Ontario

Background Information to Fisheries Management Plan for Fisheries Management Zone 17

February, 2008

Ontario Ministry of Natural Resources
Peterborough District
Kawartha Lakes Fisheries Assessment Unit

BACKGROUND INFORMATION TO FISHERIES MANAGEMENT PLAN FOR FISHERIES MANAGEMENT ZONE 17

Table of Contents

1.0 Introduction

Lester et al. (2003) identified the necessity for a change in the spatial and temporal scale for the management on Ontario's fisheries resources. In 2005 the Ecological Framework for Recreational Fisheries Management in Ontario was implemented to ensure fisheries resource sustainability and to optimize angling opportunities. The approach described in the "framework" is consistent with the Ministry of Natural Resources strategic direction as outlined in "Our Sustainable Future" (OMNR, 2005a) and with the principles stated in the Strategic Plan for Ontario Fisheries (SPOF II – OMNR, 1991).

Newly created Fisheries Management Zones (FMZs), based on biological, climactic and social factors establish the landscape for fisheries management. The FMZs are a core component of the ecological framework, resulting in the creation of 20 new FMZs which replace the previous 37 fishing divisions. Fisheries Management Zone 17 (**FMZ 17**) is one of these new zones.

In addition to the new FMZs, the ecological framework also emphasizes enhanced public input and involvement in fisheries management. As a result, fisheries advisory councils were to be established in each of the new FMZs. In 2007, the FMZ 17 Fisheries Advisory Council was formed as one of three pilot advisory councils in Ontario.

The boundaries of FMZ 17 were created based on ecological, geographic and economic considerations. FMZ 17 is located in south-central Ontario and encompasses portions of the Trent River and Lake Ontario Watersheds. FMZ 17 is very similar to the former Fishing Division 6, with a few minor exceptions. In the northwest portion of the zone, a number of lakes were excluded from FMZ 17 and became part of FMZ 15. Many of these lakes contain coldwater fish communities, and are best managed with FMZ 15, rather than the warmwater lakes in FMZ 17. Additional changes were made along the eastern boundary, with the inclusion of the Crowe Lake, Crowe River, and the Trent River, which were formally dissected by the Division 6/7 boundary.

Land use in the zone is primarily rural agricultural, with concentrated areas of urban development in Pickering, Oshawa, Whitby and Bowmanville within the Greater Toronto Area (GTA), as well as Peterborough, Lindsay, Cobourg, Port Hope, and Trenton. FMZ 17 is located close to major Ontario and U.S. urban centres and is a popular destination for cottagers, tourists, day trippers, boaters and anglers. Over 98 % of the land is privately owned, however, all of the major lakes are easily accessible to a large number of people.

The prominent feature of this zone is the Trent-Severn Waterway which is a system of lakes, rivers and canals operated by Parks Canada, Trent-Severn Waterway (TSW). The waterway is comprised of a series of lakes known as the Kawartha Lakes and several rivers including the Otonabee, Trent and Crowe Rivers. There are approximately 46 lakes greater than 20 ha in size in the zone including Rice, Scugog and Pigeon Lakes, which contain popular warmwater sport fishes such as walleye (*Sander vitreus*), bass (*Micropterus spp.)*, muskellunge (*Esox masquinongy*) and sunfish (*Lepomis spp.*). Another

prominent feature in the zone is the Oak Ridges Moraine, which provides source water to many coldwater streams including the Ganaraska River, Cobourg Brook, Duffins Creek, Wilmot Creek and Shelter Valley Creek flowing south into Lake Ontario. These streams support a variety of coldwater sport fishes including brook trout (*Salvelinus fontinalis*), brown trout (*Salmo trutta*), rainbow trout (*Oncorhynchus mykiss*) and Pacific salmon (*Oncorhynchus spp.*).

The purpose of this background document is to provide a summary of the existing information on the aquatic resources of FMZ 17. Much of the data has been collected as part of the regular monitoring program of the MNR Kawartha Lakes Fisheries Assessment Unit (KLFAU), and the MNR Peterborough District office. This document is intended to provide the technical information to develop a Fisheries Management Plan for FMZ 17.

2.0 Physical Characteristics of Fisheries Management Zone 17

Fisheries Management Zone 17 (Figure 1) covers an area of 9,360 km^2, and spans three MNR administrative districts within Southern Region: Bancroft, Aurora and Peterborough. A total of six upper tier municipalities lie entirely, or partially, within FMZ 17; City of Kawartha Lakes, City of Quinte West, County of Hastings, County of Northumberland, County of Peterborough, and the Regional Municipality of Durham. FMZ 17 includes all or parts of the following nine tertiary watersheds: Black River-Lake Simcoe, Humber-Don Rivers, Ganaraska River, Gull River, Scugog River, Kawartha Lakes, Otonabee River, Crowe River, and Moira River. There are 64 waterbodies greater than 5 ha in size, of which 12 are larger than 1,000 ha - the largest of which is Rice Lake at more than 10,000 ha. The total lake surface area exceeds 44,800 ha.

The northern boundary of FMZ 17 follows the shorelines of the Kawartha Lakes and marks the boundary where the Canadian Shield dips below the more southerly expanse of limestone. Ice sheets advanced from the resistant granitic Shield onto the softer sedimentary rock, gouging out the future lakebeds of the Kawarthas. For this reason, the Kawartha Lakes are similar in terms of their physical, chemical and biological characteristics, but differ significantly from those immediately north, on the Shield. The Kawartha Lakes are generally shallow, productive warm water lakes that support complex cool and warmwater fish communities, whereas lakes on the Shield are typically deepwater oligotrophic lakes supporting simple coldwater fish communities.

The Kawartha Lakes are part of the Trent-Severn Waterway, an interconnected series of lakes, river channels and artificial canal cuts stretching for 386 km from Georgian Bay on Lake Huron to the Bay of Quinte on Lake Ontario (Angus, 1988). Water in the system comes from two major watersheds; the Trent and Severn Rivers. Mitchell and Canal Lakes have been raised and flooded to provide through navigation. This section of the canal is the link between two major watersheds, the Trent, which flows southeast to Lake Ontario, and the Severn, which flows northwest to Georgian Bay. The Kawartha Lakes are part of the main canal in the Trent watershed and flow southeast into Lake Ontario via the Trent River.

The Kawartha Lakes are under the jurisdiction of the TSW, Parks Canada. The MNR (Peterborough, Bancroft and Aurora Districts) works closely with TSW in matters related to resource management in the watershed. The TSW manages water levels and flows for purposes of public safety, navigation, and protection of natural and cultural resources. The Waterway also issues work permits and licences on federal lands under its jurisdiction, conducts environmental assessments for work on federal property, reviews site-specific planning proposals, and protects species at risk and significant cultural resources. The MNR is responsible for managing the fish populations and other natural resources in the region through inventory and assessment, fishing regulations, enforcement, rehabilitation and working with municipalities to protect areas of provincial significance such as provincially significant wetlands, Areas of Natural and Scientific Interest (ANSI), fish habitat and species at risk.

Lakes and rivers within FMZ 17 that are not part of the TSW are under provincial jurisdiction, and subject to provincial legislation including the *Public Lands Act* and the *Lakes and Rivers Improvement Act*. MNR works closely with the various Conservation Authorities in the area to regulate works in and around water and protect the fisheries resources.

Land use is primarily rural agricultural, with concentrated areas of urban development. Two major highway corridors (#7 and #401) run east-west and Highway #115 runs north-south. Seasonal and permanent residences are located throughout the rural area and on the shores of lakes and rivers. A significant proportion of the land base is located along the shoreline of Lake Ontario and is under intense agricultural use for the production of grain, grape,

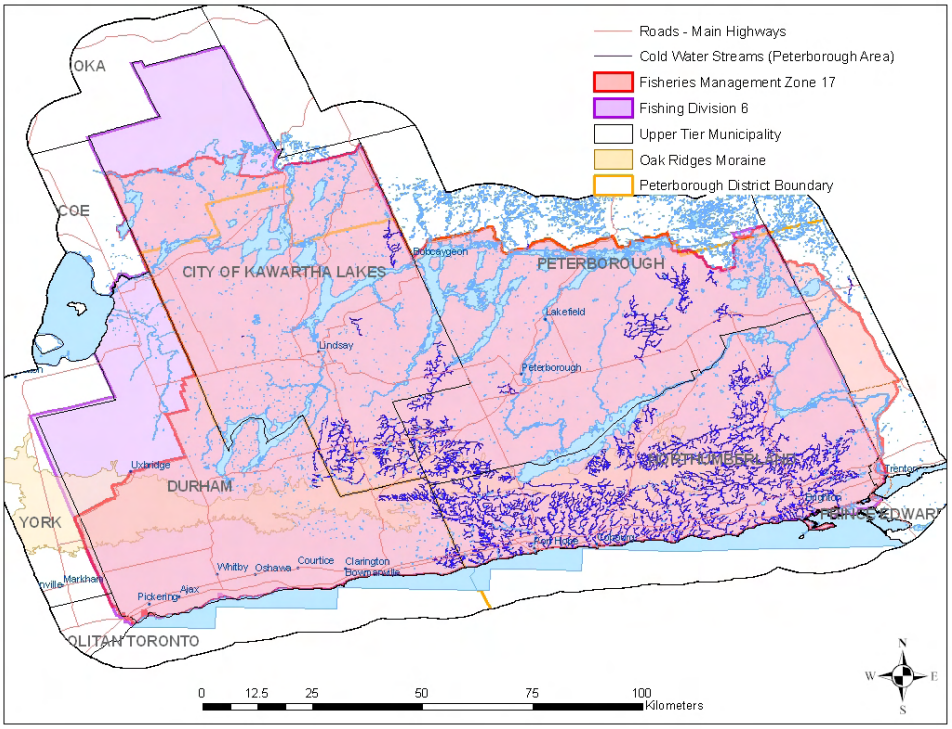


Figure 1: Map of Fisheries Management Zone 17 (red) with the former Fishing Division 6 boundary (purple). Coldwater stream layer is based on MNR Peterborough Area only.

corn, fruit, tobacco and vegetable crops. The area has also experienced increased urban development pressures from the expansion of Port Hope, Cobourg, Brighton and Trenton along Highway 401, and other urban centres including Peterborough and Lindsay. A total of 164 communities are located in FMZ 17, of which 82 % (135) have a population of fewer than 1,000 people. An additional 17 communities (10 %) have fewer than 10,000 people, and 11 communities (7 %) have greater than 10,000 but less than 100,000 residents. Only one community with a population greater than 100,000 (Oshawa) is present in the zone. A total of 11 Provincial Parks serving a variety of functions are located within the FMZ (Table 1). The remainder of the FMZ is predominantly rural with crops of grain, corn and livestock and a range of recreational opportunities for fishing, hiking, skiing, camping, and other outdoor activities.

The Environment Canada weather station in Oshawa was used to determine climatic conditions (1971-2000 normals) in the southern part of the zone, and the station in Peterborough was used for the central part of the zone. The Haliburton weather station, although located approximately 30 km north of the FMZ boundary, was used to estimate climatic conditions in the northern part of the zone, as it is the closest available station. Climatic conditions are highly variable across the latitudinal gradient within the zone (Figure 2). Cumulative Growing Degree Days (>5°C) ranged from 1,782 in Haliburton to 2,066 in Peterborough and 2,095 in Oshawa. Canadian Climate Normal snowfall values between 1971-2000 ranged from 262 cm/year in Haliburton to 118 cm/year in Oshawa. Annual rainfall normal values were 747 mm, 718 mm and 760 mm for Haliburton, Peterborough, and Oshawa respectively. The climatic variation likely accounts for observed differences in the spawning times of many species, which typically begin earlier in the southern parts of the FMZ.

Table 1: Provincial Parks and designations within FMZ 17

Provincial Park	Size (ha)	Class
Balsam Lake	448	Recreation
Darlington	208	Recreation
Emily	83	Recreation
Ferris	198	Recreation
Indian Point	947	Natural Environment
Mark S. Burnham	43	Recreation
Peter's Woods Provincial Nature Reserve	33	Nature Reserve
Presqu'ile	937	Natural Environment
Quackenbush	40	Historical
Queen Elizabeth II Wildlands	35,505	Natural Environment
Wolf Island	222	Natural Environment

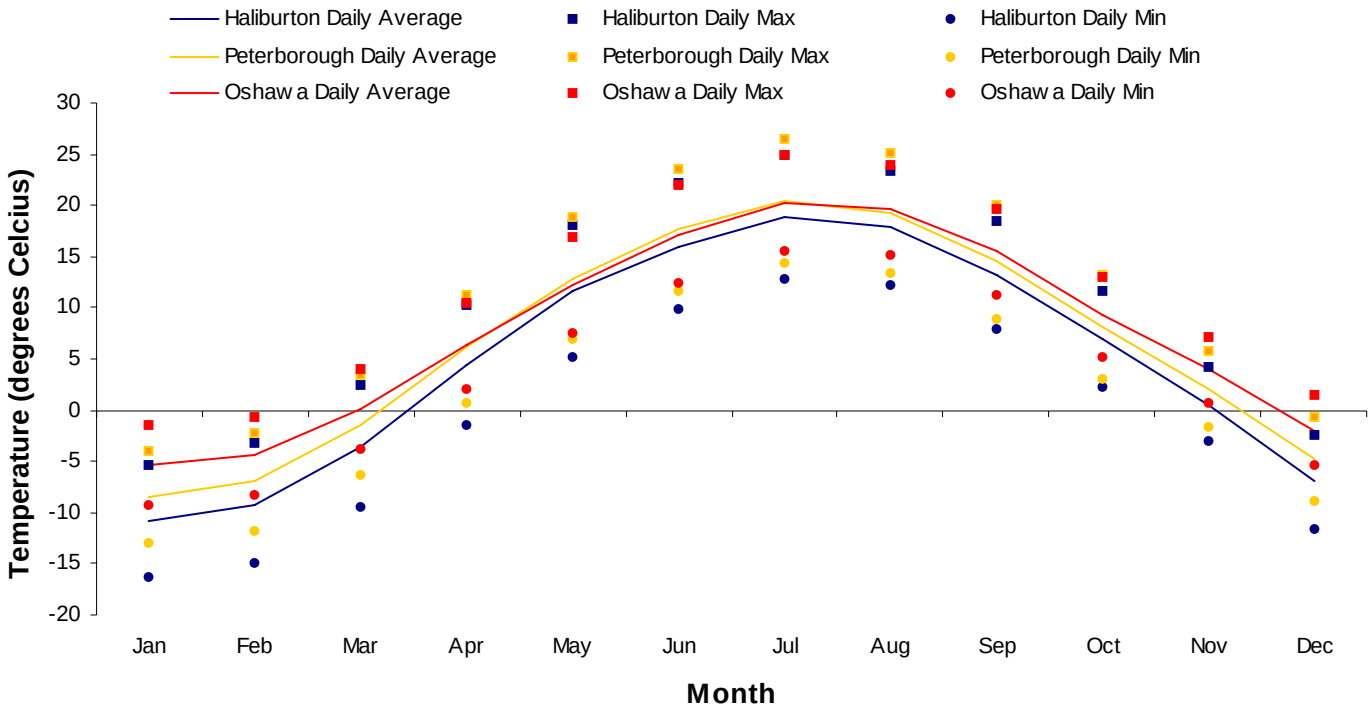


Figure 2: Summary of temperature data collected from Environment Canada Weather Station locations within, or in close proximity to, FMZ 17

3.0 Biological Description of the Fisheries Resources

3.1 Data Sources

The primary source of stream data in terms of species presence and absence is data collected using the Aquatic Habitat Inventory (AHI) and other surveys conducted by the MNR District Office and Conservation Authorities. The Ontario Stream Assessment Protocol (OSAP) outlines methodologies for assessing both the fish and benthic invertebrate communities and the associated stream habitat (OMNR, 2004). In recent years, selected modules of this protocol have been utilized on a select number of streams in the FMZ 17, primarily by MNR and Conservation Authority staff. In 2002, the Ontario Federation of Anglers and Hunters (OFAH) launched the Coldwater Stream Steward Program (CSSP), with associated monitoring utilizing OSAP and Ontario Benthos Biomonitoring Network (OBBN) protocols. Stream assessment work carried out by consultants under the authority of a Licence to Collect Fish for Scientific Purposes may not follow standardized protocols, but can provide information relating to species presence in specific stream segments. Collectively, these data can be utilized to characterize the fish communities in cold and warmwater streams.

An extensive amount of data has been collected on lakes within FMZ 17. The Kawartha Lakes Fisheries Assessment Unit (KLFAU) was established in the mid 1970s, and implemented a rigorous monitoring program on Balsam, Buckhorn, Rice and Scugog Lakes, which collectively represent approximately 50 % of the

total lake surface area in FMZ 17. Other lakes have been assessed as part of regular duties of the MNR District offices and/or partner agencies. Netting techniques differ in gear (trap nets or multimesh gill nets), timing, duration of net sets, and depth strata in order to target different segments of the fish community (Table 2). The gear type directly influences the detail in fish sampling, with lethal sampling techniques (gill nets) allowing for more thorough assessment of the fishery.

The MNR has developed a number of provincially standardized index netting protocols for assessing fish communities in lakes. The absence of lakes supporting brook trout and/or lake trout (*Salvelinus namaycush*) in FMZ 17 has limited the use of the protocols targeting coldwater fish species to a single Summer Profundal Index Netting (SPIN) survey (Stony Lake, 2006). SPIN is a multi mesh gill netting protocol targeting coldwater fish species, in particular lake trout and lake whitefish (*Coregonus clupeaformis*). Nets are 64 m long, with eight panels (mesh sizes of 57, 64, 70, 76, 89, 102, 114, and 127 mm) and are set for approximately two hours in randomly selected locations, stratified by depth (10-20 m, 20-30 m, and 30-40 m).

The MNR utilizes Fall Walleye Index Netting (FWIN) as a provincial standard assessment method for walleye populations. FWIN sampling involves the random selection of sites within two depth strata; 2-5 m and 5-15 m, with recommended water temperatures between 10–15 °C. The FWIN gillnets are 1.8 m (6 feet) deep and consist of eight 7.6 m (25 feet) panels arranged in ascending/descending order of monofilament mesh size: 152, 127, 102, 76, 64, 51, 38, and 25 mm (6.0, 5.0, 4.0, 3.0, 2.5, 2.0, 1.5, and 1.0 inches). The field methodologies associated with FWIN are outlined by Morgan (2002). The KLFAU routinely conducts FWIN assessments on Balsam, Buckhorn, Rice and Lake Scugog using FWIN. Periodic FWIN assessments have occurred, primarily as a part of the Southern Region Walleye State of the Resource project in 1999-2001, on Crowe, Belmont, Chemung, Pigeon, Four Mile, Dalrymple, Cameron, Sandy, and Sturgeon Lakes.

Trap net surveys were conducted in the Kawartha Lakes and the Crowe River Watershed as early as the 1960s. The KLFAU began trap net assessment in the late 1970s focusing on four lakes (Balsam, Scugog, Rice, and Buckhorn) in the late spring. These surveys used 1.8 m and 2.4 m (6-ft and 8-ft) trap nets, fixed sites, and a fixed calendar season to measure relative abundance (catch per 24-hr net lift), size composition, and age composition of the catch (Deacon 1992). Fixed index sites were used beginning in the 1980s and for the period 1988 to 1999 the Spring Index Netting (SIN) design was consistently used. Geometric mean catch per 24-hr net lift was calculated for each fixed site on a lake. The average across all sites was used as the measure of relative abundance for the lake. These relative abundance measures allow comparison between years on each lake but they cannot be used to compare between lakes because of two limitations. First, the survey period (May to mid-June) is characterized by rapid temperature increase and changes in fish distribution and activity related to spawning seasons. Balsam and Rice Lakes were sampled in May while

Buckhorn and Scugog were typically sampled in June. Secondly, fixed sites are not necessarily representative of the habitat in each lake.

Table 2: Summary of the characteristics of netting protocols utilized by the Kawartha Lakes Fisheries Assessment Unit and MNR Peterborough District

Criteria	**Nearshore Community Index Netting (NSCIN)**	**End of Spring Trap Netting (ESTN)**	**Spring Index Netting (SIN)**	**Fall Walleye Index Netting (FWIN)**	**Summer Profundal Index Netting (SPIN)**
Net Type	1.8 m Trap	1.8 m Trap	1.8m and 2.4m Trap	Multimesh gill	Multimesh gill
Primary target species	Bass and sunfish	Walleye	Littoral zone community	Walleye and perch	Lake trout and whitefish
Site selection	Random	Random	Fixed	Random	Random
Sampling	Live release	Live release	Live release	Lethal	Live release & lethal
Relative Abundance	X	X		X	X
Age Composition	X	X	X	X	X
Number of age classes (recruitment)	X	X	X	X	X
Growth rates	X	X	X	X	X
Catch by size	X	X		X	X
Sex, maturity and fecundity				X	
Size and age at maturity				X	
Trend through time			X		
Surveys used in preparation of Background Information Document					
Time Period	1994-2006	1998-2006	1980-2006	1998-2006	2006
Number of Lakes Surveyed	10	8	4	13	1
Number of Surveys	17	21	30 full, 14 partial	25	1
Percent of FMZ 17 Lake Area Surveyed (%)	76	69	47	81	5

The End-of-Spring Trap Netting (ESTN) survey developed to assess walleye (Skinner and Ball, 2004) specifies a temperature window (12-18 °C) that overlaps with the spring SIN netting in the Kawartha Lakes. Gear consists of 1.8 m trap nets, with overnight sets in proximity to shore. ESTN surveys are a better measure of spring catches because sites are randomly selected from the entire lake. As a result, more recent measures of centrarchid species are from ESTN surveys. In some years, both surveys were conducted but with the SIN with a reduced number of sites. ESTN surveys have been conducted on Balsam, Buckhorn, Chemung, Pigeon, Rice, Scugog Stony, and Clear Lakes.

The Nearshore Community Index Netting (NSCIN) survey was developed to assess the status of fish populations that live in the nearshore zone of a lake and has been the standard utilized for comparisons of centrarchid (bass and sunfish) populations (Stirling, 1999) in Ontario. Gear and sampling techniques are similar to ESTN, with the primary difference being the sampling period. The NSCIN survey season is late summer (August 1 until surface water temperature falls below 13 ºC). Relative abundance is measured as the geometric mean catch per net left, and mean length is a criteria used to produce status benchmarks.

The selectivity of the gear used in standardized netting programs, and trap nets in particular, provides little information on the forage fish community, therefore non-standardized data has been collected on small bodied fishes. Forage fish sampling was conducted using a combination of funnel and minnow traps to assess the relative abundance and composition of the forage fish community in the Kawartha Lakes in 2003 (Balsam, Buckhorn, Chemung, Pigeon, Rice and Scugog Lakes). In addition, boat electrofishing was conducted in conjunction with young-of-year (YOY) walleye in 2003 on Balsam, Pigeon, Rice and Scugog Lakes provides additional information on the fish community. The nearshore fish community in Rice Lake was sampled using boat electrofishing in partnership with the OFAH and Trent University in 2005 as well, however the results were not included in this report as data was only collected for a single lake.

Creel surveys were routinely conducted by the KLFAU on the Tri-Lakes, Rice Lake, Balsam Lake and Lake Scugog since the inception of the KLFAU. In addition, the Peterborough District office completed creel surveys on Crowe Lake in 1999 (open water) and 2000 (winter season). Seasonal creels have also been completed on select Lake Ontario tributaries. These surveys provide representation from most of the FMZ, however a number of large lakes (e.g. Sturgeon, Stony Lakes) and rivers are not included. The lakes where recent creel surveys (e.g. within the last 10 years) exist represent nearly two thirds of the total lake area in FMZ 17, and given the prominence of the lakes included, account for an even greater proportion of the total angling effort on the lake fisheries in the FMZ.

3.2 Productive Capacity of Stream and Lake Fish Communities

The coldwater streams provide the vast majority of coldwater fish habitat in FMZ 17. The Oak Ridges Moraine (ORM) is the main source for more than 80 % of coldwater streams flowing south into Lake Ontario, north into the Kawartha Lakes

and east into the Trent River within FMZ 17. Coldwater species tend to be specialists with narrow thermal tolerances and are usually restricted to cold highly oxygenated water. Coldwater streams in southern Ontario have a maximum temperature of less than 26°C and support, or are capable of supporting, coldwater fishes. The average maximum temperature of streams supporting coldwater fishes is 22.7 °C and the preferred temperature for these fishes is less than 17 °C (Bowlby, 2003). The most important factor in maintaining coldwater habitats is the discharge of a steady supply of cool groundwater year-round to help moderate temperature fluctuations. The coldwater streams in FMZ 17 support a variety of salmon and trout species, as well as other non-sport species (OMNR, 2005b).

Atlantic salmon (*Salmo salar*) were one of the dominant coldwater fishes in lake Ontario when European settlers arrived, but were extirpated by the late 1800's by fishing pressure, the construction of dams preventing access to spawning grounds, and the degradation of stream habitat. Atlantic salmon have been experimentally stocked in eight Lake Ontario streams including Duffins, Cobourg, Shelter Valley and Barnumhouse Creeks in FMZ 17. In FMZ 17 streams, the initial restoration phase for Atlantic Salmon was in Wilmot Creek, between 1988-1995, and Ganaraska River in 1995. Restoration began in Cobourg Creek in 2002 and in Barnumhouse Creek in 2003-2005. In 2006, the restoration phase of the Atlantic salmon recovery project continued, with increased stocking efforts on Cobourg and Duffins Creek within FMZ 17. Streams in FMZ 17 with excellent juvenile habitat for Atlantic salmon include Duffins Creek, Ganaraska River, Cobourg Creek, Shelter Valley and Barnumhouse Creeks. The first wild Atlantic salmon was recorded from Smithfield Creek, in Northumberland County.

Brook trout are the only self sustaining, naturally reproducing native salmonid species in FMZ 17, and are synonymous with high quality environments. In many streams, particularly Lake Ontario tributaries, brook trout are limited to isolated, often low density, populations in the headwater areas. The low abundance and limited distribution of brook trout populations may be attributed to interspecific competition with migratory and resident non-native salmonids, susceptibility to angling, sensitivity to habitat degradation and predation by larger salmon and trout on juvenile brook trout (Fausch and White, 1981).

Brown trout were stocked between 1920 and 1975 in many streams to supplement existing populations and to diversify fishing opportunities. Streams in FMZ 17 support primarily resident brown trout that carry out their entire life cycle in the stream, with migratory brown trout being relatively uncommon. Brown trout are a fall spawning species that occur sympatrically with brook trout in many FMZ 17 streams, but often out-compete and suppress native brook trout, particularly when rainbow trout are also present. Brown trout gain a competitive advantage through their ability to spawn in a wider range of flows, higher thermal tolerance, ability to withstand heavier angling pressure, increased aggression and larger body size (Marshall and MacCrimmon, 1970).

The coldwater fish community in coldwater tributaries to Lake Ontario are largely influenced by the Fish Community Objectives (Stewart et al., 1999), and

associated stocking programs in Lake Ontario. The management of migratory species is shared with the MNR Lake Ontario Management Unit (LOMU) and Conservation Authorities. Stocking of rainbow trout occurred as early as the 1920s, and has lead to the establishment of self-sustaining populations in many FMZ 17 streams to the extent that they are now the most dominant salmonid in most Lake Ontario tributaries. Rainbow trout abundance in tributaries is largely driven by changes in adult abundance in the lake environment. Control of lamprey and habitat improvement allowed for rainbow trout abundance to increase between 1974 and 1989. Increased water clarity resulted in fish community changes in Lake Ontario and a subsequent decline in rainbow trout abundance, however populations have remained relatively stable since 1998. MNR continues to stock rainbow trout into Lake Ontario, with an annual target of 140,000 yearlings. These fish are not stocked into FMZ 17 waters due to the high abundance of wild fish in these tributaries.

Native to the Pacific coast, Chinook (*Oncorhynchus tshawytscha*) and coho salmon (*O. kisutch*) were stocked in Lake Ontario in the late 1960's to provide recreational angling opportunities and to establish a top predator salmonid species following the dramatic decline in lake trout abundance in Lake Ontario. Present populations are maintained through stocking which is augmented by natural reproduction in many Lake Ontario tributaries including the Ganaraska River, Cobourg Brook, Port Britain Creek, Wilmot Creek and Shelter Valley Creek.

The primary factors affecting productivity of inland lakes are; 1) temperature, measured by growing degree-days (GDD), and 2) nutrients in the waterbodies which is influenced by geology, soils, topography, vegetative cover and hydrology. The productive capacity of a lake is described using the Morphoedaphic Index (MEI), where MEI = Total Dissolved Solids (TDS)/mean depth. More recently, Lester et al. (2004) described a method for determining walleye yield for Ontario Lakes based on Thermal-Optical Habitat Area (TOHA), a combination of lake morphology, water clarity and temperature (measured by GDD>5 ^{o}C). Typically, walleye populations are more productive in southern climes due to a longer growing season, greater productivity and increased growth rates (Lester et al., 2000). The lakes within FMZ 17 vary widely in terms of water chemistry, morphology and size. As noted previously, there is also some variability in climate within the zone. Based on these factors, there is a significant variability in the productivity estimates for each lake (Table 3). Some lakes, such as Cameron, Cordova, Stony and Balsam are close to the northern extent of the zone, and are generally deeper with lower nutrient inputs, and thus are at the lower end of the MEI and walleye yield scale. Other lakes, such as Buckhorn, Chemung, Rice, and Scugog are shallow, with high nutrient values and thus have a greater productive capacity as measured by MEI.

Table 3: Summary of lake characteristics, productivity (Morphoedaphic Index (MEI)), and theoretical walleye Maximum Sustainable Yield (MSY) for lakes within FMZ 17 greater than 50 ha in surface area

Lake Name	Area (ha)	TDS (mg/L)	Mean Depth (m)	Max Depth (m)	Secchi (m)	GDD > 5 °C	MEI (kg/ha)*	Walleye MSY (kg/ha)**
Young Lake	109.3	24	11.9	21.7	5.3	1712	1.9	0.2
Shadow Lake	320.2	51	7.8	22.0	4.2	1832	3.5	0.6
Silver Lake	61.2	52	6.8	16.0	4.7	1840	3.5	0.6
Cameron Lake	1303.2	75	6.3	18.3	4.2	1859	4.3	1.3
Cordova Lake	247.5	63	4.4	13.5	4.9	1890	4.6	0.8
Stony Lake	2824.9	91	5.9	32.0	2.0	1880	4.8	2.0
Balsam Lake	4665.0	78	5.0	14.9	8.3	1867	4.8	1.6
Four Mile Lake	786.2	134	8.5	19.2	4.3	1835	4.8	1.4
Belmont Lake	758.3	104	6.2	16.1	3.5	1925	5.0	1.8
Clear Lake	1054.3	105	5.6	12.2	2.6	1918	5.2	2.4
Lost Lake	65.7	96	3.9	9.7	3.5	1881	5.9	1.5
Crowe Lake	876.4	150	5.6	15.9	2.4	1931	6.1	2.7
White Lake	175.0	102	3.7	10.4	3.1	1775	6.2	1.7
Head Lake	918.6	105	3.5	8.2	3.7	1822	6.5	1.9
Round Lake	568.5	136	4.5	9.8	3.3	1916	6.5	2.5
Sturgeon Lake	4495.1	85	2.8	12.2	0.5	1881	6.5	1.5
Sandy Lake	370.1	181	4.8	12.8	1.5	1866	7.2	3.1
Pigeon Lake	5349.0	120	3.0	17.4	2.2	1885	7.4	1.9
Talbot Lake	124.8	28	0.7	1.8	1.8	1829	7.4	0.2
Lovesick Lake	257.2	110	2.5	25.0	2.6	1909	7.7	1.9
Dummer Lake	176.2	136	3.0	7.0	4.6	1909	7.8	1.2
Little Bald Lake	187.9	86	1.8	7.6	1.2	1863	8.0	2.8
Rice Lake	10018.0	130	2.6	7.9	1.9	1959	8.1	2.6
Big Bald Lake	201.0	128	2.5	9.5	2.9	1863	8.2	1.9
Little Lake (Crahame Twp)	65.8	180	3.5	8.5	2.9	2022	8.2	0.1
Buckhorn Lake	3191.0	121	2.1	9.4	2.3	1885	8.7	1.0
Katchewanooka Lake	350.9	110	1.8	10.1	2.3	1921	8.9	2.2
Chemong Lake	2280.0	148	2.4	6.7	2.6	1920	8.9	2.4
Dalrymple Lake	1332.5	177	2.4	10.4	2.6	1880	9.7	2.6
Lake Scugog	6374.0	156	1.8	7.0	0.7	1920	10.4	3.3
Canal Lake	1083.7	142	1.3	4.3	2.1	1890	11.6	1.5
Emily Lake	111.5	194	1.3	2.1	2.1	1883	13.3	1.1
Mitchell Lake	851.1	109	0.7	3.7	2.0	1880	13.6	0.5
Raven Lake	107.4	173	1.0	2.5	2.5	1863	14.2	0.5
Goose Lake	176.7	191	0.2	0.6	0.6	1887	30.7	0.3
Little Lake (City of Ptbo)	79.0			9.8	1.6	1966	NA	NA
AVERAGE	**1411.8**	**114.5**	**3.9**	**11.8**	**2.9**	**1881.0**	**7.9**	**1.6**

*** MEI = TDS/mean depth**

**** Walleye MSY based on Thermal Optical Habitat Area (TOHA) – Lester et al. (2004)**
Walleye MSY = 1.702*(GDD/1000)^1.86*tds^0.42*(toha^0.93)/area

3.3 Factors Influencing the Productive Capacity of Fisheries Resources

There are a number of factors within FMZ 17 that may affect the productive capacity of the waterbodies. The impact of these factors on the

productive capacity is difficult to accurately predict, as some factors will contribute to shifts in the balance of the fish community rather than increase or decrease overall production.

Climate change trends may be the single largest factor influencing the productive capacity of the fisheries, not just in FMZ 17, but at a provincial and national scale. Climate change is predicted to affect both the quantity and quality of water. Aside from direct implications on thermal habitat and growth rates, changes to water temperature will likely alter the timing of fish migrations, as well as the spawning and hatching times for various fish species. The structure of existing fish communities will also change, as the productive capacity for warmwater fish species (e.g. bass, muskellunge) is likely to increase, while coolwater fish species (e.g. walleye, northern pike (*Esox lucius)*) will likely decline in abundance. Climate change may compound the impacts of other stressors including pollution, dams, habitat loss, overexploitation, and increase the vulnerability of ecosystems to invasive species (Schindler, 2001).

Invasive species, including fishes and other aquatic organisms will continue to influence both the productive capacity and the fish community composition of the fisheries resources within FMZ 17. Specific impacts are entirely dependent on the characteristics of the invading species (Moyle and Light, 1996). Current threats include round goby (*Neogobius melanostomus*), which have had significant negative impacts including reductions in species diversity through competition with, and predation on, other fish species in areas where they have become established. However, gobies feed heavily on invasive zebra mussels (*Dreissena polymorpha*), and are thought to re-introduce nutrients into the food chain that were previously filtered out by zebra mussels (Bunnell et al., 2005).

The spread of zebra mussels has increased water clarity and decreased the nutrients available to lower trophic levels. This has likely decreased the overall productive capacity of the lakes, and contributed to observed fish community shifts, creating more favourable conditions for some species (e.g. bass, muskellunge), and less favourable conditions for others (e.g. walleye). The aggressive feeding behaviour of zebra mussels has resulted in increased water clarity as they filter plankton from the water column. As water clears, the amount of habitat for the light sensitive walleye is reduced and predation on young walleye is likely to increase. Water clarity is thought to have a very dramatic effect on the productivity (yield) of walleye in inland lakes (Lester et al., 2004). In clear water conditions, walleye may also lose the competitive feeding advantage over other fish species.

Physical changes to the lakes, including changes in temperature that result from climate change and changes in water clarity resulting from water quality improvements and the introduction of zebra mussels play a significant role in determining the structure of the fish community. New species have also been introduced and have developed their own niches in the fish community. The relative abundance of top predator species has changed in response to these factors (Robillard and Fox, 2006). The fish community changes may continue to alter and/or suppress the abundance of native and sport fish species.

Northern pike have posed a risk of invasion into the Kawartha Lakes for many years, and the presence of pike has been confirmed originally in Canal Lake and Stony Lake in the 1980's, and more recently in Balsam Lake. Pike are currently present in the Gull River system as well as throughout the Crowe River system. Increases in northern pike abundance in both Canal Lake and Crowe Lake have corresponded with declines in muskellunge populations (OMNR, unpublished data), with similar declines reported in other jurisdictions (Harrison and Hadley, 1978; Inskip and Magnuson, 1983; Inskip, 1986). The presence of the northern pike – muskellunge hybrid, the tiger muskellunge (*E. masquinongy* X *E. lucius*) has also been confirmed in Lake Scugog, Balsam, and Pigeon Lakes (Deacon, 1996; OMNR unpublished data). Pike are suspected to have a detrimental impact on muskellunge populations due primarily to direct predation of young-of-year (YOY) muskellunge by YOY northern pike, as pike gain a size advantage due to earlier spawning (Harrison and Hadley, 1978; Inskip and Magnuson, 1983; Farrell, 2001). In addition to the direct impacts on muskellunge populations, the introduction of a top predator species can have a cascading effect throughout the ecosystem, and has implications regarding the structure, function and diversity of the existing fish community (Kerr and Grant, 1999).

Changes in water quality (and chemistry) have a direct impact on the productive capacity of fisheries resources. In most cases, increased water quality will benefit the fisheries resources and the entire aquatic ecosystem by reducing the levels of potentially deleterious substances. However, efforts to reduce nutrient inputs to improve water quality may actually reduce the overall productive capacity of the fisheries. The Ontario Ministry of Environment (MOE) implements a provincial water quality monitoring program, provides standards for water and sediment quality to protect aquatic life and administers a variety of permits and approvals to protect water quality.

Impacts on fish habitat, including spawning, nursery, feeding, and refuge areas will influence the productive capacity of the fishery. The *Fisheries Act* prohibits activities that result in the harmful alteration, disruption or destruction of fish habitat (HADD) unless authorized by the Minister of Fisheries and Oceans Canada. The Act also prohibits the discharge of deleterious substances into waters frequented by fishes. In Ontario, Fisheries and Oceans Canada (DFO) apply the *Fisheries Act.* Conservation Authorities (CA) also contribute to the protection of fish and fish habitat through the application of the *Conservation Authorities Act* and the Fill, Construction and Alteration to Waterways Regulations to regulate development and landscape alteration within the areas surrounding lakes, rivers and streams. In many areas, CAs have been delegated responsibilities under the *Fisheries Act* and the provincial *Lakes and Rivers Improvement Act,* further strengthening their role in protecting fish and fish habitat.

Viral hemorrhagic septicemia (VHS) is a viral disease previously found in several species of freshwater and saltwater fishes in Europe, Japan, and the Pacific and Atlantic coasts of North America, that has recently been discovered in fishes in the Great Lakes, including a number of species in Lake Ontario. The disease

was first found in Ontario in association with a die-off of freshwater drum in April 2005 in the Bay of Quinte on Lake Ontario. VHS was also found in yellow perch (*Perca flavescens*), muskellunge and round gobies that died off in 2005 and 2006. VHS has not yet been found in fishes from the inland waters of FMZ 17, however testing has been limited. VHS does not pose a threat to human health but it may pose a threat to the fish stocks in both the rivers and streams in FMZ 17. A number of other fish diseases are also of potential concern in FMZ 17, and may be spread by similar vectors as invasive species.

3.4 Biological Status of the Fisheries Resources

3.4.1 Coldwater Lakes

The lakes within FMZ offer very little in terms of coldwater fish habitat. Lake trout are believed to have disappeared from Stony Lake by late 1980's and remnant populations of whitefish remain in Stony and Clear Lakes. Cisco (*Coregonus artedi*) are uncommon, but individuals were captured in netting programs in Stony, Balsam and Pigeon Lakes. In 2006, Stony Lake was sampled using the SPIN protocol, in partnership with graduate research by the University of Toronto, to assess the existing coldwater fish community. Lake whitefish and cisco catch averaged 1.1 and 2.3 fish per net set respectively. The largest lake whitefish was 682 mm in total length and weighed 3.5 kg. The largest cisco was 532 mm in total length and weighed 1.6 kg. No lake trout were sampled in 44 SPIN net lifts. Small mesh gill nets aimed at sampling the forage fish community sampled three rainbow smelt (*Osmerus mordax*), the first documentation of this species in the Kawartha Lakes. No other lakes in FMZ 17 offer any measurable level of habitat for coldwater fish species.

3.4.2 Coldwater Streams

The coldwater streams are typically managed on a watershed basis. In 2005, numerous partners involved in the management of coldwater streams in the MNR Peterborough Area collaborated to prepare the Coldwater Stream Strategy (OMNR, 2005b). In many instances, Conservation Authorities have prepared (or are in the process of preparing) Watershed Management Plans that include a fisheries-specific component, often in partnership with the MNR and DFO. These plans identify fisheries resources, management challenges and strategies. In FMZ 17, these Fisheries Management Plans are in various stages of development.

CARRUTHERS CREEK

Carruthers Creek is the westerly most tributary to Lake Ontario in FMZ 17, and is relatively small covering only 38 km^2. Unlike the majority of Lake Ontario tributaries, the creek does not originate in the Oak Ridges Morraine (ORM), instead originating in the Halton Till. Carruthers Creek lies within the administrative boundaries of the MNR Aurora District, and the Toronto and Region Conservation Authority (TRCA). The Fisheries Management Plan for Carruthers Creeks was completed in 2004 (TRCA et al., 2004).

In 2000, the TRCA conducted fisheries related sampling at six sites in the Carruthers Creek watershed. Overall, the fish community was in 'good' condition, with evidence of the development of a wild rainbow trout run, despite the fact that the creek has never been stocked. Historically, a total of 22 fish species have been documented in the watershed, 10 of which were sampled in the 2000 survey. Brook trout have not been documented in the watershed for many years, despite the fact that riparian conditions have generally improved in the past 40 years. The major issues identified in this watershed included; historical land clearing, a shift in land use from agricultural to urban, water taking, in-stream barriers, temperature elevations resulting from on-line ponds, and competition with non-native and invasive species (TRCA et al., 2004).

DUFFINS CREEK

Duffins creek originates from the ORM, and is recognized as the healthiest watershed in the TRCA's jurisdiction. The watershed covers 285 km^2, and contains large areas of undisturbed forest and wetland. The quality of coldwater habitat contributed to the identification of Duffins Creek as one of three 'best bet' streams for Atlantic salmon restoration. Duffins Creek lies within the administrative area of the Aurora District MNR, and lies mostly in the Regional Municipality of Durham, with the westerly extent in York Region. Large urban centres, including Pickering and Ajax are present in the lower reaches of the watershed. The Fisheries Management Plan for Duffins Creeks was completed in 2004 (TRCA et al., 2004).

In 2000, the TRCA conducted fisheries related sampling at 32 sites in the Duffins Creek watershed, sampling a total of 28 fish species (TRCA et al., 2004). Historically, as many as 50 fish species have been documented in the watershed. Overall, the coldwater fish community improved since the 1950s, with an increase in the diversity and distribution of trout species. Duffins Creek supports a strong wild run of rainbow trout, and more recently Pacific salmon. Brook trout were largely relegated to the middle and upper reaches in areas not accessible to migratory non-native salmonids. The major issues identified in this watershed included; historical deforestation, urbanization, water taking, in-stream barriers, temperature elevations resulting from on-line ponds, and competition with non-native and invasive species.

OSHAWA CREEK

Central Lake Ontario Conservation Authority (CLOCA) and MNR (Aurora District) share the responsibility for fisheries management in the 120 km^2 Oshawa Creek watershed. A Watershed Aquatic Resource Management Plan was completed in 2002 (CLOCA et al., 2002). Overall, the Oshawa Creek watershed was considered to be in 'fair' health, with priority placed on maintenance and rehabilitation. The natural reproduction of non-native salmonids was documented in the watershed, including Chinook salmon. Major threats to the aquatic ecosystem health included urban growth, particularly in the lower reaches, which accounts for 17 % of the present land use, with the majority of remainder as agricultural. Brook trout, the only native salmonid species present

in the watershed, were largely relegated to headwater areas where they are protected from migratory species by in-stream barriers.

BOWMANVILLE/SOPER CREEK

CLOCA and the Aurora District MNR manage the fishery and aquatic resources in the Bowmanville/Soper Creek watershed cooperatively. An Aquatic Resource Management Plan was prepared in 2000. Overall, the water quality, aquatic community and thermal regime in the watershed were indicative of excellent health, with maintenance of this state identified as a key priority. Brook trout, one of 48 species known to reside in the watershed, were present in isolated populations in headwater areas upstream of impassable barriers. Rainbow trout were the most abundant species by number, however brown trout ranked highest in overall biomass. Young-of-year (YOY) Chinook and coho salmon were sampled, indicating some level of natural reproduction of these species. Resource management issues identified included the loss of riparian cover, alteration to sediment transport, loss of forests and wetlands, impacts from historical development, present land care practices (CLOCA, 2000)

WILMOT CREEK

The Wilmot Creek watershed is 97 km^2 in size, and lies within the administrative area of the Ganaraska Region Conservation Authority (GRCA) and the Aurora District of the MNR. A draft Fisheries Management Plan for the watershed is completed. Fish community sampling in the watershed associated with the preparation of the Fisheries Management Plan identified four distinct fish communities; a warmwater community in the lower reaches; a community dominated by rainbow trout and mottled sculpin (*Cottus bairdii*) in the mid reaches, a brown trout and slimy sculpin (*C. cognatus*) in the northern part of the mainstem, and brook trout in the headwaters of Orno and Wilmot Creeks.

Historical widespread deforestation, dam construction and land clearing are still stressors on the present day fish community, but have improved since restoration began in 1920s to the point where in 1960s, Wilmot Creek was one of the first streams to support naturally reproducing rainbow trout. Rainbow trout abundance, largely driven by changes in Lake Ontario, increased through the 1980s, with a decline in the 1990s. Brown trout populations have increased, and brook trout abundance decreased, during the same time period. Geology and barriers to migration largely influence the fish communities (OMNR and GRCA, 2006).

GANARASKA RIVER

The Ganaraska River watershed straddles the boundaries of the Aurora and Peterborough Districts of the MNR, who manage the fishery in partnership with the GRCA. A Fisheries Management Plan for the watershed is currently in development.

Since 1974, the spring rainbow trout run has been monitored at the Ganaraska fishway at Corbett's Dam. The construction of the fishway in the 1970s provided access to upstream spawning and nursery habitat, and resulted in a rapid increase in the size of the run (Figure 3). Changes in the Lake Ontario fish community lead to a reduction in the population in the 1990s. Since the late 1990s, the population appears to be stable, with a spring run in the Ganaraka of between 5,000 and 6,000 fish. Fisheries sampling associated with the development of the Fisheries Management Plan indicated the presence of four distinct fish communities dominated by rainbow trout and cyprinids (main branch), brown trout and cyprinids (one subwatershed in middle reaches), brown trout and sculpins (middle reaches), and brook trout (primarily headwaters above barriers). Due largely to habitat improvements made since the 1960s, the abundance of brook trout and brown trout has increased in some sub-watersheds, but decreased or remained stable in others (GRCA and OMNR, 2007).

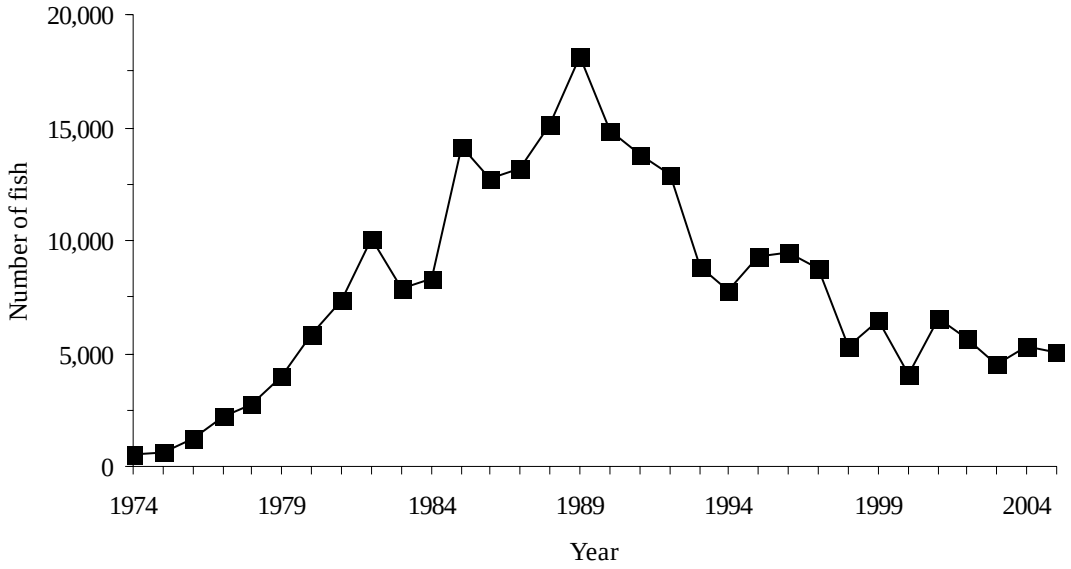


Figure 3: Summary of the spring rainbow trout run on the Ganaraska River based on the number of fish observed and the Ganaraska Fishway.

COBOURG CREEK, GAGES CREEK, SHELTER VALLEY CREEK, AND BARNUM HOUSE CREEK

Cobourg Brook and Gages Creeks lie entirely within the MNR Peterborough District, and are managed in partnership with the GRCA. Shelter Valley and Barnum House Creeks are within the jurisdiction of the Lower Trent Conservation Authority (LTCA), and MNR Peterborough District. Watershed-based Fisheries Management Plans have not formally been initiated in these watersheds, although data collection has been initiated in the Cobourg Brook watershed, with the expectation that the planning process will begin in the near future.

With the exception of Gages Creek, each of these watersheds were included in the research phase of the Atlantic Salmon restoration project, and have been stocked with various lifestages in recent years. In 2006, the Lake Ontario Atlantic Salmon Restoration program was initiated, with the goal of establishing self-sustaining populations of Atlantic salmon to Lake Ontario. Cobourg Brook was identified as one of three 'best bet' restoration streams, and will be stocked more intensively. Shelter Valley and Barnum House Creeks were identified as candidate streams for habitat improvements and/or research.

NONQUON RIVER

The Nonquon River is the largest tributary to Lake Scugog, with the headwaters originating in the Oak Ridges Moraine. Kawartha Region Conservation Authority (KRCA) and Aurora District MNR share management responsibilities. The Nonquon River is one of a select number of watersheds that do not flow into Lake Ontario where a Fisheries Management Planning process is underway. Fisheries monitoring associated with the Fisheries Management Plan documented brook trout in headwater areas, and spawning habitats for walleye and muskellunge from Lake Scugog in the main stem. Major stressors in the watershed included urbanization, nutrient loading, and thermal stress (KRCA, 2006).

3.4.3 Warmwater Rivers

A number of major warmwater rivers flow through FMZ 17. These include the Scugog River, which connects Lake Scugog and Sturgeon Lake, the Otonabee River, which connects a number of the Kawartha Lakes between Pigeon and Rice Lake, the Trent River which flows from Rice Lake to Lake Ontario, and the Crowe River, which connects lakes within the Crowe River watershed and ultimately flows to the Trent River.

The fish communities in these warmwater rivers are largely influenced by the changes that occur in the lakes. In many instances, the rivers provide significant spawning habitat for lake species, particularly below the locks and dams along the system. The rivers also support resident fish communities, many of which support recreational fisheries. Little is know about the status of these populations as index netting and creel programs are limited. A summary of fish species present in each of the major warmwater river watersheds in FMZ 17 is included in Table 4.

3.4.4 Warmwater Lakes

Native fish communities in the Crowe River watershed were slightly differently from the Kawartha Lakes, but over recent times species have extended their range from the Crowe River into the Kawartha Lakes, and vice-versa. Lakes not directly connected to the TSW (e.g. Dalrymple and Head Lakes) have some differences in fish community.

Historically, the Kawartha Lakes and the Crowe River Watershed supported muskellunge, smallmouth bass (*Micropterus dolomieu*), pumpkinseed sunfish (*Lepomis gibbosus*) and yellow perch populations. Introductions, via intentional

Table 4: List of fish species present or recorded historically in FMZ 17 by major warmwater river watershed

	Watershed Name				
Species	**Crowe River**	**Gull River**	**Kawartha Lakes**	**Otonabee River**	**Scugog River**
American Eel	X			X	
Banded Killifish	X	X	X	X	X
Black Bullhead	X	X	X		
Black Crappie	X	X	X	X	X
Blackchin Shiner	X	X	X	X	X
Blacknose Dace	X	X	X	X	X
Blacknose Shiner	X	X	X	X	
Bluegill	X	X	X	X	X
Bluntnose Minnow	X	X	X	X	X
Bowfin	X	X	X		
Brassy Minnow	X	X	X	X	X
Brook Silverside	X		X	X	
Brook Stickleback	X	X	X	X	X
Brook Trout	X	X	X	X	X
Brown Bullhead	X	X	X	X	X
Brown Trout	X	X		X	X
Burbot	X	X	X	X	X
Central Mudminnow	X	X	X	X	X
Central Stoneroller		X	X		
Channel Catfish	X		X		
Channel Darter	X				
Cisco	X	X	X	X	X
Common Carp	X	X	X	X	X
Common Shiner	X	X	X	X	X
Creek Chub	X	X	X	X	X
Emerald Shiner	X	X	X	X	X
Fallfish	X		X	X	
Fantail Darter	X	X	X		
Fathead Minnow	X	X	X	X	X
Finescale Dace	X	X	X	X	X
Golden Shiner	X	X	X	X	X
Greater Redhorse	X			X	
Greenside Darter			X		
Hornyhead Chub	X	X	X	X	X
Iowa Darter	X	X	X	X	X
Johnny Darter	X	X	X	X	X
Lake Chub		X	X		X
Lake Sturgeon	X	X	X	X	X

Table 4 (cont'd): List of fish species present or recorded historically in FMZ 17 by major warmwater river watershed

	Watershed Name				
Species	**Crowe River**	**Gull River**	**Kawartha Lakes**	**Otonabee River**	**Scugog River**
Lake Whitefish			X	X	
Largemouth Bass	X	X	X	X	X
Least Darter		X			
Logperch	X	X	X	X	X
Longear Sunfish	X			X	
Longnose Dace	X		X	X	X
Longnose Gar	X				
Longnose Sucker	X	X	X	X	X
Mimic Shiner	X	X	X		
Mooneye	X				
Mottled Sculpin	X	X	X	X	X
Muskellunge	X	X	X	X	X
Northern Hog Sucker	X			X	
Northern Pike	X	X	X	X	
Northern Redbelly Dace	X	X	X	X	X
Pearl Dace	X	X	X	X	X
Pumpkinseed	X	X	X	X	X
Rainbow Darter			X		
Rainbow Smelt		X	X		
Rainbow Trout	X	X	X	X	X
Redside Dace		X	X	X	
River Chub		X		X	
River Redhorse	X				
Rock Bass	X	X	X	X	X
Sea Lamprey	X				
Shorthead Redhorse	X		X		
Silver Redhorse	X		X		
Slimy Sculpin	X			X	
Smallmouth Bass	X	X	X	X	X
Splake		X	X		
Spoonhead Sculpin			X		
Spotfin Shiner	X	X			
Spottail Shiner	X	X	X	X	X
Stonecat	X	X			
Striped Shiner			X	X	X
Tessellated Darter	X				
Threespine Stickleback	X			X	
Trout-perch	X	X	X	X	X
Walleye	X	X	X	X	X
White Sucker	X	X	X	X	X
Yellow Bullhead	X	X	X	X	X
Yellow Perch	X	X	X	X	X

stocking, range extensions, non-native species invasions, and unintentional introductions have resulted in increasingly complex communities. Walleye were intentionally introduced into all lakes and largemouth bass (*M. salmoides*) and rock bass (*Ambloplites rupestris*) have been spread into most of the lakes. Bluegill (*L. macrochirus*) and black crappie (*Pomoxis nigromaculatus*) are native to the Trent River system but have only recently become established in the Kawartha Lakes and the Crowe River Watershed. Northern pike have become established, via range extensions and/or unintentional introductions to the periphery of the zone, including Canal Lake and the Crowe River watershed. A summary of MNR stocking records for walleye, largemouth bass and muskellunge on inland lakes is provided in Appendix 1.

Following the initial introduction in the 1920s, the Kawartha Lakes supported abundant walleye populations. Since that time, the lakes have undergone a series of significant environmental and ecological changes that have altered the composition and structure of the fish community (Robillard and Fox, 2006). Trap netting data from the four KLFAU Lakes highlights the magnitude of these changes (Figure 4). In the 1960s, walleye were the most abundant species sampled in terms of biomass. By the 1980s, smallmouth bass became more dominant, along with the emergence of largemouth bass and an increase in the abundance of rock bass. These trends continued through the 1990s, and were compounded by the emergence of new species (black crappie and bluegill), and the contribution of walleye to the trap net catch further declined. Total fish biomass from recent trap netting meets or exceeds historical netting data, but the species composition has been altered. The present day sport fish community is composed of muskellunge, smallmouth and largemouth bass, walleye, yellow perch, bluegill, pumpkinseed and black crappie.

PERCID COMMUNITY – WALLEYE AND YELLOW PERCH

Both FWIN and ESTN surveys provide information relating to walleye populations, although ESTN has a limited ability to sample yellow perch. FWIN catches in most lakes in FMZ 17 were low, averaging 3.6 walleye per net (Figure 5). FWIN catches of walleye were predominantly greater than 25 cm and age-1 and older. The median CUE among surveys was 1.7 (fish/net) and the median size was 349 mm (Total Length - TL). Fifty percent of the FWIN surveys had CUE between 0.8 and 3.0 fish/net and mean size between 30 and 40 cm (Figure 6a). Catch rates from ESTN surveys were generally higher than FWIN catches, averaging 4.4 walleye per net, with fifty percent of surveys between 1.8 and 4.8 fish/net. Small walleye are more vulnerable to FWIN gear than to ESTN gear, thus the average size of walleye sampled in the ESTN gear is larger, with fifty percent of ESTN surveys having a mean size between 42 and 50 cm (Figure 6b). Instructions on the interpretation of the graphs depicting the relationship between mean abundance and mean size of the fish species (e.g. Figure 6) are included in Appendix 2.

Comparison across individual lake surveys indicated that both CUE and average size was highest in Rice Lake FWIN surveys. CUE was also relatively high, but

with a low average size on Sandy Lake and Lake Scugog. Chemung, Pigeon, and Buckhorn Lakes had a low CUE but a relatively high average size of catch in both ESTN and FWIN surveys, indicative of low recruitment in these lakes. The CUE in FWIN surveys for fish greater than 45 cm was considerably higher on Rice Lake that the other FMZ 17 lakes, but has declined since the 1999 FWIN survey.

Trend through time analysis of walleye abundance shows a general declining trend on the four lakes routinely sampled by the KLFAU (Figure 7). Declines in abundance have been observed over the last 20 years, and in some instances are dramatic over a much shorter time period. The 1999 FWIN assessment on Rice Lake yielded a catch of 31.3 walleye per net (arithmetic mean). In 2003, the catch rate had dropped to only 12.4 fish/net, representing a 60 % reduction, but increased to 15.5 fish/net in 2006 and 20.3 fish/net in 2007, largely driven by a strong 2005 year-class. On Lake Scugog, ESTN data showed a decline of similar magnitude. In 2000, the catch rate was 22.1 walleye per net, but catch rates from surveys in 2002, 2003, 2006 and 2007 were 6.9, 6.7, 2.3, and 2.5 walleye per net respectively, nearly a 90 % reduction in catch rate. On Balsam and Buckhorn, observed declines in abundance have not been as dramatic, at least in part due to the fact that initial abundance in KLFAU surveys on these lakes was not as high as on Lake Scugog or Rice Lake.

