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Article abstract

Historians have shown that fish culturists and anglers enjoyed a mutually beneficial relationship in 19th century North America. Sharing interests in producing and protecting fish for recreation, the two groups supported emerging regimes of fisheries administration and fish culture that privileged angling and game fish species. In Ontario, it has been argued that anglers achieved control of inland fisheries with help from state fish culturist Samuel Wilmot who, as a sportsman, shared anglers' recreational perspective. A closer look at Wilmot and fish culture in late 19th century Ontario, however, reveals a more complex struggle over recreational fisheries administration. I show that game fish culture under Wilmot was subordinated to fish culture programs that supported the Great Lakes commercial fisheries. Indeed, Wilmot resisted anglers' refraining of Ontario's fisheries as a private recreational resource. By the 1890s, however, this position was unpopular with Ontario's anglers and government officials, who demanded greater provincial control over recreational fisheries and fish culture. It was only after Wilmot's retirement in 1895 that game fish culture received higher priority in Ontario with both federal and provincial governments engaging in programs of wild bass transfers. In 1899, Ontario won a share of fisheries jurisdiction and established its first provincial fisheries administration, which laid the basis for more comprehensive programs of game fish culture in the 20th century.

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Abstract: Historians have shown that fish culturists and anglers enjoyed a mutually beneficial relationship in 19th century North America. Sharing interests in producing and protecting fish for recreation, the two groups supported emerging regimes of fisheries administration and fish culture that privileged angling and game fish species. In Ontario, it has been argued that anglers achieved control of inland fisheries with help from state fish culturist Samuel Wilmot who, as a sportsman, shared anglers' recreational perspective. A closer look at Wilmot and fish culture in late 19th century Ontario, however, reveals a more complex struggle over recreational fisheries administration. I show that game fish culture under Wilmot was subordinated to fish culture programs that supported the Great Lakes commercial fisheries. Indeed, Wilmot resisted anglers' reframing of Ontario's fisheries as a private recreational resource. By the 1890s, however, this position was unpopular with Ontario's anglers and government officials, who demanded greater provincial control over recreational fisheries and fish culture. It was only after Wilmot's retirement in 1895 that game fish culture received higher priority in Ontario with both federal and provincial governments engaging in programs of wild bass transfers. In 1899, Ontario won a share of fisheries jurisdiction and established its first provincial fisheries administration, which laid the basis for more comprehensive programs of game fish culture in the 20th century.

Résumé : Les historiens ont démontré que les pisciculteurs et les pêcheurs à la ligne ont entretenu une relation bénéfique au cours du 19^e siècle en Amérique du Nord. Partageant des intérêts similaires pour la production et la protection du poisson à des fins récréatives, ces deux groupes ont appuyé les régimes émergents de gestion des pêcheries et l'élevage de poissons qui privilégie les espèces plus 'sportives'. En Ontario, il a été dit que les pêcheurs à la ligne sont parvenus à contrôler les pêcheries continentales avec l'aide du pisciculteur lié à l'État Samuel Wilmot qui, lui-même sportif, partageait la perspective récréative des pêcheurs à la ligne. Une étude plus précise de Wilmot et de la pisciculture en

Ontario à la fin du 19^e siècle révèle toutefois une lutte beaucoup plus complexe qui entoure la gestion de la pêche récréative. Il sera démontré que l'élevage de poissons récréatifs sous Wilmot était subordonné à des programmes de pisciculture supportant les pêcheries commerciales sur les Grands Lacs. Bien évidemment, Wilmot s'oppose à la restructuration des pêcheries ontariennes en ressource récréative privée, tel que le souhaite les pêcheurs à la ligne. Vers les années 1890, cette position devient toutefois très impopulaire auprès des pêcheurs à la ligne et des officiels du gouvernement ontarien qui demandent un contrôle provincial accru sur la pêche récréative et les piscicultures. C'est seulement après le départ de Wilmot en 1895 que l'élevage de poissons récréatifs gagne en importance en Ontario et ce, grâce aux gouvernements fédéral et provinciaux qui s'engagent dans des programmes d'ensemencement de perches. En 1899, l'Ontario s'enrichit d'une nouvelle juridiction sur les pêcheries et établit pour la première fois un bureau provincial des pêcheries, lequel pose les bases pour la création de programmes plus complets d'élevage de poissons récréatifs au courant du 20^e siècle.

"The subject of fish culture is one which is sadly neglected in Upper Canada," wrote a correspondent to *The Canada Farmer* in 1864. Styling himself 'Isaac Walton'—after English angling writer Izaak Walton, author of *The Compleat Angler*—the correspondent praised state support for fish hatcheries in France and noted the successful export of trout and salmon eggs to Australia. Upper Canadians, on the other hand, were more likely to abuse their fisheries than 'improve' them and Walton blamed the lack of anglers in the colony. "Canadians know nothing of angling," wrote Walton, "beyond what consists of a worm at one end and the 'pothunter' at the other." He accused local pot-hunters—those who fished or hunted for subsistence or the market, and denigrated by 19th century upper-class sportsmen—of stripping Toronto's local streams of their trout. To Walton, it made more sense to dam these creeks and use them to breed trout for "the amusement and luxury, and profit of the owner." *The Canada Farmer* agreed and urged Toronto's anglers to organize a society that would promote fish culture and restrain over-fishing.¹

