Final Progress Report to Monsanto Company, Residue Data, November, 1970 to November, 1972

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MONS 068948

Introduction:

For the past two years (November, 1970 to November, 1972) consultants have donducted a biological survey of the streams affected by Monsanto Company's prior discharge of polychlorinated biphenyls at Anniston, Alabama. The streams and areas studied were: Choccolocco Creek, Coosa River, Logan Martin Reservoir, Cheaha Creek, Cane Creek, Aker Creek. The survey consisted of two separate but related parts: 1) An ichthyological survey of the waters designed to determine species composition and relative abundance of the various species of fishes present with the goal of ascertaining any possible effects the Monsanto effluent might have on the fish populations, and 2) a residue analysis conducted by Monsanto Company using fishes from ten (10) stations supplied by Consultants. We have interpreted the residue findings on a trip-by-trip basis during the first two years of the present study as they have been made available by Monsanto employees. In this connection we have worked rather closely with Mr. J. T. Bell, Plant Chief Chemist, and Mr. Donald Turner of the Anniston plant who made the actual analyses.

General Background:

As stated many times previously Consultants have found a rather large number of deformed fishes below the point of effluent discharge, as well as many fishes that were hemorrhaging or exhibiting various degrees of nervous system damage. These instances are on record at the Monsanto Plant, Anniston. Since these fishes are found in parts of the stream that were characterized by high P.C.B. levels, one must admit the possibility that debilitation is due directly to P.C.B's or to other products manufactured by Monsanto Company.

In a past summary report covering an analysis of five sets of P.C.B. data for trips made during December, 1970; March, 1971; June, 1971; September, 1971; and December, 1971, we have shown that there was no decrease in P.C.B. levels during this time, that is to say the levels within a given species of fish have remained fairly constant, although there have indeed been some fluctuations as one would expect. After subsequent examination of the residue data for the June, 1972 sample of fishes we reported that there seemed to be some real decreases in residue levels, but that the September, 1972 sample would be more definitive in this respect since this would be the first sample of fishes collected after complete stoppage of P.C.B. effluents from the Anniston Plant.

Summary report for residue data for two-year period:

Part A.

We have selected three samples of fishes for a year-to-year analysis of residue data from December, 1970 to December, 1971, to September, 1972, the last collection of fishes made for residue analysis. Using only pairs of respective values reflecting changes from one year to the next Work Sheet #1 will show that there are eighteen such values for the period December, 1970 to December, 1971; of these 18, 10 show a decrease in residue level but 8 show an increase. For the period December, 1971 to September, 1972, Work Sheet #1 will show that there are sixteen such values; of these 14 show a decrease in residue level and only two show an increase. This means then that there is a significant decrease in residue levels during the second year of the study as a result of the lower levels that prevailed for the September, 1972 sample (again see Work Sheet #1).

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Part B.

We have selected the last two quarterly surveys (June, 1972 and September, 1972) for a detailed look at the residue picture since some P.C.B. components were still being released, i.e. could have been picked up by fishes, at this time. By the time the fish sample was collected in September, 1972, as stated previously, the effluent from the Monsanto Plant was free of P.C.B's. Again, by examining paired values for the various species of fishes collected and analyzed, one finds that there are 19 pairs of values (see Work Sheet #2) for the fishes; of these 17 show a decrease in residue levels and only two show an increase. It is quite obvious then that there has been a very significant decrease in P.C.B. residues in the various species of fishes subsequent to a stoppage of P.C.B. effluent for the Anniston Plant.

Recommendation:

Since only one of the survey trips was made subsequent to stoppage of P.C.B. effluent flow from the Anniston Plant, as compared to seven trips prior to stoppage, we recommend again that the study be continued for at least one more year in order to follow the changes in residue levels with the passage of time. Specifically, we recommend that a survey trip be made by Consultants in March, 1973 and in September, 1973, as originally proposed, since the last survey was made during September, 1972.

Work Sheet #1

Confidential

Monsanto Company = Residue Analyses

A-1254 wet weight, plus lipid weight in parentheses. Results in ppm.

