

WEST FORK WHITE RIVER
Madison, Hamilton, and Marion Counties
2011 Fish Research Report

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EXECUTIVE SUMMARY

- A survey of the upper West Fork White River, Mounds State Park in Madison County down to Lake Indy in Indianapolis, in fall 2011 was conducted at 16 stations as monitoring from the 1999 fish kill. A total of 7,128 fish from 57 species was collected from 16 stations.
- The average number of species per station was not significantly different between the reference zone, kill zone, and partial kill zone.
- The average Index of Biotic Integrity was not significantly different between the reference zone, kill zone, and partial kill zone.
- Quality size largemouth bass continue to increase but slight decreases in the number of premium and memorable were seen.
- Quality size smallmouth bass decreased in number since 2006 and 2007 but the number of premium and memorable smallmouth bass increased.
- Channel catfish were most common in the Lake Indy station. Overall 30% were greater than 14 in and 19% were greater than 20 in.
- Other angling opportunities for black and white crappie, sauger, and rock bass are available. White crappie and sauger were collected in the memorable length category (white crappie 12 in, sauger 20 in).

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INTRODUCTION

In December 1999, a fish kill devastated the West Fork White River (WFWR) starting at the outfall of the Anderson Waste Water Treatment Plant in Anderson, Indiana. Fish were completely killed from an estimated 43 mi of river from Anderson down to the upper portion of the Broad Ripple Impoundment (river mile 246.6; Keller 2000). A partial fish kill extended another 12 mi to the Lake Indy Dam. Dead fish were collected as far downstream as the Stout Generating Plant in Marion County. An estimated 4.3 million fish weighing 180 tons were lost (Ball 2002a). The party responsible for the fish kill was ordered to pay nearly \$14 million, of which \$6 million was for Natural Resource Damage Recovery (U.S. Department of Interior et al. 2003). The \$6 million was used for restoration activities, such as habitat restoration, improving or acquiring public access, and restocking fish, with over 50 projects funded to date.

Recovery of the fish populations throughout the WFWR has been monitored since January 6, 2000 when initial stream surveys were conducted to assess the extent of the fish kill (Keller 2000). Since the fish kill, the Indiana Department of Natural Resources (IDNR) has completed five annual fall surveys (2001-2007) and two recreational use surveys (2002 and 2004). Fish were stocked into the fish kill area because of the extensive loss of fish and because numerous dams would potentially limit colonization (Ball 2002b). The IDNR stocked fish that were present in the river before the fish kill, such as channel catfish, bluegill, and largemouth and smallmouth bass. The IDNR also stocked two species, bigmouth buffalo and shorthead redhorse, which had been collected prior to the fish kill, but had not been collected after the fish kill. Sauger and freshwater drum had not been collected in fisheries surveys before the fish kill, but are native to the drainage and were introduced as well.

METHODS

After the fish kill, sampling was initiated in January 2000 (Keller 2000) with additional sampling conducted in March and July 2000 to assess the recovery of the fishery and success of stocking efforts (Ball 2000, 2002b). Monitoring was continued each fall from 2001 to 2004, and 2007 using 16 sampling stations (Table 1). For the fall fishery surveys, the river was divided into a Reference Zone (RZ; above the kill zone, 7 river miles), an Upper River Zone (URZ; total kill zone, 43 river miles), and a Lower River Zone (LRZ; partial kill zone, 12 river miles; Figure 1).

Sixteen stations that have been consistently sampled since the fish kill were sampled from September 20th to October 24th, 2011. Instream habitat, water quality, and fish assemblages were documented (Appendix). Water chemistry parameters were measured at every station according to standard survey guidelines (IDFW 2001). Fish habitat was documented at riffle and run stations using the Qualitative Habitat Evaluation Index (QHEI) developed by Ohio EPA (Rankin 1989). Boat-mounted electrofishing gear was used to sample run stations for up to 1 h while riffle stations were sampled using barge electrofishing equipment based on previous station lengths. Impoundments were sampled with boat-mounted electrofishing gear, gill nets, and trap nets. Three gill nets and three trap nets were used in each impoundment, except for Landings Pit where two gill nets were used. Electrofishing sampling time in impoundments was 1 h, except in Landings Pit, where sampling was one complete circuit of the shoreline.

All fish were identified to the species level. Game species were measured to the nearest 0.1 in and weighed to the nearest 0.01 lb. Otolith and scale samples were taken from game fish for age and growth analysis. Non-game species were counted and bulk weighed with a species length range documented. Voucher specimens were placed in 10% formalin and later identified at the office. Body condition and size-structure were evaluated using relative weights and stock indices for selected species. Game species were separated into size groups according to length categories presented in Anderson and Neumann (1996). Relative weights were only calculated for game fish.

RESULTS

Fish habitat and water chemistry

Water temperature ranged from 53 to 69 °F while dissolved oxygen ranged from 8.1 to 16.0 ppm. The Secchi disk ranged from 14 to 84 in and pH ranged from 7.6 to 9.6. The conductivity ranged from 510 to 1020 μ s. No significant difference in dissolved oxygen, Secchi disk, pH, or conductivity existed between the RZ, URZ, or LRZ.

QHEI data was collected from riffle (1, 4, 8, 9, 15, and 16) and run (2, 3, 5, 7, and 10) stations (Table 1). The lowest QHEI score was 62 at Station 7 and the highest QHEI score was Station 1 with a score of 84. All stations sampled were generally conducive to the existence of warmwater faunas and 45% of stations had habitat conditions which have the ability to support exceptional warmwater faunas. All stations had several substrate types with 64% having four or

more substrate types present. Instream cover was moderate in all stations except Station 2, and many stations had a variety of cover types including overhanging vegetation, shallows, deep pools, rootwads, boulders, aquatic macrophytes, and logs or woody debris. Channel development was variable across the survey with excellent examples of deep pools, runs, and riffles found in many stations and little embeddedness of substrates seen.

Fish survey data

A total of 7,128 fish was collected. Fifty-seven species and 1 hybrid representing 12 families were collected at the 16 stations sampled in 2011 weighing 1,580 pounds (Table 2). This is the greatest number of species collected since the fish kill (Table 3). Centrarchidae was the most numerous family caught at 41.2% of total catch, followed by Cyprinidae (37.6%), and Catostomidae (9.2%). Bluegill were the most numerous species collected (14.2%), followed by longear sunfish (14%), and spotfin shiner (11.8%). Game species including largemouth bass (3.1%), rock bass (3%), channel catfish (2.6%), smallmouth bass (2.2%), black crappie (1.1%), white crappie (0.3%), sauger (0.1%), and flathead catfish (0.1%) comprised about 12.4% of the total catch.

The two stations making up the RZ accounted for a total of 32 species and 1,116 fish. The average number of species per station was 21 (Table 4). Sand shiner made up the greatest percentage of catch with 26.5%, followed by central stoneroller (13.7%), and northern hog sucker (13.3%). Game species included smallmouth bass (3.1%), rock bass (2.3%), and largemouth bass (0.4%). The mean IBI score for riffle and run stations in the RZ was 48 (Table 5).

The URZ, comprised of eight stations, had a total of 46 species and 1 hybrid species totaling 2,401 fish. The average number of species per station was 22 (Table 2). Longear sunfish (14.1%) was the most abundant species collected, followed by spotfin shiner (13.0%), and bluegill (10.4%). Game species included largemouth bass (3.7%), smallmouth bass (3.7%), channel catfish (2.0%), rock bass (2.0%), and sauger (<0.1%). The mean IBI score for riffle and run stations in the URZ was 47 (Table 5).

A total of 3,611 fish was collected from the six stations making up the LRZ comprising 48 species and 1 hybrid species. The average number of species per station was 22 (Table 2). Bluegill made up the greatest percentage of fish collected with 20.1%, followed by longear

sunfish (17.6%), and spotfin shiner (11.0%). Game species included channel catfish (3.8%), largemouth bass (3.6%), rock bass (2.0%), black crappie (1.8%), smallmouth bass (0.8%), white crappie (0.6%), flathead catfish (0.1%), and sauger (0.1%). The mean IBI score for riffle and run stations in the LRZ was 49 (Table 5).

A total of 223 largemouth bass was collected. Largemouth bass were collected from every station except Station 3 and 7. Station 9 (21.1%) had the greatest percentage of largemouth bass collected, followed by Station 16 (16.1%), and Station 15 (14.3%). Largemouth bass ranged in size from 2.3 to 17.4 in and the oldest fish collected was age 10. Largemouth bass took 3 years to reach 12 in and 4 years to reach 14 in. The RSD-Q was 57 and the RSD-P was 20 which are within the acceptable range of a RSD-Q of 40 to 70, a RSD-P of 10 to 40, and a RSD-M of 0 to 10 for a balanced population (Table 6; Gablehouse 1984). No memorable or trophy size largemouth bass were collected. Mean relative weight indices were 99 for stock, 105 for quality, and 104 for preferred size bass with indices of 95 to 100 considered above average (Table 7; Anderson and Neumann 1996). Total annual mortality for largemouth bass was estimated to be 41% ($r^2=0.41$; $P=0.25$) and exploitation was 7%.

A total of 221 rock bass was collected. Station 4 (18.9%) had the greatest percentage of rock bass collected, followed by Station 15 (14.2%), and Station 6 (10.4%). Rock bass ranged in size from 1.6 to 8.9 in and the oldest fish collected was age 8. The RSD-Q was 44 and rock bass reached 6.5 in by age 4 and 8.8 in by age 7 (Table 6). Mean relative weight indices were 100 for stock and 108 for quality (Table 7).

A total of 186 channel catfish totaling 304 lbs was collected. Station 17 had the greatest number of channel catfish collected (41.4%), followed by Station 12 with 18.3%, and Station 13 with 11.8%. Channel catfish ranged in size from 2.0 to 30.9 in. The RSD-Q was 81, RSD-P was 35, and RSD-M was 6 (Table 6).

A total of 154 smallmouth bass was collected with 18.8% collected from Station 1 and 14.9% from Station 15. Smallmouth bass ranged in size from 2.6 to 19.9 in. The majority of smallmouth bass were less than 12 in (86%). The RSD-Q was 43, RSD-P was 19, and the RSD-M was 5 and smallmouth bass reached 12 in by age 5 and 14 in by age 7 (Table 6). Mean relative weight indices were 90 for stock, 87 for quality, 84 for preferred, and 87 for memorable size bass with indices of 95 to 100 considered above average (Table 7; Anderson and Neumann

1996). Total annual mortality for smallmouth bass was estimated at 19% ($r^2 = 0.78$; $P < 0.01$) and exploitation was 2%.

A total of 77 black crappie, primarily from Station 13 (74%), was collected. Black crappie ranged in size from 4.4 to 9.9 in and in age from 1 through 5. A total of 24 white crappie, primarily from Station 12 (38%), Station 13 (33%), and Station 17 (21%), were collected. White crappie ranged in size from 4.4 to 12.9 in and in age from 1 through 4.

Six sauger were collected, three from Station 13, two from Station 12, and one from Station 8. All sauger collected were age 7 and ranged in size from 17.5 to 21.0 in. Four flathead catfish were collected at Station 14 that ranged in size from 19.1 to 21.1 in.

DISCUSSION

The fish populations of the West Fork White River in Madison, Hamilton, and Marion counties have dramatically improved since the 1999 fish kill. Species richness continues to increase with 57 species in 2011 versus 49 in March of 2000. Kingsley (1983) conducted a fisheries survey on the West Fork White River in 1982 and collected only 35 species. An increase in darter and minnow species are an indication of improving habitat and water quality. Several species have been sampled consistently over the years including gizzard shad, bluntnose minnow, silver shiner, black redhorse, and white sucker. Others collected, but not consistently, include redbfin shiner, rosyface shiner, silverjaw minnow, sauger, shorthead redhorse, blackside darter, and yellow perch. Three new species not previously sampled were collected (river chub, highfin carpsucker, and river redhorse). No significant differences in average number of species per station were found between the RZ, URZ, and LRZ for 2011. Average number of species per station was significantly different in January and March of 2000 but by July 2000 the community was recovering and average number of species was not significantly different from subsequent sampling events. The same trend could be seen with IBI scores where the IBI in the upper river zone in March 2000 was significantly lower than 2002, 2004, 2007, and 2011.

Game species have also recovered since 1999 and provide ample angling opportunities. The majority of largemouth bass collected in 2011 were $< 12''$ (84%) indicating strong recruitment. Quality largemouth bass (≥ 12 in) represented 9% of the total largemouth bass collected and preferred ($\geq 15''$) made up 3%. Greater numbers of larger largemouth bass were collected in 2006 during a targeted black bass survey but very few largemouth bass were

collected in 2007. Few large old largemouth bass ($\geq 20''$) were collected during this survey. Quality smallmouth bass (≥ 11 in) represented 21% of the total smallmouth bass caught and preferred ($\geq 14''$) made up 9%. About 50% of the smallmouth bass collected in 2011 were $< 7''$ indicating strong recruitment. A better presentation of larger older fish was documented with smallmouth bass than with largemouth bass and may be due to better sampling efficiency in shallower habitats where smallmouth bass reside. Memorable smallmouth bass ($\geq 17''$) made up 2.6% of smallmouth bass collected. The percentage of smallmouth bass $\geq 14''$ and $17''$ was greater in 2011 than in 2007 or 2006. The RSD quality, preferred, and memorable indices for smallmouth bass was greater than most other Indiana streams including the Blue River, Eel River, and Sugar Creek (Carnahan 2011, Benson 2005, and Wisener 2011). Channel catfish of various sizes were collected with 31% of fish collected greater than 14 in and 19% greater than 20 in. Crappie were most prominent in lacustrine stations with several black crappie in the preferred and memorable categories.

Recreational usage of the West Fork White River was witnessed on a regular basis including fishing, boating, and kayaking. Hoffman (2005) found that black bass accounted for 44% of fishing effort in the study area and regular black bass tournaments are held at the Broad Ripple Impoundment. Hoffman (2005) found that angling pressure increased from 2002 to 2004 and it is assumed this trend has continued. Even with increasing angling pressure, harvest of fish on the West Fork White River is minimal, especially for black bass species (Hoffman 2005). Personal communication with anglers during the 2011 survey indicates that many still have concerns about water quality and fish contamination issues. According to the Indiana Department of Environmental Management (2010), the consumption advisory of "DO NOT EAT" is listed for channel catfish above the Broad Ripple Dam which affects all stations except 15, 16, and 17. Black bass and rock bass carry a Group 3 rating for the entire 2011 sample area which recommends one meal/month. Hoffman (2005) documented only 7.8% harvest for black bass and 15% harvest for channel catfish. Hoffman (2007a) found virtually no harvest of smallmouth bass based on modeling using otoliths. Similar techniques were used to analyze the 2011 survey data and exploitation was estimated at 2%. Hoffman (2007a) found an exploitation rate of 5% for largemouth bass which is similar to the 7% exploitation rate found in 2011. Six sauger were collected and are probably remnants from 2002 to 2005 stockings. Sauger typically live to about 8 years old but some have been documented as old as 13 and with no natural

reproduction documented, the sauger fishery will likely decline in the future. However, Hoffman (2005) found that no anglers were specifically targeting sauger and at this time no further stockings of sauger are recommended.

The 1999 fish kill zone has better habitat than a large portion of the WFWR. Hoffman (2007b) surveyed the stretches of the WFWR downstream of the fish kill zone and found QHEI scores ranging from 44 to 66 while the lowest QHEI score for the fish kill zone was 62 and several stations had QHEI scores in the 80s. Hoffman (2007b) had IBI scores ranging from fair to very good while IBIs in the fish kill zone ranged from good to exceptional. Even with good to very good habitat and good to exceptional IBI scores, water quality issues are still evident in the fish kill zone. Large algae blooms were evident in the lacustrine stations and aquatic vegetation is becoming a nuisance in bays with private docks and boat traffic according to residents. Combined sewage overflows from major municipalities are still a concern for water quality and the WFWR is still listed as impaired for *E. coli*. However, several major projects are underway which should reduce the amount of effluent discharged into the WFWR further improving water quality. Indianapolis, IN has a project underway which will reduce the average combined sewage overflow frequency from 80 times/year to 4 times/year by 2025 (City of Indianapolis 2006).

The West Fork White River has had a troubled history with the last major event being the 1999 fish kill. Since then, the river has recovered with the help of DNR fish stockings, monitoring, habitat improvements, and public awareness. Fish stockings likely accelerated the recovery of game fish species. Shorthead redhorse, bigmouth buffalo, and freshwater drum were not collected in subsequent surveys but were stocked at very low densities compared to other fish. As part of the settlement, 283 acres of land have been acquired with an additional 265 acres entered into conservation easements to protect the riparian corridor and improve access. Several DNR partners including Smallmouth Bass Alliance and Friends of the White River have contributed significant time and money to raise public awareness about the West Fork White River and improve habitat and the fishery. Habitat improvements within the watershed are ongoing and strides are being made to further improve water quality.

RECOMMENDATIONS

- Monitoring should be conducted in the next 5 to 10 years. The number of stations should be reduced to eliminate stations where access from private property is needed.
- Conduct targeted black bass sampling in 2013.

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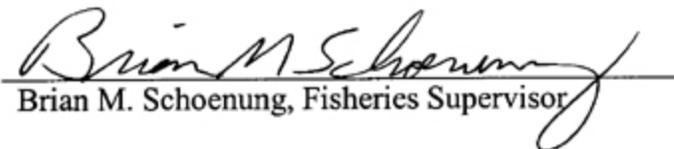
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Table 1. Stations used in fall fishery surveys on the West Fork White River, 2001 to 2011.

Zone	Site No.	Station Location	Station Type	River Mile ¹
Reference zone	1	Mounds State Park Canoe Launch	riffle	304.2
	2	Raible Ave. Bridge, Anderson	run	297.2
Upper river zone	3	Madison County Rd 600W Bridge	run	291.6
	4	St. Rd. 13 bridge, Perkinsville	riffle	285.5
	5	Coffey Grounds, near Strawtown	run	282.3
	6	Clare Impoundment	lacustrine	276.3
	7	Noblesville Public Access Site	run	270.0
	8	St. Rd. 32 Bridge, Noblesville	riffle	269.4
	9	Above 116 th St. Bridge	riffle	259.7
	10	Below 116 th St. Bridge	run	259.3
	11	Allisonville Rd. Bridge ²	riffle	
Lower river zone	12	Upper Broad Ripple Impoundment	lacustrine	252.7
	13	Landings Pit	lacustrine	252.0
	14	Lower Broad Ripple Impoundment	lacustrine	248.7
	15	Meridian Street Bridge	riffle	246.9
	16	53 rd Street, Indianapolis	riffle	244.6
	17	Lake Indy	lacustrine	240.2

¹Calculated using: Rivermiles [computer file]. Indianapolis, IN: Indiana Department of Natural Resources, 2010.

²Not sampled in 2004, 2007, or 2011.

Table 2. Families and species collected from West Fork White River, fall 2011.

