JOB COMPLETION REPORT
INVESTIGATIONS PROJECTS

State of Montana

Project No. F-7-R-1 Work Plan No. IV Job No. IV-A

Title of Job: Establishing Measures of Abundance of Cutthroat Trout in Ashley Lake

Objectives:

At one time the Cutthroat trout were abundant in Ashley Lake and Little effort was required to catch a limit. Due to faulty management the numbers have dwindled to a dangerous low. This lake is used for spawn taking, and traps are operated on four tributaries. Records of the last few years show that few trout were planted back into the lake. The purpose of this project is to determine the relative abundance of trout in this lake that the effects of corrective management may be noted.

Techniques Used:

During the spawn taking operations in May and June, the number of females spawned were counted. Eggs were taken once each week and spawned females and males were placed above the trap so as to avoid subsequent handling. Only twelve cutthroat trout were tagged, as most of the trout were too large for the size tags available. An attempt at creel census was undertaken and very little information was obtained. After the opening day of fishing season it was a rare sight to observe anyone fishing and data on creel census was obtained mostly from the summer home owners. Scale samples were taken and sent to the Department's laboratory for aging. History of spawn taking and plantings in Ashley Lake is presented from available data.

Findings:

Ashley Lake is approximately 22 road miles west of Kalispell and has an area of about 3,224 acres with much shallow water. A fair road goes around the lake and is used by 36 summer home owners residing there seasonally. The surrounding area is heavily timbered with more or less rolling mountains.

There are five small tributaries and some of these are about dry after the spring run-off and rains. In 1902 a log dam was built at the outlet, using the lake to store water for irrigation purposes in the vicinity of Kalispell. Since that time the log structure has been replaced with one of concrete and provided with steel gates to regulate the stream flow. With the present facilities it is possible to have the lake fluctuate about eight feet, however in recent years the fluctuation has not exceeded 4 feet.

Fish found to be present are cutthroat trout (Salmo clarkii), long-nosed sucker (Catostomus catostomus griseus), and the redside shiner (Richardsonius balteatus balteatus). The long-nosed sucker was not present in the lake until 1938 when it is believed to have entered the lake due to

low water. One silver salmon (Oncorhynchus kisutch) was caught during the summer of 1951. These are periodically planted in the lake. Two rainbow trout (Salmo gairdnerii) were captured in the spawning traps. The cutthroat trout can grow to a phenomenal size in this Lake, the largest one reported being 18 pounds.

Spawn taking from Ashley Lake was started in 1914 according to available information. Although no records are available and dependent upon hear say, it is presumed that spawn taking operations have been continuous since that time. At present, spawning traps are located in four of the tributary streams, Cottonwood Creek, Green Mountain Creek, Fish Creek and Rand Creek. Wade Creek was used to some extent by trout for spawning and formerly were trapped there. The traps are about 10 feet wide and 14 feet long with a partition so that there are two pens 5 by 14 feet. The normal procedure is to have an entrance V in one pen for trapping the fish and the other pen is used for holding trout until they are spawned. Spawned fish are then placed in the stream above the trap and a rack is placed so that the spawned fish cannot go further then about 200 feet above the trap.

An eyeing station was built on the north-west shore of Ashley lake about 1920. When this station was operating the trout caught in the traps were hauled to the station by boat and held in holding pens until spawned. The eyeing station was improved later and in 1935 a new station was built. This was used until 1947 for collecting fish.

The pH of the surface water was 7.6 taken in August, 1951. The highest temperature of 70 degrees F. was obtained at the outlet on August 21. Temperatures of the tributaries were much lower on this same date, varying from 53 to 56 degrees F. in the various tributaries.

Two gill net sets were made on September 14 in the vicinity of the hatchery. They were set out about 100 feet from and perpendicular to the shore line but no fish were caught in the three hours set.

The only time there was any fishing pressure on the lake was the first day, June 10, and for the rest of the season there were very few anglers. The trout catch per hour was found to be 0.13 fish.

