



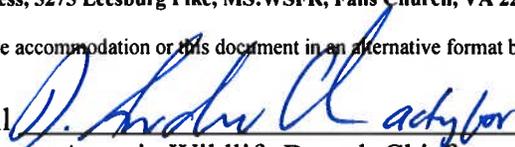
**City Reservoir  
Fisheries Management Plan  
2019-2029**

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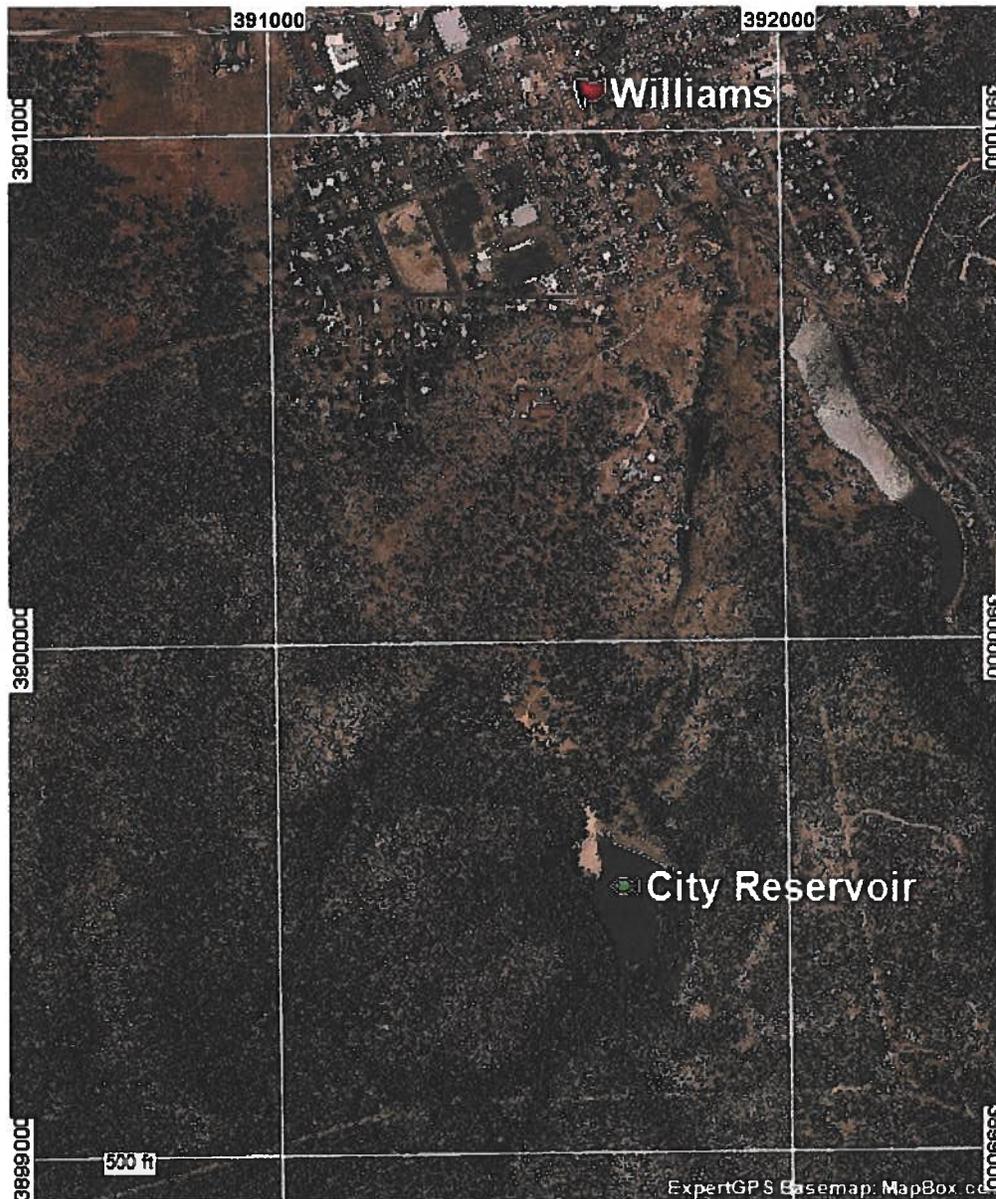
Approved [  ] by Chris Cantrell

  
Aquatic Wildlife Branch Chief

Date: 6/25/19

## Location

City Reservoir is located southern edge of Williams Arizona (UTM 391698, 3901577)  
Figure 1. City Reservoir Aerial Photo



## Management Prescription

The primary management approach will follow the Intensive Use concept per the Coldwater Vision (AGFD 2019a) for Rainbow Trout *Oncorhynchus mykiss* and Brown Trout *Salmo trutta*; secondary management approach will follow the General Opportunity concept per the Warmwater Vision (AGFD 2019b) for Channel Catfish *Ictalurus punctatus*.

Objective 1: Maintain an Intensive Use Rainbow Trout fishery with an angler catch rate of .5 fish per hour as measured during creel census.

Objective 2: Maintain an Intensive Use concept warmwater fishery for Channel Catfish using stockings of catchable sized fish.

Objective 3. At least 80% of the anglers interviewed during creel census rate the fishing as fair, good or excellent.

Monitoring activities, including community-wide or species-specific electrofishing surveys and angler creel surveys will be used to determine if aforementioned management objectives are being met. Objective guidelines to meet objectives are listed in Table 1 below.

Up to 20,000 catchable Rainbow Trout may be stocked City Reservoir along with 5,000 subcatchable Brown Trout. Catchable Channel Catfish will also be stocked in City Reservoir when funding is available.