Anglers and state officials throughout 19th century North America shared Walton's enthusiasm for fish culture. The practice of breeding fish species in hatcheries promised to restore sport in heavily exploited waters and create new angling opportunities through the introduction of exotic game fish. By the 1880s, fish culture was firmly entrenched as a state function with public fish hatcheries annually producing millions of fish to support both commercial and recreational fisheries. Although fish culture

1. 'Isaac Walton,' "Fish Culture," *The Canada Farmer* 1, 16 (September 1, 1864): 255.

never fulfilled its populist promise to produce “inexhaustible supplies of food and riches” in the commercial fisheries, it proved to be a popular and durable foundation for game fisheries administration into the 20th century.²

Since John Regier’s depiction of anglers as an unheralded 19th century conservationist vanguard and fish culture as “America’s first environmental crusade,” Canadian and American historians have more critically appraised the close relationship between anglers and state fish culture.³ Studies of fisheries administration in eastern Canada, New England and the Pacific northwest have examined how local communities struggled to absorb and resist the mutually dependent regimes of sport fishing and fisheries administration. Anglers and state administrators—who were often sportsmen themselves—forged alliances that attempted to enclose fish and fishing spaces through regulatory measures such as close seasons, gear restrictions, and fishery leases.⁴ Game fish culture sustained

2. Stephen Bocking, “Fishing the Inland Seas: Great Lakes Fisheries Research Management and the Environmental Policy in Ontario,” *Environmental History* 2, 1 (1997): 52-73; Margaret Beattie Bogue, *Fishing the Great Lakes: An Environmental History, 1783-1933* (Madison: University of Wisconsin Press, 2000), 208-209; Neil S. Forkey, “Maintaining a Great Lakes Fishery: The State, Science, and the Case of Ontario’s Bay of Quinte, 1870-1920,” *Ontario History* 87, 1 (1995): 45-64; Tim D. Smith, *Scaling Fisheries: the Science of Measuring the Effects of Fishing, 1855-1955* (Cambridge: Cambridge University Press, 1994), 38-69; J.T. Bowen “A History of Fish Culture as Related to the Development of Fishery Programs” in *A Century of Fisheries in North America*, ed. Norman G. Benson (Washington: American Fisheries Society, 1988), 71-93.

3. John Reiger, *American Sportsmen and the Origins of Conservation*, 3rd edition (Corvallis: Oregon State University Press, 2001), 3.

4. Richard Judd, *Common Lands, Common People: The Origins of Conservation in Northern New England* (Cambridge: Harvard University Press, 1997), 174-190; Bill Parenteau, “‘Care, Control and Supervision’: Native People in the Canadian Atlantic Salmon Fishery, 1867-1900,” *Canadian Historical Review* 79, 1 (1998): 1-35, and “A ‘Very Determined Opposition to the Law’: Conservation, Angling Leases, and Social Conflict in the Canadian Atlantic Salmon Fishery, 1867-1914,” *Environmental History* 9, 4 (2004): 436-463; Joseph E. Taylor III, *Making Salmon: An Environmental History of the Northwest Fisheries Crisis* (Seattle: University of Washington Press, 1999), 166-202; Neil S. Forkey, “Anglers, Fishers, and the St. Croix River: Conflict in a Canadian-American Borderland, 1867-1900,” *Forest and Conservation History* 37, 2 (1993): 179-87; J. Michael Thoms, “A Place Called Pennask: Fly-Fishing and Colonialism on a BC Lake,” *BC Studies* 133 (2002): 69-98, and “An Ojibwa Community, American Sportsmen, and the Ontario Government in the Early Management of the Nipigon River Fishery” in *Fishing Places, Fishing People: Traditions and Issues in Small-Scale Fisheries*, eds. Diane Rosemary Newell and Rosemary E. Ommer (Toronto: University of Toronto Press, 1999), 170-192; Larry A. Nielsen, “History of Inland Fisheries Management in North America” in *Inland Fisheries Management in North America*, eds. Christopher C. Kohler and Wayne A. Hubert (Bethesda: American Fisheries Society, 1993), 13. For a discussion about 19th century sporting ideology and its relation to conservation in Canada, see Tina Loo, *States of Nature: Conserving Canada's Wildlife in the Twentieth Century* (Vancouver: UBC Press, 2006).

and strengthened these alliances, and provided a technological basis for the integration of game fisheries into “regimes of scientific management.”⁵

Nineteenth-century Ontario was an important site for this integration. Through the efforts of Samuel Wilmot (1822-1899), fish culture was established as a state practice in the province at the same time that angling was increasingly valued and privileged on Ontario’s freshwaters. As a leading proponent of state fish culture and administration, Wilmot played a critical albeit controversial role in Ontario’s development in the 20th century as a key site for freshwater fisheries administration, science, and management.⁶ While Wilmot established fish culture as a national project in Canada, he maintained that its proper role in Ontario was supporting “public” commercial fisheries rather than “private” sport. Under Wilmot, federal fish culture production in Ontario focused on the production of commercially valuable fish for the Great Lakes commercial fisheries. Although Wilmot undertook game fish culture in the 1870s, he resisted the administrative re-framing of Ontario’s fisheries as a recreational resource. By the 1890s, however, this position irritated Ontario’s anglers and government officials; they viewed federal fish culture as symptomatic of a wider federal neglect of provincial game fisheries and sought greater control over the administration of inland fisheries. This paper therefore examines Wilmot’s role in the institutional development of fisheries administration in Ontario. In particular, this study looks at Wilmot’s reluctance to concede anglers’ interests in fish culture and how that influenced the emergence of game fish culture and administration in Ontario.