A number of key life history and population structure characteristics can be determined using FWIN. Some, such as the number of age-classes and maximum age, provide information relating to recruitment trends and survival rates. Generally, a high number of age classes and maximum age are indicative of successful recruitment and adult survival, critical factors influencing the health of the population. The abundance of females greater than 450 mm and the Spawner Diversity Index, provide a measure of the adult female spawning population, critical in sustaining naturally reproducing walleye populations. With the exception of Rice and Four Mile Lake surveys, the CUE greater than 450 mm was less than one walleye per net, below the average for Southern Region. The low abundance observed in most surveys is consistent with unhealthy walleye populations. The CUE of fish less than 300 mm indicates potential recruitment issues on a number of lakes, but may also be attributed to rapid growth rates of small walleye. The biggest cause for concern is the low abundance of large fish, particularly mature females in the catch from most of the lakes (excluding Rice Lake). The size and age at maturity is generally consistent among surveys, with males maturing around 45 cm, with the exception of Buckhorn, Chemung and Dalrymple Lakes, where females mature closer to 40 cm. With the exception of Dalrymple (2.9 years), the age at 50 % maturity for females ranges from 3.5 to 5.0 years. Males mature at a smaller size with much more variability, ranging from 32 to 45 cm, and 1.3 to 4.9 years at 50 % maturity. The parameters for each FWIN project completed in FMZ 17 are summarized in Table 5.

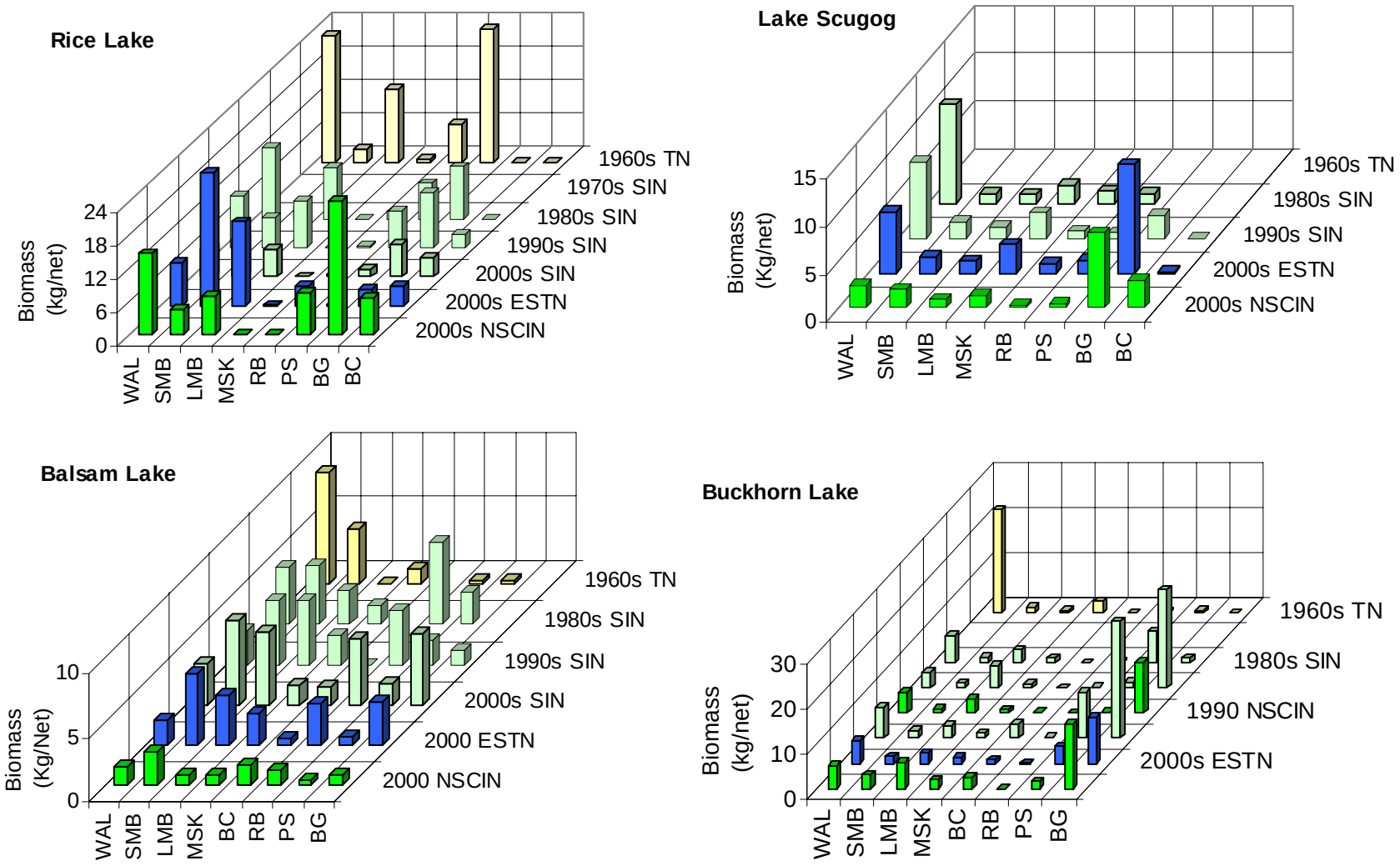


Figure 4: Composition of catch (kg per net) in trap netting surveys over time for Rice Lake (upper left), Lake Scugog (upper right), Balsam Lake (lower left) and Buckhorn Lake (lower right). On right axis, TN = Trap Netting (non standardized); SIN = Spring Index Netting; ESTN = End of Spring Trap Netting; NSCIN = Nearshore Community Index Netting. Bottom axis, WAL = walleye; SMB = smallmouth bass; LMB = largemouth bass, MSK = muskellunge; BC = black crappie; RB = rock bass; PS = pumpkinseed and BG = bluegill.

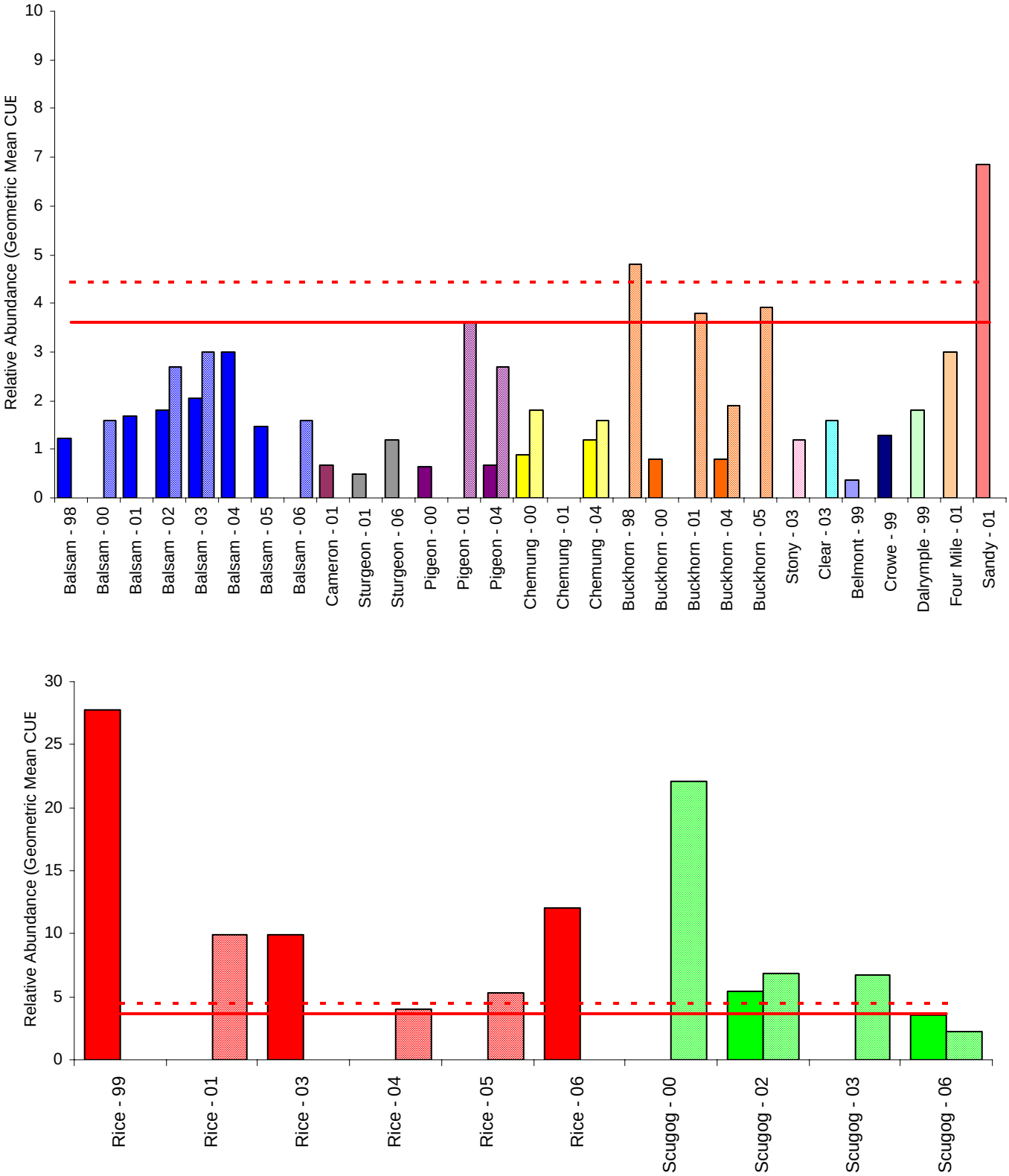


Figure 5: Summary of geometric mean catch rates (# or walleye per net set) from Fall Walleye Index Netting (FWIN – solid bars) and End of Spring Trap Netting (ESTN – checkered bars) in FMZ 17. Solid and dashed lines represent the average catch rates from FMZ 17 surveys for FWIN and ESTN respectively.

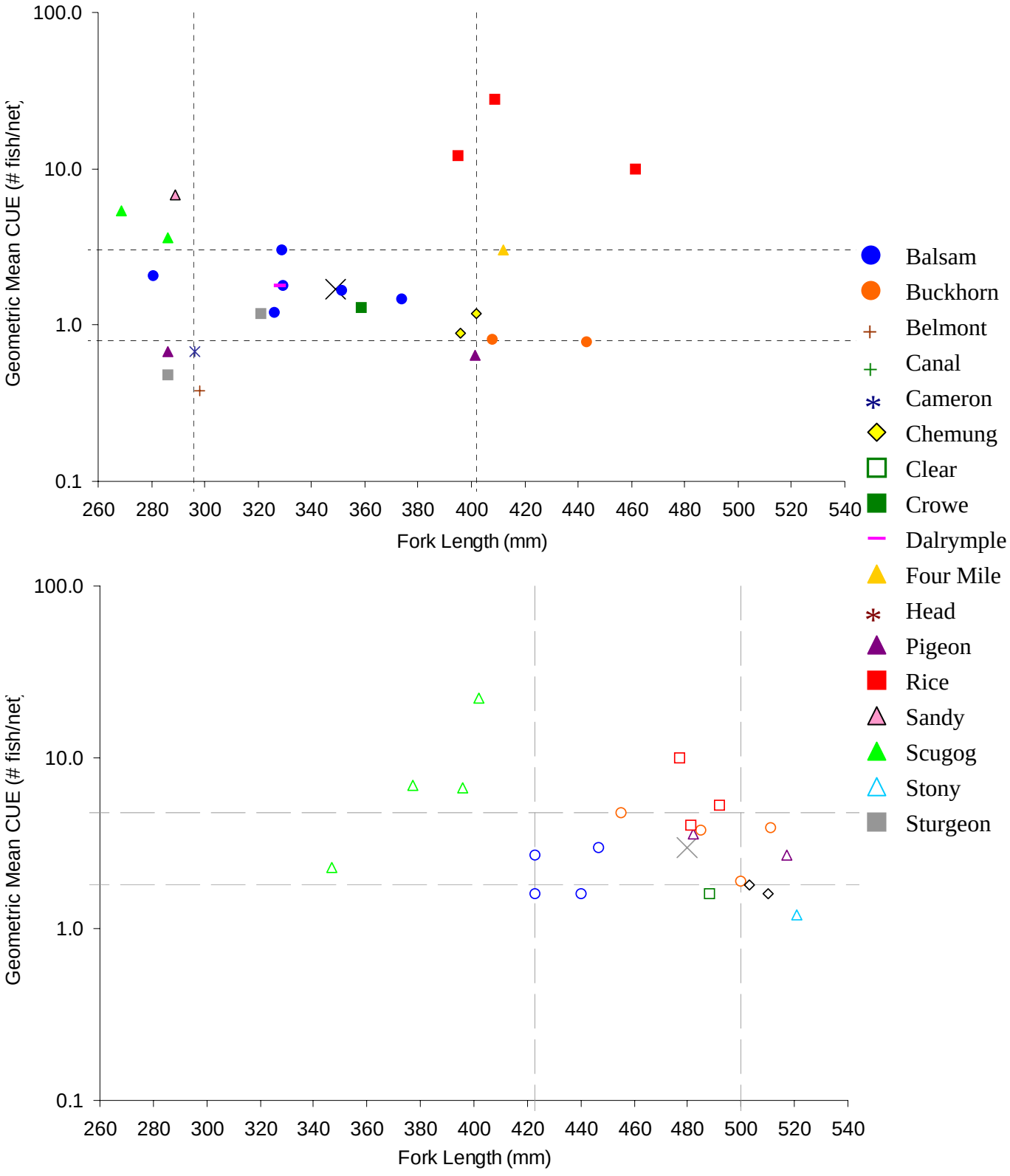


Figure 6: Relationship between mean fork length (mm) and geometric mean catch rate for walleye caught in FWIN (upper) and ESTN (lower graph, hollow data points) surveys conducted on lakes in FMZ 17. Dashed lines represent 25th and 75th percentiles, X represents median values.

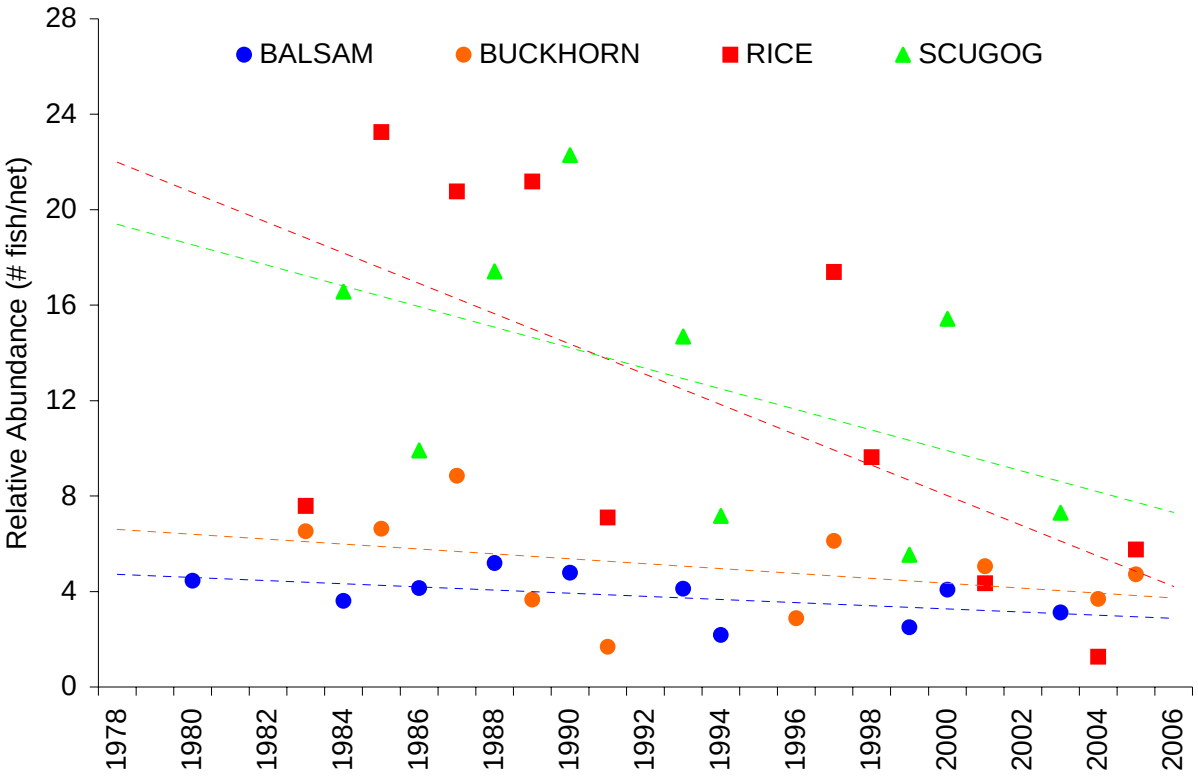


Figure 7: Relative abundance of walleye based on the combination of spring trap netting surveys conducted by the Kawartha Lakes Fisheries Assessment Unit.

Indices of year class strength were calculated using CUE and age composition data from KLFAU spring trap netting surveys that were conducted periodically from 1980 to 2005. The age composition of the survey catch was calculated using samples collected from each survey. An age-corrected CUE was calculated for each year class by multiplying the geometric mean catch of walleye in a survey, CUE(t), by the age proportion in the survey, p(age), and the age correction factor, SEL(age):

CUE(age)= CUE(t) * p(age) * SEL(age)
where SEL(age) is an age correction factor, SEL(age) = 1 / PCT(age) / max(PCT(age)).

A year class strength index of abundance (YCI) was calculated for each year class by averaging the age-specific CUE for age-3 to age-8 walleye. Year class strength varied greatly both within and among lakes, but was higher on Rice Lake and Lake Scugog than on Balsam and Buckhorn Lakes. The 1980s were the period with the highest YCI values in each of the four lakes, followed by a series of relatively weak year classes in the late 1990s through to the present (Figure 8). Variability both within and among lakes in year class strength is expected in walleye populations, based on climatic conditions, forage availability, habitat conditions, predation, and other factors (Koonce et al., 1977; Colby et al., 1979). The continuation of low YCI values is of concern, and may be driven by observed changes in the abundance of adult fish, the habitat and fish community in these lakes.

Table 5 - Summary of Walleye Diagnostic Parameters for FMZ 17 Fall Walleye Index Netting Surveys

Lake	Balsam						Cameron	Sturgeon		Pigeon		Buckhorn		Chemung		Rice		Scugog			Dalrymple	Four Mile	Sandy	Belmont	Crowe	FMZ 17 Average	SR Average
Year Sampled	1998	2001	2002	2003	2004	2005	2001	2001	2006	2000	2004	2000	2004	2000	2004	1999	2003	2006	2002	2006	1999	2001	2001	1999	1999		
Arithmetic Mean Catch (#/net)	1.69	2.61	2.61	3.45	3.75	2.07	0.92	0.82	1.50	0.90	1.0	1.14	0.96	1.21	1.6	31.30	12.44	15.54	6.52	4.32	2.33	4.71	8.00	0.56	1.63	**4.54**	**3.91**
Geometric Mean Catch (#/net)	1.21	1.68	1.79	2.06	3.01	1.48	0.67	0.48	1.19	0.64	0.68	0.80	0.78	0.88	1.19	27.73	9.91	12.08	5.42	3.60	1.79	3.01	6.84	0.38	1.29	**3.62**	**2.80**
Geometric Mean Catch < 300 mm (#/net)	0.59	0.57	0.92	1.19	1.11	0.18	0.36	0.30	0.48	0.16	0.52	0.03	0.15	0.08	0.27	0.88	0.50	0.46	3.73	1.72	0.58	0.28	4.51	0.19	0.27	**0.80**	**0.70**
Geometric Mean Catch ≥ 350 mm (#/net)	0.49	0.60	0.79	0.68	0.84	0.80	0.14	0.15	0.33	0.37	0.15	0.70	0.57	0.54	0.60	22.12	9.07	4.69	1.34	0.66	0.81	2.13	1.22	0.12	0.58	**2.02**	**1.62**
Geometric Mean Catch ≥ 450 mm (#/net)	0.20	0.34	0.61	0.44	0.62	0.29	0.03	0.21	0.12	0.19	0.07	0.31	0.43	0.22	0.4	8.06	5.87	2.88	0.21	0.13	0.36	1.49	0.26	0.08	0.17	**0.96**	**1.00**
Maximum Age	20	13	14	18	13	16	7	13	NA	11	13	9	17	10	15	12	14	NA	11	NA	11	16	10	7	8	**14**	**12**
Number of Age Classes	8	11	14	12	11	11	4	8	NA	9	6	5	14	6	10	11	14	NA	10	NA	7	9	5	3	6	**10**	**6**
Spawner Diversity Index	0.58	0.85	1.42	1.56	1.59	1.00	NA	0.30	NA	0.70	0.0	0.42	0.69	0.75	0.69	0.72	1.36	NA	1.28	NA	0.51	0.41	0.30	0.00	0.58	**1.04**	**0.49**
Mean Total Length (mm)	326	351	329	281	329	374	296	286	321	402	286	408	443	396	402	409	461	395	269	286	328	412	289	298	359	**349**	**406**
Mean Weight (g)	430	524	507	342	453	562	253	288	360	741	356	657	1014	582	730	736	1083	712	229	247	450	710	277	323	526	**524**	**877**
Mean Age (years)	2.8	3.5	3.0	2.3	3.0	3.4	2.3	2.5	NA	5.1	2.7	4.6	6.7	4.2	5.2	3.4	4.9	NA	1.3	NA	NA	NA	1.5	2.1	3.2	**2.9**	**3.3**
Length-at-50% Maturity$_{Female*}$		450				470	NA	NA	435	439	443	404	419	406	450	472	478	497	466	445	410	NA	NA	NA	NA	**460**	**444**
Age-at-50% Maturity$_{Female*}$		4.5				4.7	NA	NA	NA	4.8	5.0	4.9	4.4	3.9	4.3	3.9	4.4	NA	3.9	NA	2.9	NA	NA	NA	NA	**4.6**	**3.6**
Length-at-50% Maturity$_{Male*}$	353	343				338	NA	NA	359	NA	450	353	328	360	367	321	378	370	329	349	316	NA	336	NA	NA	**353**	**338**
Age-at-50% Maturity$_{Male*}$	2.9	2.2				2.6	NA	NA	NA	NA	2.5	2.9	2.5	4.9	3.3	1.4	1.7	NA	2.2	NA	1.3	NA	1.6	NA	NA	**2.6**	**2.2**

NA = Insufficient sample size to calculate, or ageing data not available

*logit analysis performed on pooled samples for Balsam (1998-2005), and Buckhorn, Chemung, Pigeon (2000, 2004).

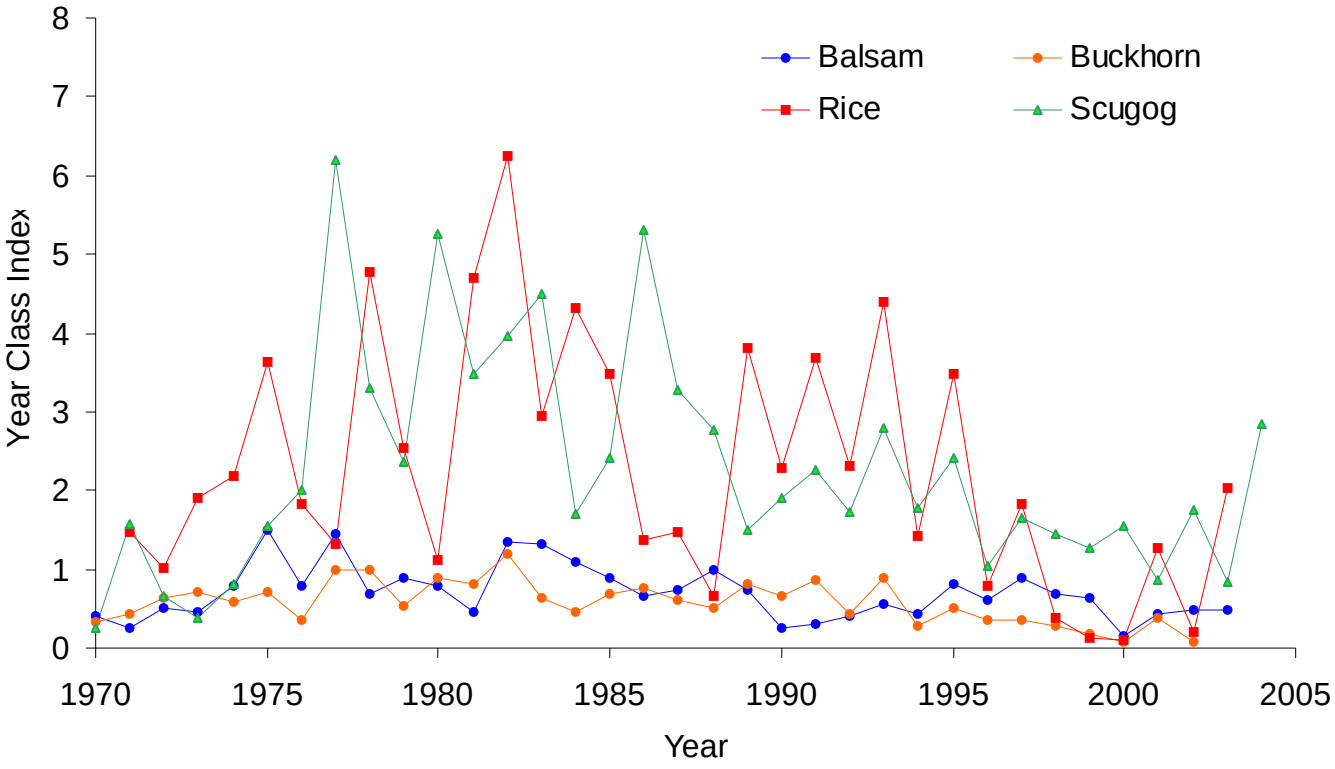


Figure 8: Year Class Index (YCI) values based on netting surveys conducted by the Kawartha Lakes Fisheries Assessment Unit.

For the period of 1980-2003, a decline in the abundance of walleye was observed on Rice, Balsam, Scugog and Buckhorn Lakes, along with a corresponding increase in either largemouth or smallmouth bass. These changes were associated decreases in total phosphorus, and increases in both summer water temperature and water clarity (Robillard and Fox, 2006). Increased water clarity reduces the competitive advantage walleye possess over other species in turbid water conditions, and potentially increase predation on young-of-year walleye. Declines in walleye abundance may be attributable to the reduction of strong year classes (Rutherford et al., 1999). Although assessed only on four lakes, it is highly likely that similar trends in walleye abundance have occurred on the majority of waters in FMZ 17, based on qualitative information from anglers and the assessment information available. These environmentally induced declines are compounded by the direct removal of adult walleye from the population via angler harvest. Ultimately, walleye have lost their dominant role as a top predator. The impacts to the walleye population are further compounded as small fishes, most notably yellow perch, are relieved from the 'cultivation effects' of predation by adult walleye, therefore increasing predatory pressures on juvenile walleye (Walters and Kitchell, 2001). The increased competition and predation, coupled with reductions on year class strength likely limit the effectiveness of management actions and ultimately the productive capacity of the walleye fishery.

The observed yield from the walleye fishery, based on harvest rates from angler creel surveys highlights the magnitude of the decline in walleye productivity. Historical harvest rates exceeded MSY estimates using both a partitioning of the MEI (32 %) and the thermal optical habitat area on all lakes with the exception of Lake Scugog (Table 6). On Rice Lake in the late 1970s, MSY was exceeded by more than 150 %. However, harvest rates have declined to below MSY values since the 1980s, but subsequent increases in population size have not been observed. A more conservative estimate of MSY is to use the lower 95 % confidence interval for the thermal optical habitat model. These values are being exceeded by current harvest on Lake Scugog and Rice Lake, and were exceeded until the late 1990s on Pigeon, Chemung, Buckhorn and Balsam Lakes. Collectively, these data suggest that historical harvest may have contributed to declines in walleye populations, however current angler harvest is not the only limiting factor on the populations. As mentioned previously, changes to both the physical habitat and changes to the structure of the fish communities are likely playing a significant role.

Yellow perch populations are assessed as part of the FWIN program and were present in all of the FWIN surveys in FMZ 17, although the catch rate among lakes was variable. Fifty percent of the FWIN surveys had CUE between 3.7 and 17.0 fish/net. The variation in the average size of the catch was limited among lakes, with fifty percent of surveys having a mean size between 14 and 16 cm (Figure 9). Comparison across individual lake surveys indicated yellow perch CUE was highest on Rice Lake by a wide margin, more than double the catch rate on Buckhorn and Chemung Lake FWIN surveys, and an order of magnitude higher than the catch rates from many of the other lakes. Catch rates were the lowest in the Cameron and Belmont Lake surveys. Although catch rates were only moderate (4-9 fish/net) on Balsam Lake, the CUE of perch exceeding 20 cm was highest. The number of age classes in FWIN surveys ranged from 5 to 13, with the oldest perch sampled at 15 years old (Buckhorn, 2004). Perch ranging from age-1 to age-5 were present in all surveys, indicating successful and consistent recruitment. Perch beyond age-6 were not sampled in Lake Scugog, suggesting lower survival of adult perch than other lakes.

Across FMZ 17, perch populations are abundant, and are likely the primary forage species for many predators, and walleye in particular. The abundance of large perch (>20cm) is generally low, suggesting angling opportunities for large perch are limited to selected lakes, primarily Balsam Lake.

Table 6: Comparison of observed walleye yield based on harvest estimates from creel surveys to potential Maximum Sustained Yield (MSY) as a partition (32%) of MEI and based on thermal optical habitat area (Lester et al., 2004). Red text indicates harvest exceeded MSY estimate.

Lake	Year	Harvest (#)	Observed Yield (kg/ha)	Potential MSY (kg/ha)		Percent of MSY Harvested	
				MEI	TOHA	MEI	TOHA
Balsam	1978	10,240	1.95	1.54	1.66	127	117
	1982	11,919	1.61	1.54	1.66	105	97
	1986	7,678	1.05	1.54	1.66	68	63
	1990	6,319	0.85	1.54	1.66	55	51
	1994	3,002	0.39	1.54	1.66	25	23
	1999	3,336	0.45	1.54	1.59	29	28
	2001	1,027	0.15	1.54	1.59	10	9
	2002	724	0.09	1.54	1.59	6	6
	2003	206	0.04	1.54	1.59	3	3
Rice	1979	86,234	5.33	2.61	3.06	204	174
	1983	77,671	4.76	2.61	3.06	182	156
	1987	37,743	2.10	2.61	3.06	80	69
	1991	41,035	2.78	2.61	3.06	107	91
	1995	37,445	2.08	2.61	2.56	80	81
	2000	33,676	2.20	2.61	2.56	84	86
Scugog	1977	**24,876**	**2.33**	3.34	3.28	70	71
	1980	**14,782**	**1.40**	3.34	3.28	42	43
	1984	10,609	1.07	3.34	3.28	32	33
	1988	23,646	2.40	3.34	3.28	72	73
	1993	**15,760**	**1.64**	3.34	3.28	49	50
	1998	**24,444**	**2.31**	3.34	3.28	69	71
	2003	20,628	1.92	3.34	3.28	58	59
bold text indicates estimates (average or off-year winter creels)							
Pigeon	1981	24,086	2.75	2.36	2.54	117	108
	1983	13,926	1.86	2.36	2.54	79	73
	1985	24,509	2.42	2.36	2.54	103	95
	1989	19,042	2.30	2.36	2.54	98	91
	1992	7,128	1.56	2.36	2.54	66	61
	1997	12,771	1.59	2.36	1.86	67	85
	2001	5,393	0.69	2.36	1.86	29	37
	2005	2,977	0.40	2.36	1.86	17	22
Buckhorn	1981	11,897	2.65	2.78	2.41	95	110
	1990	6,805	1.25	2.78	2.41	45	52
	1992	8,214	2.06	2.78	2.41	74	85
	1997	9,199	1.94	2.78	1.05	70	185
	2001	1,477	0.39	2.78	1.05	14	37
	2005	1,238	0.28	2.78	1.05	10	27
Chemung	1981	13,506	3.45	2.86	2.52	121	137
	1990	7,145	1.51	2.86	2.52	53	60
	1992	4,390	1.11	2.86	2.52	39	44
	1997	9,440	1.72	2.86	2.43	60	71
	2001	3,045	0.97	2.86	2.43	34	40
	2005	1,829	0.63	2.86	2.43	22	26

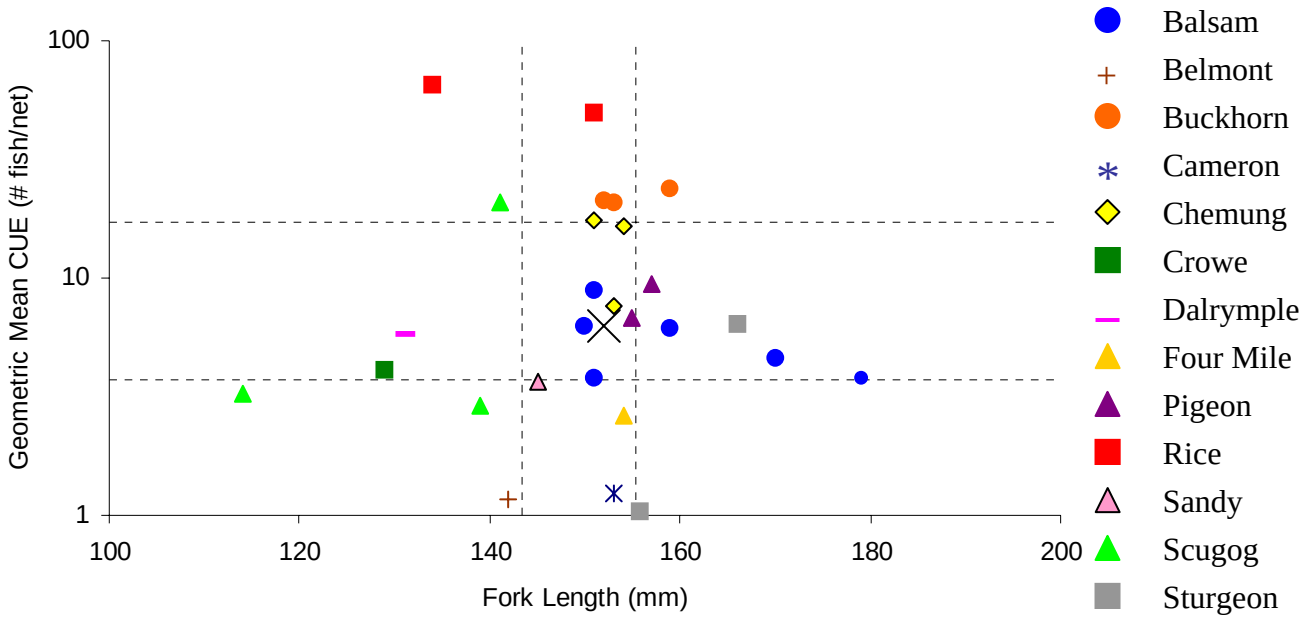


Figure 9: Relationship between mean fork length (mm) and geometric mean catch rate for yellow perch caught in FWIN surveys conducted on lakes in FMZ 17. Dashed lines represent 25th and 75th percentiles, X represents median values.

CENTRARCHID COMMUNITY - SMALLMOUTH BASS, LARGEMOUTH BASS, BLACK CRAPPIE, PUMPKINSEED AND BLUEGILL SUNFISH

Smallmouth bass were present in all NSCIN surveys in FMZ 17. Fifty percent of the NSCIN surveys had CUE between 1.9 and 5.8 fish/net and mean size between 26 and 29 cm (Figure 10). Comparison across individual lake surveys indicated smallmouth bass had high CUE in Balsam and Sturgeon Lakes, and low abundance in Chemung Lake and Lake Scugog, and that smallmouth bass were largest in Rice Lake and smallest in Lake Scugog. Smallmouth bass between the ages of 1 and 10 were sampled in most surveys, with the oldest bass of 13 years sampled in Balsam, Buckhorn and Rice Lakes. Between 9 and 13 age-classes were sampled in the NSCIN surveys, indicative of consistent successful reproduction.

The catch of smallmouth bass in NSCIN surveys was predominantly greater than 25 cm. Fifty percent of the fish caught in all NSCIN surveys were 20-30 cm and 10 % were greater than 40 cm. The median CUE was 4.0 (fish/net) and the median size was 276 mm (FL). The CUE for fish greater than 40 cm was highest on Rice Lake (1.2 - 2.2 fish/net) and lowest on Buckhorn, Canal and Scugog Lakes (0.1 fish/net). Male smallmouth bass mature at age-2, or approximately 20-24 cm (FL), which is between 1 and 2 years earlier than female smallmouth bass, which mature at age-3 or 4 (20-26 cm FL).

The catch rate of smallmouth bass in SIN surveys increased over the period 1980 to 1999 in Balsam and Rice Lakes but remained unchanged in Buckhorn and Scugog Lakes (Figure 11). The average catch rate in ESTN was higher on Rice and Balsam Lakes (21.1 and 6.9 fish/net) than on Lake Scugog and Buckhorn Lake (2.0 and 2.2 fish/net respectively).

Largemouth bass were present in all of the lakes sampled in the NSCIN program, and were sampled in the highest abundance in the Buckhorn Lake 2005 and Rice Lake 2004 surveys and in the lowest abundance in the Lake Scugog 2003 and Balsam Lake 2002 surveys. The age distribution of the catch shows good representation of fish from age-1 to age-12 in most of the surveys, with age-2 and age-3 fish making up the largest portion of the catch. The oldest largemouth bass was sampled in the Rice Lake 2000 survey at 14 years of age. The age composition of the largemouth bass surveys included 9 to 13 age-classes, indicative of consistent successful reproduction.

The median CUE of largemouth bass among surveys was 2.2 (fish/net) and the median size was 269 mm (FL). Fifty percent of the fish caught in all NSCIN surveys were 20-30 cm and 10 % were greater than 40 cm (Table 7). Fifty percent of the NSCIN surveys had a CUE between 1.7 and 7.6 fish/net and mean size between 26 and 30 cm (Figure 12). Comparison across individual lake surveys indicated largemouth bass were most abundant in Rice, Buckhorn and Pigeon Lakes and least abundant in Lake Scugog and Head Lake. The average size of largemouth bass varied largely among lakes and surveys, but was generally lowest on Balsam and Dalrymple Lakes. The CUE for fish greater than 40 cm was highest on Rice and Buckhorn Lake (0.6 fish/net) and lowest on Head Lake (less than 0.1 fish/net). Age at maturity for largemouth bass is similar between males and females, with 50 % maturity at age-3 and 100 % maturity by age-4 for both, corresponding to a size of 22-26 cm (FL).

The catch rate of largemouth bass increased over the period 1980 to 1999 in Balsam and Buckhorn Lakes but remained unchanged in Rice Lake and Lake Scugog (Figure 13). The average catch rate in ESTN was lowest on Scugog (1.7 fish/net), intermediate on Balsam and Buckhorn Lakes (4.7 and 4.8 fish/net respectively), and highest on Rice Lake (18.2 fish/net).

In addition to the standardized sampling conducted by the KLFAU, a research project examining the population ecology of largemouth bass in the Trilakes (Chemung, Buckhorn and Pigeon Lakes) was also completed, with the support of MNR Aquatic Research and Development Branch (Roberge, 2004). The study sampled bass angled during competitive fishing events and looked at fish tagged over a four-year period (1999-2002). Adult largemouth bass (age-4 and older) productivity estimates ranged from 5.1 to 7.4 kg/ha, with estimated adult densities ranging 10 and 15 bass/ha (M. Ridgway, unpublished data). Biomass

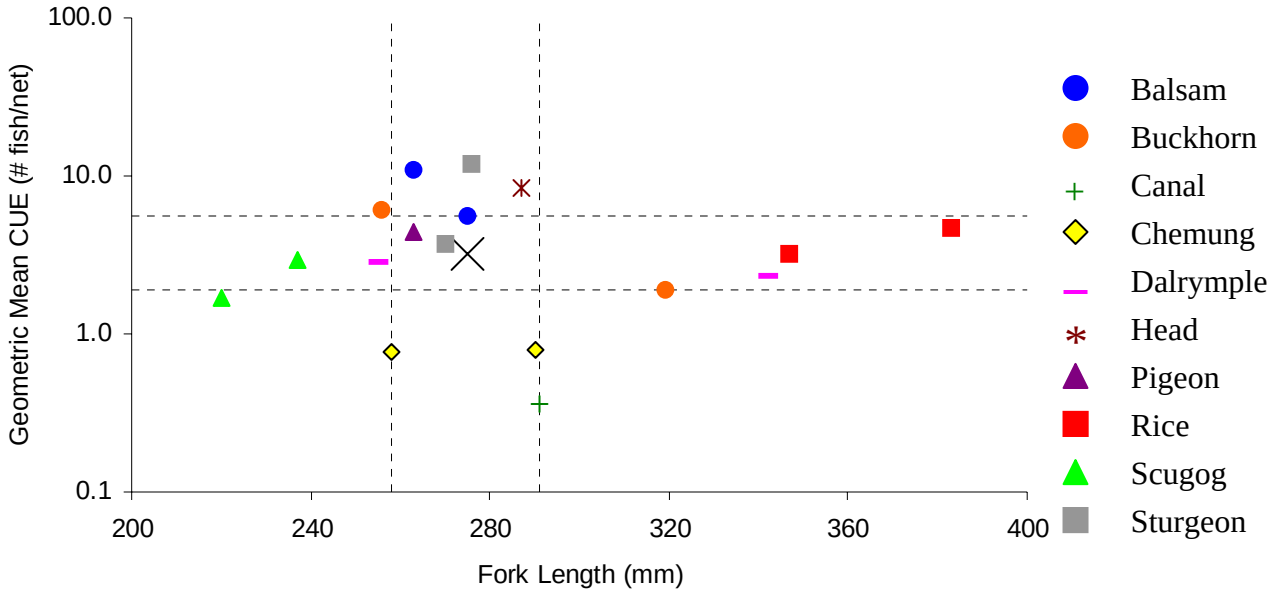


Figure 10: Relationship between mean fork length (mm) and geometric mean catch rate for smallmouth bass caught in NSCIN surveys conducted on lakes in FMZ 17. Dashed lines represent 25th and 75th percentiles, X represents median values.

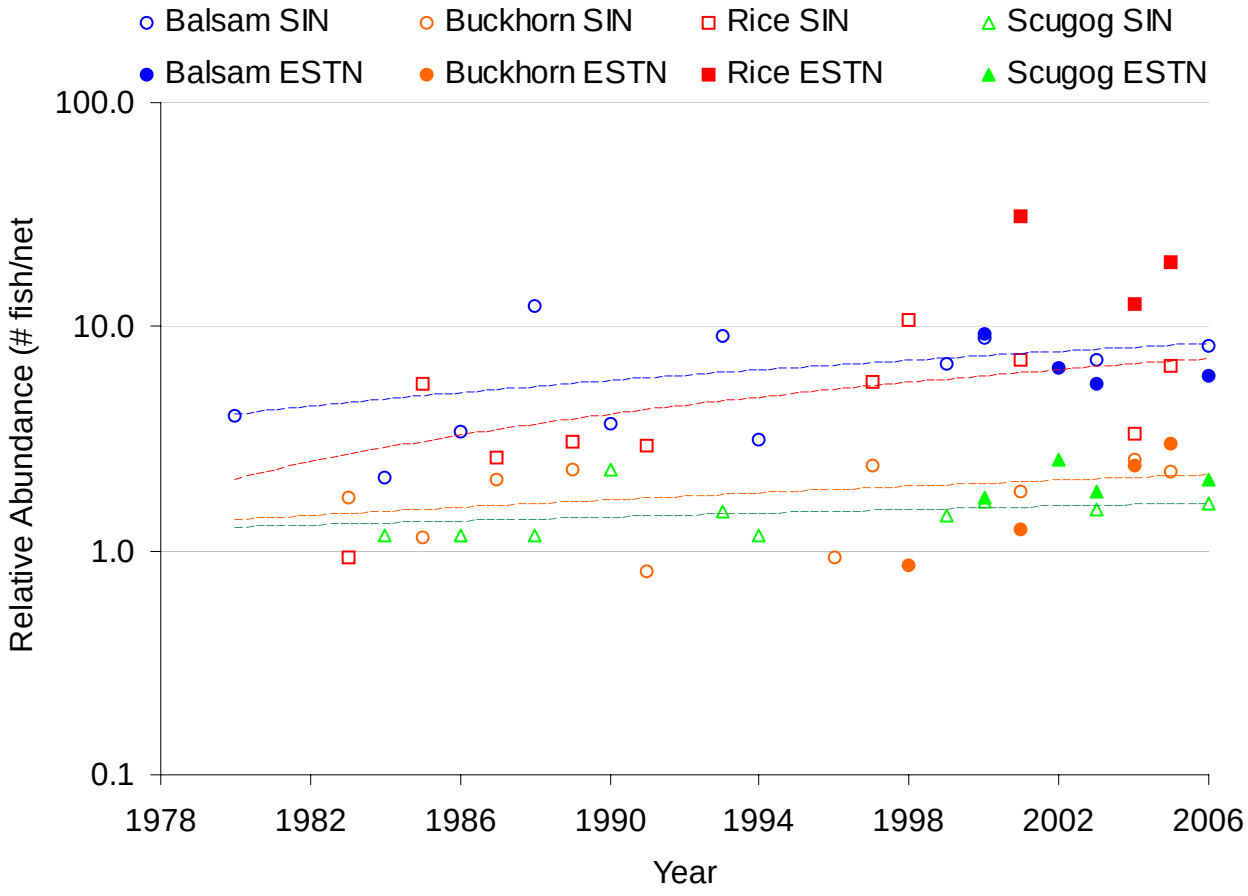


Figure 11: Catch rate of smallmouth bass in Spring Index Netting (SIN) and End of Spring Trap Netting (ESTN) surveys conducted on four Kawartha Lakes

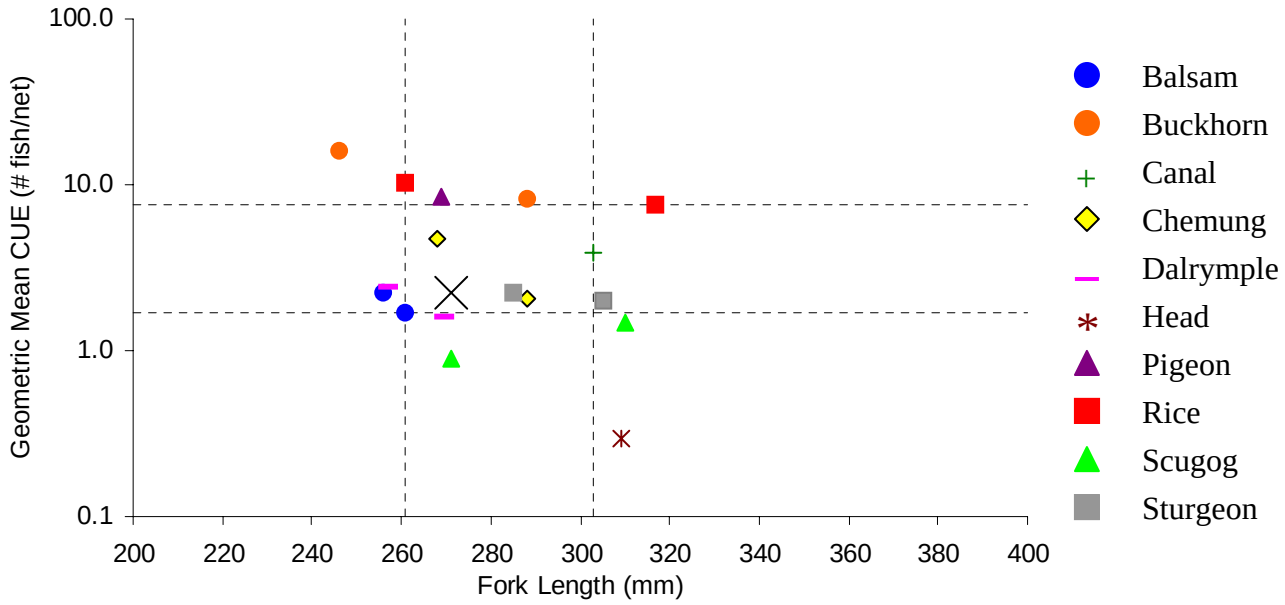


Figure 12: Relationship between mean fork length (mm) and geometric mean catch rate for largemouth bass caught in NSCIN surveys conducted on lakes in FMZ 17. Dashed lines represent 25th and 75th percentiles, X represents median values.

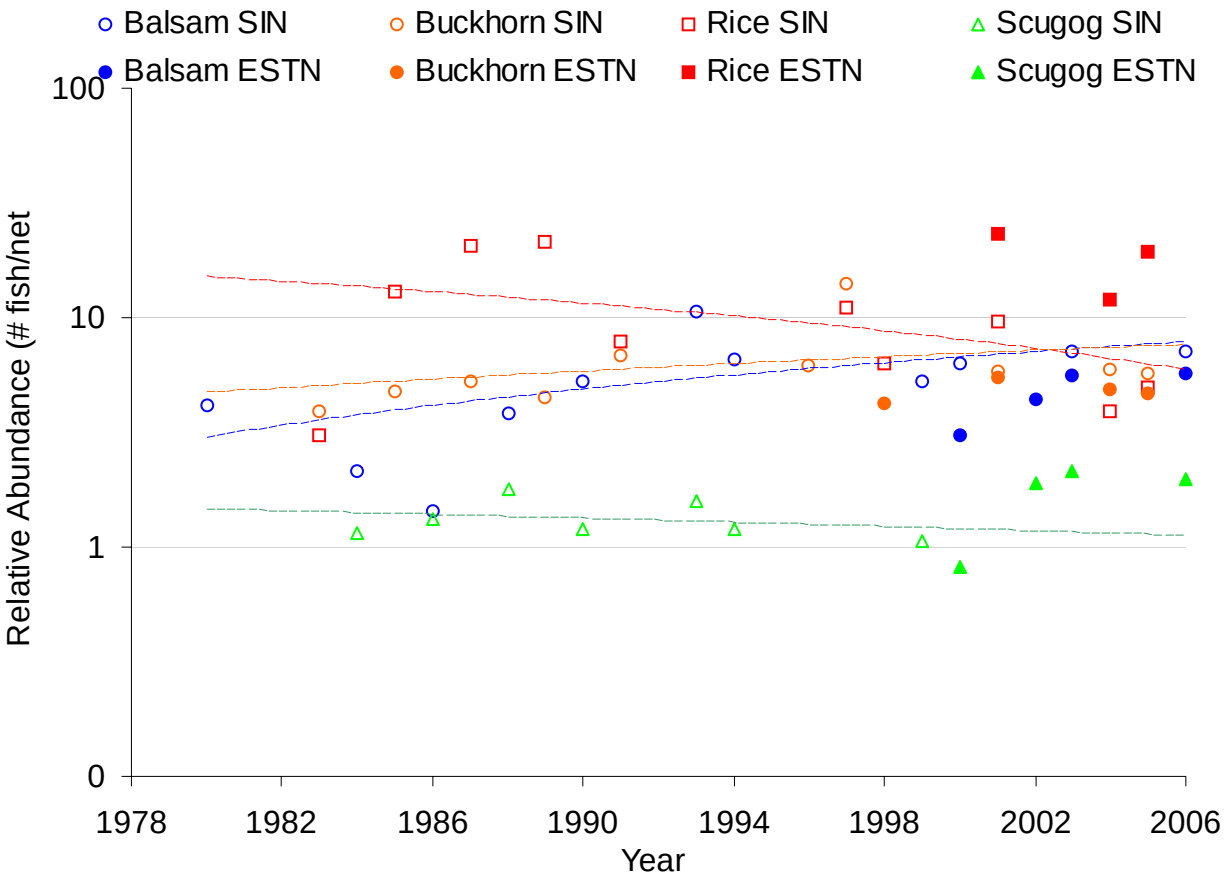


Figure 13: Catch rate of largemouth bass in Spring Index Netting (SIN) and End of Spring Trap Netting (ESTN) surveys conducted on four Kawartha Lakes

Table 7: Characteristics of catch from Nearshore Community Index Netting (NSCIN) surveys in FMZ 17. Values in bold text represent the minimum and maximum values for each lake

		Smallmouth Bass			Largemouth Bass			Muskellunge			Pumpkinseed			Bluegill			Black Crappie		
		Catch per Unit Effort (fish/net)		Mean Fork Length (mm)	Catch per Unit Effort (fish/net)		Mean Fork Length (mm)	Catch per Unit Effort (fish/net)		Mean Fork Length (mm)	Catch per Unit Effort (fish/net)		Mean Fork Length (mm)	Catch per Unit Effort (fish/net)		Mean Fork Length (mm)	Catch per Unit Effort (fish/net)		Mean Fork Length (mm)
Lake	Survey Year	Total	>40 cm		Total	>40 cm		Total	>90 cm		Total	>18 cm		Total	>18 cm		Total	>25 cm	
Balsam	2002	10.8	0.8	263	1.7	0.1	261	0.2	0.08	844	5.6	2	173	31.9	6.4	163	2.9	1.0	**236**
	2006	5.6	0.5	275	2.2	0.1	256	0.12	0.06	846	2	1.1	**174**	14.3	9.9	**172**	18.4	4.7	214
Buckhorn	2001	1.9	0.5	319	8.2	**0.6**	288	0.046	0.07	790	15.1	0.3	153	114.1	3.2	145	13.8	0.9	215
	2005	6.2	0.7	256	**16.1**	0.4	246	0.44	0.18	872	21.2	0.2	150	251.1	1.3	145	19.5	0.6	198
Chemung	2005	0.8	0.2	290	4.8	0.3	268	0.21	0.12	890	6.4	0.3	154	80.5	1.0	148	14.2	0.4	194
	2006	0.8	0.2	258	2	0.2	288	0.03	**0**	830	14.7	**0.1**	154	75.6	**0.1**	156	**112**	0.3	206
Pigeon	2005	4.4	0.2	263	8.4	0.5	269	0.44	**0.19**	910	5.7	0.3	157	129.6	13.1	163	45.8	1.6	207
Rice	2000	4.7	**2.2**	**383**	7.6	**0.6**		0.02	0.02	905	67.8	**7.5**	160	**266.7**	**22.3**	159	51.1	1.0	193
	2004	3.2	1.2	347	10.3	0.2	261	0.02	0.02	**1072**	**70**	1.4	151	216.2	5.1	147	34.9	0.4	**149**
Scugog	2003	3	0.3	237	1.5	0.2	**310**	0.31	0.09	826	9	**0.1**	**138**	163.1	6.2	**139**	13.7	2.5	195
	2006	1.7	**0.1**	**220**	0.9	0.2	271	0.27	0.13	918	1.6	0.2	156	15.5	1.5	154	14.7	1.1	177
Sturgeon	2004	**11.8**	0.4	276	2.2	0.1	285	0.21	0.04	**757**	4.8	0.9	153	31.7	3.8	165	**0.9**	0.5	224
	2005	3.7	0.2	270	2		305	0.25	0.09	881	4.6	1	168	**12.6**	4.7	170	2.2	0.8	234
Canal	2002	**0.4**	**0.1**	291	3.9	0.2	303	**0**	**0**	--	9.1	0.3	150	77.6	1.7	146	20.9	0.6	179
Dalrymple	1994	2.3	**0.1**	342	1.6	0.1	**240**	**0**	**0**	--	14.5	3.2	157	--		--	1.2	0.1	205
Dalrymple	1995	2.8	0.3	255	2.5	0.3	256	0.04	**0**	840	6.3	1.6	155	--		--	4.6	2.0	222
Head	2004	8.4	0.2	287	**0.3**	**<0.1**	256	**0.53**	0.07	800	**0.1**	0.6	--	--		--	--	--	--
FMZ 17 Median		3.2	0.3	275.0	2.2	0.2	268.5	0.2	0.1	846.0	6.4	0.6	154.5	79.1	4.3	155.0	14.5		205.5

estimates of legal tournament largemouth bass (greater than 300 mm) in the Trilakes compare favourably with other published biomass estimates (Table 8). The oldest largemouth bass aged in this study was 17 years old. Approximately 20 % of the overall bass angling effort and harvest was attributed to competitive fishing events when comparing tournament mortality (pre and post release) to the recreational creel survey.

The trends in the abundance and size distribution of largemouth and smallmouth bass are best explained by the ecology of each species, and the habitat present in each lake. Some lakes, such as Rice and Pigeon Lakes, provide diverse habitat and are able to support abundant populations of both species. Other lakes, such as Balsam Lake offer limited habitat for largemouth bass but are able to support healthy and abundant smallmouth bass populations. At the other end of the spectrum, lakes such as Chemung and Scugog Lakes provide a greater amount of shallow, vegetated largemouth bass habitat while rocky, smallmouth bass habitat is less abundant. Changes in the water clarity, climate change and shifts in the predator community have also increased the productive capacity of many of the lakes in FMZ 17 for visual predators such as bass. Overall, bass populations in the majority of FMZ 17 should be considered healthy.

Table 8: Comparison of the biomass (kg/ha) of largemouth bass in the Trilakes with other published estimates (from Roberge 2004)

Lake Name	Lake Size (ha)	Study Years	Range of Biomass Estimate (kg/ha)	Source
Ronkonma, New York	93	1978-1980	1.0 - 7.8	Green et al. (1986)
Chautauqua, New York	5,442	1977-1979	2.3 - 4.0	Green et al. (1986)
Ballston, New York	112	1978-1980	10.8 - 13.0	Green et al. (1986)
Candargo, New York	814	1977-1979	0.2 - 0.3	Green et al. (1986)
Trilakes, Ontario	10,820	1999-2002	3.8 – 5.1	Roberge (2004)

NSCIN catches of black crappie were predominantly greater than 11 cm, which represents fish age-2 and older. The median CUE was 14.0 (fish/net) and the median size was 206 mm (FL). Fifty percent of the NSCIN surveys had CUE between 4.2 and 19.8 fish/net and mean size between 194 and 217 mm (Figure 14). Black crappie catch per unit effort (CUE) in the NSCIN surveys was highest on Pigeon and Rice Lakes, and lowest on Balsam Lake. The largest average size was observed on Balsam and Sturgeon Lakes, the smallest on Rice Lake and Lake Scugog. The age distribution peaked at age-3 in most surveys, but was as low as age-1 in the Lake Scugog 2003 and Rice Lake 2004 NSCIN surveys. Consistent year classes are observed on all lakes, with fish as old as nine being sampled in the NSCIN surveys. Male black crappie mature at age-2, and reach 50 % maturity at a size of 12 cm, with 100 % of the male population mature at a size of 14 cm (FL).

Females mature at a larger size (14 and 18 cm (FL) for 50 % and 100 % maturity) and are mature by age-3.

Black crappie were first collected in KLFAU sampling programs on Rice Lake in 1985, and it was more than 10 years before they were sampled in another FAU Lake (Buckhorn Lake, 1996). By 1999, they were sampled in both Lake Scugog and Balsam Lake (Figure 15). Since that time, populations have increased in abundance rapidly, and spread into the majority of lakes in the area.

Pumpkinseed sunfish were sampled in each NSCIN survey in FMZ 17, and were predominantly greater than 11 cm. The median CUE was 16.1 (fish/net) and the median size was 156 mm (FL). Fifty percent of the NSCIN surveys had CUE between 5.4 and 14.8 fish/net and mean size between 152 and 157 mm (Figure 16). Pumpkinseed sunfish CUE was highest on Rice Lake, a full order of magnitude higher than the other lakes with the exception of Buckhorn Lake. The catch rates were lowest, but average size the largest, on Balsam and Sturgeon Lakes, with the smallest average size in Lake Scugog. The CUE for fish greater than 18 cm was highest on Rice Lake. The pumpkinseed age composition in NSCIN surveys shows consistent recruitment, with between six and seven age-classes present in each survey. Male pumpkinseeds show a high level of variation on their maturity schedules. 50 % of the population is mature at age-2 (12cm FL), however 100 % maturity does not occur until age-5 (18cm FL). 50 % of females are mature at 11 cm (FL), with full maturity at a fork length of 18 cm (age-4).

The catch rate of pumpkinseed decreased on Buckhorn Lake over the period 1980 to 1999 and remained unchanged on Balsam, Rice, and Scugog (Figure 17). The average catch rate in ESTN was lowest on Balsam (3.7 fish/net), intermediate on Scugog (17.0 fish/net) and Rice (26.2 fish/net), and highest on Buckhorn (42.8 fish/net).

