

Final Study Plan
for the
2010 Biological and Water Quality Survey
of the
Ottawa River Basin

Allen, Hardin, and Putnam Counties, Ohio

June 18, 2010

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Background

The Ottawa River was last comprehensively surveyed in 1996. That survey documented non-attainment of the Warmwater Habitat (WWH) or Modified Warmwater Habitat (MWH) designated aquatic life use at 63 percent of the sampled reaches. Most of the 17 percent of full attainment of WWH reaches were upstream or well downstream from Lima in the lower reaches. Ammonia, nutrients, organic enrichment, and pathogens were the leading causes (75%) of impairment in the basin. The major sources were industrial and municipal point sources, combined sewer overflows (CSOs), and sanitary sewer overflows (SSOs). The greatest declines in the biological community were noted in segments within and downstream, from the Lima WWTP, an oil refinery, a nitrogen fertilizer plant, and CSOs with very high stressor and exposure indicator levels.

Sentinel Sites

To aid in the development of a TMDL model(s), sentinel sites have been established as noted in site list. At each sentinel site, samples are collected monthly beginning prior to the more encompassing survey that starts on June 15th. The purpose of the sentinel sites is to establish a baseline of water chemistry values under varying flow conditions. Stream stage is to be measured to the nearest hundredth of a foot as given by the water line against a designated bridge piling or abutment. Sampling events at sentinel sites should cover the range of stream flow from the 10th to 90th percentiles.

Aquatic Life Use Designations

Several streams (named and unnamed) within the study area have aquatic life use designations made prior to standardized approaches to the collection of physical habitat and biological samples. Consequently their aquatic life use designations are unverified. The Ohio EPA is obligated to review, evaluate, or recommend (where appropriate) beneficial uses prior to initiating any permitting actions to a water body. Several streams with unverified uses will be sampled as to verify or recommend an aquatic life use.

NPDES Permitted Facilities

The largest permitted dischargers in the Ottawa River basin are in Lima: the Lima WWTP, the Husky Refinery, and PCS Nitrogen plants. These dischargers will be evaluated, as well as smaller WWTPs around the basin. The site tables note evaluation of dischargers at specific sample sites (Tables 1 and 2).

Objectives

Specific objectives of this study are to:

- 1) evaluate the physical habitat, surface water, and sediment quality, and the biological integrity of the Ottawa River basin study area;

- 2) assess impacts from municipal and industrial wastewater discharges, nonpoint sources of pollution, and habitat alterations;
- 3) determine attainment status of aquatic life and non-aquatic life use designations, verify uses if not verified, and recommend changes where appropriate; and
- 4) compare results of this survey with historical results to assess changes in water quality and biological integrity.

Total Maximum Daily Load (TMDL)

Information collected as part of this survey will support TMDL development for the study area. The objectives of the TMDL process are to estimate pollutant loads from the various sources within the basin, define or characterize allowable loads to support beneficial uses, and to allocate pollutant loads among different pollutant sources through appropriate controls (e.g., NPDES permitting, storm water management, 319 proposals, NPS controls or other abatement strategies). The components of the TMDL process supported by this survey are primarily the identification of impaired waters, verification (and redesignating if necessary) of beneficial use designations, gathering ambient information that will factor into the wasteload allocation, and ascribing causes and sources of use impairment. These data are necessary precursors to the development of effective control or abatement strategies (e.g., NPDES permitting, storm water management, 319 proposals, NPS controls or other abatement strategies).

Special Issues

Selenium

Based on information reported in the 1996 TSD, higher selenium concentrations and biological effects were associated and noted in segments downstream from the discharge source (refinery). Selenium concentrations (ambient and downstream from sources) and effects during this survey will be noted and have a bearing on allowable selenium concentrations instream and discharge limits, particularly for Husky Refinery who is applying for a variance or change in selenium discharge concentrations.

Contacts

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Hardin County (Kenton)
Sheriff Keith Everhart
419-673-1268
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Sheriff James Beutler
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Hospitals

Hardin Memorial Hospital
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Lima Memorial Health System
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Geo-Referenced Site Labels

The sites listed in the study plan tables are coded with STORET station IDs. These STORET IDs link data across several tables. They must be included on all field, lab and sample sheets and reported with all data results. Because the ECOS database needs to be maintained until the transition to EA3 is complete, and because various tables in ECOS lack a field for STORET IDs, the river mile, in concert with the river code, acts as the key relational field; ergo, the **EXACT RIVER MILE** listed in the study plan table must accompany all field, sample and lab sheets, and be reported with all results. If for some reason you sample at a location other than the one listed in the study plan, and that location is a trivial distance away from the one listed in the table and is fully representative of the STORET station, use the river mile listed in the study plan, and simply record the location information separately. An exact river mile can be assigned later to an Absolute Location Point (ALP) if warranted. If the location is not representative of the site listed on the study plan due to distance or a confounding factor, it should probably not be sampled, but if it is, it should be separated as a new station.

