Results of the 2008 WDFW
Fall Walleye Index Netting (FWIN) Surveys

Scooteney Reservoir, Moses Lake,
Potholes Reservoir, Banks Lake and Lake Roosevelt

This report documents the results of the 2008 fall walleye index netting (FWIN) surveys in five eastern Washington waters (Figure 1). For more information on Washington walleye biology, distribution and the FWIN sampling protocol, please see the 2005 FWIN report on this website.

Similar to the previous web reports for our FWIN surveys, the results from our 2008 surveys are shown in the form of graphs followed by a brief explanation of each. The **relative abundance** graph compares the average number of walleye captured per net, from all lakes for all years, side by side, on a single graph (we use the geometric mean for these values). After that, there are four individual graphs for each lake: **size distribution** (the percentage of walleye in each size group), **age distribution** (the percentage of walleye in each age group), **species composition pie chart** (the percentage of each different species captured in our 2008 survey) and **species composition bar graph over time,** which shows the general species composition from 2003–2008. The size and age distribution graphs compare the 2008 values with the average values from 2003–2008 so you can see how 2008 compared with an "average" year on that water for size and age distribution. At the end of the report is a **length-at-age graph**, which shows the average length at each year of age for walleye from all five FWIN waters, on one graph. **Please bear in mind that since we sample exclusively with gill nets for the FWIN surveys, the species composition graphs may or may not accurately represent the fish communities from each lake. These graphs will only provide a general picture of the fish community make-up. Like any single capture technique, gill nets have particular biases for and against certain species and sizes of fish. They are however, the best single technique for capturing a representative sample of the walleye populations and fall is the best time to do it.**

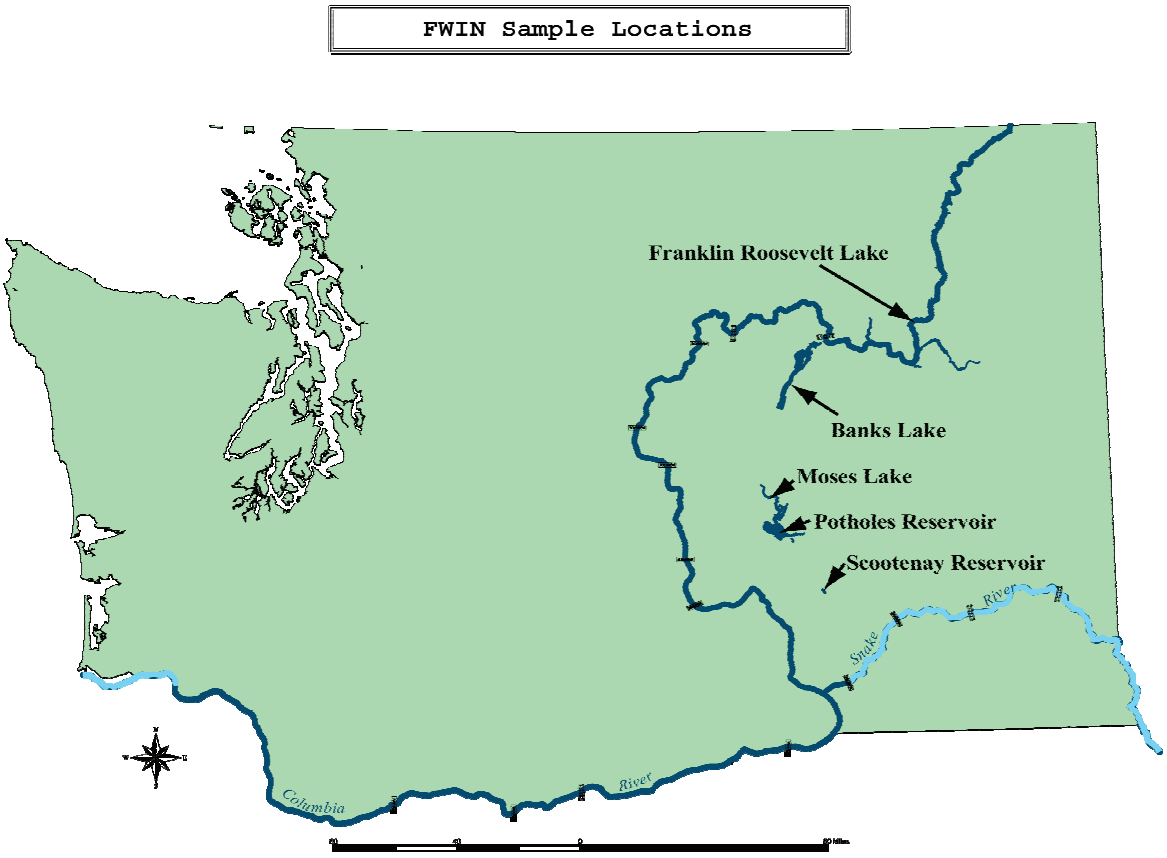
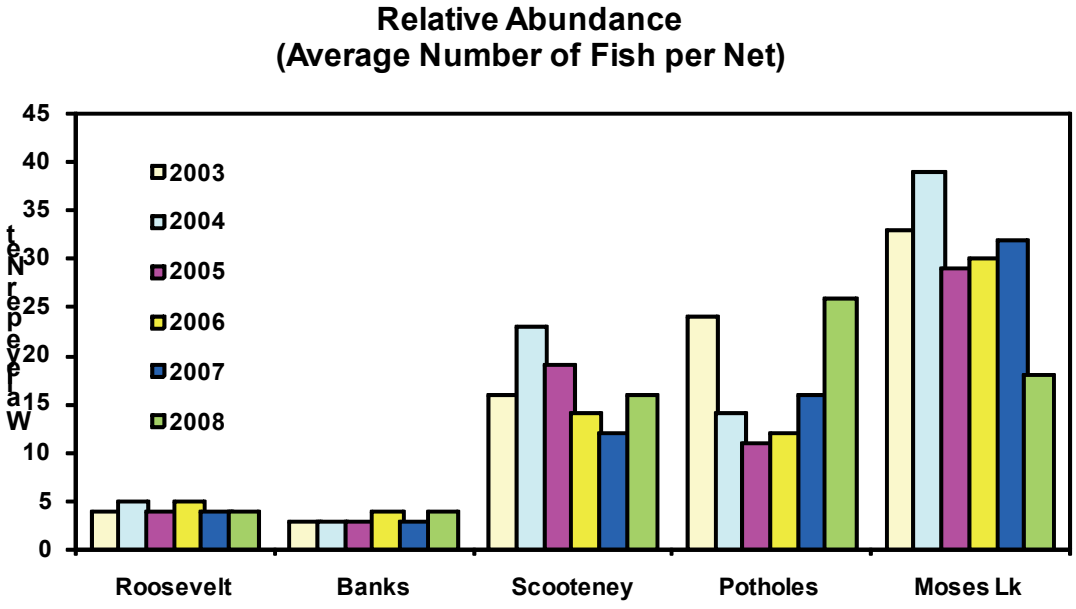
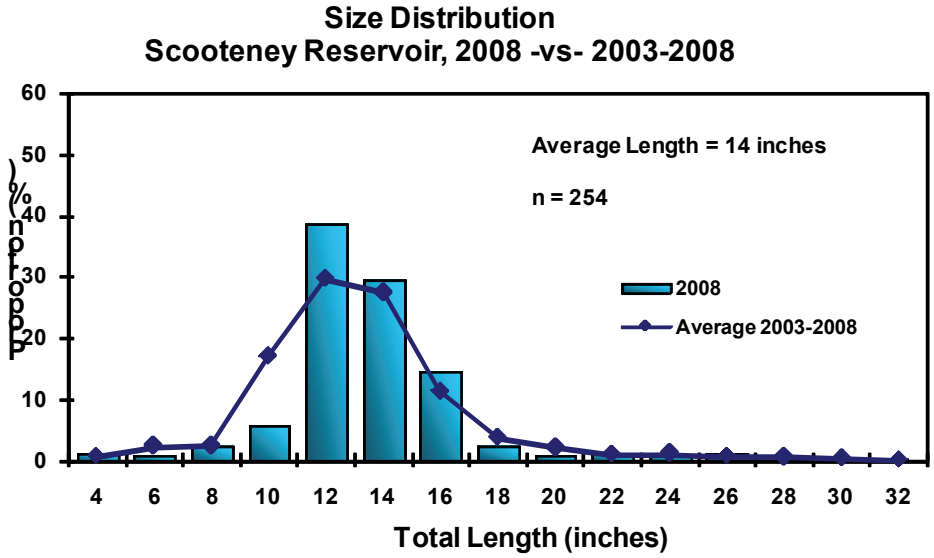
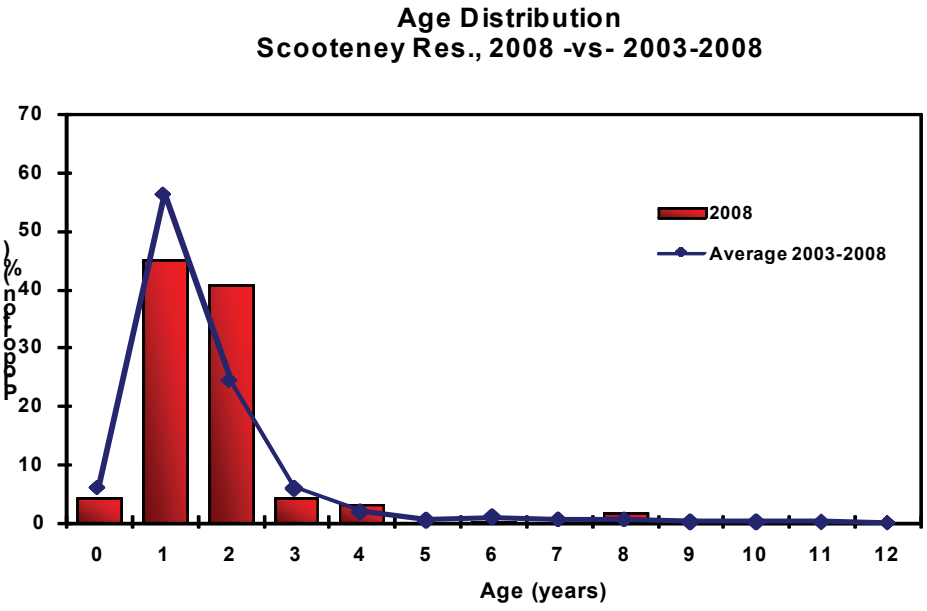


