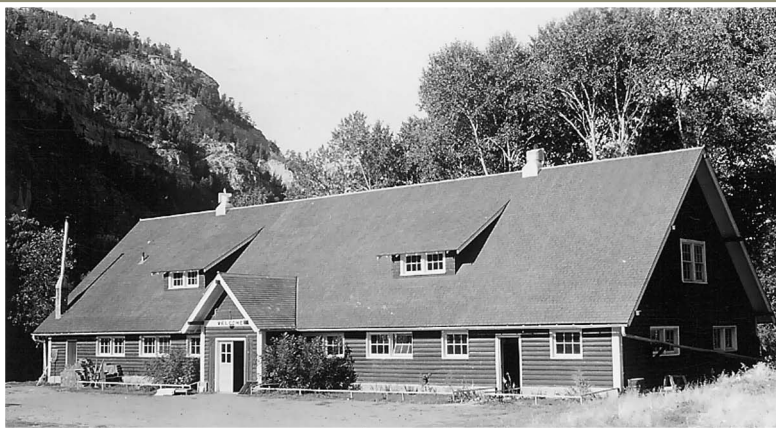


# **An Overview of the Physical Development of the Wyoming Game and Fish Hatchery System and The Ten Sleep Fish Hatchery: A Brief History**



**Mitigation Report  
Prepared by  
Wyoming Game and Fish  
with the Assistance of the  
State Historic Preservation Office  
January 2011**



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## Preface

*The proposed changes to the Ten Sleep Fish Hatchery in 2009 was recognized as an important and necessary project, but one that would also alter the historic character of the facility. This report was produced as part of the project mitigation as a way to record and honor the historic origins of the Wyoming State fish hatcheries program. Bart Burningham, Manager of the Ten Sleep Fish Hatchery and Betsy Bradley, an architectural historian working in the Wyoming State Historic Preservation Office, are responsible for this report. The modern methods of raising fish at the state hatcheries are explained at the end of the first section of this document.*

## An Overview of the Physical Development of the Wyoming Game and Fish Hatchery System

### The Formative Years

Wyoming has had fish hatcheries to support its sport fishing since the Territorial era. The 1884 Territorial legislature passed a bill that supported the propagation and culture of fish in Wyoming Territory. Otto Gramm of Laramie was appointed as the first Fish Commissioner and charged with the development of a “hatching house.” Gramm hired an employee of the Iowa Fish Commission experienced with operating a hatchery and selected the site of Soldier Spring near Laramie. A pipeline brought water from the spring to the hatchery building which was 6 feet by 24 feet in dimensions and had an interior divided into “nurseries.” Eggs were acquired from Iowa and Wisconsin, as well as rainbow trout eggs from California. Gramm asserted that it was important to raise fish inured to the altitude and climate.

The fish hatchery system was expanded in 1895 when the legislature established a branch fish hatchery near Dayton on Wolf Creek. This new hatchery served the northern portion of the state while the Laramie one provided fish for the southern area. The hatcheries were mandated to stock streams with fish and to notify the Boards of County Commissioners each year concerning the intent to distribute fish. The two fish hatchery superintendents were also fish wardens and were charged with enforcing the limit of 20 pounds of game fish and other regulations.



The territorial fish hatchery grounds near Laramie, circa 1890.

*J. E. Stimson Collection, Wyoming State Archives,  
Department of State Parks and Cultural Resources*

The northern district hatchery near Dayton operated until 1909 when the facility was relocated to Story and the important rainbow trout spawning station at Lake DeSmet. The Story hatchery introduced a larger scale of hatchery operation in Wyoming. The property, 160 acres owned by the state, featured a large spring of pure mountain water of the desired temperature. The 40 foot by 50 foot main building held a double battery of troughs, 40 units 16 feet long, capable of hatching two million eggs at one time.



## State Game Commission Era: Expansion

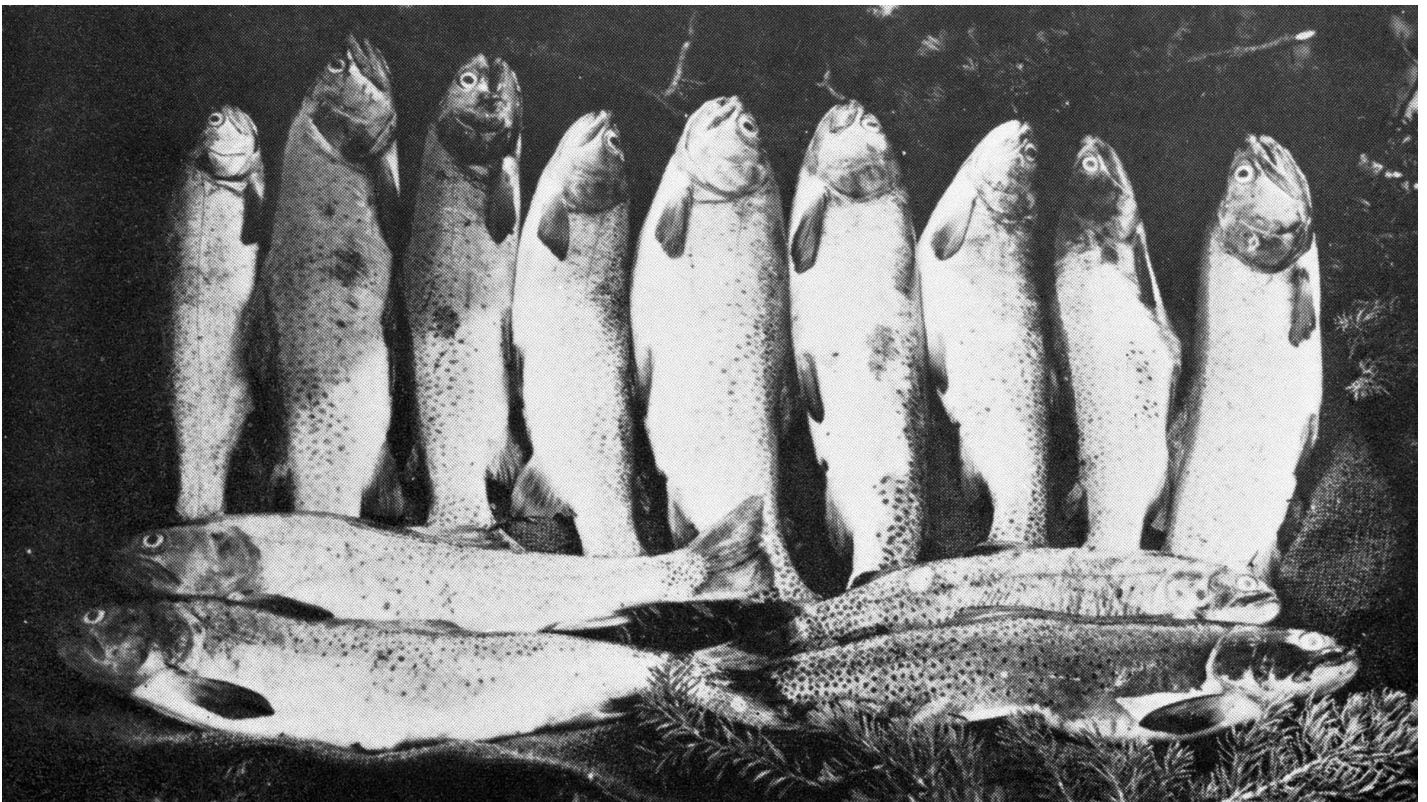
Authority over the Wyoming Game and Fish Department changed in 1911 when the State Game Commission was established. The U. S. Bureau of Fisheries opened a fish hatchery at Saratoga, Wyoming that same year. The water supply for this hatchery was spring water that ran at a moderate temperature and was ideal in every way. The federal Saratoga hatchery served as an egg-producing facility.

