

NEVADA DEPARTMENT OF WILDLIFE  
STATEWIDE FISHERIES MANAGEMENT



FEDERAL AID JOB PROGRESS REPORTS

F-20-54  
2018

DUFURRENA PONDS  
WESTERN REGION



**NEVADA DEPARTMENT OF WILDLIFE, FISHERIES DIVISION  
JOB PROGRESS REPORT**

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**NEVADA DEPARTMENT OF WILDLIFE, FISHERIES DIVISION  
ANNUAL PROGRESS REPORT**

**State:** *Nevada*  
**Project Title:** *Statewide Fisheries Program*  
**Job Title:** *Dufurrena Ponds*  
**Period Covered:** *January 1, 2018 through December 31, 2018*

**SUMMARY**

The 2018 angler drop-box survey documented 24 anglers that fished Dufurrena Pond 20, with angler success rates of 2.95 fish per hour and 12.46 fish per angler. The 2017 mail in angler questionnaire found success results of 8.53 fish per day and 13.81 fish per angler. White crappie was stocked into Dufurrena Pond 20.

Dufurrena Pond 20 was electroshocked, catching 337 yellow perch, 93 largemouth bass, 40 bluegill, 13 redear sunfish, and 1 white crappie. Body condition was measured using relative weight, an index of body condition based on a standard for a species.

**BACKGROUND**

Dufurrena Ponds are located on the Sheldon National Wildlife Refuge, approximately 130 miles northwest of Winnemucca. There are nine ponds in the complex; however, Ponds 19 and 20 contain the primary sport fisheries. The ponds were originally built to deliver irrigation water to agricultural lands in Virgin Valley, but they are no longer used for irrigation as the USFWS owns the ponds and maintains them for fish and wildlife values. The ponds receive water from a series of warm and cold springs and the USFWS maintains a series of ditches and water control structures throughout the pond complex. Ponds 19 and 20 are on the upper end of the complex and typically have consistent water levels, even in drought years.

Ponds vary in size and depth with Pond 20 being the largest at 50 SA at a maximum depth of 14 ft. It has produced the most consistent angling use and best results of all the ponds. Fish species in Ponds 19 and 20 include largemouth bass, yellow perch, bluegill, crappie, redear sunfish, and green sunfish. Dufurrena Ponds are managed as general warmwater fisheries. The state record yellow perch of one pound and eight ounces has held in Dufurrena Ponds since 1987, but it was recently tied in 2019 from Wildhorse Reservoir.

Historically (before 2014), NDOW has directly managed Dufurrena Ponds on an “as needed” basis. With the completion of the Comprehensive Conservation Plan (CCP) for the Sheldon National Wildlife Refuge, NDOW took the opportunity to implement a more comprehensive management approach in 2014. Dufurrena Pond #20 is managed under the Warmwater General Fishery Concept. This concept applies to waterbodies that produce average sized fish year after year. Special regulations are

usually not imposed, although at times, there might be a size restriction implemented. Species are usually self-supporting, but periodic stocking may be required to supplement existing populations due to inadequate spawning habitat or following low water levels usually associated with drought. Angler catch rates should range between 0.25 and 0.75 fish per hour and 1.0 and 2.0 fish per angler day. The limit at Dufurrena Pond #20 falls under the general Humboldt County limit of 15 warmwater fish, of which not more than 5 may be black bass.

## OBJECTIVES

- Conduct a general fisheries assessment through opportunistic angler contacts and mail-in angler questionnaire data.
- Obtain a special use permit or a cooperative agreement with the Sheldon National Wildlife Refuge to monitor fish populations by conducting 1-night of electroshocking.
- Coordinate with Sheldon National Wildlife Refuge to draft a plan to clean out and dredge Ponds 19 and 20.

## PROCEDURES

**Conduct a general fisheries assessment through opportunistic angler contacts, and mail-in angler questionnaire data.** A limited number of opportunistic angler contacts were made in 2018. The angler drop-box was maintained and angler surveys were collected in 2018, and a summary of the Mail-in angler question results was received for 2017.

**Obtain a special use permit or a cooperative agreement with the Sheldon National Wildlife Refuge to monitor the populations of fish species by conducting 1 night of electroshocking.** A special use permit was obtained from the Sheldon National Wildlife Refuge to conduct an electroshocking survey. The survey was conducted at night on May 30, 2018 using a 16 ft Smith-Root Electrofishing Boat with a Smith-Root 7.5 GPP Electrofisher. The electroshocker settings were on “high” output range, mode “30 DC,” and 40% range. The entire perimeter of Pond 20 was sampled, which took 3,618 electroshocking seconds (60.3 min) to complete.

