MONTANA DEPARTMENT OF FISH, WILDLIFE AND PARKS

FISHERIES DIVISION

JOB PROGRESS REPORT

State: Montana

Project Number: F46R2
Job Number: II-c

Project Title: Statewide Fisheries Investigations
Study Title: Survey and Inventory of Cold Water Lakes
Job Title: Southwest Montana Cold Water Stream Investigations
Period Covered July 1, 1988 through June 30, 1989

JOB OBJECTIVES

1. Increase late summer and fall reservoir pool in Ruby Reservoir (post-irrigation levels) to provide greater amount of aquatic habitat.

   Worked with Ruby Valley water users and SCS to formulate a reservoir management plan using predicted water availability. In order to make these water availability predictions more accurate a low elevation Snotel moisture measurement site was installed in the drainage.

2. Insure that land uses do not adversely affect lake water quality or tributary stream spawning habitat.

   Comments on U.S.F.S.timber sales and grazing allotments of in critical areas where affected reservoir or tributary stream spawning habitat.

3. Collect necessary information to properly manage mountain lake fisheries as time and funding allows.

   A total of 15 high mountain lakes were gill netted and a stocking plan was formulated for each lake.

4. Maintain catch rates at an acceptable level for mountain lake cutthroat fisheries.

   McBride lake cutthroat trout were stocked in those mountain lakes scheduled for stocking in 1988.

5. Maintain wild rainbow trout fishery in Hidden Lake sustaining 1000 angler days/ year with catch rates of $\geq$0.5 fisher/hour. Maintain densities reflected in average sample of $\geq$20 fish per 125 ft. floating gill net set.

Floating gill nets were set in Hidden Lake to evaluate the population of wild rainbow trout. Data has yet to be analyzed.

6. Maintain fishery of Elk Lake sustaining 4000 angler days/year with catch rates of 0.5 fish/hour. Maintain densities reflected in average sample of ≥18 cutthroat trout per 125 ft. gill net set with opportunity to catch trophy grayling.

   Gill nets were set in Elk Lake to evaluate the cutthroat trout and grayling fishery. Data has yet to be analyzed.

7. Maintain wild rainbow and brown trout fishery in Ruby Reservoir sustaining 4000 angler/year with catch rates of 0.5 fish/hour and rainbow densities reflected in average samples of ≥18 fish per 125 ft. gill net set.

   Gill nets were set in Ruby Reservoir to determine trend data for the wild rainbow and brown trout population. Data has not yet been analyzed.

8. Develop a consistent rainbow trout fishery with opportunities to catch edible size yellow perch in Dailey Lake.

   Gill nets were set in Dailey Lake to determine densities of rainbow trout and yellow perch. Data has not yet been analyzed.

9. Introduce Eagle Lake strain rainbow trout to Haypress Lake and establish population as a brood source for further introductions.

   Initial plants of Eagle Lake rainbow trout were introduced into Haypress Lakes.

10. Manage Culver Pond as a trophy brook trout fishery with the opportunity of catching brook trout ≥14 inches.

    Gill nets were set in Culver Pond to evaluate the number and sizes of brook trout present. Data has not yet been analyzed.

11. Manage McDonald Pond as a trophy rainbow trout fishery, with the opportunity of catching rainbow trout ≥18 inches.

Gill nets were set in McDonald Pond to determine the number and sizes of the wild rainbow trout population. Data has not yet been analyzed.

12. Provide opportunity for catching trophy size cutthroat trout in selected mountain lakes of the region.

No activity in this objective.

## VARIANCES

12. No lakes were identified during this period as having potential for a trophy sized cutthroat trout fishery.

## PROCEDURES

Fish populations will be sampled using 125 foot experimental mesh gill nets. Stocking rates and frequency for McBride cutthroat in high mountain lakes will be adjusted based on either gill net, creel census or pervious stocking sequence. Periodic checks of spawning runs will be used to determine success of wild strain introductions in lakes where these strains are used.

## FINDINGS

### RUBY RESERVOIR

Ruby Reservoir is a 38,800 acre foot impoundment located on the Ruby River near Alder, Montana. The reservoir is used primarily for irrigation water storage and flood control. Ruby reservoir supports populations of wild brown and rainbow trout and received annual plants of hatchery rainbow trout through 1980. In 1980, the annual plant of hatchery rainbow was abandoned in favor of the stocking of McBride Yellowstone cutthroat trout. This program was conducted during the 1980 - 1983 period with an annual plant of 25,000 to 30,000 young of the year fish into the reservoir. Through an error in communication, the last Arlee strain rainbow plant coincided with the first McBride cutthroat plant in 1980. In 1984, the stocking of all hatchery trout into the reservoir was abandoned in order to evaluate the management of the reservoir as a wild trout fishery.

#### Rainbow Trout

Spring rainbow trout population trends for Ruby Reservoir are presented in Figure 1. The 1980 Arlee rainbow plant was relatively successful and contributed substantially to the population from 1981-83. The figure suggests, however, that a wild rainbow trout population began to build after the last hatchery plant and by 1983, composed the majority of the rainbow

trout sample. By 1986, the wild rainbow population had achieved a density reflected as 22.6 per net sample, a density which exceeded that of the highly successful 1980 hatchery plant. Since 1986, however, the population of wild rainbow has undergone a steady decline, dropping to an observed low of 2.8 per net in 1989. In 1988, a plant of 25,000 Arlee rainbow trout was made in the reservoir in response to the rapid decline of wild fish. This plant met with limited success as reflected in the 1989 sample of 4.6 per net.

Analysis of the age composition of the Ruby Reservoir rainbow trout population is presented in Figure 2 . The data follow the decline of the 1980 Arlee plant as well as the appearance of wild rainbow trout in the population. The data suggest that the high densities of rainbow trout in 1985 and 1986 were largely due to excellent recruitment into the population from the spawn of 1983, reflected in high densities of age 2 fish in 1985 and age 3 fish in 1986. Length range and mean lengths of fish within the rainbow trout population are given in Figure 3. This figure demonstrates an expansion of length range and a drop in mean length in the 1984-86 period concomitant with good recruitment into the population.

Reasons for the appearance, growth, and decline of the wild rainbow trout population in Ruby Reservoir are not fully understood at present. It is highly probable that severe reservoir drawdowns to 10,000 acre feet or less during the 1985-88 period have limited survival. This would be supported by the limited survival of the 1988 Arlee plant. It is also possible that severe runoff flows in the Ruby River in 1984 transported large numbers of age one rainbow into the reservoir accomplishing a natural "stocking" phenomenon which has since been diminished by severe reservoir drawdown. It has been demonstrated, however, that Ruby Reservoir has the capability of supporting a wild rainbow trout population, at least in the short term, in the absence of hatchery plants.

## Brown Trout

The wild brown trout population of Ruby Reservoir has fluctuated over time at densities reflected in net samples between 1 and 6 per net set (Figure 4). Analysis of the age composition of the population (Figure 5) indicates that sample highs correspond with strong recruitment of age 2 fish into the population. Average spring lengths of age 2 fish at 11.2-12.6 in., age 3 at 14.0-15.3 in., and age 4+ at 15.4-17.1 in. over the sample period indicate good growth for brown trout in the reservoir. Figure 6 shows the length range and mean length for brown trout within the samples.

## Cutthroat Trout

The McBride cutthroat trout introductions into Ruby Reservoir have met with very limited success and have not been successful in establishing a significant population (Figure 7). High samples of 2.4 per net in 1982 and 2.2 per net in 1984 were

dominated by age 2 fish from the 1980 and 1982 plants. Samples collected during the 1987-89 period indicate that a small reproducing population has become established in the reservoir but it constitutes a relatively minor component of the trout population. The length range and mean length of the cutthroat trout in the samples (Figure 8) demonstrate good growth in the reservoir with fish averaging 14 inches in length in 1982 and 1984.

## ELK LAKE

Elk Lake is located in the Centennial Valley north of the Red Rock Lakes National Wildlife Refuge. Its fishery was described by Lund (1974) with more recent data summarized by Oswald (1986). Elk Lake supports wild populations of lake trout and arctic grayling as well as a small population of rainbow trout originating from plants prior to 1965. Since 1965, Elk Lake has received annual plants of hatchery cutthroat trout which have consisted of the McBride strain of Yellowstone cutthroat since 1977.

### Cutthroat Trout

Spring trends in numbers of cutthroat trout are presented for the 1979-89 period in Figure 9. Prior to 1983, cutthroat trout plants met with varying degrees of survival, generally at relatively low levels. In 1982, plants of yearling fish replaced plants of young of the year fish and survival increased markedly. Dependence on yearling fish limited hatchery capacities, however, resulting in an inability to stock the lake on an annual basis, which resulted in the sample fluctuations. Elk Lake received plants of 21,000 in 1982, 15,000 in 1983, 13,000 in 1986, and 19,000 in 1988 for yearling fish. It is obvious that planting yearlings in 1982 and 1983 resulted in high numbers of cutthroat trout per net in 1984, however numbers declined rapidly in 1985 and 1986 in the absence of hatchery plants. Age analysis of the samples (Figure 10) provides a better insight into the fate of each year class. This figure suggests that survival of the yearling plants is excellent to age 2, fair to age 3 and poor to age 4. Missing age classes due to the inability to stock yearlings on an annual basis, results in large fluctuations in the population. Fluctuations in length range and mean length of fish in the sample (Figure 11) correspond with the classes of yearling fish planted and represent excellent growth at age for cutthroat trout. The data suggest extreme mortality, probably associated largely with fisherman harvest, between age 3 and age 4 in Elk Lake. Alternative methods to the present stocking program must be investigated in order to add a measure of stability to the Elk Lake cutthroat trout fishery.

### Arctic Grayling

Trends in wild grayling populations are summarized in Figure 12. Grayling numbers have fluctuated to some degree but have remained

relatively high averaging about 8.0 per net over the sample period. The Elk Lake grayling population is dependant on spawning period streamflow in Narrows Creek, a small tributary of the lake (Lund 1974). Since 1987, spawning flows in Narrows Creek have been absent or inadequate due to drought and a large beaver dam and impoundment on the stream. The recent downturn in grayling numbers as well as high mean length and narrow length range in the sample (Figure 13) are indicative of an aging population lacking adequate reproduction. Alternative means of increasing spawning and rearing flows in Narrows Creek are currently being investigated by the U.S. Forest Service to maintain the grayling population. Elk Lake grayling show exceptional growth and maximum size with fish generally averaging in excess of 14 inches attaining lengths in excess of 17 inches.

### Lake Trout

Lake trout numbers appeared to remain relatively stable over the 1979-83 period (Figure 14) but experienced a decline over the 1984-88 period. These trends may have been an artifact of sampling associated with the use of floating gill nets on a deep dwelling species. In 1989, sinking gill nets were added to the program to specifically sample lake trout, but this data was not included in Figure 14 in order to maintain the long term trend information from floating net samples. Two sinking nets yielded 2.0 fish per net although one net contained no fish. As sampling locations are determined and data from sinking nets are developed, it is hoped that better information on lake trout abundance will be available. Lake trout growth in Elk Lake is limited by the lack of a pelagic forage fish and lengths of fish in the sample generally range up to about 18 inches.

