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DEPARTMENT OF NATURAL RESOURCES
RESEARCH

**SUMMARY OF SURVEY DATA
FOR SMALLMOUTH BASS
IN WISCONSIN STREAMS, 1952-80**

By
Anne M. Forbes
Bureau of Research, Madison

REPORT 133
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DEPARTMENT
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ABSTRACT

In 1980, the Bureau of Research undertook a statewide search of fish management files for information on smallmouth bass stream populations. Survey reports were located for 73 streams, some of which were sampled more than once. Population size was estimated on only a few streams, and these estimates fell within the ranges reported for smallmouth bass stream populations in North America. On a per acre basis, three southwestern Wisconsin streams contained the greatest density of smallmouth bass.

Summary tables by Wisconsin Department of Natural Resources (WDNR) district were prepared for the survey reports collected. Catch per effort and length frequency were the most common types of information found. Growth data were available for 16 streams and averaged 3.5, 7.0, 9.7, 12.1, 13.9, 15.6, 17.0, 17.8, and 18.0 inches in length at annuli 1 through 9, respectively. Evidence of strong regional year classes were observed for the 1958 and 1976 hatches. Only on the Livingston Branch (Iowa County) was there a long enough series of annual samples to observe natural variations in year class strength and to document a population decline in the late 1970's.

About the Author

Anne Forbes joined the Fish Research Section, WDNR, in August 1980 after 8 years as a research biologist at the University of Wisconsin - Madison. She holds a BS degree from Earlham College and an MS from the University of Rhode Island. Her research interests have included warm water stream ecology, and since coming to the WDNR, she has been studying the smallmouth bass streams of southwestern Wisconsin. She has served as Warm Water Group Leader-South and is presently the Special Projects Leader based at the Southern District Headquarters, 3911 Fish Hatchery Road, Madison, WI 53711.

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INTRODUCTION

There are at least 3,514 miles of streams in Wisconsin that provide suitable conditions for smallmouth bass populations (Wis. Dep. Nat. Resour. 1978). Individual survey reports by fish management personnel exist for many waters, but the information has never been summarized for use in developing management or research plans. So in the fall of 1980, the Administrator, Resource Management Division, sent the following request to each WDNR district:

"The Fishery Research Section is assembling data on stream populations of smallmouth bass, preparatory to consideration of research needs on that subject. They would like to obtain copies of all stream survey reports which contain smallmouth bass data on any or all of the following: (1) population levels, (2) lengths, (3) weights, (4) age structure, and (5) harvest. Assimilation of these data will not only provide a basis for consideration of research needs but will also constitute an input to the Comprehensive Fish Management Plan."

The purpose of this report is to summarize and discuss the information collected during this search of fish management files for survey reports on smallmouth bass stream populations. Although the search was statewide in scope, it was soon apparent that the majority of the existing survey reports pertained to the southwestern part of the state (Table 1). Thus, special attention is paid to that region in the Results and Discussion -- partly because of the number of surveys and partly because of recent concerns by area fish managers that the smallmouth bass populations in these agricultural watersheds might be threatened by declines or extirpations (R. Kerr, G. Van Dyck, pers. comm.).

METHODS

After receiving the above request, fish managers searched their files and sent copies of survey reports to me. I also searched the Central Files at GEF II. A list of the streams and years surveyed was compiled (Table 1).^{*} This list covers the years 1952-80; a few surveys from 1981 were included, but the statewide file search did not extend beyond 1980.

Information in each survey report was summarized under the headings listed below and ordered into tables by District (Tables 2-10).

<u>Heading (for Tables 2-10)</u>	<u>Explanation</u>
Stream and location	Town-Range-Section was included if it was given in the report or if it could be determined from the information provided.
Date of survey	Month, Day, Year
Distance sampled (miles)	In some reports, these were only rough estimates.
Width (ft)	Often not reported.

^{*}All tables--Tables 1-12--appear in an Appendix Section at the end of this report.

Area (acres)	Often not reported.
Gear	A stream shocker was used, unless otherwise indicated. The voltage and use of AC or DC were not always recorded.
SMB caught - age and number	The age reported in the tables represents the age of the fish at the last birthday. If the age is followed by a "++", the age structure of the sample was unknown. For example, a sample of age II++ fish were all at least 2 years old, but may have contained fish in any older age group as well. When ages were reported, it was not always clear if scales were used or if ages were estimated from length frequencies.
CPE -- SMB/mile and SMB/acre Catch per effort (CPE) is defined here as no. of bass caught/mile and no. caught/acre during one run with a stream shocker.	I calculated many of these from the number caught and distance/area sampled columns on the tables.
Length (inches) at capture -- age, mean, and (range)	Length at time of capture was sometimes reported for the entire sample or sometimes for a subsample. Means and ranges were sometimes reported by age group (see note under "SMB caught", above) and sometimes a single mean and range were recorded for the entire sample. Type of length measurement was usually not indicated; it was assumed to be total length.
Comments	Indicates other information available in the survey reports.
Length-frequency	Y=yes, meaning that length frequency data for smallmouth bass were included in the report; N=no.

Information was also summarized for population estimates and age-growth data (Tables 11 & 12); these two tables also included some data collected from Wisconsin streams by investigators outside the WDNR (Paragamian 1973, Paragamian and Coble 1975).

Analysis of the summarized survey results was not attempted in detail. Major points and trends observed in the data are discussed below. I urge caution in the use of the tables for detailed comparisons or analysis since methods and effort were variable and often incompletely documented. Persons wishing copies of the original survey reports should contact the appropriate WDNR Area Fish Manager, the Technical Library (WDNR, 3911 Fish Hatchery Road, Madison, WI 53711), or the author.

RESULTS AND DISCUSSION

The file search produced survey reports on 73 different smallmouth bass streams from 1952-80 (Table 1). An examination of the list of streams surveyed by Fish Management personnel by year (Table 1) clearly shows that most attention has been paid to streams in the Southern District and especially to those in Grant, Iowa, and Lafayette counties. The search primarily turned up information on catch per effort (defined here as number caught per mile or per acre during one run with a stream shocker) and length of the fish at time of capture. A few population estimates (Table 11) and some growth data (Table 12) were found.

Harvest data were located only from the Oconto River in 1979 (R. Rost, unpubl.) and the Red Cedar River in 1973 (Paragamian and Coble 1975). Creel census results for the Galena (Fever) River (Lafayette County), the Little Wolf River (Waupaca County), and the Oconto River (Oconto County) are forthcoming (A. Forbes, L. Meyers, and D. Rost, respectively, studies in progress).

Catch Per Effort (CPE)

The catch per effort can be used, along with length-frequency, to generally indicate the presence or absence of a reproducing population of smallmouth bass in a stream, but cannot be used as a relative indication of population size between sampling times and locations. The percentage of the estimated smallmouth bass population captured during a first run usually varied between 10% and 40% in two southwestern Wisconsin streams, being influenced by such factors as temperature, turbidity, and stream width and depth (A. Forbes, unpubl.).

When the CPE was relatively high in the survey reports, large numbers of young-of-the-year were often present. From the entire set of reports (Tables 2-10), I identified samples that met three criteria: a CPE greater than 100 bass/mile, sample distances of at least 1/2 mile, and known bass ages. There were 19 surveys on 11 streams in this group; 12 of the 19 samples contained 63-98% young-of-the-year.

Strong Year Classes

The strength of smallmouth bass year classes is known to be highly variable, and a strong year class often occurs throughout the streams or lakes of a region (Coble 1975). This was observed in the survey reports for the 1976 year class. Large numbers of fingerlings (CPE of 29-154/mile) were found in August and September 1976 samples on Bonner Branch, Cottage Inn Branch, and Pats Creek (Lafayette County), Livingston Branch (Iowa County), and Pigeon Creek (Grant County). This year class appeared to be the "backbone" of the smallmouth bass population in southwestern Wisconsin streams during the next few years, although it is only well-documented for Bonner Branch (Table 4) where it was followed through age II in 1978. Both Allen Creek (Green County) and Wood Branch (Lafayette County) had large numbers of age II bass in 1978, indicating the importance of the 1976 hatch. The 1976 year class was a strong regional year class in Iowa (V. Paragamian, pers. comm.) and Minnesota (T. Waters and B. Swenson, pers. comm.), as well as in southern Wisconsin.

Only on the Livingston Branch (Iowa County) was there a long enough series of annual samples (1958-66) to document natural variations in year class strength. The 1958, 1961, 1963, 1964, and 1965 samples taken by C. Brynildson and J. Truog contained large numbers of fingerlings (Table 3). Several other

southwestern Wisconsin stream populations surveyed in 1958 also showed good evidence of natural reproduction (Brynildson et al. 1959), indicating that the 1958 year class was probably strong on a regional basis.

Population Estimates

Population estimates for smallmouth bass were reported for only 11 streams (Table 11). If the questionable estimates (those with 1st and 2nd runs 3 months apart) are eliminated, the greatest densities, on a per-acre basis, were observed in the Livingston Branch (Iowa County) and the Galena (Fever) River and Pats Creek (Lafayette County); the lowest density was reported for the Cottage Inn Branch (Lafayette County). All of the estimates in the survey reports fall within the range of values for smallmouth bass populations as summarized for North America by Paragamian and Coble (1975).

Growth

The calculated total length of smallmouth bass from 25 samples of 16 Wisconsin streams averaged 3.5, 7.0, 9.7, 12.1, 13.9, 15.6, 17.0, 17.8, and 18.7 inches at annuli 1 through 9, respectively (Table 12). When data were averaged separately for northern and southern counties, no difference in growth between regions was apparent.

Scales from fish in 8 of the 25 samples had no more than 2 or 3 annuli; most of these came from relatively small, southern Wisconsin streams. Scales from 10 of the other samples had 6 or more annuli. A few fish from each of the 3 northern rivers and from the Galena River were more than 8 years old (Table 12).

Length-frequency

Length at time of capture is presented for each survey report in Tables 2-10, and a "Y" or "N" in the far right hand column indicates whether or not length-frequency charts are available in each report. This information was not summarized, but is available in the individual survey reports.