From May 4 to June 21, 1951, a total of 283 female trout entered the traps and were spawned. Records are available of the egg take from 1934 on, but most records on the number of fish spawned are either incomplete or were not kept. No records are available of the number of trout spawned from 1945 through 1950, and had to be calculated from the egg take. Table 1 summarizes the number of eggs taken for the years 1934 through 1951.

Twelve trout were jaw-tagged and released. Most trout were too large for the size tag available. The condition factor (C) of these 12 trout was 35.0. Two of the tagged fish were captured by anglers 24 and 27 days after tagging and release.

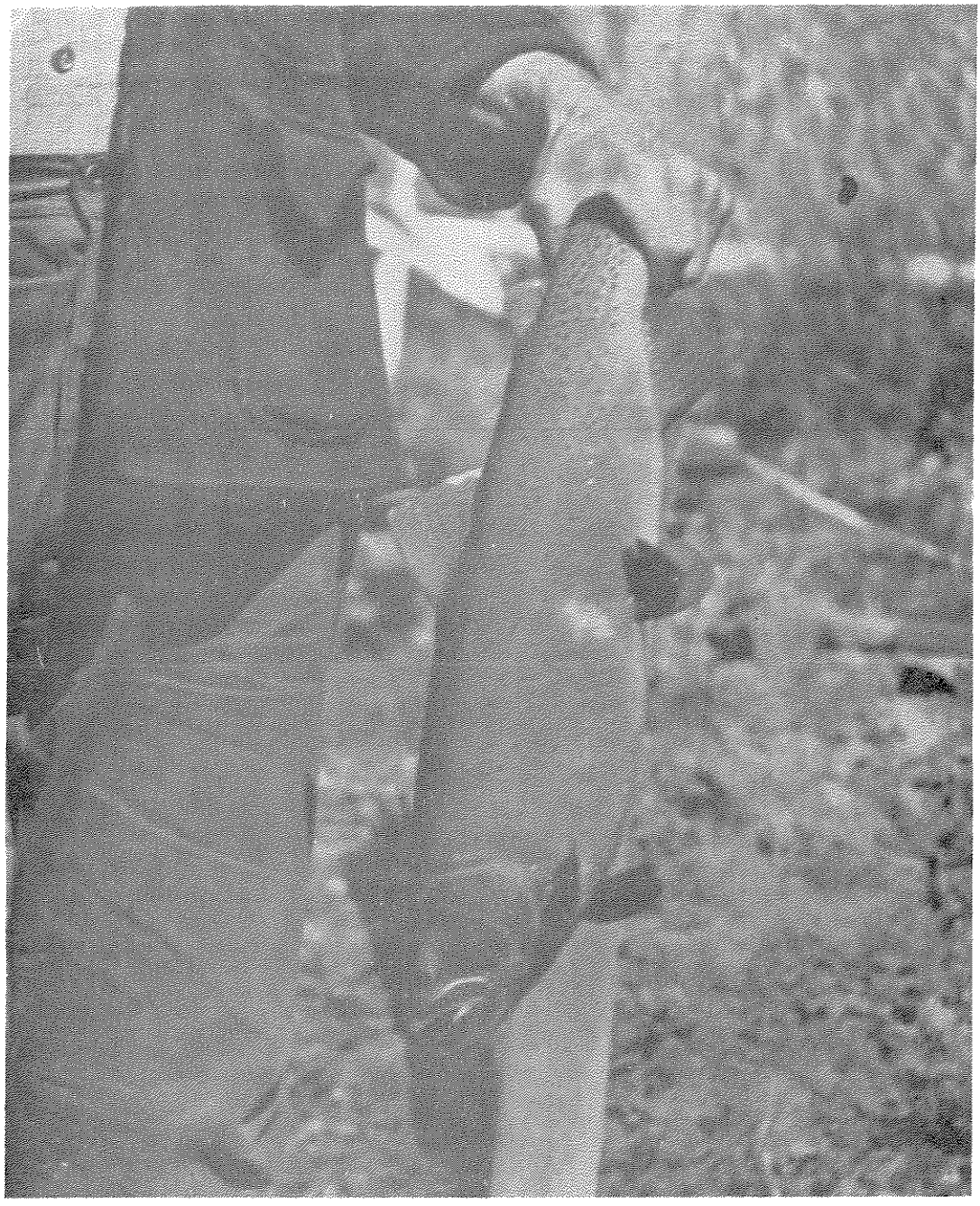

Figure 1. A male cutthroat trout caught in 1942 weighing approximately 12 pounds.

