SUMMARY OF THE ANALYSIS OF FISH COLLECTED DURING 2001 FOR THE REGIONAL AMBIENT FISH TISSUE MONITORING PROGRAM IN IOWA

Prepared by:

John R. Olson
Ken B. Krier

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Water Resources Section
Water Quality Bureau
Environmental Protection Division

Introduction:

To supplement other environmental monitoring programs and to protect the health of people consuming fish from waters within this state, the state of Iowa conducts fish tissue monitoring. Since 1980, the Iowa Department of Natural Resources (IDNR), the United States Environmental Protection Agency Region VII (U.S. EPA), and the University of Iowa Hygienic Laboratory (UHL) have cooperatively conducted annual statewide collections and analyses of fish for toxic contaminants. Beginning in 1983, this monitoring effort became the Regional Ambient Fish Tissue Monitoring Program (the RAFT program). Currently, the RAFT program is the only statewide fish contaminant-monitoring program in Iowa. Historically, the data generated from the RAFT program have enabled IDNR to document temporal changes in contaminant levels and to identify Iowa lakes and rivers where high levels of contaminants in fish potentially threaten the health of fish consuming Iowans.

The Iowa RAFT program sampling incorporates three different but equally important types of monitoring sites: 1) status, 2) trend, and 3) follow-up.

Status monitoring:

The majority of RAFT sites sampled each year determines whether the waterbodies meet the “fish consumption” portion of the fishable goal of the federal Clean Water Act. In other words, these sites are used to screen for contamination problems and to determine the water quality "status" of the waterbodies. Analyses for a variety of pesticides, other toxic organic compounds, and metals are conducted on samples of omnivorous bottom-dwelling fish and carnivorous predator fish. Most status sites on rivers and lakes have either never been sampled or have not been sampled within the last five years (rivers) or 10 years (lakes). Staff of the IDNR divisions of Environmental Protection and Fish & Wildlife selects status sites. Status monitoring occurs on most types of Iowa waterbodies (interior rivers, border rivers, and manmade & natural lakes) in both rural and urban areas. Lakes and river reaches known to support considerable recreational fishing receive highest priority, but IDNR attempts to sample all lakes and river reaches designated in the *Iowa Water Quality Standards* for recreational fishing. Approximately one-third to one-half of Iowa RAFT Status sites is on lakes; the remainder is either on interior rivers or on the border rivers (Mississippi, Missouri or Big Sioux).

Trend monitoring:

In 1994, U.S. EPA Region VII, in cooperation with the Region VII states (Iowa, Kansas, Missouri, and Nebraska), identified stations that would be monitored every other year to determine trends in levels of contamination. One sample of three-five carp from each station is submitted for whole-fish analysis. Whole-fish samples are more likely to contain detectable levels of contaminants than are fillet samples (edible portions). Examination of the trend monitoring results may expose temporal changes in contaminant concentrations and the possibility of new contaminants entering the food chain. In Iowa, the following ten locations are part of the RAFT trend monitoring.

Stations first sampled in 1994 and sampled in even years since:

1. Mississippi River downstream from Dubuque, Dubuque County
2. Mississippi River downstream from Linwood, Scott County
3. Wapsipinicon River near Grand Mound, Scott County
4. Des Moines River at Keosauqua, Van Buren County
5. Little Sioux River near Washta, Ida County

Stations first sampled in 1995 and sampled in odd years since:

6. Mississippi River at Lansing, Allamakee County
7. Maquoketa River at Maquoketa, Jackson County
8. Iowa River at Wapello, Louisa County
9. Skunk River at Augusta, Lee County
10. Des Moines River at Des Moines, Polk County

Follow-up Monitoring:

If levels of contaminants in status samples exceed federal guidelines and/or IDNR levels of concern (Table 1), the RAFT program conducts follow-up monitoring to better define the levels of contaminants. For example, if status monitoring shows that contaminant levels in fish from a waterbody exceed IDNR levels of concern, additional samples will be collected as part of follow-up monitoring for the next year's RAFT program. If follow-up monitoring shows that levels of contamination exceed federal guidelines for protection of human health, IDNR may conduct intensive follow-up monitoring. This will allow the confirmation that contaminant levels exceed guidelines and the issuance of a fish consumption advisory is justified.

