

Flying Blind: Questions and Answers

Flying Blind takes a critical look at how six Great Lakes states measure water quality, not only for the Great Lakes themselves, but also for inland lakes, rivers, streams, and wetlands. In Clean Water Act terminology the report looks at how these states make “use attainment determinations.”

Q. How much have the states measured?

A. Taken together, Great Lakes states have “assessed” less than 40 percent of all rivers and streams; less than 80 percent of lakes and ponds; and 0 percent of wetlands.

Figuring out exactly how much of the combined hundreds of thousands of stream miles and millions of lake and wetland acres have been measured for water quality is no small task, mainly because each state has a very different take on what “assess” means. Essentially, each state measures water quality very differently. The result is that the EPA numbers and state numbers rarely match. As examples:

- Indiana, Michigan, and Wisconsin assessed more waters than EPA gives those states credit for.
- In Indiana’s case, the state assessed vast watersheds using a random sampling modeling tool. Ironically, even though EPA has held Indiana out as a leader in this regard and encouraged states to do more of this type of modeling, EPA failed to count these assessments toward Indiana’s 2002 totals.
- Illinois assessed fewer water bodies than EPA reports.

The only EPA/State numbers which seem to match up are on wetland acres assessed; in that case EPA and states agree: *zero*.

Q. How well do the states measure their water quality?

A. Comparing one state program to another is like comparing apples and oranges. No single Great Lake state can be held out as having a model program; there are good and bad aspects within every program.

The main reason we can not accurately compare water quality among the states is that states have wildly different Water Quality Standards. This means that states not only define the *uses* of their lakes and streams differently, but they also have very different *criteria* to measure water quality. As examples:

- Wisconsin measures only Aquatic Life Use in rivers and streams, while most other states and EPA measure a broader array of water uses (e.g. Drinking Water, Contact Recreation, Fish Consumption).

- Ohio, although it is a leader at measuring aquatic life and wildlife, does not consider Fish Consumption as a separate use category, and has no criteria to measure whether Ohio waters attain Fish Consumption standards.
- Minnesota, Ohio, and Wisconsin have adopted standards to begin measuring wetland health, but no states have adopted numeric criteria—which allow states to make objective and comparable measurements—for wetlands.
- Wetland standards have been under development in Indiana for several years.

Flying Blind takes a detailed look at three specific water quality areas. First, because millions of anglers enjoy the world-class fishing along the states' rivers, streams, lakes, and ponds, we compared the states' implementation of fish consumption advisories for PCBs and mercury, two toxic pollutants. Next, because EPA has long recognized the importance of biological indicators as a way to assess the overall health of aquatic ecosystems, we compared the states' biocriteria program elements to determine how well the states assess Aquatic Life Use. Lastly, because during the summer months Midwesterners flock to the Great Lakes' shores, we compared pathogen monitoring at Great Lakes beaches.

Q. Are waters fishable?

A. If state-issued fish consumption advisories are any indication, then no Great Lakes state meets the Clean Water Act's "fishable" goal.

All the Great Lakes states have issued fish consumption advice, not only for the Great Lakes basins, but also for inland lakes, rivers, streams, and wetlands. Historically, polychlorinated biphenyls (PCBs) have been the most frequent concern in Great Lakes waters, but dioxins, DDT, and pesticides like chlordane are also of concern. Mercury is of particular concern because it remains largely unregulated.

Each state, through its health department, is responsible for providing the public advice on eating the fish they catch. These Fish Consumption Advisories are inconsistent from state to state, so that anglers on the same body of water are told that it is safe to eat a fish under one state's standards, while they are warned not to eat that same fish under the neighboring state's standards. For example:

- A person fishing along portions of the Wabash and Ohio Rivers, which form the border between Illinois and Indiana, will receive different fish consumption advice depending on which side of the river they fish. Indiana lists advisories for 11 species, while Illinois lists advisories for four species.
- Although there has been some good state, regional, and binational coordination on Great Lakes toxics problems over the years, there is still room for improvement, for example with inconsistent fish consumption advice on Great Lakes waters.

