

1981 Buffalo, New York, Area Sediment Survey (BASS)

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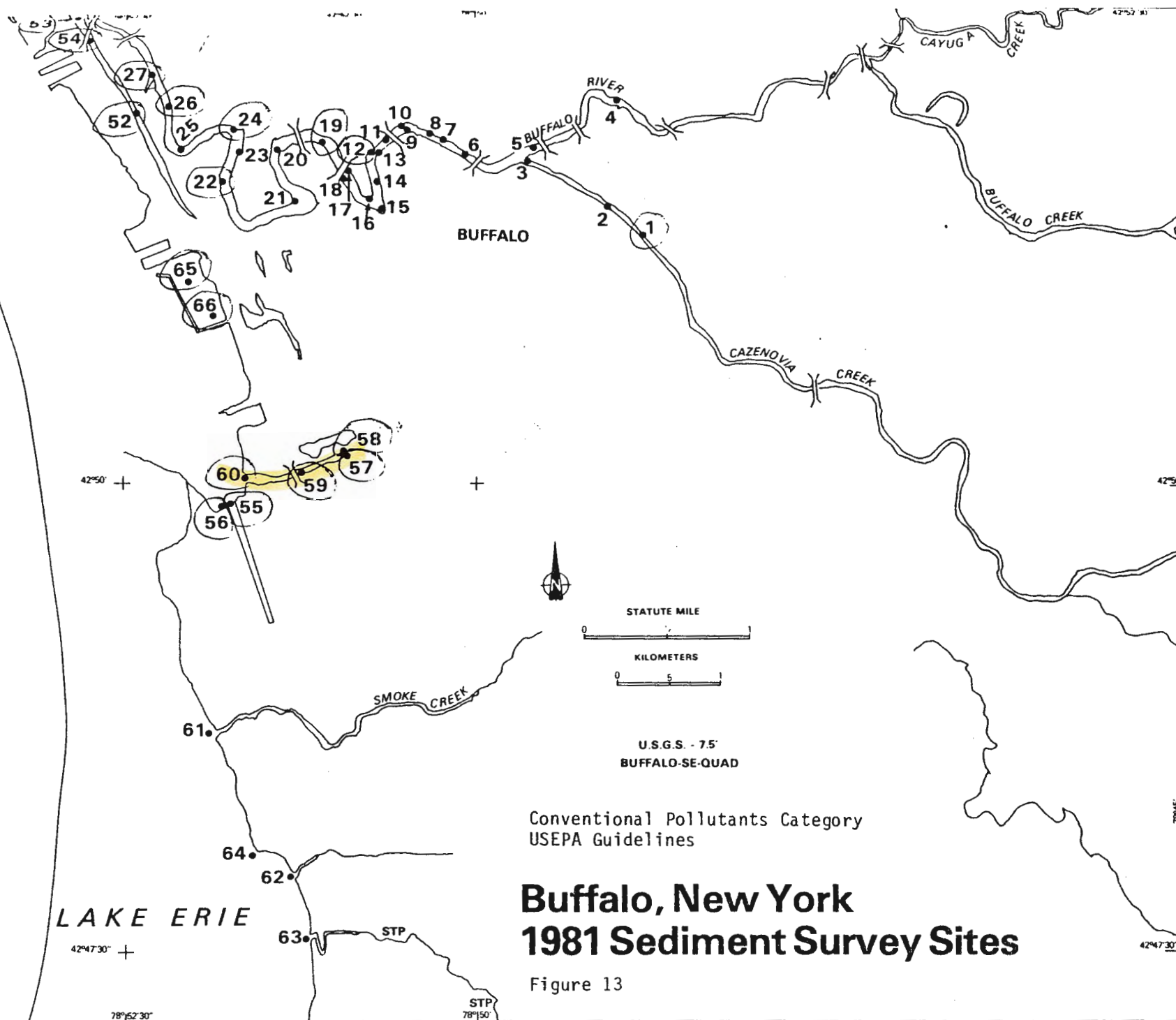


Table 1, cont.

Sites - May 6, 1981		53	54	55	56	57	58	59	60	61	65	66	67	70	71	72	73	75	76	78	81	82	83	86	87	89	90	92	95
Compound Categories																													
(1) Alcohols, Organic Acids, Ethers and Esters																													
(2) Chlorinated Aliphatics and Aromatics																													
(3) Aldehydes and Ketones																													
(4) Naphthalenes and Polycyclic Aromatics				X	X		X									X	X											X	
(5) Nitro and Amino Aromatics																													
(6) PCBs and Pesticides																													
(7) Unsubstituted Aliphatics and Aromatics							X			X			X			X	X				X	X			X				
(8) Conventional Pollutants		X	X	X	X	X	X	X	X		X	X	X	X	X	X		X	X	X	X	X	X	X	X	X		X	
(9) Heavy Metals		X	X	X	X	X	X	X	X	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Table 1

Sediment Survey Sites Where at Least One Organic Contaminant Exceeded 50 ppm
or Conventional and Heavy Metal Contaminants Were Classified as Heavily
Polluted by EPA 1977 Pollutational Classification of Great Lakes Harbor Sediments
Buffalo, New York

Sites - May 6, 1981

Compound Categories	1	2	3	4	5	7	8	10	11	12	13	16	19	22	24	26	27	31	32	33	35	37	40	41	43	44	45	48	51	52
(1) Alcohols, Organic Acids, Ethers and Esters				X												X														
(2) Chlorinated Aliphatics and Aromatics										X																				
(3) Aldehydes and Ketones										X																				
(4) Naphthalenes and Polycyclic Aromatics					X			X	X	X						X														
(5) Nitro and Amino Aromatics										X																				
(6) PCBs and Pesticides									X	X																				
(7) Unsubstituted Aliphatics and Aromatics										X							X	X	X						X		X			
(8) Conventional Pollutants	X									X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
(9) Heavy Metals	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Primary
Buffalo No. 81-53

Sample at point of penn. between Buffalo River and Buffalo ship Canal,
sample in 3m, primarily clay, some oil and organic ooze.