Attachments

Table 1. Sampling locations for the 2010 biological and water quality survey of the Ottawa River Basin – mainstem sites.

Table 2. Sampling locations for the 2010 biological and water quality survey of the Ottawa River Basin – tributary sites.

KEY TO SAMPLE CODES

F	Fish assessment
M	Macroinvertebrate quantitative assessment
Mq	Macroinvertebrate qualitative assessment
D	Diel D.O. monitoring with sondes
C	Chemical assessment
Sed	Sediment samples (if present)
O	Organics analysis
E	<i>E. coli</i> bacteria sampling
SWAP	Surface water assessment for public water supply beneficial use
Q	Qualitative Habitat Evaluation Index (QHEI)

Table 1. Sampling locations for the 2010 biological and water quality survey of the Ottawa River Basin – mainstem sites.

Sample Codes	Location Description	Station Code	Basin Code	River Mile	Drain Area	HUC 12	Eco-region	County	Aq. Life Use	Lat	Long.	COMMENTS	Quad.
Sed,C,F, M,D,E	OTTAWA R. UPST. LIMA @ THAYER RD. (REF.) (SENTINEL in bold)	500270	04-200-000	45.97	99.0	04100007 70 06	ECBP	ALLEN	WWH	40.7656	-84.0131	Also D.O. (sonde), sed., ref. site data	Cairo
F,M	OTTAWA R. E OF LIMA @ FETTER RD.	500230	04-200-000	44.26	102.0	04100007 70 06	ECBP	ALLEN	WWH	40.7569	-84.0372	stay in lotic reach Ust. toward golf course 200-250 yds.	Cairo
Sed	OTTAWA R. E OF LIMA, UPST. DAM, ADJ. LIMA RESERVOIR	204307	04-200-000	43.60	103.0	04100007 70 06	ECBP	ALLEN	WWH	40.7533	-84.0472	Chem. & required Water intake measures (pest.), Sed.	Cairo
F,M,D,S WAP,C	OTTAWA R. DST. METZGER RD. DAM, DST. LIMA RESERVOIR	P04W23	04-200-000	43.45	103.0	04100007 70 06	ECBP	ALLEN	WWH	40.7514	-84.0506	Biology. Dsr. Dam & water intake	Cairo
C,D,F,M	OTTAWA R. UPST. LIMA, DST. ROUSH RD.	P04S26	04-200-000	42.30	122.0	04100007 70 06	ECBP	ALLEN	WWH	40.7478	-84.0711	Walk dst. to free-flowing stream	Lima
E,C,D,F, M	OTTAWA R. AT LIMA, UPST. SCHOONOVER PARK @ SUGAR ST.	P04K04	04-200-000	41.16	125.0	04100007 70 06	ECBP	ALLEN	WWH	40.7481	-84.0894	Chemistry, D.O., Sed., if biol.samples ust. then code P04S41 Historical site ust.RM 41.3 (15006)	Lima
C,D,F,M, E	OTTAWA R. AT LIMA, DST. Lovers Lane DAM (Elm St. Dam Pool), DST. LOVERS LANE CSO (tailwaters)	P04K03	04-200-000	40.04	126.0	04100007 70 06	ECBP	ALLEN	WWH	40.7400	-84.0950	Elm Street Dam pool - chem sample @ Bellefontaine St., bug site ust Market/Bellefontaine St. tailwaters, fish in tailwaters @ pool	Lima
C,D,F,M, E	OTTAWA R. AT LIMA at/ust. CENTRAL AVE. and RR bridge and dst. Elm St. dam tailwaters (riverine reach)	P04W08	04-200-001	39.58	127.0	04100007 70 06	ECBP	ALLEN	WWH	40.7367	-84.1009	Elm Street tailwaters short flowing reach	Lima
Sed,C,D, F,M,E	OTTAWA R. AT LIMA @ COLLETT ST. (in Erie RR /Collett St. Dam Pool that extends above Collett St.)	P04S14	04-200-000	38.63	128.0	04100007 70 06	ECBP	ALLEN	WWH	40.7319	-84.1192	Biol.,Chem., Datasonde,sed., Collett St. dam pool extends to RR dam thru Faurot Park - Datasonde toward middle to lower end	Lima
C,D,F,M	OTTAWA R. UPST. LIMA WWTP @ ROAD DST. Erie RR DAM	P04P19	04-200-000	37.91	129.0	04100007 70 06	ECBP	ALLEN	WWH	40.7242	-84.1267	ust. Lima WWTP samples - everything including datasonde	Cridersville
Sed,C,D, F,M	OTTAWA R. AT LIMA, DST. LIMA WWTP	P04S30	04-200-000	37.47	130.0	04100007 70 06	ECBP	ALLEN	WWH	40.7228	-84.1333	dst. Lima WWTP samples	Cridersville
C,O	HUSKY REFINERY 001 OUTFALL TO OTTAWA R.	P04S10	04-200-000	37.11	131.0	04100007 70 06	ECBP	ALLEN	UNDES	40.7196	-84.1371	Chem. only - 001;	Cridersville
Sed,C,O, D,F,M	OTTAWA R. UPST PCS NITROGEN, DST HUSKY REFINERY	P04S09	04-200-000	37.00	131.0	04100007 70 06	ECBP	ALLEN	WWH	40.7178	-84.1375	dst. Husky Refinery 001 samples	Cridersville

