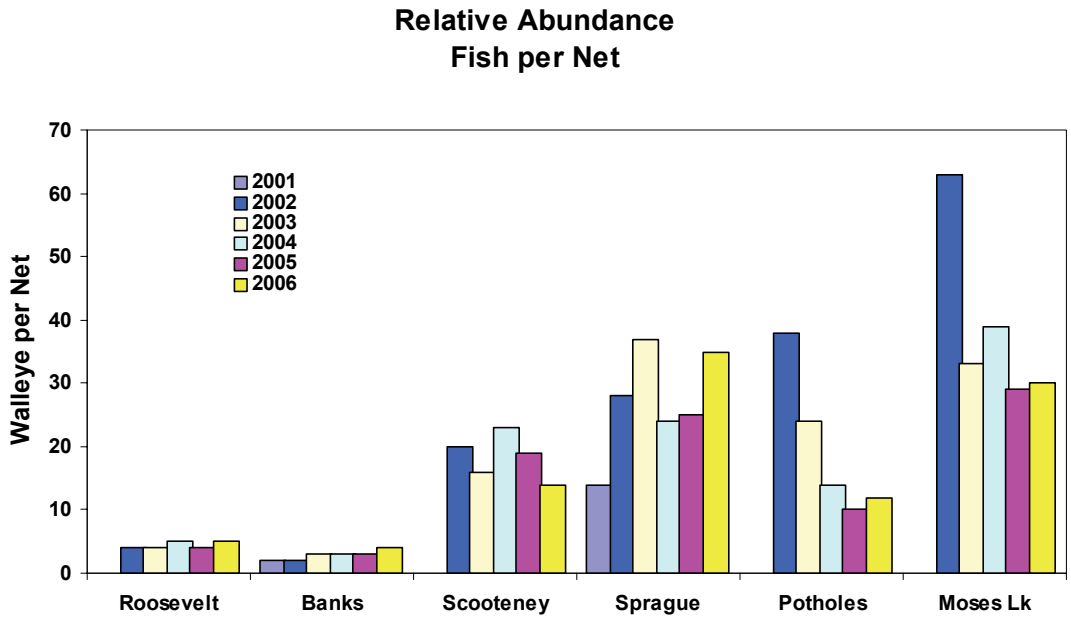
Results of the 2006 WDFW
Fall Walleye Index Netting (FWIN) Surveys
(Yearly Surveys to Improve Management of Washington's Walleye Populations)

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

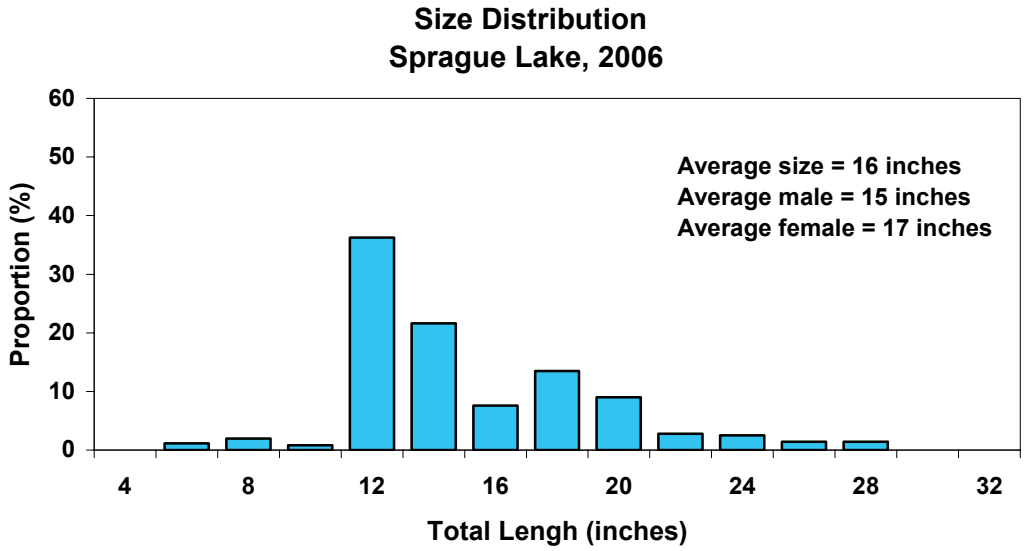
This report documents the results of the 2006 fall walleye index netting (FWIN) surveys in six eastern Washington waters (Figure 1). For more information on Washington walleye biology and distribution and the FWIN sampling protocol, please see the 2005 report.

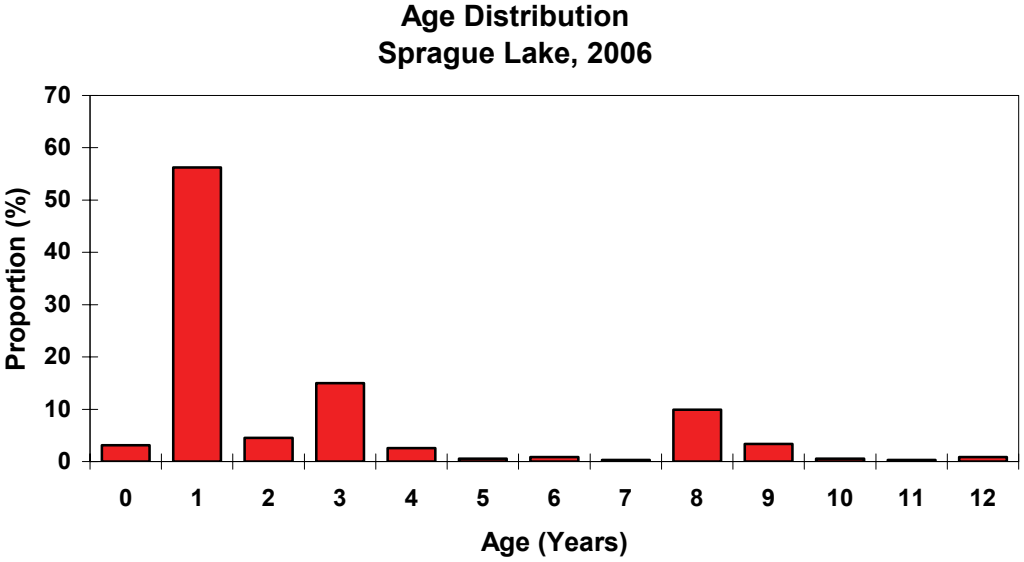
The results from our 2006 surveys are shown in the form of graphs followed by a brief explanation of each. The **relative abundance** graph (the geometric average number of walleye per net) compares values from all lakes for all years sampled, on a single graph. After that, there are four individual 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 for 2006**, (the percentage of each different species captured in our survey, for each lake) and **species composition bar graph over time,** which shows the general species composition from 2002 – 2006 for each lake. **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 in the fall.**

Figure 1. Locations of the six lakes sampled by WDFW for the 2006 Fall Walleye Index Netting surveys.

