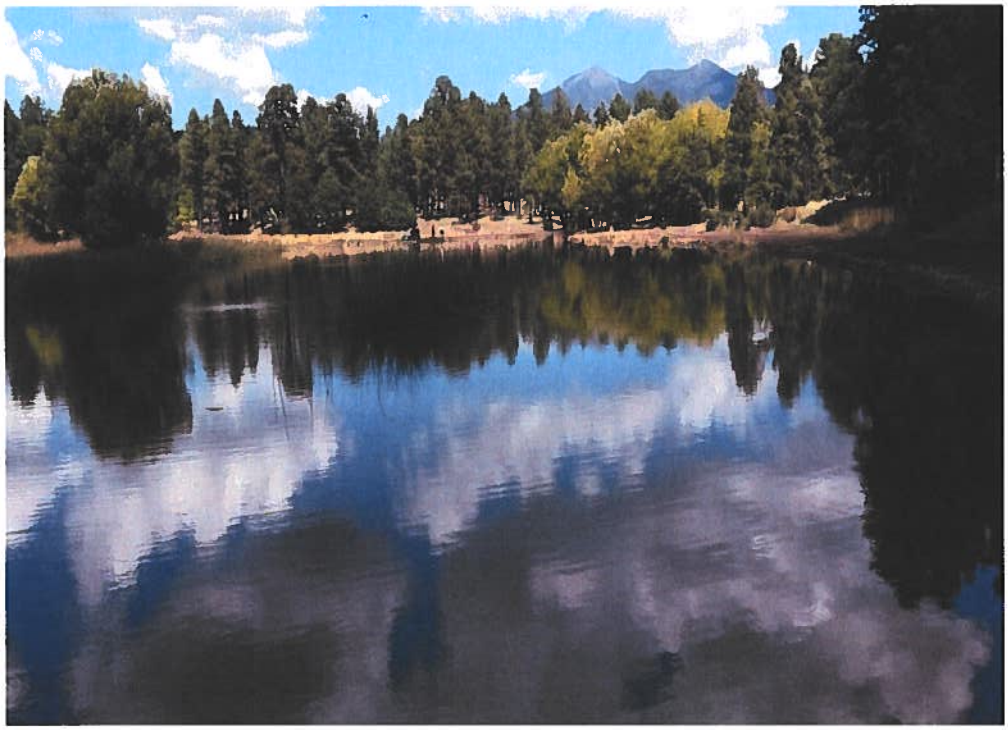

Frances Short Pond
Fisheries Management Plan
2019-2029

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Approved [X] by Chris Cantrell [signature] Date: 6/29/19
Aquatic Wildlife Branch Chief

Location

Frances Short Pond is located in north central Flagstaff approximately 1 mile northwest of City Hall on North Aztec Street. (UTM 440433, 3896103)

Figure 1. Frances Short Pond Close-up 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;* 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 using catchable sized fish.

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, will include frequent lake checks, law enforcement patrols and angler creel surveys to determine if aforementioned management objectives are being met. Objective guidelines to meet objectives are listed in Table 1 below.

Table 1. Frances Short Pond Objectives and Adaptive Management Strategies:

Objective 1: Maintain an Intensive Use Rainbow Trout fishery using catchable sized fish.			
Parameters	**Objective Guideline**	**Trigger point to address unmet Objectives**	**Strategies if Objectives are Unmet**
Angler Catch Rate	Catch rate for trout meets or exceeds 1 fish per hour during the stocking season.	Catch rate during creel census is less than 1 fish per hour.	• Develop an angler outreach program to attempt to increase the angler's ability to catch fish at Francis Short. • Increase mean size of trout stocked.
Objective 2: Maintain an Intensive Use concept warmwater fishery for Channel Catfish using stockings of catchable sized fish.			
Parameters	**Objective Guideline**	**Trigger point to address unmet Objectives**	**Strategies if Objectives are Unmet**
Angler Catch Rate	Catch rate meets or exceeds .5 fish per hour during the stocking season.	Catch rate during creel census is less than .5 fish per hour.	• Increase stocking of Channel Catfish.