— means none found

	Shoal Creek ⑥	Notropis venustus	Hyrodelcus atromaculatus	Campostoma anomalum	Lepomis macrochirus	Lepomis megalotis	Micropterus spp.	Carpiodes cyprinus
Dec '70		0.25 (1.56)	0.02 (0.71)	0.015 (3.49)	0.12 (0.85)		0.21 (1.13)	
Dec '71		0.26 (5.12)	—	—	0.02 (0.25)		0.14 (2.70)	
Sept '72		0.01 (0.24)	—	—	—	—	illegible	illegible
	Chocolocco Cr. Hwy 7 ⑤							
Dec '70		1.18 (17.92)	0.04 (2.50)	0.37 (1.19)	0.43 (3.93)	0.71 (19.22)	0.65 (26.00)	
Dec '71						0.04 (0.67)		
Sept '72		illegible	—	—	0.03 (1.20)	—		
	Chocolocco Cr. N.H. Williams ④	illegible		0.11 (15.5)				
Dec '72						13.16 (720.00)	71.43 (119.05)	
Dec '70		167.34 (2699 ppm)				18.75 (150.00)		490.00 (4900.00)
Sept '72		illegible				3.13 (61.43)		26.00 (733.33)
	Chocolocco Cr. Hwy 93							
Dec '70		50.00 (125.00)		16.85 (121.09)				
Dec '71		29.32 (1175.00)		—	15.00 (50.00)	2.50 (170.00)	3.15 (89.32)	
Sept '72		6.39 (129.95)		1.61 (46.25)	2.10 (64.29)	illegible		
	Chocolocco Cr. Hwy 77 ③							
Dec '70		65.00 (478.10)			2.86 (150.00)	4.17 (125.00)		
Dec '71		19.50 (112.50)			3.36 (455.32)	19.36 (225.00)	10.49 (150.00)	
Sept '72					5.87 (112.35)	1.70 (54.45)	2.71 (66.67)	
	Mouth of Clear Creek ②							
Dec '70		1.44 (9.00)			2.36 (12.75)	0.125 (6.00)	0.65 (27.00)	
Dec '71		illegible			illegible	illegible	illegible	
Sept '72		illegible			illegible	illegible	illegible	

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Work Sheet #2

Confidential

Prepared By
Approved By

Month to Month Comparison for June, 1972 + September, 1972
A-1254 wet weight only.

	H. clonorum	N. venustus	C. anomalum	L. megalotis	L. macrochirus	Micropterus spp.	Percina caprodes	C. auratus	Dor. [illegible]
Shoal - June '72	—	0.07	—	0.04	—	—	0.03		
- Sept '72	—	0.01	—	—	—				
Choc - June '72	0.08			0.08	0.06	0.08			
Hwy 9 - Sept '72	—			0.03	—				
N.H. - June '72	25.0			19.90	12.07			241.67	
[illegible] - Sept '72					3.18			26.00	
Hwy 93 - June '72		12.0	2.29		6.60				
- Sept '72		6.39	1.61						↓↓
Hwy 77 - June '72				9.07	8.67				6.55
Sept. '72				5.47	1.70				2.40
Stanley June '72				3.27	5.00	6.93			
Sept. '72				0.95	0.15	0.24			
Clear Creek June '72		6.72		0.64	1.38	0.13			
Sept. '72		0.30		0.13	0.34	0.18			

