

'AQUASTATS'

Ontario Aquacultural Production in 2020

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INDUSTRY SNAPSHOT 2020

Major Species Produced	rainbow trout
Minor Species Produced	Arctic charr, tilapia, barramundi, lake whitefish
Other Species Produced (for stocking, fee-fishing, stock rehabilitation and aquaponics)	salmon (Atlantic, coho and chinook), brook trout, brown trout, lake trout, bass (smallmouth and largemouth), sunfish (crappie, bluegill and pumpkinseed), cyprinid baitfish, lake sturgeon, walleye, yellow perch, koi
Total Rainbow Trout Production	5,318 tonnes
Farm-gate Value of Rainbow Trout	\$30.55 million
Total Other Fish Production	311 tonnes
Farm-gate Value of Other Fish	\$1.87 million
Value of Eggs, Fry and Fingerlings	\$4.23 million
Total Value of Farmed Species	\$36.7 million
Economic Contribution	ca. \$120 million
Job Creation	138 person-years direct 140 person-years indirect employment
Projected Production of Rainbow Trout	Approximately 5,500 tonnes in 2021

OVERVIEW

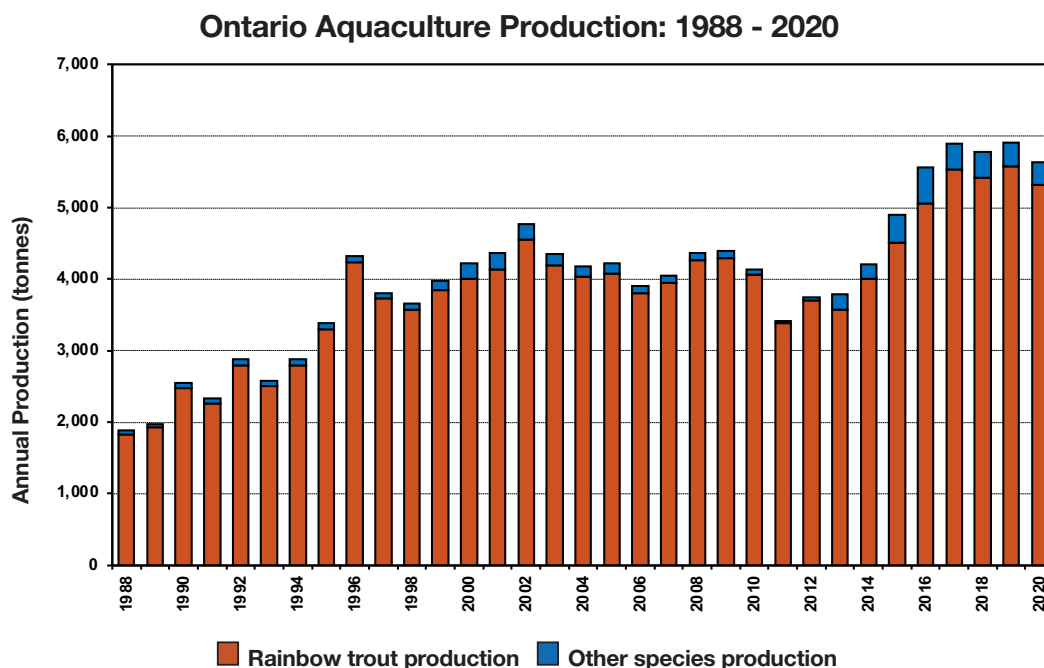
We estimate that in 2020, Ontario aquaculture facilities produced 5,629 tonnes in total, of fish primarily for human consumption (Figure 1). This is a 4.8% decrease over the 5,913 tonnes produced in 2019. The majority of the production was rainbow trout @ 5,318 tonnes, (11.7 million pounds), which was a 4.7% decrease over the 5,583 tonnes produced in 2019. Lake-based, net-pen production of rainbow trout in Georgian Bay and Lake Huron continues to dominate all other land-based production systems, accounting for 97% of the total production. This production was generated from 10 net pen operations. In Ontario, land-based production of tilapia, barramundi, Arctic charr, lake whitefish and coho salmon is limited to a few facilities in southern Ontario, with tilapia production currently dominating. Our records indicate that 8 facilities culture one or more of those species, with an estimated total production of at least 311 tonnes in 2020. More than 126 smaller-scale facilities produce trout (rainbow, brook and brown trout), Atlantic and Pacific salmon, bass, walleye, sunfish, baitfish and other fish species primarily geared towards pond stocking, sports-fishing and restoration/rehabilitation purposes. These operations provide an important diversity to the Ontario aquaculture industry, although quantifiable information to measure production and economic value has been limited, and difficult to collect. Having said that, this year's response rate to our survey was similar to that of 2019. Surveys were sent to the 129 recorded cultured fish licence holders in Ontario as well as an additional 27 facilities that were estimated to have a significant aquaculture presence. While a response rate

of 36% of the larger producers and 38% of the smaller operations was achieved, it does capture farm data representing approximately 98% of Ontario's total production.