Bluegill were common throughout FMZ 17, with the exception of lakes not connected to the Trent-Severn Waterway. Bluegill invaded from the Trent River and have established large populations that provide the base for an economically important, primarily non-resident (U.S.) sport fishery. Seventy-five percent of the bluegill caught in all NSCIN surveys were between 13-17 cm and 11 % were greater than 18 cm. The median CUE was 79 fish/net, and the median size was 155 mm (FL). Fifty percent of the NSCIN surveys had CUE between 32 and 155 fish/net and mean size between 155 and 163 mm (Figure 18). Comparisons between individual lake surveys indicate bluegill had high CUE in Rice Lake and low abundance in Sturgeon, Scugog, and Balsam Lakes. Bluegill were largest in Balsam and Sturgeon Lakes and smallest in Lake Scugog. The CUE for fish greater than 18 cm was highest on Rice Lake and lowest on Chemung Lake (see Table 7). The bluegill age composition in NSCIN surveys included 6 to 10 age-classes, indicative of consistent successful reproduction, although fish exceeding age-8 were uncommon in most surveys. The size at maturity is similar among males and females, with 50 % maturity at 12 and 13 cm (FL) respectively, and 100 % maturity at 19 cm (FL)

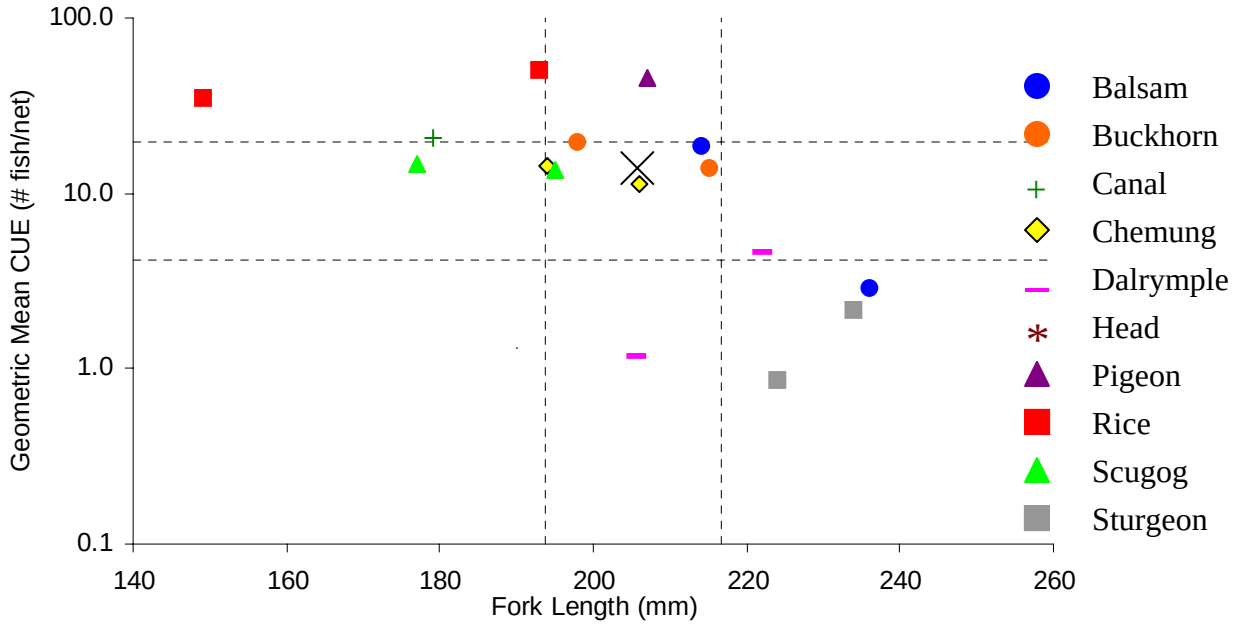


Figure 14: Relationship between mean fork length (mm) and geometric mean catch rate for black crappie caught in NSCIN surveys conducted on lakes in FMZ 17. Dashed lines represent 25th and 75th percentiles, X represents median values.

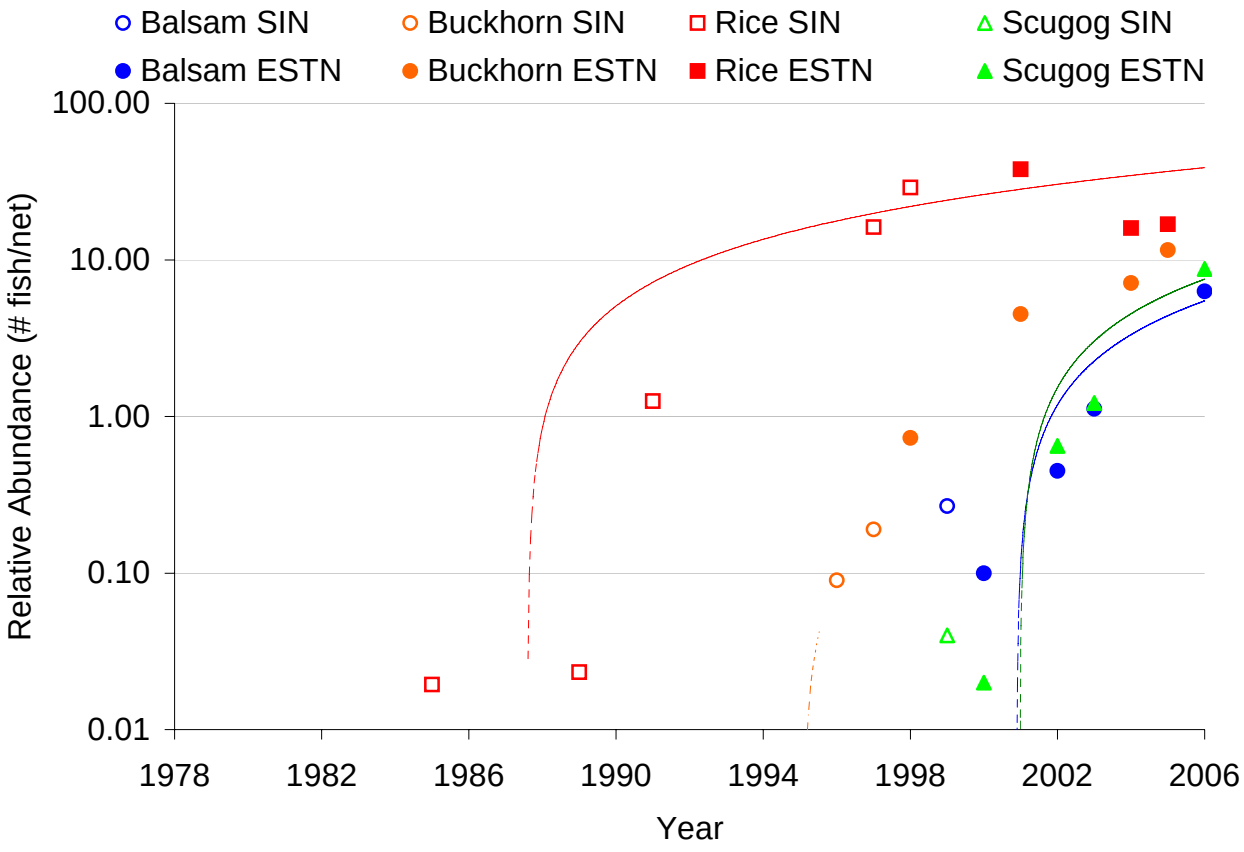


Figure 15: Catch rate of black crappie in Spring Index Netting (SIN) and End of Spring Trap Netting (ESTN) surveys conducted on four Kawartha Lakes

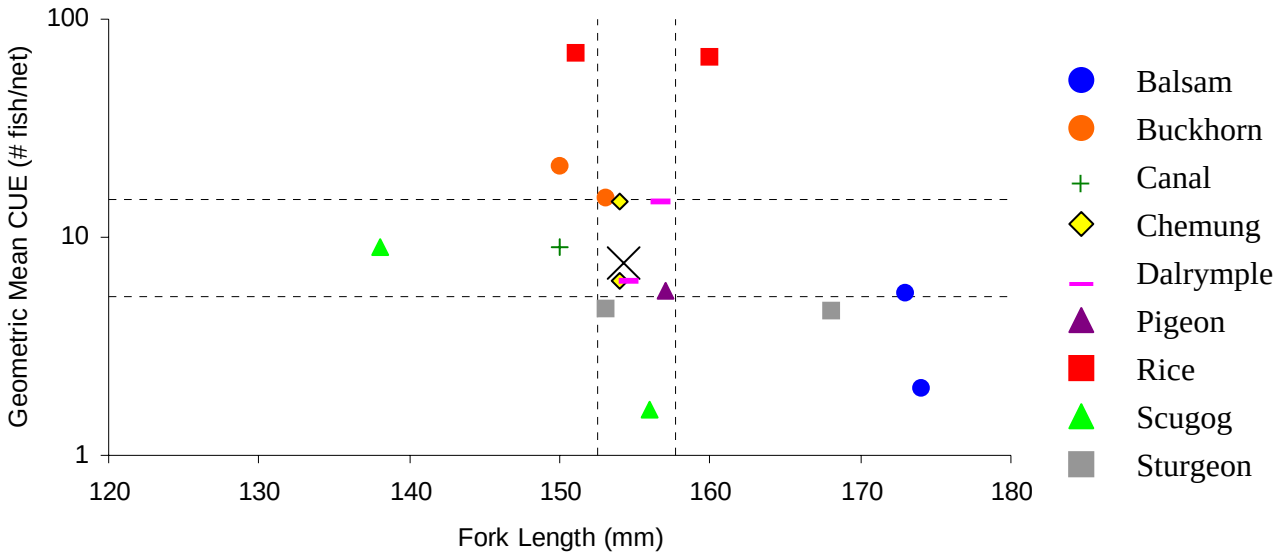


Figure 16: Relationship between mean fork length (mm) and geometric mean catch rate for pumpkinseed sunfish caught in NSCIN surveys conducted on lakes in FMZ 17. Dashed lines represent 25th and 75th percentiles, X represents median values.

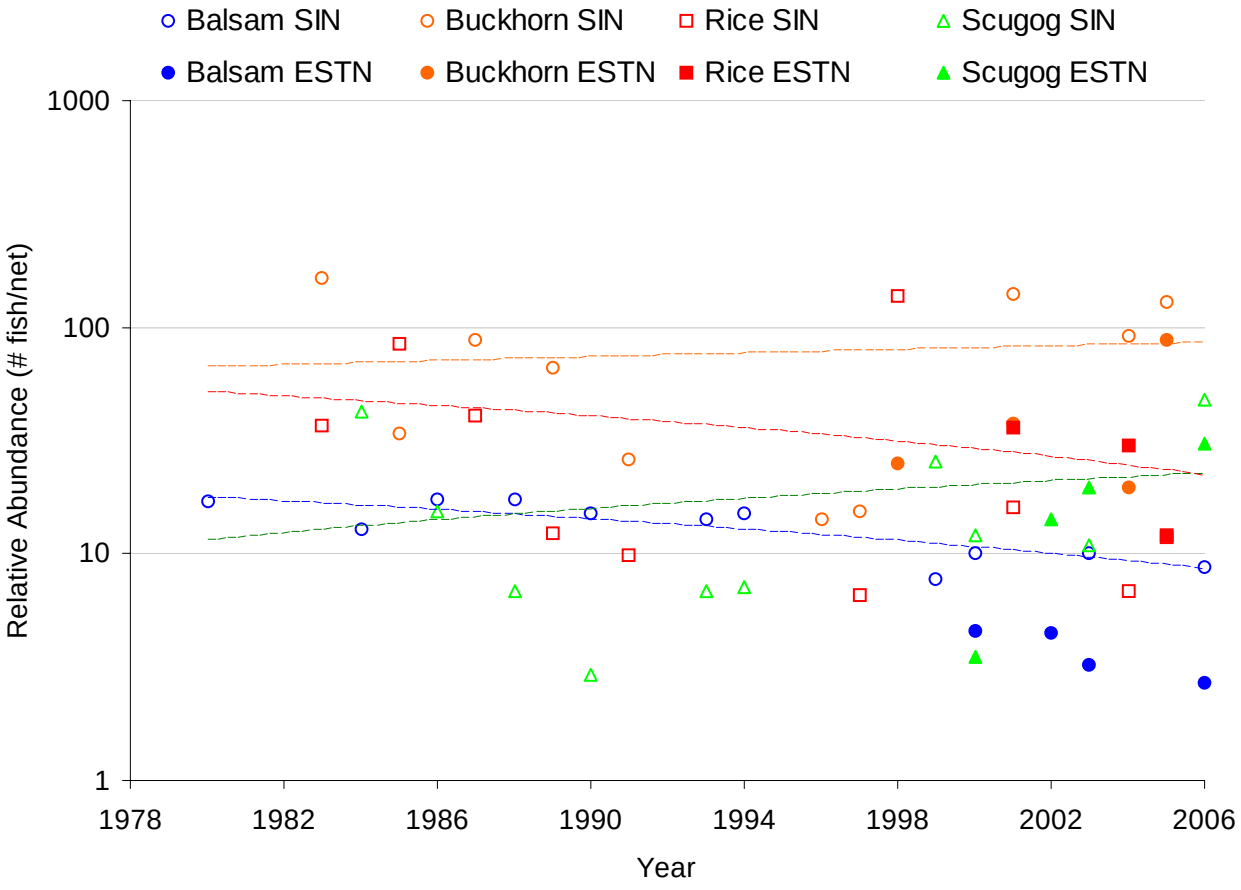


Figure 17: Catch rate of pumpkinseed sunfish in Spring Index Netting (SIN) and End of Spring Trap Netting (ESTN) surveys conducted on four Kawartha Lakes

Bluegill populations became established in the Kawartha Lakes in a progressive manner beginning with Rice Lake in the 1970s. Bluegill were first captured in SIN surveys in 1983 in Buckhorn, in 1990 in Scugog, and in 1993 in Balsam (Figure 19). The average catch rate in ESTN was lowest on Balsam (18.8 fish/net), intermediate on Rice (68.8 fish/net), and highest on Buckhorn (114.4 fish/net) and Scugog (124.1 fish/net).

The abundance and distribution of bluegill, black crappie and pumpkinseed populations may be best explained collectively, as there are likely interspecific relationships at many levels. Both bluegill and black crappie demonstrate the typical abundance trends of an introduced species, where the initial establishment is facilitated by a dramatic increase in population size. In the case of bluegill, there appears to be a stabilization of abundance, however the introduction of black crappie may be recent enough that this stabilization has not yet occurred. These species both compete at various levels with the native pumpkinseed sunfish, which have shown a gradual decline in abundance over the same time period. The inverse relationship between average size and abundance observed in bluegill and black crappie populations is likely an effect of density dependent effects on growth that are common in fish populations, but may also be linked to the timing of the species introductions into the various lakes. When a species is abundant, within species competition limits the resources available at an individual level, thus leading to decreased growth rates.

ESOCID COMMUNITY – NORTHERN PIKE AND MUSKELLUNGE

Northern pike are not present in the majority of waters in FMZ 17, however they are present around the periphery of the Trent River watershed. Self-sustaining populations exist in the Crowe River watershed in the east and Canal Lake in the west. Pike have typically been managed as an invasive species due to concerns relating to potential impacts on existing muskellunge populations, and disruption of the ecosystem dynamics if they become established on the core Kawartha Lakes. Routine index netting and creel surveys have collected single specimens of northern pike and tiger muskies (pike-muskellunge hybrids) on Balsam, Pigeon and Lake Scugog. The 2006 ESTN survey on Balsam Lake sampled two mature female northern pike. Trophy pike opportunities in FMZ 17 are limited, with the largest pike sampled in the Crowe Lake 1999 FWIN survey measuring only 71 cm (~28 inches).

Muskellunge were sampled in NSCIN surveys in the majority of lakes in FMZ 17, but at a much lower level of abundance than other fish species. The median CUE was 0.21 fish/net and the median size was 873 mm. Fifty percent of the NSCIN surveys had CUE between 0.03 and 0.34 fish/net and mean size between 83 and 90 cm (Figure 20). Comparisons between individual lake surveys indicate muskellunge had high CUE in Pigeon, Buckhorn and Head and low abundance in Dalrymple and Rice. Muskellunge were largest on average in Rice Lake and smallest in Sturgeon Lake. The CUE for fish greater than 90 cm was highest on Sturgeon and Pigeon Lakes, and lowest on Rice Lake. The muskellunge age composition in NSCIN surveys included fish between 2 and 13 years of age. The low overall abundance makes interpretation of trends in recruitment difficult.

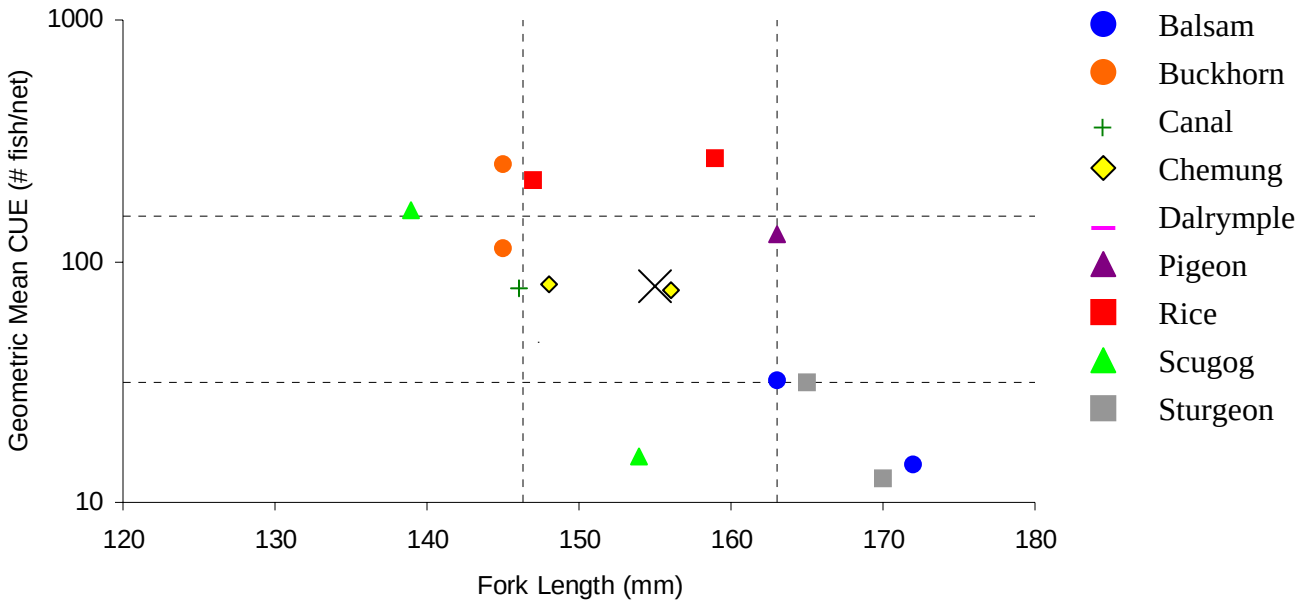


Figure 18: Relationship between mean fork length (mm) and geometric mean catch rate for bluegill sunfish caught in NSCIN surveys conducted on lakes in FMZ 17. Dashed lines represent 25th and 75th percentiles, X represents median values.

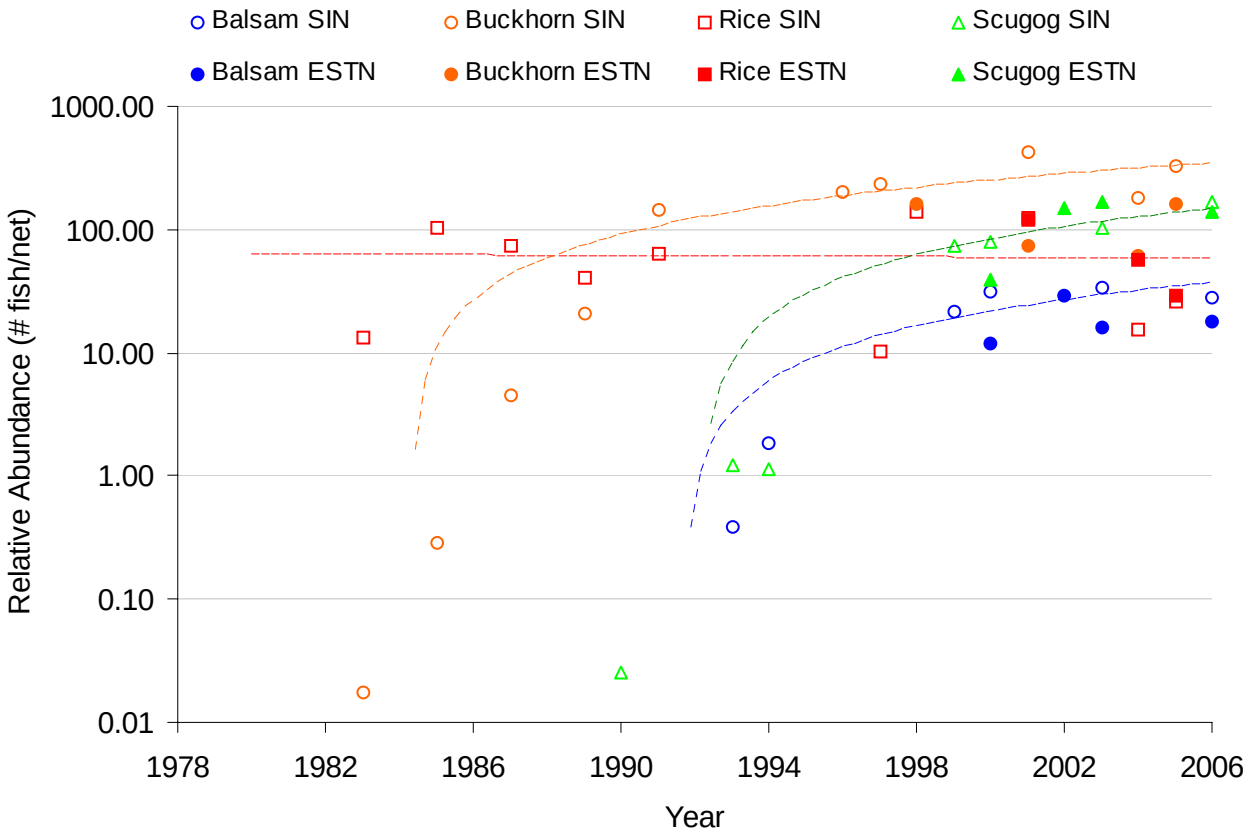


Figure 19: Catch rate of bluegill sunfish in Spring Index Netting (SIN) and End of Spring Trap Netting (ESTN) surveys conducted on four Kawartha Lakes

The catch rate of muskellunge was unchanged in all lakes over the period 1980 to 1999 (Figure 21). The average catch rate in ESTN was lowest on Rice Lake (0.01 fish/net), intermediate on Buckhorn (0.31 fish/net), and highest on Balsam Lake and Lake Scugog (0.50 and 0.62 fish/net respectively). Muskellunge are fully mature by 62 and 64 cm (FL) for males and females, corresponding to age-4 (males) and age-5 (females).

As an apex predator, muskellunge are not as abundant as other fish species, and their size limits their vulnerability to many index netting methods. As a result, catches in trap nets and gill nets are often low, and rarely exceed 30 per netting project. As a result, individual index netting surveys provide limited information on the status of muskellunge populations. Muskies Canada members have participated in the angler diary program since 1979 (Kerr, 2004), providing data from angler catches of muskellunge. The average catch rate by anglers in FMZ 17 (0.16 fish per angler hour) is more than twice the Ontario average (0.07 fish per angler hour), with muskellunge exceeding 114 cm (45 inches) reported on all but one of the 16 lakes angler diary data was available from (Bald Lake, n=8 fish). On eight lakes anglers reported catches of muskie as large as, or exceeding, 127 cm (50 inches). Catch and release rates reported in the angler diary program are extremely high, exceeding 98 % across Ontario (Table 9).

The relatively high density of muskellunge populations in FMZ 17 is likely attributable to the combination of an abundance of suitable habitat and absence of northern pike. Pike and muskellunge compete for both habitat and prey resources, and muskellunge density is typically lower when pike are present. Muskellunge in FMZ 17 have evolved in the absence of pike. However, ultimate body size of FMZ 17 muskellunge is low throughout most of FMZ 17. This may be attributed to the low abundance of high quality, large bodied forage species (Scott and Crossman, 1998; Casselman et al., 1999)). The primary forage species in many FMZ 17 lakes are of sub-optimal value in terms of capture efficiency, size and nutrient values. The largest muskellunge are also associated with much larger systems (e.g. Georgian Bay, St. Lawrence River), which likely provide more complex habitat and forage communities. While muskellunge populations are currently considered healthy, the invasion of northern pike and potential inland spread of VHS represent significant threats to the long-term sustainability.

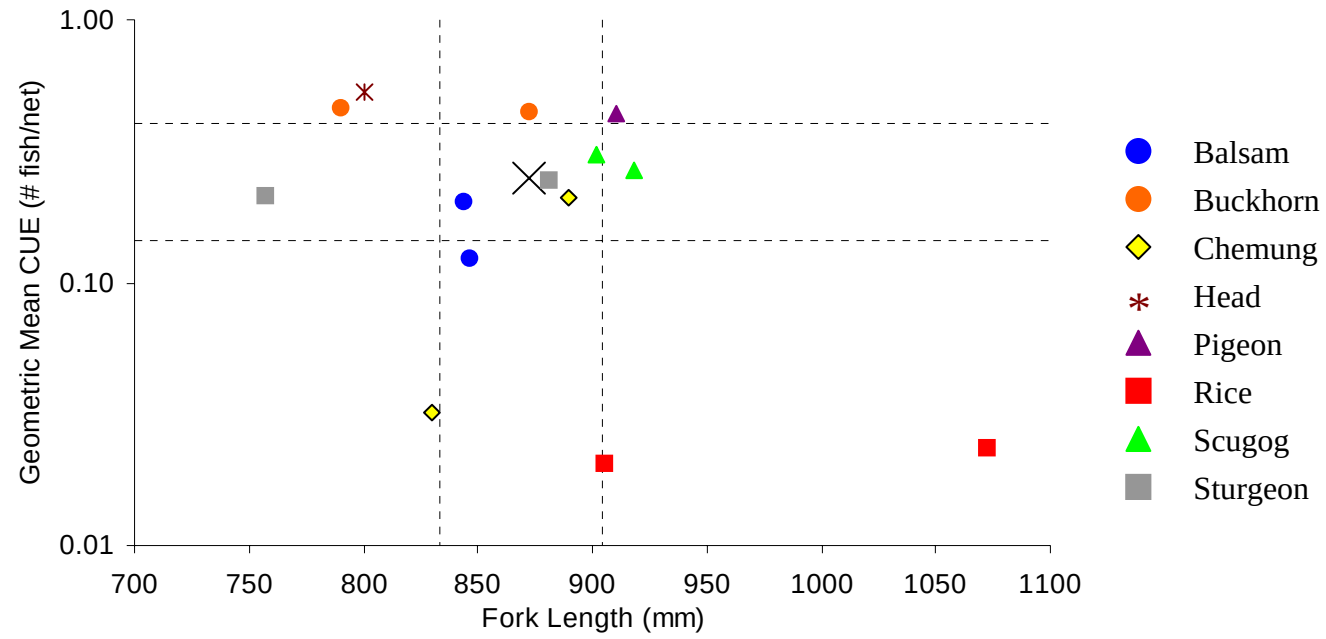


Figure 20: Relationship between mean fork length (mm) and geometric mean catch rate for muskellunge caught in NSCIN surveys conducted on lakes in FMZ 17. Dashed lines represent 25th and 75th percentiles, X represents median values.

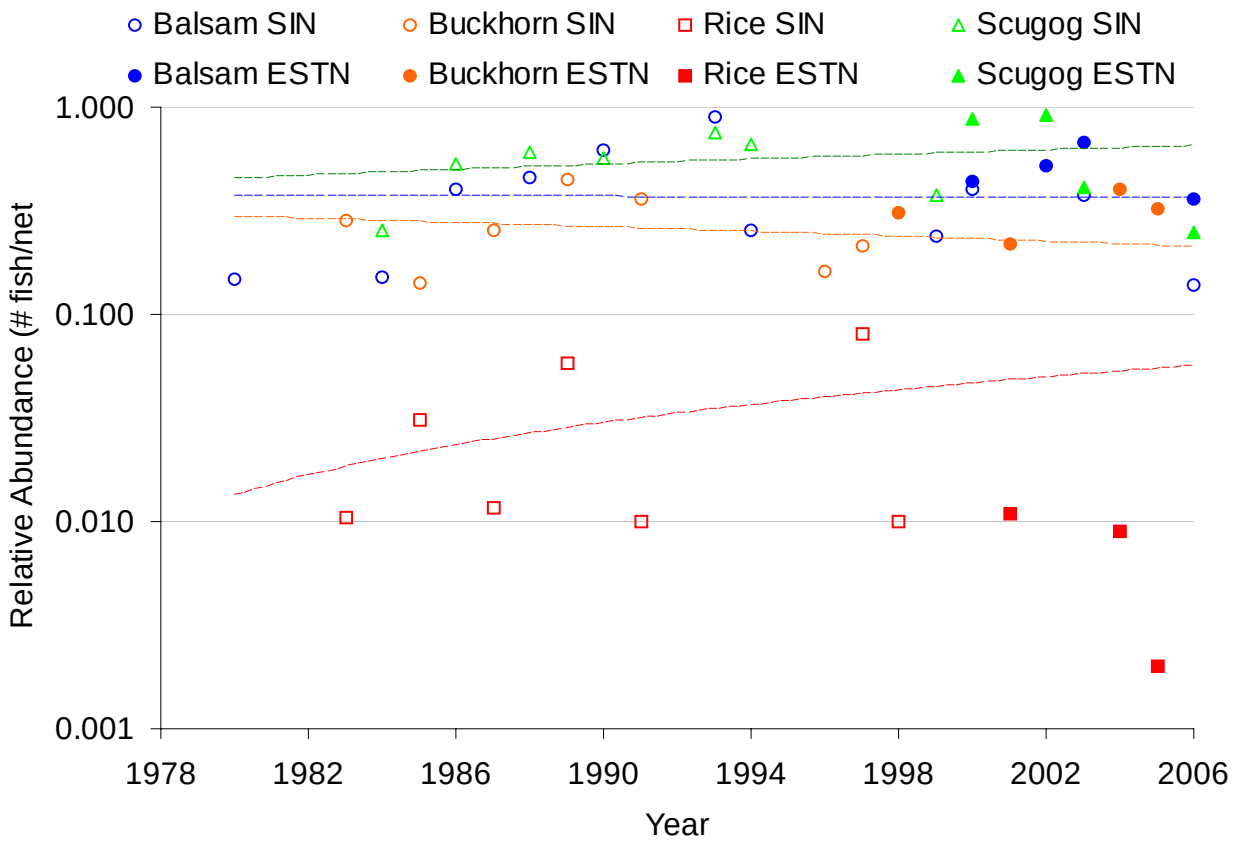


Figure 21: Catch rate of muskellunge in Spring Index Netting (SIN) and End-of Spring Trap Netting (ESTN) surveys conducted on four Kawartha Lakes

Table 9: Summary of data collected by the volunteer muskellunge angler diary program (Kerr 2004) for lakes in FMZ 17

Waterbody	Number of Fish	*CUE (#/angler hour)*	Mean Size (inches)	Max Size (inches)
Bald L.	8	0.147	33.3	37.0
Balsam L.	125	0.061	35.9	51.0
Buckhorn L.	125	0.093	35.0	52.0
Cameron L.	73	0.149	33.1	49.0
Chemung L.	80	0.095	35.0	50.5
Clear L.	44	0.083	36.4	49.0
Crowe (Lake and River)	125	0.165	34.5	52.5
Katchewanooka L.	9	0.273	34.2	46.0
Lovesick L.	48	0.123	32.6	48.0
Otonabee R.	7	0.130	33.9	47.5
Pigeon L.	661	0.126	36.4	52.5
Rice L.	18	0.034	36.2	46.0
Round L.	52	0.524	31.4	50.5
Scugog L.	599	0.274	37.4	49.5
Stony L.	419	0.088	35.1	50.0
Sturgeon L.	129	0.179	33.8	51.0
FMZ 17 Average		**0.159**	**34.6**	**48.9**
Ontario Average		0.068		

FORAGE FISH COMMUNITY

Small bodied fishes (less than 10cm) are generally not vulnerable to traditional index netting gear, and trap nets in particular. Therefore, alternative means of sampling are often used to target this segment of the fish community. In 2003, the composition of the catch in funnel and minnow traps varied among lakes (Figure 22). In Balsam, Chemung, Pigeon, and Buckhorn Lakes, the catch by number was largely lepomids (47, 64, 51, and 69 % respectively); with yellow perch accounting for a large portion of the catch as well (36, 32, 33, and 28 % respectively). The CUE for cyprinid species in minnow and funnel traps was clearly highest on Lake Scugog, accounting for more than 30 % of the catch by number. Four cyprinid species were captured on Lake Scugog (golden shiner (*Notemigonus crysoleucas*), common shiner (*Luxilus cornutus*), spottail shiner (*N. hudsonius*) and bluntnose minnow (*Pimephales notatus*), three on Balsam Lake representing 3 % of the catch (golden shiner, spottail shiner and bluntnose minnow), and no cyprinids were caught on Chemung, Rice, Pigeon, or Buckhorn Lakes. The catch on Rice Lake was predominantly yellow perch (59 %), with lepomids accounting for 37 % and again an absence of cyprinids. In Lake Scugog, yellow perch accounted for 60 % of the fish captured (Taillon et al., 2004).

The 2003 boat electrofishing assessment sampled 15 species in Pigeon Lake and Lake Scugog, 18 species in Balsam Lake, and 19 species on Rice Lake. Simpson's

Diversity Index values (Krohne, 1998), a measure of community diversity, were highest on Balsam Lake (8.2) and lowest on Lake Scugog (1.5), with values of 5.6 and 4.1 for Pigeon and Rice Lakes respectively. A summary of the catch by taxonomic group is included in Figure 23. Due to the survey sampling design (e.g. sites were not randomly chosen), and the high variability of the catch, detailed comparisons among lakes are not appropriate (Taillon and Ball, 2004).

The abundance trends observed were expected based on the characteristics of each lake. Lake Scugog and Rice Lake are the most eutrophic and therefore more productive simply in terms of biomass. The other study lakes are very similar (to each other) in terms of water clarity and productivity, and the CUE from trapping efforts were very similar. Balsam Lake was perhaps more productive in terms of species diversity, which may be attributed to increased habitat diversity available relative to other lakes (e.g. deeper, cooler water).

The relatively low abundance of cyprinid species from the sampling efforts in some of the study lakes is cause for concern, however data is conflicting. Intensive snorkelling of Pigeon Lake failed to detect a number of minnow species that were present in the lake in the 1970s (Taillon and Fox, 2004), and numerous lake residents and anglers have reported a decline in observations of large schools of minnows. However, FWIN assessments have documented relatively high abundance of spottail shiners in Rice Lake, and the presence of other cyprinid species in the other lakes.

The species, size and abundance of forage species sampled suggest that potential forage for top predators are available in each lake, although in some instances available forage may not be optimal species. Although most species are opportunistic predators, spiny rayed, gibbose species (e.g. sunfish and bass) are generally not preferred forage due to low capture efficiencies and nutrient value relative to other species (e.g. white sucker (*Catostomus commersonii*), cisco, large cyprinids). The length specific trends in forage abundance suggest that the availability of forage for YOY walleye would be more limiting than age-1 forage abundance. The forage requirements on a population level need to be identified before it can be determined if forage availability is a limiting factor for walleye or other piscivores. In addition, it must be considered that these trends may be attributable to the size selectivity of the gear types used, rather than the absence of these prey sizes (Taillon et al., 2004).

OTHER SPECIES

The fisheries resources in FMZ 17 are diverse, with equally as diverse angling opportunities offered. An emerging fishery, primarily shoreline based, is developing for carp (*Cyprinus carpio*), with both resident and non-resident (often European) anglers targeting carp with increased frequency. Although not native to Ontario, FMZ 17 supports abundant carp populations, with fish exceeding 80 cm (31 inches) sampled in NSCIN surveys. Fish exceeding 10 kg (22 lbs) are reasonably common and easily accessible, and provide a high quality sport fishing experience.

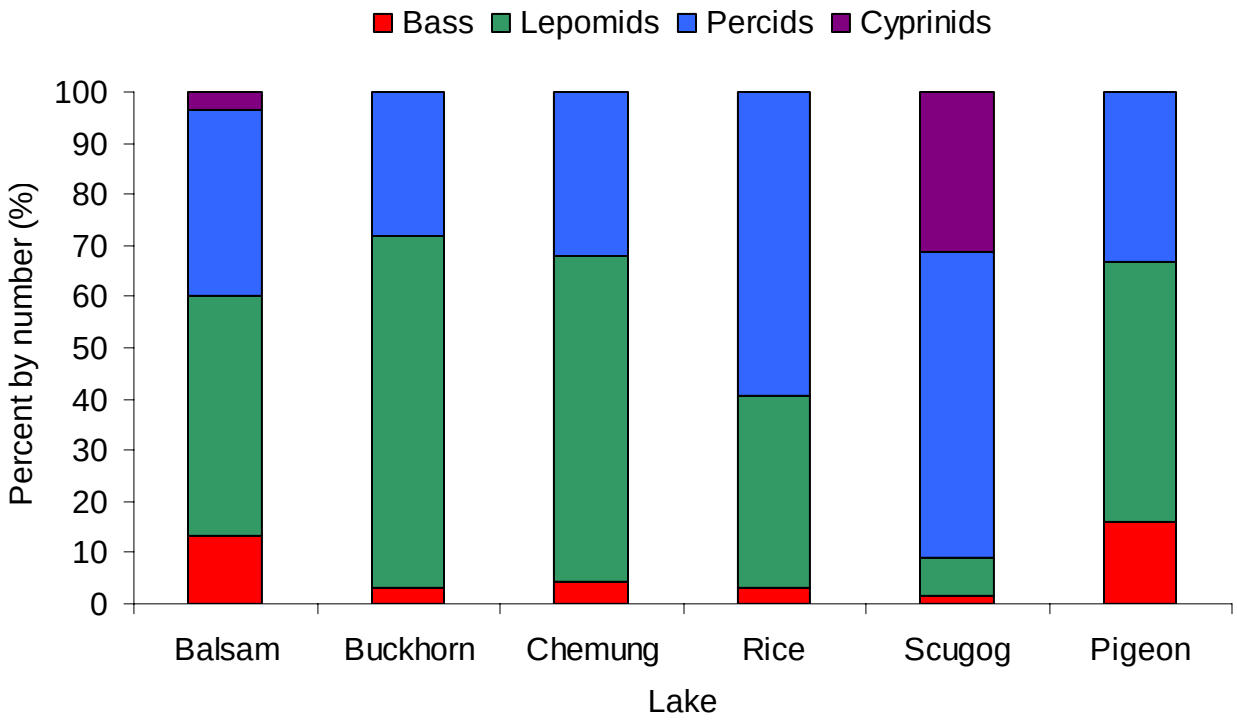


Figure 22: Catch composition by number of catch from funnel and minnow traps in various Kawartha Lakes in 2003.

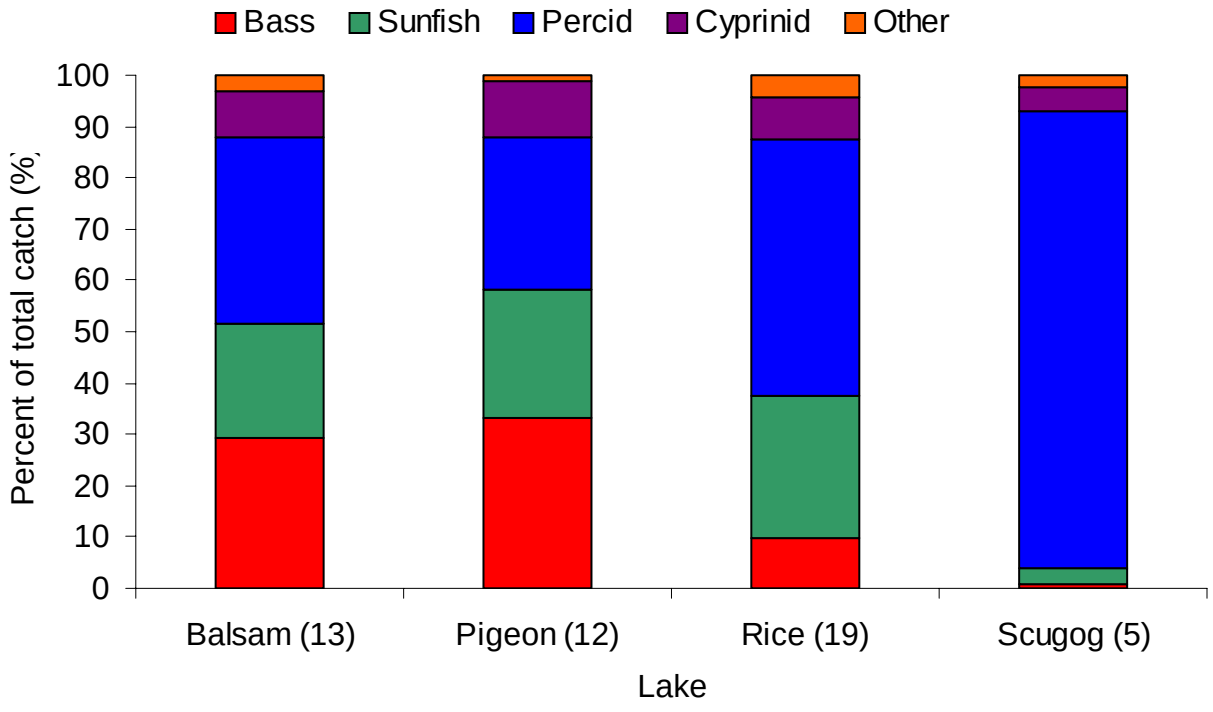


Figure 23: Composition of 2003 fall electrofishing catch by species group for each of the four study lakes. Sample size (number of sample sites) is indicated in parenthesis

In the summer of 2007, a large die-off of carp was observed on FMZ 17 lakes, including Lake Scugog, Sturgeon, Cameron (including the Burnt River), Balsam, Mitchell, Canal, Pigeon (including Big and Little Bald Lakes), Buckhorn, Chemung and Sandy Lake. Estimates based on municipal waste collections and public reports indicate that between 12,000 – 24,000 carp were taken to municipal landfills between early June and early September. The size range of carp affected was varied, with fish as small as 30-35 cm (12-14 inches) and carp exceeding 75 cm (~30 inches) observed on area waterbodies. The combination of environmental and biological stressors including changes to water/air temperatures, storm events, spawning stress, high population abundance, and other potential pathogens were believed to have combined and increased the stress and susceptibility of carp to outbreaks of *Flavobacterium columnare*. *F. columnare* is a bacterium that is commonly present in the environment where it is found naturally in water and mud. MNR has concluded, based on site visits, observations, and analysis of water quality and dead fish, that the main contributing factor to the fish kill was infection by *F. columnare*, which caused a fish disease called columnaris. Although a large die-off of carp occurred in 2007, healthy carp were still present in the area lakes, and the prolific nature of the species should allow for a quick recovery of the population. Area lakes still provide optimal habitats for carp. NSCIN surveys on Lake Scugog actually had a higher catch per unit effort for carp in 2007 (0.53 carp per trap net) than either 2006 (0.28 carp per trap net) or 2003 (0.42 carp per trap net) surveys.

Brown bullheads (*Ameiurus nebulosus*), a member of the catfish family, are also present in the warmwater lakes in FMZ 17 and support a relatively low intensity recreational fishery. Local residents have identified a dramatic decline in bullhead abundance on Lake Scugog. Current index netting is either ineffective at sampling bullheads, or their 'clumped' distribution makes meaningful data interpretation difficult.

Rock bass are another species with distribution across FMZ 17. This species occupies a similar niche to bluegill, pumpkinseed and black crappie. Although not a common target species for anglers, rock bass are suitable table fare, and are easily caught. Rock bass can influence the composition of the fish community, and may be a significant predator of the early life history stages of various sport fish species.

Longnose gar (*Lepisosteus osseus*) are present in parts of FMZ 17, in particular the Trent River and the lower portions of some Lake Ontario tributaries. Very little information exists about the status of these populations.

FISH SPECIES AT RISK IN FMZ 17

There are two committees that assess the status of Ontario species. At a national level, the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) assesses species status. The Committee on the Status of Species at Risk in Ontario (COSSARO) makes recommendations to the Federal Minister of the Environment and operates at a provincial level. Ultimately, the Federal GIC decides whether or not to list a species under the Species at Risk Act (SARA). In FMZ 17, four fishes that are formally listed in Ontario and Canada have been recorded.

The channel darter (*Percina copelandi*), listed as Threatened by COSEWIC, is a small bodied fish, and a member of the percidae (perch) family. The channel darter is found in isolated populations in tributaries to the Bay of Quinte, including the Trent River in FMZ 17. Threats to channel darter include habitat loss due to sedimentation, and water quality deterioration. Activities that reduce water flow during spawning are also a stressor. The channel darter is currently listed as a threatened species under SARA and will also be listed as threatened in Ontario when the *Endangered Species Act, 2007* (ESA 2007) comes into force on June 30, 2008.

American eel (*Anguilla rostrata*) has been designated as special concern nationally by COSEWIC and is currently being considered for listing under SARA. At the provincial level, American Eel will be listed as Endangered under the ESA, 2007 when the Act comes into force on June 30, 2008. Until recently, American eels have supported a multi-million-dollar fishery in Ontario. In response to a dramatic and rapid decline in numbers, the fishery has been closed. American eels begin their lives as eggs hatching in the Sargasso Sea near Bermuda. Juvenile eels migrate to freshwater, including Lake Ontario, where they mature over several years. Mature fish will then migrate back to the Sargasso Sea where they spawn and die. Within FMZ 17, American eel have historically been documented in the Trent River and as far inland as Rice Lake.

The river redhorse (*Moxostoma carinatum*) is a thick-bodied sucker with a large, flat-topped head and a prominent snout, and is a species of concern at the Provincial and National level. Field identification of redhorse species is particularly difficult. River redhorse inhabit fast-flowing, clear rivers, and can exceed 80 cm (31 inches) and 10 kg (22 lbs). In FMZ 17, river redhorse have been documented in the Trent River. Land use activities that increase siltation and turbidity are considered threats, as well as dams which prevent spawning migrations.

Lake sturgeon (*Acipenser fulvescens*), is the largest freshwater fish species in Canada, with fish exceeding 2m (6 feet) and 136.5 kg (300 lbs) recorded historically. The Great Lakes-Upper St. Lawrence population has been designated as threatened by COSEWIC and the federal government is considering listing this population under SARA. At the provincial level, lake sturgeon will be listed as special concern ESA 2007 comes into force on June 30, 2008. Lake sturgeon are easily identified by the following characteristics: five rows of bony plates along the back and sides; the skin is covered with tiny tooth-like projections; and a large dorsal fin located close to the tail. Spawning occurs in fast flowing segments of rivers. In FMZ 17, lake sturgeon have recently been documented in the Trent River, however little is known about the current status of these populations. Historically, threats to lake sturgeon included over-harvest, with the presence of dams and habitat degradation listed as primary present day threats. The sport fishing season in FMZ 17 is closed all year to protect the relatively small populations that are present.

3.5 Comparison With Adjacent Fisheries Management Zones

The use of standardized index netting protocols allows for the comparison of the results from surveys in FMZ 17 to other FMZs.

Walleye abundance measured in FWIN surveys in FMZ 17 compare favourably with adjacent FMZs (Figure 24), with the FMZ 17 average (3.7 walleye/net) exceeding the Regional average of 2.8 walleye/net. The high value for FMZ 16 (7.4 walleye/net) is largely due to the low number of surveys, which is skewed by three surveys from a single lake with high walleye abundance (Mountain Lake). FMZ 17 falls well below the average catch from either the Northeast or Northwest Region (geometric mean of 6.4 and 10.7 walleye/net respectively). However, direct comparisons with other regions are difficult due to differences in lake selection, productivity and stressors.

The average catch from NSCIN surveys highlights the overall productivity of the lakes within FMZ 17. Bass abundance is clearly highest in FMZ 17 (4.3 and 4.5 fish/net for smallmouth and largemouth respectively), with the average catch of either species exceeding the catch of both species combined in other FMZs (Figure 25). The abundance of bluegill and black crappie was also much greater in FMZ 17, averaging 16.9 fish/net, an order of magnitude higher than the other FMZs. Pumpkinseed abundance was also highest in FMZ 17 (Figure 26) averaging 16.1 fish/net, with the next highest FMZ average being FMZ 18 (11.0 fish/net). Muskellunge were most abundant (0.25 fish/net) in FMZ 17, and almost entirely absent in FMZ 16, with an average of 0.18, 0.05, and 0.03 fish/net for FMZ 12, 15 and 18 respectively. The abundance of pike was similar across the other FMZs, but almost entirely absent from FMZ 17 NSCIN surveys (Figure 27). The abundance of other fish species (carp, white sucker, rock bass and brown bullheads) was comparable across FMZs, however rock bass abundance (22.4 fish/net) was a full order of magnitude higher in FMZ 15 NSCIN surveys (Figure 28).

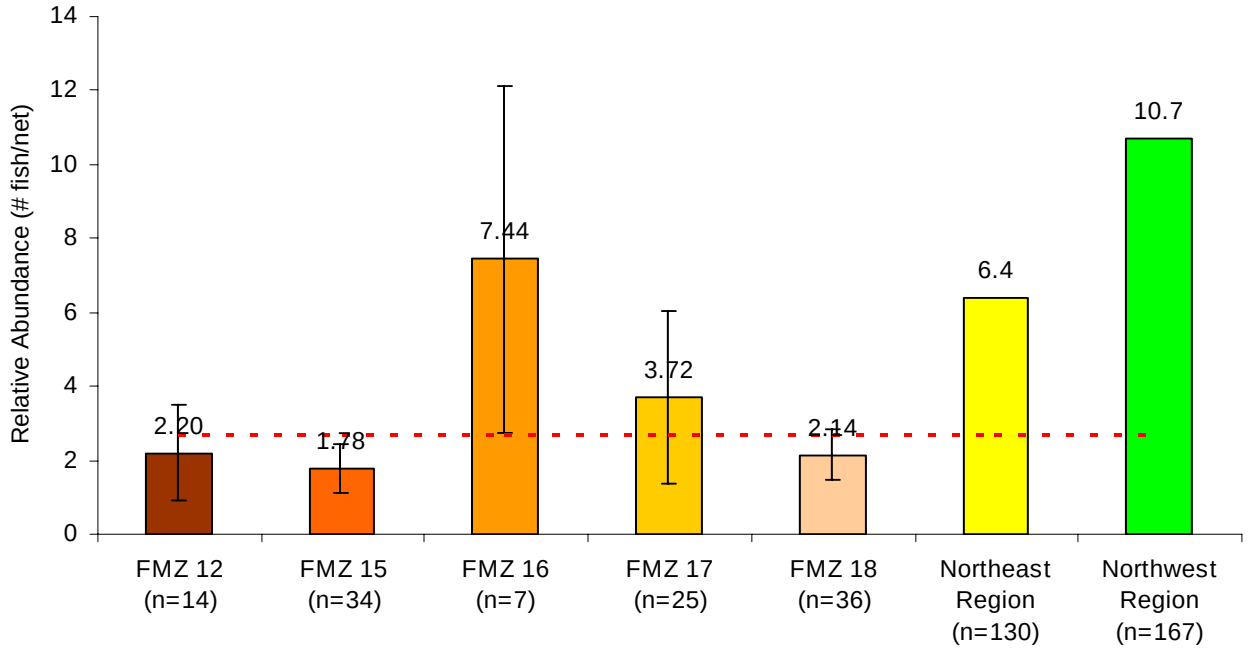


Figure 24: Comparison of the average geometric mean CUE (# fish/net) in FWIN surveys by Fisheries Management Zone and MNR administrative region. The dashed line represents the Southern Region average (2.68 fish/net, n=116 surveys) and error bars represent +/- 2 Standard Error. Labels are the average values and the value in parenthesis refers to the number of FWIN surveys.

.

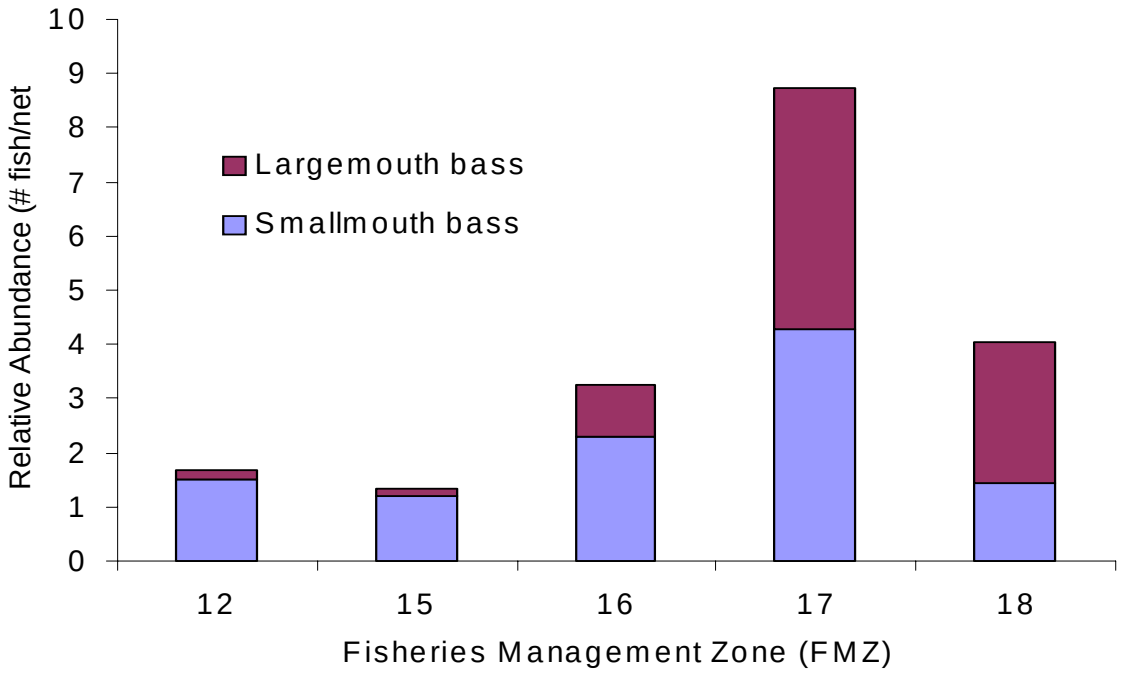


Figure 25: Comparison of the average geometric mean CUE (# fish/net) of largemouth and smallmouth bass in NSCIN surveys by Fisheries Management Zone in Southern Region

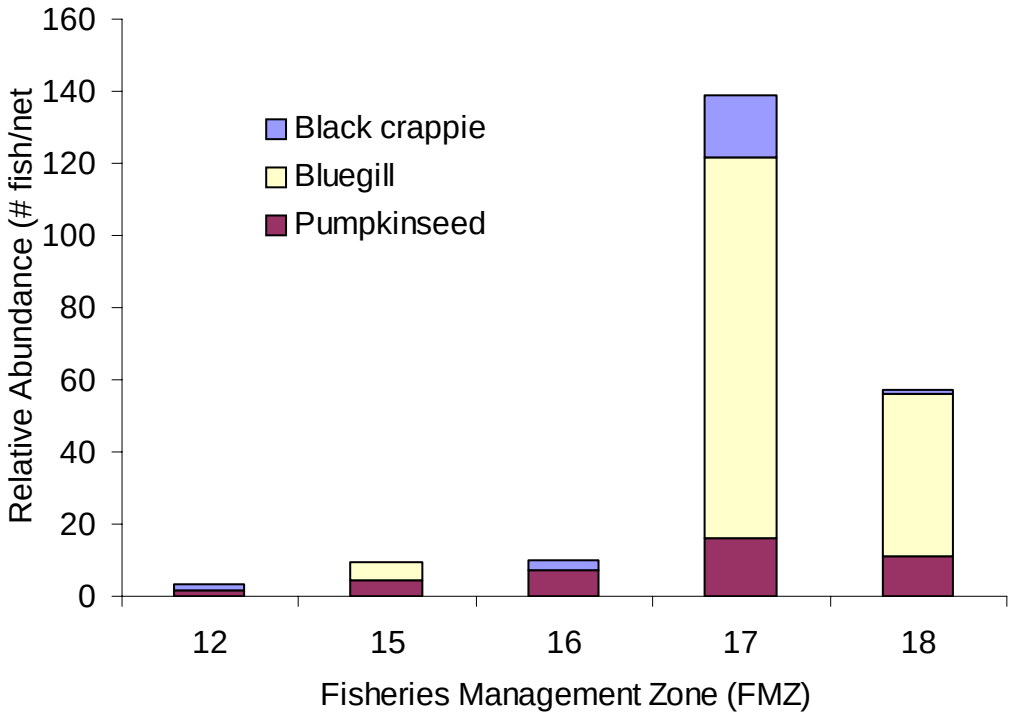


Figure 26: Comparison of the average geometric mean CUE (# fish/net) of black crappie, bluegill and pumpkinseed in NSCIN surveys by Fisheries Management Zone in Southern Region.

.

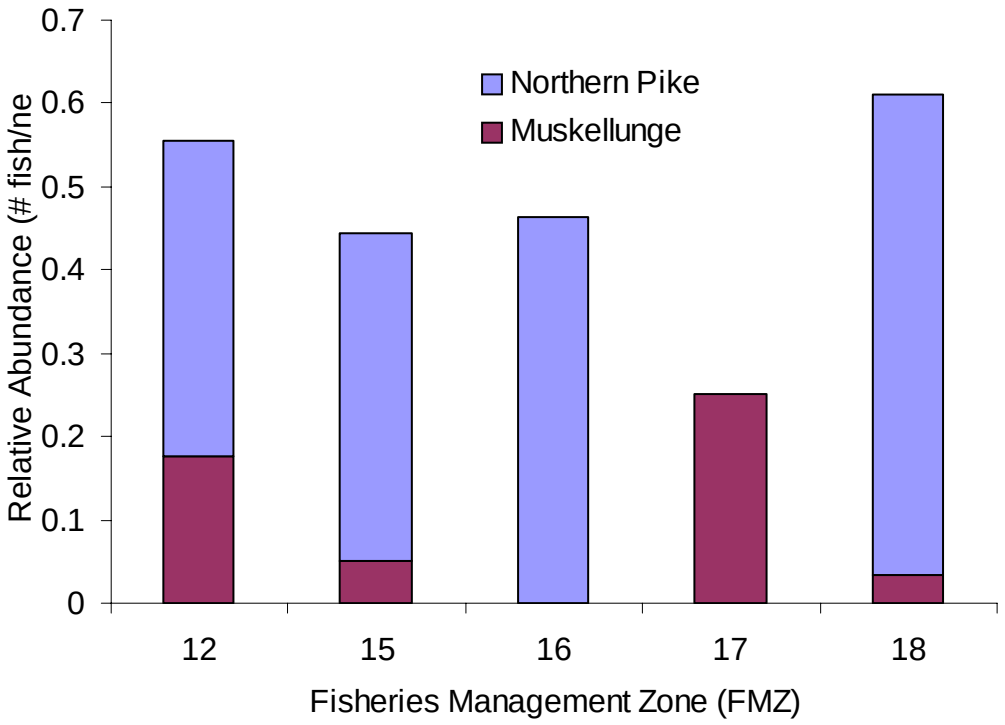


Figure 27: Comparison of the average geometric mean CUE (# fish/net) of muskellunge and northern pike in NSCIN surveys by Fisheries Management Zone in Southern Region.

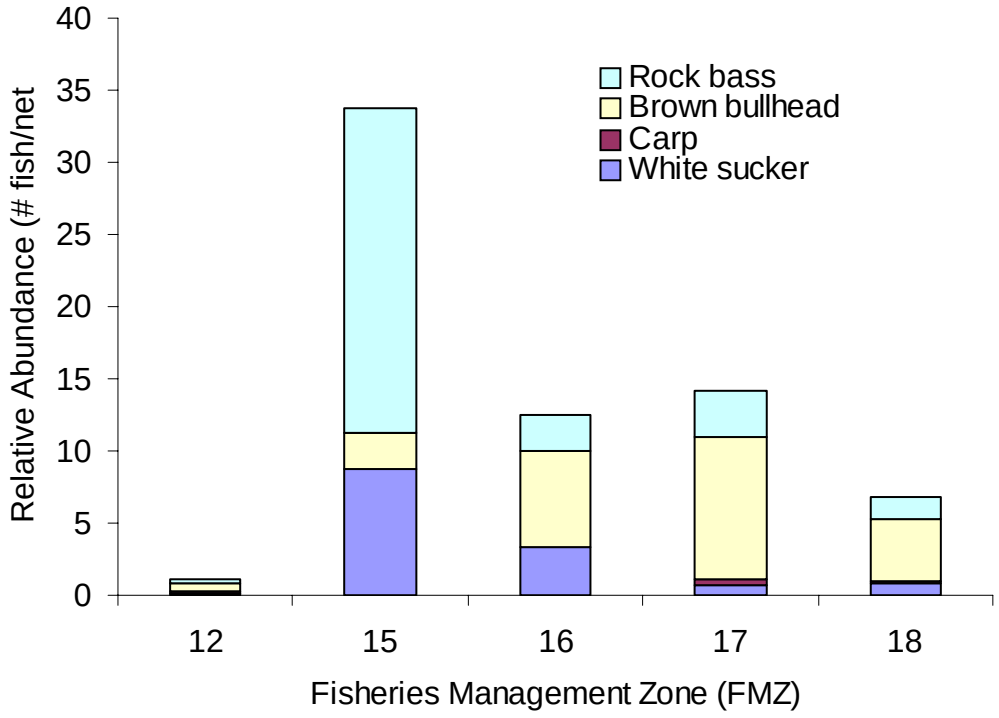


Figure 28: Comparison of the average geometric mean CUE (# fish/net) of rock bass, brown bullhead, carp and white sucker in NSCIN surveys by Fisheries Management Zone in Southern Region.