Current Status of Smallmouth Bass Populations

A listing of smallmouth bass streams by county for Wisconsin (Wis. Dep. Nat. Resour. 1978) identifies as smallmouth bass waters 214 sections covering 3,514 miles. This total includes duplication between counties and between disconnected portions of single streams. However, estimates of population size (Table 11) have been reported for only a few southwestern Wisconsin streams which were suitable for double run stream shocker surveys* and on two northern Wisconsin streams where the investigators (Paragamian and Coble 1975) conducted a multiple census.** The combination of CPE and length-frequency data described above is the best tool managers currently have to assess the population status on many streams. Other streams with reputations for good smallmouth bass populations have never been surveyed. Plans to increase our statewide knowledge of smallmouth bass population status should recognize the need for multiple census techniques on the larger rivers.

* Petersen estimates.

** The Schnabel or multiple census estimate involves multiple marking and recapture runs; this is essential on larger rivers where only a very small portion of the population is captured on individual runs.

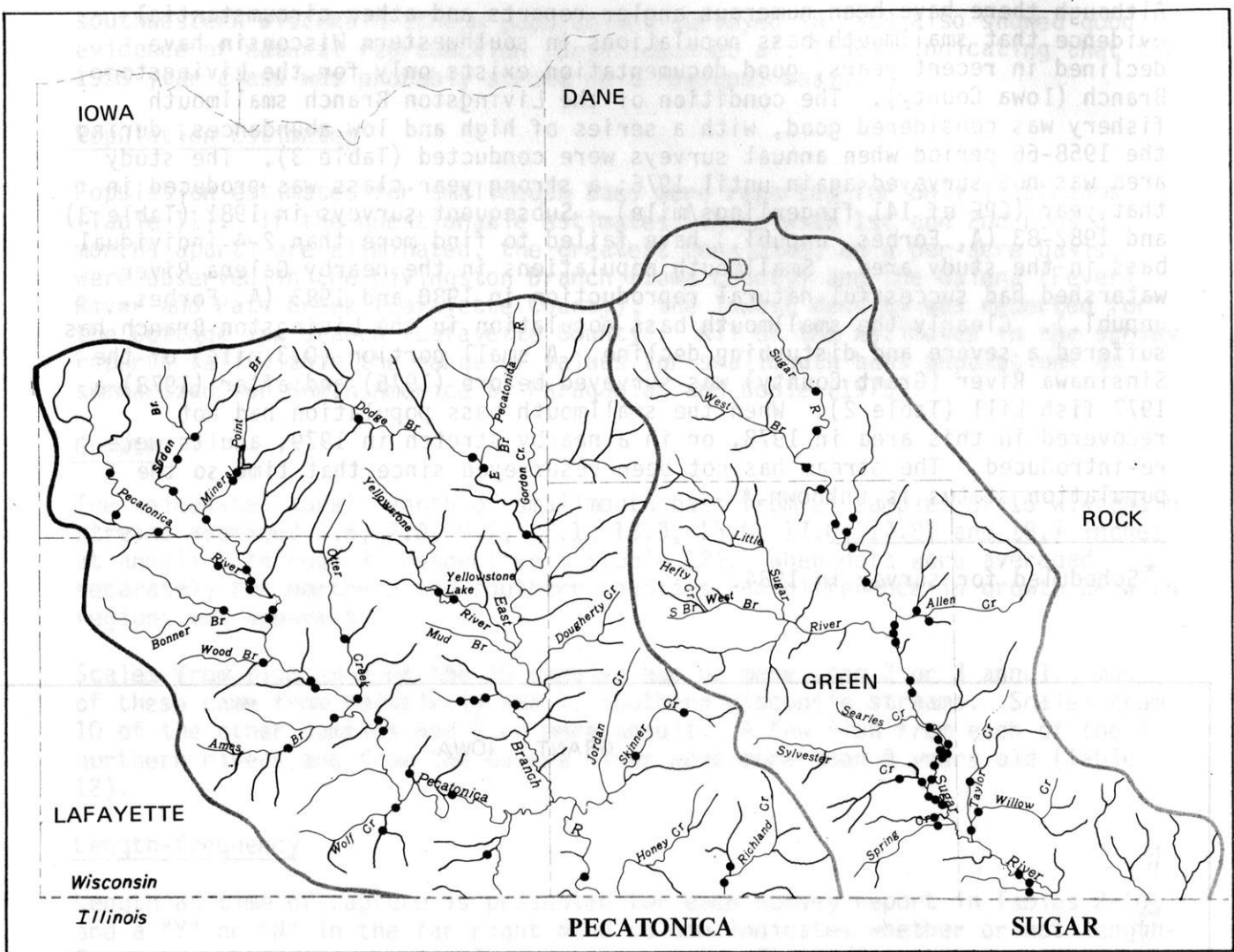


FIGURE 2. Distribution of smallmouth bass in the Pecatonica and Sugar river basins, 1976 and 1974, respectively. Wisconsin Statewide Fish Distribution Study. Reproduced from Fago (1982).

Two smallmouth bass streams (Bonner Branch and Cottage Inn Branch) were surveyed annually by Roger Kerr in the First Capitol Watershed (Lafayette County) from 1975-1979. Both had good natural reproduction in 1976, but populations had dwindled by 1979 (Table 3). The streams were not surveyed in 1980 when there was excellent natural reproduction in the nearby Galena River watershed (A. Forbes, unpubl.) and one might have expected a strong regional year class to be represented in the First Capitol streams.

An overall picture of recent smallmouth bass distribution in southwestern Wisconsin comes from the Statewide Fish Distribution Study, Bureau of Research, WDNR (Fago 1982, Fago 1985). Although information on population size, age structure, etc. is not found in these reports, distribution maps show where one or more smallmouth bass specimens were collected in the Grant and Platte river basins in 1978-79 (Fig. 1), and Pecatonica and Sugar river basins in 1976 and 1974, respectively (Fig. 2).

These maps show that smallmouth bass were present in many of the streams of southwestern Wisconsin during the years sampled*. Specimens were caught at numerous locations along the main stems of the Grant, Platte, Little Platte, Galena, West Branch of the Pecatonica, and Sugar rivers. A few streams -- such as the Livingston Branch and portions of the East Branch of the Pecatonica River (Fig. 2) and Rattlesnake Creek, Blakes Fork, and Blockhouse Creek (Fig. 1) -- had few or no stations with smallmouth bass. Some of the absences of smallmouth bass were on streams that were never known as bass streams; examples include Dougherty, Jordan, and Sylvester creeks and the West Branch of the Sugar and Little Sugar rivers (Poff and Threinen 1961). Management and research plans for 1984-87 include sampling to obtain a better regional picture of smallmouth bass population status in southwestern Wisconsin streams.

SUMMARY

1. A statewide search of fish management files for information on stream populations of smallmouth bass turned up reports on 73 different streams surveyed from 1952-80. A number of streams were sampled more than once in that time period (Table 1).
2. Catch per effort (number of bass caught per mile or per acre during one run with a stream shocker) can be used to review the summarized data (Tables 2-10) for evidence of good smallmouth bass fisheries, but cannot be used to indicate relative population size.
3. The presence of a strong regional year class in southwestern Wisconsin was evident in 1958 and 1976. The only series of annual surveys on a single stream was on the Livingston Branch where strong year classes were produced in 1958, 1961, 1963, 1964, and 1965.
4. Population estimates were reported on a few small streams that could be sampled by a double run using a stream shocker. Larger streams required multiple census techniques and population estimates for such Wisconsin streams were reported only by Paragamian and Coble (1975).
5. On a per-acre basis, 3 southwestern Wisconsin streams contained the greatest density of smallmouth bass.
6. Calculated total length of smallmouth bass in Wisconsin streams averaged 3.5, 7.0, 9.7, 12.1, 13.9, 15.6, 17.0, 17.8, and 18.7 inches at annuli 1 through 9, respectively.
7. The Livingston Branch (Iowa County) supported a smallmouth bass fishery in 1958-66. The next survey took place in 1976 when there was a good hatch, but bass were virtually absent in this stream in 1981-83 surveys. Declines have been suspected in other southwestern Wisconsin streams, but documentation exists only for the Livingston Branch.
8. Harvest data were not included in the reports received, but studies including creel census were underway and reports are in preparation for the Oconto River (Oconto County), Little Wolf River (Waupaca County), and Galena River (Lafayette County).

*Sampling stations were present along almost all of the streams shown in the figures, so that an absence of dots generally reflects an absence of smallmouth bass.

TABLE 1. Smallmouth bass streams surveyed by Fish Management, 1952-80.*

	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81
SOUTHERN DISTRICT																														
Grant County																														
Blakes Fork									X																X					
Boice Creek																											X			
Leggett Creek															X									X		X				
Little Platte River				X								X	X														X			
Menominee River														X														X		
Pigeon Creek							X																	X						
Platte River						X								X	X									X						
Platte River, Martinsville Branch															X															
Platte River, Seven Foot Branch															X															
Rattlesnake Creek							X																	X						
Rogers Branch				X																							X			
Sinsinawa River								X																X		X	X			
Iowa County																														
Conley-Lewis Creek											X																			
Dodge Branch			X	X		X						X		X															X	
Gordon Creek																X														
Jones Valley Creek											X																			
Livingston Branch							X	X	X	X	X	X	X	X	X									X					X	
Lynch Branch															X															
Mineral Point Branch			X	X	X					X		X		X	X														X	
Pecatonica River, East Branch			X						X										X										X	
Pecatonica River, West Branch				X														X											X	
Pedlers Branch					X																									
Williams Creek											X																			

*The complete file search extended only to 1980; a few surveys from 1981 are included.

TABLE 1. Cont.

	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	
Lafayette County																															
Ames Branch							X																								
Apple River																														X	
Bonner Branch										X														X	X	X	X	X			
Coppermine Creek			X	X								X		X																	X
Cottage Inn Branch										X														X	X	X	X	X			
Galena (Fever) River				X			X																						X	X*	
Kelsey Branch																													X		
Madden Branch																												X		X	
Otter Branch							X																								
Pats Creek																									X			X		X*	
Pecatonica River, West Branch														X																	
Whiteside Creek										X																			X		
Wood Branch																											X	X			
Yellowstone River				X																											
Green County																															
Allen Creek																													X		
Bushnell Creek															X												X				
Richland Creek							X																	X					X		
Skinner Creek																										X					
Tipperary (Story) Creek				X																				X							
Dane County																															
Black Earth Creek															X									X							
Rock County																															
Turtle Creek																														X	
Sauk County																															
Narrows Creek							X																								
SOUTHEAST DISTRICT																															
Fox River										X																					
Milwaukee River												X																			
Turtle Creek						X			X	X	X	X	X	X																	
White River														X																	

*Joint Fish Research-Fish Management Project.

