

# 2023 IOWA FISH TISSUE MONITORING PROGRAM SUMMARY OF ANALYSES

Prepared by:

Water Quality Monitoring and Assessment Section  
Water Quality Bureau  
Environmental Services Division  
Iowa Department of Natural Resources

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## Background:

Since 1977, the Iowa Department of Natural Resources (DNR) has conducted annual statewide collections of Iowa fish and sent tissue samples to laboratories for the analyses of toxic contaminants. Beginning in 2014, after the Region VII Environmental Protection Agency changed their program support, the only statewide fish contaminant-monitoring program in Iowa was changed to the Iowa Fish Tissue Monitoring Program (IFTMP). The IFTMP is administered by DNR's Water Quality Monitoring and Assessment Section (WQMA) and the Fisheries Bureau. Historically, the data generated from the IFTMP have enabled DNR 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 those consuming Iowa caught fish (see DNR 2006). All IFTMP sampling data can be found in DNR's online water quality monitoring database, AQuIA - <https://programs.iowadnr.gov/aquia/Facilities/IFTM/Detail>.

## 2023 IFTMP Sampling and Processing:

### Trend Sampling:

For each of the seven trend samples, three common carp greater than 14 inches were collected ([Table 1](#)). The fish were immediately placed on ice, frozen, and processed according to DNR IFTMP sampling procedures (DNR 2023). The samples were shipped whole to the laboratory where they were composited and analyzed.

Table 1. Sample ID, AQuIA site ID, site information, and fish data for the 2023 IFTMP trend samples.

Sample ID	AQuIA Site ID	Site Name	County	Species	Mean Length (in)	Mean Weight (lb)	Sample Biopart
4125	1175	Little Sioux River	Cherokee	common carp	18.8	3.0	whole
4124	1173	Maquoketa River	Jackson	common carp	18.5	3.1	whole
4116	1141	Mississippi River	Dubuque	common carp	18.4	3.3	whole
4122	1168	Mississippi River	Scott	common carp	19.1	3.6	whole
4113	1113	Missouri River	Pottawattamie	common carp	19.1	3.5	whole
4111	1110	Nishnabotna River	Fremont	common carp	18.2	2.7	whole
4108	1094	Upper Iowa River	Winneshiek	common carp	20.4	3.9	whole

### Status sampling:

For each of the 15 status samples, three common carp or three channel catfish greater than 14 inches were collected ([Table 2](#)). The fish were immediately placed on ice, frozen, and processed according to DNR IFTMP sampling procedures (DNR 2023). DNR staff removed one fillet from each fish and the 15 skinless fillet status samples were shipped to the laboratory where they were composited and analyzed.

Table 2. Sample ID, AQuIA site ID, site information, and fish data for the 2023 IFTMP status samples.

Sample ID	AQuIA Site ID	Site Name	County	Species	Mean Length (in)	Mean Weight (lb)	Sample Biopart
4126	1260	McKinley Lake	Union	channel catfish	14.3	0.8	fillet
4109	1102	Mississippi River	Des Moines	channel catfish	15.2	1.2	fillet
4121	1168	Mississippi River	Scott	channel catfish	16.8	1.5	fillet
4115	1141	Mississippi River	Dubuque	channel catfish	19.6	2.7	fillet
4123	1172	Mississippi River	Allamakee	channel catfish	16.6	1.3	fillet
4114	1130	Mississippi River	Muscatine	channel catfish	17.2	1.9	fillet
4117	1142	Mississippi River	Clayton	channel catfish	16.5	1.3	fillet
4120	1150	Mississippi River	Scott	common carp	19.1	3.6	fillet
4128	1276	Mississippi River	Des Moines	channel catfish	15.7	1.3	fillet
4107	1047	Mississippi River	Scott	channel catfish	17.4	1.6	fillet
4127	1261	Mississippi River	Jackson	common carp	19.6	4.3	fillet
4110	1108	Mississippi River	Lee	common carp	18.8	3.2	fillet
4112	1113	Missouri River	Pottawattamie	common carp	19.0	3.4	fillet

4119	1149	Missouri River	Fremont	common carp	19.6	3.6	fillet
4118	1148	Missouri River	Woodbury	common carp	20.1	4.1	fillet

### 2023 IFTMP Analytical Results:

The 2023 IFTMP trend (Table 3) and status (Table 4) samples were analyzed for chlordane, DDE, dieldrin, lead, mercury, selenium, and polychlorinated biphenyls (PCBs). All of contaminant levels in the samples were below the respective DNR/IDPH advisory thresholds or were not detected (Appendix A). The full 2023 IFTMP sampling results can be found in Appendix C.