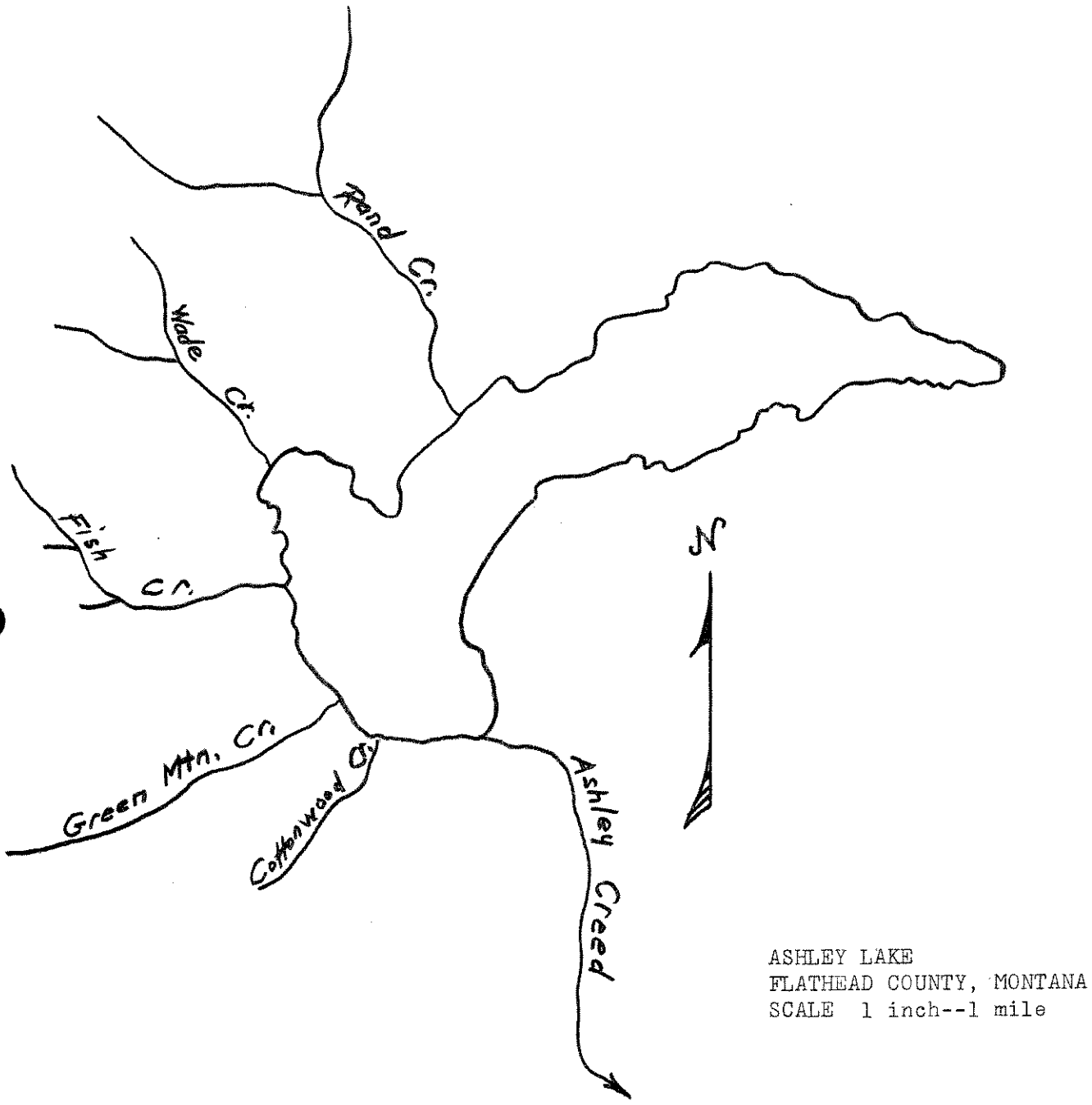

Figure 2. Ashley Lake and tributaries

Table 1

Number of female trout spawned, eggs taken, days of trap operation and calculated number of eggs and trout per day from 1934 through 1951.

Year	Number of females	Number of eggs taken	Days of trap operation	Number of eggs per day	Number of female trout per day
1934	202*	940,800	26	36,184	8
1935	608*	1,613,472	46	35,075	13
1936	519	1,618,764	35	46,250	15
1937	760*	2,352,000	41	57,366	18
1938	1,105*	2,828,868	33	85,723	33
1939	1,090*	3,466,848	45	77,041	24
