

Update: Urban Lakes PFCs Study

January 29, 2008

The Minnesota Pollution Control Agency has completed analysis of additional data from a study of PFCs in fish in Twin Cities-area fishing lakes. The MPCA began the survey in April 2007 after finding relatively high levels of PFOS in Lake Calhoun fish in Minneapolis last spring. The latest findings represent another 381 fish taken from 20 lakes and two new river reaches. (The first results were released in August 2007.)

The findings show a mix of results, from elevated levels of PFOS to no detection. However fish from several lakes had levels high enough to possibly be of concern. These lakes include Lake Johanna (Arden Hills), Cedar (Minneapolis), Harriet, Hiawatha, Jane, Keller, Powers, Red Rock and Tanners. For example, fish from Lake Johanna have levels similar to those previously found in fish from Lake Calhoun and Lake Elmo.

Fish from a number of lakes or rivers in the survey show little or no trace of PFOS, including Cedar (Scott County), Centerville, Colby, Green Mountain, Hydes, Independence, Nokomis, Peltier, Upper Prior, Sarah, Silver, and the Mississippi River at Brainerd.

The MPCA urban lakes study will be complete after results from Lake Minnetonka and Lake Josephine come in later this winter. Certified analysis can take several months due to the number of parameters included and the fact that only a few labs in North America can analyze PFCs in fish tissues.

Fish were collected over the summer by PCA and DNR crews and analyzed for 13 different PFC compounds. Lakes were selected based on higher fishing pressure and prevalence of species such as bluegill and bass, which have shown relatively higher concentrations of PFOS. Of the 13 compounds, only PFOS has been found to accumulate in fish tissue.

The Minnesota Department of Health is evaluating the MPCA fish data as part of the annual update of the Minnesota Fish Consumption Advisory. Each year MDH incorporates new data on many contaminants, including mercury and PCBs, into the update to provide Minnesotans with advice about how to benefit from the good nutrition available from fish with the least amount of contaminants.

“The fish consumption advisory is based on long-term, lifetime exposure and any changes to the advice, if indicated, would be similar to past advice for PFC-impacted waters,” said MDH scientist Pat McCann. The current Minnesota Fish Consumption Advisory, including the general statewide advice, is available at <http://www.health.state.mn.us/divs/eh/fish/index.html>.

The results of the MPCA's urban lakes study provide some important clues about the presence of PFCs in parts of the Twin Cities that aren't near known sources of PFC wastes or manufacture. The widely varying fish-tissue results suggest that atmospheric

deposition of PFCs likely is not a significant contributor to the elevated concentrations of PFCs in some metro-area lakes. Results of shallow groundwater sampling have shown similar variability, and atmospheric deposition would be expected to produce much more uniform concentrations of PFCs in shallow groundwater, lakes, and fish.

The likelier explanation is that varying PFOS concentrations are due to runoff in stormwater associated with different land uses around lakes. The chemicals are in a wide variety of commercial, industrial, and consumer products, e.g., firefighting foam, lubricants, and water- and grease-resistant coatings on paper and fabric, and could be entering stormwater from those sources.

Complete data for the study results thus far follow below. For more information on the findings contact Paul Hoff, 651-296-7799; Laura Solem, 218-529-6254; or Ralph Pribble, 651-296-7792. For information on the MDH's fish consumption advisory program contact Pat McCann, 651-201-4915.

	Average PFOS Concentration [ng/g; ppb]							
	Bluegill	Bluegill (comp)	Black Crappie	Black Crappie (comp)	Largemouth Bass	Northern Pike	Walleye	Yellow Perch (comp)
<u>Cedar (Hennepin)</u>	28 (5)	34 (5)	ns	ns	72 (4)	ns	ns	ns
<u>Cedar (Scott)</u>	<dl (5)	<dl (5)	ns	ns	6 (5)	ns	<dl (1)	ns
<u>Centerville</u>	9 (5)	9 (5)	ns	ns	ns	9 (7)	ns	ns
Colby	22 (5)	23 (5)	14 (5)	14 (5)	ns	ns	ns	ns
Green Mountain	<dl (5)	<dl (5)	ns	ns	ns	ns	ns	ns
<u>Harriet</u>	114 (5)	89 (5)	ns	ns	148 (5)	ns	ns	ns
<u>Hiawatha</u>	26 (5)	27 (5)	40 (5)	ns	ns	pending	ns	ns
<u>Hydes</u>	<dl (5)	<dl (5)	<dl (6)	ns	ns	5 (5)	ns	ns
<u>Independence</u>	5 (5)	<dl (5)	<dl (5)	ns	ns	<dl (2)	ns	ns
<u>Jane</u>	22 (5)	8 (5)	25 (8)	ns	47 (5)	ns	ns	ns
<u>Johanna</u>	212 (6)	250 (5)	222 (3)	ns	ns	ns	ns	ns
<u>Keller</u>	69 (5)	70 (5)	ns	ns	ns	ns	ns	ns
<u>Nokomis</u>	10 (7)	ns	10 (5)	ns	ns	ns	ns	ns
<u>Peltier</u>	12 (5)	ns	ns	ns	ns	14 (5)	ns	ns
Powers	40 (5)	65 (5)	51 (5)	ns	ns	69 (3)	ns	42 (5)
<u>Upper Prior</u>	5 (5)	<dl (5)	ns	ns	6 (5)	ns	ns	ns
<u>Red Rock</u>	41 (5)	35 (5)	103 (5)	ns	69 (5)	ns	ns	ns
<u>Sarah</u>	7 (5)	<dl (4)	<dl (5)	ns	ns	10 (5)	ns	ns
Silver	24 (5)	34 (5)	33 (5)	35 (5)	ns	ns	17 (4)	ns
<u>Tanners</u>	76 (5)	55 (5)	118 (5)	ns	80 (5)	ns	ns	ns

	Bluegill	Bluegill (comp)	White Bass	Smallmouth Bass	Walleye	Northern Pike
<u>St Croix River,</u> Washington County Bluff Park area	23 (5)	12 (5)	82 (1)	15 (5)	17 (5)	ns
<u>Mississippi River,</u> Brainerd area	10 (2)	ns	ns	13 (5)	9 (5)	7 (3)

numbers listed are: average PFOS concentration (# of fish)

<dl – less than the detection limit \approx 5 ng/g

ns – not sampled

comp – composite; tissue from several fish is combined then PFCs are measured (# of fish combined)

pending – analysis not completed

For further information please contact Paul Hoff 651-296-7799 or Laura Solem 218-529-6254.