Selecting Species For Fish Culture in Ontario

Anglers and state officials in 19th century Europe and North America optimistically viewed fish culture as a technological fix to over-fishing. New techniques developed in France in the 1840s allowed fish culturists to artificially isolate and control the process of fish hatching, particularly of trout and salmon, while also increasing fish production.⁷ Anglers

5. Darin Kinsey, “‘Seeding the Water as the Earth’: The Epicenter and Peripheries of a Western Aquacultural Revolution,” *Environmental History* 11, 3 (2006): 529-536.

6. See J. Michael Thoms, *Ojibwa Fishing Grounds: A History of Ontario Fisheries Law, Science, and the Sportsmen’s Challenge to Aboriginal Treaty Rights, 1650-1900* (PhD thesis, University of British Columbia, 2004). Thoms argues that Wilmot viewed fish culture and fisheries administration from a sportsmen’s perspective and used his power as a lay scientist to help Ontario’s anglers gain control over the province’s inland fisheries.

7. Contemporary descriptions of mid-19th century fish culture abound. See for example, Piscarius, *The Artificial Production of Fish* (London: Reeve & Co., 1852), 13; Theodatus

looked to fish culture to restore local recreational fisheries and introduce game fish to new waters around the world. English colonists, for example, transported the fertilized eggs of European brown trout (*Salmo trutta*) to imperial outposts in New Zealand, Australia, Africa and India where they established naturalized, self-sustaining populations for recreational exploitation.⁸ At the same time, private trout hatcheries in North America were using the high-volume fish production techniques pioneered in Europe to supply fish and eggs to a growing market of angling clubs, landowners, fish dealers, and restaurants. Fish culture also caught the attention of governments who responded to growing crises in commercial fisheries with new laws and administrative bodies to regulate and monitor fishing effort. In Canada, this role fell to the federal Department of Marine and Fisheries, which after it was established in 1868 quickly expressed interest in fish culture.

Although fish culture had first received state attention in 1857 when Richard Nettle, Lower Canada's superintendent of fisheries, propagated Atlantic salmon and speckled trout in Quebec, it was Samuel Wilmot, a prominent resident of Newcastle, Ontario, who transformed fish culture in Canada from a hobby into a central state function. Wilmot described his initial involvement with fish culture as "a private enterprise commenced by...an amateur for experiment and amusement."⁹ His goal was to restore Atlantic salmon (*Salmo salar*) in Lake Ontario, which had been plentiful when European and American settlers arrived in the late 18th century. By the mid-19th century, however, forest clearing, agriculture, dams, invasive species and intensive fishing had diminished salmon runs throughout the Lake Ontario basin. Wilmot's farm property near Newcastle, east of Toronto, enclosed a stretch of a Lake Ontario tributary that still supported salmon, giving Wilmot access to eggs and milt for artificial propagation. In 1866, Wilmot applied to have his creek set aside for fish-culture purposes. Two years later, the newly created federal fisheries department appointed him as a fishery overseer with special responsibility for fish culture. It also assumed control of the Newcastle hatchery. Appointed

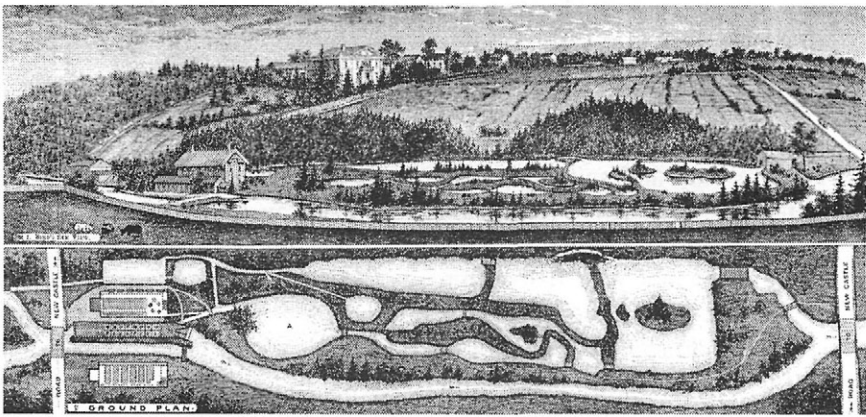
Garlick, *A Treatise on the Artificial Propagation of Certain Kinds of Fish: with the Description and Habits of Such Kinds as are the Most Suitable for Pisciculture* (Cleveland: T. Brown, 1857); Thaddeus Norris, *American Fish Culture* (Philadelphia: Porter & Coates, 1868); J.H. Slack, *Practical Trout Culture* (New York: Geo. H. Woodward, 1872); Seth Green and R.B. Roosevelt, *Fish Catching and Fish Hatching* (Rochester: Union and Advertiser Co., 1879).

8. Hugh R. MacCrimmon, "World Distribution of Brown Trout," *Journal of the Fisheries Research Board of Canada* 25, 12 (1968): 2527-2548.

9. Thoms, "Ojibwa Fishing Grounds," 227; The Fishery Act of 1857, 20 Vict. C. 21, Part 37; Samuel Wilmot, "Report of Fish-Breeding in the Dominion of Canada for the year 1879," *Sessional Papers*, 1880, No. 9, 6.