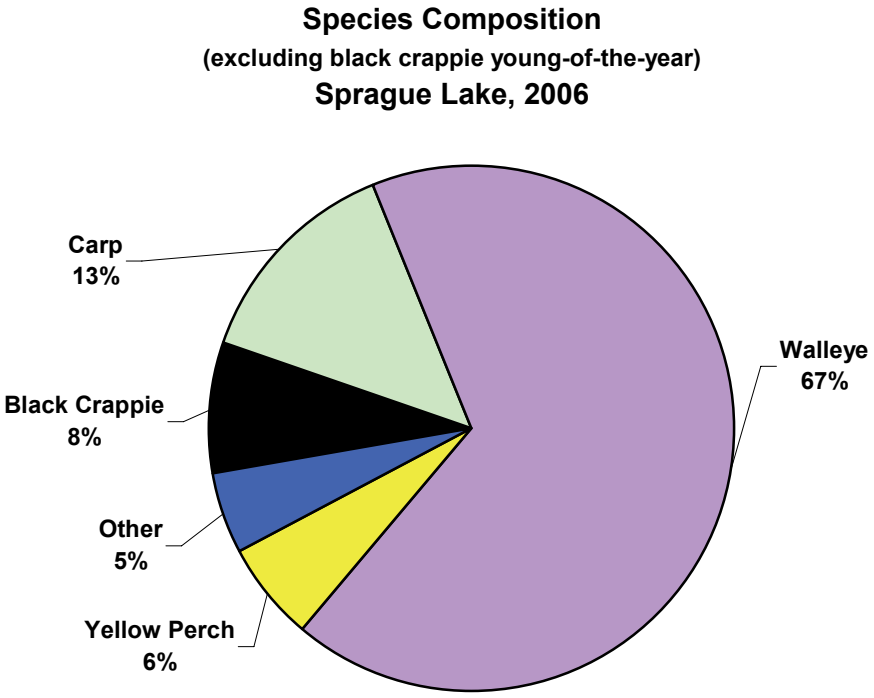


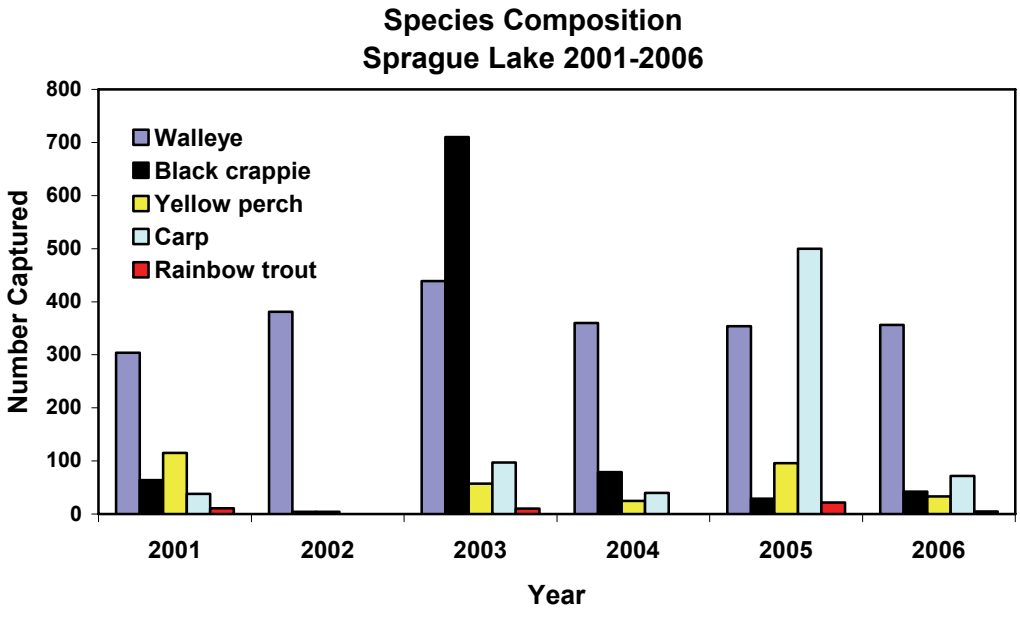
This graph simply shows the average number of walleye caught per net, regardless of size, for each lake, for each year. With the exception of Potholes Reservoir and Moses Lake, between 2002 and 2003, all the lakes have maintained relatively similar catch-per-effort values from 2001 to 2006. The drop in catch for Moses Lake between the first and second years may be explained by a slight change in the way the nets were set. Potholes Reservoir however has decreased the second, third and fourth year, but increased in 2006. As with Moses Lake, the decrease in 2003 could be attributed to the change in the way the nets were set but not for the next two years. The true reason may simply be natural changes in year class strength. From 2004 to 2006, the values were 14, 10 and 12 respectively (relatively insignificant changes). 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. Our sampling effort is still in its initial stages compared to states in the Midwest that have been doing index surveys on their walleye populations for over 40 years. Continued monitoring in Washington will provide more and better data that will clarify the condition and trends of each of our walleye populations.





The size distribution of walleye sampled from Sprague Lake in Fall 2006 shows a wide range of sizes, with the majority (96%) greater than minimum legal size (12 inches) and many (38%) greater than 16 inches. The overall average size was 16 inches, which is 2 inches larger than the 2005 average. The increase in average size is due to the growth of the exceptionally large 2005 year-class, now age-one, and the small number of 2006 young-of-the-year. The large 2005 year-class should provide good angling opportunities for walleye throughout 2007. Additionally, abundant 3, 4, 8 and 9 year-old fish over 18 inches will be available to anglers. The largest walleye sampled was 29" and weighed over 10 pounds.


Species Composition
(excluding black crappie young-of-the-year)
Sprague Lake, 2006
Carp
13%
Walleye
67%
Black Crappie
8%
Other
5%
Yellow Perch
6%

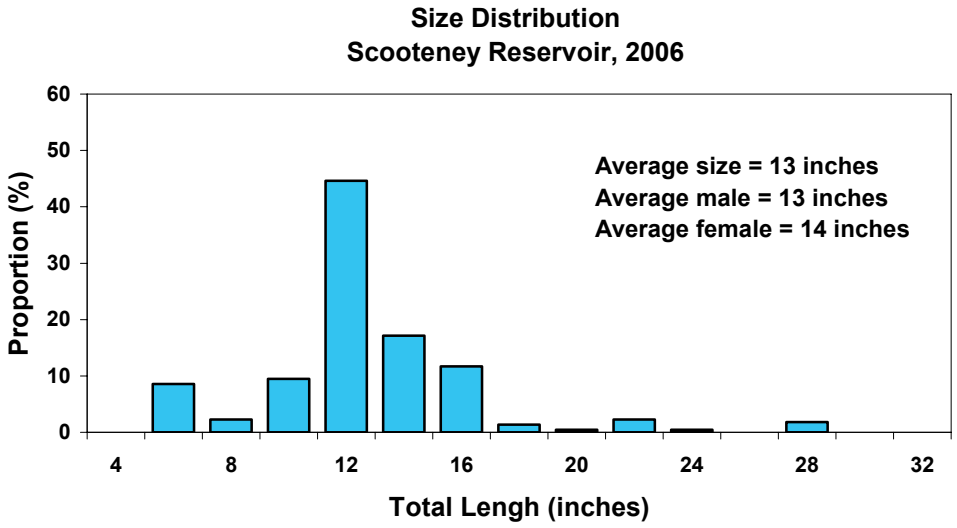

Species Composition
Sprague Lake 2001-2006
Number Captured
800
700
600
500
400
300
200
100
0
Walleye
Black crappie
Yellow perch
Carp
Rainbow trout
2001
2002
2003
2004
2005
2006
Year