Sample Codes	Location Description	Station Code	Basin Code	River Mile	Drain Area	HUC 12	Eco-region	County	Aq. Life Use	Lat	Long.	COMMENTS	Quad.
Sed,C,O, D,F,M	OTTAWA R. AT LIMA, ADJ. FORT AMANDA RD. (Dst PCS Nitrogen OUTFALLS)	P04S07	04-200- 000	36.3- 36.0	131.0	04100007 70 06	ECBP	ALLEN	WWH	40.7083	-84.1411	Se and PCS issue (hist. urea/NH3)	Criders- ville
E,C,O,D	OTTAWA R Dst Lima outfalls at Shawnee Rd	P04S28	04-200- 000	35.44	134.0	04100007 70 06	ECBP	ALLEN	WWH	40.7064	-84.1514	Sentinel site (flows)	Criders- ville
F,M	OTTAWA R. DST. LIMA @ WESTFIELD DRIVE (Shawnee Country Club)	P04S06	04-200- 000	34.55	151.0	04100007 70 02	ECBP	ALLEN	WWH	40.7136	-84.1575	RECOVERY (& serves as Ust. Shawnee #2 WWTP)	Criders- ville
C,D, F,M	OTTAWA RIVER AT ELM STREET (DST. SHAWNEE #2 WWTP, Seriff Rd. Landfill)	P04S27	04-200- 000	31.03	155.0	04100007 70 02	ECBP	ALLEN	WWH	40.7369	-84.1803	dst. Shawnee #2 and landfill	Criders- ville
E,C,D,F, M	OTTAWA R. AT ALLENTOWN @ COPUS RD.	P04P01	04-200- 000	29.26	156.0	04100007 70 02	ECBP	ALLEN	WWH	40.7536	-84.1908	Ust. Allentown impoundment / dst. Long Lake / Ambient Recovery from Lima / Recovery Shawnee #2	Elida
C,D,F,M, Sed	OTTAWA R. AT ALLENTOWN @ ST. RT. 81 (in dam pool)	500050	04-200- 000	28.85	160.0	04100007 70 02	ECBP	ALLEN	WWH	40.7550	-84.1947	Dam pool sample to justify removal, biol., Chem., Sed., Datasonde	Elida
C,D,F,M	OTTAWA R. W OF ELIDA @ PIQUAD RD.	P04P32	04-200- 000	25.75	166.0	04100007 70 02	ECBP	ALLEN	WWH	40.7878	-84.2125	Ust. Elida - Biol., Chem., sonde	Elida
C,F,M	OTTAWA R. DST. ELIDA WWTP (Troyer Rd. or adj. Dutch Hollow Rd.)	300939	04-200- 000	24.11	167.0	04100007 70 02	ECBP	ALLEN	WWH	40.8017	-84.2038	Dst. Troyer / Crites Rd. and Dutch Hollow Rd. (Dst. Elida WWTP discharge)	Elida
E,C,D,F, M	OTTAWA R. N OF ELIDA @ NEFF RD.	P04P14	04-200- 000	22.14	194.0	04100007 70 06	ECBP	ALLEN	WWH	40.8253	-84.2053	Dst. Elida (Ambient), dst. Honey Run and Dug Run - chem. biol.	Elida
F,M	OTTAWA R. NW OF GOMER, DST. PIKE RUN (UST. OLD ST. RT. 12)	P04K02	04-200- 000	19.20	215.0	04100007 70 06	ECBP	ALLEN	WWH	40.8572	-84.1975	Dst. Beaver Run, influence of Gomer and Pike Run in Ottawa R. - Biology - elevation line At RM 19.08	Elida
C,D	OTTAWA R. NW OF GOMER @ OLD ST. RT. 12	P04P33	04-200- 000	18.68	216.0	04100007 70 06	ECBP	PUTNAM	WWH	40.8608	-84.1931	Chem. at bridge	Elida
C, E,D,F,M	OTTAWA R. AT RIMER @ ST. RT. 189	P04P15	04-200- 000	15.98	217.0	04100007 70 06	HELP	PUTNAM	WWH	40.8842	-84.2131	Hist. fish sampled upstream adj. SR 189	Kalida
D,F,M	OTTAWA R. N OF RIMER @ CO. RD. R-17	P04K01	04-200- 000	12.75	231.0	04100007 70 06	HELP	PUTNAM	WWH	40.9117	-84.2089	Can possibly sample biology behind Ottawa R. church - past fish RM 13.0 & 12.3	Kalida
C,E,F,M	OTTAWA R. S OF KALIDA @ CO. RD. P (near TR 107)	P04S03	04-200- 000	8.12	239.0	04100007 70 06	HELP	PUTNAM	WWH	40.9469	-84.1889	Hist. fish sampled upstream adj. SR 189	Kalida
C,D,F,M	OTTAWA R. SW of KALIDA at farm field rd. off SR 115	204299	04-200- 000	5.60	305.0	04100007 70 03	HELP	PUTNAM	WWH	40.9683	-84.1906	Dst. Sugar Cr. confluence	Kalida