The total farm-gate value of the 5,318 tonnes of rainbow trout produced is estimated to be \$30.55 million, with an average price of \$2.55/lb (\$5.62/kg). Note that the average price has remained remarkably stable over the last five years with a low of \$2.26/lb in 2016 to the high of \$2.55/lb this year. The sale of eggs, fry and fingerlings that support rainbow trout production is valued at an additional \$4.23 million. Other fish and crustaceans are estimated to add an additional \$1.9 million in farm-gate revenues. More than 129 private sector facilities are also involved with pond stocking, stock rehabilitation and fee fishing, typically with rainbow trout, brook trout and/or bass species. The value of this aquaculture sector is conservatively estimated to be at least \$1.5 million annually in farm-gate revenues.

The Ontario aquaculture industry is estimated to have generated a total of 138 person-years of direct, on-farm employment, consisting of 102 person-years of full-time employment (40 hours/week for 12 months) and 36 person years of part-time employment. Indirect employment is conservatively calculated at an additional 140 person-years. In total, the annual contribution that aquaculture makes to the Ontario economy is estimated to exceed \$120 million, with additional and significant economic value realized via the recreational and aquaria trade.

Figure 1. Ontario aquaculture production between 1988 and 2020.



SITUATION OUTLOOK

The year 2020 was a landmark period as COVID-19 infections marked the advance of the first true global pandemic since the 1918 Spanish flu. It impacted most business sectors, and Ontario aquaculture was no exception. Several retail and institutional markets collapsed due to 'work/stay at home' directives, and production planning was thrown into a tailspin as fry and fingerling production and net pen stocking decisions did not anticipate the severe market perturbations. Back in 2019, when planning decisions were being made, no one anticipated the catastrophic impact of COVID on markets. As a consequence, investment decisions, expansion plans and new farm starts were put on hold this year due to the economic uncertainty. On top of that, ongoing challenges with elevated water temperatures in our primary net pen growing areas in Lake Huron and Georgian Bay, and associated mortalities from warmwater diseases, added additional pressure on trout production. Also, Pacific white shrimp production took a real hit, as larval imports were prohibited by CFIA due to IHNV in the source facilities in the USA. Where there were 4 shrimp farms in Ontario previously, now there is only 1 survivor. In some respects, the 4.8% decrease in overall aquaculture production over the prior year, although unfortunate, was a testament to the resilience of the sector in dealing with the pandemic and other impacts. Our farmers had to get creative.

In response, more than one farm developed 'direct to consumer' touchless sales pathways, which were surprisingly effective. If consumers weren't eating out in restaurants, they still wanted to eat fish at home. In spite of the challenges, there was also continued interest in diversifying species production, and both Arctic charr and whitefish species were continuing development to become commercially viable species. There were also ongoing investigations into developing several, significant net pen sites in Lake Superior. These would address the trend in gradually warming water temperatures in Lake Huron which makes long-term sustainability of trout production

there questionable. It also would take advantage of partnerships with First Nations groups in areas that avoid user group conflicts that are more problematic in the southern regions of the Great Lakes. Having said that, close to 70% of trout production from net pens in Ontario is already coming from farms operated by, or with, First Nation's communities. Depending on a host of unpredictable factors, and pending the outcome of environmental assessments, these Lake Superior sites could be developed as early as 2022 or 2023, and ultimately produce between 5,000-7,500 tonnes of rainbow trout which would double Ontario's production of this species.

Interest in land-based, recirculation aquaculture systems (RAS) is still high, and includes everything from smaller-scale aquaponics and monoculture fish facilities, to a very large-scale salmon production facility currently being proposed for the Grey-Bruce region in south-central Ontario. It will be interesting to see how these various proposed ventures develop.

The regulatory and policy framework for aquaculture in Ontario (and Canada for that matter), has still not improved, and it continues to be a complex and cumbersome system which is a disincentive to many investors. This is especially true of the legislative requirements for RAS facilities which haven't been substantively updated in 30 years. At the federal level, there is still no sign of a National Aquaculture Act seeing the light of day for the foreseeable future. As such, the regulatory confusion in Ontario will persist in coming years.

Meanwhile, the domestic demand for Ontario's aquaculture products remains high, and with some smoothing of marketplace volatility and a more enabling regulatory environment, the sector could expand significantly. In summary, we remain optimistic about the growth potential of Ontario's aquaculture industry and encourage the private and public sectors to continue supporting this emerging form of livestock production throughout the province.

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