Dominion superintendent of fish culture in 1876, Wilmot supervised nine hatcheries across Canada, including two in Ontario.¹⁰ The Newcastle hatchery remained Wilmot's centrepiece, an elaborate installation that in 1878 included several hatchery structures, a pond and raceway system and a natural history museum set in carefully tended grounds—all of which presented in spectacular form, fish culture's technological supremacy over natural reproduction (Figure 1). It was, Wilmot claimed, "the most complete and systematically arranged fish-breeding establishment on the continent."¹¹

Figure 1. Panoramic and plan views of the Newcastle hatchery, 1877.



Source : Canada, "Report of Fish-Breeding in the Dominion of Canada, 1877," Sessional Papers No.1 (Ottawa: 1878), 24. Digital image courtesy of Stephen Crawford.

Wilmot's intention was to restore salmon in Ontario for commercial exploitation and produce "a cheap and immediate increase, capable of almost indefinite extension, in the supply of salmon to our markets."¹² Salmon had historically supported subsistence and market fisheries in Upper Canada. There was not, however, a significant recreational fishery comparable to elite salmon fisheries in Quebec and the maritime colonies. Popular angling writer Henry William Herbert, who had first visited

10. A.B. McCullough, "Samuel Wilmot" in *Dictionary of Canadian Biography*, Vol. XII, 1891-1900, eds. Mary P. Bentley and Charles Dougall (Toronto: University of Toronto Press, 1990), 1106-1107.

11. Wilmot, "Report of Samuel Wilmot Esq. on the several fish breeding establishments and fish culture in Canada, during the season of 1876," *Sessional Papers*, 1877, No. 5, 365.

12. Fish culture advocates commonly made such optimistic claims. See for example, W.F. Whitcher and W. H. Venning, "Special Report of Messrs. Whitcher and Venning, On Fish Breeding at Newcastle, Ontario," *Sessional Papers*, 1869, No. 12, Appendix 3, 3.

Upper Canada in 1848, noted the absence of salmon angling in the colony: “[I]n the upper province of Canada... [salmon] are very rarely fished for or taken with the fly, and it is said confidently that in the lake itself they will not take the fly under any circumstances.”¹³ Initially, the Newcastle hatchery appeared to boost salmon runs between 1869 and 1879, with Wilmot and local fishery overseers such as John Kerr reporting increases in salmon returning to Lake Ontario tributaries. Wilmot pushed for commercial fishing and in 1871 a trial fishery resulted in the catch of 200 salmon “in prime condition, brilliant in color, symmetrically formed.” Wilmot reported that “[m]any years have now passed since *Ontario Salmon* were known in the Toronto market, and great pleasure and satisfaction were expressed by the press and the people at again seeing this long lost luxury in the country.”¹⁴

Advocating fish culture as a national project, Wilmot began to expand the hatchery system in the 1870s. By 1875, Wilmot had constructed five new salmon hatcheries in Quebec and New Brunswick, which produced fish for both commercial and recreational fisheries. Elite salmon anglers—who formed clubs that owned or leased large, productive stretches of salmon rivers—supported Wilmot’s work and even funded the construction of the Restigouche River hatchery in New Brunswick.¹⁵ In Ontario, however, Wilmot focused federal fish culture efforts on sustaining the commercial fisheries in the Great Lakes. Those fisheries, which had been expanding since the 1830s, entered a boom phase of investment and technological improvement as market demand for fish increased between the 1870s and 1890s.¹⁶ The two most valuable commercial fish were whitefish (*Coregonus alba*) and salmon trout (*Salvelinus namaycush*, now commonly known as lake trout). Through the 1870s, Wilmot responded to growing commercial exploitation of these fish by shifting hatchery production in Ontario from salmon to whitefish and salmon trout. He began propagating whitefish at the Newcastle hatchery in 1871 and salmon trout the year following. In 1875, Wilmot built a whitefish hatchery on the Detroit River at Sandwich, Ontario.¹⁷ Salmon trout production also grew. In 1877, salmon trout and whitefish

13. Henry William Herbert, *Frank Forester’s Fish and Fishing of the United States and British Provinces of North America* (New York: W.A. Townsend Publisher, 1866), 266.

14. Wilmot, “Report of S. Wilmot, Esq. on the fish-breeding establishment at Newcastle, Ontario, during the season of 1871,” *Sessional Papers*, 1872, No. 5, 84.

15. Wilmot, “Report, 1879,” 36. See Parenteau for discussion of salmon angling and conflicts it caused in eastern Canada.

16. Margaret Beattie Bogue, *Fishing the Great Lakes: An Environmental History, 1783-1933* (Madison: University of Wisconsin Press, 2000), 44-58.

