

SHENANDOAH NATIONAL PARK

NATURAL RESOURCE MANAGEMENT



Fisheries Management Annual
Report 1992

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Shenandoah National Park
U. S. Department of the Interior
National Park Service
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**SHENANDOAH NATIONAL PARK
FISHERIES MANAGEMENT ANNUAL REPORT
1992**

Overview

Twenty-nine streams were open to fishing in 1992. Three of these streams the Rapidan, Staunton, and North Fork of the Moormans Rivers were managed as fish-for-fun streams. The brook trout monitoring season ran smoothly. The length frequency information gathered was entered in to a DBaseIII+ program and summarized using Harvard Graphics. Species Composition data was also summarized for the period 1985-present. Park, district, and stream species lists were generated. Exotic trout problems continue to plague several of the park streams and removal runs were made again this year.

Stream Conditions

Streams conditions from August of 1991 to August of 1992 showed drought conditions. The fall of 1991 saw very low rainfall amounts causing streams to dry up to little more than pools. Low water conditions, such as these, can cause a failure to spawn or a late spawn. Rainfall in November raised the level of the streams such that a late spawn would have been possible. On April 22, 1992 seven inches of rain fell in a twenty-four hours period. Flooding such as this can cause the streambeds to be scoured with the loss of large numbers of young-of-year.

Monitoring

An electro-shocking survey was completed on seventeen streams in the park. A total of fifty-four transects were shocked. The transects measured 100 meters in length. The streams were all on the west side of the park except for one, the Hazel River. The techniques used to conduct the survey were similar to past years. A total of 1908 brook trout were captured and measured. Length frequency graphs were made for each transect, stream, and the past history of the stream. The age class to length data was broken down as follows for analysis:

Young-of-Year	0-85mm
Year 1	90-160mm
Year 2	165-220mm
Year 3	225+mm

The survey was completed by seasonal biological science technicians in the Division of Natural Resources. The crew leader made necessary changes to update the directions to each transect. Assistance for the surveys was provided by SCA's, backcountry rangers, etc. from all the districts. Also, the seasonal employees assisted the Department of Game and Inland Fisheries in the stream monitoring program on the Rose and North Fork of the Thornton River.

Monitoring Results

Analysis of the fish data showed a serious decline in recruitment of the young-of-year in all the streams sampled and Lower Lewis Run and Two Mile Run showed no recruitment at all. The decline was most likely caused by two factors. First, the drought probably delayed the spawn until November. The data supports this in that more young of the year were found as the season progressed and fish become more susceptible to shocking as their size increases. Second, the heavy rainfall and flooding in April probably washed many of the young-of-year that were produced downstream to their death.

In addition to low recruitment some streams also showed a decline in other age classes. Pass Run and West Branch of the Naked Creek have been declining slowly since in 1988 and should be watched closely in 1994. The decline is most likely due to heavy fishing pressure. Pass Run for instance is one of the most easily accessed streams in the park and one of the most heavily harvested. If populations continue to decline in these streams fishing should be closed.

Several streams, in contrast, showed improvements in the upper age classes. Overall Run had the highest numbers of upper age class fish this year since 1987. Big Run, which has been on a long term decline, showed a great resurgence. The numbers of fish in the upper age classes is double that of anything seen in the last four years. Lower Lewis showed a healthy distribution of upper age class fish for the first time since 1988. Madison Run continues to show a steady increase in the numbers of upper age class fish.

Management Actions

Hazel River Closure

The data from the Hazel River Research Project has been analyzed and was inconclusive as to why the population crashed. This years monitoring data continued to show an increase in all age classes except the young-of-year. This river could be opened to fishing in the next several years if this kind of improvement continues.

Lands Run Closure

Lands Run did not show the continued improvement that was seen in the past several years. However, the decline was small in the upper age classes and probably is nothing to be concerned about. The numbers of young-of-year were low as in all the streams and will probably bounce back next year. This stream should remain closed until after it is surveyed again to see if the declines this year were long-term or short-term events. Transect #2 did not have any fish in it again this year.

Exotic Removals

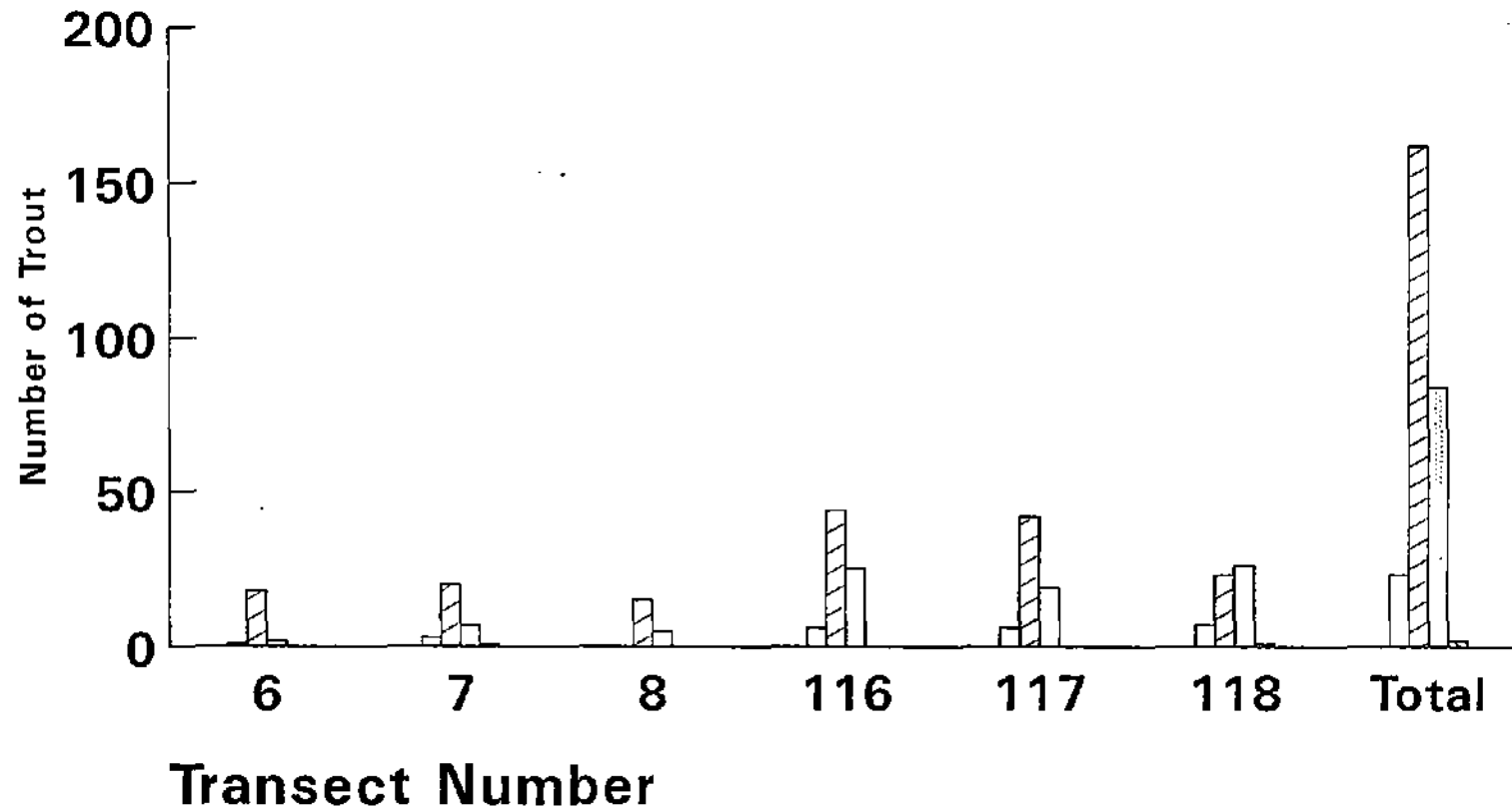
The problem of the exotic brown trout continues to plague several of the parks streams. This year for the first time in many years, the exotic rainbow trout were present. The Hughs, North Fork of the Moormans, and Rose rivers are problematic brown trout streams. This year the rainbow trout was present in Pass Run as it had been for many years but this year it showed signs of reproduction. With a limited time frame and staff removal runs were completed on only three streams.

The North Fork of the Moormans was shocked from the park boundary to about 1.1 miles above the third road/river crossing. Sixty-six brown trout were removed and only one of these fish was a young-of-year which is a sign of very low recruitment. The Hughs River was shocked from the park boundary to 0.8 mile upstream. Sixteen brown trout were removed with no young-of-year being present. This data is an improvement from last year when sixty trout were removed and 30% of them were young-of-year. The Hughs River is an example of how well exotic removals can work. One important point to note about the low reproduction of the brown trout is that this species spawns from late August to September. This time period was during the drought mentioned earlier so the lack of young-of-year could be due to a failure to spawn and not our removal efforts.

Pass Run is the other stream where removals were completed. Six rainbow trout were removed from the Headquarters section and to 0.2 mile above where Pass Run enters the park again. No young-of-year were found and the trout were in such low densities that shocking was discontinued before a completed depletion was accomplished. Rainbow trout do not appear to be a problem at this time in Pass Run but their population should be monitored for any increases from which swift management actions should follow. One point to keep in mind is that Pass Run has been experiencing a decline in brook trout populations the last few years while the rainbow trout populations have increased in the last few years. Could there be sympatric effects at work?