	Number	% No.	Weight	% Wt.
Clupeidae - Herrings	201	2.8	54.42	3.4
Gizzard shad				
Esocidae - Pikes	9	0.1	0.44	<0.1
Redfin pickerel				
Cyprinidae - Carps and Minnows	2676	37.5	446.91	28.2
Blacknose dace	3	0.0	0.01	<0.1
Bluntnose minnow	598	8.4	5.84	0.4
Central stoneroller	363	5.1	8.76	0.6
Common carp	46	0.6	422.36	26.6
Creek chub	29	0.4	0.16	<0.1
Golden shiner	9	0.1	0.76	<0.1
Redfin shiner	1	0.0	0.01	<0.1
River chub	3	0.0	0.03	<0.1
Rosyface shiner	29	0.4	0.26	<0.1
Sand shiner	645	9.0	2.58	0.2
Silver shiner	25	0.4	0.55	<0.1
Silverjaw minnow	10	0.1	0.03	<0.1
Spotfin shiner	837	11.7	4.33	0.3
Striped shiner	10	0.1	0.32	<0.1
Suckermouth minnow	68	1.0	0.91	0.1
Catostomidae - Suckers	651	9.1	439.33	27.7
Black redbhorse	114	1.6	113.47	7.1
Golden redbhorse	116	1.6	92.68	5.8
Highfin carpsucker	3	<0.0	3.34	0.2
Northern hog sucker	292	4.1	69.44	4.4
Quillback	22	0.3	37.89	2.4
River carpsucker	21	0.3	33.34	2.1
River redbhorse	2	<0.0	1.89	0.1
Silver redbhorse	9	0.1	25.32	1.6
Spotted sucker	62	0.9	56.20	3.5
White sucker	10	0.1	5.76	0.4
Ictaluridae - Catfishes	200	2.8	317.57	20.0
Channel catfish	186	2.6	303.70	19.1
Flathead catfish	4	0.1	11.26	0.7
Stonecat	3	<0.0	0.02	<0.1
Yellow bullhead	7	0.1	2.59	0.2
Fundulidae - Killifishes	6	0.1	0.03	<0.1
Blackstripe topminnow				
Poeciliidae - Livebearers	2	<0.1	0.01	<0.1
Western mosquitofish				
Atherinidae - Silversides	20	0.3	0.10	<0.1
Brook silverside				
Cottidae - Sculpins	28	0.4	0.32	<0.1
Mottled sculpin				
Moronidae - Temperate basses	81	1.1	16.73	1.1
White bass	9	0.1	1.33	0.1
Yellow bass	72	1.0	15.40	1.0

	Number	% No.	Weight	% Wt.
Centrarchidae - Sunfishes	2,946	41.3	299.51	18.9
Black crappie	77	1.1	19.95	1.3
Bluegill	1012	14.2	45.90	2.9
Green sunfish	183	2.6	6.21	0.4
Largemouth bass	223	3.1	47.72	3.0
<i>Lepomis</i> hybrid	6	0.1	0.51	<0.1
Longear sunfish	992	13.9	45.20	2.8
Orangespotted sunfish	45	0.6	5.69	0.4
Redear sunfish	4	0.1	9.71	0.6
Rock bass	221	3.1	50.36	3.2
Smallmouth bass	154	2.2	60.91	3.8
Warmouth	5	0.1	0.31	<0.1
White crappie	24	0.3	6.72	0.4
Percidae - Perches	317	4.4	11.87	0.7
Blackside darter	3	<0.1	0.02	<0.1
Greenside darter	103	1.4	0.90	0.1
Johnny darter	51	0.7	0.19	<0.1
Logperch	44	0.6	0.73	<0.1
Orangethroat darter	7	0.1	0.04	<0.1
Rainbow darter	92	1.3	0.33	<0.1
Sauger	6	0.1	9.61	0.6
Slenderhead darter	8	0.1	0.05	<0.1
Yellow perch	3	<0.1	0.32	<0.1
Total	7,137		1,587.2	4

Table 3. Families and species collected from West Fork White River, fall 1983, 2001 to 2004, 2007, and 2011.

	2011	2007	2004	2003*	2002	2001	1983
Amiidaie-Bowfin							
Bowfin							X
Clupeidae - Herrings							
Gizzard shad	X	X	X	X	X	X	X
Esocidae - Pikes							
Redfin pickerel	X	X	X	X	X		
Cyprinidae - Carps and Minnows							
Blacknose dace	X						
Bluntnose minnow	X	X	X	X	X	X	X
Central stoneroller	X	X	X		X	X	X
Common carp	X	X	X	X	X	X	X
Creek chub	X	X	X		X	X	X
Emerald shiner						X	
Fathead minnow		X	X			X	
Goldfish							X
Golden shiner	X	X	X		X	X	X
Redfin shiner	X				X		
River chub	X						
Roseyface shiner	X	X	X		X		
Sand shiner	X	X	X	X	X	X	X
Silver shiner	X	X	X	X	X	X	
Silverjaw minnow	X		X		X	X	X
Spotfin shiner	X	X	X	X	X	X	X
Steelcolor shiner						X	
Striped shiner	X	X	X	X	X	X	X
Suckermouth minnow	X	X	X		X	X	X
Catostomidae - Suckers							
Bigmouth buffalo							X
Black redbhorse	X	X	X	X	X	X	
Golden redbhorse	X	X	X	X	X	X	X
Highfin carpsucker	X						
Northern hog sucker	X	X	X	X	X	X	X
Quillback	X	X	X	X	X	X	X
River carpsucker	X	X	X	X		X	
River redbhorse	X						
Shorthead redbhorse			X	X			
Silver redbhorse	X	X	X	X	X	X	
Spotted sucker	X	X	X	X	X	X	X
White sucker	X	X	X	X	X	X	X
Ictaluridae - Catfishes							
Black bullhead					X	X	
Channel catfish	X	X	X	X	X	X	X
Flathead catfish	X	X	X	X	X	X	X
Stonecat	X	X	X		X	X	
Yellow bullhead	X	X	X	X	X	X	X
Fundulidae - Killifishes							
Blackstripe topminnow	X	X	X	X	X		
Poeciliidae - Livebearers							
Western mosquitofish	X				X		

Atherinidae - Silversides							
Brook silverside	X	X	X	X	X		X
Cottidae - Sculpins							
Mottled sculpin	X	X	X		X	X	
Moronidae - Temperate basses							
White bass	X	X	X	X	X		
Yellow bass	X	X	X	X	X	X	
Centrarchidae - Sunfishes							
Black crappie	X	X	X	X	X	X	X
Bluegill	X	X	X	X	X	X	X
Green sunfish	X	X	X	X	X	X	X
Largemouth bass	X	X	X	X	X	X	X
Longear sunfish	X	X	X	X	X	X	X
Orangespotted sunfish	X	X		X	X	X	X
Redear sunfish	X	X	X	X	X	X	
Rock bass	X	X	X	X	X	X	X
Smallmouth bass	X		X	X	X	X	X
Spotted bass		X		X	X	X	X
Warmouth	X	X	X	X	X		
White crappie	X	X	X	X	X	X	X
Percidae - Perches							
Blackside darter	X		X		X	X	
Greenside darter	X	X	X		X	X	
Johnny darter	X	X	X	X	X	X	
Logperch	X	X	X	X	X	X	
Orangethroat darter	X	X	X		X	X	
Rainbow darter	X	X	X		X	X	X
Sauger	X	X		X	X		
Slenderhead darter	X	X	X			X	X
Yellow perch	X		X		X	X	
			5				
Number of species	57	50	2	38*	53	49	35

*Riffle stations not sampled

Table 4. Average number of species per station for the reference, upper river, and lower river zones, West Fork White River, 2000 to 2011.

Sample	Reference zone	Upper river zone	Lower river zone
January 2000	18.0	5.3*	10.3
March 2000	21.5	6.0*	17.8
July 2000	18.5	14.2	16.5
Fall 2001	21.0	18.0	22.8
Fall 2002	22.0	20.9	23.2
Fall 2003	---	20.2	17.8
Fall 2004	18.5	18.9	18.8
Fall 2007	19.5	18.4	24.2
Fall 2011	21.0	21.0	21.8

* Indicates statistical difference ($p=0.05$).

Table 5. Average Index of Biological Integrity scores for run and riffle stations with in the reference, upper river, and lower river zones, West Fork White River, 2004 to 2011.

Sample	Reference zone	Upper river zone	Lower river zone
March 2000	45	23*	35
Fall 2002	48	43	49
Fall 2004	46	49	48
Fall 2007	43	46	47
Fall 2011	45	52	49

* Indicates statistical difference ($p=0.05$).

Table 6. Relative stock density values of selected species from fall sampling of the West Fork White River, 2001 to 2011. Stock number is the number of fish of stock size in the sample. Only smallmouth and largemouth bass were collected in 2006.

Species	Index and length range	2001	2002	2003	2004	2006	2007	2011
Channel catfish	RSD-Q (11.0-15.9")	28	39	80	88	---	91	81
	RSD-P (16.0-23.9")	-	4	6	4	---	31	35
	RSD-M (24.0-27.9")	-	1	0	0	---	0	6
	Stock No.						65	63
Rock bass	RSD-Q (4.0-6.9")	14	22	52	35	---	62	44
	RSD-P (7.0-8.9")	-	0	2	1	---	6	0
	RSD-M (9.0-10.9")	-	0	0	0	---	0	0
	Stock No.						126	195
Largemouth bass	RSD-Q (8.0-11.9")	37	52	54	40	49	---*	57
	RSD-P (12.0-14.9")	16	24	20	8	25	---*	20
	RSD-M (15.0-19.9")	5	2	2	0	1	---*	0
	Stock No.					68	23	35
Smallmouth bass	RSD-Q (7.0-10.9")	13	20	37	35	51	52	43
	RSD-P (11.0-13.9")	5	5	5	9	9	17	19
	RSD-M (14.0-16.9")	0	0	0	1	1	4	5
	Stock No.					147	104	74

*Sample size too small for determining stock densities.

Table 7. Relative weight values of selected species from fall sampling of the West Fork White River, 2004 to 2011.

Species	Index and length range	2004	2007	2011
Rock bass	W _r -S (4.0-6.9")	102.43	100.95	100.00
	W _r -Q (7.0-8.9")	102.72	112.01	107.58
	W _r -P (9.0-10.9")	109.59	115.45	000.00
Largemouth bass	W _r -S (8.0-11.9")	93.67	97.54	98.72
	W _r -Q (12.0-14.9")	97.27	107.00	104.67
	W _r -P (15.0-19.9")	104.66	102.65	104.08
Smallmouth bass	W _r -S (7.0-10.9")	92.53	89.09	94.48
	W _r -Q (11.0-13.9")	85.30	90.26	90.19
	W _r -P (14.0-16.9")	91.72	91.72	87.27
	W _r -T (17.0-19.9")	85.75	83.84	86.88

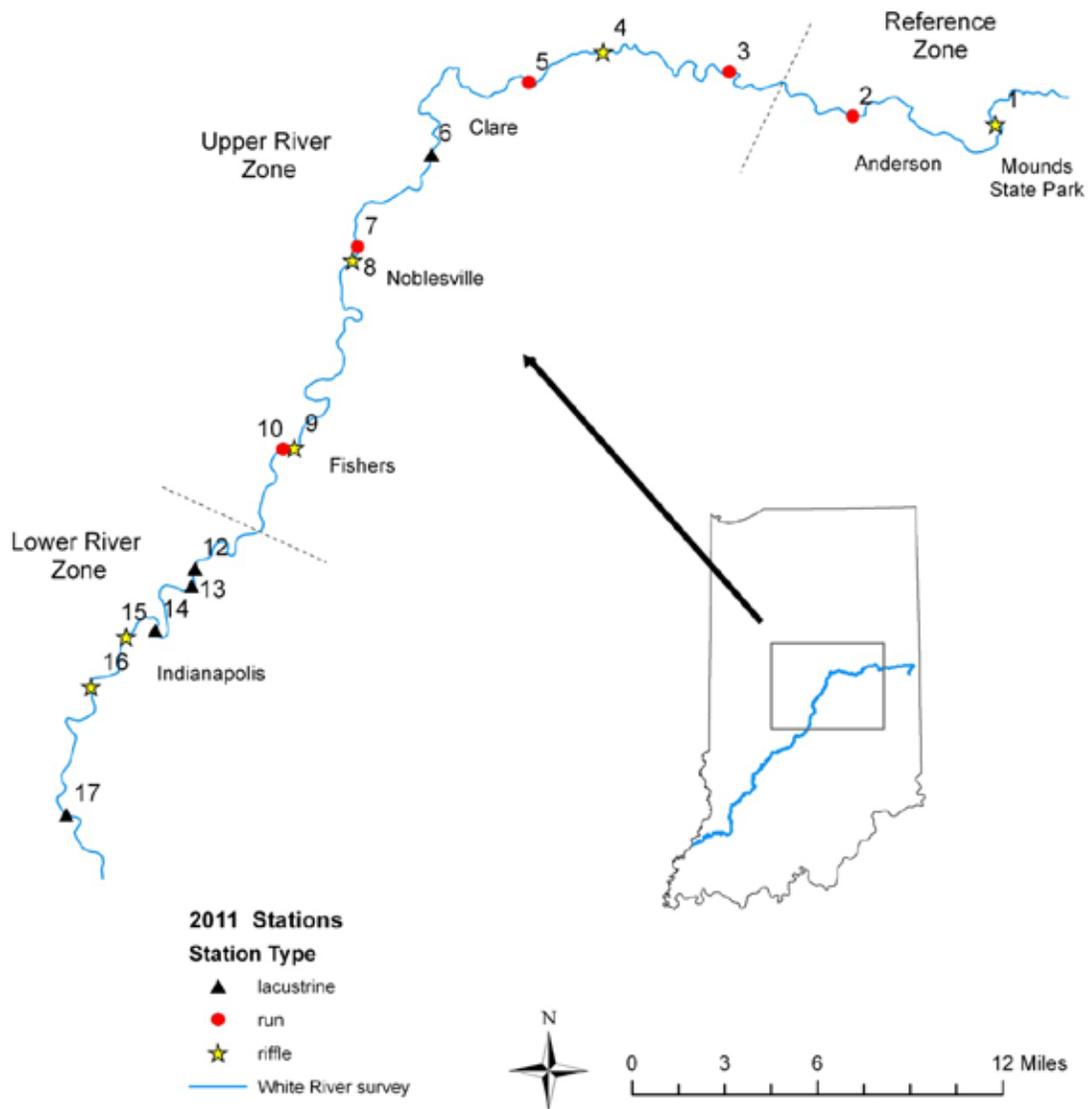


Figure 1. Fall fishery sampling stations for the West Fork White River 2011.

Appendix

Stream habitat evaluation form by station

QHEI form for riffle and run stations by station

Name, number, percentage, size, weight of fish collected by station

Fish length and age data

**INDIANA DIVISION OF FISH AND WILDLIFE
STREAM HABITAT EVALUATION FORM**

STREAM: West Fork White River, Mounds SP Canoe Launch RIVER MILE: 304.2

NEAREST TOWN: Anderson COUNTY: Madison

QUADRANGLE: Middletown TWP: 19N RNG: 8E SEC: 16

LATITUDE: 40.106063 LONGITUDE: -85.624296

LATITUDE: 40.105632 LONGITUDE: -85.622631

U.S.G.S. GAUGING STATION LOCATION: Anderson 03348000 AVG. DISCHARGE (cfs): 116

IS REACH REPRESENTATIVE OF STREAM (Y/N) N IF NOT, WHY? This is State Park property; downstream is the city of Anderson, and upstream is private land, mostly farm land.

DESCRIPTION OF SAMPLE SITE (Access, length, direction sampled): Canoe launch at Mounds State Park. Wide riparian corridor on both sides of river.

COLLECTION SUMMARY

DATE: 9/20/2011 GEAR: Barge elect. EFFORT: 0.883 h

CREW: Kolaks, Kittaka, Fisher, Davis

OTHER GEAR/EFFORT: None WATER STAGE: Low

CANOPY (%OPEN): 65 PHOTOS (Y/N): Y SECCHI DISK (inches): 30

AIR TEMP (F): 65 WATER TEMP (F): 65.3 D.O. (ppm): 9.3

CONDUCTIVITY: 940 pH: 8.2 ALKALINITY: 222.3

TDS: 460

STREAM MEASUREMENTS AVG. WIDTH: 131.4' AVG. DEPTH: 1.9' MAX DEPTH: 4'

STATION LENGTH: (1st date) 492' (2nd date) _____

WIDTH (ft)	DEPTH (in)		
117	23	24	25
135	25	14	9
168	21	8	12
144	8	18	29
93	38	36	48

8
9
 SUBJECTIVE RATING (1-10) AESTHETIC RATING (1-10)

ADDITIONAL COMMENTS/POLLUTION IMPACTS: Excellent riparian cover on east side of river, but less on west side. Low banks, island with trees on it.

**INDIANA DIVISION OF FISH AND WILDLIFE
STREAM HABITAT EVALUATION FORM**

STREAM: Station 2, Raible Ave. Bridge, West Fork White River RIVER MILE: 297.2

NEAREST TOWN: Anderson COUNTY: Madison

QUADRANGLE: Anderson South TWP: 19N RNG: 7E SEC: 10,11

LATITUDE: 40.11070 LONGITUDE: -85.71102

LATITUDE: 40.11296 LONGITUDE: -85.71606

U.S.G.S. GAUGING STATION LOCATION: Anderson 03348000 AVG. DISCHARGE (cfs): 161

IS REACH REPRESENTATIVE OF STREAM (Y/N) Y IF NOT, WHY? _____

DESCRIPTION OF SAMPLE SITE (Access, length, direction sampled): Access at Raible Avenue bridge, began at bridge and sampled downstream to WWTP outfall, sampled entire south bank and only lower 2/3 of north bank.
water.

COLLECTION SUMMARY

DATE: 9/23/2011 GEAR: D.C. Boat EFFORT: 0.653 h

CREW: Wisener, King, Cole

OTHER GEAR/EFFORT: none WATER STAGE: Low

CANOPY (%OPEN): 75% PHOTOS (Y/N): N SECCHI DISK (inches): Bottom

AIR TEMP (F): 63 WATER TEMP (F): 63.1 D.O. (ppm): 8.10

CONDUCTIVITY: 540 pH: 8.8 ALKALINITY: NA

TDS: _____

STREAM MEASUREMENTS AVG. WIDTH: 132.6' AVG. DEPTH: 1.9' MAX DEPTH: 2.9'

STATION LENGTH: (1st date) 1,267' (2nd date) _____

WIDTH (ft)	DEPTH (in)		
123	24	29	8
117	24	27	28
132	28	27	13
135	30	26	17
156	27	14	15

 SUBJECTIVE AESTHETIC
 RATING RATING
 (1-10) (1-10)

ADDITIONAL COMMENTS/POLLUTION IMPACTS: City encroaches on east bank, a golf course is on west bank. Not much of a riparian corridor, and about half of shoreline has no riparian habitat. Boating and fishing access is located on the east side above bridge.