1940	830*	2,768,892	28	98,889	30
1941	807*	2,750,664	40	68,767	20
1942	669*	2,767,760	27	102,510	25
1943	730	2,438,320	35	69,666	21
1944	560*	1,781,640	27	65,987	21
1945	532**	1,694,616	25	67,784	21
1946	665**	2,117,880	33	64,178	20
1947	620**	1,974,740	22	89,761	28
1948	399**	1,271,424	17	74,790	23
1949	309**	983,680	15	65,579	21
1950	302**	963,072	29	33,209	10
1951	283	652,552	49	13,317	6

* Incomplete records

** No records, these figures are calculated

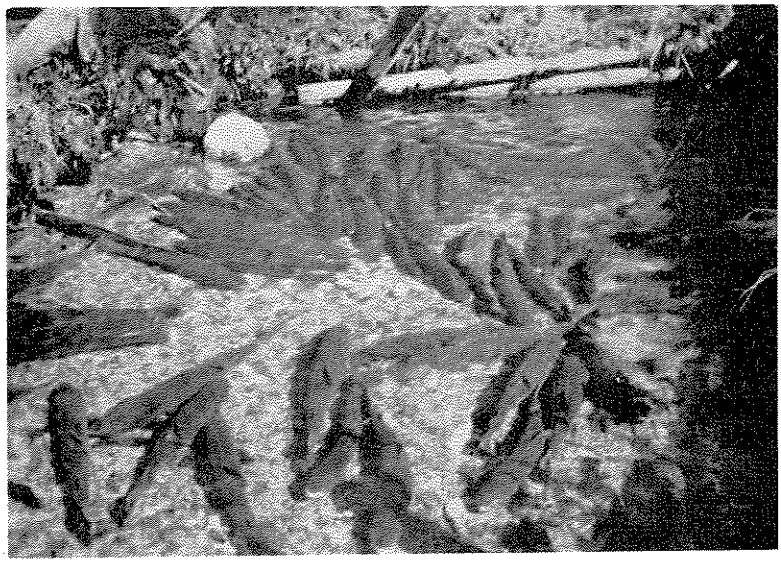

Figure 3. A spawning run of cutthroat trout in Rand Creek.