TABLE 1. Cont.

	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	
LAKE MICHIGAN DISTRICT																															
Embarrass River																													X	X	X
Fox River																						X	X	X	X	X	X				
Little Suamico River																								X							
Little Wolf River																															X
Mink River																						X									
Oconto River																													X	X	
Pensaukee River																								X							
Suamico River																								X							
Wolf River																													X		
WEST CENTRAL DISTRICT																															
Apple River								X																							
Bad Axe River, North Fork																								X							
Bad Axe River, Springville Branch of North Fork																								X							
Bad Axe River, South Fork																												X			
Black River																														X	
Chippewa River															X																
Hay River											X																				
Kickapoo River, West Fork																									X						
Poplar River																							X								
Red Cedar River												X			X																
St. Croix River								X							X																
NORTH CENTRAL DISTRICT																															
Lily River																							X								
Wolf River																								X	X	X					
NORTHWEST DISTRICT																															
Bad River						X										X															
Chippewa River, East Fork													X				X														
Flambeau River, South Fork																			X	X											
St. Croix River								X								X															

TABLE 2. Smallmouth bass stream surveys, Southern District, Grant County.

Stream and Location	Date	Distance Sampled (miles)	Width (ft)	Area (acres)	Gear	SMB Caught		CPE		Length (inches) at Capture			Comments	Length-Frequency
						Age	No.	SMB/ mile	SMB/ acre	Age	Mean	(Range)		
<u>Blakes Fork</u> (T5N-R4W,R5W and T4N-R4W)	16-17 Aug 1960	1.5	-	-	AC	0 II++ T	8 1 9	6	-	0 II++	- 10.5	(2.5- 3.4) -		N
(")	13 Jul 1976	3.3	-	-	-	0 I II++ T	4 47 24 75	23	-	-	-	(1.5-17.4)		Y
<u>Boice Creek</u> (T3N-R3W-S17,30)	7 Aug 1978	1.2	14	-	-	-	38	32	-	-	-	-		Y
<u>Leggett Creek</u> (T5N-R2W-S?)	1 Aug 1966	2.65	-	2.6	115vDC	0 I II++ T	29 325 29 383	144	-	-	-	-	Caught 15 brown trout.	Y
(T5N-R2W-S3,24)	9 Jun 1976	3.7	-	6	220vDC	II++	2	< 1	-	II++	-	(10.5-11.4)	Caught 96 brown trout.	Y
(T5N-R23-S13,14)	5 Sep 1978	2.1	13	3.4	-	I II++ T	14 32 46	22	-	-	-	(5.5-16.4)	Caught 59 brown trout.	Y
<u>Little Platte River</u> (T4N-R1W-S15)	8 Aug 1954	1.0	3-50	2.5	DC	-	40	40	16	I II	- -	(4.6- 8.6) (10.2-11.2)	Back-calculated growth data.	N
(T3N-R1W-S18,7,8)	21-26 May 1964	1.72	-	-	-	-	972	565	-	-	5.2	(3.3-19.9)		N
(T3N-R2W-S35,36)	19 Jun 1965	0.6	30	-	230vDC	-	46	77	-	I II III IV V VI	5.8 8.6 12.3 13.5 15.0 16.4	- (5.7-10.9) (9.7-15.0) (12.5-14.1) (13.0-16.0) -	Back-calculated growth data.	Y
(T5N-R1W-S36 to T4N-R1W-S15)	25 Jul, 3-7 Aug 1978	8.0	13	12.6	-	0 I II++ T	4 5 175 184	23	15	-	-	(12.0-14.9)	Caught 389 brown trout.	Y

TABLE 2. Grant County, cont.

Stream and Location	Date	Distance Sampled (mile)	Width (ft)	Area (acres)	Gear	SMB Caught		CPE		Length (inches) at Capture			Comments	Length-Frequency
						Age	No.	SMB/ mile	SMB/ acre	Age	Mean	(Range)		
<u>Menominee River</u> (T1N-R2W-S34)	29 Sep 1965	1.0	20	2.4	DC	-	20	20	8	-	-	(2.5-12.9)	Back-calculated growth data.	Y
(T1N-R2W-S15,34)	21-22 May 1979	5.4	20	13.2	110vDC	-	447	83	34	-	-	(4.0-14.4)	First run.	Y
(")	30 May, 4 Jun 1979	5.4	20	13.2	110vDC	-	110 M 40 U 150	28	11	-	-	(6.0-12.9)	Second run N = 610 (46/acre).	Y
<u>Pigeon Creek</u> (?)	24 Jun 1958	1.3	-	-	AC	-	118	91	-	I II III IV V VI	4.1 7.9 11.2 14.3 15.2 16.3	(3.9- 4.5) (6.2-10.0) (10.4-12.5) (13.4-15.3) (14.4-16.0) -		Y
(T4N-R4W-S26)	10 Sep 1976	1.4	20	-	-	0 I++ T	215 17 232	166	-	0 I++	-	(4.0- 5.4) (6.0- 9.9)		Y
<u>Platte River</u> (?)	20-21 Aug 1957	?	-	-	-	-	116	-	-	0 I II III IV	2.3 6.5 10.2 13.8 14.3	(2.0- 2.5) (5.5- 8.4) (8.8-12.0) (13.7-13.8) (14.1-14.5)	Pop. est. on 0.5-mile section = 98/mile.	N
(T4N-R2W-S17)	26 Jul 1965	0.5	40	2.4	-	0 I II T	10 31 8 49	98	20	-	-	(2.5 - 9.9)		Y
(T5N-R1W-S8,9)	13 Oct 1966	0.5	-	-	115vDC	0 I II T	35 15 3 53	106	-	0 I II	2.5 6.3 10.0	(1.7- 3.5) (4.9- 8.0) (9.4-10.5)	Back-calculated growth data.	N
(T4N-R2W-S17)	10 Sep 1976	1.0	45	5.4	-	-	41	41	6	-	-	(2.5-16.4)		Y
<u>Platte River, Martinsville Branch</u>	27 Jul 1966	-	-	-	115vDC	I II T	78 1 79	-	-	I II	5.4 8.5	(3.8- 6.7) -		N

TABLE 2. Grant County, cont.

Stream and Location	Date	Distance Sampled (miles)	Width (ft)	Area (acres)	Gear	SMB Caught		CPE		Length (inches) at Capture			Comments	Length-Frequency
						Age	No.	SMB/ mile	SMB/ acre	Age	Mean	(Range)		
<u>Platte River, Seven Foot Branch</u>	28 Jul 1966	-	-	-	115vDC	I	5	-	-	I	5.9	(5.4- 6.5)		N
						II	7			II	9.1	(8.0- 9.9)		
						III	1			III	10.8	-		
						T	13							
<u>Rattlesnake Creek</u> (T3N-R5W-S6 and T4N-R5W-S34,35)	11 Jul 1958	0.6	-	-	AC	-	25	42	-	II	8.8	(8.2-10.3)	Y	
										III	12.1	(10.0-16.4)		
										IV	14.6	(14.1-15.1)		
(T4N-R5W-S8 to T3N-R4W-S6)	7, 12 Jul 1976	4.2	10.2	-	-	I	20	8	3	-	-	(4.0-15.7)	Y	
						II++	14							
						T	34							
<u>Rogers Branch</u> (?)	Jul 1954	1.35	-	2.4	110vAC	-	49	36	20	I	-	(3.6- 8.6)	N	
										II	-	(9.1-10.2)		
										III	12.2	-		
										V	14.3	-		
										VI	16.0	-		
(T5N-R3W-S12,14, 22,27,28)	7, 25 Sep 1978	2.9	11	3.9	220vDC	-	57	20	15	-	-	(5.0-13.4)	Caught 172 brown trout.	Y
<u>Sinsinawa River</u> (T1N-R1W-S34)	15 Sep 1959	0.2	-	-	-		50	250	-	-	4.5	(2.8-13.7)	N	
(T1N-R1W-S22, 27,34)	29 Jul 1976	1.1	25	3.3	220vDC	0	42	213	71	-	-	(2.5-16.9)	Y	
						I	155							
						II++	37							
(T1N-R1W-S22, 27 only)	29 Jul 1976	0.3	-	-	220vDC	0	17	350	-	-	-	-	Sampled at station 3 only.	Y
						I	71							
						II++	17							
(")	26 May 1978	0.3	-	-	-		3	10	-	-	-	-	Kill occurred in 1977.	Y
(T1N-R1W-S34 only)	23 May 1979	0.5	-	-	-	-	2	4	-	-	-	-	Stocked 75 adult SMB 30 May 1979.	Y

TABLE 3. Smallmouth bass stream surveys, Southern District, Iowa County.

