PCBs - Mich

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RESULTS OF FISH-CONTAMINANT MONITORING

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The following tables present average concentrations of contaminants in selected fishes from the Great Lakes. These results are based on measurements of total DDT, Dieldrin, and total PCBs in bloater chubs, lake trout, and coho salmon from Lake Michigan (Table 1), and mercury in walleye, rock bass, yellow perch and channel catfish from Lake St. Clair (Table 2). Pesticide and PCB analyses were performed on whole fish and mercury analyses were of fillets.

The monitoring program utilizes large, adult fish of consistent size collected systematically each fall from specified locations (Table 3). This system permits accurate determination of yearly trends of contaminants in the fish and provides an indication of changes in environmental conditions at those locations.

For additional information, contact Dr. James Saelye, Project Leader for Contaminant Dynamics at the above address.

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TOXIC MATERIALS CONTROL
MONS 013935

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Table 1.--Concentrations of pesticides and PCBs in fall collections of Lake Michigan bloaters and lake trout off Saugatuck, Michigan, and coho salmon from east-central Lake Michigan.

Species and year	Number of fish	Average length (mm)	Total DDT µg/g [1]	Dieldrin µg/g [1]	Total PCBs µg/g [1]
Bloaters					
1969	120	270	9.94 (0.33)	0.27 (0.01)	-
1970	28	263	9.87 (1.44)	0.19 (0.02)	-
1971	60[2]	264	6.24 (1.13)	0.27 (0.06)	-
1972	120[3]	255	4.33 (0.48)	0.18 (0.03)	5.66 (0.95)
1973	160[3]	250	2.09 (0.26)	0.28 (0.02)	5.24 (0.37)
1974	110[3]	257	1.33 (0.14)	0.28 (0.03)	5.57 (0.31)
1975	170[3]	249	1.27 (0.20)	0.39 (0.03)	4.54 (0.36)
1976	110[3]	253	0.90 (0.06)[4]	0.35 (0.02)	4.11 (0.22)
Coho salmon					
1969	11	621	11.82 (2.69)	0.21 (0.02)	-
1970	13	651	14.03 (1.29)	0.12 (0.02)	-
1971	15	674	9.85 (1.41)	0.11 (0.01)	-
1972	10	693	7.17 (1.09)	0.13 (0.04)	10.93 (2.12)
1973	29	620	4.48 (0.34)	0.09 (0.01)	12.17 (0.77)
1974	30	665	3.82 (0.34)	0.10 (0.01)	10.45 (0.92)
1975	30	645	3.25 (0.20)	0.10 (0.01)	10.77 (0.59)
1976	30	635	2.98 (0.20)	0.08 (0.01)	9.21 (0.46)
Lake trout					
1970	10	613	19.19 (3.27)	0.27 (0.05)	-
1971	20	579	13.00 (1.76)	0.20 (0.03)	-
1972	9	648	11.31 (3.26)	0.20 (0.06)	12.86 (4.75)
1973	30	602	9.96 (1.36)	0.27 (0.03)	18.93 (2.08)
1974	30	616	8.42 (1.74)	0.30 (0.03)	22.91 (3.73)
1975	29	613	7.50 (1.25)	0.35 (0.03)	22.28 (2.90)
1976	30	606	5.65 (1.04)	0.30 (0.02)	18.68 (2.66)

[1] Concentrations in whole fish, wet weight with 95% confidence interval in parentheses.

[2] Composite samples, 5 fish/sample.

[3] Composite samples, 10 fish/sample.

[4] p,p'DDT plus p,p'DDE measured as DDE in saponified samples.

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Table 2.--Mercury concentrations in fillets of selected Lake St. Clair fishes collected in the fall of the year.

Species and Year	Number of fish	Average length (mm)	Average weight (g)	Total mercury ppm[1/]
Walleye				
1970	56	506	1214	2.83 (0.37)
1972	68	445	831	1.38 (0.16)
1973	77	485	1105	1.18 (0.10)
1974	60	501	1174	1.07 (0.10)
1975	99	497	1128	1.03 (0.10)
1976	30	497	1271	0.78 (0.20)
Rock bass				
1970	45	185	164	1.24 (0.27)
1972	40	174	121	0.49 (0.08)
1973	36	178	126	0.37 (0.07)
1974	50	209	211	0.37 (0.06)
Yellow perch				
1970	45	198	106	1.22 (0.17)
1973	45	191	91	0.31 (0.08)
1974	43	228	158	0.28 (0.04)
Channel catfish				
1970	15	538	1967	1.62 (0.45)
1972[2/]	9	363	519	0.37 (0.19)
1973[2/]	8	461	1023	0.35 (0.08)
1974[2/]	20	490	1135	0.35 (0.04)

[1/] Concentrations expressed as elemental mercury in wet weight of tissue with 95% confidence interval in parentheses.

[2/] Whole fish.

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Table 3.--Sampling locations for fish-contaminant monitoring.

Lake	Species	Location
Lake Michigan	Bloater Chubs	Saugatuck, Michigan
	Lake Trout	Saugatuck, Michigan
	Coho Salmon	Ludington, Michigan (1969-1972)
		Platte River (1973-present)
Lake St. Clair	Walleye	Anchor Bay
	Rock Bass	Anchor Bay
	Channel Catfish	Anchor Bay
	Yellow Perch	Anchor Bay

MONS 013938