



**Perkins Tank
Fisheries Management Plan
2019-2029**

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Approved by Chris Cantrell *D. Andrew Cantrell* Date 10/1/19
Aquatic Wildlife Branch Chief

Location

Perkins Tank is located on the Williams District of the Kaibab National Forest about 15 miles south of the Town of Williams near Whitehorse Lake at UTM 402488, 3885937 (Figure 1).

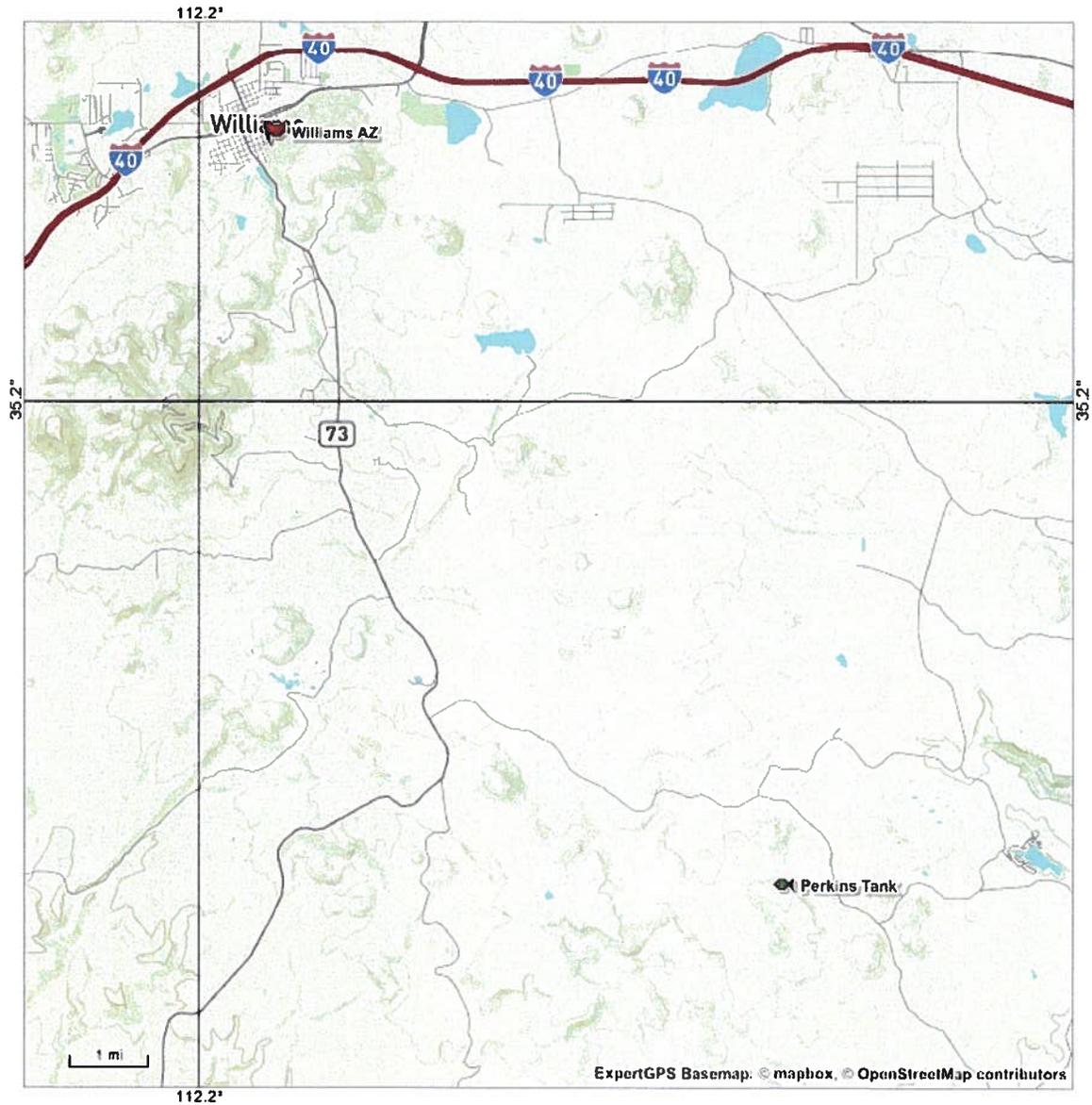


Figure 1. Map of area around Perkins Tank, south of Williams.