#### 2023 IFTMP Trend Results:

Table 3. 2023 IFTMP trend chlordane, mercury, and total PCBs sampling results (detections in bold). See Appendix B for 2023 IFTMP site information and Appendix C for 2023 IFTMP full sampling results.

Sample ID	AQuIA Site ID	Site Name	County	Date	Sample Type	chlordane, technical (mg/kg)	mercury (mg/kg)	total PCBs (mg/kg)
4108	1094	Upper Iowa River	Winneshiek	8/24/23	trend	<0.05	<b>0.13</b>	J0.0313
4111	1110	Nishnabotna River	Fremont	8/17/23	trend	<b>0.0598</b>	<b>0.075</b>	<b>0.1449</b>
4113	1113	Missouri River	Pottawattamie	8/29/23	trend	<0.05	<b>0.058</b>	<b>0.0891</b>
4116	1141	Mississippi River	Dubuque	9/21/23	trend	<0.05	<b>0.057</b>	<b>0.0455</b>
4122	1168	Mississippi River	Scott	9/15/23	trend	<0.05	<b>0.066</b>	<b>0.1598</b>
4124	1173	Maquoketa River	Jackson	8/24/23	trend	<0.05	<b>0.059</b>	<b>0.0546</b>
4125	1175	Little Sioux River	Cherokee	10/11/23	trend	<0.05	<b>0.085</b>	J0.0271

#### 2023 IFTMP Status Results:

Table 4. 2023 IFTMP status chlordane, mercury, and total PCBs sampling results (detections in bold). See Appendix B for 2023 IFTMP site information and Appendix C for 2023 IFTMP full sampling results.

Sample ID	AQuIA Site ID	Site Name	County	Date	Sample Type	chlordane, technical (mg/kg)	mercury (mg/kg)	total PCBs (mg/kg)
4107	1047	Mississippi River	Scott	8/31/23	status	<0.05	<b>0.12</b>	<b>0.0853</b>
4109	1102	Mississippi River	Des Moines	9/13/23	status	<0.05	<b>0.058</b>	<b>0.0444</b>
4110	1108	Mississippi River	Lee	9/13/23	status	<0.05	<b>0.15</b>	<b>0.0501</b>
4112	1113	Missouri River	Pottawattamie	8/29/23	status	<0.05	<b>0.060</b>	J0.0311
4114	1130	Mississippi River	Muscatine	9/7/23	status	<0.05	<b>0.095</b>	<b>0.0507</b>
4115	1141	Mississippi River	Dubuque	9/21/23	status	<0.05	<b>0.083</b>	<b>0.0557</b>
4117	1142	Mississippi River	Clayton	11/1/23	status	<0.05	<b>0.096</b>	<b>0.0483</b>
4118	1148	Missouri River	Woodbury	10/9/23	status	<0.05	<b>0.13</b>	<0.0246
4119	1149	Missouri River	Fremont	8/31/23	status	<0.05	<b>0.12</b>	<0.0246
4120	1150	Mississippi River	Scott	8/30/23	status	<0.05	<b>0.10</b>	J0.0293
4121	1168	Mississippi River	Scott	9/15/23	status	<0.05	<b>0.063</b>	<b>0.1572</b>
4123	1172	Mississippi River	Allamakee	11/1/23	status	<0.05	<b>0.085</b>	<b>0.044</b>
4126	1260	McKinley Lake	Union	10/24/23	status	<0.05	<b>0.033</b>	<b>0.0891</b>
4127	1261	Mississippi River	Jackson	8/29/23	status	<0.05	<b>0.13</b>	<b>0.0442</b>
4128	1276	Mississippi River	Des Moines	8/17/23	status	<0.05	<b>0.11</b>	<b>0.0483</b>

**References:**

- DNR. 2006. Fish Tissue Monitoring in Iowa. Water Fact Sheet 2006-5. Geological and Water Survey, Iowa Department of Natural Resources. pp. 1-4. (<https://www.ihr.uiowa.edu/igs/publications/uploads/wfs-2006-05.pdf>).
- DNR. 2023. Sampling Procedures for the Iowa DNR Fish Tissue Monitoring Program (IFTMP). Water Quality Bureau, Environmental Services Division, Iowa Department of Natural Resources. pp. 1-3.
- IDPH. 2007. Fish Consumption Advisory Protocol in Iowa. Iowa Department of Public Health. pp. 1-8.