Jeremy's Run

Brook Trout 1992



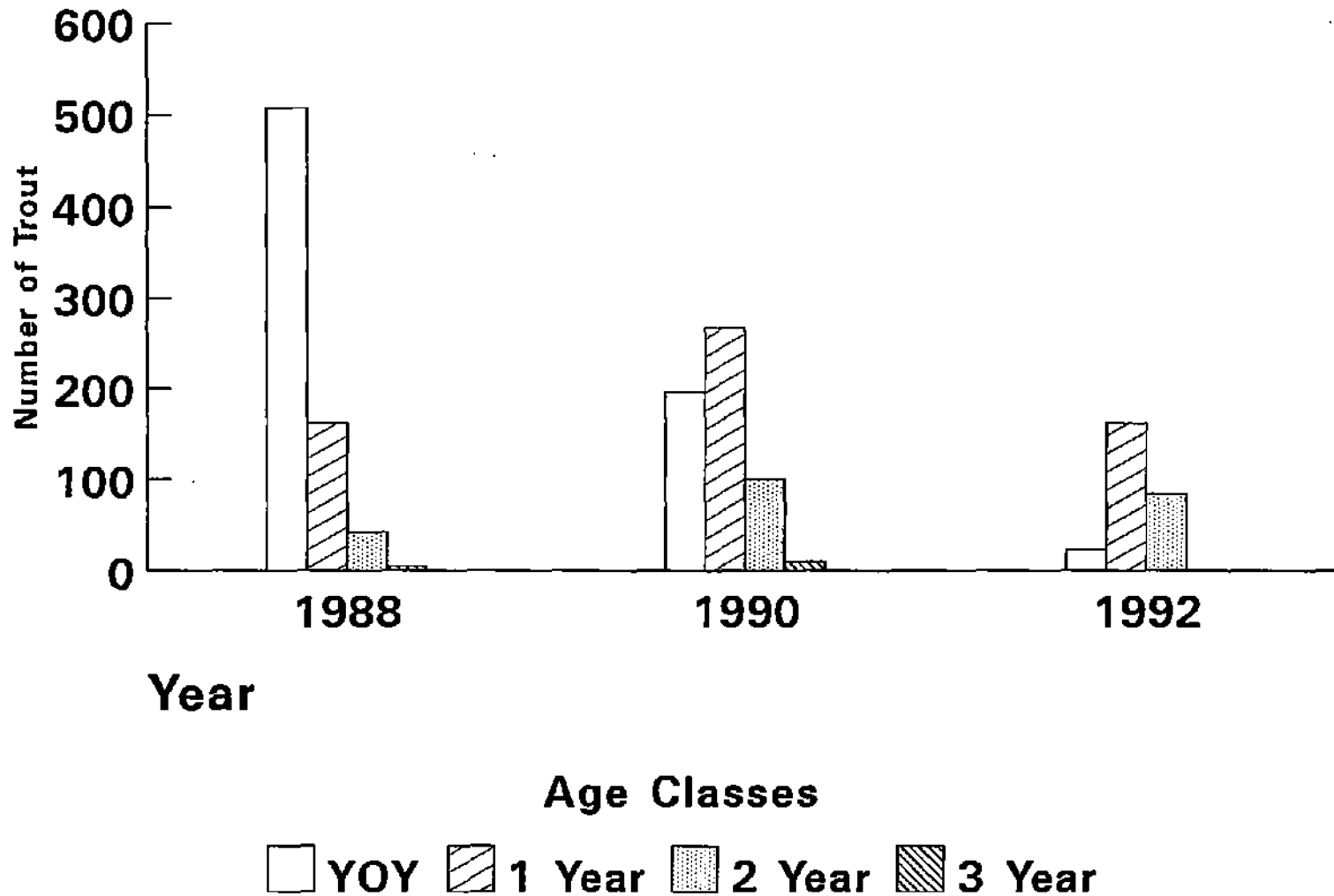
Age Classes

□ YOY ▨ 1 Year ▩ 2 Year ▩ 3 Year

YOY = Young of the Year

Jeremy's Run

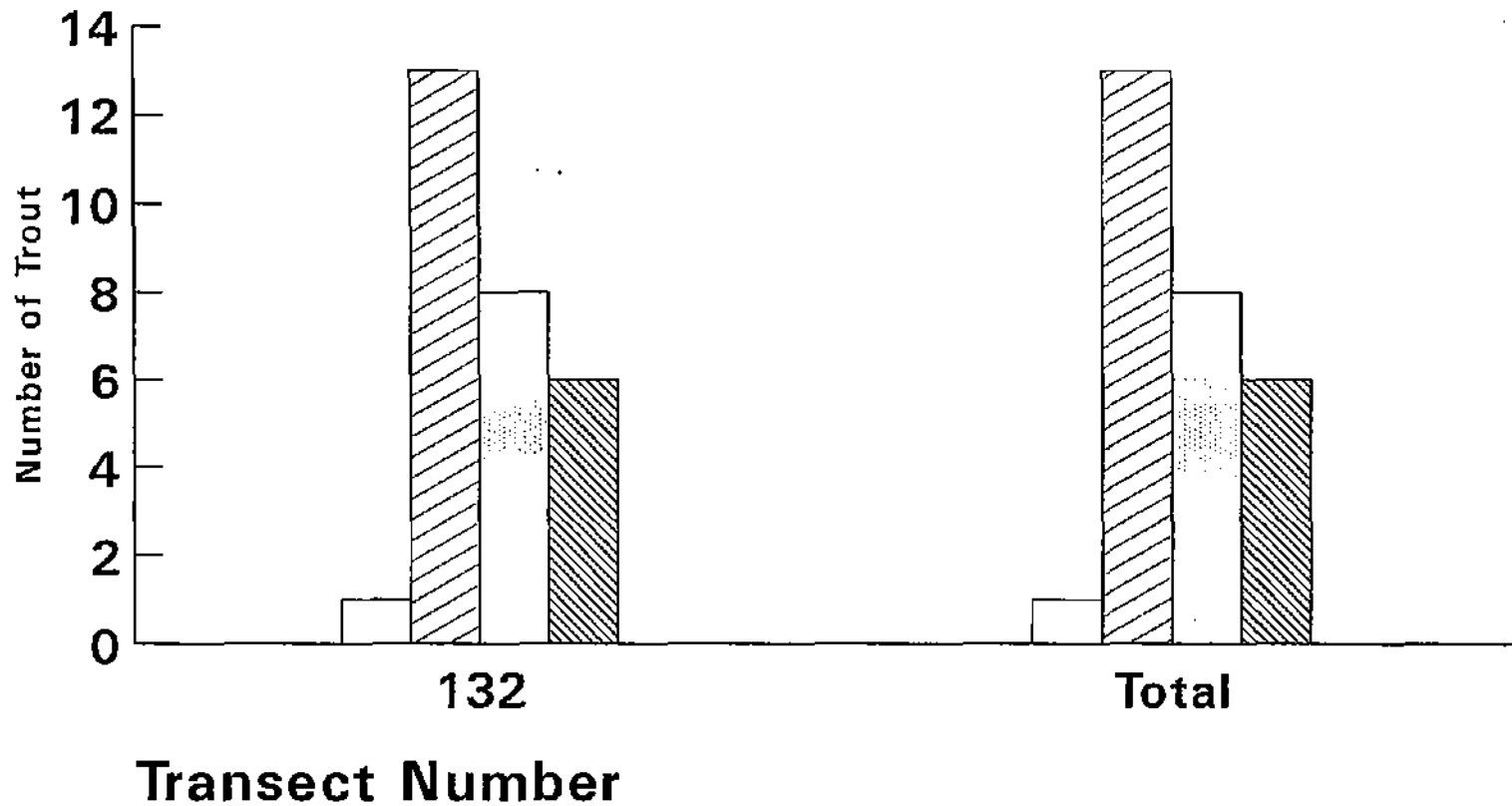
Brook Trout 1988-1992



YOY = Young of the Year

Overall Run

Brook Trout 1992



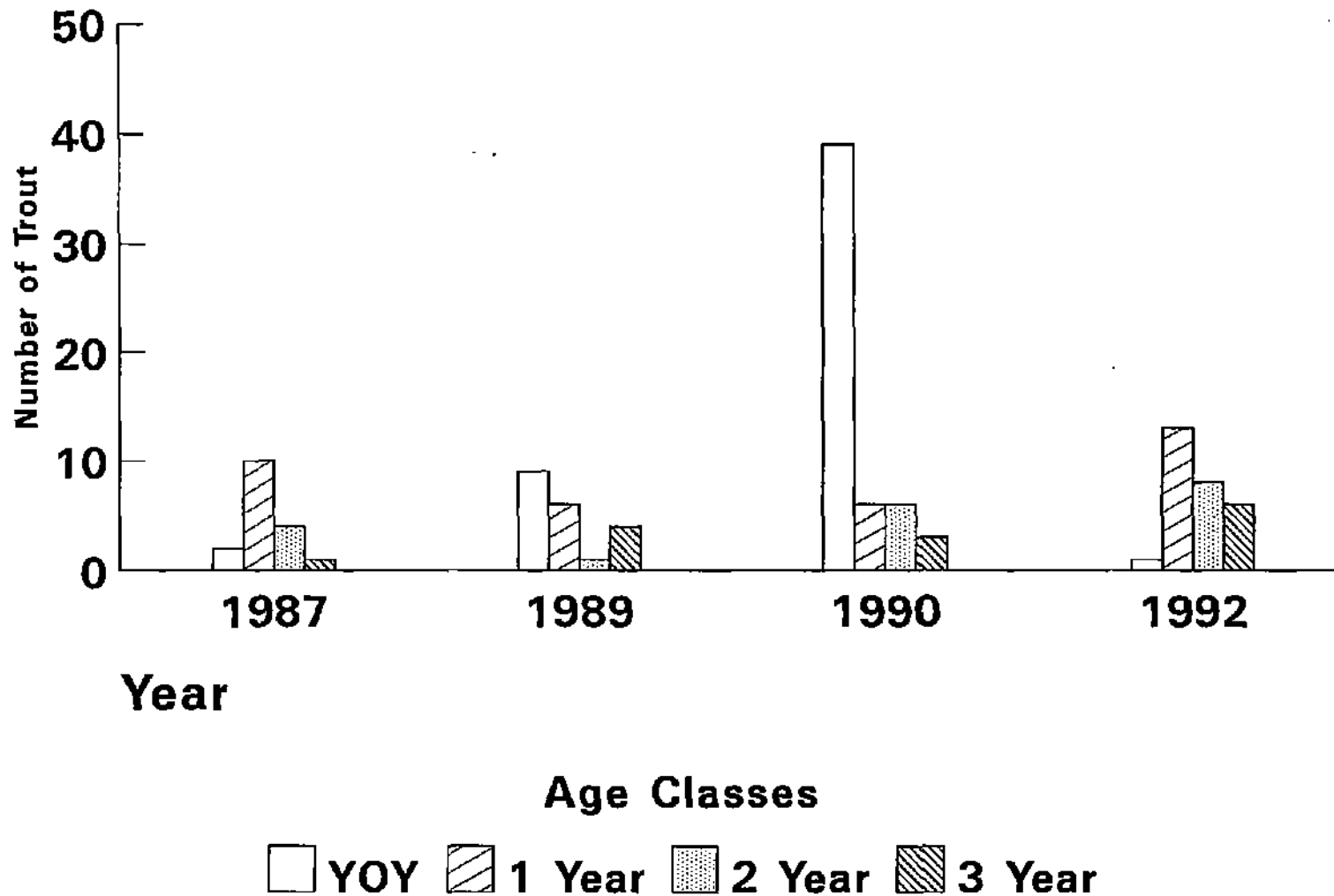
Age Classes

YOY 1 Year 2 Year 3 Year

YOY = Young of the Year

Overall Run

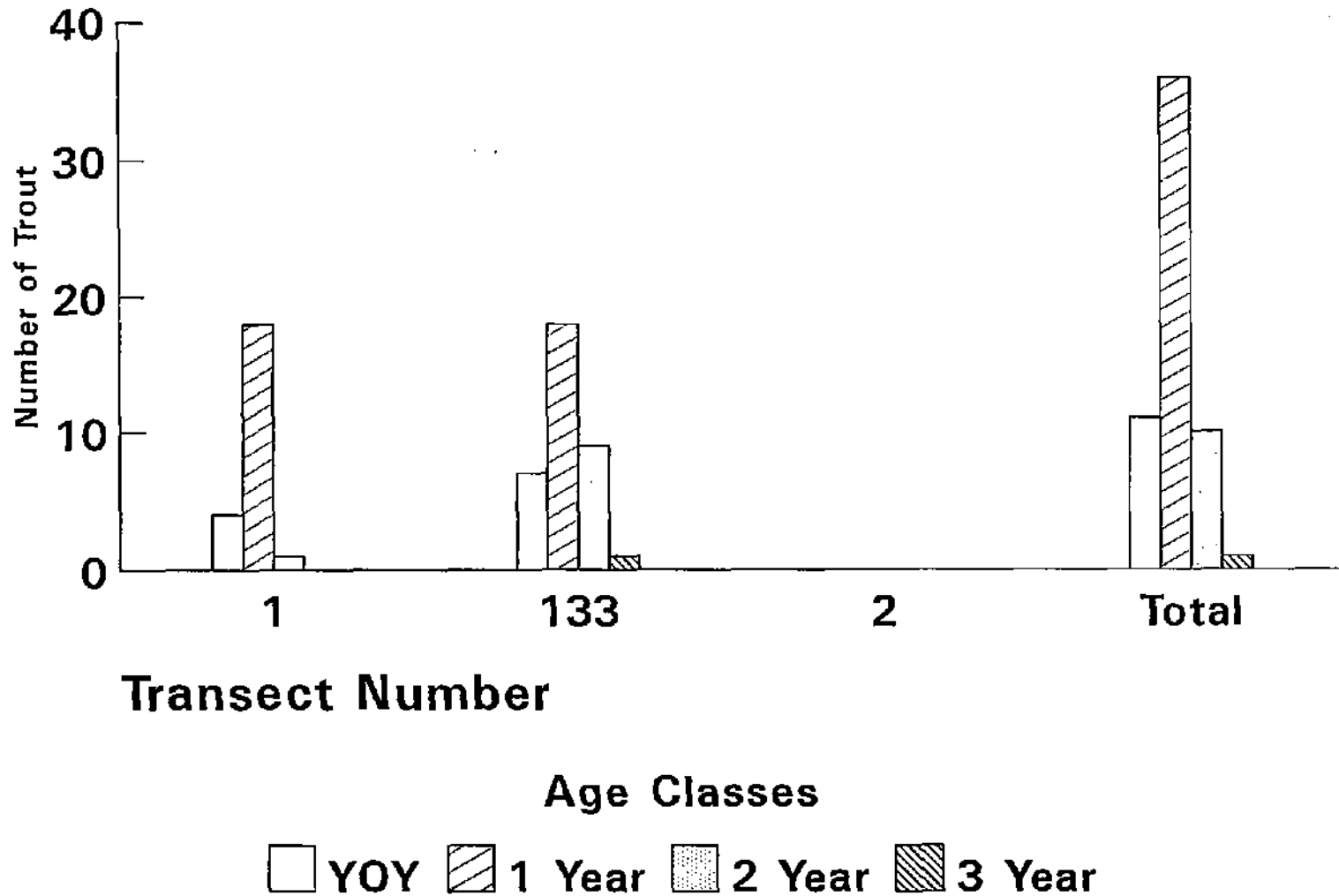
Brook Trout 1987-1992



YOY = Young of the Year

Lands Run

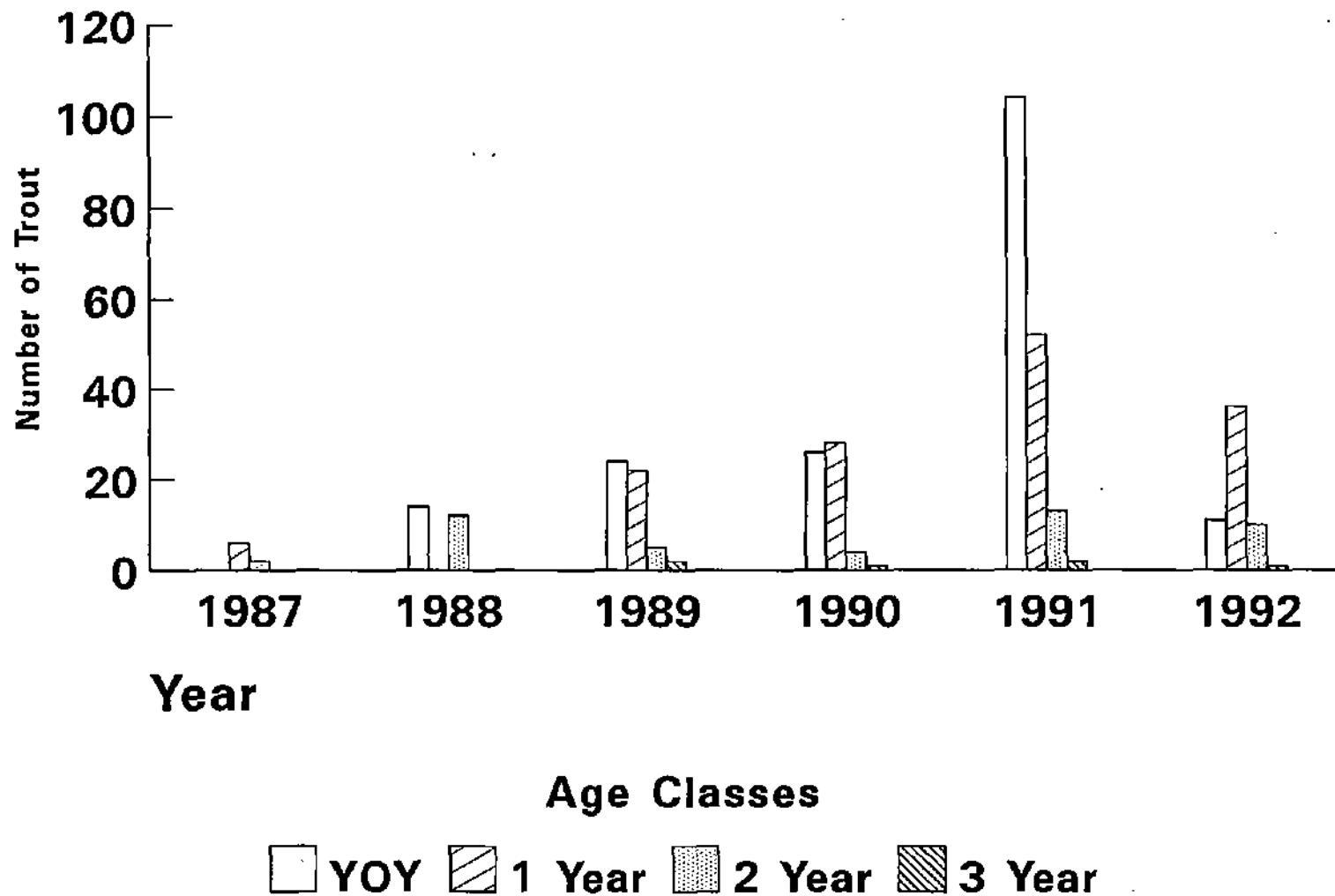
Brook Trout 1992