The Laramie and Story hatcheries were the only state facilities in operation at the beginning of the 1910s, but by the end of the decade the system had expanded significantly. Wyoming State Game Warden Nate P. Wilson reported that fish were plentiful and the streams were stocked in 1915 and 1916. During these early years stocking fish was a community effort and residents furnished vehicles to transport fish from the railroad to various streams. The legislature adopted a \$5.00 fishing license, but provided no penalties for fishing without a license. The Big Horn County hatchery at Hyattville began production in 1916 to supply the streams on the western slope of the Big Horn Mountains. The hatchery at Daniel, completed in 1918, served a

large area of the state, all of Sublette county and parts of Sweetwater, Fremont, Lincoln, and Teton counties. The Cody hatchery was operational by the end of 1920, as was the one on Jakey's Fork near Dubois. At this time the hatcheries were often referred to by the county in which they were located as part of a county-based game management system.

## The Early Game and Fish Commission Era: Holding On

Six hatcheries were in operation in 1921 when the legislature established the Game and Fish Commission (the Commission), a mainly political body with a supervisory role. The commissioner's assistant was mandated specifically to be a specialist in fish culture, indicating the importance of the program. This reorganization promised department-wide improvements, but the shortage of personnel limited its initial effectiveness. Chief Assistant Commissioner Bliss Bayne, in charge of the hatchery program, noted that the construction of highways through the state's mountains had increased tourist travel and made more streams and lakes accessible for fishing. The state needed to increase its hatchery production to support any



Rainbow Trout Catch from the 1920s.

boasting of state-wide fine trout fishing. Bayne hoped to operate the department as a business and to make use of a smaller number of larger, properly located and equipped hatcheries. By the early 1920s, the enthusiasm for transferring well developed fry (small fish ready to eat live food) to rearing ponds, either those on site at the hatcheries or off site throughout the state, was in full swing. Rearing ponds were constructed at the Hyattville, Dubois, and Story hatcheries, as well as at Buffalo and Lander. The use of the ponds increased the capacity of the hatcheries and allowed for the planting of larger fish. The department harvested several species of trout eggs in the wild for raising at the hatcheries; its egg collecting stations were additional facilities that required equipment, manpower, and funding.

Only the Laramie, Hyattville, and Story hatcheries were operated on a full-time basis in 1923 and 1924. The success of the hatchery operation depended upon acquiring eggs from outside the state system and on consistent water supplies and weather. That year, 1923, was a challenging year on both of these fronts. A July rainstorm flooded the hatchery near Dubois and nearly one million eggs and fish were lost. An order for one million eggs for the Hyattville Hatchery was canceled by the supplier and no alternative source for eggs was found. The operation of the new state-of-the-art hatchery at Laramie, which was projected to have the capacity of five million fry yearly, suffered no such troubles.

The following year went much better and in 1923 and 1924 more fish were planted from the hatcheries than had been planted in any other two year period. More than half of the 11,000,000 fish distributed were fingerlings, which had a better chance for survival than the smaller fry. In 1925 all seven facilities were operated and that year the state planted approximately 4,000,000 young fish. The potential for great fishing throughout Wyoming was understood and the 1925-1926 biennial report enthused: "It will be the means of bringing thousands of non-resident fishermen to our state each year." The Albany County hatchery near Laramie was one of the best facilities in the state at a location ideal for its purpose. However, it contaminated the Laramie water supply and



Wyoming State Fish Hatchery near Laramie, mid-1920s.

*Wyoming State Archives*

the department rebuilt the facility on an adjacent location in 1925. The legislature supported the hatchery program during the late 1920s and the Cokeville hatchery was opened in 1927 to supply waters in mainly Lincoln and Uinta counties.

Under Chief Assistant Game and Fish Commissioner Carl Lund, the fish hatchery section developed a plan for improvement during the 1927-1928 biennium that identified critical needs. By this time the existing hatcheries were considered to be appropriate only for the "old school of fish culture" – worn out and out-of-date. New equipment and operational improvements could solve some of the problems. Improved water lines and works would improve the management of water supplies of the hatcheries. Refrigeration plants would improve the feeding program by allowing the storage of horse meat. The development of spawning stations could make the operation self sufficient in fish eggs. Not in the least, two trucks with oxygen tanks for transporting fish would be a step in eliminating the slow and expensive method of shipping fish in cans, which were carried to the release sites. Indeed, Wyoming was the only state in the Rocky Mountain region wholly dependent on the old-fashioned fish cans. Some of this work was accomplished by 1930. One fish transporting truck was acquired, but the refrigeration plants and spawning stations remained on the list of needed improvements. New needs were identified, including modern hatcheries in Park and Fremont counties and the completion of the one begun in Teton County.



The early portion of the 1930s was a lean time for the agency and the seven units in the state hatchery system as the operations budget for the hatcheries was reduced during the Depression. Rearing ponds rose in importance during the early 1930s as an intermediate location for the maturation of fingerling trout into fish four to six inches long on natural food before being released into public fishing waters. It was estimated that 90 percent of the larger fish survived planting, in contrast to only 10 to 20 percent of under four-inch size fish. During the early 1930s, a large percentage of the fish hatched in state facilities were placed in rearing ponds provided by sportsmen's clubs at locations those groups chose. The Commission began to work toward the goal of having rearing ponds adjacent to the hatcheries. The department also promoted the idea of a large, centralized hatchery in Natrona or Converse County.

### **Federal Relief Projects**

The fisheries of Wyoming began to benefit from a wildlife planning initiative undertaken by the National Park Service (NPS) in 1933 and eventually other federal relief projects. Sponsored by the NPS Branch of Planning and State Cooperation, a Civilian Conservation Corps (CCC) program began gathering information on wildlife conditions, the distribution of animals and fish, the bearing capacity of areas, and the desirability of stocking, particularly with fish. The CCC units also participated in the construction of lakes and ponds, stream development, stocking fish, and planting food and cover for wildlife. The U.S. Bureau of Fisheries supported a field party during the summer of 1934 that gathered information on the west slope of the Wind River Mountains as part of a survey of the state's waters to identify those that were suitable for the stocking of various species of fish. In 1936, the Wyoming State Planning Board sponsored a Works Progress Administration (WPA) project for surveying the streams and lakes in Albany County and the Medicine Bow National Forest. The waters survey program continued through the 1930s.