17. Wilmot, “Report, 1876,” 357.

eggs exceeded, for the first time, the number of salmon eggs laid down at Newcastle. Salmon trout came to dominate egg and fry production at Newcastle, and constituted the largest proportion of eggs and fry at the hatchery through the 1880s and 1890s. From 1875 to the end of the 19th century, Wilmot focused on producing salmon trout and whitefish, “the really commercial product of the great lakes of the Province of Ontario.”¹⁸

Game Fish Culture in Ontario, 1870-1893

Although focused on commercial fisheries, Wilmot recognized that Ontario’s game fisheries were also under increasing exploitation during the latter half of the 19th century. The province’s close proximity to eastern and central United States and its mid-century integration into the expanding continental railway network made its inland waters more accessible, especially to urban anglers. Tourist guidebooks such as H.B. Small’s *The Canadian Handbook and Tourist’s Guide* (1866) and Charles Hallock’s *The Sportsman’s Gazetteer* (1877) directed upper and middle class anglers to destinations such as the Muskoka lakes, the Kawartha lakes and the Rideau lakes, where a growing infrastructure of steamboats, hotels, boat liveries and guides catered to sportsmen. By the 1870s, there were reports of game fish declines. “Only a few years ago there was good trout-fishing to be found within twenty miles of Toronto,” wrote a correspondent for *The Canadian Magazine* in 1873, “but the creeks have all been fished out.”¹⁹ Anglers blamed commercial and Aboriginal fishermen, and in the 1860s and 1870s began to organize clubs to lobby for stricter regulation. Wilmot shared these concerns and even joined the Ontario and Game Fish Protective Association to advance this cause. Wilmot, however, viewed the issue from a different perspective. Anglers considered fishery laws as a means to prevent commercial and subsistence exploitation of game fish, while fish culturists saw regulation as the necessary legal framework to guarantee fish culture’s success in all fisheries, not just the recreational fishery. Laws that specified close seasons for fishing and minimum sizes for nets protected fish that hatcheries produced and ensured that fish culture efforts would not be wasted. Like his counterpart in the United States, U.S. Fish Commissioner Spencer Fullerton Baird, Wilmot argued that the fisheries could only be sustained “by a vigorous, full application of fish breeding on the one hand, and by the rigid enforcement of necessary laws on the other hand.”²⁰

18. Wilmot, “Report, 1879,” 16.

19. Anonymous, “The Fishing Tourist,” *The Canadian Magazine* 4, 4 (1873): 279.

20. Wilmot, “Report, 1881,” 47.

Wilmot's support for stricter regulation, however, was not matched by extensive game fish culture in Ontario. While Wilmot produced both speckled trout and black bass at the Newcastle hatchery, he only pursued small-scale production and stocking programs in the province. The production of black bass—a generic term for several bass species, two of which are native to Ontario, smallmouth bass (*Micropterus dolomieu*) and largemouth bass (*Micropterus salmoides*)²¹—was especially sporadic. Smallmouth bass, in particular, was considered a native game fish equal to salmon and trout. Anglers praised it as “one of the finest of the American fresh-water fishes...surpassed by none in boldness of biting, in fierce and violent resistance when hooked, and by a very few only in excellence upon the board.”²² For 19th century fish culturists, however, the fish posed difficulties as hatchery propagation methods for salmon, trout, and whitefish failed to work with bass. Those techniques involved hand-stripping eggs and sperm from ripe fish, mixing them together to produce fertilized eggs, and then hatching them in containers constantly supplied with fresh water. But bass eggs and sperm did not flow to fish culturists' coaxing touch, and the few eggs that were obtained and fertilized often failed to hatch. The only reliable method for propagating bass was pond culture, which involved capturing wild fish before spawning and placing them in ponds where they built nests, laid eggs, and produced bass fry that fish culturists then stocked in lakes and rivers. Wilmot reported early success with these techniques and in 1873 spawned bass in the Newcastle hatchery ponds. A “sneaking vagabond,” however, entered the grounds one night and killed all the fish. Wilmot supervised a second more successful attempt on Rice Lake in 1876, but it did not lead to full-scale production. Wilmot only produced bass on two further occasions: in 1884, when he reported culturing 100,000 bass fry, and in 1888, when he claimed to have spawned 1,000,000 fry. Despite these successes, he made no further attempts to produce bass and federal bass culture efforts in Ontario did not resume again until 1900.²³

Wilmot invested more time and effort in producing another of Ontario's key game fish species, the speckled trout (*Salvelinus fontinalis*). “Speckled beauties” as 19th century angling writers commonly referred to

21. William H. Robbins and Hugh R. MacCrimmon, *The Blackbass in America and Overseas* (Sault Ste. Marie: Biomangement and Research Enterprises, 1974), 2.

22. Herbert, 195.

23. Wilmot, “Report of S. Wilmot, Esq. on fish culture, and transactions of the fish-breeding establishment at Newcastle, Ontario, during the season of 1873,” *Sessional Papers*, 1874, No. 4, 118-119; Wilmot, “Report on Fish-Breeding in the Dominion of Canada, 1884,” *Sessional Papers*, 1885, No. 9, 66. The figure of a million bass fry is very high. Production at fish culture stations dedicated wholly to bass production in Ontario after 1900 never reached this level. See Robbins and MacCrimmon, 124.

them, were found throughout Ontario, from small rural streams to large northern rivers.²⁴ In southern Ontario, increasing fishing pressure and agricultural and urban development threatened speckled trout. Wilmot described the fish as “exceedingly scarce” in southern Ontario in the late 1870s and “in the older settled sections quite extinct.”²⁵ He reported growing demanding for speckled trout plantings and, in 1877, began breeding the fish at the Newcastle hatchery. Annual fry distribution, however, was limited. Between 1877 and 1887, Wilmot produced on average about 54,000 fish per year, which were distributed in small lots to a short list of property owners and angling clubs. In 1890, for example, trout fry were distributed to just 18 individuals and two angling clubs, one of which received 110,000 fry, almost a third of Newcastle’s output that year. Speckled trout production in Ontario peaked in 1891 when more than 440,000 fry were distributed, and then ceased altogether in 1893. Several factors may account for the halt, including the intensifying federal-provincial dispute over inland fisheries jurisdiction. There were also practical reasons: Newcastle was the only hatchery capable of producing speckled trout in Ontario and Wilmot complained of difficulties in securing brood stock and eggs. In 1886, for example, Newcastle hatchery staff canoed through the Haliburton highlands in search of speckled trout but failed to collect eggs in any numbers. Wilmot was also concerned over changed environmental conditions in southern Ontario. Forest clearing and increasing industrial pollution led Wilmot to speculate that “speckled trout must soon become a luxury of the past in the older and more cleared sections of Ontario.”²⁶