Primary
Buffalo No. 81-54

7.5m deep, sample just south of Sky Way Bridge (R+5) in Buffalo Ship
Canal, clay, oligochaetes present no special odor.

Primary
Buffalo No. 81-55

Mouth of Lakawana Ship Canal, sample in 11.5m of water, primarily silt and
ooze with large amount of oil.

Secondary
Buffalo No. 81-56

7m deep, 50 yards west of west corner of Lackawana Canal, sample consists
of grey & brown clay, oil, no benthos.

Primary
Buffalo No. 81-57

Sample at outfall in 5.5m of water at the right interior corner (facing in)
of Union Canal, sample primarily clay and graphite with oil, sample had strong
oily smell, no benthos was observed.

Primary
Buffalo No. 81-58

5.5m of water at the left interior corner of Union Canal, sample was oily,
clay and organic ooze with metallic specks, no benthos.

Primary
Buffalo No. 81-59

7m of water just inside bridge on right side (facing) of Union Canal at
discharge, sample contained no benthos, were composed of organic ooze
and clay, oil present in sample and sample smells oily.

Primary
Buffalo No. 81-60

7m of water, center of the Mouth of the Union Canal, sample consists of
clay, silt with oil present, no benthos observed, oily smell.

U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION V
CHICAGO, ILLINOIS
APRIL 1977

GUIDELINES FOR THE POLLUTIONAL CLASSIFICATION OF GREAT LAKES HARBOR SEDIMENTS

Guidelines for the evaluation of Great Lakes harbor sediments, based on bulk sediment analysis, have been developed by Region V of the U.S. Environmental Protection Agency. These guidelines, developed under the pressure of the need to make immediate decisions regarding the disposal of dredged material, have not been adequately related to the impact of the sediments on the Lakes and are considered interim guidelines until more scientifically sound guidelines are developed.

The guidelines are based on the following facts and assumptions:

1. Sediments that have been severely altered by the activities of man are most likely to have adverse environmental impacts.
2. The variability of the sampling and analytical techniques is such that the assessment of any sample must be based on all factors and not on any single parameter with the exception of mercury and polychlorinated biphenyls (PCBs).
3. Due to the documented bioaccumulation of mercury and PCBs, rigid limitations are used which override all other considerations.

Sediments are classified as heavily polluted, moderately polluted, or nonpolluted by evaluating each parameter measured against the scales shown below. The overall classification of the sample is based on the most predominant classification of the individual parameters. Additional factors, such as elutriate test results, source of contamination, particle size distribution, benthic macroinvertebrate populations, color, and odor are also considered. These factors are interrelated in a complex manner and their interpretation is necessarily somewhat subjective.

Table 1

The following ranges used to classify sediments from Great Lakes harbors are based on compilations of data from over 100 different harbors since 1967.

	<u>NONPOLLUTED</u>	<u>MODERATELY POLLUTED</u>	<u>HEAVILY POLLUTED</u>
Volatile Solids (%)	<5	5 - 8	>8
COD (mg/kg dry weight)	<40,000	40,000 - 80,000	>80,000
TKN (" " " ")	<1,000	1,000 - 2,000	>2,000
Oil & Grease			
(Hexane Solubles)	<1,000	1,000 - 2,000	>2,000
(mg/kg dry weight)			
Lead (mg/kg dry weight)	<40	40 - 60	>60
Zinc (" " " ")	<90	90 - 200	>200

The following supplementary ranges used to classify sediments from Great Lakes harbors have been developed to the point where they are usable but are still subject to modification by the addition of new data. These ranges are based on 260 samples from 34 harbors sampled during 1974 and 1975.

	<u>NONPOLLUTED</u>	<u>MODERATELY POLLUTED</u> (mg/kg dry weight)	<u>HEAVILY POLLUTED</u>
Ammonia	<75	75-200	>200
Cyanide	<0.10	0.10-0.25	>0.25
Phosphorus	<420	420-650	>650
Iron	<17,000	17,000-25,000	>25,000
Nickel	<20	20-50	>50
Manganese	<300	300-500	>500
Arsenic	<3	3-8	>8
Cadmium	*	*	>6
Chromium	<25	25-75	>75
Barium	<20	20-60	>60
Copper	<25	25-50	>50

* Lower limits not established

The guidelines stated below for mercury and PCBs are based upon the best available information and are subject to revision as new information becomes available.

Methylation of mercury at levels ≥ 1 mg/kg has been documented (1, 2). Methyl mercury is directly available for bioaccumulation in the food chain.

Elevated PCB levels in large fish have been found in all of the Great Lakes. the accumulation pathways are not well understood. However, bioaccumulation of PCBs at levels ≥ 10 mg/kg in fathead minnows has been documented (3).

Because of the known bioaccumulation of these toxic compounds, a rigid limitation is used. If the guidelines values are exceeded, the sediments are classified as polluted and unacceptable for open lake disposal no matter what the other data indicate.

POLLUTED

Mercury	≥ 1 mg/kg dry weight
Total PCBs	≥ 10 mg/kg dry weight

The pollutional classification of sediments with total PCB concentrations between 1.0 mg/kg and 10.0 mg/kg dry weight will be determined on a case-by-case basis.