Stream and Location	Date	Distance Sampled (mile)	Width (ft)	Area (acres)	Gear	SMB Caught		CPE		Length (inches) at Capture			Comments	Length-Frequency
						Age	No.	SMB/ mile	SMB/ acre	Age	Mean	(Range)		
<u>Conley-Lewis Creek</u> (?)	26 Jul 1963	0.7	7.5	0.64	115vAC	-	13	18	20	-	-	(6.5- 9.4)	Managed for brown trout.	Y
<u>Dodge Branch</u> (T5N-R4E-S23)	26 Aug 1952	0.1	15	-	AC	-	1	-	-	-	11.2	-		N
(?)	Summer 1954	0.33	-	1.0	110vAC	-	23	69	23	I II III IV	6.0 9.4 12.0 13.3	(4.6- 6.6) (8.0-10.7) (11.7-12.1) (11.6-14.7)	Back-calculated growth data.	N
(T5N-R1E-S1,12)	18 Sep 1957	0.6	12	0.87	AC	0 I II+	10 49 13	120	-	0 I II	2.4 6.0 9.1	(2.2- 2.7) (4.5- 7.5) (7.9-11.0)	Length, weight, and condition of a sample.	Y
(T5N-R1E-S21,23)	17 Aug 1964	0.9	-	-	230vDC	0 I II III	15 22 2 2	45	-	0 I II III	3.0 7.4 10.5 12.9	(2.2- 3.9) (5.8- 8.8) (9.9-11.1) (12.7-13.0)	Average weight (and range) of each age group; back-calculated growth data.	N
(T5N-R1E-S18,21)	10-12 Aug 1966	3.1	15-20	5.8	-	0 I II++	8 372 74	146	78	-	-	(2.0-16.4)	No. and lengths of brown trout.	Y
(T5N-R4E-S23 to T5N-R3E-S36)	24-26 Jun 1980	-	-	-	-	-	87	-	-	-	-	(6.5-18.0)	No. and lengths of brown trout and walleye.	Y
(T5N-R5E-S30 to T5N-R4E-S23)	29-30 Jul 1980	4.5	20-30	-	230vDC	-	44	10	-	-	-	(5.5-14.9)	No. and lengths of brown trout and walleye.	Y
<u>Gordon Creek</u> (T5N-R5E-S23)	19 Jul 1967	0.9	12	1.4	230vDC	-	10	11	60	-	-	(5.5-14.4)	Managed for brown trout.	Y
<u>Jones Valley Creek</u> (T5N-R5E-S5 and T6N-R5E-S33)	23 Jul 1963	-	-	-	110vAC	-	28	-	-	-	7.4	(5.9-13.7)	Weights of SMB.	Y

TABLE 3. Iowa County, cont.

Stream and Location	Date	Distance Sampled (mile)	Width (ft)	Area (acres)	Gear	SMB Caught		CPE		Length (inches) at Capture			Comments	Length-Frequency
						Age	No.	SMB/mile	SMB/acre	Age	Mean	(Range)		
Livingston Branch, (T5N-R1E-S16,21)	13 Aug 1958	0.5	10-30	-	115vAC	0 I II III T	52 10 6 7 75	150	-	0 I II III	2.2 7.2 10.1 12.2	(1.8- 3.3) (6.3- 8.0) (9.0-10.9) (10.9-13.0)		Y
(")	1 Sep 1959	0.8	12	-	115vAC	0 I II T	4 33 3 40	50	-	0 I II	3.8 7.9 10.9	(3.7- 3.9) (6.6- 9.9) (10.5-11.4)		N
(")	23 Aug 1960	0.8	12	-	115vAC	0 I II T	1 3 14 18	23	-	0 I II	2.4 6.9 10.3	- (6.0- 8.0) (8.7-11.6)		N
(")	23 Aug 1961	0.5	-	-	115vAC	0 I II III T	280 3 3 5 291	582	-	0 I II III	4.2 7.6 11.3 13.4	(2.9- 5.1) (7.0- 8.1) (9.7-12.6) (11.7-14.8)	Back-calculated growth data.	N
(")	31 Aug 1962	0.8	-	-	115vAC	0 I II T	0 210 15 225	582	-	I II	6.5 10.2	(4.2- 9.0) (9.2-12.1)		N
(")	31 Aug 1963	0.8	-	-	115vAC	0 I II T	64 1 97 162	202	-	0 I II	3.4 5.6 8.8	(2.6- 4.6) - (6.9-11.3)		N
(")	Sep 1964	0.8	-	-	220vDC	0	610	Pop. est.* 0 762 I 150 II 17 III 70 T 999	-	0 I II III	3.4 7.6 10.3 11.3	(2.0- 5.4) (6.2- 9.2) (8.9-11.3) (9.5-13.3)	Weights and conditions factors; back-calculated growth data.	N

*Double run; actual numbers caught not reported.

TABLE 3. Iowa County, cont.

Stream and Location	Date	Distance Sampled (mile)	Width (ft)	Area (acres)	Gear	SMB Caught		CPE		Length (inches) at Capture			Comments	Length-Frequency
						Age	No.	SMB/ mile	SMB/ acre	Age	Mean	(Range)		
<u>Livingston Branch,</u>														
<u>cont.</u>														
(")	7-8 Oct 1965	0.8	-	-	220vDC	0	367	Pop. est.*	-					
								0	457	0	3.9	(2.2- 5.0)	Weights and condition factors; back-calculated growth data.	N
								I	70	I	7.8	(5.2- 9.6)		
								II	42	II	10.5	(7.8-12.3)		
								III	9	III	12.4	(10.6-14.0)		
								IV	7	IV	13.2	(12.3-13.8)		
								<u>T</u>	<u>585</u>					
(")	20 May 1966	0.8	-	-	220vDC	-	-	Pop. est.**	-					
								I	249	I	4.1	(2.2- 5.4)	Weights and condition factors; back-calculated growth data.	N
								II	121	II	8.3	(7.3-10.2)		
								III	22	III	10.3	(8.6-11.7)		
								IV	3	IV	13.8	(13.4-14.2)		
								<u>T</u>	<u>395</u>					
(")	15 Jul 1976	0.8	-	-	-	I	11	32	-	I	-	(5.0- 6.4)		Y
						II++	15			II++	-	(11.0-17.4)		
						<u>T</u>	<u>26</u>							
(")	29 Sep 1976	0.8	-	-	-	0	106	141	-	0	-	(2.0- 6.4)		Y
						I	6			I	-	(7.0- 8.4)		
						II++	1			II++	-	(13.0-13.4)		
						<u>T</u>	<u>113</u>							
(")	14 Jul 1981	0.8	-	-	-	-	4	5	-	-	-	(5.5- 6.9)		Y
(")	16 Sep 1981	0.8	-	-	-	-	0	0	-	-	-	-		Y
<u>Lynch Branch</u>														
(T5N-R4E-S18)	10 Aug 1966	0.3	2	0.9	115vDC	0	18	60	275	0	-	(5.0- 6.9)	Managed for brown trout.	Y
						<u>T</u>	<u>18</u>							
<u>Mineral Point Branch</u>														
(T5N-R2E-S36)	27 Aug 1952	0.3	20	-	AC	-	24	80	-	-	-	(3.7-13.9)	Weights of SMB.	Y
(T5N-R2E-S12,13)	30 Aug 1954	0.86	20-25	2.4	AC	-	68	78	28	I	5.9	(4.3- 9.2)	Back-calculated growth data.	N
										II	10.4	(9.6-11.2)		
										V	14.3	(13.7-15.8)		
										VI	15.1	(14.0-15.6)		

*Single run; population estimate based on recapture rate of each age group in 1964.

**Double run; actual numbers caught not reported.

TABLE 3. Iowa County, cont.

Stream and Location	Date	Distance Sampled (miles)	Width (ft)	Area (acres)	Gear	SMB Caught		CPE		Length (inches at Capture)			Comments	Length-Frequency
						Age	No.	SMB/ mile	SMB/ acre	Age	Mean	(Range)		
Mineral Point Branch, cont. (T5N-R2E-S12)	22 Jun 1956	0.5	10	-	AC	-	23	46	-	-	-	(3.8- 9.1)		Y
(T5N-R2E-S36 to T5N-R2E-S25)	9, 13 Aug 1962	1.0	-	-	AC	-	219	219	-	I II III IV V	6.3 10.5 11.9 14.3 16.4	(3.9- 8.4) (8.3-11.7) (11.4-12.2) (14.1-14.5) -		N
(T5N-R2E-S12)	6 Oct 1964	0.01	20	0.03	Seine	0 I T	10 5 15	-	-	-	-	(2.5- 6.9)		Y
(T5N-R2E-S36 to Ludden Lake)	24-25 Aug 1966	0.67	-	-	115vDC	0 I II III IV++ T	1,601 17 51 6 3 1,678	2,505	-	0 I II III IV++	2.9 7.3 9.7 12.7 15.3	(2.1- 4.5) (5.1- 9.1) (8.6-11.3) (11.5-13.4) (14.4-16.5)	Back-calculated growth data.	N
(")	29 Aug 1967	0.67	-	-	115vDC	0 I II III IV V T	681 26 8 5 1 2 723	1,079	-	0 I II III IV VII	3.0 7.3 10.6 12.5 13.0 18.2	(2.0- 5.5) (4.6- 9.0) (9.3-11.6) (12.0-13.5) - (17.9-18.5)	Average weight of age groups; back-calculated growth data.	N
(T5N-R2E-S13, 24,25)	4 Aug 1980	2.75	12-20	-	120vDC	-	89	32	-	-	-	(6.0-14.4)		Y

TABLE 3. Iowa County, cont.

Stream and Location	Date	Distance Sampled (mile)	Width (ft)	Area (acres)	Gear	SMB Caught		CPE		Length (inches) at Capture			Comments	Length-Frequency
						Age	No.	SMB/mile	SMB/acre	Age	Mean	(Range)		
<u>Pecatonica River, East Branch</u>														
(T5N-R5E-S9)	5 Sep 1952	0.5	25	-	AC	-	8	16	-	-	-	-	Weights also recorded.	Y
(T5N-R5E-S5)	24 Aug 1960	0.7	-	-	AC	I	3	11	-	I	8.9	(8.2- 9.3)		N
						II	3			II	10.4	(9.8-10.7)		
						III	2			III	11.2	(11.2-11.3)		
						<u>T</u>	<u>8</u>							
(T5N-R5E-S32)	1-2 Jul 1970	1.6?	-	-	DC boom shocker	I	2	-	-	I	6.8	(6.7- 6.9)	Back-calculated growth data.	Y
						II	4			II	6.9	(6.3- 7.2)		
						III	11			III	11.4	(9.3-14.2)		
						IV	4			IV	15.1	(14.8-15.9)		
						V	3			V	15.1	(14.5-15.5)		
						VI	1			VI	16.2			
						<u>T</u>	<u>25</u>							
(T5N-R5E-S4,5)	28 Jul 1980	0.5	25-30	-	120vDC	-	3	6	-	-	-	-		Y
<u>Pectonica River, West Branch</u>														
(T5N-R1E-S11, 12,2)	1 Sep 1954	1.0	-	1.8	AC	-	37	37	20	-	8.1	(4.7-10.0)	Back-calculated growth data.	N
(T5N-R1E-S34)	12 Sep 1969	1.0	-	-	230vDC	-	22	22	-	-	9.4	(6.5-15.0)		N
(T4N-R1E-S10 to T5N-R1E-S27)	15 Jul 1981	5.5	-	-	-	-	74	13	-	-	-	(5.0-16.9)		Y
(T5N-R1E-S35 to T5N-R1E-S22)	16 Sep 1981	4.2	-	-	-	-	79	19	-	-	-	(2.5-15.4)		Y
<u>Pedlers Branch</u>														
(T5N-R2E-S15)	21 Jun 1956	0.8	15	-	AC	-	31?	-	-	I	-	(3.0- 5.8)	Weights of a sample.	Y
										II	-	(7.6-10.0)		
										III	-	(10.0-11.3)		
										VI	-	(15.5)		
<u>Williams Creek</u>														
(T6N-R5E-S22)	30 Jul 1963	0.8	-	1.1	110vAC	-	3	4	3	-	-	(7.4- 8.1)	Weights of SMB; lengths and weights of brown trout.	Y

TABLE 4. Smallmouth bass stream surveys, Southern District, Lafayette County.