2001 Results:

The 2001 RAFT program in Iowa involved the collection of 35 samples from 22 waterbodies for three types of RAFT sites (Table 2). In August, September, and October, IDNR fisheries biologists collected, processed, and prepared the 2001 RAFT samples for shipping. These activities were conducted according to procedures described in the workplan for the 2002 RAFT in Iowa (IDNR 2001). Once frozen, samples were transported or shipped to the Des Moines office of the UHL. Samples were stored at UHL until shipment to the U.S. EPA Region VII laboratory in Kansas City, Kansas. All samples were shipped to the U.S. EPA Region VII laboratory for analysis by December 2001. Samples were analyzed for a variety of contaminants, including pesticides, other toxic organic compounds, and toxic metals (Table 1). IDNR received results of sample analyses in May 2002.

Status monitoring in 2001 included collection of 28 composite fillet samples from 15 sites. Trend monitoring included collection of five composite whole-fish samples of common carp from five sites. Follow-up monitoring included collection of two composite channel catfish fillet samples from two sites. The criteria used to evaluate the results of this monitoring (i.e., U.S. Food and Drug Administration (FDA) action levels (ALs) and IDNR "levels of concern") are summarized in Table 1. Levels of nearly all contaminants were very low in all samples collected. No samples contained levels of contaminants that exceeded FDA ALs, including those for chlordane (0.3 ppm), dieldrin (0.3 ppm), total PCB's (sum of Aroclors 1248, 1254, and 1260, 2.0 ppm), or mercury (1.0 ppm). Only one of the 35 samples contained a contaminant at a level greater than one-half of an FDA AL: the composite sample of channel catfish fillets from the Des Moines River at Cliffland Access (Wapello Co.). This sample contained 1.03 ppm of total PCBs (sum of Aroclors 1248, 1254, and 1260) and this level is slightly greater than one-half the FDA AL of 2.0 ppm. Results for mercury, chlordane, and total PCBs are summarized in Table 2 and in the attached figures.

Site-specific information:

The following summarizes RAFT monitoring in 2001 at each of the 22 sampled sites. The following 2001 RAFT site summaries; listed alphabetically according to the IDNR fisheries biologist that collected the samples; also include the county of the sample and type of RAFT site. In addition, Table 2 and Figures 1 and 2 contain the 2001 RAFT sites and results.

Mississippi River, downstream from Dubuque, Dubuque Co. (status site, Boland): Composite samples of fillets from common carp and white crappie collected in 2001 had very low levels of contaminants. Neither sample contained levels of contaminants that approached even one-half the respective FDA action levels or IDNR levels of concern. Levels of primary contaminants in the composite sample of channel catfish fillets were as follows: chlordane: <0.03 ppm; total PCBs: 0.131 ppm; mercury: 0.0993 ppm. Levels of primary contaminants in the composite sample of white crappie fillets were as follows: chlordane: <0.03 ppm; total PCBs: <0.09 ppm; mercury: 0.05 ppm.

Mississippi River, Pool 15 at Davenport, Scott Co. (status site, Boland): Composite samples of fillets from common carp and channel catfish collected in 2001 had very low levels of contaminants. A predator species was not available at this site; therefore, Boland collected a second bottom-feeding fish (channel catfish) sample. Neither sample contained levels of contaminants that approached even one-half the respective FDA action levels or IDNR levels of concern. Levels of primary contaminants in the composite sample of common carp fillets were as follows: chlordane: <0.03 ppm; total PCBs: 0.476 ppm; mercury: 0.0401 ppm. Levels of primary contaminants in the composite sample of channel catfish fillets were as follows: chlordane: <0.03 ppm; total PCBs: 0.544 ppm; mercury: 0.0608 ppm.

Big Sioux River, north of Hawarden, Sioux Co. (status site, Christianson): The composite sample of fillets from common carp collected in 2001 had very low levels of contaminants (a predator species was not available at this site). Levels of contaminants in this sample did not approach even one-half the respective FDA action levels or IDNR levels of concern. Levels of primary contaminants in the composite sample of common carp fillets were as follows: chlordane: <0.03 ppm; total PCBs: <0.09 ppm; mercury: 0.0622 ppm.

Five Island Lake at Emmetsburg, Palo Alto Co. (status site, Christianson): Composite samples of fillets from channel catfish and walleye collected in 2001 had very low levels of contaminants. Neither sample contained levels of contaminants that approached even one-half the respective FDA action levels or IDNR levels of concern. Levels of all three primary contaminants in the both composite samples were below levels of detection: chlordane: <0.03 ppm; total PCBs: <0.09 ppm; mercury: <0.0181 ppm.