YOY = Young of the Year

Lands Run

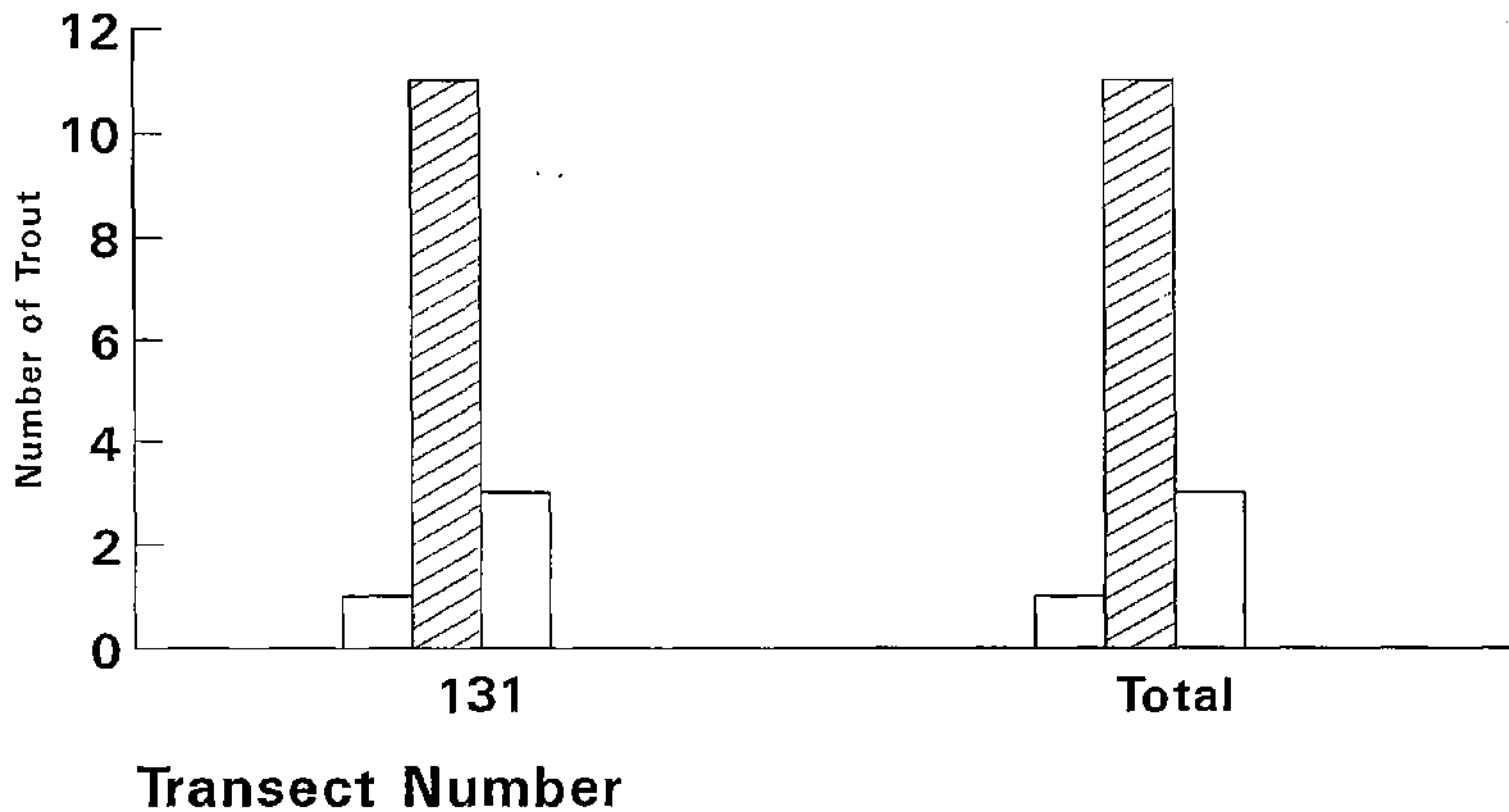
Brook Trout 1987-1992



YOY = Young of the Year

North Fork Dry Run

Brook Trout 1992



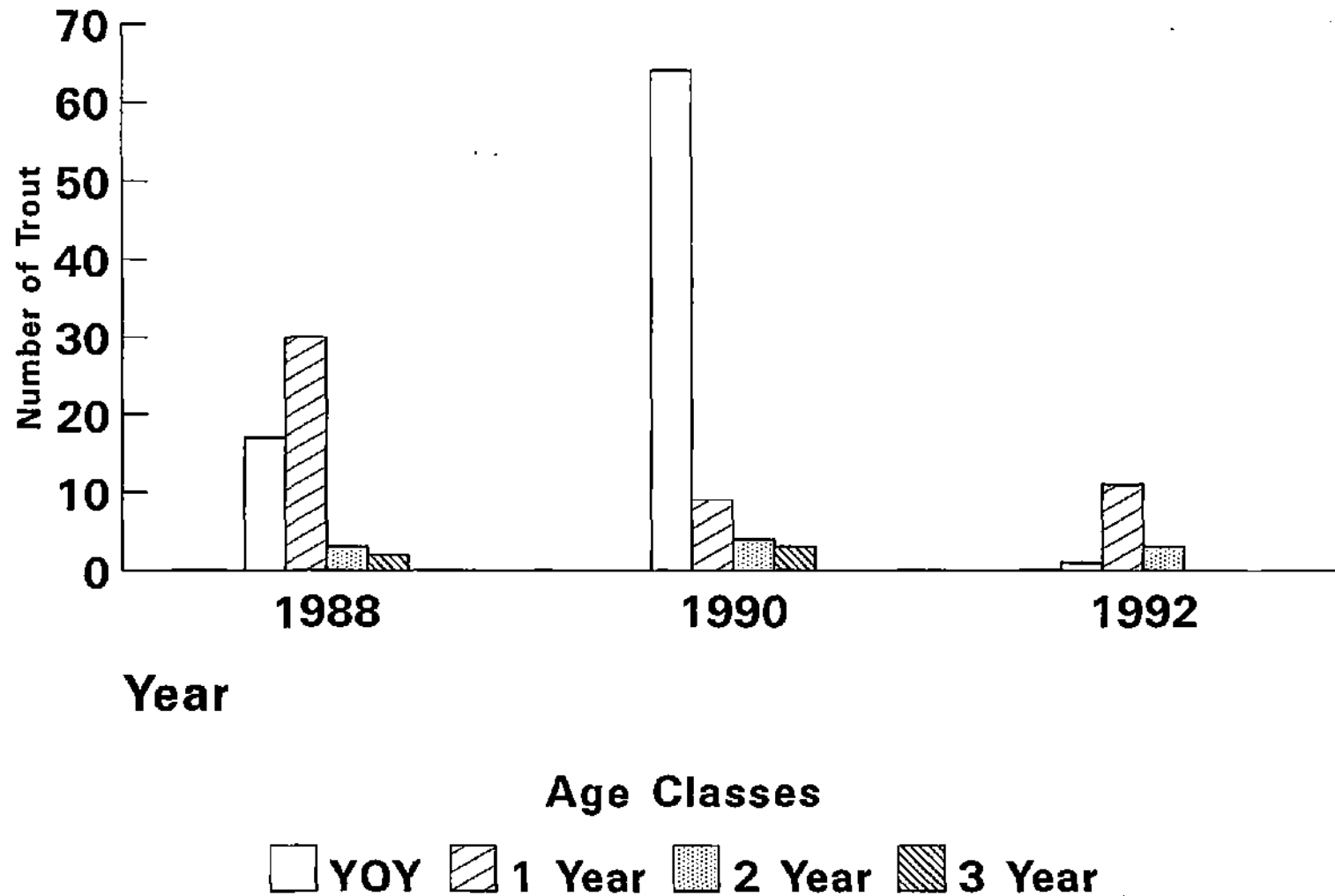
Age Classes

□ YOY ▨ 1 Year ▩ 2 Year ▤ 3 Year

YOY = Young of the Year

North Fork Dry Run

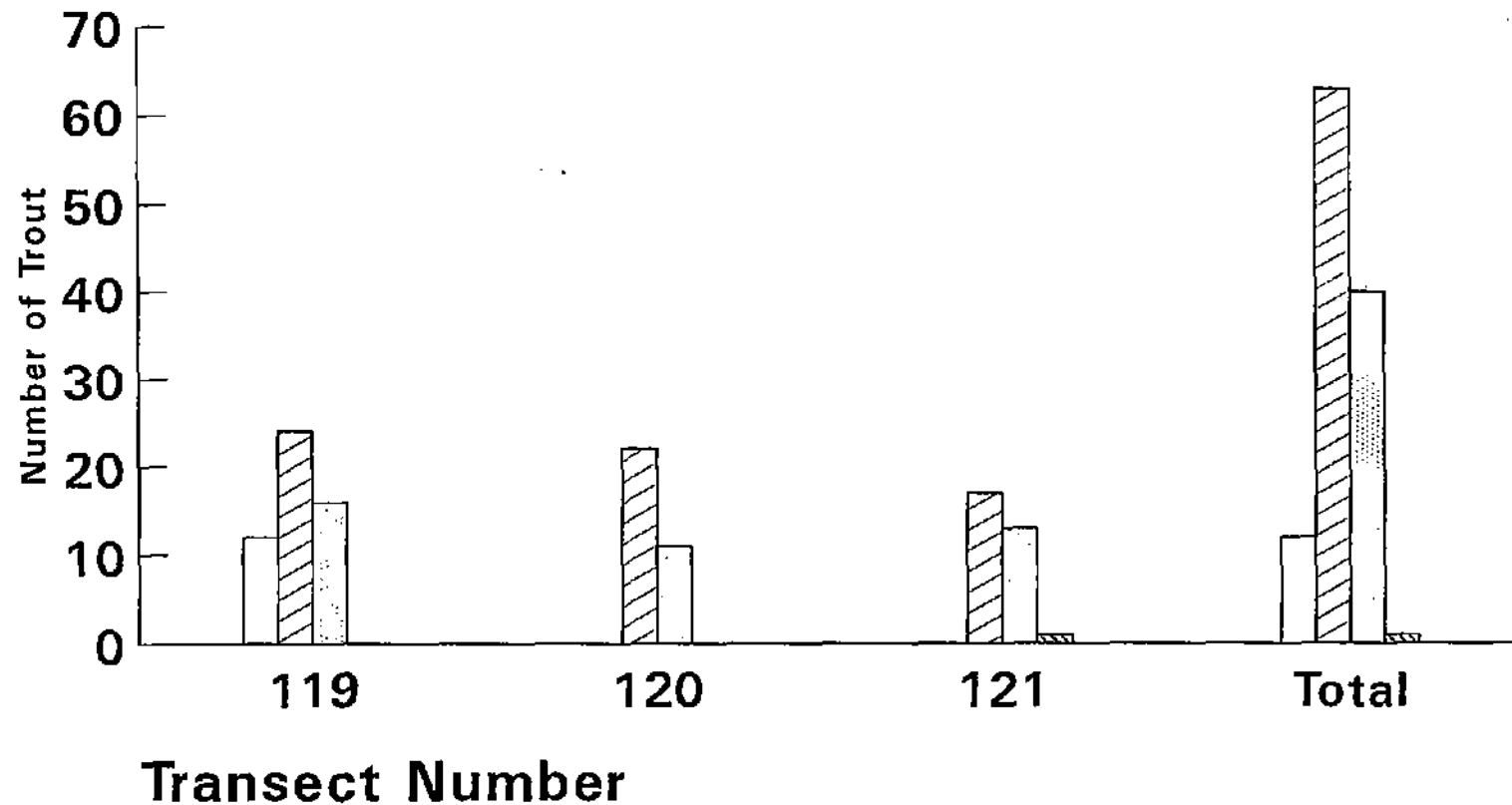
Brook Trout 1988-1992



YOY = Young of the Year

East Hawksbill Creek

Brook Trout 1992



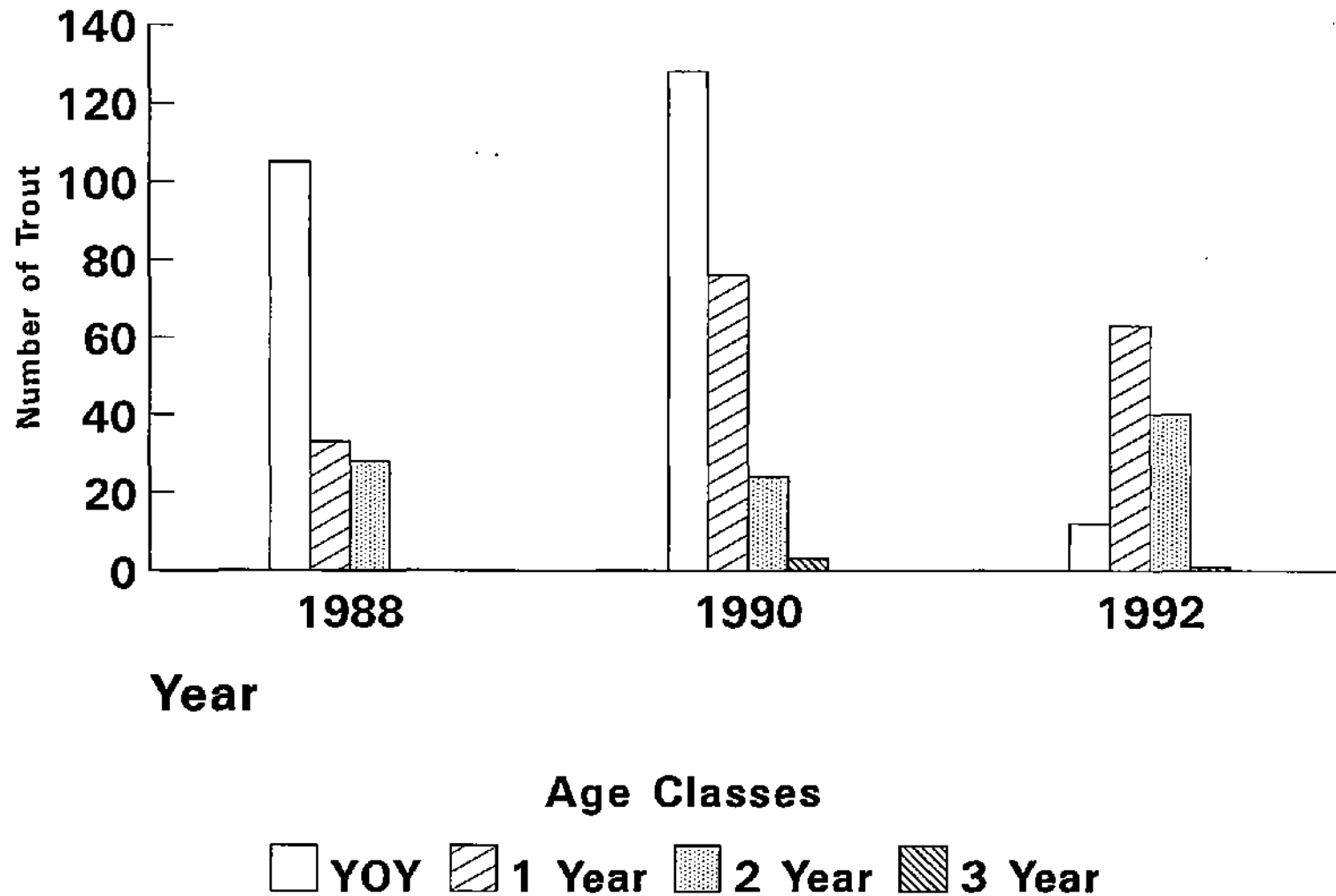
Age Classes

□ YOY ▨ 1 Year ▩ 2 Year ▩ 3 Year

YOY = Young of the Year

East Hawksbill Creek

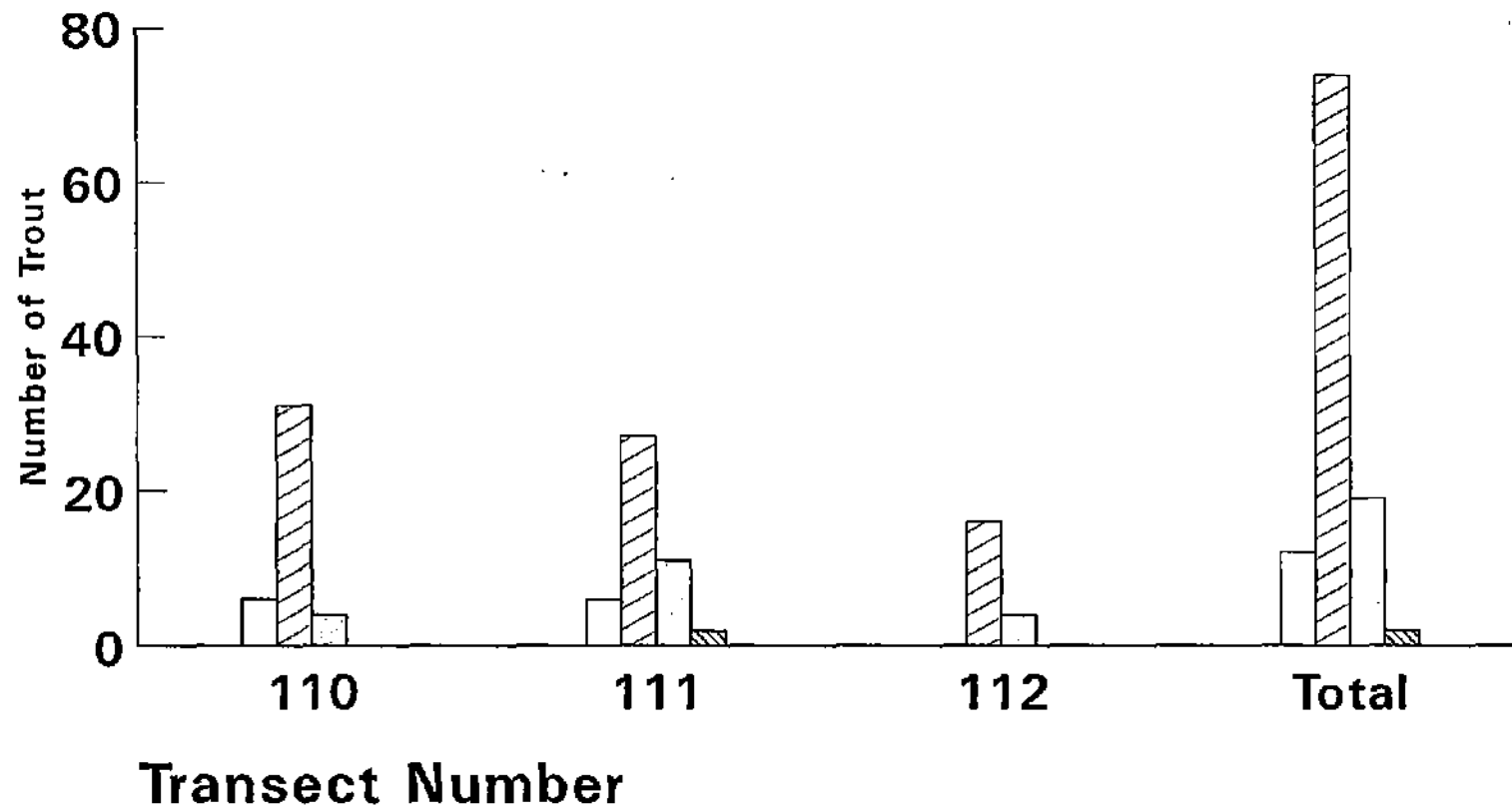