APPENDIX C
Analytical Results

Tables

1. Concentrations of Volatile Organics in Sediments
2. Concentrations of Semi-Volatile Organics in Sediments
3. Concentrations of PCBs and Pesticides in Sediments
4. Concentrations of Metals in Sediments
5. Concentrations of Conventional Pollutants in Sediments

(ALL CONCENTRATIONS ARE EXPRESSED IN UNITS OF
mg/kg, DRY WEIGHT) - EXCEPT WHERE NOTED.

Table 1, cont.

Parameter	Sampling Site												
	37	40	41	43	44	45	48	51	52	53	54	55	D55
Acetophenone													
Benzene												0.004	0.003
Bromodichloromethane													
Butanone													
1-Butyl-2-propylcyclopentane			0.1*										
Carbon disulfide													
Chlorobenzene						0.01			*	0.01	*		
Chloroform													
(Deuteriochloroform)							0.02*						
Chlorotoluene													
Cyclohexane													
Dibromochloromethane													
Dibromoethane												0.005*	
Dibromomethane													
Dichlorobenzene													
1,1-Dichloroethane													
1,2-Dichloroethane													
1,2-Dichloroethylene													
1,2-Dichloropropane													
Diethylbenzene													
Diethyl ether					0.07*		0.16*						

*Tentative identification and approximate quantitation

Table 1, cont.

Parameter	Sampling Site												
	56	57	58	59	60	61	65	66	67	70	71	D71	72
Acetophenone													
Benzene		0.004											
Bromodichloromethane													
Butanone													
1-Butyl-2-propylcyclopentane													
Carbon disulfide													
Chlorobenzene	*												
Chloroform													
(Deuteriochloroform)													
Chlorotoluene													
Cyclohexane													
Dibromochloromethane													
Dibromoethane													
Dibromomethane													
Dichlorobenzene													
1,1-Dichloroethane													
1,2-Dichloroethane													
1,2-Dichloroethylene													
1,2-Dichloropropane													
Diethylbenzene													
Diethyl ether		0.05*											

*Tentative identification and approximate quantitation

Table 1, cont.

Parameter	Sampling Site												
	37	40	41	43	44	45	48	51	52	53	54	55	D55
Dimethylcyclohexane													
Dimethylcyclopentane													
Dimethyl disulfide													
Dimethyl ether		0.01*											
Dimethyltetrahydrofuran													
Ethylbenzene										0.003			
Ethylcyclopentane													
1-Ethyl-2-methylcyclohexane													
Ethylpropylbenzene													
Ethyltoluene													
Hexane													
Hydrocarbons	1.0*	1.1*	1.11*	1.1*	0.9*		0.36*	0.25*	0.26*	0.7*	0.8*	0.5*	1.1*
(Hydrocarbons-Alcohols)													
(Hydrocarbons-Aromatics)													
Methylcyclodecane													
Methylcyclohexane										0.02*			
Methylcyclopentane													
Methylene chloride	0.02	0.01	0.013	0.04		0.07	0.334				0.004		
2-Methylhexane													
3-Methylhexane													

*Tentative identification and approximate quantitation

Table 1, cont.

Parameter	Sampling Site													
	56	57	58	59	60	61	65	66	67	70	71	D71	72	
Dimethylcyclohexane														
Dimethylcyclopentane														
Dimethyl disulfide						0.01*								
Dimethyl ether														
Dimethyltetrahydrofuran														
Ethylbenzene														
Ethylcyclopentane														
1-Ethyl-2-methylcyclohexane														
Ethylpropylbenzene														
Ethyltoluene														
Hexane														
Hydrocarbons	2.6*	0.09*	0.57*		0.65*	0.48*	0.32*	0.41*	0.65*	0.59*	0.5*	0.3*	0.81*	
(Hydrocarbons-Alcohols)														
(Hydrocarbons-Aromatics)														
Methylcyclodecane														
Methylcyclohexane														
Methylcyclopentane														
Methylene chloride	0.003	0.346	0.02		0.002			0.016	0.004	0.016	0.003	0.03	0.022	
2-Methylhexane														
3-Methylhexane														

*Tentative identification and approximate quantitation

Table 1, cont.

Parameter	Sampling Site												
	37	40	41	43	44	45	48	51	52	53	54	55	D55
1-Methyl-2-propylcyclopentane										0.1*			
2-(2-propenyl)toluene													
Propylbenzene													
Propyltoluene													
(Substituted cyclohexanes)													
1,1,2,2-Tetrachloroethane													
Tetrachloroethylene													
Thiobis(methane)													
Toluene				7.9		4.9	0.06	0.004				0.004	
Tribromomethane													
Trichlorobenzene													
Trichloroethane													
1,1,1-Trichloroethane													
1,1,2-Trichloroethane													
Trichloroethylene													
Trimethylbenzene													
Trimethylcyclohexane													
1,1,3-Trimethylcyclohexane										0.1*			
m-Xylene						0.02				*			
o- and p-Xylenes						0.03				0.01			
						0.7							

*Tentative identification and approximate quantitation

Table 1, cont.