Lake Miami, SE of Lovilia, Monroe Co. (status site, Flammang): Composite samples of fillets from channel catfish and largemouth bass collected in 2001 had very low levels of contaminants. Neither sample contained levels of contaminants that approached even one-half the respective FDA action levels or IDNR levels of concern. Levels of primary contaminants in the composite sample of channel catfish fillets were as follows: chlordane: <0.03 ppm; total PCBs: <0.09 ppm; mercury: 0.0217 ppm. Levels of primary contaminants in the composite sample of largemouth bass fillets were as follows: chlordane: <0.03 ppm; total PCBs: <0.09 ppm; mercury: 0.12 ppm.

Des Moines River, Cliffland Access, Wapello Co. (follow-up site, Flammang): Due to historically high levels of chlordane in bottom-feeding fish from this site, a composite sample of channel catfish fillets was collected in August 2001 as part of RAFT follow-up monitoring. Results show that levels of contaminants in this sample are high relative to other RAFT sample sites in Iowa but do not exceed FDA action levels. The levels of the primary contaminants were as follows: chlordane: 0.150 ppm; total PCBs: 1.03 ppm; mercury: 0.150 ppm. The levels of chlordane and PCBs are at, or just above, one-half of the respective FDA action levels. The 2001 level of chlordane (0.150 ppm) is lower than levels in samples collected in 1997 (0.29 ppm, common carp) and 1999 (0.22 ppm, channel catfish). The tendency for levels to decrease over the last 6 years may suggest a declining trend in fish chlordane levels at this site. The level of total PCBs (1.03 ppm) is slightly greater than the IDNR "level of concern" of one-half the FDA action level of 2.0 ppm. Thus, due to levels of chlordane and total PCBs that are at or near the IDNR levels of concern, this site will be part of RAFT follow-up monitoring in 2003.

Ottumwa Park Pond at Ottumwa, Wapello Co. (status site, Flammang): Composite samples of fillets from channel catfish and largemouth bass collected in 2001 had very low levels of contaminants. Neither sample

contained levels of contaminants that approached even one-half the respective FDA action levels or IDNR levels of concern. Levels of primary contaminants in the composite sample of channel catfish fillets were as follows: chlordane: 0.03 ppm; total PCBs: <0.09 ppm; mercury: <0.0181 ppm. Levels of primary contaminants in the composite sample of largemouth bass fillets were as follows: chlordane: <0.03 ppm; total PCBs: <0.09 ppm; mercury: 0.045 ppm.

Mississippi River, at Lansing, Allamakee Co. (trend site, Gritters): The composite sample of whole-fish common carp collected from this site as part of RAFT trend monitoring in 2001 had very low levels of contaminants. This sample did not contain levels of contaminants that approached even one-half the respective FDA action levels or IDNR levels of concern. Levels of primary contaminants in the sample were as follows: chlordane: <0.03 ppm; total PCBs: 0.158, ppm; mercury: 0.047 ppm.

Maquoketa River, NE of Maquoketa, Jackson Co. (trend site, Hayes): The composite sample of whole-fish common carp collected from this site as part of RAFT trend monitoring in 2001 had very low levels of contaminants. This sample did not contain levels of contaminants that approached even one-half the respective FDA action levels or IDNR levels of concern. Levels of primary contaminants in the sample were as follows: chlordane: 0.047 ppm; total PCBs: 0.27 ppm; mercury: 0.049 ppm.

West Nishnabotna River, near Harlan, Shelby Co. (status site, Hudson): Composite samples of fillets from channel catfish collected in 2001 had very low levels of contaminants (a predator species was not available at this site). Levels of contaminants in this sample did not approach even one-half the respective FDA action levels or IDNR levels of concern. Levels of primary contaminants in the composite sample of channel catfish fillets were as follows: chlordane: 0.024 ppm; dieldrin: 0.017 ppm; total PCBs: <0.09 ppm; mercury: 0.035 ppm.