Brook Trout 1988-1992



YOY = Young of the Year

Little Hawksbill Creek

Brook Trout 1992



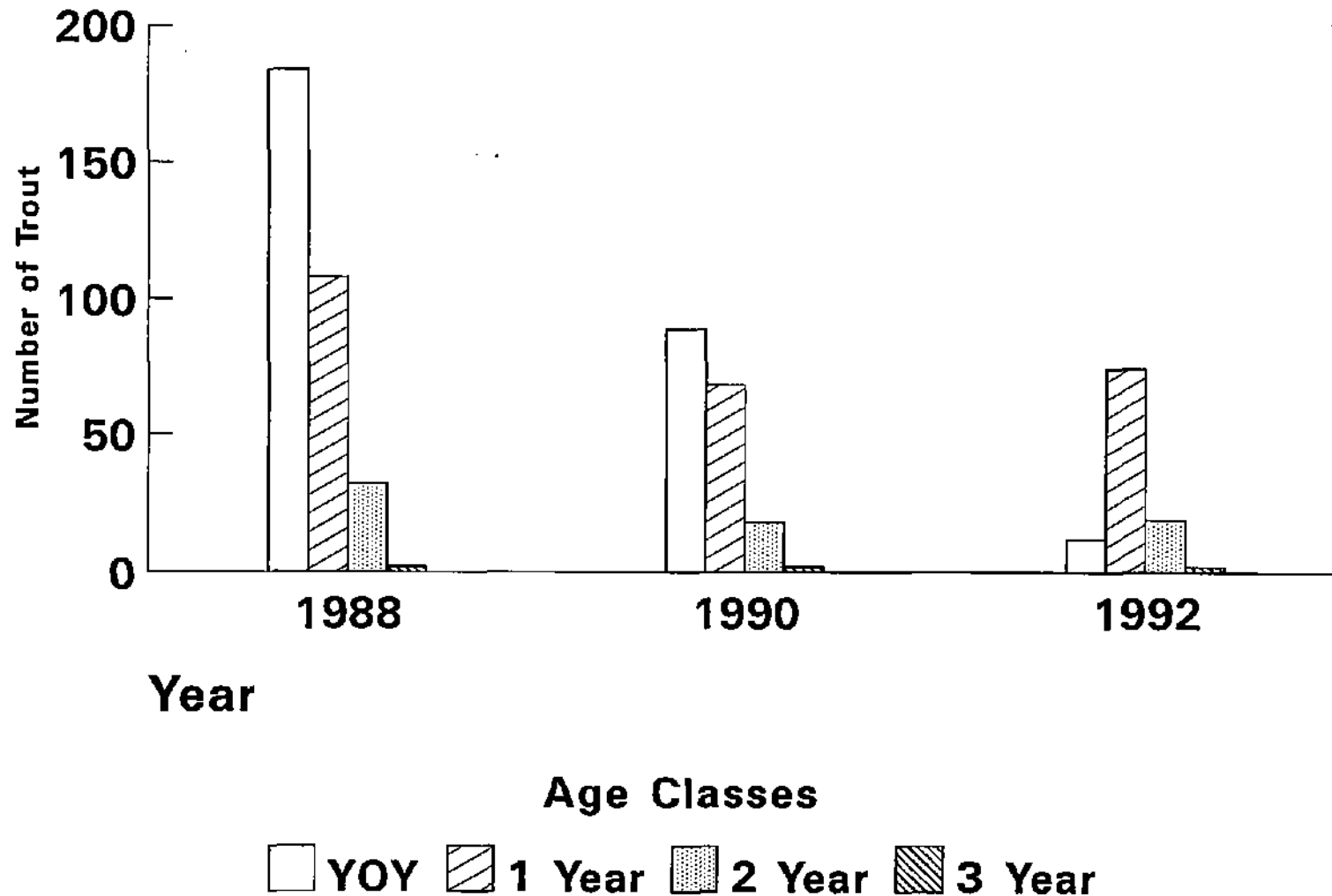
Age Classes

□ YOY ▨ 1 Year ▩ 2 Year ▤ 3 Year

YOY = Young of the Year

Little Hawksbill Creek

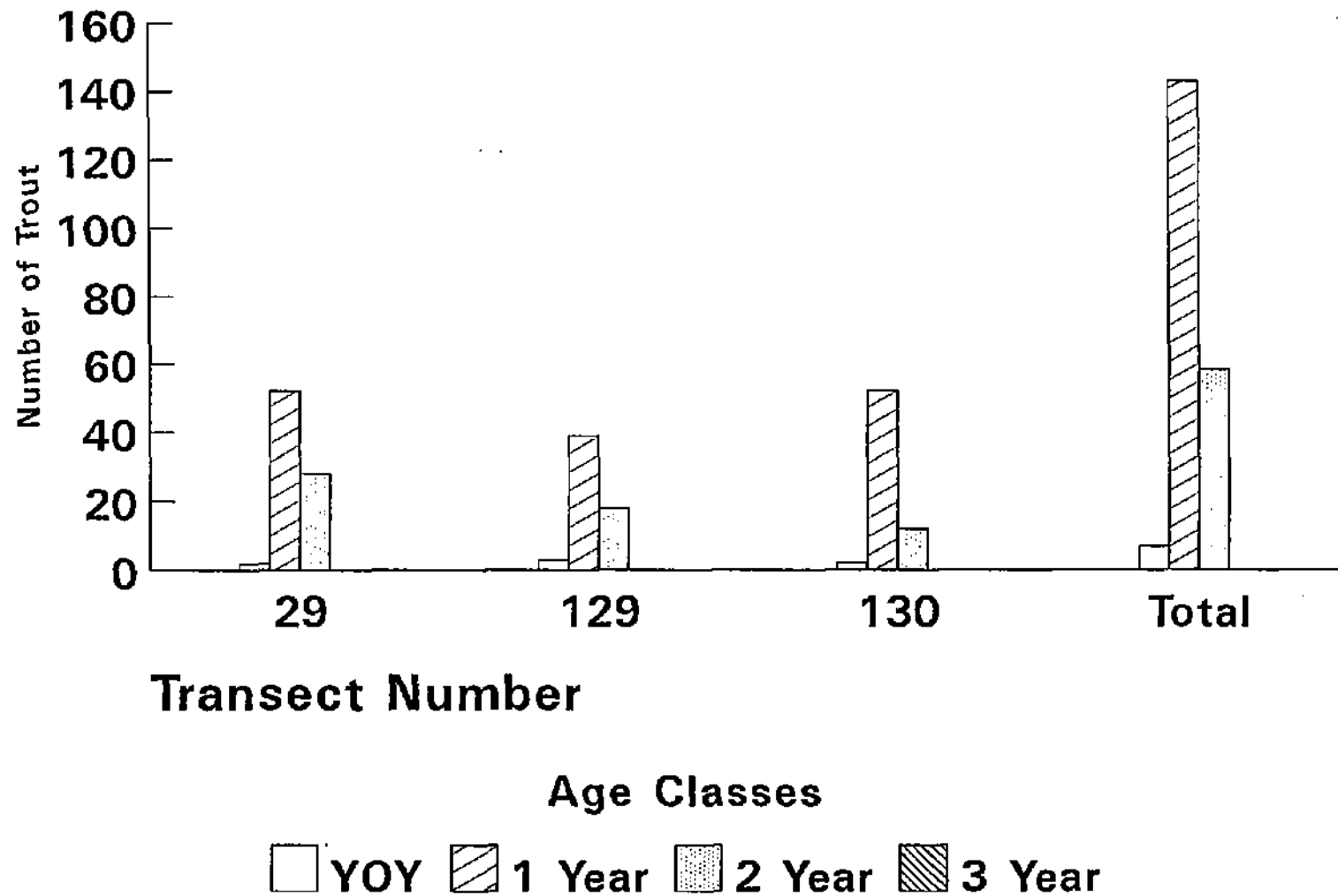
Brook Trout 1988-1992



YOY = Young of the Year

East Branch Naked Creek

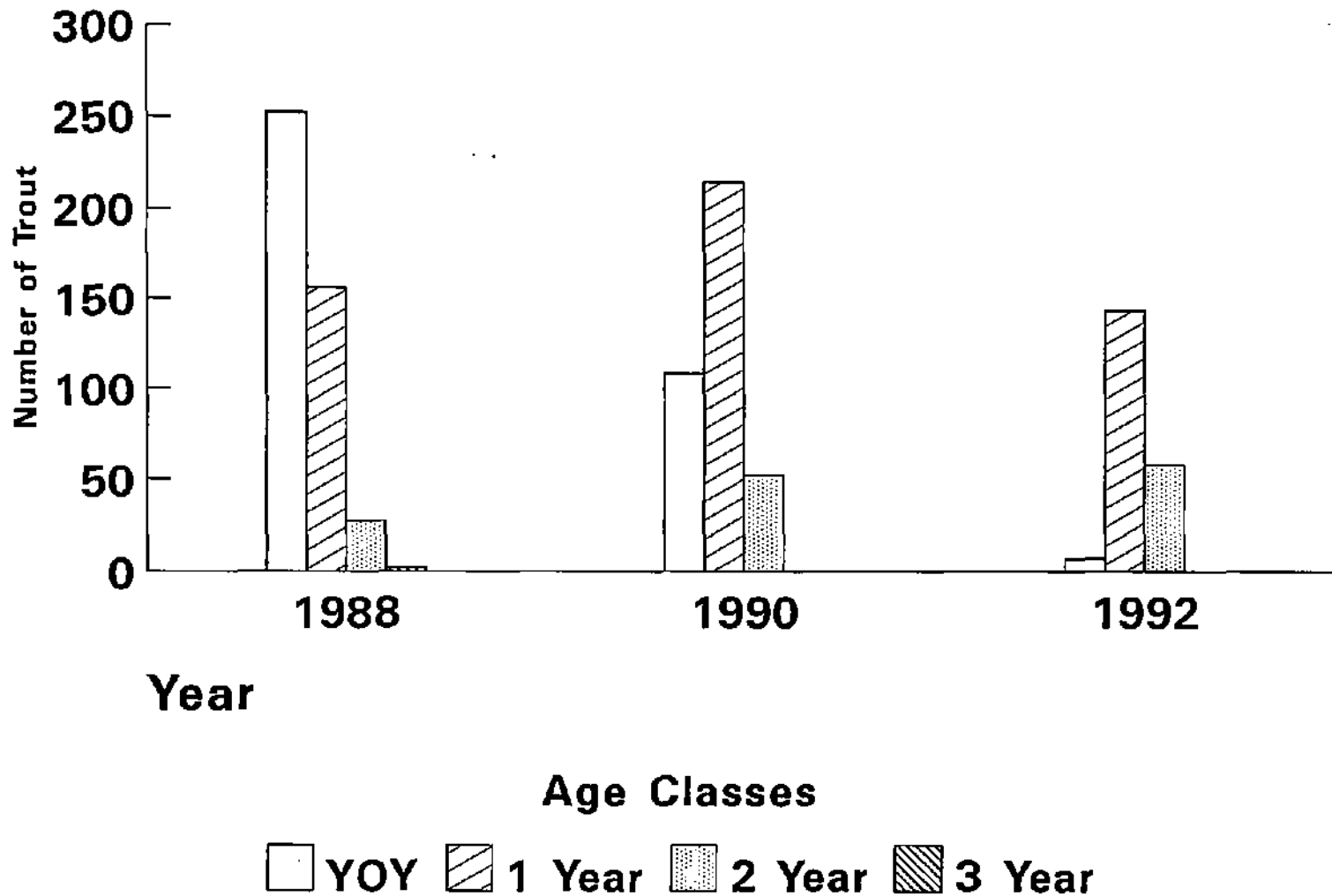
Brook Trout 1992



YOY = Young of the Year

East Branch Naked Creek

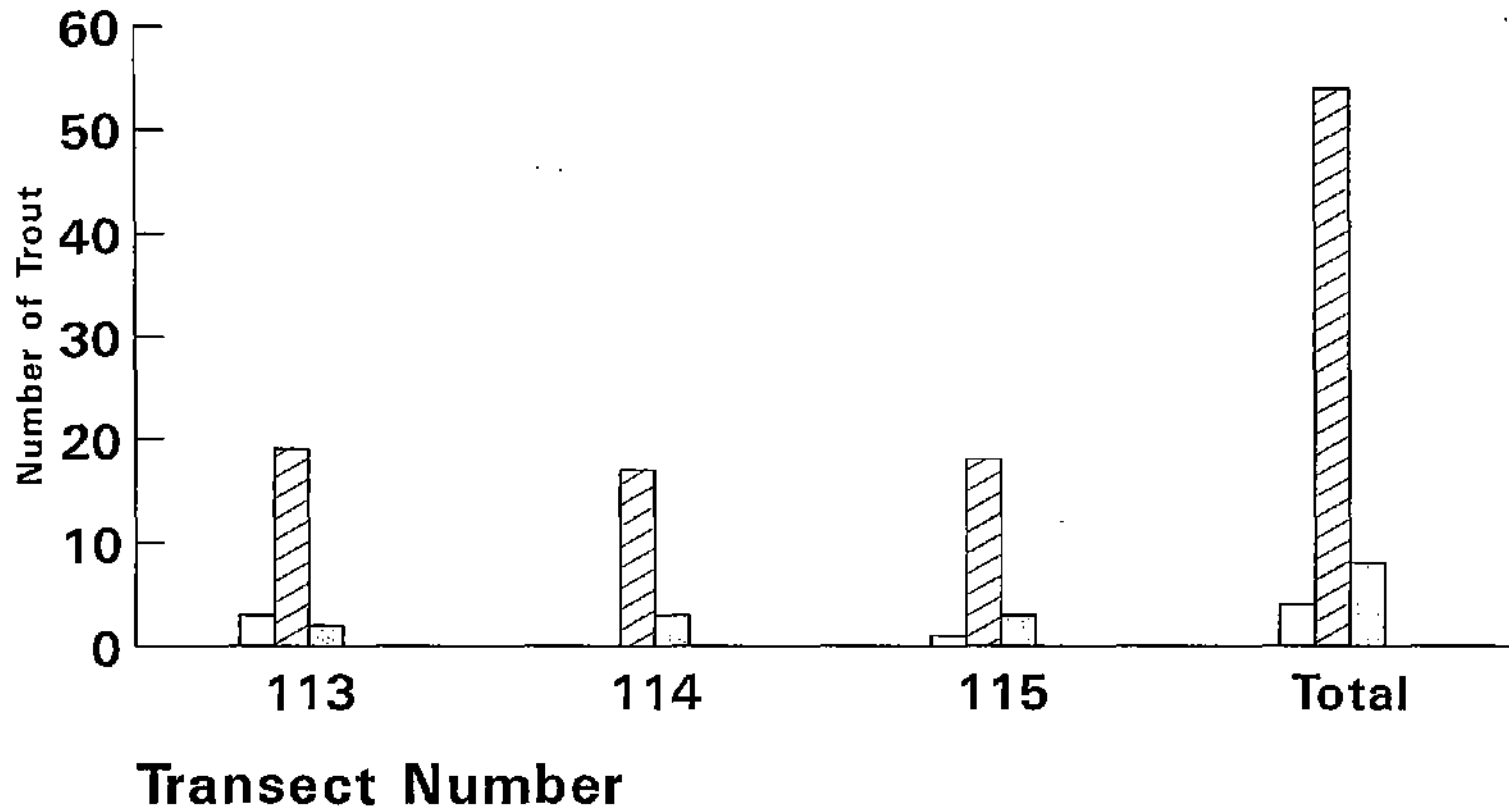
Brook Trout 1988-1992



YOY = Young of the Year