4.0 Social Characteristics of Fisheries Management Zone 17

The Ganaraska River is an important destination fishery, particularly in the spring where 24,400 angler hours were spent targeting migratory rainbow trout in 1999. In the fall of 1991 and the spring of 1992, angler effort at Port Hope Harbour was estimated to exceed 73,000 angler hours, again primarily targeting migratory rainbow trout. In 1994 the combined spring and fall angling effort targeting migratory coldwater fish species on Wilmot Creek was estimated to exceed 40,000 angler hours.

The warmwater fisheries resources within FMZ 17 are of high importance at a Provincial scale. A national survey of recreational anglers indicated that the number of days spent fishing on the Trent System, Rice Lake, Lake Scugog and Pigeon Lake are among the highest for inland lakes in the Province (Table 10). Rice Lake is of particular importance in terms of the number of non-resident (U.S.) anglers, ranking fourth overall, and second to only Lake of the Woods when the Great Lakes are excluded (OMNR, 2003).

In recent 'on the water' angler creel surveys, walleye have been the most preferred species, although an increasing percentage of anglers report fishing for 'anything'. The majority of winter anglers on Crowe Lake and Lake Scugog are targeting walleye, or walleye and yellow perch – although these were the only species that can be legally harvested on Lake Scugog during the winter at the time of the surveys. A summary of the target species from the most recent creel surveys is presented in Figure 29. When the most recent surveys for all lakes are combined, the anglers fish over 1.25 million rod hours, with approximated one third of those hours specifically targeting walleye. Panfish effort accounts for just over 20 % of the total effort (84 % of which is from Rice Lake) with an additional 20 % of rod hours targeting 'anything'.

The most recent creel survey data indicated that bluegill were the most commonly caught (1,515,081 fish) and harvested (578,661 fish) species, although nearly 75 % of the catch and nearly 85 % of the harvest is from Rice Lake. Among sport fish species, the release rate for walleye is lowest, with only one in four walleye released (including those required to be released by regulation). Muskellunge release rates exceed 97 % across the lakes. A summary of the most recent creel survey total catch and harvest is provided in Table 11.

Angling effort (total number of hours) is highest on Rice Lake, and has been since creel the KLFAU data set began in the late 1970s, typically exceeding 600,000 angler hours (~60 rod hours per ha). Total effort on Lake Scugog and the Tri-Lakes are similar, although the Lake Scugog total effort includes the winter season for walleye and yellow perch. Total effort on Balsam Lake has been the lower than Rice Lake or Lake Scugog, but is comparable to Buckhorn, Chemung and Pigeon Lakes (Figure 30a).

Angler effort on a unit area basis (rod hours per ha) follows very similar patterns to total effort (Figure 30b). Total effort on Rice Lakes has remained relatively constant, and much higher than other lakes. A consistent and dramatic decline in walleye

targeted effort has occurred on Rice Lake, and the other lakes as well. A decline in total angling effort is most pronounced on Balsam Lake, and is largely due to a decline in walleye targeted effort.

With the exception of Rice Lake, the majority of anglers interviewed in Creel programs are Ontario residents, with a relatively good mix of both locals and non-locals. Nearly 50 % of anglers interviewed on Rice Lake in 2000 were from the United States.

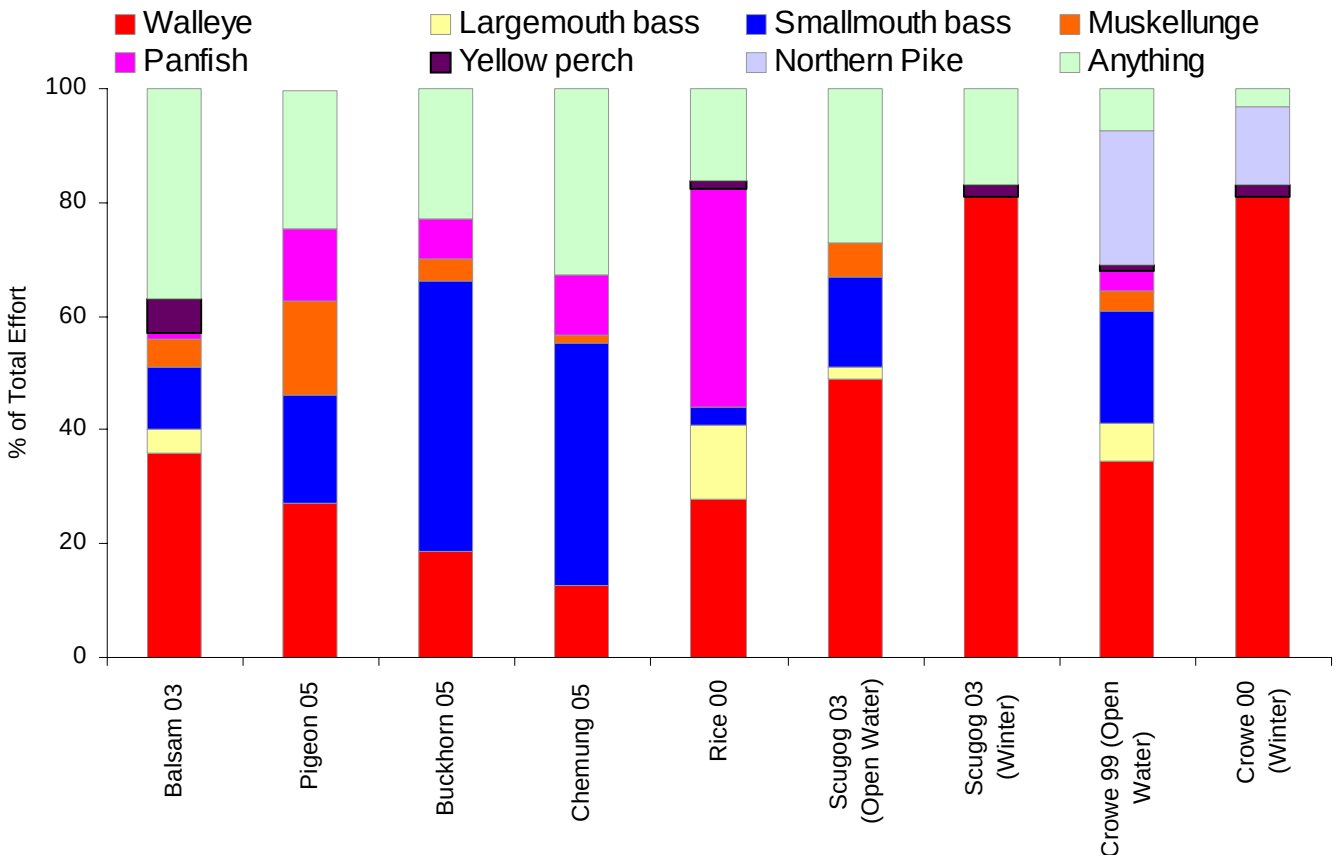


Figure 29: Distribution of angling effort by species from the most recent angler creel surveys in FMZ 17

Table 10: Summary of Data from the 2000 Recreational Fishing Survey (OMNR 2003)

	Number of Days Fished			
	Ontario Resident	**Canadian Non-Resident**	**US Non Resident**	**TOTAL**
Lake Huron	1,356,180	4,851	315,169	1,676,200
Trent System, Rice, Scugog and Pigeon	**1,010,683**	**889**	**169,489**	**1,181,061**
Lake Ontario	933,363	15,241	14,825	963,429
Georgian Bay	708,680	2,921	72,054	783,655
Lake Erie	543,437	1,564	174,028	719,029
Lake of the Woods	78,613	66,412	440,174	585,199
Lake Simcoe	514,466	154	16,660	531,280
Trent System	**405,559**	**-**	**4,325**	**409,884**
Rice Lake	**257,402**	**-**	**141,212**	**398,614**
Lake Nipissing	233,963	343	85,080	319,386
Bay of Quinte	309,640	756	4,809	315,205
Lake St Clair	134,646	463	126,496	261,605
Lake Scugog	**208,674**	**-**	**789**	**209,463**
Rainy Lake	72,368	2,221	117,100	191,689
Lake Superior	137,365	1,548	36,783	175,696
Pigeon Lake	**139,048**	**889**	**23,163**	**163,100**
Lac Seul	4,919	927	79,037	84,883
Lake Temagami	61,287	-	10,131	71,418
Whitefish Lake	34,890	521	31,020	66,431
Bobs Lake	11,032	317	48,163	59,512
Lac des Milles Lacs	30,866	-	18,827	49,693
Eagle Lake	338	4,786	23,523	28,647
Lake Nipigon	5,606	-	15,619	21,225

	Provincial Rank			
	Ontario Resident	**Canadian Non-Resident**	**US Non Resident**	**TOTAL**
Trent System	6	NA	21	7
Rice Lake	8	NA	4	8
Lake Scugog	10	NA	22	12
Pigeon Lake	11	10	14	15

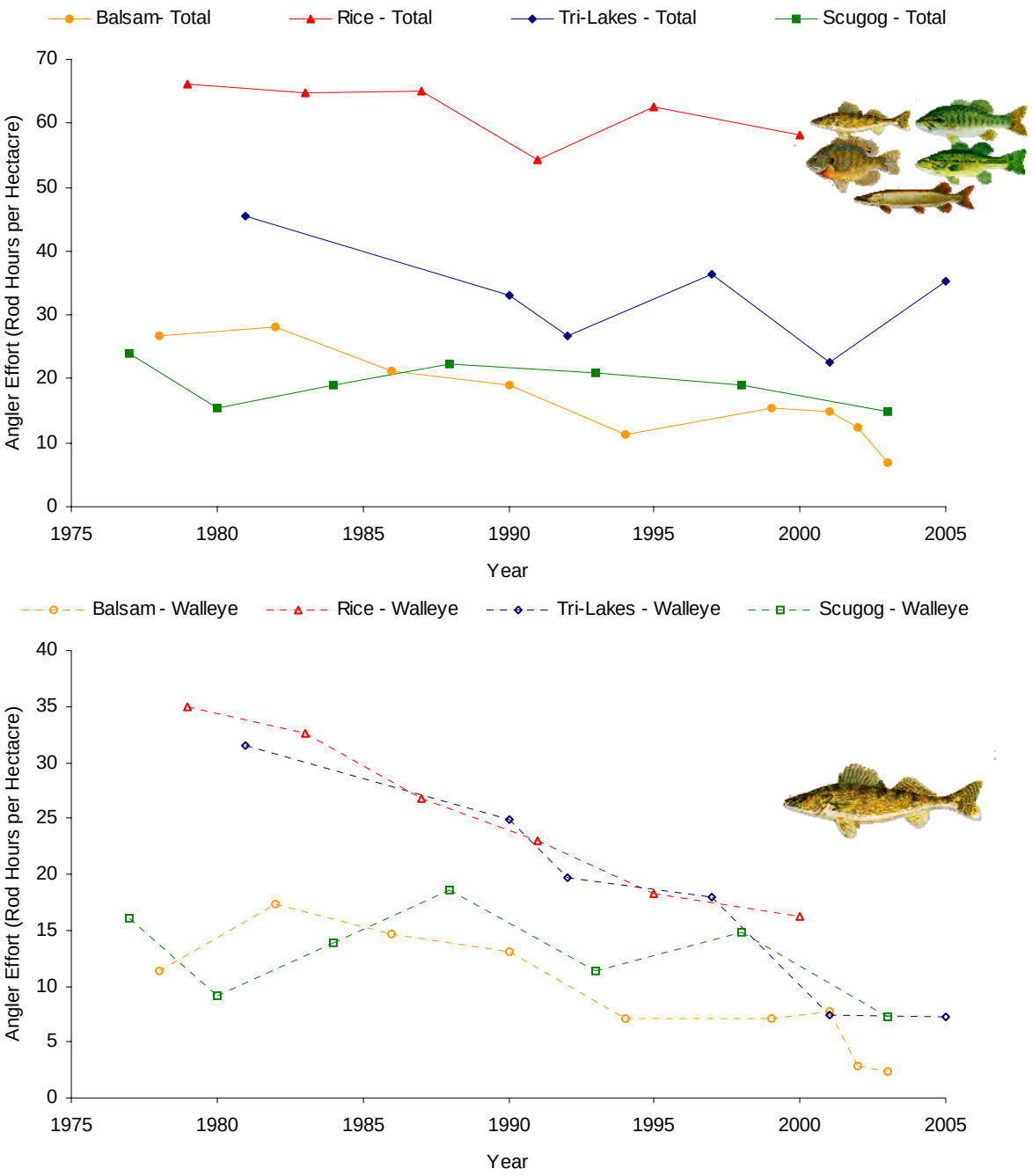


Figure 30: Summary of angling effort (number of rod hours per hectacre) for all species combined (upper graph) and walleye targeted effort (lower graph) based on creel surveys conducted by the Kawartha Lakes Fisheries Assessment Unit

Licence sales in the Peterborough Area, which account for the majority of FMZ 17, show a decreasing trend in the sale of non-resident licences and an increasing trend in resident licence sales since 1999. Non-resident licence sales accounted for at least 45 % of licences sold between 1999 and 2002, but have declined to closer to 35 % of sales in 2006 due to the combination of fewer non-resident licence sales, and increased resident licence sales. The distribution of sport and conservation licences sold is similar between resident and non-resident anglers (Figure 31). More than two thirds of resident licences sold were conservation licences, and have remained relatively consistent from 2003-2006. An increasing proportion on non-resident licences sold were conservation licences, accounting for nearly 75 % of non-resident licence sales in 2006. Licence sales do not account for anglers who purchased licences in other areas and fished in FMZ 17, nor anglers who purchased their licences in the Peterborough Area but did not fish in FMZ 17, but do provide insight into the characteristics of anglers in the area.

Within FMZ 17, only a single commercial fishing licence is issued, although it has been largely inactive. The licence allows for the harvest of 25,328 lbs of carp from Sturgeon Lake each year. No other species are harvested under this licence.

Table 11: Summary of catch and harvest data from the most recent creel surveys* in FMZ 17 lakes

Species	Catch (No)	Harvest (No)	Release Rate
Carp	145	0	1.00
Northern Pike	1,710	576	0.66
Brown Bullhead	4,228	1,254	0.70
Muskellunge	7,784	202	0.97
Smallmouth bass	63,125	9,181	0.85
Walleye	81,378	61,207	0.25
Rock bass	111,856	12,266	0.89
Black crappie	120,625	56,723	0.53
Largemouth bass	592,929	52,282	0.91
Pumpkinseed	613,093	208,665	0.66
Yellow perch	647,909	168,025	0.74
Bluegill	1,515,081	578,661	0.62

*Includes Crowe Lake 1999 (open water), Crowe Lake 2000 (winter), Rice Lake 2000, Balsam Lake 2003, Lake Scugog 2003 (open water and winter), and Tri Lakes 2005.

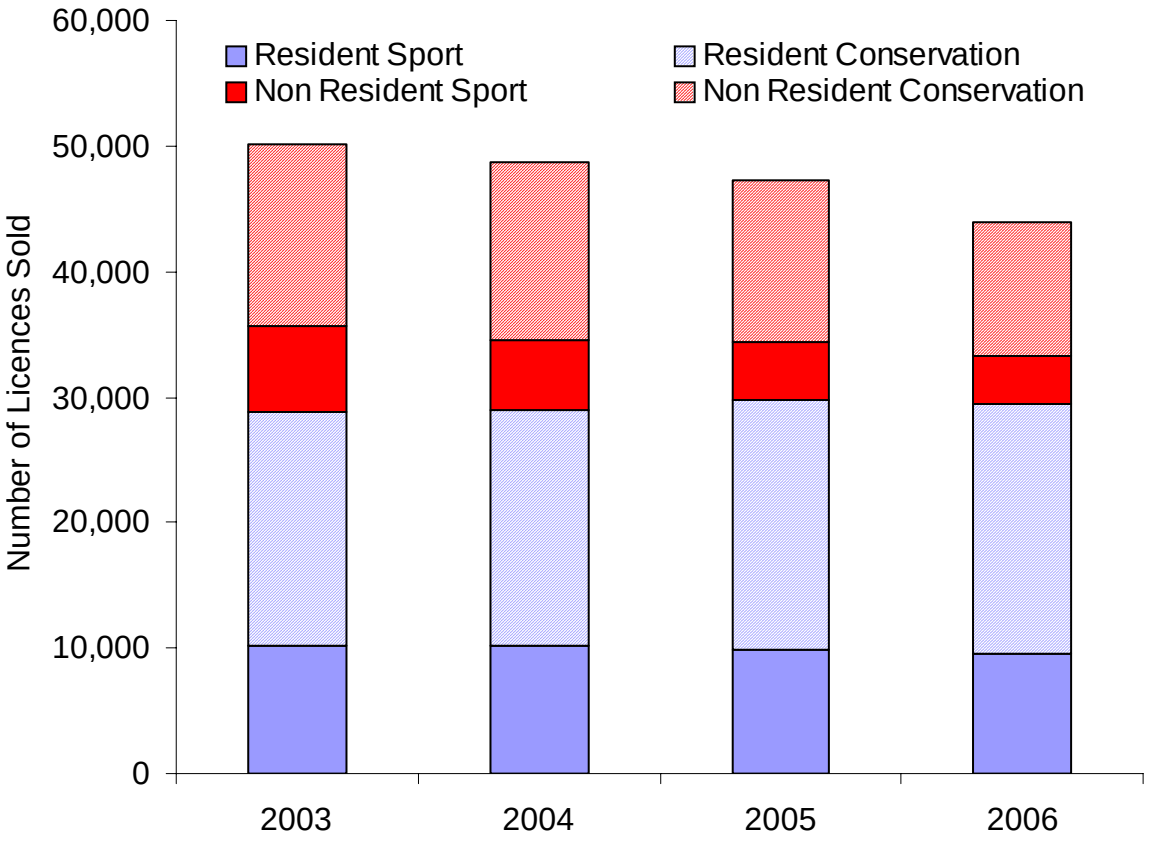


Figure 31: Number of fishing licences sold in the Peterborough Licence Area by residency and licence type (sport versus conservation). NOTE – 2006 data includes sales to the end of October only.

A total of 51 Baitfish Harvest Areas (BHA) have their centre point located within FMZ 17, with as many as 20 others intersecting the FMZ 17 boundary. Licence holders from these BHAs reported the harvest of baitfish, frogs, crayfish and leeches totalling nearly $500,000 in 2005 (Table 12). This should be viewed as a potentially inflated estimate, as many harvest in BHAs that intersect FMZ 17 may actually occur outside FMZ 17, and individual licence holders may hold additional BHAs outside FMZ 17. The database used to derive these figures is based on licence number rather than BHA.

Table 12: Harvest and retail value of baitfish, leeches, frogs and crayfish reported by licence holders from Baitfish Harvest Areas (BHA) entirely or partially within FMZ 17

	Reported Harvest (doz)	2005 Retail Value	
		Price per dozen	Total
Baitfish (doz)	127,046	$3.50	$444,660
Leeches (doz)	3,598	$4.00	$14,390
Frogs (doz)	470	$7.00	$3,292
Crayfish (doz)	8,659	$3.00	$25,976
		TOTAL	**$488,317.38**

4.1 Angling Quality in Fisheries Management Zone 17

Creel surveys can provide valuable information regarding angling quality. Although 'fishing quality' is difficult to define, and may mean different things to different anglers, the catch per unit effort (CUE), and size of catch can provide valuable information regarding angling trends.

In 1999, the spring fishery on the Ganaraska River resulted in a catch of approximately 10,600 rainbow trout, of which approximately 1,700 were harvested. The combined catch in the fall of 1991 and spring of 1992 at Port Hope Harbour was approximately 8,500 rainbow trout, of which more than 3,500 were harvested. In 1994 on Wilmot Creek, more than 11,000 rainbow trout were caught and nearly 4,000 were harvested (Table 13).

On the warmwater lakes, the catch per unit effort (CUE) is typically highest for smaller, more abundant fish species such as bluegill, yellow perch, and black crappie, commonly exceeding three fish per hour and even as high as 17 bluegill per hour on Chemung Lake (targeted effort). Among the larger species, the CUE for muskellunge is often a full order of magnitude lower than the CUE for other species. Bass are caught with greater frequency than walleye. A summary of the targeted CUE data from the most recent creel surveys is included in Table 14.

Fishing Quality Index (FQI) provides a measure of the size distribution within a population. Gabelhouse (1984) described a method for calculating FQI based on Proportional Stock Density (PSD) by assigning size categories based on the proportion of the world record size for a particular species. Various authors have adapted the Gabelhouse (1984) methodology to communicate similar patterns. For the purposes of this report, the size categories were related to the Ontario Record (OR) length for each species, rather than the world record, and assigned a category to describe their relative size. The 'stock' size category was 20-36 % of the OR size, 'immature' was 36-45 % of the OR, 'juvenile' was 45-59 % of the OR, 'quality' was 59-74 % of the OR, and 'memorable' was greater than 74 % of the OR length. The FQI values presented were derived from index netting data, and therefore represent a measure of the potential fishing quality for each species, rather that a direct measure based on fish caught by anglers.

The FQI values from recent FWIN surveys show a large amount of variation in the size composition of the walleye populations (Table 15). In some instances, the number of walleye collected in the survey was so few that the calculations must be interpreted with a level of caution. On Sturgeon, Belmont, Crowe and Cameron, the total catch was less than 25 walleye. The lowest FQI value was from the 2002 Lake Scugog FWIN (FQI = 30) and the highest value were from the 2004 Buckhorn Lake FWIN (FQI = 170). It is important to note that FQI is calculated independent of abundance – populations with a high proportion of fish in larger size classes will result in higher FQI values than populations with a large proportion of the catch in smaller size classes, and is not related to total number of fish caught. The majority of the catch from Lake Scugog was small fish, with 90 % of the catch less than 400 mm (~16″) in total length. Poor recruitment has been observed recently on Rice

Lake and the Trilakes (Buckhorn, Chemung and Pigeon), resulting in relatively high FQI values, as the majority of the fish sampled were larger in size.

The FQI values for yellow perch (Table 16) are highest in the Balsam Lake 2002 FWIN survey and the 2004 Pigeon Lake FWIN. No 'memorable' size (> 280 mm) yellow perch were sampled with the exception of a single fish from the 2001 Sturgeon Lake FWIN. This is perhaps more a reflection of the magnitude of the Ontario Record, a fish exceeding 380 mm in length from Lake Erie, rather than the quality of the yellow perch fisheries in FMZ 17 lakes.

FQI values derived from NSCIN surveys showed variation both within and among lakes for both species of bass, but were generally higher for largemouth (Table 17). For largemouth bass, the FQI value was highest on Balsam Lake (1998 and 1999) as a large proportion of the catch was in the larger size categories, however the 2002 Balsam Lake also had a low FQI, with only the 2005 Buckhorn Lake survey scoring lower for largemouth bass. Smallmouth bass FQI values were highest on Rice Lake (2000 and 2004 surveys) and lowest on Lake Scugog, Pigeon and Sturgeon Lakes.

The FQI values for black crappie (Table 17) derived from NSCIN surveys show that although catch rates are lowest on Balsam Lake, a larger proportion of the catch are 'memorable' or 'quality' sized fish, thus resulting in the highest FQI values. The FQI value was lowest in the Rice Lake in the 2004 NSCIN, primarily because a large proportion of the catch in that survey was smaller (age-1) fish. Overall, opportunities for 'memorable' (>320 mm) class black crappies are limited, however 'quality' sized fish (260-320 mm) are abundant on a number of lakes.

Pumpkinseed FQI values (Table 17) for all lakes were high, and showed less variation than for other species. Trap nets are not an effective means of sampling small centrarchids (less than 100 mm), as they are able to pass through the mesh. The Ontario Record pumpkinseed is also relatively short (~260 mm TL). This skews the FQI calculations, as few fish in the stock size (<100 mm) are vulnerable to the gear, and a high proportion of the catch are in the larger size categories.

Similar to pumpkinseed catch, 'memorable' bluegill (>300 mm) were only sampled in Balsam Lake, and a greater majority of the catch was from the 'quality' size class (250-300 mm), with FQI values highest on Balsam Lake (Table 17). FQI values were generally high on all lakes due to the size selectivity of the gear, but were lowest in Lake Scugog and Buckhorn Lake NSCIN surveys.

The mean size in terms of both length (fork length) and weight of fish harvested in the most recent creel surveys is presented in Table 18. For most species, the largest average size was on Balsam Lake, with some consistencies between Rice, the Tri-Lakes and Lake Scugog. When viewed over the larger timescale, a clear trend of decreasing average size of bass harvested is evident. This could be due to changes in angler attitudes resulting in increased release rates of larger fish, or an emerging trend targeting smaller bass for harvest. The average size of walleye harvested has remained relatively consistent. On Rice Lake, a decline in the average size of bluegill harvested is evident (Figure 32).

Table 13: Summary of Angler Creel data for migratory rainbow trout fisheries in FMZ 17 as well as the Lake Ontario Boat fishery (from Bowlby, unpublished data)

	Period	Year	Catch	Harvest	Effort (Angler Hours)	CUE (# fish caught/hour)	HUE (# fish harvested/hour)
Ganaraska River	Spring	1999	10,693	1,707	24,400	0.438	0.070
Port Hope Harbour	Sept 7 - Nov 17	1991	3,367	2,140	41,544	0.081	0.052
Port Hope Harbour	March 7 - April 30	1992	5,177	1,433	31,756	0.163	0.045
Port Hope Harbour	Combined		**8,544**	**3,573**	**73,300**	**0.117**	**0.049**
Wilmot Creek	Spring and Fall	1994	11,029	3,996	40,826	0.270	0.098
Lake Ontario Boat Fishery	April 1- Sept 30	2005	20,974	17,548	390,633	0.054	0.045

Table 14: Summary of the targeted Catch per Unit Effort (CUE - # fish/rod hour) from the most recent creel surveys in FMZ 17

	Balsam 2003	Scugog 2003	Scugog 2003 (Winter)	Rice 2000	Pigeon 2005	Buckhorn 2005	Chemung 2005	Crowe 1999	Crowe 2000 (Winter)
Walleye	0.11	0.18	0.23	0.23	0.10	0.05	0.10	0.20	0.02
Smallmouth bass	0.40	0.03	NA	0.57	1.00	NA	0.18	0.41	NA
Largemouth bass	0.46	0.31	NA	0.51	0.60	0.60	0.54	0.15	NA
Muskellunge	0.03	0.13	NA	NA	0.07	0.09	0.03	0.02	0.00
Yellow perch	4.26	1.10	0.92	3.98	4.67	4.94	0.08	0.48	2.09
Rock bass	NA	NA	NA	1.34	NA	NA	NA	0.48	NA
Pumpkinseed	NA	NA	NA	2.69	NA	NA	NA	0.32	NA
Bluegill	21.67	NA	NA	6.11	14.72	13.13	17.45	1.09	NA
Black crappie	0.06	NA	NA	1.30	1.46	0.00	2.78	0.00	NA
Brown Bullhead	NA	NA	NA	NA	NA	NA	NA	0.00	NA
Carp	NA	NA	NA	NA	NA	NA	NA	0.00	NA
Northern Pike	NA	NA	NA	NA	NA	NA	NA	0.29	0.44

NA - No targeted effort reported in survey

Table 15: Summary of the proportion of catch in various size categories and associated Fishing Quality Index (FQI) scores for walleye based on Fall Walleye Index Netting surveys

		Length Category (mm)					
Lake	Survey Year	Stock (180-340)	Immature (340-420)	Juvenile (420-550)	Quality (550-690)	Memorable (>690)	FQI
Balsam	1998	0.43	0.25	0.30	0.02	0.00	91
	2001	0.34	0.28	0.33	0.05	0.00	108
	2002	0.49	0.06	0.38	0.06	0.00	102
	2003	0.59	0.14	0.21	0.06	0.00	74
	2004	0.62	0.12	0.20	0.06	0.00	71
	2005	0.35	0.37	0.19	0.09	0.00	102
Buckhorn	2000	0.09	0.50	0.41	0.00	0.00	131
	2004	0.22	0.07	0.48	0.22	0.00	170
Chemung	2000	0.29	0.29	0.38	0.03	0.00	115
	2004	0.41	0.12	0.38	0.06	0.03	118
Pigeon	2000	0.46	0.19	0.31	0.04	0.00	92
	2004	0.78	0.07	0.07	0.07	0.00	44
Rice	1999	0.37	0.31	0.29	0.03	0.00	98
	2003	0.07	0.30	0.58	0.05	0.00	162
	2006	0.40	0.28	0.22	0.10	0.00	102
Belmont	1999	0.56	0.22	0.22	0.00	0.00	67
Cameron	2001	0.65	0.30	0.05	0.00	0.00	40
Crowe	1999	0.48	0.26	0.22	0.04	0.00	83
Sandy	2001	0.71	0.23	0.05	0.02	0.00	37
Scugog	2002	0.78	0.15	0.08	0.00	0.00	30
	2006	0.74	0.21	0.05	0.00	0.00	32
Sturgeon	2001	0.84	0.05	0.05	0.05	0.00	32
	2006	0.67	0.19	0.12	0.02	0.00	50
Average		0.43	0.25	0.26	0.05	0.00	93

Table 16: Summary of the proportion of catch in various size categories and associated Fishing Quality Index (FQI) scores for yellow perch based on Fall Walleye Index Netting surveys

		Length Category (mm)					
Lake	**Survey Year**	**Stock (70-140)**	**Immature (140-170)**	**Juvenile (170-230)**	**Quality (230-280)**	**Memorable (>280)**	**FQI**
Balsam	**1998**	0.27	0.19	0.47	0.07	0.00	134
	2001	0.37	0.33	0.25	0.05	0.00	97
	2002	0.05	0.39	0.50	0.06	0.00	158
	2003	0.39	0.28	0.30	0.03	0.00	97
	2004	0.22	0.44	0.29	0.05	0.00	117
	2005	0.40	0.28	0.30	0.02	0.00	95
Buckhorn	2000	0.14	0.71	0.15	0.00	0.00	102
	2004	0.13	0.74	0.11	0.01	0.00	101
Chemung	2000	0.24	0.58	0.16	0.02	0.00	96
	2004	0.20	0.60	0.21	0.00	0.00	101
Pigeon	2000	0.18	0.47	0.34	0.00	0.00	117
	2004	0.07	0.50	0.41	0.01	0.00	136
Rice	1999	0.18	0.67	0.14	0.00	0.00	97
	2003	0.46	0.52	0.03	0.00	0.00	58
	2006	0.30	0.53	0.17	0.01	0.00	90
Belmont	1999	0.42	0.40	0.10	0.08	0.00	84
Cameron	2001	0.27	0.38	0.33	0.03	0.00	113
Crowe	1999	0.59	0.24	0.16	0.02	0.00	61
Sandy	2001	0.35	0.28	0.34	0.03	0.00	104
Scugog	2002	0.65	0.15	0.17	0.03	0.00	59
	2006	0.81	0.15	0.04	0.00	0.00	23
Sturgeon	2001	0.23	0.46	0.29	0.00	0.02	112
	2006	0.11	0.37	0.48	0.05	0.00	146
Average		0.31	0.42	0.25	0.03	0.00	100

Table 17 - Summary of the proportion of catch in various size categories and associated Fishing Quality Index (FQI) scores for sport fish species based on Nearshore Community Index Netting surveys

	Balsam				Buckhorn				Chemung		Pigeon	Rice		Scugog		Sturgeon	Head	Average
Length Category (mm)	**1998**	**1999**	**2002**	**2006**	**1992**	**1997**	**2001**	**2005**	**2005**	**2006**	**2005**	**2000**	**2004**	**2003**	**2006**	**2003**	**2005**	
Pumpkinseed																		
Stock (50-100)	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.02		0.00
Immature (100-120)	0.00	0.00	0.01	0.07	0.07	0.02	0.02	0.02	0.05	0.00	0.00	0.00	0.05	0.06	0.04	0.10		0.03
Juvenile (120-150)	0.05	0.06	0.08	0.12	0.80	0.40	0.35	0.45	0.34	0.34	0.31	0.29	0.37	0.65	0.26	0.30	Insufficient	0.32
Quality (150-190)	0.53	0.47	0.73	0.43	0.13	0.54	0.62	0.53	0.60	0.66	0.68	0.68	0.58	0.26	0.68	0.49	data (2 fish)	0.54
Memorable (>190)	0.41	0.47	0.19	0.36	0.00	0.04	0.01	0.00	0.01	0.00	0.01	0.02	0.00	0.00	0.01	0.10		0.10
FQI	**336**	**341**	**309**	**306**	**207**	**260**	**262**	**252**	**257**	**265**	**269**	**273**	**253**	**215**	**267**	**255**		**270**
Bluegill																		
Stock (50-90)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02		0.00
Immature (90-120)	0.00	0.00	0.01	0.08	0.05	0.01	0.16	0.06	0.08	0.01	0.01	0.02	0.07	0.32	0.08	0.06		0.06
Juvenile (120-160)	0.18	0.14	0.48	0.17	0.54	0.36	0.56	0.79	0.65	0.58	0.38	0.46	0.71	0.42	0.51	0.42		0.46
Quality (160-210)	0.76	0.79	0.50	0.70	0.41	0.62	0.28	0.15	0.28	0.41	0.61	0.52	0.21	0.26	0.41	0.49	No fish	0.46
Memorable (>210)	0.06	0.07	0.02	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.01
FQI	**288**	**293**	**252**	**272**	**236**	**262**	**212**	**210**	**220**	**240**	**261**	**251**	**214**	**194**	**233**	**239**		**242**
Smallmouth Bass																		
Stock (120-220)	0.12	0.12	0.33	0.20	0.05	0.21	0.21	0.24	0.22	0.33	0.21	0.05	0.18	0.63	0.65	0.35	0.14	0.26
Immature (220-280)	0.29	0.18	0.24	0.34	0.37	0.34	0.19	0.50	0.41	0.39	0.62	0.07	0.09	0.19	0.29	0.28	0.35	0.30
Juvenile (280-360)	0.37	0.38	0.26	0.28	0.32	0.19	0.25	0.09	0.09	0.14	0.07	0.15	0.17	0.05	0.00	0.30	0.39	0.19
Quality (360-450)	0.21	0.30	0.15	0.15	0.26	0.21	0.25	0.10	0.13	0.11	0.09	0.56	0.43	0.12	0.02	0.07	0.06	0.20
Memorable (>450)	0.02	0.02	0.02	0.03	0.00	0.05	0.10	0.08	0.16	0.03	0.02	0.17	0.13	0.01	0.04	0.00	0.05	0.05
FQI	**171**	**192**	**129**	**146**	**179**	**156**	**185**	**128**	**159**	**111**	**109**	**273**	**223**	**71**	**49**	**110**	152	**149**
Largemouth Bass																		
Stock (110-200)	0.12	0.08	0.35	0.35	0.03	0.02	0.10	0.10	0.09	0.12	0.03	0.04	0.22	0.13	0.28	0.11		0.13
Immature (200-250)	0.08	0.18	0.24	0.30	0.14	0.33	0.29	0.60	0.40	0.12	0.56	0.13	0.31	0.16	0.34	0.14		0.27
Juvenile (250-330)	0.22	0.12	0.16	0.06	0.50	0.53	0.30	0.18	0.32	0.54	0.27	0.58	0.27	0.25	0.06	0.44	Insufficient	0.30
Quality (330-420)	0.53	0.54	0.22	0.22	0.30	0.11	0.27	0.11	0.15	0.19	0.11	0.21	0.19	0.39	0.19	0.28	data (13 fish)	0.25
Memorable (>420)	0.05	0.08	0.03	0.07	0.03	0.01	0.04	0.01	0.03	0.03	0.03	0.05	0.01	0.08	0.13	0.03		0.05
FQI	**232**	**238**	**134**	**137**	**215**	**176**	**186**	**133**	**163**	**190**	**156**	**212**	**147**	**214**	**153**	**199**		**180**
Black Crappie																		
Stock (80-160)	06	0.00	0.01	0.02	0.00	0.15	0.01	0.03	0.09	0.02	0.01	0.10	0.64	0.17	0.38	0.06		0.11
Immature (160-200)	0.48	0.01	0.14	0.59	1.00	0.36	0.19	0.53	0.55	0.32	0.39	0.55	0.25	0.52	0.39	0.13		0.40
Juvenile (200-260)	0.34	0.90	0.56	0.14	0.00	0.32	0.77	0.42	0.34	0.65	0.57	0.34	0.11	0.17	0.17	0.70	No fish	0.41
Quality (260-320)	0.04	0.08	0.24	0.25	0.00	0.16	0.04	0.02	0.02	0.01	0.02	0.01	0.01	0.15	0.06	0.11		0.08
Memorable (>320)	0.07	0.01	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.01
FQI	**160**	**209**	**216**	**161**	**100**	**150**	**184**	**142**	**128**	**165**	**162**	**127**	**48**	**129**	**91**	**187**		**147**

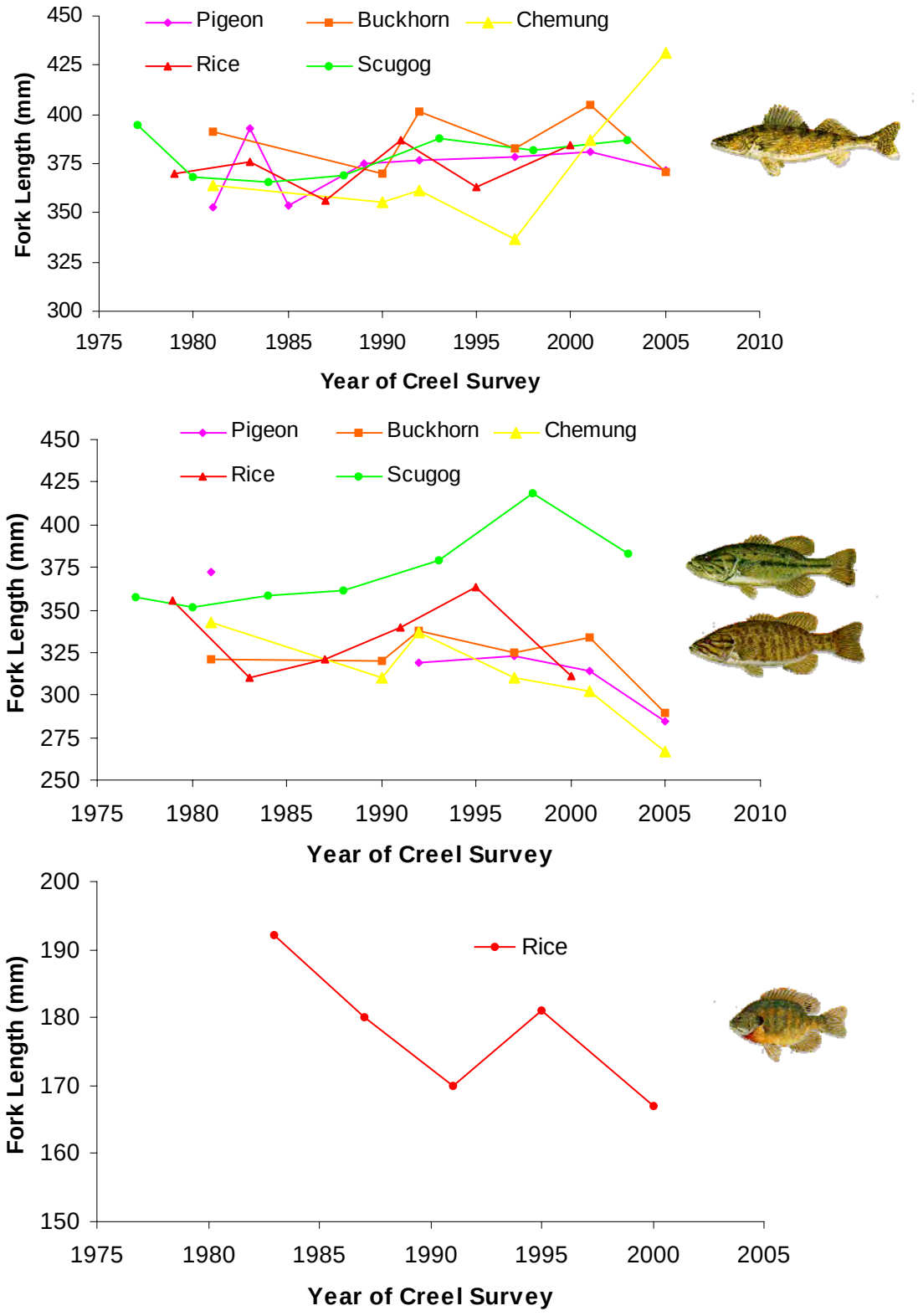


Figure 32: Average size of walleye (upper graph) bass (middle graph) and bluegill (lower graph) harvested by anglers based on creel surveys conducted by the Kawartha Lakes Fisheries Assessment Unit.

Table 18: Summary of the mean size (fork length and round weight) of fish harvested in recent open water creel surveys in FMZ 17

	Balsam 2003		Tri-Lakes 2005		Scugog 2003		Rice 2000	
	Mean FL (mm)	Mean Weight (g)	Mean FL (mm)	Mean Weight (g)	Mean FL (mm)	Mean Weight (g)	Mean FL (mm)	Mean Weight (g)
Walleye	420	843	385	720	387	672	390	695
Smallmouth bass	316	604	276	376	391	1090	281	479
Largemouth bass	369	1060	281	413	383	984	311	609
Yellow perch	200	110	181	71	226	161	188	90
Rock bass	246	350	174	126	219	223	177	133
Pumpkinseed	189	183	162	99	152	90	170	127
Bluegill	185	165	167	105	-	-	167	120
Black Crappie	-	-	202	136	246	400	215	180

4.0 Fisheries Management Actions

4.1 Historical Fisheries Management Actions

In the 1920s through the 1930s, bass and muskellunge were the primary focus of management. Catch and possession limits, in concert with size limits and season were the primary means of managing the fishery. The existing winter closure on most of FMZ 17 dates back to these early days of fisheries management. Through the 1930s and 1940s, walleye were introduced into the Kawartha Lakes and provided high quality angling opportunities. Stocking has played a significant role in shaping current coldwater and warmwater fish communities. A summary of stocking in Lake Ontario has been provided in Appendix 3, with MNR stocking records from the streams in FMZ 17 included in Appendix 4.

In the 1970's a major review of the fishery was initiated to address concerns regarding the decline in the walleye fishery and to address MNR concerns over high angling effort and harvest. As a result, the angling season was shortened by a two-week period (November 15 closure) and sanctuaries were established at fast water spawning locations that prohibited fishing in these areas during the first week of the walleye season. In addition, numerous spawning sites were rehabilitated, and the Trent-Severn Waterway took steps towards the protection of shoreline habitats by implementing a work permit system. The MNR increased monitoring efforts on the lakes via the establishment of the Kawartha Lake Fisheries Assessment Unit.

In 1993-94, the MNR once again attempted to address public concerns regarding the walleye fishery and demands to implement a stocking program by initiating the Kawartha Lakes Walleye Review. The objective of this review was to determine if implementing a stocking program might result in a measurable improvement in the quality of the walleye fishery. If stocking was not deemed to be an appropriate solution, then the review would examine current management approaches and provide recommendations to improve the walleye fishery. This review determined that the average age and size of walleye was relatively stable, with declines only observed on Balsam Lake. The Kawartha Lakes compared favourably to other intensively fished lakes in North America, and provided sufficient walleye habitat.

Stocking was not deemed an appropriate management action at that time, as stocking is a tool to use when natural reproduction fails, which was not the case in the Kawartha Lakes at that time.

A spin-off of the recommendation from the walleye review in the early 1990s was the establishment of the Kawartha Fisheries Association (KFA), intended to fill the function of a non-technical advisory council for the Kawartha Lakes. The KFA functioned in this role until 2004, although a number of individual lake chapters remained in place.

4.2 Current Fisheries Management Actions

In the late 1990s, concerns regarding the quality of the panfish (particularly bluegill) fishery in Rice Lake were raised. MNR initiated a review of panfish management, and attempted to work with local businesses and anglers to explore regulatory options to address concerns regarding the fishing quality. After research and extensive consultation, it was determined that there was public concern over the decline in both abundance and size of bluegill in Rice Lake, overexploitation and undervaluing of the resource. However, it was also identified that regulations were not required to sustain the stocks, but may be a useful tool to maintain fishing quality and marketability. No regulations were implemented as a result of this review.

In 2001, the MNR attempted to address concerns regarding the sustainability of the Balsam Lake walleye fishery. Specific concerns included the low abundance of walleye, high fishing pressure, and poor angler success rates. Through extensive public consultation, a protective slot regulation and reduced catch limit was implemented with the objective to protect a strong 1997 year class to assist in the recovery of the walleye population. The catch and possession limit was reduced from six walleye to three (conservation limit of one), and a protected slot-size limit 37-55 cm was implemented. Extensive monitoring by the KLFAU has been carried out since implementation of this regulation. The initial response to the regulation was a decline in both walleye targeted angling effort (60 %) and harvest (90 % by 2003). Although abundance in index netting has remained low (less than 3 walleye per FWIN net), both adult survival and the density of large walleye have increased. The effectiveness of the regulation should continue to be monitored.

In 2002, as part of a provincial review of muskellunge management, new muskellunge size limits were implemented across Ontario to provide a diversity of muskellunge angling opportunities, to ensure that regulations could be rationalized and meet sustainability objectives, and to establish benchmark values to simplify the regulations (OMNR, 2005c). Regulations were based on the growth potential of a particular waterbody (or group of waterbodies). The Kawartha Lakes were identified as a high density fishery with little potential for producing ‘trophy’ fish, and a minimum size limit of 91 cm (36″) was implemented for Division 6 and 7. The Crowe Lake and Crowe River were identified as exception regulations with a minimum size limit of 102 cm (40″), as these waterbodies had greater growth potential than the Kawartha Lakes. These regulations remain in place in FMZ 17.

In 2004, MNR Peterborough District held a workshop attended by numerous MNR biologists and scientists, as well as outside government and non-government agencies. This was intended as the first step in the development of a Fisheries Management Plan for the Kawartha Lakes. The group went through various exercises to identify management challenges, objectives and actions. The recommendations of this group should be incorporated into the Fisheries Management Plan development process for FMZ 17.

In 2005, the Ecological Framework for Recreational Fisheries Management in Ontario was launched, focusing on FMZs, managing and monitoring at the broader landscape level, and enhanced stewardship. The new FMZs are the geographic basis for setting fishing regulations. Some modifications were made to the existing Division 6 boundary to form FMZ 17. One of the key changes is that Crowe Lake is now part of FMZ 17, along with the other lakes in the Crowe River Watershed (e.g. Belmont, Round, Cordova). Other notable changes include the northern part of Division 6, which contained a small number of lake trout lakes. These lakes will be managed as part of FMZ 15, as these lakes are more ecologically similar to other lakes on the Canadian Shield than they are to the lakes in the Crowe and Trent River watersheds. The enhanced stewardship component will be achieved by the formation of a Fisheries Advisory Council in each FMZ, which will be tasked with providing advice to MNR on various aspects of fisheries management. The Council for FMZ 17 was initiated in late 2006 as one of three pilot councils in the Province.

The MNR announced new walleye regulations for southern Ontario in July 2006, which were implemented on January 1, 2008. The catch and possession limit has been reduced from 6 to 4 walleye for holders of a sport licence, and two for conservation licence holders. Only one fish may be greater than 46 cm (~18 inches) for both licence types. These regulations were announced as an interim measure until the FMZ Councils can provide input and direction into walleye management.

MNR currently provides Put-Grow-Take (PGT) brook trout fishing opportunities by stocking between 4,000-5,000 brook trout into two ponds at the Millbrook Provincial Fishing Area. MNR maintains the properties and have constructed wheelchair accessible fishing areas in the ponds. It is anticipated that this stocking program will continue.

Where possible, future fisheries regulations will be directed by the regulatory ‘tool kits’ that have been developed for each species. These toolkits provide a suite of regulatory options that should be considered when determining regulations.

5.0 Public Expectations Related to Use of the Fisheries Resources

No zone wide public surveys have been completed to quantify public expectations associated with the fisheries resources. However, the general public and resource users have been surveyed associated with other recent projects and programs including the Balsam Lake walleye regulation review, the Ganaraska River Fisheries Management Plan, the Southern Region Walleye Regulation Review, the Lake Ontario Rainbow Trout Regulation Review, and the Kawartha Lakes Panfish Review.

In general, the public within FMZ 17 seem to place a high priority on self-sustaining fish populations that offer a diversity of high quality angling opportunities and associated social and economic benefits. Stakeholders and the public are generally well informed on the ecological processes and fisheries management principles, and are open to the role they can play in protecting and enhancing these resources (e.g. habitat rehabilitation, angling regulations). The collection of information to determine more specific public expectations should be a priority for the FMZ 17 Fisheries Management Plan.

6.0 Other Information Influencing Management

The strategic direction for the MNR is outlined in Our Sustainable Futures (OMNR, 2005a) with an increased emphasis on protection of biodiversity values as outlined in the Ontario Biodiversity Strategy (OMNR, 2005d). Current fisheries management is largely driven by the principles identified in the Strategic Plan for Ontario Fisheries (SPOF II – OMNR, 1991). Recently, Lester et al. (2003) outlined a broad-scale approach to the management of Ontario fisheries, which is being implemented largely through the Ecological Framework for Recreational Fisheries Management.

In 2005, numerous partners involved in the management of coldwater streams in the MNR Peterborough Area collaborated to prepare the Coldwater Stream Strategy (CWSS - OMNR, 2005b). The CWSS identified two goals for the management of coldwater streams; *healthy coldwater streams* and *a community working together*. The document also identifies resource management challenges and a suite of management options. Implementation of the CWSS for the Peterborough Area, and across FMZ 17 in its entirety, should be considered a management priority.

Conservation Authorities will continue to play an important role in the collection of fisheries and aquatic habitat information, and in the management of these resources through permitting and review processes. In many instances, Conservation Authorities have prepared (or are in the process of preparing) Watershed Management Plans that include a fisheries-specific component, often in partnership with the MNR and DFO. These plans identify fisheries resources, management challenges and strategies. As outlined above, these Fisheries Management Plans are in various stages of development in FMZ 17. These plans are being prepared in accordance with the MNR Watershed Based Fisheries Management Planning guidelines within the context of Watershed Plans, and will be linked to broader FMZ 17 objectives wherever possible. These plans may identify specific objectives and actions, but will be consistent with the FMZ 17 management planning framework.

Fisheries management direction on Lake Ontario is largely dictated by the Fish Community Objectives (FCOs) for Lake Ontario which are prepared under the direction of the Great Lakes Fishery Commission (Stweart et al., 1999). The Lake Ontario objectives were most recently published in 1999, and are currently in review by the regulatory agencies involved, including the MNR and the New York State Department of Environmental Conservation (NYSDEC). The abundance of many fish species in the Lake Ontario tributaries, particularly migratory salmonids, are highly dependent on the management actions across the entire lake. Management

actions on the tributaries must continue to be consistent with the Lake Ontario FCOs. Linkages between the inland fisheries management strategies and the Lake Ontario FCOs must be maintained.

A number of simplified Water Management Plans for waterpower have been prepared within FMZ 17; including those associated with facilities on the Otonabee, Ganaraska, and Crowe Rivers. These plans identify monitoring and compliance guidelines for the operation of these facilities, as well as information gaps associated with the fisheries resources.

A number of management actions, particularly those involving the protection of habitat, rely on the implementation of the 2005 Provincial Policy Statement (OMMAH, 2005) via the Official Plans prepared by individual municipalities. Opportunities to incorporate best bet fisheries management actions into the municipal planning process should be explored, where appropriate.

7.0 Identification of Fisheries Management Challenges

The challenges associated with managing the fisheries resources in FMZ 17 are diverse. Each challenge will be addressed in more detail in the FMZ 17 Fisheries Management Plan. The preliminary list of fisheries management challenges identified by MNR and the FMZ 17 Advisory Council include:

- Invasive Species and Disease
- Expectations of Diverse Resource Users
- Change in Top Predator Abundance – decline of walleye
- Resource Allocation and Use
- Stressors and Impacts on Fish Habitat
- Coordination and Communication
- Information and Information Management – Abundance and Productivity
- Coldwater Streams

8.0 Literature Cited

Angus, J.T. 1988. A respectable ditch: history of the Trent-Severn waterway, 1833-1920. McGill-Queen's University Press. Kingston.

Bowlby, J. 2003. A Definition for Cold Water Stream. Ontario Ministry of Natural Resources (Draft).

Bunnell, D.B., T.B. Johnson, and C.T. Knight. 2005. The impact of introduced round gobies (*Neogobius melanostomus*) on phosphorus cycling in central Lake Erie. Canadian Journal of Fisheries and Aquatic Sciences 62: 15-29.

Casselman, J.M., C.J. Robinson, and E.J. Crossman. 1999. Growth and ultimate length of muskellunge from Ontario water bodies. North American Journal of Fisheries Management 19: 271-290.

Central Lake Ontario Conservation Authority. 2000. Bowmanville/Soper Creek Watershed Aquatic Resource Management Plan. 168 p.

Central Lake Ontario Conservation Authority. 2002.Oshawa Creek Watershed Aquatic Resource Management Plan. 97 p.

Colby, P.J., R.E. McNicol, and R.A. Ryder. 1979. Synopsis of biological data on the walleye *Stizostedion v. vitreum* (Mitchill 1818). Food and Agriculture Organization of the United States.

Deacon, L. 1992. Data summary of Kawartha Lakes Fisheries Assessment Unit creel and trapnetting surveys, 1977-1992. Ontario Ministry of Natural Resources.212 p.

Deacon, L. 1996. The Kawartha Lakes muskellunge fishery. In: Managing Muskies in the '90s Workshop Proceedings. Ontario Ministry of Natural Resources.

Farrell, J.M. 2001. Reproductive success of sympatric northern pike and muskellunge in an upper St. Lawrence River bay. Transactions of the American Fisheries Society 130: 796-808.

Fausch, K.D. and R.J. White. 1981. Competition between brook trout and brown trout for positions in a Michigan stream. Canadian Journal of Fisheries and Aquatic Sciences 38: 1220-1227.

Ganaraska Region Conservation Authority and Ontario Ministry of Natural Resources. 2007. Ganaraska River Fisheries and aquatic habitat background report. 151 p.

Gabelhouse, D.W. 1984. A length-categorization system to assess fish stocks. N. Am. J. Fish. Mgmt. 4: 273-285.

Harrison, E.J. and W.F. Hadley. 1978. Ecologic separation of sympatric muskellunge and northern pike. American Fisheries Society Special Publication 11:129-134. Editor: R.L. Kendall. Selected Coolwater Fishes of North America.

Inskip, P.D. 1986. Negative associations between abundances of muskellunge and northern pike: evidence and possible explanations. American Fisheries Society Special Publication 15: 135-150.

Inskip, P.D., and J.J. Madnuson. 1983. Changes in fish populations over an 80-year period: Big Pine Lake, Wisconsin. Transactions of the American Fisheries Society 112: 378-389.

Kawartha Region Conservation Authority. 2006. Nonquon River Fisheries Management Plan 2006 Background Report. 32 p.

Kerr, S.J., and R.E. Grant. 1999. Ecological Impacts of Fish Introductions: Evaluating the risk. Muskellunge and Pike. pp 325-355. Fish and Wildlife Branch, Ontario Ministry of Natural Resources, Peterborough, Ontario.

Kerr, S.J. 2004. Characteristics of Ontario muskellunge fisheries based on volunteer angler diary information. Fish and Wildlife Branch, Ontario Ministry of Natural Resources, Peterborough, Ontario. 138 pp.

Koonce, J.F., T.B. Bagenal, R.F. Carline, K.E.F. Hokanson, and M. Nagiec. 1977. Factors influencing year-class strength of Percids: A summary of a model of temperature effects. Journal of the Fisheries Research Board of Canada 34: 1900-1909.

Krohne, D.T. 1998. General Ecology. Wadsworth Publishing Company. Belmont, CA. 722 pp.

Lester, N.P., B.J. Shuter, R.S. Kushneriuk and T.R. Marshall. 2000. Life History Variation in Ontario Walleye Populations: Implications for safe rates of fishing. Fish and Wildlife Branch, Ontario Ministry of Natural Resources. Peterborough, ON. 38 p.

Lester, N. P., T.R. Marshall, K. Armstrong, W.I. Dunlop and B. Ritchie. 2003. A Broad-Scale Approach to Management of Ontario's Recreational Fisheries North American Journal of Fisheries Management 23:1312–1328

Lester, N.P., A.J. Dextrase, R.S. Kushneriuk, M.R. Rawson, and P. A. Ryan. 2004. Light and temperature: Key factors affecting walleye abundance and production. Transactions of the American Fisheries Society 133:588–605

Marshall, T.L. and H.R. MacCrimmon. 1970. Exploitation of self sustaining Ontario stream populations of brown trout (*Salmo trutta*) and brook trout (*Salvelinus fontinalis*). Journal of the Fisheries Research Board of Canada 27:1087-1102.

Morgan, G.E. 2002. Manual of Instructions - Fall Walleye Index Netting (FWIN). Percid Community Synthesis, Diagnostics and Sampling Standards Working Group. Ontario Ministry of Natural Resources. 34 p.

Moyle, P.B., and T. Light. 1996. Biological invasions of freshwater: empirical rules and assembly theory. Biological Conservation 78: 149-161.

Ontario Ministry of Municipal Affairs and Housing. 2005. 2005 Provincial Policy Statement. 37 p.

Ontario Ministry of Natural Resources. 1991. Strategic Plan for Ontario Fisheries (SPOF II).

Ontario Ministry of Natural Resources. 2003. 2000 Survey of recreational fishing in Ontario – A descriptive analysis. 237 p.

Ontario Ministry of Natural Resources. 2004. Ontario Stream Assessment Protocol. Version 6.1.

Ontario Ministry of Natural Resources. 2005a. Our Sustainable Future. Ministry of Natural Resources Strategic Directions. 22 p.

Ontario Ministry of Natural Resources. 200ba. Coldwater Stream Strategy Peterborough Area. French Planning Services Inc. 54 p.

Ontario Ministry of Natural Resources. 2005c. Proposal for managing the sport fishery for muskellunge in Ontario. Fisheries Section, OMNR. Peterborough. (Updated).

Ontario Ministry of Natural Resources. 2005d. Protecting What Sustains Us – Ontario's Biodiversity Strategy. 44 p.

Ontario Ministry of Natural Resources and Ganaraska Region Conservation Authority. 2006. Fisheries Management Plan for Wilmot Creek (December 2006 Draft). 133 p.

Roberge, M.D. 2004. Population ecology of largemouth bass in a large lake system sampled through tournament angling. Trent University, Watershed Ecosystems Graduate Program. 106 pp.

Robillard, M.M., and M.G. Fox. 2006. Historical changes in abundance and community structure of warmwater piscivore communities associated with changes in water clarity, nutrients, and temperature. Canadian Journal of Fisheries and Aquatic Sciences 63: 798-809.

Rutherford, E.S., K.A. Rose, E.L. Mills, J.L. Forney, C.M. Mayer, and L. G. Rudstam. 1999. Individual-based model simulations of a zebra mussel (*Dreissena polymorpha*) induced energy shunt on walleye *(Stizostedion vitreum*) and yellow perch (*Perca flavescens*) populations in Oneida Lake, New York Canadian Journal of Fisheries and Aquatic Sciences 56: 2148–2160

Schindler, D.W. 2001. The cumulative effects of climate warming and other human stresses on Canadian freshwaters in the new millennium Canadian Journal of Fisheries and Aquatic 58: 18–29.