Volga River, near Volga Recreation Area, Fayette Co. (status site, Kalishek): Composite samples of fillets from common carp and smallmouth bass collected in 2001 had low levels of contaminants. Neither sample contained levels of contaminants that approached even one-half the respective FDA action levels or IDNR levels of concern. Levels of primary contaminants in the composite sample of common carp fillets were very low and were as follows: chlordane: <0.03 ppm; total PCBs: <0.09 ppm; mercury: 0.111 ppm. Levels of primary contaminants in the composite sample of smallmouth bass fillets were extremely low and were as follows: chlordane: <0.03 ppm and total PCBs: <0.09 ppm; mercury: 0.326 ppm.

Cedar River, west of Osage, Mitchell Co. (status site, Kalishek): Composite samples of fillets from channel catfish and smallmouth bass collected in 2001 had low levels of contaminants. Neither sample contained levels of contaminants that approached even one-half the respective FDA action levels or IDNR levels of concern. Levels of primary contaminants in the composite sample of channel catfish fillets were very low and were as follows: chlordane: 0.025 ppm; total PCBs: 0.11 ppm; mercury: 0.186 ppm. Levels of primary contaminants in the composite sample of smallmouth bass fillets were extremely low and were as follows: chlordane: <0.03 ppm; total PCBs: <0.09 ppm; mercury: 0.305 ppm.

Iowa River, east of Wapello, Louisa Co. (trend site, Kline): The composite sample of whole-fish common carp collected from this site as part of RAFT trend monitoring in 2001 had very low levels of contaminants. This sample did not contain levels of contaminants that approached even one-half the respective FDA action levels or IDNR levels of concern. Levels of primary contaminants in the sample were as follows: chlordane: 0.082 ppm; total PCBs: 0.163, ppm; mercury: 0.057 ppm.

Skunk River, northeast of Wever, Lee Co. (trend site, Kline): The composite sample of whole-fish common carp collected from this site as part of RAFT trend monitoring in 2001 had very low levels of contaminants. This sample did not contain levels of contaminants that exceeded one-half the respective FDA action levels or IDNR levels of concern. Levels of primary contaminants in the sample were as follows: chlordane: 0.12 ppm; total PCBs: 0.187, ppm; mercury: 0.077 ppm. The level of chlordane (0.12 ppm) was slightly less than the

IDNR level of concern of 0.15 ppm (one-half the FDA action level). This site will be monitored in 2003 as part of RAFT trend monitoring.

Nine Eagles Lake, Decatur Co. (status site, McGhee): Composite samples of fillets from channel catfish and largemouth bass collected in 2001 had very low levels of contaminants. Neither sample contained levels of contaminants that approached even one-half the respective FDA action levels or IDNR levels of concern. Levels of primary contaminants in the composite sample of channel catfish fillets were as follows: chlordane: <0.03 ppm; total PCBs: <0.09 ppm; mercury: 0.0396 ppm. Levels of primary contaminants in the composite sample of largemouth bass fillets were as follows: chlordane: <0.03 ppm; total PCBs: <0.09 ppm; mercury: 0.265 ppm.

Des Moines River, near Des Moines wastewater treatment plant, Polk Co. (trend site, McWilliams): The composite sample of whole-fish common carp collected from this site as part of RAFT trend monitoring in 2001 had very low levels of contaminants. This sample did not contain levels of contaminants that approached even one-half the respective FDA action levels or IDNR levels of concern. Levels of primary contaminants in the sample were as follows: chlordane: 0.099 ppm; total PCBs: 0.38, ppm; mercury: 0.073 ppm.

Little Sioux River, downstream Linn Grove, Buena Vista Co. (status site, Miller): Composite samples of fillets from channel catfish and walleye collected in 2001 had very low levels of contaminants. Neither sample contained levels of contaminants that approached even one-half the respective FDA action levels or IDNR levels of concern. Levels of primary contaminants in the composite sample of channel catfish fillets were as follows: chlordane: <0.03 ppm; total PCBs: <0.09 ppm; mercury: 0.0285 ppm. Levels of primary contaminants in the composite sample of walleye fillets were as follows: chlordane: <0.03 ppm; total PCBs: <0.09 ppm; mercury: 0.165 ppm.

Storm Lake, Buena Vista Co. (status site, Miller): Composite samples of fillets from channel catfish and walleye collected in 2001 had very low levels of contaminants. Neither sample contained levels of contaminants that approached even one-half the respective FDA action levels or IDNR levels of concern. Levels of primary contaminants in the composite sample of channel catfish fillets were as follows: chlordane: <0.03 ppm; total PCBs: <0.09 ppm; mercury: 0.0374 ppm. Levels of primary contaminants in the composite sample of walleye fillets were as follows: chlordane: <0.03 ppm; total PCBs: <0.09 ppm; mercury: 0.0435 ppm.