Figure 1. Locations of the five lakes sampled by WDFW for the 2008 Fall Walleye Index Netting surveys (Scooteney Reservoir, Moses Lake, Potholes Reservoir, Banks Lake and Lake Roosevelt).

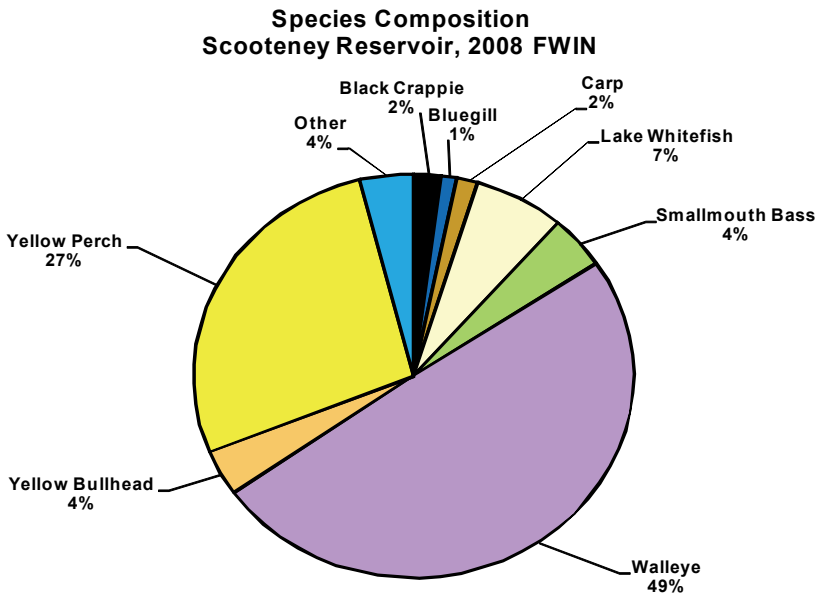


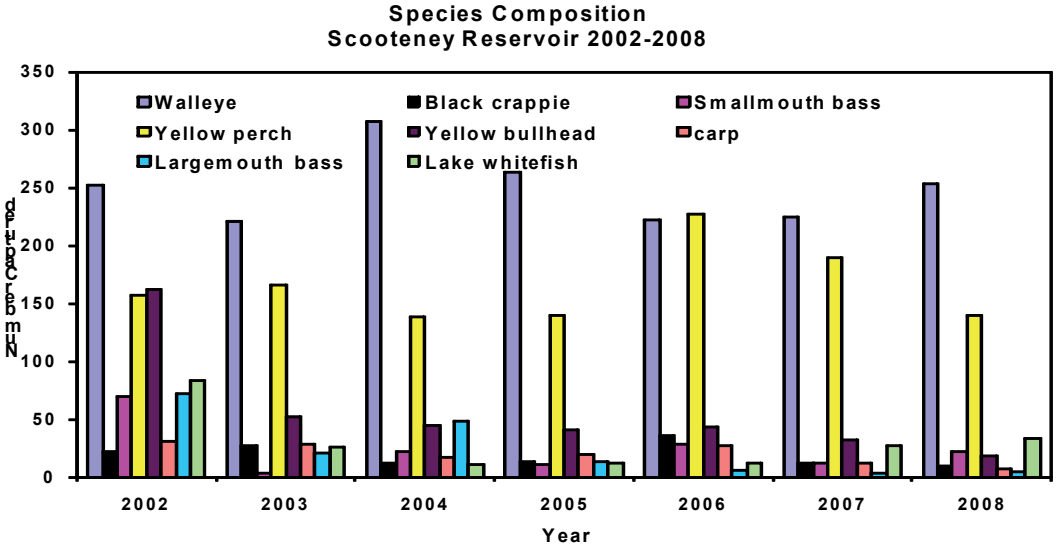
This graph shows the average number of walleye caught per net, regardless of size, for each lake, for each year. We use the geometric mean instead of the arithmetic mean. The geometric mean tends to dampen the effect of outlying high and low values that could bias the true average value. Since 2003, the average number of walleye caught per net in each lake has been relatively consistent. It is however, not unusual to see significant fluctuations in walleye populations. Like other members of the perch family, walleye form very strong year classes and very weak year classes, so it is normal for their populations to cycle up and down over time. Compared to states in the Midwest that have been doing index surveys on their walleye populations for over 40 years our program is still in its initial stages. Continued yearly monitoring will provide more and better data that will clarify the condition and trends of each of our walleye populations and allow for better and better management.



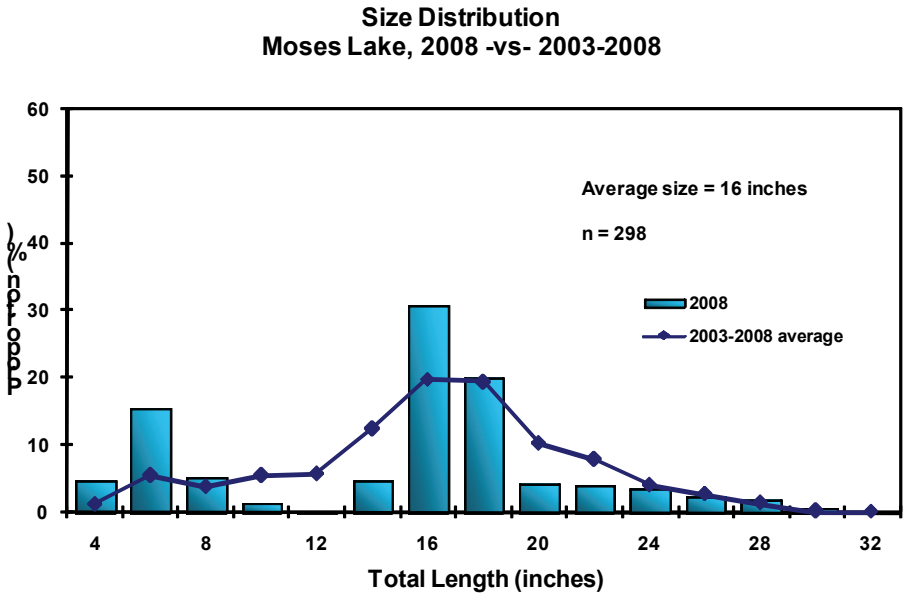


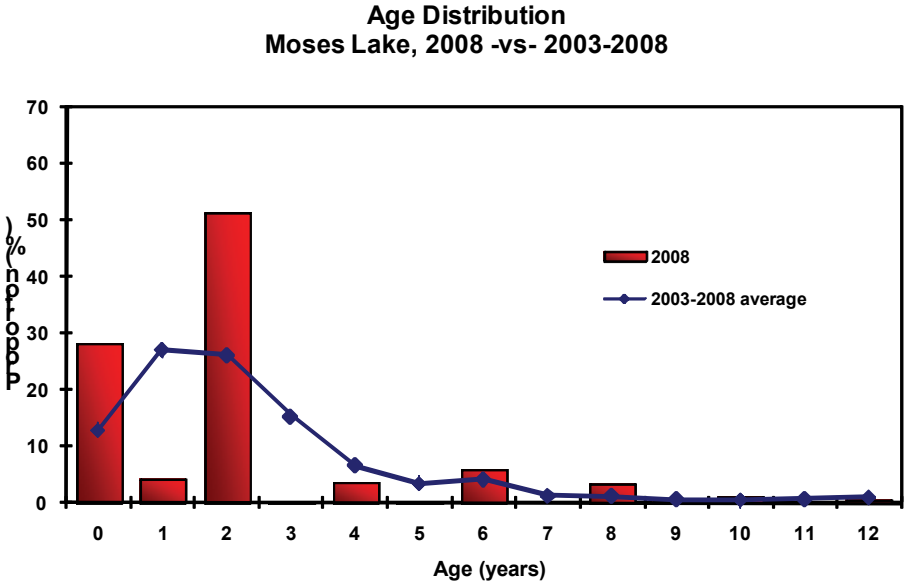
In 2008, the size range of walleye was similar to that observed in 2006 and 2007. The average size walleye remained the same at 14 inches. Catchable-size walleye (>10 inches) ranged from 10 to 29 inches and weighed up to 9.8 pounds. Similar survey results may be due to more stable year-class strength at Scooteney than seen at some of our other waters. Ninety percent of walleye sampled in 2008 were larger than the new 12-inch minimum length limit, which will take effect May 1, 2009. The new limit should provide increased harvest opportunities for anglers at Scooteney Reservoir. The huge one-year-old year-class in 2007 has given rise to the larger-than-normal two-year-old year-class in 2008. This should also help to provide increased opportunity this year.