The Commission received funding from the Federal Emergency Relief Administration and WPA for the completion of projects and the development of new

ones. These federal relief programs provided for many types of improvements and the construction of rearing ponds. The hatcheries benefitted particularly, beginning during the 1933-1934 biennium, as funding came from several sources and the CCC camps provided labor. The 1935-1936 biennium was a heyday of improvements and construction. Over 100 ponds were constructed in the wild and CCC enrollees improved several streams and lakes and constructed fish rearing ponds throughout the National Forests in the state. This work included a series of nine fish rearing ponds in Carbon County near Saratoga. WPA labor built a new log hatchery building with 36 steel troughs, water system improvements, and landscaping at the Cody hatchery. The CCC camps also assisted with planting young trout. The enrollees walked from main and side camps carrying large buckets of fish to waters within striking distance after a delivery of fry from the hatchery in a modern circulating tank. From 600 to 800 two-inch trout were carried in three gallons of water, the temperature of which was regulated by adding snow from drifts and fixing damp burlap over the mouths of the buckets.

After nearly two decades of enthusiasm for rearing ponds of all sizes and in many locations, the Fish Division reported in its 1939-1940 biennium report that only about half of the ponds were working well. Rearing ponds had been "oversold" to Wyoming's residents and many groups were demanding ponds without considering the suitability of the location. Yet new ponds were built, including nearly 50 in addition to those on hatchery grounds, and an equal number were in some stage of development. The division instituted a pond monitoring and evaluation program for the over 200 rearing ponds and raceways (shallow long tanks) in the state not located on hatchery grounds. By 1940 about half of the existing ponds were abandoned and nearly half of the remaining facilities were new, constructed, or improved in 1939 and 1940.

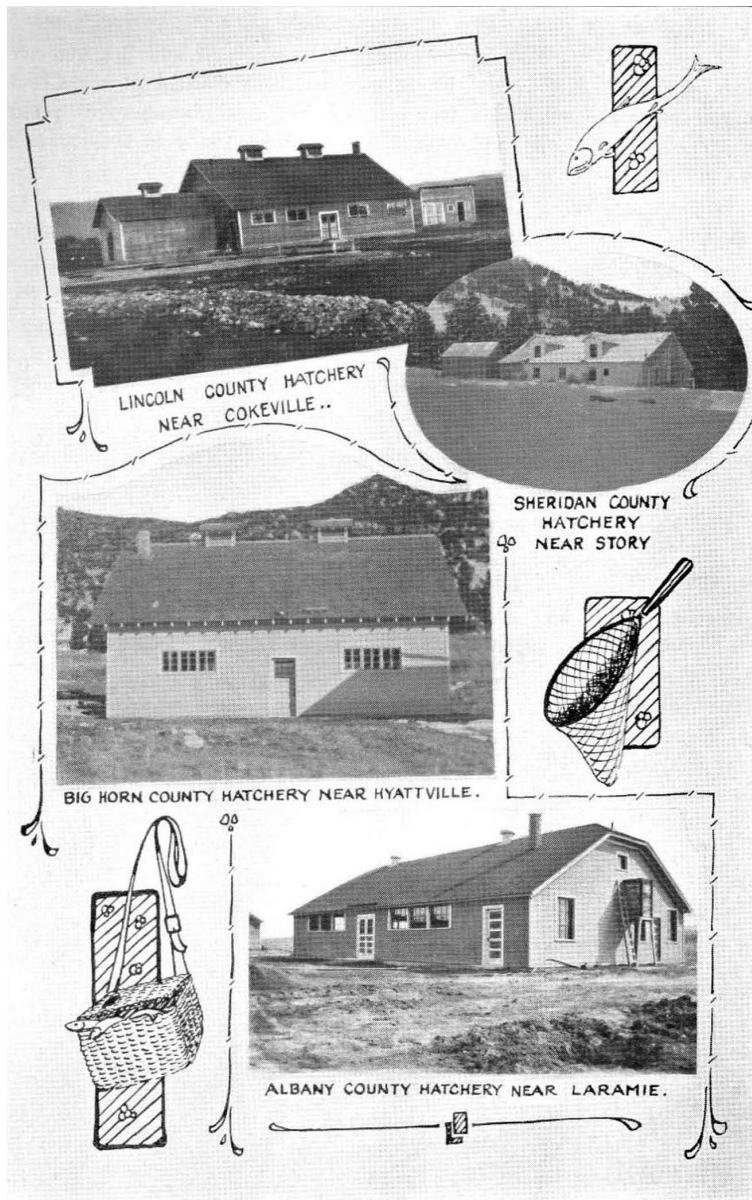
Reinvestment in the hatchery system continued in 1937 and 1938. The Commission increased the budget for the hatcheries and identified the need for some \$21,000 worth of hatchery improvements. WPA funds helped the department complete the construction of the Ten Sleep hatchery and make



repairs and additions to the existing facilities. The Ten Sleep facility replaced the Hyattville one, which was closed for several reasons: poor accessibility, limited water supply, flooding, and limited space for rearing ponds. The Ten Sleep hatchery was the "largest and finest in the state" and had a remarkable record for growing young trout due to the availability of blended spring water at 54 degrees. The Evanston hatchery, which had been established by the early 1920s, was abandoned in July 1937 because of water supply problems.

By the late 1930s, the Commission considered the distribution of fish from centrally-located hatcheries

more feasible due to improved highways and the use of water-circulating tanks. Although the agency noted that centralization and the elimination of some of the smaller hatcheries would also reduce overhead, the dispersed system of hatcheries remained in use. An important type of facility improvement was introduced during the late 1930s to the hatcheries: electric service. The installation of electric plants at the Cody, Laramie, Story, and Ten Sleep hatcheries was critical for proper preparation and refrigerated storage of fish food, which was fresh meat, primarily liver. Fish culture concerns of the time included the development of treatment for gill disease and fin rot and the use of more hygienic methods.



Hatcheries as depicted in a 1930s Game and Fish Commission annual report.

Some of the seven hatcheries in use during the late 1930s were considered inadequate. Little investment was made in the Laramie and Cokeville facilities due to the plans to replace these. A new, replacement hatchery at Dubois was put into operation in 1939. In 1940 the state acquired the Boylan commercial hatchery at Como Bluff, which had a supply of 51 degree water that was ideal for raising both trout and warm water fish. The Como Bluff hatchery had a capacity that was twice that of the facility near Laramie that it replaced due to its large raceway and an incubator with a 4 million trout egg capacity. This first such incubator in use in Wyoming proved its worth during the 1939-1940 fall hatching seasons when it greatly exceeded the efficiency of ordinary hatching methods. Plans were developed for the enlargement of the Daniel, Cody, Dubois, Ten Sleep, and Como Bluff hatcheries when money became available. As it was, the fish division, and particularly the expenses associated with the hatchery system, accounted for approximately one-third of the Wyoming Game and Fish Commission's budget. The plan called for rearing ponds at the hatcheries, as well as hatching and holding facilities. James R. Simon, the State Fish Warden, reported in 1940 that the output of fish and harvest of fish eggs had increased considerably. Nevertheless, he cautioned,