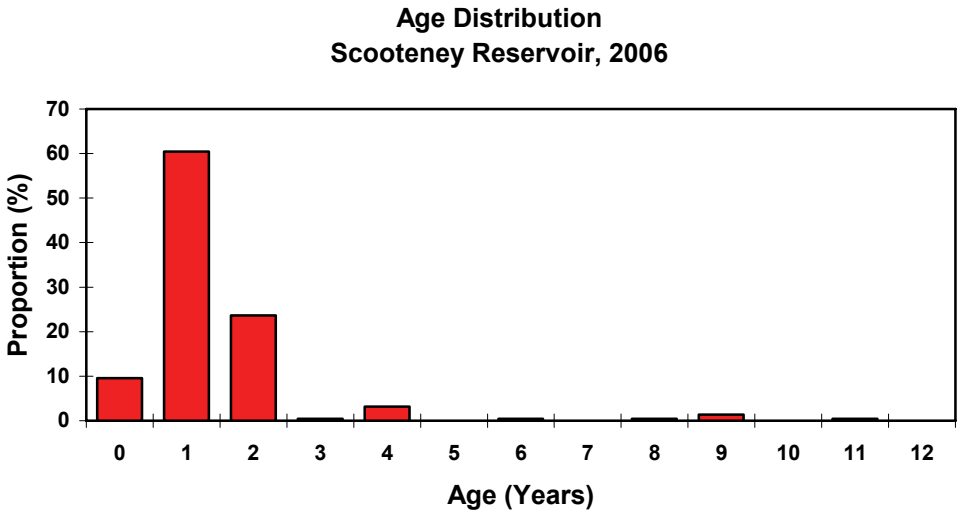
The species composition of all fish sampled from the Sprague Lake fish community in 2006 showed three major differences from 2005: 1) a doubling of the proportion of walleye; 2) far fewer carp (after the unusually large and visible 2005 year-class); and 3) an exceptionally large 2006 year-class of black crappie (excluded from the above pie and bar graphs). The large 2006 year-class of crappie should provide additional angling opportunities in the coming years, as well as serving as forage for walleye and other predators in Sprague Lake.

Other species sampled were similar to those observed in past years. Catchable-size black crappie (>5 inches) ranged in length from 5 to 11 inches and averaged 6 inches long. Catchable-size yellow perch (>5 inches) ranged in length from 5 to 12 inches and averaged 8 inches long. The few largemouth and smallmouth bass sampled averaged 9 inches and 14 inches respectively. Rainbow trout averaged 17 inches and carp averaged 16 inches. Brown Bullhead averaged 10 inches in length. No bluegill or channel catfish were captured in this year's survey.

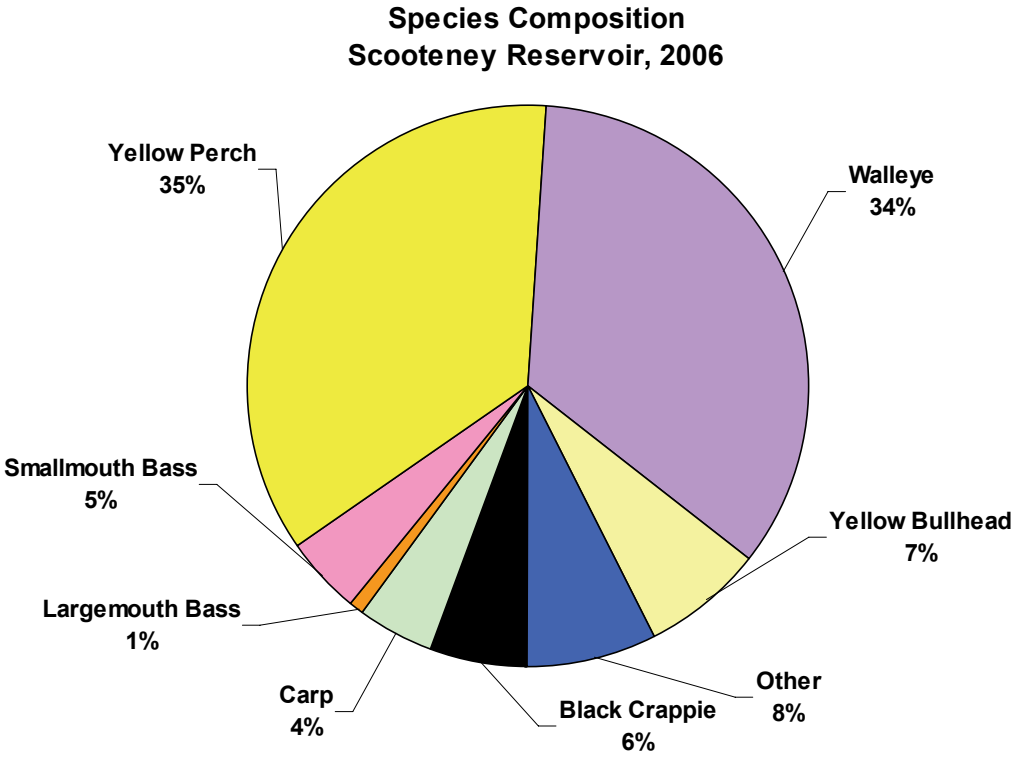
"Catchable-size" or "stock-size" fish in this report refers to those fish entering the fishery but not necessarily the legal minimum size. For example, a stock-size walleye is ten inches in length but the legal minimum size in 2006 was 12 inches in Sprague Lake and 16 inches in Scooteney Reservoir.

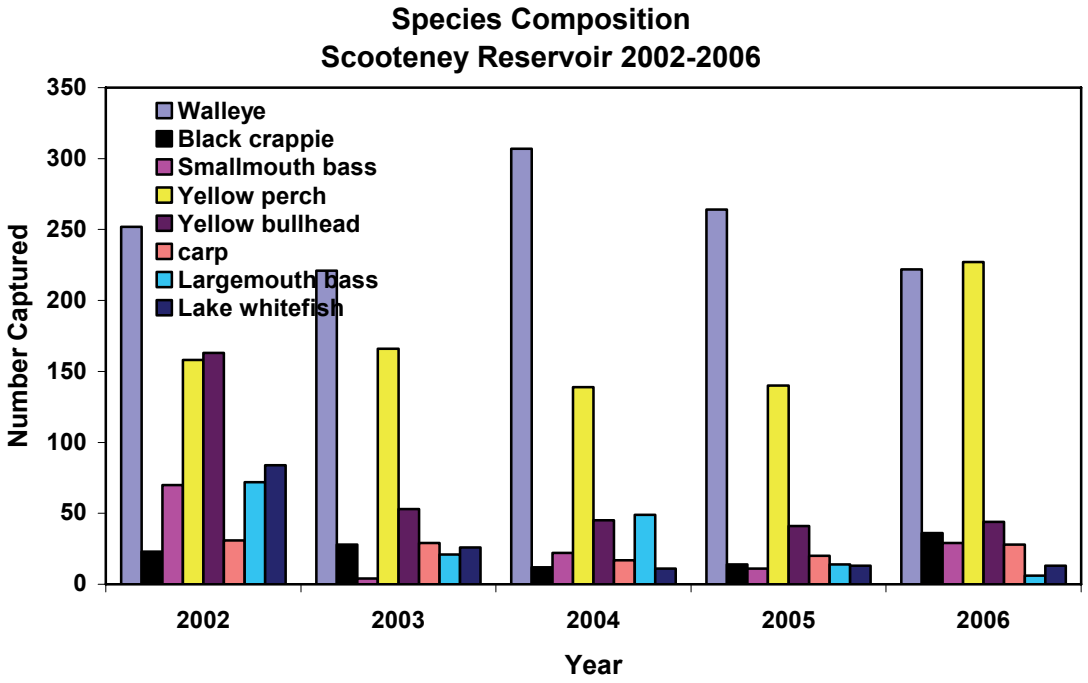
The species composition bar graph shows the predominant species in Sprague Lake over the last six years has been walleye. The yellow perch and black crappie shown in this graph are the numbers over four inches in length.





In 2006, the size range of walleye was similar to that observed in 2005. 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 pounds. Similar survey results may be due to more consistent year-class strength at Scooteney than is seen in some of our other waters.

