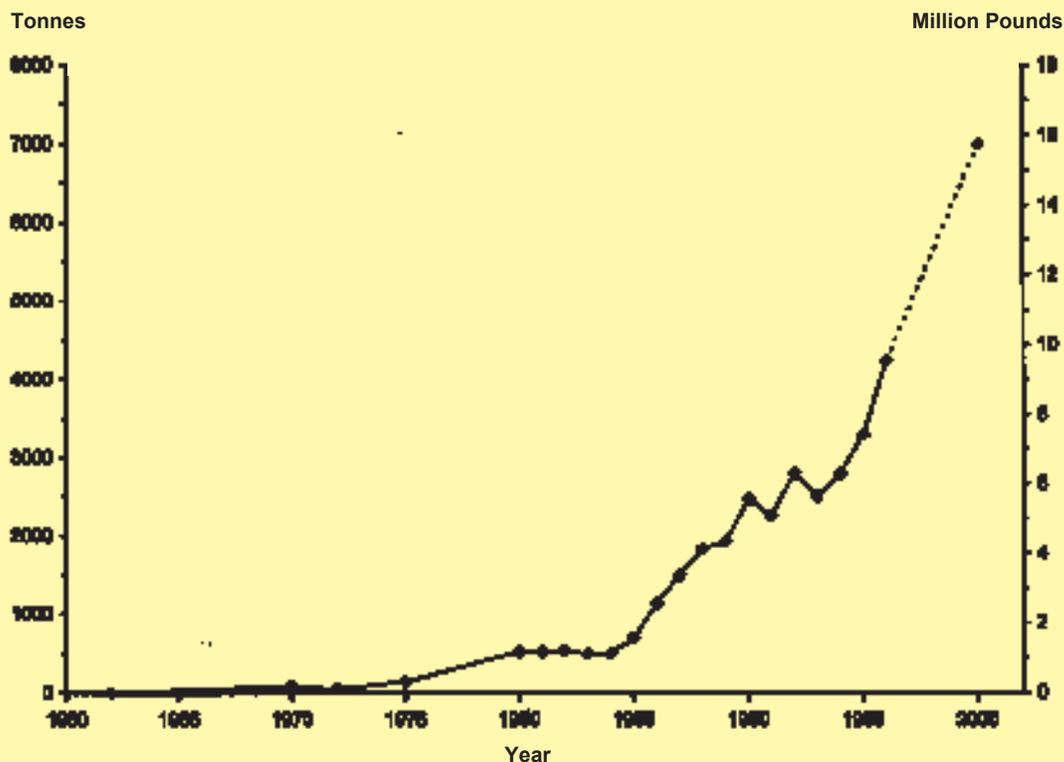
In the primary survey of 78 farms, production data was reported by 40 facilities (51% response), accounting for 2,410 tonnes (5.3 million pounds). The remaining thirty-

eight facilities either did not respond, or were not willing to disclose current production information because they wished the data to remain proprietary. In these cases, estimates of production were made for all non-reporting facilities, and were based upon review of previous data, as well as other information gathered through personal communication. These additional estimates of production accounted for a further 1,680 tonnes (3.7 million pounds). All individual farm data, either reported or estimated, is maintained in strictly confidential files, and only aggregate information is reported herein.

In the parallel survey of 130 smaller farms, production data was reported by 27 facilities (21% response), accounting for 30 tonnes. Estimates were made for the remaining, non-reporting facilities. In total, these smaller facilities are calculated to have produced 150 tonnes (0.33 million pounds) during 1996. Therefore, total provincial production estimates are a composite of data from these various sources, and accounts for the bulk of food-fish production in Ontario (see Fig.1).



Figure 1. Ontario trout production from 1962 until present, with projections to the year



Structurally, the Ontario industry is a composite of farms encompassing numerous small-scale, essentially part-time operations, with significantly fewer intermediate-scale facilities, and fewer still large-scale production units. Indeed, 75 % of the production total for the entire province comes from only 8 farms, and of these, four facili-

ties account for nearly 60 % of the total provincial output. This rather skewed production profile is typical of most emerging forms of livestock farming, and has been characteristic of the Ontario industry since its inception in the early 1960's.



INDUSTRY SNAPSHOT 1996

Major species produced - Rainbow trout

Minor species produced - Brook trout, Arctic charr, Smallmouth and Largemouth bass, Atlantic salmon, Tilapia, cyprinid baitfish

Total Production - 4,240 metric tonnes

Farm-Gate Value - \$18 - 21 million

Economic Contribution - \$ 65 million

Job Creation - 260 person years direct employment

1997 Prediction - 5,000 metric tonnes

PRODUCT TRENDS AND ECONOMIC VALUE

The trend towards producing rainbow trout around 1 kilogram (2 - 2½ pounds) live weight, aimed at the boneless fillet market, appears to have continued in 1996.

Twenty-six farms reported production by fish size, accounting for 564 tonnes (13%) of the total production. Trout less than 450 grams (10 to 16 ounces) accounted for 22% of the reported totals, while trout between 450 and 1,000 grams (1-2½ pounds) accounted for 60%, and fish over 1,000 grams (2½ pounds) made up the remaining 18%. The farms in northern Ontario, especially those in the Manitoulin Island region, are now making a major impact upon the province's total production, both in quantity and type of product. Typically, these farms are cage-culture facilities producing trout in the 1 kg category.