*Of the fish hatchery, it is necessary to point out that the fisherman is prone to expect too much of this accessory to fish management. The hatchery has a place – an important place – in a State such as Wyoming, but it cannot be expected to produce all the fish for fisherman creels. Many of the fish taken each year must be the result of natural reproduction.*

## **The 1940s: Expansion After the War Years**

Despite the restrictions on leisure travel and recreation that occurred during the Depression, both the demand for good fishing and recreational travel to Wyoming held strong. These conditions were documented by the increase in the sale of licenses that allowed fishing for approximately 2,000 people between 1934 and 1942. Many of the plans made

during the 1930s for hatchery improvement had been carried out and the state had two trucks for planting fish. Trout egg incubators were installed in six hatcheries where they would save space, raise the water temperature, and reduce the use of water. The completed survey of Wyoming's lakes and streams became the basis for stocking waters. As World War II progressed and gas restrictions limited sportsmen's access to remote waters, more fish planting was done near centers of population. A shortage in liver required the use of more prepared food and horse meat for feeding fish. For the first time, in 1944, the overall number of fish planted did not increase over that of the previous year.

Due to the improvements made during the late 1930s and the dedication of the limited staff during the war, the fisheries program was in balance in terms of production and "taking" by fishing. Eight hatcheries operated at full capacity during the mid-1940s. The hatchery built in 1941, known originally as the Western Wyoming hatchery, and then as the Auburn hatchery, replaced the Cokeville one, which was operated as a branch operation for a time. Two equipment improvements contributed to fish production. The deep troughs installed in all of the permanent hatcheries reduced crowding and allowed fish to grow in less time. Walk-in freezers for food storage also increased hatchery carrying capacity. The department planted 30 tons of fish during the 1947-1948 biennium in contrast to the 17 tons during the previous one. Rearing pond construction at the hatcheries continued to increase output and improve efficiency at the existing hatcheries. The Como Bluff hatchery was redeveloped in 1948 with a new hatchery building with 40 regular troughs and 20 deep troughs.

The rearing pond situation was addressed system-wide during the mid-1940s. By 1944 it was clear that the use of the dispersed pond system to produce larger fish was too expensive. Yet there was considerable demand from sportsmen to build more ponds. By 1948, the agency turned to the construction of fish rearing facilities that were extensive enough to have a permanent caretaker. The greater initial investment would be justified by better fish production. Rearing stations with raceways would make it possible to rear greater



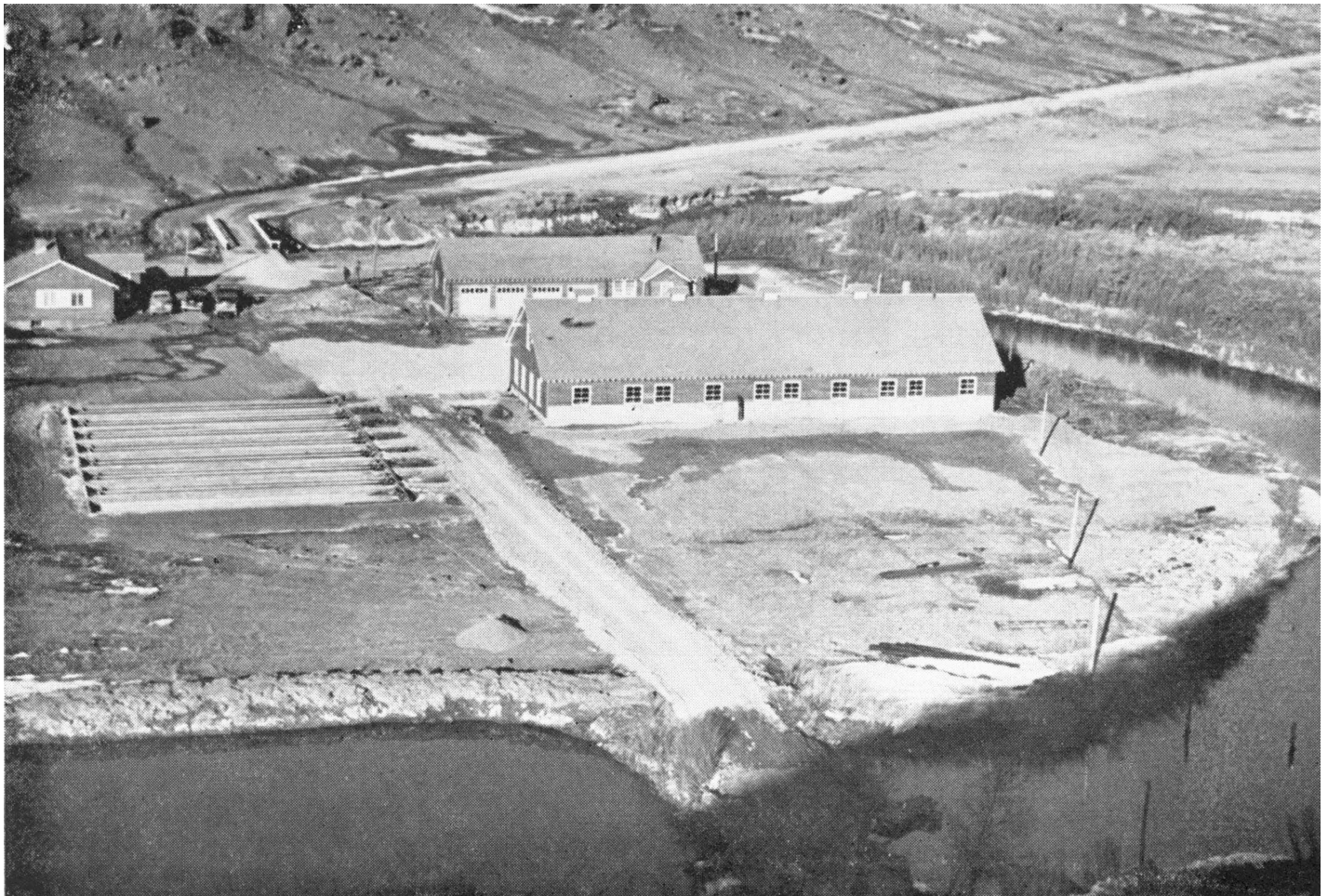
numbers of fish while allowing for grading, feeding, and other management functions. The state's rearing stations, which required a large volume of water in the range of 50 to 54 degrees, would be located near the hatcheries that would provide fingerlings for rearing. The first rearing station was opened in 1948 near Glenrock. It consisted of 24 concrete raceways, a catch basin at the spring, and a multi-purpose building. Four hatcheries sent fish to Glenrock during its first year of operation. In addition to developing new rearing stations, the agency expanded the rearing facilities at each hatchery in the effort to eliminate the use of inefficient rearing ponds.