Sample Codes	Location Description	Station Code	Basin Code	River Mile	Drain Area	HUC 12	Eco-region	County	Aq. Life Use	Lat	Long.	COMMENTS	Quad.
E,C,F,M, Sed	OTTAWA R. AT KALIDA @ U.S. RT. 224	P04W21	04-200- 000	3.67	308.0	04100007 70 03	HELP	PUTNAM	WWH	40.9803	-84.2031	Biology Ust. SR 224	Kalida
C,D,F,M, Sed	OTTAWA R. NEAR KALIDA @ CO. RD. 19	500150	04-200- 000	0.96	351.0	04100007 70 03	HELP	PUTNAM	WWH	40.9900	-84.2267	Dst. Kalida WWTP	Kalida

Table 2. Sampling locations for the 2010 biological and water quality survey of the Ottawa River Basin – tributary sites.

Sample Codes	Ottawa River Tributary Site Location Description	Station Code	Basin Code	River Mile	Drain Area	HUC 12	Eco-region	County	Aq. Life Use	Lat	Long.	COMMENTS	Quad.
C,F,Mq	UT to Hog Creek @ RM 13.71 at TR 50	301042	04-216-001	0.52	8.05	0410000770 01	ECBP	HARDIN	???	40.7619	-83.7428	Unlisted stream, All tribs. but UT UT UT to Hog Cr @ 13.71/ 1.1/0.3 have present/historical reaches ditched or on Petition Ditch Maintenance List	Ada
C,F or Q,Mq	LORD DITCH (<i>Trib. to Hog Creek @ RM 12.8</i>) at CR 50	301041	04-220-000	1.2	6.49	0410000770 01	ECBP	HARDIN	WWH*	40.7616	-83.7652	Listed stream unverified use, upper half on Petition Ditch Maintenance List	Ada
C,F,Mq	HOG CREEK at TR 85	301040	04-216-000	13.42	13.9	0410000770 01	ECBP	HARDIN	MWH	40.7717	-83.7478	Hog Creek incremental drainage area site (3 times upst. DA and < .5 dst. DA), NPS agri. inputs	Ada
E only	HOG CREEK at TR 75	300937	04-216-000	12.03	21.9	0410000770 01	ECBP	HARDIN	MWH	40.7854	-83.7661	E. coli	Ada
C,E,F,M,D	HOG CREEK at CR 65	P04S42	04-216-000	10.77	31.4	0410000770 02	ECBP	HARDIN	MWH	40.7963	-83.7848	Upper portion of Hog Creek ust. Grass Creek and Ada, dst. ASM Dola (CAFO), NPS agri. Inputs	Ada
C,F,M,D	HOG CREEK NEAR ADA at St. Rt. 235 hist C site	500370	04-216-000	8.72	54	0410000770 04	ECBP	HARDIN	MWH	40.7962	-83.8232	Hog Creek dst. Ada (Grass Cr.) at SR 235, dst.No. 28 Ditch & other upper mod. tribs. - Recovery/meeting use?	Ada
C,F,M,D	HOG CREEK at St. Paul Rd. (TR 25) (Hardin Co.)	301006	04-216-000	6.67	58.6	0410000770 04	ECBP	HARDIN	MWH	40.7958	-83.8617	Hog Creek dst. Ada (Grass Cr.), dst.No. 28 Ditch & other upper mod. tribs. - Recovery / meeting use - Hardin Co.?	Ada

