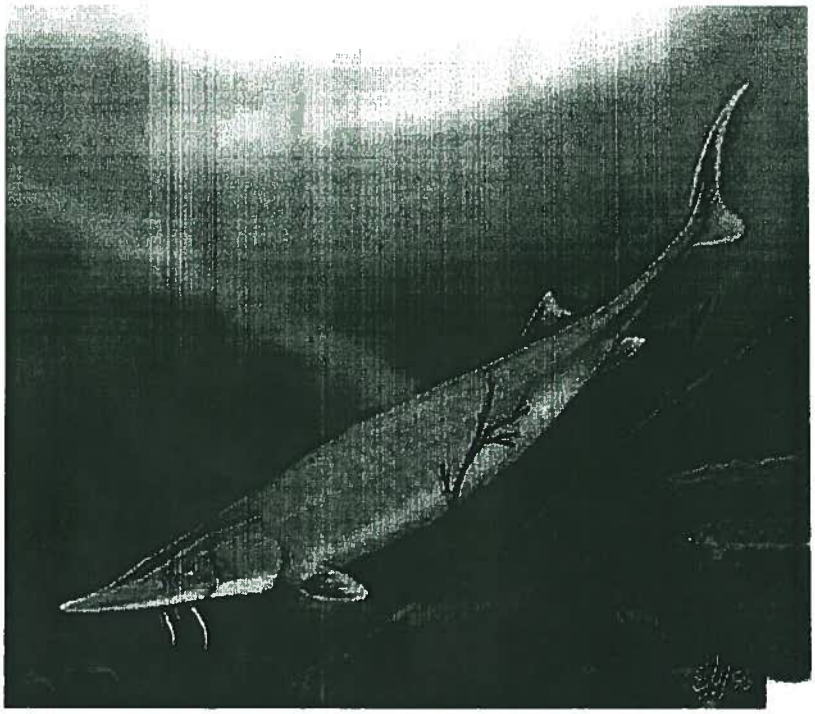
Report
2002

2002 Summary Report of Work Conducted by the Missouri River FWMAO on Missouri-Yellowstone River's Pallid Sturgeon



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Study Area

Sampling for pallid sturgeons was primarily conducted on the first 20 miles of the Yellowstone River upstream form it's confluence with the Missouri River and the Missouri River from the confluence with the Yellowstone River downstream to Highway 85 Bridge near Williston, North Dakota. The primary purpose for collecting pallid sturgeon for 2002 was again for propagation purposes.

Methods

Previous years reports outline methodology and techniques used for capturing pallid sturgeon.

Results

Most of the field work this past year was directed toward the tracking of telemetered broodstock pallid sturgeon, the tagging of fish for stocking and the capture of broodstock pallid sturgeon for propagation efforts. Crews from Montana Department of Fish, Wildlife and Parks, North Dakota Game and Fish Department and the U.S. Fish and Wildlife Service collaborated on these efforts. Broodstock sturgeon not suitable for spawning were released or returned to the confluence region. Results of the telemetry study will be reported in a separate report specific to that project.

The following information in Tables 1 and 2, summarizes the stocking efforts for pallid sturgeon conducted during 2002. These activities were conducted out of Neosho National Fish Hatchery (NFH), Gavins Point NFH, Garrison Dam NFH, Miles City State Fish Hatchery (SFH) and Bozeman Fish Technology Center (FTC). Considerable coordination and collaboration was involved to make this possible including from the states of Missouri, Nebraska, South Dakota, North Dakota, Iowa, Montana. As well, several federal agencies/ programs were instrumental in making this happen including the Corps of Engineers, Fish and Wildlife Service, Fish Health Centers in Region 3 & 6, and Ecological Services. A total of 13,551 one-year old pallid sturgeon were released in the Missouri and Yellowstone Rivers in 2002. These fish were released in Montana, North Dakota, South Dakota, Nebraska, and Missouri. This has been one of the largest stockings to date. This stocking was comprised of progeny from 16 different families and three different year classes.

In the past dozen years, capturing pallid sturgeon has been sometimes successful and sometimes frustrating. Using data collected during the spring capture period, Table 3 is a summary of the spring's effort and catch rates that were calculated for the last five years of sampling using the modified trammel nets.