Scott, W.B., and E.J. Crossman. 1998. Freshwater Fishes of Canada. 4th edition. Galt House Publications, Oakville, ON.

Skinner, A., and H. Ball. 2004. Manual of Instructions End of Spring Trap Netting (ESTN) Ontario Ministry of Natural Resources. 52p.

Stewart, T.J., R.E. Lange, S.D. Orsatti, C.P. Schneider, A. Mathers, M.E. Daniels. 1999. Fish-community objectives for Lake Ontario. Great Lakes Fish. Comm. Spec. Pub. 99-l. 56 p.

Stirling, M. 1999. Manual of instructions: Nearshore Community Index Netting (NSCIN), Ontario Ministry of Natural Resources.

Taillon, D., and H. Ball. 2004. 2003 Fall Electrofishing Data Summary - Balsam, Pigeon, Rice and Scugog Lakes. Ontario Ministry of Natural Resources, Peterborough District. 20 pp.

Taillon, D., and M. Fox. 2004. The influence of residential and cottage development on littoral zone fish communities in a mesotrophic north temperate lake. Environmental Biology of Fishes 71 (3): 275-285.

Taillon, D., J. Wiltshire, and M. Robillard. 2004. Summary of forage fish sampling data 2003/04. Ontario Ministry of Natural Resources Peterborough District. 35 pp.

Toronto and Region Conservation Authority, Ontario Ministry of Natural Resources and Fisheries and Oceans Canada. 2004. Fisheries Management Plan for Duffins and Carruthers Creek. 129 pp.

Walters, C., and J.F. Kitchell. 2001. Cultivation/depensation effects on juvenile survival and recruitment: implications for the theory of fishing. Canadian Journal of Fisheries and Aquatic Sciences 58: 39–50

Appendix 1 – MNR Lake Stocking Records for Walleye, Largemouth Bass and Muskellunge in FMZ 17

Appendix 1a - Walleye Stocking Records in FMZ 17, 1921-present			
Lake Name	Year	Lifestage Stocked	Number of Fish Stocked
Balsam L.	1922	unknown	200,000
Balsam L.	1923	unknown	100,000
Balsam L.	1924	unknown	500,000
Balsam L.	1925	unknown	500,000
Balsam L.	1927	unknown	250,000
Balsam L.	1932	unknown	250,000
Balsam L.	1934	unknown	250,000
Balsam L.	1942	unknown	800,000
Balsam L.	1943	unknown	800,000
Balsam L.	1944	unknown	800,000
Balsam L.	1945	unknown	200,000
Balsam L.	1946	Fry (1-2 months)	200,000
Balsam L.	1947	Fry (1-2 months)	200,000
Balsam L.	1948	Fry (1-2 months)	30,000
Balsam L.	1951	Egg (unknown stage)	150,000
Balsam L.	1952	Egg (unknown stage)	30,000
Balsam L.	1953	Egg (unknown stage)	1,000,000
Balsam L.	1954	Egg (unknown stage)	1,000,000
Belmont L.	1946	Fry (1-2 months)	300,000
Belmont L.	1946	Fingerling (3-9 months)	300
Belmont L.	1947	Fry (1-2 months)	300,000
Belmont L.	1949	Fry (1-2 months)	100,000
Buckhorn L.	1922	unknown	200,000
Buckhorn L.	1925	unknown	100,000
Buckhorn L.	1940	unknown	1,000,000
Buckhorn L.	1942	unknown	750,000
Buckhorn L.	1943	Fry (1-2 months)	500,000
Buckhorn L.	1944	Fry (1-2 months)	400,000
Buckhorn L.	1946	Fry (1-2 months)	200,000
Cameron L.	1924	unknown	500,000
Cameron L.	1925	Eyed Eggs	1,000,000
Cameron L.	1947	Fry (1-2 months)	200,000
Cameron L.	1948	Egg (unknown stage)	300,000
Cameron L.	1948	Fry (1-2 months)	300,000
Cameron L.	1951	Egg (unknown stage)	150,000
Cameron L.	1954	Egg (unknown stage)	1,000,000
Canal L.	1961	Juvenile/Adult	236
Canal L.	1962	Juvenile/Adult	430
Canal L.	1963	Juvenile/Adult	255
Canal L.	1964	Juvenile/Adult	200
Canal L.	1965	Juvenile/Adult	200
Canal L.	1966	Juvenile/Adult	197
Canal L.	1967	Juvenile/Adult	200
Chemong L.	1924	Fry (1-2 months)	500,000
Chemong L.	1925	Fry (1-2 months)	100,000
Chemong L.	1935	Fry (1-2 months)	500,000
Chemong L.	1939	Fry (1-2 months)	1,000,000
Chemong L.	1941	Fry (1-2 months)	500,000
Chemong L.	1942	unknown	750,000
Chemong L.	1943	Fry (1-2 months)	500,000
Chemong L.	1944	Fry (1-2 months)	400,000
Chemong L.	1945	Fry (1-2 months)	200,000
Chemong L.	1946	Fry (1-2 months)	200,000
Clear L.	1923	Fry (1-2 months)	100,000
Clear L.	1924	Fry (1-2 months)	250,000
Clear L.	1941	Fry (1-2 months)	500,000
Clear L.	1942	Fry (1-2 months)	500,000
Clear L.	1943	Fry (1-2 months)	500,000

Clear L.	1944	Fry (1-2 months)	400,000
Clear L.	1945	Fry (1-2 months)	200,000
Clear L.	1946	Fry (1-2 months)	200,000
Clear L.	1947	Fry (1-2 months)	250,000
Crowe L.	1921	Unknown	100,000
Crowe L.	1922	Unknown	50,000
Crowe L.	1923	Unknown	200,000
Crowe L.	1939	Unknown	1,500,000
Crowe L.	1940	Unknown	1,000,000
Crowe L.	1941	Unknown	1,500,000
Crowe L.	1947	Fry (1-2 months)	300,000
Crowe L.	1952	Egg (unknown stage)	500,000
Crowe L.	1953	Egg (unknown stage)	200,000
Crowe L.	1954	Egg (unknown stage)	300,000
Crowe L.	1986	Fry (1-2 months)	400,000
Crowe L.	1985	Egg (unknown stage)	400,000
Crowe R.	1945	Fry (1-2 months)	20,000
Crowe R.	1946	Fry (1-2 months)	500,000
Crowe R.	1947	Fry (1-2 months)	200,000
Crowe R.	1947	Fry (1-2 months)	400,000
Crowe R.	1947	unknown	200,000
Crowe R.	1954	unknown	600,000
Dalrymple L.	1946	Fry (1-2 months)	200,000
Dalrymple L.	1947	Fry (1-2 months)	300,000
Dalrymple L.	1948	Fry (1-2 months)	30,000
Dalrymple L.	1950	Fry (1-2 months)	400,000
Dalrymple L.	1951	Fry (1-2 months)	300,000
Dalrymple L.	1952	Egg (unknown stage)	400,000
Dalrymple L.	1953	Egg (unknown stage)	1,000,000
Dalrymple L.	1954	Egg (unknown stage)	1,000,000
Dalrymple L.	2003	Fingerling (3-9 months)	950
Dalrymple L.	2004	Fingerling (3-9 months)	2,700
Dalrymple L.	2005	Fingerling (3-9 months)	1,200
Head L.	1962	Fingerling (3-9 months)	75
Head L.	1963	Juvenile/Adult	200
Head L.	2004	Fry (1-2 months)	84,000
Katchewanooka L.	1942	Fry (1-2 months)	500,000
Katchewanooka L.	1943	Fry (1-2 months)	500,000
Katchewanooka L.	1944	unknown	400,000
Katchewanooka L.	1946	Fry (1-2 months)	200,000
Katchewanooka L.	1946	Fingerling (3-9 months)	400
Lovesick L.	1946	Fry (1-2 months)	200,000
Lovesick L.	1946	Fry (1-2 months)	200,000
Otonabee R.	1938	unknown	1,000,000
Otonabee R.	1939	unknown	400,000
Otonabee R.	1940	unknown	1,000,000
Otonabee R.	1941	unknown	500,000
Otonabee R.	1944	unknown	1,500,000
Otonabee R.	1945	unknown	200,000
Otonabee R.	1946	Fry (1-2 months)	200,000
Otonabee R.	1947	Eggs (unknown stage)	500,000
Otonabee R. (Little L.)	1924	unknown	100,000
Otonabee R. (Little L.)	1927	unknown	100,000
Otonabee R. (Little L.)	1928	unknown	200,000
Otonabee R. (Little L.)	1930	unknown	500,000
Otonabee R. (Little L.)	1931	unknown	200,000
Otonabee R. (Little L.)	1932	unknown	250,000
Otonabee R. (Little L.)	1933	unknown	250,000
Otonabee R. (Little L.)	1935	unknown	300,000
Otonabee R. (Little L.)	1936	unknown	200,000
Otonabee R. (Little L.)	1937	unknown	450,000
Otonabee R. (Little L.)	1938	unknown	1,000,000
Otonabee R. (Little L.)	1939	unknown	3,200,000
Otonabee R. (Little L.)	1940	unknown	500,000

Otonabee R. (Little L.)	1941	unknown	800,000
Otonabee R. (Little L.)	1943	unknown	1,500,000
Otonabee R. (Little L.)	1944	unknown	1,200,000
Otonabee R. (Little L.)	1945	unknown	400,000
Pigeon L.	1922	unknown	200,000
Pigeon L.	1924	Fry (1-2 months)	500,000
Pigeon L.	1925	Eyed Eggs	100,000
Pigeon L.	1939	unknown	1,000,000
Pigeon L.	1941	Eyed Eggs	800,000
Pigeon L.	1942	Eyed Eggs	750,000
Pigeon L.	1943	Eyed Eggs	500,000
Pigeon L.	1944	Fry (1-2 months)	400,000
Pigeon L.	1945	Fry (1-2 months)	200,000
Pigeon L.	1946	Fry (1-2 months)	300,000
Pigeon L.	1946	Fry (1-2 months)	200,000
Pigeon L.	1948	Fry (1-2 months)	300,000
Pigeon R.	1926	unknown	100,000
Rice L.	1936	Fry (1-2 months)	1,200,000
Rice L.	1937	Fry (1-2 months)	3,000,000
Rice L.	1938	Fry (1-2 months)	1,250,000
Rice L.	1939	unknown	1,500,000
Rice L.	1940	unknown	1,000,000
Rice L.	1941	Fry (1-2 months)	1,600,000
Rice L.	1942	Fry (1-2 months)	1,000,000
Rice L.	1943	Fry (1-2 months)	750,000
Rice L.	1944	unknown	1,300,000
Rice L.	1945	Fry (1-2 months)	20,000
Rice L.	1946	Fry (1-2 months)	250,000
Rice L.	1946	Fry (1-2 months)	200,000
Rice L.	1947	Fry (1-2 months)	300,000
Rice L.	1947	Fry (1-2 months)	400,000
Round L.	1946	Fry (1-2 months)	200,000
Round L.	1947	Fry (1-2 months)	200,000
Round L.	1949	Fry (1-2 months)	100,000
Scugog, L.	1948	Fry (1-2 months)	200,000
Shadow L.	1996	Fry (1-2 months)	10,000
Stony L.	1946	Fry (1-2 months)	200,000
Stony L.	1946	Fry (1-2 months)	200,000
Stony L.	1947	Fry (1-2 months)	250,000
Stony L.	1960	Yearling (10-19 months)	1,000
Sturgeon L.	1921	unknown	200,000
Sturgeon L.	1922	unknown	200,000
Sturgeon L.	1923	unknown	750,000
Sturgeon L.	1924	unknown	500,000
Sturgeon L.	1925	unknown	100,000
Sturgeon L.	1927	Eyed Eggs	1,000,000
Sturgeon L.	1942	unknown	500,000
Sturgeon L.	1944	unknown	300,000
Sturgeon L.	1945	unknown	200,000
Sturgeon L.	1946	Fry (1-2 months)	500,000
Sturgeon L.	1947	Fry (1-2 months)	300,000

Appendix 1b - Largemouth Bass Stocking Records in FMZ 17, 1946-present			
Lake Name	Year	Lifestage Stocked	Number of Fish Stocked
Dalrymple L.	1946	Fingerling (3-9 months)	500
Dalrymple L.	1948	Fry (1-2 months)	20,000
Dalrymple L.	1949	Fry (1-2 months)	10,000
Dalrymple L.	1952	Fingerling (3-9 months)	3,000
Dalrymple L.	1955	Fingerling (3-9 months)	1,500
Dalrymple L.	1958	Fingerling (3-9 months)	1,000
Cameron L.	1946	Fingerling (3-9 months)	500
Cameron L.	1947	unknown	113
Cameron L.	1948	Juvenile/Adult	33
Cameron L.	1949	Fry (1-2 months)	10,000
Cameron L.	1949	Fingerling (3-9 months)	1,000
Cameron L.	1950	Fry (1-2 months)	20,000
Cameron L.	1951	Fry (1-2 months)	20,000
Cameron L.	1952	Fingerling (3-9 months)	1,500
Cameron L.	1955	Fingerling (3-9 months)	1,500
Cameron L.	1958	Juvenile/Adult	100
Cameron L.	1958	Fingerling (3-9 months)	1,000
Cameron L.	1968	Juvenile/Adult	260
Cameron L.	1969	Juvenile/Adult	68
Balsam L.	1946	Fingerling (3-9 months)	500
Balsam L.	1948	Juvenile/Adult	6
Balsam L.	1948	Fry (1-2 months)	20,000
Balsam L.	1949	Fry (1-2 months)	10,000
Balsam L.	1950	Fry (1-2 months)	20,000
Balsam L.	1951	Fry (1-2 months)	20,000
Balsam L.	1952	Fingerling (3-9 months)	1,500
Balsam L.	1954	Fry (1-2 months)	20,000
Balsam L.	1955	Fingerling (3-9 months)	1,500
Balsam L.	1958	Fingerling (3-9 months)	1,000
Balsam L.	1958	Juvenile/Adult	66
Balsam L.	1969	Juvenile/Adult	58
Four Mile L.	1946	Fingerling (3-9 months)	500
Four Mile L.	1947	Juvenile/Adult	38
Four Mile L.	1947	Fingerling (3-9 months)	10,000
Four Mile L.	1948	Juvenile/Adult	31
Four Mile L.	1958	Fingerling (3-9 months)	1,000
Scugog, L.	1946	Fingerling (3-9 months)	500
Scugog, L.	1947	Fry (1-2 months)	10,000
Scugog, L.	1947	Fingerling (3-9 months)	10,000
Scugog, L.	1948	Adult (mature)	55
Scugog, L.	1948	Fingerling (3-9 months)	40,000
Scugog, L.	1949	Fingerling (3-9 months)	1,000
Scugog, L.	1949	Adult (mature)	23
Scugog, L.	1949	Fry (1-2 months)	20,000
Scugog, L.	1950	Adult (mature)	228
Scugog, L.	1950	Fry (1-2 months)	20,000
Scugog, L.	1950	Adult (mature)	100
Scugog, L.	1951	Adult (mature)	161
Scugog, L.	1951	Fingerling (3-9 months)	1,500
Scugog, L.	1951	Adult (mature)	90
Scugog, L.	1951	Fingerling (3-9 months)	2,000
Scugog, L.	1952	Fingerling (3-9 months)	1,200
Scugog, L.	1954	Fry (1-2 months)	20,000
Scugog, L.	1955	Fingerling (3-9 months)	2,000
Scugog, L.	1956	Fingerling (3-9 months)	4,500
Scugog, L.	1957	Fingerling (3-9 months)	6,000
Scugog, L.	1960	Fry (1-2 months)	100,000
Scugog, L.	1961	Fingerling (3-9 months)	5,000
Scugog, L.	1962	Fingerling (3-9 months)	3,000
Scugog, L.	1963	Fingerling (3-9 months)	2,000
Scugog, L.	1965	Fingerling (3-9 months)	3,000
Big Bald L.	1948	Juvenile/Adult	14
Buckhorn L.	1968	Juvenile/Adult	89

Buckhorn L.	1969	Juvenile/Adult	98
Chemong L.	1950	Fingerling (3-9 months)	750
Pigeon L.	1946	Fingerling (3-9 months)	500
Pigeon L.	1947	Juvenile/Adult	290
Pigeon L.	1948	Juvenile/Adult	40
Pigeon L.	1948	Juvenile/Adult	80
Pigeon L.	1952	Juvenile/Adult	375
Pigeon L.	1953	Juvenile/Adult	487
Pigeon L.	1955	Juvenile/Adult	899
Pigeon L.	1956	Juvenile/Adult	699
Pigeon L.	1958	Juvenile/Adult	416
Pigeon L.	1961	Juvenile/Adult	743
Pigeon L.	1962	Juvenile/Adult	413
Pigeon L.	1968	Juvenile/Adult	277
Pigeon L.	1969	Juvenile/Adult	262
Pigeon L.	1970	Juvenile/Adult	261
Sturgeon L.	1946	Fingerling (3-9 months)	500
Sturgeon L.	1947	Fry (1-2 months)	10000
Sturgeon L.	1947	Juvenile/Adult	320
Sturgeon L.	1948	Juvenile/Adult	93
Sturgeon L.	1948	Fry (1-2 months)	20000
Sturgeon L.	1949	Fry (1-2 months)	10000
Sturgeon L.	1952	Juvenile/Adult	129
Sturgeon L.	1953	Juvenile/Adult	472
Sturgeon L.	1956	Juvenile/Adult	654
Sturgeon L.	1957	Juvenile/Adult	1391
Sturgeon L.	1958	Juvenile/Adult	373
Sturgeon L.	1958	Juvenile/Adult	826
Sturgeon L.	1961	Juvenile/Adult	656
Sturgeon L.	1962	Juvenile/Adult	313
Sturgeon L.	1968	Juvenile/Adult	254
Sturgeon L.	1969	Juvenile/Adult	328
Sturgeon L.	1970	Juvenile/Adult	231
Lovesick L.	1968	Juvenile/Adult	436
Rice L.	1948	Fry (1-2 months)	20,000
Rice L.	1949	Fry (1-2 months)	20,000
Belmont L.	1952	unknown	500
Belmont L.	1954	Fingerling (3-9 months)	800
Crowe L.	1954	Fry (1-2 months)	10,000
Crowe L.	1955	Fingerling (3-9 months)	2,000
Crowe L.	1956	Fingerling (3-9 months)	1,000
Round L.	1950	Fingerling (3-9 months)	750
Round L.	1954	Fingerling (3-9 months)	800
Round L.	1956	Fingerling (3-9 months)	2,000

Appendix 1c -Muskellunge Stocking Records in FMZ 17, 1946-present			
Lake Name	Year	Lifestage Stocked	Number of Fish Stocked
Canal L.	1960	Fry (1-2 months)	40,000
Canal L.	1961	Fry (1-2 months)	40,000
Canal L.	1962	Fry (1-2 months)	40,000
Canal L.	1963	Fry (1-2 months)	20,000
Canal L.	1964	Fry (1-2 months)	20,000
Canal L.	1965	Fingerling (3-9 months)	200
Canal L.	1965	Fry (1-2 months)	20,000
Canal L.	1966	Fry (1-2 months)	20,000
Canal L.	1967	Fry (1-2 months)	20,000
Canal L.	1968	Fry (1-2 months)	15,000
Canal L.	1968	Fry (1-2 months)	200
Canal L.	1969	Fry (1-2 months)	200
Canal L.	1969	Fry (1-2 months)	20,000
Canal L.	1970	Fry (1-2 months)	15,000
Canal L.	1970	Fingerling (3-9 months)	400
Canal L.	1971	Fry (1-2 months)	15,000
Canal L.	1972	Fry (1-2 months)	20,000
Canal L.	1974	Fingerling (3-9 months)	500
Canal L.	1976	Fry (1-2 months)	14,000
Canal L.	1977	Fry (1-2 months)	10,000
Canal L.	1978	Fry (1-2 months)	10,000
Canal L.	1979	Fry (1-2 months)	10,000
Canal L.	1979	Fry (1-2 months)	500
Canal L.	1980	Fry (1-2 months)	20,000
Canal L.	1980	Fry (1-2 months)	100
Canal L.	1982	Fry (1-2 months)	20,000
Canal L.	1983	Fry (1-2 months)	500
Canal L.	1984	Fry (1-2 months)	20,000
Canal L.	1985	Fingerling (3-9 months)	2,000
Canal L.	1985	Fry (1-2 months)	20,000
Canal L.	1986	Fry (1-2 months)	1,200
Canal L.	1986	Fry (1-2 months)	40,000
Canal L.	1987	Fry (1-2 months)	20,000
Canal L.	1989	Fry (1-2 months)	40,000
Mitchell L.	1964	Fry (1-2 months)	10,000
Mitchell L.	1965	Fingerling (3-9 months)	200
Mitchell L.	1965	Fry (1-2 months)	10,000
Mitchell L.	1966	Fry (1-2 months)	10,000
Mitchell L.	1967	Fry (1-2 months)	20,000
Mitchell L.	1968	Fry (1-2 months)	200
Mitchell L.	1968	Fry (1-2 months)	15,000
Mitchell L.	1969	Fry (1-2 months)	200
Mitchell L.	1969	Fry (1-2 months)	20,000
Mitchell L.	1970	Fingerling (3-9 months)	400
Mitchell L.	1970	Fry (1-2 months)	15,000
Mitchell L.	1976	Fry (1-2 months)	14,000
Mitchell L.	1977	Fry (1-2 months)	20,000
Mitchell L.	1986	Fry (1-2 months)	20,000
Mitchell L.	1986	Fry (1-2 months)	1,200
Mitchell L.	1987	Fry (1-2 months)	20,000
Mitchell L.	1988	Fingerling (3-9 months)	437
Mitchell L.	1989	Fry (1-2 months)	20,000
Dalrymple L.	1946	Fry (1-2 months)	10,000
Dalrymple L.	1947	Fry (1-2 months)	20,000
Dalrymple L.	1948	Fry (1-2 months)	20,000
Dalrymple L.	1949	Fry (1-2 months)	30,000
Dalrymple L.	1950	Fingerling (3-9 months)	300
Dalrymple L.	1950	Fingerling (3-9 months)	400
Dalrymple L.	1950	Fry (1-2 months)	40,000
Dalrymple L.	1951	Fingerling (3-9 months)	200
Dalrymple L.	1951	Fry (1-2 months)	40,000
Dalrymple L.	1952	Fry (1-2 months)	50,000

Dalrymple L.	1952	Fingerling (3-9 months)	500
Dalrymple L.	1953	Fingerling (3-9 months)	500
Dalrymple L.	1953	Fry (1-2 months)	30,000
Dalrymple L.	1954	Fry (1-2 months)	40,000
Dalrymple L.	1954	Fingerling (3-9 months)	400
Dalrymple L.	1955	Fingerling (3-9 months)	500
Dalrymple L.	1955	Fry (1-2 months)	60,000
Dalrymple L.	1956	Fry (1-2 months)	40,000
Dalrymple L.	1956	Fingerling (3-9 months)	1,200
Dalrymple L.	1956	Fry (1-2 months)	30,000
Dalrymple L.	1957	Fry (1-2 months)	40,000
Dalrymple L.	1957	Fingerling (3-9 months)	400
Dalrymple L.	1958	Fingerling (3-9 months)	300
Dalrymple L.	1958	Fry (1-2 months)	40,000
Dalrymple L.	1959	Fingerling (3-9 months)	500
Dalrymple L.	1959	Fry (1-2 months)	50,000
Dalrymple L.	1960	Fry (1-2 months)	60,000
Dalrymple L.	1961	Fingerling (3-9 months)	600
Dalrymple L.	1961	Fry (1-2 months)	60,000
Dalrymple L.	1962	Fingerling (3-9 months)	300
Dalrymple L.	1962	Fry (1-2 months)	60,000
Dalrymple L.	1963	Fingerling (3-9 months)	600
Dalrymple L.	1963	Fry (1-2 months)	30,000
Dalrymple L.	1964	Fingerling (3-9 months)	400
Dalrymple L.	1964	Fry (1-2 months)	30,000
Dalrymple L.	1965	Fry (1-2 months)	10,000
Dalrymple L.	1965	Fingerling (3-9 months)	400
Dalrymple L.	1966	Fry (1-2 months)	10,000
Dalrymple L.	1966	Fingerling (3-9 months)	400
Dalrymple L.	1967	Fry (1-2 months)	20,000
Dalrymple L.	1968	Fingerling (3-9 months)	400
Dalrymple L.	1968	Fry (1-2 months)	20,000
Dalrymple L.	1969	Fry (1-2 months)	300
Dalrymple L.	1969	Fry (1-2 months)	20,000
Dalrymple L.	1970	Fry (1-2 months)	30,000
Dalrymple L.	1970	Fingerling (3-9 months)	300
Dalrymple L.	1971	Fry (1-2 months)	15,000
Dalrymple L.	1972	Fingerling (3-9 months)	200
Dalrymple L.	1972	Fry (1-2 months)	20,000
Dalrymple L.	1974	Fingerling (3-9 months)	800
Dalrymple L.	1976	Fingerling (3-9 months)	1,500
Cameron L.	1946	Fingerling (3-9 months)	200
Cameron L.	1946	unknown	20,000
Cameron L.	1947	Juvenile/Adult	8
Cameron L.	1947	Fingerling (3-9 months)	300
Cameron L.	1947	Fry (1-2 months)	40,000
Cameron L.	1948	Fry (1-2 months)	60,000
Cameron L.	1948	Juvenile/Adult	13
Cameron L.	1948	Fingerling (3-9 months)	2,500
Cameron L.	1948	Fingerling (3-9 months)	750
Cameron L.	1949	Fry (1-2 months)	40,000
Cameron L.	1949	Fingerling (3-9 months)	1,300
Cameron L.	1950	Fry (1-2 months)	50,000
Cameron L.	1950	Fingerling (3-9 months)	750
Cameron L.	1951	Fry (1-2 months)	40,000
Cameron L.	1951	Fingerling (3-9 months)	600
Cameron L.	1952	Fry (1-2 months)	80,000
Cameron L.	1952	Fingerling (3-9 months)	800
Cameron L.	1953	Fry (1-2 months)	40,000
Cameron L.	1953	Fingerling (3-9 months)	500
Cameron L.	1954	Fingerling (3-9 months)	300
Cameron L.	1954	Fry (1-2 months)	70,000
Cameron L.	1954	Fingerling (3-9 months)	400
Cameron L.	1955	Fingerling (3-9 months)	1,000
Cameron L.	1955	Fry (1-2 months)	60,000

Cameron L.	1956	Fry (1-2 months)	60,000
Cameron L.	1956	Fingerling (3-9 months)	1,100
Cameron L.	1957	Fingerling (3-9 months)	500
Cameron L.	1957	Fry (1-2 months)	40,000
Cameron L.	1958	Fingerling (3-9 months)	1,000
Cameron L.	1958	Fry (1-2 months)	100,000
Cameron L.	1959	Fry (1-2 months)	80,000
Cameron L.	1959	Fingerling (3-9 months)	600
Cameron L.	1960	Fry (1-2 months)	40,000
Cameron L.	1960	Fry (1-2 months)	600
Cameron L.	1961	Fry (1-2 months)	40,000
Cameron L.	1961	Fingerling (3-9 months)	500
Cameron L.	1962	Fingerling (3-9 months)	500
Cameron L.	1962	Fry (1-2 months)	40,000
Cameron L.	1963	Fry (1-2 months)	20,000
Cameron L.	1964	Fingerling (3-9 months)	700
Cameron L.	1965	Fry (1-2 months)	20,000
Cameron L.	1965	Fingerling (3-9 months)	300
Cameron L.	1966	Fry (1-2 months)	20,000
Cameron L.	1967	Fry (1-2 months)	30,000
Cameron L.	1968	Fingerling (3-9 months)	400
Cameron L.	1968	Fry (1-2 months)	30,000
Cameron L.	1969	Fry (1-2 months)	40,000
Cameron L.	1969	Fry (1-2 months)	200
Cameron L.	1970	Fingerling (3-9 months)	400
Cameron L.	1970	Fry (1-2 months)	30,000
Cameron L.	1971	Fry (1-2 months)	15,000
Cameron L.	1972	Fry (1-2 months)	20,000
Cameron L.	1974	Fingerling (3-9 months)	500
Cameron L.	1976	Fry (1-2 months)	14,000
Cameron L.	1977	Fry (1-2 months)	20,000
Cameron L.	1978	Fry (1-2 months)	20,000
Cameron L.	1979	Fry (1-2 months)	500
Cameron L.	1979	Fry (1-2 months)	20,000
Cameron L.	1979	Fry (1-2 months)	20,000
Cameron L.	1980	Fry (1-2 months)	20,000
Cameron L.	1980	Fry (1-2 months)	500
Cameron L.	1981	Fry (1-2 months)	40,000
Cameron L.	1981	Fingerling (3-9 months)	1,750
Cameron L.	1982	Fry (1-2 months)	40,000
Cameron L.	1983	Fry (1-2 months)	20,000
Cameron L.	1983	Fry (1-2 months)	500
Cameron L.	1984	Fingerling (3-9 months)	500
Cameron L.	1984	Fry (1-2 months)	50,000
Cameron L.	1985	Fingerling (3-9 months)	1,600
Cameron L.	1985	Fry (1-2 months)	40,000
Cameron L.	1986	Fry (1-2 months)	1,200
Cameron L.	1986	Fry (1-2 months)	40,000
Cameron L.	1987	Fry (1-2 months)	40,000
Cameron L.	1989	Fry (1-2 months)	40,000
Balsam L.	1946	Fingerling (3-9 months)	200
Balsam L.	1946	Fry (1-2 months)	20,000
Balsam L.	1947	Fry (1-2 months)	40,000
Balsam L.	1948	Fingerling (3-9 months)	750
Balsam L.	1948	Fry (1-2 months)	40,000
Balsam L.	1948	Juvenile/Adult	10
Balsam L.	1949	Fry (1-2 months)	50,000
Balsam L.	1949	Fingerling (3-9 months)	1,550
Balsam L.	1950	Fingerling (3-9 months)	750
Balsam L.	1950	Fry (1-2 months)	60,000
Balsam L.	1951	Fingerling (3-9 months)	200
Balsam L.	1951	Fry (1-2 months)	50,000
Balsam L.	1951	Fingerling (3-9 months)	600
Balsam L.	1952	Fingerling (3-9 months)	1,000
Balsam L.	1952	Fry (1-2 months)	80,000

Balsam L.	1953	Fry (1-2 months)	40,000
Balsam L.	1953	Fingerling (3-9 months)	500
Balsam L.	1954	Fingerling (3-9 months)	500
Balsam L.	1954	Fry (1-2 months)	60,000
Balsam L.	1954	Fingerling (3-9 months)	400
Balsam L.	1955	Fry (1-2 months)	20,000
Balsam L.	1955	Fry (1-2 months)	70,000
Balsam L.	1955	Fingerling (3-9 months)	1,200
Balsam L.	1956	Fry (1-2 months)	60,000
Balsam L.	1956	Fingerling (3-9 months)	1,100
Balsam L.	1956	Fry (1-2 months)	700
Balsam L.	1957	Fry (1-2 months)	40,000
Balsam L.	1957	Fingerling (3-9 months)	600
Balsam L.	1958	Fingerling (3-9 months)	1,000
Balsam L.	1958	Fry (1-2 months)	100,000
Balsam L.	1959	Fry (1-2 months)	40,000
Balsam L.	1959	Fingerling (3-9 months)	600
Balsam L.	1959	Fry (1-2 months)	40,000
Balsam L.	1960	Fry (1-2 months)	40,000
Balsam L.	1960	Fry (1-2 months)	600
Balsam L.	1961	Fry (1-2 months)	40,000
Balsam L.	1961	Fingerling (3-9 months)	600
Balsam L.	1962	Fingerling (3-9 months)	400
Balsam L.	1962	Fry (1-2 months)	40,000
Balsam L.	1963	Fry (1-2 months)	20,000
Balsam L.	1964	Fingerling (3-9 months)	500
Balsam L.	1964	Fry (1-2 months)	20,000
Balsam L.	1965	Fingerling (3-9 months)	200
Balsam L.	1965	Fry (1-2 months)	20,000
Balsam L.	1966	Fry (1-2 months)	20,000
Balsam L.	1967	Fry (1-2 months)	30,000
Balsam L.	1968	Fry (1-2 months)	30,000
Balsam L.	1969	Fry (1-2 months)	40,000
Balsam L.	1969	Fry (1-2 months)	400
Balsam L.	1969	Fingerling (3-9 months)	200
Balsam L.	1970	Fry (1-2 months)	40,000
Balsam L.	1970	Fingerling (3-9 months)	800
Balsam L.	1971	Fry (1-2 months)	30,000
Balsam L.	1972	Fry (1-2 months)	40,000
Balsam L.	1974	Fingerling (3-9 months)	400
Balsam L.	1976	Fry (1-2 months)	14,000
Balsam L.	1977	Fry (1-2 months)	20,000
Balsam L.	1978	Fry (1-2 months)	40,000
Balsam L.	1979	Fry (1-2 months)	20,000
Balsam L.	1979	Fry (1-2 months)	500
Balsam L.	1979	Fry (1-2 months)	500
Balsam L.	1979	Fry (1-2 months)	40,000
Balsam L.	1980	Fry (1-2 months)	400
Balsam L.	1980	Fry (1-2 months)	20,000
Balsam L.	1980	Fry (1-2 months)	400
Balsam L.	1980	Fry (1-2 months)	20,000
Balsam L.	1981	Fingerling (3-9 months)	2,000
Balsam L.	1981	Fry (1-2 months)	20,000
Balsam L.	1981	Fry (1-2 months)	20,000
Balsam L.	1982	Fry (1-2 months)	40,000
Balsam L.	1983	Fry (1-2 months)	20,000
Balsam L.	1983	Fry (1-2 months)	20,000
Balsam L.	1983	Fry (1-2 months)	1,000
Balsam L.	1984	Fingerling (3-9 months)	500
Balsam L.	1984	Fingerling (3-9 months)	500
Balsam L.	1984	Fry (1-2 months)	60,000
Balsam L.	1985	Fry (1-2 months)	60,000
Balsam L.	1985	Fingerling (3-9 months)	2,000
Balsam L.	1986	Fingerling (3-9 months)	2,000
Balsam L.	1987	Fingerling (3-9 months)	1,000

Balsam L.	1988	Fingerling (3-9 months)	932
Balsam L.	1989	Fingerling (3-9 months)	874
Four Mile L.	1948	Juvenile/Adult	5
Four Mile L.	1964	Fingerling (3-9 months)	200
Four Mile L.	1965	Fingerling (3-9 months)	200
Four Mile L.	1968	Fry (1-2 months)	200
Four Mile L.	1969	Fry (1-2 months)	300
Four Mile L.	1970	Fry (1-2 months)	15,000
Four Mile L.	1970	Fingerling (3-9 months)	300
Four Mile L.	1971	Fry (1-2 months)	15,000
Four Mile L.	1972	Fingerling (3-9 months)	200
Four Mile L.	1972	Fry (1-2 months)	20,000
Shadow L.	1979	Fry (1-2 months)	3,000
Head L.	1968	Fry (1-2 months)	20,000
Head L.	1968	Fingerling (3-9 months)	200
Head L.	1969	Fry (1-2 months)	20,000
Head L.	1969	Fry (1-2 months)	600
Head L.	1970	Fingerling (3-9 months)	400
Head L.	1970	Fry (1-2 months)	20,000
Head L.	1971	Fingerling (3-9 months)	1,500
Head L.	1971	Fry (1-2 months)	30,000
Head L.	1972	Fingerling (3-9 months)	200
Head L.	1977	Fry (1-2 months)	1,000
Scugog, L.	1946	Fry (1-2 months)	10,000
Scugog, L.	1946	Fingerling (3-9 months)	200
Scugog, L.	1946	Fry (1-2 months)	10,000
Scugog, L.	1946	Fry (1-2 months)	20,000
Scugog, L.	1947	Fry (1-2 months)	80,000
Scugog, L.	1947	Fingerling (3-9 months)	500
Scugog, L.	1947	Fry (1-2 months)	40,000
Scugog, L.	1948	Fry (1-2 months)	60,000
Scugog, L.	1948	Fry (1-2 months)	80,000
Scugog, L.	1948	Fingerling (3-9 months)	500
Scugog, L.	1949	Fingerling (3-9 months)	800
Scugog, L.	1949	Fry (1-2 months)	30,000
Scugog, L.	1949	Fry (1-2 months)	20,000
Scugog, L.	1949	Fry (1-2 months)	30,000
Scugog, L.	1950	Fingerling (3-9 months)	1,300
Scugog, L.	1950	Fry (1-2 months)	50,000
Scugog, L.	1950	Fry (1-2 months)	30,000
Scugog, L.	1951	Fry (1-2 months)	60,000
Scugog, L.	1951	Fingerling (3-9 months)	600
Scugog, L.	1952	Fry (1-2 months)	100,000
Scugog, L.	1952	Fingerling (3-9 months)	1,000
Scugog, L.	1952	Fingerling (3-9 months)	1,800
Scugog, L.	1953	Fry (1-2 months)	70,000
Scugog, L.	1953	Fingerling (3-9 months)	1,000
Scugog, L.	1954	Fingerling (3-9 months)	800
Scugog, L.	1954	Fry (1-2 months)	80,000
Scugog, L.	1955	Fingerling (3-9 months)	1,000
Scugog, L.	1955	Fingerling (3-9 months)	100,000
Scugog, L.	1956	Fry (1-2 months)	100,000
Scugog, L.	1956	Fry (1-2 months)	20,000
Scugog, L.	1956	Fingerling (3-9 months)	1,000
Scugog, L.	1956	Fingerling (3-9 months)	1,000
Scugog, L.	1957	Fry (1-2 months)	50,000
Scugog, L.	1957	Fingerling (3-9 months)	800
Scugog, L.	1958	Fingerling (3-9 months)	600
Scugog, L.	1958	Fry (1-2 months)	60,000
Scugog, L.	1959	Fry (1-2 months)	60,000
Scugog, L.	1960	Fry (1-2 months)	600,000
Scugog, L.	1960	Fry (1-2 months)	3,000
Scugog, L.	1961	Fingerling (3-9 months)	10,000
Scugog, L.	1964	Fingerling (3-9 months)	1,000
Scugog, L.	1965	Fingerling (3-9 months)	600

Scugog, L.	1967	Fry (1-2 months)	50,000
Scugog, L.	1967	Fingerling (3-9 months)	400
Scugog, L.	1967	Fingerling (3-9 months)	200
Scugog, L.	1976	Fry (1-2 months)	14,000
Scugog, L.	1977	Fry (1-2 months)	20,000
Scugog, L.	1977	Fry (1-2 months)	25,000
Scugog, L.	1978	Fry (1-2 months)	40,000
Scugog, L.	1979	Fry (1-2 months)	20,000
Scugog, L.	1979	Fry (1-2 months)	40,000
Scugog, L.	1980	Fry (1-2 months)	20,000
Scugog, L.	1980	Fry (1-2 months)	20,000
Scugog, L.	1982	Fry (1-2 months)	40,000
Scugog, L.	1983	Fry (1-2 months)	20,000
Scugog, L.	1983	Fry (1-2 months)	20,000
Scugog, L.	1984	Fingerling (3-9 months)	400
Scugog, L.	1984	Fry (1-2 months)	60,000
Scugog, L.	1984	Fingerling (3-9 months)	500
Scugog, L.	1985	Fry (1-2 months)	40,000
Scugog, L.	1985	Fingerling (3-9 months)	2,000
Scugog, L.	1986	Fingerling (3-9 months)	500
Scugog, L.	1986	Fingerling (3-9 months)	2,000
Scugog, L.	1987	Fingerling (3-9 months)	1,000
Scugog, L.	1987	Fingerling (3-9 months)	1,000
Scugog, L.	1988	Fingerling (3-9 months)	2,000
Scugog, L.	1989	Fingerling (3-9 months)	1,950
Big Bald L.	1947	Fry (1-2 months)	75
Big Bald L.	1948	Juvenile/Adult	18
Big Bald L.	1948	Fry (1-2 months)	300
Big Bald L.	1949	Fingerling (3-9 months)	200
Big Bald L.	1950	Fry (1-2 months)	30,000
Big Bald L.	1950	Fingerling (3-9 months)	400
Big Bald L.	1951	Fingerling (3-9 months)	20,000
Big Bald L.	1951	Fry (1-2 months)	200
Big Bald L.	1952	Fry (1-2 months)	600
Big Bald L.	1952	Fry (1-2 months)	30,000
Big Bald L.	1952	Juvenile/Adult	25
Big Bald L.	1953	Fry (1-2 months)	20,000
Big Bald L.	1953	Fingerling (3-9 months)	200
Big Bald L.	1954	Fry (1-2 months)	30,000
Big Bald L.	1954	Fingerling (3-9 months)	200
Big Bald L.	1955	Fry (1-2 months)	30,000
Big Bald L.	1955	Fingerling (3-9 months)	400
Big Bald L.	1956	Fry (1-2 months)	30,000
Big Bald L.	1956	Fingerling (3-9 months)	400
Big Bald L.	1957	Fry (1-2 months)	20,000
Big Bald L.	1957	Fingerling (3-9 months)	500
Big Bald L.	1958	Fry (1-2 months)	20,000
Big Bald L.	1959	Fry (1-2 months)	20,000
Big Bald L.	1959	Fingerling (3-9 months)	500
Big Bald L.	1960	Fry (1-2 months)	400
Big Bald L.	1960	Fry (1-2 months)	20,000
Big Bald L.	1961	Fry (1-2 months)	20,000
Big Bald L.	1961	Fingerling (3-9 months)	400
Big Bald L.	1962	Fry (1-2 months)	20,000
Big Bald L.	1962	Fingerling (3-9 months)	150
Big Bald L.	1963	Fingerling (3-9 months)	200
Big Bald L.	1963	Fry (1-2 months)	10,000
Big Bald L.	1964	Fry (1-2 months)	200
Big Bald L.	1964	Fry (1-2 months)	10,000
Big Bald L.	1965	Fry (1-2 months)	20,000
Big Bald L.	1966	Fry (1-2 months)	20,000
Big Bald L.	1966	Fingerling (3-9 months)	200
Big Bald L.	1967	Fry (1-2 months)	40,000
Big Bald L.	1967	Fingerling (3-9 months)	400
Big Bald L.	1968	Fingerling (3-9 months)	400

Big Bald L.	1968	Fry (1-2 months)	45,000
Big Bald L.	1969	Fry (1-2 months)	300
Big Bald L.	1969	Fry (1-2 months)	40,000
Big Bald L.	1970	Fingerling (3-9 months)	200
Big Bald L.	1970	Fry (1-2 months)	40,000
Big Bald L.	1971	Fingerling (3-9 months)	200
Big Bald L.	1972	Fry (1-2 months)	60,000
Buckhorn L.	1946	Fingerling (3-9 months)	200
Buckhorn L.	1946	Fry (1-2 months)	20,000
Buckhorn L.	1947	Fry (1-2 months)	40,000
Buckhorn L.	1947	Fingerling (3-9 months)	300
Buckhorn L.	1948	Fingerling (3-9 months)	450
Buckhorn L.	1948	Fry (1-2 months)	20,000
Buckhorn L.	1948	Juvenile/Adult	17
Buckhorn L.	1948	Fry (1-2 months)	30,000
Buckhorn L.	1949	Fry (1-2 months)	20,000
Buckhorn L.	1949	Fingerling (3-9 months)	950
Buckhorn L.	1949	Fry (1-2 months)	60,000
Buckhorn L.	1950	Fry (1-2 months)	40,000
Buckhorn L.	1950	Fingerling (3-9 months)	600
Buckhorn L.	1951	Fry (1-2 months)	200
Buckhorn L.	1951	Fry (1-2 months)	400
Buckhorn L.	1951	Fry (1-2 months)	50,000
Buckhorn L.	1952	Fingerling (3-9 months)	1,900
Buckhorn L.	1952	Fry (1-2 months)	110,000
Buckhorn L.	1953	Fry (1-2 months)	40,000
Buckhorn L.	1953	Fingerling (3-9 months)	600
Buckhorn L.	1953	Fingerling (3-9 months)	400
Buckhorn L.	1953	Fingerling (3-9 months)	200
Buckhorn L.	1954	Fry (1-2 months)	110,000
Buckhorn L.	1954	Fingerling (3-9 months)	800
Buckhorn L.	1955	Fingerling (3-9 months)	2,100
Buckhorn L.	1955	Fry (1-2 months)	60,000
Buckhorn L.	1956	Fingerling (3-9 months)	2,500
Buckhorn L.	1956	Fry (1-2 months)	60,000
Buckhorn L.	1957	Fry (1-2 months)	40,000
Buckhorn L.	1957	Fingerling (3-9 months)	1,200
Buckhorn L.	1958	Fry (1-2 months)	40,000
Buckhorn L.	1958	Fingerling (3-9 months)	600
Buckhorn L.	1959	Fingerling (3-9 months)	1,500
Buckhorn L.	1959	Fry (1-2 months)	60,000
Buckhorn L.	1960	Fry (1-2 months)	30,000
Buckhorn L.	1960	Fry (1-2 months)	1,200
Buckhorn L.	1961	Fingerling (3-9 months)	1,200
Buckhorn L.	1961	Fry (1-2 months)	30,000
Buckhorn L.	1962	Fry (1-2 months)	30,000
Buckhorn L.	1962	Fingerling (3-9 months)	800
Buckhorn L.	1963	Fry (1-2 months)	20,000
Buckhorn L.	1963	Fingerling (3-9 months)	800
Buckhorn L.	1965	Fry (1-2 months)	20,000
Buckhorn L.	1966	Fry (1-2 months)	220,000
Buckhorn L.	1966	Fingerling (3-9 months)	300
Buckhorn L.	1966	Fingerling (3-9 months)	1,500
Buckhorn L.	1967	Fingerling (3-9 months)	500
Buckhorn L.	1967	Fry (1-2 months)	1,200
Buckhorn L.	1967	Fry (1-2 months)	40,000
Buckhorn L.	1968	Fry (1-2 months)	45,000
Buckhorn L.	1969	Fry (1-2 months)	40,000
Buckhorn L.	1969	Fry (1-2 months)	300
Buckhorn L.	1969	Fry (1-2 months)	200,000
Buckhorn L.	1970	Fingerling (3-9 months)	400
Buckhorn L.	1970	Fry (1-2 months)	30,000
Buckhorn L.	1970	Fingerling (3-9 months)	500
Buckhorn L.	1971	Fingerling (3-9 months)	250
Buckhorn L.	1972	Fry (1-2 months)	100,000

Buckhorn L.	1973	Fingerling (3-9 months)	400
Buckhorn L.	1976	Fingerling (3-9 months)	500
Buckhorn L.	1977	Fry (1-2 months)	20,000
Buckhorn L.	1978	Fingerling (3-9 months)	100
Buckhorn L.	1979	Fry (1-2 months)	510
Buckhorn L.	1979	Fry (1-2 months)	20,000
Buckhorn L.	1979	Fry (1-2 months)	500
Buckhorn L.	1980	Fry (1-2 months)	20,000
Buckhorn L.	1980	Fingerling (3-9 months)	950
Buckhorn L.	1980	Fry (1-2 months)	500
Buckhorn L.	1981	Fingerling (3-9 months)	630
Buckhorn L.	1981	Fingerling (3-9 months)	250
Buckhorn L.	1981	Fingerling (3-9 months)	2,000
Buckhorn L.	1981	Fry (1-2 months)	40,000
Buckhorn L.	1982	Fry (1-2 months)	40,000
Buckhorn L.	1982	Fingerling (3-9 months)	50
Buckhorn L.	1982	Fingerling (3-9 months)	75
Buckhorn L.	1982	Fingerling (3-9 months)	50
Buckhorn L.	1983	Fry (1-2 months)	350
Buckhorn L.	1983	Fingerling (3-9 months)	300
Buckhorn L.	1983	Fry (1-2 months)	20,000
Buckhorn L.	1983	Fry (1-2 months)	500
Buckhorn L.	1984	Fry (1-2 months)	60,000
Buckhorn L.	1984	Fingerling (3-9 months)	250
Buckhorn L.	1984	Fingerling (3-9 months)	500
Buckhorn L.	1984	Fingerling (3-9 months)	500
Buckhorn L.	1985	Fingerling (3-9 months)	1,000
Buckhorn L.	1985	Fingerling (3-9 months)	2,000
Buckhorn L.	1985	Fry (1-2 months)	40,000
Buckhorn L.	1986	Fingerling (3-9 months)	400
Buckhorn L.	1986	Fingerling (3-9 months)	1,000
Buckhorn L.	1986	Fingerling (3-9 months)	1,000
Buckhorn L.	1987	Fingerling (3-9 months)	1,500
Buckhorn L.	1987	Fingerling (3-9 months)	500
Buckhorn Lake	1970	Fry (1-2 months)	90,000
Chemong L.	1946	Fry (1-2 months)	-
Chemong L.	1946	Fingerling (3-9 months)	300
Chemong L.	1947	Fingerling (3-9 months)	700
Chemong L.	1948	Fingerling (3-9 months)	1,000
Chemong L.	1948	Fry (1-2 months)	170,000
Chemong L.	1949	Fingerling (3-9 months)	400
Chemong L.	1949	Fingerling (3-9 months)	150,000
Chemong L.	1949	Fingerling (3-9 months)	1,600
Chemong L.	1950	Fry (1-2 months)	80,000
Chemong L.	1950	Fingerling (3-9 months)	1,200
Chemong L.	1951	Fingerling (3-9 months)	1,000
Chemong L.	1951	Fry (1-2 months)	50,000
Chemong L.	1952	Fry (1-2 months)	150,000
Chemong L.	1952	Fingerling (3-9 months)	500
Chemong L.	1952	Fingerling (3-9 months)	1,500
Chemong L.	1953	Fry (1-2 months)	30,000
Chemong L.	1953	Fingerling (3-9 months)	600
Chemong L.	1955	Fingerling (3-9 months)	2,500
Chemong L.	1956	Fry (1-2 months)	40,000
Chemong L.	1956	Fingerling (3-9 months)	1,200
Chemong L.	1957	Fingerling (3-9 months)	800
Chemong L.	1957	Fry (1-2 months)	40,000
Chemong L.	1959	Fingerling (3-9 months)	600
Chemong L.	1960	Fry (1-2 months)	40,000
Chemong L.	1960	Fry (1-2 months)	400
Chemong L.	1961	Fry (1-2 months)	40,000
Chemong L.	1965	Fingerling (3-9 months)	200
Chemong L.	1969	Fry (1-2 months)	200
Chemong L.	1969	Fry (1-2 months)	40,000
Chemong L.	1970	Fingerling (3-9 months)	200

Chemong L.	1971	Fingerling (3-9 months)	200
Chemong L.	1973	Fingerling (3-9 months)	500
Chemong L.	1976	Fingerling (3-9 months)	500
Chemong L.	1977	Fry (1-2 months)	20,000
Chemong L.	1978	Fry (1-2 months)	40,000
Chemong L.	1979	Fry (1-2 months)	20,000
Chemong L.	1979	Fry (1-2 months)	40,000
Chemong L.	1979	Fry (1-2 months)	510
Chemong L.	1979	Fry (1-2 months)	640
Chemong L.	1980	Fry (1-2 months)	500
Chemong L.	1980	Fry (1-2 months)	20,000
Chemong L.	1980	Fry (1-2 months)	20,000
Chemong L.	1981	Fingerling (3-9 months)	2,000
Chemong L.	1981	Fry (1-2 months)	20,000
Chemong L.	1982	Fry (1-2 months)	40,000
Chemong L.	1983	Fry (1-2 months)	20,000
Chemong L.	1983	Fry (1-2 months)	500
Chemong L.	1983	Fry (1-2 months)	500
Chemong L.	1983	Fry (1-2 months)	500
Chemong L.	1983	Fry (1-2 months)	20,000
Chemong L.	1984	Fry (1-2 months)	60,000
Chemong L.	1984	Fingerling (3-9 months)	100
Chemong L.	1984	Fingerling (3-9 months)	500
Chemong L.	1984	Fingerling (3-9 months)	200
Chemong L.	1984	Fingerling (3-9 months)	200
Chemong L.	1984	Fingerling (3-9 months)	500
Chemong L.	1984	Fingerling (3-9 months)	200
Chemong L.	1985	Fry (1-2 months)	40,000
Chemong L.	1985	Fingerling (3-9 months)	900
Chemong L.	1985	Fingerling (3-9 months)	2,000
Chemong L.	1986	Fingerling (3-9 months)	900
Chemong L.	1986	Fingerling (3-9 months)	1,000
Chemong L.	1986	Fingerling (3-9 months)	500
Chemong L.	1987	Fingerling (3-9 months)	1,500
Chemong L.	1987	Fingerling (3-9 months)	500
Pigeon L.	1946	Fingerling (3-9 months)	300
Pigeon L.	1946	Fry (1-2 months)	20,000
Pigeon L.	1946	Fry (1-2 months)	20,000
Pigeon L.	1947	Juvenile/Adult	73
Pigeon L.	1947	Fry (1-2 months)	50,000
Pigeon L.	1947	Fingerling (3-9 months)	200
Pigeon L.	1948	Juvenile/Adult	16
Pigeon L.	1948	Fry (1-2 months)	50,000
Pigeon L.	1948	Juvenile/Adult	62
Pigeon L.	1948	Fry (1-2 months)	60,000
Pigeon L.	1948	Juvenile/Adult	75
Pigeon L.	1948	Juvenile/Adult	14
Pigeon L.	1948	Fingerling (3-9 months)	1,350
Pigeon L.	1949	Fingerling (3-9 months)	1,600
Pigeon L.	1949	Fry (1-2 months)	40,000
Pigeon L.	1949	Fry (1-2 months)	40,000
Pigeon L.	1949	Fry (1-2 months)	40,000
Pigeon L.	1950	Fry (1-2 months)	60,000
Pigeon L.	1950	Fry (1-2 months)	60,000
Pigeon L.	1950	Fingerling (3-9 months)	2,600
Pigeon L.	1951	Fry (1-2 months)	50,000
Pigeon L.	1951	Fingerling (3-9 months)	300
Pigeon L.	1951	Fingerling (3-9 months)	400
Pigeon L.	1951	Fry (1-2 months)	50,000
Pigeon L.	1952	Fry (1-2 months)	50,000
Pigeon L.	1952	Fingerling (3-9 months)	500
Pigeon L.	1952	Fingerling (3-9 months)	1,500
Pigeon L.	1952	Fry (1-2 months)	50,000
Pigeon L.	1952	Juvenile/Adult	76
Pigeon L.	1953	Juvenile/Adult	109

Pigeon L.	1953	Fingerling (3-9 months)	700
Pigeon L.	1953	Fingerling (3-9 months)	500
Pigeon L.	1953	Fry (1-2 months)	110,000
Pigeon L.	1954	Fingerling (3-9 months)	500
Pigeon L.	1954	Fry (1-2 months)	50,000
Pigeon L.	1954	Fingerling (3-9 months)	300
Pigeon L.	1954	Fry (1-2 months)	60,000
Pigeon L.	1955	Fry (1-2 months)	60,000
Pigeon L.	1955	Fry (1-2 months)	50,000
Pigeon L.	1955	Juvenile/Adult	151
Pigeon L.	1955	Fingerling (3-9 months)	2,500
Pigeon L.	1955	Fingerling (3-9 months)	1,000
Pigeon L.	1956	Fingerling (3-9 months)	1,200
Pigeon L.	1956	Fry (1-2 months)	80,000
Pigeon L.	1956	Fingerling (3-9 months)	600
Pigeon L.	1956	Fry (1-2 months)	50,000
Pigeon L.	1957	Fingerling (3-9 months)	800
Pigeon L.	1957	Fingerling (3-9 months)	800
Pigeon L.	1957	Fry (1-2 months)	40,000
Pigeon L.	1957	Juvenile/Adult	1,896
Pigeon L.	1958	Juvenile/Adult	262
Pigeon L.	1958	Fry (1-2 months)	400
Pigeon L.	1958	Fry (1-2 months)	40,000
Pigeon L.	1959	Fingerling (3-9 months)	600
Pigeon L.	1959	Fry (1-2 months)	80,000
Pigeon L.	1960	Fry (1-2 months)	800
Pigeon L.	1960	Fry (1-2 months)	50,000
Pigeon L.	1960	Fry (1-2 months)	40,000
Pigeon L.	1960	Fry (1-2 months)	600
Pigeon L.	1960	Fry (1-2 months)	40,000
Pigeon L.	1961	Fingerling (3-9 months)	1,200
Pigeon L.	1961	Fry (1-2 months)	50,000
Pigeon L.	1961	Fingerling (3-9 months)	800
Pigeon L.	1961	Fry (1-2 months)	40,000
Pigeon L.	1961	Juvenile/Adult	212
Pigeon L.	1962	Juvenile/Adult	297
Pigeon L.	1962	Fry (1-2 months)	40,000
Pigeon L.	1962	Fingerling (3-9 months)	900
Pigeon L.	1962	Fry (1-2 months)	50,000
Pigeon L.	1963	Fry (1-2 months)	30,000
Pigeon L.	1963	Fingerling (3-9 months)	400
Pigeon L.	1963	Fingerling (3-9 months)	500
Pigeon L.	1963	Fry (1-2 months)	20,000
Pigeon L.	1964	Fingerling (3-9 months)	500
Pigeon L.	1964	Fry (1-2 months)	20,000
Pigeon L.	1964	Fry (1-2 months)	20,000
Pigeon L.	1965	Fingerling (3-9 months)	800
Pigeon L.	1965	Fry (1-2 months)	40,000
Pigeon L.	1966	Juvenile/Adult	74
Pigeon L.	1966	Fry (1-2 months)	40,000
Pigeon L.	1966	Fingerling (3-9 months)	200
Pigeon L.	1967	Fry (1-2 months)	60,000
Pigeon L.	1967	Juvenile/Adult	108
Pigeon L.	1967	Fry (1-2 months)	300
Pigeon L.	1968	Fry (1-2 months)	45,000
Pigeon L.	1968	Fingerling (3-9 months)	600
Pigeon L.	1969	Fingerling (3-9 months)	400
Pigeon L.	1969	Fry (1-2 months)	60,000
Pigeon L.	1970	Fingerling (3-9 months)	400
Pigeon L.	1970	Fry (1-2 months)	60,000
Pigeon L.	1971	Fingerling (3-9 months)	500
Pigeon L.	1971	Fingerling (3-9 months)	60,000
Pigeon L.	1972	Fry (1-2 months)	60,000
Pigeon L.	1973	Fingerling (3-9 months)	500
Sandy L.	1983	Fingerling (3-9 months)	200