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Results are ppm. Top number is wet weight. Number in parenthesis is lipid weight.	Hypentelium etowanum - Ala. Hog Sucker			Compostoma anomalum - Stoneroller			Notropis venustus - Blacktail Shiner		
	A-1242	A-1254	Total PCB	A-1242	A-1254	Total PCB	A-1242	A-1254	Total PCB
(1) Shoal Creek	0.32 (16.50)	0.02 (1.00)	0.34 (17.50)	0.06 (1.83)	0.04 (1.10)	0.10 (2.93)	0.02 (0.69)	0.11 (4.44)	0.13 (5.13
(2) Choccolocco Creek, Hwy. 9 Bridge	0.01 (0.58)	0.03 (1.46)	0.04 (2.04)	0.04 (0.96)	0.01 (0.25)	0.05 (1.21)	0.06 (1.30)	0.14 (3.30)	0.20 (4.60
(3) Choccolocco Creek, Martha H. Williams Bridge, Hwy. 95							3.10 (40.90)	7.76 (102.20)	10.86 (143.1
(4) Choccolocco Creek, Hwy. 93 Bridge							9.64 (308.33)	11.72 (375.00)	21.36 (683.33
(5) Choccolocco Creek, Hwy. 77							2.86 (40.00)	2.50 (35.00)	5.36 (75.00
(6) Cheaha Creek	0.07 (0.85)	0.10 (1.15)	0.17 (2.00)	—	0.04 (0.32)	0.04 (0.32)	0.74 (20.83)	2.18 (61.67)	2.92 (82.50
(7) Aker's Creek	—	—	None Found				—	0.14 (3.75)	0.14 (3.75)
(8) Cane Creek				0.18 (1.41)	0.25 (1.97)	0.43 (3.35)	0.03 (0.43)	0.11 (2.27)	0.14 (2.70)
(9) Stemley Bridge, Hwy. 74									
(10) Clear Creek									

MDNS 068554

Lepomis megalotis - Longear Sunfish			Lepomis macrochirus - Bluegill			Micropterus - salmoides - punctulatus - coosae Bass			Percina caprodes - Logperch		
A-1242	A-1254	Total PCB	A-1242	A-1254	Total PCB	A-1242	A-1254	Total PCB	A-1242	A-1254	Total PCB
0.03 (0.90)	0.03 (0.77)	0.06 1.67	—	—	None Found	(Coosae) 0.03 (1.30)	0.02 (0.90)	0.05 (2.20)			
0.03 (0.77)	0.07 (2.06)	0.10 (2.83)	—	0.02 (0.75)	0.02 (0.75)				—	0.17 (2.25)	0.17 (2.25)
			2.63 (50.00)	8.16 (155.00)	10.79 (205.00)						
			1.44 (95.00)	2.05 (135.00)	3.49 (230.00)						
3.82 (86.67)	4.63 (105.00)	8.45 (191.67)	1.94 (55.00)	5.65 (160.00)	7.59 (215.00)						
—	2.20 (63.75)	2.20 (63.75)	3.54 (48.75)	8.00 (110.00)	11.54 (158.75)	(Coosae) —	0.07 (1.83)	0.07 (1.83)			
—	—	None Found	—	0.01 (0.33)	0.01 (0.33)	(Coosae) — (Salmoides) —	— 0.01 (0.29)	None Found 0.01 (0.29)	—	0.33 (2.88)	0.33 (2.88)
	0.04 (0.75)	0.04 (0.75)	—	0.14 (4.67)	0.14 (4.67)	(Salmoides) —	0.03 (2.00)	0.03 (2.00)	0.09 (1.70)	0.27 (4.90)	0.36 (6.60)
	0.62 (14.23)	0.62 (14.23)	—	2.50 (54.17)	2.50 (54.17)	(Punctulatus) 0.20 (4.25)	0.50 (10.75)	0.70 (15.00)			
	0.43 (10.57)	0.43 (10.57)	0.44 (9.00)	0.73 (15.00)	1.17 (24.00)	(Punctulatus) — (Salmoides) 0.31 (7.50)	— 0.66 (15.83)	None Found 0.97 (23.33)			