By the end of the 1940s, the management approach to the state's fisheries was firmly articulated as one based on a coordinated plan intended to produce as much good fishing as possible, based on need rather than hatchery capacity. Fish production would be based on the survey, evaluation, and carrying capacities of the waters, rather than on an

ever increasing ability of hatcheries to produce fish for planting. Hatchery-raised fish would be used primarily for the initial stocking of new waters, for balancing fish population, and for quickening the recovery of waters depleted by disaster or unusual conditions, rather than an indiscriminate large planting in all waters. The emphasis would continue to be raising fish to a larger size before planting. The year 1949 was an exceptional year in several regards. More fish were planted than in any previous year and the quality of sport fishing was better than it had been for awhile for an even larger number of anglers. A golden trout taken from Cook's Lake in the Bridger Wilderness, east of Pinedale, set a new world's record.

### **The 1950s: Rationalization and Modernization**

A more efficient approach to hatchery operation was emphasized during the 1950s. The turn to rationalized and science-based management



Como Bluff Hatchery, circa 1950.



included the development of efficient feeding formulas, the continuous sorting of fish, and a greater emphasis on disease prevention. The agency continued to explain its position that widespread indiscriminate planting of fish served no purpose and was a waste of money and effort. Census and population studies indicated which waters were already at capacity in terms of fish. Drainage systems became the basis for fish management areas. The program to modernize and update the operations of the hatching and rearing facilities, underway since the end of World War II, continued. Spawning development and eliminating dependence on outside egg sources became a top management objective.

Planning was underway for rearing stations near Boulder and at the Wigwam site at the mouth of the Ten Sleep Canyon in 1950. The insufficient rearing station situation was considered still to be a bottle neck in the state's fish culture system. Both of the new stations would have ponds and raceways where 2-inch fish hatched elsewhere would be raised. The Daniel hatchery would feed into the Boulder rearing station while the Story and Ten Sleep hatcheries would furnish fish to the Wigwam rearing station.

By 1953 the agency could look back at the seven active years of the post-World War II development period and note progress in several areas. The budget for the fisheries operation had increased significantly because all costs – from food to salaries – were higher. Though only two new rearing stations had been built, all of the hatcheries had enlarged fish rearing facilities and had been modernized in various ways. This work was accompanied by an increase in staff members and the provision of housing for them. The fish stocking program had maintained the numbers of fish planted at a fairly stable number while planting larger average size fish, which could go directly into the creel in a “put and take” basis. The year 1953 was a record year for the tons of fish planted as the weight of the fish planted replaced the number of fish as the benchmark measure of the stocking program's success. Nevertheless, most of the fish caught by sportsmen were wild, rather than hatchery-reared. Consequently, there was an emphasis on maintaining the wild fish populations as the fisheries management programs grew in size and importance during the 1950s.



Stocking Truck, 1950.

By the mid-1950s, the department cast its work more in terms of fish management rather than fish stocking. The agency continued its efforts to convince the general public that hatchery production had a place in the overall program, but was no longer the most important component. The large numbers of fish planted in previous decades had been accompanied by considerable waste. The hatchery system was considered satisfactory, though there was recognition that some of the older facilities were not as efficient as a newer facility would be. The improvement projects at the hatcheries continued to be ponds, raceways, tanks, and the upgrading of employee quarters. The humid conditions in the hatchery buildings required the replacement of foundations and lower walls, as well as interior materials. Concrete rearing tanks were installed at the Dubois and Ten Sleep hatcheries on a trial basis in 1956. These two facilities also experimented with a commercial, complete dry food diet, an approach that would lower food costs. Rustic signs, similar to the ones erected by the state highway department, were placed at the turnoffs to the facilities during the last half of the 1950s.

Construction began on the Dan Speas rearing station near Casper in 1957 and it was in full operation in 1959. The Speas facility was developed to supply fingerling fish for the reservoirs established on the Platte River. However, it alone could not provide the three to four million 5-inch fingerling fish needed for that program and therefore construction on a hatchery at the rearing station began in 1962. By 1959 the Tillett Springs rearing station near Lovell was also in full operation.



The last unit added to the Wyoming state fish hatchery system was the Clark's Fork hatchery which opened on March 1, 1970. This facility replaced the older one near Cody.

In 2010, the Wyoming Game and Fish Department operates six hatcheries: the Story, Ten Sleep, Daniel, Dubois, Auburn and Clark's Fork facilities. Its rearing facilities include the Wigwam, Boulder, Dan Speas, and Tillett Springs stations. A Visitor Center is operated at the Story hatchery.

| Hatchery        | Date Opened |
|-----------------|-------------|
| Story           | 1909        |
| Daniel          | 1918        |
| Ten Sleep       | 1938        |
| Dubois          | 1939        |
| Auburn          | 1941        |
| Clark's Fork    | 1970        |
| Rearing Station | Date Opened |
| Boulder         | 1951        |
| Wigwam          | 1951        |
| Dan Speas       | 1959        |
| Tillett Springs | 1959        |

Wyoming Game & Fish facilities in operation in 2010.

The ten state facilities currently in operation are quite different from each other. The water temperature, quality, and volume set each of the facilities apart. These three parameters are the most important factors influencing the number and size



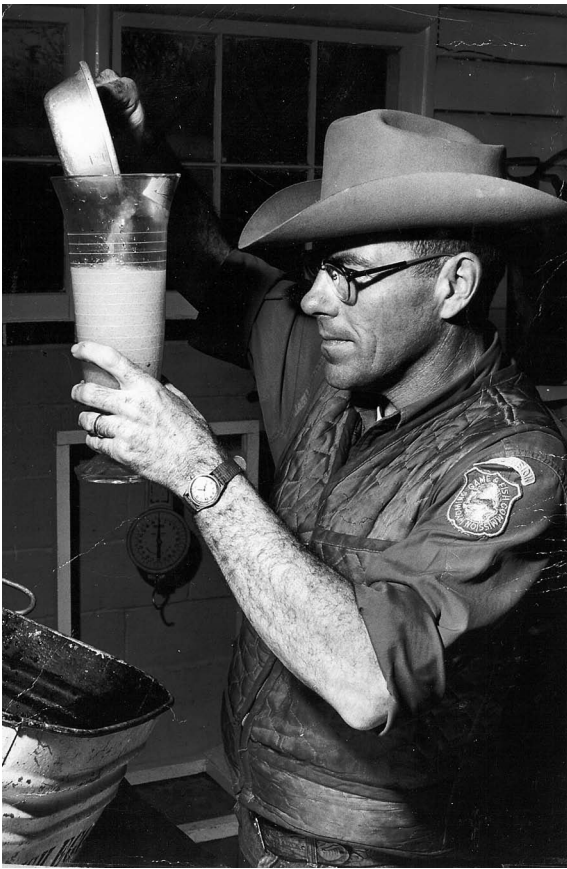
Crowding Fish, Speas Rearing Station.

of fish produced at any of the facilities. A couple of good examples of this are the Story hatchery and the Speas hatchery in Casper. The Story hatchery predominantly uses Piney Creek water for production purposes. Most of the year, this water is very cold (~36 degrees). Fish reared in cold water grow very slowly because they have very low metabolic rates, the amount of oxygen used for total metabolism per unit of time per unit of body weight. Consequently, Story does not raise large numbers of production fish because it would take two years to raise a fish to catchable size in the cold water, a very expensive and time consuming process. Instead, hatchery personnel at Story focus on brood stock management because the cold water creates an optimal environment for the health and maintenance of large fish and egg development. In contrast, the Speas Rearing Station has a warm water (60 degrees) source. Fish in that water have a very high metabolic rate and grow very fast. A fish at Speas can reach catchable size in approximately seven to eight months. It stands to reason that Speas is the largest facility in the state, producing anywhere from 200,000 up to 250,000 pounds of fish in a given year.

