

'AQUASTATS'

Ontario Aquacultural Production in 2019

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INDUSTRY SNAPSHOT 2019

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| Major Species Produced | rainbow trout |
| Minor Species Produced | brook trout, brown trout, Arctic charr, tilapia, Pacific white shrimp, barramundi, lake whitefish, baitfish species |
| Other Species Produced (for stocking, fee-fishing, stock rehabilitation and aquaponics) | salmon (Atlantic, coho and chinook), lake trout, bass (smallmouth and largemouth), sunfish (crappie, bluegill and pumpkinseed), channel catfish, lake sturgeon, walleye, yellow perch, koi |
| Total Rainbow Trout Production | 5,583 tonnes |
| Farm-gate Value of Rainbow Trout | \$31.2 million |
| Total Other Fish Production | 330 tonnes |
| Farm-gate Value of Other Fish Species | \$2.6 million |
| Value of Eggs, Fry and Fingerlings | \$5.1 million |
| Total Value of All Farmed Species | \$38.8 million |
| Economic Contribution to Ontario | \$126 million |
| Job Creation | 177 person-years direct 150 person-years indirect employment |
| Projected 2020 Production of Rainbow Trout | Not determined at this time due to uncertainty of Covid-19 on markets and production. |

OVERVIEW

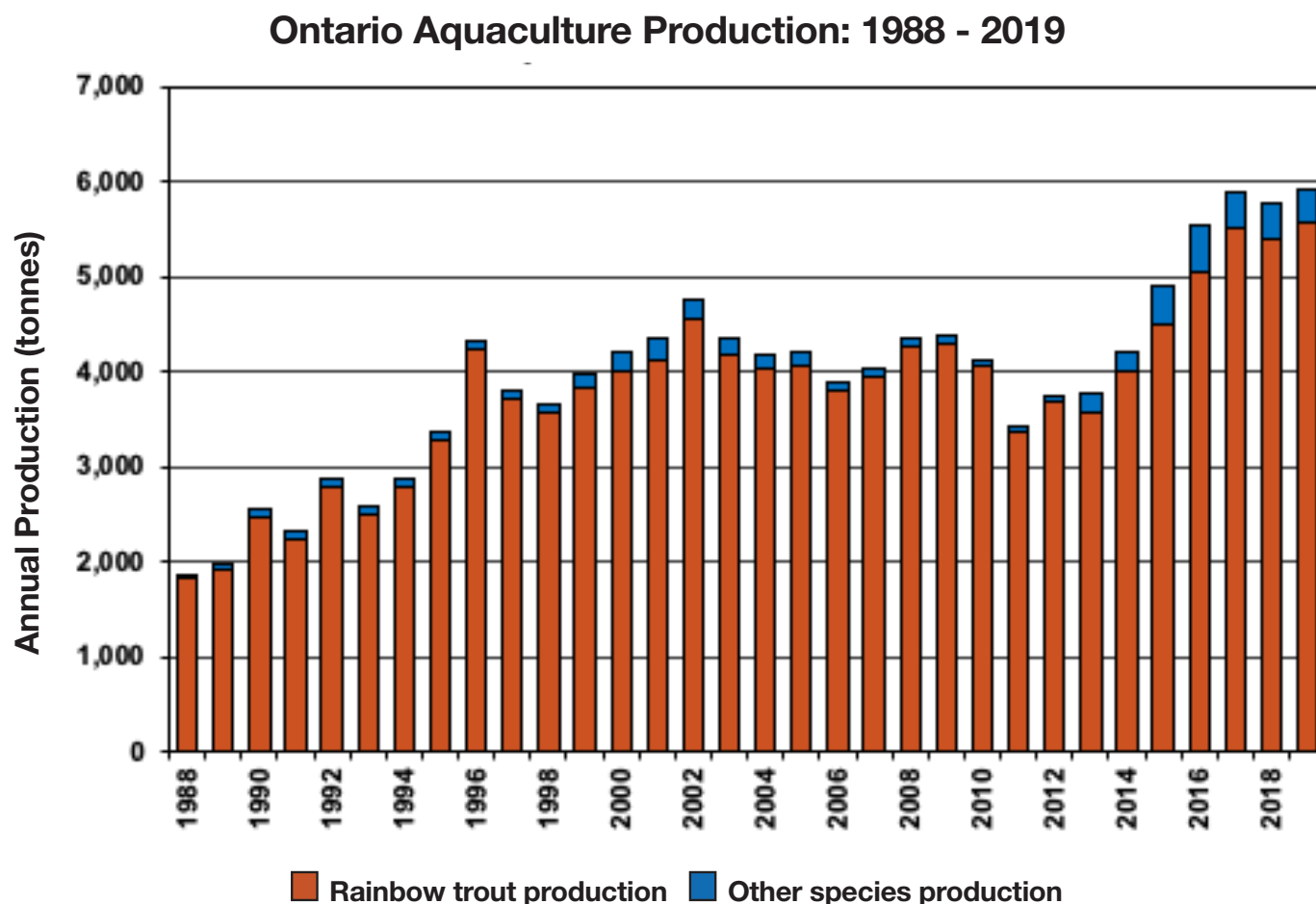
We estimate that in 2019, Ontario aquaculture facilities produced 5,923 tonnes in total, of fish and shrimp, primarily for human consumption (Figure 1). This is a modest 2.2% increase over the 5,787 tonnes produced in 2018. Rainbow trout continues to be the primary species produced accounting for 5,583 tonnes (12.3 million pounds), which was a 3.1% increase over the 5,416 tonnes produced in 2018. Lake-based, net-pen production of rainbow trout in Lake Huron (which includes Georgian Bay) continues to dominate all other land-based production systems, accounting for 96% of the total production. This production was generated from 10 net pen operations. In Ontario, land-based production of tilapia, barramundi, Arctic charr, and shrimp is limited to a few facilities in southern Ontario, with tilapia production currently dominating. Our records indicate that 11 facilities culture one or more of those species, with an estimated total production of at least 330 tonnes in 2019. More than 135 smaller-scale facilities produce brook and brown trout, Atlantic and Pacific salmon, bass, walleye, muskellunge 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 is difficult to collect. Surveys were sent to the 135 recorded aquaculture licence holders in Ontario as well as an additional 30 facilities that were estimated to have a significant aquaculture