## Appendix A

Summary of IFTMP contaminants and their respective advisory thresholds and meal suggestions. Advisory thresholds and meal suggestions developed in 2007 by IDPH (IDPH 2007).

#	Contaminant	Affected Population	DNR/IDPH advisory threshold (mg/kg wet weight or ppm)	DNR/IDPH advisory meal suggestion
1	chlordane, technical	general	0 to 0.6	unrestricted
			>0.6 to <5.0	one meal per week
			≥5.0	do not eat
2	mercury	sensitive	0 to 0.3	unrestricted
			>0.3 to <1.0	one meal per week
			≥1.0	do not eat
3	PCB, Aroclor 1248	general	sum = 0 to 0.2	unrestricted
4	PCB, Aroclor 1254		sum >0.2 to <2.0	one meal per week
5	PCB, Aroclor 1260		sum 2.0 and over	do not eat
6	dieldrin			
7	DDE, DDT, DDD			
8	lead			
9	selenium			

## Appendix B

AQuIA site ID and locational information for the 2023 IFTMP sites.

AQuIA Site ID	Site Name	Site Location	County	Mississippi River Pool #	Waterbody Type
1047	Mississippi River	at Davenport	Scott	15	River/Stream
1094	Upper Iowa River	NE of Freeport	Winneshiek		River/Stream
1102	Mississippi River	downstream of Burlington	Des Moines	19	River/Stream
1108	Mississippi River	at Keokuk	Lee	20	River/Stream
1110	Nishnabotna River	at Hamburg	Fremont		River/Stream
1113	Missouri River	at Council Bluffs	Pottawattamie		River/Stream
1130	Mississippi River	downstream of Muscatine	Muscatine	17	River/Stream
1141	Mississippi River	downstream of Dubuque	Dubuque	12	River/Stream
1142	Mississippi River	downstream of Guttenberg	Clayton	11	River/Stream
1148	Missouri River	W of Sergeant Bluff	Woodbury		River/Stream
1149	Missouri River	at Nebraska City, NE	Fremont		River/Stream
1150	Mississippi River	upstream of Princeton	Scott	14	River/Stream
1168	Mississippi River	at Linwood	Scott	16	River/Stream
1172	Mississippi River	at Lansing	Allamakee	9	River/Stream
1173	Maquoketa River	NE of Maquoketa	Jackson		River/Stream
1175	Little Sioux River	S of Washta	Cherokee		River/Stream
1260	McKinley Lake	near Creston	Union		Lake
1261	Mississippi River	near Sabula	Jackson	13	River/Stream
1276	Mississippi River	Huron Slough, SE of Oakville	Des Moines	18	River/Stream

Appendix C

Full 2023 IFTMP sampling results. All results are in mg/kg wet weight or ppm (detections in bold).