Parameter	Sampling Site												
	56	57	58	59	60	61	65	66	67	70	71	D71	72
1-Methyl-2-propylcyclopentane													
2-(2-propenyl)toluene													
Propylbenzene													
Propyltoluene													
(Substituted cyclohexanes)													
1,1,2,2-Tetrachloroethane													
Tetrachloroethylene													
Thiobis(methane)						0.03*							
Toluene	*	0.008											5.6
Tribromomethane													
Trichlorobenzene													
Trichloroethane													
1,1,1-Trichloroethane													
1,1,2-Trichloroethane													
Trichloroethylene													
Trimethylbenzene													
Trimethylcyclohexane													
1,1,3-Trimethylcyclohexane													
m-Xylene													
o- and p-Xylenes		0.003											

*Tentative identification and approximate quantitation

Table 2 (cont.)

Parameter	Sampling Site									
	51	52	53	54	55	D55	56	D56	57	58
Acenaphthene					42.2	49.0	0.5	0.5		
Acenaphthylene					2.1	2.5		0.27		
Aldrin										
Benzeneacetaldehyde										
alpha-BHC										
beta-BHC										
Benzo(b)fluoranthene					59.0	19.4				63.
Benzo(g,h,i)fluoranthene										
Benzo(a)fluorene 11H										
Benzo(g,h,i)perylene					13.2					
Benzo(a)pyrene				9.1	106.5	13.				
1,1'-Biphenyl				0.6		66.0	69.0	57.1		
Butylbenzylphthalate										
t-butyl naphthalene										
Butylphenol										
p-t-butylphenol										
2-Chloroaniline										
1-Chloroanthraquinone										
Chlorobenzilate										
2-Chloronaphthalene										
1-Chloro-2-nitrobenzene										
1-Chloro-3-nitrobenzene										
Cholestan-3-alpha-ol										
Chrysene/Benz(a)anthracene		4.9			10.8	3.5	10.4	66.4	24.2	16.7
p-Cresol										
4H-Cyclopenta(d,e,f) phenanthrene					4.2*	4.7*				
o-Cymene										
Diacetone Alcohol										
Dibenzofuran					1.7*	2.2*				
Di-N-butylphthalate	1.6	1.8	1.8		2.3	0.7				
1,2-Dichlorobenzene		*								
1,3-Dichlorobenzene										
1,4-Dichlorobenzene		*								
1,3-Dichlorobenzene+1,4, Dichlorobenzene										
Dichlorobiphenyl (1)										
Dichlorobiphenyl (2)										
p,p-DDE										
o,p-DDT										
2,4-Dichloronitrobenzene										

*Tentative identification and approximate quantitation

Table 2 (cont.)

Parameter	Sampling Site									
	59	60	61	65	66	67	70	71	D71	72
Acenaphthene		0.2		0.07	0.03	0.2	0.12	0.2	0.7	1.6
Acenaphthylene		0.3								
Aldrin										
Benzeneacetaldehyde										
alpha-BHC				*						
beta-BHC				*						
Benzo(b)fluoranthene										
Benzo(g,h,i)fluoranthene										
Benzo(a)fluorene 11H										
Benzo(g,h,i)perylene										
Benzo(a)pyrene		14.								
1,1'-Biphenyl										
Butylbenzylphthalate										
t-butyl naphthalene										
Butylphenol										
p-t-butylphenol										
2-Chloroaniline										
1-Chloroanthraquinone										
Chlorobenzilate										
2-Chloronaphthalene										
1-Chloro-2-nitrobenzene										
1-Chloro-3-nitrobenzene										
Cholestan-3-alpha-ol										
Chrysene/Benz(a)anthracene	11.7	38.3	2.4	16.7	1.1	7.9	4.5	6.5	19.3	0.7
p-Cresol										
4H-Cyclopenta(d,e,f) phenanthrene										8.7*
o-Cymene										
Diacetone Alcohol										
Dibenzofuran										
Di-N-butylphthalate							0.9	0.3	0.3	9.6*
1,2-Dichlorobenzene										
1,3-Dichlorobenzene										
1,4-Dichlorobenzene										
1,3-Dichlorobenzene+1,4, Dichlorobenzene										
Dichlorobiphenyl (1)										
Dichlorobiphenyl (2)										
p,p-DDE		*								
o,p-DDT										
2,4-Dichloronitrobenzene										

*Tentative identification and approximate quantitation

Table 2 (cont.)

Parameter	Sampling Site									
	44	45	48	51	52	53	54	55	D55	56
Dieldrin							*	*	*	
Diethylbenzene										
Diethylbenzene (2)										
Diethylphthalate				0.3	1.7	1.2		0.8	0.6	
Dimethoxyanthracene										
3,4-Dimethyl-1,1'-biphenyl										
4,5-Dimethyl-2-Cyclohexen-1-one										
Dimethyldibenzofuran										
2,6-Dimethyl-2,5-heptadien-4-one										
Dimethylnaphthalene										
Dimethylnaphthalene (2)										
1,4-Dimethylnaphthalene										
1,7-Dimethylnaphthalene										
2,7-Dimethylnaphthalene										
4,9-Dimethylnaphthothiophene										
2,3-Dimethyl-2-pentene										
3,4-Dimethyl-2-pentene										
Dimethylphenanthrene								4.4*	4.3*	
2,7-Dimethylphenanthrene										
2,4-Dimethylphenol										
1,3-Dioxane										
Diphenylether										
1,2-Diphenylhydrazine				*						
Endosulfan I										
Endosulfan II							*	*		
Endrin										
Epoxy (2,3,5)										
Cholestan-3-ol										
4-Ethyl-1,3-benzenediol										
3-Ethyl-o-xylene										
Bis(2-ethylhexyl)phthalate		9.3		1.6		1.8				
Ethyltoluene										
4-Ethyltoluene										
Fluoranthene	2.3	16.9	0.7	1.7	22.1	1.4	4.6	63.9	57.6	13.1
Fluorene								2.2	2.0	1.0
Heptachlor										
Hexachlorobenzene										
Hexachlorobutadiene										
Hexadecanoic acid										

*Tentative identification and approximate quantitation

Table 2 (cont.)