Sandy L.	1985	Fingerling (3-9 months)	1,000
Sandy L.	1986	Fry (1-2 months)	40,000
Sandy L.	1987	Fry (1-2 months)	20,000
Sandy L.	1989	Fry (1-2 months)	20,000
Sturgeon L.	1946	Fry (1-2 months)	20,000
Sturgeon L.	1946	Fingerling (3-9 months)	300
Sturgeon L.	1947	Juvenile/Adult	34
Sturgeon L.	1947	Fry (1-2 months)	300
Sturgeon L.	1947	Fry (1-2 months)	40,000
Sturgeon L.	1948	Fingerling (3-9 months)	400
Sturgeon L.	1948	Fingerling (3-9 months)	750
Sturgeon L.	1948	Fingerling (3-9 months)	75
Sturgeon L.	1948	Fry (1-2 months)	60,000
Sturgeon L.	1948	Juvenile/Adult	40
Sturgeon L.	1949	Fingerling (3-9 months)	550
Sturgeon L.	1949	Fry (1-2 months)	40,000
Sturgeon L.	1950	Fry (1-2 months)	80,000
Sturgeon L.	1950	Fingerling (3-9 months)	600
Sturgeon L.	1951	Fry (1-2 months)	50,000
Sturgeon L.	1951	Fingerling (3-9 months)	600
Sturgeon L.	1952	Fingerling (3-9 months)	500
Sturgeon L.	1952	Juvenile/Adult	55
Sturgeon L.	1953	Juvenile/Adult	34
Sturgeon L.	1953	Fingerling (3-9 months)	800
Sturgeon L.	1953	Fry (1-2 months)	40,000
Sturgeon L.	1954	Fry (1-2 months)	50,000
Sturgeon L.	1954	Fingerling (3-9 months)	600
Sturgeon L.	1955	Juvenile/Adult	159
Sturgeon L.	1955	Fingerling (3-9 months)	600
Sturgeon L.	1955	Fingerling (3-9 months)	1,200
Sturgeon L.	1955	Fry (1-2 months)	50,000
Sturgeon L.	1956	Fingerling (3-9 months)	1,200
Sturgeon L.	1956	Fingerling (3-9 months)	600
Sturgeon L.	1956	Fry (1-2 months)	110,000
Sturgeon L.	1957	Fingerling (3-9 months)	250
Sturgeon L.	1957	Fry (1-2 months)	40,000
Sturgeon L.	1957	Juvenile/Adult	463
Sturgeon L.	1958	Juvenile/Adult	239
Sturgeon L.	1958	Fingerling (3-9 months)	1,000
Sturgeon L.	1958	Fry (1-2 months)	100,000
Sturgeon L.	1959	Fry (1-2 months)	40,000
Sturgeon L.	1959	Fingerling (3-9 months)	800
Sturgeon L.	1959	Fry (1-2 months)	40,000
Sturgeon L.	1960	Fry (1-2 months)	600
Sturgeon L.	1960	Fry (1-2 months)	60,000
Sturgeon L.	1961	Juvenile/Adult	213
Sturgeon L.	1961	Fry (1-2 months)	60,000
Sturgeon L.	1961	Fingerling (3-9 months)	500
Sturgeon L.	1962	Fry (1-2 months)	60,000
Sturgeon L.	1962	Juvenile/Adult	238
Sturgeon L.	1962	Fingerling (3-9 months)	500
Sturgeon L.	1963	Fingerling (3-9 months)	500
Sturgeon L.	1963	Fry (1-2 months)	30,000
Sturgeon L.	1964	Fry (1-2 months)	30,000
Sturgeon L.	1964	Fingerling (3-9 months)	500
Sturgeon L.	1965	Fingerling (3-9 months)	800
Sturgeon L.	1965	Fry (1-2 months)	30,000
Sturgeon L.	1966	Juvenile/Adult	36
Sturgeon L.	1966	Juvenile/Adult	87
Sturgeon L.	1966	Fry (1-2 months)	30,000
Sturgeon L.	1967	Fry (1-2 months)	30,000
Sturgeon L.	1967	Juvenile/Adult	60
Sturgeon L.	1968	Fry (1-2 months)	30,000
Sturgeon L.	1968	Juvenile/Adult	26
Sturgeon L.	1968	Fingerling (3-9 months)	200

Sturgeon L.	1969	Fry (1-2 months)	400
Sturgeon L.	1969	Fry (1-2 months)	60,000
Sturgeon L.	1970	Fingerling (3-9 months)	400
Sturgeon L.	1970	Fry (1-2 months)	50,000
Sturgeon L.	1971	Fry (1-2 months)	45,000
Sturgeon L.	1972	Fry (1-2 months)	60,000
Clear L.	1946	Fingerling (3-9 months)	10,000
Clear L.	1946	Fry (1-2 months)	20,000
Clear L.	1947	Fingerling (3-9 months)	200
Clear L.	1947	Fry (1-2 months)	50,000
Clear L.	1948	Fry (1-2 months)	50,000
Clear L.	1948	Fingerling (3-9 months)	200
Clear L.	1949	Fry (1-2 months)	20,000
Clear L.	1949	Fingerling (3-9 months)	300
Clear L.	1950	Fingerling (3-9 months)	300
Clear L.	1950	Fry (1-2 months)	40,000
Clear L.	1951	Fry (1-2 months)	30,000
Clear L.	1952	Fingerling (3-9 months)	400
Clear L.	1952	Fry (1-2 months)	40,000
Clear L.	1953	Fry (1-2 months)	20,000
Clear L.	1953	Fingerling (3-9 months)	200
Clear L.	1954	Fingerling (3-9 months)	300
Clear L.	1954	Fry (1-2 months)	50,000
Clear L.	1955	Fingerling (3-9 months)	600
Clear L.	1955	Fry (1-2 months)	30,000
Clear L.	1956	Fingerling (3-9 months)	600
Clear L.	1956	Fry (1-2 months)	30,000
Clear L.	1957	Fry (1-2 months)	20,000
Clear L.	1957	Fingerling (3-9 months)	400
Clear L.	1958	Fry (1-2 months)	30,000
Clear L.	1959	Fingerling (3-9 months)	500
Clear L.	1959	Fry (1-2 months)	60,000
Clear L.	1960	Fry (1-2 months)	800
Clear L.	1960	Fry (1-2 months)	30,000
Clear L.	1961	Fingerling (3-9 months)	800
Clear L.	1961	Fry (1-2 months)	37,500
Clear L.	1962	Fingerling (3-9 months)	500
Clear L.	1962	Fry (1-2 months)	40,000
Clear L.	1963	Fry (1-2 months)	20,000
Clear L.	1963	Fingerling (3-9 months)	500
Clear L.	1964	Fingerling (3-9 months)	600
Clear L.	1964	Fry (1-2 months)	20,000
Clear L.	1965	Fry (1-2 months)	20,000
Clear L.	1965	Fingerling (3-9 months)	500
Clear L.	1966	Fry (1-2 months)	20,000
Clear L.	1966	Fingerling (3-9 months)	200
Clear L.	1967	Fingerling (3-9 months)	200
Clear L.	1967	Fry (1-2 months)	40,000
Clear L.	1968	Fingerling (3-9 months)	400
Clear L.	1968	Fry (1-2 months)	30,000
Clear L.	1969	Fry (1-2 months)	40,000
Clear L.	1969	Fry (1-2 months)	300
Clear L.	1970	Fry (1-2 months)	30,000
Clear L.	1970	Fingerling (3-9 months)	300
Clear L.	1971	Fingerling (3-9 months)	200
Clear L.	1972	Fry (1-2 months)	40,000
Clear L.	1976	Fry (1-2 months)	20,000
Clear L.	1983	Fry (1-2 months)	620
Clear L.	1989	Fry (1-2 months)	20,000
Katchewanooka L.	1946	Fry (1-2 months)	70,000
Katchewanooka L.	1947	Fry (1-2 months)	200,000
Katchewanooka L.	1947	Fry (1-2 months)	700
Katchewanooka L.	1948	Fry (1-2 months)	170,000
Katchewanooka L.	1948	Fry (1-2 months)	300
Katchewanooka L.	1948	Fingerling (3-9 months)	800

Katchewanooka L.	1949	Fingerling (3-9 months)	500
Katchewanooka L.	1949	Fry (1-2 months)	150,000
Katchewanooka L.	1949	Fingerling (3-9 months)	1,000
Katchewanooka L.	1950	Fry (1-2 months)	60,000
Katchewanooka L.	1950	Fingerling (3-9 months)	500
Katchewanooka L.	1951	Fry (1-2 months)	40,000
Katchewanooka L.	1951	Fingerling (3-9 months)	500
Katchewanooka L.	1952	Fingerling (3-9 months)	400
Katchewanooka L.	1952	Fingerling (3-9 months)	500
Katchewanooka L.	1952	Fry (1-2 months)	50,000
Katchewanooka L.	1953	Fingerling (3-9 months)	400
Katchewanooka L.	1954	Juvenile/Adult	400
Katchewanooka L.	1954	Fry (1-2 months)	50,000
Katchewanooka L.	1955	Fingerling (3-9 months)	600
Katchewanooka L.	1955	Fry (1-2 months)	50,000
Katchewanooka L.	1956	Fingerling (3-9 months)	1,000
Katchewanooka L.	1956	Fry (1-2 months)	50,000
Katchewanooka L.	1956	Fingerling (3-9 months)	400
Katchewanooka L.	1957	Fry (1-2 months)	40,000
Katchewanooka L.	1957	Fingerling (3-9 months)	400
Katchewanooka L.	1957	Fingerling (3-9 months)	400
Katchewanooka L.	1958	Fingerling (3-9 months)	300
Katchewanooka L.	1958	Fry (1-2 months)	40,000
Katchewanooka L.	1959	Fry (1-2 months)	90,000
Katchewanooka L.	1959	Fingerling (3-9 months)	500
Katchewanooka L.	1960	Fry (1-2 months)	800
Katchewanooka L.	1960	Fry (1-2 months)	20,000
Katchewanooka L.	1961	Fingerling (3-9 months)	800
Katchewanooka L.	1961	Fry (1-2 months)	20,000
Katchewanooka L.	1962	Fry (1-2 months)	20,000
Katchewanooka L.	1962	Fingerling (3-9 months)	500
Katchewanooka L.	1963	Fry (1-2 months)	10,000
Katchewanooka L.	1963	Fingerling (3-9 months)	500
Katchewanooka L.	1964	Fingerling (3-9 months)	600
Katchewanooka L.	1964	Fry (1-2 months)	10,000
Katchewanooka L.	1965	Fingerling (3-9 months)	500
Katchewanooka L.	1965	Fry (1-2 months)	20,000
Katchewanooka L.	1966	Fry (1-2 months)	20,000
Katchewanooka L.	1966	Fingerling (3-9 months)	200
Katchewanooka L.	1967	Fingerling (3-9 months)	200
Katchewanooka L.	1967	Fry (1-2 months)	40,000
Katchewanooka L.	1968	Fry (1-2 months)	30,000
Katchewanooka L.	1968	Fingerling (3-9 months)	400
Katchewanooka L.	1969	Fry (1-2 months)	40,000
Katchewanooka L.	1969	Fry (1-2 months)	300
Katchewanooka L.	1970	Fry (1-2 months)	30,000
Katchewanooka L.	1970	Fingerling (3-9 months)	500
Katchewanooka L.	1971	Fingerling (3-9 months)	200
Katchewanooka L.	1972	Fry (1-2 months)	40,000
Katchewanooka L.	1973	Fingerling (3-9 months)	200
Katchewanooka L.	1976	Fry (1-2 months)	20,000
Katchewanooka L.	1977	Fry (1-2 months)	10,000
Katchewanooka L.	1979	Fry (1-2 months)	20,000
Katchewanooka L.	1980	Fry (1-2 months)	20,000
Katchewanooka L.	1981	Fingerling (3-9 months)	500
Katchewanooka L.	1981	Fry (1-2 months)	20,000
Katchewanooka L.	1982	Fry (1-2 months)	20,000
Katchewanooka L.	1983	Fry (1-2 months)	500
Katchewanooka L.	1984	Fingerling (3-9 months)	300
Katchewanooka L.	1984	Fingerling (3-9 months)	100
Katchewanooka L.	1984	Fry (1-2 months)	20,000
Katchewanooka L.	1985	Fingerling (3-9 months)	1,000
Katchewanooka L.	1985	Fry (1-2 months)	40,000
Katchewanooka L.	1986	Fry (1-2 months)	40,000
Katchewanooka L.	1986	Fry (1-2 months)	850

Katchewanooka L.	1987	Fry (1-2 months)	400
Katchewanooka L.	1987	Fry (1-2 months)	20,000
Katchewanooka L.	1989	Fry (1-2 months)	20,000
Lovesick L.	1946	Fry (1-2 months)	20,000
Lovesick L.	1946	Fingerling (3-9 months)	200
Lovesick L.	1946	Fingerling (3-9 months)	200
Lovesick L.	1946	Fry (1-2 months)	20,000
Lovesick L.	1947	Fingerling (3-9 months)	100
Lovesick L.	1947	Fry (1-2 months)	40,000
Lovesick L.	1947	Fingerling (3-9 months)	200
Lovesick L.	1947	Fingerling (3-9 months)	300
Lovesick L.	1947	Fry (1-2 months)	40,000
Lovesick L.	1948	Fry (1-2 months)	50,000
Lovesick L.	1948	Fry (1-2 months)	20,000
Lovesick L.	1948	Fry (1-2 months)	600
Lovesick L.	1948	Fingerling (3-9 months)	300
Lovesick L.	1949	Fry (1-2 months)	30,000
Lovesick L.	1949	Fingerling (3-9 months)	300
Lovesick L.	1949	Fry (1-2 months)	20,000
Lovesick L.	1949	Fingerling (3-9 months)	500
Lovesick L.	1949	Fry (1-2 months)	500
Lovesick L.	1949	Fingerling (3-9 months)	450
Lovesick L.	1950	Fry (1-2 months)	60,000
Lovesick L.	1950	Fingerling (3-9 months)	400
Lovesick L.	1950	Fingerling (3-9 months)	900
Lovesick L.	1950	Fry (1-2 months)	6,000
Lovesick L.	1950	Fingerling (3-9 months)	40,000
Lovesick L.	1951	Fingerling (3-9 months)	500
Lovesick L.	1951	Fry (1-2 months)	70,000
Lovesick L.	1951	Fingerling (3-9 months)	150
Lovesick L.	1951	Fry (1-2 months)	40,000
Lovesick L.	1951	Fingerling (3-9 months)	1,200
Lovesick L.	1952	Fingerling (3-9 months)	500
Lovesick L.	1952	Fry (1-2 months)	50,000
Lovesick L.	1952	Fingerling (3-9 months)	600
Lovesick L.	1952	Fingerling (3-9 months)	2,800
Lovesick L.	1952	Fry (1-2 months)	200,000
Lovesick L.	1953	Fry (1-2 months)	160,000
Lovesick L.	1953	Fingerling (3-9 months)	800
Lovesick L.	1953	Fingerling (3-9 months)	600
Lovesick L.	1954	Fingerling (3-9 months)	1,200
Lovesick L.	1954	Fry (1-2 months)	50,000
Lovesick L.	1954	Fry (1-2 months)	200,000
Lovesick L.	1954	Fingerling (3-9 months)	800
Lovesick L.	1954	Fingerling (3-9 months)	600
Lovesick L.	1955	Fry (1-2 months)	50,000
Lovesick L.	1955	Fingerling (3-9 months)	2,000
Lovesick L.	1955	Fry (1-2 months)	20,000
Lovesick L.	1955	Fry (1-2 months)	100,000
Lovesick L.	1955	Fingerling (3-9 months)	750
Lovesick L.	1956	Fry (1-2 months)	50,000
Lovesick L.	1956	Fingerling (3-9 months)	1,200
Lovesick L.	1956	Fry (1-2 months)	200,000
Lovesick L.	1956	Fingerling (3-9 months)	450
Lovesick L.	1957	Fingerling (3-9 months)	700
Lovesick L.	1957	Fingerling (3-9 months)	1,500
Lovesick L.	1957	Fry (1-2 months)	160,000
Lovesick L.	1957	Fingerling (3-9 months)	400
Lovesick L.	1957	Fingerling (3-9 months)	400
Lovesick L.	1957	Fry (1-2 months)	40,000
Lovesick L.	1958	Fingerling (3-9 months)	400
Lovesick L.	1958	Fingerling (3-9 months)	1,400
Lovesick L.	1958	Fry (1-2 months)	160,000
Lovesick L.	1958	Fry (1-2 months)	50,000
Lovesick L.	1959	Fingerling (3-9 months)	3,800

Lovesick L.	1959	Fingerling (3-9 months)	400,000
Lovesick L.	1959	Fingerling (3-9 months)	500
Lovesick L.	1959	Fry (1-2 months)	100,000
Lovesick L.	1960	Fry (1-2 months)	240,000
Lovesick L.	1960	Fry (1-2 months)	40,000
Lovesick L.	1960	Fry (1-2 months)	800
Lovesick L.	1961	Fingerling (3-9 months)	3,000
Lovesick L.	1961	Fry (1-2 months)	40,000
Lovesick L.	1961	Fingerling (3-9 months)	800
Lovesick L.	1961	Fry (1-2 months)	257,500
Lovesick L.	1962	Fry (1-2 months)	300,000
Lovesick L.	1962	Fingerling (3-9 months)	1,600
Lovesick L.	1962	Fingerling (3-9 months)	400
Lovesick L.	1962	Fry (1-2 months)	40,000
Lovesick L.	1963	Fry (1-2 months)	200,000
Lovesick L.	1963	Fingerling (3-9 months)	1,600
Lovesick L.	1963	Fingerling (3-9 months)	400
Lovesick L.	1963	Fry (1-2 months)	20,000
Lovesick L.	1964	Fingerling (3-9 months)	1,000
Lovesick L.	1964	Fry (1-2 months)	200,000
Lovesick L.	1964	Fingerling (3-9 months)	600
Lovesick L.	1964	Fry (1-2 months)	20,000
Lovesick L.	1965	Fry (1-2 months)	20,000
Lovesick L.	1965	Fingerling (3-9 months)	1,000
Lovesick L.	1965	Fingerling (3-9 months)	500
Lovesick L.	1965	Fry (1-2 months)	200,000
Lovesick L.	1966	Fry (1-2 months)	20,000
Lovesick L.	1966	Fingerling (3-9 months)	200
Lovesick L.	1967	Fry (1-2 months)	200,000
Lovesick L.	1967	Fry (1-2 months)	40,000
Lovesick L.	1967	Fingerling (3-9 months)	300
Lovesick L.	1968	Fry (1-2 months)	45,000
Lovesick L.	1968	Fingerling (3-9 months)	400
Lovesick L.	1968	Fry (1-2 months)	200,000
Lovesick L.	1968	Fingerling (3-9 months)	1,000
Lovesick L.	1969	Fry (1-2 months)	200
Lovesick L.	1969	Fry (1-2 months)	40,000
Lovesick L.	1970	Fingerling (3-9 months)	300
Lovesick L.	1970	Fry (1-2 months)	30,000
Lovesick L.	1971	Fingerling (3-9 months)	200
Lovesick L.	1972	Fry (1-2 months)	40,000
Lovesick L.	1976	Fry (1-2 months)	20,000
Lovesick L.	1978	Fry (1-2 months)	20,000
Lovesick L.	1979	Fry (1-2 months)	20,000
Lovesick L.	1980	Fry (1-2 months)	20,000
Lovesick L.	1981	Fry (1-2 months)	20,000
Lovesick L.	1981	Fingerling (3-9 months)	920
Lovesick L.	1982	Fry (1-2 months)	20,000
Lovesick L.	1983	Fry (1-2 months)	20,000
Lovesick L.	1983	Fry (1-2 months)	500
Lovesick L.	1984	Fry (1-2 months)	20,000
Lovesick L.	1984	Fingerling (3-9 months)	250
Lovesick L.	1984	Fingerling (3-9 months)	100
Lovesick L.	1985	Fingerling (3-9 months)	1,000
Lovesick L.	1985	Fry (1-2 months)	20,000
Lovesick L.	1986	Fry (1-2 months)	40,000
Lovesick L.	1987	Fry (1-2 months)	1,000
Lovesick L.	1987	Fry (1-2 months)	40,000
Lovesick L.	1989	Fry (1-2 months)	20,000
Stony L.	1946	Fingerling (3-9 months)	400
Stony L.	1946	Fry (1-2 months)	30,000
Stony L.	1947	Fry (1-2 months)	50,000
Stony L.	1947	Fingerling (3-9 months)	400
Stony L.	1947	Fry (1-2 months)	60,000
Stony L.	1949	Fry (1-2 months)	90,000

Stony L.	1949	Fry (1-2 months)	90,000
Stony L.	1949	Fingerling (3-9 months)	950
Stony L.	1949	Fingerling (3-9 months)	950
Stony L.	1950	Fingerling (3-9 months)	1,550
Stony L.	1950	Fry (1-2 months)	60,000
Stony L.	1950	Fry (1-2 months)	60,000
Stony L.	1951	Fingerling (3-9 months)	600
Stony L.	1951	Fry (1-2 months)	80,000
Stony L.	1951	Fingerling (3-9 months)	700
Stony L.	1952	Fry (1-2 months)	200,000
Stony L.	1952	Fingerling (3-9 months)	2,500
Stony L.	1953	Fry (1-2 months)	160,000
Stony L.	1953	Fingerling (3-9 months)	800
Stony L.	1953	Fingerling (3-9 months)	600
Stony L.	1953	Fingerling (3-9 months)	1,600
Stony L.	1954	Fingerling (3-9 months)	800
Stony L.	1954	Fry (1-2 months)	200,000
Stony L.	1954	Fingerling (3-9 months)	900
Stony L.	1954	Fingerling (3-9 months)	900
Stony L.	1955	Fingerling (3-9 months)	1,000
Stony L.	1955	Fingerling (3-9 months)	2,300
Stony L.	1955	Fry (1-2 months)	250,000
Stony L.	1956	Fingerling (3-9 months)	3,650
Stony L.	1957	Fry (1-2 months)	160,000
Stony L.	1957	Fingerling (3-9 months)	1,500
Stony L.	1957	Fingerling (3-9 months)	1,200
Stony L.	1958	Fingerling (3-9 months)	1,500
Stony L.	1958	Fry (1-2 months)	160,000
Stony L.	1959	Fingerling (3-9 months)	3,300
Stony L.	1959	Fry (1-2 months)	200,000
Stony L.	1959	Fry (1-2 months)	200,000
Stony L.	1960	Fry (1-2 months)	3,000
Stony L.	1960	Fry (1-2 months)	300,000
Stony L.	1961	Fry (1-2 months)	300,000
Stony L.	1961	Fingerling (3-9 months)	3,000
Stony L.	1962	Fry (1-2 months)	300,000
Stony L.	1962	Fingerling (3-9 months)	1,500
Stony L.	1963	Fry (1-2 months)	200,000
Stony L.	1963	Fingerling (3-9 months)	1,600
Stony L.	1964	Fingerling (3-9 months)	1,200
Stony L.	1964	Fry (1-2 months)	200,000
Stony L.	1965	Fry (1-2 months)	200,000
Stony L.	1965	Fingerling (3-9 months)	1,000
Stony L.	1966	Fry (1-2 months)	200,000
Stony L.	1966	Fingerling (3-9 months)	1,500
Stony L.	1967	Fry (1-2 months)	200,000
Stony L.	1967	Fingerling (3-9 months)	1,200
Stony L.	1968	Fingerling (3-9 months)	1,000
Stony L.	1968	Fry (1-2 months)	200,000
Stony L.	1969	Fry (1-2 months)	200,000
Stony L.	1969	Fry (1-2 months)	1,000
Stony L.	1970	Fingerling (3-9 months)	500
Stony L.	1971	Fry (1-2 months)	200,000
Stony L.	1971	Fingerling (3-9 months)	800
Stony L.	1972	Fry (1-2 months)	200,000
Stony L.	1972	Fingerling (3-9 months)	700
Stony L.	1973	Fry (1-2 months)	100,000
Stony L.	1973	Fry (1-2 months)	1,000
Stony L.	1974	Fry (1-2 months)	100,000
Stony L.	1975	Fry (1-2 months)	540,000
Stony L.	1976	Fry (1-2 months)	200,000
Stony L.	1977	Fingerling (3-9 months)	1,000
Stony L.	1977	Fry (1-2 months)	100,000
Stony L.	1978	Fry (1-2 months)	200,000
Stony L.	1978	Fry (1-2 months)	200,000

Stony L.	1979	Fry (1-2 months)	2,000
Stony L.	1979	Fry (1-2 months)	200,000
Stony L.	1979	Fry (1-2 months)	70,000
Stony L.	1980	Fry (1-2 months)	100,000
Stony L.	1980	Fry (1-2 months)	100,000
Stony L.	1980	Fry (1-2 months)	2,020
Stony L.	1981	Fingerling (3-9 months)	2,000
Stony L.	1981	Fry (1-2 months)	100,000
Stony L.	1982	Fingerling (3-9 months)	500
Stony L.	1982	Fingerling (3-9 months)	485
Stony L.	1982	Fry (1-2 months)	200,000
Stony L.	1983	Fry (1-2 months)	2,000
Stony L.	1983	Fry (1-2 months)	100,000
Stony L.	1983	Fry (1-2 months)	500
Stony L.	1984	Fingerling (3-9 months)	2,000
Stony L.	1984	Fry (1-2 months)	150,000
Stony L.	1985	Fingerling (3-9 months)	2,000
Stony L.	1985	Fry (1-2 months)	200,000
Stony L.	1986	Fry (1-2 months)	100,000
Stony L.	1986	51	128
Stony L.	1986	Fingerling (3-9 months)	2,000
Stony L.	1987	Fingerling (3-9 months)	2,000
Stony L.	1987	Fry (1-2 months)	40,000
Stony L.	1987	Fry (1-2 months)	100,000
Stony L.	1988	Fry (1-2 months)	57,000
Stony L.	1988	Fry (1-2 months)	48,000
Stony L.	1988	Fingerling (3-9 months)	1,546
Stony L.	1989	Fingerling (3-9 months)	1,720
Stony L.	1989	Fry (1-2 months)	100,000
Stony L.	1989	Fingerling (3-9 months)	330
Stony L.	1989	Fry (1-2 months)	40,000
Rice L.	1946	Fry (1-2 months)	70,000
Rice L.	1946	Yearling (10-19 months)	500
Rice L.	1947	Fingerling (3-9 months)	75
Rice L.	1947	Fingerling (3-9 months)	500
Rice L.	1947	Fingerling (3-9 months)	2,500
Rice L.	1947	Fry (1-2 months)	70,000
Rice L.	1947	Fingerling (3-9 months)	200
Rice L.	1947	Fry (1-2 months)	140,000
Rice L.	1948	Fry (1-2 months)	170,000
Rice L.	1948	Fingerling (3-9 months)	2,400
Rice L.	1948	Fry (1-2 months)	40,000
Rice L.	1949	Fry (1-2 months)	130,000
Rice L.	1949	Fingerling (3-9 months)	2,200
Rice L.	1950	Fry (1-2 months)	40,000
Rice L.	1950	Fry (1-2 months)	60,000
Rice L.	1950	Fingerling (3-9 months)	800
Rice L.	1950	Fingerling (3-9 months)	1,000
Rice L.	1951	Fingerling (3-9 months)	1,800
Rice L.	1951	Fry (1-2 months)	100,000
Rice L.	1952	Fry (1-2 months)	220,000
Rice L.	1952	Fingerling (3-9 months)	1,500
Rice L.	1952	Fingerling (3-9 months)	300
Rice L.	1952	Fingerling (3-9 months)	3,300
Rice L.	1953	Fingerling (3-9 months)	2,900
Rice L.	1953	Fry (1-2 months)	50,000
Rice L.	1953	Fingerling (3-9 months)	500
Rice L.	1953	Fry (1-2 months)	80,000
Rice L.	1953	Fingerling (3-9 months)	800
Rice L.	1954	Fingerling (3-9 months)	800
Rice L.	1954	Fingerling (3-9 months)	2,454
Rice L.	1954	Fry (1-2 months)	60,000
Rice L.	1954	Fry (1-2 months)	80,000
Rice L.	1954	Fry (1-2 months)	40,000
Rice L.	1955	Fry (1-2 months)	70,000

Rice L.	1955	Fry (1-2 months)	100,000
Rice L.	1955	Fingerling (3-9 months)	1,000
Rice L.	1955	Fingerling (3-9 months)	7,500
Rice L.	1956	Fingerling (3-9 months)	2,000
Rice L.	1956	Fry (1-2 months)	150,000
Rice L.	1956	Fingerling (3-9 months)	13,500
Rice L.	1956	Fry (1-2 months)	200,000
Rice L.	1957	Fry (1-2 months)	100,000
Rice L.	1957	Fingerling (3-9 months)	4,800
Rice L.	1958	Fry (1-2 months)	70,000
Rice L.	1958	Fry (1-2 months)	50,000
Rice L.	1958	Fingerling (3-9 months)	1,000
Rice L.	1959	Fry (1-2 months)	160,000
Rice L.	1959	Fingerling (3-9 months)	7,050
Rice L.	1960	Fry (1-2 months)	6,700
Rice L.	1960	Fry (1-2 months)	140,000
Rice L.	1961	Fry (1-2 months)	171,500
Rice L.	1961	Fingerling (3-9 months)	9,200
Rice L.	1962	Fry (1-2 months)	180,000
Rice L.	1962	Fingerling (3-9 months)	3,800
Rice L.	1963	Fingerling (3-9 months)	3,500
Rice L.	1963	Fry (1-2 months)	120,000
Rice L.	1964	Fingerling (3-9 months)	6,000
Rice L.	1964	Fry (1-2 months)	120,000
Rice L.	1965	Fingerling (3-9 months)	4,500
Rice L.	1965	Fry (1-2 months)	120,000
Rice L.	1966	Fingerling (3-9 months)	3,412
Rice L.	1967	Fingerling (3-9 months)	2,700
Rice L.	1967	Adult (mature)	31
Rice L.	1968	Fingerling (3-9 months)	3,950
Rice L.	1969	Fry (1-2 months)	50,000
Rice L.	1969	Fingerling (3-9 months)	5,500
Rice L.	1970	Fingerling (3-9 months)	2,200
Rice L.	1971	Fingerling (3-9 months)	5,500
Rice L.	1972	Fingerling (3-9 months)	2,100
Rice L.	1973	Fingerling (3-9 months)	6,000
Rice L.	1974	Fingerling (3-9 months)	6,000
Rice L.	1976	Fingerling (3-9 months)	1,000
Rice L.	1976	Fingerling (3-9 months)	1,000
Rice L.	1977	Fingerling (3-9 months)	1,200
Rice L.	1977	Fry (1-2 months)	25,000
Rice L.	1978	Fingerling (3-9 months)	700
Rice L.	1978	Fingerling (3-9 months)	2,800
Rice L.	1978	Fry (1-2 months)	10,000
Rice L.	1979	Fry (1-2 months)	20,000
Rice L.	1979	Fry (1-2 months)	20,000
Rice L.	1979	Fry (1-2 months)	40,000
Rice L.	1979	Fry (1-2 months)	540
Rice L.	1979	Fry (1-2 months)	640
Rice L.	1979	Fry (1-2 months)	2,000
Rice L.	1979	Fry (1-2 months)	640
Rice L.	1979	Fry (1-2 months)	600
Rice L.	1979	Fry (1-2 months)	1,000
Rice L.	1979	Fry (1-2 months)	40,000
Rice L.	1980	Fry (1-2 months)	2,500
Rice L.	1980	Fry (1-2 months)	300
Rice L.	1980	Fry (1-2 months)	20,000
Rice L.	1980	Fry (1-2 months)	10,000
Rice L.	1980	Fry (1-2 months)	20,000
Rice L.	1980	Fry (1-2 months)	10,000
Rice L.	1981	Fingerling (3-9 months)	700
Rice L.	1981	Fingerling (3-9 months)	600
Rice L.	1981	Fingerling (3-9 months)	400
Rice L.	1981	Fingerling (3-9 months)	800
Rice L.	1981	Fingerling (3-9 months)	800

Rice L.	1981	Fingerling (3-9 months)	1,000
Rice L.	1981	Fingerling (3-9 months)	580
Rice L.	1981	Fingerling (3-9 months)	500
Rice L.	1981	Fingerling (3-9 months)	200
Rice L.	1981	Fry (1-2 months)	10,000
Rice L.	1981	Fry (1-2 months)	20,000
Rice L.	1981	Fry (1-2 months)	10,000
Rice L.	1981	Fingerling (3-9 months)	500
Rice L.	1982	Fry (1-2 months)	10,000
Rice L.	1982	Fry (1-2 months)	10,000
Rice L.	1982	Fry (1-2 months)	10,000
Rice L.	1982	Fry (1-2 months)	10,000
Rice L.	1982	Fry (1-2 months)	5,000
Rice L.	1982	Fry (1-2 months)	1,300
Rice L.	1982	Fry (1-2 months)	5,000
Rice L.	1983	Fry (1-2 months)	500
Rice L.	1983	Fry (1-2 months)	650
Rice L.	1983	Fry (1-2 months)	600
Rice L.	1983	Fry (1-2 months)	700
Rice L.	1983	Fry (1-2 months)	2,000
Rice L.	1983	Fry (1-2 months)	500
Rice L.	1983	Fry (1-2 months)	500
Rice L.	1983	Fry (1-2 months)	10,000
Rice L.	1983	Fry (1-2 months)	10,000
Rice L.	1983	Fry (1-2 months)	500
Rice L.	1984	Fry (1-2 months)	20,000
Rice L.	1984	Fry (1-2 months)	20,000
Rice L.	1984	Fry (1-2 months)	20,000
Rice L.	1984	Fingerling (3-9 months)	1,500
Rice L.	1984	Fingerling (3-9 months)	2,200
Rice L.	1984	Fingerling (3-9 months)	3,000
Rice L.	1985	Fry (1-2 months)	20,000
Rice L.	1985	Fry (1-2 months)	20,000
Rice L.	1985	Fingerling (3-9 months)	3,500
Rice L.	1985	Fingerling (3-9 months)	7,786
Rice L.	1985	Fingerling (3-9 months)	3,700
Rice L.	1985	Fry (1-2 months)	20,000
Rice L.	1985	Fry (1-2 months)	20,000
Rice L.	1986	Fingerling (3-9 months)	120
Rice L.	1986	Fry (1-2 months)	67,500
Rice L.	1986	Fry (1-2 months)	40,000
Rice L.	1986	Fry (1-2 months)	2,292
Rice L.	1987	Fry (1-2 months)	40,000
Rice L.	1987	Fry (1-2 months)	29,000
Rice L.	1988	Fingerling (3-9 months)	1,500
Rice L.	1989	Fry (1-2 months)	100,000
Rice L.	1989	Fingerling (3-9 months)	1,237
Rice L.	1989	Fingerling (3-9 months)	232
Rice L.	1990	Fry (1-2 months)	100,000
Rice L.	1990	Fry (1-2 months)	100,000
Belmont L.	1946	Fingerling (3-9 months)	30,000
Belmont L.	1947	Fingerling (3-9 months)	400
Belmont L.	1947	Fry (1-2 months)	60,000
Belmont L.	1948	Fry (1-2 months)	100,000
Belmont L.	1948	Fingerling (3-9 months)	800
Belmont L.	1949	Fingerling (3-9 months)	800
Belmont L.	1949	Fingerling (3-9 months)	800
Belmont L.	1949	Fry (1-2 months)	60,000
Belmont L.	1950	Fingerling (3-9 months)	900
Belmont L.	1950	Fry (1-2 months)	80,000
Belmont L.	1951	Fry (1-2 months)	600
Belmont L.	1951	Fry (1-2 months)	70,000
Belmont L.	1952	Fingerling (3-9 months)	1,000
Belmont L.	1952	Fry (1-2 months)	100,000
Belmont L.	1953	Fingerling (3-9 months)	700

Belmont L.	1953	Fry (1-2 months)	60,000
Belmont L.	1953	Fingerling (3-9 months)	800
Belmont L.	1954	Fingerling (3-9 months)	500
Belmont L.	1954	Fry (1-2 months)	80,000
Belmont L.	1954	Fingerling (3-9 months)	500
Belmont L.	1955	Fingerling (3-9 months)	1,500
Belmont L.	1955	Fry (1-2 months)	140,000
Belmont L.	1956	Fry (1-2 months)	120,000
Belmont L.	1956	Fingerling (3-9 months)	2,324
Belmont L.	1957	Fingerling (3-9 months)	1,000
Belmont L.	1957	Fry (1-2 months)	20,000
Belmont L.	1957	Fry (1-2 months)	40,000
Belmont L.	1958	Fingerling (3-9 months)	600
Belmont L.	1958	Fry (1-2 months)	70,000
Belmont L.	1959	Fry (1-2 months)	80,000
Belmont L.	1959	Fingerling (3-9 months)	1,800
Belmont L.	1960	Fry (1-2 months)	600
Belmont L.	1960	Fingerling (3-9 months)	105
Belmont L.	1960	Fry (1-2 months)	40,000
Belmont L.	1961	Fry (1-2 months)	40,000
Belmont L.	1961	Fingerling (3-9 months)	600
Belmont L.	1962	Fingerling (3-9 months)	500
Belmont L.	1962	Fry (1-2 months)	40,000
Belmont L.	1963	Fry (1-2 months)	20,000
Belmont L.	1964	Fingerling (3-9 months)	500
Belmont L.	1964	Fry (1-2 months)	20,000
Belmont L.	1965	Fingerling (3-9 months)	600
Belmont L.	1965	Fry (1-2 months)	20,000
Belmont L.	1966	Fry (1-2 months)	20,000
Belmont L.	1966	Fingerling (3-9 months)	900
Belmont L.	1967	Fingerling (3-9 months)	400
Belmont L.	1967	Fry (1-2 months)	50,000
Belmont L.	1968	Fry (1-2 months)	50,000
Belmont L.	1968	Fingerling (3-9 months)	200
Belmont L.	1969	Fingerling (3-9 months)	400
Belmont L.	1969	Fry (1-2 months)	20,000
Belmont L.	1970	Fingerling (3-9 months)	300
Belmont L.	1971	Fingerling (3-9 months)	300
Belmont L.	1972	Fry (1-2 months)	10,000
Belmont L.	1972	Fingerling (3-9 months)	300
Belmont L.	1973	unknown	200
Belmont L.	1974	Fingerling (3-9 months)	400
Belmont L.	1975	Fry (1-2 months)	38,250
Belmont L.	1976	Fingerling (3-9 months)	100
Belmont L.	1976	Fry (1-2 months)	80,000
Belmont L.	1977	Fry (1-2 months)	10,000
Belmont L.	1977	Fingerling (3-9 months)	450
Belmont L.	1978	Fry (1-2 months)	30,000
Belmont L.	1978	Fingerling (3-9 months)	150
Belmont L.	1979	Fry (1-2 months)	30,000
Belmont L.	1979	Fry (1-2 months)	250
Belmont L.	1979	Fry (1-2 months)	30,000
Belmont L.	1980	Fry (1-2 months)	20,000
Belmont L.	1981	Fingerling (3-9 months)	650
Belmont L.	1982	Fry (1-2 months)	20,000
Belmont L.	1983	Fry (1-2 months)	500
Belmont L.	1983	Fry (1-2 months)	10,000
Belmont L.	1984	Fingerling (3-9 months)	250
Belmont L.	1984	Fry (1-2 months)	10,000
Belmont L.	1984	Fry (1-2 months)	10,000
Belmont L.	1985	Fingerling (3-9 months)	400
Belmont L.	1985	Fingerling (3-9 months)	500
Belmont L.	1985	Fry (1-2 months)	20,000
Belmont L.	1986	Fry (1-2 months)	500
Belmont L.	1986	Fry (1-2 months)	10,000

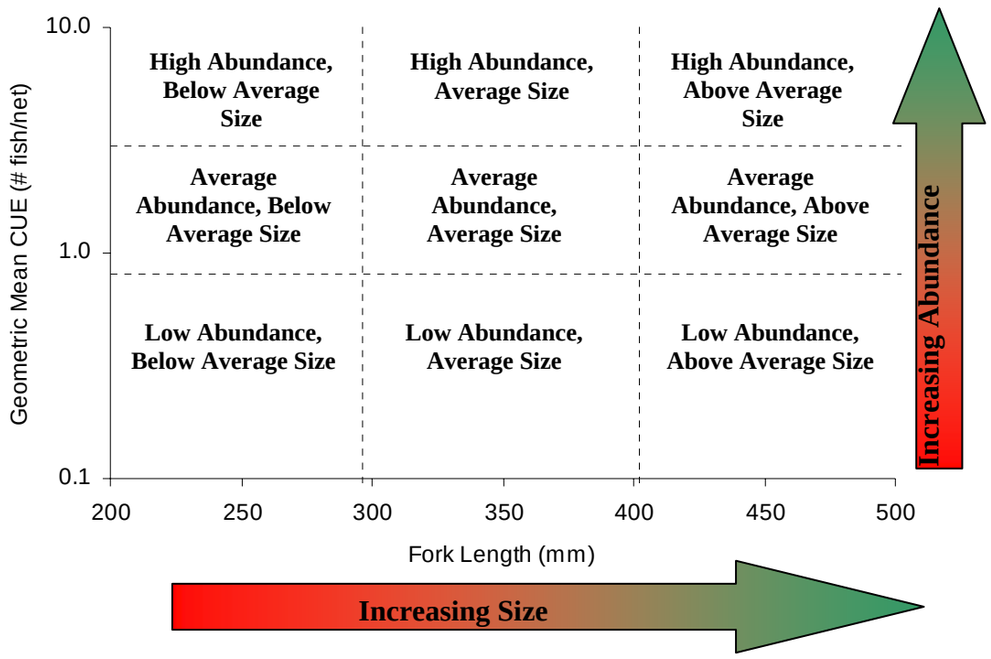
Belmont L.	1987	Fry (1-2 months)	10,000
Belmont L.	1989	Fry (1-2 months)	20,000
Belmont L.	1990	Fry (1-2 months)	20,000
Cordova L.	1947	Fry (1-2 months)	20,000
Cordova L.	1948	Fry (1-2 months)	30,000
Cordova L.	1949	Juvenile/Adult	14
Cordova L.	1949	Fry (1-2 months)	20,000
Cordova L.	1950	Fingerling (3-9 months)	200
Cordova L.	1951	Fry (1-2 months)	20,000
Cordova L.	1952	Fingerling (3-9 months)	300
Cordova L.	1952	Fry (1-2 months)	20,000
Cordova L.	1953	Fry (1-2 months)	20,000
Cordova L.	1953	Fingerling (3-9 months)	358
Cordova L.	1954	Fry (1-2 months)	20,000
Cordova L.	1954	Fingerling (3-9 months)	300
Cordova L.	1955	Fry (1-2 months)	40,000
Cordova L.	1955	Fingerling (3-9 months)	300
Cordova L.	1956	Fry (1-2 months)	30,000
Cordova L.	1956	Fingerling (3-9 months)	800
Cordova L.	1957	Fry (1-2 months)	200
Cordova L.	1957	Fry (1-2 months)	20,000
Cordova L.	1958	Fry (1-2 months)	212
Cordova L.	1958	Fry (1-2 months)	30,000
Cordova L.	1959	Fingerling (3-9 months)	500
Cordova L.	1960	Fry (1-2 months)	20,000
Cordova L.	1960	Fry (1-2 months)	600
Cordova L.	1961	Fry (1-2 months)	20,000
Cordova L.	1961	Fingerling (3-9 months)	300
Cordova L.	1962	Fry (1-2 months)	20,000
Cordova L.	1962	Fingerling (3-9 months)	200
Cordova L.	1963	Fry (1-2 months)	10,000
Cordova L.	1964	Fry (1-2 months)	10,000
Cordova L.	1964	Fingerling (3-9 months)	400
Cordova L.	1965	Fry (1-2 months)	10,000
Cordova L.	1965	Fingerling (3-9 months)	300
Cordova L.	1966	Fry (1-2 months)	10,000
Cordova L.	1967	Fry (1-2 months)	20,000
Cordova L.	1968	Fry (1-2 months)	20,000
Cordova L.	1969	Fry (1-2 months)	10,000
Cordova L.	1969	Fry (1-2 months)	200
Cordova L.	1970	Fry (1-2 months)	30,000
Cordova L.	1971	Fingerling (3-9 months)	200
Cordova L.	1972	Fry (1-2 months)	10,000
Cordova L.	1975	Fry (1-2 months)	38,250
Cordova L.	1976	Fingerling (3-9 months)	100
Cordova L.	1976	Fry (1-2 months)	80,000
Cordova L.	1977	Fingerling (3-9 months)	200
Cordova L.	1977	Fry (1-2 months)	10,000
Cordova L.	1978	Fry (1-2 months)	30,000
Cordova L.	1978	Fingerling (3-9 months)	150
Cordova L.	1979	Fry (1-2 months)	250
Cordova L.	1979	Fry (1-2 months)	30,000
Cordova L.	1979	Fry (1-2 months)	30,000
Cordova L.	1980	Fry (1-2 months)	200
Cordova L.	1980	Fry (1-2 months)	20,000
Cordova L.	1981	Fry (1-2 months)	20,000
Cordova L.	1981	Fingerling (3-9 months)	500
Cordova L.	1982	Fry (1-2 months)	20,000
Cordova L.	1983	Fry (1-2 months)	10,000
Cordova L.	1983	Fry (1-2 months)	500
Cordova L.	1984	Fry (1-2 months)	10,000
Cordova L.	1984	Fry (1-2 months)	10,000
Cordova L.	1984	Fingerling (3-9 months)	250
Cordova L.	1985	Egg (unknown stage)	45,000
Cordova L.	1985	Fingerling (3-9 months)	500

Cordova L.	1985	Fingerling (3-9 months)	400
Cordova L.	1985	Fry (1-2 months)	20,000
Cordova L.	1986	Fry (1-2 months)	10,000
Cordova L.	1986	Fry (1-2 months)	500
Cordova L.	1987	Fingerling (3-9 months)	50
Cordova L.	1987	Fry (1-2 months)	10,000
Cordova L.	1989	Fry (1-2 months)	150
Cordova L.	1989	Fry (1-2 months)	20,000
Cordova L.	1990	Fry (1-2 months)	20,000
Crowe L.	1946	Fingerling (3-9 months)	200
Crowe L.	1947	Fingerling (3-9 months)	700
Crowe L.	1947	Fry (1-2 months)	200,000
Crowe L.	1948	Fingerling (3-9 months)	400
Crowe L.	1948	Fry (1-2 months)	120,000
Crowe L.	1949	Fry (1-2 months)	150,000
Crowe L.	1949	Fingerling (3-9 months)	1,400
Crowe L.	1949	Fingerling (3-9 months)	200
Crowe L.	1950	Fingerling (3-9 months)	1,000
Crowe L.	1950	Fingerling (3-9 months)	80,000
Crowe L.	1950	Fingerling (3-9 months)	400
Crowe L.	1951	Fingerling (3-9 months)	600
Crowe L.	1951	Fingerling (3-9 months)	300
Crowe L.	1951	Fry (1-2 months)	50,000
Crowe L.	1952	Fingerling (3-9 months)	800
Crowe L.	1952	Fingerling (3-9 months)	1,500
Crowe L.	1953	Egg (unknown stage)	50,000
Crowe L.	1953	Fingerling (3-9 months)	600
Crowe L.	1954	Fry (1-2 months)	50,000
Crowe L.	1954	Fry (1-2 months)	40,000
Crowe L.	1954	Fingerling (3-9 months)	600
Crowe L.	1954	Fingerling (3-9 months)	600
Crowe L.	1955	Fingerling (3-9 months)	1,000
Crowe L.	1955	Fry (1-2 months)	60,000
Crowe L.	1955	Fingerling (3-9 months)	500
Crowe L.	1956	Fingerling (3-9 months)	2,000
Crowe L.	1956	Fry (1-2 months)	30,000
Crowe L.	1956	Fry (1-2 months)	50,000
Crowe L.	1957	Fry (1-2 months)	20,000
Crowe L.	1957	Fry (1-2 months)	30,000
Crowe L.	1958	Fry (1-2 months)	20,000
Crowe L.	1958	Fingerling (3-9 months)	400
Crowe L.	1958	Fry (1-2 months)	30,000
Crowe L.	1959	Fry (1-2 months)	40,000
Crowe L.	1959	Fingerling (3-9 months)	500
Crowe L.	1959	Fingerling (3-9 months)	40,000
Crowe L.	1960	Fry (1-2 months)	40,000
Crowe L.	1960	Fry (1-2 months)	700
Crowe L.	1960	Fingerling (3-9 months)	50,000
Crowe L.	1960	Fry (1-2 months)	400
Crowe L.	1961	Fry (1-2 months)	20,000
Crowe L.	1961	Fingerling (3-9 months)	3,000
Crowe L.	1961	Fry (1-2 months)	45,000
Crowe L.	1962	Fingerling (3-9 months)	600
Crowe L.	1962	Fry (1-2 months)	60,000
Crowe L.	1962	Fry (1-2 months)	20,000
Crowe L.	1963	Fry (1-2 months)	40,000
Crowe L.	1963	Fingerling (3-9 months)	600
Crowe L.	1964	Fingerling (3-9 months)	500
Crowe L.	1964	Fry (1-2 months)	40,000
Crowe L.	1965	Fry (1-2 months)	40,000
Crowe L.	1965	Fingerling (3-9 months)	500
Crowe L.	1965	Fry (1-2 months)	20,000
Crowe L.	1966	Fingerling (3-9 months)	400
Crowe L.	1966	Fry (1-2 months)	40,000
Crowe L.	1967	Fry (1-2 months)	50,000

Crowe L.	1967	Fry (1-2 months)	20,000
Crowe L.	1967	Fingerling (3-9 months)	300
Crowe L.	1968	Fingerling (3-9 months)	200
Crowe L.	1968	Fry (1-2 months)	40,000
Crowe L.	1969	Fry (1-2 months)	40,000
Crowe L.	1969	Fry (1-2 months)	400
Crowe L.	1970	Fry (1-2 months)	30,000
Crowe L.	1970	Fry (1-2 months)	20,000
Crowe L.	1971	Fry (1-2 months)	20,000
Crowe L.	1972	Fry (1-2 months)	20,000
Crowe L.	1972	Fingerling (3-9 months)	100
Crowe L.	1976	Fingerling (3-9 months)	100
Crowe L.	1976	Fry (1-2 months)	80,000
Crowe L.	1977	Fingerling (3-9 months)	550
Crowe L.	1977	Fry (1-2 months)	10,000
Crowe L.	1978	Fingerling (3-9 months)	150
Crowe L.	1978	Fry (1-2 months)	30,000
Round L.	1946	Fingerling (3-9 months)	200
Round L.	1946	Fry (1-2 months)	10,000
Round L.	1947	Fingerling (3-9 months)	200
Round L.	1947	Fry (1-2 months)	30,000
Round L.	1947	Fry (1-2 months)	40,000
Round L.	1948	Fry (1-2 months)	40,000
Round L.	1948	Fry (1-2 months)	30,000
Round L.	1948	Fingerling (3-9 months)	400
Round L.	1949	Fingerling (3-9 months)	400
Round L.	1949	Fry (1-2 months)	20,000
Round L.	1950	Fry (1-2 months)	40,000
Round L.	1950	Fingerling (3-9 months)	500
Round L.	1950	Fingerling (3-9 months)	300
Round L.	1951	Fingerling (3-9 months)	400
Round L.	1951	Fry (1-2 months)	40,000
Round L.	1952	Fry (1-2 months)	30,300
Round L.	1952	Fingerling (3-9 months)	500
Round L.	1952	Fry (1-2 months)	40,000
Round L.	1953	Fingerling (3-9 months)	200
Round L.	1953	Fry (1-2 months)	30,000
Round L.	1953	Fry (1-2 months)	20,000
Round L.	1953	Fingerling (3-9 months)	400
Round L.	1954	Fingerling (3-9 months)	200
Round L.	1954	Fry (1-2 months)	40,000
Round L.	1954	Fingerling (3-9 months)	400
Round L.	1955	Fry (1-2 months)	30,000
Round L.	1955	Fingerling (3-9 months)	500
Round L.	1955	Fry (1-2 months)	40,000
Round L.	1956	Fingerling (3-9 months)	200
Round L.	1956	Fry (1-2 months)	40,000
Round L.	1956	Fry (1-2 months)	30,000
Round L.	1956	Fingerling (3-9 months)	1,200
Round L.	1957	Fingerling (3-9 months)	300
Round L.	1957	Fry (1-2 months)	20,000
Round L.	1957	Fingerling (3-9 months)	800
Round L.	1957	Fry (1-2 months)	40,000
Round L.	1958	Fry (1-2 months)	30,000
Round L.	1958	Fingerling (3-9 months)	200
Round L.	1958	Fry (1-2 months)	20,000
Round L.	1958	Fingerling (3-9 months)	300
Round L.	1959	Fingerling (3-9 months)	200
Round L.	1959	Fry (1-2 months)	20,000
Round L.	1959	Fingerling (3-9 months)	800
Round L.	1959	Fry (1-2 months)	40,000
Round L.	1960	Fry (1-2 months)	40,000
Round L.	1960	Fingerling (3-9 months)	800
Round L.	1960	Fry (1-2 months)	1,200
Round L.	1961	Fingerling (3-9 months)	400

Round L.	1961	Fry (1-2 months)	40,000
Round L.	1962	Fingerling (3-9 months)	500
Round L.	1962	Fry (1-2 months)	40,000
Round L.	1963	Fingerling (3-9 months)	1,200
Round L.	1963	Fingerling (3-9 months)	600
Round L.	1963	Fingerling (3-9 months)	20,000
Round L.	1964	Fry (1-2 months)	20,000
Round L.	1964	Fingerling (3-9 months)	300
Round L.	1964	Fry (1-2 months)	8,000
Round L.	1965	Fingerling (3-9 months)	400
Round L.	1965	Fry (1-2 months)	20,000
Round L.	1965	Fry (1-2 months)	10,000
Round L.	1966	Fingerling (3-9 months)	1,000
Round L.	1966	Fingerling (3-9 months)	300
Round L.	1966	Fry (1-2 months)	20,000
Round L.	1967	Fingerling (3-9 months)	300
Round L.	1967	Fry (1-2 months)	50,000
Round L.	1967	Fry (1-2 months)	1,000
Round L.	1968	Fry (1-2 months)	20,000
Round L.	1968	Fingerling (3-9 months)	200
Round L.	1969	Fry (1-2 months)	500
Round L.	1969	Fry (1-2 months)	20,000
Round L.	1970	Fry (1-2 months)	15,000
Round L.	1971	Fingerling (3-9 months)	300
Round L.	1972	Fingerling (3-9 months)	100
Round L.	1972	Fry (1-2 months)	10,000
Round L.	1973	unknown	200
Seymour L.	1976	Fry (1-2 months)	3,000
Seymour L.	1977	Fingerling (3-9 months)	1,500

Appendix 2 – Interpretation instructions for the abundance/size figures utilized in Background Document



Y-axis – Geometric Mean CUE – represents the relative abundance of fish from the survey, expressed as the geometric mean Catch per Unit Effort (CUE).

X-axis – Fork Length (mm) – represents the average size of fish from the survey, measured by fork length (distance from the nose to the fork of the tail).

Dashed lines – represent the 25th and 75th quartile values for abundance (horizontal) and size (vertical). 50% of surveys have an abundance value between the two horizontal dashed lines, and 50% of surveys have a mean size between the two vertical dashed lines.

Data points – represent the average size and abundance for individual lake surveys. Multiple data points for each lake represent lakes where the surveys have been completed in multiple years.

