



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

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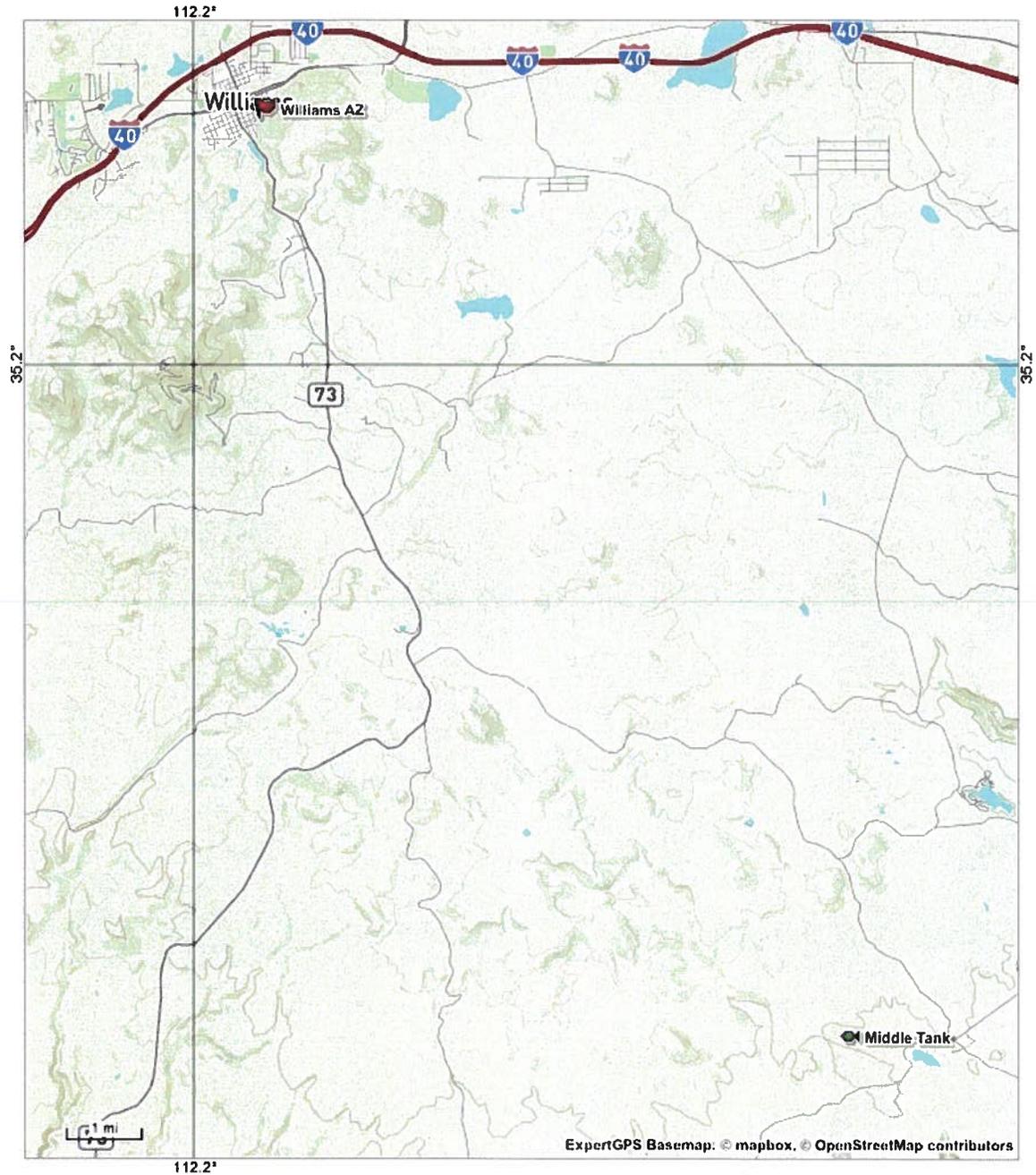
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Approved  by Chris Cantrell *D. Andrew Decker* Date 10/1/19  
Aquatic Wildlife Branch Chief

## Location

Middle 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 404641, 3881319.



**Figure 1.** Map of area around Middle 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 Quality designation as defined in the Coldwater Vision (AGFD 2019) for Brown Trout *Salmo trutta*. This concept will be supported by annual stocking of Brown Trout. The Quality concept is based on the productivity of Middle Tank.

Objective 1: Maintain a Quality concept fishery for Brown Trout as listed in the Coldwater Sportfisheries Strategic Vision Document.

Objective guidelines are listed in Table 1 below.