Mississippi River, downstream from Lock & Dam 17, Louisa Co. (status site, Schonhoff): Composite samples of fillets from common carp and white crappie collected in 2001 had very low levels of contaminants. Neither sample contained levels of contaminants that approached even one-half the respective FDA action levels or IDNR levels of concern. Levels of primary contaminants in the composite sample of common carp fillets were as follows: chlordane: <0.03 ppm; total PCBs: <0.09 ppm; mercury: 0.129 ppm. Levels of primary contaminants in the composite sample of white crappie fillets were as follows: chlordane: <0.03 ppm; total PCBs: <0.09 ppm; mercury: 0.108 ppm.

Iowa River, at Iowa City, Johnson Co. (follow-up site, Sleeper): Due to historically high levels of chlordane in bottom-feeding fish from this site, a composite sample of channel catfish fillets was collected in 2001 as part of RAFT follow-up monitoring. Results show that levels of contaminants in this sample are similar to levels at other RAFT sample sites in Iowa and are well below the respective FDA action levels and IDNR levels of concern. The levels of the primary contaminants were as follows: chlordane: 0.049 ppm; total PCBs: 0.187 ppm; mercury: 0.0949 ppm. The 2001 level of chlordane (0.049 ppm) is much lower than levels in composite samples channel catfish fillets collected in 1997 (0.17 ppm) and 1999 (0.16 ppm). The nearly 80% decline in the levels of chlordane in the 2001 versus 1999 samples may suggest a downward trend in levels of chlordane in fish from this site. To confirm that chlordane levels at this site have declined, this site is currently scheduled for 2003 RAFT follow-up monitoring.

Arbor Lake, at Grinnell, Poweshiek Co. (status site, Sleeper): Composite samples of fillets from channel catfish and largemouth bass collected in 2001 had very low levels of contaminants. Neither sample contained levels of contaminants that approached even one-half the respective FDA action levels or IDNR levels of concern. Levels of primary contaminants in the composite sample of channel catfish fillets were as follows: chlordane: <0.03 ppm; total PCBs: <0.09 ppm; mercury: 0.0645 ppm. Levels of primary contaminants in the composite sample of largemouth bass fillets were very low and were as follows: chlordane: <0.03 ppm; total PCBs: <0.09 ppm; mercury: 0.312 ppm.

West Fork Des Moines River, SE of Bradgate, Humboldt Co. (status site, Wahl): Composite samples of fillets from channel catfish and walleye collected in 2001 had very low levels of contaminants. Neither sample contained levels of contaminants that approached even one-half the respective FDA action levels or IDNR levels of concern. Levels of primary contaminants in the composite sample of channel catfish fillets were as follows: chlordane: <0.03 ppm; total PCBs: <0.09 ppm; mercury: 0.0306 ppm. Levels of primary contaminants in the composite sample of walleye fillets were as follows: chlordane: <0.03 ppm; total PCBs: <0.09 ppm; mercury: 0.128 ppm.

References:

IDNR. 2001. Sampling procedures for the 2001 Region VII Ambient Fish Tissue Monitoring Program in Iowa. Water Quality Bureau, Environmental Protection Division, Iowa Department of Natural Resources. 20 pp.

Table 1. Summary of contaminants and respective criteria for samples of fish collected for the 2001 Regional Ambient Fish Tissue (RAFT) monitoring program in Iowa.