Appendix 3 - Stocking Records for Lake Ontario by the Province of Ontario and the State of New York

	Ontario Ministry of Natural Resources Stocking (thousands of fish)									New York Stocking (thousands of fish)								Lake Ontario TOTAL
Year	Coho salmon	Chinook salmon	Rainbow trout	Brown trout	Lake trout	Splake	Kokanee	Atlantic salmon	Total	Coho salmon	Chinook salmon	Rainbow trout	Brown trout	Lake trout	Brook trout	Atlantic salmon	Total	
1968	0	0	12	0	0	24	0	0	36	40	0	0	0	0	0	0	40	76
1969	138	0	10	0	0	25	20	0	193	119	70	0	0	0	0	0	189	382
1970	148	0	10	0	0	0	45	0	203	294	140	0	0	0	0	0	434	637
1971	160	89	18	0	0	0	50	0	317	122	100	0	0	0	0	0	222	539
1972	122	190	107	0	0	48	61	0	528	230	426	0	0	0	0	0	656	1184
1973	272	0	58	0	0	39	0	0	369	240	700	0	60	66	0	0	1066	1435
1974	438	225	124	0	0	26	0	0	813	216	963	79	123	645	0	0	2026	2839
1975	226	0	29	0	0	0	0	0	255	813	920	99	221	513	0	0	2566	2821
1976	166	0	108	0	194	6	0	0	474	177	593	189	310	337	0	0	1606	2080
1977	313	0	110	0	288	0	0	0	711	40	0	141	357	298	0	0	836	1547
1978	201	0	124	0	200	0	0	0	525	80	0	313	94	1043	0	0	1530	2055
1979	286	0	201	0	201	0	0	0	688	344	222	325	219	685	0	0	1795	2483
1980	77	0	329	0	383	0	0	0	789	299	788	759	529	1194	326	0	3895	4684
1981	334	12	81	7	387	0	0	0	821	0	1468	483	454	1146	106	0	3657	4478
1982	112	270	68	57	391	0	0	0	898	367	1808	253	754	1259	0	0	4441	5339
1983	218	125	105	123	372	0	0	0	943	447	2759	465	711	1097	0	49	5528	6471
1984	106	618	110	123	493	0	0	0	1450	743	3588	491	408	1045	0	25	6300	7750
1985	191	584	106	163	729	0	0	0	1773	376	3022	1082	440	1186	0	68	6174	7947
1986	273	598	200	298	852	0	0	0	2221	547	2849	565	442	1382	0	55	5840	8061
1987	401	514	306	318	1122	0	0	1	2662	80	3111	703	418	1185	0	65	5562	8224
1988	323	516	375	387	1024	0	0	49	2674	556	2848	673	450	1015	0	38	5580	8254
1989	291	541	118	360	1124	0	0	76	2510	410	2752	578	445	1010	0	65	5260	7770
1990	235	497	105	387	949	0	0	61	2234	441	2720	720	461	1106	0	33	5481	7715
1991	151	594	187	526	1092	0	0	28	2578	229	2835	848	382	978	0	178	5450	8028
1992	0	605	290	257	1126	0	0	35	2313	829	2798	600	415	508	0	169	5319	7632
1993	0	501	216	219	568	0	0	42	1546	196	1603	542	445	501	0	165	3452	4998
1994	0	475	329	235	535	0	0	50	1624	314.6	1000	579	402	512	0	189	2996.6	4620.6

1995	0	462	240	203	526	0	0	45	1476	291	1150	609	382	500	0	226	3158	4634
1996	0	438	216	256	500	0	0	4	1414	294	1300	673	361	350	0	302	3280	4694
1997	10	612	533	246	460	0	0	0.5	1861.5	250	1605	758	426	500	0	174	3713	5574.5
1998	135	617	318	164.5	438	0	0	0.66	1673.16	245	1596	634	426	426	0	102	3429	5102.16
1999	134	366	150	156	463	0	0	2.29	1271.29	227	1596	710	454	476	0	271	3734	5005.29
2000	175	555	150	167	444	0	0	0.172	1491.17	254	1654	608	421	490.1	0	188	3615.116	5106.288
2001	164	555	143	174	454	0	0	0.14	1490.14	256	1629	663	519	500	0	162	3729	5219.14
2002	178	575	164	163	445	0	0	1.9	1526.9	264	1633	645	518	500	0	90.7	3650.7	5177.6
2003	94.8	503.6	176.4	181.3	409.6	0	0	84.6	1450.3	257	1622	681	452	500	0	83	3595	5045.3
2004	197.5	548.4	156.5	171.8	474.8	0	0	5.3	1554.3	250	1836	622	397	457	0	57	3619	5173.3
2005	250	555.3	208	239.3	461.2	0	0	121.8	1835.6									
2006	0	406.8	231.5	91.8	438.2	0	0	101	1269.3									

Appendix 4: MNR Stocking Records for Streams in FMZ 17, 1946-2000

Waterbody Name	Species	Year Stocked	Development Stage	Numbers of Fish Stocked
Baltimore Cr.	Brook Trout	1946	Yearlings (10 to 19 months)	1,400
Baltimore Cr.	Brook Trout	1947	Yearlings (10 to 19 months)	500
Baltimore Cr.	Brook Trout	1947	Yearlings (10 to 19 months)	1,500
Baltimore Cr.	Brown Trout	1948	Yearlings (10 to 19 months)	3,000
Baltimore Cr.	Brown Trout	1948	Yearlings (10 to 19 months)	4,000
Baltimore Cr.	Brown Trout	1948	Fingerlings (3 to 9 months)	2,000
Baltimore Cr.	Brown Trout	1949	Yearlings (10 to 19 months)	5,000
Baltimore Cr.	Brook Trout	1949	Fingerlings (3 to 9 months)	6,000
Baltimore Cr.	Brook Trout	1949	Yearlings (10 to 19 months)	1,500
Baltimore Cr.	Brook Trout	1950	Yearlings (10 to 19 months)	2,000
Baltimore Cr.	Brook Trout	1951	Yearlings (10 to 19 months)	2,500
Baltimore Cr.	Brook Trout	1951	Yearlings (10 to 19 months)	2,000
Baltimore Cr.	Brook Trout	1954	Yearlings (10 to 19 months)	200
Baltimore Cr.	Brown Trout	1955	Yearlings (10 to 19 months)	2,000
Baltimore Cr.	Brown Trout	1955	Yearlings (10 to 19 months)	3,000
Baltimore Cr.	Brook Trout	1955	Yearlings (10 to 19 months)	2,000
Baltimore Cr.	Brown Trout	1956	Yearlings (10 to 19 months)	800
Baltimore Cr.	Brook Trout	1956	Yearlings (10 to 19 months)	1,500
Baltimore Cr.	Brown Trout	1957	Yearlings (10 to 19 months)	1,000
Baltimore Cr.	Brook Trout	1957	Yearlings (10 to 19 months)	1,000
Baltimore Cr.	Brown Trout	1958	Yearlings (10 to 19 months)	2,000
Baltimore Cr.	Brook Trout	1958	Yearlings (10 to 19 months)	1,000
Baltimore Cr.	Brown Trout	1959	Yearlings (10 to 19 months)	2,000
Baltimore Cr.	Brook Trout	1959	Yearlings (10 to 19 months)	1,000
Baltimore Cr.	Brook Trout	1959	Yearlings (10 to 19 months)	100
Baltimore Cr.	Brook Trout	1960	Yearlings (10 to 19 months)	900
Baltimore Cr.	Brown Trout	1961	Fingerlings (3 to 9 months)	340
Baltimore Cr.	Brook Trout	1961	Yearlings (10 to 19 months)	1,000
Baltimore Cr.	Brook Trout	1961	Yearlings (10 to 19 months)	400
Baltimore Cr.	Brook Trout	1961	Yearlings (10 to 19 months)	500
Baltimore Cr.	Brook Trout	1962	Yearlings (10 to 19 months)	1,500
Baltimore Cr.	Brook Trout	1963	Yearlings (10 to 19 months)	500
Baltimore Cr.	Brook Trout	1963	Yearlings (10 to 19 months)	800
Baltimore Cr.	Brook Trout	1964	Yearlings (10 to 19 months)	1,000
Baltimore Cr.	Brook Trout	1965	Yearlings (10 to 19 months)	1,400
Baltimore Cr.	Brook Trout	1966	Yearlings (10 to 19 months)	700
Baltimore Cr.	Brook Trout	1967	Yearlings (10 to 19 months)	500
Baltimore Cr.	Rainbow Trout	1968	Fingerlings (3 to 9 months)	1,144
Baltimore Cr.	Rainbow Trout	1968	Yearlings (10 to 19 months)	1,144
Baltimore Cr.	Brook Trout	1968	Yearlings (10 to 19 months)	500
Baltimore Cr.	Brook Trout	1969	Yearlings (10 to 19 months)	500
Baltimore Cr.	Brook Trout	1970	Yearlings (10 to 19 months)	1,000
Baltimore Cr.	Brook Trout	1971	Yearlings (10 to 19 months)	850
Baltimore Cr.	Brook Trout	1972	Yearlings (10 to 19 months)	800
Baltimore Cr.	Brook Trout	1973	Yearlings (10 to 19 months)	200

Baltimore Cr.	Brook Trout	1973	Yearlings (10 to 19 months)	200
Baltimore Cr.	Brook Trout	1975	Yearlings (10 to 19 months)	500
Baltimore Cr.	Brook Trout	1976	Yearlings (10 to 19 months)	500

Barnum House Cr.	Atlantic Salmon	1997	Fingerlings (3 to 9 months)	4,100
Barnum House Cr.	Atlantic Salmon	1998	Fingerlings (3 to 9 months)	4,100
Barnum House Cr.	Atlantic Salmon	1999	Fingerlings (3 to 9 months)	8,361
Barnum House Cr.	Atlantic Salmon	1999	Fingerlings (3 to 9 months)	4,100
Barnum House Cr.	Atlantic Salmon	2000	Fingerlings (3 to 9 months)	10,000

Baxter Cr.	Brown Trout	1947	Yearlings (10 to 19 months)	1800
Baxter Cr.	Brook Trout	1947	Yearlings (10 to 19 months)	2100
Baxter Cr.	Brown Trout	1948	Yearlings (10 to 19 months)	2400
Baxter Cr.	Brook Trout	1948	Yearlings (10 to 19 months)	1600
Baxter Cr.	Brown Trout	1949	Yearlings (10 to 19 months)	3000
Baxter Cr.	Brook Trout	1949	Yearlings (10 to 19 months)	1000
Baxter Cr.	Brook Trout	1949	Fingerlings (3 to 9 months)	2000
Baxter Cr.	Brook Trout	1950	Yearlings (10 to 19 months)	2500
Baxter Cr.	Brown Trout	1951	Fry (1 to 2 months)	2000
Baxter Cr.	Brook Trout	1951	Yearlings (10 to 19 months)	3000
Baxter Cr.	Brown Trout	1952	Fingerlings (3 to 9 months)	3000
Baxter Cr.	Brook Trout	1952	Yearlings (10 to 19 months)	2500
Baxter Cr.	Brown Trout	1953	Fry (1 to 2 months)	1000
Baxter Cr.	Brook Trout	1953	Yearlings (10 to 19 months)	2000
Baxter Cr.	Brook Trout	1953	Yearlings (10 to 19 months)	500
Baxter Cr.	Brown Trout	1954	Yearlings (10 to 19 months)	1000
Baxter Cr.	Brook Trout	1954	Yearlings (10 to 19 months)	2000
Baxter Cr.	Brook Trout	1955	Yearlings (10 to 19 months)	4500
Baxter Cr.	Brown Trout	1956	Yearlings (10 to 19 months)	1000
Baxter Cr.	Brook Trout	1956	Yearlings (10 to 19 months)	2500
Baxter Cr.	Brown Trout	1957	Yearlings (10 to 19 months)	1500
Baxter Cr.	Brook Trout	1957	Yearlings (10 to 19 months)	1000
Baxter Cr.	Brook Trout	1967	Yearlings (10 to 19 months)	300
Baxter Cr.	Rainbow Trout	1971	Yearlings (10 to 19 months)	750
Baxter Cr.	Brook Trout	1987	Yearlings (10 to 19 months)	2,500
Baxter Cr.	Rainbow Trout	1987	Sub-adults (>=20 months)	54
Baxter Cr.	Rainbow Trout	1989	Yearlings (10 to 19 months)	250
Baxter Cr.	Rainbow Trout	1990	Yearlings (10 to 19 months)	2,500

Birdsalls Cr.	Brook Trout	1946	Yearlings (10 to 19 months)	1,600
Birdsalls Cr.	Brook Trout	1955	Yearlings (10 to 19 months)	200

Bowmanville Cr.	Brown Trout	1947	Yearlings (10 to 19 months)	1,000
Bowmanville Cr.	Brown Trout	1948	Yearlings (10 to 19 months)	2,000
Bowmanville Cr.	Brown Trout	1948	Fingerlings (3 to 9 months)	6,500
Bowmanville Cr.	Brown Trout	1949	Yearlings (10 to 19 months)	1,000
Bowmanville Cr.	Brook Trout	1949	Yearlings (10 to 19 months)	2,000
Bowmanville Cr.	Brown Trout	1950	Fingerlings (3 to 9 months)	5,000
Bowmanville Cr.	Brook Trout	1950	Yearlings (10 to 19 months)	1,500

Bowmanville Cr.	Brook Trout	1950	Fingerlings (3 to 9 months)	5,000
Bowmanville Cr.	Brown Trout	1951	Fry (1 to 2 months)	4,000
Bowmanville Cr.	Brook Trout	1951	Yearlings (10 to 19 months)	2,000
Bowmanville Cr.	Brown Trout	1952	Yearlings (10 to 19 months)	3,000
Bowmanville Cr.	Brown Trout	1953	Fingerlings (3 to 9 months)	1,000
Bowmanville Cr.	Brown Trout	1954	Yearlings (10 to 19 months)	1,000
Bowmanville Cr.	Brown Trout	1955	Yearlings (10 to 19 months)	2,000
Bowmanville Cr.	Brown Trout	1955	Yearlings (10 to 19 months)	2,000
Bowmanville Cr.	Brook Trout	1955	Yearlings (10 to 19 months)	500
Bowmanville Cr.	Brown Trout	1956	Yearlings (10 to 19 months)	1,000
Bowmanville Cr.	Brook Trout	1956	Yearlings (10 to 19 months)	1,000
Bowmanville Cr.	Brown Trout	1957	Yearlings (10 to 19 months)	1,000
Bowmanville Cr.	Brook Trout	1957	Yearlings (10 to 19 months)	1,000
Bowmanville Cr.	Brown Trout	1958	Yearlings (10 to 19 months)	1,000
Bowmanville Cr.	Brook Trout	1958	Yearlings (10 to 19 months)	1,000
Bowmanville Cr.	Brook Trout	1959	Yearlings (10 to 19 months)	750
Bowmanville Cr.	Brook Trout	1960	Yearlings (10 to 19 months)	900
Bowmanville Cr.	Brook Trout	1961	Yearlings (10 to 19 months)	1,000
Bowmanville Cr.	Brook Trout	1962	Yearlings (10 to 19 months)	750
Bowmanville Cr.	Brook Trout	1963	Yearlings (10 to 19 months)	750
Bowmanville Cr.	Brook Trout	1964	Yearlings (10 to 19 months)	600
Bowmanville Cr.	Brook Trout	1965	Yearlings (10 to 19 months)	700
Bowmanville Cr.	Brook Trout	1966	Yearlings (10 to 19 months)	700
Bowmanville Cr.	Brook Trout	1966	Yearlings (10 to 19 months)	400
Bowmanville Cr.	Brook Trout	1967	Yearlings (10 to 19 months)	500
Bowmanville Cr.	Rainbow Trout	1968	Fingerlings (3 to 9 months)	572
Bowmanville Cr.	Rainbow Trout	1968	Yearlings (10 to 19 months)	572
Bowmanville Cr.	Brook Trout	1968	Yearlings (10 to 19 months)	500
Bowmanville Cr.	Brook Trout	1969	Yearlings (10 to 19 months)	400
Bowmanville Cr.	Brook Trout	1969	Yearlings (10 to 19 months)	400
Bowmanville Cr.	Brook Trout	1969	Juvenile / adult (unknown age)	200
Bowmanville Cr.	Brook Trout	1970	Yearlings (10 to 19 months)	1,000
Bowmanville Cr.	Brook Trout	1971	Yearlings (10 to 19 months)	1,750
Bowmanville Cr.	Brook Trout	1972	Yearlings (10 to 19 months)	400
Bowmanville Cr.	Rainbow Trout	1979	Sub-adults (>=20 months)	322
Bowmanville Cr.	Rainbow Trout	1981	Sub-adults (>=20 months)	84
Bowmanville Cr.	Rainbow Trout	1982	Sub-adults (>=20 months)	472
Bowmanville Cr.	Rainbow Trout	1983	Sub-adults (>=20 months)	652
Bowmanville Cr.	Rainbow Trout	1984	Sub-adults (>=20 months)	702
Bowmanville Cr.	Chinook	1987	Fingerlings (3 to 9 months)	26,376
Bowmanville Cr.	Chinook	1988	Fingerlings (3 to 9 months)	26,661
Bowmanville Cr.	Chinook	1989	Fingerlings (3 to 9 months)	21,988
Bowmanville Cr.	Chinook	1990	Fingerlings (3 to 9 months)	22,060
Bowmanville Cr.	Chinook	1991	Fingerlings (3 to 9 months)	24,746
Bowmanville Cr.	Chinook	1992	Fingerlings (3 to 9 months)	28,298
Bowmanville Cr.	Chinook	1993	Fingerlings (3 to 9 months)	25,047
Bowmanville Cr.	Chinook	1995	Fingerlings (3 to 9 months)	25,089
Bowmanville Cr.	Chinook	1996	Fingerlings (3 to 9 months)	24,927

Bowmanville Cr.	Atlantic Salmon	1996	Fingerlings (3 to 9 months)	4,000
Bowmanville Cr.	Chinook	2000	Fingerlings (3 to 9 months)	25,222
Bowmanville Cr.	Chinook	1997	Fingerlings (3 to 9 months)	25,323
Bowmanville Cr.	Chinook	1998	Fingerlings (3 to 9 months)	25,588
Bowmanville Cr.	Chinook	1999	Fingerlings (3 to 9 months)	16,999

Cavan Cr.	Brown Trout	1946	Yearlings (10 to 19 months)	5,000
Cavan Cr.	Brook Trout	1946	Yearlings (10 to 19 months)	4,800
Cavan Cr.	Brown Trout	1947	Yearlings (10 to 19 months)	1,800
Cavan Cr.	Brook Trout	1947	Yearlings (10 to 19 months)	2,100
Cavan Cr.	Brook Trout	1947	Yearlings (10 to 19 months)	6,400
Cavan Cr.	Brown Trout	1948	Yearlings (10 to 19 months)	1,400
Cavan Cr.	Brook Trout	1948	Yearlings (10 to 19 months)	1,600
Cavan Cr.	Brown Trout	1949	Yearlings (10 to 19 months)	2,000
Cavan Cr.	Brown Trout	1949	Yearlings (10 to 19 months)	2,000
Cavan Cr.	Brook Trout	1949	Yearlings (10 to 19 months)	1,800
Cavan Cr.	Brook Trout	1949	Fingerlings (3 to 9 months)	5,000
Cavan Cr.	Brook Trout	1950	Yearlings (10 to 19 months)	2,000
Cavan Cr.	Brown Trout	1951	Fingerlings (3 to 9 months)	2,000
Cavan Cr.	Brook Trout	1951	Yearlings (10 to 19 months)	1,000
Cavan Cr.	Brook Trout	1952	Yearlings (10 to 19 months)	3,000
Cavan Cr.	Brook Trout	1953	Yearlings (10 to 19 months)	3,500
Cavan Cr.	Brown Trout	1955	Yearlings (10 to 19 months)	2,000
Cavan Cr.	Brown Trout	1955	Fingerlings (3 to 9 months)	1,000
Cavan Cr.	Brown Trout	1955	Fingerlings (3 to 9 months)	1,800
Cavan Cr.	Brook Trout	1955	Yearlings (10 to 19 months)	3,000
Cavan Cr.	Brown Trout	1956	Yearlings (10 to 19 months)	2,000
Cavan Cr.	Brook Trout	1956	Yearlings (10 to 19 months)	3,000
Cavan Cr.	Brown Trout	1957	Yearlings (10 to 19 months)	2,000
Cavan Cr.	Brook Trout	1957	Yearlings (10 to 19 months)	1,000
Cavan Cr.	Brown Trout	1958	Yearlings (10 to 19 months)	2,000
Cavan Cr.	Brook Trout	1958	Yearlings (10 to 19 months)	2,000
Cavan Cr.	Brown Trout	1959	Yearlings (10 to 19 months)	2,000
Cavan Cr.	Brook Trout	1959	Yearlings (10 to 19 months)	1,000
Cavan Cr.	Brook Trout	1959	Yearlings (10 to 19 months)	150
Cavan Cr.	Brook Trout	1960	Yearlings (10 to 19 months)	1,300
Cavan Cr.	Brook Trout	1961	Yearlings (10 to 19 months)	1,500
Cavan Cr.	Brook Trout	1962	Yearlings (10 to 19 months)	750
Cavan Cr.	Brook Trout	1962	Yearlings (10 to 19 months)	750
Cavan Cr.	Brook Trout	1963	Yearlings (10 to 19 months)	750
Cavan Cr.	Brook Trout	1963	Yearlings (10 to 19 months)	750
Cavan Cr.	Brook Trout	1964	Yearlings (10 to 19 months)	600
Cavan Cr.	Brook Trout	1964	Yearlings (10 to 19 months)	500
Cavan Cr.	Brook Trout	1965	Yearlings (10 to 19 months)	500
Cavan Cr.	Brook Trout	1965	Yearlings (10 to 19 months)	500
Cavan Cr.	Brook Trout	1966	Yearlings (10 to 19 months)	700
Cavan Cr.	Brook Trout	1967	Yearlings (10 to 19 months)	300
Cavan Cr.	Brook Trout	1967	Yearlings (10 to 19 months)	600
Cavan Cr.	Brook Trout	1968	Yearlings (10 to 19 months)	500

Cavan Cr.	Brook Trout	1969	Yearlings (10 to 19 months)	500
Cavan Cr.	Brook Trout	1970	Yearlings (10 to 19 months)	1,000
Cavan Cr.	Brook Trout	1970	Yearlings (10 to 19 months)	500
Cavan Cr.	Brook Trout	1971	Yearlings (10 to 19 months)	1,000
Cavan Cr.	Brook Trout	1972	Yearlings (10 to 19 months)	300
Cavan Cr.	Brook Trout	1973	Sub-adults (>= 20 months)	200
Cavan Cr.	Rainbow Trout	1973	Sub-adults (>= 20 months)	299
Cavan Cr.	Rainbow Trout	1973	Sub-adults (>= 20 months)	300
Cavan Cr.	Brook Trout	1973	Sub-adults (>= 20 months)	257
Cavan Cr.	Brown Trout	1986	Fingerlings (3 to 9 months)	15
Cavan Cr.	Brook Trout	1986	Sub-adults (>= 20 months)	56

Cobourg Br.	Brook Trout	1956	Yearlings (10 to 19 months)	1,000
Cobourg Br.	Brook Trout	1957	Yearlings (10 to 19 months)	1,000
Cobourg Br.	Brook Trout	1958	Yearlings (10 to 19 months)	1,000
Cobourg Br.	Brook Trout	1959	Yearlings (10 to 19 months)	1,000
Cobourg Br.	Brook Trout	1960	Yearlings (10 to 19 months)	800
Cobourg Br.	Brook Trout	1961	Yearlings (10 to 19 months)	1,000
Cobourg Br.	Brook Trout	1961	Yearlings (10 to 19 months)	400
Cobourg Br.	Brook Trout	1962	Yearlings (10 to 19 months)	750
Cobourg Br.	Brook Trout	1963	Yearlings (10 to 19 months)	500
Cobourg Br.	Brook Trout	1964	Yearlings (10 to 19 months)	400
Cobourg Br.	Brook Trout	1965	Yearlings (10 to 19 months)	700
Cobourg Br.	Brook Trout	1966	Yearlings (10 to 19 months)	500
Cobourg Br.	Brook Trout	1967	Yearlings (10 to 19 months)	400
Cobourg Br.	Rainbow Trout	1968	Fingerlings (3 to 9 months)	572
Cobourg Br.	Rainbow Trout	1968	Yearlings (10 to 19 months)	572
Cobourg Br.	Brook Trout	1968	Yearlings (10 to 19 months)	400
Cobourg Br.	Brook Trout	1969	Yearlings (10 to 19 months)	300
Cobourg Br.	Brook Trout	1970	Yearlings (10 to 19 months)	500
Cobourg Br.	Brook Trout	1971	Yearlings (10 to 19 months)	250
Cobourg Br.	Brook Trout	1972	Yearlings (10 to 19 months)	400
Cobourg Br.	Brook Trout	1973	Yearlings (10 to 19 months)	200
Cobourg Br.	Brook Trout	1973	Yearlings (10 to 19 months)	200
Cobourg Br.	Rainbow Trout	1979	Sub-adults (>=20 months)	161
Cobourg Br.	Rainbow Trout	1981	Sub-adults (>=20 months)	192
Cobourg Br.	Rainbow Trout	1982	Sub-adults (>=20 months)	213
Cobourg Br.	Rainbow Trout	1983	Sub-adults (>=20 months)	132
Cobourg Br.	Rainbow Trout	1984	Sub-adults (>=20 months)	266
Cobourg Br.	Brown Trout	1988	Yearlings (10 to 19 months)	4,991
Cobourg Br.	Brown Trout	1988	Yearlings (10 to 19 months)	5,246
Cobourg Br.	Chinook	1988	Fingerlings (3 to 9 months)	20,000
Cobourg Br.	Chinook	1988	Fingerlings (3 to 9 months)	14,977
Cobourg Br.	Chinook	1989	Fingerlings (3 to 9 months)	24,738
Cobourg Br.	Chinook	1990	Fingerlings (3 to 9 months)	25,000
Cobourg Br.	Chinook	1990	Fingerlings (3 to 9 months)	2,500
Cobourg Br.	Chinook	1990	Fingerlings (3 to 9 months)	7,000
Cobourg Br.	Chinook	1991	Fingerlings (3 to 9 months)	39,500
Cobourg Br.	Chinook	1991	Fingerlings (3 to 9 months)	6,000

Cobourg Br.	Chinook	1992	Fingerlings (3 to 9 months)	28,308
Cobourg Br.	Chinook	1993		8,000
Cobourg Br.	Chinook	1993		1,960
Cobourg Br.	Chinook	1993	Fingerlings (3 to 9 months)	25,192
Cobourg Br.	Chinook	1994	Fingerlings (3 to 9 months)	4,865
Cobourg Br.	Chinook	1994	Fingerlings (3 to 9 months)	34,573
Cobourg Br.	Chinook	1995	Fingerlings (3 to 9 months)	4,855
Cobourg Br.	Chinook	1995	Fingerlings (3 to 9 months)	35,175
Cobourg Br.	Chinook	1996	Fingerlings (3 to 9 months)	3,120
Cobourg Br.	Atlantic Salmon	1996	Fingerlings (3 to 9 months)	2,600
Cobourg Br.	Chinook	1996	Fingerlings (3 to 9 months)	24,927
Cobourg Br.	Chinook	1997	Fingerlings (3 to 9 months)	3,500
Cobourg Br.	Atlantic Salmon	1997	Fingerlings (3 to 9 months)	7,301
Cobourg Br.	Chinook	1997	Fingerlings (3 to 9 months)	25,324
Cobourg Br.	Chinook	1998	Fingerlings (3 to 9 months)	2,928
Cobourg Br.	Chinook	1998	Fingerlings (3 to 9 months)	25,588
Cobourg Br.	Atlantic Salmon	1998	Fingerlings (3 to 9 months)	5,174
Cobourg Br.	Chinook	1999	Fingerlings (3 to 9 months)	1,200
Cobourg Br.	Chinook	1999	Fingerlings (3 to 9 months)	10,000
Cobourg Br.	Atlantic Salmon	1999	Fingerlings (3 to 9 months)	4,100
Cobourg Br.	Atlantic Salmon	2000	Fingerlings (3 to 9 months)	20,000
Cobourg Br.	Atlantic Salmon	2000	Fingerlings (3 to 9 months)	20,000
Cobourg Br.	Atlantic Salmon	2000	Fingerlings (3 to 9 months)	28,450
Cobourg Br.	Chinook	2000	Fingerlings (3 to 9 months)	15,311

Colborne Cr.	Brook Trout	1946	Yearlings (10 to 19 months)	1,000
Colborne Cr.	Brook Trout	1947	Yearlings (10 to 19 months)	500
Colborne Cr.	Brook Trout	1949	Yearlings (10 to 19 months)	1,500
Colborne Cr.	Brook Trout	1950	Yearlings (10 to 19 months)	1,000
Colborne Cr.	Brook Trout	1951	Fingerlings (3 to 9 months)	1,000
Colborne Cr.	Brook Trout	1951	Yearlings (10 to 19 months)	1,000
Colborne Cr.	Brook Trout	1955	Yearlings (10 to 19 months)	1,000
Colborne Cr.	Brook Trout	1956	Yearlings (10 to 19 months)	1,000
Colborne Cr.	Brook Trout	1957	Yearlings (10 to 19 months)	1,000
Colborne Cr.	Brook Trout	1958	Yearlings (10 to 19 months)	1,000
Colborne Cr.	Brook Trout	1959	Yearlings (10 to 19 months)	500
Colborne Cr.	Brook Trout	1960	Yearlings (10 to 19 months)	900
Colborne Cr.	Brook Trout	1961	Yearlings (10 to 19 months)	1,000
Colborne Cr.	Brook Trout	1962	Yearlings (10 to 19 months)	750
Colborne Cr.	Brook Trout	1963	Yearlings (10 to 19 months)	500
Colborne Cr.	Brook Trout	1964	Yearlings (10 to 19 months)	500
Colborne Cr.	Brook Trout	1965	Yearlings (10 to 19 months)	300
Colborne Cr.	Brook Trout	1966	Yearlings (10 to 19 months)	400
Colborne Cr.	Brook Trout	1968	Yearlings (10 to 19 months)	400
Colborne Cr.	Brook Trout	1969	Yearlings (10 to 19 months)	1,000
Colborne Cr.	Brook Trout	1970	Yearlings (10 to 19 months)	1,000
Colborne Cr.	Brook Trout	1971	Yearlings (10 to 19 months)	500
Colborne Cr.	Brook Trout	1972	Yearlings (10 to 19 months)	400

Cold Cr.	Brook Trout	1946	Yearlings (10 to 19 months)	1,600
Cold Cr.	Brook Trout	1950	Yearlings (10 to 19 months)	2,000
Cold Cr.	Brook Trout	1950	Yearlings (10 to 19 months)	1,000
Cold Cr.	Brook Trout	1950	Yearlings (10 to 19 months)	1,800
Cold Cr.	Brook Trout	1950	Yearlings (10 to 19 months)	2,000
Cold Cr.	Brown Trout	1951	Fingerlings (3 to 9 months)	2,000
Cold Cr.	Brown Trout	1951	Fingerlings (3 to 9 months)	2,000
Cold Cr.	Brown Trout	1954	Yearlings (10 to 19 months)	2,000
Cold Cr.	Brown Trout	1955	Yearlings (10 to 19 months)	1,000
Cold Cr.	Brown Trout	1955	Yearlings (10 to 19 months)	3,000
Cold Cr.	Brown Trout	1955	Fingerlings (3 to 9 months)	3,000
Cold Cr.	Brown Trout	1960	Fingerlings (3 to 9 months)	1,700
Cold Cr.	Brook Trout	1968	Yearlings (10 to 19 months)	400
Cold Cr.	Brook Trout	1969	Yearlings (10 to 19 months)	1,000
Cold Cr.	Brook Trout	1970	Yearlings (10 to 19 months)	1,000
Cold Cr.	Brook Trout	1971	Yearlings (10 to 19 months)	500
Cold Cr.	Brook Trout	1972	Yearlings (10 to 19 months)	1,600
Cold Cr.	Brook Trout	1976	Yearlings (10 to 19 months)	300
Cold Cr.	Brook Trout	1976	Yearlings (10 to 19 months)	1,000
Cold Cr.	Brook Trout	1977	Yearlings (10 to 19 months)	1,300
Cold Cr.	Brook Trout	1978	Yearlings (10 to 19 months)	700
Cold Cr.	Brook Trout	1978	Yearlings (10 to 19 months)	300
Cold Cr.	Brook Trout	1979	Yearlings (10 to 19 months)	1,100
Cold Cr.	Brook Trout	1980	Yearlings (10 to 19 months)	1,000
Cold Cr.	Brook Trout	1981	Yearlings (10 to 19 months)	900
Cold Cr.	Brook Trout	1982	Yearlings (10 to 19 months)	500
Cold Cr.	Brook Trout	1983	Yearlings (10 to 19 months)	1,500
Cold Cr.	Brook Trout	1984	Yearlings (10 to 19 months)	1,000
Cold Cr.	Brook Trout	1985	Yearlings (10 to 19 months)	1,000
Cold Cr.	Brook Trout	1986	Yearlings (10 to 19 months)	1,000
Cold Cr.	Brook Trout	1987	Yearlings (10 to 19 months)	1,000
Cold Cr.	Brook Trout	1988	Yearlings (10 to 19 months)	1,000
Cold Cr.	Brook Trout	1989	Fingerlings (3 to 9 months)	1,000
Cold Cr.	Brook Trout	1989	Yearlings (10 to 19 months)	800
Cold Cr.	Brook Trout	1991	Yearlings (10 to 19 months)	800
Cold Cr.	Brook Trout	1993	Yearlings (10 to 19 months)	1,046

Duffin Cr.	Atlantic Salmon	1946	Fingerlings (3 to 9 months)	40,000
Duffin Cr.	Atlantic Salmon	1948	Fingerlings (3 to 9 months)	80,500
Duffin Cr.	Atlantic Salmon	1948	Fingerlings (3 to 9 months)	6,500
Duffin Cr.	Atlantic Salmon	1948	Fingerlings (3 to 9 months)	1,400
Duffin Cr.	Atlantic Salmon	1949	Fingerlings (3 to 9 months)	24,000
Duffin Cr.	Brook Trout	1950	Yearlings (10 to 19 months)	2,000
Duffin Cr.	Brook Trout	1950	Yearlings (10 to 19 months)	400
Duffin Cr.	Brook Trout	1951	Yearlings (10 to 19 months)	1,800
Duffin Cr.	Brook Trout	1952	Yearlings (10 to 19 months)	5,000
Duffin Cr.	Brook Trout	1953	Yearlings (10 to 19 months)	5,500
Duffin Cr.	Brook Trout	1953	Yearlings (10 to 19 months)	1,000
Duffin Cr.	Brook Trout	1953	Yearlings (10 to 19 months)	2,500

Duffin Cr.	Brook Trout	1954	Yearlings (10 to 19 months)	5,500
Duffin Cr.	Brook Trout	1954	Yearlings (10 to 19 months)	1,000
Duffin Cr.	Brook Trout	1955	Yearlings (10 to 19 months)	5,700
Duffin Cr.	Brown Trout	1956	Yearlings (10 to 19 months)	1,000
Duffin Cr.	Brook Trout	1956	Yearlings (10 to 19 months)	1,200
Duffin Cr.	Brook Trout	1957	Yearlings (10 to 19 months)	600
Duffin Cr.	Brown Trout	1958	Yearlings (10 to 19 months)	1,500
Duffin Cr.	Brown Trout	1958	Yearlings (10 to 19 months)	800
Duffin Cr.	Brook Trout	1958	Yearlings (10 to 19 months)	900
Duffin Cr.	Brown Trout	1959	Yearlings (10 to 19 months)	2,000
Duffin Cr.	Brown Trout	1960	Yearlings (10 to 19 months)	2,000
Duffin Cr.	Rainbow Trout	1961	Yearlings (10 to 19 months)	4,000
Duffin Cr.	Brown Trout	1961	Yearlings (10 to 19 months)	500
Duffin Cr.	Brook Trout	1964	Yearlings (10 to 19 months)	1,000
Duffin Cr.	Rainbow Trout	1965	Yearlings (10 to 19 months)	1,000
Duffin Cr.	Brook Trout	1966	Yearlings (10 to 19 months)	500
Duffin Cr.	Brook Trout	1966	Yearlings (10 to 19 months)	2,000
Duffin Cr.	Brook Trout	1966	Juvenile / adult (unknown ages)	2,000
Duffin Cr.	Brook Trout	1969	Yearlings (10 to 19 months)	800
Duffin Cr.	Brook Trout	1970	Yearlings (10 to 19 months)	1,500
Duffin Cr.	Brook Trout	1971	Yearlings (10 to 19 months)	1,400
Duffin Cr.	Rainbow Trout	1972	Yearlings (10 to 19 months)	10,000
Duffin Cr.	Rainbow Trout	1972	Yearlings (10 to 19 months)	10,000
Duffin Cr.	Brook Trout	1972	Yearlings (10 to 19 months)	1,500
Duffin Cr.	Rainbow Trout	1973	Yearlings (10 to 19 months)	10,000
Duffin Cr.	Rainbow Trout	1973	Yearlings (10 to 19 months)	10,000
Duffin Cr.	Rainbow Trout	1974	Yearlings (10 to 19 months)	5,000
Duffin Cr.	Rainbow Trout	1974	Yearlings (10 to 19 months)	5,000
Duffin Cr.	Rainbow Trout	1976	Yearlings (10 to 19 months)	5,000
Duffin Cr.	Rainbow Trout	1976	Yearlings (10 to 19 months)	5,000
Duffin Cr.	Rainbow Trout	1977	Yearlings (10 to 19 months)	5,000
Duffin Cr.	Rainbow Trout	1978	Yearlings (10 to 19 months)	2,730
Duffin Cr.	Rainbow Trout	1978	Yearlings (10 to 19 months)	5,460
Duffin Cr.	Rainbow Trout	1978	Yearlings (10 to 19 months)	2,860
Duffin Cr.	Rainbow Trout	1979	Yearlings (10 to 19 months)	13,440
Duffin Cr.	Rainbow Trout	1980	Yearlings (10 to 19 months)	10,000
Duffin Cr.	Rainbow Trout	1980	Fingerlings (3 to 9 months)	50,000
Duffin Cr.	Rainbow Trout	1983	Yearlings (10 to 19 months)	5,000
Duffin Cr.	Rainbow Trout	1983	Yearlings (10 to 19 months)	2,240
Duffin Cr.	Brook Trout	1983	Yearlings (10 to 19 months)	1,800
Duffin Cr.	Rainbow Trout	1983	Yearlings (10 to 19 months)	2,000
Duffin Cr.	Brook Trout	1984	Yearlings (10 to 19 months)	500
Duffin Cr.	Brown Trout	1986	Yearlings (10 to 19 months)	20,000
Duffin Cr.	Brook Trout	1986	Yearlings (10 to 19 months)	500
Duffin Cr.	Brook Trout	1987	Yearlings (10 to 19 months)	1,000
Duffin Cr.	Rainbow Trout	1987	Yearlings (10 to 19 months)	35,000
Duffin Cr.	Rainbow Trout	1987	Yearlings (10 to 19 months)	10,000
Duffin Cr.	Brown Trout	1987	Yearlings (10 to 19 months)	5,069

Duffin Cr.	Brown Trout	1987	Yearlings (10 to 19 months)	14,931
Duffin Cr.	Brook Trout	1988	Yearlings (10 to 19 months)	500
Duffin Cr.	Rainbow Trout	1988	Fingerlings (3 to 9 months)	30,589
Duffin Cr.	Brown Trout	1988	Yearlings (10 to 19 months)	10,000
Duffin Cr.	Brown Trout	1988	Yearlings (10 to 19 months)	5,000
Duffin Cr.	Brown Trout	1988	Yearlings (10 to 19 months)	10,000
Duffin Cr.	Rainbow Trout	1988	Yearlings (10 to 19 months)	6,500
Duffin Cr.	Rainbow Trout	1988	Yearlings (10 to 19 months)	7,000
Duffin Cr.	Rainbow Trout	1988	Yearlings (10 to 19 months)	6,500
Duffin Cr.	Rainbow Trout	1988	Yearlings (10 to 19 months)	6,500
Duffin Cr.	Rainbow Trout	1988	Yearlings (10 to 19 months)	7,000
Duffin Cr.	Rainbow Trout	1988	Yearlings (10 to 19 months)	6,500
Duffin Cr.	Rainbow Trout	1989	Yearlings (10 to 19 months)	3,383
Duffin Cr.	Rainbow Trout	1989	Yearlings (10 to 19 months)	18,045
Duffin Cr.	Rainbow Trout	1989	Yearlings (10 to 19 months)	9,022
Duffin Cr.	Brown Trout	1989	Yearlings (10 to 19 months)	3,108
Duffin Cr.	Brown Trout	1989	Yearlings (10 to 19 months)	8,571
Duffin Cr.	Brook Trout	1989	Yearlings (10 to 19 months)	1,000
Duffin Cr.	Brown Trout	1989	Yearlings (10 to 19 months)	8,571
Duffin Cr.	Brown Trout	1990	Yearlings (10 to 19 months)	8,319
Duffin Cr.	Brown Trout	1990	Yearlings (10 to 19 months)	8,234
Duffin Cr.	Brown Trout	1990	Yearlings (10 to 19 months)	7,177
Duffin Cr.	Rainbow Trout	1990	Yearlings (10 to 19 months)	24,128
Duffin Cr.	Brook Trout	1991	Yearlings (10 to 19 months)	1,000
Duffin Cr.	Brown Trout	1991	Yearlings (10 to 19 months)	6,871
Duffin Cr.	Brown Trout	1991	Yearlings (10 to 19 months)	4,650
Duffin Cr.	Brown Trout	1991	Yearlings (10 to 19 months)	10,441
Duffin Cr.	Brown Trout	1991	Yearlings (10 to 19 months)	6,548
Duffin Cr.	Brown Trout	1992	Yearlings (10 to 19 months)	3,572
Duffin Cr.	Brown Trout	1992	Yearlings (10 to 19 months)	1,639
Duffin Cr.	Brown Trout	1992	Yearlings (10 to 19 months)	4,429
Duffin Cr.	Brown Trout	1994	Yearlings (10 to 19 months)	10,019
Duffin Cr.	Brown Trout	1995	Yearlings (10 to 19 months)	12,500
Duffin Cr.	Atlantic Salmon	1995	Fry (1 to 2 months)	5,626
Duffin Cr.	Atlantic Salmon	1995	Fingerlings (3 to 9 months)	1,931
Duffin Cr.	Atlantic Salmon	1995	Fingerlings (3 to 9 months)	5,431
Duffin Cr.	Brown Trout	1996	Yearlings (10 to 19 months)	15,921
Duffin Cr.	Atlantic Salmon	1996	Fingerlings (3 to 9 months)	4,500
Duffin Cr.	Atlantic Salmon	1996	Fingerlings (3 to 9 months)	3,300
Duffin Cr.	Brown Trout	1997	Yearlings (10 to 19 months)	9,125
Duffin Cr.	Atlantic Salmon	1997	Fingerlings (3 to 9 months)	4,500
Duffin Cr.	Atlantic Salmon	1997	Fingerlings (3 to 9 months)	3,300
Duffin Cr.	Atlantic Salmon	1998	Fingerlings (3 to 9 months)	3,300
Duffin Cr.	Brown Trout	1998	Yearlings (10 to 19 months)	10,003
Duffin Cr.	Atlantic Salmon	1998	Fingerlings (3 to 9 months)	4,500
Duffin Cr.	Atlantic Salmon	1999	Fingerlings (3 to 9 months)	4,500
Duffin Cr.	Brown Trout	1999	Yearlings (10 to 19 months)	9,885
Duffin Cr.	Atlantic Salmon	1999	Fingerlings (3 to 9 months)	3,300
Duffin Cr.	Brown Trout	2000	Yearlings (10 to 19 months)	10,018

East Cross Cr.	Brown Trout	1946	Yearlings (10 to 19 months)	1,000
East Cross Cr.	Brown Trout	1947	Yearlings (10 to 19 months)	3,500
East Cross Cr.	Brown Trout	1948	Yearlings (10 to 19 months)	2,000
East Cross Cr.	Brown Trout	1949	Yearlings (10 to 19 months)	4,500
East Cross Cr.	Brown Trout	1951	Fingerlings (3 to 9 months)	2,000
East Cross Cr.	Brook Trout	1967	Yearlings (10 to 19 months)	200

Eels Cr.	Brown Trout	1946	Fingerlings (3 to 9 months)	10,000
Eels Cr.	Brown Trout	1947	Yearlings (10 to 19 months)	6,400
Eels Cr.	Brown Trout	1948	Yearlings (10 to 19 months)	8,000
Eels Cr.	Brook Trout	1948	Yearlings (10 to 19 months)	1,000
Eels Cr.	Brown Trout	1949	Yearlings (10 to 19 months)	5,000
Eels Cr.	Brook Trout	1949	Yearlings (10 to 19 months)	1,800
Eels Cr.	Brown Trout	1951	Fingerlings (3 to 9 months)	2,000
Eels Cr.	Brown Trout	1952	Fingerlings (3 to 9 months)	3,000
Eels Cr.	Brown Trout	1954	Yearlings (10 to 19 months)	2,000
Eels Cr.	Brown Trout	1959	Yearlings (10 to 19 months)	2,000
Eels Cr.	Brook Trout	1963	Yearlings (10 to 19 months)	3,000
Eels Cr.	Brook Trout	1964	Yearlings (10 to 19 months)	1,000
Eels Cr.	Brook Trout	1965	Yearlings (10 to 19 months)	850
Eels Cr.	Brook Trout	1966	Yearlings (10 to 19 months)	1,380
Eels Cr.	Brook Trout	1968	Yearlings (10 to 19 months)	500
Eels Cr.	Rainbow Trout	1969	Yearlings (10 to 19 months)	500
Eels Cr.	Brook Trout	1969	Yearlings (10 to 19 months)	1,300
Eels Cr.	Brook Trout	1970	Yearlings (10 to 19 months)	1,000
Eels Cr.	Brook Trout	1972	Yearlings (10 to 19 months)	380
Eels Cr.	Brook Trout	1973	Yearlings (10 to 19 months)	400
Eels Cr.	Brook Trout	1974	Yearlings (10 to 19 months)	3,500
Eels Cr.	Brook Trout	1975	Yearlings (10 to 19 months)	3,000
Eels Cr.	Brook Trout	1976	Yearlings (10 to 19 months)	3,000
Eels Cr.	Brook Trout	1977	Yearlings (10 to 19 months)	3,000
Eels Cr.	Brook Trout	1979	Yearlings (10 to 19 months)	3,000
Eels Cr.	Brook Trout	1980	Yearlings (10 to 19 months)	3,000
Eels Cr.	Brook Trout	1981	Yearlings (10 to 19 months)	2,300
Eels Cr.	Brook Trout	1983	Yearlings (10 to 19 months)	3,500
Eels Cr.	Brook Trout	1984	Yearlings (10 to 19 months)	1,400
Eels Cr.	Brook Trout	1986	Yearlings (10 to 19 months)	320
Eels Cr.	Brook Trout	1986	Yearlings (10 to 19 months)	1,180
Eels Cr.	Brook Trout	1988	Yearlings (10 to 19 months)	1,500
Eels Cr.	Brook Trout	1990	Yearlings (10 to 19 months)	1,500
Eels Cr.	Brown Trout	1998	Yearlings (10 to 19 months)	2,530
Eels Cr.	Brown Trout	1999	Yearlings (10 to 19 months)	833
Eels Cr.	Brown Trout	1999	Yearlings (10 to 19 months)	833
Eels Cr.	Brown Trout	1999	Yearlings (10 to 19 months)	833
Eels Cr.	Brown Trout	1999	Yearlings (10 to 19 months)	2,500

Emily Cr.	Muskellunge	1946	Fry (1 to 2 months)	10,000
Emily Cr.	Muskellunge	1947	Fry (1 to 2 months)	30,000

Emily Cr.	Largemouth Bass	1947	Fry (1 to 2 months)	10,000
Emily Cr.	Muskellunge	1948	Fry (1 to 2 months)	40,000
Emily Cr.	Muskellunge	1948	Fingerlings (3 to 9 months)	250
Emily Cr.	Largemouth Bass	1948	Fingerlings (3 to 9 months)	2,000
Emily Cr.	Muskellunge	1949	Fingerlings (3 to 9 months)	250
Emily Cr.	Muskellunge	1950	Fry (1 to 2 months)	20,000
Emily Cr.	Muskellunge	1950	Fingerlings (3 to 9 months)	400
Emily Cr.	Largemouth Bass	1950	Fry (1 to 2 months)	10,000
Emily Cr.	Muskellunge	1951	Fry (1 to 2 months)	20,000
Emily Cr.	Muskellunge	1951	Yearlings (10 to 19 months)	40
Emily Cr.	Largemouth Bass	1951	Fry (1 to 2 months)	20,000
Emily Cr.	Muskellunge	1952	Fry (1 to 2 months)	20,000
Emily Cr.	Muskellunge	1952	Fingerlings (3 to 9 months)	200
Emily Cr.	Muskellunge	1953	Fry (1 to 2 months)	20,000
Emily Cr.	Muskellunge	1954	Fry (1 to 2 months)	20,000
Emily Cr.	Muskellunge	1954	Fingerlings (3 to 9 months)	200
Emily Cr.	Muskellunge	1955	Fingerlings (3 to 9 months)	200
Emily Cr.	Muskellunge	1955	Fry (1 to 2 months)	20,000
Emily Cr.	Muskellunge	1956	Fry (1 to 2 months)	20,000
Emily Cr.	Muskellunge	1957	Fry (1 to 2 months)	20,000
Emily Cr.	Muskellunge	1959	Fry (1 to 2 months)	20,000
Emily Cr.	Brook Trout	1966	Yearlings (10 to 19 months)	300
Emily Cr.	Brook Trout	1969	Yearlings (10 to 19 months)	300

Fleetwood Cr.	Brook Trout	1947	Yearlings (10 to 19 months)	1,000
Fleetwood Cr.	Brook Trout	1948	Yearlings (10 to 19 months)	600
Fleetwood Cr.	Brook Trout	1949	Yearlings (10 to 19 months)	1,000
Fleetwood Cr.	Brook Trout	1949	Fingerlings (3 to 9 months)	5,000
Fleetwood Cr.	Brook Trout	1950	Fingerlings (3 to 9 months)	5,000
Fleetwood Cr.	Brook Trout	1951	Yearlings (10 to 19 months)	4,000
Fleetwood Cr.	Brook Trout	1951	Fingerlings (3 to 9 months)	2,000
Fleetwood Cr.	Brook Trout	1952	Yearlings (10 to 19 months)	2,500
Fleetwood Cr.	Brook Trout	1953	Yearlings (10 to 19 months)	2,500
Fleetwood Cr.	Brook Trout	1954	Yearlings (10 to 19 months)	2,000
Fleetwood Cr.	Brook Trout	1955	Yearlings (10 to 19 months)	2,000
Fleetwood Cr.	Brook Trout	1956	Yearlings (10 to 19 months)	2,000
Fleetwood Cr.	Brook Trout	1957	Yearlings (10 to 19 months)	1,000
Fleetwood Cr.	Brook Trout	1975	Yearlings (10 to 19 months)	500
Fleetwood Cr.	Brook Trout	1975	Yearlings (10 to 19 months)	300
Fleetwood Cr.	Brook Trout	1976	Yearlings (10 to 19 months)	500
Fleetwood Cr.	Brook Trout	1983	Yearlings (10 to 19 months)	543
Fleetwood Cr.	Brook Trout	1984	Yearlings (10 to 19 months)	1,500
Fleetwood Cr.	Brook Trout	1986	Yearlings (10 to 19 months)	250
Fleetwood Cr.	Brook Trout	1987	Yearlings (10 to 19 months)	800

Gage Cr.	Brook Trout	1956	Yearlings (10 to 19 months)	1,000

Gage Cr.	Brook Trout	1957	Yearlings (10 to 19 months)	1,000
Gage Cr.	Brook Trout	1958	Yearlings (10 to 19 months)	500
Gage Cr.	Brook Trout	1958	Yearlings (10 to 19 months)	500
Gage Cr.	Brook Trout	1959	Yearlings (10 to 19 months)	500
Gage Cr.	Rainbow Trout	1968	Fingerlings (3 to 9 months)	572
Gage Cr.	Rainbow Trout	1968	Yearlings (10 to 19 months)	572

Ganaraska R.	Brown Trout	1946	Fingerlings (3 to 9 months)	1,500
Ganaraska R.	Brook Trout	1946	Yearlings (10 to 19 months)	1,000
Ganaraska R.	Brook Trout	1946	Yearlings (10 to 19 months)	150
Ganaraska R.	Brown Trout	1947	Yearlings (10 to 19 months)	1,000
Ganaraska R.	Brown Trout	1947	Yearlings (10 to 19 months)	1,000
Ganaraska R.	Brown Trout	1947	Yearlings (10 to 19 months)	1,000
Ganaraska R.	Brown Trout	1947	Yearlings (10 to 19 months)	500
Ganaraska R.	Brook Trout	1947	Yearlings (10 to 19 months)	2,100
Ganaraska R.	Brook Trout	1947	Yearlings (10 to 19 months)	500
Ganaraska R.	Brown Trout	1948	Yearlings (10 to 19 months)	2,400
Ganaraska R.	Brown Trout	1948	Yearlings (10 to 19 months)	2,000
Ganaraska R.	Brown Trout	1948	Yearlings (10 to 19 months)	5,600
Ganaraska R.	Brown Trout	1948	Fingerlings (3 to 9 months)	10,000
Ganaraska R.	Brook Trout	1948	Yearlings (10 to 19 months)	1,200
Ganaraska R.	Brook Trout	1949	Yearlings (10 to 19 months)	800
Ganaraska R.	Brook Trout	1949	Yearlings (10 to 19 months)	4,000
Ganaraska R.	Brook Trout	1949	Fingerlings (3 to 9 months)	5,000
Ganaraska R.	Brook Trout	1950	Yearlings (10 to 19 months)	6,000
Ganaraska R.	Brook Trout	1951	Yearlings (10 to 19 months)	5,500
Ganaraska R.	Brook Trout	1951	Fingerlings (3 to 9 months)	2,000
Ganaraska R.	Brown Trout	1952	Fingerlings (3 to 9 months)	3,000
Ganaraska R.	Brown Trout	1953	Fingerlings (3 to 9 months)	1,000
Ganaraska R.	Brown Trout	1954	Yearlings (10 to 19 months)	1,000
Ganaraska R.	Brook Trout	1955	Yearlings (10 to 19 months)	1,500
Ganaraska R.	Brook Trout	1955	Yearlings (10 to 19 months)	2,000
Ganaraska R.	Brown Trout	1955	Yearlings (10 to 19 months)	6,000
Ganaraska R.	Brook Trout	1955	Yearlings (10 to 19 months)	1,000
Ganaraska R.	Brook Trout	1955	Yearlings (10 to 19 months)	1,000
Ganaraska R.	Brown Trout	1955	Fingerlings (3 to 9 months)	2,500
Ganaraska R.	Brook Trout	1956	Yearlings (10 to 19 months)	1,000
Ganaraska R.	Brown Trout	1956	Yearlings (10 to 19 months)	3,500
Ganaraska R.	Brook Trout	1957	Yearlings (10 to 19 months)	1,000
Ganaraska R.	Brook Trout	1957	Yearlings (10 to 19 months)	1,000
Ganaraska R.	Brown Trout	1957	Yearlings (10 to 19 months)	1,000
Ganaraska R.	Brown Trout	1957	Yearlings (10 to 19 months)	1,500
Ganaraska R.	Brown Trout	1958	Yearlings (10 to 19 months)	4,000
Ganaraska R.	Brown Trout	1959	Yearlings (10 to 19 months)	4,000
Ganaraska R.	Brook Trout	1960	Yearlings (10 to 19 months)	900
Ganaraska R.	Brook Trout	1961	Yearlings (10 to 19 months)	1,000
Ganaraska R.	Brook Trout	1961	Yearlings (10 to 19 months)	400
Ganaraska R.	Brook Trout	1962	Yearlings (10 to 19 months)	750
Ganaraska R.	Brook Trout	1963	Yearlings (10 to 19 months)	750

Ganaraska R.	Brook Trout	1964	Yearlings (10 to 19 months)	500
Ganaraska R.	Brook Trout	1965	Yearlings (10 to 19 months)	1,400
Ganaraska R.	Brook Trout	1966	Yearlings (10 to 19 months)	500
Ganaraska R.	Brook Trout	1967	Juvenile / adult (unknown age)	500
Ganaraska R.	Brook Trout	1968	Yearlings (10 to 19 months)	1,000
Ganaraska R.	Brook Trout	1969	Yearlings (10 to 19 months)	120
Ganaraska R.	Rainbow Trout	1968	Fingerlings (3 to 9 months)	532
Ganaraska R.	Rainbow Trout	1968	Egg (unknown stage)	100,000
Ganaraska R.	Rainbow Trout	1968	Fingerlings (3 to 9 months)	2,716
Ganaraska R.	Rainbow Trout	1968	Yearlings (10 to 19 months)	2,860
Ganaraska R.	Rainbow Trout	1968	Yearlings (10 to 19 months)	3,000
Ganaraska R.	Rainbow Trout	1968	Fingerlings (3 to 9 months)	3,000
Ganaraska R.	Rainbow Trout	1969	Yearlings (10 to 19 months)	500
Ganaraska R.	Brook Trout	1969	Yearlings (10 to 19 months)	900
Ganaraska R.	Brook Trout	1970	Yearlings (10 to 19 months)	1,000
Ganaraska R.	Brook Trout	1970	Yearlings (10 to 19 months)	1,000
Ganaraska R.	Brook Trout	1971	Yearlings (10 to 19 months)	1,000
Ganaraska R.	Rainbow Trout	1972	Fingerlings (3 to 9 months)	9,000
Ganaraska R.	Rainbow Trout	1972	Fingerlings (3 to 9 months)	16,500
Ganaraska R.	Rainbow Trout	1972	Fingerlings (3 to 9 months)	16,500
Ganaraska R.	Rainbow Trout	1972	Fingerlings (3 to 9 months)	25,000
Ganaraska R.	Brook Trout	1972	Yearlings (10 to 19 months)	500
Ganaraska R.	Rainbow Trout	1973	Yearlings (10 to 19 months)	9,853
Ganaraska R.	Rainbow Trout	1973	Fingerlings (3 to 9 months)	7,500
Ganaraska R.	Rainbow Trout	1973	Yearlings (10 to 19 months)	9,853
Ganaraska R.	Rainbow Trout	1973	Fingerlings (3 to 9 months)	7,500
Ganaraska R.	Rainbow Trout	1974	Fingerlings (3 to 9 months)	7,500
Ganaraska R.	Rainbow Trout	1974	Fingerlings (3 to 9 months)	7,500
Ganaraska R.	Rainbow Trout	1974	Fingerlings (3 to 9 months)	15,000
Ganaraska R.	Brown Trout	1982	Fingerlings (3 to 9 months)	10,000
Ganaraska R.	Brown Trout	1982	Fingerlings (3 to 9 months)	7,000
Ganaraska R.	Brown Trout	1982	Fingerlings (3 to 9 months)	1,000
Ganaraska R.	Brown Trout	1982	Fingerlings (3 to 9 months)	1,000
Ganaraska R.	Brown Trout	1983	Yearlings (10 to 19 months)	5,040
Ganaraska R.	Brook Trout	1983	Yearlings (10 to 19 months)	500
Ganaraska R.	Brown Trout	1984	Yearlings (10 to 19 months)	5,000
Ganaraska R.	Brown Trout	1984	Fingerlings (3 to 9 months)	10,000
Ganaraska R.	Lake Trout	1985	Yearlings (10 to 19 months)	24,917
Ganaraska R.	Lake Trout	1985	Yearlings (10 to 19 months)	24,178
Ganaraska R.	Lake Trout	1985	Yearlings (10 to 19 months)	25,256
Ganaraska R.	Lake Trout	1985	Yearlings (10 to 19 months)	19,133
Ganaraska R.	Lake Trout	1985	Yearlings (10 to 19 months)	25,256
Ganaraska R.	Brown Trout	1985	Yearlings (10 to 19 months)	7,500
Ganaraska R.	Lake Trout	1985	Yearlings (10 to 19 months)	22,451
Ganaraska R.	Brook Trout	1986	Fingerlings (3 to 9 months)	750
Ganaraska R.	Brown Trout	1986	Yearlings (10 to 19 months)	5,000
Ganaraska R.	Brown Trout	1987	Fingerlings (3 to 9 months)	15,000
Ganaraska R.	Brown Trout	1987	Yearlings (10 to 19 months)	5,000

Ganaraska R.	Brown Trout	1989	Yearlings (10 to 19 months)	17,146
Ganaraska R.	Brown Trout	1989	Yearlings (10 to 19 months)	7,854
Ganaraska R.	Brown Trout	1990	Yearlings (10 to 19 months)	17,680
Ganaraska R.	Brown Trout	1990	Yearlings (10 to 19 months)	5,320
Ganaraska R.	Brown Trout	1991	Yearlings (10 to 19 months)	10,102
Ganaraska R.	Brown Trout	1991	Yearlings (10 to 19 months)	8,056
Ganaraska R.	Brown Trout	1991	Yearlings (10 to 19 months)	8,253
Ganaraska R.	Brown Trout	1991	Yearlings (10 to 19 months)	5,440
Ganaraska R.	Brown Trout	1992	Yearlings (10 to 19 months)	4,489
Ganaraska R.	Brown Trout	1992	Yearlings (10 to 19 months)	1,475
Ganaraska R.	Brown Trout	1992	Yearlings (10 to 19 months)	3,453
Ganaraska R.	Atlantic Salmon	1995	Yearlings (10 to 19 months)	6,000
Ganaraska R.	Atlantic Salmon	1995	Yearlings (10 to 19 months)	5,999
Ganaraska R.	Atlantic Salmon	1995	Yearlings (10 to 19 months)	5,998
Ganaraska R.	Atlantic Salmon	1995	Yearlings (10 to 19 months)	6,000
Ganaraska R.	Atlantic Salmon	1995	Yearlings (10 to 19 months)	6,000
Ganaraska R.	Atlantic Salmon	1995	Yearlings (10 to 19 months)	5,999
Ganaraska R.	Atlantic Salmon	1995	Fry (1 to 2 months)	5,625
Ganaraska R.	Atlantic Salmon	1995	Fry (1 to 2 months)	5,626
Ganaraska R.	Atlantic Salmon	1995	Fingerlings (3 to 9 months)	3,399
Ganaraska R.	Atlantic Salmon	1995	Fingerlings (3 to 9 months)	3,802
Ganaraska R.	Atlantic Salmon	1995	Fingerlings (3 to 9 months)	5,781
Ganaraska R.	Atlantic Salmon	1995	Fingerlings (3 to 9 months)	1,800
Ganaraska R.	Atlantic Salmon	1996	Fingerlings (3 to 9 months)	3,400
Ganaraska R.	Atlantic Salmon	1996	Fingerlings (3 to 9 months)	6,100
Ganaraska R.	Atlantic Salmon	1996	Fingerlings (3 to 9 months)	6,000
Ganaraska R.	Atlantic Salmon	1996	Fingerlings (3 to 9 months)	4,000
Ganaraska R.	Atlantic Salmon	1997	Fingerlings (3 to 9 months)	3,400
Ganaraska R.	Atlantic Salmon	1997	Fingerlings (3 to 9 months)	4,000
Ganaraska R.	Atlantic Salmon	1997	Fingerlings (3 to 9 months)	4,100
Ganaraska R.	Atlantic Salmon	1998	Fingerlings (3 to 9 months)	4,000
Ganaraska R.	Atlantic Salmon	1998	Fingerlings (3 to 9 months)	4,100
Ganaraska R.	Atlantic Salmon	1998	Fingerlings (3 to 9 months)	3,400
Ganaraska R.	Atlantic Salmon	1999	Fingerlings (3 to 9 months)	3,400
Ganaraska R.	Atlantic Salmon	1999	Fingerlings (3 to 9 months)	4,000
Ganaraska R.	Atlantic Salmon	1999	Fingerlings (3 to 9 months)	4,100
Ganaraska R.	Rainbow Trout	2000	Eyed eggs (>50% eyed eggs)	66,922
Ganaraska R.	Rainbow Trout	2000	Eyed eggs (>50% eyed eggs)	30,000
Ganaraska R.	Rainbow Trout	2000	Eyed eggs (>50% eyed eggs)	54,276
Ganaraska R.	Rainbow Trout	2000	Eyed eggs (>50% eyed eggs)	96,024

Grafton Cr.	Brook Trout	1946	Yearlings (10 to 19 months)	1000
Grafton Cr.	Brook Trout	1947	Yearlings (10 to 19 months)	500
Grafton Cr.	Brook Trout	1947	Yearlings (10 to 19 months)	500
Grafton Cr.	Brook Trout	1949	Yearlings (10 to 19 months)	1500
Grafton Cr.	Brook Trout	1950	Yearlings (10 to 19 months)	1000

Grafton Cr.	Brook Trout	1951	Yearlings (10 to 19 months)	1000
Grafton Cr.	Brook Trout	1951	Yearlings (10 to 19 months)	1000
Grafton Cr.	Brook Trout	1955	Yearlings (10 to 19 months)	500
Grafton Cr.	Brook Trout	1955	Yearlings (10 to 19 months)	500
Grafton Cr.	Brook Trout	1956	Yearlings (10 to 19 months)	500
Grafton Cr.	Brook Trout	1957	Yearlings (10 to 19 months)	500
Grafton Cr.	Brook Trout	1958	Yearlings (10 to 19 months)	500
Grafton Cr.	Brook Trout	1959	Yearlings (10 to 19 months)	500
Grafton Cr.	Brook Trout	1960	Yearlings (10 to 19 months)	400
Grafton Cr.	Brook Trout	1961	Yearlings (10 to 19 months)	500
Grafton Cr.	Brook Trout	1962	Yearlings (10 to 19 months)	500
Grafton Cr.	Brook Trout	1963	Yearlings (10 to 19 months)	500
Grafton Cr.	Brook Trout	1964	Yearlings (10 to 19 months)	300
Grafton Cr.	Brook Trout	1965	Yearlings (10 to 19 months)	400
Grafton Cr.	Brook Trout	1966	Yearlings (10 to 19 months)	200
Grafton Cr.	Brook Trout	1967	Yearlings (10 to 19 months)	200
Grafton Cr.	Brook Trout	1968	Yearlings (10 to 19 months)	200
Grafton Cr.	Brook Trout	1969	Yearlings (10 to 19 months)	300
Grafton Cr.	Brook Trout	1970	Yearlings (10 to 19 months)	500
Grafton Cr.	Brook Trout	1971	Yearlings (10 to 19 months)	500
Grafton Cr.	Brook Trout	1972	Yearlings (10 to 19 months)	200
Grafton Cr.	Brook Trout	1973	Yearlings (10 to 19 months)	150
Grafton Cr.	Brook Trout	1973	Yearlings (10 to 19 months)	150

Graham Cr.	Brook Trout	1972	Yearlings (10 to 19 months)	400
Graham Cr.	Rainbow Trout	1974	Fingerlings (3 to 9 months)	7,500