Sample Codes	Ottawa River Tributary Site Location Description	Station Code	Basin Code	River Mile	Drain Area	HUC 12	Eco-region	County	Aq. Life Use	Lat	Long.	COMMENTS	Quad.
C,F,M,D	HOG CREEK at Peevee Rd.	500410	04-216-000	3.8	69	0410000770 04	ECBP	ALLEN	WWH	40.7867	-83.9086	Hog Creek in Allen Co. - to assess WWH performance (lingering effects from MWH in Harding Co. upst.),NPS	Beaverdam
E,C,F,M ,D	HOG CREEK N OF LAFAYETTE@ Swaney Rd.	P04P18	04-216-000	0.27	73.7	0410000770 04	ECBP	ALLEN	WWH	40.7708	-83.9517	Hog Creek meeting WWH, instream water quality prior to formation of Ottawa River	Beaverdam
C,F,Mq, D	FITZHUGH DITCH (AKA Ireton Ditch) dst. CR 75 & Airport Rd. toward mouth	301039	04-219-000	0.4	10.1	0410000770 02	ECBP	HARDIN	WWH*	40.7670	-83.7910	Listed stream unverified use, all on Petition Ditch Maintenance List, Dst. from KSM Dola (CAFO)	Ada
F or Q,Mq	No. 28 DITCH at CR 65	301038	04-218-000	0.37	5.88/7.7dst	0410000770 02	ECBP	HARDIN	WWH*	40.7982	-83.7848	Named stream & Unverified use in WQS, NPS agri. inputs	Ada
C,F,Mq, D	GRASS CREEK UPST. ADA WWTP @ Lincoln St. (CR 44)	P04P13	04-217-000	2.57	8.8	0410000770 02	ECBP	HARDIN	WWH*	40.7692	-83.8108	Upstream Ada WWTP and unconfirmed use, mainstem & couple of tribs. on Petition Ditch maintenance	Ada
E,C,F,M q,D	GRASS CREEK DST. ADA WWTP @ Van Atta Rd. (TR 55)	P04K22	04-217-000	1.24	9.5	0410000770 02	ECBP	HARDIN	WWH*	40.7819	-83.8036	Downstream Ada WWTP and unconfirmed use, mainstem on Petition Ditch maintenance	Ada
C,F,Mq, D	L. HOG CREEK at Peevee Rd.	P04P11	04-221-000	3.62	12.1	0410000770 03	ECBP	ALLEN	WWH	40.7656	-83.9086	Dst.Mud Run and upper Little Hog Cr. and tribs., NPS inputs, upst Lafayette WWTP	Beaverdam
C,E,F,M q	L. HOG CREEK dst Lafayette (WWTP) at Swaney Rd.	P04S43	04-221-000	0.64	14.3	0410000770 03	ECBP	ALLEN	WWH	40.7631	-83.9515	Dst. Lafayette WWTP and possible NPS runoff - evaluate conditions	Beaverdam
F,M,D	L. HOG CREEK Dst. Lafayette at St. Rt. 81 near confluence	204312	04-221-000	0.2	22	0410000770 03	ECBP	ALLEN	WWH	40.7678	-83.9550	WQ dst. Lafayette (recovery) and UT @ 0.47 prior to confluence with Hog Creek and formation of Ottawa R.	Beaverdam