Parameter	Sampling Site									
	D56	57	58	59	60	61	65	66	67	70
Dieldrin						*	*		*	
Diethylbenzene										
Diethylbenzene (2)										
Diethylphthalate										
Dimethoxyanthracene										
3,4-Dimethyl-1,1'-biphenyl										
4,5-Dimethyl-2-Cyclohexen -1-one									1.1*	0.3*
Dimethyldibenzofuran										
2,6-Dimethyl-2,5-heptadien -4-one										
Dimethylnaphthalene			6.*		2.8*					
Dimethylnaphthalene (2)										
1,4-Dimethylnaphthalene										
1,7-Dimethylnaphthalene										
2,7-Dimethylnaphthalene										
4,9-Dimethylnaphthothiophene										
2,3-Dimethyl-2-pentene										
3,4-Dimethyl-2-pentene										
Dimethylphenanthrene										
2,7-Dimethylphenanthrene										
2,4-Dimethylphenol			4.0		*					
1,3-Dioxane										
Diphenylether										
1,2-Diphenylhydrazine										
Endosulfan I										
Endosulfan II			*			*	*			
Endrin										
Epoxy (2,3,5)										
Cholestan-3-ol										
4-Ethyl-1,3-benzenediol										
3-Ethyl-o-xylene										
Bis(2-ethylhexyl)phthalate								0.45		1.7
Ethyltoluene										
4-Ethyltoluene										
Fluoranthene	13.9	5.5	17.6	10.7	13.5	2.0	5.6	2.4	7.5	4.5
Fluorene	1.7				0.7					
Heptachlor			*			*				
Hexachlorobenzene										
Hexachlorobutadiene										
Hexadecanoic acid										

*Tentative identification and approximate quantitation

Table 2 (cont.)

Parameter	Sampling Site									
	41	43	44	45	48	51	52	53	54	55
1,2,4,4,7,7-Hexamethyl- octahydro-1H-indene										
3-Hexen-2-one										
Hydrocarbons	20.1	110.*	43.*	180.*	29.*	25.*		29.*	13.*	
Aceno(1,2,3-cd)pyrene										10.*
Acridin				*				*		
Acidane	*									
Acetyl anthracene										
Acetyl benzo(g,h,i)										6.*
Acetyl fluoranthene										
Acetyl chrysene										
Acetyl dibenzofuran										
1-Methyl dodecyl benzene										
Acetyl fluoranthene										
Acetyl fluoranthene (2)										
Acetyl-2-isopropyl- naphthalene										
Acetyl naphthalene										
Acetyl naphthalene										
Acetyl naphthalene (2)										
1-Methyl-2-octen-4-one										
Acetyl phenanthrene				2.8*						6.8*
Acetyl phenanthrene (2)										
Acetyl phenanthrene (3)										
Bis(2-methylphenyl)diazine										
Acetyl pyrene										14.*
1-Methyl tridecyl benzene										
Acetrex										*
Acid naphthalene	0.4	0.4								18.1
1-Nitrosodiphenylamine				*		*	*	0.2	*	
2-Nitrotoluene										
1-Nitrotoluene+4- Chloraniline										
Acetyl phenol										
Acetyl chlorobenzene										
Acetyl chlorobiphenyl (1)										
Acetyl chlorobiphenyl (2)										
Acetyl chlorobiphenyl (3)										
Acetyl chlorotoluene										
Acetyl methyl naphthalene				2.3*						
Acetyl benzene										

*Tentative identification and approximate quantitation

Table 2 (cont.)

Parameter	Sampling Site									
	D55	56	D56	57	58	59	60	61	65	66
2,2,4,4,7,7-Hexamethyl-octahydro-1H-indene										
3-Hexen-2-one										
Hydrocarbons		20.*	3.4*	21.*	120.*	4.2*		190.*	1.*	5.*
Indeno(1,2,3-cd)pyrene	9.4*									
Isodrin	*									
Lindane					*	*	*	*		
Methylanthracene										
Methylbenzo(g,h,i)fluoranthene	5.7*									
Methylchrysene										
4-Methyldibenzofuran										
(1-Methyldodecyl)benzene										
Methylfluoranthene		1.4*	0.5*	7.8*	3.0*		1.1*			
Methylfluoranthene (2)										
1-Methyl-2-isopropyl-naphthalene										
1-Methylnaphthalene										
Methylnaphthalene		<0.04*	0.1*		1.7*		0.7*			
Methylnaphthalene (2)							0.7*			
2-Methyl-2-octen-4-one										
Methylphenanthrene	6.3*									
Methylphenanthrene (2)										
Methylphenanthrene (3)										
Bis(2-methylphenyl)diazine										
Methylpyrene	13*	<0.04*	4.6*				2.0*			
(1-Methyltridecyl)benzene										
Mirex	*									
Naphthalene	23.0	3.9	4.3		0.7	0.4	1.1	0.07	0.24	0.23
N-Nitrosodiphenylamine										
2-Nitrotoluene										
4-Nitrotoluene+4-Chloraniline										
Nonylphenol										
Pentachlorobenzene										
Pentachlorobiphenyl (1)										
Pentachlorobiphenyl (2)										
Pentachlorobiphenyl (3)										
Pentachlorotoluene										
Pentamethylnaphthalene										
t-Pentylbenzene										

*Tentative identification and approximate quantitation

Table 2 (cont.)