A sub-sample of each fish species captured were measured to total length and weighed. Body condition was evaluated using relative weight. Relative weight is an index calculated as:

$$Wr = (W/Ws)*100$$

Where  $W$  is the individual weight of a fish,  $Ws$  is the length-specific standard weight predicted from a weight-length regression developed to represent a species across a geographic range. The standard weight equation ( $Ws$ ) used in this analysis for yellow perch was developed by Willis et al 1991, for largemouth bass by Henson 1991, for bluegill by Hillman 1982, for redear sunfish by Pope et al 1995, and for white crappie by Neumann and Murphy 1991. The relative weight index uses 100 as a benchmark for

the standard body condition of fish. *Wr* over 100 is a fish considered in good condition and less than 100 is considered in poorer condition, with severity depending on the distance from the benchmark of 100 (Guy and Brown 2007).

**Coordinate with Sheldon National Wildlife refuge staff to draft a plan to clean out and dredge ponds 19 and 20.** During an annual coordination meeting, NDOW and USFWS discussed a plan for dredging and managing vegetation at Ponds 19 and 20.

## FINDINGS

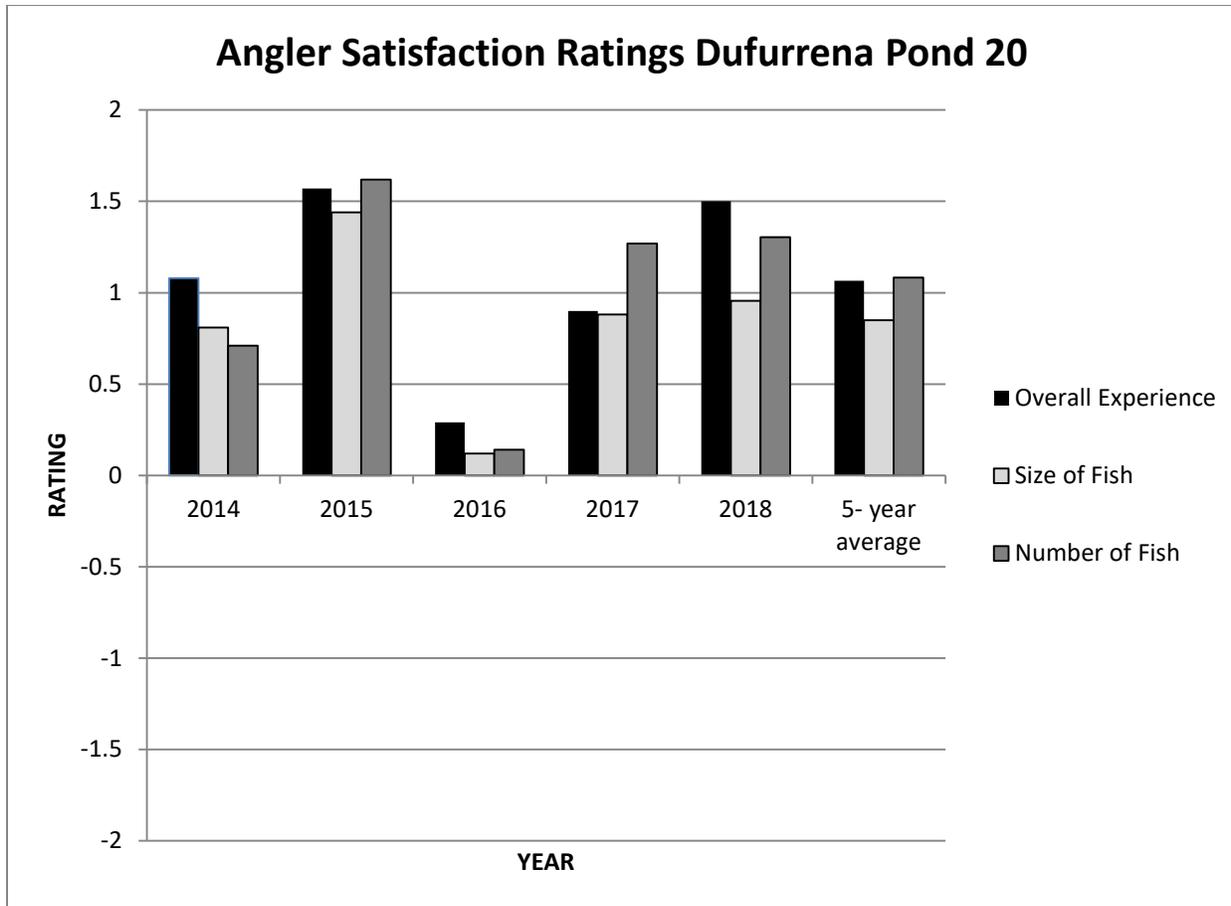
**Conduct a general fisheries assessment through opportunistic angler contacts, and mail-in angler questionnaire data.** Opportunistic angler surveys were conducted during seven visits to Dufurrena Ponds and four anglers were contacted. Angler catch rates were 6.84 fish per angler and 2.99 fish per hour (Table 1), which are down slightly compared to 2017 catch rates of 8.33 fish per angler and 3.28 fish per hour.