Stream and Location	Date	Distance Sampled (mile)	Width (ft)	Area (acres)	Gear	SMB Caught		CPE		Length (inches) at Capture			Comments	Length-Frequency
						Age	No.	SMB/mile	SMB/acre	Age	Mean	(Range)		
<u>Ames Branch</u> (?)	1 Aug 1958	1.0	-	-	AC	0 I II III V T	20 18 6 4 1 50	50	-	0 I II III V	2.6 6.7 9.6 12.2 15.0	(2.2- 3.0) (6.3- 7.3) (8.3-10.8) (11.6-12.5) -		Y
<u>Apple River</u> (T1N-R3E-S33)	9 Jul 1979	?	12	-	-	-	0	-	-	-	-	-	Stocked 75 age I and older SMB, 12 and 13 Jul 1979.	N
<u>Bonner Branch</u> (?)	15 Aug 1961	?	-	-	-	-	-	-	-	I II	- -	(6.2- 7.7) (10.2-11.4)		N
(Stations 1-34; T3N-R1E-S14 to T3N-R3E-S7)	2-9 Sep 1975	15.2	-	26	250vDC	0 I II++ T	4 30 29 63	4	2	-	-	-	Caught 751 LMB.	Y
(")	11-17 May 1976	15.2	-	26	220vDC	II++ T	13 13	1	1	-	-	-		Y
(Stations 13-34)	9-11 Aug 1976	9.9	-	18	220vDC	0 I II++ T	1,336 16 13 1,365	138	76	0	-	(2.2- 4.0)		Y
(Stations 13-30, 34)	May 1977	8.2	-	?	250vDC	I II++ T	281 8 289	35	-	I II++	- -	(3.0- 7.0) (7.0-15.9)		Y
(Stations 13-34)	16-18 May 1978	9.9	-	18	220vDC	II++ T	261 261	26	14	II++	-	(6.0-16.9)	First run.	Y
(")	25-31 Aug 1978	9.9	-	18	220vDC	all II++ T	26 M 98 U 124	12	7	II++	-	(8.0-15.9)	Second run N = 1,247 (69/acre).	Y
(")	9-10, 14 May 1979	9.9	-	18	-	-	26	3	1	-	-	(5.5-13.0)		Y
(")	7-8 Aug 1979	9.9	-	18	-	-	11	1	< 1	-	-	(10.5-12.5)		Y

TABLE 4. Lafayette County, cont.

Stream and Location	Date	Distance Sampled (mile)	Width (ft)	Area (acres)	Gear	SMB Caught		CPE		Length (inches) at Capture			Comments	Length-Frequency
						SMB Age	Caught No.	SMB/mile	SMB/acre	Age	Mean	(Range)		
Coppermine Creek (T2N-R4E-S31)	25 Aug 1952	0.3	10	-	AC	-	11	37	-	-	-	(6.2-14.9)	Weights also taken.	Y
(T2N-R4E-S29,31 and T2N-R3E-S36)	9 Aug 1954	0.7	9-12	-	AC	-	93	133	-	-	-	(3.5-13.4)		N
(?)	4 Aug 1964	-	-	-	-	I III IV T	6 3 1 10	-	-	I III IV	7.3 11.5 14.0	(6.8- 7.6) (11.0-11.8) -	Back-calculated growth data.	N
(T2N-R4E-S29,31)	15 Aug 1967	0.95	9-10	1.1	-	-	31	33	28	-	-	(6.0-11.4)		Y
(T2N-R4E-S29,31 and T2N-R3E-S36,35)	15-16 Jun 1980	4.5	11	6.1	-	-	0	-	-	-	-	-	Caught 15 brown trout/mile.	N
Cottage Inn Branch (?)	15 Aug 1961	?	-	-	-	-	?	-	-	I II	7.8 9.0	(5.9- 8.8) -		N
(Stations 1-9; T4N-R2E-S32 to T3N-R2E-S10)	9-10 Sep 1975	5.9	-	7.9	220vDC	I II++ T	4 12 16	3	2	-	-	-	First run caught 443 LMB.	N
(")	22 Sep 1975	5.9	-	7.9	220vDC	-	11 M 6 U 17	3	2	-	-	-	Second run N = 25 for SMB (3/acre) and N = 1,433 for LMB (181/acre).	N
(Stations 1-5)	26 Aug 1976	3.0	15	5.4	250vDC	0 I II++ T	272 4 5 281	94	52	0 I II++	- - -	(2.5- 4.4) (7.5- 8.4) (11.0-14.4)		Y
(Stations 6-9)	6 Sep 1977	3.0	-	2.5	-	-	22	7	9	-	-	(3.0- 8.9)		Y
(Stations 1-9)	16-17 May 1978	5.0	10	6.0	220vDC	-	43	9	7	-	-	(6.5-10.4)	First run.	Y

TABLE 4. Lafayette County, cont.

Stream and Location	Date	Distance Sampled (mile)	Width (ft)	Area (acres)	Gear	SMB Caught		CPE		Length (inches) at Capture			Comments	Length-Frequency
						Age	No.	SMB/mile	SMB/acre	Age	Mean	(Range)		
Cottage Inn Branch, cont.														
(Stations 1-9)	23-28 Aug 1978	5.0	10	6.0	220vDC	-	14 M 108 U 122	24	20	-	-	(6.5-15.4)	Second run N = 375 (62/acre).	Y
(")	14-15 May 1979	5.0	10	6.0	220vDC	II++	51	10	8	II++	-	(8.0-12.4)	First run.	Y
(Stations 1-5)	15 Aug 1979	3.0	-	3.0	220vDC	0 II++ - T	13 8 M 5 U 26	9	9	0 II++	-	(3.0- 3.9) (10.5-12.4)	Second run N = 83 (28/acre).	Y
Galena (Fever) River (?)														
(?)	1954	5.0	-	7.3	110vAC	-	485	97	66	I II III IV V	6.5 10.4 12.3 13.6 15.2	(3.1- 8.8) (8.6-12.2) (12.3-12.9) (13.3-13.8) (14.5-16.7)	Back-calculated growth data.	N
(?)	23 Jul 1958	1.0	-	-	AC	-	50	50	-	0 I II III IV	1.5 7.9 9.6 12.1 14.2	(1.0 - 2.3) - (8.1-11.1) (11.9-12.4) (14.0-14.5)		Y
(T2N-R1E-S21 to T2N-R1E-S6)	29 May, 6 Jun 1979	6.4	18	14	-	-	196	31	14	-	-	(5.0-15.9)	First run.	Y
(")	10,12 Jul 1979	6.4	18	14	-	-	59 M 209 U 268	42	19	-	-	(4.0-18.4)	Second run N = 890 (64/acre).	Y
(T1N-R1E-S22,32 33)	12 Jul 1979	-	-	-	-	-	23	-	-	-	-	-	Surveyed 4 "wadeable" areas.	N
(T1N-R1E-S10,15)	16 Jul 1981*	1.3	43	7.7	220vDC	-	240	185	31	I II III IV V VI VII	6.3 9.8 11.8 13.7 14.7 16.3 17.8	(4.0-10.9) (6.5-14.2) (10.5-12.9) (11.9-15.7) (13.7-16.3) (15.5-17.1) -	First run.	Y

*Joint Fish Research-Fish Management Project continues to 1984.

TABLE 4. Lafayette County, cont.

Stream and Location	Date	Distance Sampled (mile)	Width (ft)	Area (acres)	Gear	SMB Caught		CPE		Length (inches) at Capture			Comments	Length-Frequency
						Age	No.	SMB/mile	SMB/acre	Age	Mean	(Range)		
<u>Galena (Fever) River, cont.</u> (")	17 Jul 1981*	1.3	4.3	7.7	220vDC	-	31 M 103 U 134	103	17	-	-	-	Second run N = 997 (144/acre).	Y
<u>Kelsey Branch</u> (T1N-R1E-S34,35)	6 Jun 1979	1.4	9	1.57	125vDC	-	34	24	22	-	-	(3.5-10.4)	First run.	Y
(")	27 Jun 1979	1.4	9	1.57	125vDC	-	6	4	4	-	-	-	Second run.	Y
<u>Madden Branch</u> (T2N-R1E-S23 to T2N-R1E-S11)	25-26 Jun 1979	3.9	11-15	6.7	125vDC	-	129	33	-	-	-	(6.0-15.9)	First run.	Y
(")	11-12 Jul 1979	3.9	11-15	6.7	125vDC	-	17 M 61 U 78	20	-	-	-	(6.0-12.4)	Second run N = 592 (88/acre).	Y
(tributary) (T2N-R1E-S11,12)	25-26 Jun 1979	1.9	-	3.3	-	-	34	18	-	-	-	(6.5-11.4)		Y
(T2N-R1E-S22 to T2N-R1E-S11)	14-15 Sep 1981	3.5	-	-	-	-	200	57	-	-	-	(3.0-15.9)		Y
<u>Otter Branch</u>	12-13 Aug 1958	1.5	-	-	AC	0 I II III T	29 29 21 5 113	75	-	0 I II III	2.7 5.7 9.5 10.9	(1.8- 3.8) (4.1- 7.6) (8.4-11.9) (10.3-11.4)		Y
<u>Pats Creek</u> (T2N-R1E-S16 to T3N-R1E-S27)	23 Aug 1976	1.5	-	-	-	0 I++ T	44 84 128	85	19	-	-	(3.0- 9.4)		Y
(T2N-R1E-S16 to T2N-R1E-S4)	19,25 Jun 1979	4.6	12	6.7	-	-	222	48	33	-	-	(5.0 -18.4)	First run.	Y
(")	10-11 Jul 1979	4.6	12	6.7	-	-	72 M 40 U 112	24	-	-	-	(5.5-15.9)	Second run N = 345 (51/acre).	Y

*Joint Fish Research-Fish Management Project continues to 1984.