West Branch Naked Creek

Brook Trout 1992



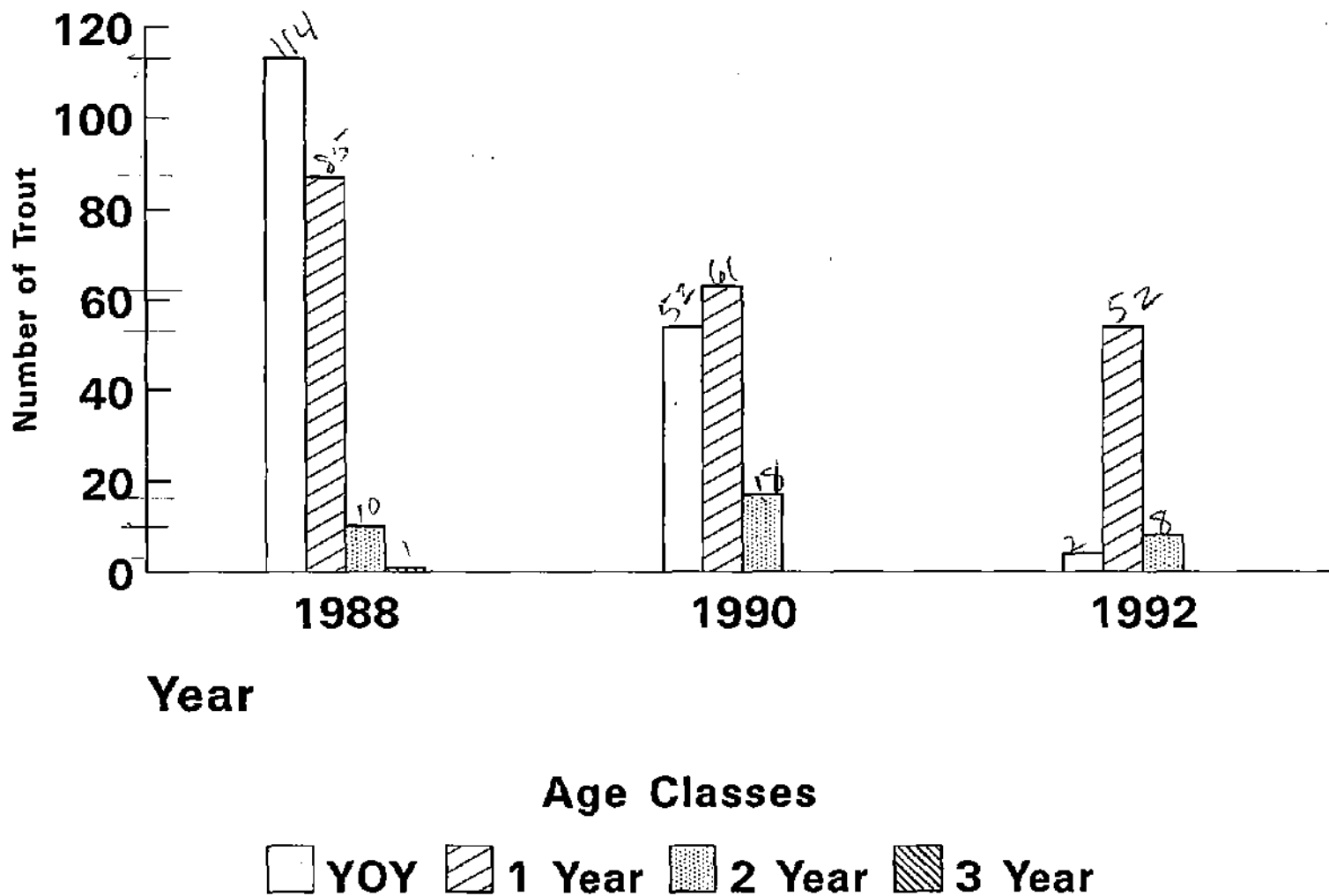
Age Classes

□ YOY ▨ 1 Year ▩ 2 Year ▧ 3 Year

YOY = Young of the Year

West Branch Naked Creek

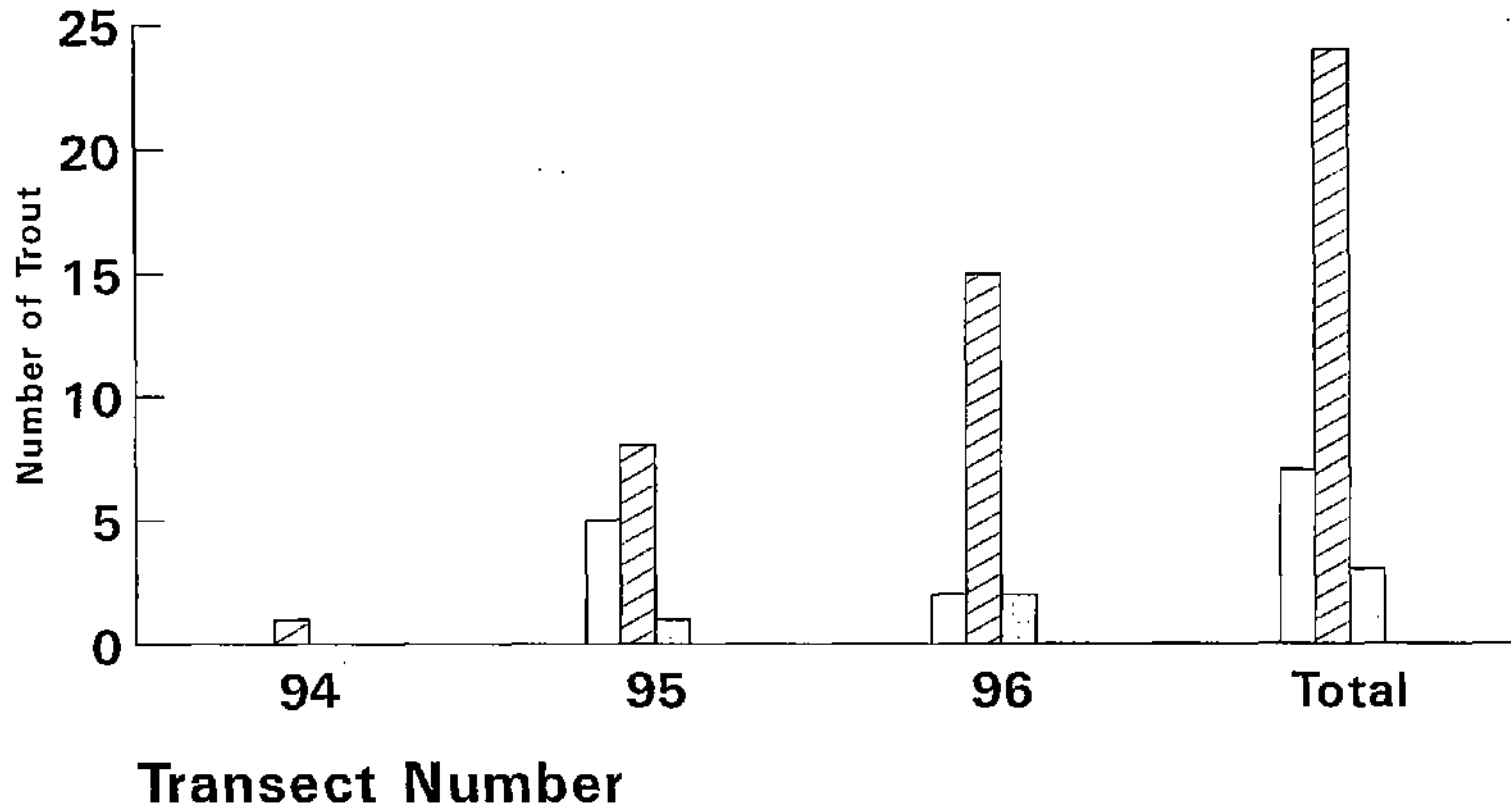
Brook Trout 1988-1992



YOY = Young of the Year

Pass Run

Brook Trout 1992



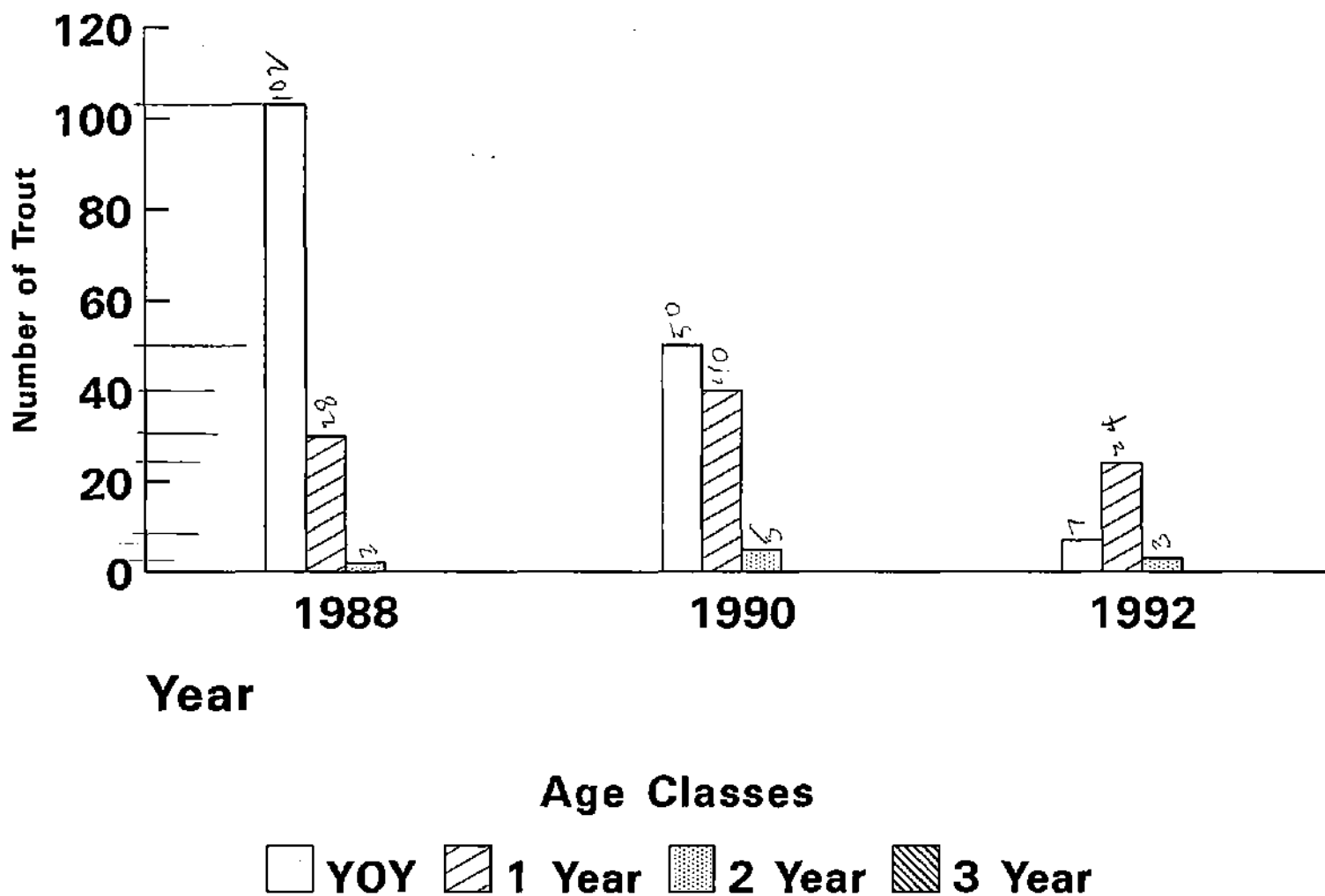
Age Classes

□ YOY ▨ 1 Year ▩ 2 Year ▧ 3 Year

YOY = Young of the Year

Pass Run

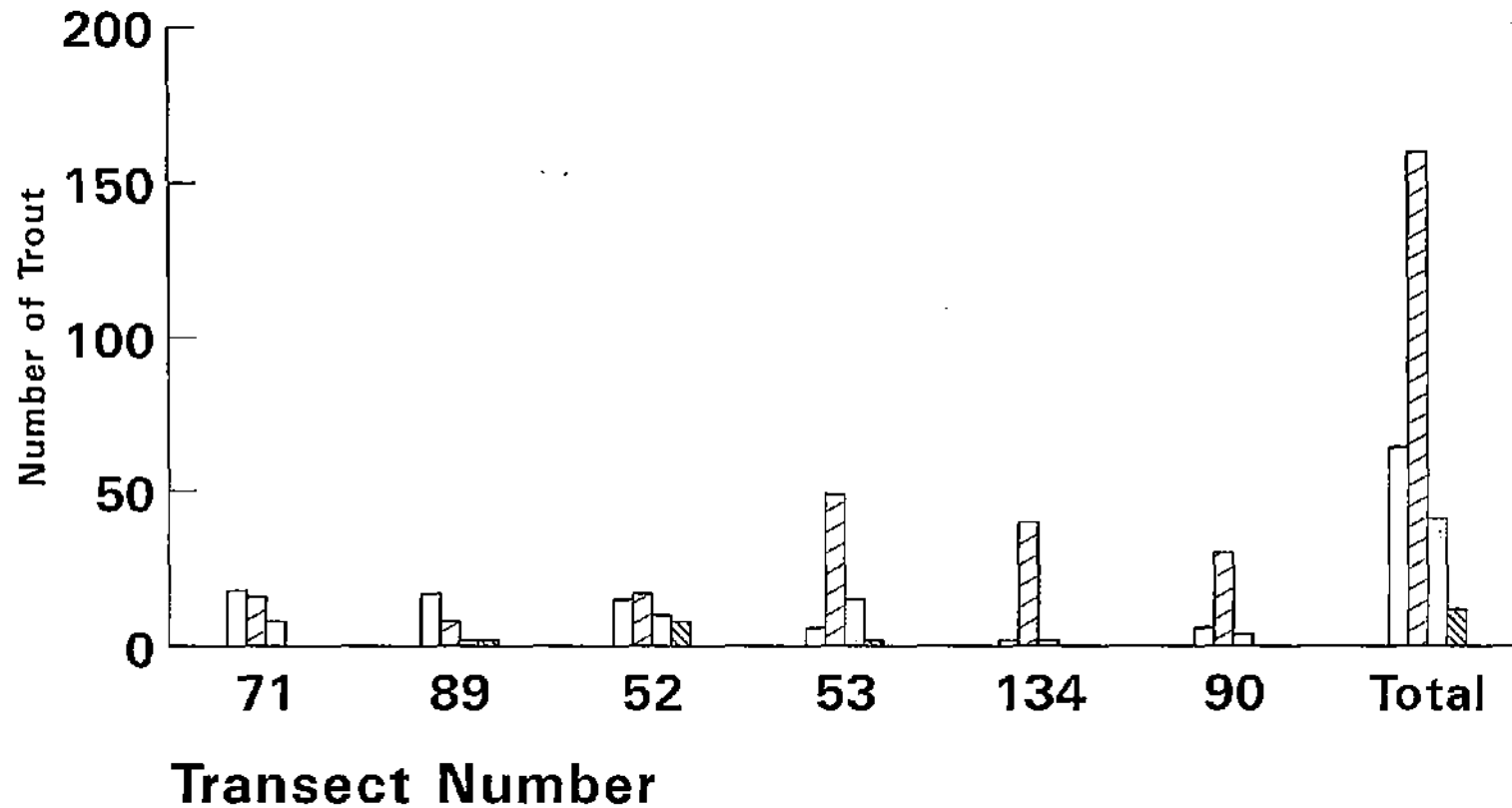
Brook Trout 1988-1992



YOY = Young of the Year

Hazel River

Brook Trout 1992



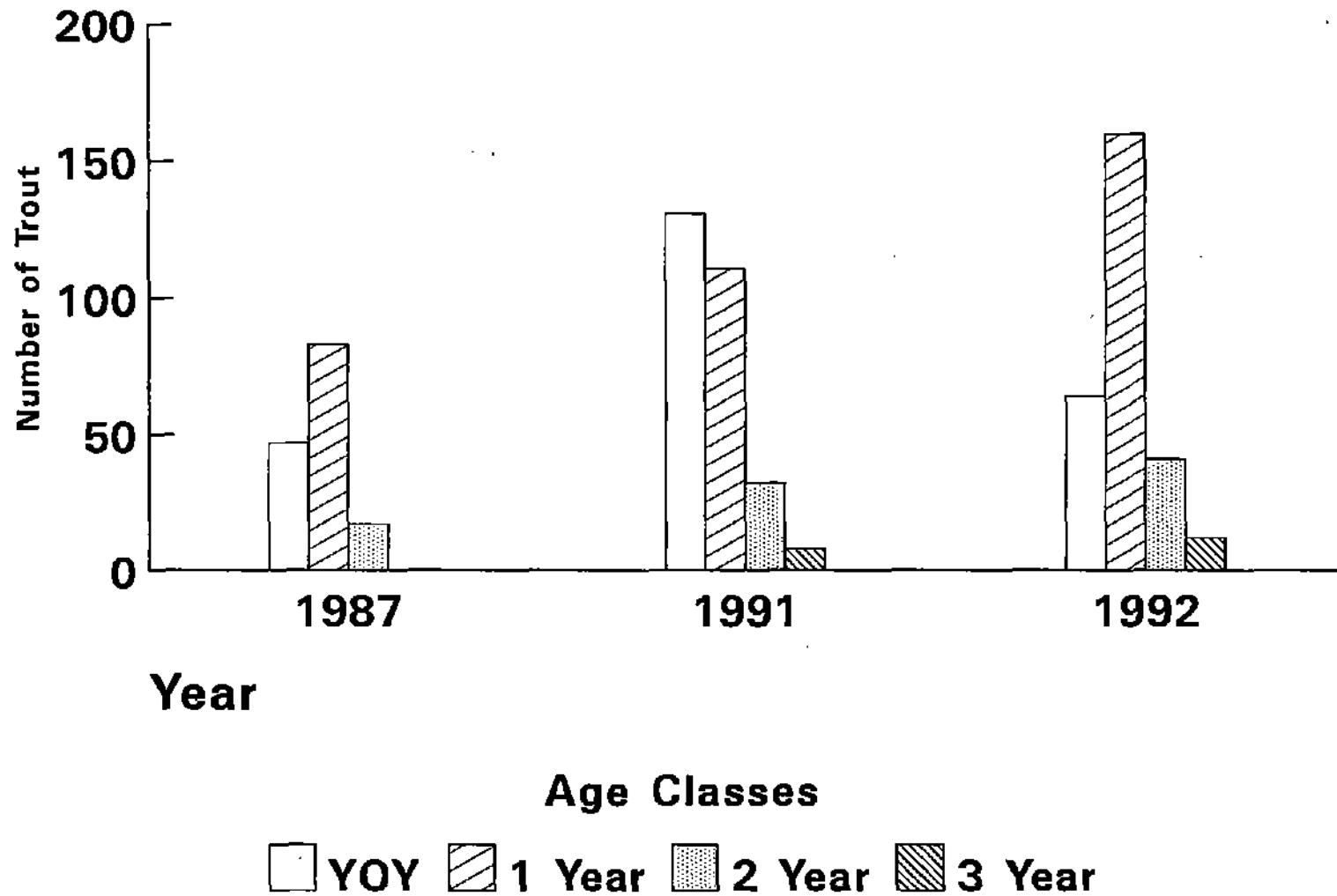