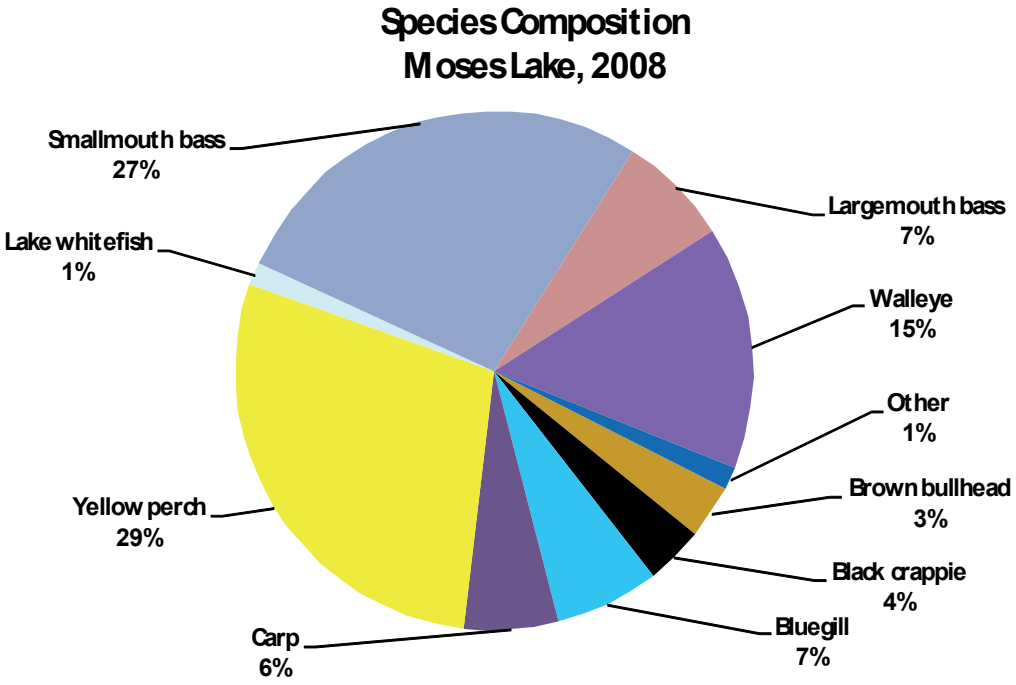
The species composition in Scooteney Reservoir was once again dominated by walleye and yellow perch, but by-catch from the 2008 Scooteney Reservoir FWIN Survey included catchable-size largemouth bass (>8 inches) ranging from 8 to 20 inches, averaging 13 inches and weighing up to 5.3 pounds. Catchable-size smallmouth bass (>7 inches) ranged from 7 to 18 inches, averaged 12 inches and weighed up to 2.6 pounds. Other game fish species available to anglers at Scooteney Reservoir include black crappie, averaging 9 inches, yellow perch, averaging 9 inches, and yellow bullhead catfish, averaging 10 inches. Also present are channel catfish, lake whitefish, pumpkinseed sunfish, and common carp.

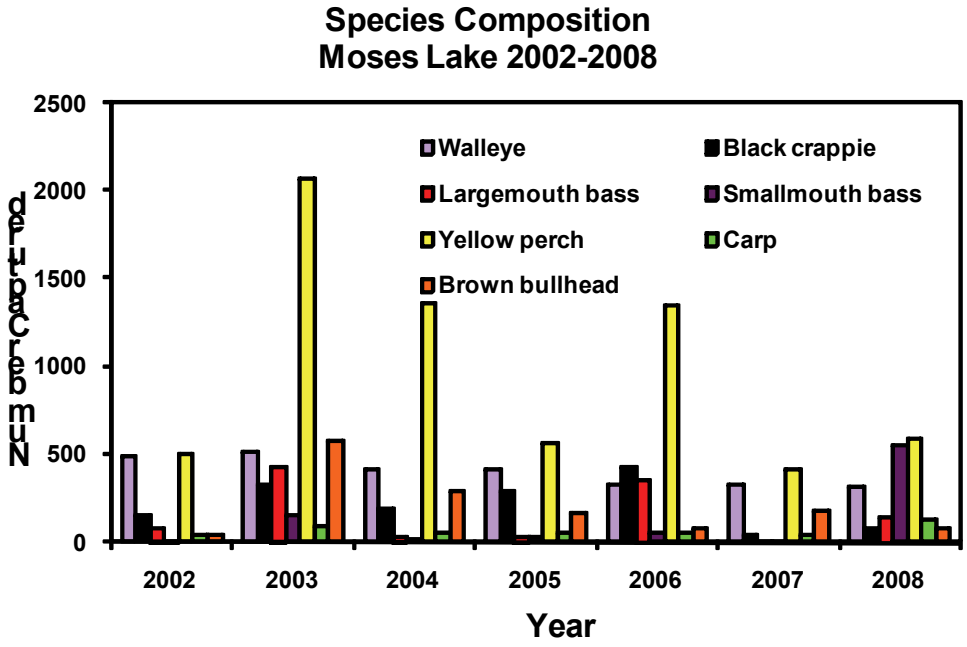




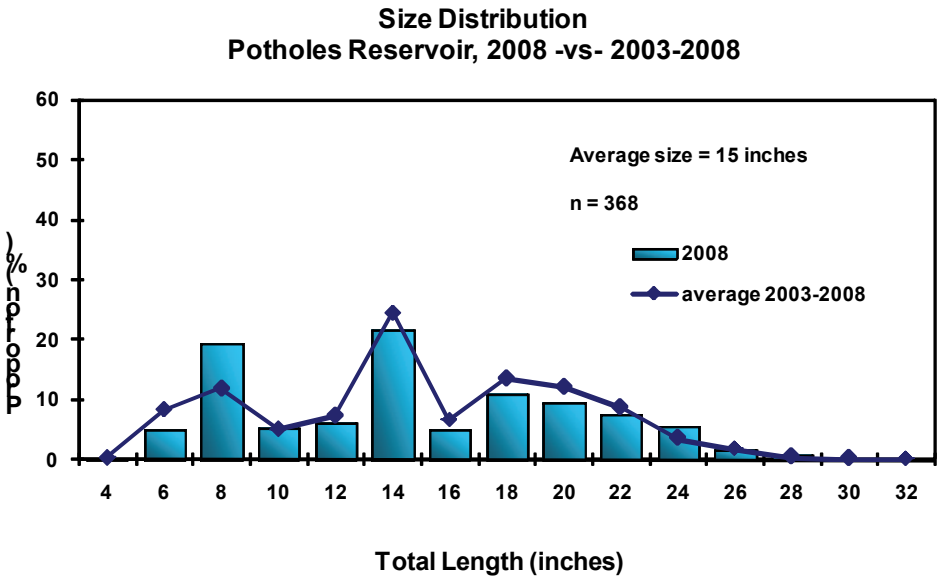
The average size of walleye collected in 2008 remained the same as 2007 but the distribution was more even in 2008. The 2007 distribution was dominated by 14 and 16-inch fish with little else available. In 2008, those two groups have increased in length and there are also a large number of small fish from the "zero" age-class (4-8 inches). The age distribution graph clearly shows these changes. Like Scooteney Reservoir, the huge one-year-old year-class from 2007 has created a larger-than-normal two-year-old year-class in 2008. Also, as in Scooteney, this should mean increased harvest opportunity for anglers this year.