**Table 1.** Angler Contact Summary, 2018.

Month	Survey Days	Anglers	Angler Hours	Fish	Fish/Angler	Fish/Hour
March	1	1	2	5	5	2.5
May	1	3	7.5	26	8.67	3.47
June	1	0				
August	1	0				
September	1	0				
November	1	0				
December	1	0				
<b>Summary</b>	7	3	9.5	31	6.84	2.99

The angler drop-box was maintained at Dufurrena Pond 20 in 2018. The survey asked participants to rate three aspects of their fishing day on a scale of -2.0 (highly dissatisfied) to +2.0 (highly satisfied). Angler satisfaction scores averaged +1.56 for “overall experience,” +1.00 for “size of fish,” and +1.30 for “number of fish caught.” The five-year angler satisfaction ratings are summarized in Figure 1.

The 24 anglers participating in the survey reported catching 299 fish in 101.5 hrs of angling, which resulted in success rates of 12.46 fish per angler and 2.95 fish per hour. Monthly angler use, success, length frequency, and species composition are summarized in Tables 2 and 3. The most common species of fish caught was yellow perch, followed by largemouth bass and then bluegill. No crappie was reported being caught in 2018. The most common size class of fish reported was from 6.0 to 7.9 in, which is typical for a warmwater fishery having panfish. Fish species composition and length frequency for all species combined, as well as individual species, are summarized in Figures 2 to 6.



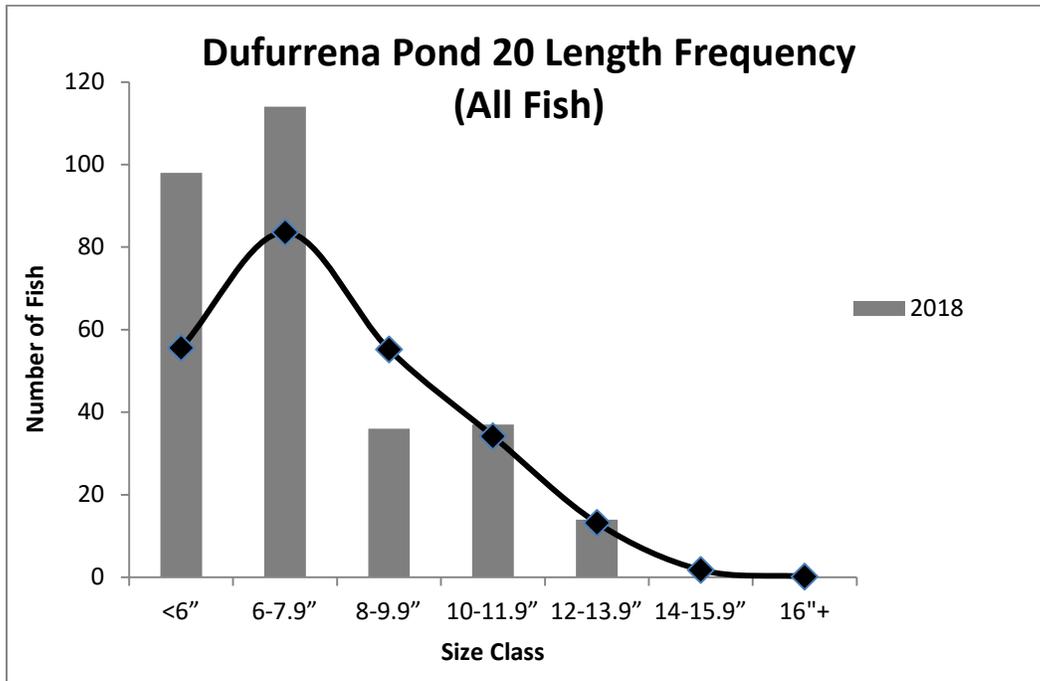
**Figure 1.** Five-year angler satisfaction rating for Dufurrena Pond 20 (2014-2018).