	Contaminant	Detection Level wet weight ppm	FDA Action Level wet weight ppm	IDNR "level of concern" wet weight ppm
1	BHC (lindane)	0.002	none	0.1
2	Cadmium	0.06	none	0.3
3	chlordane, technical	0.03	0.3	0.15
4	chlordane, cis-	0.002	sum = 0.3	sum = 0.15
5	chlordane, trans-	0.002		
6	nonachlor, cis-	0.002		
7	nonachlor, trans-	0.002		
8	Oxychlordane	0.002		
9	DDD, 4,4'-	0.004	sum = 5.0	sum = 2.5
10	DDE, 4,4'-	0.005		
11	DDT, 4,4'-	0.005		
12	diazinon*	0.04	none	None
13	dieldrin	0.003	0.3	0.15
14	heptachlor	0.003	sum = 0.3	sum = 0.15
15	heptachlor epoxide	0.003		
16	hexachlorobenzene	0.001	none	0.01
17	lead	0.17	none	1.0
18	mercury	0.0181	1.0	0.5
19	mirex*	0.003		
20	PCB-Aroclor 1248	0.04	sum = 2.0	sum = 1.0
21	PCB-Aroclor 1254	0.03		
22	PCB-Aroclor 1260	0.002		
23	pentacloroanisole	0.001	none	0.1
24	pentachlorobenzene*	0.001	none	
25	selenium	0.5	none	
26	1,2,4,5-tetrachlorobenzene*	0.004	none	
27	trifluralin	0.003	none	0.2

*trend samples only

Table 2. Summary of number of samples, sample sites, species sampled, and results from chlordane, total PCBs (sum of Aroclors 1248, 1254 and 1260) and mercury collected for the 2001 RAFT program in Iowa.

# of samples	Waterbody/Site Location	County	RAFT Sample Type	Fish Species/Part Used (3-5 Specimens)	chlordane (ppm)	total PCBs (ppm)	mercury (ppm)
1	Des Moines River, Cliffland Access	Wapello	Follow-up	channel catfish fillets	0.15	1.03	0.15
1	Iowa River at Iowa City	Johnson	Follow-up	channel catfish fillets	0.049	0.187	0.0949
1	Des Moines River at Des Moines STP	Polk	Trend	common carp, whole fish	0.099	0.38	0.073
1	Iowa River, east of Wapello	Louisa	Trend	common carp, whole fish	0.082	0.163	0.057
1	Maquoketa River, NE of Maquoketa	Jackson	Trend	common carp, whole-fish	0.047	0.27	0.049
1	Mississippi River, at Lansing	Allamakee	Trend	common carp, whole fish	<0.03	0.158	0.047
1	Skunk River, northeast of Wever	Lee	Trend	common carp, whole fish	0.12	0.187	0.077
2	Arbor Lake at Grinnell	Poweshiek	Status	channel catfish fillets	<0.03	<0.09	0.0645
				largemouth bass fillets	<0.03	<0.09	0.312
1	Big Sioux River, north of Hawarden	Sioux	Status	common carp fillets	<0.03	<0.09	0.0622
2	Cedar River, west of Osage	Mitchell	Status	channel catfish fillets	0.025	0.11	0.186
				smallmouth bass fillets	<0.03	<0.09	0.305
2	Five Island Lake at Emmetsburg	Palo Alto	Status	channel catfish fillets	<0.03	<0.09	<0.0181
				walleye fillets	<0.03	<0.09	<0.0181
2	Lake Miami, SE of Lovilia	Monroe	Status	channel catfish fillets	<0.03	<0.09	0.0217
				largemouth bass fillets	<0.03	<0.09	0.12
2	Little Sioux River, downstream from Linn Grove	Buena Vista	Status	channel catfish fillets	<0.03	<0.09	0.0285
				walleye fillets	<0.03	<0.09	0.165
2	Mississippi River, downstream from Lock & Dam 17	Louisa	Status	common carp fillets	<0.03	<0.09	0.129
				white crappie fillets	<0.03	<0.09	0.108
2	Mississippi River, downstream from Dubuque	Dubuque	Status	common carp fillets	<0.03	0.131	0.0993
				white crappie fillets	<0.03	<0.09	0.05
2	Mississippi River, Pool 15 at Davenport	Scott	Status	common carp fillets	<0.03	0.476	0.0401
				channel catfish fillets	<0.03	0.544	0.0608
2	Nine Eagles Lake	Decatur	Status	channel catfish fillets	<0.03	<0.09	0.0396
				largemouth bass fillets	<0.03	<0.09	0.265
2	Ottumwa Park Pond at Ottumwa	Wapello	Status	channel catfish fillets	0.03	<0.09	<0.0181
				largemouth bass fillets	<0.03	<0.09	0.045
2	Storm Lake	Buena Vista	Status	channel catfish fillets	<0.03	<0.09	0.0374
				walleye fillets	<0.03	<0.09	0.0435
2	Volga River, nr Littleport & Volga State Rec. Area	Fayette	Status	common carp fillets	<0.03	<0.09	0.111
				smallmouth bass fillets	<0.03	<0.09	0.326
2	West Fork Des Moines River, SE of Bradgate	Humboldt	Status	channel catfish fillets	<0.03	<0.09	0.0306
				walleye fillets	<0.03	<0.09	0.128
1	West Nishnabotna River near Harlan	Shelby	Status	channel catfish fillets	0.024	<0.09	0.035