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[illegible]		Longear sunfish			Bluegill			Bass - Fundamentus - Coosae			Logperch		
1254	Total PCB	A-1242	A-1254	Total PCB	A-1242	A-1254	Total PCB	A-1242	A-1254	Total PCB	A-1242	A-1254	Total PCB
.03 (.42)	0.07 (0.90)	0.07 (9.13)	0.01 (1.38)	0.08 (10.51)				0.03 (0.56)	0.05 (1.11)	0.08 (1.67)	0.13 (2.92)	0.10 (2.33)	0.23 (5.25)
0.52 (17.60)	0.66 (22.15)	0.11 (0.41)	0.17 0.66	0.28 (1.07)	0.07 (1.50)	0.11 (2.47)	0.18 (3.97)				0.11 (0.56)	0.14 (0.73)	0.25 (1.29)
117.18 (250.00)	167.96 (1,791.00)	24.65 (600.00)	50.00 (1216.67)	74.65 (1816.67)	10.32 650.00	23.81 (1,500.00)	34.13 (2150.00)						
		Sample Broken			8.67 (65.00)	7.67 (57.50)	16.34 (122.50)						
37.50 (706.25)	66.50 (831.25)	8.20 (575.00)	18.75 (1,200.00)	26.95 (1,775.00)	1.96 (112.50)	5.44 (312.50)	7.40 (425.00)	1.77 (118.06)	8.33 (555.56)	10.10 (673.62)			
					0.04 (2.40)	0.10 (6.20)	0.14 (8.60)						
0.53 (10.00)	0.53 (10.00)	0.02 (1.60)	0.05 (3.30)	0.07 (4.90)	0.04 (1.42)	0.19 (6.17)	0.23 (7.59)	0.04 (1.60)	0.13 (5.60)	0.17 (7.20)	0.10 (2.94)	0.16 (4.56)	0.26 (7.50)
0.31 (4.35)	0.51 (7.18)	0.04 (0.58)	0.13 (2.13)	0.17 (2.71)	0.07 (0.90)	0.24 (3.20)	0.31 (4.10)	Salmonides: 0.04 (0.70) Fundamentus: 0.04 (0.30)	0.06 (1.50) 0.11 (0.75)	0.10 (2.40) 0.41 (1.05)			
		0.71 (31.25)	1.14 (50.00)	1.85 (81.25)				0.32 (12.96)	1.46 (59.25)	1.78 (72.21)			
		0.06 (3.50)	0.14 (9.00)	0.20 (12.50)	0.21 (9.29)	0.70 (31.07)	0.91 (40.36)	0.31 (7.31)	0.66 (15.39)	0.97 (22.70)	0.72 (14.38)	0.89 (17.81)	1.61 (3.[illegible])

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March 16-17, 1971

Results are ppm.
Top number is wet weight.
Number in parenthesis is Lipid weight.

	Hypentelium etowanum — Ala. Hog Sucker			Campostoma anomalum — Stoneroller			Notropis [illegible] — Blacksha[illegible]	
	A-1242	A-1254	Total PCB	A-1242	A-1254	Total PCB	A-1242 - 1254	To PC
(1) Shoal Creek	0.03 (1.83)	0.05 (2.42)	0.08 (4.25)	0.06 (1.13)	0.08 (6.00)	0.14 (10.13)	0.0 / 0.03 (0.48 / 0.42)	0 (0
(2) Choccolocco Creek, Hwy. 9 Bridge	0.09 (1.28)	0.15 (2.08)	0.24 (3.36)	0.21 (3.42)	0.26 (4.33)	0.47 (7.75)	0.14 / 0.52 (1.55 / 7.40)	0. (7
(3) Choccolocco Creek, Martha H. Williams Bridge, Hwy. 95				41.44 (571.43)	37.50 (492.11)	81.94 (1053.57)	50.7 / 117.18 (581.91 / 250.00)	14 (171
(4) Choccolocco Creek, Hwy. 93 Bridge				41.67 (625.00)	45.00 (675.00)	86.67 (1300.00)		
(5) Choccolocco Creek, Hwy. 77							34.0 / 37.50 (425.0 / 625)	66 (
(6) Cheaha Creek	—	0.35 (12.00)	0.35 (12.00)	—	1.46 (45.00)	1.46 (45.00)		
(7) Aker's Creek	0.04 (2.08)	0.06 (3.13)	0.10 (5.21)	0.09 (1.48)	—	0.09 (1.48)	0.53 / — (10.09)	0. (1
(8) Cane Creek	—	0.63 (11.31)	0.63 (11.31)				0.2 / 0.31 (2.8 / 1.35)	((
(9) Stemley Bridge, Hwy. 34								
(10) Clear Creek								

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PCB Residue Analysis Sept., 1971

Results are PPM
Top number is WET WT; Bottom number is Lipid WT.