Wilmot also argued that fish culture’s primary role was to serve the province’s economically important commercial fisheries. He viewed fish culture in Ontario as a public work: the Newcastle hatchery’s “main object was to produce from it such descriptions of fish as would be most suitable for commercial purposes, and from which the general public would derive the greatest amount of good, in foreign and home traffic, and for domestic use.”²⁷ Wilmot was well aware of the potential for game fish culture, particularly as it opened opportunities in the international fish culture trade. In 1871, he recommended expanding the Newcastle

24. See Thoms, “An Ojibwa Community” for a discussion of the Nipigon speckled trout fishery and its impacts on Aboriginal community. See also Mark Chocla, “Victorian Fly Fishers on the Nipigon,” *Ontario History* 91, 2 (1999): 151-163.

25. Wilmot, “Report on Fish-Breeding in the Dominion of Canada for the year 1878,” *Sessional Papers*, 1879, No. 3, 359.

26. Wilmot, “Report, 1879,” 17.

27. Wilmot, “Report on Fish-Breeding in the Dominion of Canada 1886,” *Sessional Papers*, 1887, No. 16, 7.

hatchery to facilitate fish production “not only for local distribution, but also for foreign sales.” Wilmot saw particular potential in raising and selling game fish. Like a private fish culturist, Wilmot viewed speckled trout and black bass as marketable commodities that promised “a very large profit on the sales.”²⁸ But although speckled trout were highly prized as game fish, they did not ultimately provide a public benefit. Stocking private waters with publicly produced fish limited access to a resource that Wilmot felt should be brought “within reach of every consumer.” To support this goal and “to be universally popular, fish culture...should be based on food considerations, and not on those of sport.”²⁹ Wilmot also argued that game fish production was better left to entrepreneurs, who by the 1870s were operating several private trout hatcheries in Ontario.³⁰ Moreover, Wilmot found it hard to concede that recreational fishing had any superior claim to inland fisheries at all. “It is almost impossible to say which are exclusively sporting waters,” argued Wilmot in 1894 in a letter to the deputy minister of fisheries in Ottawa. “[T]here is no lake large or small throughout the Dominion that may not be called Commercial Waters.”³¹

Dissatisfaction with Federal Fisheries Administration, 1890-1898

In late 19th century Ontario, these views were hardly popular with the province’s anglers and government officials. In law, at least, angling had been privileged as a fishery in Ontario since 1857. Anglers had effected a legal capture of game fish through fisheries legislation that imposed seasonal and gear restrictions on bass and speckled trout, but laws were routinely ignored and unevenly enforced.³² Anglers buttressed their claims to fish and waters by highlighting the sport’s economic value. In the Thousand Islands, the St. Lawrence Anglers’ Association claimed that recreational fishing engaged 600 men as guides or oarsmen, supported 36 hotels, produced taxes from vacation properties, and generated revenues of more than one-million dollars. These economic benefits, however, depended on a well-stocked game fishery: “[The Thousand Islands] exquisite river scenery, its banks and islands and its delightful air, leave

28. *Ibid.*, 83.

29. Samuel Wilmot and Edward Harris, “Report of the Dominion Fishery Commission on the Fisheries of the Province of Ontario 1893,” *Sessional Papers*, 1894, No. 10c, xiv.

30. Wilmot, “Report, 1878,” 359; *Sessional Papers*, 1869, No. 12, 93.

31. LAC, RG 23, vol. 219, file 1177, letter from Samuel Wilmot to Federal Fisheries Minister, August 25, 1894 [Wilmot’s emphasis].

32. See Douglas C. Harris, *Fish, Law, and Colonialism: The Legal Capture of Salmon in British Columbia* (Toronto: University of Toronto Press, 2001), 3, 18, for a description of “legal capture.”

nothing to be desired—if the fishing is good.”³³ By the 1890s, anglers and fishing clubs in Ontario were arguing that fishing was poor because federal fishery laws and fish culture programs failed to support and protect recreational fisheries. These complaints were particularly sharp in places such as Georgian Bay, where growing tourist fisheries competed for fish species and fishing spaces with long-standing aboriginal fisheries and booming commercial fisheries. William Ireland, an angler and owner-editor of the *Parry Sound North Star*, considered recreational fishing a vital part of Parry Sound’s growing tourist economy and protested in his newspaper editorials against the commercial and subsistence exploitation of black bass. Ireland complained of “Indians...busy fishing for Bass in the channels of Georgian Bay, with both net and spears” and claimed that the fish were sold “at a low rate by the pound” to fish-dealers who marketed the bass in the U.S.. Ireland called on the federal fisheries department to stop the “wholesale destruction” of game fish; unless fisheries officials intervened the Aboriginal and commercial netters would “destroy bass and other small fish and... ruin this portion of the Georgian Bay as a summer resort.”³⁴

