



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

BASIN	TARGET POPULATION	BASIN SIZE (MILES) (Updated)	BASIN SIZE (MILES) (Original)	YEAR SAMPLED	YEAR ASSESSED	DATA	% ATTAINING	% NOT ATTAINING	CONFIDENCE LEVEL (%)	CONFIDENCE INTERVAL (%)
GREAT LAKES	04040001; 04050001; 04100003; 04100004; 04100005; 04100007	3560	NA	2010	2013	Biological	18%	82%	95% n=37	+/-11%
						Chemical				
GREAT MIAMI RIVER BASIN	05080001; 05080002; 05080003	1448	NA	2014	2015	Biological	78%	22%	95% n=38	+/-13%
						Chemical				
UPPER WABASH RIVER BASIN	05120101 through 05120107	6155	NA	2015	2016	Biological	56%	44%	95% n=36	+/-16%
						Chemical				
LOWER WABASH RIVER BASIN	05120108 through 05120113	4738	NA	2016	2017	Biological	43%	57%	95% n=37	+/-14%
						Chemical				
WHITE RIVER, WEST FORK BASIN	05120201 through 05120203	3775	NA	2011	2013	Biological	71%	29%	95% n=38	+/-15%
						Chemical				
WHITE RIVER, EAST FORK BASIN	05120204 through 05120208	4325	NA	2013	2014	Biological	60%	40%	95% n=37	+/-15%

BASIN	TARGET POPULATION	BASIN SIZE (MILES) (Updated)	BASIN SIZE (MILES) (Original)	YEAR SAMPLED	YEAR ASSESSED	DATA	% ATTAINING	% NOT ATTAINING	CONFIDENCE LEVEL (%)	CONFIDENCE INTERVAL (%)
						Chemical				
PATOKA RIVER BASIN	05120209	714	NA	2012	2014	Biological	12%	88%	95% n=38	+/-11%
						Chemical				
UPPER ILLINOIS RIVER BASIN	07120001; 07120002; 07120003	3584	NA	2009	2011	Biological	42%	58%	95% n=38	+/-21%
						Chemical				
OHIO RIVER TRIBUTARIES	05090203; 05140101; 05140104; 05140201; 05140202	3707	NA	2005	2007	Biological	24%	76%	95% n=37	+/-11%
						Chemical				

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

BASIN	TARGET POPULATION	BASIN SIZE (MILES) (Updated)	YEAR MONITORED	YEAR ASSESSED	DATA	% ATTAINING	% NOT ATTAINING	CONFIDENCE LEVEL (%)	CONFIDENCE INTERVAL (%)
OHIO RIVER TRIBUTARIES	05090203; 05140101; 05140104; 05140201; 05140202	3707	2010	2012	Bacteriological	15.38%	84.62%	95% n=38	+/-11.47%
UPPER ILLINOIS RIVER BASIN	07120001; 07120002	3584	2009	2011	Bacteriological	23.75%	76.25%	95% n=38	+/-13.53%
PATOKA RIVER BASIN	05120209	714	2012	2014	Bacteriological	44.99%	55.01%	95% n=38	+/-15.82%
WHITE RIVER, EAST FORK BASIN	05120204 through 05120208	4325	2013	2014	Bacteriological	15.00%	85.00%	95% n=38	+/-11.35%
WHITE RIVER, WEST FORK BASIN	05120201 through 05120203	3775	2011	2013	Bacteriological	12.51%	87.49%	95% n=38	+/-10.52%
LOWER WABASH RIVER BASIN	05120108 through 05120113	4738	2016	2017	Bacteriological	12.57%	87.43%	95% n=38	+/-10.54%
UPPER WABASH RIVER BASIN	05120101 through 05120107	6155	2015	2016	Bacteriological	8.99%	91.01%	95% n=38	+/-9.10%
GREAT MIAMI RIVER BASIN	05080001; 05080002; 05080003	1448	2014	2015	Bacteriological	5.16%	94.84%	95% n=38	+/-7.04%
GREAT LAKES BASIN	04040001; 04050001; 04100003; 04100004; 04100005; 04100007	3560	2010	2012	Bacteriological	22.50%	77.50%	95% n=38	+/-13.28%