## HIDDEN LAKE

### Rainbow Trout

Hidden Lake is a 149 acre natural lake located north of Elk Lake on the Madison River side of the divide that separates the Madison and Red Rock River drainages. The lake received plants of rainbow trout in 1933, '34, '46, and '47 but has been maintained as a wild rainbow trout fishery since then. Spring sample data (Figure 15) indicate high densities of rainbow trout, averaging slightly more than 29 per net, over the sample period. The samples, with the exception of 1987, demonstrate a high degree of stability within the population. While density of rainbow trout is high, growth is good with age 2 fish averaging 9.5 inches, age 3 fish averaging 13.2 inches and age 4 fish averaging 15.6 inches in early spring.

Length distribution as well as an approximation of age distribution within the samples show that the 1985 population is dominated by age groups 3 and 4, however the 1986-88 samples indicate a strong recruitment of age 2 fish. Spawning habitat in the inlet stream is very limited and does not appear adequate to stock the lake at the observed densities. A great deal of spawning activity has been observed in the

lake along shorelines, especially on gravel associated with windswept points. Hidden Lake may constitute a relatively rare example of a rainbow trout population that sustains its recruitment from intralacustrine spawning habitat.

CULVER POND

Culver Pond is a man made spring pond located on the Red Rock Lakes National Wildlife Refuge in the upper Centennial Valley. Culver Pond, also known as the Widow's Pool, has supported a trophy brook trout fishery of national prominence. In 1986, data indicated that the mean length and the number of larger (15 inch and larger) brook trout were declining (Oswald 1986). It was in that year that special restrictive regulations were implemented to enhance numbers of large brook trout. These regulations limited fisherman harvest to 4 fish under 12 inches and one fish in excess of 18 inches as well as restricting angler method to the use of artificial flies or lures. In 1988, the earthen dam at the outlet to the pond failed and breached reducing depth and surface of the pond to two small pools. By July of 1988, the dam was reconstructed and the pond began to refill. After it was filled, the pond received a plant of young of the year brook trout to replenish stocks believed lost through the dam failure.

Brook Trout

Spring numbers of brook trout collected from Culver Pond are presented in Figure 16. During the 1980's, numbers of brook trout per net were significantly higher than those observed in the 1970's. This was based largely on strong recruitment as the population expanded. While numbers were high after the dam failure and dewatering of 1988, 15 of the 40 per net were hatchery plants from 1988 that had survived to yearling status. The remaining portion of the sample, 25 per net, was composed of wild fish that survived the dam failure suggesting that the hatchery plant was not necessary. The implementation of special regulations in 1986 met with rapid success in 1987 (Figure 17) as depicted in the rapid increase in the number of 15 inch and larger brook trout in the sample. This was due to the rapid growth rate observed in the pond and protection of age 2 fish in excess of 12 inches in length. The dam failure of 1988 prevented sampling and the continued analysis of this particular year class under the regulation. The 1989 sample suggests a downturn in the number of 15 inch and larger fish but this may be a short term artifact of single gill net sampling or may be due to differential mortality or loss of older fish associated with the dam failure. Continued monitoring of Culver Pond will be necessary to evaluate the effect of the special regulation.

MCDONALD POND

McDonald Pond is located on the Red Rock Lakes National Wildlife Refuge in the upper Centennial Valley. It was formed by the construction of an earthen fill dam and outlet on Elk Springs Creek. The pond has been known to support a trophy rainbow trout fishery that was in a state of decline due to blockage of spawning habitat in Elk Springs Creek (Oswald 1986). In 1986, trophy regulations limiting anglers to the harvest of one fish in excess of 20 inches and to the use of artificial flies and lures were put into effect. In 1987, beaver dams blocking spawning habitat in Elk Springs Creek were removed. To enhance a depleted rainbow trout population, Eagle Lake strain rainbow trout were planted as yearlings in 1987 and 1988. Malfunction of hatchery truck equipment resulted in extreme mortality and loss in the 1987 plant which necessitated the 1988 plant.

Rainbow Trout

Spring numbers of rainbow trout collected in gill nets set overnight in McDonald Pond are presented in Figure 18. Numbers per net show the population decline that was evident until 1988. The 1988 sample was primarily composed of age two Eagle Lake rainbow that had survived the 1987 plant. These fish ranged from 16.2 to 17.4 inches and averaged 16.9 inches in length. The 1989 sample was also dominated by age two Eagle Lake rainbow from the 1988 yearling plant which experienced superior survival. These fish ranged from 14.7 to 17.4 inches and averaged 16.2 inches in length (Figure 19). This figure also demonstrates the best natural recruitment observed since the 1970's in the form of yearling fish averaging 8.2 inches present at 2.0 per net. The evaluation of the special regulation as well as the Eagle Lake strain of rainbow will continue through future sampling which will follow from the strong population base apparent in 1989.

DAILEY LAKE

The history of the Dailey Lake fishery has involved considerable manipulation by man. Annual fluctuations in the size of yellow perch and rainbow trout are dependent upon recent management actions (Figure 25 and 26). The growth of yellow perch and rainbow trout is controlled by densities of yellow perch in the lake. Removal of yellow perch to allow better growth of the yellow perch and rainbow trout has been successful in other lakes. Since the lake was partially rehabilitated in 1984, the mean length of yellow perch increased through 1986 and has declined since then, similar to the pattern after rehabilitation in 1977.

The mean length of rainbow trout has been stable since large walleye were removed from the lake in 1984. Predation by large walleye on stocked rainbow trout fingerlings is considered to have limited the success of introductions of trout in the early 1980's. Stocking catchable rainbow trout may be successful in maintaining a rainbow trout fishery in the presence of walleye.

A few walleye are still present in Dailey Lake. These fish are probably remnants of fingerling plants in the early 1980's. High mortality in the transportation of these fish was blamed for the poor success of these introductions.

At public meetings during 1987 local anglers were asked whether Dailey Lake should be managed for walleye or rainbow trout. Fishermen preferred walleye over rainbow trout by 60% to 40%. At the present time we are attempting to acquire fingerling walleye for introduction into Dailey Lake.

PARK LAKE

This lake is an impoundment built by miners in the 1880's. It is located south of Helena (26 miles by road) at the head of Lump Gulch. It had been managed mainly with annual stockings of rainbow trout until 1984. Park lake has a self-reproducing Arctic Grayling population that resulted from stockings in 1970 and before.

Sampling in 1984, revealed no rainbow trout present but a healthy grayling population. The grayling sample from three (3) gill nets (125 by 6 feet, experimental mesh) totaled 112. These fish averaged 12.1 inches in length. Based on this information, trout management of Park Lake was changed to McBride Cutthroat trout.

After stocking the lake annually with cutthroat, it was again sampled in 1988. A total of 89 cutthroat and 27 grayling were taken in two (2) gill nets. A cursory review of the cutthroat trout length frequency suggests three year classes present. These trout averaged 8.1 inches in length (range 5.7 to 15.1 inches). The grayling sample averaged 13.6 inches and 13 per net. This increase in length and decrease in number may be significant, though the time of sampling was changed from May in 1984 to July in 1988. The inflow stream does have beaver activity which could be limiting grayling access. Conversely, beaver removal could yield excessive grayling recruitment which might increase abundance and decrease size.

Future management activities will include sampling every two years ( 2 gill nets, July) and continued annual stocking of 4000 McBride Cutthroat trout.

TOBACCO ROOT MOUNTAIN LAKES

Mountain lake work at the present time is mainly focused on survey and inventory of these waters. During this report period, considerable effort was spent on the lakes of the Tobacco Root Mountains. This

effort revealed 17 cutthroat lakes, 7 brook trout lakes, 2 rainbow lakes, 7 mixed fishery lakes, 13 barren lakes and 4 lakes went unsampled. Summary information of these lakes is presented in Tables 1.

Table 1 _. Summary of all Tobacco Root Lakes and the fishery status.

| LAKE | SPECIES a | LAKE | SPECIES |
|---|---|---|---|
| Albro | Ct | Lost Cabin | Ct |
| Alpine | None | Louise | Ct |
| Beall | None | Lupine | Ct |
| Bell | Ct | Macaroni | None |
| Bismark | Eb | Mason, Lower | None |
| Blossom | ? | Mason, Upper | Ct |
| Boulder, Lower | Eb | Noble | Ct |
| Boulder, Upper | Ct | Oval | None |
| Branham, Lower | Eb | Our Lady of the Lake | Ct |
| Branham, Upper | Eb | Rock Creek Lake | None |
| Brannan | Rb | Rossiter | None |
| Camp Creek | Ct | Sailor | Mix |
| Cataract | Eb | Skytop | Mix |
| Cliff | Ct | So. Meadow Creek Lake | Rb |
| Crystal | Private | Sawlog | ? |
| Curly | None | Sunrise | Ct |
| Deep | Mix | Sureshot, Lower | Ct |
| Emily | Grayling | Sureshot, Upper | Eb |
| Globe | Eb | Thompson | None |
| Gneiss | Ct | Taylor | None |
| Granite | None | Triangle | ? |
| Hill | None | Twin, Lower(sect.2) | Mix |
| Hollow Top | Mix | Twin, Upper(sect.2) | Mix |
| Jackson | Ct | Twin, Lower(sect.15) | Cut |
| Lilly | Ct | Ziegler | None |

a species code: Ct= McBride Cutthroat trout, Eb= brook trout, Rb= Rainbow trout, ?= unsampled, and Mix= mixed species.

PRIVATE PONDS

During 1987 a survey of the licensed private fishponds in Park County was undertaken. The purpose of this survey was to document the management of the ponds and identify any escapement potential if it existed. There are about 85 licensed private ponds in Park County. We collected information on 51 of the ponds. Table 2 summarizes the information collected.

Table 2. The status of private ponds surveyed in Park County, Montana during 1987.

| | |
|---|---|
| Licensed ponds | 85 |
| Ponds surveyed | 51 |
| Ponds not constructed | 12% |
| Ponds constructed but inactive | 25% |
| Ponds with screened outlets | 39% |
| Ponds with unscreened outlets | 61% |
| Escapement potential by fish in pond | |
| high | 38% |
| medium | 24% |
| low | 38% |
| Species stocked in pond | |
| rainbow trout | 86% |
| eastern brook trout | 6% |
| brown trout | 8% |

The numbers are presented as a percentage because there was overlap within categories. For example, an inactive pond that has not been stocked for several years may have a high escapement potential when fish are stocked.

The survey indicated that rainbow trout are the predominant fish in private ponds. Because the escapement of fish is likely in most of the ponds, mixing of rainbow trout with wild fish in the receiving waters is likely and has been observed. If the receiving water supports pure strain Yellowstone cutthroat trout, hybridization and eventual loss of the pure strain is possible.