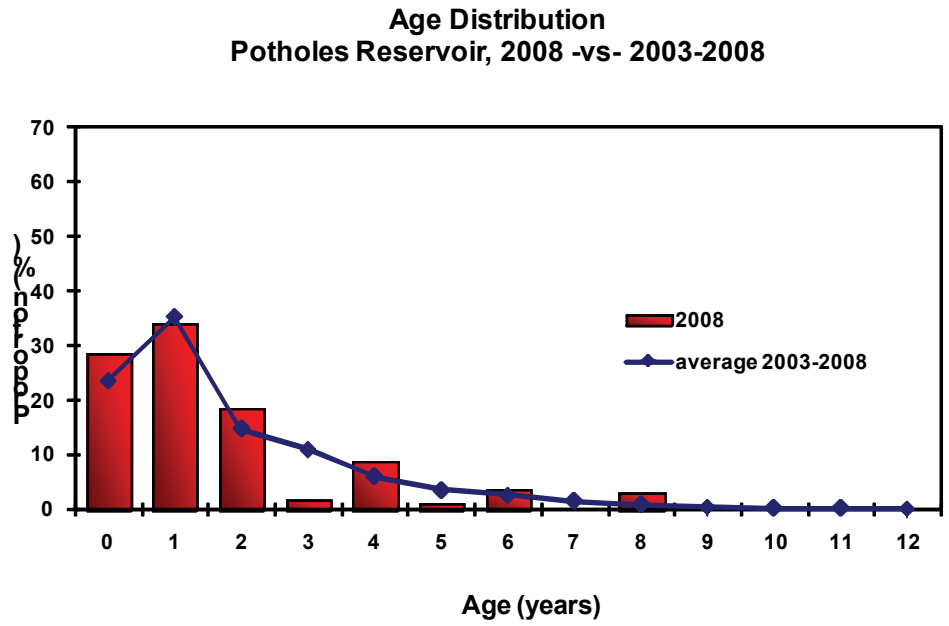
The 2003-2008 average line for both size and age distribution are good examples of what a biologist would expect from a stereotypical healthy walleye population. The size distribution average-line is almost a perfect bell-shaped curve, with the center over the 16-18 inch size range and tapering evenly on both sides. In the age distribution graph, the zeros are at about 12 percent because gill nets do not sample them proportionately so the highest class represented is the one-year-olds with the line slowly tapering off with each successive year-class. One would expect fewer numbers in each older year-class as natural and fishing mortality reduces them at a somewhat constant rate.



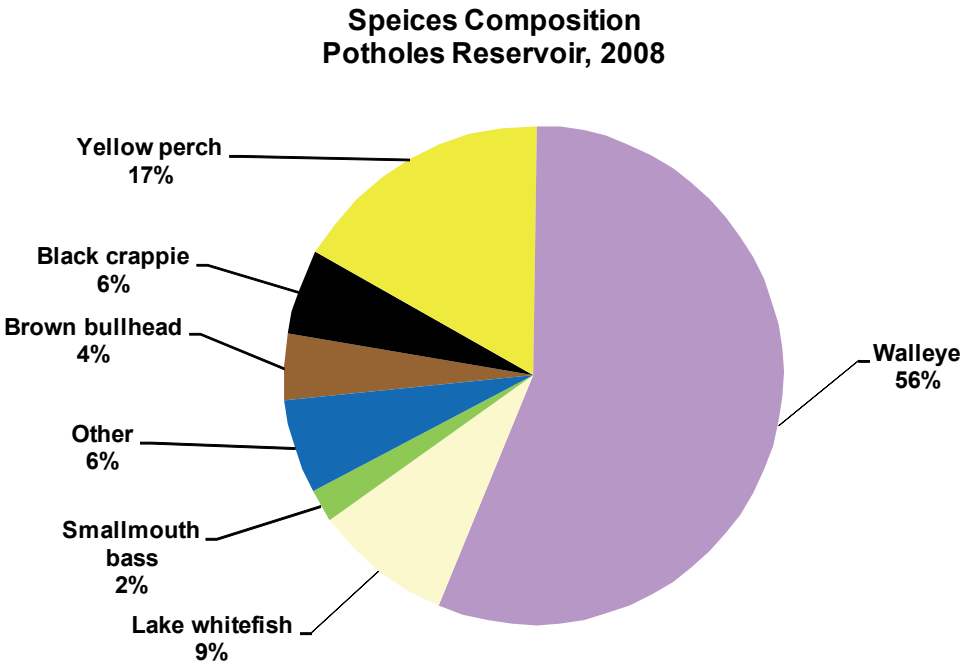


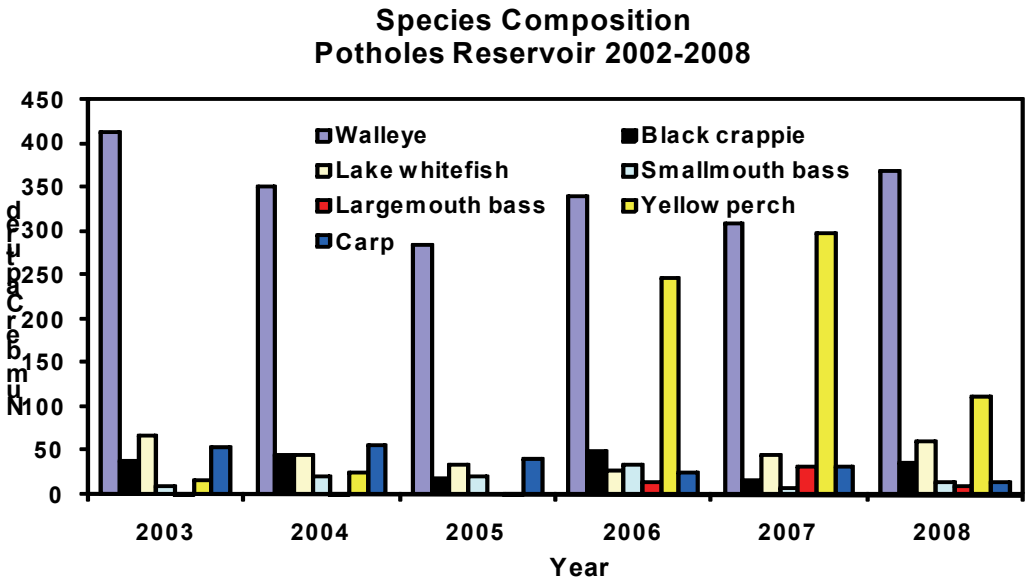
The walleye in Moses Lake ranged from five to 30 inches long and ten pounds. They averaged 16 inches in length and two pounds in weight. In 2008, both yellow perch and smallmouth bass outnumbered walleye but both species averaged only five inches in length. Largemouth bass averaged only six inches, bluegill and black crappie both averaged five inches and brown bullhead averaged 11 inches in length. Other species present in lower numbers include pumpkinseed sunfish, largescale sucker, longnose sucker, common carp, lake whitefish, channel catfish and rainbow trout.