Age Classes

□ YOY ▨ 1 Year ▩ 2 Year ▩ 3 Year

YOY = Young of the Year

Hazel River

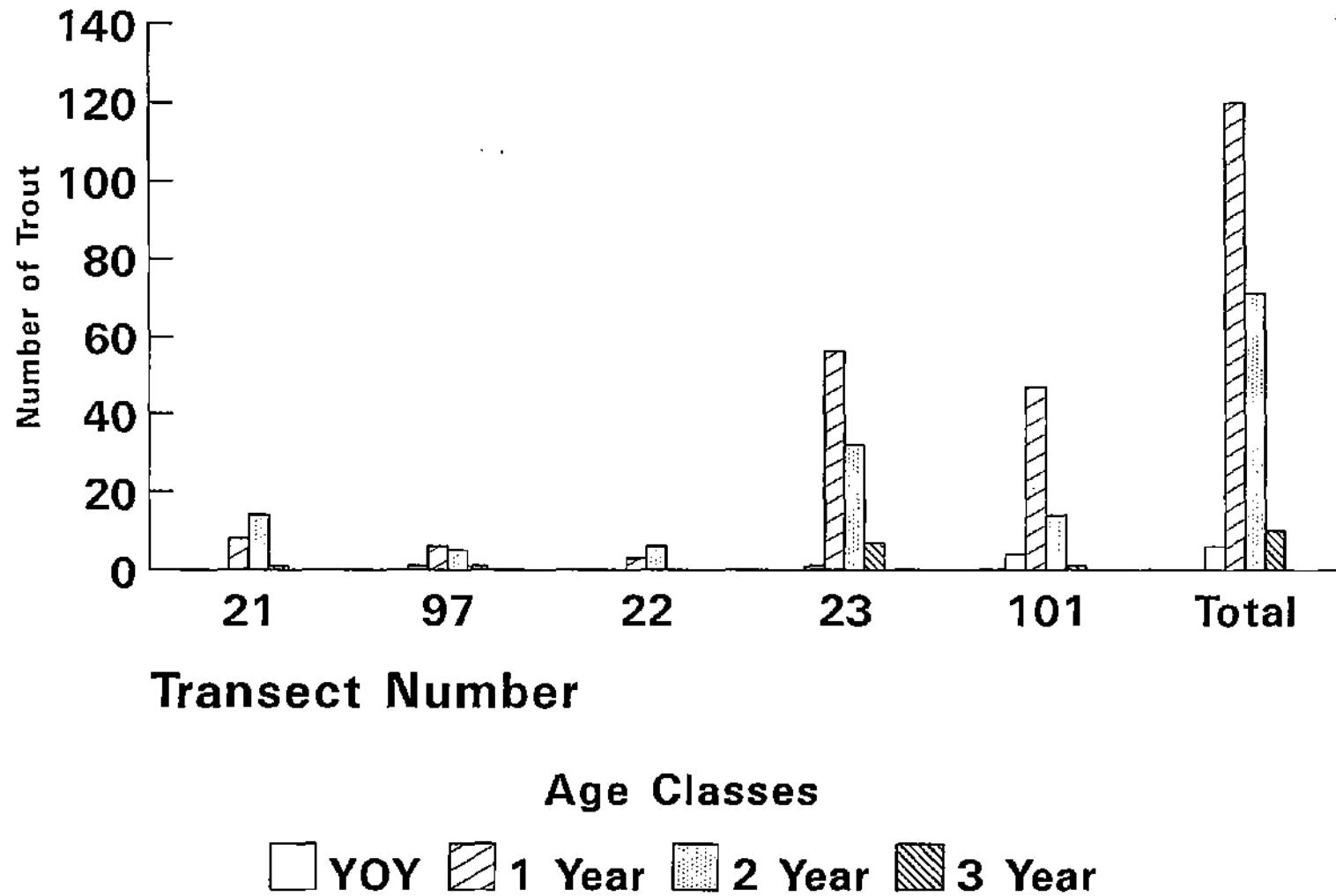
Brook Trout 1987-1992



YOY = Young of the Year

Big Run

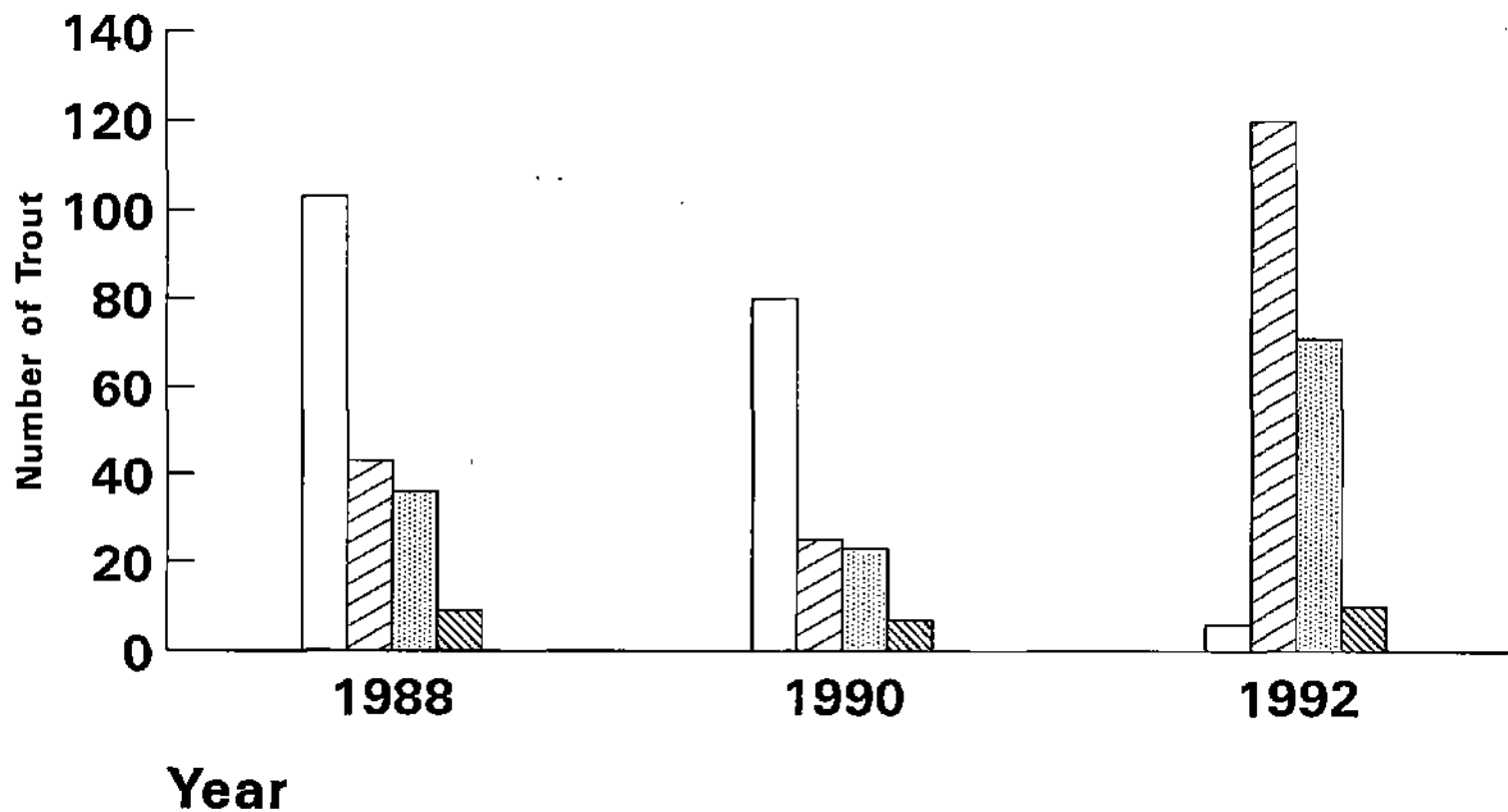
Brook Trout 1992



YOY = Young of the Year

Big Run

Brook Trout 1988-1992



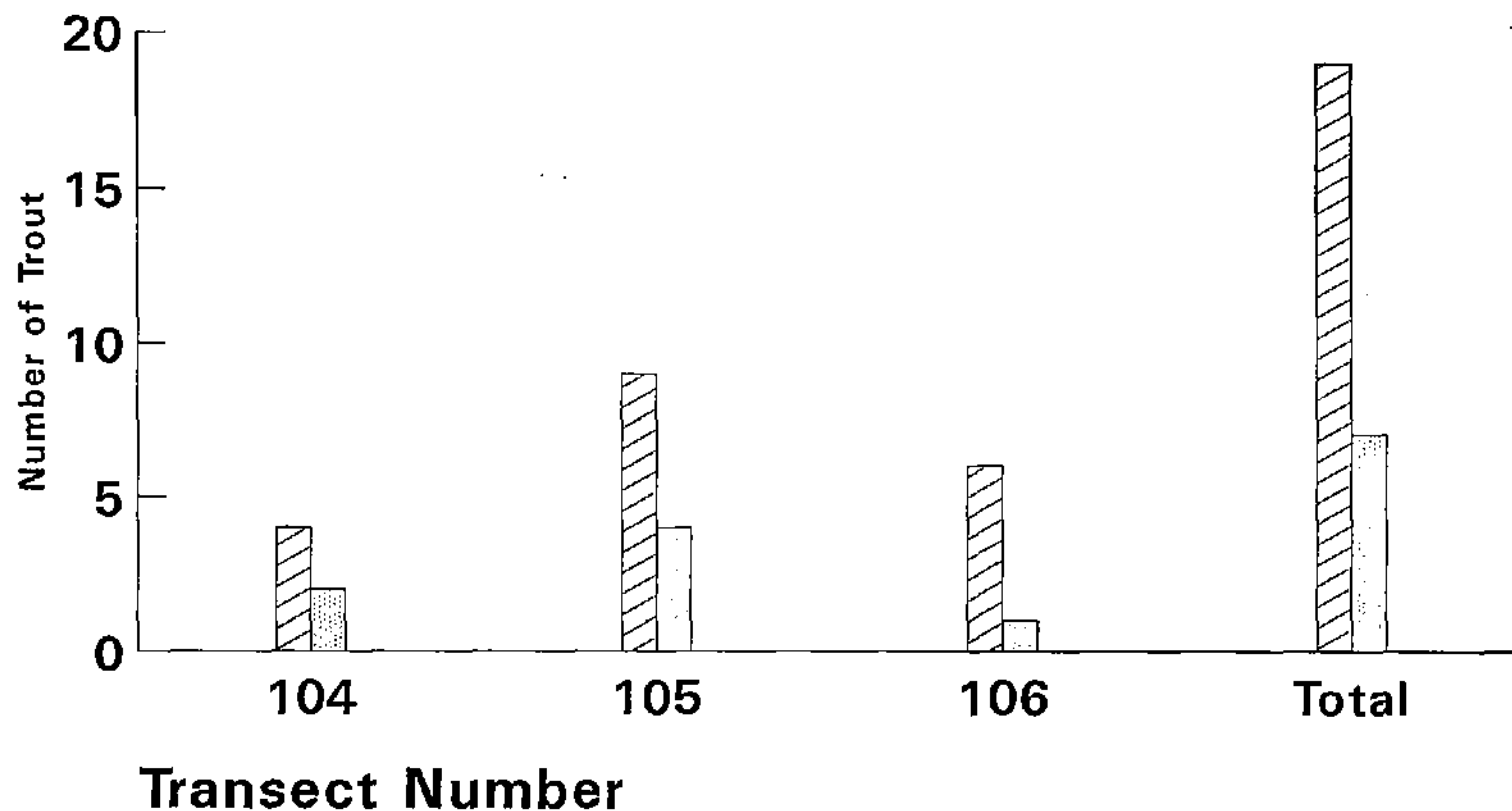
Age Classes

□ YOY ▨ 1 Year ▩ 2 Year ▩ 3 Year

YOY = Young of the Year

Lower Lewis Run

Brook Trout 1992



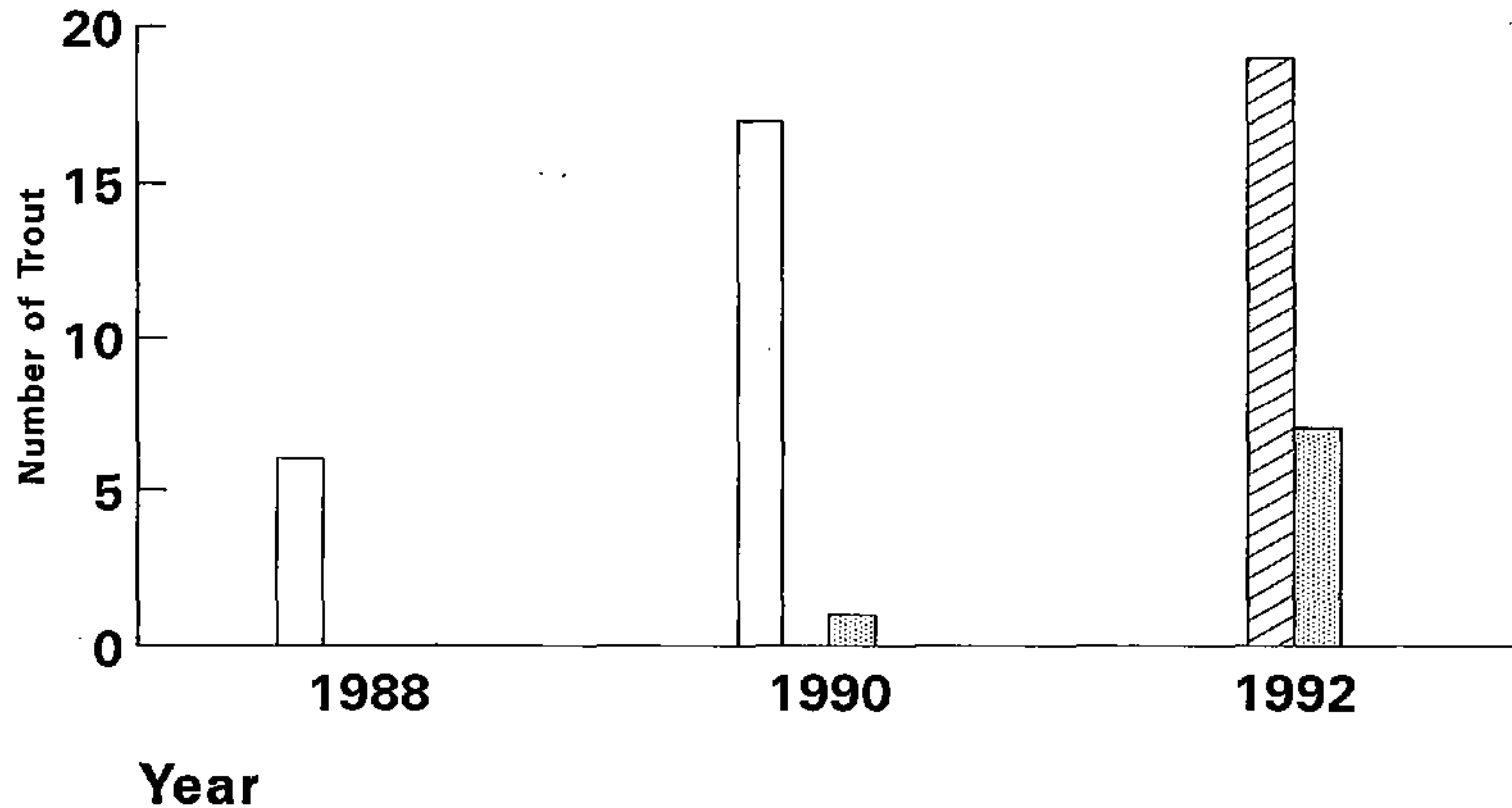
Age Classes

□ YOY ▨ 1 Year ▤ 2 Year ▩ 3 Year

YOY = Young of the Year