Cedar Lake Fish PFC analysis (Hennepin County)												
Species & Sample ID	Sample Date	Tissue	Wt (g)	Ln (cm)	Age/sex (yrs)	PFOS ng/g (ppb)	PFOA ng/g (ppb)	PFBA ng/g (ppb)	PFOSA ng/g (ppb)	PFDA ng/g (ppb)	PFUnA ng/g (ppb)	PFDoA ng/g (ppb)
<i>Bluegill</i>												
BG-1	2007	Fillet	24	12	3/F	33.5	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50
BG-5	2007	Fillet	56	15.5	5/J	31	<2.39	<2.39	<2.39	2.46	<2.39	<2.39
BG-6	2007	Fillet	25	11.5	2/F	17.9	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50
BG-8	2007	Fillet	47	14.5	4/F	30.9	<2.37	<2.37	<2.37	3.11	<2.37	<2.37
BG-10	2007	Fillet	24	12	2/J	27.8	<2.51	<2.51	<2.51	5.25	3.77	<2.51
BG-comp	2007	Fillet				34	<2.42	<2.42	<2.42	2.99	<2.42	2.56
<i>Largemouth Bass</i>												
LMB-1	2007	Fillet	531	33	5/M	53.8	<2.46	<2.46	<2.46	4.88	3.54	2.58
LMB-2	2007	Fillet	488	31	5/F	70.8	<2.40	<2.40	<2.40	6.7	3.49	3.39#
LMB-3	2007	Fillet	1166	43	10/F	56.3	<2.48	<2.48	<2.48	8.27	4.61	3.25#
LMB-4	2007	Fillet	1592	46	11/F	108	<2.42	<2.42	<2.42	5.22	3.67	5.27#
LMB-4(dup)		Fillet				103	<2.45	<2.45	<2.45	6.37	4.05	5.02#

Cedar Lake Fish PFC analysis (Scott County)												
Species & Sample ID	Sample Date	Tissue	Wt (g)	Ln (cm)	Age/sex (yrs)	PFOS ng/g (ppb)	PFOA ng/g (ppb)	PFBA ng/g (ppb)	PFOSA ng/g (ppb)	PFDA ng/g (ppb)	PFUnA ng/g (ppb)	PFDoA ng/g (ppb)
<i>Bluegill</i>												
BG-1	8/24/07	Fillet	16	9	1/J	<4.81	<2.40	<2.40	<2.40	<2.40	<2.40	<2.40
BG-4	8/24/07	Fillet	19	10	2/J	<6.76	<2.49	<2.49	<2.49	<2.49	<2.49	<2.49
BG-5	8/24/07	Fillet	97	17	6/M	<4.81	<2.40	<2.40	<2.40	<2.40	<2.40	<2.40
BG-6	8/24/07	Fillet	31	NA	4/M	<4.95	<2.48	<6.43	<2.48	<2.48	<2.48	<2.48
BG-9	8/24/07	Fillet	82	16	5/M	<4.81	<2.40	<2.40	<2.40	<2.40	<2.40	<2.40
BG-comp	8/24/07	Fillet				<4.85	<2.43	<2.43	<2.43	<2.43	<2.43	<2.43
<i>Largemouth Bass</i>												
LMB-1	8/24/07	Fillet	1292	41	9/M	6.24	<2.46	<2.46	<2.46	<2.46	<2.46	<2.46
LMB-2	8/24/07	Fillet	1528	NA	9/F	<4.90	<2.45	<2.45	<2.45*	<2.45	<2.45	<2.45
LMB-3	8/24/07	Fillet	1264	40	8/F	<4.67	<2.34	<2.34	<2.34*	<2.34	<2.34	<2.34
LMB-4	8/24/07	Fillet	857	40	8/M	<4.88	<2.44	<2.44	<2.44*	<2.44	<2.44	<2.44
LMB-5	8/24/07	Fillet	1110	42	9/M	<4.74	<3.85	<2.37	<2.37*	<2.37	<2.37	<2.37
LMB-5(dup)		Fillet				<5.03	<2.51	<2.51	<2.51*	<2.51	<2.51	<2.51
<i>Walleye</i>												
WAE-1	8/24/07	Fillet	714	43	7/M	<4.95	<2.48	<4.04	<2.48*	<2.48	<2.48	<2.48

Centerville Lake Fish PFC analysis												
Species & Sample ID	Sample Date	Tissue	Wt (g)	Ln (cm)	Age/sex (yrs)	PFOS ng/g (ppb)	PFOA ng/g (ppb)	PFBA ng/g (ppb)	PFOSA ng/g (ppb)	PFDA ng/g (ppb)	PFUnA ng/g (ppb)	PFDaA ng/g (ppb)
<i>Bluegill</i>												
BG-1	2007	Fillet	69	15	4/F	12.8	<2.43	<2.43	<2.43	<2.43	<2.43	<2.43
BG-2	2007	Fillet	62	14.5	4/M	6.24	<2.45	<2.45	<2.45	<2.45	<2.45	<2.45
BG-4	2007	Fillet	42	12.5	3/J	9.94	<2.45	<2.45	<2.45	<2.45	<2.45	<2.45
BG-8	2007	Fillet	61	15	4/F	<4.95	<2.48	<2.48	<2.48	<2.48	<2.48	<2.48
BG-9	2007	Fillet	74	15	4/M	6.74	<2.48	<2.48	<2.48	<2.48	<2.48	<2.48
BG-comp	2007	Fillet				8.71	<2.23	<2.23	<2.23	<2.23	<2.23	<2.23
<i>Northern Pike</i>												
NOP-1	2007	Fillet	1609	58	4/F	9.01	<2.49	<2.49	<2.49	<2.49	<2.49	<2.49
NOP-2	2007	Fillet	878	49	4/J	10.2	<2.48	<2.48	<2.48	<2.48	<2.48	<2.48
NOP-3	2007	Fillet	793	46	4/J	9.03	<2.43	<2.43	<2.43	<2.43	<2.43	<2.43
NOP-4	2007	Fillet	1067	56.5	4/J	6.3	<2.74	<2.50	<2.50	<2.50	<2.50	<2.50
NOP-5	2007	Fillet	1183	54	4/M	7.84	<2.51	<2.51	<2.51	<2.51	<2.51	<2.51
NOP-6	2007	Fillet	1546	65	5/M	11.4	<2.40	<2.40	<2.40	<2.40	<2.40	<2.40
NOP-7	2007	Fillet	896	51	4/M	10.6	<2.44	<2.44	<2.44	<2.44	<2.44	<2.44

Colby Lake Fish PFC analysis												
Species & Sample ID	Sample Date	Tissue	Wt (g)	Ln (cm)	Age/sex (yrs)	PFOS ng/g (ppb)	PFOA ng/g (ppb)	PFBA ng/g (ppb)	PFOSA ng/g (ppb)	PFDA ng/g (ppb)	PFUnA ng/g (ppb)	PFDaA ng/g (ppb)
<i>Bluegill</i>												
BG-4	6/6/07	Fillet	21	9.5	1/M	21.7	<2.44	<2.44*	<2.44	3.01	<2.44	<2.44
BG-5	6/6/07	Fillet	31	12	2/F	23.9#	<2.46	<4.03*	<2.46	<2.46	<2.46	<2.46
BG-7	6/6/07	Fillet	34	12.5	2/J	32.8	<2.49	<3.10*	<2.49	<2.49	<2.49	<2.49
BG-9	6/6/07	Fillet	35	12	2/F	13#	<2.50	<2.50*	<2.50	<2.50	<2.50	<2.50
BG-10	6/6/07	Fillet	29	11	2/F	18.9#	<2.49	<2.49*	<2.49	<2.49	<2.49	<2.49
BG-comp	6/6/07	Fillet				23.4	<2.40	<2.40	<2.40	<2.40	<2.40	<2.40
<i>Black Crappie</i>												
BLC-2	6/6/07	Fillet	42	14	3/F	16.6	<2.50	<2.50*	<2.50	2.84	<2.50	<2.50
BLC-4	6/6/07	Fillet	47	14.5	3/M	13.2#	<2.45	<2.45	<2.45	<2.45	<2.45	<2.45
BLC-5	6/6/07	Fillet	47	14.5	3/M	12.6#	<2.35	<2.35	<2.35	<2.35	<2.35	<2.35
BLC-7	6/6/07	Fillet	46	15	3/M	14.6	<2.44	<2.44	<2.44	<2.44	<2.44	<2.44
BLC-8	6/6/07	Fillet	34	13.8	3/F	12	<2.48	<2.48	<2.48	<2.48	<2.48	<2.48
BLC-comp	6/6/07	Fillet				14.3	<2.43	<2.43	<2.43	<2.43	<2.43	<2.43