## LITERATURE CITED

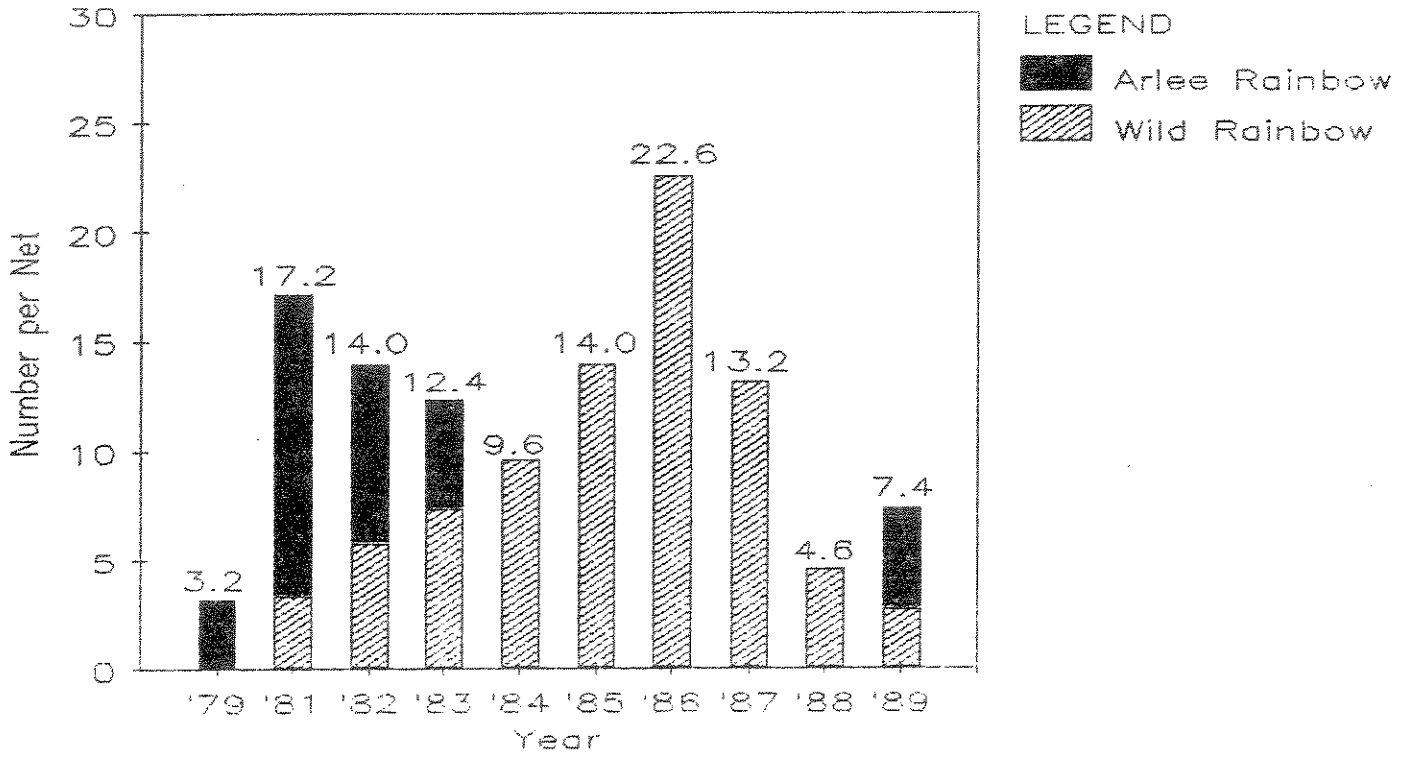
Lund, John 1974. The reproduction of salmonids in the inlets to Elk Lake, MT. M.S. Thesis, Montana State University.

Oswald, R.A. 1984. Inventory and Survey of the Waters of the Big Hole, Beaverhead and Ruby River Drainages. Job Prog. Rpt., Fed. Aid in fish and Wildlife Restoration Acts, Proj. No.
F-9-R34, Job Ib.

Prepared by: Richard Oswald, Wade Fredenberg, Bruce Rehwinkel, and Chris Clancy.

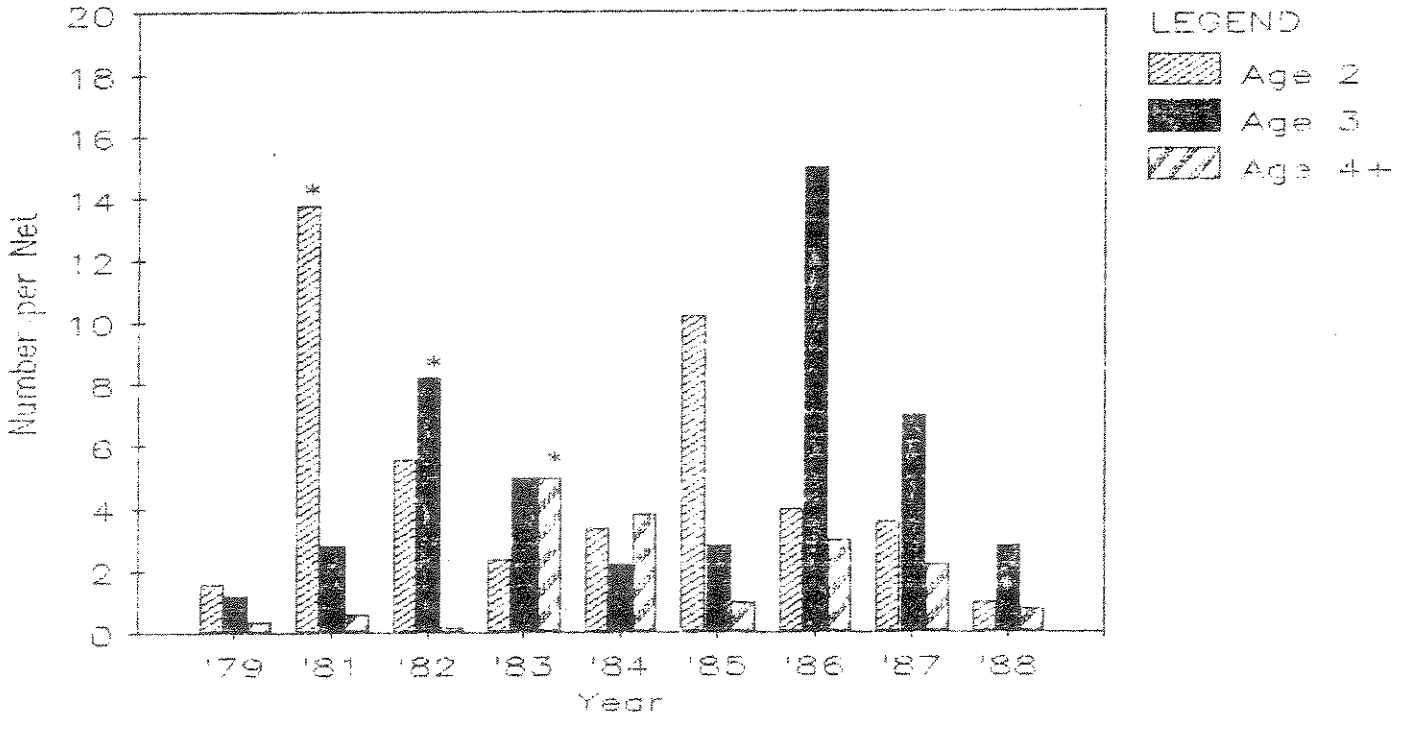
Date: August 21, 1989.

Figure 1. Rainbow trout trend information from spring samples collected in 125 foot floating experimental gill nets set overnight in Ruby River Reservoir.




5 Nets set per year.

Figure 2. Rainbow trout trend information, by age class, from spring samples collected in 125 foot floating experimental gill nets set overnight in Ruby River Reservoir.




* 1980 Arlee plant

Figure 3. Length range and mean length of rainbow trout collected from spring samples using 125 foot floating experimental gill nets in Ruby River Reservoir 1979 - 1989.

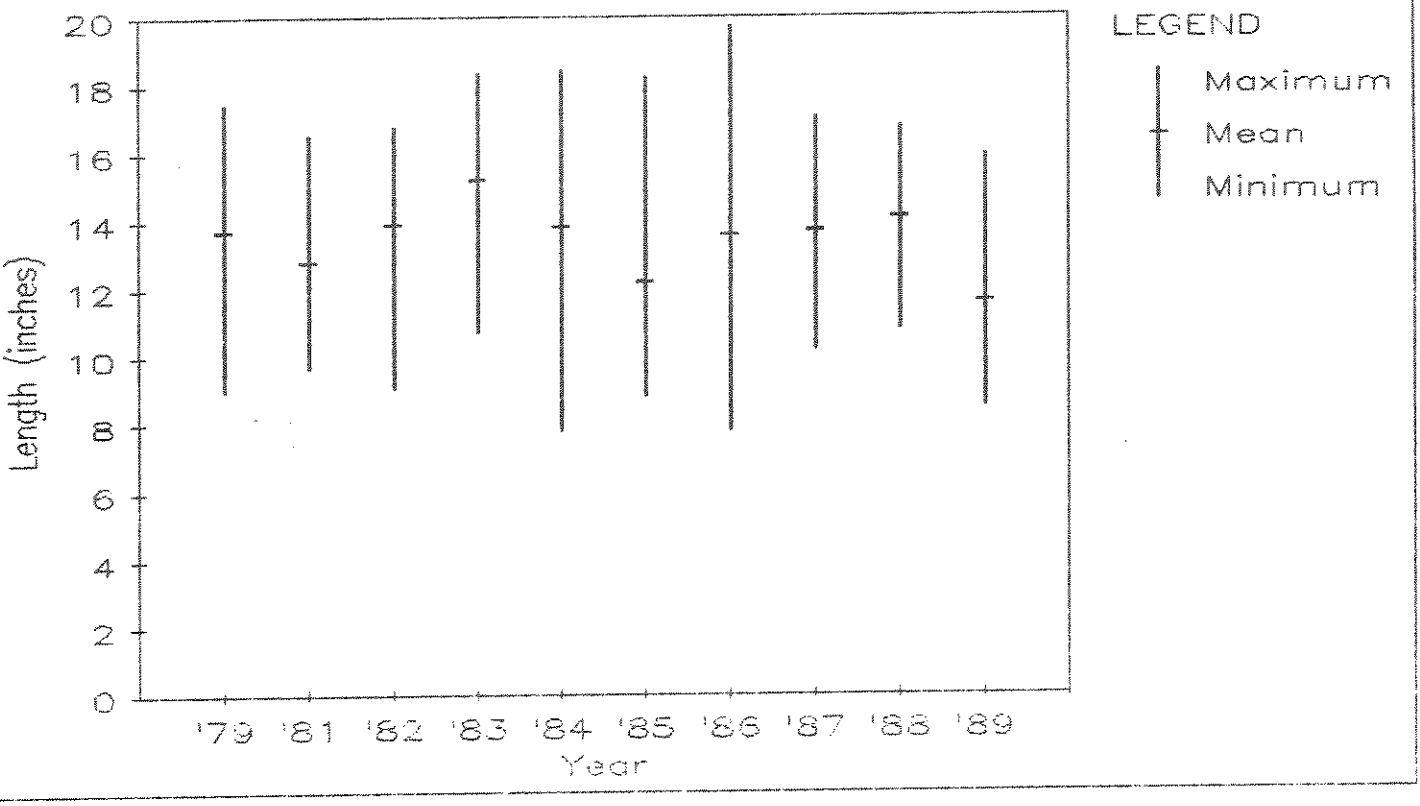
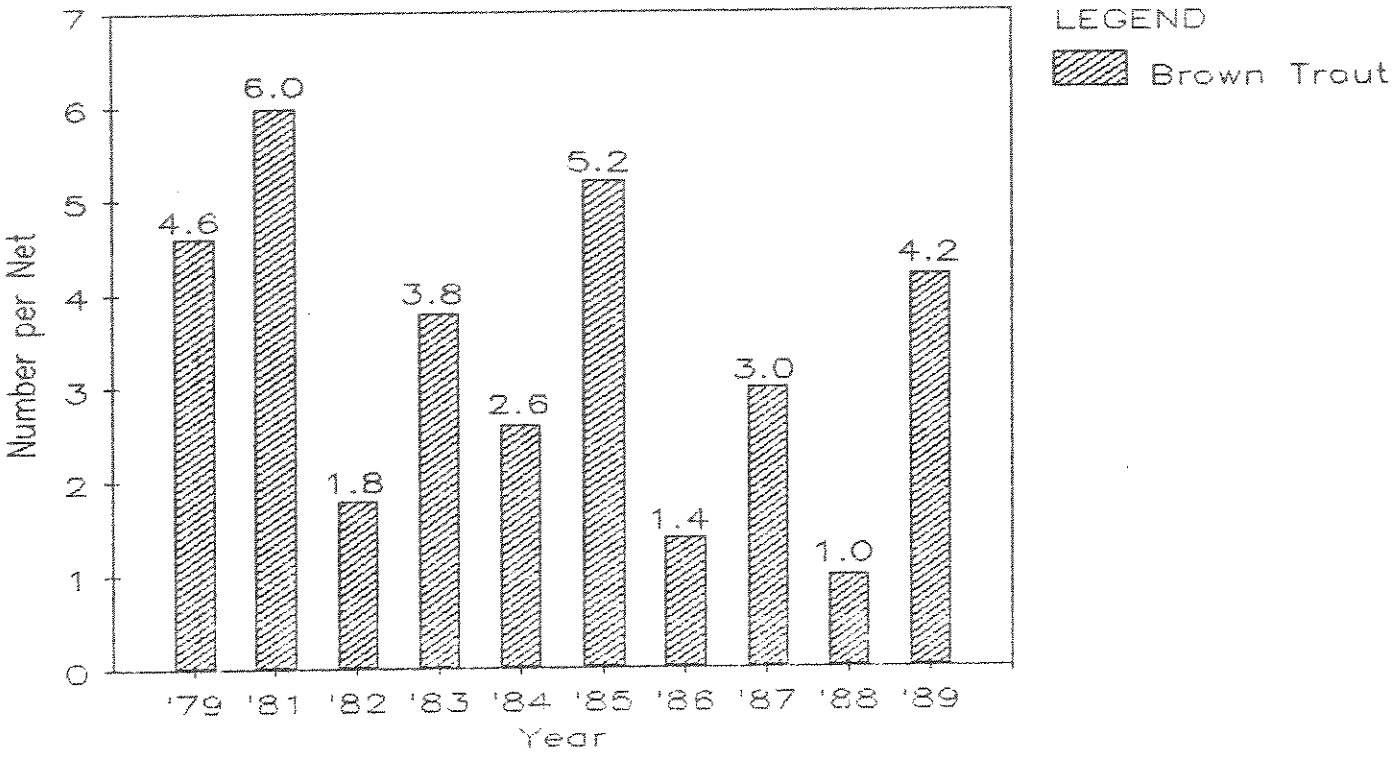