2002 Stocking Summary by Family

Female	Male	
411D262C1F	41476A0462	
St. Helena	282	5
Boonville	560	5
Mullberry Bend	321	5
Bellevue	580	5
Verdel	70	5
Sidney	85	5
Culbertson	85	5
Wolf Point	85	5
Fairview	85	5
Intake	84	5
Fred Robinson	269	1
Mouth Of Marias	96	1
Judith Landing	94	1
Coal Banks	94	1
	2790	

Female	Male	
411D262C1F	1F4A4B5973	
Boonville	20	5
Mullberry Bend	28	5
Bellevue	21	5
Verdel	70	5
Sidney	85	5
Culbertson	85	5
Wolf Point	85	5
Fairview	85	5
Intake	13	1
Intake	73	1
Fred Robinson	222	1
Mouth Of Marias	94	1
Judith Landing	87	1
Coal Banks	91	1
	1059	

Female	Male	
7F7F06672B	115631222A	
Boonville	180	5
Verdel	71	5
Intake	59	2
Sidney	59	2
Fairview	60	2
Culbertson	60	2
Wolf Point	60	2
	549	

Female	Male	
411D262C1F	411D0B4E09	
Sidney	85	5
Wolf Point	85	5
Fairview	21	5
Fred Robinson	44	1
Mouth Of Marias	44	1
Judith Landing	44	1
Coal Banks	44	1
	367	

Female	Male	
7F7F06672B	7F7D3C5708	
Boonville	116	4
Mullberry Bend	144	5
Mullberry Bend	92	4
Bellevue	222	5
Bellevue	81	4
Verdel	70	5
Sidney	64	2
Fairview	61	2
Culbertson	61	2
Wolf Point	61	2
	972	

Female	Male	
220E345E09	1F4A111C6A	
Boonville	362	5
Boonville	219	4
Mullberry Bend	210	4
Bellevue	217	4
Bellevue	336	5
Verdel	70	5
Intake	66	2
Sidney	75	2
Fairview	75	2
Culbertson	75	2
Wolf Point	75	2
	1780	

Female	Male	
1F4A301354	7F7D291A07	
Ponca State Park	7	3
	7	

Female	Male	
411D262C1F	17509415139	
Boonville	52	5
Mullberry Bend	67	5
Bellevue	51	5
Verdel	70	5
Sidney	86	5
Culbertson	83	5
Wolf Point	85	5
Fairview	84	1
Intake	85	1
Fred Robinson	267	1
Mouth Of Marias	94	1
Judith Landing	91	1
Coal Banks	94	
	1209	

Female	Male	
7F7B021573	7F7D441774	
Greenwood	67	3
Ponca State Park	70	3
Boonville	57	3
Bellevue	75	
	269	

Female	Male	
7F7B021573	7F7F06583D	
Greenwood	50	3
Ponca State Park	40	3
Boonville	48	3
Bellevue	42	
	180	

Female	Male	
7F7B021573	113719262A	
Greenwood	65	3
Ponca State Park	70	3
Boonville	60	3
Bellevue	70	
	265	

Female	Male	
1F4B246E04	7F7D291A07	
Ponca State Park	28	

Female	Male	
220E345E09	1F4A27214F	
Boonville	257	5
Mullberry Bend	341	5
Bellevue	473	5
Verdel	70	5
Intake	74	2
Sidney	73	2
Fairview	73	2
Culbertson	73	2
Wolf Point	73	2
	1507	

Female	Male	
411D262C1F	411D0E2C5F	
Boonville	558	5
Bellevue	555	5
Mullberry Bend	558	5
Verdel	70	5
Sidney	86	5
Culbertson	64	5
Wolf Point	85	5
Fairview	85	1
Fred Robinson	92	1
Mouth Of Marias	90	1
Judith Landing	56	1
Coal Banks	51	
	2350	

Female	Male	
220E345E09	7F7D3C5708	
Boonville	9	
Boonville	198	5
	207	

Female	Male
220E345E09	432C063C4E
Bellevue	12

TOTAL 13551

[1] Denotes fish stocked from Bozeman FTC

[2] Denotes fish stocked from Miles City SFH

[3] Denotes fish stocked from Gavins Point NFH

[4] Denotes fish stocked from Neosho NFH

[5] Denotes fish stocked from Garrison NFH

Table 1. Summary of pallid sturgeon stocked in 2002 by family.