Green Mountain Lake Fish PFC analysis												
Species & Sample ID	Sample Date	Tissue	Wt (g)	Ln (cm)	Age/sex (yrs)	PFOS ng/g (ppb)	PFOA ng/g (ppb)	PFBA ng/g (ppb)	PFOSA ng/g (ppb)	PFDA ng/g (ppb)	PFUnA ng/g (ppb)	PFDaA ng/g (ppb)
<i>Bluegill</i>												
BG-1	5/9/07	Fillet	50	13.5	3/J	<4.85	<2.43	<2.43	<2.43	<2.43	<2.43	<2.43
BG-3	5/9/07	Fillet	118	17.5	6/M	<4.98	<2.49	<2.49	<2.49	<2.49	<2.49	<2.49
BG-5	5/9/07	Fillet	133	19	7/M	<4.90	<2.45	<2.45	<2.45	<2.45	<2.45	<2.45
BG-6	5/9/07	Fillet	85	16	5/F	<4.85	<2.43	<2.43	<2.43	<2.43	<2.43	<2.43
BG-8	5/9/07	Fillet	50	13.5	3/M	<4.85	<2.43	<2.43	<2.43	<2.43	<2.43	<2.43
BG-comp	5/9/07	Fillet				<4.88	<2.44	<2.46	<2.44	<2.44	<2.44	<2.44

Harriet Lake Fish PFC analysis												
Species & Sample ID	Sample Date	Tissue	Wt (g)	Ln (cm)	Age/sex (yrs)	PFOS ng/g (ppb)	PFOA ng/g (ppb)	PFBA ng/g (ppb)	PFOSA ng/g (ppb)	PFDA ng/g (ppb)	PFUnA ng/g (ppb)	PFDoA ng/g (ppb)
<i>Bluegill</i>												
BG-5	8/17/07	Fillet	17	9	1/J	108	<2.40	<2.40	<2.40	4.91	<2.40	<2.40
BG-6	8/17/07	Fillet	42	10	2/F	78.1	<2.48	<2.48	<2.48	<2.48	<2.48	<2.48
BG-7	8/17/07	Fillet	12	7	1/J	124	<2.43	<2.43	<2.43	6.98	<2.43	<2.43
BG-9	8/17/07	Fillet	30	11	2/M	95.9	<2.46	<2.46	<2.46	<2.46	<2.46	<2.46
BG-10	8/17/07	Fillet	73	NA	4/M	163	<2.40	<2.40	<2.40	4.98	5.27#	4.12
BG-comp	8/17/07	Fillet				89.3	<2.44	<2.44	<2.44	2.59	<2.44	<2.44
<i>Largemouth Bass</i>												
LMB-1	8/17/07	Fillet	373	30	4/F	146	<5.38	<2.49	<2.49*	8.74	4.59	2.78
LMB-2	8/17/07	Fillet	554	34	6/F	20.5	<3.66	<2.46	<2.46*	5.4	<2.46	<2.46
LMB-3	8/17/07	Fillet	355	29	4/J	150	<2.39	<2.39	<2.39*	9.25	3.71	3.64
LMB-4	8/17/07	Fillet	963	39	8/M	254	<4.20	<2.43	<2.43*	10	5.28	7.1
LMB-5	8/17/07	Fillet	866	40	8/F	170	<2.42	<2.42	<2.42	10.1	4.65	3.66

Hiawatha Lake Fish PFC analysis												
Species & Sample ID	Sample Date	Tissue	Wt (g)	Ln (cm)	Age/sex (yrs)	PFOS ng/g (ppb)	PFOA ng/g (ppb)	PFBA ng/g (ppb)	PFOSA ng/g (ppb)	PFDA ng/g (ppb)	PFUnA ng/g (ppb)	PFDoA ng/g (ppb)
<i>Bluegill</i>												
BG-2	2007	Fillet	73	16	5/M	35	<2.48	<2.48	<2.48	<2.48	<2.48	<2.48
BG-6	2007	Fillet	94	18	6/M	15.7	<2.48	<2.48	<2.48	<2.48	<2.48	<2.48
BG-7	2007	Fillet	36	13	3/F	15.5	<2.48	<2.48	<2.48	<2.48	<2.48	<2.48
BG-9	2007	Fillet	8	8	1/J	31.8	<2.43	<2.43	<2.43	<2.43	<2.43	<2.43
BG-10	2007	Fillet	5	7.8	1/J	31.9	<3.55	<3.55	<3.55	<3.55	<3.55	<3.55
BG-comp	2007	Fillet				27.3	<2.42	<2.42	<2.42	<2.42	<2.42	<2.42
<i>Black Crappie</i>												
BLC-1	2007	Fillet	73	19	5/F	36.6	<2.50	<2.50	<2.50	2.7	<2.50	<2.50
BLC-2	2007	Fillet	103	21.5	6/M	71.7	<2.35	<2.35	<2.35	3.94	<2.35	4.75
BLC-3	2007	Fillet	71	18	4/F	35.1	<2.30	<2.30	<2.30	2.32	<2.30	<2.30
BLC-4	2007	Fillet	83	18	4/F	33.5	<2.45	<2.45	<2.45	<2.45	<2.45	<2.45
BLC-5	2007	Fillet	64	17	4/F	21	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50

Hydes Lake Fish PFC analysis												
Species & Sample ID	Sample Date	Tissue	Wt (g)	Ln (cm)	Age/sex (yrs)	PFOS ng/g (ppb)	PFOA ng/g (ppb)	PFBA ng/g (ppb)	PFOSA ng/g (ppb)	PFDA ng/g (ppb)	PFUnA ng/g (ppb)	PFDaA ng/g (ppb)
<i>Bluegill</i>												
BG-1	7/24/07	Fillet	9	7	1/J	<5.05	<2.53	<2.53	<2.53	<2.53	<2.53	<2.53
BG-5	7/24/07	Fillet	9	9	1/J	<5.08	<2.54	<2.54	<2.54	<2.54	<2.54	<2.54
BG-6	7/24/07	Fillet	130	17	6/F	<4.85	<2.43	<2.43	<2.43	<2.43	<2.43	<2.43
BG-7	7/24/07	Fillet	127	17	6/M	<4.83	<2.42	<2.42	<2.42	<2.42	<2.42	<2.42
BG-10	7/24/07	Fillet	123	17.5	6/F	<4.95	<2.48	<2.48	<2.48	<2.48	<2.48	<2.48
BG-10(dup)		Fillet				<4.90	<2.45	<2.45	<2.45	<2.45	<2.45	<2.45
BG-comp	7/24/07	Fillet				<4.41	<2.20	<2.20	<2.20	<2.20	<2.20	<2.20
<i>Black Crappie</i>												
BLC-1	7/24/07	Fillet	124	20	5/F	<4.88	<2.44	<2.45	<2.44*	<2.44	<2.44	<2.44
BLC-1(dup)		Fillet				<4.93	<2.46	<2.46	<2.46*	<2.46	<2.46	<2.46
BLC-2	7/24/07	Fillet	178	23	6/F	<4.90	<2.95	<2.45	<2.45*	<2.45	<2.45	<2.45
BLC-3	7/24/07	Fillet	167	22.5	6/F	<4.78	<4.24	<2.39	<2.39*	<2.39	<2.39	<2.39
BLC-4	7/24/07	Fillet	206	24	7/F	<4.88	<2.44	<2.44	<2.44*	<2.44	<2.44	<2.44
BLC-5	7/24/07	Fillet	224	25	7/M	<4.90	<2.45	<2.45	<2.45*	<2.45	<2.45	<2.45
BLC-6	7/24/07	Fillet	220	25	7/F	<4.90	<2.87	<2.45	<2.45*	<2.45	<2.45	<2.45
<i>Northern Pike</i>												
NOP-1	7/24/07	Fillet	2170	68	5/M	<4.93	<2.46	<2.46	<2.46	<2.46	<2.46	<2.46
NOP-2	7/24/07	Fillet	631	48	4/M	<4.41	<2.20	<2.20	<2.20	<2.20	<2.20	<2.20
NOP-3	7/24/07	Fillet	741	46	4/F	<4.52	<2.26	<2.26	<2.26	<2.26	<2.26	<2.26
NOP-4	7/24/07	Fillet	2342	68	6/J	<4.69	<2.35	<2.35	<2.35	<2.35	<2.35	<2.35
NOP-4(dup)						<4.65	<2.33	<2.33	<2.33	<2.33	<2.33	<2.33
NOP-5	7/24/07	Fillet	3445	74	6/F	4.76	<2.37	<2.37	<2.37	<2.37	<2.37	<2.37