## Fish Culture: From Eggs to Fish

Hatcheries in Wyoming have received fish eggs from three different sources. Over the course of the past one hundred years or so, fisheries managers have obtained a wealth of knowledge of when and where to look for various populations of wild fish ready to spawn, either in the spring or fall. Once the timing is right, plans are made to capture these fish and spawn them artificially so that the eggs can be collected from the wild fish and transported to one of the hatcheries. Wyoming hatcheries also use eggs from captive brood stocks. These are brood stocks that were developed from a wild source over the course of years and are housed and spawned at one of the state's hatcheries. Lastly, Wyoming acquires eggs from other state and federal hatcheries.

Once the eggs arrive at the hatchery, they are disinfected, inventoried, and placed in an incubator. The incubator consists of some type of container with an inlet and outlet. Fresh water flows in one end and across the eggs and leaves on the other end.



Hatchery employee measuring eggs at Ten Sleep Hatchery.



Feeding Fish, Speas Rearing Station.

These newly spawned “green eggs” are placed in the incubator and are very fragile. Depending on the water temperature, the eggs will remain in the incubator for some time until they “eye-up” (the embryo stage at which pigmentation of the eyes becomes visible through the egg shell). Once the eggs eye-up, they are shocked. This shock is usually performed by siphoning the eggs from a container and through a piece of hose with a rubber stopper

installed a couple of inches from the other end of the hose. The shock, which ruptures the permeable membrane or the outer layer of the “blank eggs” (eggs that did not get fertilized or were over ripe when spawned), enables water to penetrate the egg and in so doing, the egg will turn white. Fish culturists remove the white or dead eggs from the “lot” (a group of eggs that were spawned at the same time) as they provide a media for fungus and harbor bacteria which are detrimental to the health of the remaining “viable” (alive) eggs. At this point, the eggs are very resilient and are ready to be shipped to the hatchery.

Once the eyed-eggs are received at the hatchery, they are disinfected once more before they are measured out into hatching baskets, trays, or jars. At this point, the eggs are picked daily to remove anything that looks like it doesn’t belong. The eggs will remain here for 18 to 120 days depending on water temperature and strain or until most all of them hatch. At that time, the remaining eggs and “sac fry,” a fish with an external yolk sac, will be sifted through a screen and everything but the sac fry will be removed from the lot. Again, the sac fry will stay in these baskets, trays and jars where they were hatched until the “swim-up” state, a term used to describe fry when they begin active swimming in search of food. Once the majority of the sack-fry achieve swim-up, fish culturists begin artificially feeding the “fry,” the stage in a fish’s life from the time it hatches until it reaches one inch in length. These fry are fed a starter feed which is ground very fine for them. As these fry begin to feed well and grow, they are thinned from the place they were hatched into “rearing units.” These facilities, in which fish are held during the rearing process, include rectangular raceways, circular ponds, and earth ponds. The fish will soon reach the “fingerling” stage, a size of between one and three inches. As these fish continue to grow, the fish culturist continually monitors the flow and density of fish in the rearing unit. As the fish grow and the rearing units become crowded, some of the fish are either stocked out into state waters or they are thinned to other rearing units. If they remain at the hatchery, the fish move through the “advanced fingerling” (between 3.1 and 5 inches in length), to





Hatchery employees returning spent fish to the lake, late 1930s.



Weighing Fish for Stocking, Speas Rearing Station.

the “sub-catchable” (between 5.1 and 8.0 inches in length) and “catchable” (between 8.1 and 10 inches in length) stages. Fish from the hatcheries may be stocked at any time or size, depending on what is requested from the regional fisheries manager.





# The Ten Sleep Fish Hatchery: A Brief History

The Ten Sleep hatchery is one of ten hatcheries and rearing stations operated by the Wyoming Game and Fish Department in 2010. Established during the late 1930s, it has been continuously modernized and upgraded to provide fish for planting in Wyoming's streams. A major project completed in 2010 eliminated problems with Whirling Disease and situated the hatchery well with modern production facilities.

## A New Hatchery

The fish hatchery at Hyattville, which was established in 1916, supplied the waters draining the western side of the Big Horn Mountains. However, the scope of the Hyattville operation was limited by its water supply, lack of space for rearing ponds, and its location that was inaccessible during part of the year.

The Bighorn National Forest had established a fish raising operation at the Leigh (Lee) Creek site that became the Ten Sleep Fish hatchery by the mid-1930s. This was likely part of the extensive fish rearing pond program that the state hatchery system fed into. The site was located eight miles above Ten Sleep. Forest Supervisor Agee reported in 1935 that "We are at present operating two fish rearing ponds at this site with excellent results from the natural feed, the water from the 60 degree spring being brought down to a temperature suitable for trout life."

The Washakie County Commissioners, the Wyoming Game and Fish Commission, and the National Forest Service began to seriously consider establishing a larger fish hatchery operation during the mid-1930s. The rearing pond site was ideal in many ways. It was on the Buffalo-Ten Sleep Highway (US 16) that was accessible year-round. A site that would allow the construction of a hatchery and its eventual expansion was available. Most importantly, there were three springs within 200 feet of each other, which could be combined by pipes and gravity pressure into a single flow. Two of the springs flowed at the temperature of 44 degrees and the third flowed at the temperature of 60 degrees. Combined feed via a pipeline system from the springs would provide an ample flow of water at a year around temperature of 54 degrees, or whatever temperature was most suitable for the operation of the hatchery.

After the Leigh Creek site was determined a good one for a hatchery, the Washakie County Commissioners submitted final plans to the Wyoming Game and Fish Commission to build a log fish hatchery on a site that is now 34 acres of Forest Service land at Leigh Creek. The county sought funding from the Works Progress Administration (WPA) through the State of Wyoming to build the hatchery as a WPA project. It took some time to negotiate the permit from the National Forest. The Bighorn National Forest was concerned that the location of the new hatchery would impinge on the new campground it had developed in the vicinity.

The Bighorn National Forest and the Wyoming Game and Fish Commission collaborated on the planning for the hatchery. R.E. Phillips, a Forest Service recreational planner, helped design the arrangement of buildings, ponds, and roads. The Wyoming Game and Fish Commission submitted a design for the hatchery building, a 38 foot by 102 foot building large enough to house 78 troughs. The Bighorn National Forest provided plans for a log dwelling at the site and approved plans for the service building, a combination garage and ice house, and the bunkhouse. A concrete dam and head gate were constructed on Leigh Creek. Water from the creek was diverted into a 20-inch diameter steel pipe that led to the powerhouse, waterwheel, and mill race.