Sample Codes	Ottawa River Tributary Site Location Description	Station Code	Basin Code	River Mile	Drain Area	HUC 12	Eco-region	County	Aq. Life Use	Lat	Long.	COMMENTS	Quad.
C,F,Mq	UT to Little Hog Creek @ RM 0.47 Rumbaugh Rd.	301044	04-221-001	0.3	7.79	041000077003	ECBP	ALLEN	???	40.7612	-83.9569	Unlisted stream - high quality tributary	Beaverdam
C,F or Q?,Mq	MUD RUN at Bluffton Bentley Rd.	301043	04-222-000	0.65	6.75	041000077003	ECBP	ALLEN	???	40.7704	-83.8989	Named unverified stream in WQS- bugs & fish can sample nr mouth ust. Peevee Rd. - road crossing for chem.	Beaverdam
C,F,Mq	LOST CREEK E OF LIMA @ Mumaugh Rd.	P04K16	04-214-000	3.56	6.2	041000077005	ECBP	ALLEN	WWH*	40.7419	-84.0322	Lost Cr ust. ambient condition	Lima
C,F,Mq	LOST CREEK AT LIMA @ Fenway Drive	204311	04-214-000	1.7	10	041000077005	ECBP	ALLEN	WWH*	40.7350	-84.0583	Lost Cr at Fenway Dr, dst UT @ 2.64 and lots of housing population	Lima
E,C,F,Mq,D	LOST CREEK AT LIMA @ E High St. (Reservoir Rd.) (Lower Crossing)	P04K15	04-214-000	0.35	17.4	041000077005	ECBP	ALLEN	WWH*	40.7454	-84.0609	Lost Cr near mouth, dst. condition, NPS, E. coli	Lima
C,F or Q,Mq	UT TO LOST CREEK (@ 1.15) AT LIMA at Bryn Mawr Ave.	P04K19	04-214-001	0.62	6	041000077005	ECBP	ALLEN	???	40.7328	-84.0744	UT to Lost Cr, check use, protect dst. use, past spills IF CROSLEY DITCH then in WQS unverified though hist. sample	Lima
C,F,Mq	ZURMEHLY CREEK AT LIMA @ FT. Amanda Rd.	P04W20	04-200-002	0.03	3.3	041000077006	ECBP	ALLEN	WWH	40.7058	-84.1481	Assess ambient condition, hist. spills/kills,stormwater runoff high NH3 from fert. plant (hist.)	Cridersville
C,F,Mq	L. OTTAWA R. adj. Old S Dixie Rd.	301010	04-213-000	5.5	10.9	041000077001	ECBP	ALLEN	WWH	40.6716	-84.1347	Eval. Upper reaches, dst TP WWTP trib. (at RM 5.72), NPS inputs	Cridersville
C,F,Mq	L. OTTAWA R. N OF Cridersville dst WWTP @ FORT SHAWNEE RD.	P04P09	04-213-000	4.45	12	041000077001	ECBP	ALLEN	WWH	40.6675	-84.1510	Dst. Cridersville WWTP trib. (biol. Sample dst.)	Cridersville
F,Mq	L OTTAWA R at Breese Rd.	301005	04-213-000	1.38	13.6	041000077001	ECBP	ALLEN	WWH	40.6863	-84.1687	Eval. Middle reach - looks like good quality	Cridersville
E,C,F,Mq,D	L. OTTAWA R. NEAR LIMA @ FT. AMANDA RD.	500420	04-213-000	0.03	16.4	041000077001	ECBP	ALLEN	WWH	40.7056	-84.1539	Eval. lower reach, CSO input at ~RM 0.48	Cridersville

Sample Codes	Ottawa River Tributary Site Location Description	Station Code	Basin Code	River Mile	Drain Area	HUC 12	Eco-region	County	Aq. Life Use	Lat	Long.	COMMENTS	Quad.
C,F,Mq	SUGAR CREEK at Napoleon Rd.	301002	04-203-000	26.03	6.7	0410000770 01	ECBP	ALLEN	WWH*	40.8162	-83.9759	Eval. Upper reach, NPS inputs (GC) and Cortner Ditch maintenance	Beaverdam
C,F,Mq	SUGAR CREEK at Thayer Rd.	301001	04-203-000	23.85	11.5	0410000770 01	ECBP	ALLEN	WWH*	40.8159	-84.0134	Dst. tribs - one is supposedly on maintenance, NPS inputs	Cairo
C,F,M,D	SUGAR CREEK NEAR LIMA @ STEWART RD.	P04S20	04-203-000	20.05	22.5	0410000770 01	ECBP	ALLEN	WWH*	40.7989	-84.0706	Dst. tribs, NPS inputs	Cairo
C,F,M	SUGAR CREEK N OF LIMA at/dst. Bluelick Rd. (LOWER)	P04K09	04-203-000	18.24	26.1	0410000770 01	ECBP	ALLEN	WWH*	40.7892	-84.0944	Dst. industrial trib., impoundment	Cairo
C,F,M	SUGAR CREEK at Old US Rt. 30 Lincoln Hwy	P04S16	04-203-000	13.41	30	0410000770 01	ECBP	ALLEN	WWH*	40.8314	-84.1342	Ambient, agri. NPS inputs	Elida
C,F,M	SUGAR CREEK at SR 115 ust Vaughnsville	301004	04-203-000	9.27	44.7	0410000770 01	ECBP	Putnam	WWH*	40.8779	-84.1478	Dst. Rattlesnake Cr. confluence, NPS inputs	Kalida
C,F,M	SUGAR CREEK SE OF KALIDA at CR Q	P04S18	04-203-000	3.51	57	0410000770 01	HELP	Putnam	WWH*	40.9331	-84.1681	Ambient, NPS agri. Inputs	Kalida
C,F,M,D	SUGAR CREEK SE OF KALIDA @ CO. RD. 16-O near mouth	P04S02	04-203-000	0.64	64.3	0410000770 01	HELP	Putnam	WWH*	40.9545	-84.1791	Near mouth, NPS agri. Inputs	Kalida
C,F,Mq	RATTLESNAKE CREEK NW of Cairo toward mouth at Hofferbert Rd.	301000	04-204-000	1.74	6.15	0410000770 01	ECBP	ALLEN	WWH*	40.8536	-84.1095	Unconfirmed WWH in WQS and dst. Cairo and NPS agriculture	Cairo
C,F,Mq, D	PLUM CREEK SW (UPST) OF COLUMBUS GROVE at TR 11-R	P04W13	04-201-000	14.92	16.2	0410000770 02	ECBP	Putnam	WWH?	40.9072	-84.0783	In Putnam Co. - Co. Line (RM 15.26) upper Plum Cr. is in ECBP (until 13.0)and not on maintenance until RM 13.9	Columbus Grove
C,F,Mq	PLUM CREEK @ Wayne St just UPST. COLUMBUS GROVE WWTP	P04P03	04-201-000	12.95	18.2	0410000770 02	HELP	Putnam	WWH/ MWH??	40.9239	-84.0625	Ust. Columbus Grove WWTP and NPS urban inputs	Columbus Grove
C,F,Mq	PLUM CREEK DST. COLUMBUS GROVE WWTP @ TWP. RD. 11	P04K07	04-201-000	12.14	18.7	0410000770 02	HELP	Putnam	WWH/ MWH??	40.9288	-84.0721	Dst. Columbus Grove WWTP	Columbus Grove