Figure 4. Brown trout trend information from spring samples collected in 125 foot floating experimental gill nets set overnight in Ruby River Reservoir.




5 Nets set per year

Figure 5. Brown trout trend information, by age class, from spring samples collected in 125 foot floating experimental gill nets set overnight in Ruby River Reservoir.

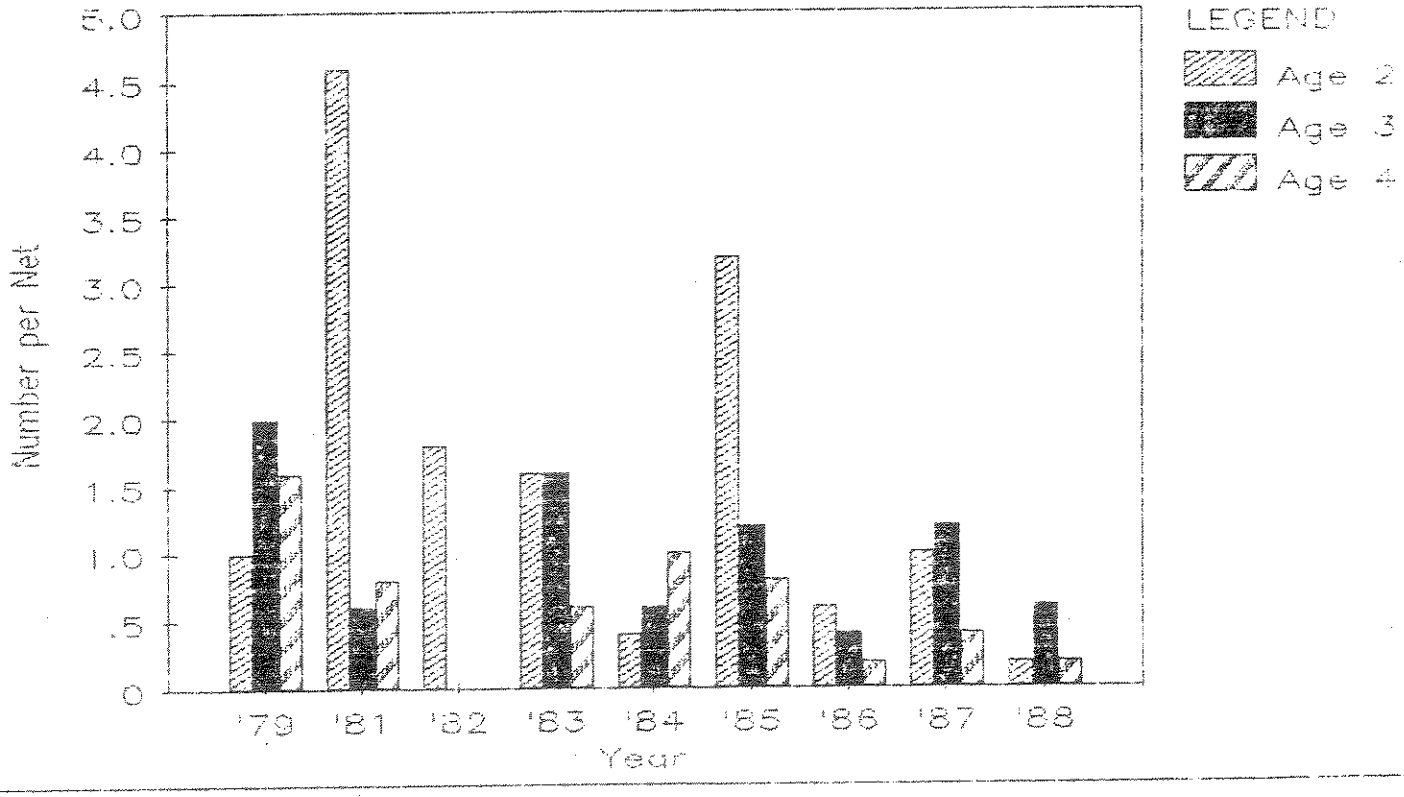


Figure 6 . Length range and mean length of brown trout collected from spring samples using 125 foot floating experimental gill nets in Ruby River Reservoir 1979 - 1989.

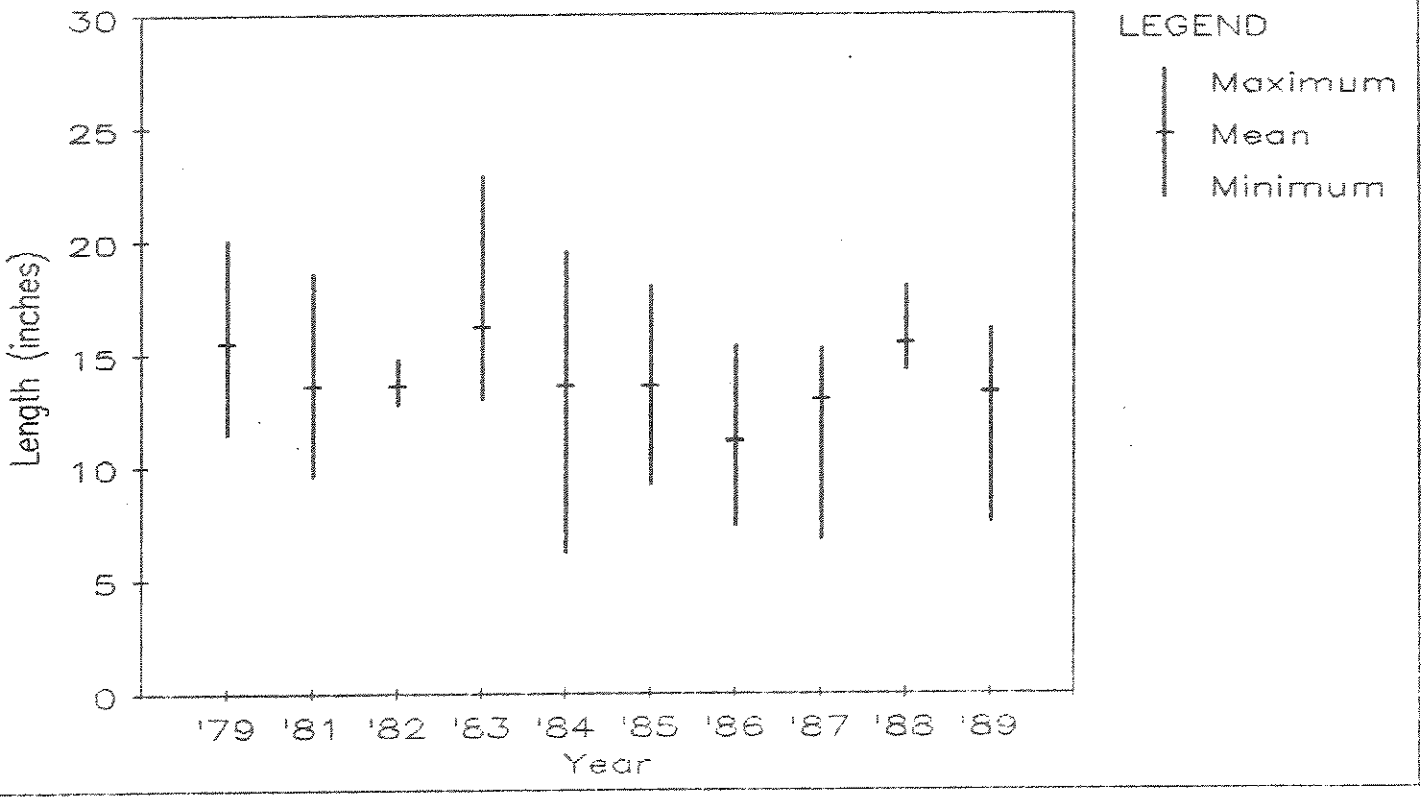


Figure 7. Cutthroat trout trend information from spring samples collected in 125 foot floating experimental gill nets set overnight in Ruby River Reservoir.