Management Prescription

The Arizona Game and Fish Department (Department) has developed concepts to guide coldwater species management under the Coldwater Sportfisheries Strategic Vision Document (AGFD 2019). The primary management approach will follow the Featured Species concept for Brook Trout *Salvelinus fontinalis* and Arctic Grayling *Thymallus arcticus*. The Featured Species coldwater sport fishery emphasis is based on desires of local angling groups along with the suitable water quality and productivity conditions found in Perkins Tank.

Perkins Tank is one of four special regulation waters in the Williams area with catch and release regulations and artificial fly and lure single barbless hook gear restrictions.

Objective 1: Maintain a Featured Species concept fishery for Brook Trout and Arctic Grayling (Grayling) as listed in the Coldwater Sportfisheries Strategic Vision Document.

Objective guidelines to meet objectives are listed in Table 1 below.

Table 1. Perkins Tank Goal, Objectives and Adaptive Management Strategies.

| <i>Objective 1: Maintain a Featured Species concept fishery for Brook Trout and Grayling as listed in the Coldwater Sportfisheries Strategic Vision Document.</i> | | | |
|--|---|--|---|
| Parameters | Objective guideline | Trigger point to address unmet objectives | Strategies if objectives are not met |
| Angler Catch Rates | Catch rate greater than 1 fish per hour as reported by angler groups. | Catch rate is less than 1 fish per hour, as reported by angler groups for two consecutive years. | <ul style="list-style-type: none"> • Determine if water quality is suitable to stock trout. |
| Brook Trout and Grayling persistence | Multiple age classes of Brook Trout and Grayling are caught by anglers. | Brook Trout and Grayling caught by anglers are only from that years stocking. | <ul style="list-style-type: none"> • Explore stocking White Amur to reduce plant growth. • Investigate forage enhancements. |

Background

Perkins Tank is located approximately 15 miles southeast of the City of Williams off Forest Service Road 110 on the Kaibab National Forest; it is a popular catch-and-release trout fishery for the local flyfishing anglers of Williams, Flagstaff, and the surrounding area. Perkins Tank, with a lake elevation of 6,800 feet, on average is about 10 feet deep with a maximum depth of 16 feet, and is approximately 3.5 surface acres when fully watered.

On November 16, 2016, a meeting was held with members of the Northern Arizona Flycasters (NAF), the Grand Canyon Chapter of Trout Unlimited (GCTU) and representatives from the Kaibab National Forest (KNF) in order to develop fisheries management objectives for the special regulation fisheries in this area. As a result of input from this meeting, it was decided that Perkins Tank would be managed as a Featured Species fishery with an emphasis on Brook Trout and Grayling.

Perkins Tank has been managed as special regulation trout fisheries since 1999. The NAF and GCTU in cooperation with the KNF and the Department maintain the fences on Perkins Tank along with building and maintaining the kiosk and signs.

Productivity/Water Quality

Monthly water quality and zooplankton surveys were conducted on JD Dam Lake and Perkins Tank in 2001. Based on these surveys, Perkins is considered mesotrophic to eutrophic and it is nitrogen limited (Jones 2001). It had pH readings in the mid 9's during the summer months because of abundant aquatic plant growth and low buffering. Zooplankton were abundant in Perkins Tank providing ample food for trout.

In July of 2007, there was a fish kill at Perkins Tank due to low dissolved oxygen levels resulting from an algal bloom and subsequent monsoon storms (M. Rinker, pers. comm). A spot check for water quality indicated very low dissolved oxygen condition, and 128 dead trout were removed. It is not known if the kill was complete; however, crayfish were observed dying, and the survey crew expects the kill was significant (M. Rinker, pers. comm.).

Water quality will be monitored on Perkins Tank. The Region II Aquatic Wildlife Program staff will assist the Department's Water Quality Specialists in collecting data as needed.

Forage/Prey

The primary forage in Perkins Tank are zooplankton and aquatic insects. In 2001, the Department, with the assistance of NAF, pumped Perkins Tank dry to remove illegally stocked Green Sunfish. Perkins Tank is not surveyed regularly due to its management status, so it is not known if the project was completely successful. However, anglers have not reported catching Green Sunfish since 2001.