Independence Lake Fish PFC analysis												
Species & Sample ID	Sample Date	Tissue	Wt (g)	Ln (cm)	Age/sex (yrs)	PFOS ng/g (ppb)	PFOA ng/g (ppb)	PFBA ng/g (ppb)	PFOSA ng/g (ppb)	PFDA ng/g (ppb)	PFUnA ng/g (ppb)	PFDaA ng/g (ppb)
<i>Bluegill</i>												
BG-4	7/24/07	Fillet	13	10	2/J	5.1	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50
BG-6	7/24/07	Fillet	14	10	2/J	<4.88	<2.44	<2.44	<2.44	<2.44	<2.44	<2.44
BG-7	7/24/07	Fillet	14	9.5	1/J	5.41	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50
BG-8	7/24/07	Fillet	45	14	4/F	<4.83	<2.42	<2.42	<2.42	<2.42	<2.42	<2.42
BG-9	7/24/07	Fillet	55	15	4/M	<4.85	<2.43	<2.43	<2.43	<2.43	<2.43	<2.43
BG-comp	7/24/07	Fillet				<4.88	<2.44	<2.44	<2.44	<2.44	<2.44	<2.44
<i>Black Crappie</i>												
BLC-1	7/24/07	Fillet	70	18	4/F	<4.95	<2.48	<2.48	<2.48	<2.48	<2.48	<2.48
BLC-2	7/24/07	Fillet	78	19	5/F	<4.65	<2.33	<2.33	<2.33	<2.33	<2.33	<2.33
BLC-3	7/24/07	Fillet	81	18	4/M	<5.00	<2.50	<3.22	<2.50	<2.50	<2.50	<2.50
BLC-4	7/24/07	Fillet	81	19	5/M	<4.93	<2.46	<2.46	<2.46	<2.46	<2.46	<2.46
BLC-5	7/24/07	Fillet	139	22	6/F	<4.93	<2.46	<2.46	<2.46	<2.46	<2.46	<2.46
<i>Northern Pike</i>												
NOP-1	7/24/07	Fillet	2000	57	4/F	<5.54	<2.40	<2.40	<2.40	<2.40	<2.40	<2.40
NOP-2	7/24/07	Fillet	3700	76	6/M	<4.90	<2.45	<2.45	<2.45	<2.45	<2.45	<2.45
NOP-2(dup)						<4.95	<2.48	<2.48	<2.48	<2.48	<2.48	<2.48

Jane Lake Fish PFC analysis												
Species & Sample ID	Sample Date	Tissue	Wt (g)	Ln (cm)	Age/sex (yrs)	PFOS ng/g (ppb)	PFOA ng/g (ppb)	PFBA ng/g (ppb)	PFOSA ng/g (ppb)	PFDA ng/g (ppb)	PFUnA ng/g (ppb)	PFDoA ng/g (ppb)
<i>Bluegill</i>												
BG-4	6/07	Fillet	16	10.5	2/J	20.7	<2.46	<2.46*	<2.46	<2.46	<2.46	<2.46
BG-6	6/07	Fillet	99	18	6/F	8.62#	<2.50	<2.50*	<2.50	<2.50	<2.50	<2.50
BG-7	6/07	Fillet	73	17.2	6/M	46.3	<2.44	<2.44*	<2.44	<2.44	<2.44	<2.44
BG-7(dup)						36.5#	<2.48	<2.48*	<2.48	<2.48	<2.48	<2.48
BG-8	6/07	Fillet	18	10.6	2/J	12.2#	<2.50	<2.50*	<2.50	<2.50	<2.50	<2.50
BG-10	6/07	Fillet	95	NA	4/M	<4.95	<2.48	<2.48*	<2.48	<2.48	<2.48	<2.48
BG-comp	6/07	Fillet				7.76	<2.46	<2.46	<2.46	<2.46	<2.46	<2.46
<i>Black Crappie</i>												
BLC-1	6/07	Fillet	65	15	3/M	13.6#	<2.40	<2.40*	<2.40	<2.40	<2.40	<2.40
BLC-2	6/07	Fillet	109	18.2	5/M	26.2	<2.40	<2.40*	<2.40	<2.40	<2.40	<2.40
BLC-3	6/07	Fillet	78	17.8	4/F	10.2#	<2.48	<2.48*	<2.48	<2.48	<2.48	<2.48
BLC-4	6/07	Fillet	63	16.5	4/M	39.7	<2.48	<2.48	<2.48	<2.48	<2.48	<2.48
BLC-5	6/07	Fillet	96	19.5	5/M	34.2	<2.45	<2.45	<2.45	<2.45	<2.45	<2.45
BLC-6	6/07	Fillet	99	21	6/F	19.5	<2.46	<2.46	<2.46	<2.46	<2.46	<2.46
BLC-7	6/07	Fillet	115	20	5/M	34.8#	<2.43	<2.43	<2.43	<2.43	<2.43	<2.43
BLC-7(dup)						21.9#	<2.42	<2.42	<2.42	<2.42	<2.42	<2.42
BLC-8	6/07	Fillet	108	19	5/M	21.7	<2.46	<2.46	<2.46	<2.46	<2.46	<2.46
<i>Largemouth Bass</i>												
LMB-1	6/07	Fillet	507	33	5/M	35.1	<2.49	<2.49	<2.49	<2.49	<2.49	<2.49
LMB-2	6/07	Fillet	535	36	7/M	38.1	<2.49	<2.49	<2.49	<2.49	<2.49	<2.49
LMB-3	6/07	Fillet	599	33	5/M	83.4	<3.65	<5.00	<2.49	3.32	2.82	<2.49
LMB-4	6/07	Fillet	525	36	7/M	25.8	<2.43	<2.43	<2.43	<2.43	<2.43	<2.43
LMB-5	6/07	Fillet	809	NA	6/F	53.6	<2.44	<2.97	<2.44	<2.44	<2.44	<2.44