**Table 2.** Monthly Angler Use and Success Data from the Drop-Box, 2018.

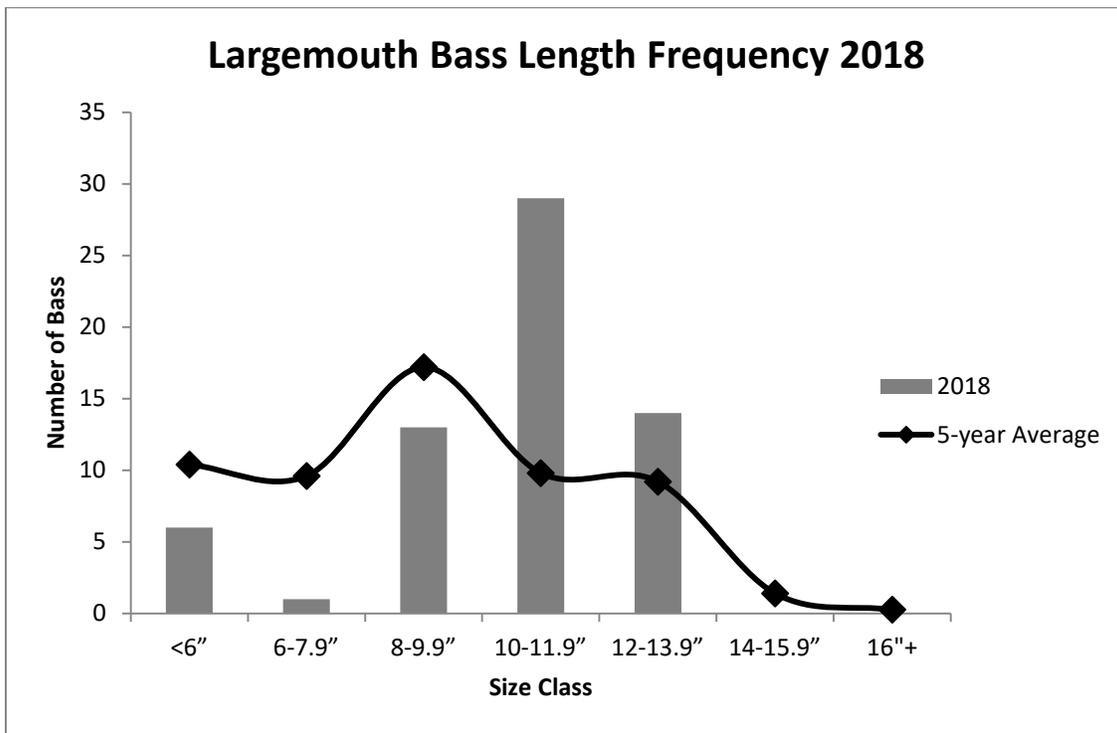
Month	# of Anglers	# of Angler Hours	Angler Satisfaction			# of Fish Caught	# of Fish Harvested	Fish/Angler	Fish/Hour
			Angling Experience	Size of Fish	# of Fish				
March	1	1	2	0	0	0	0	0	0
May	1	6	1.33	1	1.33	77	34	25.67	3.42
June	7	26	1.57	0.86	1.29	61	10	8.71	2.35
July	6	24.5	1.33	0.83	1.00	84	57	9.50	2.33
August	3	15.5	1.67	1.33	2	45	24	8.00	1.55
September	2	2	1	0	0.5	20	0	10	10
December	2	10	2	2	2	12	8	5.00	1.00
<b>Annual Summary</b>	24	101.5	1.5	0.96	1.30	299	135	12.46	2.95

**Table 3.** Length Frequency and Species Composition Data from the Drop-Box, 2018.

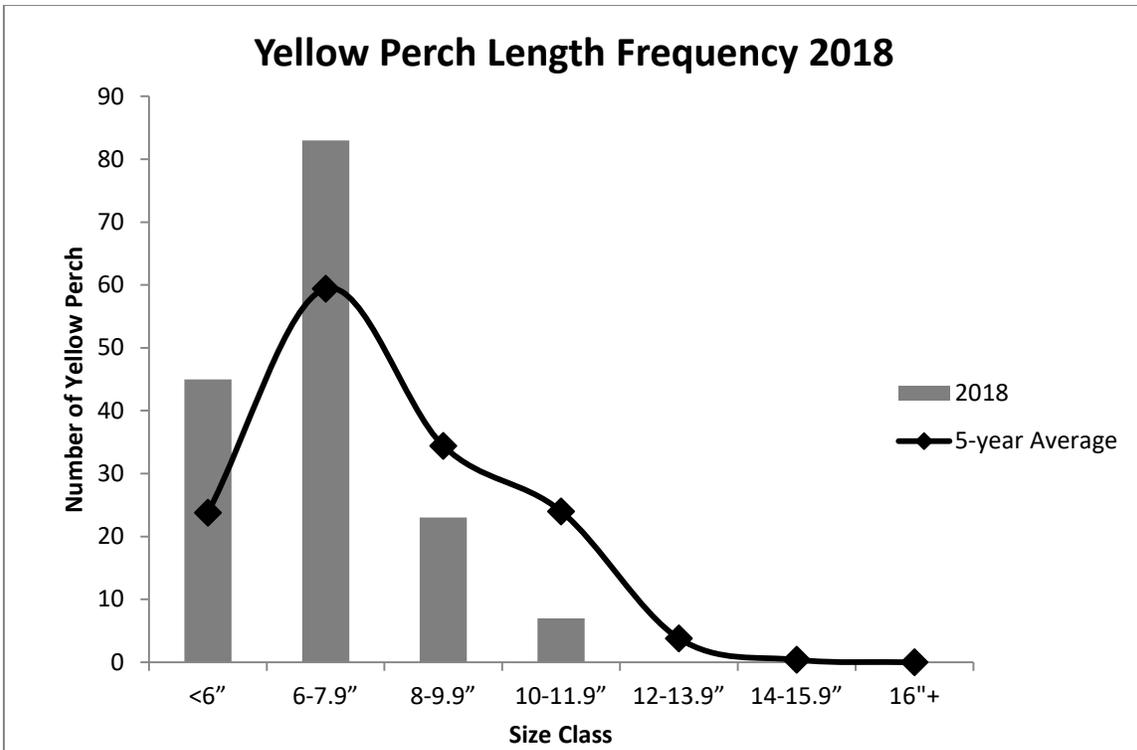
Species	# Caught	Size Class						
		<6"	6-7.9"	8-9.9"	10-11.9"	12-13.9"	14-15.9"	>16"
Largemouth bass	63 (21%)	6	1	13	29	14	0	0
Yellow perch	158 (53%)	45	83	23	7	0	0	0
Bluegill	47 (26%)	47	30	0	1	0	0	0
Crappie	0 (0%)	0	0	0	0	0	0	0