1.) Shoal Creek RCC 71-426

	No. Fish Used	Sample wt.	A-1242	A-1254	Total PCB
Hyppentelium etowanum	9	11.5	0.13	— ✓	0.13
			5.17		5.17
Campostoma anomalum	4	25.5	0.03	— ✓	0.03
			0.87		0.87
Notropis venustus	21	43.0	—	0.02 ✓	0.02
				0.47 ✓	0.47
Lepomis megalotis	3	33.0	—	0.01 ✓	0.01
				0.21 ✓	0.21
Micropterus punctulatus	1	1.5	0.68	— ✓	0.68
			5.13		5.13

2.) Choccolocco Creek at Highway 9 RCC 71-427

	No. Fish Used	Sample wt.	A-1242	A-1254	Total PCB
Hyp[illegible]	2	12.0	[illegible]	0.21 ✓	0.35
			2.83	4.17 ✓	7.00
Campostoma anomalum	2	2.5	0.76	0.90 ✓	1.66
			4.75	5.63 ✓	10.38
Notropis venustus	8	15.0	0.23	0.46 ✓	0.69
			3.45	6.83 ✓	10.28
Lepomis macrochirus	3	2.0	1.20	2.48 ✓	3.68
			12.00	24.75 ✓	36.75
Lepomis megalotis	5	35.5	0.10	0.09 ✓	0.19
			3.03	2.88 ✓	5.91

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3.) Chocolocco Creek, Martha H. Williams Bridge RDS 5081

	No. Fish Used	Sample wt.	A-1242	A-1254	Total PCB
Notropis semotus	6	31.5	67.46	53.90 ✓	121.36
			1,416.67	1,133.33 ✓	2,550.00
Micropterus salmoides	1	7.0	—	53.57 ✓	53.57
				625.00 ✓	625.00

4.) Chocolocco Creek, Fish Station 8, Highway 93 RDS 5080

	No. Fish Used	Sample wt.	A-1242	A-1254	Total PCB
Hypentelium etowanum	14	19.0	10.30	12.19 ✓	22.50
			195.83	241.67 ✓	437.50
Notropis semotus	9	41.0	73.13	64.02 ✓	137.15
			1,666.67	1,458.33 ✓	3,125.00
Campostoma anomalum	11	38.0	55.10	32.07 ✓	87.17
			1,395.83	812.50 ✓	2,208.33
Lepomis megalotis	5	10.0	30.00	23.00 ✓	53.00
			500.00	383.33 ✓	883.33
Lepomis macrochirus	9	16.0	19.37	13.75 ✓	33.12
			387.50	275.00 ✓	662.50
Micropterus coosae	2	3.2	19.79	9.90 ✓	29.69
			211.11	105.56 ✓	316.67

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5.) Choccoloco Creek, Fish Station 10, Highway 77 Bridge RCC 71-428

	No. Fish Used	Sample wt.	A-1242	A-1254	Total PCB
Lepomis macrochirus	18	14.0	9.29	12.32	21.61
			162.50	215.63	378.13
Lepomis megalotis	7	29.0	21.12	25.86	46.98
			340.28	416.67	756.95
Micropterus salmoides	4	12.0	2.92	3.13	6.05
			58.33	62.50	120.83

6) Cheaha Creek, Highway 93 RDS 5079

	No. Fish Used	Sample wt.	A-1242	A-1254	Total PCB
Hypentelium etowanum	7	14.0	0.07	0.15	0.22
			1.06	2.33	3.39
Campostoma anomalum	1	233	0.08	0.10	0.18
			1.32	1.70	3.02
Lepomis macrochirus	1	46.0	—	4.19	4.19
				106.94	106.94
Lepomis megalotis	3	7.0	—	4.86	4.86
				113.33	113.33
Micropterus coosae (Total Fish wt 66.5)	1	30.0	0.04	0.14	0.18
			1.14	3.82	4.96

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9.) Chaaha Creek, County Highway 105, at McEldery RDS 5083