TABLE 4. Lafayette County, cont.

Stream and Location	Date	Distance Sampled (mile)	Width (ft)	Area (acres)	Gear	CPE				Length (inches) at Capture			Comments	Length-Frequency
						SMB Age	Caught No.	SMB/mile	SMB/acre	Age	Mean	(Range)		
<u>Pats Creek, cont.</u> (T2N-R1E-S9)	7 Jul 1981*	1.8	13	2.8	220vDC	-	145	81	52	I 5.5 II 8.3 III 10.2 IV 13.1 V 14.5 VI 14.7	(3.9- 8.0) (5.2-10.1) (8.3-13.8) (12.3-15.2) (13.2-15.6) -		First run.	Y
(")	8 Jul 1981*	1.8	13	2.8	220vDC	-	38 M 55 U 93	52	33	-	-	-	Second run N = 371 (132/acre).	Y
<u>Pectonica River, West Branch</u> (T3N-R3E-S8)	1965	1.0	-	-	230vDC	-	10	10	-	-	12.4	(6.0-17.3)		Y
<u>Whiteside Creek</u> (?)	16 Aug 1961	?	-	-	-	-	?	-	-	I 8.5 II 9.2 III 8.6	- (9.1- 9.2) -			N
(T3N-R3E-S30 to T3N-R2E-S25,27)	5 Jun 1979	2.8	12	4.1	-	-	28	10	7	-	-	(5.0-11.4)	Caught 162 brown trout.	Y
<u>Wood Branch</u> (T3N-R3E-S30 and T3N-R2E-S25,27)	17 May, 1-2 Jun 1978	6	16	12	220vDC	I 14 II++ 206 T 220		37	18	-	-	(3.5-15.4)	First run.	Y
(")	24-25, 28 Aug 1978	6	16	12	220vDC	- 58 M 108 U - 166		28	14	-	-	(3.5-17.4)	Second run N = 63 (52/acre).	Y
(")	7-8 May 1979	6	16	12	220vDC	-	44	7	4	-	-	(5.5-17.4)	First run.	Y
(")	16 May 1979	6	16	12	220vDC	- 6 M 24 U - 30		5	2	-	-	(4.0-14.9)	Second run N = 220 (18/acre).	Y
(")	13 Aug 1979	6	16	12	220vDC	-	18	3	2	-	-	(7.0-13.4)		Y

*Joint Fish Research-Fish Management Project continues to 1984.

TABLE 4. Lafayette County, cont.

Stream and Location	Date	Distance Sampled (mile)	Width (ft)	Area (acres)	Gear	SMB Caught		CPE		Length (inches) at Capture			Comments	Length- Frequency
						Age	No.	SMB/ mile	SMB/ acre	Age	Mean	(Range)		
Yellowstone River (?)	1954	6.0	-	14.5	AC	-	335	56	23	I	-	(2.6- 7.3)		N
										II	-	(8.2-10.7)		
										III	-	(11.4-12.7)		
										IV	-	(13.1-13.7)		
										V	-	(14.0-15.1)		
										VI	-	(15.4-16.1)		
										VII	-	(17.0)		

TABLE 5. Smallmouth bass stream surveys, Southern District, Green County.

Stream and Location	Date	Distance Sampled (mile)	Width (ft)	Area (acres)	Gear	SMB Caught		CPE		Length (inches) at Capture			Comments	Length-Frequency
						Age	No.	SMB/ mile	SMB/ acre	Age	Mean	(Range)		
<u>Allen Creek</u> (T3N-R9E-S12 to T3N-R9E-S16)	17-19 Jul 1978	4.5	-	-	DC	I	43	44	-	I	4.7	(3.7- 9.2)	Weights of SMB.	Y
						II	130			II	8.8	(7.3-12.8)		
						III++	25			III	13.1	(12.7-13.7)		
						<u>T</u>	<u>198</u>			IV	15.1	(14.6-15.6)		
										VI	15.8	-		
<u>Bushnell Creek</u> (T2N-R7E-S15 to T2N-R7E-S8)	28 Jul 1966	1.5	-	1.9	115vDC	-	12	8	6	-	-	(4.0-16.4)	Managed for brown trout.	Y
(T2N-R7E-S8,9)	3 Aug 1977	2.2	-	4.2	220vDC	-	12	5	3	-	7.2	(6.0- 8.4)		Y
<u>Richland Creek</u> (?)	12 Sep 1958	0.4	-	-	-	0	15	87	-	0	3.9	(2.7- 4.4)		Y
						I	4			I	6.4	(5.7- 7.7)		
						II	7			II	10.9	(10.0-11.9)		
						III	4			III	12.6	(12.3-13.0)		
						IV	4			IV	14.0	(13.5-14.3)		
						VII	1			VII	17.6	-		
						<u>T</u>	<u>35</u>							
(T1N-R7E-S34 to T1N-R8E-S18,19)	28-29 Jul 1975	4.5	30	16.4	115vDC	I	7	26	7	-	11.4	(7.0-17.4)	Weights of SMB; back-calculated growth data.	Y
						II	39							
						III	58							
						IV++	12							
						<u>T</u>	<u>116</u>							
(T1N-R7E-S34 to T1N-R8E-S19)	11-14 Aug 1980	7.56	25	22.8	240vDC	0	3	51	17	0	2.4	(2.2- 2.9)	Weights of SMB; pop. est. and biomass based on estimated 65% capture efficiency.	Y
						I	5			I	6.7	(5.0- 7.4)		
						II	113			II	9.2	(7.5- 9.9)		
						III	233			III	11.1	(7.6-12.7)		
						IV	28			IV	13.6	(12.7-15.5)		
						VI	1			VI	15.4	-		
						<u>T</u>	<u>383</u>							
<u>Skinner Creek</u> (T2N-R6E-S26 to T2N-R7E-S7)	23-27 Aug 1976	10.0	-	-	220vDC	0	10	7	-	-	-	(2.5-16.4)	Caught 68 SMB at one 0.8-mile station with good habitat (CPE = 85/mile); back-calculated growth data.	Y
						I	60							
						II++	3							
						<u>T</u>	<u>73</u>							

TABLE 5. Green County, cont.

Stream and Location	Date	Distance Sampled (mile)	Width (ft)	Area (acres)	Gear	SMB Caught		CPE		Length (inches) at Capture			Comments	Length-Frequency
						SMB Age	Caught No.	SMB/mile	SMB/acre	Age	Mean	(Range)		
Tipperary (Story) Creek (?)	1954	1.0	3.1	-	110vAC	I	30	42	-	I	-	(3.6- 8.6)	Managed for trout.	N
						II	7			II	-	(8.9-11.0)		
						III	4			III	-	(12.1-12.5)		
						V	1			V	-	(15.0)		
						T	42							
(T4N-R8E-S13 to T5N-R9E-S31) (ending in Dane County)	29 Jul 1974	6.0	5-15	8.1	-	-	90	15	11	-	-	(4.0-12.4)	Caught all 90 SMB at one 1.0-mile station (CPE = 90/mile).	Y

TABLE 6. Smallmouth bass stream surveys, Southern District, Dane, Rock and Sauk counties.

Stream and Location	Date	Distance Sampled (mile)	Width (ft)	Area (acres)	Gear	SMB Caught		CPE		Length (inches) at Capture			Comments	Length-Frequency
						Age	No.	SMB/ mile	SMB/ acre	Age	Mean	(Range)		
DANE COUNTY														
Black Earth Creek (T7N-R7E-S11 to T8N-R6E-S34)	28 Apr 1966	14.0	-	54.6	230vDC	-	98	7	2	-	-	-	Managed for trout; caught 97 SMB at one 7.4-mile station (CPE = 13/mile).	Y
(T8N-R6E-S16 to T8N-R6E-S22)	6 Aug 1974	6.6	-	16.7	230vDC	-	19	3	1	-	-	-	Caught 16 SMB at one 1.5-mile station (CPE = 13/mile).	Y
ROCK COUNTY														
Turtle Creek* (T1N-R13E-S8 to T2N-R14E-S32)	4-6 Aug 1980	6.65	-	-	240vDC	I II III IV T	41 10 19 2 72	11	-	I II III IV	6.3 7.5 11.5 13.9	(5.0- 7.4) (7.0- 8.4) (8.5-14.9) (11.5-16.4)		Y
SAUK COUNTY														
Narrows Creek (?)	1958	1.0	-	-	-	0 I T	55 2 57	57	-	0 1	3.1 6.5	(2.3- 3.9) (6.0 -7.0)		N

*See also Southeast District, Turtle Creek (Table 7).

TABLE 7. Smallmouth bass stream surveys, Southeast District.