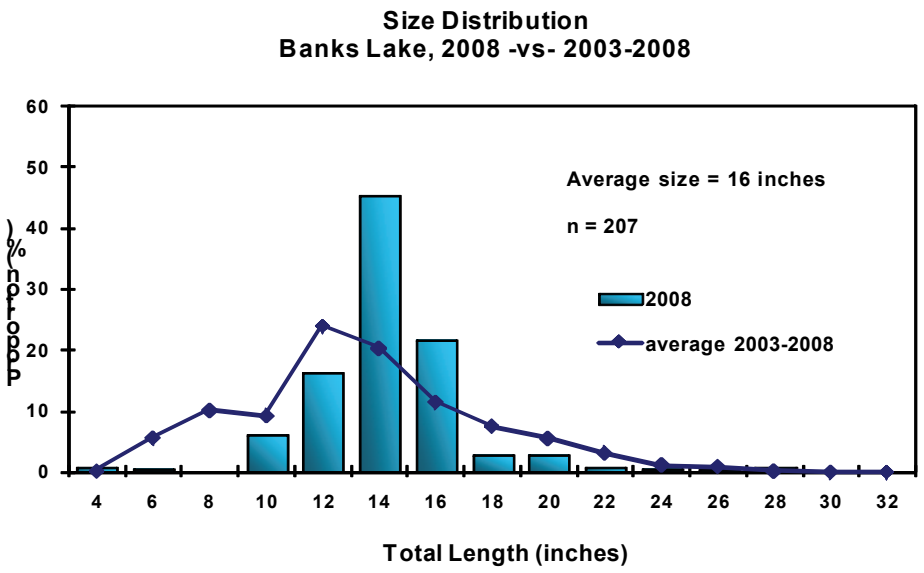


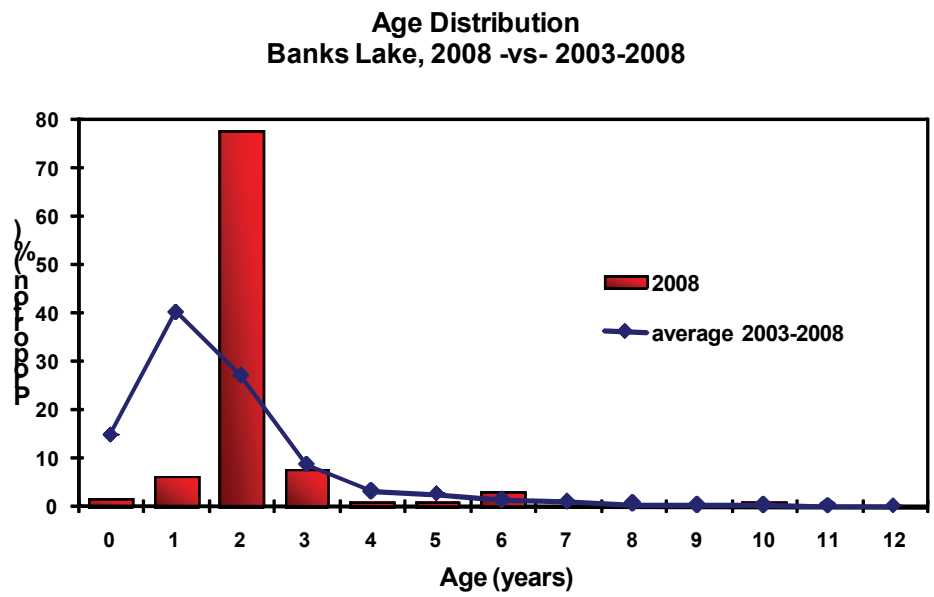
The Potholes walleye size and age structure in 2008 changed little from 2007. The average length was down one inch, but the overall size distribution was more evenly spread among the size ranges. The large one-year-old year-class in 2007 has created a slightly-larger-than-average two-year-old year-class in 2008, which should increase opportunity for anglers to fill their creels.



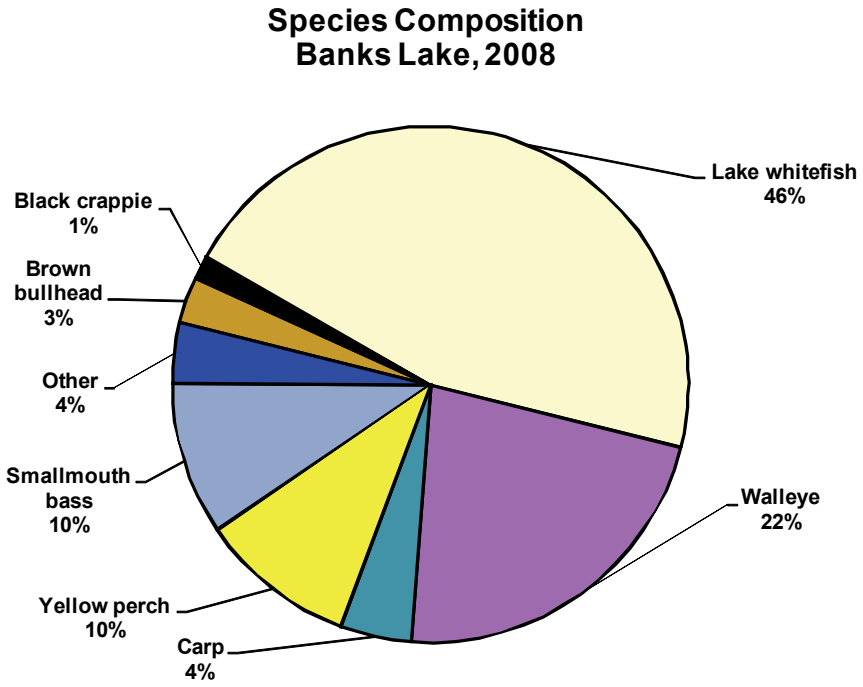


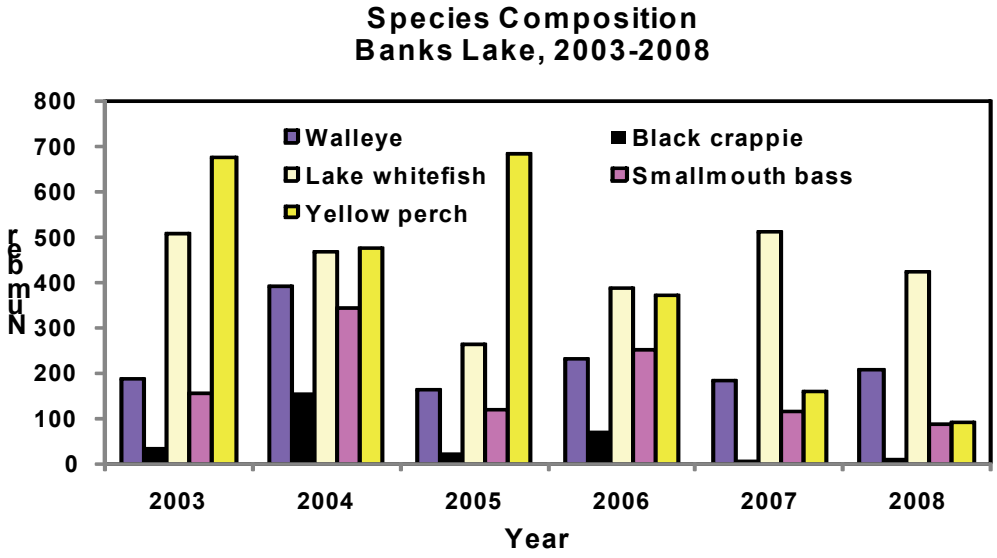
The species composition structure in the Potholes Reservoir 2008 FWIN was dominated by walleye (57% by number). Yellow perch were a distant second at 17% by number and averaging seven inches in length. Other species of note included lake whitefish (averaging 19 inches and four pounds), black crappie (six inches), smallmouth bass (14 inches and two pounds) and largemouth bass (nine inches). Also captured were bluegill, common carp, suckers, rainbow trout and brown bullhead.