Anglers also felt that federal fish culture efforts ignored local angling demands. In the Kawartha lakes north of Peterborough, cottagers on Stony Lake were dismayed when the federal fisheries department planted whitefish and salmon trout in response to reported declines of bass and maskinonge. The cottagers did not consider whitefish a game fish and they complained that the hatchery-bred salmon trout preyed on young bass and maskinonge, which only worsened the problem. With the support of the local fishery overseer, the Stony Lake cottagers petitioned the federal fisheries minister to “destroy the salmon trout in Stony Lake as useless fish” and demanded that the department establish a bass hatchery to produce fish for recreational consumption. The fisheries department, however, rebuffed the cottagers. A net fishery would endanger sport fisheries and a hatchery was out of the question because bass and maskinonge could not be artificially cultured. The cottagers were especially displeased by the department’s refusal of a bass hatchery. Their response is worth quoting at length as it reflected provincial views about the failure of federal fish culture programs to respond to local angler-defined needs:

33. G.A. MacCallum, *Ontario Game and Fish Commission: Commissioners’ Report* (Toronto: Warwick & Sons, 1892), 289.

34. Ontario Archives, N422, *Parry Sound North Star*, 21 July 1895; *North Star*, 2 May 1895.

The fishery department is there to protect and develop the fisheries. That is its object as much as the encouragement of butter and cheese business is the aim of the Department of Agriculture. All the energies of the Fishery Department cannot be extended on the seas. Our inland waters call for some attention and the request we make is a reasonable one. The Department is for the service of the people and the People are asking for this hatchery and ought to get it.³⁵

The Ontario government was also dissatisfied with federal fisheries administration and its modest production of game fish. In 1890, the province established the Ontario Game and Fish Commission to investigate the state of the province's game fisheries. In 1892, the Commission reported that Ontario's game fish were undergoing a "merciless, ruthless, and remorseless slaughter"³⁶ and faulted federal fisheries administration. In particular, the provincial commission blamed federal fishery overseers who failed to enforce regulations and federal close seasons to protect spawning fish. The Commission called for more game fish culture and recommended that the province establish a permanent fisheries administration modelled on American fish commissions. The commissioners praised the Michigan Fish Commission, which was an exemplar of "systematic" administration that served local angling interests. Michigan closely supervised fishing on state waters while its game-fish hatcheries produced millions of trout for anglers.³⁷ The Commission's critique of federal fisheries management also coincided with the province's renewed legal challenge to federal fisheries jurisdiction. In 1893, Ontario, along with other provinces, agreed to refer the jurisdictional question to Canada's supreme court. Public and legal challenges thus mounted through the 1890s to federal fisheries administration, including Wilmot's centralized and commercially focused fish culture program.

Wilmot, however, maintained a critical distance from Ontario's anglers. In 1892, Wilmot was appointed chairman of the Dominion Fishery Commission (DFC), which focused on Ontario's embattled commercial fisheries. Although the DFC criticized some commercial fishing practices, it generally supported the industry and brought to bear on the angling community the same critical gaze that the Ontario Game and Fish Commission had previously levelled on commercial fishermen. Through the DFC, fishery overseers and commercial fishermen critiqued anglers and their unethical fishing practices. A Georgian Bay fishery overseer complained of "tourists and anglers who catch [black bass] in

35. LAC, RG23, v. 282, file 2137, letter from D.W. Dumble, secretary Stony Lake Cottagers Association to E.E. Prince, 16 August 1896.

36. MacCallum, *Ontario Game and Fish Commission*, 189.

37. *Ibid.*, 195.

great numbers and throw a great many on the rocks to spoil." Commercial fishermen made similar observations. "Some of the tourists who come up here are very injurious. They catch more bass than they consume, and fish are left upon the rocks to spoil—sheer wanton waste." Lake Erie lighthouse keeper William Grubb testified that sportsmen "string [bass] and tow them about all day to see who catches the most and then at night throw them away. Most of them are dead."³⁸ Against these instances of wasteful angling, Wilmot and the DFC emphasized that game fish were also a valuable commodity, even though they were ostensibly excluded from commercial exploitation. Wilmot noted that bass were "a favourite table fish with consumers" while a Toronto fish-dealer told the commission that he "could handle half a ton [of bass] a day."³⁹ The DFC also noted that federal fish culture successfully sustained commercial fisheries in locales like the Bay of Quinte where commercial fishermen praised federal hatchery plantings that supported whitefish fisheries that had collapsed elsewhere on Lake Ontario.⁴⁰

Provincial officials, however, insisted on a higher valuation of game fisheries and were not prepared to concede game fish to commercial fishermen. Ontario's Attorney General Arthur Hardy, for instance, attacked the federal licensing of fisheries that depleted game fish and argued that anglers should have exclusive access to game fish species. "The bass and pickerel should have a chance," wrote Hardy, "and ... should be preserved for rod and line for all time to come."⁴¹ In the 1890s, Wilmot increasingly appeared to occupy a minority position regarding Ontario's game fisheries. His influence waned, particularly after his retirement in 1895. As subsequent developments show, both federal and provincial governments soon embarked on new programs of administration and fish culture to support Ontario's game fisheries.