Lower Lewis Run

Brook Trout 1988-1992



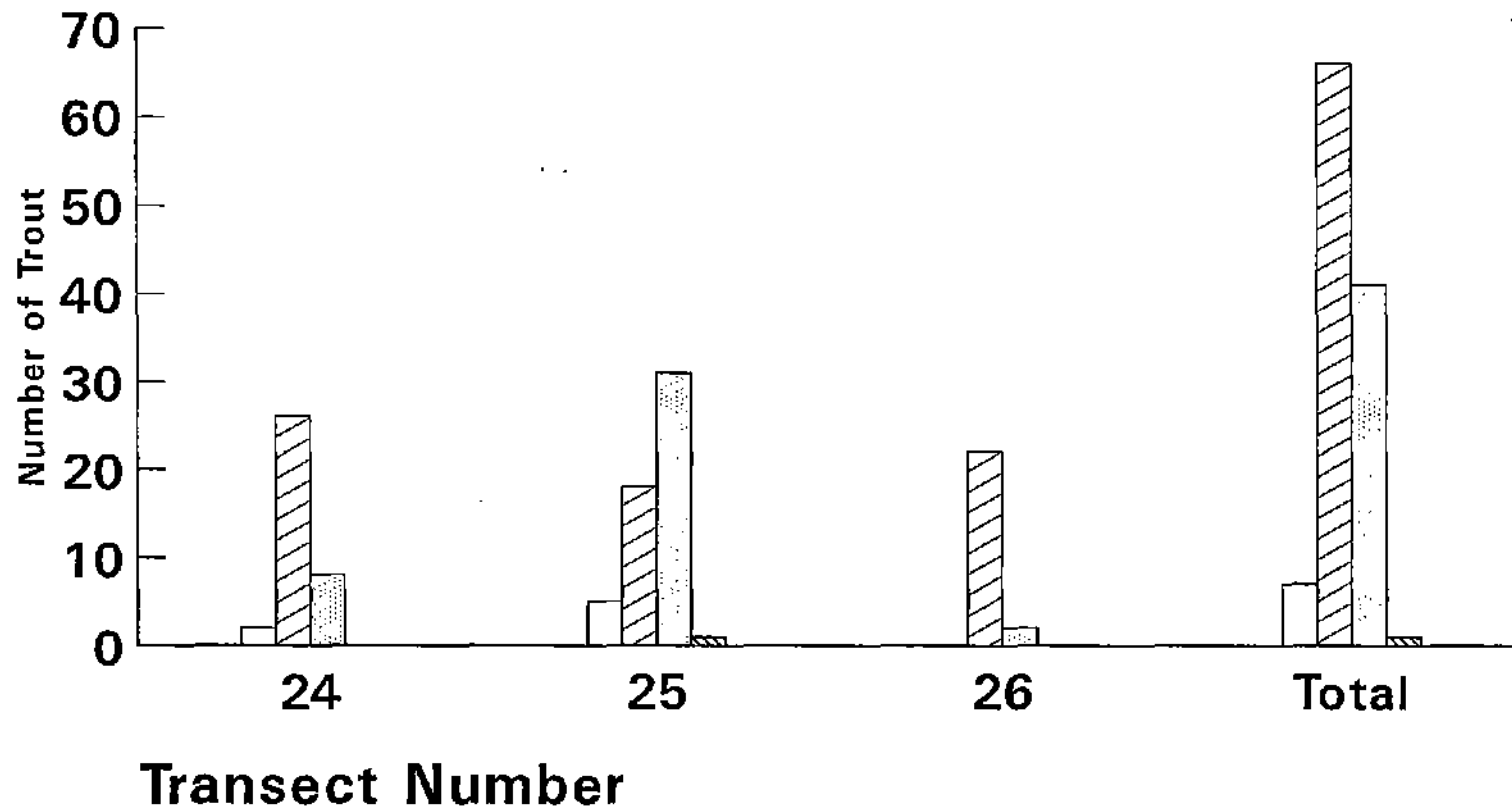
Age Classes

□ YOY ▨ 1 Year ▤ 2 Year ▩ 3 Year

YOY = Young of the Year

Madison Run

Brook Trout 1992



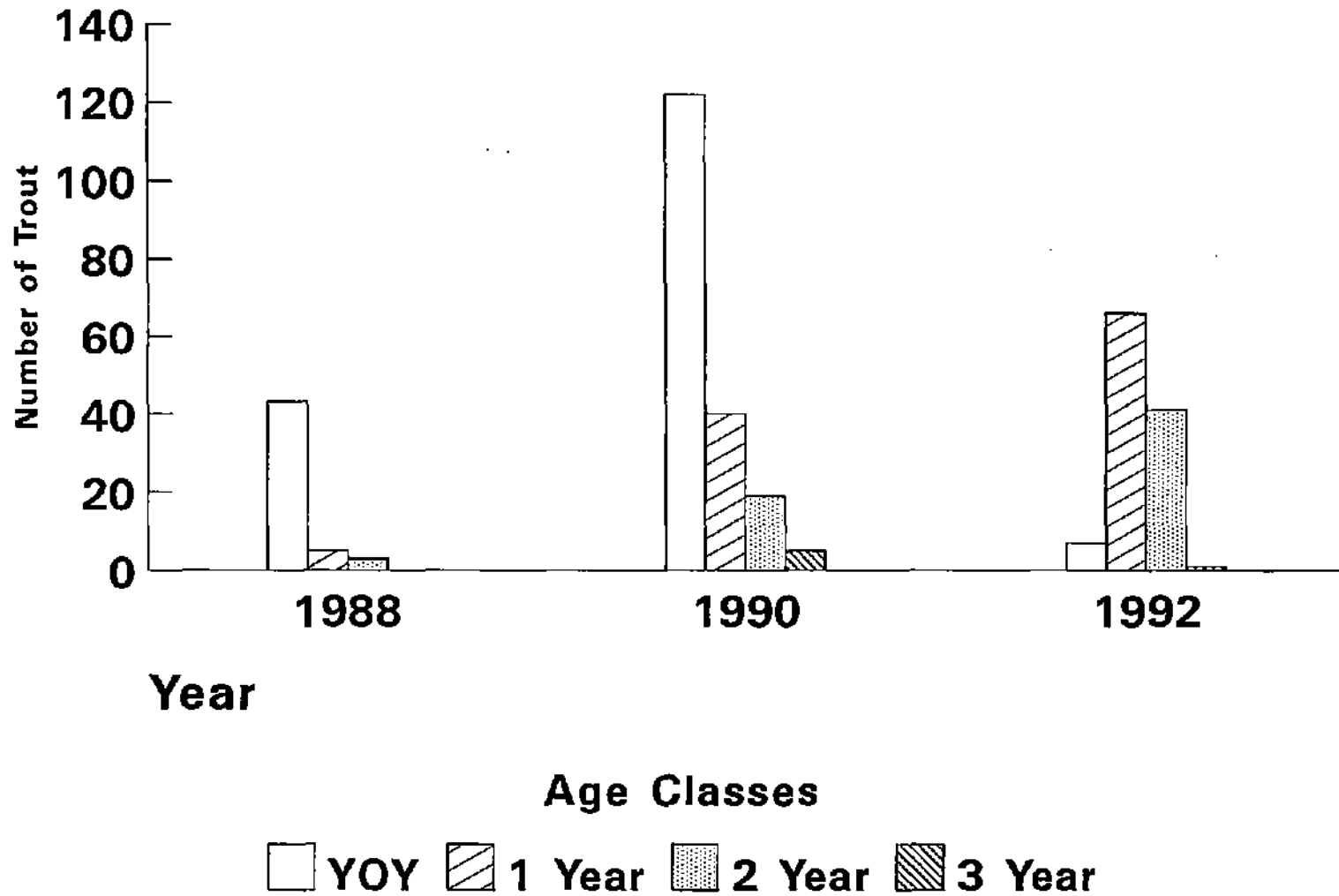
Age Classes

□ YOY ▨ 1 Year ▩ 2 Year ▩ 3 Year

YOY = Young of the Year

Madison Run

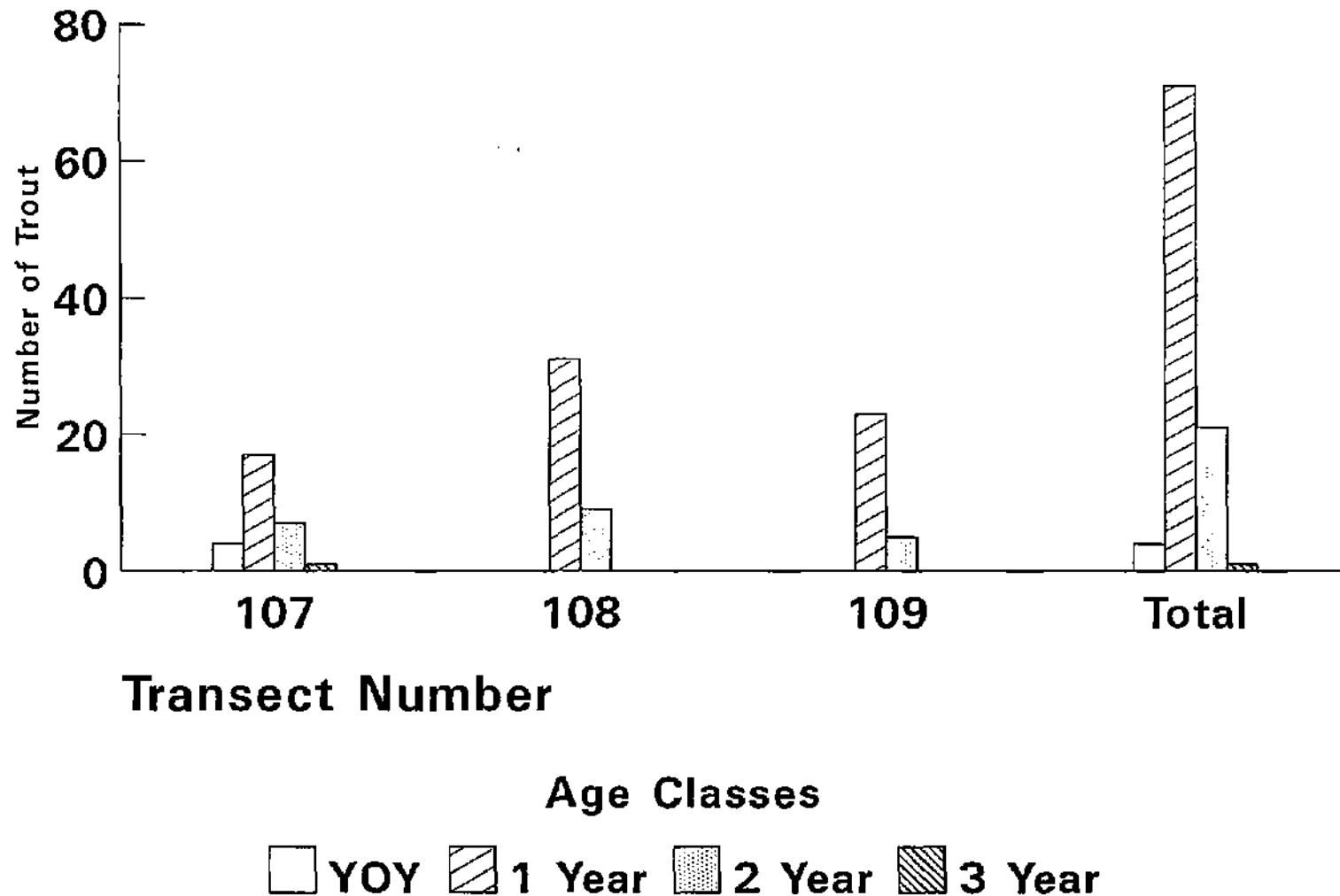
Brook Trout 1988-1992



YOY = Young of the Year

Meadow Run

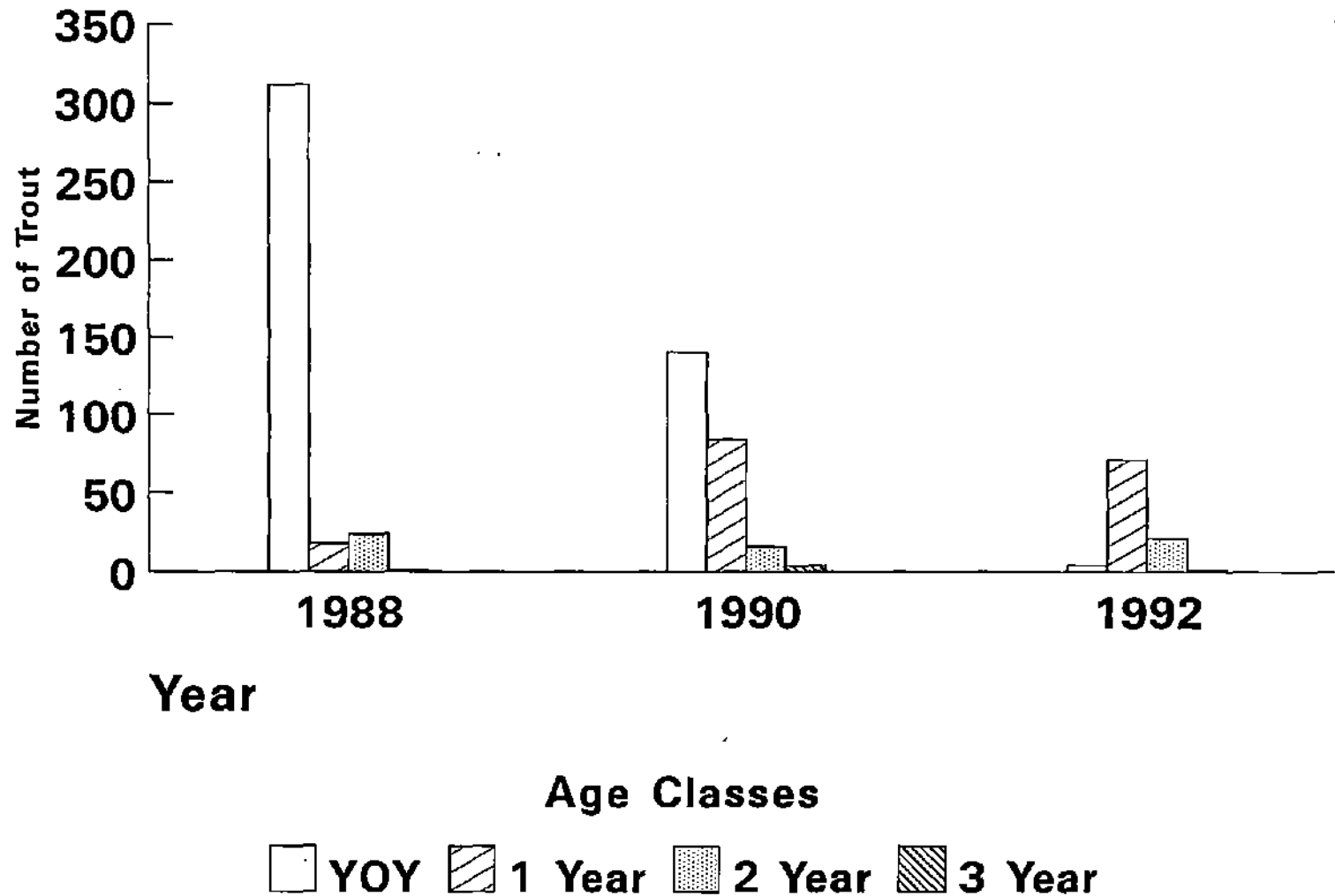
Brook Trout 1992



YOY = Young of the Year

Meadow Run

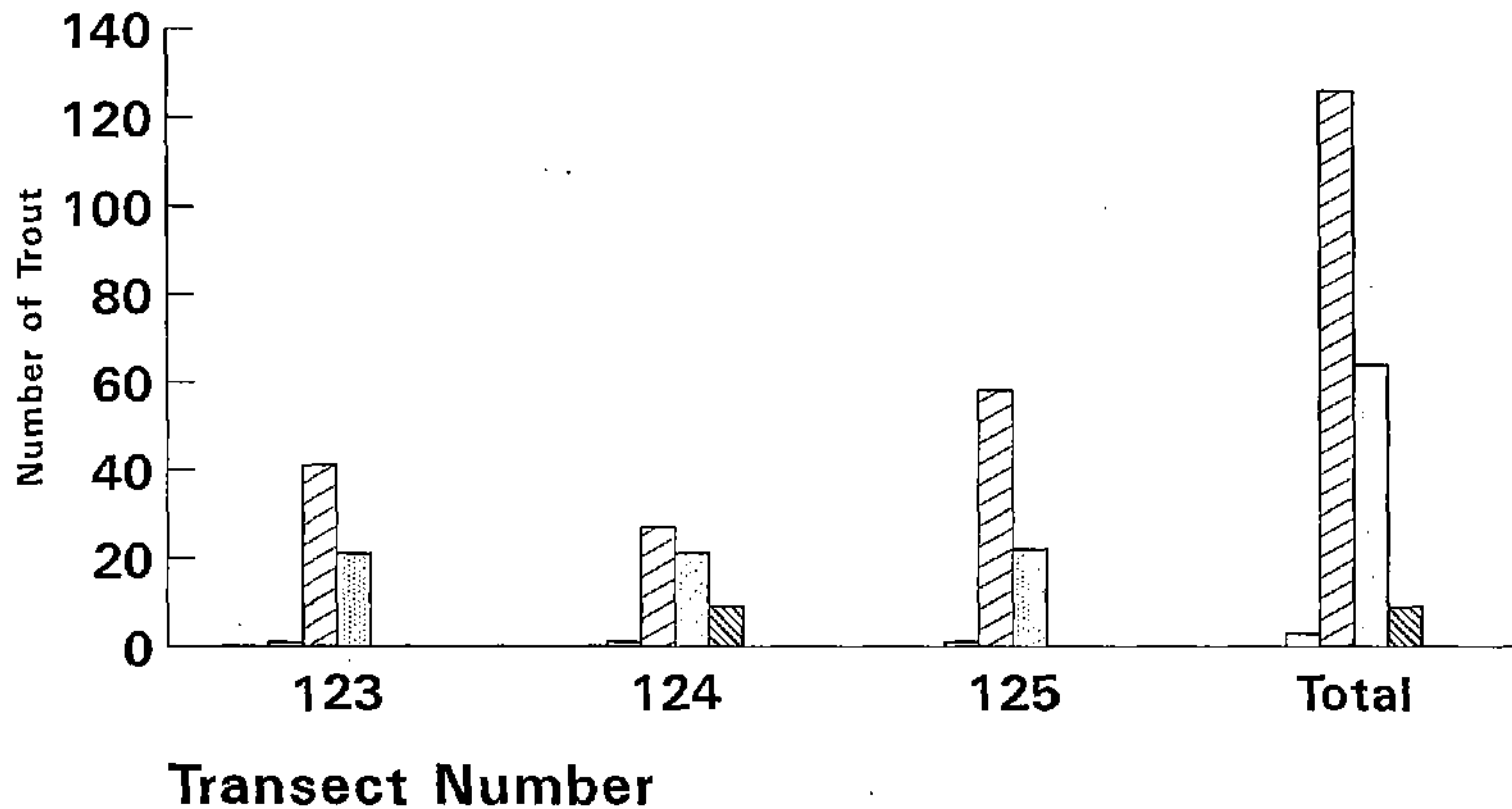
Brook Trout 1988-1992