Johanna Lake Fish PFC analysis												
Species & Sample ID	Sample Date	Tissue	Wt (g)	Ln (cm)	Age/sex (yrs)	PFOS ng/g (ppb)	PFOA ng/g (ppb)	PFBA ng/g (ppb)	PFOSA ng/g (ppb)	PFDA ng/g (ppb)	PFUnA ng/g (ppb)	PFDoA ng/g (ppb)
<i>Bluegill</i>												
BG-1	6/19/07	Fillet	71	16	5/M	183	<2.44	<2.44*	<2.44	<2.44	<2.44	<2.44
BG-2	6/19/07	Fillet	56	14.5	4/M	184#	<2.43	<2.43*	<2.43	4.02	<2.43	<2.43
BG-3	6/19/07	Fillet	94	18	6/M	176#	<2.40	<2.40*	<2.40	3.85	3.86	7.34
BG-6	6/19/07	Fillet	42	13	3/M	207#	<2.46	<2.46*	<2.46	5.69	4.3	3.58
BG-7	6/19/07	Fillet	55	16	4/M	230	<2.49	<2.52*	<2.49	3.73	<2.49	<2.49
BG-8	6/19/07	Fillet	57	15.5	4/M	292	<2.44	<2.44*	<2.44	<2.44	<2.44	<2.44
BG-comp	6/19/07	Fillet				250	<2.45	<2.45	<2.45	3.24	<2.45	2.65
<i>Black Crappie</i>												
BLC-1	6/19/07	Fillet	89	NA	4/M	384	<2.34	<2.34	<2.34	8.92	3.94	3.31
BLC-2	6/19/07	Fillet	83	20	5/F	213	<2.44	<3.06	<2.44	4.51	<2.44	<2.44
BLC-3	6/19/07	Fillet	94	20	5/F	70.3	<2.48	<2.48	<2.48	2.66	<2.48	<2.48

Keller Lake Fish PFC analysis												
Species & Sample ID	Sample Date	Tissue	Wt (g)	Ln (cm)	Age/sex (yrs)	PFOS ng/g (ppb)	PFOA ng/g (ppb)	PFBA ng/g (ppb)	PFOSA ng/g (ppb)	PFDA ng/g (ppb)	PFUnA ng/g (ppb)	PFDoA ng/g (ppb)
<i>Bluegill</i>												
BG-1	7/07	Fillet	50	13.5	3/M	26.2	<2.45	<2.45	<2.45	<2.45	<2.45	<2.45
BG-2	7/07	Fillet	54	14.5	4/J	64.6	<2.35	<2.35	<2.35	2.5	<2.35	<2.35
BG-5	7/07	Fillet	56	14	4/M	97.1	<2.46	<2.46	<2.46	4.88	4.31	<2.46
BG-7	7/07	Fillet	58	15	4/F	50.1	<2.46	<2.46	<2.46	4.47	2.99	<2.46
BG-10	7/07	Fillet	58	15	4/M	106	<2.49	<2.49	<2.49	4.81	3.77	2.73
BG-comp	7/07	Fillet				70	<2.10	<2.10	<2.10	2.67	<2.10	<2.10

Nokomis Lake Fish PFC analysis												
Species & Sample ID	Sample Date	Tissue	Wt (g)	Ln (cm)	Age/sex (yrs)	PFOS ng/g (ppb)	PFOA ng/g (ppb)	PFBA ng/g (ppb)	PFOSA ng/g (ppb)	PFDA ng/g (ppb)	PFUnA ng/g (ppb)	PFDoA ng/g (ppb)
<i>Bluegill</i>												
BG-1	7/17/07	Fillet	25	11	2/M	10.8	<2.44	<2.44	<2.44	<2.44	<2.44	<2.44
BG-2	7/17/07	Fillet	73	16	5/M	9.21	<2.38	<2.38	<2.38	<2.38	<2.38	<2.38
BG-3	7/17/07	Fillet	58	15	4/M	13.4	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50
BG-4	7/17/07	Fillet	31	11	2/M	7.71	<2.49	<3.00	<2.49	<2.49	<2.49	<2.49
BG-5	7/17/07	Fillet	55	14	4/F	6.45	<2.45	<2.45	<2.45	<2.45	<2.45	<2.45
BG-6	7/17/07	Fillet	49	14.5	4/F	7.23	<2.43	<2.43	<2.43	<2.43	<2.43	<2.43
BG-7	7/17/07	Fillet	69	15	4/M	11.4	<2.45	<2.45	<2.45	<2.45	<2.45	<2.45
<i>Black Crappie</i>												
BLC-1	7/17/07	Fillet	84	18.5	5/M	11.7	<2.49	<2.49	<2.49*	<2.49	<2.49	<2.49
BLC-2	7/17/07	Fillet	74	17.8	4/M	10.1	<2.46	<2.46	<2.46*	<2.46	<2.46	<2.46
BLC-3	7/17/07	Fillet	72	17.5	4/F	12.3	<2.45	<2.45	<2.45*	<2.45	<2.45	<2.45
BLC-4	7/17/07	Fillet	67	16.2	4/M	7.66	<2.45	<4.34	<2.45*	<2.45	<2.45	<2.45
BLC-5	7/17/07	Fillet	91	19	5/M	8.18	<2.79	<2.44	<2.44*	<2.44	<2.44	<2.44

Peltier Lake Fish PFC analysis												
Species & Sample ID	Sample Date	Tissue	Wt (g)	Ln (cm)	Age/sex (yrs)	PFOS ng/g (ppb)	PFOA ng/g (ppb)	PFBA ng/g (ppb)	PFOSA ng/g (ppb)	PFDA ng/g (ppb)	PFUnA ng/g (ppb)	PFDoA ng/g (ppb)
<i>Bluegill</i>												
BG-1	2007	Fillet	58	15	4/M	17.6	<2.44	<2.44	<2.44*	<2.44	<2.44	<2.44
BG-2	2007	Fillet	87	15.8	5/F	9.52	<2.48	<2.48	<2.48*	<2.48	<2.48	<2.48
BG-3	2007	Fillet	50	13	3/F	15.1	<4.27	<2.45	<2.45*	<2.45	<2.45	<2.45
BG-4	2007	Fillet	34	12.3	3/J	10.9	<2.50	<2.50	<2.50*	<2.50	<2.50	<2.50
BG-5	2007	Fillet	30	11.5	2/F	7.53	<3.43	<2.50	<2.50*	<2.50	<2.50	<2.50
<i>Northern Pike</i>												
NOP-1	2007	Fillet	607	45	4/J	20.7	<2.78	<2.65	<2.49	<2.49	<2.49	<2.49
NOP-2	2007	Fillet	658	43	4/J	14.5	<2.43	<2.43	<2.43	<2.43	<2.43	<2.43
NOP-3	2007	Fillet	764	51	4/J	8.2	<2.40	<2.40	<2.40	<2.40	<2.40	<2.40
NOP-4	2007	Fillet	883	50	4/F	13.6	<2.49	<2.49	<2.49	<2.49	<2.49	<2.49
NOP-5	2007	Fillet	1161	54	4/J	13.1	<2.48	<2.48	<2.48	<2.48	<2.48	<2.48