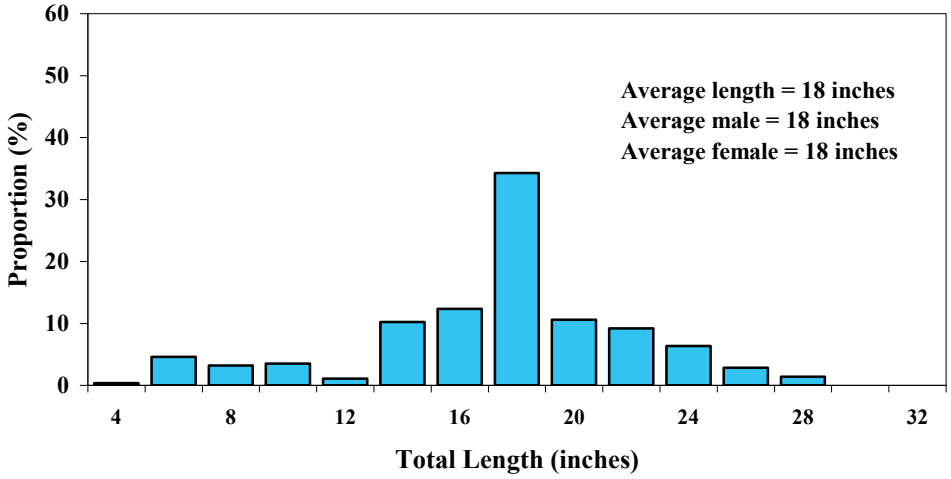

Species Composition
Scooteney Reservoir, 2006
Yellow Perch
35%
Walleye
34%
Smallmouth Bass
5%
Yellow Bullhead
7%
Largemouth Bass
1%
Carp
4%
Black Crappie
6%
Other
8%


Species Composition
Scooteney Reservoir 2002-2006
Number Captured
350
300
250
200
150
100
50
0
Walleye
Black crappie
Smallmouth bass
Yellow perch
Yellow bullhead
carp
Largemouth bass
Lake whitefish
2002
2003
2004
2005
2006
Year

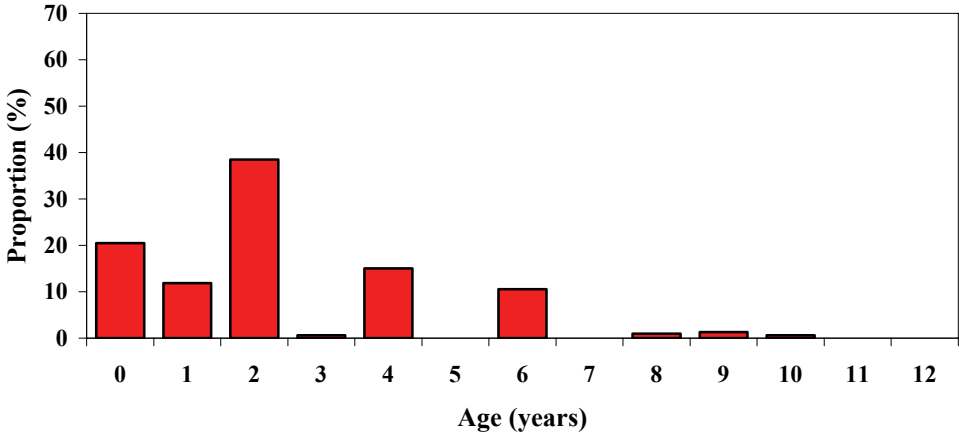
In the fall of 2006, Scooteney Reservoir catchable-size largemouth bass (>8 inches) averaged 9 inches, whereas, catchable-size smallmouth bass (>7 inches) ranged from 7 to 18 inches, averaged 14 inches, and weighed up to 3 pounds. Several other game fish species are also available to anglers at Scooteney Reservoir including black crappie, averaging 7.5 inches, yellow perch, averaging 9 inches, and channel catfish averaging 23 inches. Also present are lake whitefish (which can be very good smoked), pumpkinseed sunfish, yellow bullhead, and common carp.

The species composition bar graph from 2002 – 2006 shows the predominant species present as walleye and yellow perch, but also shows the fact that Scooteney Reservoir has a very diverse fish community. The yellow perch in this graph are those over four inches.