The project was approved by the national WPA program in April 1937. The *Worland Grit* reported that "through the combined efforts of the local Rod & Gun Club, Mrs. Marion Jones of the local WPA office and others as well as those in authority in Washington, D.C. and the State Game and Fish Department, Washakie County has been assured that there will be a fish hatchery on Leigh Creek in the near future." One hurdle remained, the allocation of funds for construction.

The collaborative project got underway in May 1937 after an appropriation of \$16,000 was approved. The Wyoming Game and Fish Commission supplied the materials while the WPA paid for the labor. Most of the construction was completed during the summer of 1937. After an additional appropriation was granted in November, work remaining on the residence was completed.

The hatchery would be the largest and most complete hatchery in the state at the time. It was officially designated as the Ten Sleep State Fish Hatchery of Washakie County in January 1938. Bliss Blaine, the first superintendent, oversaw the beginning of fish production. Governor Leslie A. Miller and other state officials toured the new hatchery as part of a National Wildlife Week celebration held in Worland in March 1938. By June of that year, the first Rainbow trout were hatched at the new facility.

### **Largest and Finest**

The Game and Fish Commission was justly proud of its new facility and presented it in its 1937-39 biennium report as the “largest and finest” in the state. Moreover, the facility provided for the “most remarkable growth of fish ever seen in Wyoming hatcheries.” Young trout at the Ten Sleep hatchery attained a length of three inches in three months and were the deep-bodied, healthy fish every hatchery strived to produce. This rapid growth was attributed, in part, to the high water temperature of 54 degrees, which was constant throughout the seasons. The Ten Sleep hatchery was considered complete in 1939 and produced a full output that year. The finishing work to the facility included the construction of a large concrete raceway, 15 feet by 56 feet in length, and excavations for two more raceways. The water supply system was improved with extensions to the raceways. Five rearing ponds on the hatchery grounds were completed and some landscaping work was undertaken. Ten Sleep was one of the four hatcheries in which electric plants were installed. Electricity enabled the use of refrigeration units which in turn allowed for the use of fresh meat, mostly liver, as fish food. Residences were provided for hatchery personnel.



View to west of overall fish hatchery in August 1948. Three rearing ponds are visible in the foreground.

In September 1938, the local newspaper reported that 309,000 fish eggs from the Ten Sleep Fish hatchery were released into local streams. Hatchery superintendent Bliss Bayne noted that 400,000 eggs remained at the hatchery and another 50,000 eggs had been shipped to Natrona County for planting.

In March 1940, the Ten Sleep hatchery was equipped with 84 troughs and one concrete raceway in four sections. It supplied fingerlings to waters in Washakie County, and parts of Big Horn, Hot Springs, Fremont, Natrona, and Johnson counties.

### **Keeping Pace, Testing New Methods**

A freezing unit was added to the refrigeration unit installed during the 1941-1942 biennium. A 30-foot by 70-foot rearing pond was constructed and other ponds were improved during the same period. In 1948, non-consumptive water rights from Leigh Creek were secured for fish production at the station. That same year, several large earth ponds were constructed for the production of catchable sized fish, approximately eight inches, at the hatchery. Although water volumes and temperatures from Leigh Creek ranged considerably on an annual basis, the additional water and production units drastically increased production and the number of larger fish raised at the hatchery.

The “carp cooker” arrived at the Ten Sleep hatchery in 1951. This pressure-cooker-like system could cook 2,000 pounds of raw fish at one time. The fish

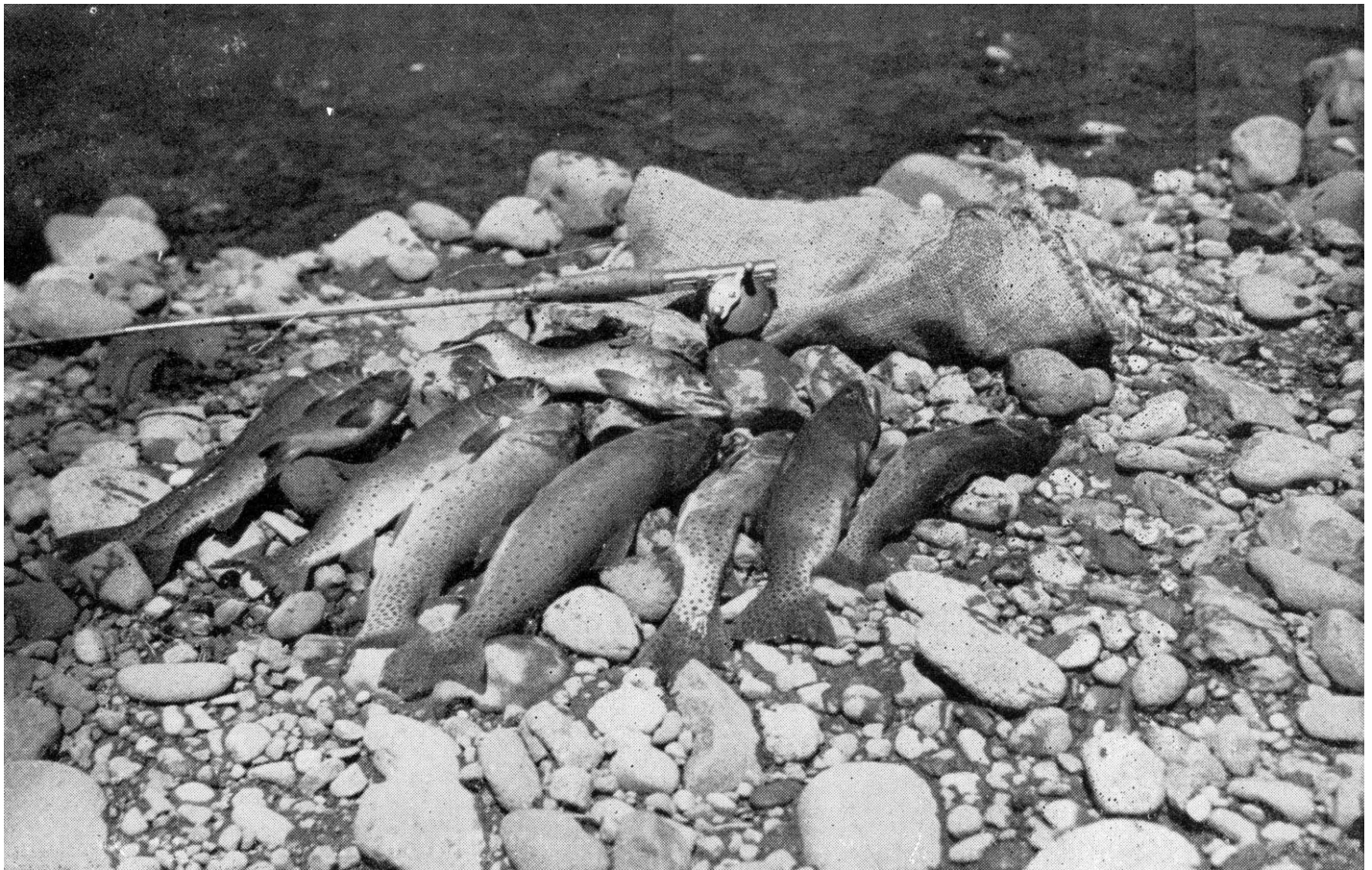


food was completed with the addition of 300 pounds of oats, 500 pounds of beef melts, and 10 pounds of salt. The use of carp to make fish food had two purposes. Both sides of the Big Horn Mountains had sources of the undesirable fish and producing the carp-based food at Ten Sleep, a relatively central location for other hatcheries, allowed for local use and easy distribution. The carp cooker was also an important way of saving money on fish feed which had to be shipped in from out of state. The carp cooker was used up until the early 1970s when the section began buying commercially prepared feed.