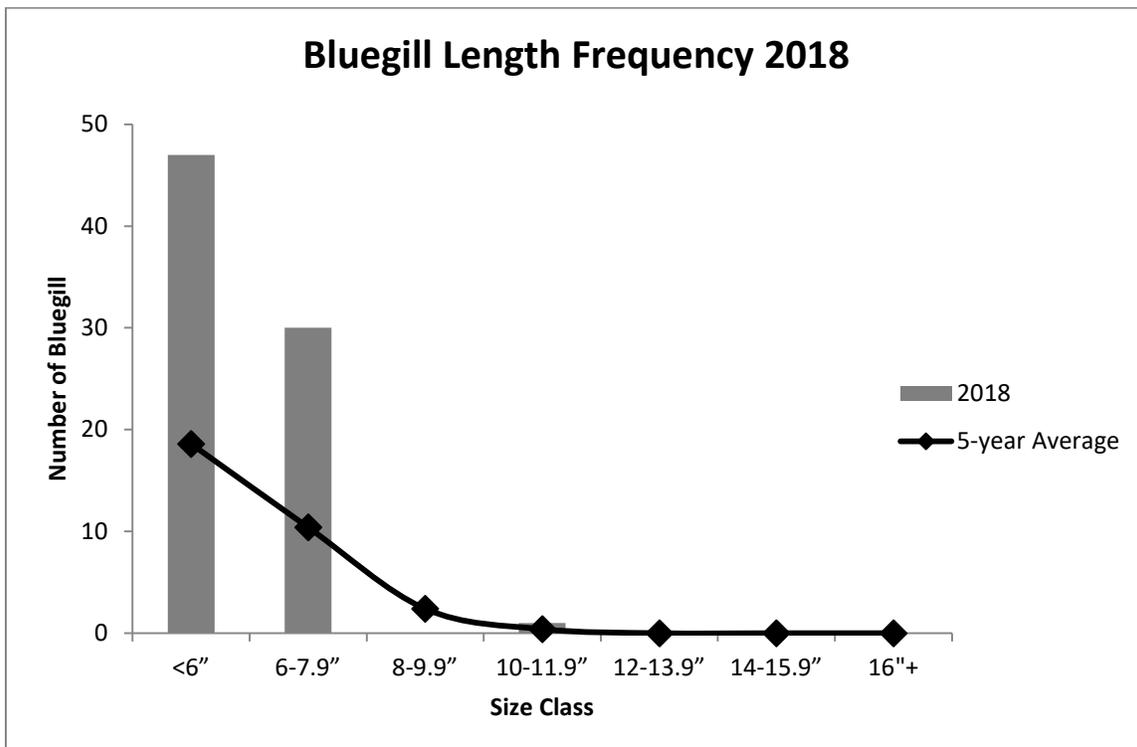
**Figure 2.** Angler drop-box length frequency of all fish species combined, Dufurrena Pond 20, 2018.