Size Distribution
Moses Lake, 2006

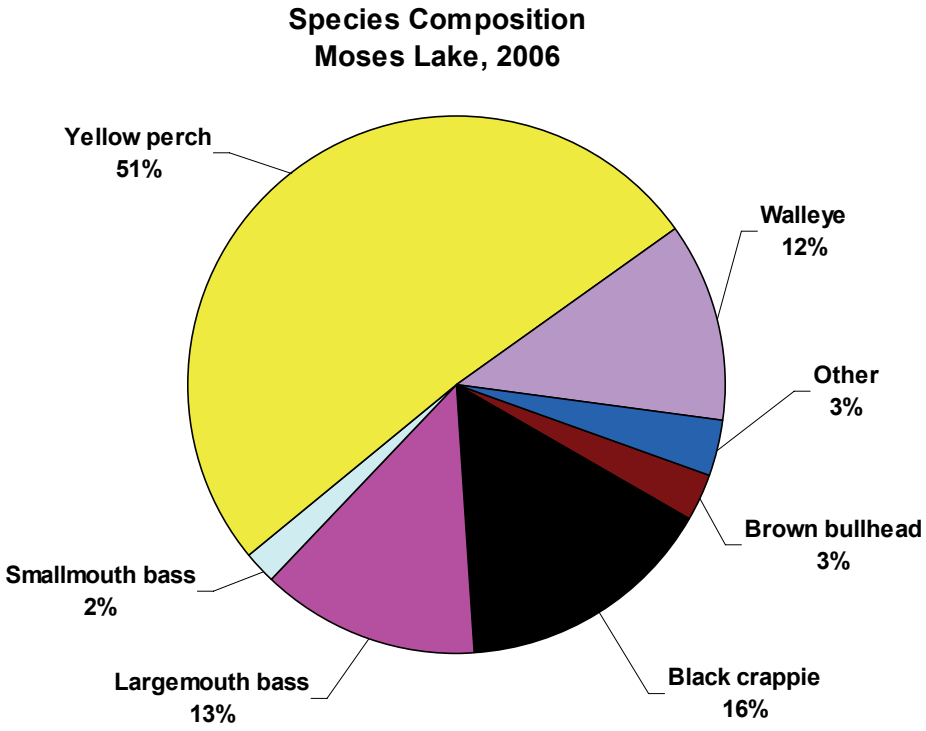


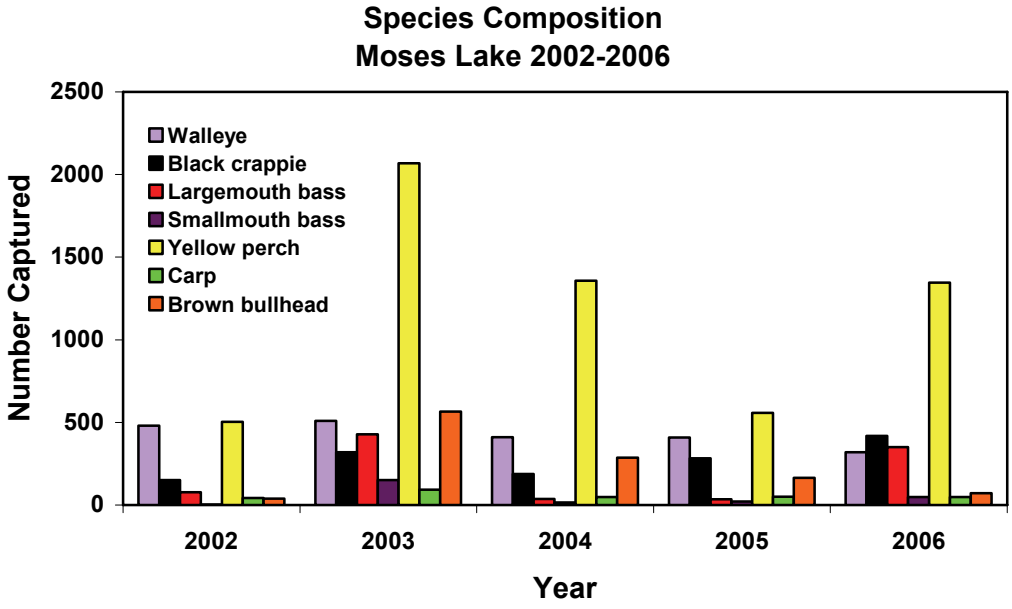
Age Distribution
Moses Lake, 2006



The average size of walleye collected in 2006 increased by one inch over 2005. Size distribution of walleye collected from Moses Lake during 2006 shows most walleye ranged in length from 14 to 22 inches. Walleye ranging from 13 to 17 inch range were primarily 1 year-old fish and were recruited to harvestable size during 2006 under the new walleye regulation (12 inch minimum/8 fish). The number of harvestable size walleye collected in 2006 increased due to the regulation change. This population should

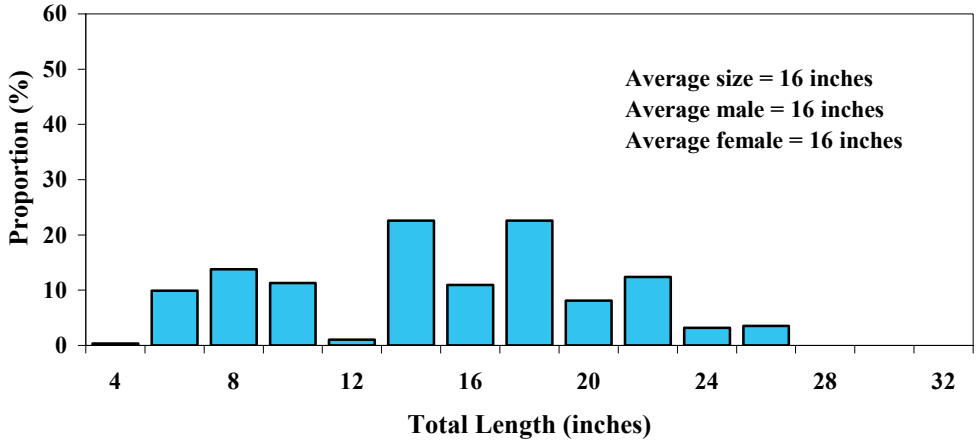
provide anglers with a wide range of harvestable fish in 2007. The majority of walleye collected during 2006 were age-0 and 2 so plentiful angling opportunities should continue in the future. The lower number of age-0 walleye in our samples does not generate concern since small walleye are not often collected effectively in gill nets.



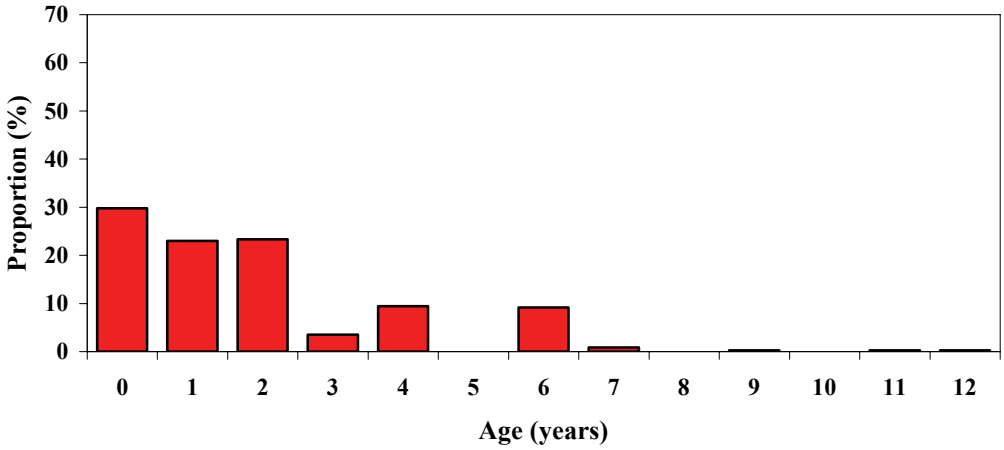


The walleye in Moses Lake ranged from five to 30 inches long, averaging 17 inches in length and two pounds in weight. There is once again, a variety of angling opportunities other than walleye. As in 2005, yellow perch far outnumber all other fish in the reservoir and have increased in average length to seven inches (ranging from 4-12 inches). Brown bullhead averaged 11 inches (ranging from 6-16 inches), black crappie averaged only 5 inches (ranging from 3-9 inches) and carp were averaging 24 inches and 7 pounds (ranging in length from 7-32 inches). Other species present in lower numbers include bluegill, lake whitefish, suckers, largemouth and smallmouth bass and rainbow trout. The bar graph shows the consistently large number of yellow perch present in Moses Lake over the last five years. The numbers shown in this graph for both yellow perch and black crappie are those over four inches in length.

Size Distribution
Potholes Reservoir, 2006



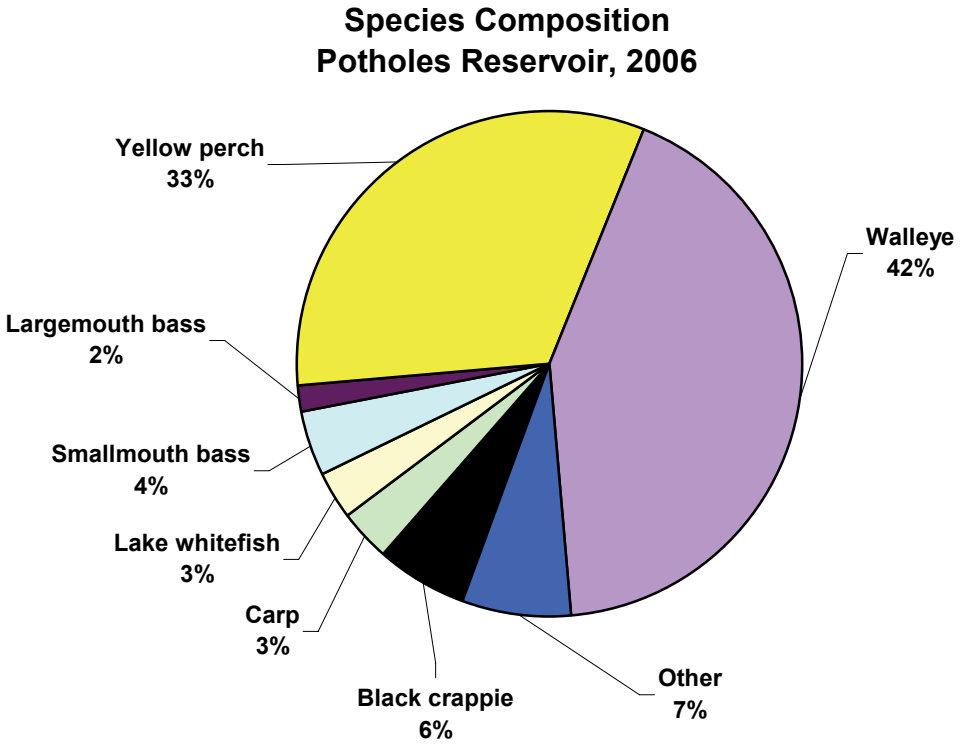
Age Distribution
Potholes Reservoir, 2006