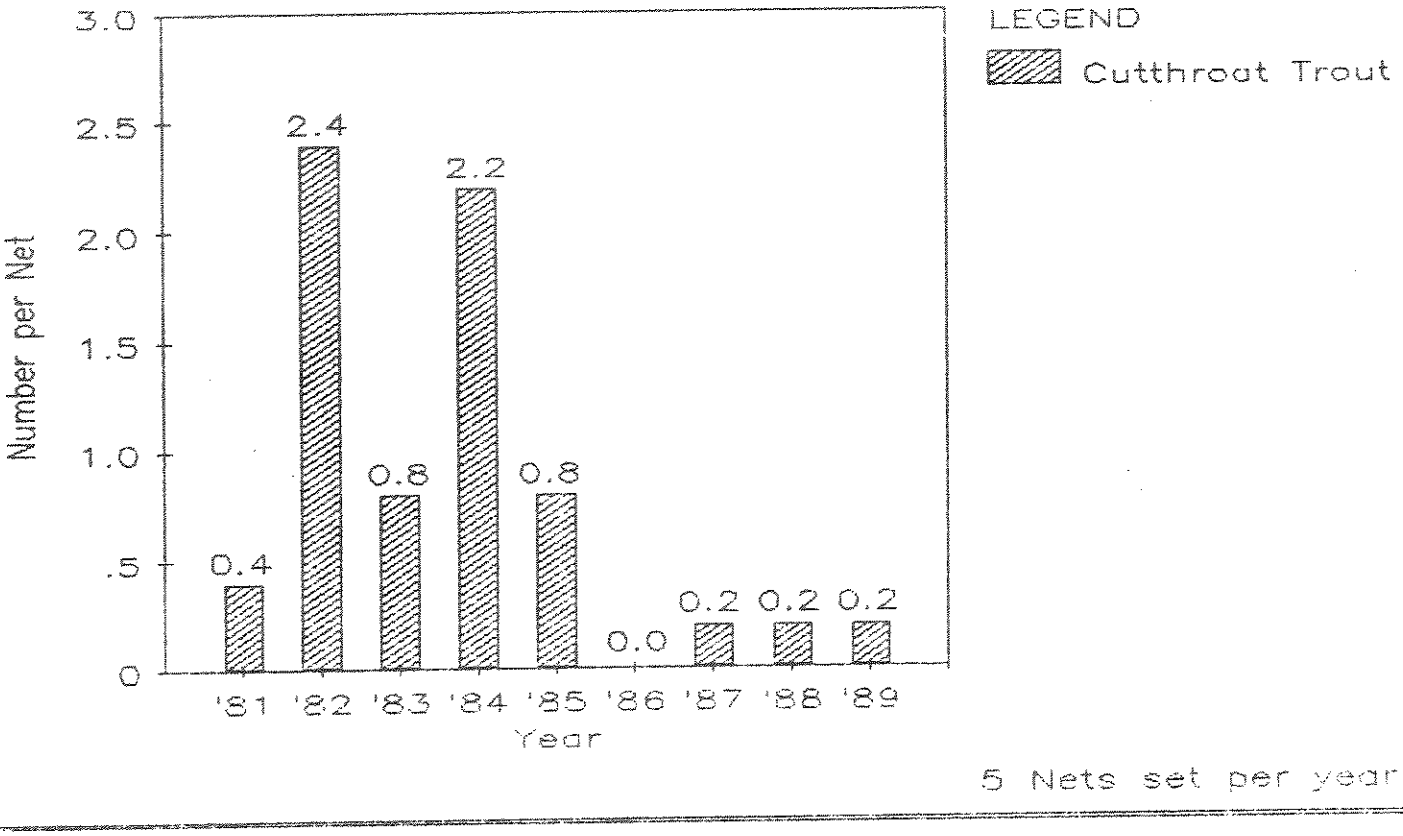



Figure 8. Length range and mean length of cutthroat trout collected from spring samples using 125 foot floating experimental gill nets in Ruby River Reservoir 1981 - 1989.

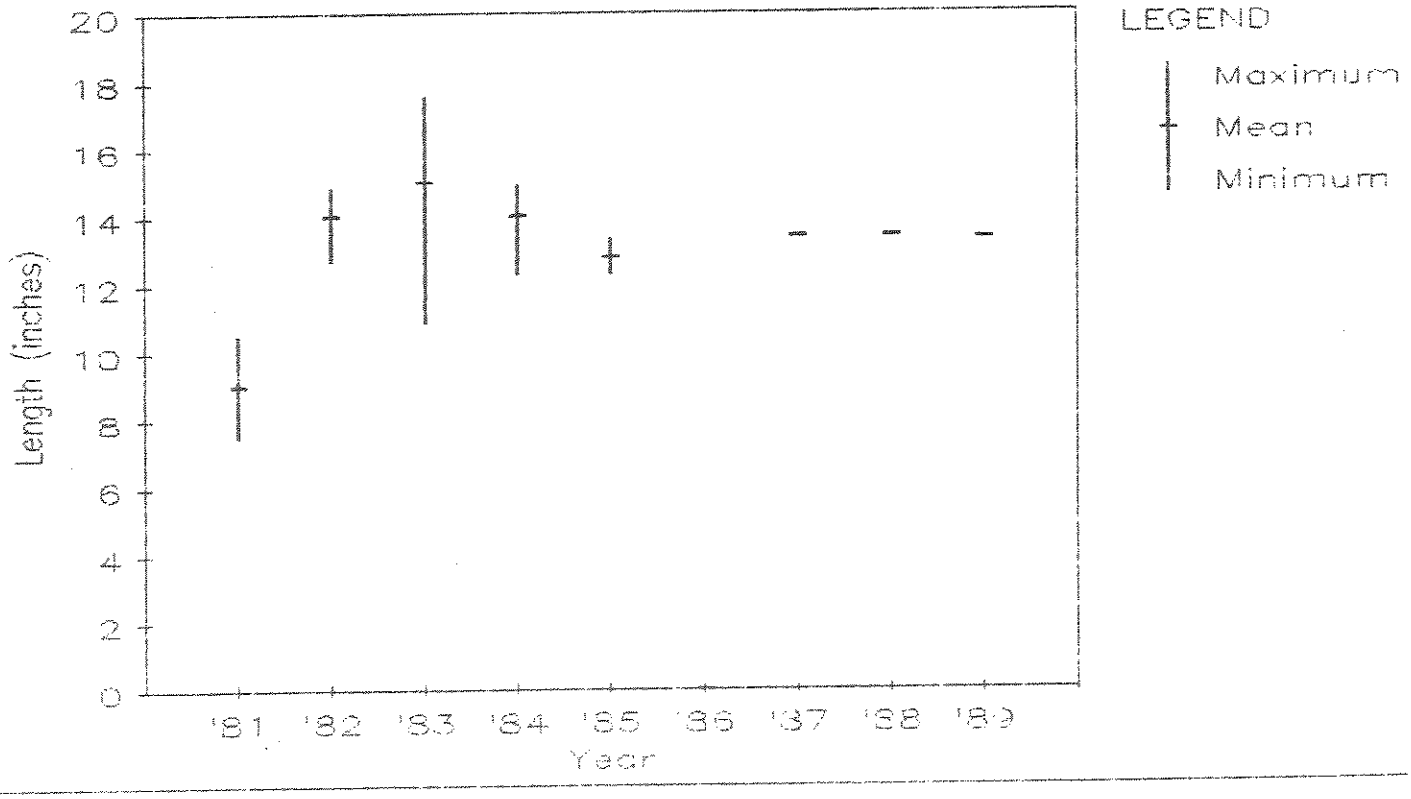


Figure 9. Spring numbers of McBride Yellowstone cutthroat trout per 125 foot experimental floating gill net sample collected from Elk Lake 1979 - 1989.

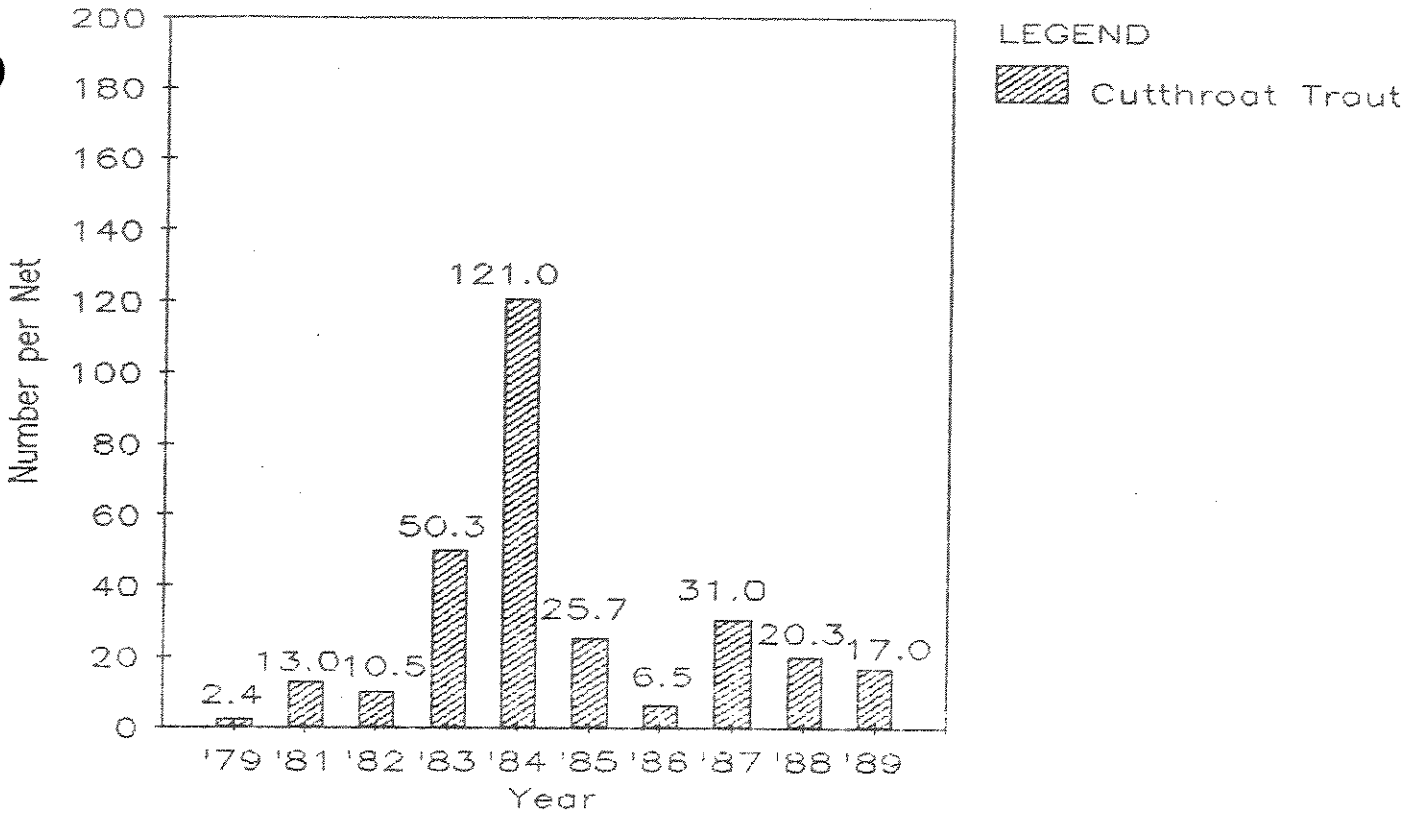



Figure 10. Spring numbers of McBride Yellowstone cutthroat trout, by age class, per 125 foot experimental floating gill net sample collected from Elk Lake 1979 - 1989.