Harwood Cr.	Brook Trout	1947	Yearlings (10 to 19 months)	300
Harwood Cr.	Brook Trout	1949	Yearlings (10 to 19 months)	800
Harwood Cr.	Brook Trout	1950	Yearlings (10 to 19 months)	800
Harwood Cr.	Brook Trout	1951	Yearlings (10 to 19 months)	800
Harwood Cr.	Brook Trout	1951	Fingerlings (3 to 9 months)	2000
Harwood Cr.	Brook Trout	1955	Yearlings (10 to 19 months)	500
Harwood Cr.	Brook Trout	1955	Yearlings (10 to 19 months)	500
Harwood Cr.	Brook Trout	1956	Yearlings (10 to 19 months)	500
Harwood Cr.	Brook Trout	1957	Yearlings (10 to 19 months)	500
Harwood Cr.	Brook Trout	1958	Yearlings (10 to 19 months)	500
Harwood Cr.	Brook Trout	1959	Yearlings (10 to 19 months)	500
Harwood Cr.	Brook Trout	1960	Yearlings (10 to 19 months)	400
Harwood Cr.	Brook Trout	1961	Yearlings (10 to 19 months)	500
Harwood Cr.	Brook Trout	1962	Yearlings (10 to 19 months)	500
Harwood Cr.	Brook Trout	1963	Yearlings (10 to 19 months)	500
Harwood Cr.	Brook Trout	1964	Yearlings (10 to 19 months)	300
Harwood Cr.	Brook Trout	1965	Yearlings (10 to 19 months)	500
Harwood Cr.	Brook Trout	1966	Yearlings (10 to 19 months)	400
Harwood Cr.	Brook Trout	1967	Yearlings (10 to 19 months)	300
Harwood Cr.	Brook Trout	1968	Yearlings (10 to 19 months)	300
Harwood Cr.	Brook Trout	1969	Yearlings (10 to 19 months)	300
Harwood Cr.	Brook Trout	1970	Yearlings (10 to 19 months)	500

Harwood Cr.	Brook Trout	1971	Yearlings (10 to 19 months)	500
Harwood Cr.	Brook Trout	1972	Yearlings (10 to 19 months)	400
Harwood Cr.	Brook Trout	1973	Yearlings (10 to 19 months)	150
Harwood Cr.	Brook Trout	1973	Yearlings (10 to 19 months)	150

Indian R.	Brown Trout	1946	Fingerlings (3 to 9 months)	5,000
Indian R.	Muskellunge	1946	Fingerlings (3 to 9 months)	10,000
Indian R.	Muskellunge	1947	Fingerlings (3 to 9 months)	200
Indian R.	Muskellunge	1948	Fingerlings (3 to 9 months)	20,000
Indian R.	Muskellunge	1949	Fry (1 to 2 months)	10,000
Indian R.	Smallmouth Bass	1949	Fry (1 to 2 months)	5,000
Indian R.	Muskellunge	1950	Fry (1 to 2 months)	50,000
Indian R.	Muskellunge	1951	Fingerlings (3 to 9 months)	20,000
Indian R.	Muskellunge	1952	Fingerlings (3 to 9 months)	20,000
Indian R.	Muskellunge	1953	Fingerlings (3 to 9 months)	20,000
Indian R.	Muskellunge	1954	Fingerlings (3 to 9 months)	20,000
Indian R.	Muskellunge	1955	Fry (1 to 2 months)	20,000
Indian R.	Muskellunge	1956	Fingerlings (3 to 9 months)	600
Indian R.	Muskellunge	1957	Fingerlings (3 to 9 months)	20,000
Indian R.	Muskellunge	1957	Fry (1 to 2 months)	20,000
Indian R.	Muskellunge	1957	Fingerlings (3 to 9 months)	2,000
Indian R.	Muskellunge	1958	Fry (1 to 2 months)	20,000
Indian R.	Muskellunge	1959	Fry (1 to 2 months)	20,000
Indian R.	Muskellunge	1960	Fry (1 to 2 months)	20,000
Indian R.	Muskellunge	1961	Fry (1 to 2 months)	20,000
Indian R.	Muskellunge	1962	Fry (1 to 2 months)	20,000
Indian R.	Muskellunge	1963	Fry (1 to 2 months)	10,000
Indian R.	Muskellunge	1964	Fry (1 to 2 months)	10,000
Indian R.	Muskellunge	1965	Fry (1 to 2 months)	10,000
Indian R.	Muskellunge	1966	Fry (1 to 2 months)	30,000
Indian R.	Muskellunge	1967	Fry (1 to 2 months)	20,000
Indian R.	Muskellunge	1967	Fingerlings (3 to 9 months)	200
Indian R.	Muskellunge	1968	Fry (1 to 2 months)	15,000
Indian R.	Muskellunge	1968	Fingerlings (3 to 9 months)	200
Indian R.	Muskellunge	1969	Fry (1 to 2 months)	20,000
Indian R.	Muskellunge	1969	Fry (1 to 2 months)	100
Indian R.	Muskellunge	1970	Fry (1 to 2 months)	15,000
Indian R.	Muskellunge	1970	Fingerlings (3 to 9 months)	200
Indian R.	Muskellunge	1974	Fingerlings (3 to 9 months)	400
Indian R.	Muskellunge	1976	Fry (1 to 2 months)	20,000
Indian R.	Muskellunge	1977	Fry (1 to 2 months)	10,000
Indian R.	Muskellunge	1980	Fry (1 to 2 months)	10,000
Indian R.	Muskellunge	1981	Fingerlings (3 to 9 months)	100
Indian R.	Muskellunge	1982	Fry (1 to 2 months)	500
Indian R.	Muskellunge	1982	Fry (1 to 2 months)	20,000
Indian R.	Muskellunge	1984	Fry (1 to 2 months)	10,000
Indian R.	Muskellunge	1985	Fingerlings (3 to 9 months)	500
Indian R.	Muskellunge	1985	Fingerlings (3 to 9 months)	500

Indian R.	Muskellunge	1985	Fry (1 to 2 months)	20,000
Indian R.	Muskellunge	1986	Fry (1 to 2 months)	20,000
Indian R.	Muskellunge	1986	Fry (1 to 2 months)	20,000
Indian R.	Muskellunge	1987	Fry (1 to 2 months)	10,000
Indian R.	Muskellunge	1988	Fry (1 to 2 months)	10,000
Indian R.	Muskellunge	1989	Fry (1 to 2 months)	20,000

Jackson Cr.	Brown Trout	1949	Yearlings (10 to 19 months)	2,000
Jackson Cr.	Brook Trout	1951	Yearlings (10 to 19 months)	1,000
Jackson Cr.	Brown Trout	1952	Fingerlings (3 to 9 months)	3,000
Jackson Cr.	Brown Trout	1954	Yearlings (10 to 19 months)	3,000
Jackson Cr.	Brown Trout	1955	Yearlings (10 to 19 months)	1,300
Jackson Cr.	Brown Trout	1956	Yearlings (10 to 19 months)	1,200
Jackson Cr.	Brown Trout	1957	Yearlings (10 to 19 months)	1,000
Jackson Cr.	Brown Trout	1958	Yearlings (10 to 19 months)	1,000
Jackson Cr.	Brown Trout	1959	Yearlings (10 to 19 months)	1,000
Jackson Cr.	Brook Trout	1966	Yearlings (10 to 19 months)	250
Jackson Cr.	Brook Trout	1967	Yearlings (10 to 19 months)	500
Jackson Cr.	Brook Trout	1968	Yearlings (10 to 19 months)	300
Jackson Cr.	Brook Trout	1969	Yearlings (10 to 19 months)	400
Jackson Cr.	Brook Trout	1970	Yearlings (10 to 19 months)	1,000
Jackson Cr.	Brook Trout	1971	Yearlings (10 to 19 months)	1,000
Jackson Cr.	Brook Trout	1972	Yearlings (10 to 19 months)	600
Jackson Cr.	Brook Trout	1973	Yearlings (10 to 19 months)	300
Jackson Cr.	Brook Trout	1974	Yearlings (10 to 19 months)	500
Jackson Cr.	Rainbow Trout	1974	Yearlings (10 to 19 months)	500
Jackson Cr.	Rainbow Trout	1975	Yearlings (10 to 19 months)	500
Jackson Cr.	Brook Trout	1975	Yearlings (10 to 19 months)	500
Jackson Cr.	Brook Trout	1975	Yearlings (10 to 19 months)	700
Jackson Cr.	Rainbow Trout	1976	Yearlings (10 to 19 months)	1,000

Janetville Cr.	Brook Trout	1953	Yearlings (10 to 19 months)	1,000
Janetville Cr.	Brook Trout	1956	Yearlings (10 to 19 months)	500

Lynde Cr.	Brook Trout	1958	Yearlings (10 to 19 months)	700
Lynde Cr.	Brook Trout	1972	Yearlings (10 to 19 months)	300

Mariposa Cr.	Brook Trout	1962	Yearlings (10 to 19 months)	250
Mariposa Cr.	Brook Trout	1963	Yearlings (10 to 19 months)	250

Mariposa Br.	Muskellunge	1985	Fry (1 to 2 months)	20,000

Mayhew Cr.	Brook Trout	1951	Fingerlings (3 to 9 months)	1,000
Mayhew Cr.	Brook Trout	1951	Yearlings (10 to 19 months)	1,000
Mayhew Cr.	Brook Trout	1955	Yearlings (10 to 19 months)	1,000
Mayhew Cr.	Brook Trout	1956	Yearlings (10 to 19 months)	2,000
Mayhew Cr.	Brook Trout	1957	Yearlings (10 to 19 months)	1,000
Mayhew Cr.	Brook Trout	1958	Yearlings (10 to 19 months)	500
Mayhew Cr.	Brook Trout	1962	Yearlings (10 to 19 months)	750

Mayhew Cr.	Brook Trout	1963	Yearlings (10 to 19 months)	500
Mayhew Cr.	Brook Trout	1964	Yearlings (10 to 19 months)	350
Mayhew Cr.	Brook Trout	1965	Yearlings (10 to 19 months)	500
Mayhew Cr.	Brook Trout	1966	Yearlings (10 to 19 months)	100
Mayhew Cr.	Brook Trout	1967	Yearlings (10 to 19 months)	200
Mayhew Cr.	Brook Trout	1969	Yearlings (10 to 19 months)	500
Mayhew Cr.	Brook Trout	1970	Yearlings (10 to 19 months)	1,000
Mayhew Cr.	Brook Trout	1972	Yearlings (10 to 19 months)	400
Mayhew Cr.	Brook Trout	1973	Yearlings (10 to 19 months)	300

Orono Cr.	Brook Trout	1946	Yearlings (10 to 19 months)	1,000
Orono Cr.	Brook Trout	1947	Yearlings (10 to 19 months)	350
Orono Cr.	Brown Trout	1951	Fingerlings (3 to 9 months)	1,000
Orono Cr.	Brook Trout	1954	Yearlings (10 to 19 months)	500
Orono Cr.	Brook Trout	1955	Yearlings (10 to 19 months)	500
Orono Cr.	Brook Trout	1956	Yearlings (10 to 19 months)	500
Orono Cr.	Brook Trout	1972	Yearlings (10 to 19 months)	200

Oshawa Cr.	Brown Trout	1946	Fingerlings (3 to 9 months)	5,000
Oshawa Cr.	Brown Trout	1947	Yearlings (10 to 19 months)	700
Oshawa Cr.	Brown Trout	1948	Yearlings (10 to 19 months)	1,600
Oshawa Cr.	Brown Trout	1948	Fingerlings (3 to 9 months)	10,000
Oshawa Cr.	Atlantic Salmon	1949	Fry (1 to 2 months)	160,000
Oshawa Cr.	Brown Trout	1950	Yearlings (10 to 19 months)	1,000
Oshawa Cr.	Brown Trout	1950	Fingerlings (3 to 9 months)	5,000
Oshawa Cr.	Brook Trout	1950	Yearlings (10 to 19 months)	2,000
Oshawa Cr.	Brown Trout	1951	Yearlings (10 to 19 months)	1,500
Oshawa Cr.	Brown Trout	1952	Yearlings (10 to 19 months)	2,500
Oshawa Cr.	Brown Trout	1953	Yearlings (10 to 19 months)	1,000
Oshawa Cr.	Brook Trout	1953	Yearlings (10 to 19 months)	2,000
Oshawa Cr.	Brown Trout	1954	Yearlings (10 to 19 months)	2,000
Oshawa Cr.	Brook Trout	1954	Yearlings (10 to 19 months)	1,000
Oshawa Cr.	Brown Trout	1955	Yearlings (10 to 19 months)	6,000
Oshawa Cr.	Brook Trout	1955	Yearlings (10 to 19 months)	3,000
Oshawa Cr.	Brown Trout	1956	Yearlings (10 to 19 months)	3,000
Oshawa Cr.	Brook Trout	1956	Yearlings (10 to 19 months)	300
Oshawa Cr.	Brown Trout	1957	Yearlings (10 to 19 months)	1,000
Oshawa Cr.	Brook Trout	1957	Yearlings (10 to 19 months)	400
Oshawa Cr.	Brown Trout	1958	Yearlings (10 to 19 months)	1,500
Oshawa Cr.	Brook Trout	1958	Yearlings (10 to 19 months)	300
Oshawa Cr.	Brown Trout	1959	Yearlings (10 to 19 months)	2,000
Oshawa Cr.	Brown Trout	1960	Yearlings (10 to 19 months)	2,000
Oshawa Cr.	Brook Trout	1961	Yearlings (10 to 19 months)	900
Oshawa Cr.	Brook Trout	1961	Yearlings (10 to 19 months)	500
Oshawa Cr.	Brown Trout	1986	Yearlings (10 to 19 months)	15,400
Oshawa Cr.	Chinook	1987	Fingerlings (3 to 9 months)	26,000
Oshawa Cr.	Brown Trout	1987	Yearlings (10 to 19 months)	15,000
Oshawa Cr.	Brown Trout	1988	Yearlings (10 to 19 months)	19,700
Oshawa Cr.	Brown Trout	1988	Yearlings (10 to 19 months)	5,300

Oshawa Cr.	Chinook	1988	Fingerlings (3 to 9 months)	25,000
Oshawa Cr.	Brown Trout	1989	Yearlings (10 to 19 months)	11,724
Oshawa Cr.	Brown Trout	1989	Yearlings (10 to 19 months)	13,276
Oshawa Cr.	Brown Trout	1989	Yearlings (10 to 19 months)	4,531
Oshawa Cr.	Brown Trout	1989	Yearlings (10 to 19 months)	4,868
Oshawa Cr.	Brown Trout	1989	Yearlings (10 to 19 months)	3,222
Oshawa Cr.	Chinook	1989	Fingerlings (3 to 9 months)	21,989
Oshawa Cr.	Brown Trout	1990	Yearlings (10 to 19 months)	4,600
Oshawa Cr.	Brown Trout	1990	Yearlings (10 to 19 months)	18,837
Oshawa Cr.	Chinook	1990	Fingerlings (3 to 9 months)	30,000
Oshawa Cr.	Brown Trout	1991	Yearlings (10 to 19 months)	10,102
Oshawa Cr.	Brown Trout	1991	Yearlings (10 to 19 months)	4,630
Oshawa Cr.	Chinook	1991	Fingerlings (3 to 9 months)	24,745
Oshawa Cr.	Brown Trout	1991	Yearlings (10 to 19 months)	14,000
Oshawa Cr.	Brown Trout	1991	Yearlings (10 to 19 months)	3,312
Oshawa Cr.	Chinook	1992	Fingerlings (3 to 9 months)	28,301
Oshawa Cr.	Brown Trout	1992	Yearlings (10 to 19 months)	3,474
Oshawa Cr.	Brown Trout	1992	Yearlings (10 to 19 months)	1,731
Oshawa Cr.	Brown Trout	1992	Yearlings (10 to 19 months)	4,236

Ouse R.	Brook Trout	1946	Yearlings (10 to 19 months)	4,800
Ouse R.	Brook Trout	1946	Yearlings (10 to 19 months)	6,400
Ouse R.	Brook Trout	1947	Yearlings (10 to 19 months)	4,000
Ouse R.	Brook Trout	1947	Yearlings (10 to 19 months)	3,200
Ouse R.	Brook Trout	1948	Yearlings (10 to 19 months)	1,600
Ouse R.	Brook Trout	1948	Yearlings (10 to 19 months)	1,600
Ouse R.	Brook Trout	1949	Yearlings (10 to 19 months)	11,200
Ouse R.	Brook Trout	1949	Yearlings (10 to 19 months)	1,800
Ouse R.	Brook Trout	1949	Yearlings (10 to 19 months)	5,000
Ouse R.	Brook Trout	1949	Yearlings (10 to 19 months)	1,800
Ouse R.	Brook Trout	1949	Yearlings (10 to 19 months)	5,000
Ouse R.	Brook Trout	1950	Yearlings (10 to 19 months)	1,800
Ouse R.	Brook Trout	1950	Yearlings (10 to 19 months)	3,300
Ouse R.	Brown Trout	1951	Fingerlings (3 to 9 months)	2,000
Ouse R.	Brook Trout	1951	Yearlings (10 to 19 months)	5,000
Ouse R.	Brown Trout	1952	Fingerlings (3 to 9 months)	3,000
Ouse R.	Brook Trout	1952	Yearlings (10 to 19 months)	3,500
Ouse R.	Brook Trout	1952	Yearlings (10 to 19 months)	2,000
Ouse R.	Brook Trout	1953	Yearlings (10 to 19 months)	4,500
Ouse R.	Brook Trout	1953	Yearlings (10 to 19 months)	300
Ouse R.	Brown Trout	1954	Yearlings (10 to 19 months)	3,000
Ouse R.	Brook Trout	1954	Yearlings (10 to 19 months)	2,000
Ouse R.	Brook Trout	1954	Yearlings (10 to 19 months)	2,000
Ouse R.	Largemouth Bass	1954	Fingerlings (3 to 9 months)	400
Ouse R.	Rainbow Trout	1955	Yearlings (10 to 19 months)	500
Ouse R.	Brown Trout	1955	Yearlings (10 to 19 months)	1,300
Ouse R.	Brook Trout	1955	Yearlings (10 to 19 months)	2,000
Ouse R.	Brown Trout	1956	Yearlings (10 to 19 months)	1,300

Ouse R.	Brook Trout	1956	Yearlings (10 to 19 months)	2,000
Ouse R.	Brook Trout	1956	Yearlings (10 to 19 months)	1,000
Ouse R.	Brook Trout	1956	Yearlings (10 to 19 months)	2,000
Ouse R.	Rainbow Trout	1957	Fingerlings (3 to 9 months)	1,500
Ouse R.	Brown Trout	1957	Yearlings (10 to 19 months)	1,000
Ouse R.	Brook Trout	1957	Yearlings (10 to 19 months)	3,000
Ouse R.	Brook Trout	1957	Yearlings (10 to 19 months)	4,000
Ouse R.	Rainbow Trout	1958	Yearlings (10 to 19 months)	1,000
Ouse R.	Brown Trout	1958	Yearlings (10 to 19 months)	1,000
Ouse R.	Brook Trout	1958	Yearlings (10 to 19 months)	2,000
Ouse R.	Brook Trout	1958	Yearlings (10 to 19 months)	1,000
Ouse R.	Rainbow Trout	1959	Yearlings (10 to 19 months)	1,000
Ouse R.	Brook Trout	1959	Yearlings (10 to 19 months)	1,000
Ouse R.	Brook Trout	1959	Yearlings (10 to 19 months)	2,000
Ouse R.	Brook Trout	1959	Yearlings (10 to 19 months)	1,000
Ouse R.	Rainbow Trout	1960	Yearlings (10 to 19 months)	500
Ouse R.	Brook Trout	1960	Yearlings (10 to 19 months)	1,000
Ouse R.	Rainbow Trout	1961	Yearlings (10 to 19 months)	2,600
Ouse R.	Brook Trout	1961	Yearlings (10 to 19 months)	2,000
Ouse R.	Brook Trout	1961	Yearlings (10 to 19 months)	1,000
Ouse R.	Brook Trout	1961	Yearlings (10 to 19 months)	600
Ouse R.	Rainbow Trout	1962	Yearlings (10 to 19 months)	1,500
Ouse R.	Rainbow Trout	1962	Yearlings (10 to 19 months)	600
Ouse R.	Brook Trout	1962	Yearlings (10 to 19 months)	2,000
Ouse R.	Brook Trout	1962	Yearlings (10 to 19 months)	1,000
Ouse R.	Brook Trout	1963	Yearlings (10 to 19 months)	1,800
Ouse R.	Brook Trout	1963	Yearlings (10 to 19 months)	1,000
Ouse R.	Rainbow Trout	1964	Yearlings (10 to 19 months)	975
Ouse R.	Brook Trout	1964	Yearlings (10 to 19 months)	1,000
Ouse R.	Brook Trout	1965	Yearlings (10 to 19 months)	750
Ouse R.	Brook Trout	1965	Yearlings (10 to 19 months)	500
Ouse R.	Brook Trout	1966	Yearlings (10 to 19 months)	50
Ouse R.	Brook Trout	1966	Yearlings (10 to 19 months)	250
Ouse R.	Brook Trout	1967	Yearlings (10 to 19 months)	400
Ouse R.	Brook Trout	1967	Yearlings (10 to 19 months)	200
Ouse R.	Brook Trout	1968	Yearlings (10 to 19 months)	900
Ouse R.	Brook Trout	1969	Yearlings (10 to 19 months)	300
Ouse R.	Rainbow Trout	1970	Yearlings (10 to 19 months)	1,300
Ouse R.	Brook Trout	1970	Yearlings (10 to 19 months)	500
Ouse R.	Brook Trout	1971	Yearlings (10 to 19 months)	500
Ouse R.	Brook Trout	1971	Yearlings (10 to 19 months)	500
Ouse R.	Brook Trout	1972	Yearlings (10 to 19 months)	600
Ouse R.	Brook Trout	1975	Yearlings (10 to 19 months)	600
Ouse R.	Brook Trout	1976	Yearlings (10 to 19 months)	500
Ouse R.	Brook Trout	1983	Yearlings (10 to 19 months)	1,000

West Ouse R.	Brook Trout	1960	Yearlings (10 to 19 months)	1,000
West Ouse R.	Brook Trout	1961	Yearlings (10 to 19 months)	1,000
West Ouse R.	Brook Trout	1961	Yearlings (10 to 19 months)	600

West Ouse R.	Brook Trout	1962	Yearlings (10 to 19 months)	1,000
West Ouse R.	Brook Trout	1963	Yearlings (10 to 19 months)	400
West Ouse R.	Brook Trout	1965	Yearlings (10 to 19 months)	500
West Ouse R.	Brook Trout	1972	Yearlings (10 to 19 months)	500

Pigeon R.	Brook Trout	1946	Yearlings (10 to 19 months)	800
Pigeon R.	Brook Trout	1946	Yearlings (10 to 19 months)	1,050
Pigeon R.	Muskellunge	1946	Fingerlings (3 to 9 months)	20,000
Pigeon R.	Muskellunge	1946	Fry (1 to 2 months)	50,000
Pigeon R.	Muskellunge	1946	Fingerlings (3 to 9 months)	300
Pigeon R.	Largemouth Bass	1946	Fingerlings (3 to 9 months)	500
Pigeon R.	Brook Trout	1947	Yearlings (10 to 19 months)	1,600
Pigeon R.	Muskellunge	1947	Fry (1 to 2 months)	20,000
Pigeon R.	Muskellunge	1947	Fry (1 to 2 months)	101,000
Pigeon R.	Smallmouth Bass	1947	Fingerlings (3 to 9 months)	1,000
Pigeon R.	Muskellunge	1948	Fingerlings (3 to 9 months)	400
Pigeon R.	Muskellunge	1948	Fry (1 to 2 months)	30,000
Pigeon R.	Muskellunge	1948	Fingerlings (3 to 9 months)	250
Pigeon R.	Muskellunge	1948	Fry (1 to 2 months)	50,000
Pigeon R.	Muskellunge	1948	Fingerlings (3 to 9 months)	800
Pigeon R.	Largemouth Bass	1948	Juvenile / adult (unknown age)	32
Pigeon R.	Muskellunge	1949	Fry (1 to 2 months)	20,000
Pigeon R.	Muskellunge	1949	Fingerlings (3 to 9 months)	550
Pigeon R.	Muskellunge	1949	Fingerlings (3 to 9 months)	21,250
Pigeon R.	Largemouth Bass	1949	Fry (1 to 2 months)	10,000
Pigeon R.	Lake Trout	1950	Fry (1 to 2 months)	20,000
Pigeon R.	Muskellunge	1950		20,000
Pigeon R.	Muskellunge	1950	Fingerlings (3 to 9 months)	400
Pigeon R.	Muskellunge	1950	Fry (1 to 2 months)	30,000
Pigeon R.	Muskellunge	1950	Fingerlings (3 to 9 months)	600
Pigeon R.	Largemouth Bass	1950	Fry (1 to 2 months)	20,000
Pigeon R.	Brook Trout	1951	Yearlings (10 to 19 months)	2,000
Pigeon R.	Muskellunge	1951	Fry (1 to 2 months)	20,000
Pigeon R.	Muskellunge	1951	Fingerlings (3 to 9 months)	200
Pigeon R.	Muskellunge	1951	Fry (1 to 2 months)	30,000
Pigeon R.	Muskellunge	1951	Fingerlings (3 to 9 months)	300
Pigeon R.	Largemouth Bass	1951	Fry (1 to 2 months)	20,000
Pigeon R.	Muskellunge	1952	Fingerlings (3 to 9 months)	600
Pigeon R.	Muskellunge	1952	Fingerlings (3 to 9 months)	900
Pigeon R.	Muskellunge	1952	Fry (1 to 2 months)	40,000
Pigeon R.	Largemouth Bass	1952	Fingerlings (3 to 9 months)	3,000
Pigeon R.	Brook Trout	1953	Yearlings (10 to 19 months)	2,000
Pigeon R.	Muskellunge	1953	Fry (1 to 2 months)	20,000

Pigeon R.	Muskellunge	1953	Fingerlings (3 to 9 months)	200
Pigeon R.	Muskellunge	1953	Fry (1 to 2 months)	30,000
Pigeon R.	Muskellunge	1953	Fingerlings (3 to 9 months)	400
Pigeon R.	Muskellunge	1954	Fry (1 to 2 months)	30,000
Pigeon R.	Muskellunge	1954	Fingerlings (3 to 9 months)	200
Pigeon R.	Muskellunge	1954	Fry (1 to 2 months)	40,000
Pigeon R.	Muskellunge	1954	Fingerlings (3 to 9 months)	300
Pigeon R.	Brook Trout	1955	Yearlings (10 to 19 months)	2,000
Pigeon R.	Muskellunge	1955	Fry (1 to 2 months)	30,000
Pigeon R.	Muskellunge	1955	Fingerlings (3 to 9 months)	1,000
Pigeon R.	Muskellunge	1955	Fry (1 to 2 months)	40,000
Pigeon R.	Muskellunge	1955	Fingerlings (3 to 9 months)	1,500
Pigeon R.	Largemouth Bass	1955	Fingerlings (3 to 9 months)	500
Pigeon R.	Largemouth Bass	1955	Fingerlings (3 to 9 months)	1,000
Pigeon R.	Brook Trout	1956	Yearlings (10 to 19 months)	500
Pigeon R.	Brook Trout	1956	Yearlings (10 to 19 months)	2,000
Pigeon R.	Muskellunge	1956	Fingerlings (3 to 9 months)	200
Pigeon R.	Muskellunge	1956	Fry (1 to 2 months)	30,000
Pigeon R.	Muskellunge	1956	Fingerlings (3 to 9 months)	900
Pigeon R.	Muskellunge	1956	Fry (1 to 2 months)	40,000
Pigeon R.	Muskellunge	1956	Fingerlings (3 to 9 months)	1,800
Pigeon R.	Brook Trout	1957	Yearlings (10 to 19 months)	1,000
Pigeon R.	Muskellunge	1957	Fry (1 to 2 months)	20,000
Pigeon R.	Muskellunge	1957	Fry (1 to 2 months)	20,000
Pigeon R.	Muskellunge	1957	Fingerlings (3 to 9 months)	400
Pigeon R.	Brook Trout	1958	Yearlings (10 to 19 months)	1,000
Pigeon R.	Muskellunge	1958	Fry (1 to 2 months)	20,000
Pigeon R.	Muskellunge	1958	Fry (1 to 2 months)	200
Pigeon R.	Muskellunge	1958	Fry (1 to 2 months)	20,300
Pigeon R.	Brook Trout	1959	Yearlings (10 to 19 months)	1,500
Pigeon R.	Brook Trout	1959	Yearlings (10 to 19 months)	150
Pigeon R.	Muskellunge	1959	Fingerlings (3 to 9 months)	300
Pigeon R.	Muskellunge	1959	Fry (1 to 2 months)	30,000
Pigeon R.	Muskellunge	1959	Fry (1 to 2 months)	30,000
Pigeon R.	Muskellunge	1959	Fingerlings (3 to 9 months)	300
Pigeon R.	Largemouth Bass	1959	Fingerlings (3 to 9 months)	4,000
Pigeon R.	Brook Trout	1960	Yearlings (10 to 19 months)	400
Pigeon R.	Muskellunge	1960	Fry (1 to 2 months)	20,600
Pigeon R.	Brook Trout	1961	Yearlings (10 to 19 months)	500
Pigeon R.	Muskellunge	1961	Fingerlings (3 to 9 months)	500
Pigeon R.	Muskellunge	1961	Fry (1 to 2 months)	20,000
Pigeon R.	Muskellunge	1961	Fingerlings (3 to 9 months)	200
Pigeon R.	Brook Trout	1962	Yearlings (10 to 19 months)	750
Pigeon R.	Muskellunge	1962	Fingerlings (3 to 9 months)	200
Pigeon R.	Muskellunge	1962	Fry (1 to 2 months)	20,000
Pigeon R.	Muskellunge	1962	Fingerlings (3 to 9 months)	200

Pigeon R.	Brook Trout	1963	Yearlings (10 to 19 months)	750
Pigeon R.	Muskellunge	1963	Fry (1 to 2 months)	10,000
Pigeon R.	Brook Trout	1964	Yearlings (10 to 19 months)	500
Pigeon R.	Brook Trout	1965	Yearlings (10 to 19 months)	300
Pigeon R.	Brook Trout	1965	Yearlings (10 to 19 months)	1,000
Pigeon R.	Muskellunge	1965	Fingerlings (3 to 9 months)	200
Pigeon R.	Brook Trout	1966	Yearlings (10 to 19 months)	200
Pigeon R.	Brook Trout	1967	Yearlings (10 to 19 months)	400
Pigeon R.	Brook Trout	1968	Yearlings (10 to 19 months)	400
Pigeon R.	Muskellunge	1968	Fry (1 to 2 months)	30,000
Pigeon R.	Muskellunge	1968	Fry (1 to 2 months)	200
Pigeon R.	Brook Trout	1969	Yearlings (10 to 19 months)	400
Pigeon R.	Muskellunge	1969	Fry (1 to 2 months)	20,000
Pigeon R.	Muskellunge	1969	Fingerlings (3 to 9 months)	100
Pigeon R.	Brook Trout	1970	Yearlings (10 to 19 months)	500
Pigeon R.	Brook Trout	1970	Yearlings (10 to 19 months)	500
Pigeon R.	Muskellunge	1970	Fry (1 to 2 months)	15,000
Pigeon R.	Brook Trout	1971	Yearlings (10 to 19 months)	500
Pigeon R.	Muskellunge	1971	Fingerlings (3 to 9 months)	100
Pigeon R.	Brook Trout	1972	Yearlings (10 to 19 months)	300
Pigeon R.	Muskellunge	1972	Fry (1 to 2 months)	20,000
Pigeon R.	Muskellunge	1972	Fingerlings (3 to 9 months)	300
Pigeon R.	Brook Trout	1973	Yearlings (10 to 19 months)	400
Pigeon R.	Brook Trout	1974	Yearlings (10 to 19 months)	500
Pigeon R.	Brook Trout	1975	Yearlings (10 to 19 months)	500
Pigeon R.	Brook Trout	1976	Yearlings (10 to 19 months)	500
Pigeon R.	Brook Trout	1983	Yearlings (10 to 19 months)	1,000
Pigeon R.	Brook Trout	1984	Yearlings (10 to 19 months)	4,000
Pigeon R.	Brook Trout	1986	Yearlings (10 to 19 months)	450
Pigeon R.	Brook Trout	1988	Yearlings (10 to 19 months)	280

Piper Cr.	Brook Trout	1947	Yearlings (10 to 19 months)	200
Piper Cr.	Brook Trout	1949	Yearlings (10 to 19 months)	500
Piper Cr.	Brook Trout	1950	Yearlings (10 to 19 months)	800
Piper Cr.	Brook Trout	1951	Fingerlings (3 to 9 months)	1,000
Piper Cr.	Brook Trout	1951	Yearlings (10 to 19 months)	800
Piper Cr.	Brook Trout	1955	Yearlings (10 to 19 months)	1,000
Piper Cr.	Brook Trout	1956	Yearlings (10 to 19 months)	1,000
Piper Cr.	Brook Trout	1957	Yearlings (10 to 19 months)	500
Piper Cr.	Brook Trout	1958	Yearlings (10 to 19 months)	500
Piper Cr.	Brook Trout	1959	Yearlings (10 to 19 months)	500
Piper Cr.	Brook Trout	1960	Yearlings (10 to 19 months)	400
Piper Cr.	Brook Trout	1961	Yearlings (10 to 19 months)	500
Piper Cr.	Brook Trout	1962	Yearlings (10 to 19 months)	500
Piper Cr.	Brook Trout	1963	Yearlings (10 to 19 months)	500
Piper Cr.	Brook Trout	1964	Yearlings (10 to 19 months)	350
Piper Cr.	Brook Trout	1965	Yearlings (10 to 19 months)	300
Piper Cr.	Brook Trout	1966	Yearlings (10 to 19 months)	200
Piper Cr.	Brook Trout	1967	Yearlings (10 to 19 months)	200

Piper Cr.	Brook Trout	1968	Yearlings (10 to 19 months)	200

Rawdon Cr.	Brook Trout	1947	Yearlings (10 to 19 months)	1,500
Rawdon Cr.	Brook Trout	1947	Yearlings (10 to 19 months)	2,000
Rawdon Cr.	Brown Trout	1948	Yearlings (10 to 19 months)	1,500
Rawdon Cr.	Brook Trout	1948	Yearlings (10 to 19 months)	20,000
Rawdon Cr.	Brown Trout	1949	Yearlings (10 to 19 months)	1,500
Rawdon Cr.	Brown Trout	1949	Fingerlings (3 to 9 months)	10,000
Rawdon Cr.	Brook Trout	1949	Fingerlings (3 to 9 months)	20,000
Rawdon Cr.	Brook Trout	1949	Fingerlings (3 to 9 months)	15,000
Rawdon Cr.	Brown Trout	1950	Fingerlings (3 to 9 months)	7,500
Rawdon Cr.	Brook Trout	1950	Fingerlings (3 to 9 months)	10,000
Rawdon Cr.	Brown Trout	1951	Fingerlings (3 to 9 months)	8,000
Rawdon Cr.	Brook Trout	1951	Yearlings (10 to 19 months)	2,500
Rawdon Cr.	Brook Trout	1951	Yearlings (10 to 19 months)	6,000
Rawdon Cr.	Brown Trout	1952	Fingerlings (3 to 9 months)	3,000
Rawdon Cr.	Brook Trout	1952	Yearlings (10 to 19 months)	1,000
Rawdon Cr.	Brook Trout	1952	Yearlings (10 to 19 months)	1,500
Rawdon Cr.	Brown Trout	1953	Fingerlings (3 to 9 months)	2,000
Rawdon Cr.	Brown Trout	1953	Fingerlings (3 to 9 months)	2,000
Rawdon Cr.	Brook Trout	1953	Fingerlings (3 to 9 months)	1,000
Rawdon Cr.	Brown Trout	1954	Yearlings (10 to 19 months)	4,000
Rawdon Cr.	Brook Trout	1954	Yearlings (10 to 19 months)	6,000
Rawdon Cr.	Brook Trout	1955	Yearlings (10 to 19 months)	2,000
Rawdon Cr.	Brook Trout	1955	Yearlings (10 to 19 months)	1,000
Rawdon Cr.	Brook Trout	1955	Yearlings (10 to 19 months)	1,000
Rawdon Cr.	Brook Trout	1955	Fingerlings (3 to 9 months)	4,000
Rawdon Cr.	Rainbow Trout	1956	Fingerlings (3 to 9 months)	10,000
Rawdon Cr.	Brown Trout	1956	Fingerlings (3 to 9 months)	8,000
Rawdon Cr.	Brook Trout	1956	Yearlings (10 to 19 months)	3,000
Rawdon Cr.	Brook Trout	1957	Yearlings (10 to 19 months)	2,000
Rawdon Cr.	Brown Trout	1958	Yearlings (10 to 19 months)	2,000
Rawdon Cr.	Brook Trout	1958	Yearlings (10 to 19 months)	1,000
Rawdon Cr.	Brook Trout	1958	Yearlings (10 to 19 months)	1,000
Rawdon Cr.	Brown Trout	1959	Yearlings (10 to 19 months)	4,000
Rawdon Cr.	Brook Trout	1959	Yearlings (10 to 19 months)	1,000
Rawdon Cr.	Rainbow Trout	1960	Yearlings (10 to 19 months)	2,000
Rawdon Cr.	Brook Trout	1960	Yearlings (10 to 19 months)	1,000
Rawdon Cr.	Brook Trout	1961	Yearlings (10 to 19 months)	2,000
Rawdon Cr.	Brook Trout	1962	Yearlings (10 to 19 months)	2,000
Rawdon Cr.	Brook Trout	1963	Yearlings (10 to 19 months)	2,000
Rawdon Cr.	Brook Trout	1964	Yearlings (10 to 19 months)	2,000
Rawdon Cr.	Brook Trout	1965	Yearlings (10 to 19 months)	3,500
Rawdon Cr.	Brook Trout	1965	Yearlings (10 to 19 months)	3,500
Rawdon Cr.	Brook Trout	1965	Yearlings (10 to 19 months)	500
Rawdon Cr.	Brook Trout	1966	Yearlings (10 to 19 months)	6,800
Rawdon Cr.	Brook Trout	1967	Fingerlings (3 to 9 months)	3,000
Rawdon Cr.	Brook Trout	1968	Yearlings (10 to 19 months)	3,000
Rawdon Cr.	Brook Trout	1971	Yearlings (10 to 19 months)	500

Rawdon Cr.	Brook Trout	1971	Yearlings (10 to 19 months)	500
Rawdon Cr.	Brook Trout	1972	Yearlings (10 to 19 months)	500
Rawdon Cr.	Brook Trout	1972	Yearlings (10 to 19 months)	800
Rawdon Cr.	Brook Trout	1976	Yearlings (10 to 19 months)	425
Rawdon Cr.	Brook Trout	1977	Yearlings (10 to 19 months)	400
Rawdon Cr.	Brook Trout	1978	Yearlings (10 to 19 months)	400
Rawdon Cr.	Brook Trout	1979	Yearlings (10 to 19 months)	400
Rawdon Cr.	Brook Trout	1979	Yearlings (10 to 19 months)	200
Rawdon Cr.	Brook Trout	1980	Yearlings (10 to 19 months)	1,000
Rawdon Cr.	Brook Trout	1980	Yearlings (10 to 19 months)	300
Rawdon Cr.	Brook Trout	1981	Yearlings (10 to 19 months)	300
Rawdon Cr.	Brook Trout	1981	Yearlings (10 to 19 months)	800
Rawdon Cr.	Brook Trout	1982	Yearlings (10 to 19 months)	500
Rawdon Cr.	Brook Trout	1983	Yearlings (10 to 19 months)	1,000
Rawdon Cr.	Brook Trout	1984	Yearlings (10 to 19 months)	1,100
Rawdon Cr.	Brook Trout	1985	Yearlings (10 to 19 months)	800
Rawdon Cr.	Brook Trout	1986	Yearlings (10 to 19 months)	800
Rawdon Cr.	Brook Trout	1987	Yearlings (10 to 19 months)	800
Rawdon Cr.	Brown Trout	1988	Fingerlings (3 to 9 months)	5,115
Rawdon Cr.	Brown Trout	1988	Fingerlings (3 to 9 months)	2,558
Rawdon Cr.	Brown Trout	1988	Fingerlings (3 to 9 months)	2,557
Rawdon Cr.	Brook Trout	1988	Yearlings (10 to 19 months)	800
Rawdon Cr.	Brown Trout	1989	Fingerlings (3 to 9 months)	10,000
Rawdon Cr.	Brown Trout	1990	Yearlings (10 to 19 months)	1,500
Rawdon Cr.	Brown Trout	1990	Sub-adults (>=20 months)	94
Rawdon Cr.	Brown Trout	1990	Sub-adults (>=20 months)	40
Rawdon Cr.	Brown Trout	1990	Sub-adults (>=20 months)	94
Rawdon Cr.	Brown Trout	1990	Sub-adults (>=20 months)	40
Rawdon Cr.	Brook Trout	1991	Yearlings (10 to 19 months)	1,379
Rawdon Cr.	Brown Trout	1991	Yearlings (10 to 19 months)	500
Rawdon Cr.	Brook Trout	1992	Yearlings (10 to 19 months)	800
Rawdon Cr.	Brook Trout	2000	Yearlings (10 to 19 months)	500
Rawdon Cr.	Brook Trout	1997	Yearlings (10 to 19 months)	500
Rawdon Cr.	Brook Trout	1998	Sub-adults (>=20 months)	1,000
Rawdon Cr.	Brook Trout	1998	Sub-adults (>=20 months)	1,000
Rawdon Cr.	Brook Trout	1998	Sub-adults (>=20 months)	1,000
Rawdon Cr.	Brook Trout	1998	Sub-adults (>=20 months)	1,000
Rawdon Cr.	Brook Trout	1998	Sub-adults (>=20 months)	1,000
Rawdon Cr.	Brook Trout	1999	Yearlings (10 to 19 months)	410

Salem Cr.	Brook Trout	1955	Yearlings (10 to 19 months)	1,000
Salem Cr.	Brook Trout	1956	Yearlings (10 to 19 months)	1,000
Salem Cr.	Brook Trout	1957	Yearlings (10 to 19 months)	1,500
Salem Cr.	Brook Trout	1958	Yearlings (10 to 19 months)	500
Salem Cr.	Brook Trout	1959	Yearlings (10 to 19 months)	600
Salem Cr.	Brook Trout	1960	Yearlings (10 to 19 months)	400
Salem Cr.	Brook Trout	1961	Yearlings (10 to 19 months)	500
Salem Cr.	Brook Trout	1962	Yearlings (10 to 19 months)	250
Salem Cr.	Brook Trout	1981	Yearlings (10 to 19 months)	500

Salem Cr.	Rainbow Trout	1990	Fry (1 to 2 months)	8,000
Salem Cr.	Rainbow Trout	1992	Yearlings (10 to 19 months)	1,500
Salem Cr.	Rainbow Trout	1993	Yearlings (10 to 19 months)	2,000
Salem Cr.	Rainbow Trout	1994	Yearlings (10 to 19 months)	2,000

Scugog R.	Largemouth Bass	1946	Fingerlings (3 to 9 months)	500
Scugog R.	Muskellunge	1947	Fry (1 to 2 months)	200
Scugog R.	Muskellunge	1948	Fingerlings (3 to 9 months)	500
Scugog R.	Muskellunge	1949	Fry (1 to 2 months)	20,000
Scugog R.	Muskellunge	1950	Fry (1 to 2 months)	20,000
Scugog R.	Largemouth Bass	1950	Fry (1 to 2 months)	10,000
Scugog R.	Muskellunge	1951	Fry (1 to 2 months)	200
Scugog R.	Largemouth Bass	1951	Fry (1 to 2 months)	20,000
Scugog R.	Muskellunge	1951	Fry (1 to 2 months)	20,000
Scugog R.	Muskellunge	1953	Fingerlings (3 to 9 months)	200
Scugog R.	Muskellunge	1954	Fingerlings (3 to 9 months)	200
Scugog R.	Muskellunge	1954	Fry (1 to 2 months)	20,000
Scugog R.	Muskellunge	1955	Fry (1 to 2 months)	20,000
Scugog R.	Muskellunge	1955	Fingerlings (3 to 9 months)	400
Scugog R.	Muskellunge	1956	Fingerlings (3 to 9 months)	400
Scugog R.	Muskellunge	1959	Fingerlings (3 to 9 months)	300
Scugog R.	Muskellunge	1965	Fingerlings (3 to 9 months)	300
Scugog R.	Muskellunge	1965	Fry (1 to 2 months)	10,000
Scugog R.	Muskellunge	1966	Fry (1 to 2 months)	10,000
Scugog R.	Muskellunge	1967	Fry (1 to 2 months)	20,000
Scugog R.	Muskellunge	1968	Fry (1 to 2 months)	15,000
Scugog R.	Muskellunge	1969	Fry (1 to 2 months)	20,000
Scugog R.	Muskellunge	1970	Fry (1 to 2 months)	15,000
Scugog R.	Muskellunge	1970	Fingerlings (3 to 9 months)	200
Scugog R.	Muskellunge	1971	Fingerlings (3 to 9 months)	200
Scugog R.	Muskellunge	1971	Fry (1 to 2 months)	15,000
Scugog R.	Muskellunge	1972	Fry (1 to 2 months)	40,000
Scugog R.	Muskellunge	1983	Fry (1 to 2 months)	500

Shelter Valley Cr.	Brown Trout	1946	Fingerlings (3 to 9 months)	5,000
Shelter Valley Cr.	Brook Trout	1946	Yearlings (10 to 19 months)	1,000
Shelter Valley Cr.	Brown Trout	1947	Yearlings (10 to 19 months)	3,000
Shelter Valley Cr.	Brook Trout	1947	Yearlings (10 to 19 months)	500
Shelter Valley Cr.	Brown Trout	1948	Yearlings (10 to 19 months)	3,000
Shelter Valley Cr.	Brown Trout	1948	Yearlings (10 to 19 months)	4,000
Shelter Valley Cr.	Brown Trout	1948	Yearlings (10 to 19 months)	2,000
Shelter Valley Cr.	Brown Trout	1948	Fingerlings (3 to 9 months)	10,000
Shelter Valley Cr.	Brown Trout	1949	Yearlings (10 to 19 months)	5,000
Shelter Valley Cr.	Brown Trout	1949	Yearlings (10 to 19 months)	4,000
Shelter Valley Cr.	Brook Trout	1949	Yearlings (10 to 19 months)	2,000
Shelter Valley Cr.	Brook Trout	1950	Yearlings (10 to 19 months)	2,000

Shelter Valley Cr.	Brook Trout	1951	Yearlings (10 to 19 months)	2,000
Shelter Valley Cr.	Brown Trout	1955	Yearlings (10 to 19 months)	2,000
Shelter Valley Cr.	Brook Trout	1955	Yearlings (10 to 19 months)	1,500
Shelter Valley Cr.	Brown Trout	1956	Yearlings (10 to 19 months)	1,000
Shelter Valley Cr.	Brook Trout	1956	Yearlings (10 to 19 months)	1,500
Shelter Valley Cr.	Brown Trout	1957	Yearlings (10 to 19 months)	1,000
Shelter Valley Cr.	Brook Trout	1957	Yearlings (10 to 19 months)	1,000
Shelter Valley Cr.	Brown Trout	1958	Yearlings (10 to 19 months)	2,000
Shelter Valley Cr.	Brown Trout	1959	Yearlings (10 to 19 months)	2,000
Shelter Valley Cr.	Brown Trout	1961	Fingerlings (3 to 9 months)	300
Shelter Valley Cr.	Brook Trout	1961	Yearlings (10 to 19 months)	500
Shelter Valley Cr.	Sockeye Salmon	1964	Egg (unknown stage)	80,500
Shelter Valley Cr.	Sockeye Salmon	1964	Egg (unknown stage)	30,000
Shelter Valley Cr.	Sockeye Salmon	1964	Egg (unknown stage)	30,000
Shelter Valley Cr.	Sockeye Salmon	1964	Egg (unknown stage)	20,000
Shelter Valley Cr.	Sockeye Salmon	1972	Fingerlings (3 to 9 months)	61,000
Shelter Valley Cr.	Sockeye Salmon	1972	Fingerlings (3 to 9 months)	189,860
Shelter Valley Cr.	Sockeye Salmon	1972	Yearlings (10 to 19 months)	61,000
Shelter Valley Cr.	Chinook	1972	Fingerlings (3 to 9 months)	189,860
Shelter Valley Cr.	Brook Trout	1986	Yearlings (10 to 19 months)	1,200
Shelter Valley Cr.	Brook Trout	1987	Fingerlings (3 to 9 months)	1,000
Shelter Valley Cr.	Atlantic Salmon	1997	Fingerlings (3 to 9 months)	5,175
Shelter Valley Cr.	Atlantic Salmon	1997	Fingerlings (3 to 9 months)	2,700
Shelter Valley Cr.	Atlantic Salmon	1998	Fingerlings (3 to 9 months)	2,700
Shelter Valley Cr.	Atlantic Salmon	1998	Fingerlings (3 to 9 months)	7,175
Shelter Valley Cr.	Atlantic Salmon	1999	Fingerlings (3 to 9 months)	2,700
Shelter Valley Cr.	Atlantic Salmon	1999	Fingerlings (3 to 9 months)	5,175
Shelter Valley Cr.	Atlantic Salmon	1999	Eyed eggs (>50% eyed eggs)	12,036
Shelter Valley Cr.	Atlantic Salmon	2000	Eyed eggs (>50% eyed eggs)	6,809
Shelter Valley Cr.	Atlantic Salmon	2000	Eyed eggs (>50% eyed eggs)	6,809

Stony Cr.	Brook Trout	1967	Yearlings (10 to 19 months)	200

Uxbridge Br.	Brook Trout	1953		1,000
Uxbridge Br.	Brook Trout	1955		2,000
Uxbridge Br.	Brook Trout	1956		100
Uxbridge Br.	Brook Trout	1964	Yearlings (10 to 19 months)	500

Wilmot Cr.	Brown Trout	1946	Fingerlings (3 to 9 months)	2,000
Wilmot Cr.	Brook Trout	1946	Yearlings (10 to 19 months)	800
Wilmot Cr.	Brown Trout	1947	Yearlings (10 to 19 months)	2,500

Wilmot Cr.	Brook Trout	1947	Yearlings (10 to 19 months)	2,000
Wilmot Cr.	Brook Trout	1947	Fingerlings (3 to 9 months)	4,000
Wilmot Cr.	Atlantic Salmon	1948	Fry (1 to 2 months)	10,000
Wilmot Cr.	Brown Trout	1948	Yearlings (10 to 19 months)	2,000
Wilmot Cr.	Brown Trout	1948	Yearlings (10 to 19 months)	6,000
Wilmot Cr.	Brown Trout	1948	Yearlings (10 to 19 months)	10,000
Wilmot Cr.	Brown Trout	1949	Yearlings (10 to 19 months)	600
Wilmot Cr.	Brown Trout	1950	Yearlings (10 to 19 months)	2,500
Wilmot Cr.	Brown Trout	1951	Yearlings (10 to 19 months)	2,642
Wilmot Cr.	Brown Trout	1952	Fingerlings (3 to 9 months)	3,000
Wilmot Cr.	Brown Trout	1953	Fingerlings (3 to 9 months)	1,000
Wilmot Cr.	Brown Trout	1954	Yearlings (10 to 19 months)	3,000
Wilmot Cr.	Brown Trout	1955	Yearlings (10 to 19 months)	2,000
Wilmot Cr.	Brown Trout	1955	Fingerlings (3 to 9 months)	2,000
Wilmot Cr.	Brown Trout	1956	Yearlings (10 to 19 months)	1,000
Wilmot Cr.	Brook Trout	1956	Yearlings (10 to 19 months)	1,000
Wilmot Cr.	Brown Trout	1957	Yearlings (10 to 19 months)	2,000
Wilmot Cr.	Brook Trout	1961	Yearlings (10 to 19 months)	800
Wilmot Cr.	Sockeye Salmon	1964	Egg (unknown stage)	81,500
Wilmot Cr.	Sockeye Salmon	1964		30,000
Wilmot Cr.	Sockeye Salmon	1964		20,000
Wilmot Cr.	Sockeye Salmon	1964	Egg (unknown stage)	30,000
Wilmot Cr.	Brook Trout	1965	Yearlings (10 to 19 months)	1,000
Wilmot Cr.	Brook Trout	1966	Yearlings (10 to 19 months)	900
Wilmot Cr.	Rainbow Trout	1968	Egg (unknown stage)	50,000
Wilmot Cr.	Rainbow Trout	1968	Fingerlings (3 to 9 months)	572
Wilmot Cr.	Rainbow Trout	1968	Yearlings (10 to 19 months)	572
Wilmot Cr.	Brook Trout	1968	Yearlings (10 to 19 months)	500
Wilmot Cr.	Brook Trout	1969	Yearlings (10 to 19 months)	400
Wilmot Cr.	Brook Trout	1969	Yearlings (10 to 19 months)	400
Wilmot Cr.	Brook Trout	1971	Yearlings (10 to 19 months)	500
Wilmot Cr.	Rainbow Trout	1972	Fingerlings (3 to 9 months)	25,000
Wilmot Cr.	Rainbow Trout	1972	Fingerlings (3 to 9 months)	9,000
Wilmot Cr.	Rainbow Trout	1972	Fingerlings (3 to 9 months)	16,000
Wilmot Cr.	Brook Trout	1972	Yearlings (10 to 19 months)	400
Wilmot Cr.	Rainbow Trout	1973	Fingerlings (3 to 9 months)	7,500
Wilmot Cr.	Rainbow Trout	1973	Fingerlings (3 to 9 months)	15,000
Wilmot Cr.	Rainbow Trout	1974	Yearlings (10 to 19 months)	2,300
Wilmot Cr.	Rainbow Trout	1974	Fingerlings (3 to 9 months)	7,500
Wilmot Cr.	Rainbow Trout	1974	Fingerlings (3 to 9 months)	7,500
Wilmot Cr.	Rainbow Trout	1974	Fingerlings (3 to 9 months)	8,500
Wilmot Cr.	Rainbow Trout	1974	Fingerlings (3 to 9 months)	8,500
Wilmot Cr.	Rainbow Trout	1975	Yearlings (10 to 19 months)	300
Wilmot Cr.	Atlantic Salmon	1987	Yearlings (10 to 19 months)	1,009
Wilmot Cr.	Atlantic Salmon	1988	Yearlings (10 to 19 months)	6,000
Wilmot Cr.	Atlantic Salmon	1988	Fingerlings (3 to 9 months)	4,100

Wilmot Cr.	Atlantic Salmon	1988	Yearlings (10 to 19 months)	1,545
Wilmot Cr.	Atlantic Salmon	1989	Yearlings (10 to 19 months)	2,750
Wilmot Cr.	Atlantic Salmon	1989	Yearlings (10 to 19 months)	3,103
Wilmot Cr.	Atlantic Salmon	1989	Yearlings (10 to 19 months)	4,000
Wilmot Cr.	Atlantic Salmon	1989	Yearlings (10 to 19 months)	3,879
Wilmot Cr.	Atlantic Salmon	1990	Fingerlings (3 to 9 months)	2,000
Wilmot Cr.	Atlantic Salmon	1990	Fingerlings (3 to 9 months)	3,500
Wilmot Cr.	Atlantic Salmon	1990	Yearlings (10 to 19 months)	2,000
Wilmot Cr.	Atlantic Salmon	1990	Fingerlings (3 to 9 months)	1,673
Wilmot Cr.	Atlantic Salmon	1990	Yearlings (10 to 19 months)	5,686
Wilmot Cr.	Atlantic Salmon	1990	Yearlings (10 to 19 months)	1,550
Wilmot Cr.	Atlantic Salmon	1990	Fingerlings (3 to 9 months)	1,673
Wilmot Cr.	Atlantic Salmon	1991	Yearlings (10 to 19 months)	3,000
Wilmot Cr.	Atlantic Salmon	1991	Yearlings (10 to 19 months)	2,640
Wilmot Cr.	Atlantic Salmon	1991	Yearlings (10 to 19 months)	3,000
Wilmot Cr.	Atlantic Salmon	1991	Yearlings (10 to 19 months)	2,640
Wilmot Cr.	Rainbow Trout	1992	Yearlings (10 to 19 months)	250
Wilmot Cr.	Rainbow Trout	1992	Yearlings (10 to 19 months)	250
Wilmot Cr.	Atlantic Salmon	1993	Yearlings (10 to 19 months)	2,409
Wilmot Cr.	Atlantic Salmon	1993	Yearlings (10 to 19 months)	5,397
Wilmot Cr.	Atlantic Salmon	1993	Yearlings (10 to 19 months)	2,410
Wilmot Cr.	Atlantic Salmon	1993	Fry (1 to 2 months)	7,000
Wilmot Cr.	Atlantic Salmon	1994	Yearlings (10 to 19 months)	4,990
Wilmot Cr.	Atlantic Salmon	1994	Yearlings (10 to 19 months)	4,975
Wilmot Cr.	Atlantic Salmon	1994	Yearlings (10 to 19 months)	4,982
Wilmot Cr.	Atlantic Salmon	1994	Yearlings (10 to 19 months)	4,974
Wilmot Cr.	Atlantic Salmon	1994	Yearlings (10 to 19 months)	4,982
Wilmot Cr.	Atlantic Salmon	1994	Fingerlings (3 to 9 months)	9,390
Wilmot Cr.	Atlantic Salmon	1994	Fingerlings (3 to 9 months)	7,950
Wilmot Cr.	Atlantic Salmon	1995	Fry (1 to 2 months)	5,626
Wilmot Cr.	Atlantic Salmon	1995	Fingerlings (3 to 9 months)	5,943
Wilmot Cr.	Atlantic Salmon	1995	Fingerlings (3 to 9 months)	10,268
Wilmot Cr.	Atlantic Salmon	1995	Fingerlings (3 to 9 months)	4,492
Wilmot Cr.	Atlantic Salmon	1995	Fingerlings (3 to 9 months)	10,000
Wilmot Cr.	Atlantic Salmon	1995	Fingerlings (3 to 9 months)	6,206
Wilmot Cr.	Atlantic Salmon	1996	Fingerlings (3 to 9 months)	5,600
Wilmot Cr.	Atlantic Salmon	1996	Fingerlings (3 to 9 months)	3,500
Wilmot Cr.	Atlantic Salmon	1996	Fingerlings (3 to 9 months)	10,000
Wilmot Cr.	Atlantic Salmon	1996	Fingerlings (3 to 9 months)	4,500
Wilmot Cr.	Atlantic Salmon	1996	Fingerlings (3 to 9 months)	3,200
Wilmot Cr.	Atlantic Salmon	1996	Fingerlings (3 to 9 months)	8,000
Wilmot Cr.	Atlantic Salmon	1997	Fingerlings (3 to 9 months)	4,899
Wilmot Cr.	Atlantic Salmon	1997	Fingerlings (3 to 9 months)	8,000
Wilmot Cr.	Atlantic Salmon	1997	Fingerlings (3 to 9 months)	3,700
Wilmot Cr.	Atlantic Salmon	1997	Fingerlings (3 to 9 months)	4,500
Wilmot Cr.	Atlantic Salmon	1998	Fingerlings (3 to 9 months)	8,000
Wilmot Cr.	Atlantic Salmon	1998	Fingerlings (3 to 9 months)	3,700
Wilmot Cr.	Atlantic Salmon	1998	Fingerlings (3 to 9 months)	4,500
Wilmot Cr.	Atlantic Salmon	1998	Fingerlings (3 to 9 months)	1,000

Wilmot Cr.	Atlantic Salmon	1998	Fingerlings (3 to 9 months)	4,900
Wilmot Cr.	Atlantic Salmon	1999	Fingerlings (3 to 9 months)	4,900
Wilmot Cr.	Atlantic Salmon	1999	Fingerlings (3 to 9 months)	8,000
Wilmot Cr.	Atlantic Salmon	1999	Fingerlings (3 to 9 months)	3,700
Wilmot Cr.	Atlantic Salmon	1999	Fingerlings (3 to 9 months)	4,500
Wilmot Cr.	Atlantic Salmon	2000	Fingerlings (3 to 9 months)	10,063
Wilmot Cr.	Atlantic Salmon	2000	Adults (mature)	80
Wilmot Cr.	Atlantic Salmon	2000	Adults (mature)	65
Wilmot Cr.	Brown Trout	2000	Adults (mature)	25