	No. Fish Used	Sample cut	A-1242	A-1254	Total PCB
Hypentelium etowanum (juveniles)	3	5.0	0.24 5.88	—	0.24 5.88
Hypentelium etowanum (adult)	1	Total Fish 935 Sample wt. 260	0.16 3.54	0.18 3.61	0.34 7.15
Campostoma anomalum (juveniles)	16	30.0	0.09 1.93	0.05 1.07	0.14 3.00
Notropis leuciodus (juveniles)	11	30.4	0.30 7.71	0.44 11.04	0.74 18.75
Lepomis megalotis (juveniles)	3	30.5	0.08 1.53	0.11 2.13	0.19 3.66
Micropterus coosae (adult - 160.6 gms)	1	38.0	—	0.72 16.18	0.72 16.18
Percina caprodes	2	27.8	0.08 1.31	0.07 1.13	0.15 2.44

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8.) Cane Creek RDS 5085

	No. Fish Used	Sample Wt.	A-1242	A-1254	Total PCB
Hypentelium etowanum (Total Fish 109.0g.)	1	31.0	—	0.34 ✓ 5.25	0.34 5.25
Campostoma anomalum	6	30.0	—	0.03 ✓ 0.63 ✓	0.03 0.63
Lepomis macrochirus	4	29.5	—	0.64 ✓ 19.00 ✓	0.64 19.00
Lepomis megalotis	1	18.6	—	1.18 ✓ 27.50 ✓	1.18 27.50
Micropterus punctulatus	1	12.5	—	0.77 ✓ 16.04 ✓	0.77 16.04
Micropterus salmoides	1	24.0	—	0.52 ✓ 15.63 ✓	0.52 15.63

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9.) Aker Creek RDS 5086

	No. Fish Used	Sample Wt.	A-1242	A-1254	Total PCB
Hyperteliurus etowanum	1	1.5	0.08	— ✓	0.08
			1.20		1.20
Notropis venustus	6	31.5	—	0.08 ✓	0.08
				1.67 ✓	1.67
Campostoma anomalum	2	30.0	0.02	0.01 ✓	0.03
			0.30	0.25 ✓	0.55
Lepomis macrochirus	1	34.0	0.01	0.05 ✓	0.06
			0.20	0.89 ✓	1.09
Lepomis megalotis	3	26.0	0.02	0.03 ✓	0.05
			0.48	0.73 ✓	1.21
Micropterus coosae	1	1.3	0.41	0.15 ✓	0.56
			5.30	1.90 ✓	7.20
Percina caprodes	2	14.0	0.03	0.05 ✓	0.08
			0.48	0.75 ✓	1.23

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10.) Stemley Bridge RCC 71-429

	No. Fish Used	Sample wt.	A-1242	A-1254	Total PCB
Lepomis macrochirus	6	13.5	1.72	1.74 ✓	3.46
			29.06	29.38 ✓	58.44
Lepomis megalotis	3	25.0	1.65	2.15 ✓	3.80
			37.50	48.86 ✓	86.36
Micropterus punctulatus	7	18.0	0.86	1.07 ✓	1.93
			22.14	27.50 ✓	49.64
Micropterus salmoides	4	15.5	—	1.08 ✓	1.08
				33.50 ✓	33.50

11.) Clear Creek. RCC 71-430

	No. Fish Used	Sample wt.	A-1242	A-1254	Total PCB
Lepomis macrochirus	8	30.0	0.77	0.83 ✓	1.60
			17.69	19.23 ✓	36.92
Lepomis megalotis	4	28.0	0.86	0.29 ✓	1.15
			21.81	7.27 ✓	29.08
Micropterus punctulatus	7	30.0	0.30	0.41 ✓	0.71
			6.73	8.75 ✓	15.18
Micropterus salmoides	9	32.5	0.17	0.38 ✓	0.55
			3.44	7.81 ✓	11.25
Notropis venustus	13	32.0	0.53	0.52 ✓	1.05
			17.00	16.50 ✓	33.50
Percina caprodes	2	16.0	1.56	1.06 ✓	2.62
			4. ..	28.33 ✓	70.00

MONS 068964

MONSANTO COMPANY, FIRST QUARTERLY TRIP, SECOND YEAR OF SURVEY

December 6-9, 1971

Part I---Fishes for Residue Analysis; Turned over to Monsanto Company, December 9, 1971.