Since 1920 the cutthroat trout have not been allowed to spawn naturally in the tributaries. After the necessary number of eggs were obtained the streams were blocked off to prevent any fish from moving upstream. The reasons behind this procedure is not clear. It has been mentioned previously that one of the tributaries (Wade Creek) does not have a trap and trout can spawn naturally, however this stream is now blocked by many beaver dams. This leaves the lake entirely dependent upon artificial stocking. The five-year planting program (1948-1952) calls for 30,000 yearling cutthroat trout to be planted in the lake and 30,000 fry in the rearing pond. This rearing pond was constructed in about 1938 in close proximity of Ashley Lake with the intent of planting fry in it and then releasing the fish into the lake the following year. It has an area of approximately 3 acres and a maximum depth of about seven feet. No records of the amount of success is available and no fish were planted in it in 1951. In recent years, plantings in the lake have been augmented by plants of yearlings and older cutthroat by the Fish and Wildlife Service Fish Hatchery of Creston. These fish are from the stock in Yellowstone Lake in the Yellowstone National Park. Due to these plantings the original stock of cutthroat trout in Ashley Lake has now lost its identity. The only available records of plantings in Ashley Lake aregiven in Table 2.

The last year of favorable fishing in Ashley Lake was 1945 and since that time has been getting progressively worse, according to reports of the local residents. Many of the summer home owners on the lake went elsewhere to catch fish in the summer of 1951. This same situation of low angling success occurred in about 1929. Although no records are available but relying on people who were in close association with the department at that time, a vigorous program was initiated then and the results are shown graphically up to 1939, however no records are available of the fishing success.

Table 2

Cutthroat trout plantings in Ashley Lake

		Length in inches						
Year	Fry	4	5	6	7	8	9	10	Total
1936	500,000								500,000
1937									
1938	70,000	10,000							80,000
1939			8,500						8,500
1940		10,700							10,700
1941	200,000	21,500							221,500
1942		41,250							41,250
1943	100,000	58,000							158,000
1944		15,000							15,000
1945	100,000	2,350							102,350
1946		45,720		4,416		2,670			52,806
1947		19,800		5,000					24,800
1948	30,000	10,000						4,390	44,390
1949	10,080	20,000					1,360		31,440
1950		35,520					1,152		36,672
1951	320,000	19,250							339,250