**INDIANA DIVISION OF FISH AND WILDLIFE
STREAM HABITAT EVALUATION FORM**

STREAM: Station 3, County Road 600 W., West Fork White River RIVER MILE: 291.6

NEAREST TOWN: Perkinsville COUNTY: Madison

QUADRANGLE: Frankton TWP: 19 N RNG: 6E SEC: 1

LATITUDE: 40.13252 LONGITUDE: -85.786277

LATITUDE: 40.13453 LONGITUDE: -85.793844

U.S.G.S. GAUGING STATION LOCATION: Anderson 03348000 AVG. DISCHARGE (cfs): 135

IS REACH REPRESENTATIVE OF STREAM (Y/N) Y IF NOT, WHY? _____

DESCRIPTION OF SAMPLE SITE (Access, length, direction sampled): Started just above bridge and shocked downstream on the north side of the river to first riffle (15 min) and then on south side of stream below riffle to the next riffle (15 min).

COLLECTION SUMMARY

DATE: 10/24/2011 GEAR: DC Boat EFFORT: 0.504 h

CREW: Wisener, Lang, Bellman

OTHER GEAR/EFFORT: none WATER STAGE: Low

CANOPY (%OPEN): 85 PHOTOS (Y/N): N SECCHI DISK (inches): Bottom

AIR TEMP (F): 60 WATER TEMP (F): 53.4 D.O. (ppm): 8.9

CONDUCTIVITY: 520 pH: 9 ALKALINITY: NA

TDS: _____

STREAM MEASUREMENTS AVG. WIDTH: 153' AVG. DEPTH: 2.9' MAX DEPTH: 7.5'

STATION LENGTH: (1st date) 2,713' (2nd date) _____

WIDTH (ft)	DEPTH (in)		
144	28	43	30
159	27	26	33
162	75	54	19
135	25	27	31
165	41	28	40

 SUBJECTIVE AESTHETIC
 RATING RATING
 (1-10) (1-10)

ADDITIONAL COMMENTS/POLLUTION IMPACTS: _____

**INDIANA DIVISION OF FISH AND WILDLIFE
STREAM HABITAT EVALUATION FORM**

STREAM: Station 4, Perkinsville, West Fork White River RIVER MILE: 285.5

NEAREST TOWN: Perkinsville COUNTY: Madison

QUADRANGLE: Frankton TWP: 20N RNG: 6E SEC: 33

LATITUDE: 40.142819 LONGITUDE: -85.858558

LATITUDE: 40.142894 LONGITUDE: -85.860606

U.S.G.S. GAUGING STATION LOCATION: Anderson 03348000 AVG. DISCHARGE (cfs): 116

IS REACH REPRESENTATIVE OF STREAM (Y/N) Y IF NOT, WHY? _____

DESCRIPTION OF SAMPLE SITE (Access, length, direction sampled): Overhanging maples, island on west side of site. Site was entire length of island. Riffle, pool at head of site.

COLLECTION SUMMARY

DATE: 9/20/2011 GEAR: Barge elect. EFFORT: 0.698 h

CREW: Kolaks, Kittaka, Fisher, Davis

OTHER GEAR/EFFORT: none WATER STAGE: Low

CANOPY (%OPEN): 70% PHOTOS (Y/N): Y SECCHI DISK (inches): 30

AIR TEMP (F): 70 WATER TEMP (F): 67.7 D.O. (ppm): 9.22

CONDUCTIVITY: 860 pH: 8.3 ALKALINITY: 205.2

TDS: 430

STREAM MEASUREMENTS AVG. WIDTH: 92.4' AVG. DEPTH: 3.1' MAX DEPTH: 4'

STATION LENGTH: (1st date) 574' (2nd date) _____

WIDTH (ft)	DEPTH (in)		
102	20	22	29
105	48	48	42
75	37	36	32
90	38	48	36
90	38	39	37

7	7
SUBJECTIVE RATING (1-10)	AESTHETIC RATING (1-10)

ADDITIONAL COMMENTS/POLLUTION IMPACTS: Campground with mowed area along north bank. Slight smell of sewage. Houses close to shore on north bank, also much cultivated land in close proximity. The upper river bottom had remnants of a fish weir in it, but had not been usable in years. Riffle had rocky bottom, mostly silt/and bottom elsewhere.

**INDIANA DIVISION OF FISH AND WILDLIFE
STREAM HABITAT EVALUATION FORM**

STREAM: Station 5, Coffey Grounds, West Fork White River RIVER MILE: 282.3

NEAREST TOWN: Strawtown COUNTY: Hamilton

QUADRANGLE: Omega TWP: 19N RNG: 5E SEC: 1

LATITUDE: 40.12857 LONGITUDE: -85.908452

LATITUDE: 40.13131 LONGITUDE: -85.914104

U.S.G.S. GAUGING STATION LOCATION: Noblesville 03350800 AVG DISCHARGE (cfs): 350

IS REACH REPRESENTATIVE OF STREAM (Y/N) Y IF NOT, WHY? _____

DESCRIPTION OF SAMPLE SITE (Access, length, direction sampled): Started at upper riffle, came down right side, right of island at lower riffle. Also did left side (NW side) in both pools.

COLLECTION SUMMARY

DATE: 10/24/2011 GEAR: DC Boat EFFORT: 0.389 h

CREW: Wisener, Kolaks, Cole

OTHER GEAR/EFFORT: none WATER STAGE: Low

CANOPY (%OPEN): 90% PHOTOS (Y/N): N SECCHI DISK (inches): NA

AIR TEMP (F): 65 WATER TEMP (F): 56 D.O. (ppm): 9.66

CONDUCTIVITY: 510 pH: 9.1 ALKALINITY: NA

TDS: _____

STREAM MEASUREMENTS AVG. WIDTH: 148' AVG. DEPTH: 2.0' MAX DEPTH: 4'

STATION LENGTH: (1st date) 1,950' (2nd date) _____

WIDTH (ft)	DEPTH (in)		
140	16	40	18
138	41	44	21
182	16	18	13
162	20	28	28
117	18	26	17

 SUBJECTIVE AESTHETIC
 RATING RATING
 (1-10) (1-10)

ADDITIONAL COMMENTS/POLLUTION IMPACTS: _____

**INDIANA DIVISION OF FISH AND WILDLIFE
STREAM HABITAT EVALUATION FORM**

STREAM: Station 6, Clare, West Fork White River RIVER MILE: 276.3

NEAREST TOWN: Clare COUNTY: Hamilton

QUADRANGLE: Riverwood TWP: 19N RNG: 5E SEC: 16

LATITUDE: 40.10898 LONGITUDE: -85.96396

LATITUDE: 40.09560 LONGITUDE: -85.96839

U.S.G.S. GAUGING STATION LOCATION: Anderson 03348000 AVG. DISCHARGE (cfs): 195

IS REACH REPRESENTATIVE OF STREAM (Y/N) N IF NOT, WHY? Impounded stretch

DESCRIPTION OF SAMPLE SITE (Access, length, direction sampled): Sampled from dam upstream to above high voltage transmission lines.

River has Clare on east bank, Riverwood on west bank; very little riparian habitat. Many homes right on bank, also RVs on US E side.

COLLECTION SUMMARY

DATE: 10/5/2011 GEAR: DC Boat EFFORT: 1.028 h

CREW: Cole, Kolaks, Tomaso

OTHER GEAR/EFFORT: 3 Gill Nets, 3 Trap Nets WATER STAGE: Low

CANOPY (%OPEN): 75 PHOTOS (Y/N): N SECCHI DISK (inches): 60"

AIR TEMP (F): 63 WATER TEMP (F): 57 D.O. (ppm): 8.96

CONDUCTIVITY: 730 pH: 9.1 ALKALINITY: NA

TDS: _____

STREAM MEASUREMENTS AVG. WIDTH: 282' AVG. DEPTH: 5.6' MAX DEPTH: 11'

STATION LENGTH: (1st date) 4,889' (2nd date) _____

WIDTH (ft)	DEPTH (in)		
398	36	30	48
286	66	60	42
318	120	120	84
240	84	72	84
247	72	60	48
201	48	72	72

 SUBJECTIVE AESTHETIC
 RATING RATING
 (1-10) (1-10)

ADDITIONAL COMMENTS/POLLUTION IMPACTS: Power plant heated effluent discharged at dam. Little riparian habitat.

**INDIANA DIVISION OF FISH AND WILDLIFE
STREAM HABITAT EVALUATION FORM**

STREAM: Station 7, Noblesville PAS, West Fork White River RIVER MILE: 270

NEAREST TOWN: Noblesville COUNTY: Hamilton

QUADRANGLE: Noblesville TWP: 19N RNG: 4E SEC: 36

LATITUDE: 40.05283 LONGITUDE: -86.01416

LATITUDE: 40.04692 LONGITUDE: -86.01626

U.S.G.S. GAUGING STATION LOCATION: Noblesville 03350800 AVG. DISCHARGE (cfs): 198

IS REACH REPRESENTATIVE OF STREAM (Y/N) Y IF NOT, WHY? _____

DESCRIPTION OF SAMPLE SITE (Access, length, direction sampled): Access at Noblesville PAS, began at shallow water area upstream of access, sampled both banks downstream to just below Logan St. bridge.

COLLECTION SUMMARY

DATE: 10/6/2011 GEAR: DC Boat EFFORT: 0.753 h

CREW: Cole, Kolaks, Tomaso

OTHER GEAR/EFFORT: none WATER STAGE: Low

CANOPY (%OPEN): 90% PHOTOS (Y/N): N SECCHI DISK (inches): Bottom

AIR TEMP (F): 80 WATER TEMP (F): 59.2 D.O. (ppm): 9.3

CONDUCTIVITY: 640 pH: 9 ALKALINITY: 239.4

TDS: 460

STREAM MEASUREMENTS AVG. WIDTH: 187' AVG. DEPTH: 2.7' MAX DEPTH: 5'

STATION LENGTH: (1st date) 2,112' (2nd date) _____

WIDTH (ft)	DEPTH (in)		
180	28	26	28
183	54	42	33
171	42	32	33
192	53	28	17
210	40	21	16

 SUBJECTIVE AESTHETIC
 RATING RATING
 (1-10) (1-10)

ADDITIONAL COMMENTS/POLLUTION IMPACTS: Bridges, homes (E side), businesses (W side) infringe on bank. The riparian cover very narrow to nonexistent.

**INDIANA DIVISION OF FISH AND WILDLIFE
STREAM HABITAT EVALUATION FORM**

STREAM: Station 8, HWY 32 bridge, West Fork White River RIVER MILE: 269.4

NEAREST TOWN: Noblesville COUNTY: Hamilton

QUADRANGLE: Noblesville TWP: 19N RNG: 4E SEC: 36

LATITUDE: 40.046745 LONGITUDE: -86.016326

LATITUDE: 40.046032 LONGITUDE: -86.017416

U.S.G.S. GAUGING STATION LOCATION: Noblesville 03350800 AVG. DISCHARGE (cfs): 201

IS REACH REPRESENTATIVE OF STREAM (Y/N) Y IF NOT, WHY? _____

DESCRIPTION OF SAMPLE SITE (Access, length, direction sampled): Access from car lot on west side of river. Highway 32 bridge up to and 20 feet above next bridge.

COLLECTION SUMMARY

DATE: 9/20/2011 GEAR: Barge elect. EFFORT: 0.585 h

CREW: Kolaks, Kittaka, Fisher, Davis

OTHER GEAR/EFFORT: none WATER STAGE: Low

CANOPY (%OPEN): 90% PHOTOS (Y/N): Y SECCHI DISK (inches): 24

AIR TEMP (F): 70 WATER TEMP (F): 66.9 D.O. (ppm): 8.73

CONDUCTIVITY: 920 pH: 7.5 ALKALINITY: 239.4

TDS: 460

STREAM MEASUREMENTS AVG. WIDTH: 156' AVG. DEPTH: 1.9' MAX DEPTH: 3.8'

STATION LENGTH: (1st date) 400' (2nd date) _____

WIDTH (ft)	DEPTH (in)		
186	16	16	35
159	24	0	24
165	11	15	16
141	42	28	24
129	46	26	26
	27.8	17	25

7	7
SUBJECTIVE RATING (1-10)	AESTHETIC RATING (1-10)

ADDITIONAL COMMENTS/POLLUTION IMPACTS: Campground with mowed area along north bank. Houses close to shore on north bank, also much cultivated land in close proximity. The upper river bottom had remnants of a fish weir in it, but had not been usable in years. Riffle had rocky bottom, mostly silt/and bottom elsewhere.

**INDIANA DIVISION OF FISH AND WILDLIFE
STREAM HABITAT EVALUATION FORM**

STREAM: Station 9, Above 116th St. Bridge, West Fork White River RIVER MILE: 259.7

NEAREST TOWN: Trails End COUNTY: Hamilton

QUADRANGLE: Fishers TWP: 17N RNG: 4E SEC: 3

LATITUDE: 39.958346 LONGITUDE: -86.054240

LATITUDE: 39.958107 LONGITUDE: -86.056252

U.S.G.S. GAUGING STATION LOCATION: Noblesville 03350800 AVG. DISCHARGE (cfs): 195

IS REACH REPRESENTATIVE OF STREAM (Y/N) Y IF NOT, WHY? _____

DESCRIPTION OF SAMPLE SITE (Access, length, direction sampled): Island 20 ft. wide, riffles on both sides, shocked both sides. Overhanging trees, steep banks both sides.

COLLECTION SUMMARY

DATE: 9/21/2011 GEAR: Barge elect. EFFORT: 0.748 h

CREW: Kolaks, Kittaka, Fisher, Davis

OTHER GEAR/EFFORT: none WATER STAGE: Low

CANOPY (%OPEN): 70% PHOTOS (Y/N): Y SECCHI DISK (inches): 30"

AIR TEMP (F): 73 WATER TEMP (F): 69.9 D.O. (ppm): 9.73

CONDUCTIVITY: 1020 pH: 7.6 ALKALINITY: 239.4

TDS: 510

STREAM MEASUREMENTS AVG. WIDTH: 221.4' AVG. DEPTH: 2.0' MAX DEPTH: 4.1'

STATION LENGTH: (1st date) 576' (2nd date) _____

WIDTH (ft)	DEPTH (in)		
234	46	13	37
249	28	10	25
249	21	0	32
204	19	8	18
171	26	28	43

 SUBJECTIVE AESTHETIC
 RATING RATING
 (1-10) (1-10)

ADDITIONAL COMMENTS/POLLUTION IMPACTS: Homes with lawns on high east bank. Riparian habitat more extensive on west bank.

**INDIANA DIVISION OF FISH AND WILDLIFE
STREAM HABITAT EVALUATION FORM**

STREAM: Station 10, 116th St., West Fork White River RIVER MILE: 259.3

NEAREST TOWN: Fishers COUNTY: Hamilton

QUADRANGLE: Fishers TWP: 17N RNG: 4E SEC: 3

LATITUDE: 39.95761 LONGITUDE: -86.060964

LATITUDE: 39.95524 LONGITUDE: -86.066511

U.S.G.S. GAUGING STATION LOCATION: Noblesville 03350800 AVG. DISCHARGE (cfs): 198

IS REACH REPRESENTATIVE OF STREAM (Y/N) Y IF NOT, WHY? _____

DESCRIPTION OF SAMPLE SITE (Access, length, direction sampled): Access at 116th St. ramp, began at shallow area upstream of ramp, shocked downstream to riffle/island downstream of bridge, sampled only west bank and east bank was extremely shallow.

COLLECTION SUMMARY

DATE: 10/6/2011 GEAR: DC Boat EFFORT: 0.763 h

CREW: Cole, Kolaks, Tomaso

OTHER GEAR/EFFORT: none WATER STAGE: Low

CANOPY (%OPEN): 95% PHOTOS (Y/N): N SECCHI DISK (inches): Bottom

AIR TEMP (F): 82 WATER TEMP (F): 65.1 D.O. (ppm): 10.25

CONDUCTIVITY: 650 pH: 8.8 ALKALINITY: NA

TDS: _____

STREAM MEASUREMENTS AVG. WIDTH: 210' AVG. DEPTH: 2.8' MAX DEPTH: 4'

STATION LENGTH: (1st date) 1,801' (2nd date) _____

WIDTH (ft)	DEPTH (in)		
213	26	24	30
213	18	25	41
174	48	51	31
231	63	50	43
219	17	29	24

SUBJECTIVE RATING (1-10) AESTHETIC RATING (1-10)

ADDITIONAL COMMENTS/POLLUTION IMPACTS: Not much riparian habitat on east shore; homes on bank, lawns, some trees. More trees on west shore, where bank is lower.

**INDIANA DIVISION OF FISH AND WILDLIFE
STREAM HABITAT EVALUATION FORM**

STREAM: Station 12, Upper Broad Ripple, West Fork White River RIVER MILE: 252.7

NEAREST TOWN: Nora COUNTY: Hamilton

QUADRANGLE: Fishers TWP: 17N RNG: 4E SEC: 30, 19

LATITUDE: 39.89976 LONGITUDE: -86.116230

LATITUDE: 39.90537 LONGITUDE: -86.114100

U.S.G.S. GAUGING STATION LOCATION: Indianapolis 03353000 AVG. DISCHARGE (cfs): 482

IS REACH REPRESENTATIVE OF STREAM (Y/N) N IF NOT, WHY? Impounded stretch and shoreline highly developed.

DESCRIPTION OF SAMPLE SITE (Access, length, direction sampled): This station extends upstream 2.08 miles from the upstream edge of outlet which joins Williams Creek to the end of the impoundment above the connection to Sand Point Pit. Many homes on banks, docks, plus boat access to two pits with big condos, docks.

COLLECTION SUMMARY

DATE: 10/11/2011 GEAR: DC Boat EFFORT: 1.038 h

CREW: King, Kolaks, Cole

OTHER GEAR/EFFORT: none WATER STAGE: Low

CANOPY (%OPEN): 85% PHOTOS (Y/N): N SECCHI DISK (inches): 60

AIR TEMP (F): 78 WATER TEMP (F): 67.3 D.O. (ppm): 9.63

CONDUCTIVITY: 810 pH: 9.5 ALKALINITY: NA

TDS: _____

STREAM MEASUREMENTS AVG. WIDTH: 224' AVG. DEPTH: 7.8' MAX DEPTH: 14'

STATION LENGTH: (1st date) 11,000' (2nd date) _____

WIDTH (ft)	DEPTH (in)		
312	120	168	144
200	108	132	144
224	156	120	84
248	24	36	120
200	72	48	60
160	36	48	60

 SUBJECTIVE AESTHETIC
 RATING RATING
 (1-10) (1-10)

ADDITIONAL COMMENTS/POLLUTION IMPACTS: River channel with slow current when low, max depth 12-13 feet, mostly hard bottom.

**INDIANA DIVISION OF FISH AND WILDLIFE
STREAM HABITAT EVALUATION FORM**

STREAM: Station 13, Landings Pit, West Fork White River RIVER MILE: 252

NEAREST TOWN: Glendale Heights COUNTY: Hamilton

QUADRANGLE: Fishers TWP: 17N RNG: 4E SEC: 30

LATITUDE: 39.89682 LONGITUDE: -86.119370

LATITUDE: 39.89375 LONGITUDE: -86.117880

U.S.G.S. GAUGING STATION LOCATION: Indianapolis 03353000 AVG. DISCHARGE (cfs): 527

IS REACH REPRESENTATIVE OF STREAM (Y/N) N IF NOT, WHY? Former gravel pit left with a connection to the river.