Parameter	Sampling Site									
	41	43	44	45	48	51	52	53	54	55
1-Pentylheptylbenzene										
Perylene										
Phenanthrene/Anthracene	5.8	5.9	1.4	11.7		0.6	4.0	0.5	2.3	14.3
Phenol										
Phenylacetic Acids										
Pyrene	12.3	10.3	2.5	16.9	0.5	1.7	20.		0.6	49.6
Tetrachlorobenzene										
Tetrachlorobenzene (2)										
Tetrachlorobiphenyl (1)	*									
Tetrachlorobiphenyl (2)										
Tetrachlorobiphenyl (3)										
Tetrachlorobiphenyl (4)	*									
Tetrachlorobiphenyl (5)										
Tetradecanoic acid		71.5*								
Tetradifon	6.95						*	*		
Tetramethylbenzene										
Tetramethylbenzene (2)										
(Tetramethylbutyl)phenol										
4(1,1,3,3-tetramethylbutyl)phenol										
Tetramethylnaphthalene										
o-Toluidine										
p-Toluidine										
1,2,4,5-Triazine+2-Butylthiophene										
1,2,4-Trichlorobenzene										
Trichlorobiphenyl (1)										
Trichlorobiphenyl (2)										
Trichlorobiphenyl (3)										
2,3,3-Trimethylbutene										
Trimethyl-2-Cyclohexen-1-one										
4,4,5-Trimethyl-2-hexene										
Trimethylnaphthalene										
Trimethylnaphthalene (2)										
Trimethylphenanthrene										
Trimethylphosphate										
(1,2,3-Trimethyl)-4-Propenyl naphthalene										1.9*
Trinitrophenol										
Trinitrophenol (2)										
Trinitrophenol (3)										
Zytron										

*Tentative identification and approximate quantitation

Table 2 (cont.)

Parameter	Sampling Site									
	D55	56	D56	57	58	59	60	61	65	66
1-Pentylheptylbenzene										
Perylene										
Phenanthrene/Anthracene	16.7	8.6	11.9	4.2	5.8	5.7	11.8	1.2	1.2	0.8
Phenol										
Phenylacetic Acids										
Pyrene	48.8	2.5	13.5	5.5	14.0	7.5	10.5	1.6	5.7	2.7
Tetrachlorobenzene										
Tetrachlorobenzene (2)										
Tetrachlorobiphenyl (1)					0.5	*			*	
Tetrachlorobiphenyl (2)					1.4	*	*	*		
Tetrachlorobiphenyl (3)	*				1.3	*	*	*		
Tetrachlorobiphenyl (4)	*				2.2					
Tetrachlorobiphenyl (5)										
Tetradecanoic acid										
Tetradifon					*	*				
Tetramethylbenzene										
Tetramethylbenzene (2)										
(Tetramethylbutyl)phenol										
4(1,1,3,3-tetramethylbutyl)phenol										
Tetramethylnaphthalene										
o-Toluidine										
p-Toluidine										
1,2,4,5-Triazine+2-Butylthiophene										
1,2,4-Trichlorobenzene										
Trichlorobiphenyl (1)										
Trichlorobiphenyl (2)										
Trichlorobiphenyl (3)										
2,3,3-Trimethylbutene										
Trimethyl-2-Cyclohexen-1-one										
4,4,5-Trimethyl-2-hexene										
Trimethylnaphthalene					5.6*		1.7*			
Trimethylnaphthalene (2)										
Trimethylphenanthrene										
Trimethylphosphate										
(1,2,3-Trimethyl)-4-Propenyl-naphthalene	4.8*									
Trinitrophenol										
Trinitrophenol (2)										
Trinitrophenol (3)										
Zytron					*		*			

*Tentative identification and approximate quantitation

Table 3 (cont.)

Parameter	Sampling Site								
	43	44	45	48	51	52	53	54	55
Aroclor 1248	0.27	0.14	0.12	0.07	0.09	0.33	0.10	0.14	0.08
Aroclor 1254	0.36	<0.02	----->	<0.02	-----	-----	-----	-----	----->
Aroclor 1260	0.11	<0.02	----->	<0.02	-----	-----	-----	-----	----->
Total PCBs	0.74	0.14	0.12	0.07	0.09	0.33	0.10	0.14	0.08
o,p - DDE	0.061	0.021	0.035	0.006	0.012	0.039	0.012	0.04	0.10
p,p - DDE	0.027	0.01	0.05	0.007	0.011	0.03	0.018	0.027	0.125
o,p - DDD	0.016	0.005	0.01	0.001	0.007	0.024	0.005	0.009	0.012
p,p - DDD	0.025	0.015	0.063	<0.01	0.012	0.102	0.028	0.075	0.238
o,p - DDT	<0.02	<0.2	-----	-----	-----	-----	-----	----->	0.2
p,p - DDT	0.024	0.007	0.008	<0.007	0.009	0.014	0.036	0.018	<0.007
Total DDT	0.153	0.058	0.166	0.014	0.051	0.209	0.099	0.169	0.675
gamma - Chlordane	0.022	0.011	0.029	<0.006	0.009	0.041	0.006	0.007	0.014
alpha - Chlordane	<0.002	-----	-----	-----	-----	-----	-----	-----	----->
oxy - Chlordane	<0.006	0.004	0.013	<0.003	0.004	0.011	0.006	0.011	<0.003
Total Chlordane	0.022	0.015	0.045	<0.006	0.013	0.052	0.012	0.018	0.014
DCPA	0.015	<0.002	-----	-----	-----	-----	-----	-----	----->
Heptachlor Epoxide	0.02	0.01	0.02	0.01	0.009	0.018	0.018	0.017	0.014
beta - BHC	<0.01	0.023	0.07	<0.01	0.019	0.066	0.01	0.019	<0.01
gamma - BHC (Lindane)	0.008	<0.002	----->	<0.002	-----	-----	-----	-----	----->
Hexachlorobenzene	0.004	0.002	<0.002	<0.002	-----	-----	-----	-----	----->
Mirex	0.011	0.003	0.02	0.002	0.003	0.01	0.004	0.007	0.03
Methoxychlor	<0.03	<0.002	----->	0.002	<0.002	<0.002	0.008	0.217	<0.002
Aldrin	<0.002	-----	-----	-----	-----	-----	-----	-----	----->
Dieldrin	<0.001	-----	-----	-----	-----	-----	-----	-----	----->
Endrin	0.005	<0.002	-----	-----	-----	-----	-----	-----	----->
alpha-Endosulfan	<0.001	-----	-----	-----	-----	----->	0.001	0.001	----->
beta-Endosulfan	<0.003	0.004	<0.004	<0.004	0.005	0.01	<0.004	0.007	0.029
Zytron	<0.04	0.081	0.21	0.015	0.055	0.18	0.036	0.045	0.253
Di-N-Butyl Phthalate	0.474	0.616	1.76	0.77	0.55	0.93	1.08	0.95	1.37
Trifluralin	<0.06	0.022	0.008	<0.008	----->	0.038	<0.008	-----	----->
Chlorobenzilate	<0.002	-----	-----	-----	-----	-----	-----	-----	----->