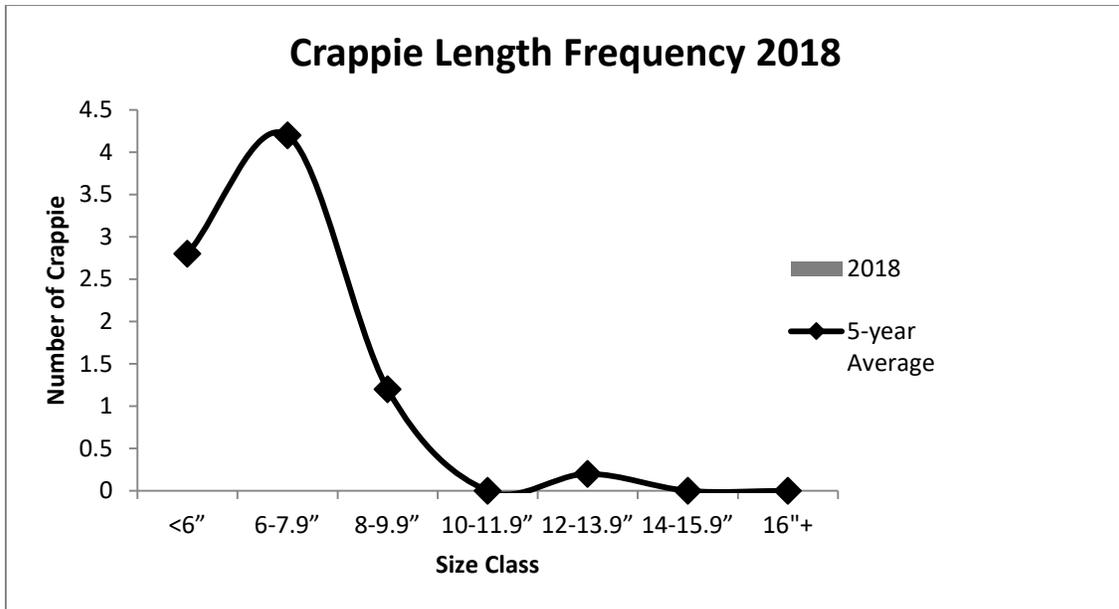
**Figure 3.** Angler drop-box length frequency for largemouth bass, Dufurrena Pond 20, 2018.