Royal D. Suttkus, Ph.D.
Gerald E. Gunning, Ph.D.

Biological Consultants
New Orleans, Louisiana

MONS 068965

Shoal Creek, Tributary to Choccolocco Creek, 2.3 miles east of White Plains, RCC 71-459, December 7, 1971

* *Hypentelium etowanum*	Alabama hogsucker	2
* *Moxostoma* sp.	Redhorse	1
* *Campostoma anomalum*	Stoneroller	9
Notropis xaenocephalus	Coosa shiner	5
Notropis caerulea	Blue shiner	4
Notropis callistius	Alabama shiner	8
Notropis asperifrons	Burrhead shiner	3
Notropis stilbius	Silverstripe shiner	3
Notropis trichroistius	Tricolor shiner	14
* *Notropis venustus*	Blacktail shiner	10
Notropis chrosomus	Rainbow shiner	3
Phenacobius catostomus	Riffle minnow	1
Semotilus atromaculatus	Creek chub	1
* *Lepomis megalotis*	Longear sunfish	5
* *Micropterus coosa*	Redeye bass	1
* *Cottus carolinae*	Banded sculpin	4
Etheostoma stigmaeum	Speckled darter	2
Etheostoma jordani	Greenbreast darter	1
* *Percina nigrofasciata*	Blackbanded darter	1
Ulocentra sp. nov.	Darter	1
Ictalurus melas	Black bullhead	1
Crayfish		3
Tadpoles		2
	Total Specimens	85

* Please make certain that all those fishes marked with an asterisk are analyzed for residue.

MONS 068966

Chocolocco Creek at Highway 9, 1 mile south of White Plains, Fish Station 3, RCC 71-460, December 7, 1971

Moxostoma sp.	Sucker	1
Gambusia affinis	Mosquito fish	2
Fundulus stellifer	Southern studfish	1
Lepomis macrochirus	Bluegill	16
Lepomis megalotis	Longear sunfish	2
Lepomis microlophus	Redear sunfish	1
	Total Specimens	23

Chocolocco Creek, Fish Station 7, Martha H. Williams Bridge, Highway 95, RDG 5137, December 7, 1971

Notemigonus crysoleucas	Golden shiner	11
Notropis venustus	Blacktail shiner	6
Carassius auratus	Goldfish	3
Gambusia affinis	Mosquitofish	11
Chrosomus erythrogaster	Warmouth	3
Lepomis cyanellus	Greensunfish	14
Lepomis macrochirus	Bluegill	1
Crayfish		2
Dragonfly larva		1
Bullfrog		1
	Total Specimens	53

MONS 068967

Choccolocco Creek, Fish Station 8, 3 miles south of I-20, Highway 9?, RDS 5136, December 7, 1971

Notropis venustus	Blacktail shiner	1
Notropis volucellus	Mimic shiner	3
Campostoma anomalum	Stoneroller	1
Notropis stilbius	Silverstripe shiner	1
Notemigonus crysoleucas	Golden shiner	2
Lepomis cyanellus	Green sunfish	19
Lepomis megalotis	Longear sunfish	3
Lepomis macrochirus	Bluegill	8
Micropterus salmoides	Largemouth bass	1
Gambusia affinis	Mosquitofish	5
Ictalurus melas	Black bullhead	1
Crayfish		9
Dragonfly larva		1
Bullfrog, Rana catesbeirna		1
	Total Specimens	56

Choccolocco Creek, Fish Station 10, Highway 77 Bridge, RCC 71-461, December 8, 197

Dorosoma cepedianum	Gizzard shad	1
Pimephales vigilax	Bullhead minnow	2
Notemigonus crysoleucas	Golden shiner	18
Notropis venustus	Blacktail shiner	3
Micropterus punctulatus	Spotted bass	1
Lepomis humilis	Orangespotted sunfish	4
Lepomis cyanellus	Green sunfish	19
Lepomis macrochirus	Bluegill	37
Lepomis megalotis	Longear sunfish	12
Lepomis microlophus	Redear sunfish	7
[illegible]	Largemouth bass	6
[illegible]	Black crappie	3
	Total Specimens	113