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.	• Increase stocking rates. • Increase size of trout stocked. • Creel Census conducted a minimum of once every 5 years.

Background

Frances Short Pond is a small reservoir, <2 acres, located on the west side of downtown Flagstaff. The Flagstaff Middle School building is located just east of the pond while the City of Flagstaff's Thorpe Park ballfields are located to the west of the pond. The pond was initially built for the logging railroad in the 1890's. The dam for the pond was improved by the City of Flagstaff (City) in 1923 to provide for recreation. The pond is filled from snow runoff from the San Francisco Peaks. Over the years, the pond eventually filled with sediment. In 2005, the pond was dredged out as part of the City's flood control program. The pond is owned by the City and is managed by the City's Utilities-Stormwater Section.

In 2006, the Arizona Game and Fish Department began stocking Rainbow Trout followed by Largemouth Bass, Bluegill and Channel Catfish in 2008. Currently the pond is stocked with 300-400 Rainbow Trout per week during the spring (March-May) and fall (September-November). It is also stocked with Channel Catfish during May and June if funding is available. Bluegill and Largemouth Bass are stocked as needed to maintain the population. Black Crappie were illegally introduced to the pond around 2011.

Productivity/Water Quality

The water for Frances Short Pond is provided by runoff from Rio De Flag which drains surrounding neighborhoods in Flagstaff along with runoff from the San Francisco Peaks. In addition to the houses/yards in the adjoining neighborhood, there is also a dog park and several sports fields that drain toward the pond from the west. The City has built a retention basin on the northwest side of the pond to attempt to keep runoff from the dog park and the ballfields on the west side of the pond from reaching the pond. There is also a sports field on the east side of the pond at the school along with one located just north of the pond. Both of these fields drain into the pond.

The City can augment the water with treated effluent if water levels drop below 18 inches from full. The pond is very nutrient rich and has large amounts of aquatic macrophytes along with heavy algal blooms. A solar powered aerator provides aeration throughout the

year to reduce the threat of oxygen kills. However, kills still occur occasionally. The City dredged the pond in the fall of 2015 to remove accumulated silt and aquatic vegetation and stocked White Amur in the spring of 2016 to help control the aquatic weed growth. They are also looking for funding to buy an additional solar aeration system.

Water quality continues to be a problem at Frances Short Pond. Arizona Game and Fish Department (Department) staff will continue to work with the City to maintain water quality through monitoring of water quality parameters, maintenance of aerators and through periodic weed control and dredging as outlined in In the Operation and Maintenance Plan for Frances Short Pond (City of Flagstaff, April 2016).

Forage/Prey

Zooplankton and aquatic insects provide the bulk of the forage for Rainbow Trout, Bluegill and crappie. In a pond of the type and size of Francis Short Pond, an inventory of zooplankton abundance and diversity or aquatic insect types present has not been prioritized.

Stocked Channel Catfish are usually harvested within the first 2 weeks of stocking, so forage for catfish is not as critical to focus on. Forage for surviving catfish and Largemouth Bass consists of Bluegill and Black Crappie.

Habitat

The majority of the fish habitat in Frances Short Pond is provided by the abundant aquatic vegetation found in the pond. The pond is used as a sediment retention basin for the Rio De Flag watershed and will fill with silt over time. Periodic dredging is part of the City's management plan for the pond. No habitat enhancement projects are needed at this time.

Species

Currently stocking of sport fish in Frances Short Pond is restricted to the time period of March 1 to November 30 each year. The Department will pursue changes through a formal consultation process with the U.S. Fish and Wildlife Service under Section 7 of the Endangered Species Act. This consultation will occur in 2020. The Department will be requesting that all restrictions to stockings including numbers, sizes and timing of stockings be lifted.