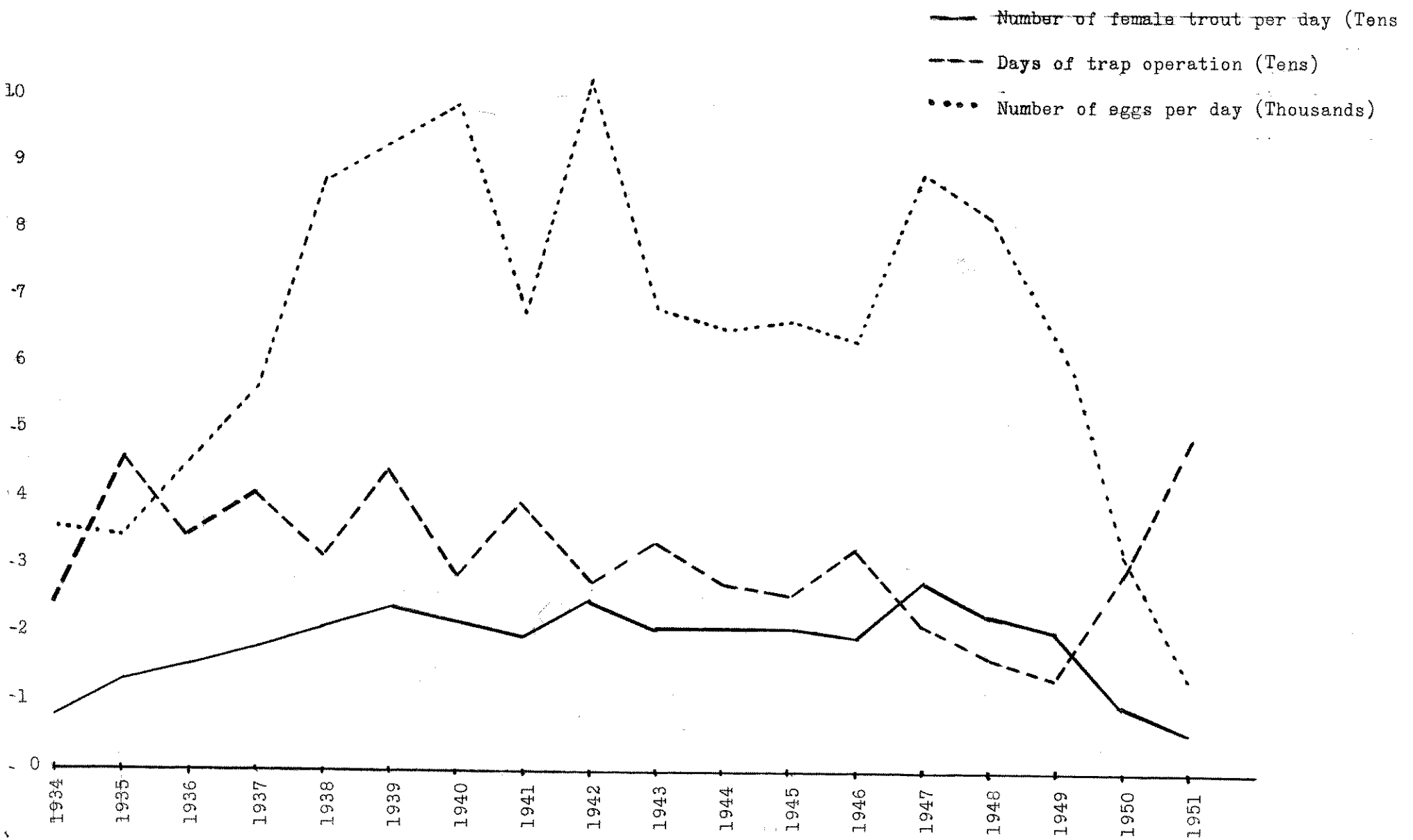

Figure 4. The number of female trout and eggs per day from 1934 to 1951

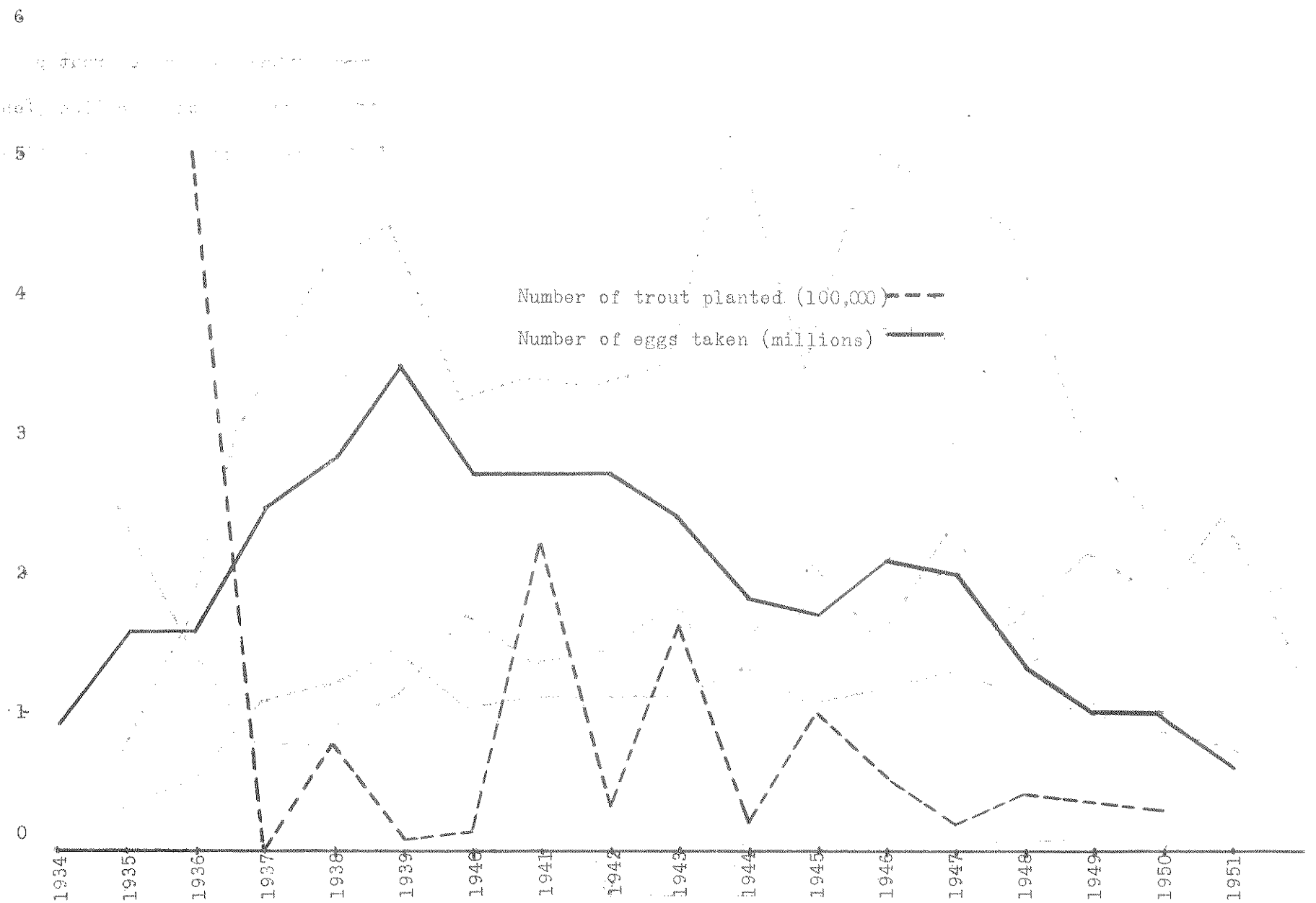

Figure 5. Number of eggs taken and number of trout planted in Ashley Lake.

Analysis and Recommendations:

From Figure 4 it appears that the program initiated in 1929 has born fruit as the increase in the number of fish with the resulting number of eggs taken (Figure 5) is probably due to the new program. A gradual drop of eggs taken has occurred since 1939. The records of plantings are presented (Figure 5) for what they are worth. The drop in the number of eggs taken from the lake can almost be correlated with the personnel in charge of the Somers Fisheries Station which personnel were also in charge of the spawning and planting operations of Ashley Lake. The drop in number of eggs per day since 1947 is great, and the effort to obtain eggs has increased since 1949. The low egg take for 1951 is presumed to be the result of the small plantings made in the years 1946 through 1948. In work done elsewhere in a similar situation, plantings of fry in one year will not show any results for four years. Numerous reports of abuse cannot be taken lightly as these were observed by a large number of people vitally interested in the welfare of the lake. A few examples reported are: (1) inexperienced and careless spawntakers roughly handling the trout with the resulting death of mature fish, (2) paper plantings of trout, and (3) dumping full tank loads of trout fry at the outlet of the lake.

From the antagonism of the local people and the rod and gun club, and for the sake of good management, an immediate program was mandatory. After observing the records and interviewing many people it was decided that the minimum number of trout to be planted each year should be 100 fry per acre. This program was recommended and approved, and 320,000 fry and 19,250 yearlings were planted in 1951. Results from this program are not anticipated until 1955.

Recommendations for this project is a continued study for two more years and a vigorous follow up on this lake at least until 1956. Due to poor management, the population of trout in Ashley Lake has dropped to such a low level that angling pressure has become non-existant. The chief reason found was that few fish were planted into the lake after the trout were spawned.

Data and Reports:

The spawning and planting records are on file in the Helena office of the Fish and Game Department. Other records are on file with the fishery biologist at Somers, Montana.

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Date March 29, 1951