**Figure 4.** Angler drop-box length frequency for yellow perch, Dufurrena Pond 20, 2018.

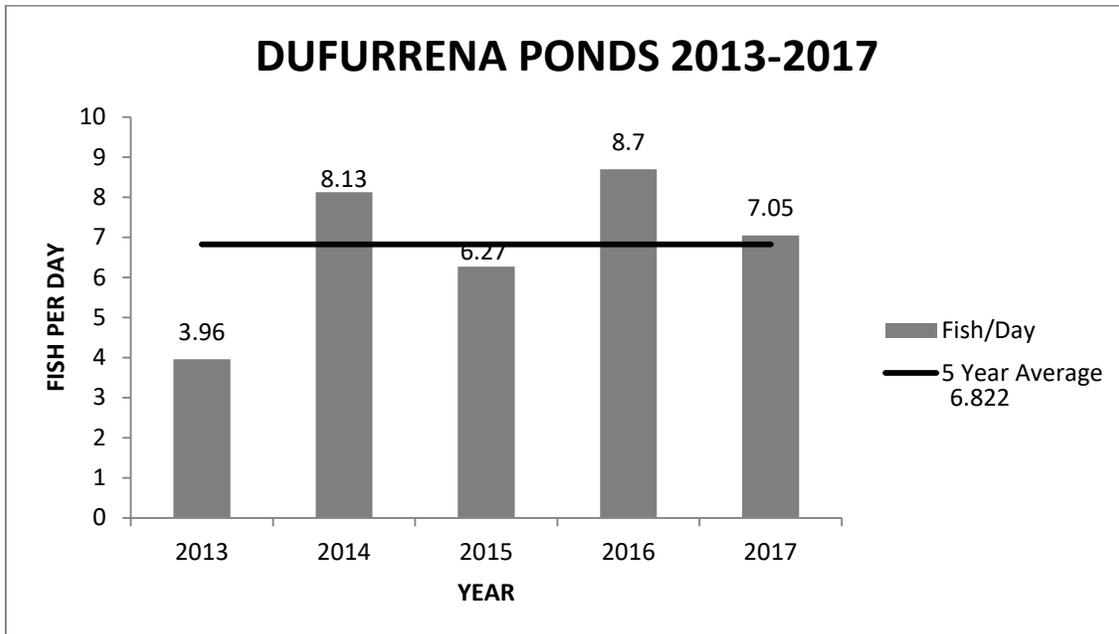


**Figure 5.** Angler drop-box length frequency for bluegill, Dufurrena Pond 20, 2018.

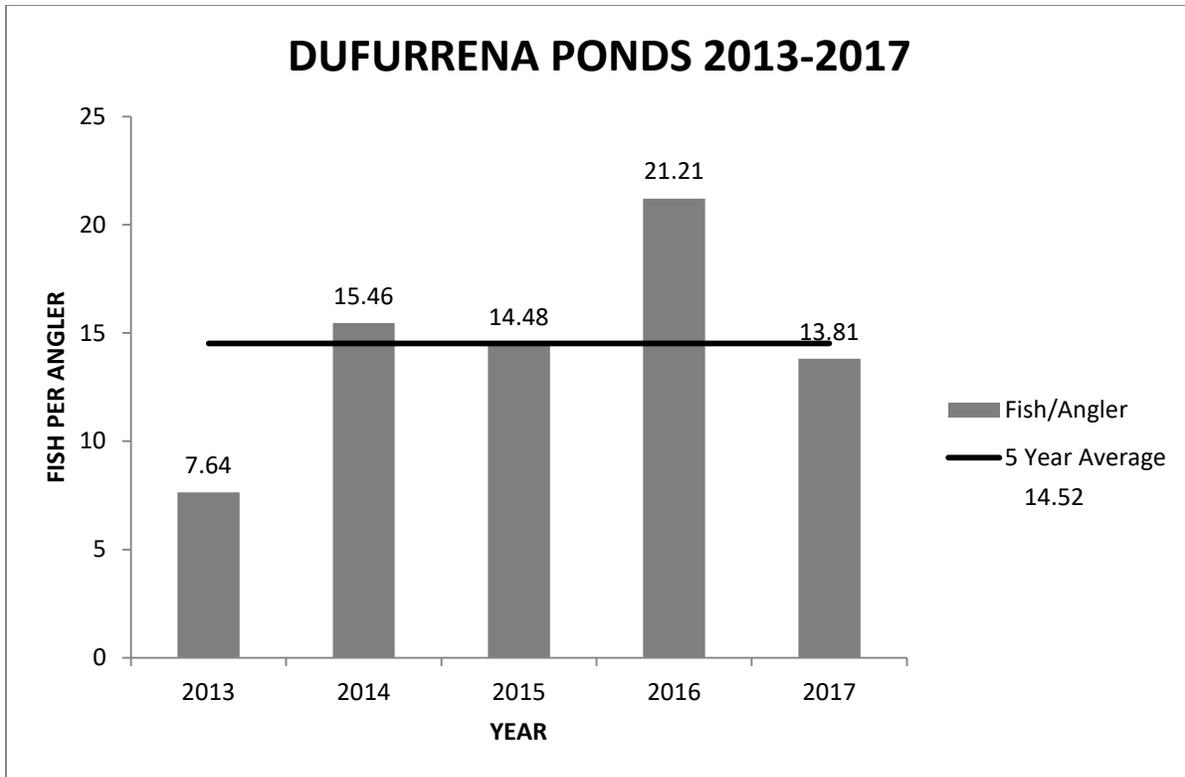


**Figure 6.** Angler drop-box length frequency for crappie, Dufurrena Pond 20, 2018.

The 2017 Mail-in Angler Questionnaire Survey estimates that 91 anglers fished for 179 days to catch 1,263 fish. Angler success was estimated at 7.05 fish per day and 13.81 fish per angler. This was slightly above the five-year average of 6.82 fish per day, while the five-year average for fish per angler was 14.52 (Figures 7 and 8).



**Figure 7.** Fish per day and five-year average from the Mail-in Angler Questionnaire Survey, 2013-2017.



**Figure 8.** Fish per angler and five-year average from the Mail-in Angler Questionnaire Survey, 2013-2017.

During each site visit to Dufurrena Ponds, a general habitat assessment was conducted at Pond 20 that included water temperature, water level, water clarity, and road conditions (Table 4).

**Table 4.** Habitat Assessment at Dufurrena Pond 20, 2018.

Date	Water Temperature (°F)	Water Level	Water Clarity	Number of Anglers	Road Conditions	Comments
3/19/2018	44	100 %	Murky 2-3" visibility	1	Good	
5/8/2018	63	100 %	Murky 3-4" visibility	1	Good	
5/30/2018	63	100 %	Murky 3-4" visibility	2	Good	
7/18/2018	72	100 %	Murky 3-4" visibility	0	Good	
8/23/2018	71	100 %	Murky 3-4" visibility	0	Good	
9/18/2018	67	100 %	Murky 3-4" visibility	0	Good	Brownish color water
12/31/2018	44 bottom temp at 9 feet	100 %	Murky	0	Good	4" of ice

The water level remained at 100% capacity in Dufurrena Pond 20 throughout the year. In general, the water clarity was typically murky with little change throughout the year. The road conditions were good throughout the fishing season providing anglers access to this remote fishery.

**Obtain a special use permit or a cooperative agreement with the Sheldon National Wildlife Refuge to monitor the populations of fish species by conducting one night of electrofishing.** A special use permit was obtained from the Sheldon National Wildlife Refuge to conduct an electroshocking survey, which was conducted on the night of May 30, 2018. A total of 337 yellow perch were captured that averaged 219 mm (8.6 in), 93 largemouth bass that averaged 284 mm (11.2 in) in length, 40 bluegill that averaged 132.2 mm (5.2 in) in length, 13 redear sunfish that averaged 134.6 mm (5.3 in), and one crappie that was 245 mm (9.6 in) in length. The survey resulted in a catch rate of 481.6 fish/hr (Table 5).