DESCRIPTION OF SAMPLE SITE (Access, length, direction sampled): A small, rather shallow former gravel pit with a thin riparian bank between river to east and the pit. West of pit is the Landings Apartments, with open lawn and a boat rental concession. There is some bank fishing opportunity. A narrow channel that is adequately deep for access by boat at low river stages connects it to river.

COLLECTION SUMMARY

DATE: 10/12/2011 GEAR: DC Boat EFFORT: 0.628 h

CREW: Kolaks, Cole, King

OTHER GEAR/EFFORT: 3 Gill Nets, 3 Trap Nets WATER STAGE: Low

CANOPY (%OPEN): 85 PHOTOS (Y/N): N SECCHI DISK (inches): 14"

AIR TEMP (F): 80 WATER TEMP (F): 65.7 D.O. (ppm): 16.03

CONDUCTIVITY: 660 pH: 9.6 ALKALINITY: NA

TDS: _____

STREAM MEASUREMENTS AVG. WIDTH: 301' AVG. DEPTH: 11.7' MAX DEPTH: 21'

STATION LENGTH: (1st date) _____ (2nd date) _____

WIDTH (ft)	DEPTH (in)		
80	120	252	144
240	108	132	168
440	180	132	84
360	120	144	156
384	144	132	84

 SUBJECTIVE AESTHETIC
 RATING RATING
 (1-10) (1-10)

ADDITIONAL COMMENTS/POLLUTION IMPACTS: Algae bloom present.

**INDIANA DIVISION OF FISH AND WILDLIFE
STREAM HABITAT EVALUATION FORM**

STREAM: Station 14, Lower Broad Ripple, West Fork White River RIVER MILE: 248.7

NEAREST TOWN: Carmel COUNTY: Marion

QUADRANGLE: Carmel TWP: 17N RNG: 4E SEC: 25, 36

LATITUDE: 39.87351 LONGITUDE: -86.140550

LATITUDE: 39.88707 LONGITUDE: -86.136180

U.S.G.S. GAUGING STATION LOCATION: Indianapolis 03353000 AVG. DISCHARGE (cfs): 548

IS REACH REPRESENTATIVE OF STREAM (Y/N) N IF NOT, WHY? Impounded by high dam.

DESCRIPTION OF SAMPLE SITE (Access, length, direction sampled): One public and various private ramps. Perhaps 1/3 of shoreline is developed. Station extends from Broad Ripple Dam upstream about 1.7 miles to, and including outlet which joins Williams Creek.

COLLECTION SUMMARY

DATE: 10/4/2011 GEAR: DC Boat EFFORT: 1.016 h

CREW: Cole, Kolaks, Wisener

OTHER GEAR/EFFORT: 3 Gill Nets, 3 Trap Nets WATER STAGE: Low

CANOPY (%OPEN): 95% PHOTOS (Y/N): N SECCHI DISK (inches): 84"

AIR TEMP (F): 50 WATER TEMP (F): 57 D.O. (ppm): 8.95

CONDUCTIVITY: 880 pH: 9.2 ALKALINITY: NA

TDS: _____

STREAM MEASUREMENTS AVG. WIDTH: 234' AVG. DEPTH: 7' MAX DEPTH: 14'

STATION LENGTH: (1st date) 9,190' (2nd date) _____

WIDTH (ft)	DEPTH (in)		
200	144	132	72
240	24	84	72
240	48	72	48
300	72	60	72
188			

SUBJECTIVE RATING (1-10) AESTHETIC RATING (1-10)

ADDITIONAL COMMENTS/POLLUTION IMPACTS: Bottom embedded gravel channel, mostly mud, some embedded gravel, rock at outlet.

**INDIANA DIVISION OF FISH AND WILDLIFE
STREAM HABITAT EVALUATION FORM**

STREAM: Station 15, Meridian St., West Fork White River RIVER MILE: 246.9

NEAREST TOWN: Holiday Park, Indianapolis COUNTY: Marion

QUADRANGLE: Indianapolis West TWP: 17N RNG: 3E SEC: 35

LATITUDE: 39.870624 LONGITUDE: -86.157097

LATITUDE: 39.869602 LONGITUDE: -86.158688

U.S.G.S. GAUGING STATION LOCATION: Indianapolis 03353000 AVG. DISCHARGE (cfs): 443

IS REACH REPRESENTATIVE OF STREAM (Y/N) Y IF NOT, WHY? _____

DESCRIPTION OF SAMPLE SITE (Access, length, direction sampled): Begins about 600' below Meridian bridge, continues downstream away from bridge. A riffle with mostly cobble substrate, islands, little deep water.

COLLECTION SUMMARY

DATE: 9/22/2011 GEAR: Barge Elect. EFFORT: 0.674 h

CREW: Kolaks, Kittaka, Fisher, Davis

OTHER GEAR/EFFORT: none WATER STAGE: Low

CANOPY (%OPEN): 90% PHOTOS (Y/N): Y SECCHI DISK (inches): 30"

AIR TEMP (F): 63 WATER TEMP (F): 68.5 D.O. (ppm): 9.86

CONDUCTIVITY: 920 pH: 7.8 ALKALINITY: 205.5

TDS: 460

STREAM MEASUREMENTS AVG. WIDTH: 208' AVG. DEPTH: 2.0' MAX DEPTH: 3.8'

STATION LENGTH: (1st date) 580' (2nd date) _____

WIDTH (ft)	DEPTH (in)		
183	28	32	36
180	19	18	15
180	28	26	44
273	18	12	0
222	24	31	22

 SUBJECTIVE AESTHETIC
 RATING RATING
 (1-10) (1-10)

ADDITIONAL COMMENTS/POLLUTION IMPACTS: A beautiful site, with woods on both sides at least 100 feet back. Low banks. Boulders, rubble, etc. A high levee is about 100 feet back from west shore. A bridge is visible near end.

**INDIANA DIVISION OF FISH AND WILDLIFE
STREAM HABITAT EVALUATION FORM**

STREAM: Station 16, 53rd St., West Fork White River RIVER MILE: 244.6

NEAREST TOWN: Rocky Ripple COUNTY: Marion

QUADRANGLE: Indianapolis TWP: 16N RNG: 3E SEC: 10

LATITUDE: 39.84708 LONGITUDE: -86.179681

LATITUDE: 39.843362 LONGITUDE: -86.179136

U.S.G.S. GAUGING STATION LOCATION: Indianapolis 03353000 AVG. DISCHARGE (cfs): 443

IS REACH REPRESENTATIVE OF STREAM (Y/N) Y IF NOT, WHY? _____

DESCRIPTION OF SAMPLE SITE (Access, length, direction sampled): Gained access from private property. Started at island downstream and shocked upstream on east side and ended at island near access point.

COLLECTION SUMMARY

DATE: 9/22/2011 GEAR: Barge elect. EFFORT: 0.919 h

CREW: Kolaks, Kittaka, Fisher, Davis

OTHER GEAR/EFFORT: none WATER STAGE: Low

CANOPY (%OPEN): 90% PHOTOS (Y/N): Y SECCHI DISK (inches): 41" (bottom)

AIR TEMP (F): 70 WATER TEMP (F): 68.5 D.O. (ppm): 10.08

CONDUCTIVITY: 890 pH: 7.7 ALKALINITY: 188.1

TDS: _____

STREAM MEASUREMENTS AVG. WIDTH: 204.5' AVG. DEPTH: 2.2' MAX DEPTH: >4'

STATION LENGTH: (1st date) 1,369' (2nd date) _____

WIDTH (ft)	DEPTH (in)		
189	36	39	>48
195	26	42	>48
183	42	>48	>48
189	19	43	>48
240	15	19	18
231	13	0	30

7
8
 SUBJECTIVE RATING (1-10) AESTHETIC RATING (1-10)

ADDITIONAL COMMENTS/POLLUTION IMPACTS: Residences on east side, 20-100' riparian vegetation. Steep bank on west side; 150' riparian border.

**INDIANA DIVISION OF FISH AND WILDLIFE
STREAM HABITAT EVALUATION FORM**

STREAM: Station 17, Lake Indy, West Fork White River RIVER MILE: 240.2

NEAREST TOWN: Indianapolis COUNTY: Marion

QUADRANGLE: Indianapolis West TWP: 16N RNG: 3E SEC: 33, 34

LATITUDE: 39.80376 LONGITUDE: -86.198010

LATITUDE: 39.78712 LONGITUDE: -86.195340

U.S.G.S. GAUGING STATION LOCATION: Indianapolis 03353000 AVG. DISCHARGE (cfs): 548

IS REACH REPRESENTATIVE OF STREAM (Y/N) Y IF NOT, WHY? _____

DESCRIPTION OF SAMPLE SITE (Access, length, direction sampled): Approximately a 2 mi. impoundment with bridges, various access points. Includes Riverside Park on east bank which has boat ramp and a separate parking lot; I-65 bridge with street-side parking on west side; Family Center on west side with massive concrete fishing pier facing deepest portion of lake (14 feet); walk-up access at dam with convenient parking. A golf course on west bank uses bank right up to water.

COLLECTION SUMMARY

DATE: 10/4/2011 GEAR: DC Boat EFFORT: 1.039 h

CREW: Cole, Kolaks, King

OTHER GEAR/EFFORT: 3 Gill Nets, 3 Trap Nets WATER STAGE: Low

CANOPY (%OPEN): 95% PHOTOS (Y/N): N SECCHI DISK (inches): 53"

AIR TEMP (F): 65 WATER TEMP (F): 57.7 D.O. (ppm): 8.66

CONDUCTIVITY: 890 pH: 8.9 ALKALINITY: NA

TDS: _____

STREAM MEASUREMENTS AVG. WIDTH: 426' AVG. DEPTH: 6.4' MAX DEPTH: 14'

STATION LENGTH: (1st date) 9,600' (2nd date) _____

WIDTH (ft)	DEPTH (in)		
402	84	96	84
362	60	108	96
563	96	120	12
322	10	84	48
483	84	96	72

 SUBJECTIVE AESTHETIC
 RATING RATING
 (1-10) (1-10)

ADDITIONAL COMMENTS/POLLUTION IMPACTS: Park on east shore, golf course on west shore encroaches on the riparian habitat except lower, upper portions of 4 mile length. Some undercut banks, root coils along banks.

1) SUBSTRATE: (Check ONLY Two Substrate Type Boxes: Check all types present)(20) SUBSTRATE SCORE **16**

TYPE		POOL		RIFFLE		POOL		RIFFLE		SUBSTRATE ORIGIN (all)		SILT COVER (one)	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	BLDER/SLAB(10)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	GRAVEL(7)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	SILT-HEAVY(-2)
<input type="checkbox"/>	BOULDER(9)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	SAND(6)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	SILT-NORM(0)					
<input type="checkbox"/>	COBBLE(8)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	BEDROCK(5)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	SILT-FREE(1)					
<input type="checkbox"/>	HARDPAN(4)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	DETRITUS(3)	<input type="checkbox"/>	<input type="checkbox"/>	Extent of Embeddedness (check one)	
<input type="checkbox"/>	MUCK/SILT(2)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	ARTIFIC(0)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	EXTENSIVE(-2)					
TOTAL NUMBER OF SUBSTRATE TYPES: <input checked="" type="checkbox"/> >4(2) <input type="checkbox"/> <4(0)												<input checked="" type="checkbox"/>	LOW(0)
												<input type="checkbox"/>	MODERATE(-1)
												<input type="checkbox"/>	NONE(1)

NOTE: (Ignore sludge that originates from point sources: score is based on natural substrates)

COMMENTS:

2) INSTREAM COVER: (20) COVER SCORE **10**

TYPE (Check all that apply)			AMOUNT (Check only one or Check 2 and AVERAGE)		
<input type="checkbox"/>	UNDERCUT BANKS(1)	<input type="checkbox"/>	DEEP POOLS(2)	<input type="checkbox"/>	OXBOWS(1)
<input checked="" type="checkbox"/>	OVERHANGING VEGETATION(1)	<input checked="" type="checkbox"/>	ROOTWADS(1)	<input type="checkbox"/>	AQUATIC MACROPHYTES(1)
<input checked="" type="checkbox"/>	SHALLOWS (IN SLOW WATER)(1)	<input checked="" type="checkbox"/>	BOULDERS(1)	<input checked="" type="checkbox"/>	LOGS OR WOODY DEBRIS(1)
			<input type="checkbox"/> EXTENSIVE >75%(11)		
			<input checked="" type="checkbox"/> MODERATE 25-75%(7)		
			<input checked="" type="checkbox"/> SPARSE 5-25%(3)		
			<input type="checkbox"/> NEARLY ABSENT <5%(1)		

COMMENTS:

3) CHANNEL MORPHOLOGY: (Check ONLY ONE per Category or Check 2 and AVERAGE)(20) CHANNEL SCORE **13**

SINUOSITY		DEVELOPMENT		CHANNELIZATION		STABILITY		MODIFICATION/OTHER	
<input type="checkbox"/>	HIGH(4)	<input type="checkbox"/>	EXCELLENT(7)	<input checked="" type="checkbox"/>	NONE(6)	<input type="checkbox"/>	HIGH(3)	<input type="checkbox"/>	SNAGGING
<input type="checkbox"/>	MODERATE(3)	<input type="checkbox"/>	GOOD(5)	<input type="checkbox"/>	RECOVERED(4)	<input checked="" type="checkbox"/>	MODERATE(2)	<input type="checkbox"/>	RELOCATION
<input checked="" type="checkbox"/>	LOW(2)	<input checked="" type="checkbox"/>	FAIR(3)	<input type="checkbox"/>	RECOVERING(3)	<input type="checkbox"/>	LOW(1)	<input type="checkbox"/>	CANOPY REMOVAL
<input type="checkbox"/>	NONE(1)	<input type="checkbox"/>	POOR(1)	<input type="checkbox"/>	RECENT OR NO RECOVERY(1)			<input type="checkbox"/>	DREDGING
								<input type="checkbox"/>	IMPOUND
								<input type="checkbox"/>	ISLAND
								<input type="checkbox"/>	LEVEED
								<input type="checkbox"/>	BANK SHAPING
								<input type="checkbox"/>	ONE SIDE CHANNEL MODIFICATION

COMMENTS:

4) RIPARIAN ZONE AND BANK EROSION: (Check ONE box or Check 2 and AVERAGE per bank) (10) RIPARIAN SCORE **6**

River Right Looking Downstream

RIPARIAN WIDTH (per bank)		EROSION/RUNOFF-FLOODPLAIN QUALITY				BANK EROSION	
L	R (per bank)	L	R (most predominant per bank)	L	R (per bank)	L	R (per bank)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	WIDE >150ft.(4)	<input type="checkbox"/>	FOREST, SWAMP(3)	<input type="checkbox"/>	URBAN OR INDUSTRIAL(0)	<input type="checkbox"/>	NONE OR LITTLE(3)
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	OPEN PASTURE/ROW CROP(0)	<input type="checkbox"/>	SHURB OR OLD FIELD(2)	<input type="checkbox"/>	MODERATE(2)
<input checked="" type="checkbox"/>	MODERATE 30-150 ft.(3)	<input checked="" type="checkbox"/>	RESID.,PARK,NEW FIELD(1)	<input type="checkbox"/>	CONSERV. TILLAGE(1)	<input type="checkbox"/>	HEAVY OR SEVERE(1)
<input type="checkbox"/>	NARROW 15-30 ft.(2)	<input type="checkbox"/>	FENCED PASTURE(1)	<input type="checkbox"/>	MINING/CONSTRUCTION(0)		
<input type="checkbox"/>	VERY NARROW 3-15 ft.(1)						
<input type="checkbox"/>	NONE(0)						

COMMENTS:

5) POOL/GLIDE AND RIFFLE/RUN QUALITY (12) **NO POOL = 0** POOL SCORE **9**

MAX. DEPTH (Check 1)		MORPHOLOGY (Check 1)		POOL/RUN/RIFFLE CURRENT VELOCITY (Check all that Apply)	
<input type="checkbox"/>	>4 ft.(6)	<input checked="" type="checkbox"/>	POOL WIDTH>RIFFLE WIDTH(2)	<input type="checkbox"/>	TORRENTIAL(-1)
<input checked="" type="checkbox"/>	2.4-4 ft.(4)	<input type="checkbox"/>	POOL WIDTH=RIFFLE WIDTH(1)	<input checked="" type="checkbox"/>	FAST(1)
<input type="checkbox"/>	1.2-2.4 ft.(2)	<input type="checkbox"/>	POOL WIDTH<RIFFLE WIDTH(0)	<input checked="" type="checkbox"/>	MODERATE(1)
<input type="checkbox"/>	<1.2 ft.(1)			<input checked="" type="checkbox"/>	SLOW(1)
<input type="checkbox"/>	<0.6 ft.(Pool=0)(0)			<input type="checkbox"/>	EDDIES(1)
				<input type="checkbox"/>	INTERSTITIAL(-1)
				<input type="checkbox"/>	INTERMITTENT(-2)

COMMENTS:

RIFFLE SCORE **6**

RIFFLE/RUN DEPTH		RIFFLE/RUN SUBSTRATE		RIFFLE/RUN EMBEDDEDNESS	
<input checked="" type="checkbox"/>	GENERALLY >4 in. MAX.>20 in.(4)	<input type="checkbox"/>	STABLE (e.g., Cobble,Boulder)(2)	<input type="checkbox"/>	EXTENSIVE(-1)
<input type="checkbox"/>	GENERALLY >4 in. MAX.<20 in.(3)	<input checked="" type="checkbox"/>	MOD. STABLE (e.g., Pea Gravel)(1)	<input type="checkbox"/>	MODERATE(0)
<input type="checkbox"/>	GENERALLY 2-4 in.(1)	<input type="checkbox"/>	UNSTABLE (Gravel, Sand)(0)	<input checked="" type="checkbox"/>	LOW(1)
<input type="checkbox"/>	GENERALLY <2 in.(Riffle=0)(0)	<input type="checkbox"/>	NO RIFFLE(0)	<input type="checkbox"/>	NONE(2)
				<input type="checkbox"/>	NO RIFFLE(0)

COMMENTS:

6) GRADIENT (FEET/MILE)(10) 2.8 % POOL 15 % RIFFLE 5 % RUN 80 GRADIENT SCORE **10**

1) SUBSTRATE: (Check ONLY Two Substrate Type Boxes: Check all types present)(20) SUBSTRATE SCORE **13**