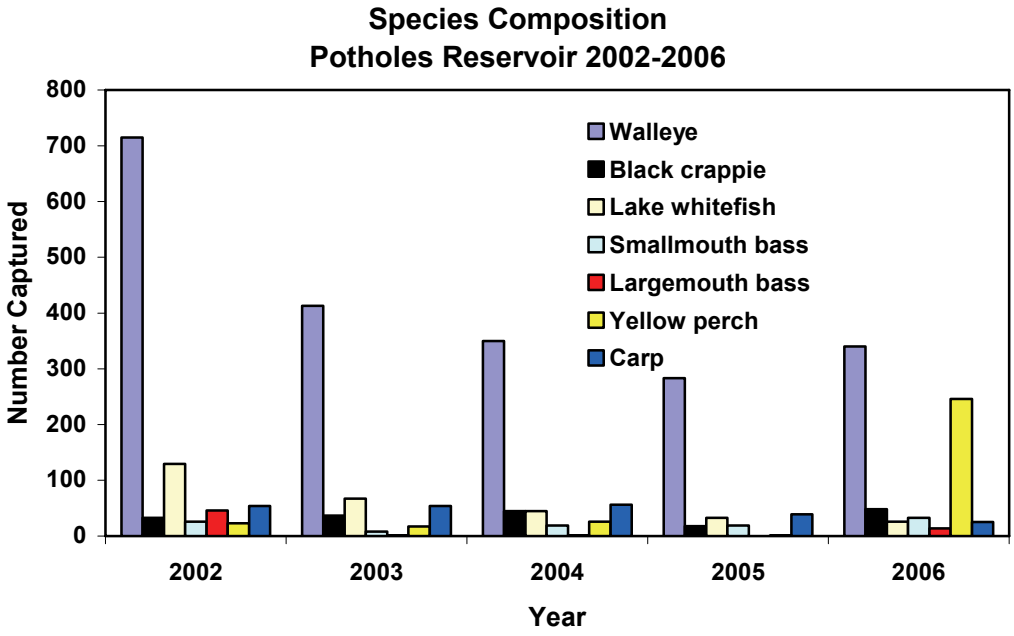


Size distribution of walleye collected from Potholes Reservoir during 2006 shows fish represented well in most ranges. Walleye in the 300 mm length frequency were low, likely a result of the rapid growth of age 1 walleye growing out of the range of overlap with age 0 walleye. Age data shows age-5 walleye as absent from samples, and was expected as this year class has been low or absent in previous surveys. A new walleye harvest regulation was implemented in May 2006 (12 inch minimum, 8 fish), and length frequencies of walleye collected during 2006 indicate 70 percent of walleye in samples were of harvestable size. Age 0 walleye are typically excluded from analyses due to high

variations in growth, and when excluded, 100 percent of age 1 and older walleye were of harvestable size.

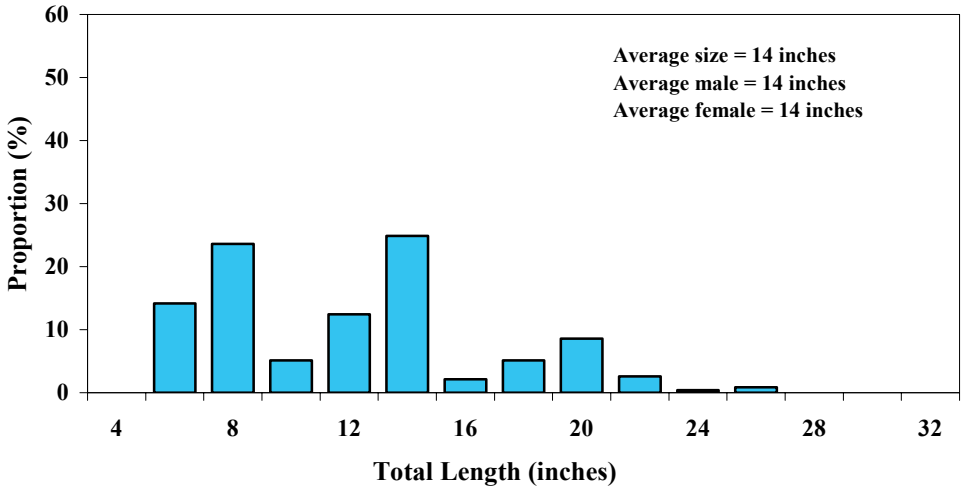
Age distribution of walleye from Potholes Reservoir during 2006 shows our sample was comprised primarily of ages 0 to 2 year old fish. Age-5, 8, and 12 walleye were absent from samples during 2006. The current age-5 walleye were also absent as age-4, 3, and 2 fish, and were represented in low numbers at age-1 during 2002. The proportion of age-0 to 2 walleye in samples was highest, relative to the numbers of older age walleye, though the number of walleye in each age class was only average when compared to previous years. The strength of age-0, 1, and 2 year-old walleye appears strongest, and the number of harvestable size walleye is expected to remain constant in the near future



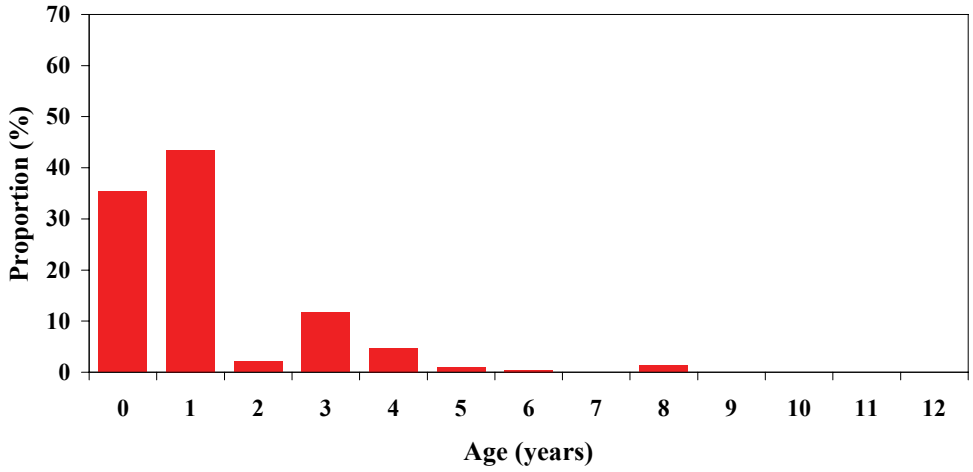


In the 2006 FWIN survey, 75% of all the fish captured in Potholes were walleye and yellow perch. This differed from previous years in that before 2006, walleye alone far outnumbered all other species. The fish community in Potholes is diverse, with 13 different species being captured. Yellow perch averaged six inches in length, black crappie averaged seven inches, lake whitefish averaged 23 inches and smallmouth bass averaged 13 inches with the largest being 18 inches and three pounds. Other species present in smaller numbers include brown bullhead, bluegill, channel catfish, carp, yellow bullhead and burbot. The bar graph shows the disproportionate number of walleye over time, as compared to the other species present in the reservoir. Yellow perch shown in this graph are those over four inches in length.