Relative weight indexes for Dufurrena Pond 20 fish species are summarized in Table 5. Forty-two yellow perch were analyzed and 43% were under the benchmark of 100 and 57% were above this benchmark. From 49 largemouth bass, 63% were under the benchmark of 100 and 37% was above. Of 14 bluegill, 14% were under the benchmark and 86% were above. Two redear sunfish were over the benchmark of 100, while one white crappie was analyzed at 112.8, which was above the benchmark. Overall, most of the fish evaluated for relative weight in 2018 at Dufurrena Pond 20 were considered in good or above standard body condition. This was the first time a formal electroshocking survey was conducted, so there is no data for an historical comparison. Electroshocking survey data is summarized in Table 5.

**Table 5.** 2018 Electrofishing Survey Results Dufurrena Pond #20.

Species	CPUE (Electrofishing)	Composition (% of catch)	Average Relative Weight Index	Relative Weight Range
Yellow Perch	335.3 fish/hour	69.63	103.7 (n=42)	71.3 - 214.7
Crappie	0.99 fish/hour	0.20	112.8 (n=1)	112.8
Largemouth Bass	92.5 fish/hour	19.21	99.0 (n=49)	81.6 - 217.1
Bluegill	39.8 fish/hour	8.26	128.0 (n=14)	89.7 - 156.8
Redear Sunfish	12.9 fish/hour	2.69	151.9 (n=2)	146.4 – 157.3
General warmwater sportfish	481.6 fish/hour		-----	-----

**Coordinate with Sheldon National Wildlife Refuge staff to draft a plan to clean out and dredge Ponds 19 and 20.** Discussions occurred between NDOW and USFWS about the best way to develop a plan for dredging and controlling vegetation on Ponds 19 and 20. However, no plan was developed in 2018.

### MANAGEMENT REVIEW

Angler success reported in the 2017 Mail-in Angler Questionnaire Survey was 7.05 fish per day and 13.81 fish per angler, which were very close to the five-year

average catch rates. Angler drop-box satisfaction ratings for 2018 were all positive, and above the five-year average. Angler success as reported in the angler drop-box was 2.95 fish per hour and 12.46 fish per angler. Guidelines set forth by a General Warmwater Fishery Management Concept suggest, "Success rates should range between 0.25 and 0.75 fish per hour and 1.0 and 2.0 fish per angler day." The 2018 angler drop-box results and the 2017 mail-in survey results indicate the fishery is exceeding the standards for a General Warmwater Fishery Management Concept.

Based on angler drop-box surveys, anglers were satisfied with fishing at Dufurrena Pond 20 and fishing was considered good in 2018. Length frequency data has been gathered and evaluated for the last five years through the volunteer angler drop-box survey. In 2018, 158 yellow perch were reported caught, which was above the five-year average of 146. The most common size of yellow perch caught were from 6.0 to 7.9 in, which was also the most common range seen in the five-year average. A total of 63 largemouth bass were reported in 2018, which was above the five-year average of 58. The most common size class of largemouth bass in 2018 was from 10.0 to 11.9 in, while the five-year average showed 8.0 to 9.9 in as the most common. A total of 78 bluegill were reported being caught in 2018, which is well above the five-year average of 32. The most common size was less than 6.0 in, which was also the five-year average size for bluegill. No crappie was reported by anglers in 2018 and only one was captured during the electroshocking survey. There was 500 white crappie stocked in Dufurrena Pond 20 to augment this struggling population.

An electroshocking survey was conducted for the first time in 2018 to gather information about species composition, abundance, and body condition. CPUE was calculated in order to compare future trends in fish abundance. Body condition was measured using relative weight index. The majority of fish species in Dufurrena Pond 20 were considered to be above the standard body condition. Annual electroshocking surveys will be valuable in gathering trend data on populations, fish species composition, and fish body condition in order to understand this fishery.

Discussions occurred throughout 2018 with USFWS and included ideas on way to proceed with the development of a draft plan to manage and dredge Ponds 19 and 20. NDOW is committed to take the lead on developing the draft plan.

## **RECOMMENDATIONS**

- Conduct a general fisheries assessment through opportunistic angler contacts and mail-in, angler questionnaire data.
- Obtain a special use permit or a cooperative agreement with the Sheldon National Wildlife Refuge to monitor the populations of fish species by conducting 1-night of electroshocking to calculate CPUE and body condition by species.
- Continue to coordinate with Sheldon National Wildlife Refuge to draft a plan to manage and dredge Ponds 19 and 20.

## REFERENCES

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