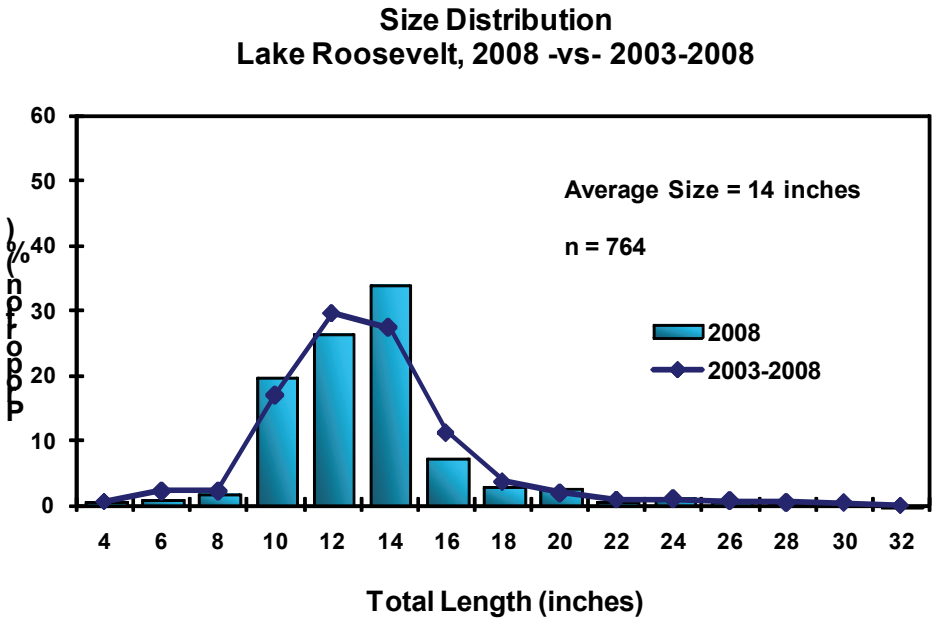


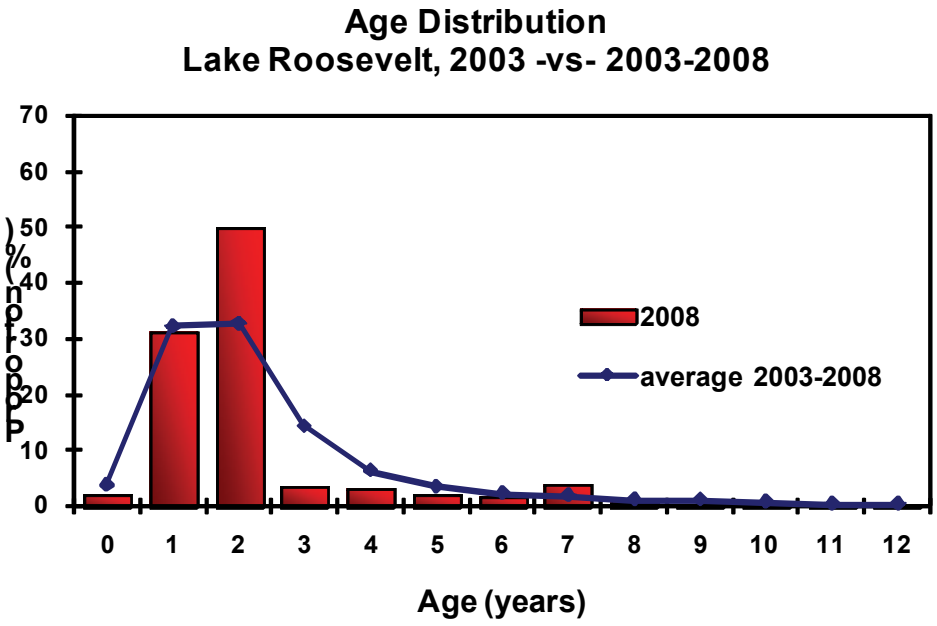
The shape of the Banks Lake size distribution curve from 2008 is very similar to the 2007 curve but it is shifted a little to the right (larger fish). This should provide better opportunity for lager fish than Banks has had for a few years. The reason for this is the unusually large two-year-old year-class this year. Last year those fish were 10-12 inch fish and this year they are 12-16 inches in length.