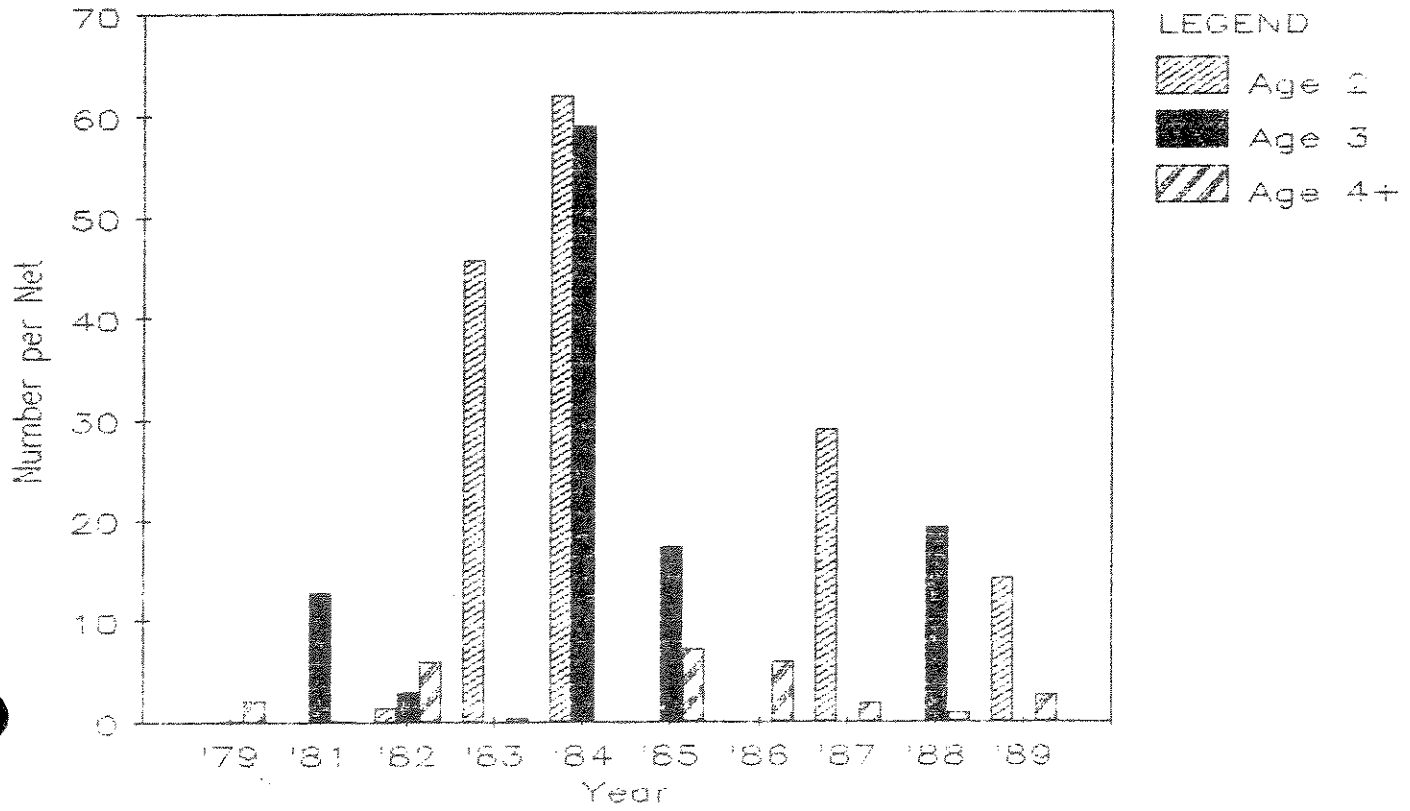


Figure 11 . Length range and mean length at age of McBride Yellowstone cutthroat trout collected from spring samples using 125 foot floating experimental gill nets in Elk Lake.

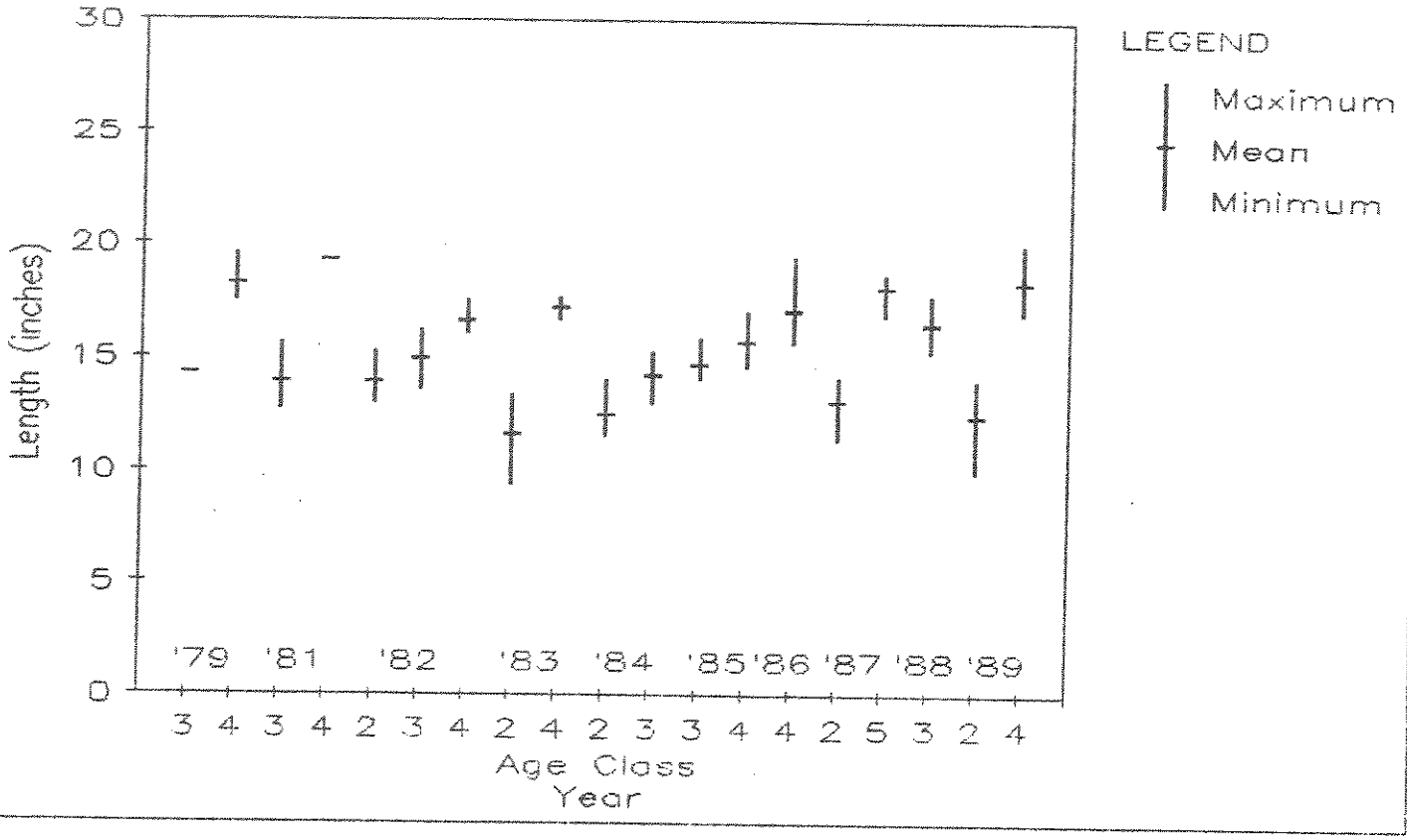


Figure 12. Spring numbers of arctic grayling per 125 foot experimental floating gill net sample collected from Elk Lake 1979 - 1989.

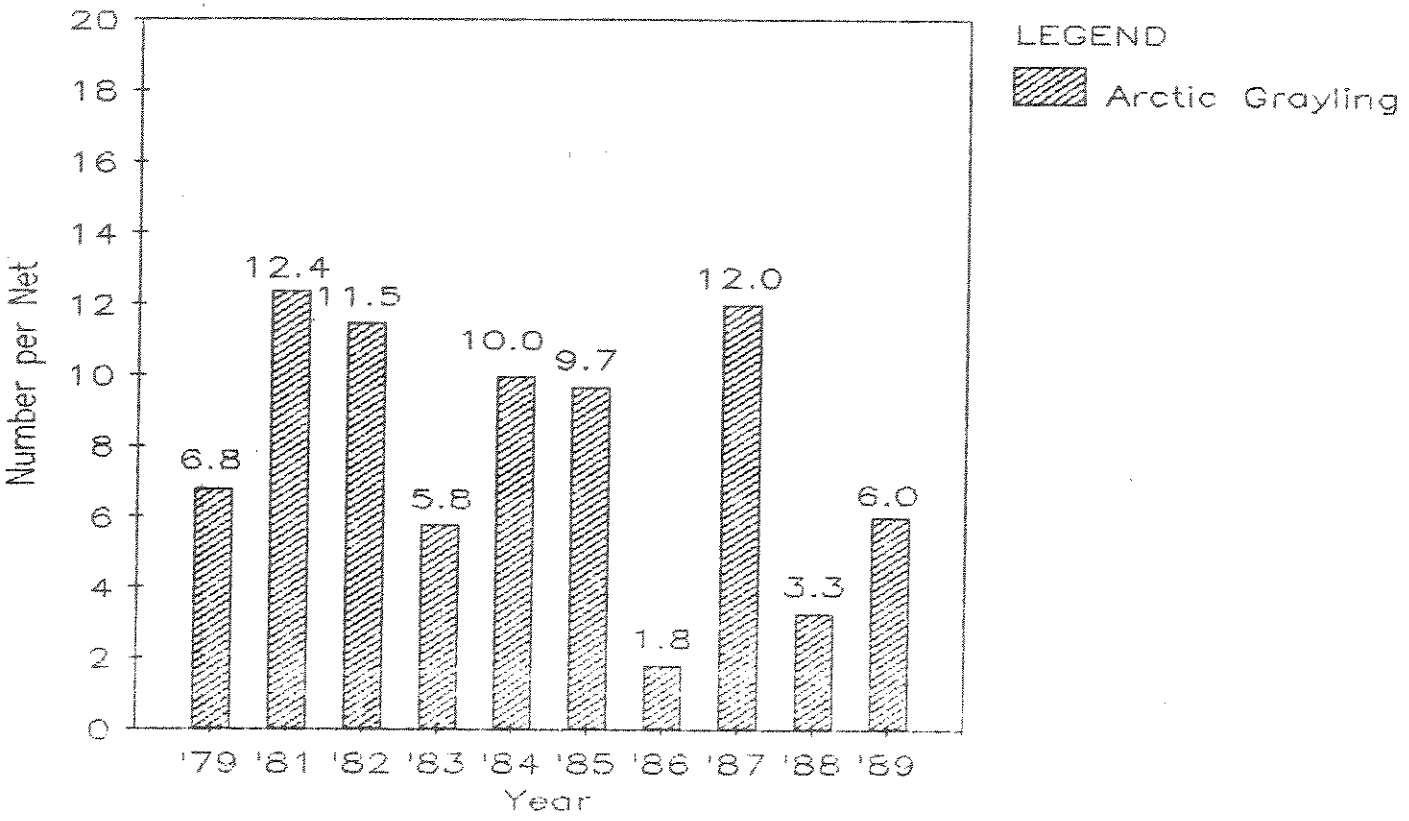



Figure 13. Length range and mean length of arctic grayling collected from spring samples using 125 foot floating experimental gill nets in Elk Lake 1979 - 1989.