Sample ID	AQuIA Site ID	Date	Sample Type	chlordan, cis-	chlordan, technical	chlordan, trans-	DDE	dieldrin	lead	mercury	selenium	PCB, Aroclor 1248	PCB, Aroclor 1254	PCB, Aroclor 1260	total PCBs
4107	1047	8/31/23	status	<0.0025	<0.05	<0.0025	<0.005	<0.005	<0.093	<b>0.12</b>	<b>0.23</b>	J0.0219	<b>0.0375</b>	<b>0.0259</b>	<b>0.0853</b>
4108	1094	8/24/23	trend	<0.0025	<0.05	<0.0025	<b>0.0058</b>	<0.005	<0.1	<b>0.13</b>	<b>0.81</b>	<0.0082	J0.0149	<0.0082	J0.0313
4109	1102	9/13/23	status	<0.0025	<0.05	<0.0025	<0.005	<0.005	<0.093	<b>0.058</b>	<b>0.35</b>	J0.0089	J0.0245	J0.011	<b>0.0444</b>
4110	1108	9/13/23	status	<0.0025	<0.05	<0.0025	<0.005	<0.005	<0.097	<b>0.15</b>	<b>0.42</b>	J0.011	<b>0.0264</b>	J0.0127	<b>0.0501</b>
4111	1110	8/17/23	trend	<b>0.0027</b>	<b>0.0598</b>	<0.0025	<b>0.0099</b>	<0.005	<0.099	<b>0.075</b>	<b>1.1</b>	<b>0.0372</b>	<b>0.0456</b>	<b>0.0621</b>	<b>0.1449</b>
4112	1113	8/29/23	status	<0.0025	<0.05	<0.0025	<0.005	<0.005	<0.096	<b>0.06</b>	<b>1.4</b>	<0.0082	J0.0147	<0.0082	J0.0311
4113	1113	8/29/23	trend	<b>0.0038</b>	<0.05	<b>0.0036</b>	<b>0.0102</b>	<0.005	<0.097	<b>0.058</b>	<b>0.96</b>	J0.0149	<b>0.048</b>	<b>0.0262</b>	<b>0.0891</b>
4114	1130	9/7/23	status	<0.0025	<0.05	<0.0025	<0.005	<0.005	<0.096	<b>0.095</b>	<b>0.43</b>	J0.0085	<b>0.0273</b>	J0.0149	<b>0.0507</b>
4115	1141	9/21/23	status	<0.0025	<0.05	<0.0025	<0.005	<0.005	<0.093	<b>0.083</b>	<b>0.29</b>	J0.0084	<b>0.0332</b>	J0.0141	<b>0.0557</b>
4116	1141	9/21/23	trend	<0.0025	<0.05	<0.0025	<0.005	<0.005	<0.098	<b>0.057</b>	<b>0.46</b>	J0.0103	<b>0.0264</b>	J0.0088	<b>0.0455</b>
4117	1142	11/1/23	status	<0.0025	<0.05	<0.0025	<0.005	<0.005	<0.097	<b>0.096</b>	<b>0.24</b>	<0.0082	<b>0.0303</b>	J0.0098	<b>0.0483</b>
4118	1148	10/9/23	status	<0.0025	<0.05	<0.0025	<0.005	<0.005	<0.099	<b>0.13</b>	<b>0.9</b>	<0.0082	<0.0082	<0.0082	<0.0246
4119	1149	8/31/23	status	<0.0025	<0.05	<0.0025	<0.005	<0.005	<0.098	<b>0.12</b>	<b>0.91</b>	<0.0082	<0.0082	<0.0082	<0.0246
4120	1150	8/30/23	status	<0.0025	<0.05	<0.0025	<0.005	<0.005	<0.1	<b>0.1</b>	<b>0.36</b>	<0.0082	J0.0129	<0.0082	J0.0293
4121	1168	9/15/23	status	<0.0025	<0.05	<0.0025	<0.005	<0.005	<0.099	<b>0.063</b>	<b>0.21</b>	J0.0177	<b>0.0466</b>	<b>0.0929</b>	<b>0.1572</b>
4122	1168	9/15/23	trend	<0.0025	<0.05	<0.0025	<b>0.007</b>	<0.005	<0.099	<b>0.066</b>	<b>0.43</b>	<b>0.0451</b>	<b>0.0759</b>	<b>0.0388</b>	<b>0.1598</b>
4123	1172	11/1/23	status	<0.0025	<0.05	<0.0025	<0.005	<0.005	<0.094	<b>0.085</b>	<b>0.36</b>	<0.0082	<b>0.0258</b>	J0.01	<b>0.044</b>
4124	1173	8/24/23	trend	<0.0025	<0.05	<0.0025	<0.005	<0.005	<b>0.18</b>	<b>0.059</b>	<b>0.45</b>	J0.0144	<b>0.0299</b>	J0.0103	<b>0.0546</b>
4125	1175	10/11/23	trend	<0.0025	<0.05	<0.0025	<b>0.0061</b>	<0.005	<0.098	<b>0.085</b>	<b>1.2</b>	<0.0082	J0.0107	<0.0082	J0.0271
4126	1260	10/24/23	status	<0.0025	<0.05	<0.0025	<0.005	<0.005	<b>0.12</b>	<b>0.033</b>	<b>0.27</b>	J0.0099	<b>0.0611</b>	J0.0181	<b>0.0891</b>
4127	1261	8/29/23	status	<0.0025	<0.05	<0.0025	<0.005	<0.005	<0.099	<b>0.13</b>	<b>0.35</b>	J0.0086	J0.0245	J0.0111	<b>0.0442</b>
4128	1276	8/17/23	status	<0.0025	<0.05	<0.0025	<0.005	<0.005	<0.092	<b>0.11</b>	<b>0.41</b>	J0.0089	J0.0247	J0.0147	<b>0.0483</b>

The J code leading the data indicate an estimated concentration above the method detection limit and below the reporting limit.