2002 Stocking Summary by Site

Fred Robinson Bridge

Female	Male		
411D262C1F	41476A0462	269	1
411D262C1F	17509415139	267	1
411D262C1F	411D0B4E09	44	1
411D262C1F	1F4A4B5973	222	1
411D262C1F	411D0E2C5F	92	1
		894	

Mouth Of Marias

Female	Male		
411D262C1F	41476A0462	96	1
411D262C1F	17509415139	94	1
411D262C1F	411D0B4E09	44	1
411D262C1F	1F4A4B5973	94	1
411D262C1F	411D0E2C5F	90	1
		418	

Judith Landing

Female	Male		
411D262C1F	41476A0462	94	1
411D262C1F	17509415139	91	1
411D262C1F	411D0B4E09	44	1
411D262C1F	1F4A4B5973	87	1
411D262C1F	411D0E2C5F	56	1
		372	

Coal Banks

Female	Male		
411D262C1F	41476A0462	94	1
411D262C1F	17509415139	94	1
411D262C1F	411D0B4E09	44	1
411D262C1F	1F4A4B5973	91	1
411D262C1F	411D0E2C5F	51	1
		374	

Intake

Female	Male		
411D262C1F	17509415139	85	1
411D262C1F	1F4A4B5973	73	1
411D262C1F	41476A0462	84	5
411D262C1F	1F4A4B5973	13	5
220E345E09	1F4A111C6A	66	2
220E345E09	1F4A27214F	74	2
7F7F06672B	115631222A	59	2
		454	

Fairview

Female	Male		
411D262C1F	41476A0462	85	5
411D262C1F	411D0E2C5F	85	5
411D262C1F	1F4A4B5973	85	5
411D262C1F	411D0B4E09	21	5
411D262C1F	17509415139	84	5
220E345E09	1F4A111C6A	75	2
220E345E09	1F4A27214F	73	2
7F7F06672B	7F7D3C5708	61	2
7F7F06672B	115631222A	60	2
		629	

Sidney

Female	Male		
411D262C1F	41476A0462	85	5
411D262C1F	411D0E2C5F	86	5
411D262C1F	1F4A4B5973	85	5
411D262C1F	411D0B4E09	85	5
411D262C1F	17509415139	86	5
220E345E09	1F4A111C6A	75	2
220E345E09	1F4A27214F	73	2
7F7F06672B	7F7D3C5708	64	2
7F7F06672B	115631222A	59	2
		698	

Culbertson

Female	Male		
411D262C1F	1F4A4B5973	85	5
411D262C1F	41476A0462	85	5
411D262C1F	411D0E2C5F	64	5
411D262C1F	17509415139	83	5
220E345E09	1F4A111C6A	75	2
220E345E09	1F4A27214F	73	2
7F7F06672B	7F7D3C5708	61	2
7F7F06672B	115631222A	60	2
		586	

Wolf Point

Female	Male		
411D262C1F	41476A0462	85	5
411D262C1F	411D0E2C5F	85	5
411D262C1F	1F4A4B5973	85	5
411D262C1F	411D0B4E09	85	5
411D262C1F	17509415139	85	5
220E345E09	1F4A111C6A	75	2
220E345E09	1F4A27214F	73	2
7F7F06672B	7F7D3C5708	61	2
7F7F06672B	115631222A	60	2
		694	

Greenwood

Female	Male		
7F7B021573	113719262A	65	3
7F7B021573	7F7D441774	67	3
7F7B021573	7F7F06583D	50	3
		182	

Verdel

Female	Male		
411D262C1F	411D0E2C5F	70	5
411D262C1F	1F4A4B5973	70	5
411D262C1F	17509415139	70	5
411D262C1F	41476A0462	70	5
7F7F06672B	7F7D3C5708	70	5
7F7F06672B	115631222A	71	5
220E345E09	1F4A27214F	70	5
220E345E09	1F4A111C6A	70	5
		561	