Game Fish Culture and Administration in the post-Wilmot Era

In addition to opposition from Ontario's anglers and officials, Wilmot also faced changes in federal fisheries administration. In 1893, Edward Prince, an English fisheries scientist, was appointed Dominion Commissioner of Fisheries. Prince was more amenable to recreational fisheries and game fish culture than Wilmot and was even critical of Wilmot's past

38. Dominion Fishery Commission, xxxi-xxxiii.

39. *Ibid.*, xxxiii.

40. Forkey, "Maintaining a Great Lakes Fishery," 45-64.

41. Ontario Archives, RG 4-32, MS 6616, Office of Attorney General of Ontario Central Office, letter from Arthur Hardy to Sir Louis Davies, 21 August 1896.

efforts, characterizing them as “erratic and subsidiary.”⁴² In 1895, the year that Wilmot retired, Prince approved a co-operative effort with Ontario’s Crown Lands department to shuttle wild bass from lakes near Lake of the Woods to waters further west.⁴³ He also enthusiastically endorsed bass transfers in and around Algonquin Park, beginning in 1898. In 1900, Prince resumed bass culture operations that Wilmot had abandoned in 1888. The federal fisheries department leased a private bass pond at Point Anne on the Bay of Quinte and used the facility to produce bass for stocking in Ontario, western Canada, Quebec, and the Maritimes. The Pointe Anne operation was perhaps the first fish culture station dedicated to the production of an inland game fish species in Canada. Prince also supported game fish research as part of his wider effort to promote field research and fisheries science. In 1901, Prince approved the establishment of the Georgian Bay Biological Station on the site of the University of Toronto’s summer resort, the Madawaska Club, at Go-Home Bay. There, university researchers classified Georgian Bay’s fish and studied their food requirements and environment. Scientists paid particular attention to bass and created a pond to test bass culture techniques and observe bass spawning.⁴⁴

Prince’s renewal of federal interest in Ontario’s game fisheries was matched and extended by new provincial programs to bolster sport fishing. In 1898, the British Privy Council had ruled that both federal and provincial governments had legitimate jurisdictional interests in the fisheries. Ontario understood the decision as a validation of provincial authority and in 1899 established a provincial fisheries administration that vigorously promoted recreational fisheries. Ontario, however, lacked fish culture facilities of its own and came to depend on bass transfers to restore sport fisheries. Between 1901 and 1908, wild bass were the only game fish species planted in any number in Ontario.⁴⁵ In 1901, for example, Ontario’s fisheries department captured 10,000 adult bass from Lake Nipissing and planted them in 18 different lakes and rivers, “a greater number than had theretofore been introduced in the province’s whole history.”⁴⁶ Bass transfers in Ontario increased and provincial fisheries

42. E.E. Prince, “The Progress of Fish Culture in Canada,” *Special Reports* (Ottawa: Government Printing Bureau, 1905), 30.

43. E. E. Prince, “Fish-Culture, 1895,” *Sessional Papers*, 1896, No. 11a, 202.

44. S. T. Bastedo, *Fourth Annual Report of Department of Fisheries of the Province of Ontario 1902* (Toronto: King’s Printer, 1903), 40. See also Jennifer Hubbard, *A Science on the Scales* (Toronto: University of Toronto Press, 2006), 63-64.

45. E. Tinsley, *Third Annual Report of the Game and Fisheries Department 1909* (Toronto: King’s Printer, 1910), 76-78.

46. Bastedo, *Fourth Annual Report 1902*, 76.

officials began having difficulties in securing adequate supplies of wild bass. To meet the demand, the Ontario fisheries department established a bass culture station at Mount Pleasant near Brantford in 1908. The bass station, Ontario's first provincially directed hatchery, used pond-culture methods that Wilmot had earlier pioneered and began producing bass fingerlings in quantity.⁴⁷ With a secure source of hatchery-produced bass at its disposal, the province discontinued transfers of wild bass. The province also forced the closure of the federal bass hatchery at Point Anne. Citing their proprietary interests in Ontario's game fish, provincial fisheries officials opposed the export of bass from the province. In 1913, the federal fisheries department agreed that "the propagation of sporting fish in Ontario will be left with provincial government," and the station was closed.⁴⁸

Conclusion

Game fish culture and game fisheries administration in Ontario was not a *fait accompli* by the end of the 19th century. Anglers had won regulatory privileges and were claiming fishing spaces across the province—but federal fish culture under Wilmot failed to meet their growing demand for fish. Federal fisheries administration frustrated Ontario's anglers and officials. Wilmot in turn resisted the administrative re-framing of Ontario's fisheries as an exclusively recreational resource. It was only after Wilmot's departure that fish culture operations began to more actively serve Ontario's anglers and they began to receive what they demanded—more game fish and more game fish hatcheries. Federal and provincial governments gave higher priority to game fisheries through such measures as bass transfers, which dominated late 19th century game fish culture efforts in Ontario. After 1898, when the province won partial responsibility over inland fisheries, Ontario depended on such transfers to support game fisheries and placate anglers. Although Wilmot resisted angler pressure, he ultimately helped angling interests in Ontario by establishing fish culture as the technological foundation for Canadian fisheries management. Wilmot transformed fish culture from a private experiment into a national project, but its harnessing to Ontario's recreational imperatives required pressure from provincial anglers and officials more sympathetic to their desires.

47. Tinsley, *Third Annual Report 1909*, 76-78.

48. LAC, RG 23, T-4015, file 2840, letter to Ontario Superintendent of Fisheries, 8 March 1913.