Sample Codes	Ottawa River Tributary Site Location Description	Station Code	Basin Code	River Mile	Drain Area	HUC 12	Eco-region	County	Aq. Life Use	Lat	Long.	COMMENTS	Quad.
C,F,M,D	PLUM CREEK NW OF COLUMBUS GROVE @ TWP. RD. O	P04W15	04-201-000	8.12	22	0410000770 02	HELP	Putnam	WWH/MWH??	40.9627	-84.1021	Dst. recovery, ambient conditions, NPS inputs	Columbus Grove
C,F,M,D	PLUM CREEK E OF KALIDA @ TWP. RD. M-10	P04W16	04-201-000	4.62	36	0410000770 02	HELP	Putnam	WWH/MWH??	40.9811	-84.1504	Ambient conditions, NPS inputs	Kalida
C,F,M,D	PLUM CREEK NEAR KALIDA @ ST. RT. 114	P04W17	04-201-000	0.19	39.9	0410000770 02	HELP	Putnam	WWH/MWH??	40.9867	-84.2092	Dst. Kalida, near mouth	Kalida
F,Mq, fld chm	SYCAMORE CR.(toward mouth) ust. Searfoss Rd. (Morris Rd.)	301074	04-202-000	0.65	10.6	0410000770 02	ECBP	ALLEN	WWH*	40.8942	-84.0811	Unconfirmed WWH - All Petition Ditch (No Upland Drainage)	Columbus Grove
C,F,Mq	UT to Sycamore Creek @ RM 0.85 ust. Searfoss Rd. (Morris Rd.)	301008	04-202-000	0.2	5.57	0410000770 02	ECBP	ALLEN	WWH*	40.8913	-84.0802	Trib. health dst. from fert. Plant, Unconfirmed WWH - All Petition Ditch (No Upland Drainage)	Columbus Grove
C,F,Mq	UT to Plum Creek @ RM 7.30 at TR O west of CR 13	P04P04	04-201-001	0.41	8.8	0410000770 02	HELP	Putnam	???	40.9628	-84.1120	Unlisted stream, This reach is not on Petition Ditch Maintenance List	Columbus Grove
C,F,Mq	PIKE RUN UPST. AMERICAN BATH WWTP	P04P24	04-208-000	8.21	3.5	0410000770 04	ECBP	ALLEN	MWH	40.7836	-84.1225	Ust American Bath WWTP on Pike Run, check use from "clean and pull" maintenance this last year	Cairo
C,F,Mq	PIKE RUN DST. AMERICAN BATH WWTP at Cole Rd.	301009	04-208-000	7.56	4.5-4.7	0410000770 04	ECBP	ALLEN	MWH	40.7867	-84.1280	Assess dst American Bath WWTP on Pike Run, check use from "clean and pull" maintenance this last year	Cairo
C,F,Mq, D	PIKE RUN NEAR LIMA at State Rd.	510160	04-208-000	4.61	7.7	0410000770 04	ECBP	ALLEN	MWH	40.8170	-84.1483	Ambient conditions, assess use performance after "snag and clean/clear" work last year	Elida
E,C,F,M q,D	PIKE RUN AT GOMER at Lima Gomer Rd.	P04P10	04-208-000	0.84	12.8	0410000770 04	ECBP	ALLEN	MWH	40.8467	-84.1858	Dst. Gomer near mouth, E. coli site	Elida
C,F,Mq, D	DUG RUN @ DUTCH HOLLOW RD.	P04K10	04-210-000	0.19	11	0410000770 02	ECBP	ALLEN	WWH*	40.8107	-84.2040	Unconfirmed WWH & All on Petition Ditch Maintenance List	Elida