presence. A response rate of 68% of the larger producers, and 35% of the smaller operations was achieved and captures farm data representing approximately 98% of Ontario's total production. This year's response rate to our survey was similar to that of 2018.

The total farm-gate value of the 5,583 tonnes of rainbow trout produced is estimated to be \$31.2 million, with an average price of \$2.48/lb (\$5.47/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 a high of \$2.54/lb in 2017. Other fish and crustaceans are estimated to add an additional \$2.6 million in farm-gate revenues. More than 135 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 very 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 177 person-years of direct, on-farm employment, consisting of 141 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 150 person-years. In total, the annual contribution that aquaculture makes to the Ontario economy is estimated to exceed \$126 million, with additional and significant economic value realized via the recreational and aquaria trade.

Figure 1. Ontario aquaculture production between 1988 and 2019.



SITUATION OUTLOOK

There was considerable consolidation in the aquaculture sector in Ontario in 2019, with the Cole Munro group of companies now controlling the majority share of grow-out production, processing and marketing of rainbow trout. Rainbow trout will continue to be the primary fish species raised for human consumption for the foreseeable future. In addition, there will be continued development of small to medium-scale closed and semi-closed recirculation farming systems growing alternate species in Ontario, and lake whitefish may emerge as a new, cultured species within two to four years. As well, there has been a surge in interest by Indigenous communities in Ontario, who are involved as either owners or operators, in many of the net pen sites in the province. There are also several Indigenous-led aquaculture projects in the construction and development stages, with several more under feasibility study. So significant opportunities for growth exist within this sector.

Given the uncertainty of the pandemic, and the rapidly changing dynamics of the provincial and national marketplaces, it was

deemed imprudent to be making many more predictions concerning the near-term impacts of the COVID situation on the aquaculture sector for 2020. However, it seems safe to say that in the medium to longer-term (ie. two to five years), the industry will continue to expand rainbow trout production, especially by establishing new, moderate-scale net-pen sites in the northern regions of the Great Lakes, including Lake Superior. Fish farmers in the Manitoulin Island region of Lake Huron have experienced a gradual rise in summer water temperatures in the recent decade and it is becoming increasingly challenging to produce rainbow trout at elevated summer water temperatures.

Finally, there is continued discussion at the federal level for establishing an 'Aquaculture Act,' for Canada, and it is uncertain how this may affect the sector here in Ontario as there are few details of what the final content of the Act will look like.