Size Distribution
Banks Lake, 2006



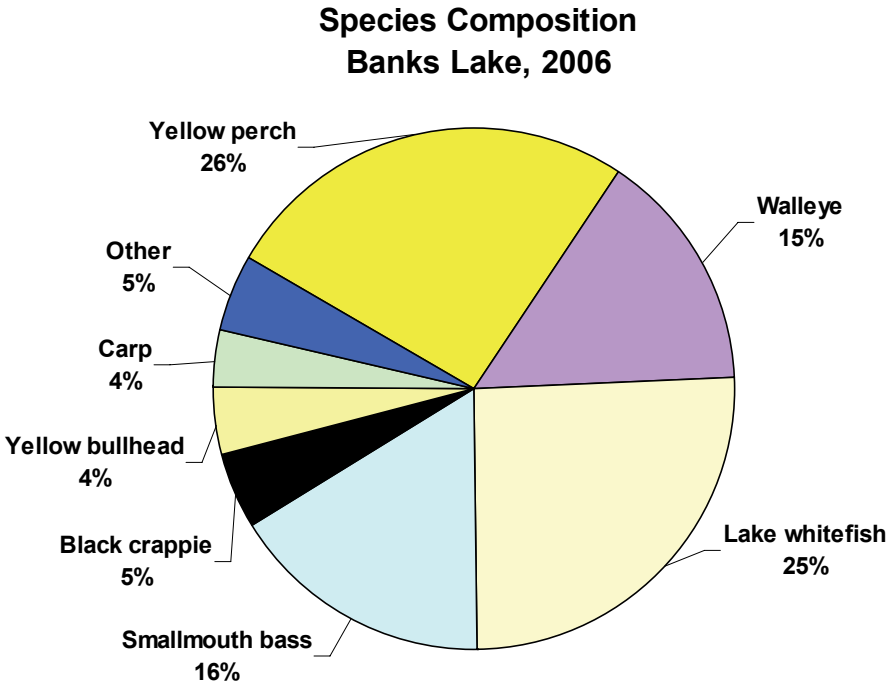
Age Distribution
Banks Lake, 2006

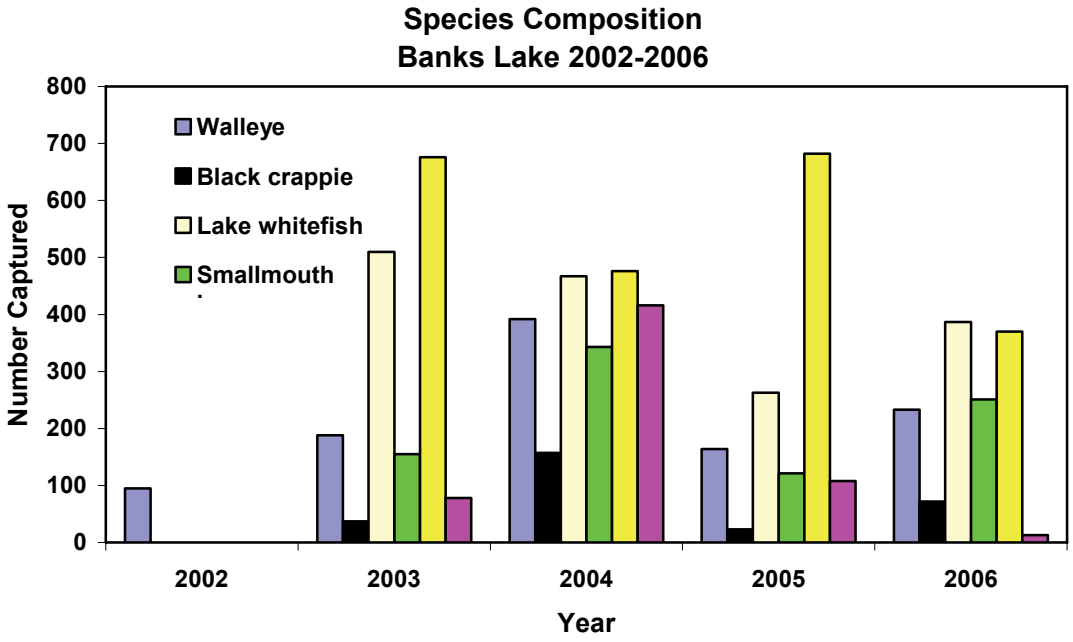


Size distribution of walleye collected from Banks Lake during 2006 was bimodal, showing fish represented best in the 8 to 10 inch and 14 to 16 inch range, resulting from the strong 0 and 1 year-old age classes. Smaller, young-of-the-year walleye were represented well, and may result in higher recruitment to the harvestable size in approximately two years. Length frequencies of walleye collected during 2006 indicate

most walleye were sub-legal; only 22 percent were of harvestable size (>16 inches, 406mm). Age-0 walleye (young-of-the-year) are typically excluded from analyses due to high variations in growth, and when excluded, only 34 percent of age-1 and older walleye were of harvestable size.

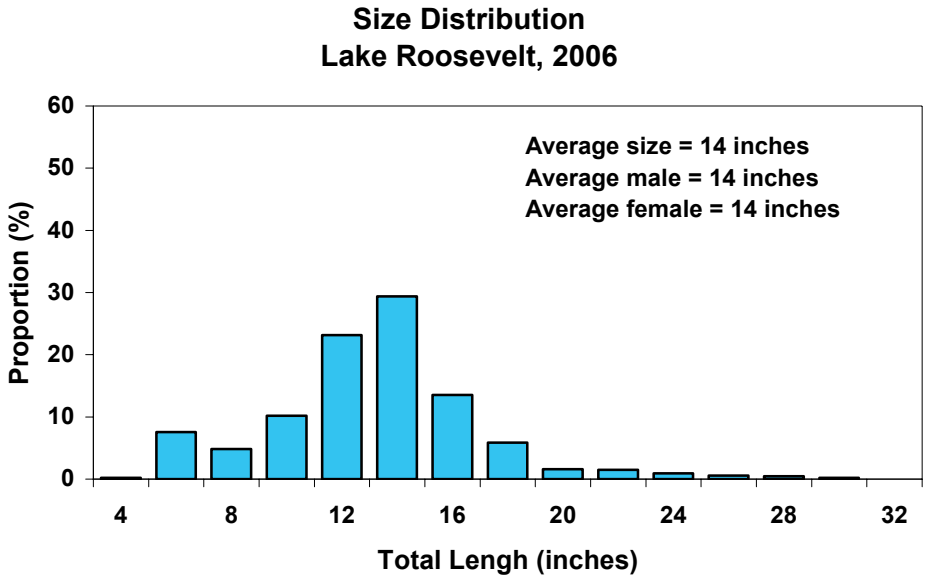
Age distribution of walleye from Banks Lake during 2006 shows samples comprised primarily of age-0, 1, and 3 fish; age-0 represented 35 percent of the total sample. The few age-2 walleye was consistent with low numbers of age-1 fish in 2005.