Habitat

The fish habitat in Perkins Tank is primarily aquatic plants. No other artificial or natural habitat has been installed.

Much of the work to maintain Perkins Tank as a fishery is conducted in cooperation with KNF, NAF and GCTU. The following activities are required to maintain the fishery:

1. Maintain the fence that surrounds the tank to prevent cattle from damaging the shoreline. The fence should be checked and repaired annually.

2. Maintain the kiosk for Perkins Tank.
3. Maintain the spillway.
4. Maintain and repair the dam as needed.

No work has been done on Perkins Tank to deepen it or repair the dam in the past 20 years. The tank was fenced from cattle in the late 1990's and NAF installed a float valve and watering trough downstream of the tank for cattle. NAF and GCTU members have maintained the float valve /watering trough system since it was installed.

A plan should be developed with these same partners to monitor and address sedimentation in the tank. The Department will continue to work with the KNF to make this a priority in future planning.

Species

Recent fish surveys have not been conducted at Perkins Tank; however, based on stocking records and angler reports, Rainbow Trout Grayling and Brook Trout are present in the tank. Neither non-native bullfrogs or crayfish have been documented in Perkins Tank since 2007, but these species are in other tanks in the area.

Sub-catchable and fingerling Grayling are stocked opportunistically from March to June annually; numbers of arctic grayling stocked may be 0 – 1,000 annually. Sub-catchable and fingerling Brook Trout are also stocked opportunistically when available from March to June annually; numbers of Brook Trout stocked may be 0 – 1,000 annually.

If Brook Trout are not available, Perkins Tank may also be stocked with Rainbow Trout *Oncorhynchus mykiss* and Brown Trout *Salmo trutta*. Sub-catchable and catchable Rainbow Trout could be stocked multiple times per season as fish are available, from March to November annually; numbers of rainbow trout stocked may be from 0 – 3,000 fish annually. Sub-catchable and catchable Brown Trout would be stocked from September to November annually; numbers of Brown Trout stocked may be from 0 – 750 annually. The Featured Species concept will be followed for both Rainbow and Brown Trout to maintain consistency.

Access

Perkins Tank is accessible by a primitive Forest Service road, FS720.

In 2016 NAF, GCTU, and KNF built a float tube ramp in the tank to reduce transport of mud from the tank. This float tube ramp needs to be maintained and a rail needs to be added to the float tube ramp on Perkins Tank to improve safety. The Department will work with the listed groups to find funding to do the maintenance and make the improvements.

Catch and Satisfaction

Members of the NAF, and GCTU are extremely interested in the management of Perkins Tank and are a prime source of information about the fishery. Club members have provided the Regional Aquatic Wildlife staff with information on the species, number, and size of the fish caught during their angling trips to Perkins Tank. Club member reports will be the primary method used to determine if objectives for the fishery are being met.

Creel census has not been conducted on Perkins Tank because angler use is relatively low. A system using angler diaries or angler cards could be used along with cameras to get estimates of use, satisfaction and catch rates. It would be beneficial to work with the angling clubs in order to develop a mobile device application or online method for club members to record their angling data.

Compliance with the special regulations on Perkins Tank has been a problem at times. The NAF and GCTU expressed a concern about the perceived lack of compliance with the regulations. The following actions were suggested as possible methods to improve compliance:

1. Work with Law Enforcement personnel, Northern Arizona Flycasters, Grand Canyon Chapter Trout Unlimited, and the Kaibab National Forest to place signs on Perkins Tank.
2. Work with Kaibab National Forest, Northern Arizona Flycasters Grand Canyon Chapter Trout Unlimited to ensure anglers must pass a regulation sign to get to the tank.
3. Investigate placing cameras or camera signs at the tank.

Literature Cited

Arizona Game and Fish Department. 2019. Coldwater Sportfisheries Strategic Vision Document. Arizona Game and Fish Department, Statewide Sportfish Program, Phoenix, Arizona.

Jones S. K. and R. A. Keller. 2001. Perkins Tank Fish Management Report 2001. Arizona Game and Fish Department, Phoenix, Arizona.