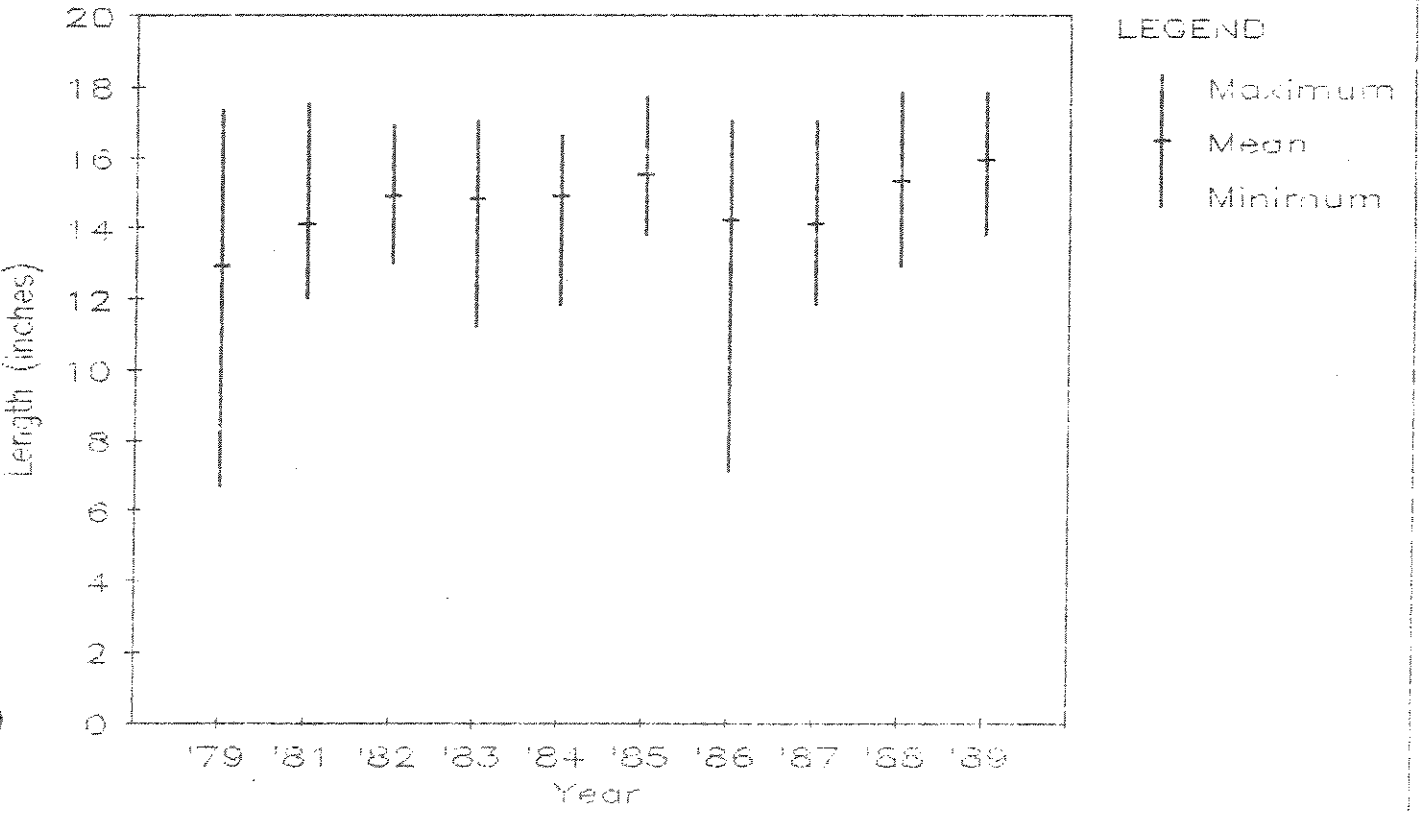


Figure 14 . Spring numbers of lake trout per 125 foot experimental floating gill net sample collected from Elk Lake 1979 - 1989.

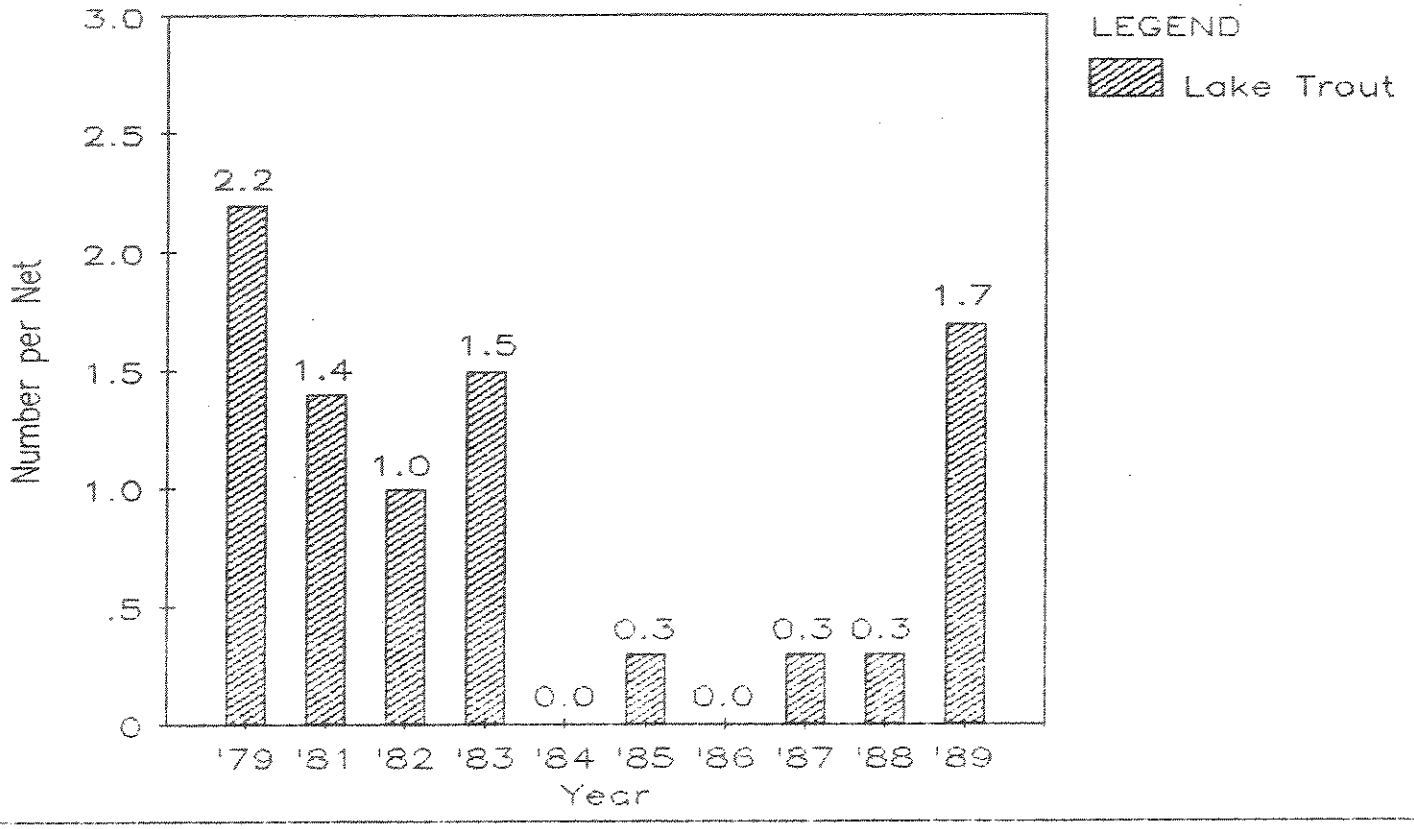
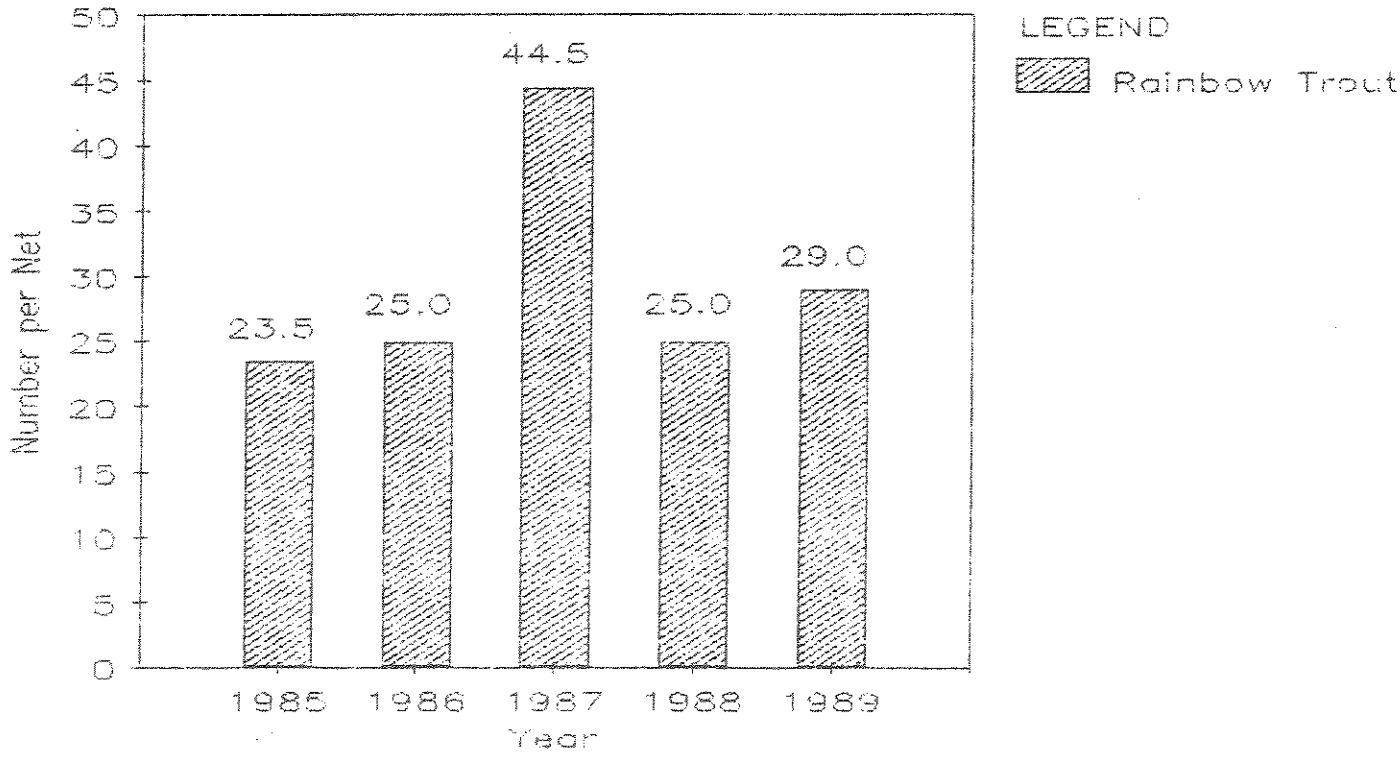



Figure 15 Spring numbers of rainbow trout per 125 foot experimental floating gill net sample collected from Hidden Lake 1985 - 1989.




2 Nets set per year

Figure 16. Spring numbers of brook trout per 125 foot experimental floating gill net sample collected from Culver Pond 1971 - 1989.