Stream and Location	Date	Distance Sampled (mile)	Width (ft)	Area (acres)	Gear	SMB Caught		CPE		Length (inches) at Capture			Comments	Length-Frequency
						Age	No.	SMB/mile	SMB/acre	Age	Mean	(Range)		
<u>Fox River</u> (Kenosha and Racine counties)	6 Sep 1960	?	-	-	230vDC	-	66	-	-	I II III IV V	6.9 9.2 12.5 15.7 17.1	(5.5- 8.1) (8.3-10.1) (12.4-12.7) - -		Y
<u>Milwaukee River</u> (Ozaukee County)	29-30 Jul 1963	?	-	-	Boom shocker	-	18	-	-	-	-	(5.2-12.0)	Observed YOY.	Y
(Ozaukee County)	30 Oct 1963	?	-	-	Boom shocker	-	5	-	-	-	-	(5.0-15.0)	Observed YOY.	Y
<u>Turtle Creek</u> (Walworth County)	27-28 May, 12-13 Jul 1957	-	-	-	-	I II T	14 7 21	-	-	I II	- -	(4.6- 6.3) (8.8- 9.5)		Y
(Rock and Walworth counties)	4-5 Aug 1960	1.83	50-65	-	DC-boom and stream	-	111	61	-	I II III	7.1 9.7 12.2	(5.0- 8.4) (7.8-11.2) -		Y
(Rock and Walworth counties)	2-3 Aug 1961	1.83	-	-	DC-boom and stream	-	55	30	-	0 I II III IV	2.6 6.3 9.8 12.8 14.5	(2.3- 2.9) (4.9- 7.4) (7.3-11.7) - -		Y
(Rock and Walworth counties)	8,10 Aug 1962	1.83	-	-	DC-boom and stream	-	22	-	-	0 I II	2.1 6.2 9.2	- (5.0- 7.1) (7.9-10.2)		Y
(Rock and Walworth counties)	13 Aug 1963	?	-	-	-	0 I II III T	2 39 13 4 58	-	-	0 I II III	- - - -	(3.6- 3.9) (5.2- 9.9) (9.6-11.4) (12.4-14.5)		Y
(Rock and Walworth counties)	14 Aug 1964	0.6	-	-	220vDC	-	12	20	-	-	-	-	Weights of SMB.	Y
<u>White River</u> (Walworth County)	6-10 Aug 1965	3.0	-	-	230vDC	0 I II III T	2 10 36 2 50	17	-	0 I II III	2.8 6.4 9.3 12.3	(2.7- 2.8) (5.7- 7.4) (7.7-11.8) (12.0-12.5)	Weights and condition factors; back-calculated growth data.	N

TABLE 8. Smallmouth bass stream surveys, Lake Michigan District.

Stream and Location	Date	Distance Sampled (mile)	Width (ft)	Area (acres)	Gear	SMB Caught		CPE		Length (inches) at Capture			Comments	Length-Frequency
						Age	No.	SMB/mile	SMB/acre	Age	Mean	(Range)		
<u>Embarrass River</u> (Outagamie and Waupaca counties)	Sep 1979 Aug 1980	15.8	97	185	Mini-boom	-	55	4	0.3	-	-	(2.3-17.4)		Y
(Shawano County)	20 Aug 1981	3.5	125-150	-	Mini-boom	0	21	21	-	0	3.8	(3.0- 4.5)	"Hundreds" more age 0+ were present.	
						II-VII	74			I	7.1	(6.3- 8.6)		
										II	10.0	(9.7-10.6)		
										III	12.5	(11.5-13.6)		
										IV	14.8	(13.8-16.3)		
										V	15.3	(14.8-16.0)		
										VI	17.2	-		
										VII	19.4	-		
<u>Fox River</u> (Brown County)	1973-78	-	-	-	Fyke net	-	18	-	-	-	-	-		N
<u>Little Suamico River</u> (Oconto, Shawano and Brown counties)	5-6 Aug 1975	1.1	9-15	10.5	AC boom and 300vDC stream	0	5	34	4	0	-	(<3.9)		Y
						I	8			I	-	(4.0- 5.9)		
						II++	24			II++	-	(>6.0)		
						T	37							
<u>Little Wolf River</u> (Waupaca County; T23N-R13E-S28 and T22N-R13E-S2)	Aug 1981	1.0	120	14.6	Mini-boom	I	44	87	6	0	3.2	(2.5- 4.4)	Study continuing; includes creel census in 1982.	Y
						II	20			I	6.8	(5.9- 7.8)		
						III	4			II	8.1	(6.7-10.1)		
						IV	9			III	11.4	(10.5-12.8)		
						V	5			IV	14.0	(13.2-14.8)		
						VI	3			V	14.7	(14.0-15.3)		
						VII	1			VI	16.0	(15.1-16.7)		
						VIII	1			VII	17.0	-		
						T	87			VIII	18.4	-		
<u>Mink River</u> (Door County)	9 Jul 1973	?	-	-	Boom	2	-	-	-	-	-	(5.7- 8.2)		Y

TABLE 8. Lake Michigan District, cont.

Stream and Location	Date	Distance Sampled (mile)	Width (ft)	Area (acres)	Gear	SMB Caught		CPE		Length (inches) at Capture			Comments	Length-Frequency
						Age	No.	SMB/mile	SMB/acre	Age	Mean	(Range)		
<u>Oconto River</u>														
(Oconto County 21 quarter-mile index stations* along 14 river miles from Stiles to Green Bay)	4-7 Jul 1979**	-	-	-	Boom	I	29	-	-	I	3.9	(3.2- 4.6)	Creel census; tagging study; all index stations were not always done; back-calculated growth data.	Y
						II	60			II	7.5	(4.7- 9.7)		
						III	5			III	8.8	(7.1-12.7)		
						IV	2			IV	12.5	(12.2-13.8)		
						V	1			V	14.4	-		
						VI	1			VI	17.1	-		
						VII	1			VII	18.3	-		
						T	99							
(")	16-22 Aug 1979**	-	-	-	Boom	0	2	-	-	0	3.1	(2.6- 3.7)	Creel census; tagging study; all index stations were not always done; back-calculated growth data.	Y
						I	27			I	6.4	(5.6- 7.8)		
						II	16			II	9.4	(6.7-11.8)		
						III	7			III	11.0	(10.6-12.4)		
						IV	2			IV	13.0	(13.5-13.6)		
						V	1			V	14.8	-		
						VI	1			VI	15.5	-		
						T	57							
(")	27-29 May, 2 June 1980	-	-	-	Boom	I	8	-	-	I	3.8	(2.9- 4.6)	Back-calculated growth data.	Y
						II	54			II	6.8	(5.1- 8.6)		
						III	24			III	9.8	(7.0-12.2)		
						IV	5			IV	14.4	(12.9-15.2)		
						V	4			V	16.2	(16.0-17.8)		
						VI	3			VI	16.5	(15.5-18.1)		
						VII	1			VII	20.3	-		
						T	98							
(")	19-21 Aug 1980	-	-	-	Boom	0	1	-	-	0	4.1	-	Back-calculated growth data.	Y
						I	59			I	6.6	(4.2- 8.2)		
						II	22			II	9.1	(6.0-11.2)		
						III	13			III	13.1	(11.3-14.7)		
						IV	1			IV	15.1	-		
						V	2			V	15.7	(15.7-15.8)		
						T	98							
						<u>Pensaukee River</u>								
(Oconto and Shawano counties)	29-30 Jul, 24 Sep 1975	3.6	10-80	30	AC boom and 300vDC stream	0	130	44	5	0	-	(<3.9)		Y
						I	9			I	-	(4.0- 5.9)		
						II+	19			II++	-	(>6.0)		
						T	158							

*Stations were also sampled in April and October 1980.

**Oconto River stations were sampled monthly from June to October 1979; data for July and August only are included here.

TABLE 8. Lake Michigan District, cont.

Stream and Location	Date	Distance Sampled (mile)	Width (ft)	Area (acres)	Gear	SMB Caught		CPE		Length (inches) at Capture			Comments	Length-Frequency
						Age	No.	SMB/mile	SMB/acre	Age	Mean	(Range)		
Suamico River (Brown County)	18 May 1975	?	-	-	Boom	-	4	-	-	-	-	(15.6-18.3)		Y
Wolf River (Winnebago, Waupaca and Outagamie counties)	25 Sep, 9-13 Oct 1978	Approx. 33	-	-	AC boom	-	117	-	-	I	6.6	-	Length-weight relationship.	Y
										II	9.9	-		
										III	12.7	-		
										IV	14.3	-		
										V	15.8	-		
										VI	17.6	-		
										VII	18.0	-		
										VIII	17.7	-		

TABLE 9. Smallmouth bass stream surveys, West Central District.

Stream and Location	Date	Distance Sampled (mile)	Width (ft)	Area (acres)	Gear	SMB Caught		CPE		Length (inches) at Capture			Comments	Length-Frequency
						Age	No.	SMB/mile	SMB/acre	Age	Mean	(Range)		
DUNN COUNTY														
<u>Hay River</u> (T29-31N-R12,13W)	15-16 Oct 1962	30	-	-	230vAC boom	-	48	2	-	-	7.5	(4.5-16.9)		Y
<u>Red Cedar River</u> (T28N-R13W-S7)	24 Jun 1963	8	-	-	230vAC	-	85	11	-	-	8.5	(6.0-16.9)		Y
(T27N-R13W-S15)	2 Jul 1963	17	-	-	230vAC	-	51	3	-	-	-	-		N
(T28N-R12W-S7,8)	6 Oct 1966	-	-	-	230vAC	-	14	-	-	-	-	(4.0-13.4)		Y
ST. CROIX COUNTY														
<u>Apple River</u> (T13N-R19W-S35)	23 Jul 1958	1.1	-	-	230vDC	-	71	-	-	-	-	(5.0-16.4)		Y
<u>St. Croix River</u> (Wis.-Minn. boundary)	Summer 1959	-	-	-	230vAC	-	117	-	-	-	-	(1.0->13.0)	"Selected" sampling sites along 105 river miles; catch rate of 4.6-6.5 bass per hour of boom shocking.	N
(")	Jul 1965	-	-	-	AC boom	-	361	-	-	-	-	(1.0-15.9)		Y
(")	Sep 1965	-	-	-	AC boom	-	184	-	-	-	-	(2.0-15.9)		Y
DUNN AND EAU CLAIRE COUNTIES														
<u>Chippewa River</u> (between Eau Claire and Mississippi River)	Jul 1965	-	-	-	230vAC boom	-	53	-	-	-	-	(5.0-16.9)		Y
(")	Sep 1965	-	-	-	230vAC boom	-	27	-	-	-	-	(3.0-13.9)		Y

TABLE 9. West Central District, cont.