Sample Codes	Ottawa River Tributary Site Location Description	Station Code	Basin Code	River Mile	Drain Area	HUC 12	Eco-region	County	Aq. Life Use	Lat	Long.	COMMENTS	Quad.
C,F,Mq	HONEY RUN at Cremeans Rd.	301003	04-209-000	3.58	10.9	0410000770 02	ECBP	ALLEN	WWH*	40.7819	-84.2333	Unconfirmed WWH, ends of tribs. were to be petition ditch list - application pulled	Elida
E,C,F,Mq,D	HONEY RUN at Wapak Rd.	300938	04-209-000	0.9	13	0410000770 02	ECBP	ALLEN	WWH*	40.8099	-84.2160	Unconfirmed WWH	Elida
C,F,Mq	BEAVER RUN at Bussert Rd.	301037	04-200-006	0.51	5.71	0410000770 05	ECBP	ALLEN	WWH*	40.8311	-84.1934	Unconfirmed WWH (upper portion on Petition Ditch Maintenance List)	Elida
C,F,Mq,D	LEATHERWOOD DITCH W OF RIMER at TR 19	301007	04-207-000	0.48	12.7	0410000770 05	HELP	Putnam	WWH*	40.8871	-84.2253	Unconfirmed WWH & All on Petition Ditch Maintenance List	Kalida
C,F,Mq,D	UT to OTTAWA R @ RM 0.7 at TR M 17	300999	04-200-005	0.33	14.1	0410000770 03	HELP	Putnam	???	40.9869	-84.2304	Unlisted stream, Almost all reach on Petition Ditch Maintenance List	Kalida
PROVISIONAL													
Q,Mq, field chem	HOG CREEK at CR 95		04-216-000	14.9	4.51	0410000770 01	ECBP	HARDIN	MWH	40.7590	-83.7288	Upper Hog Creek subwatershed (NPS agri. Inputs) & dst. from Sheldon Farms (CAFO) part on Maint./most not	Dunkirk
Q,Mq, field chem	L. HOG CREEK at Lafayette Ada Rd. and Bentley Bluffton Rd.		04-221-000	4.5	4.03	0410000770 03	ECBP	ALLEN	WWH	40.7614	-83.8993	Upper L. Hog Creek and tribs., NPS inputs	Beaverdam
Q,Mq, field chem	MUD RUN at Lafatette Ada RD.		04-222-000	2.15	4	0410000770 03	ECBP	ALLEN	???	40.7616	-83.8835	Unlisted stream, ONLY STREAM CONT. INTO HARDIN CO. NOT DITCHED (site in E Allen Co.)	Beaverdam
Q,Mq, field chem	HUBER DITCH SE OF BEAVERDAM at PHILLIPS RD.		04-205-000	0.41	4.6	0410000770 01	ECBP	ALLEN	WWH*	40.8228	-83.9375	Unconfirmed WWH listed in WQS	Beaverdam
Q,Mq, field chem	CORTNER DITCH at SUGAR CREEK RD.			0.85	1.83	0410000770 01	ECBP	ALLEN	WWH*	40.8120	-83.9465	Unconfirmed WWH & All on Petition Ditch Maintenance List	Beaverdam

Sample Codes	Ottawa River Tributary Site Location Description	Station Code	Basin Code	River Mile	Drain Area	HUC 12	Eco-region	County	Aq. Life Use	Lat	Long.	COMMENTS	Quad.
Q,Mq, field chem	SYCAMORE CR.ust. SR 65 (Ottawa Rd.)		04-202-000	1.21	4.1	0410000770 02	ECBP	ALLEN	WWH*	40.8908	-84.0742	Unconfirmed WWH - All Petition Ditch (No Upland Drainage) same access - right by other site - at trib. mouth	Columbus Grove
ForQ,M q, fld chm	KESSLER RUN north of Long St and adj. Copus St.		04-211-000	0.65	3.9	0410000770 02	ECBP	ALLEN	WWH*	40.7471	-84.1888	Unconfirmed WWH in WQS	Columbus Grove
ForQ,M q, fld chm	LEATHERWOOD DITCH at Ridge Rd.		04-207-000	5.08	5.88	0410000770 05	ECBP	ALLEN	WWH*	40.8342	-84.2267	if busy get chem. at Leatherwood Rd / Biol. try to sample just dst.adj. Leatherwood Rd (just north)	Elida
ForQ,M q, fld chm	UT to OTTAWA R @ RM 0.7 at US 224		04-200-005	2.38	7.53	0410000770 03	HELP	Putnam	???	40.9617	-84.2385	Unlisted stream, All of this reach on Petition Ditch Maintenance List / will access via house or farm/Chem. alternative TR O-19	Kalida
ForQ,M q, fld chm	UT to OTTAWA R @ RM 0.7 to 1.29 at TR 19		04-200-005	0.5	5.17	0410000770 03	HELP	Putnam	???	40.9689	-84.2261	Unlisted stream, This reach is not on Petition Ditch Maintenance List	Kalida