Frances Short Pond is essentially an urban pond, and will be managed for high catch and harvest rates. Stocked Rainbow Trout and Channel Catfish as discussed, are mostly harvested, however holdovers do persist. Catch and release practices are promoted by the Department and the City. Modest populations of Bluegill, Black Crappie, Largemouth Bass, White Amur *Ctenopharyngodon idella*, and Goldfish *Carassius auratus* do occur in Frances Short Pond. Young of the year Bullhead Catfish *Ameiurus sp.* were found in 2016 indicating they have been illegally stocked in the lake. Fish populations are monitored using angler catch data.

Access

Access to Frances Short Pond is via City of Flagstaff maintained roads. Aztec Street provides access from the south side of the pond and North Thorpe Road passes about ¼ mile north of the pond. There is parking available on both the north and south sides of the pond. In addition to traveling to the pond by car, there is a city bus route that stops near the pond. Anglers can also access the pond on foot or via bicycle from well-maintained trails that are part of the Flagstaff Urban Trail System.

The entire shoreline of Frances Short Pond is easily accessible to anglers. Many anglers fish directly off of the dam, which has an elevated rail to help prevent people from falling in the pond.

Frances Short Pond received an estimated 20,113 Angler use days in 2013 according to the statewide angler survey (Fisheries Branch 2015). This location currently has no toilet facilities. The Department needs to work with the City and our Development Branch to develop these facilities.

Signs outlining the fishing regulations need to be made, posted and maintained on Frances Short Pond. Department staff will work with the City and Northern Arizona Flycasters to produce and mount signs in areas that are utilized to access the fishery.

Catch

During the creel census conducted during 2008-2009 the overall catch rate for all fish was 1.24 fish per hour while the harvest rate was .21 fish per hour (Figure 3). During the 2016-17 Creel Census the catch rate dropped to 1 fish per hour and the harvest rate dropped to .2 fish per hour. During both surveys the majority of the anglers surveyed were fishing for Rainbow Trout. The number of Rainbow Trout caught exceeded the number stocked in both surveys. During the 2008-2009 survey, anglers caught 1.29 Rainbow Trout for each trout stocked while in the 2016-2017 survey 1.39 trout were caught for each trout stocked.

Creel census is the only means of determining angler use, harvest and satisfaction on Frances Short Pond. It can also alert the Department to illegal species introductions. Since angler satisfaction and catch rate is one of the metrics used to determine if the objectives for Frances Short Pond are met, creel census needs to be conducted on the lake at least once every 5 years.

Satisfaction

During the 2008-2008 creel census a total of 45.5% of the angler groups rated fishing good to excellent while 27.1% rated the fishing as poor to very poor. In the 2016-2017 creel census a total of 51.6% of the angler groups rated fishing good to excellent while 19% rated the fishing as poor to very poor. Anglers were satisfied with their overall experience during both creel census with 86.6% rating it as good or excellent in 2008-2009 and 97.7% rating it as good to excellent in 2016-2017.

Literature Cited

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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. Frances Short Pond Wide View Aerial Photo