Table 3 (cont.)

Parameter	Sampling Site								
	56	57	58	59	60	61	65	66	67
Aroclor 1248	0.05	0.09	0.73	0.94	0.08	0.02	0.04	0.05	0.32
Aroclor 1254	0.09	0.13	0.61	1.02	0.16	0.11	0.06	0.10	0.36
Aroclor 1260	0.09	0.04	0.34	0.44	0.06	0.07	0.03	0.06	0.17
Total PCBs	0.23	0.26	1.68	2.40	0.30	0.20	0.13	0.21	0.85
o,p - DDE	0.04	0.07	0.05	0.16	0.10	0.01	0.02	0.03	0.10
p,p - DDE	<0.01	0.07	0.03	0.09	0.09	0.006	0.01	0.02	0.02
o,p - DDD	<0.002	0.03	0.02	0.05	0.02	0.002	0.006	0.01	0.03
p,p - DDD	<0.01	0.01	<0.01	0.06	0.06	0.013	0.024	0.02	0.02
o,p - DDT	<0.002	-----	-----	-----	-----	-----	-----	-----	----->
p,p - DDT	<0.002	0.01	0.003	0.01	0.007	0.002	0.003	0.006	0.017
Total DDT	0.04	0.19	0.103	0.37	0.277	0.033	0.063	0.086	0.187
gamma - Chlordane	<0.003	0.02	<0.003	<0.003	0.01	0.003	0.003	0.004	0.03
alpha - Chlordane	<0.002	-----	-----	-----	-----	-----	-----	-----	----->
oxy - Chlordane	<0.002	0.01	0.01	0.05	0.01	<0.002	0.002	0.004	0.044
Total Chlordane	<0.003	0.03	0.01	0.05	0.02	0.003	0.005	0.008	0.047
DCPA	<0.002	-----	-----	-----	-----	-----	-----	-----	----->
Heptachlor Epoxide	<0.006	0.04	0.03	0.12	0.03	0.006	0.008	0.014	0.07
beta - BHC	<0.01	-----	----->	0.13	0.11	0.015	0.013	0.01	0.04
gamma - BHC (Lindane)	<0.001	0.006	0.008	0.04	0.006	<0.001	-----	----->	0.02
Hexachlorobenzene	<0.001	0.004	0.002	0.02	0.005	<0.001	-----	----->	0.003
Mirex	0.011	0.15	0.02	0.01	0.03	0.012	0.002	0.003	0.007
Methoxychlor	<0.03	<0.03	0.03	<0.03	-----	-----	-----	-----	----->
Aldrin	<0.002	-----	-----	-----	-----	-----	-----	-----	----->
Dieldrin	<0.002	-----	-----	-----	-----	-----	-----	-----	----->
Endrin	<0.001	-----	----->	<0.002	-----	-----	-----	-----	----->
alpha-Endosulfan	<0.003	-----	-----	-----	-----	-----	-----	-----	----->
beta-Endosulfan	0.009	0.023	0.043	<0.003	0.02	0.003	0.004	0.004	0.007
Zytron	<0.016	0.06	0.06	0.26	0.05	0.016	0.01	0.02	0.22
Di-N-Butyl Phthalate	<0.08	-----	----->	<0.08	0.15	0.17	0.08	0.14	0.18
Trifluralin	<0.002	-----	-----	-----	-----	-----	-----	-----	----->
Chlorobenzilate	<0.002	-----	-----	-----	-----	-----	-----	-----	----->

Table 4 (Cont.)

