



***APPENDIX E:
COMPREHENSIVE AQUATIC LIFE USE
AND RECREATIONAL ASSESSMENTS***

Comprehensive Aquatic Life Use and Recreational Use Assessments

Comprehensive aquatic life use and recreational use assessments are made with data collected through IDEM's Probabilistic Monitoring Program.

This report provides IDEM's comprehensive basin aquatic life use assessments, which are based on site-specific assessments using chemical results in combination with fish and macroinvertebrate community data (Table 1). Comprehensive aquatic assessments for each basin were calculated from site-specific assessment results in the following manner:

- Percent attaining = biological assessment results indicating full support (IBI>35 and/or mHab>35) and no corresponding chemical parameter violations;
- Percent not attaining = biological assessment results indicating non-support (i.e. impairment) (IBI<35 and/or mHab<35) and/or corresponding chemical parameter violations.

IDEM uses independent applicability in its comprehensive basin aquatic life use assessments. Therefore, either biological or chemical results indicating impairment were treated as non-supporting in determining attainment for the basin.

Updated comprehensive basin recreational use assessment results are also provided (Table 2) and were calculated using site-specific assessments results in a similar manner.

- Percent attaining = *E. coli* assessment results indicating full support (geometric mean <125 colony forming units per 100 milliliters);
- Percent not attaining = *E. coli* assessment results indicating non-support (i.e. impairment) (geometric mean >125 colony forming units per 100 milliliters);

Percent attainment and percent non-attainment values are calculated by IDEM staff using commands provided by U.S. EPA National Health and Environmental Effects Research Laboratory, Corvallis, Oregon (www.epa.gov/nheerl/arm/analysispages/techinfoanalysis.htm) as well as the R Development Core Team (2005). R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. ISBN 3-900051-07-0, URL <http://www.R-project.org>.

Table 1: Comprehensive basin aquatic life use assessments showing attainment results calculated using the probabilistic monitoring design.

BASIN ASSESSED	TARGET POPULATION ¹	BASIN SIZE (MILES)	DESIGNATED USE ASSESSED	YEAR ASSESSED	DATA USED IN ASSESSMENT	% ATTAINING	% NOT ATTAINING	CONFIDENCE LEVEL (%)	CONFIDENCE INTERVAL (%)
LOWER WABASH RIVER BASIN	05120108 05120109 05120110 05120111 05120113	5306	Aquatic Life Use	2011	Biological Chemical	59%	41%	95% 90%	±17% ±15%
UPPER ILLINOIS RIVER BASIN	07120001 07120002 07120003	3958	Aquatic Life Use	2011	Biological Chemical	42%	58%	95% 90%	±21% ±18%
UPPER WABASH RIVER BASIN	05120101 05120102 05120103 05120104 05120105 05120106 05120107	6632	Aquatic Life Use	2010	Biological Chemical	29%	71%	95% 90%	±13% ±11%
GREAT MIAMI RIVER BASIN	05080001 05080002 05080003	1621	Aquatic Life Use	2009	Biological Chemical	70%	30%	95% 90%	±14% ±12%
WHITE RIVER, EAST FORK BASIN	05120204 05120205 05120206 05120207 05120208	4856	Aquatic Life Use	2009	Biological Chemical	35%	65%	95% 90%	±15% ±13%
WHITE RIVER, WEST FORK BASIN	05120201 05120202 05120203	4275	Aquatic Life Use	2008	Biological Chemical	51%	49%	95% 90%	±17% ±14%
PATOKA RIVER BASIN	05120209	797	Aquatic Life Use	2008	Biological Chemical	28%	72%	95% 90%	±14% ±12%
GREAT LAKES BASIN	04040001 04050001 04100003 04100004 04100005 04100007	4051	Aquatic Life Use	2007	Biological Chemical	42%	58%	95% 90%	±14% ±12%
OHIO RIVER TRIBUTARIES	05090203 05140101 05140104 05140201 05140202	3825	Aquatic Life Use	2007	Biological Chemical	24%	76%	95% 90%	±11% ±9%

¹Target population = 8-digit hydrologic unit area (HUA).

Table 2: Comprehensive recreational use assessments showing attainment results calculated using the probabilistic monitoring design.

BASIN ASSESSED	TARGET POPULATION ¹	BASIN SIZE (MILES)	DESIGNATED USE ASSESSED	YEAR ASSESSED	DATA USED IN ASSESSMENT ²	% ATTAINING	% NOT ATTAINING	CONFIDENCE LEVEL	CONFIDENCE INTERVAL (%)
LOWER WABASH RIVER BASIN	05120108 05120109 05120110 05120111 05120113	4644	Recreational Use	2011	Bacteriological	8.84	91.16	95%	9.03
UPPER ILLINOIS RIVER BASIN	07120001 07120002 07120003	3854	Recreational Use	2011	Bacteriological	23.75	76.25	95%	13.53
UPPER WABASH RIVER BASIN	05120101 05120102 05120103 05120104 05120105 05120106 05120107	6154	Recreational Use	2010	Bacteriological	12.60	87.40	95%	10.55
WHITE RIVER, EAST FORK BASIN	05120204 05120205 05120206 05120207 05120208	4324	Recreational Use	2009	Bacteriological	43.41	56.59	95%	15.76
GREAT MIAMI RIVER BASIN	05080001 05080002 05080003	1448	Recreational Use	2009	Bacteriological	14.13	85.87	95%	11.07
WHITE RIVER, WEST FORK BASIN	05120201 05120202 05120203	3774	Recreational Use	2008	Bacteriological	0.00	100.00	95%	0.00
PATOKA RIVER BASIN	05120209	715	Recreational Use	2008	Bacteriological	33.12	66.88	95%	14.96
GREAT LAKES BASIN	04040001 04050001 04100003 04100004 04100005 04100007	3375	Recreational Use	2007	Bacteriological	2.07	97.93	95%	4.52
OHIO RIVER TRIBUTARIES	05090203 05140101 05140104 05140201 05140202	3277	Recreational Use	2007	Bacteriological	42.22	57.78	95%	15.70

¹Target population = 8-digit hydrologic unit area (HUA).

²Data Used in Assessment: n = 38