TYPE		POOL		RIFFLE		POOL		RIFFLE		SUBSTRATE ORIGIN (all)		SILT COVER (one)	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	BLDER/SLAB(10)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LIMESTONE(1)	<input type="checkbox"/>	RIP/RAP(0)
<input type="checkbox"/>	BOULDER(9)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	TILLS(1)	<input type="checkbox"/>	HARDPAN(0)
<input type="checkbox"/>	COBBLE(8)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	SANDSTONE(0)	<input type="checkbox"/>	SILT-HEAVY(-2)
<input type="checkbox"/>	HARDPAN(4)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	SHALE(-1)	<input type="checkbox"/>	SILT-NORM(0)
<input type="checkbox"/>	MUCK/SILT(2)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	COAL FINES(-2)	<input type="checkbox"/>	SILT-FREE(1)
TOTAL NUMBER OF SUBSTRATE TYPES: <input checked="" type="checkbox"/> >4(2) <input type="checkbox"/> <4(0)		Extent of Embeddedness (check one)											
		<input type="checkbox"/> EXTENSIVE(-2) <input checked="" type="checkbox"/> MODERATE(-1)										<input type="checkbox"/> NONE(1)	
		<input type="checkbox"/> LOW(0)											

NOTE: (Ignore sludge that originates from point sources: score is based on natural substrates)

COMMENTS:

2) INSTREAM COVER: (20) COVER SCORE **13**

TYPE (Check all that apply)			AMOUNT (Check only one or Check 2 and AVERAGE)		
<input checked="" type="checkbox"/>	UNDERCUT BANKS(1)	<input type="checkbox"/>	DEEP POOLS(2)	<input type="checkbox"/>	EXTENSIVE >75%(11)
<input checked="" type="checkbox"/>	OVERHANGING VEGETATION(1)	<input checked="" type="checkbox"/>	ROOTWADS(1)	<input checked="" type="checkbox"/>	MODERATE 25-75%(7)
<input checked="" type="checkbox"/>	SHALLOWS (IN SLOW WATER)(1)	<input checked="" type="checkbox"/>	BOULDERS(1)	<input type="checkbox"/>	SPARSE 5-25%(3)
		<input type="checkbox"/>	OXBOWS(1)	<input type="checkbox"/>	NEARLY ABSENT <5%(1)
		<input type="checkbox"/>	AQUATIC MACROPHYTES(1)		
		<input checked="" type="checkbox"/>	LOGS OR WOODY DEBRIS(1)		

COMMENTS:

3) CHANNEL MORPHOLOGY: (Check ONLY ONE per Category or Check 2 and AVERAGE)(20) CHANNEL SCORE **16**

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY	MODIFICATION/OTHER	
<input type="checkbox"/>	EXCELLENT(7)	<input checked="" type="checkbox"/>	HIGH(3)	<input type="checkbox"/>	SNAGGING
<input checked="" type="checkbox"/>	GOOD(5)	<input type="checkbox"/>	MODERATE(2)	<input type="checkbox"/>	RELOCATION
<input type="checkbox"/>	FAIR(3)	<input type="checkbox"/>	LOW(1)	<input type="checkbox"/>	CANOPY REMOVAL
<input type="checkbox"/>	POOR(1)	<input type="checkbox"/>		<input type="checkbox"/>	DREDGING
		<input type="checkbox"/>		<input type="checkbox"/>	ONE SIDE CHANNEL MODIFICATION
		<input type="checkbox"/>		<input type="checkbox"/>	IMPOUND
		<input type="checkbox"/>		<input type="checkbox"/>	ISLAND
		<input type="checkbox"/>		<input type="checkbox"/>	LEVEED
		<input type="checkbox"/>		<input type="checkbox"/>	BANK SHAPING

COMMENTS:

4) RIPARIAN ZONE AND BANK EROSION: (Check ONE box or Check 2 and AVERAGE per bank) (10) RIPARIAN SCORE **7**

River Right Looking Downstream

RIPARIAN WIDTH (per bank)		EROSION/RUNOFF-FLOODPLAIN QUALITY				BANK EROSION	
L	R (per bank)	L	R (most predominant per bank)	L	R (per bank)	L	R (per bank)
<input type="checkbox"/>	WIDE >150ft.(4)	<input type="checkbox"/>	FOREST, SWAMP(3)	<input type="checkbox"/>	URBAN OR INDUSTRIAL(0)	<input checked="" type="checkbox"/>	NONE OR LITTLE(3)
<input checked="" type="checkbox"/>	MODERATE 30-150 ft.(3)	<input type="checkbox"/>	OPEN PASTURE/ROW CROP(0)	<input type="checkbox"/>	SHURB OR OLD FIELD(2)	<input type="checkbox"/>	MODERATE(2)
<input type="checkbox"/>	NARROW 15-30 ft.(2)	<input checked="" type="checkbox"/>	RESID.,PARK,NEW FIELD(1)	<input type="checkbox"/>	CONSERV. TILLAGE(1)	<input type="checkbox"/>	HEAVY OR SEVERE(1)
<input type="checkbox"/>	VERY NARROW 3-15 ft.(1)	<input type="checkbox"/>	FENCED PASTURE(1)	<input type="checkbox"/>	MINING/CONSTRUCTION(0)		
<input type="checkbox"/>	NONE(0)						

COMMENTS:

5) POOL/GLIDE AND RIFFLE/RUN QUALITY (12) **NO POOL = 0** POOL SCORE **10**

MAX. DEPTH (Check 1)	MORPHOLOGY (Check 1)	POOL/RUN/RIFFLE CURRENT VELOCITY (Check all that Apply)	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	EDDIES(1)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	INTERSTITIAL(-1)
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	INTERMITTENT(-2)
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COMMENTS:

RIFFLE SCORE **4**

RIFFLE/RUN DEPTH	RIFFLE/RUN SUBSTRATE	RIFFLE/RUN EMBEDDEDNESS	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	NONE(2)
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	NO RIFFLE(0)
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COMMENTS:

6) GRADIENT (FEET/MILE)(10) 3.0 % POOL 5 % RIFFLE 15 % RUN 80 GRADIENT SCORE **10**

1) SUBSTRATE: (Check ONLY Two Substrate Type Boxes: Check all types present)(20) SUBSTRATE SCORE **18**

TYPE		POOL		RIFFLE		POOL		RIFFLE		SUBSTRATE ORIGIN (all)		SILT COVER (one)	
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<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> </										

1) SUBSTRATE: (Check ONLY Two Substrate Type Boxes: Check all types present)(20) SUBSTRATE SCORE **15**

TYPE		POOL		RIFFLE		POOL		RIFFLE		SUBSTRATE ORIGIN (all)		SILT COVER (one)	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	BLDER/SLAB(10)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LIMESTONE(1)	<input type="checkbox"/>	SILT-HEAVY(-2)
<input type="checkbox"/>	BOULDER(9)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	TILLS(1)	<input checked="" type="checkbox"/>	SILT-NORM(0)				
<input type="checkbox"/>	COBBLE(8)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	HARDPAN(0)	<input type="checkbox"/>	SILT-FREE(1)
<input type="checkbox"/>	HARDPAN(4)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	SANDSTONE(0)	Extent of Embeddedness (check one)							
<input type="checkbox"/>	MUCK/SILT(2)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	SHALE(-1)	<input type="checkbox"/>	EXTENSIVE(-2)						
										<input type="checkbox"/>	COAL FINES(-2)	<input checked="" type="checkbox"/>	MODERATE(-1)
										<input type="checkbox"/>		<input type="checkbox"/>	NONE(1)

TOTAL NUMBER OF SUBSTRATE TYPES: >4(2) <4(0)

NOTE: (Ignore sludge that originates from point sources: score is based on natural substrates)

COMMENTS: _____

2) INSTREAM COVER: (20) COVER SCORE **14**

TYPE (Check all that apply)			AMOUNT (Check only one or Check 2 and AVERAGE)		
<input checked="" type="checkbox"/>	UNDERCUT BANKS(1)	<input type="checkbox"/>	DEEP POOLS(2)	<input type="checkbox"/>	EXTENSIVE >75%(11)
<input checked="" type="checkbox"/>	OVERHANGING VEGETATION(1)	<input checked="" type="checkbox"/>	ROOTWADS(1)	<input checked="" type="checkbox"/>	MODERATE 25-75%(7)
<input checked="" type="checkbox"/>	SHALLOWS (IN SLOW WATER)(1)	<input checked="" type="checkbox"/>	BOULDERS(1)	<input type="checkbox"/>	SPARSE 5-25%(3)
		<input type="checkbox"/>	OXBOWS(1)	<input type="checkbox"/>	NEARLY ABSENT <5%(1)
		<input checked="" type="checkbox"/>	AQUATIC MACROPHYTES(1)		
		<input checked="" type="checkbox"/>	LOGS OR WOODY DEBRIS(1)		

COMMENTS: _____

3) CHANNEL MORPHOLOGY: (Check ONLY ONE per Category or Check 2 and AVERAGE)(20) CHANNEL SCORE **18**

SINUOSITY		DEVELOPMENT		CHANNELIZATION		STABILITY		MODIFICATION/OTHER	
<input type="checkbox"/>	HIGH(4)	<input checked="" type="checkbox"/>	EXCELLENT(7)	<input checked="" type="checkbox"/>	NONE(6)	<input type="checkbox"/>	HIGH(3)	<input type="checkbox"/>	SNAGGING
<input checked="" type="checkbox"/>	MODERATE(3)	<input type="checkbox"/>	GOOD(5)	<input type="checkbox"/>	RECOVERED(4)	<input checked="" type="checkbox"/>	MODERATE(2)	<input type="checkbox"/>	RELOCATION
<input type="checkbox"/>	LOW(2)	<input type="checkbox"/>	FAIR(3)	<input type="checkbox"/>	RECOVERING(3)	<input type="checkbox"/>	LOW(1)	<input type="checkbox"/>	CANOPY REMOVAL
<input type="checkbox"/>	NONE(1)	<input type="checkbox"/>	POOR(1)	<input type="checkbox"/>	RECENT OR NO RECOVERY(1)			<input type="checkbox"/>	DREDGING
								<input type="checkbox"/>	ONE SIDE CHANNEL MODIFICATION
								<input type="checkbox"/>	IMPOUND
								<input type="checkbox"/>	ISLAND
								<input type="checkbox"/>	LEVEED
								<input type="checkbox"/>	BANK SHAPING

COMMENTS: _____

4) RIPARIAN ZONE AND BANK EROSION: (Check ONE box or Check 2 and AVERAGE per bank) (10) RIPARIAN SCORE **7**

River Right Looking Downstream

RIPARIAN WIDTH (per bank)		EROSION/RUNOFF-FLOODPLAIN QUALITY				BANK EROSION	
L	R (per bank)	L	R (most predominant per bank)	L	R (per bank)	L	R (per bank)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	WIDE>150ft.(4)	<input type="checkbox"/>	FOREST, SWAMP(3)	<input type="checkbox"/>	URBAN OR INDUSTRIAL(0)	<input type="checkbox"/>	NONE OR LITTLE(3)
<input type="checkbox"/>	MODERATE 30-150 ft.(3)	<input type="checkbox"/>	OPEN PASTURE/ROW CROP(0)	<input type="checkbox"/>	SHURB OR OLD FIELD(2)	<input type="checkbox"/>	MODERATE(2)
<input type="checkbox"/>	NARROW 15-30 ft.(2)	<input checked="" type="checkbox"/>	RESID.,PARK,NEW FIELD(1)	<input type="checkbox"/>	CONSERV. TILLAGE(1)	<input type="checkbox"/>	HEAVY OR SEVERE(1)
<input type="checkbox"/>	VERY NARROW 3-15 ft.(1)	<input type="checkbox"/>	FENCED PASTURE(1)	<input type="checkbox"/>	MINING/CONSTRUCTION(0)		
<input type="checkbox"/>	NONE(0)						

COMMENTS: _____

5) POOL/GLIDE AND RIFFLE/RUN QUALITY (12) **NO POOL = 0** POOL SCORE **9**

MAX. DEPTH (Check 1)		MORPHOLOGY (Check 1)		POOL/RUN/RIFFLE CURRENT VELOCITY (Check all that Apply)	
<input type="checkbox"/>	>4 ft.(6)	<input checked="" type="checkbox"/>	POOL WIDTH>RIFFLE WIDTH(2)	<input type="checkbox"/>	TORRENTIAL(-1)
<input checked="" type="checkbox"/>	2.4-4 ft.(4)	<input type="checkbox"/>	POOL WIDTH=RIFFLE WIDTH(1)	<input type="checkbox"/>	FAST(1)
<input type="checkbox"/>	1.2-2.4 ft.(2)	<input type="checkbox"/>	POOL WIDTH<RIFFLE WIDTH(0)	<input checked="" type="checkbox"/>	MODERATE(1)
<input type="checkbox"/>	<1.2 ft.(1)			<input checked="" type="checkbox"/>	SLOW(1)
<input type="checkbox"/>	<0.6 ft.(Pool=0)(0)			<input type="checkbox"/>	EDDIES(1)
				<input type="checkbox"/>	INTERSTITIAL(-1)
				<input type="checkbox"/>	INTERMITTENT(-2)

COMMENTS: _____

RIFFLE SCORE **7**

RIFFLE/RUN DEPTH		RIFFLE/RUN SUBSTRATE		RIFFLE/RUN EMBEDDEDNESS	
<input checked="" type="checkbox"/>	GENERALLY >4 in. MAX.>20 in.(4)	<input checked="" type="checkbox"/>	STABLE (e.g., Cobble,Boulder)(2)	<input type="checkbox"/>	EXTENSIVE(-1)
<input type="checkbox"/>	GENERALLY >4 in. MAX.<20 in.(3)	<input type="checkbox"/>	MOD. STABLE (e.g., Pea Gravel)(1)	<input type="checkbox"/>	MODERATE(0)
<input type="checkbox"/>	GENERALLY 2-4 in.(1)	<input type="checkbox"/>	UNSTABLE (Gravel, Sand)(0)	<input checked="" type="checkbox"/>	LOW(1)
<input type="checkbox"/>	GENERALLY <2 in.(Riffle=0)(0)	<input type="checkbox"/>	NO RIFFLE(0)	<input type="checkbox"/>	NONE(2)
				<input type="checkbox"/>	NO RIFFLE(0)

COMMENTS: _____

6) GRADIENT (FEET/MILE)(10) 1.9 % POOL 5 % RIFFLE 10 % RUN 85 GRADIENT SCORE **10**

1) SUBSTRATE: (Check ONLY Two Substrate Type Boxes: Check all types present)(20) SUBSTRATE SCORE **12**

TYPE		POOL		RIFFLE		POOL		RIFFLE		SUBSTRATE ORIGIN (all)		SILT COVER (one)	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	BLDER/SLAB(10)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	LIMESTONE(1)	<input type="checkbox"/>	RIP/RAP(0)					
<input type="checkbox"/>	BOULDER(9)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	TILLS(1)	<input type="checkbox"/>	HARDPAN(0)					
<input type="checkbox"/>	COBBLE(8)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	SANDSTONE(0)	<input type="checkbox"/>	SILT-HEAVY(-2)
<input type="checkbox"/>	HARDPAN(4)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	SHALE(-1)	<input type="checkbox"/>	SILT-NORM(0)
<input type="checkbox"/>	MUCK/SILT(2)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	COAL FINES(-2)	<input type="checkbox"/>	SILT-FREE(1)
TOTAL NUMBER OF SUBSTRATE TYPES: <input type="checkbox"/> >4(2)		<input checked="" type="checkbox"/> <4(0)										Extent of Embeddedness (check one)	
												<input type="checkbox"/> EXTENSIVE(-2)	
												<input checked="" type="checkbox"/> MODERATE(-1)	
												<input type="checkbox"/> LOW(0)	
												<input type="checkbox"/> NONE(1)	

NOTE: (Ignore sludge that originates from point sources: score is based on natural substrates)

COMMENTS:

2) INSTREAM COVER: (20) COVER SCORE **12**

TYPE (Check all that apply)			AMOUNT (Check only one or Check 2 and AVERAGE)		
<input type="checkbox"/>	UNDERCUT BANKS(1)	<input checked="" type="checkbox"/>	DEEP POOLS(2)	<input type="checkbox"/>	OXBOWS(1)
<input type="checkbox"/>	OVERHANGING VEGETATION(1)	<input type="checkbox"/>	ROOTWADS(1)	<input type="checkbox"/>	AQUATIC MACROPHYTES(1)
<input checked="" type="checkbox"/>	SHALLOWS (IN SLOW WATER)(1)	<input checked="" type="checkbox"/>	BOULDERS(1)	<input checked="" type="checkbox"/>	LOGS OR WOODY DEBRIS(1)
			<input type="checkbox"/> EXTENSIVE >75%(11)		
			<input checked="" type="checkbox"/> MODERATE 25-75%(7)		
			<input type="checkbox"/> SPARSE 5-25%(3)		
			<input type="checkbox"/> NEARLY ABSENT <5%(1)		

COMMENTS:

3) CHANNEL MORPHOLOGY: (Check ONLY ONE per Category or Check 2 and AVERAGE)(20) CHANNEL SCORE **12**

SINUOSITY		DEVELOPMENT		CHANNELIZATION		STABILITY		MODIFICATION/OTHER	
<input type="checkbox"/>	HIGH(4)	<input type="checkbox"/>	EXCELLENT(7)	<input type="checkbox"/>	NONE(6)	<input checked="" type="checkbox"/>	HIGH(3)	<input type="checkbox"/>	SNAGGING
<input type="checkbox"/>	MODERATE(3)	<input type="checkbox"/>	GOOD(5)	<input checked="" type="checkbox"/>	RECOVERED(4)	<input type="checkbox"/>	MODERATE(2)	<input type="checkbox"/>	RELOCATION
<input checked="" type="checkbox"/>	LOW(2)	<input checked="" type="checkbox"/>	FAIR(3)	<input type="checkbox"/>	RECOVERING(3)	<input type="checkbox"/>	LOW(1)	<input type="checkbox"/>	CANOPY REMOVAL
<input type="checkbox"/>	NONE(1)	<input type="checkbox"/>	POOR(1)	<input type="checkbox"/>	RECENT OR NO RECOVERY(1)			<input type="checkbox"/>	DREDGING
								<input type="checkbox"/>	IMPOUND
								<input type="checkbox"/>	ISLAND
								<input type="checkbox"/>	LEVEED
								<input type="checkbox"/>	BANK SHAPING
								<input type="checkbox"/>	ONE SIDE CHANNEL MODIFICATION

COMMENTS:

4) RIPARIAN ZONE AND BANK EROSION: (Check ONE box or Check 2 and AVERAGE per bank) (10) RIPARIAN SCORE **7**

River Right Looking Downstream

RIPARIAN WIDTH (per bank)		EROSION/RUNOFF-FLOODPLAIN QUALITY				BANK EROSION	
L	R (per bank)	L	R (most predominant per bank)	L	R (per bank)	L	R (per bank)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

COMMENTS:

5) POOL/GLIDE AND RIFFLE/RUN QUALITY (12) **NO POOL = 0** POOL SCORE **9**

MAX. DEPTH (Check 1)		MORPHOLOGY (Check 1)		POOL/RUN/RIFFLE CURRENT VELOCITY (Check all that Apply)	
<input checked="" type="checkbox"/>	>4 ft.(6)	<input type="checkbox"/>	POOL WIDTH>RIFFLE WIDTH(2)	<input type="checkbox"/>	TORRENTIAL(-1)
<input type="checkbox"/>	2.4-4 ft.(4)	<input checked="" type="checkbox"/>	POOL WIDTH=RIFFLE WIDTH(1)	<input type="checkbox"/>	FAST(1)
<input type="checkbox"/>	1.2-2.4 ft.(2)	<input type="checkbox"/>	POOL WIDTH<RIFFLE WIDTH(0)	<input checked="" type="checkbox"/>	MODERATE(1)
<input type="checkbox"/>	<1.2 ft.(1)			<input checked="" type="checkbox"/>	SLOW(1)
<input type="checkbox"/>	<0.6 ft.(Pool=0)(0)			<input type="checkbox"/>	EDDIES(1)
				<input type="checkbox"/>	INTERSTITIAL(-1)
				<input type="checkbox"/>	INTERMITTENT(-2)