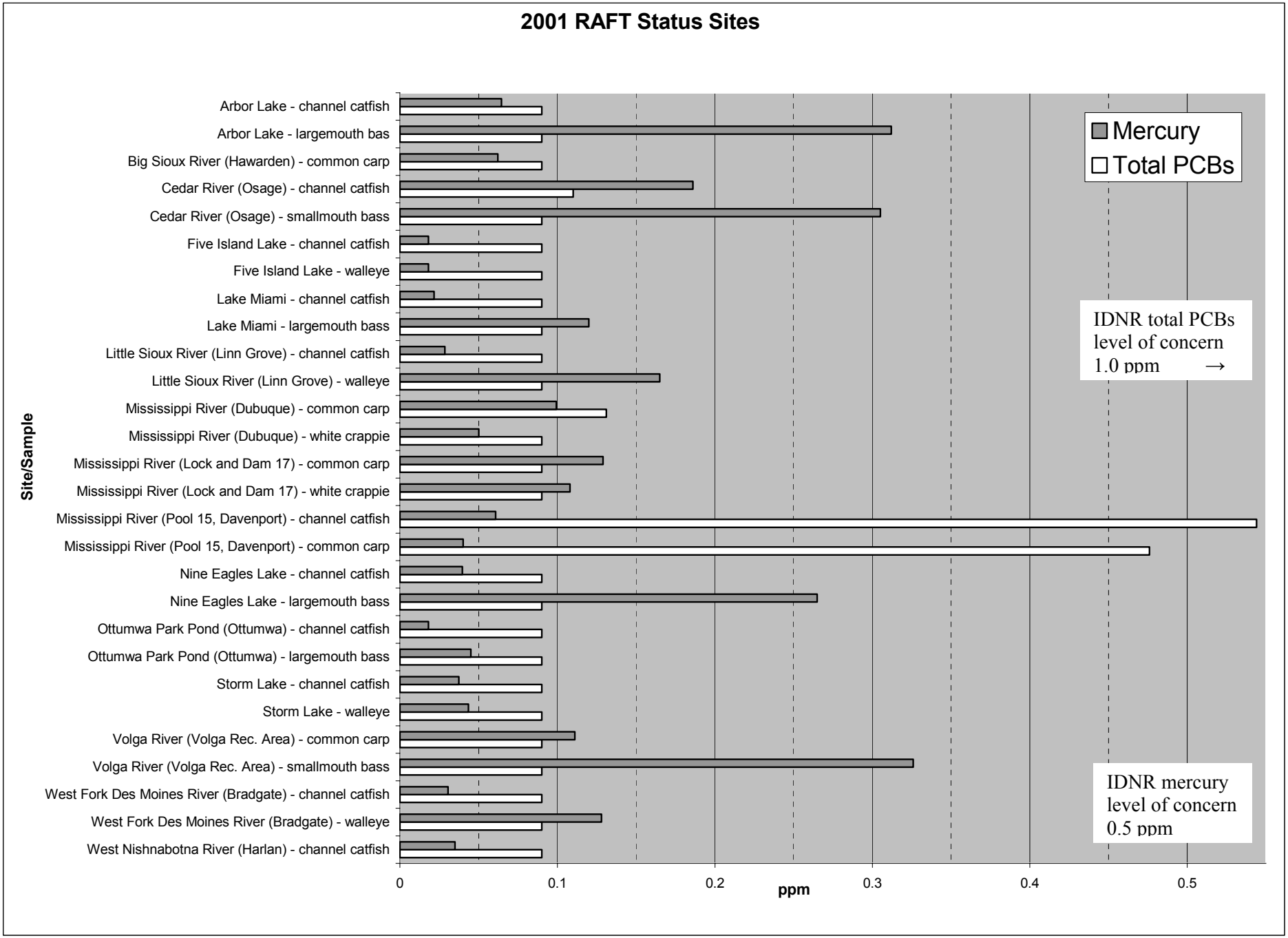

Figure 1. 2001 RAFT Status sites and sample results for mercury and total PCBs (sum of Aroclors 1248, 1254 and 1260). Chlordane was omitted from figure because all results were less than 0.03 ppm or not detected. The IDNR chlordane level of concern is 0.15 ppm.