Stream and Location	Date	Distance Sampled (mile)	Width (ft)	Area (acres)	Gear	SMB Caught		CPE		Length (inches) at Capture			Comments	Length-Frequency
						SMB Age	Caught No.	SMB/mile	SMB/acre	Age	Mean	(Range)		
VERNON COUNTY														
<u>Bad Axe River, North Fork</u> (13N-5W,6W,7W)	21-26 Aug 1974	1.7	17-51	6.55	230vDC	0	5	37	10	0	2.7	-	Data for 8 of 12 stations with SMB.	Y
						I	37			I	7.7	-		
						<u>11++</u>	<u>21</u>			<u>11++</u>	10.5	-		
						<u>T</u>	<u>63</u>							
<u>Bad Axe River, Springville Branch of North Fork</u> (13N-5W)	22 Aug, 3 Sep 1974	0.8	13-20	1.65	230vDC	0	1	19	9	0	4.7	-		Y
						I	9			I	7.5	-		
						<u>11++</u>	<u>5</u>			<u>11++</u>	11.7	-		
						<u>T</u>	<u>15</u>							
<u>Bad Axe River, South Fork</u> (T12N-6W)	6 Sep 1977	0.6	13-24	1.4	125 and 230vDC	0	40	67	28	0	-	(3.0- 5.4)	Data for 4 of 10 stations with SMB.	Y
<u>Kickapoo River, West Fork</u>	21 Aug 1975	2.6	-	8.38	115 and 230vDC	I	2	-	-	I	-	(5.0- 6.9)		Y
JACKSON AND TREMPLEAU COUNTIES														
<u>Black River</u>	11,13 Sep 1979	?	-	-	Boom shocker	-	45	-	-	-	10.5	(5.0-17.4)		Y
CLARK COUNTY														
<u>Poplar River</u>	9 May 1972	0.4	60-105	3.8	230vDC	-	26	65	7	-	-	(3.0-11.9)		Y

TABLE 10. Smallmouth bass stream surveys, North Central and Northwest districts.

Stream and Location	Date	Distance Sampled (mile)	Width (ft)	Area (acres)	Gear	SMB Caught		CPE		Length (inches) at Capture			Comments	Length-Frequency
						Age	No.	SMB/ mile	SMB/ acre	Age	Mean	(Range)		
NORTH CENTRAL DISTRICT														
<u>Lily River</u> (Langlade County; T33N-R13E)	20 Jun 1972	4.5	35-68	30.0	230vDC	-	47	10	1	-	-	-		Y
<u>Wolf River</u> (Oneida County; T35N-R11E-S2,10, 9,16,22)	26 Jun, 24 Oct 1973	0.65	45-80	5.8	300vDC	-	72	111	12	-	-	-		Y
(Langlade County; T31N-R14E)	13,16 Aug 1973	Approx. 6?	-	-	-	-	336	-	-	-	-	(1.5-13.4)	Managed for brown trout.	Y
(")	22 Jul, 16 Oct 1974	Approx. 6?	-	-	-	-	235	-	-	-	-	-	Managed for brown trout.	Y
(")	6-10 Oct 1975	Approx. 6?	-	-	-	-	62	-	-	-	-	-	Managed for brown trout.	Y
NORTHWEST DISTRICT														
<u>Bad River</u> (Ashland County)	21 Apr, 4 Jul 1956	-	-	-	Lamprey weir	-	54	-	-	-	-	-		N
(")	27 Sep 1966	5.9	-	-	-	-	11	-	-	-	-	(2.0-15.4)		Y
<u>Chippewa River, East Fork</u> (Ashland County)	31 Aug 1964	-	-	-	230vAC boom	-	10	-	-	-	-	(3.2- 5.4)		N
(")	8 Jul 1967	-	-	-	230vAC boom	-	1	-	-	-	9.5	-		N
<u>Flambeau River, South Fork</u> (Price and Sawyer counties)	1969 and 1970	-	-	-	230vAC boom and fyke net	-	24	-	-	-	4.5	(3.4-12.4)		Y

TABLE 10. North Central and Northwest districts, cont.

Stream and Location	Date	Distance Sampled (mile)	Width (ft)	Area (acres)	Gear	SMB Caught		CPE		Length (inches) at Capture			Comments	Length-Frequency
						Age	No.	SMB/ mile	SMB/ acre	Age	Mean	(Range)		
St. Croix River (Douglas County)	27-28 Jul 1966	0.2	100	-	230vAC	-	63	315	-	-	-	(1.9-13.8)		Y
(Wis.-Minn. boundary)	Summer 1959	-	-	-	230vAC boom	-	117	-	-	-	-	(1.0->13.0)	"Selected" sampling sites along 105 river miles; catch rate of 4.6-6.5 bass per hour of boom shocking.	N

TABLE 11. Population estimates of smallmouth bass in some Wisconsin streams.

County and Stream	Date	N	No./ Mile	No./ Acre	Investigator
GRANT COUNTY					
<u>Platte River</u>	Aug 1957	49	98	-	J. Truog (unpubl. survey report)
<u>Menominee River</u>	May 1979	610	113	46	R. Kerr (unpubl. survey report)
IOWA COUNTY					
<u>Livingston Branch</u>	Sep 1964	799*	999	666**	Brynildson and Truog (1965)
	Oct 1965	470 ^a	585	392	C. Brynildson (unpubl. survey report)
	May 1966	316	395	263	"
LAFAYETTE COUNTY					
<u>Bonner Branch</u>	May and Aug 1978 ^b	1,247 ^c	126	69	R. Kerr (unpubl. survey report)
<u>Cottage Inn Branch</u>	Sep 1975	25	4	3	"
(")	May and Aug 1978 ^b	375	75	62	"
(")	May and Aug 1979 ^b	80	27	27	"
<u>Galena (Fever) River</u>	May and Aug 1979 ^b	890	139	64	"
	Jul 1981	997	755	131	A. Forbes (unpubl. data, Joint Fish Research-Fish Management Project)
<u>Madden Branch</u>	Jun and Jul 1979	592	152	88	R. Kerr (unpubl. survey report)
<u>Pats Creek</u>	Jun and Jul 1979	345	75	51	"
	Jul 1981	371	210	132	A. Forbes (unpubl. data, Joint Fish Research-Fish Management Project)
<u>Wood Branch</u>	May and Aug 1978 ^b	630	105	52	R. Kerr (unpubl. survey report)
PORTAGE COUNTY					
<u>Plover River</u>	1972 ^d	40-150	80-542	18-50	Paragamian and Coble (1975)
DUNN COUNTY					
<u>Red Cedar River</u>	1973 ^d	1,640	1,490	53	"

*76% YOY; excluding YOY, no./mile = 240 and no./acre = 160.

**All no./acre values for Livingston Branch assume a 1.2-acre sample area.

^a78% YOY; N based on recapture rates from 1964; excluding YOY, no./mile = 129 and no./acre = 86.

^bFirst and second runs were 3 months apart; calculation of N is highly questionable.

^cAll age II and older.

^dSchnabel estimates; all others are Petersen.

TABLE 12. Calculated growth of smallmouth bass in some Wisconsin streams.*

County and Stream	Year of Sample	Sample Size	Calculated Total Length at Annulus (inches)								
			1	2	3	4	5	6	7	8	9
<u>Grant County</u>											
Little Platte River	1954	29	3.5	8.1	-	-	-	-	-	-	-
"	1965	37	3.7	7.0	9.7	12.4	14.0	15.7	-	-	-
Menominee River	1965	5	3.7	8.8	-	-	-	-	-	-	-
Platte River	1966	9	3.4	8.0	-	-	-	-	-	-	-
<u>Iowa County</u>											
Dodge Branch	1954	23	3.0	5.3	8.1	9.6	11.4	-	-	-	-
"	1964	26	3.1	6.9	9.9	-	-	-	-	-	-
Livingston Branch	1961	10	2.9	7.5	10.8	-	-	-	-	-	-
"	1964	54	3.1	5.6	8.3	-	-	-	-	-	-
"	1965	50	3.4	7.2	9.8	11.4	-	-	-	-	-
"	1966	42	3.8	7.6	10.1	13.8	-	-	-	-	-
Mineral Point Branch	1954	53	3.0	6.2	7.8	10.2	12.6	14.3	-	-	-
"	1966	19	3.3	6.3	-	-	-	-	-	-	-
"	1967	34	2.9	6.2	9.3	11.4	14.3	16.2	17.6	-	-
Pecatonica River, East Branch	1970	25	3.9	7.5	10.6	13.5	14.7	15.7	-	-	-
West Branch	1954	26	3.7	-	-	-	-	-	-	-	-
<u>Lafayette County</u>											
Coppermine Creek	1964	10	3.1	6.3	9.4	12.1	-	-	-	-	-
Galena (Fever) River	1954**	71	3.9	7.5	9.6	12.2	14.5	-	-	-	-
"	1981**	83	3.3	7.5	10.6	11.3	-	15.2	-	-	-
"	1982**	99	-	7.1	10.8	13.0	14.0	15.8	16.2	18.2	-
<u>Green County</u>											
Richland Creek	1975	31	4.8	7.6	10.0	12.4	-	-	-	-	-
Skinner Creek	1976	72	3.0	6.2	10.4	13.2	14.5	15.6	-	-	-
<u>Walworth County</u>											
White Creek	1965	14	3.3	6.7	-	-	-	-	-	-	-
MEAN - SOUTHERN COUNTIES			3.4	7.0	9.7	12.0	13.8	15.5	16.9	18.2	-

* Results for Grant, Iowa, Lafayette, Green, and Walworth counties were from Brynildson (1954), Truog and Brynildson (1962), and unpublished survey reports. Metric values were converted from Paragamian (1973) for Portage and Dunn counties and from Post and Brand (unpubl. reports Oconto River Project) for Oconto County.

**Actual length at capture obtained at end of growing season in October or beginning of growing season in April (A. Forbes, unpubl.).

TABLE 12. Cont.*

County and Stream	Year of Sample	Sample Size	Calculated Total Length at Annulus (inches)								
			1	2	3	4	5	6	7	8	9
<u>Portage County</u> Plover River	1972	245	3.6	6.2	8.7	11.7	14.4	16.1	17.3	17.9	18.7
<u>Dunn County</u> Red Cedar River	1973	544	3.9	7.5	10.8	12.9	15.1	16.0	16.7	17.5	-
<u>Oconto County</u> Oconto River	1979	187	4.0	6.8	9.2	12.2	13.9	15.7	17.1	17.8	-
MEAN - NORTHERN COUNTIES			3.8	6.8	9.6	12.3	14.5	15.9	17.0	17.7	18.7
MEAN - ALL COUNTIES			3.5	7.0	9.7	12.1	13.9	15.6	17.0	17.8	18.7

*Results for Grant, Iowa, Lafayette, Green, and Walworth counties were from Brynildson (1954), Truog and Brynildson (1962), and unpublished survey reports. Metric values were converted from Paragamian (1973) for Portage and Dunn counties and from Post and Brand (unpubl. reports Oconto River Project) for Oconto County.

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