COMMENTS:

RIFFLE SCORE **0**

RIFFLE/RUN DEPTH		RIFFLE/RUN SUBSTRATE		RIFFLE/RUN EMBEDDEDNESS	
<input type="checkbox"/>	GENERALLY >4 in. MAX.>20 in.(4)	<input type="checkbox"/>	STABLE (e.g., Cobble,Boulder)(2)	<input type="checkbox"/>	EXTENSIVE(-1)
<input type="checkbox"/>	GENERALLY >4 in. MAX.<20 in.(3)	<input type="checkbox"/>	MOD. STABLE (e.g., Pea Gravel)(1)	<input type="checkbox"/>	MODERATE(0)
<input type="checkbox"/>	GENERALLY 2-4 in.(1)	<input type="checkbox"/>	UNSTABLE (Gravel, Sand)(0)	<input type="checkbox"/>	LOW(1)
<input checked="" type="checkbox"/>	GENERALLY <2 in.(Riffle=0)(0)	<input checked="" type="checkbox"/>	NO RIFFLE(0)	<input type="checkbox"/>	NONE(2)
				<input checked="" type="checkbox"/>	NO RIFFLE(0)

COMMENTS:

6) GRADIENT (FEET/MILE)(10) 2.2 % POOL 5 % RIFFLE % RUN 95 GRADIENT SCORE **10**

1) SUBSTRATE: (Check ONLY Two Substrate Type Boxes: Check all types present)(20) SUBSTRATE SCORE **14**

TYPE		POOL		RIFFLE		POOL		RIFFLE		SUBSTRATE ORIGIN (all)		SILT COVER (one)	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>				
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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1) SUBSTRATE: (Check ONLY Two Substrate Type Boxes: Check all types present)(20) SUBSTRATE SCORE **16**

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1) SUBSTRATE: (Check ONLY Two Substrate Type Boxes: Check all types present)(20) SUBSTRATE SCORE **11**

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<input type="checkbox"/>	BOULDER(9)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	SAND(6)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	TILLS(1)	<input type="checkbox"/>	HARDPAN(0)
<input type="checkbox"/>	COBBLE(8)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	BEDROCK(5)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	SANDSTONE(0)	<input type="checkbox"/>	SILT-HEAVY(-2)
<input type="checkbox"/>	HARDPAN(4)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	DETRITUS(3)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	SHALE(-1)	<input type="checkbox"/>	SILT-NORM(0)
<input type="checkbox"/>	MUCK/SILT(2)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ARTIFIC(0)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	COAL FINES(-2)	<input type="checkbox"/>	SILT-FREE(1)
TOTAL NUMBER OF SUBSTRATE TYPES: <input type="checkbox"/> >4(2)		<input checked="" type="checkbox"/> <4(0)										Extent of Embeddedness (check one)	
												<input type="checkbox"/> EXTENSIVE(-2)	
												<input checked="" type="checkbox"/> MODERATE(-1)	
												<input type="checkbox"/> LOW(0)	
												<input type="checkbox"/> NONE(1)	

NOTE: (Ignore sludge that originates from point sources: score is based on natural substrates)

COMMENTS: _____

2) INSTREAM COVER: (20) COVER SCORE **14**

TYPE (Check all that apply)			AMOUNT (Check only one or Check 2 and AVERAGE)		
<input type="checkbox"/>	UNDERCUT BANKS(1)	<input checked="" type="checkbox"/>	DEEP POOLS(2)	<input type="checkbox"/>	OXBOWS(1)
<input checked="" type="checkbox"/>	OVERHANGING VEGETATION(1)	<input type="checkbox"/>	ROOTWADS(1)	<input checked="" type="checkbox"/>	AQUATIC MACROPHYTES(1)
<input checked="" type="checkbox"/>	SHALLOWS (IN SLOW WATER)(1)	<input checked="" type="checkbox"/>	BOULDERS(1)	<input type="checkbox"/>	LOGS OR WOODY DEBRIS(1)
			<input type="checkbox"/> EXTENSIVE >75%(11)		
			<input checked="" type="checkbox"/> MODERATE 25-75%(7)		
			<input type="checkbox"/> SPARSE 5-25%(3)		
			<input type="checkbox"/> NEARLY ABSENT <5%(1)		

COMMENTS: _____

3) CHANNEL MORPHOLOGY: (Check ONLY ONE per Category or Check 2 and AVERAGE)(20) CHANNEL SCORE **14**

SINUOSITY		DEVELOPMENT		CHANNELIZATION		STABILITY		MODIFICATION/OTHER	
<input type="checkbox"/>	HIGH(4)	<input type="checkbox"/>	EXCELLENT(7)	<input checked="" type="checkbox"/>	NONE(6)	<input type="checkbox"/>	HIGH(3)	<input type="checkbox"/>	SNAGGING
<input checked="" type="checkbox"/>	MODERATE(3)	<input type="checkbox"/>	GOOD(5)	<input type="checkbox"/>	RECOVERED(4)	<input checked="" type="checkbox"/>	MODERATE(2)	<input type="checkbox"/>	RELOCATION
<input type="checkbox"/>	LOW(2)	<input checked="" type="checkbox"/>	FAIR(3)	<input type="checkbox"/>	RECOVERING(3)	<input type="checkbox"/>	LOW(1)	<input type="checkbox"/>	CANOPY REMOVAL
<input type="checkbox"/>	NONE(1)	<input type="checkbox"/>	POOR(1)	<input type="checkbox"/>	RECENT OR NO RECOVERY(1)			<input type="checkbox"/>	DREDGING
								<input type="checkbox"/>	ONE SIDE CHANNEL MODIFICATION
								<input type="checkbox"/>	IMPOUND
								<input type="checkbox"/>	ISLAND
								<input type="checkbox"/>	LEVEED
								<input type="checkbox"/>	BANK SHAPING

COMMENTS: _____

4) RIPARIAN ZONE AND BANK EROSION: (Check ONE box or Check 2 and AVERAGE per bank) (10) RIPARIAN SCORE **6**

River Right Looking Downstream

RIPARIAN WIDTH (per bank)		EROSION/RUNOFF-FLOODPLAIN QUALITY				BANK EROSION	
L	R (per bank)	L	R (most predominant per bank)	L	R (per bank)	L	R (per bank)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	WIDE >150ft.(4)	<input type="checkbox"/>	FOREST, SWAMP(3)	<input type="checkbox"/>	URBAN OR INDUSTRIAL(0)	<input type="checkbox"/>	NONE OR LITTLE(3)
<input type="checkbox"/>	MODERATE 30-150 ft.(3)	<input type="checkbox"/>	OPEN PASTURE/ROW CROP(0)	<input type="checkbox"/>	SHURB OR OLD FIELD(2)	<input type="checkbox"/>	MODERATE(2)
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	CONSERV. TILLAGE(1)	<input type="checkbox"/>	HEAVY OR SEVERE(1)
<input type="checkbox"/>	NARROW 15-30 ft.(2)	<input type="checkbox"/>	RESID.,PARK,NEW FIELD(1)	<input type="checkbox"/>	MINING/CONSTRUCTION(0)		
<input type="checkbox"/>	VERY NARROW 3-15 ft.(1)	<input type="checkbox"/>	FENCED PASTURE(1)				
<input type="checkbox"/>	NONE(0)						

COMMENTS: _____

5) POOL/GLIDE AND RIFFLE/RUN QUALITY (12) **NO POOL = 0** POOL SCORE **6**

MAX. DEPTH (Check 1)		MORPHOLOGY (Check 1)		POOL/RUN/RIFFLE CURRENT VELOCITY (Check all that Apply)			
<input type="checkbox"/>	>4 ft.(6)	<input type="checkbox"/>	POOL WIDTH>RIFFLE WIDTH(2)	<input type="checkbox"/>	TORRENTIAL(-1)	<input type="checkbox"/>	EDDIES(1)
<input checked="" type="checkbox"/>	2.4-4 ft.(4)	<input checked="" type="checkbox"/>	POOL WIDTH=RIFFLE WIDTH(1)	<input type="checkbox"/>	FAST(1)	<input type="checkbox"/>	INTERSTITIAL(-1)
<input type="checkbox"/>	1.2-2.4 ft.(2)	<input type="checkbox"/>	POOL WIDTH<RIFFLE WIDTH(0)	<input checked="" type="checkbox"/>	MODERATE(1)	<input type="checkbox"/>	INTERMITTENT(-2)
<input type="checkbox"/>	<1.2 ft.(1)			<input type="checkbox"/>	SLOW(1)		
<input type="checkbox"/>	<0.6 ft.(Pool=0)(0)						

COMMENTS: _____

RIFFLE SCORE **3**

RIFFLE/RUN DEPTH		RIFFLE/RUN SUBSTRATE		RIFFLE/RUN EMBEDDEDNESS	
<input type="checkbox"/>	GENERALLY >4 in. MAX.>20 in.(4)	<input type="checkbox"/>	STABLE (e.g., Cobble,Boulder)(2)	<input type="checkbox"/>	EXTENSIVE(-1)
<input checked="" type="checkbox"/>	GENERALLY >4 in. MAX.<20 in.(3)	<input type="checkbox"/>	MOD. STABLE (e.g., Pea Gravel)(1)	<input checked="" type="checkbox"/>	MODERATE(0)
<input type="checkbox"/>	GENERALLY 2-4 in.(1)	<input checked="" type="checkbox"/>	UNSTABLE (Gravel, Sand)(0)	<input type="checkbox"/>	LOW(1)
<input type="checkbox"/>	GENERALLY <2 in.(Riffle=0)(0)	<input type="checkbox"/>	NO RIFFLE(0)	<input type="checkbox"/>	NONE(2)
				<input type="checkbox"/>	NO RIFFLE(0)

COMMENTS: _____

6) GRADIENT (FEET/MILE)(10) 2.2 % POOL 5 % RIFFLE 5 % RUN 90 GRADIENT SCORE **10**

1) SUBSTRATE: (Check ONLY Two Substrate Type Boxes: Check all types present)(20) SUBSTRATE SCORE **16**

TYPE		POOL		RIFFLE	POOL		RIFFLE	SUBSTRATE ORIGIN (all)		SILT COVER (one)	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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1) SUBSTRATE: (Check ONLY Two Substrate Type Boxes: Check all types present)(20) SUBSTRATE SCORE **13**

TYPE		POOL		RIFFLE		POOL		RIFFLE		SUBSTRATE ORIGIN (all)		SILT COVER (one)	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	BLDER/SLAB(10)										RIP/RAP(0)		SILT-MOD(-1)
<input type="checkbox"/>	BOULDER(9)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>						HARDPAN(0)		SILT-FREE(1)
<input checked="" type="checkbox"/>	COBBLE(8)											Extent of Embeddedness (check one)	
<input type="checkbox"/>	HARDPAN(4)											<input type="checkbox"/>	EXTENSIVE(-2)
<input type="checkbox"/>	MUCK/SILT(2)											<input type="checkbox"/>	LOW(0)
												<input checked="" type="checkbox"/>	MODERATE(-1)
												<input type="checkbox"/>	NONE(1)

TOTAL NUMBER OF SUBSTRATE TYPES: >4(2) <4(0)

NOTE: (Ignore sludge that originates from point sources: score is based on natural substrates)

COMMENTS:

2) INSTREAM COVER: (20) COVER SCORE **15**

TYPE (Check all that apply)			AMOUNT (Check only one or Check 2 and AVERAGE)		
<input type="checkbox"/>	UNDERCUT BANKS(1)	<input checked="" type="checkbox"/>	DEEP POOLS(2)	<input type="checkbox"/>	EXTENSIVE >75%(11)
<input checked="" type="checkbox"/>	OVERHANGING VEGETATION(1)	<input checked="" type="checkbox"/>	ROOTWADS(1)	<input checked="" type="checkbox"/>	MODERATE 25-75%(7)
<input checked="" type="checkbox"/>	SHALLOWS (IN SLOW WATER)(1)	<input checked="" type="checkbox"/>	BOULDERS(1)	<input type="checkbox"/>	SPARSE 5-25%(3)
		<input type="checkbox"/>	OXBOWS(1)	<input type="checkbox"/>	NEARLY ABSENT <5%(1)
		<input checked="" type="checkbox"/>	AQUATIC MACROPHYTES(1)		
		<input checked="" type="checkbox"/>	LOGS OR WOODY DEBRIS(1)		

COMMENTS:

3) CHANNEL MORPHOLOGY: (Check ONLY ONE per Category or Check 2 and AVERAGE)(20) CHANNEL SCORE **13**

<u>SINUOSITY</u>	<u>DEVELOPMENT</u>	<u>CHANNELIZATION</u>	<u>STABILITY</u>	<u>MODIFICATION/OTHER</u>	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	EXCELLENT(7)	NONE(6)	HIGH(3)	SNAGGING	IMPOUND
<input type="checkbox"/>	GOOD(5)	RECOVERED(4)	MODERATE(2)	RELOCATION	ISLAND
<input checked="" type="checkbox"/>	FAIR(3)	RECOVERING(3)	LOW(1)	CANOPY REMOVAL	LEVEED
<input checked="" type="checkbox"/>	POOR(1)	RECENT OR NO RECOVERY(1)		DREDGING	BANK SHAPING
				ONE SIDE CHANNEL MODIFICATION	

COMMENTS:

4) RIPARIAN ZONE AND BANK EROSION: (Check ONE box or Check 2 and AVERAGE per bank) (10) RIPARIAN SCORE **8**

River Right Looking Downstream

<u>RIPARIAN WIDTH (per bank)</u>	<u>EROSION/RUNOFF-FLOODPLAIN QUALITY</u>	<u>BANK EROSION</u>			
L R (per bank)	L R (most predominant per bank)	L R (per bank)			
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
WIDE >150ft.(4)	FOREST, SWAMP(3)	URBAN OR INDUSTRIAL(0)	NONE OR LITTLE(3)		
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	SHURB OR OLD FIELD(2)	<input type="checkbox"/>	<input type="checkbox"/>
MODERATE 30-150 ft.(3)	OPEN PASTURE/ROW CROP(0)	<input type="checkbox"/>	CONSERV. TILLAGE(1)	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	MINING/CONSTRUCTION(0)	<input type="checkbox"/>	<input type="checkbox"/>
NARROW 15-30 ft.(2)	RESID.,PARK,NEW FIELD(1)			<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>
VERY NARROW 3-15 ft.(1)	FENCED PASTURE(1)			<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>
NONE(0)				<input type="checkbox"/>	<input type="checkbox"/>

COMMENTS:

5) POOL/GLIDE AND RIFFLE/RUN QUALITY (12) **NO POOL = 0** POOL SCORE **12**

<u>MAX. DEPTH (Check 1)</u>	<u>MORPHOLOGY (Check 1)</u>	<u>POOL/RUN/RIFFLE CURRENT VELOCITY (Check all that Apply)</u>	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
>4 ft.(6)	POOL WIDTH>RIFFLE WIDTH(2)	TORRENTIAL(-1)	EDDIES(1)
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2-4 ft.(4)	POOL WIDTH=RIFFLE WIDTH(1)	FAST(1)	INTERSTITIAL(-1)
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
1.2-2.4 ft.(2)	POOL WIDTH<RIFFLE WIDTH(0)	MODERATE(1)	INTERMITTENT(-2)
<input type="checkbox"/>		<input checked="" type="checkbox"/>	
<1.2 ft.(1)		SLOW(1)	
<input type="checkbox"/>			
<0.6 ft.(Pool=0)(0)			

COMMENTS:

RIFFLE SCORE **5**

<u>RIFFLE/RUN DEPTH</u>	<u>RIFFLE/RUN SUBSTRATE</u>	<u>RIFFLE/RUN EMBEDDEDNESS</u>	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
GENERALLY >4 in. MAX.>20 in.(4)	STABLE (e.g., Cobble,Boulder)(2)	EXTENSIVE(-1)	NONE(2)
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
GENERALLY >4 in. MAX.<20 in.(3)	MOD. STABLE (e.g., Pea Gravel)(1)	MODERATE(0)	NO RIFFLE(0)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
GENERALLY 2-4 in.(1)	UNSTABLE (Gravel, Sand)(0)	LOW(1)	
<input type="checkbox"/>	<input type="checkbox"/>		
GENERALLY <2 in.(Riffle=0)(0)	NO RIFFLE(0)		

COMMENTS:

6) GRADIENT (FEET/MILE)(10) 2.3 % POOL 10 % RIFFLE 25 % RUN 65 GRADIENT SCORE **10**

STATION: 1, Mounds

NAME OF STREAM: West Fork White River

NAME, NUMBER, PERCENTAGE, SIZE, AND WEIGHT OF FISHES COLLECTED

COMMON NAME	NUMBER	PERCENTAGE	SIZE RANGE (INCHES)	TOTAL WEIGHT (POUNDS)	PERCENTAGE
Sand shiner	296	27.92	2.5-13.8	1.15	2.17
Central stoneroller	153	14.43	2.0-5.8	1.24	2.34
Northern hog sucker	132	12.45	2.5-13.8	29.79	56.31
Spotfin shiner	128	12.08	1.1-3.9	1.15	2.17
Bluntnose minnow	83	7.83	1.0-3.2	0.30	0.57
Bluegill	35	3.30	2.6-4.1	0.88	1.66
Smallmouth bass	29	2.74	3.0-11.2	3.38	6.39
Creek chub	26	2.45	1.7-3.0	0.12	0.23
Mottled sculpin	21	1.98	1.7-3.2	0.27	0.51
Greenside darter	19	1.79	2.0-3.4	0.10	0.19
Rosyface shiner	19	1.79	2.0-3.5	0.16	0.30
Longear sunfish	17	1.60	1.3-5.6	0.52	0.98
Green sunfish	16	1.51	1.1-5.0	0.63	1.19
Rock bass	15	1.42	1.6-8.7	1.85	3.50
Black redhorse	12	1.13	2.7-14.7	8.03	15.18
Rainbow darter	12	1.13	1.7-2.4	0.04	0.08
Silverjaw minnow	9	0.85	2.0-3.2	0.02	0.04
Striped shiner	9	0.85	2.5-5.7	0.31	0.59
Silver shiner	7	0.66	4.1-4.7	0.09	0.17
Golden redhorse	6	0.57	2.1-16.7	2.71	5.12
Blacknose dace	3	0.28	1.7-2.0	0.01	0.02
Largemouth bass	3	0.28	2.8-4.0	0.06	0.11
River chub	3	0.28	2.1-5.0	0.03	0.06
Brook silverside	2	0.19	1.7-2.5	0.01	0.02
Johnny darter	1	0.09	2.2	0.01	0.02
Orangethroat darter	1	0.09	1.6	0.01	0.02
Redfin shiner	1	0.09	2.2	0.01	0.02
Stonecat	1	0.09	3.0	0.01	0.02
Yellow bullhead	1	0.09	2	0.01	0.02
Total - 29 Species	1,060			52.90	