MONS 068968

Chesha Creek, Tributary to Chickasaw Creek, 3.6 miles south of Interstate 20, Highway 93, RMS 5135, December 7, 1971

*	Hypentelium etowanum	Alabama hogsucker	6
*	Campostoma anomalum	Stoneroller	29
	Notropis callistius	Alabama shiner	1
*	Notropis venustus	Blacktail shiner	1
*	Lepomis cyanellus	Green sunfish	19
*	Lepomis macrochirus	Bluegill	1
*	Lepomis megalotis	Longear sunfish	7
*	Cottus carolinae	Banded sculpin	35
*	Percina nigrofasciata	Blackbanded darter	1
	Crayfish		15
	Dragonfly larvae		5
	Salamander		1
		Total Specimens	121

MONS 068969

Cane Creek, Tributary to Coosa River, 8.6 miles north of Lincoln, RDS 9153, December 8, 1971

Dorosoma cepedianum	Gizzard shad	13
Campostoma anomalum	Stoneroller	2
Cyprinus carpio (large)	Carp	2
Pimephales vigilax	Bullhead minnow	1
Ictalurus melas	Black bullhead	1
Chaenobryttus gulosus	Warmouth	1
Lepomis macrochirus	Bluegill	7
Lepomis cyanellus	Green sunfish	1
Lepomis megalotis	Longear sunfish	5
Micropterus salmoides (large)	Largemouth bass	1
Pomoxis nigromaculatus (5 lg. & 4 sm.)	Black crappie	9
Percina caprodes	Logperch	1
Crayfish		7
	Total Specimens	51

Alec Creek, Tributary to Coosa River, 6.6 miles North of Lincoln, RDS 9138, December 8, 1971

Dorosoma cepedianum	Gizzard shad	6
Fundulus olivaceus	Blackspotted topminnow	1
Hypentelium etowanum	Alabama hogsucker	2
Cyprinus carpio	Carp	2
Notropius chrysoleucas	Golden shiner	1
Notropis venustus	Blacktail shiner	4
Campostoma anomalum	Stoneroller	1
Lepomis microlophus	Redear sunfish	1
Lepomis cyanellus	Green sunfish	6
Lepomis macrochirus	Bluegill	10
Lepomis megalotis	Longear sunfish	12
Pomoxis nigromaculatus	Black crappie	1
Etheostoma stigmaeum	Speckled darter	5
Percina caprodes	Logperch	1
Percina nigrofasciata	Blackbanded darter	4
Cottus carolinae	Banded sculpin	2
Invertebrates (Tipulids-2; dragonflies-1; clams-4; snails-1)		8
Trionyx sp. (soft-shell turtle)		1
	Total Specimens	76

MONS 068970

Coosa River at Stanley Bridge (Logan Martin Reservoir), Highway 34, RCC 71-463, December 8, 1971

Lepomis humilis	Orangespotted sunfish	1
Lepomis macrochirus	Blue gill	39
Lepomis megalotis	Longear sunfish	30
Micropterus punctulatus	Spotted bass	9
Micropterus salmoides	Largemouth bass	2
Pimephales vigilax	Bullhead minnow	14
Lepomis cyanellus	Green sunfish	9
	Total Specimens	104

Clear Creek, Tributary to Coosa River (Logan Martin Reservoir), Highway 42, RCC 71-463, December 8, 1971

Dorosoma cepedianum	Gizzard shad	1
Pimephales vigilax	Bullhead minnow	25
Lepomis cyanellus	Green sunfish	4
Lepomis humilis	Orangespotted sunfish	15
Lepomis macrochirus	Bluegill	143
Lepomis megalotis	Longear sunfish	32
Lepomis microlophus	Redear sunfish	3
Micropterus punctulatus	Spotted bass	4
Notropis venustus	Blacktail shiner	1
Minytrema melanops (large)	Spotted sucker	1
	Total Specimens	229

MONS 068971

Summary of total animals collected, Part I, First Quarterly Trip, Second Year

85
23
53
56
186
121
51
76
104
229
984 Grand Total for Survey--Year 2--First Quarterly Trip

MONS 068972