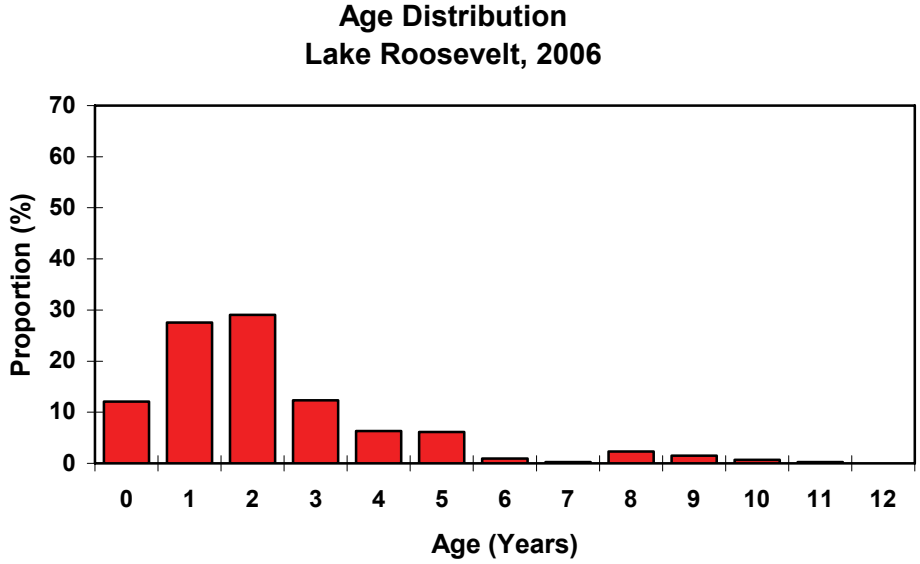




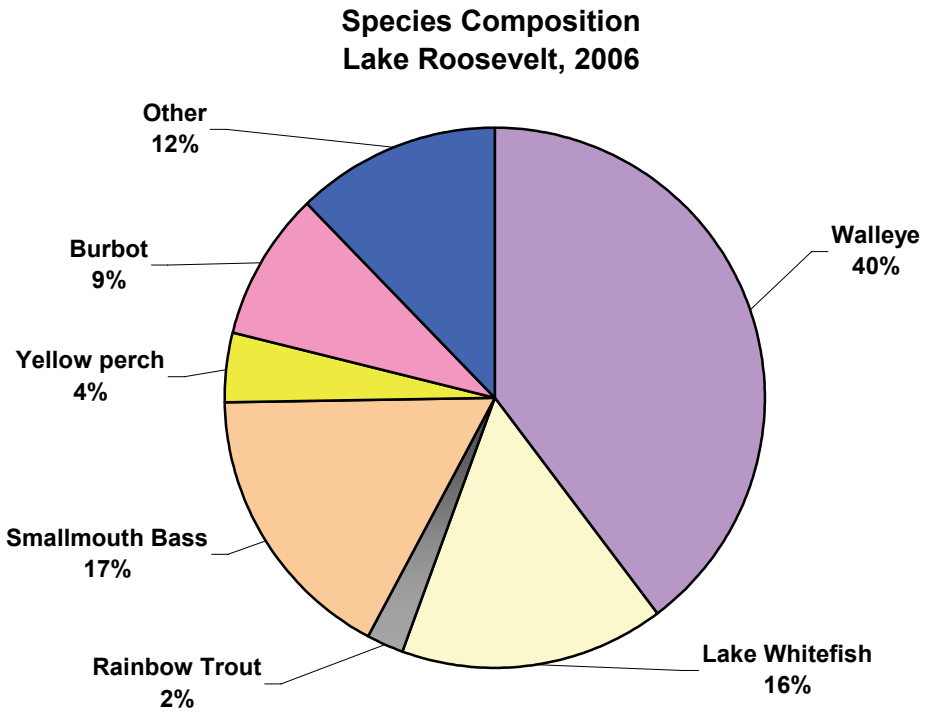
The Banks Lake fish community differed considerably from other waters we sampled in 2006. All other waters had one or at most two species that dominated numerically. Banks Lake had four species, with walleye being the fourth most abundant species by number. The other three were lake whitefish, yellow perch and smallmouth bass. In Sprague, Scooteney, Potholes and Moses Lake, walleye is the only apex predator in large numbers. In both Banks Lake and Lake Roosevelt walleye shares that stage with smallmouth bass but in Banks Lake, their numbers have been almost equal in the last four years. In Lake Roosevelt, smallmouth bass numbers are 30-50% lower than those of walleye. In both of these lakes though, there seems to be sufficient prey base to support both of these top-end predatory fish.

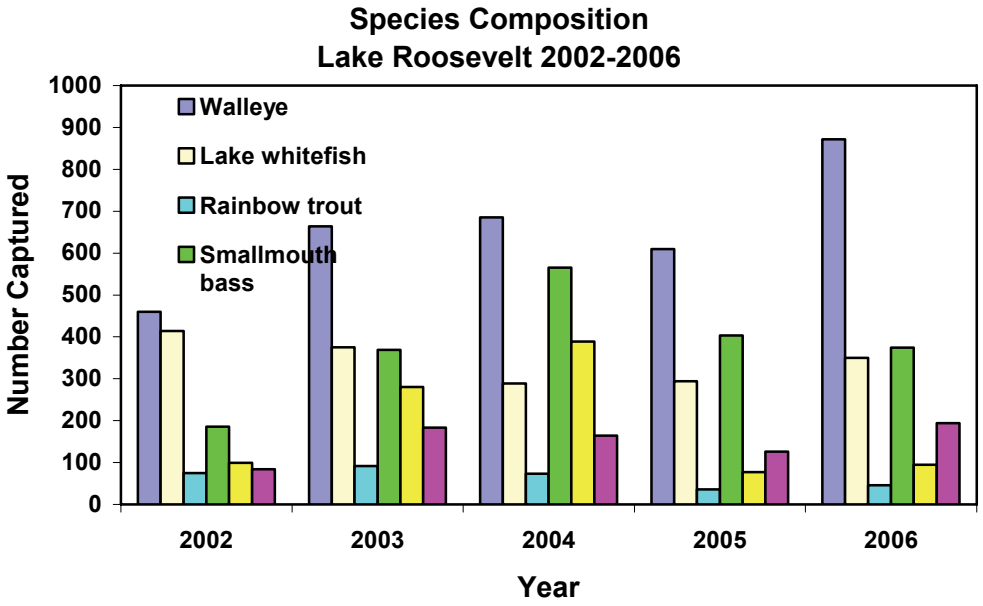
Although the relative abundance of the different species in the Banks Lake fish community is not as great as the more productive waters in the southern part of "the basin", the quality and size of the fish is very good. Black crappie averaged ten inches in length, lake whitefish averaged 18 inches, smallmouth bass averaged 14 inches with the largest individual being 3.5 pounds, yellow perch averaged eight inches and kokanee averaged 15 inches in length. As with the other bar graphs, the black crappie and yellow perch shown are the numbers over four inches in length.





In the fall of 2006, Lake Roosevelt catchable-size walleye (>10 inches) ranged in length from 10 to 30 inches and averaged 14 inches, which is similar to previous surveys. The overall distribution of sizes remains wide and the one and two-year old year classes are very strong, so we can expect angling possibilities to remain favorable in Lake Roosevelt for the next few years.


Species Composition
Lake Roosevelt, 2006
Other
12%
Walleye
40%
Burbot
9%
Yellow perch
4%
Smallmouth Bass
17%
Rainbow Trout
2%
Lake Whitefish
16%


Species Composition
Lake Roosevelt 2002-2006
Number Captured
1000
900
800
700
600
500
400
300
200
100
0
Walleye
Lake whitefish
Rainbow trout
Smallmouth bass
2002
2003
2004
2005
2006
Year

In addition to walleye, other species of interest to anglers included smallmouth bass, ranging from 7 to 22 inches, averaging 12 inches, and weighing up to five pounds; rainbow trout averaged 17 inches and yellow perch averaged eight inches. Burbot ranged from 14 to 25 inches and averaged 18 inches and lake whitefish averaged 20 inches. Other species sampled in lower numbers included largescale sucker, longnose sucker, northern pikeminnow, black crappie, largemouth bass, common carp, peamouth, sturgeon, mountain whitefish, tench, brown trout, and eastern brook trout. The bar graph shows the predominant species over the last five years have been walleye, lake whitefish and smallmouth bass. Burbot have also been captured in relatively large numbers.

As mentioned earlier, WDFW will be publishing a comprehensive report covering all the FWIN data collected from 2001 to 2006. It will provide more in-depth explanations of the above information, along with information on growth, physical condition, sex ratio by size, reproductive maturity by size and age and explanations of the trends we are seeing to date in our FWIN surveys. It will be printed as an agency research report and also placed on the WDFW web site near the location of this report.

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 boldibdb@dfw.wa.gov