Flying Blind shows examples for Ohio and Michigan anglers who share Lake Erie waters, and then for Wisconsin and Michigan anglers in Lake Michigan's Green Bay.

None of the Great Lakes states has set fish tissue toxics levels in their Water Quality Standards, which means that Fish Consumption Use determinations are highly subjective. Typically, to assess Fish Consumption Use, the states rely—often loosely—on Aquatic Life Use determinations. When states decide whether their waters meet Fish Consumption Use, they should weigh in their fish consumption advisories. Yet, in 2002, only two states, Michigan and Wisconsin, used their statewide mercury fish consumption advisory as a basis for determining that all state waters are impaired for Fish Consumption Use.

- Neither Minnesota nor Ohio used fish advisories at all as a factor in deciding whether their waters meet Fish Consumption Use, despite the fact that both states have issued statewide mercury fish advisories.
- Illinois and Indiana did use certain (site specific) fish advisories to make decisions about whether waters meet Fish Consumption standards, but they did not weigh their statewide mercury fish advisories into those decisions.

If all the Great Lakes states followed Michigan and Wisconsin's common sense approach—which is simply to say that Fish Consumption Use can not be achieved if there is a fish consumption advisory in effect—then practically no water body in the Great Lakes states could be called truly “fishable.”

Q. Do Great Lakes states' waters support aquatic life and wildlife?

A. If all the states set standards similar to Ohio's biological criteria, then the number of waters that would fail to meet the standards would likely double.

Ohio's water quality monitoring and assessment program is viewed as a national leader in the area of biological criteria, which allows that state to accurately measure Aquatic Life Use and make informed decisions about overall ecosystem health. Studies conducted in Ohio in 1995 and 1998 found that half of the state's water bodies determined to be not impaired based on chemical tests were actually impaired based on subsequent biological surveys. Ohio established numeric biological criteria in state rule. When Ohio applies these objective standards, its waters do not make the grade, while the states that apply loose subjective standards report that their waters are just fine.

Q. Are Great Lakes waters swimmable?

A. Some states do not report that their waters are not swimmable even where public health authorities have closed beaches due to high pathogen counts.

EPA has adopted an *E. coli* standard, to measure whether water is safe for human swimming, but the states are not required to use it. The states rely on local health

agencies to test popular swimming lakes and Great Lakes beaches and make decisions about beach closures. The result is a patchwork of state and local standards.

- Only three of six Great Lakes states have made the transition from testing for fecal coliform to *E. coli*, which is considered to be a much better indicator for human health.
- In Illinois and Wisconsin, some local health agencies have adopted their own *E. coli* standards, despite the fact that the state environmental agency has not included it as part of the state Water Quality Standards.
- Michigan, which boasts by far the greatest amount of Great Lakes shoreline of any state, allows people to swim in waters with *E. coli* counts well above EPA's recommended standards.

Different standards mean very different decisions from state to state on whether waters are safe for swimming.

- Illinois and Indiana reported to EPA that contact recreation was impaired at pathogen-contaminated Great Lakes beaches.
- Minnesota and Ohio, although they conducted regular monitoring, did not report to EPA whether their Great Lakes shorelines are swimmable.
- Wisconsin did not make any assessment for Contact Recreation (swimming) along any of its 1,017 miles of shoreline, despite significant evidence of beach closures, including five Wisconsin beaches making it onto EPA's 2002 High Priority Beaches list.

Flying Blind: State-by-State Facts

Illinois

In 2002, Illinois assessed 15,491 (nearly 18 percent) of its 87,110 stream miles. But, EPA double-counted 4,415 of these stream miles in its *National Water Quality Inventory* report to Congress.

Illinois and Indiana give different advice about which fish are safe to eat from portions of the Wabash and Ohio Rivers, which form the border between the two states.

In Illinois, some local health agencies have adopted their own *E. coli* standards, despite the fact that the state environmental agency has not included it as part of the state Water Quality Standards

Illinois lags behind the other Great Lakes states in setting standards to protect wetlands.

Indiana

Generally, Indiana presents an accurate picture of Aquatic Life Use, but has fallen behind in its physical and chemical monitoring efforts.