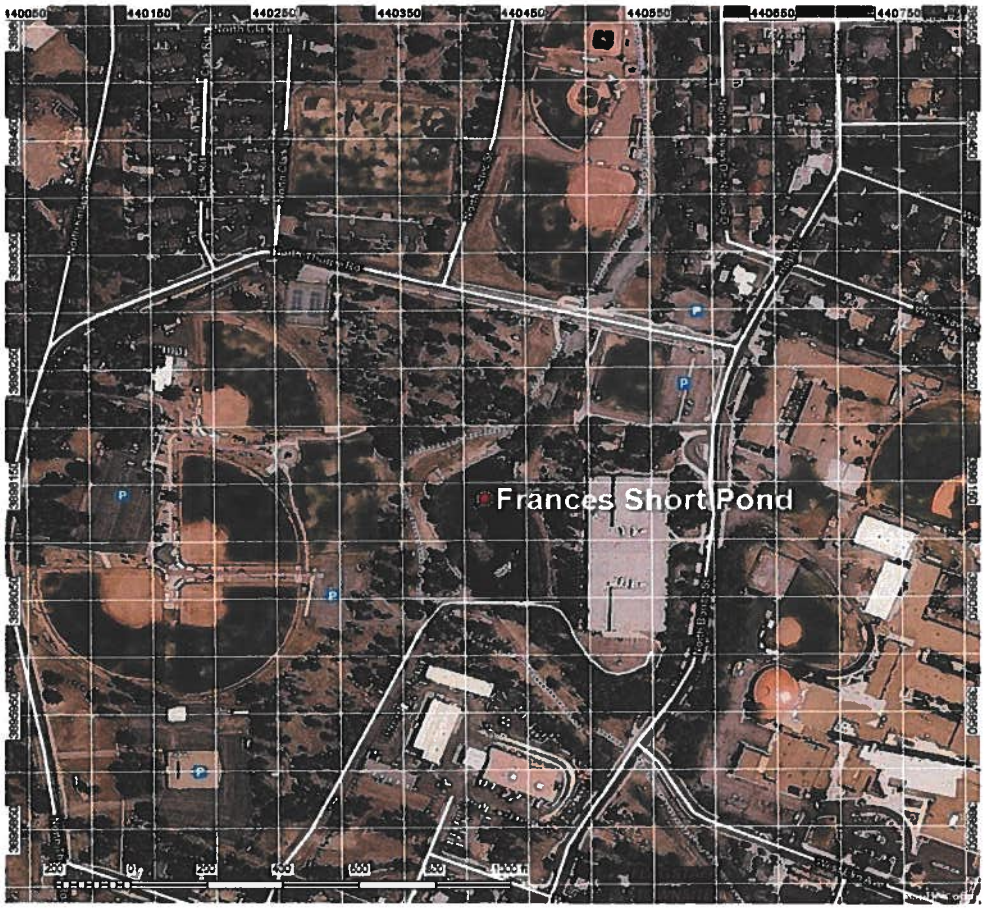

Figure 3. Table 1. July 2016 - June 2017 Frances Short Pond Monthly Creel Census Expanded Totals. Catch and harvest rates were calculated using reported catch, harvest, and angler hours and may not match expanded totals. Angler Days and Angler Hours are rounded up to the nearest whole number.

Month	Angler Days	Angler Hours	Catch (Catch Rate in Fish/Hour)	Harvest (Harvest Rate in Fish/Hour)	% Anglers who Caught Fish
July	1,333	2,399	.69	.11	25%
August	684	1,230	.95	.04	32%
September	659	1,186	.76	.19	47%
October	1,509	2,716	1.80	.36	68%
November	1,039	1,870	1.97	.42	75%
December	280	504	1.52	.10	73%
January	30	53	.69	0	33%
February	36	64	.24	0	20%
March	1,722	3,098	.41	.38	23%
April	1,082	1,947	1.17	.16	41%
May	1,687	3,036	1.11	.18	51%
June	1,795	3,230	.61	.05	33%
Total	11,852	21,332	1.00	.20	42%

Figure 4. 2016-2017 Frances Short Pond Creel Census Angler Satisfaction Questions.

Question	Very Poor	Poor	Fair	Good	Excellent
How Would You Rate Today's Fishing?	57 (7.6%)	85 (11.4%)	220 (29.4%)	232 (31.0%)	154 (20.6%)
How Would You Rate Today's Visit?	0	1 (0.1%)	16 (2.2%)	51 (6.8%)	677 (90.9%)

Figure 5. 2016-2017 Frances Short Pond Creel Census Estimated Total Catch and Harvest By Species.

Species	Estimated Number Caught	Estimated Number Kept	Number of Fish Stocked May 1, 2016 to June 30, 2017	Percent of Fish Caught for fish stocked Between May 2016 and June 2017.	Percent of Fish Harvested for fish stocked between May 2016 and June 2017.
Rainbow Trout	14,765	3,299	10,609	139.2%	31.1%
[1]Channel Catfish	624	247	2,309	27%	10.7%
Largemouth Bass	1,046	38			
Black Crappie	1,006	342			
Bluegill	3,481	152			
Bullhead	20	0			

[1]·The number of Channel Catfish caught is likely higher than that reported during creel census since the surveys were conducted during daylight hours only.