**Table 1.** City Reservoir Objectives and Adaptive Management Strategies:

<b><i>Objective 1. Obtain an average angler catch rate of .5 fish per hour for stocked trout as measured during creel census.</i></b>			
<b>Parameters</b>	<b>Objective Guideline</b>	<b>Trigger point to address unmet Objectives</b>	<b>Strategies if Objectives are Unmet</b>
Angler Catch Rate	Catch rate for trout meets or exceeds .5 fish per hour. during the stocking season	Catch rate during creel census is less than .5 fish per hour	<ul style="list-style-type: none"> <li>• Develop an angler outreach program to attempt to increase the angler's ability to catch fish on City Reservoir.</li> <li>• Increase mean size of trout stocked.</li> </ul>

***Objective 2: Maintain an Intensive Use concept warmwater fishery for Channel Catfish using stockings of catchable sized fish.***

<b>Parameters</b>	<b>Objective Guideline</b>	<b>Trigger point to address unmet Objectives</b>	<b>Strategies if Objectives are Unmet</b>
Angler Catch Rate	Catch rate meets or exceeds 1 fish per hour during the stocking season.	Catch rate during creel census is less than 1 fish per hour.	<ul style="list-style-type: none"> <li>• Increase stocking of Channel Catfish.</li> </ul>

***Objective 3: At least 80% of the anglers interviewed during creel census rate the fishing as fair, good or excellent.***

Angler Satisfaction	A minimum of 80% of anglers rate fishing as fair, good or excellent.	Creel Census shows less than 80% of the anglers rate fishing as fair, good or excellent.	<ul style="list-style-type: none"> <li>• Increase stocking rates.</li> <li>• Increase size of trout stocked.</li> <li>• Creel Census conducted a minimum of once every 10 years.</li> </ul>
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**Background**

City Reservoir is located on the southern edge of the City of Williams in Bucksinner Park. The dam for the lake was constructed in 1902 and was raised twice, in 1916, and 1924, to increase the reservoirs capacity. The reservoir is used as a municipal water supply. Runoff from snowmelt provides most of the water for the reservoir.

The goal for the Williams Water Department (WWD) is to keep as much water in City Reservoir as possible because it is their only water source that can be gravity fed to the water plant for distribution in the event of an interruption to the power grid.

**Productivity/Water Quality**

Water Quality is generally acceptable for stocking most of the year. At times algal blooms will cause the pH to rise above 9.5 as measured on the water’s edge. The WWD has treated the reservoir several time with copper sulfate to control algae. The Department will continue to work with WWD to monitor water quality.

## **Forage/Prey**

The abundance and diversity of the zooplankton community is unknown at this time. However, in other lakes in the area, zooplankton, especially large *Daphnia*, are an important food source for many of the fish in the lake, including the stocked catchable Rainbow Trout. Though no surveys have been done, Regional staff has observed an abundant population of aquatic insects in years when the aquatic macrophytes are present. These insects provide forage for all of the fish species. Northern Crayfish *Orconectes virilis* are also present and can provide forage for the Largemouth Bass, Channel Catfish and Brown Trout found in the lake.

## **Habitat**

Fish habitat is limited in the lake. Placement of fish habitat in the deeper areas could improve the fishery. The Department will work with the City of Williams to evaluate the feasibility of installing certain types of fish habitat ensuring the effects to water operations would be minimal.

## **Species**

In 2014, a treatment for algae using copper sulfate caused a significant fish kill. The Department has not conducted a fish survey since the fish kill so the actual fish species present is unknown. Species found in the lake prior to the copper sulfate treatment included Largemouth Bass *Micropterus salmoides*, Smallmouth Bass *Micropterus dolomieu*, Black Crappie *Pomoxis nigromaculatus*, Channel Catfish *Ictalurus punctatus*, Rainbow Trout *Oncorhynchus mykiss* and Brown Trout *Salmo trutta*.

In the years since the fish kill Rainbow Trout, Brown Trout and Channel Catfish have been stocked. Anglers have also reported catching Black Crappie in recent years.

Catchable Rainbow Trout are stocked in most years during the spring and early summer. Catchable size Channel catfish are usually stocked in May or June. Sub-catchable Brown Trout are stocked in the fall.

An electrofishing survey will be scheduled in fiscal year 2020 or 2021 to evaluate fish stocks and determine if any of the non-stocked species present before the fish kill, are still present in the reservoir.

## **Access**

Access to the Reservoir is via 6<sup>th</sup> Street to the entrance to the City of William's Buckskinner Park. There is a small parking lot located on the lake and a primitive boat launch. Much of the shore access is via social trails around the edge of the lake. There is a limited amount of access directly below the parking lot that can be accessed by anglers with limited mobility.

## Catch

Creel census has not been conducted on the lake since 2003. The estimated catch rate was .38 fish per hour that year. The statewide survey of 2013 Arizona anglers estimated the annual angler use days to be 613 at City Reservoir (Fisheries Branch 2015).

## Satisfaction

No satisfaction questions were asked during the 2003 creel census. Satisfaction questions will be asked during any future creel efforts at City Reservoir.

## Literature Cited

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

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

Fisheries Branch. 2015. 2013 Arizona Angler User Days, Fishing Economics and Angle Demographics, Federal Aid Project FW-100-P-23. Arizona Game and Fish Department, Phoenix Arizona.

## Tables and Figures

**Figure 2.** 2011 City Reservoir Electrofishing Data.

Species	Total	Catch per Minute	Percent of Total	Mean Total Length (mm)	Min-Max Length (mm)
Channel Catfish	5	0.18	8	446.6	394-479
Smallmouth Bass	2	0.07	3	240	239-241
Largemouth Bass	5	0.18	8	222.8	200-248
Rainbow trout	19	0.70	30	227.8	200-282
Black crappie	33	1.21	51	153.2	66-194