St. Helena

Female	Male		
411D262C1F	41476A0462	282	5

Boonville

Female	Male		
411D262C1F	41476A0462	560	5
411D262C1F	1F4A4B5973	20	5
411D262C1F	411DOE2C5F	558	5
411D262C1F	17509415139	52	5
7F7F06672B	115631222A	180	5
7F7F06672B	7F7D3C5708	116	4
220E345E09	7F7D3C5708	198	5
220E345E09	1F4A111C6A	362	5
220E345E09	1F4A111C6A	219	4
220E345E09	1F4A27214F	257	5
220E345E09	7F7D3C5708	9	4
7F7B021573	7F7F06583D	48	3
7F7B021573	7F7D441774	57	3
7F7B021573	113719262A	60	3
		2696	

Mullberry Bend

Female	Male		
411D262C1F	41476A0462	321	5
411D262C1F	17509415139	67	5
411D262C1F	1F4A4B5973	28	5
411D262C1F	411D0E2C5F	558	5
7F7F06672B	7F7D3C5708	144	5
7F7F06672B	7F7D3C5708	92	4
220E345E09	1F4A27214F	341	5
220E345E09	1F4A111C6A	210	4
		1761	

Bellevue

Female	Male		
411D262C1F	41476A0462	580	5
411D262C1F	1FA44B5973	21	5
411D262C1F	17509415139	51	5
411D262C1F	411DOE2C5F	555	5
7F7F06672B	7F7D3C5708	81	4
7F7F06672B	7F7D3C5708	222	5
220E345E09	1F4A111C6A	217	4
220E345E09	1F4A111C6A	336	5
220E345E09	1F4A27214F	473	5
220E345E09	432C063C4E	12	4
7F7B021573	7F7D441774	75	3
7F7B021573	113719262A	70	3
7F7B021573	7F7F06583D	42	3
		2735	

Ponca State Park

Female	Male		
1F4B246E04	7F7D291A07	28	3
1F4A301354	7F7D291A07	7	3
7F7B021573	113719262A	70	3
7F7B021573	7F7D441774	70	3
7F7B021573	7F7F06583D	40	3
		215	

RPMA #1	2058
RPMA #2	3061
RPMA #3	1025
RPMA #4	7406
TOTAL	**13551**

[1] Denotes fish stocked from Bozeman FTC
[2] Denotes fish stocked from Miles City SFH
[3] Denotes fish stocked from Gavins Point NFH
[4] Denotes fish stocked from Neosho NFH
[5] Denotes fish stocked from Garrison NFH

Table 2. Summary of pallid sturgeon juveniles stocked in 2002 by site.

Pallid sturgeon effort and catch rates from 1998 through 2002.					
	1998(spring)	**1999(spring)**	**2000(spring)**	**2001(spring)**	**2002 (spring)**
Catch by amount of time drifting	1 pls/96 minutes	1 pls/ 147 minutes	1 pls/ 36 minutes	1 pls/ 52 minutes	1 pls/ 75 minutes
Catch by # drifts	1 pls/39 drifts	1 pls/17.5 drifts	1 pls/4.8 drifts	1 pls/7.6 drifts	1 pls/8.2 drifts
Average drift time	7:02 minutes	8:25 minutes	7:34 minutes	6:50 minutes	9:06 minutes
Number of pallids captured	4	4	9	7	10
# of drifts	157	70	43	53	82
Total amount of time drifting nets	6:25:24	9:49:41	5:25:05	6:02:25	12:32:59
CPUE	.62 pls/1 hour drifting	0.41 pls/1 hour drifting	1.66 pls/1 hour drifting	1.16 pls/ 1 hour drifting	0.80 pls/ 1 hour drifting
FLOW*	16690-20530 17814 avg	18740-19350 18930 avg	11860-12580 12158 avg	10720-11130 10925 avg	9690-12530 10596 avg
Dates	April 14 - 28	April 12 - 15	April 11 - 18	April 24 - 26	April 22 - May 1

* Calculated from combining the Culbertson and Sidney gauging stations recordings for the period of time during sampling.

Table 3. Calculated effort and catch rates for pallid sturgeon captured by this office from 1998 through 2002.

