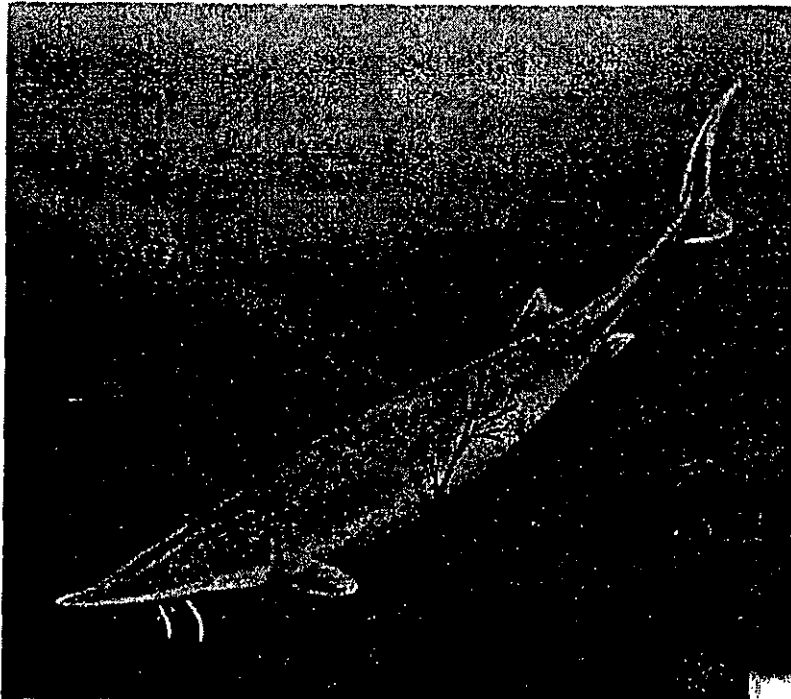




**2002 Summary Report
of Work Conducted by the
Missouri River FWMAO on
Missouri-Yellowstone River's
Pallid Sturgeon**



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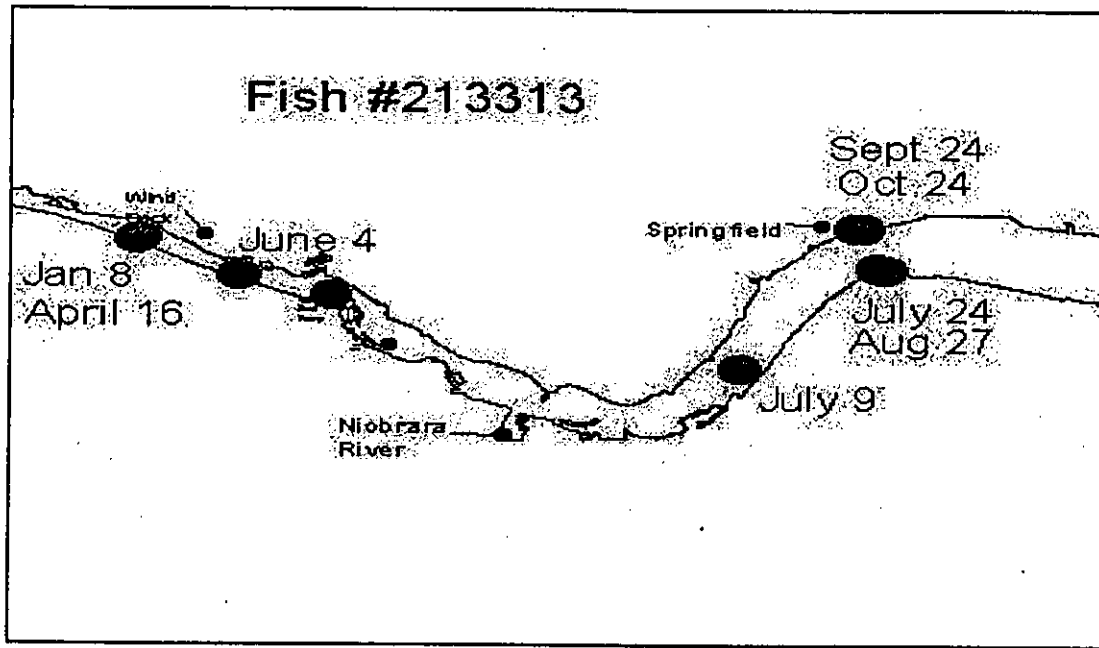


Figure 24. Pallid sturgeon relocation sites in zone 3, Lewis and Clark Lake, SD during 1999

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Study Area

Sampling for pallid sturgeons was primarily conducted on the first 20 miles of the Yellowstone River upstream from its 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	Female	Male	Female	Male
411D262C1F	41476A0462	411D262C1F	411D0B4E09		
St. Helena	282 ⁵	Sidney	85 ⁵		
Boonville	560 ⁵	Wolf Point	85 ⁵		
Mulberry Bend	321 ⁵	Fairview	21 ⁵		
Bellevue	580 ⁵	Fred Robinson	44 ¹		
Verdel	70 ⁵	Mouth Of Marias	44 ¹		
Sidney	85 ⁵	Judith Landing	44 ¹		
Culbertson	85 ⁵	Coal Banks	44 ¹		
Wolf Point	85 ⁵		367		
Fairview	85 ⁵				
Intake	84 ⁵			Female	Male
Fred Robinson	269 ¹	7F7F06672B	7F7D3C5708		
Mouth Of Marias	96 ¹	Boonville	116 ⁴		
Judith Landing	94 ¹	Mulberry Bend	144 ⁵		
Coal Banks	94 ¹	Mulberry Bend	92 ⁴		
	2790	Bellevue	222 ⁵		
		Bellevue	81 ⁴		
		Verdel	70 ⁵		
Female	Male				
411D262C1F	1F4A4B5973	Sidney	64 ²		
Boonville	20 ⁵	Fairview	61 ²		
Mulberry Bend	28 ⁵	Culbertson	61 ²		
Bellevue	21 ⁵	Wolf Point	61 ²		
Verdel	70 ⁵		972		
Sidney	85 ⁵				
Culbertson	85 ⁵			Female	Male
Wolf Point	85 ⁵	220E345E09	1F4A111C6A		
Fairview	85 ⁵	Boonville	362 ⁵		
Intake	13 ⁵	Boonville	219 ⁴		
Intake	73 ¹	Mulberry Bend	210 ⁴		
Fred Robinson	222 ¹	Bellevue	217 ⁴		
Mouth Of Marias	94 ¹	Bellevue	336 ⁵		