Powers Lake Fish PFC analysis												
Species & Sample ID	Sample Date	Tissue	Wt (g)	Ln (cm)	Age/sex (yrs)	PFOS ng/g (ppb)	PFOA ng/g (ppb)	PFBA ng/g (ppb)	PFOSA ng/g (ppb)	PFDA ng/g (ppb)	PFUnA ng/g (ppb)	PFDoA ng/g (ppb)
<i>Bluegill</i>												
BG-1	7/07	Fillet	31	13	3/F	48.5	<2.48	<2.48	<2.48	<2.48	<2.48	<2.48
BG-2	7/07	Fillet	66	15	4/M	45	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50
BG-6	7/07	Fillet	59	16.5	6/M	44.8	<2.48	<2.48	<2.48	<2.48	<2.48	<2.48
BG-9	7/07	Fillet	58	17	6/M	26.6	<2.40	<2.40	<2.40	<2.40	<2.40	<2.40
BG-10	7/07	Fillet	40	NA	5/F	32.7	<2.45	<2.45	<2.45	<2.45	<2.45	<2.45
BG-comp	7/07	Fillet				65.3	<2.48	<2.48	<2.48	<2.48	<2.48	<2.48
<i>Black Crappie</i>												
BLC-1	7/07	Fillet	99	20	5/M	63.9	<2.39	<2.39	<2.39*	<2.39	<2.39	<2.39
BLC-2	7/07	Fillet	100	20	5/F	59.9	<2.35	<2.35	<2.35*	2.49	<2.35	<2.35
BLC-3	7/07	Fillet	109	19	5/F	53.3	<4.84	<2.45	<2.45*	2.47	<2.45	<2.45
BLC-4	7/07	Fillet	108	20	5/F	33.6	<2.49	<4.64	<2.49	<2.49	<2.49	<2.49
BLC-5	7/07	Fillet	105	19	5/F	42.9	<2.34	<2.34	<2.34	<2.34	<2.34	<2.34
<i>Northern Pike</i>												
NOP-1	7/07	Fillet	2233	70	6/M	71.1	<2.49	<2.49	<2.49	3.08	2.64	<2.49
NOP-2	7/07	Fillet	1680	64	5/M	71.9	<2.50	<2.50	<2.50	3.04	<2.50	<2.50
NOP-3	7/07	Fillet	NA	70	6/J	62.8	<2.48	<2.48	<2.48	2.73	2.56	<2.48
<i>Yellow Perch</i>												
YEP-comp	7/07	Fillet				41.6	<2.36	<2.36	<2.36	<2.36	<2.36	<2.36

Prior (Upper) Lake Fish PFC analysis												
Species & Sample ID	Sample Date	Tissue	Wt (g)	Ln (cm)	Age/sex (yrs)	PFOS ng/g (ppb)	PFOA ng/g (ppb)	PFBA ng/g (ppb)	PFOSA ng/g (ppb)	PFDA ng/g (ppb)	PFUnA ng/g (ppb)	PFDoA ng/g (ppb)
<i>Bluegill</i>												
BG-2	8/23/07	Fillet	29	12	3/M	5.25	<2.46	<2.46	<2.46	<2.46	<2.46	<2.46
BG-4	8/23/07	Fillet	27	11	2/F	<4.95	<2.48	<2.48	<2.48	<2.48	<2.48	<2.48
BG-6	8/23/07	Fillet	41	13	3/F	<4.81	<2.40	<2.40	<2.40	<2.40	<2.40	<2.40
BG-8	8/23/07	Fillet	48	13	3/F	<5.00	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50
BG-10	8/23/07	Fillet	85	16	5/M	<4.98	<2.49	<2.49	<2.49	<2.49	<2.49	<2.49
BG-comp	8/23/07	Fillet				<4.98	<2.49	<2.49	<2.49	<2.49	<2.49	<2.49
<i>Largemouth Bass</i>												
LMB-1	8/23/07	Fillet	576	33	5/M	<4.90	2.8	<2.45	<2.45*	<2.45	<2.45	<2.45
LMB-2	8/23/07	Fillet	653	35	6/F	6.14	<2.49	<19.6	<2.49*	2.62	<2.49	<2.49
LMB-3	8/23/07	Fillet	503	32	5/M	<4.93	<2.46	<2.46	<2.46*	<2.46	<2.46	<2.46
LMB-4	8/23/07	Fillet	370	31	5/F	<4.76	<2.38	<2.38	<2.38*	<2.38	<2.38	<2.38
LMB-5	8/23/07	Fillet	744	37	7/F	<4.95	<2.48	<2.48	<2.48*	<2.48	<2.48	<2.48

Red Rock Lake Fish PFC analysis												
Species & Sample ID	Sample Date	Tissue	Wt (g)	Ln (cm)	Age/sex (yrs)	PFOS ng/g (ppb)	PFOA ng/g (ppb)	PFBA ng/g (ppb)	PFOSA ng/g (ppb)	PFDA ng/g (ppb)	PFUnA ng/g (ppb)	PFDoA ng/g (ppb)
<i>Bluegill</i>												
BG-6	8/17/07	Fillet	5	10	2/J	42	<2.40	<2.40	<2.40	<2.40	<2.40	<2.40
BG-7	8/17/07	Fillet	43	13.9	4/J	32.7	<2.48	<2.48	<2.48	<2.48	<2.48	<2.48
BG-8	8/17/07	Fillet	61	15.2	5/M	42.2	<2.43	<2.43	<2.43	<2.43	<2.43	<2.43
BG-9	8/17/07	Fillet	130	18.2	7/M	58.3	<2.45	<2.45	<2.45	<2.45	<2.45	<2.45
BG-10	8/17/07	Fillet	57	14	4/F	29.2	<2.44	<2.44	<2.44	<2.44	<2.44	<2.44
BG-comp	8/17/07	Fillet				35.2	<2.38	<3.02	<2.38	<2.38	<2.38	<2.38
<i>Black Crappie</i>												
BLC-1	8/17/07	Fillet	81	17	4/F	79.9	<2.48	<2.48	<2.48	2.73	<2.48	<2.48
BLC-2	8/17/07	Fillet	102	20	5/F	97.1	<2.48	<2.48	<2.48	3.07	<2.48	<2.48
BLC-3	8/17/07	Fillet	149	21	6/M	153	<2.49	<2.49	<2.49	3.69	<2.49	<2.49
BLC-4	8/17/07	Fillet	283	27	8/F	115	<2.43	<2.43	<2.43	3.62	<2.43	<2.43
BLC-5	8/17/07	Fillet	122	19	5/F	68.6	<2.49	<2.49	<2.49	2.95	<2.49	<2.49
<i>Largemouth Bass</i>												
LMB-1	8/17/07	Fillet	666	38	7/M	85.7	<2.76	<2.42	<2.42*	2.67	<2.42	<2.42
LMB-2	8/17/07	Fillet	527	33	5/F	60.6	<2.60	<2.44	<2.44*	2.69	<2.44	<2.44
LMB-3	8/17/07	Fillet	566	33	5/J	64.5	<2.46	<2.46	<2.46*	3.22	<2.46	<2.46
LMB-4	8/17/07	Fillet	591	33	5/F	57.4	<2.48	<2.48	<2.48*	<2.48	<2.48	<2.48
LMB-5	8/17/07	Fillet	716	36	7/M	74.4	<3.99	<2.33	<2.33*	3.07	<2.33	<2.33