Using probability-based monitoring (a random sampling modeling tool), Indiana has shown a dramatic increase in the amount of waters it can report as “assessed.” In 2002, the state assessed almost all of its 35,673 by extrapolating site-specific data over vast watersheds. Ironically, even though EPA has held Indiana out as a leader in this regard and encouraged states to do more of this type of modeling, EPA’s database failed to count these assessments. So, in 2002, even though Indiana assessed roughly 35,000 stream miles, EPA reported that the state assessed only 7,548 stream miles.

Wetland standards have been “under development” in Indiana for many years.

Illinois and Indiana give different advice about which fish are safe to eat from portions of the Wabash and Ohio Rivers, which form the border between the two states.

Michigan

Michigan assessed roughly 22,000 of its 49,000 stream miles, and roughly 500,000 of its nearly 900,000 inland lake acres in 2002. Yet, due to data-processing errors, EPA reported that Michigan assessed no waters in 2002.

In 1970, Michigan became the first state to issue a fish advisory.

Michigan’s fish consumption advisories for certain Lake Erie fish are more protective of human health than Ohio’s advisories for those same Great Lake waters. Michigan’s fish

consumption advisories for Green Bay anglers are different from Wisconsin's advisories for those same waters.

Michigan, which boasts by far the greatest amount of Great Lakes shoreline of any state, has pathogen standards (to test for *E. coli*) significantly weaker than EPA's recommended standards.

Minnesota

Minnesota has begun to make headway measuring wetland health, but—like all the Great Lakes states—Minnesota lacks wetland standards to make objective measurements.

Minnesota conducted regular pathogen monitoring of Lake Superior shoreline, but in 2002, it did not report to EPA whether these waters were swimmable. In fact, Minnesota is the only Great Lake state that has failed to report *anything* about water quality along its shores.

Ohio

Ohio's program is a national leader in the area of biological criteria, which allows the state to accurately measure Aquatic Life Use and make informed decisions about overall ecosystem health. In general, Ohio excels at measuring Aquatic Life Use, but falls short in other areas.

Ohio does not include Fish Consumption as a use category, and lacks any criteria to measure whether its waters achieve Fish Consumption Use. This means that decisions on whether Ohio's waters meet fish consumption standards are highly subjective. For example, in past years, Ohio listed all its waters as impaired for fish consumption due to mercury, but in 2002, the state listed none of its waters as impaired for fish consumption, despite having a statewide fish advisory for mercury.

Ohio has adopted standards to begin measuring wetland health. If Ohio strengthens its standards by adopting numeric criteria—which allow states to make objective and comparable measurements—for wetlands, then the state would continue to be a leader in this regard.

Ohio's fish consumption advisories for certain Lake Erie fish are less protective of human health than Michigan's advisories for those same Great Lake waters.

In 2002, state and local health officials in Ohio conducted regular beach monitoring during the swimming season, but the state did not report to EPA whether its Lake Erie shoreline is swimmable.

Wisconsin

In 2002, Wisconsin assessed 24,421 miles of its more than 57,000 stream miles, and 792,301 acres of its 944,000 lake acres. Yet, EPA reports that the state assessed significantly fewer water bodies (15,054 stream miles and 312,688 lake acres).

Wisconsin measures only Aquatic Life Use in rivers and streams, while most other states and EPA measure a broader array of water uses (e.g. Drinking Water, Contact Recreation, Fish Consumption).

Wisconsin's fish consumption advisories for Green Bay anglers are different from Michigan's advisories for those same waters.

Wisconsin has adopted standards to begin measuring wetland health, but, like other states, it has not adopted numeric criteria to make objective and comparable measurements of wetland water quality.

In Wisconsin, some local health agencies have adopted their own *E. coli* standards, despite the fact that the state environmental agency has not included it as part of the state Water Quality Standards.

Wisconsin did not make any assessment for Contact Recreation (swimming) along any of its 1,017 miles of Great Lakes shoreline, despite significant evidence of beach closures, including five Wisconsin beaches making it onto EPA's 2002 High Priority Beaches list.