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Judith Landing	87	1		Verdel	70	5
Coal Banks	91	1		Intake	66	2
	1059			Sidney	75	2
				Fairview	75	2
Female	Male			Culbertson	75	2
7F7F06672B	115631222A			Wolf Point	75	2
Boonville	180	5			1780	
Verdel	71	5				
Intake	59	2			Female	Male
Sidney	59	2		1F4A301354	7F7D291A07	
Fairview	60	2		Ponca State Park	7	3
Culbertson	60	2				7
Wolf Point	60	2				
	549					
Female	Male				Female	Male
411D262C1F	17509415139			220E345E09	1F4A27214F	
Boonville	52	5		Boonville	257	5
Mulberry Bend	67	5		Mulberry Bend	341	5
Bellevue	51	5		Bellevue	473	5
Verdel	70	5		Verdel	70	5
Sidney	86	5		Intake	74	2
Culbertson	83	5		Sidney	73	2
Wolf Point	85	5		Fairview	73	2
Fairview	84	5		Culbertson	73	2
Intake	85	1		Wolf Point	73	2
Fred Robinson	267	1			1507	
Mouth Of Marias	94	1				
Judith Landing	91	1			Female	Male
Coal Banks	94	1		411D262C1F	411DOE2C5F	
	1209			Boonville	558	5
				Bellevue	555	5
Female	Male			Mulberry Bend	558	5
7F7B021573	7F7D441774			Verdel	70	5

Greenwood	67	3				Sidney	86	5
Ponca State Park	70	3				Culbertson	64	5
Boonville	57	3				Wolf Point	85	5
Bellevue	75	3				Fairview	85	5
	269					Fred Robinson	92	1
						Mouth Of Marias	90	1
Female	Male					Judith Landing	56	1
7F7B021573	7F7F06583D					Coal Banks	51	1
Greenwood	50	3					2350	
Ponca State Park	40	3						
Boonville	48	3				Female	Male	
Bellevue	42	3				220E345E09	7F7D3C5708	
	180					Boonville	9	4
						Boonville	198	5
Female	Male						207	
7F7B021573	113719262A							
Greenwood	65	3				Female	Male	
Ponca State Park	70	3				220E345E09	432C063C4E	
Boonville	60	3				Bellevue	12	4
Bellevue	70	3						
	265					TOTAL	13551	
Female	Male							
1F4B246E04	7F7D291A07					¹	Denotes fish stocked from Bozeman FTC	
Ponca State Park	28	3				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	

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2002 Stocking Summary by Site

Fred Robinson Bridge									
Female	Male			Fairview	Male				
411D262C1F	41476A0462	269		Female	411D262C1F	41476A0462	85		5
411D262C1F	17509415139	267			411D262C1F	411D0E2C5F	85		5
411D262C1F	411D0B4E09	44			411D262C1F	1F4A4B5973	85		5
411D262C1F	1F4A4B5973	222			411D262C1F	411D0B4E09	21		5
411D262C1F	411D0E2C5F	92			411D262C1F	17509415139	84		5
		894			220E345E09	1F4A11C6A	75		2
					220E345E09	1F4A27214F	73		2
					7F7F06672B	7F7D3C5708	61		2
Mouth Of Manas									
Female	Male				7F7F06672B	115631222A	60		2
411D262C1F	41476A0462	96					629		
411D262C1F	17509415139	94							
411D262C1F	411D0B4E09	44		Sidney					
411D262C1F	1F4A4B5973	94		Female	Male				
411D262C1F	411D0E2C5F	90		411D262C1F	41476A0462	85			5
		418		411D262C1F	411D0E2C5F	86			5
				411D262C1F	1F4A4B5973	85			5
				411D262C1F	411D0B4E09	85			5
Judith Landing					411D262C1F	17509415139	86		5
Female	Male				220E345E09	1F4A11C6A	75		2
411D262C1F	41476A0462	94			220E345E09	1F4A27214F	73		2
411D262C1F	17509415139	91			7F7F06672B	7F7D3C5708	64		2
411D262C1F	411D0B4E09	44			7F7F06672B	115631222A	59		2
411D262C1F	1F4A4B5973	87					698		
411D262C1F	411D0E2C5F	56							
		372							
Coal Banks									
Female	Male			Culbertson	Male				
411D262C1F	41476A0462	94		Female	411D262C1F	1F4A4B5973	85		5
411D262C1F	17509415139	94			411D262C1F	41476A0462	85		5
411D262C1F	411D0B4E09	44			411D262C1F	411D0E2C5F	64		5
411D262C1F	1F4A4B5973	91			411D262C1F	17509415139	83		5
411D262C1F	411D0E2C5F	51			220E345E09	1F4A11C6A	75		2
					220E345E09	1F4A27214F	73		2

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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.

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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.

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