During the early 1950s, in a two part operation, the foundations, outside support posts, and lower portions of the log walls of the main hatchery building were removed and replaced. In 1956 four inside concrete rearing tanks were installed at Ten Sleep, and also at the Dubois hatchery, as an experiment. The following year two additional 100-foot-long concrete rearing tanks were completed at Ten Sleep. These tanks were supplied with water that had already been used

inside and added significantly to the rearing space at the hatchery. An improved egg hatching unit was installed at Ten Sleep, as well as at the Como Bluff hatchery, in 1958. A new metal head trough for the hatchery water supply was installed in 1960, as well as a new pipeline from the spring to hatchery for mixing water temperatures. During most of the 1950s, the Ten Sleep hatchery supplied fingerlings to the nearby Wigwam Rearing Station.

Improvements to the hatchery during the 1980s and 1990s included work on the water and sewer systems and changes to the equipment in the hatchery building. During the late 1980s, an additional 100-foot-long concrete raceway, was constructed southwest of the hatchery building. This raceway was supplied with second use water from the hatchery building and was used primarily to culture advanced fingerling (three to five-inch) sized fish. All of the old metal tanks in the hatchery were replaced with new, fiberglass, longitudinal tanks set on concrete pads during the summer of 1994. In all, fifteen tanks for raising fry and fourteen tanks for



A catch of Yellowstone Cutthroats, circa 1950.



hatching eggs and swimming up fry were installed. In 1997, hatchery personnel adapted a portion of the main hatchery building into an incubator room. The new incubator received the first shipment of green eggs that fall and had a capacity of up to 3.5 million eggs at a time.

Beginning in May of 2003, a new brood facility was constructed to house the captive Yellowstone Cutthroat brood stock that was located at the Clark's Fork hatchery. The new facility, which was constructed on the south side of Leigh Creek, consists of a 168-foot-long concrete raceway covered with a metal building and houses the three to five-year old, brood fish. In addition, a 20-foot circular rearing unit and cover were installed east of the concrete raceway. Two year old brood recruitment fish are reared in this unit. The entire brood stock was transferred into the new brood facility at Ten Sleep, from the Clark's Fork facility in October of 2003.

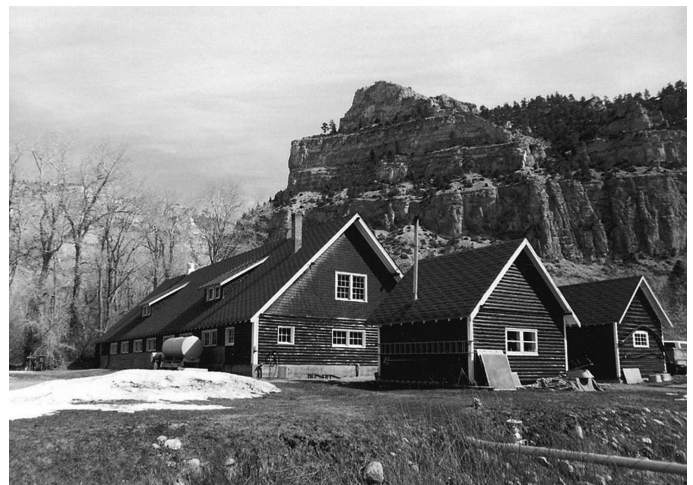
The Ten Sleep hatchery rears several different strains of trout. Since the hatchery acquired the Yellowstone Cutthroat brood stock the major emphasis at the station has been the "culture" (the cultivation or rearing of a particular product) of the "progeny" (offspring) from these fish. However, in addition to the Yellowstone's, the hatchery also raises Rainbow, Brook Trout and Splake (a cross between a male, Brook Trout and a female, Lake Trout).

The threat of Whirling Disease that was sweeping its way across western states prompted changes at the Ten Sleep hatchery as personnel implemented proactive measures. Whirling Disease is a microscopic parasite known as *Myxobolus Cerebralis* that attacks the cartilage in the head and spine of fingerlings. Sufficiently infected young fish may display a whirling behavior or black tail, or die. During the spring of 2004, two 20-foot circular rearing units and a three sided, metal building were constructed over the area where the two earthen ponds were located and used to raise catchable sized fish. These rearing units could be disinfected.

In April of 2008, Whirling Disease was confirmed at the station and all production fish on hand at that



Sorting brood fish at Wigwam Rearing Station.



Ten Sleep Fish Hatchery, 1989.

time were euthanized. The hatchery was quarantined and would not go back into fish production until all of the water sources used for fish production were properly secured and a system was installed to filter the parasite from the water. Due to the fact that both Ten Sleep Creek and Leigh Creek had tested positive for the disease and have an influence at different times of the year on flows from the springs used for fish production at the station, they are credited as the source for the contamination.



The Ten Sleep hatchery was modernized again in 2010 with state legislative funding. At that time, the three major springs used for fish production were secured and the area immediately adjacent to the springs was drained. A combined office and mechanical building to house the water treatment equipment was constructed. A metal production building was built to shelter four, 16 foot and three, 20 foot in diameter, circular rearing units. Post construction production levels are similar to pre-construction levels at approximately 20,000 pounds annually. A metal building to house vehicles and serve as a shop was also part of the project. In addition, both sets of outside concrete raceways were removed, as well as the two 20-foot circular raceways and the three sided metal building covering them.

The hatchery certified the water sources disease free and began producing fish again in 2011.

## A Note on Sources

These narratives draw primarily on the official reports of the Wyoming State Game Commission, beginning with the 1903 Annual Report of the State Game Warden, to the biennial reports, and including the annual reports of the Wyoming Game and Fish Department from 1950 to 1970. These reports are available at the Wyoming State Library. The images in this report are from those publications or the files of the Ten Sleep hatchery, and from the Wyoming State Archives. Some information about the history of the Ten Sleep hatchery was found in the files of the hatchery and the Bighorn National Forest files.

The following publications were intended for more casual reading:

James Blaisdell. *Wyoming's Wildlife Heritage: A Review of 75 Years of Progress Commemorating Wyoming's 75<sup>th</sup> Year of Statehood 1890-1965*. (Wyoming Game & Fish Department, 1964).

Douglas M. Crowe. *The First Century: A Hundred Years of Wildlife Conservation in Wyoming* (Wyoming Game & Fish Department, 1990).



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