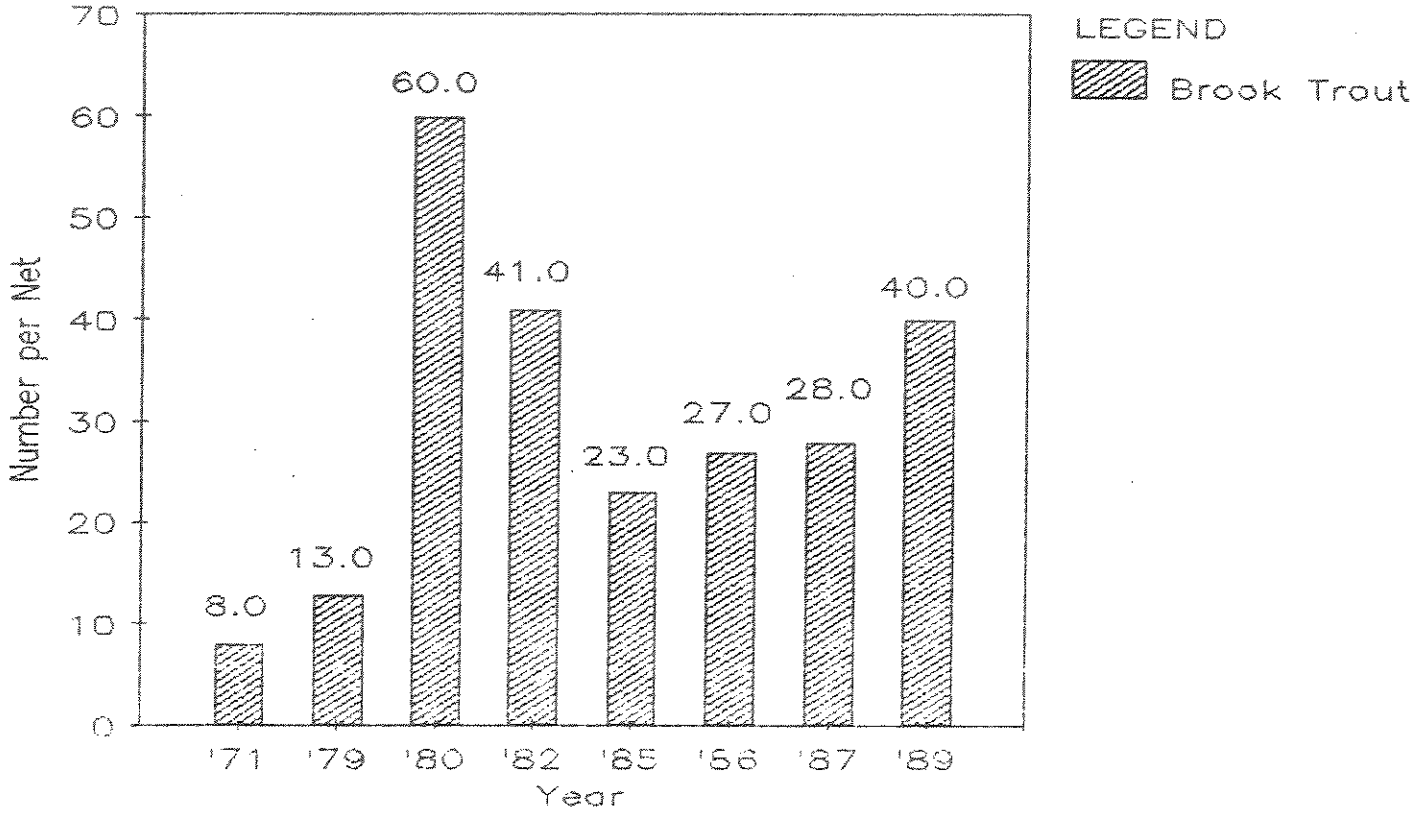



Figure 17. Spring numbers of 15 inch and larger brook trout collected per experimental gill net set in Culver Pond 1971 - 1989.

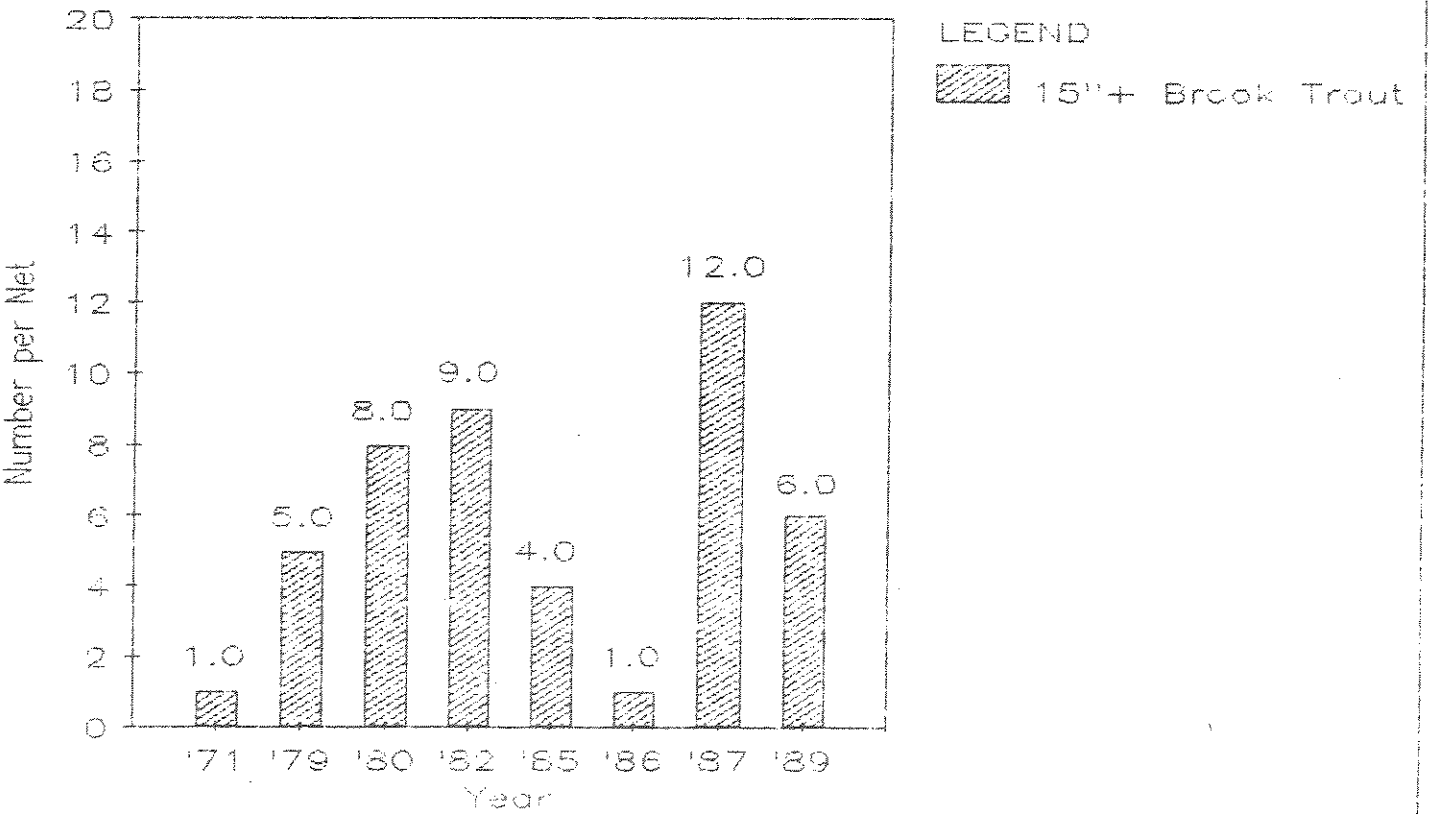


Figure 18. Spring numbers of rainbow trout per 125 foot experimental floating gill net sample collected from McDonald Pond 1971 - 1989.

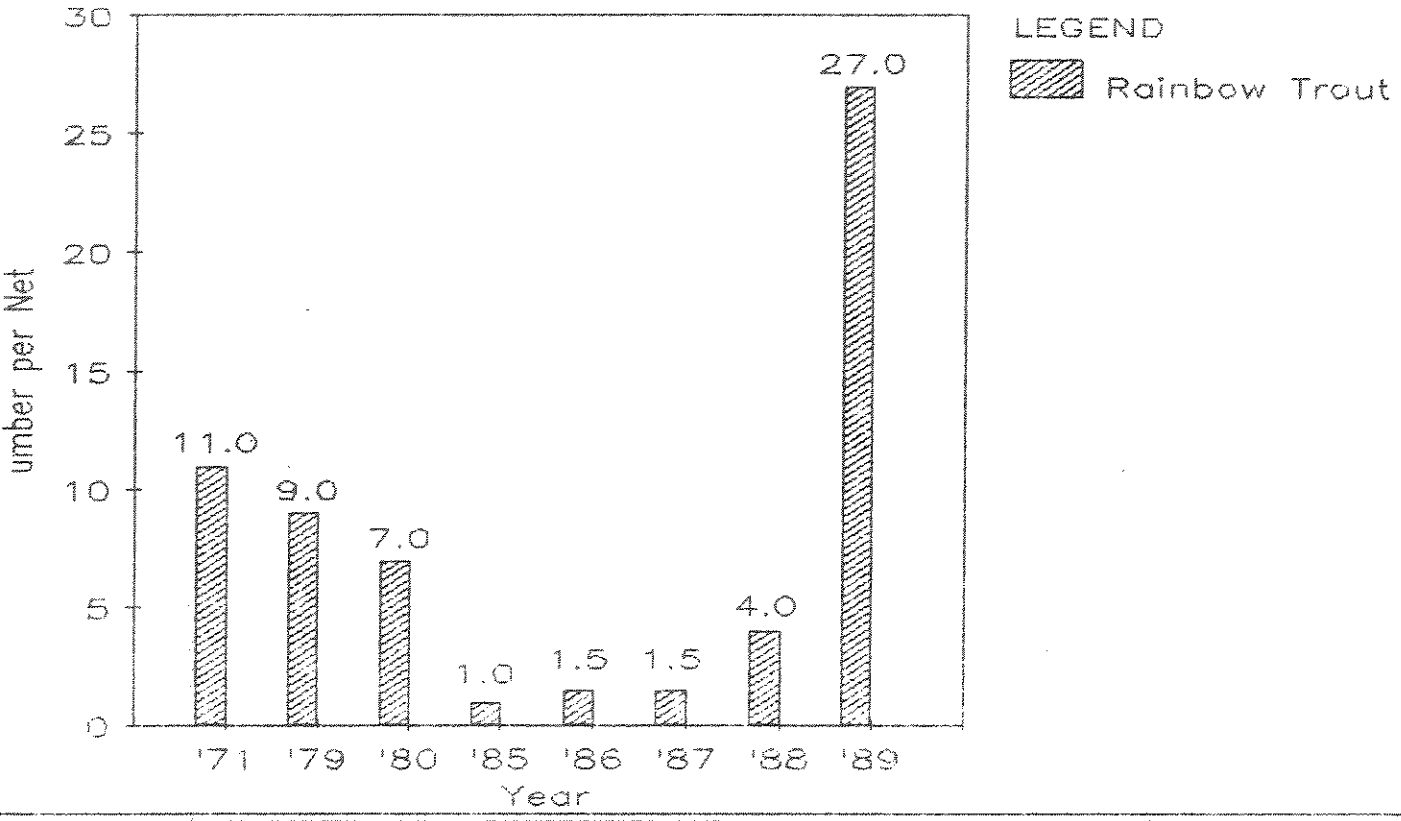



Figure 19. Length range and mean length of rainbow trout collected from spring samples using 125 foot floating experimental gill nets in McDonald Pond 1971 - 1989.