Sarah Lake Fish PFC analysis												
Species & Sample ID	Sample Date	Tissue	Wt (g)	Ln (cm)	Age/sex (yrs)	PFOS ng/g (ppb)	PFOA ng/g (ppb)	PFBA ng/g (ppb)	PFOSA ng/g (ppb)	PFDA ng/g (ppb)	PFUnA ng/g (ppb)	PFDoA ng/g (ppb)
<i>Bluegill</i>												
BG-3	7/16/07	Fillet	70	17	6/F	6.12	<2.48	<2.48	<2.48	<2.48	<2.48	<2.48
BG-4	7/16/07	Fillet	86	18	7/M	6.21#	<2.49	<2.49	<2.49	<2.49	<2.49	<2.49
BG-6	7/16/07	Fillet	74	17	6/F	7.97	<2.49	<2.49	<2.49	<2.49	<2.49	<2.49
BG-7	7/16/07	Fillet	10	7	1/J	8.51	<2.43	<2.43	<2.43	<2.43	<2.43	<2.43
BG-9	7/16/07	Fillet	15	9.2	1/J	<5.00	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50
BG-comp	7/16/07	Fillet				<4.90	<2.45	<2.45	<2.45	<2.45	<2.45	<2.45
<i>Black Crappie</i>												
BLC-1	7/16/07	Fillet	NA	21	6/F	<4.95	<2.48	<2.48	<2.48	<2.48	<2.48	<2.48
BLC-2	7/16/07	Fillet	NA	20	5/M	<5.00	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50
BLC-3	7/16/07	Fillet	NA	24	7/F	<4.83	<2.42	<2.42	<2.42	<2.42	<2.42	<2.42
BLC-4	7/16/07	Fillet	NA	20	5/M	<4.76	<2.38	<9.45	<2.38	<2.38	<2.38	<2.38
BLC-5	7/16/07	Fillet	NA	21	6/M	<4.93	<2.46	<2.46	<2.46	<2.46	<2.46	<2.46
<i>Northern Pike</i>												
NOP-1	7/16/07	Fillet	3440	70.7	6/F	7.88	<2.64	<2.45	<2.45	<2.45	<2.45	<2.45
NOP -2	7/16/07	Fillet	4052	85	7/F	10.8	<2.49	<2.49	<2.49	<2.49	<2.49	<2.49
NOP -2(dup)		Fillet				14.4	<2.43	<2.43	<2.43	<2.43	<2.43	<2.43
NOP -3	7/16/07	Fillet	3821	85	8/F	13.6	<2.45	<2.45	<2.45	<2.45	<2.45	<2.45
NOP -4	7/16/07	Fillet	3229	81.5	7/F	7.45	<2.42	<2.42	<2.42	<2.42	<2.42	<2.42
NOP -5	7/16/07	Fillet	1757	66	5/M	9.6	<2.39	<2.39	<2.39	<2.39	<2.39	<2.39

Silver Lake Fish PFC analysis												
Species & Sample ID	Sample Date	Tissue	Wt (g)	Ln (cm)	Age/sex (yrs)	PFOS ng/g (ppb)	PFOA ng/g (ppb)	PFBA ng/g (ppb)	PFOSA ng/g (ppb)	PFDA ng/g (ppb)	PFUnA ng/g (ppb)	PFDaA ng/g (ppb)
<i>Bluegill</i>												
BG-3	5/4/07	Fillet	64	16	5/M	24	<2.40	<2.40	<2.40	<2.40	3.38	<2.40
BG-4	5/4/07	Fillet	38	13	3/F	19.6	<2.43	<2.43	<2.43	<2.43	2.53	<2.43
BG-5	5/4/07	Fillet	36	13	3/F	24.4#	<2.42	<2.42	<2.42	<2.42	<2.42	<2.42
BG-7	5/4/07	Fillet	43	14	4/F	31.3	<2.48	<2.48	<2.48	<2.48	<2.48	<2.48
BG-9	5/4/07	Fillet	32	13	3/F	21.4	<2.42	<2.42	<2.42	<2.42	<2.42	<2.42
BG-comp	5/4/07	Fillet				33.7	<2.44	<2.44	<2.44	<2.44	<2.44	2.89
<i>Black Crappie</i>												
BLC-1	5/4/07	Fillet	69	16	5/F	26.6#	<2.46	<2.46	<2.46	2.92	<2.46	<2.46
BLC-4	5/4/07	Fillet	63	17	4/M	36.6	<2.48	<2.48	<2.48	3.39	<2.48	3.38
BLC-6	5/4/07	Fillet	67	18	5/M	45	<2.49	<2.49	<2.49	4.52	<2.49	2.89
BLC-7	5/4/07	Fillet	67	18	5/M	28.6	<2.50	<2.50	<2.50	3.88	3.11	3.05
BLC-10	5/4/07	Fillet	296	27	8/F	29.3#	<2.43	<2.43	<2.43	3.77	3.08	<2.43
BLC-10(dup)						26.2	<2.44	<2.44	2.65	<2.44	<2.44	<2.44
BLC-comp	5/4/07	Fillet				34.9	<2.45	<2.45	<2.45	<2.45	<2.45	<2.45
BLC-comp(dup)						33.5	<2.48	<2.48	<2.48	<2.48	<2.48	<2.48
<i>Walleye</i>												
WAE-1	5/4/07	Fillet	453	50	9/M	10.2	<2.40	<4.84	2.71	<2.40	<2.40	<2.40
WAE-1(dup)						10.8	<2.42	<2.42	4.2	<2.42	<2.42	<2.42
WAE-2	5/4/07	Fillet	486	52	10/M	18.8	<2.44	<2.44	4.65	2.8	2.85	<2.44
WAE-3	5/4/07	Fillet	371	27	4/M	10.5	<2.49	<2.49	5.31	<2.49	<2.49	<2.49
WAE-4	5/4/07	Fillet	1200	46	8/M	26.6	<2.33	<2.33	4.82	2.99	2.49	2.96

Tanners Lake Fish PFC analysis												
Species & Sample ID	Sample Date	Tissue	Wt (g)	Ln (cm)	Age/sex (yrs)	PFOS ng/g (ppb)	PFOA ng/g (ppb)	PFBA ng/g (ppb)	PFOSA ng/g (ppb)	PFDA ng/g (ppb)	PFUnA ng/g (ppb)	PFDaA ng/g (ppb)
<i>Bluegill</i>												
BG-1	6/12/07	Fillet	89	17	6/M	61.1#	<2.46	<2.46	<2.46	<2.46	<2.46	<2.46
BG-2	6/12/07	Fillet	32	12.5	3/F	87#	<2.30	<2.30	<2.30	<2.30	<2.30	<2.30
BG-5	6/12/07	Fillet	93	18	7/F	56.6	<2.48	<2.48	<2.48	<2.48	<2.48	<2.48
BG-7	6/12/07	Fillet	89	16.5	6/F	70.4	<2.44	<2.44	<2.44	<2.44	<2.44	<2.44
BG-10	6/12/07	Fillet	12	10	2/J	105	<2.49	<2.49	<2.49	4.36	<2.49	<2.49
BG-comp	6/12/07	Fillet				55	<2.44	<2.59	<2.44	<2.44	<2.44	<2.44
<i>Black Crappie</i>												
BLC-1	6/12/07	Fillet	69	18	4/M	265	<2.45	<2.45	<2.45*	6.3	<2.45	<2.45
BLC-2	6/12/07	Fillet	63	15	3/M	75.9	<2.46	<2.46	<2.46	<2.46	<2.46	<2.46
BLC-3	6/12/07	Fillet	56	18	4/F	91.2	<2.38	<3.96	<2.38	2.82	<2.38	<2.38
BLC-4	6/12/07	Fillet	80	18.5	4/M	94.6	<2.39	<2.39	<2.39	<2.39	<2.39	<2.39
BLC-5	6/12/07	Fillet	56	17	4/F	64	<2.81	<2.40	<2.40	<2.40	<2.40	<2.40
<i>Largemouth Bass</i>												
LMB-1	6/12/07	Fillet	378	NA	4/F	96.5	<2.43	<3.18	<2.43	6.05	4.62	4.11
LMB-2	6/12/07	Fillet	619	NA	5/F	75.7	<2.44	<2.44	<2.44	4.86	4.42	8.37
LMB-3	6/12/07	Fillet	576	35	6/F	76.6	<2.39	<2.39	<2.39	3.56	4.73	3.4
LMB-4	6/12/07	Fillet	823	37	7/M	74.9	<2.44	<2.44	<2.44	3.44	<2.44	4.2
LMB-5	6/12/07	Fillet	1570	50	12/F	74.1	<2.56	<2.56	<2.56*	3.33	<2.56	<2.56