YOY = Young of the Year

Paine Run

Brook Trout 1992



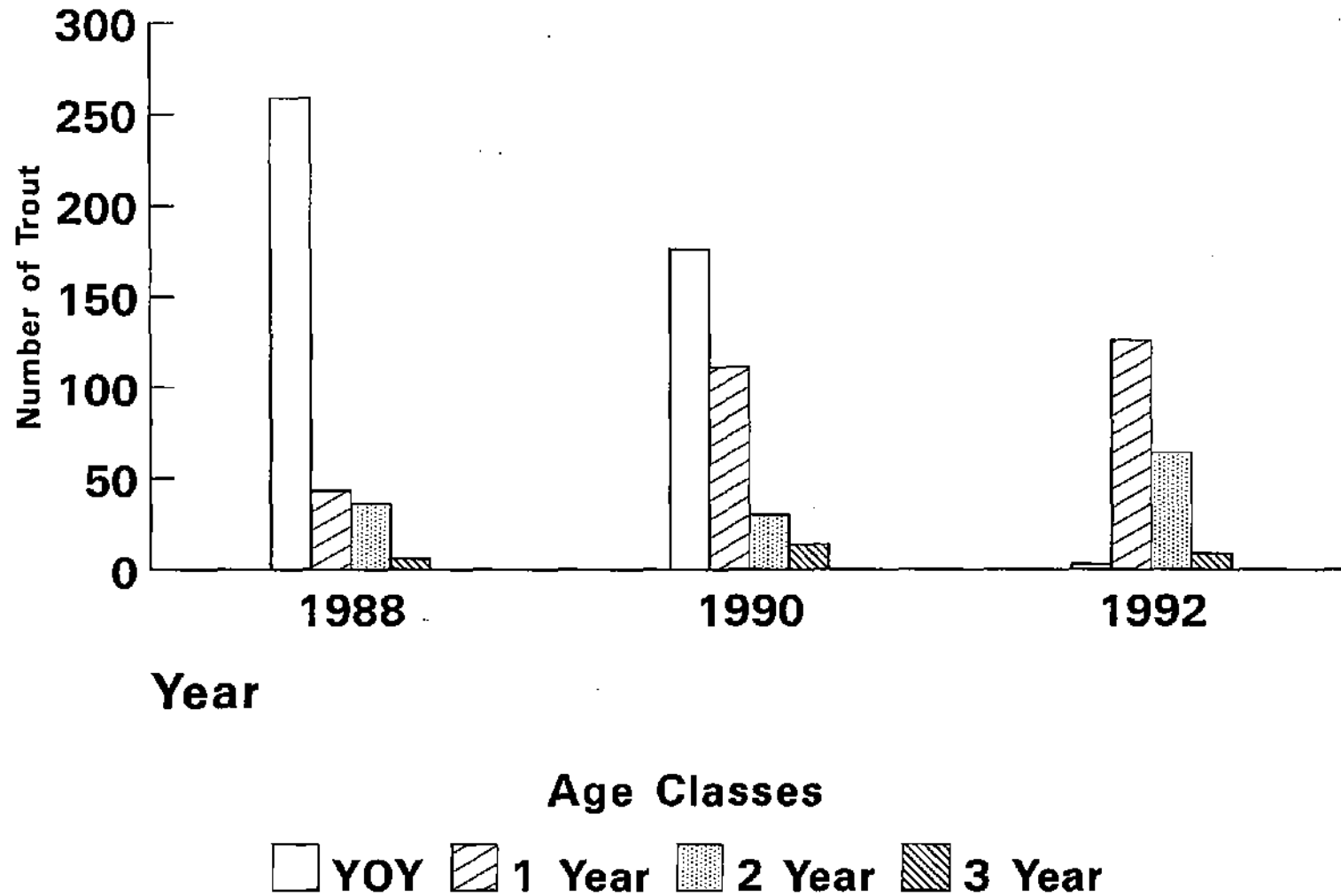
Age Classes

□ YOY ▨ 1 Year ▩ 2 Year ▩ 3 Year

YOY = Young of the Year

Paine Run

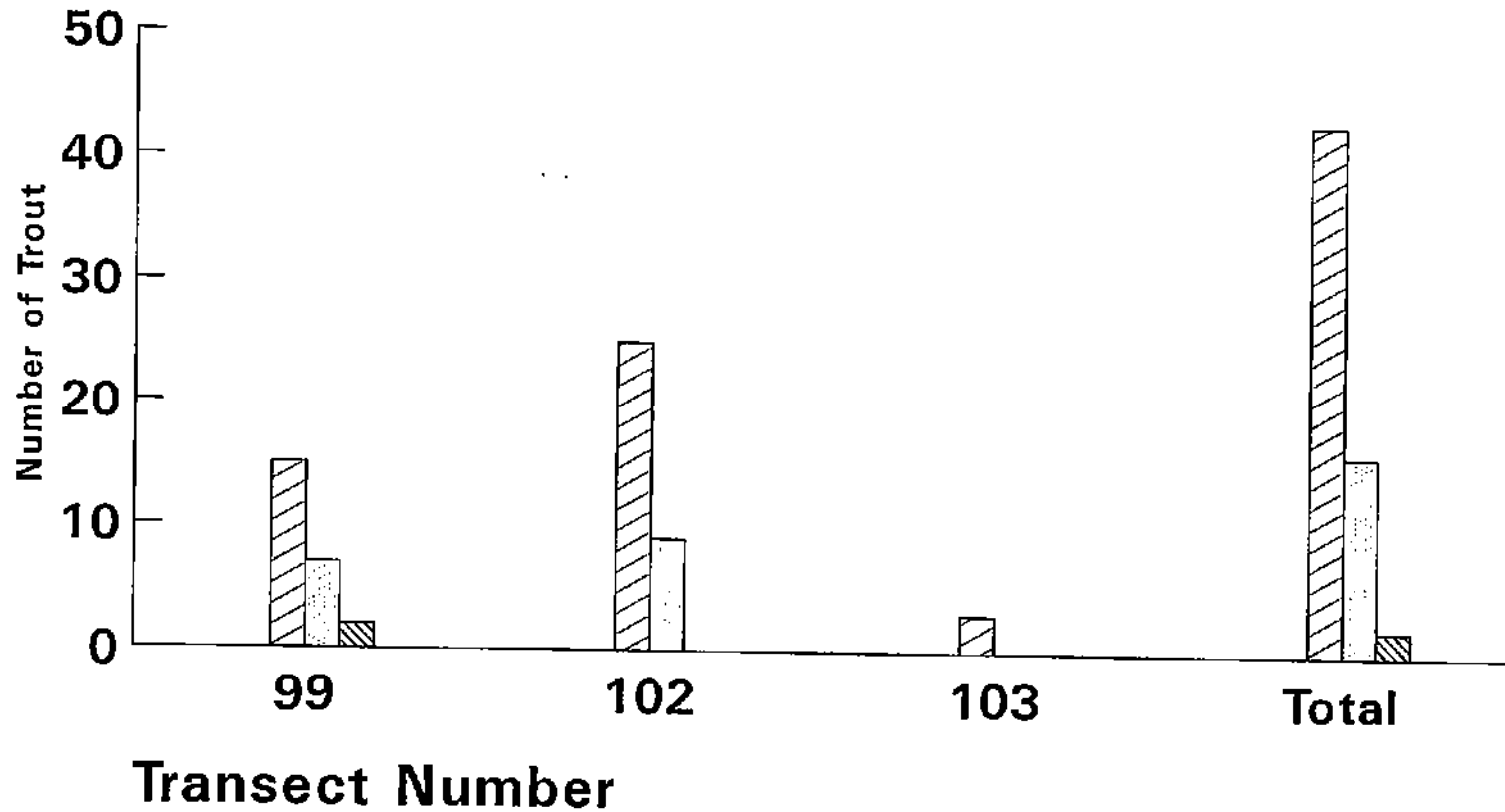
Brook Trout 1988-1992



YOY = Young of the Year

Two Mile Run

Brook Trout 1992



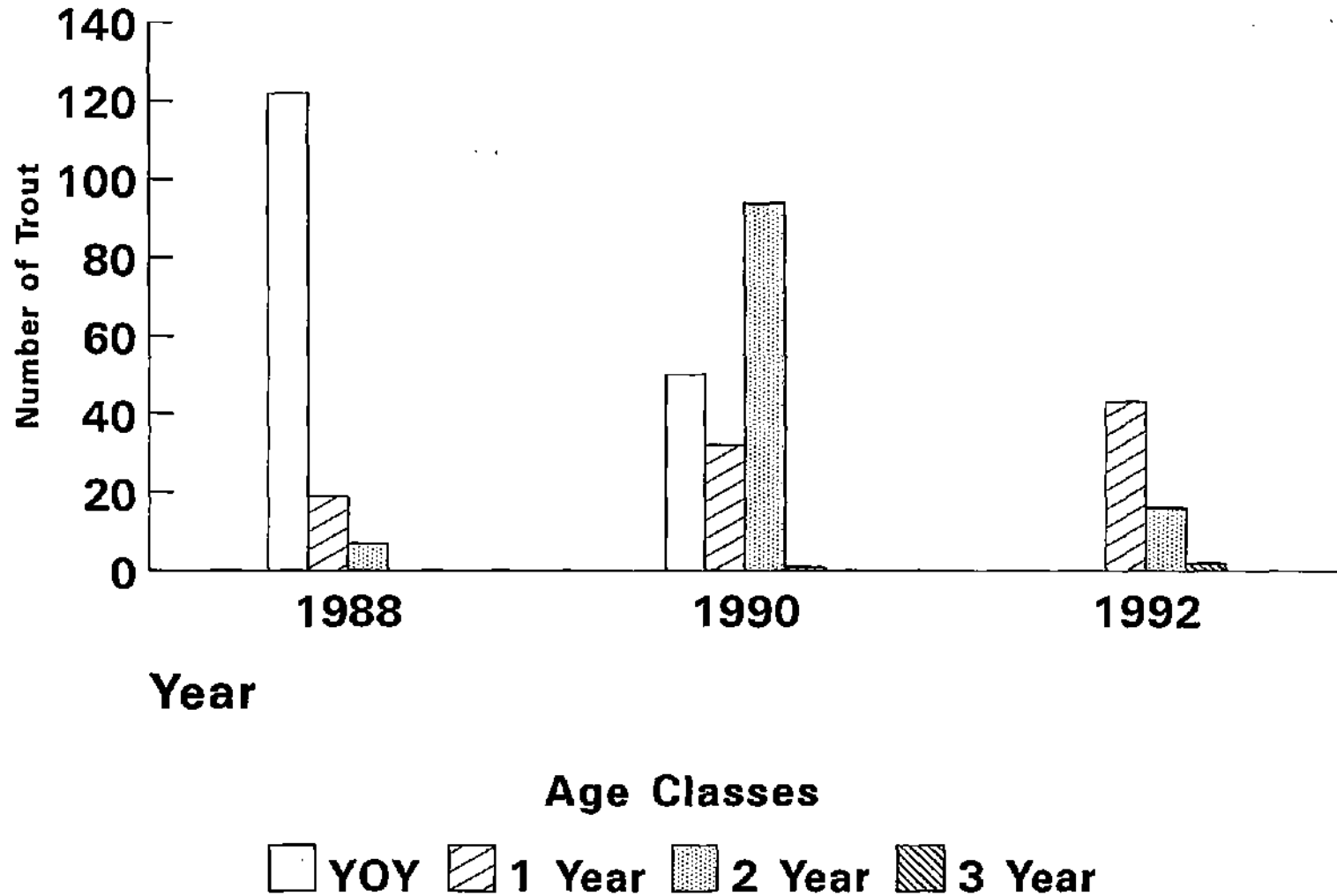
Age Classes

□ YOY ▨ 1 Year ▤ 2 Year ▩ 3 Year

YOY = Young of the Year

Two Mile Run

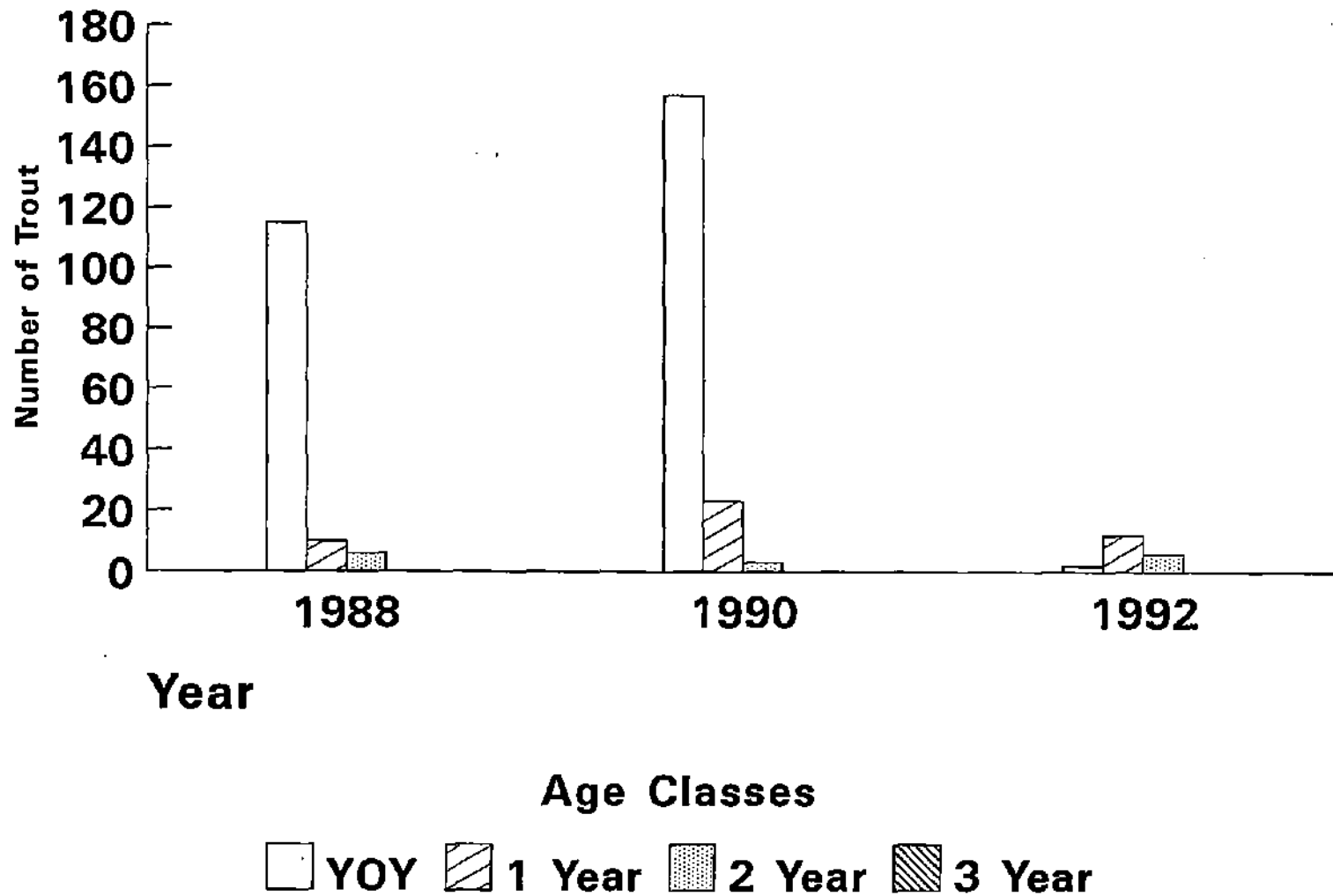
Brook Trout 1988-1992



YOY = Young of the Year

Sawmill Run

Brook Trout 1988-1992



YOY = Young of the Year