Parameter	Sampling Site								
	43	44	45	48	51	52	53	54	55
Cadmium	6.2	2.3	1.1	0.26	0.42	4.00	1.10	0.45	0.7
Chromium	74	45	50	23	31	95	37	34	69
Copper	110	55	66	43	53	120	61	76	44
Lead	260	120	230	79	68	190	85	100	100
Mercury	4.2	2.1	0.8	0.5	1.3	3.4	0.6	1.4	0.5
Nickel	40	31	29	33	36	39	37	23	30
Zinc	410	260	340	220	170	470	200	260	590
Silver	1.30	0.3	0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Boron	8.8	<8.0	<8.0	<8.0	13	10	8.8	<8.0	10
Barium	150	83	110	89	120	120	110	100	89
Beryllium	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Cobalt	10	9	8	12	13	13	13	6.8	11
Lithium	33	29	28	39	44	44	38	32	29
Manganese	620	630	680	440	610	420	550	420	1500
Molybdenum	<1.0	<1.0	1.2	<1.0	1.4	<1.0	1.8	<1.0	<1.0
Tin	13	6.3	7.7	<4.0	4.3	8.7	4.1	<4.0	6
Strontium	77	56	64	36	42	40	41	34	88
Vanadium	25	19	20	23	28	32	25	23	35
Yttrium	11	10	10	13	14	13	13	9.2	10
(All values are g/kg dry weight)									
Calcium	40	33	41	22	24	21	25	19	50
Potassium	2.3	1.6	1.6	2.1	3.6	3.0	2.1	1.7	2.3
Magnesium	11	9	11	10	9.9	11	9.9	9.6	11
Sodium	0.25	0.20	0.33	0.14	0.18	0.21	0.14	0.13	0.20
Aluminum	16	13	14	15	18	18	15	15	12
Iron	26	23	24	29	31	35	32	31	39

Table 4 (Cont.)

Parameter	Sampling Site								
	56	57	58	59	60	61	65	66	67
Cadmium	0.8	1.6	3.8	4.2	2.0	0.3	1.2	2.2	5.0
Chromium	75	63	47	78	89	72	61	66	100
Copper	47	140	120	130	71	33	52	67	180
Lead	110	420	1200	1100	290	55	130	210	140
Mercury	0.3	0.2	0.5	0.6	0.8	0.1	0.6	0.5	0.4
Nickel	33	44	29	50	38	28	34	40	34
Zinc	550	920	2000	3300	1500	390	580	720	440
Silver	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	1.3
Boron	<8	29	18	28	8.6	<8.0	9.7	8.1	<8.0
Barium	73	92	120	120	73	52	96	140	88
Beryllium	<0.1	3.9	<0.1	10	<0.1	<0.1	<0.1	<0.1	<0.1
Cobalt	10	6.8	6.9	12	11	7.6	11	11	8.5
Lithium	27	8	16	20	21	15	24	26	20
Manganese	1700	3200	1900	2800	2200	2200	1100	1500	390
Molybdenum	<1.0	2.2	1.1	2.2	2.2	1.5	<1.0	<1.0	<1.0
Tin	4	31	35	16	12	6.2	5.6	8.4	7.5
Strontium	70	67	99	110	74	55	91	130	56
Vanadium	34	26	27	60	37	31	30	31	17
Yttrium	9.1	3.8	6.7	8.1	8.3	6.1	13	15	7.8
(All values are g/kg dry weight)									
Calcium	47	33	50	64	49	39	50	70	31
Potassium	1.6	1.9	1.4	1.4	1.1	0.7	1.6	1.6	1.3
Magnesium	9.8	10	9.7	11	11	8	11	10	10
Sodium	0.13	0.59	0.28	0.1	0.1	0.1	0.2	0.2	0.1
Aluminum	11	6	13	14	10	6.6	13	13	85
Iron	39	110	72	73	66	50	36	38	20

Table 5 (Cont.)

Parameter	Sampling Site						
	32	33	35	37	40	41	43
% Total Solids	31.8	36.2	47.5	46.6	50.5	50.3	46.5
% Total Volatile Solids	14.0	11.0	8.3	10.4	8.3	9.0	8.8
Total Kjeldahl Nitrogen	3,200	2,900	2,700	3,000	2,800	3,000	2,800
Total Phosphorus	1,900	1,700	1,100	3,900	1,500	1,800	1,300
Chemical Oxygen Demand	220,000	160,000	92,000	150,000	100,000	120,000	110,000
Phenols	<0.6	<0.6	3.3	<0.6	<0.6	<0.6	0.7
Cyanide	1.7	<1.2	3.7	<1.2	1.2	2.1	4.3

Parameter	Sampling Site						
	44	45	48	51	52	53	54
% Total Solids	53.2	40.0	61.5	59.9	48.3	51.9	53.8
% Total Volatile Solids	4.8	7.5	4.9	5.3	7.4	5.6	6.2
Total Kjeldahl Nitrogen	1,100	2,100	1,200	1,800	2,300	2,000	2,100
Total Phosphorus	640	810	560	740	1,200	820	850
Chemical Oxygen Demand	54,000	60,000	46,000	57,000	78,000	64,000	63,000
Phenols	<0.6	1.5	<0.6	<0.6	<0.6	<0.6	<0.6
Cyanide	1.7	2.1	<1.2	1.7	1.6	1.4	<1.2

Parameter	Sampling Site						
	55	56	57	58	59	60	61
% Total Solids	56.1	54.7	60.0	42.8	49.6	56.2	62.1
% Total Volatile Solids	7.7	7.1	5.7	10.6	11.0	7.3	3.0
Total Kjeldahl Nitrogen	1,500	1,400	310	2,200	1,900	1,300	510
Total Phosphorus	670	660	330	800	1,100	650	490
Chemical Oxygen Demand	60,000	74,000	35,000	120,000	120,000	83,000	37,000
Phenols	<0.6	<0.6	1.2	0.7	<0.6	<0.6	<0.6
Cyanide	3.6	3.0	75	84	35	2.5	<1.2