STATION: 2, Raible Ave

NAME OF STREAM: West Fork White River

NAME, NUMBER, PERCENTAGE, SIZE, AND WEIGHT OF FISHES COLLECTED

COMMON NAME	NUMBER	PERCENTAGE	SIZE RANGE (INCHES)	TOTAL WEIGHT (POUNDS)	PERCENTAGE
Northern hog sucker	16	28.57	16.8-11.1	3.44	19.91
Rock bass	11	19.64	4.8-8.0	2.65	15.34
Smallmouth bass	6	10.71	2.7-13.1	2.36	13.66
Bluegill	5	8.93	4.2-6.1	0.56	3.24
Golden redhorse	5	8.93	8.7-15.7	3.54	20.49
Black redhorse	4	7.14	8.7-15.3	3.00	17.36
Longear sunfish	2	3.57	4.1-5.8	0.22	1.27
Gizzard shad	2	3.57	9.9-10.0	0.87	5.03
White sucker	1	1.79	8.4	0.20	1.16
Blackside darter	1	1.79	2.3	0.01	0.06
Black crappie	1	1.79	9.0	0.38	2.20
Largemouth bass	1	1.79	3.6	0.02	0.12
Silver shiner	1	1.79	4.5	0.03	0.17
Total - 13 Species	56			17.28	

STATION: 3, County Road 600W

NAME OF STREAM: West Fork White River

NAME, NUMBER, PERCENTAGE, SIZE, AND WEIGHT OF FISHES COLLECTED

COMMON NAME	NUMBER	PERCENTAGE	SIZE RANGE (INCHES)	TOTAL WEIGHT (POUNDS)	PERCENTAGE
Golden redbhorse	18	28.57	12.2-15.0	17.50	21.16
Black redbhorse	14	22.22	13.4-15.9	12.75	15.42
Northern hog sucker	6	9.52	6.1-9.6	1.49	1.80
Common carp	4	6.35	23.1-26.7	35.00	42.32
Spotfin shiner	4	6.35	2.7-3.9	0.04	0.05
Rock bass	3	4.76	6.4-8.9	1.28	1.55
Spotted sucker	3	4.76	9.7-13.7	2.17	2.62
Rosyface shiner	2	3.17	2.4-2.8	0.06	0.07
Silver shiner	2	3.17	4.9-5.3	0.06	0.07
Smallmouth bass	2	3.17	13.1-16.5	3.02	3.65
Bluntnose minnow	1	1.59	3.3	0.01	0.01
Brook silverside	1	1.59	2.7	0.01	0.01
Channel catfish	1	1.59	27.0	9.00	10.88
Longear sunfish	1	1.59	5.2	0.11	0.13
Redear sunfish	1	1.59	6.5	0.21	0.25
Total - 15 Species	63			82.71	

STATION: 4, Perkinsville

NAME OF STREAM: West Fork White River

NAME, NUMBER, PERCENTAGE, SIZE, AND WEIGHT OF FISHES COLLECTED

COMMON NAME	NUMBER	PERCENTAGE	SIZE RANGE (INCHES)	TOTAL WEIGHT (POUNDS)	PERCENTAGE
Longear sunfish	122	30.81	0.9-5.6	3.35	9.51
Spotfin shiner	68	17.17	1.4-3.3	0.23	0.65
Rock bass	40	10.10	3.2-7.8	6.43	18.26
Bluegill	21	5.30	3.3-5.6	1.02	2.90
Rainbow darter	19	4.80	1.4-2.5	0.06	0.17
Bluntnose minnow	17	4.29	1.0-2.6	0.03	0.09
Green sunfish	17	4.29	2.0-5.3	0.60	1.70
Greenside darter	14	3.54	2.0-3.1	0.06	0.17
Smallmouth bass	11	2.78	3.4-16.2	3.33	9.45
Johnny darter	10	2.53	1.6-2.1	0.02	0.06
Central stoneroller	9	2.27	2.1-3.1	0.07	0.20
Largemouth bass	6	1.52	3.0-4.0	0.15	0.43
Northern hog sucker	6	1.52	3.2-13.8	2.52	7.16
Sand shiner	6	1.52	1.5-2.5	0.02	0.06
Mottled sculpin	5	1.26	1.4-3.0	0.03	0.09
Black redhorse	3	0.76	13.4-14.8	2.83	8.04
Golden redhorse	3	0.76	8.6-15.0	2.50	7.10
Warmouth	3	0.76	3.5-4.4	0.14	0.40
Blackside darter	2	0.51	2.3-2.4	0.01	0.03
Common carp	2	0.51	18.0-20.0	10.00	28.39
Orangethroat darter	2	0.51	1.6-1.8	0.01	0.03
Yellow bullhead	2	0.51	8.5-10.4	0.97	0.02
Black crappie	1	0.25	7.4	0.20	0.57
Blackstripe topminnow	1	0.25	1.6	0.01	0.04
Brook silverside	1	0.25	2.5	0.01	0.04
Channel catfish	1	0.25	3	0.01	0.03
Creek chub	1	0.25	2.3	0.01	0.03
Logperch	1	0.25	6.2	0.07	0.20
Roseyface shiner	1	0.25	2.3	0.01	0.03
White sucker	1	0.25	11.8	0.52	1.48
Total - 30 Species	396			35.22	

STATION: 5, Coffey Grounds

NAME OF STREAM: West Fork White River

NAME, NUMBER, PERCENTAGE, SIZE, AND WEIGHT OF FISHES COLLECTED

COMMON NAME	NUMBER	PERCENTAGE	SIZE RANGE (INCHES)	TOTAL WEIGHT (POUNDS)	PERCENTAGE
Northern hog sucker	8	17.02	3.4-12.3	1.30	1.84
Rock bass	8	17.02	5.0-8.5	2.05	2.90
Smallmouth bass	8	17.02	5.7-14.4	3.33	4.72
Bluntnose minnow	5	10.64	1.5-1.7	0.01	0.01
Common carp	4	8.51	23.3-27.4	61.00	86.44
Longear sunfish	4	8.51	1.2-5.5	0.41	0.58
Spotfin shiner	4	8.51	2.9-3.6	0.04	0.06
Black redhorse	2	4.26	13.5-15.7	2.30	3.26
Brook silverside	2	4.26	2.4-2.5	0.01	0.01
Redfin pickerel	1	2.13	6.7	0.06	0.09
Largemouth bass	1	2.13	5.0	0.06	0.09
Total - 11 Species	47			70.57	

STATION: 6, Clare

NAME OF STREAM: West Fork White River

NAME, NUMBER, PERCENTAGE, SIZE, AND WEIGHT OF FISHES COLLECTED

COMMON NAME	NUMBER	PERCENTAGE	SIZE RANGE (INCHES)	TOTAL WEIGHT (POUNDS)	PERCENTAGE
Bluntnose minnow	59	22.43	1.5-3.1	0.13	0.23
Longear sunfish	36	13.69	2.8-5.6	2.12	3.70
Bluegill	33	12.55	1.2-5.9	0.70	1.22
Spotfin shiner	29	11.03	2.0-3.8	0.26	0.45
Rock bass	22	8.37	1.7-8.7	6.39	11.16
Golden redhorse	16	6.08	6.5-10.2	7.67	13.39
River carpsucker	11	4.18	14.7-14.9	2.88	5.03
Channel catfish	10	3.80	7.8-11.0	2.60	4.54
Spotted sucker	8	3.04	10.7-13.6	5.90	10.30
Smallmouth bass	7	2.66	3.1-19.9	8.42	14.70
Gizzard shad	6	2.28	7.7-12.5	3.25	5.67
White sucker	6	2.28	9.8-14.6	4.48	7.82
Central stoneroller	4	1.52	3.1-4.6	0.08	0.14
Northern hog sucker	4	1.52	8.7-13.6	2.65	4.63
Silver shiner	2	0.76	4.6-4.9	0.05	0.09
Yellow bullhead	2	0.76	8.7-11.9	1.34	2.34
Black redhorse	1	0.38	14.9	1.17	2.04
Common carp	1	0.38	21.1	4.94	8.63
Redfin pickerel	1	0.38	6.9	0.10	0.17
Highfin carpsucker	1	0.38	14.5	1.48	2.58
Largemouth bass	1	0.38	10.5	0.61	1.07
Lepomis hybrid	1	0.38	4.4	0.03	0.05
Sand shiner	1	0.38	1.3	0.01	0.02
Suckermouth minnow	1	0.38	3.0	0.01	0.02
Total - 23 Species 1 Hybrid	263			57.27	

STATION: 7, Noblesville PAS

NAME OF STREAM: West Fork White River

NAME, NUMBER, PERCENTAGE, SIZE, AND WEIGHT OF FISHES COLLECTED

COMMON NAME	NUMBER	PERCENTAGE	SIZE RANGE (INCHES)	TOTAL WEIGHT (POUNDS)	PERCENTAGE
Spotfin shiner	29	18.59	1.3-3.2	0.10	0.05
Bluegill	27	17.31	1.3-7.1	1.06	0.57
Common carp	16	10.26	16.5-22.1	126.39	68.04
Gizzard shad	13	8.33	8.5-12.6	6.60	3.55
Rock bass	13	8.33	2.1-8.9	4.66	2.51
Smallmouth bass	13	8.33	3.1-17.0	4.12	2.22
Golden redhorse	8	5.13	6.7-14.7	6.93	3.73
Longear sunfish	6	3.85	3.7-5.5	0.59	0.32
Black redhorse	5	3.21	13.4-15.9	5.47	2.94
Channel catfish	5	3.21	17.9-24.7	23.74	12.78
Black crappie	4	2.56	7.9-9.8	1.58	0.85
Green sunfish	4	2.56	2.2-4.4	0.13	0.07
Northern hog sucker	3	1.92	7.5-10.4	0.85	0.46
Johnny darter	2	1.28	2.1-2.2	0.01	0.01
Lepomis hybrid	2	1.28	3.3-6.6	0.23	0.12
Silver redhorse	2	1.28	14.0-16.6	2.82	1.52
Greenside darter	1	0.64	3.0	0.01	0.01
Logperch	1	0.64	6	0.04	0.02
Spotted sucker	1	0.64	3.4	0.01	0.01
White crappie	1	0.64	8.8	0.43	0.23
Total - 19 Species 1 Hybrid	156			185.77	

STATION: 8, HWY 32 Bridge

NAME OF STREAM: West Fork White River

NAME, NUMBER, PERCENTAGE, SIZE, AND WEIGHT OF FISHES COLLECTED

COMMON NAME	NUMBER	PERCENTAGE	SIZE RANGE (INCHES)	TOTAL WEIGHT (POUNDS)	PERCENTAGE
Longear sunfish	110	15.28	1.2-5.4	2.78	2.91
Spotfin shiner	95	13.19	1.7-3.7	0.47	0.49
Sand shiner	73	10.14	1.5-2.9	0.33	0.35
Green sunfish	51	7.08	2.0-5.9	1.65	1.73
Central stoneroller	44	6.11	2.7-4.2	0.90	0.94
Northern hog sucker	42	5.83	3.2-13.0	10.45	10.95
Black redhorse	40	5.56	8.4-19.7	47.50	49.75
Bluegill	36	5.00	1.3-6.5	1.82	1.91
Logperch	36	5.00	3.7-4.1	0.29	0.30
Largemouth bass	30	4.17	3.5-14.9	4.10	4.29
Smallmouth bass	29	4.03	2.8-17.0	8.44	8.84
Johnny darter	22	3.06	2.0-2.5	0.08	0.08
Rock bass	21	2.92	1.7-8.4	4.79	5.02
Bluntnose minnow	19	2.64	1.5-3.1	0.08	0.08
Greenside darter	17	2.36	2.4-2.9	0.15	0.16
Suckermouth minnow	11	1.53	2.8-3.6	0.14	0.15
Gizzard shad	9	1.25	8.4-13.8	4.04	0.01
Redfin pickerel	7	0.97	3.7-6.9	0.28	0.29
Rainbow darter	5	0.69	1.7-1.9	0.01	0.01
Blackstripe topminnow	4	0.56	1.5-1.7	0.01	0.01
Golden redhorse	4	0.56	12.8-15.2	4.35	4.56
Spotted sucker	4	0.56	3.6-3.9	0.08	0.08
Channel catfish	3	0.42	2.8-3.0	0.02	0.01
Brook silverside	2	0.28	2.0-2.2	0.01	0.04
Orangethroat darter	2	0.28	1.5-2.0	0.01	0.01
Black crappie	1	0.14	8.9	0.48	0.50
Lepomis hybrid	1	0.14	4.6	0.06	0.06
Quillback	1	0.14	2.9	0.01	0.01
Sauger	1	0.14	19.8	2.14	2.24
Total - 29 Species 1 Hybrid	720			95.47	

STATION: 9, Above 116th St. BridgeNAME OF STREAM: West Fork White River

NAME, NUMBER, PERCENTAGE, SIZE, AND WEIGHT OF FISHES COLLECTED

COMMON NAME	NUMBER	PERCENTAGE	SIZE RANGE (INCHES)	TOTAL WEIGHT (POUNDS)	PERCENTAGE
Bluegill	110	17.46	1.6-7.3	6.50	13.54
Spotfin shiner	84	13.33	1.2-4.0	0.59	1.23
Sand shiner	64	10.16	1.1-3.0	0.13	0.27
Largemouth bass	47	7.46	2.7-9.3	2.12	4.42
Green sunfish	42	6.67	2.2-5.9	1.33	2.77
Longear sunfish	39	6.19	1.3-5.4	2.78	5.79
Central stoneroller	36	5.71	2.2-4.7	0.80	1.67
Bluntnose minnow	32	5.08	1.0-3.2	0.44	0.92
Suckermouth minnow	32	5.08	2.3-4.2	0.44	0.92
Northern hog sucker	30	4.76	3.4-14.1	4.50	9.37
Channel catfish	23	3.65	2.0-5.0	0.38	0.79
Greenside darter	21	3.33	2.2-3.4	0.16	0.33
Rainbow darter	14	2.22	1.5-2.6	0.05	0.10
Black redhorse	12	1.90	9.5-15.8	13.00	27.08
Gizzard shad	10	1.59	3.0-9.5	1.75	3.65
Smallmouth bass	8	1.27	2.6-14.9	4.99	10.39
Johnny darter	7	1.11	1.8-2.3	0.03	0.06
Golden redhorse	6	0.95	8.3-18.1	7.50	15.62
Orangethroat darter	2	0.32	1.9-2.1	0.01	0.02
Stonecat	2	0.32	2.1-2.8	0.01	0.02
Black crappie	1	0.16	6.7	0.16	0.33
Blackstripe topminnow	1	0.16	1.2	0.01	0.02
Brook silverside	1	0.16	2.0-2.2	0.01	0.04
Lepomis hybrid	1	0.16	5.6	0.15	0.31
Silverjaw minnow	1	0.16	1.9	0.01	0.02
Slenderhead darter	1	0.16	2.3	0.01	0.02
Spotted sucker	1	0.16	3.8	0.02	0.04
Rock bass	1	0.16	5.5	0.10	0.21
White crappie	1	0.16	4.4	0.03	0.06
Total - 28 Species 1 Hybrid	630			48.01	

STATION: 10, Below 116th Street

NAME OF STREAM: West Fork White River

NAME, NUMBER, PERCENTAGE, SIZE, AND WEIGHT OF FISHES COLLECTED

COMMON NAME	NUMBER	PERCENTAGE	SIZE RANGE (INCHES)	TOTAL WEIGHT (POUNDS)	PERCENTAGE
Golden redbhorse	28	22.22	6.7-18.9	2.04	1.80
Bluegill	22	17.46	2.7-7.8	2.53	2.24
Longear sunfish	21	16.67	3.7-5.7	2.17	1.92
Smallmouth bass	11	8.73	4.3-16.3	8.88	7.85
Green sunfish	7	5.56	3.6-4.7	0.36	0.32
Northern hog sucker	7	5.56	4.5-14.5	3.83	3.39
Rock bass	7	5.56	6.2-8.6	2.81	2.48
Channel catfish	5	3.97	20.5-25.8	31.50	27.85
Common carp	5	3.97	22.0-28.2	57.50	50.84
Spotted sucker	4	3.17	3.7-9.2	0.72	0.64
Black crappie	3	2.38	6.0-8.0	0.54	0.48
Largemouth bass	3	2.38	3.5-4.8	0.11	0.10
Logperch	3	2.38	4.3-5.7	0.10	0.09
Total - 13 Species	126			113.09	

STATION: 12, Upper Broad Ripple

NAME OF STREAM: West Fork White River

NAME, NUMBER, PERCENTAGE, SIZE, AND WEIGHT OF FISHES COLLECTED

COMMON NAME	NUMBER	PERCENTAGE	SIZE RANGE (INCHES)	TOTAL WEIGHT (POUNDS)	PERCENTAGE
Bluegill	71	25.27	1.3-8.1	6.22	2.78
Gizzard shad	49	17.44	5.3-14.3	15.53	6.95
Channel catfish	34	12.10	6.8-20.9	92.31	41.29
Yellow bass	32	11.39	6.8-10.0	7.70	3.44
Spotted sucker	21	7.47	11.5-17.8	30.10	13.46
Largemouth bass	15	5.34	4.3-17.4	12.56	5.62
Spotfin shiner	9	3.20	2.7-4.1	0.16	0.07
White crappie	9	3.20	5.3-11.7	2.48	1.11
Longear sunfish	7	2.49	3.2-5.6	0.52	0.23
Black crappie	6	2.14	5.5-6.9	0.66	0.30
Common carp	4	1.42	12.0-28.6	40.10	17.94
Bluntnose minnow	3	1.07	2.7-2.9	0.01	0.00
Green sunfish	3	1.07	3.3-5.5	0.15	0.07
White bass	3	1.07	5.5-7.1	0.28	0.13
Yellow perch	3	1.07	5.9-8.0	0.32	0.14
Quillback	2	0.71	15.8-17.0	3.78	1.69
Rock bass	2	0.71	5.5-7.6	0.46	0.21
River redhorse	2	0.71	8.2-15.9	1.89	0.85
Sauger	2	0.71	17.5-21.0	4.88	2.18
Warmouth	2	0.71	4.7-5.3	0.17	0.08
Black redhorse	1	0.36	15.3	1.30	0.58
Golden redhorse	1	0.36	17.4	2.00	0.89
Total - 22 Species	281			223.58	