St. Croix River Fish PFC analysis												
Species & Sample ID	Sample Date	Tissue	Wt (g)	Ln (cm)	Age/sex (yrs)	PFOS ng/g (ppb)	PFOA ng/g (ppb)	PFBA ng/g (ppb)	PFOSA ng/g (ppb)	PFDA ng/g (ppb)	PFUnA ng/g (ppb)	PFDaA ng/g (ppb)
<i>Bluegill</i>												
BG-3	7/19/07	Fillet	86	15.5	5/F	<4.83	<2.42	<2.42	<2.42	<2.42	<2.42	<2.42
BG-5	7/19/07	Fillet	83	14.5	4/F	33.1	<2.45	<2.45	<2.45	<2.45	<2.45	<2.45
BG-7	7/19/07	Fillet	122	18.5	7/M	<4.95	<2.48	<2.48	<2.48	<2.48	<2.48	<2.48
BG-8	7/19/07	Fillet	76	15	4/M	22.3	<2.40	<2.40	<2.40	<2.40	<2.40	<2.40
BG-10	7/19/07	Fillet	80	15	4/M	13.1	<2.44	<2.65	<2.44	<2.44	<2.44	<2.44
BG-comp	7/19/07	Fillet				12	<2.42	<2.42	<2.42	<2.42	<2.42	<2.42
BG-comp(dup)						16.4	<2.46	<2.46	<2.46	<2.46	<2.46	<2.46
<i>Walleye</i>												
WAE-1	7/19/07	Fillet	670	45	8/M	8.34	<2.45	<3.85	<2.45*	<2.45	<2.45	<2.45
WAE-2	7/19/07	Fillet	695	44	7/M	13.8	<2.35	<2.35	<2.35*	<2.35	<2.35	<2.35
WAE-3	7/19/07	Fillet	641	42	6/M	12	<2.42	<2.42	<2.42*	<2.42	<2.42	<2.42
WAE-4	7/19/07	Fillet	919	48	9/M	40.2	<2.42	<2.42	<2.42*	<2.42	<2.42	<2.42
WAE-5	7/19/07	Fillet	890	48	9/M	12.7	<2.49	<2.49	<2.49	<2.49	<2.49	<2.49
<i>White Bass</i>												
WHB-1	7/19/07	Fillet	403	34	5/F	81.8	<2.50	<2.50	<2.50	2.63	<2.50	<2.50
<i>Smallmouth Bass</i>												
SMB-1	7/19/07	Fillet	573	35	3/M	12.3	<2.29	<2.29	<2.29	<2.29	<2.29	<2.29
SMB-2	7/19/07	Fillet	730	38	4/M	29.1	<2.45	<2.45	<2.45	<2.45	<2.45	<2.45
SMB-2(dup)						31.4	<2.22	<2.22	<2.22	<2.22	<2.22	<2.22
SMB-3	7/19/07	Fillet	425	30	1/M	<4.90	<2.45	<2.45	<2.45	<2.45	<2.45	<2.45
SMB-4	7/19/07	Fillet	286	29	1/M	5.44	<2.33	<2.33	<2.33	<2.33	<2.33	<2.33
SMB-5	7/19/07	Fillet	252	27	1/M	11.2	<2.48	<2.48	<2.48	<2.48	<2.48	<2.48

Mississippi River Brainerd area Fish PFC analysis												
Species & Sample ID	Sample Date	Tissue	Wt (g)	Ln (cm)	Age/sex (yrs)	PFOS ng/g (ppb)	PFOA ng/g (ppb)	PFBA ng/g (ppb)	PFOSA ng/g (ppb)	PFDA ng/g (ppb)	PFUnA ng/g (ppb)	PFDoA ng/g (ppb)
<i>Bluegill</i>												
BG-1	8/13/07	Fillet	50	14	4/J	7.38	<2.44	<2.47	<2.44*	<2.44	<2.44	<2.44
BG-2	8/13/07	Fillet	59	13.3	3/F	12.3	<2.45	<2.45	<2.45*	<2.45	<2.45	<2.45
<i>Walleye</i>												
WAE-1	8/13/07	Fillet	225	31	5/J	9.42	<2.35	<2.35	<2.35*	<2.35	<2.35	<2.35
WAE-2	8/13/07	Fillet	625	43	7/F	8	<2.48	<2.48	<2.48*	<2.48	<2.48	<2.48
WAE-3	8/13/07	Fillet	325	32	5/F	7.69	<2.46	<2.46	<2.46*	<2.46	<2.46	<2.46
WAE-4	8/13/07	Fillet	1425	49	9/M	10.4	<2.42	<2.42	<2.42*	<2.42	<2.42	<2.42
WAE-5	8/13/07	Fillet	1850	54	11/M	8.75	<2.35	<2.35	<2.35*	<2.35	<2.35	<2.35
WAE-5(dup)						8.99	<2.43	<8.25	<2.43*	<2.43	<2.43	<2.43
<i>Northern Pike</i>												
NOP-1	8/13/07	Fillet	301	33	3/J	7.15	<2.35	<2.35	<2.35*	<2.35	<2.35	<2.35
NOP-2	8/13/07	Fillet	1050	51	4/F	6.29	<2.46	<2.46	<2.46*	<2.46	<2.46	<2.46
NOP-3	8/13/07	Fillet	1450	54	4/F	7.62	<2.27	<2.27	<2.27*	<2.27	<2.27	<2.27
<i>Smallmouth Bass</i>												
SMB-1	8/13/07	Fillet	1275	44	6/F	12.5	<2.44	<3.29	<2.44*	<2.44	<2.44	<2.44
SMB-2	8/13/07	Fillet	1300	39	4/M	12.1	<2.27	<2.27	<2.27*	<2.27	<2.27	<2.27
SMB-3	8/13/07	Fillet	900	36	3/M	11.3	<2.33	<2.33	<2.33*	<2.33	<2.33	<2.33
SMB-4	8/13/07	Fillet	1850	41	5/M	8.82	<2.43	<2.43	<2.43*	<2.43	<2.43	<2.43
SMB-5	8/13/07	Fillet	225	23	2/J	18	<2.40	<11.8	<2.92*	<2.40	<2.40	<2.40

< = less than the detection limit; number following this symbol represents the detection limit

* estimated values with a negative bias

estimated values with a positive bias

For further information please contact Paul Hoff 651-296-7799 or Laura Solem 218-529-6254.

Samples were analyzed for the 13 different perfluorochemicals listed.

			CAS #
PFBA	C-4	perfluorobutanoic acid	375-22-4
PFBS	C-4	perfluorobutane sulfonate	375-73-5
PFPeA	C-5	perfluoropentanoic acid	2706-90-3
PFHxA	C-6	perfluorohexanoic acid	307-24-4
PFHxS	C-6	perfluorohexane sulfonate	355-46-4
PFHpA	C-7	perfluoroheptanoic acid	375-85-9
PFOA	C-8	perfluorooctanoic acid	335-67-1
PFOS	C-8	perfluorooctane sulfonate	1763-23-1
PFOSA	C-8	perfluorooctane sulfonamide	754-91-6
PFNA	C-9	perfluorononanoic acid	375-95-1
PFDA	C-10	perfluorodecanoic acid	335-76-2
PFUnA	C-11	perfluoroundecanoic acid	
PFDoA	C-12	perfluorododecanoic acid	307-55-1