PIT/Tag Number	Year	Length	Weight	Sex	Age
K10	1990	NA	NA	F	31-36
411D235B0E	2000	1358	20384	F	35-46
PLS	1988	1397	10433	M	35-39
220F0F6213	2000	1425	20430	F	33-36
4310187B69*	2002	1435	16798	M	
7F7F06672B*	2001	1435	21942	F	
1F4772396F*	2002	1450	24062	M	
7F7F056171*	1998	1465	29483	F	
132319571A*	2002	1496	21792	F	
PLS	1975	1524	18597		32-35
PLS	1983	1543	17100	F	41
115544332A*	2002	1594	24970	F	
1F54756038/1F5420727B*	2002	1599	30191	F	
7F7F065E12	1998	1600	29483	F	55
1F4B237A79/1F497F6534*	1997	1642	29964	F	

* Ages on these fish will be completed in 2003.

Table 4. Pallid sturgeon ages from mortalities collected from Montana, North Dakota and South Dakota.

Discussion

This year's recovery efforts, although successful in terms of re-starting the collaborative stocking effort, was not without the price that was paid for three years of not fully implementing the stocking plan for pallid sturgeon. The data that was lost from not having progeny in the wild to evaluate the stocking effort is overshadowed by the lack of pallid sturgeon progeny in wild habitats that could have contributed to the future population.

In addition, the moratorium of not being able to bring pallid sturgeon progeny from downstream of Ft. Peck Dam, has resulted in a increase in the likelihood that the population will continue to decline for Recovery Priority Area #1. Although warranted in 1999 when the shovelnose sturgeon virus was first diagnosed, the continued exclusion of valuable progeny that will be critical for rebuilding the population from this area, will likely decrease the success of the overall recovery program for the Upper Basin.

The success of capturing broodstock has been evident in the last five years. In almost every instance, the number of fish needed for the propagation program, were captured. However, successful spawning still remains inconsistent at some facilities. Even if successful spawning is achieved, it is still sometimes difficult to keep mortality of the broodstock to a minimum. Getting the broodstock back into the wild

population not only increases the likelihood that they'll be around for use later in the propagation program, but keeping the remaining adults viable increases the chance they will be around to take advantage of future habitat improvements. The numbers of wild broodstock will decrease and the time will come in the next 10 years where efforts will need to be substantially increased to find adequate broodstock for spawning, if they can be found. Efforts need to continue to evaluate techniques used in the culturing of the pallid sturgeon and the best information needs to be used to insure success of this aspect of the recovery program.

Future Recommendations

- Re-evaluate the risks of not maximizing the use of progeny from below Ft. Peck Dam for stocking in all Recovery Priority Areas in the Upper Basin.

- Concentrate collection of broodstock during the fall prior to spawning, using spring captures only when necessary.

  Using this procedure increases our likelihood of having a successful propagation by banking fish early in order to facilitate planning and reduces the amount of stress to the fish. Research and results to date would suggest that holding these adult fish over winter prior to spawning decreases the amount of stress during the spawning by separating two major stressors (capture and spawning) and does not have an adverse affect to propagation efforts.

- Continue augmentation program of pallid sturgeon and intensify monitoring of juvenile pallid sturgeon populations in their habitats.

- Ensure that all facilities that hold pallid sturgeon have adequate capability to keep densities low and conditions favorable for culturing pallid sturgeon to decrease likelihood of diseases and stress.

- Develop/utilize facilities to retain a secondary source of pallid sturgeon progeny as a backup source for stocking purposes.

  Culturing the pallid sturgeon progeny at one facility, could allow a catastrophic event to eliminate that year's work. The main goal would be to culture excess pallid sturgeon at a second facility that would serve as a reservoir in the event that the primary source of pallid sturgeon broodstock would be lost or unsuitable for stocking purposes. Ultimate stocking numbers and hatchery capacity will likely dictate whether this is feasible.

- Continue to improve sampling efficiency of juvenile sturgeon.

- Continue to increase efforts to develop fish by-pass on low-head dams on Yellowstone River and the tributaries to allow fish passage by pallid and shovelnose sturgeon to utilize the middle Yellowstone River for spawning purposes, as well, modify water intakes to reduce potential impacts by entrainment.

- Evaluate stream-side modifications (rip-rap, weirs) and the impacts they may have on various in-channel habitats, especially habitat diversity.