STATION: 13, Landings Pit

NAME OF STREAM: West Fork White River

NAME, NUMBER, PERCENTAGE, SIZE, AND WEIGHT OF FISHES COLLECTED

COMMON NAME	NUMBER	PERCENTAGE	SIZE RANGE (INCHES)	TOTAL WEIGHT (POUNDS)	PERCENTAGE
Bluegill	191	42.07	2.1-7.6	7.30	8.66
Gizzard shad	98	21.59	5.4-13.9	5.88	6.97
Black crappie	57	12.56	5.5-7.9	7.93	9.41
Yellow bass	35	7.71	6.9-8.9	6.30	7.47
Channel catfish	22	4.85	7.7-24.0	19.96	23.67
Largemouth bass	20	4.41	3.2-17.2	10.13	0.04
White crappie	8	1.76	4.7-8.7	1.42	1.68
White bass	6	1.32	5.8-8.3	1.05	1.25
Spotted sucker	5	1.10	11.4-17.3	6.47	7.67
Quillback	2	0.44	7.5-18.4	5.40	6.40
River carpsucker	3	0.66	16.1-17.7	4.25	5.04
Sauger	3	0.66	19.1-20.1	7.47	8.86
Golden redhorse	1	0.22	8.8	0.26	0.31
Golden shiner	1	0.22	5.2	0.05	0.06
Green sunfish	1	0.22	6.1	0.10	0.12
Redear sunfish	1	0.22	7.6	0.34	0.40
Total - 16 Species	454			84.31	

STATION: 14, Lower Broad Ripple

NAME OF STREAM: West Fork White River

NAME, NUMBER, PERCENTAGE, SIZE, AND WEIGHT OF FISHES COLLECTED

COMMON NAME	NUMBER	PERCENTAGE	SIZE RANGE (INCHES)	TOTAL WEIGHT (POUNDS)	PERCENTAGE
Longear sunfish	111	50.92	1.5-5.6	4.09	5.42
Green sunfish	17	7.80	2.3-4.7	0.53	0.70
Bluegill	31	14.22	1.6-6.9	1.92	2.54
Golden redhorse	14	6.42	15.8-18.8	27.60	36.54
Rock bass	14	6.42	6.1-8.9	4.83	6.39
Largemouth bass	7	3.21	2.6-17.2	2.70	3.57
Spotfin shiner	5	2.29	1.5-3.5	0.03	0.04
Flathead catfish	4	1.83	19.1-21.1	11.26	14.91
Yellow bass	3	1.38	4.4-10.0	0.78	1.03
Black crappie	2	0.92	4.4-7.5	0.22	0.29
Quillback	2	0.92	16.9-17.3	4.93	6.53
Spotted sucker	2	0.92	15.6-15.9	3.20	4.24
Bluntnose minnow	1	0.46	2.4	0.01	0.01
Central stoneroller	1	0.46	3.6	0.01	0.01
Common carp	1	0.46	27.0	12.00	15.89
Gizzard shad	1	0.46	12.5	0.81	1.07
Orangespotted sunfish	1	0.46	5.1	0.05	0.07
Redear sunfish	1	0.46	9.1	0.56	0.74
Total - 18 Species	218			75.53	

STATION: 15, Meridian

NAME OF STREAM: West Fork White River

NAME, NUMBER, PERCENTAGE, SIZE, AND WEIGHT OF FISHES COLLECTED

COMMON NAME	NUMBER	PERCENTAGE	SIZE RANGE (INCHES)	TOTAL WEIGHT (POUNDS)	PERCENTAGE
Bluegill	246	30.90	1.0-6.9	7.25	11.71
Longear sunfish	155	19.47	1.2-5.9	8.50	13.73
Spotfin shiner	82	10.30	0.9-4.1	0.55	0.89
Central stoneroller	70	8.79	2.9-5.6	1.30	2.10
Largemouth bass	32	4.02	2.3-10.1	1.41	2.28
Rock bass	30	3.77	3.4-8.5	6.61	10.68
Bluntnose minnow	27	3.39	1.8-3.5	0.24	0.39
Greenside darter	24	3.02	2.6-3.7	0.33	0.53
Rainbow darter	23	2.89	1.8-2.5	0.09	0.15
Smallmouth bass	23	2.89	3.2-12.0	8.54	13.80
Green sunfish	21	2.64	2.1-5.0	0.60	0.97
Northern hog sucker	20	2.51	3.2-11.2	5.25	8.48
Black redhorse	14	1.76	10.1-17.2	15.00	24.23
Johnny darter	5	0.63	1.9-2.2	0.02	0.03
Rosyface shiner	5	0.63	2.3-2.5	0.02	0.03
Brook silverside	3	0.38	2.5-3.0	0.01	0.02
Channel catfish	3	0.38	2.6-3.9	0.03	0.05
Sand shiner	3	0.38	1.5-2.6	0.01	0.02
Mottled sculpin	2	0.25	2.0-3.2	0.02	0.04
Yellow bullhead	2	0.25	4.4-7.7	0.27	0.44
Creek chub	1	0.13	3.2	0.01	0.02
Golden redhorse	1	0.13	14.9	1.17	1.89
Lepomis hybrid	1	0.13	3.7	0.04	0.06
Logperch	1	0.13	6.7	0.09	0.15
Silver redhorse	1	0.13	21.0	4.00	6.46
White sucker	1	0.13	11.2	0.54	0.87
Total - 25 Species 1 Hybrid	796			61.90	

STATION: 16, 53rd St.

NAME OF STREAM: West Fork White River

NAME, NUMBER, PERCENTAGE, SIZE, AND WEIGHT OF FISHES COLLECTED

COMMON NAME	NUMBER	PERCENTAGE	SIZE RANGE (INCHES)	TOTAL WEIGHT (POUNDS)	PERCENTAGE
Bluntnose minnow	333	23.29	1.8-3.4	2.06	5.84
Spotfin shiner	286	20.00	1.1-3.4	0.55	1.56
Longear sunfish	281	19.65	1.1-5.9	13.50	38.28
Sand shiner	202	14.13	1.7-2.9	0.93	2.64
Bluegill	98	6.85	1.8-6.9	4.47	12.67
Central stoneroller	46	3.22	2.8-4.5	0.77	2.18
Largemouth bass	36	2.52	3.1-5.8	1.09	3.09
Suckermouth minnow	24	1.68	3.1-3.6	0.32	0.91
Rainbow darter	19	1.33	1.6-2.0	0.08	0.23
Northern hog sucker	18	1.26	3.5-13.4	3.37	9.55
Rock bass	16	1.12	5.2-8.1	3.40	9.64
Silver shiner	13	0.91	4.7-5.6	0.32	0.91
Brook silverside	8	0.56	2.4-3.0	0.03	0.04
Greenside darter	7	0.49	1.3-2.5	0.09	0.26
Slenderhead darter	7	0.49	2.2-2.6	0.04	0.11
Smallmouth bass	7	0.49	3.2-11.1	2.10	5.95
Black redhorse	6	0.42	4.0-9.4	1.12	3.18
Green sunfish	4	0.28	3.5-4.1	0.13	0.37
Johnny darter	4	0.28	1.9-2.2	0.02	0.06
Channel catfish	2	0.14	2.5-2.8	0.02	0.06
Logperch	2	0.14	5.6-6.5	0.14	0.40
Rosyface shiner	2	0.14	1.9-3.0	0.01	0.03
Western mosquitofish	2	0.14	1.5-1.7	0.01	0.03
Common carp	1	0.07	8.6	0.33	0.94
Golden redhorse	1	0.07	7.5	0.16	0.45
Creek chub	1	0.07	3.1	0.02	0.06
Redear sunfish	1	0.07	4.3	0.06	0.17
Spotted sucker	1	0.07	6.7	0.10	0.28
Striped shiner	1	0.07	2.8	0.01	0.03
White sucker	1	0.07	3.7	0.02	0.06
Total - 30 Species	1430			35.27	

STATION: 17, Lake Indy

NAME OF STREAM: West Fork White River

NAME, NUMBER, PERCENTAGE, SIZE, AND WEIGHT OF FISHES COLLECTED

COMMON NAME	NUMBER	PERCENTAGE	SIZE RANGE (INCHES)	TOTAL WEIGHT (POUNDS)	PERCENTAGE
Bluegill	86	19.91	0.9-7.2	3.67	1.22
Longear sunfish	80	18.52	1.5-5.5	3.54	1.18
Channel catfish	77	17.82	4.8-28.6	124.13	41.42
Orangespotted sunfish	44	10.19	1.8-3.9	0.59	0.20
Largemouth bass	21	4.86	4.1-15.9	12.60	0.04
Quillback	15	3.47	12.8-17.7	23.77	7.93
Bluntnose minnow	18	4.17	1.2-3.5	0.13	0.04
Spotfin shiner	14	3.24	2.4-3.7	0.16	0.05
Gizzard shad	13	3.01	6.7-11.1	4.00	1.33
Spotted sucker	12	2.78	7.0-14.7	7.43	2.48
Rock bass	9	2.08	4.7-8.3	2.05	0.68
Common carp	8	1.85	19.6-28.1	60.10	20.05
Golden shiner	8	1.85	4.5-7.4	0.71	0.24
River carpsucker	7	1.62	13.3-20.4	26.21	8.75
Silver redhorse	6	1.39	9.8-24.7	18.50	6.17
White crappie	5	1.16	5.1-12.9	2.36	0.79
Golden redhorse	4	0.93	15.7-17.0	6.75	2.25
Highfin carpsucker	2	0.46	13.0-13.2	1.86	0.62
Yellow bass	2	0.46	8.3-8.9	0.62	0.21
Black crappie	1	0.23	9.9	0.50	0.17
Total - 20 Species	432			299.68	

NUMBER, PERCENTAGE, WEIGHT, AND AGE OF LARGEMOUTH BASS WEST FORK WHITE RIVER 9/20-10/24, 2011

TOTAL LENGTH (inches)	NUMBER COLLECTED	PERCENT OF FISH COLLECTED	AVERAGE WEIGHT (pounds)	AGE OF FISH	TOTAL LENGTH (inches)	NUMBER COLLECTED	PERCENT OF FISH COLLECTED	AVERAGE WEIGHT (pounds)	AGE OF FISH
1.0					18.0				
1.5					18.5				
2.0	1	0.4	0.00	YOY	TOTAL	223			
2.5	5	2.2	0.00	YOY					
3.0	24	10.8	0.02	YOY					
3.5	62	27.8	0.02	YOY					
4.0	37	16.6	0.04	YOY					
4.5	34	15.2	0.05	YOY					
5.0	13	5.8	0.05	YOY					
5.5	7	3.1	0.07	YOY					
6.0									
6.5	1	0.4	0.14	not aged					
7.0	2	0.9	0.15	1					
7.5	2	0.9	0.23	1					
8.0	5	2.2	0.27	1					
8.5									
9.0	4	1.8	0.38	1,2					
9.5	1	0.4	0.51	2					
10.0	1	0.4	0.00	not aged					
10.5	1	0.4	0.61	2					
11.0	1	0.4	0.74	1					
11.5	2	0.9	0.77	2,3					
12.0	3	1.3	1.00	3					
12.5	3	1.3	1.12	3,4					
13.0	3	1.3	1.27	4					
13.5	1	0.4	1.44	4					
14.0	2	0.9	1.64	4					
14.5	1	0.4	2.11	4					
15.0	3	1.3	1.90	4,5					
15.5	1	0.4	2.37	4					
16.0									
16.5									
17.0	3	1.3	3.08	9,10					
17.5									

ELECTROFISHING CATCH	18/hr	GILL NET CATCH	/lift	TRAP NET CATCH	/lift
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WEST FORK WHITE RIVER LARGEMOUTH BASS AGE-LENGTH KEY

Length group (in)	Total # number	Subsample	Age																	
			1	2	3	4	5	6	7	8	9	10								
2.0	1																			
2.5	5																			
3.0	24	6																		
3.5	62	6																		
4.0	37	5																		
4.5	34	5																		
5.0	13	6																		
5.5	7	4																		
6.0																				
6.5	1																			
7.0	2	1		2																
7.5	2	1		2																
8.0	5	4		5																
8.5																				
9.0	4	4		2	2															
9.5	1	1			1															
10.0	1																			
10.5	1	1			1															
11.0	1	1				1														
11.5	2	2			1	1														
12.0	3	3				3														
12.5	3	3				2	1													
13.0	3	3					3													
13.5	1	1					1													
14.0	2	2					2													
14.5	1	1					1													
15.0	3	3					2	1												
15.5	1	1					1													
16.0																				
16.5																				
17.0	3	3																	2	1
Total	223	67		11	5	7	11	1	0	0	0	0	2	1						

NUMBER, PERCENTAGE, WEIGHT, AND AGE OF SMALLMOUTH BASS WEST FORK WHITE RIVER 9/20-10/24, 2011

TOTAL LENGTH (inches)	NUMBER COLLECTED	PERCENT OF FISH COLLECTED	AVERAGE WEIGHT (pounds)	AGE OF FISH	TOTAL LENGTH (inches)	NUMBER COLLECTED	PERCENT OF FISH COLLECTED	AVERAGE WEIGHT (pounds)	AGE OF FISH
1.0					18.0				
1.5					18.5				
2.0					19.0				
2.5	3	1.9	0.02	YOY	19.5	1	0.6	3.62	11
3.0	21	13.6	0.01	YOY					
3.5	18	11.7	0.01	YOY					
4.0	8	5.2	0.03	YOY	TOTAL	154			
4.5	6	3.9	0.05	YOY					
5.0	6	3.9	0.06	YOY					
5.5	8	5.2	0.08	YOY					
6.0	1	0.6	0.13	YOY					
6.5	9	5.8	0.14	1					
7.0	5	3.2	0.12	1					
7.5	10	6.5	0.21	2					
8.0	5	3.2	0.19	2					
8.5	5	3.2	0.31	2,3					
9.0	4	2.6	0.27	2,3					
9.5	7	4.5	0.42	2,3,4,5					
10.0	3	1.9	0.28	4					
10.5	3	1.9	0.58	3,4					
11.0	6	3.9	0.57	4,5					
11.5	4	2.6	0.75	4,5					
12.0	2	1.3	0.86	4					
12.5	1	0.6	0.96	4					
13.0	3	1.9	1.05	4,8,10					
13.5	2	1.3	0.61	7					
14.0	2	1.3	0.56	8,9					
14.5	1	0.6	1.50	7					
15.0	2	1.3	1.84	5,7					
15.5									
16.0	4	2.6	2.00	8,9					
16.5	1	0.6	2.03	10					
17.0	2	1.3	2.35	8,9					
17.5	1	0.6	3.16	8					

ELECTROFISHING CATCH	13/hr	GILL NET CATCH	/lift	TRAP NET CATCH	/lift
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WEST FORK WHITE RIVER SMALLMOUTH BASS AGE-LENGTH KEY

Length group (in)	Total # number	Subsample	Age																		
			1	2	3	4	5	6	7	8	9	10	11								
2.0																					
2.5	3																				
3.0	21	6																			
3.5	18	5																			
4.0	8	5																			
4.5	6	6																			
5.0	6	5																			
5.5	8	5																			
6.0	1	1																			
6.5	9	7		8																	
7.0	5	4		5																	
7.5	10	5			10																
8.0	5	4			5																
8.5	5	4			4	1															
9.0	4	3			1	3															
9.5	7	6			1	4	1	1													
10.0	3	2					3														
10.5	3	3				1	2														
11.0	6	4					2	5													
11.5	4	3					3	1													
12.0	2	2					2														
12.5	1	1					1														
13.0	3	3					1						1							1	
13.5	2	1											2								
14.0	2	2												1					1		
14.5	1	1												1							
15.0	2	2							1		1										
15.5																					
16.0	4	4																		2	2
16.5	1	1																			1
17.0	2	2																		1	1
17.5	1	1																		1	
18.0																					
18.5																					
19.0																					
19.5	1	1																			1
20.0																					
Total	154	77		13	21	8	14	8	0	4	6	4	2	1							

WEST FORK WHITE RIVER ROCK BASS AGE-LENGTH KEY

Length group (in)	Total # number	Subsample	Age								
			1	2	3	4	5	6	7	8	
1.5	12	1	12								
2.0	3	1	3								
2.5		1	0								
3.0	6	1	6								
3.5	5	5	4	1							
4.0	5	5		5							
4.5	7	5		1	6						
5.0	20	6			20						
5.5	22	5				22					
6.0	25	5				25					
6.5	30	8				30					
7.0	29	10				9	20				
7.5	24	6					24				
8.0	15	7					4	11			
8.5	18	6								15	3
Total	221	72	25	7	26	86	49	11	15	3	

NUMBER, PERCENTAGE, WEIGHT, AND AGE OF CHANNEL CATFISH WEST FORK WHITE RIVER 9/20-10/24, 2011									
TOTAL LENGTH (inches)	NUMBER COLLECTED	PERCENT OF FISH COLLECTED	AVERAGE WEIGHT (pounds)	AGE OF FISH	TOTAL LENGTH (inches)	NUMBER COLLECTED	PERCENT OF FISH COLLECTED	AVERAGE WEIGHT (pounds)	AGE OF FISH
1.0					18.0	3	1.6	1.90	not aged
1.5					18.5	1	0.5	1.95	not aged
2.0	5	2.7	0.01	not aged	19.0	1	0.5	2.21	not aged
2.5	5	2.7	0.01	not aged	19.5	1	0.5	2.68	not aged
3.0	5	2.7	0.02	not aged	20.0				
3.5	5	2.7	0.02	not aged	20.5	2	1.1	3.55	not aged
4.0	5	2.7	0.02	not aged	21.0	3	1.6	3.93	not aged
4.5	2	1.1	0.02	not aged	21.5				
5.0	1	0.5	0.02	not aged	22.0	3	1.6	4.80	not aged
5.5					22.5	1	0.5	5.00	not aged
6.0					23.0	3	1.6	5.83	not aged
6.5	16	8.6	0.08	not aged	23.5	1	0.5	5.30	not aged
7.0					24.0	4	2.2	6.25	not aged
7.5	2	1.1	0.18	not aged	24.5	3	1.6	6.53	not aged
8.0	3	1.6	0.16	not aged	25.0				
8.5	15	8.1	0.19	not aged	25.5	4	2.2	7.40	not aged
9.0	20	10.8	0.21	not aged	26.0	1	0.5	8.20	not aged
9.5	24	12.9	0.27	not aged	26.5	1	0.5	9.10	not aged
10.0	14	7.5	0.28	not aged	27.0	1	0.5	9.00	not aged
10.5	1	0.5	0.34	not aged	27.5	4	2.2	9.88	not aged
11.0	3	1.6	0.26	not aged	28.0	1	0.5	8.90	not aged
11.5	1	0.5	0.40	not aged	28.5	1	0.5	10.30	not aged
12.0					29.0	1	0.5	11.00	not aged
12.5					29.5				
13.0					30.0				
13.5					30.5	1	0.5	13.00	not aged
14.0	2	1.1	0.90	not aged					
14.5	1	0.5	1.15	not aged	Total	186			
15.0	4	2.2	1.01	not aged					
15.5	1	0.5	1.09	not aged					
16.0	1	0.5	1.60	not aged					
16.5	2	1.1	1.51	not aged					
17.0	3	1.6	1.64	not aged					
17.5	4	2.2	1.92	not aged					
ELECTROFISHING CATCH		5/hr		GILL NET CATCH	9/lift		TRAP NET CATCH	/lift	