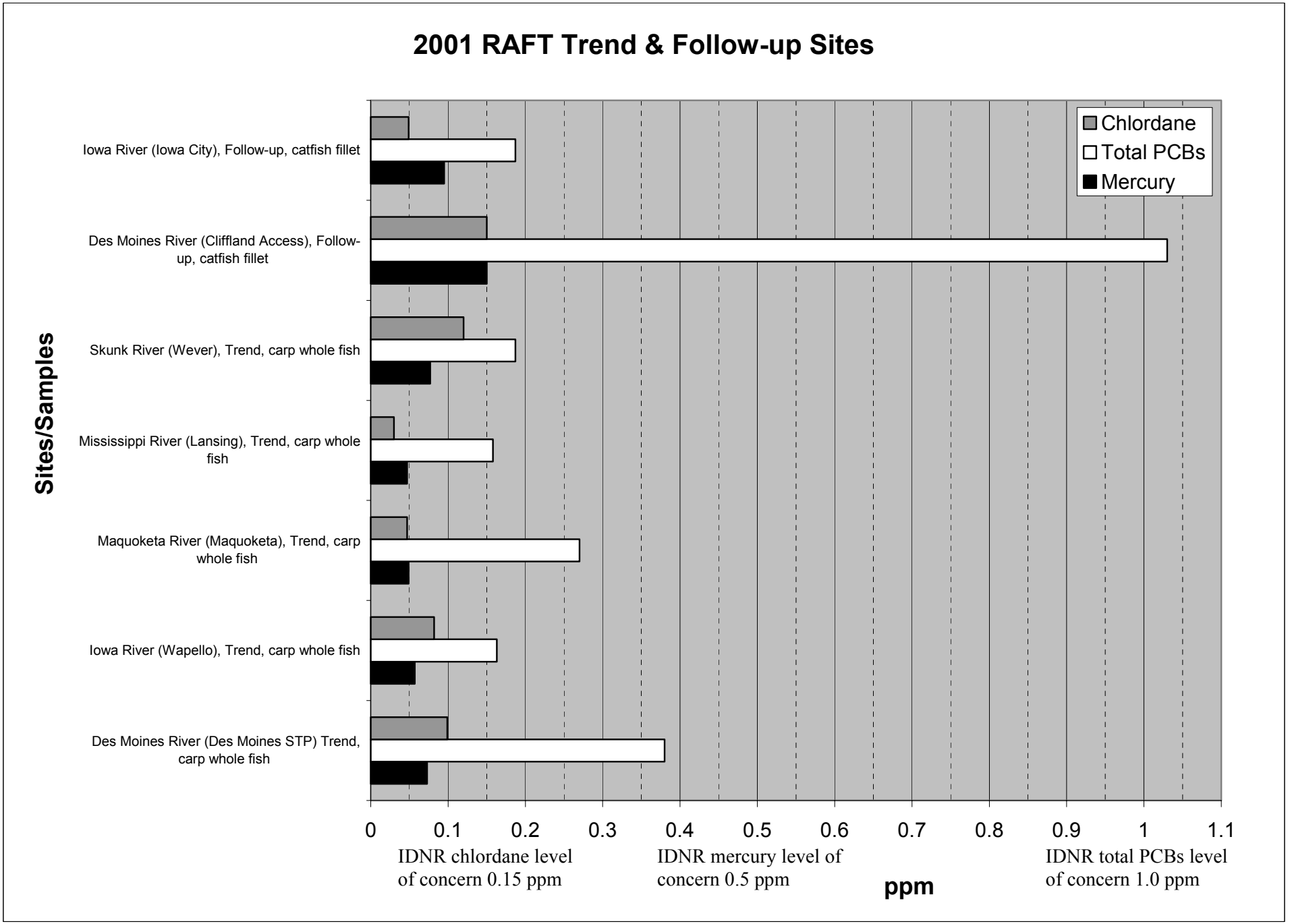

Figure 2. 200l RAFT Trend and Follow-up sites and sample results for chlordane, total PCBs (sum of Aroclors 1248, 1254 and 1260), and mercury.