**Table 1.** Middle Tank Goal, Objectives and Adaptive Management Strategies:

Parameters	Objective guideline	Trigger point to address unmet objectives	Strategies if objectives are not met
<b><i>Objective 1: Maintain a Quality concept fishery for Brown Trout as listed in the Coldwater Sportfisheries Strategic Vision Document.</i></b>			
Angler Catch Rates	Angler catch rate greater than 1 fish per hour as reported by angling club members.	Angler catch rates of less than 1 fish per hour as reported by angling club members for two consecutive years.	<ul style="list-style-type: none"> <li>Investigate increasing stocking rates.</li> </ul>
Brown Trout persistence	Multiple age classes of Brown Trout are caught by anglers.	Brown Trout caught by anglers are only from that year's stocking.	<ul style="list-style-type: none"> <li>Stock White Amur <i>Ctenopharyngodon idella</i> to reduce aquatic weed growth to improve survival.</li> <li>Investigate deepening of the tank to improve survival.</li> </ul>

## Background

Middle Tank is located 18 miles southeast of the City of Williams and approximately 4 miles southwest of White Horse Lake on the Kaibab National Forest. It is 2.19 surface acres when full. Middle Tank is the second and smallest of three impoundments on an unnamed tributary that flows into JD Dam Wash, and is located 1.48 miles downstream from Elk Tank. The water that spills from Middle Tank flows to JD Dam Tank (JD), and water spilling from JD flows about 2 miles down the wash before it drops off a 100+ foot waterfall into a tributary of Sycamore Canyon. Middle Tank is the shallowest of the four

waters on JD Dam Wash and often has fish kills due to poor water quality caused by heavy aquatic weed growth. Middle Tank has been managed as a special regulation trout fishery since 1999.

On November 16, 2016, a meeting was held with members of the Northern Arizona Flycasters, the Grand Canyon Chapter of Trout Unlimited 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 Middle Tank would be managed using a Quality approach for Brown Trout with a target catch rate of 1 fish per hour.

### **Productivity/Water Quality**

Middle Tank, like other tanks and lakes in the area, can experience low water levels and poor water quality. Water quality needs to be monitored on these waters. The Region II Aquatic Wildlife staff will assist the Department's Water Quality Specialists in collecting water quality data as needed.

### **Forage/Prey**

The primary forage in Middle Tank are zooplankton and aquatic insects. Currently there are no plans to inventory the zooplankton community in Elk Tank. An inventory may be considered if objective guidelines are not being met.

### **Habitat**

Middle Tank was drained in 2004 to deepen the tank and repair the spillway; in addition, efforts were made to improve bank stabilization due to heavy cattle and wildlife use. Middle Tank is characterized by large amounts of aquatic vegetation in the summer and is consequently often subject to poor water quality and occasional fish kills.

Much of the work to maintain Middle Tank as a fishery is conducted in cooperation with Northern Arizona Flycasters (NAF) and the Grand Canyon Chapter of Trout Unlimited (GCTU). The following activities are required to maintain the fishery:

1. Maintain the kiosk and the fence at the parking area for Middle Tank.
2. Maintain the spillway.
3. Maintain and repair the dam as needed.

In addition, a plan needs to be developed with KNF, NAF and GCTU to monitor and address sedimentation in the tank.

The large amount of aquatic plants in Middle Tank makes angling difficult and has caused fish kills. Stocking White Amur in the lake could reduce the plant growth improving the habitat for the fish and improving angler access.

## **Species**

Recent fish surveys have not been conducted at Middle Tank; however, based on stocking records and angler reports, Rainbow Trout and Brown Trout are present in the tank. It is likely that non-native bullfrogs are present or have been present as well. Catchable and sub-catchable Brown Trout would be stocked typically from September to November annually though stockings may occur at other times; numbers of Brown Trout may be from 0 – 750 annually.

Catchable and sub-catchable Rainbow Trout also may be stocked multiple times per year to supplement the fishery; numbers of Rainbow Trout stocked may be from 0 – 3,000 annually.

## **Access**

Middle Tank is a walk in fishery located off of Forest Service Road 11. A parking pulloff for the tank is located along the west side of the road and is marked by a wood fence. Middle Tank is located approximately ½ of a mile east of the pulloff and has a well marked trail leading to it.

Launching float tubes in the lake can be difficult at times due to the amount of silt along the shore. The Department will work with KNF, NAF and GCTU to place a float tube “ramp” with handrails on Middle Tank.

## **Catch/ Satisfaction**

Members of NAF and GCTU clubs are extremely interested in the management of Middle Tank and are a prime source of information on 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 on Middle Tank. Club member reports will be the primary method used to determine if the objectives for the fishery are being met.

Creel census has not been conducted on Middle 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 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 Middle 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 could 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 Middle 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 and/or camera signs at Middle Tank.

### **Literature Cited**

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