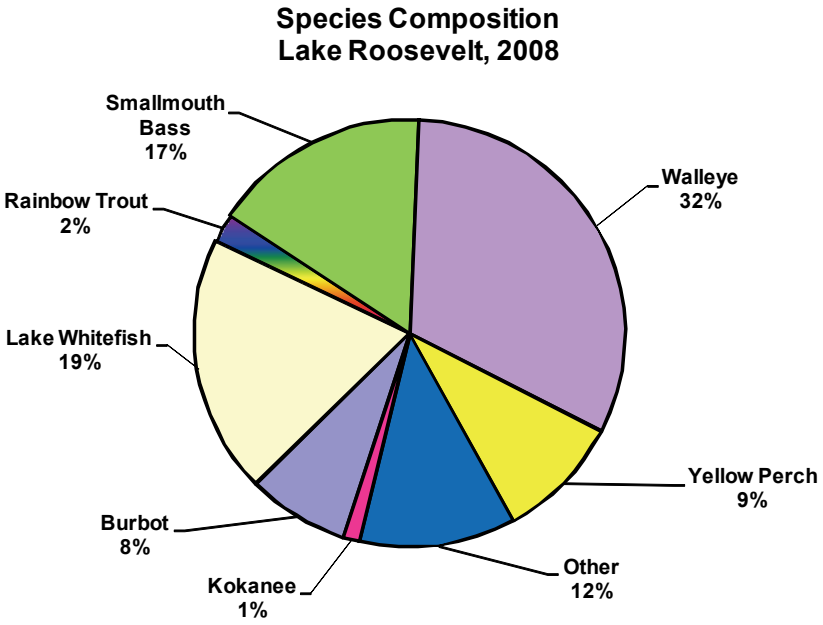


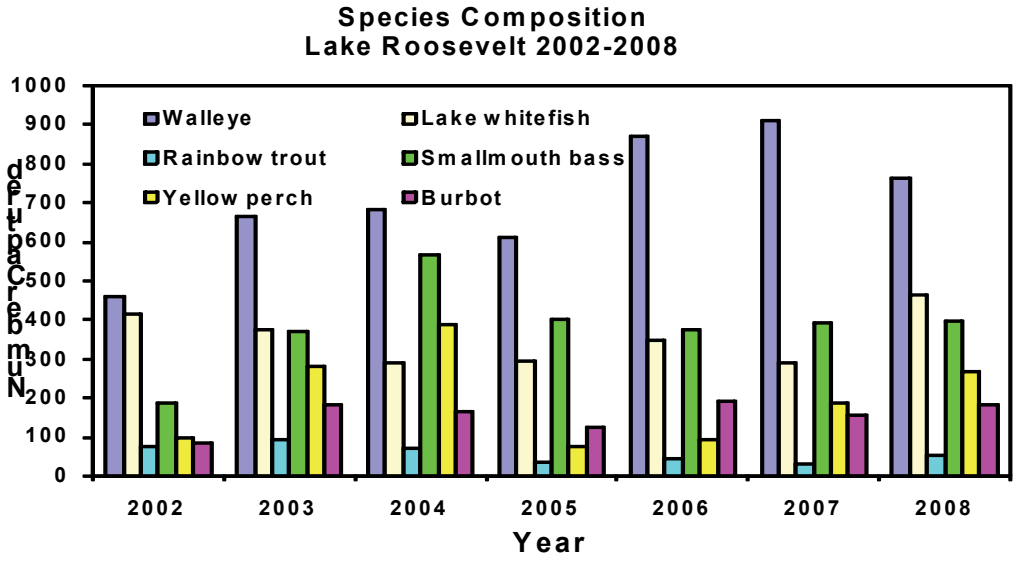
Like the walleye size and ages, the fish community in general has not changed much in the last year. Similar to the other waters, yellow perch continue to decline in numbers, which is part of the normal cycle for that species. Black crappie averaged eight inches, kokanee averaged 18 inches and two pounds, smallmouth bass averaged 13 inches and 1.3 pounds, lake whitefish averaged 19 inches and 2.6 pounds, and yellow perch averaged nine inches. Other species present in lower numbers included brown and yellow bullhead, common carp, largemouth bass and burbot.



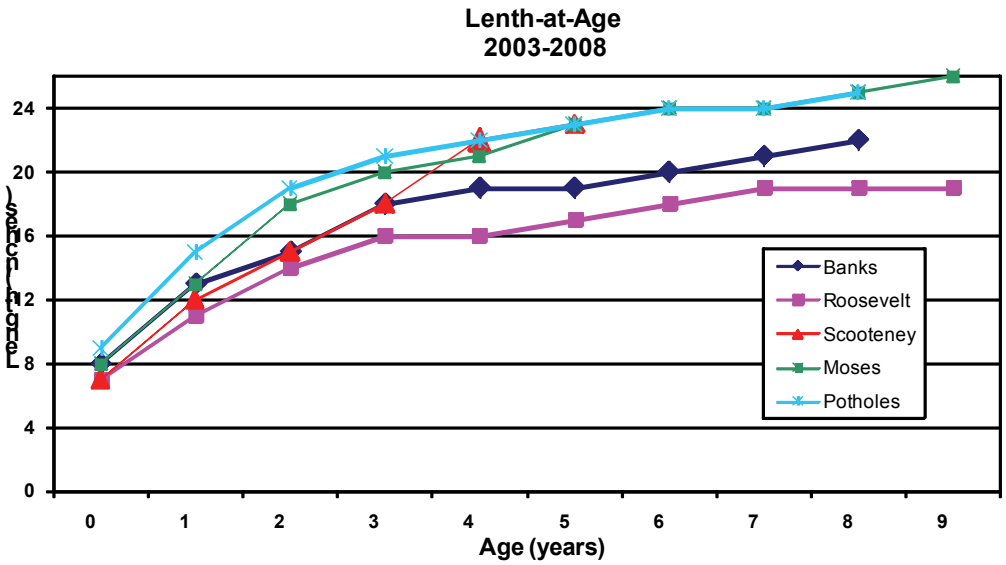


In the fall of 2008, Lake Roosevelt catchable-size walleye (>10 inches) ranged in length from 10 to 33 inches and averaged 14 inches, which is similar to previous surveys. The largest walleye sampled weighed 10 pounds. The overall distribution of sizes remains wide. A very strong two-year-old year-class of walleye averaging 14 inches indicates strong recruitment of harvestable-size fish to the fishery.





In addition to walleye, other species of interest to anglers included smallmouth bass ranging from 7 to 19 inches, averaging 11 inches and 0.9 pounds; rainbow trout ranged from 10 to 24 inches, and averaged 16 inches and 1.8 pounds. The largest rainbow sampled weighed 5.6 pounds. Kokanee averaged 14 inches and 1.1 pounds, while lake whitefish averaged 18 inches and 3.1 pounds. Yellow perch averaged 5 inches. Other species sampled in lower numbers included largescale sucker, longnose sucker, northern pikeminnow, common carp, peamouth, white sturgeon, mountain whitefish, black crappie and brown bullhead.



This graph shows growth and accumulated average "length-at-age" information for all five lakes that we FWIN surveyed in 2008. The "zeros" or zero-age walleye are of course not hatched at a length of eight inches. They hatch in the spring but attain a length of eight inches by the time we do our surveys in the fall. They are considered as having an age of "zero" until their first January 1, at which time they are considered "ones", until the next January 1, which to fish biologists, is the birthday of all fish.

Due to low primary productivity and a narrow forage base, not surprisingly, Lake Roosevelt has the slowest growth of the five lakes and the smallest asymptotic length, or average maximum length. Certain individual walleye grow larger than 19-20 inches because of their aggressiveness and superior ability to forage, but the average Roosevelt walleye stops growing in length at about that size.

Also not surprisingly, Potholes Reservoir and Moses Lake have the fastest growth rates and attain the greatest asymptotic length. Both Potholes and Moses Lake are relatively shallow, which allows ample light penetration to the bottom and both have high nutrient loads and primary productivity which trickles up the food web to create a more robust fish community.

Banks Lake and Scooteney Reservoir have the "medium" growth rates in our state with their asymptotic curves topping out at 20 inches each.

For questions, comments or additional information on this or other FWIN reports or surveys, please contact Bruce Bolding in the Olympia WDFW office: telephone at 360-902-8417 or email at Bruce.Bolding@dfw.wa.gov