Survey data on price structure was only reported by 16 farms, accounting for 355 tonnes (8 % of total) and the following information, is therefore, only suggestive of the current pricing structure. The reported, average farm-gate price of trout less than one pound was \$2.77 per pound, while trout in the 1 to 2 pound size-range averaged \$1.78 per pound, and trout greater than 2½ pounds averaged

\$1.68 per pound. Keep in mind that there may be limited markets available for some of the size ranges, especially for the smaller, higher-valued items, and large-volume wholesale prices should not be expected to be higher than the floor prices reported here of about \$1.70 per pound. In actual fact, the price of trout is reasonably variable throughout the year, but was centred around this floor price at the wholesale level. Notwithstanding this information, we are less confident about the overall wholesale price structure of trout than we are about the total production tonnage, due mainly to the lack of farms reporting pricing structure.

In 1996, the Ontario industry is estimated to have generated a total of 260 person-years of on-farm employment. This consisted of 208 person-years of full-time employment (defined as a minimum of 40 hours per week for 12 months of the year) and 52 person-years of employment as part-time labour (defined as all other work schedules). Indirect employment generated off-farm is conservatively estimated at 250 person-years.



SITUATION OUTLOOK

By most accounts, 1996 was a good year for growth in Ontario's aquaculture industry. There was significant expansion in the cage-aquaculture sector, and the production from land-based farms stabilised somewhat after declining over the last few years. This growth pattern more or less parallels the performance of the national and international aquaculture sectors, and was a response to the same multitude of factors which contributed to the industry's expansion in most industrialised countries. Improved organisation and entrepreneurship within the private sector during the last few years has kept the growth opportunities alive.

Tilapia production is expected to increase very significantly in the next three years, and will be established at

half a dozen farm sites during this period. The market for Tilapia is likely to be very volatile in the near-term, and will be influenced by competition from the expanding Tilapia farming industry in North America, as well as saturation of the limited markets which are largely responsible for the current demand. Since Tilapia will only be grown in closed-cycle recirculation systems in Ontario, it will be a few years before the cost-benefit of this technology will be proven here.

The Arctic charr industry has been slow to expand, and is still hampered by the lack of availability of seed stock, and poor reproductive performance in those broodfish currently in captivity. Judging by the market acceptability of

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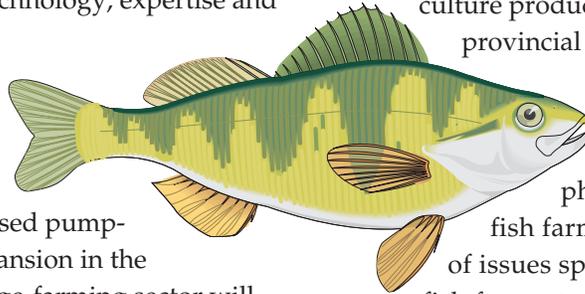
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Arctic charr, and the ease of producing them after the seedling stage, the species holds excellent potential for growth in Ontario climates, and we expect production to expand significantly in the next five years.

There will be some modest growth in the extensive culture of yellow perch in the next two years, but it is unlikely that production will exceed 50 tonnes by 1998, due mainly to the lack of available technology, expertise and seedstocks in the province.

Finally, rainbow trout production will see the biggest increase in the province in the next few years, mainly because of the advances in large, land-based pump-shore facilities, and further expansion in the cage aquaculture sector. The cage-farming sector will almost certainly deal with increasing opposition from the environmental lobby, which may curtail more rapid expansion. Thus, rainbow trout will continue to be the backbone of Ontario's aquaculture industry for the foreseeable future, and production will increasingly come from larger-scale operations which will be a necessity to achieve the economy of scale required to remain vertically integrated and profitable.

Ontario possesses many assets for continued aquaculture development, notably the availability of abundant, high quality water resources, easy and cheap access to large domestic and foreign markets and a well developed industry infrastructure. This, coupled with recent amendments to legislation which now permit the culture of 42 aquatic species, should enable expanded production of both old and new products for growing markets. The



period of economic downturn that nearly crippled the province during the early part of the decade also appears to be over, and the wholesale price of trout even crept up a few cents a pound for the first time in several years. By all accounts, then, Ontario's aquaculture industry should have a near-term future of sustainable growth ahead of it.

But the future is not all rosy for Ontario. Like most other Canadian provinces, and indeed, many other aquaculture producing countries around the world, the provincial industry is facing many formidable challenges to its continued sustainability. The romantic 'honeymoon period' of the pioneering phase of growth is over, and Ontario fish farmers are now dealing with a plethora of issues spanning the environmental impacts of fish farms, to the aggressive international competition in our domestic marketplace. Ten years ago for example, few people ever imagined that fish welfare issues would become important, or that Chile would sell fish in our local markets for prices that sometimes defy belief. Feed and energy costs are unacceptably high. Markets are increasingly volatile. Few, if any, new food products are being developed, the regulatory environment is still unpredictable, and the financial climate for investors remains uncertain. Lastly, there are growing confrontations between fish-farmers and the many rightful user-groups who claim their share of the water, land, recreational and other resources in the province.

Notwithstanding the limitations described above, we confidently predict continued expansion of Ontario's aquaculture industry into the next millennium.



References

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- 2 Moccia, R.D. and D.J. Bevan. Aquastats, Ontario Aquacultural Trout Production in 1988 with an Historical Perspective of the Industry's Development (OMAFRA Factsheet 89-113); Aquastats-1989 (FS91-007); Aquastats-1990 (FS91-050); Aquastats-1991 (FS92-150); Aquastats-1992 (FS94-001) and Aquastats-1993 (FS95-001); Aquastats-1995 (FS96-001).



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