

Appendix A: Bad Axe - La Crosse River Basin Streams

HOW TO READ THE STREAM TABLES

The following information is included in the stream tables. Unknowns in the tables indicate that we have insufficient data to assess the given stream(s). In the future we hope to provide data on these unassessed waterbodies.

Stream Name: All named streams and some unnamed streams are listed. Stream names are those found on U.S. Geological Survey (USGS) quadrangle maps unless the Wisconsin Geographic Names Council has established a different name. Streams in parentheses indicate a local name for the stream. Unnamed streams are identified by location of the stream mouth as indicated by township, range, and section.

Waterbody Identification Code (WBIC): All waterbodies have been assigned a waterbody identification code by the state to help in identifying streams and stream locations.

Town Range Section at Mouth: Locational information in the form of Township Range Section where the mouth of the listed stream is found.

County: County or counties the stream flows through.

Tributary to: Name of stream or river that the listed stream is tributary to.

Length: The stream length is either the total length of the stream, or the starting and ending mile of the portion of the stream with a specific classification or biological use. The stream mile at the stream mouth is zero ("0") and increases as one moves upstream.

Existing Biological Use: This column indicates the biological use that the stream or stream segment currently supports. This is not a designation or classification; it is based on the current condition of the surface water and the biological community living in that surface water. Information in this column is not designed for, and should not be used for, regulatory purposes. A "U" indicates that the existing use is unknown.

The existing uses are taken from the biological use categories listed below. These categories are defined in NR102(04)(3) under fish and aquatic life uses, and are the same categories used to describe the stream's codified use. A cold water community that supports trout may be indicated by a trout class (I, II, or III) based on the document, *Wisconsin Trout Streams* (DNR Publ. 6-3600[80]). This publication is currently being revised. As a result, some of the stream segments have a different use than that listed in this document.

Existing use is determined through recent surveys and/or through the professional judgment of WDNR Personnel. The approximate length or portion of the stream meeting each of the use classes is indicated in the "Length" column.

COLD Cold Water Community; includes surface waters that are capable of supporting a community of cold water fish and other aquatic life or that serve as a spawning area for cold water fish species.

COLD I high quality stream where populations are sustained by natural reproduction.

COLD II stream has some natural reproduction but may need stocking to maintain a desirable fishery;

COLD III stream has no natural reproduction and requires annual stocking of legal-size fish to provide sport fishing

WWSF Warm Water Sport Fish Communities; includes waters capable of supporting a community of warm water sport fish or serving as a spawning area for warm water sport fish.

WWFF Warm Water Forage Fish Communities; includes surface waters capable of supporting an abundant, diverse community of forage fish and other aquatic life.

LFF Limited Forage Fishery (intermediate surface waters); includes surface waters of limited capacity due to low flow, naturally poor water quality or poor habitat. These surface waters are capable of supporting only a limited community of tolerant forage fish and aquatic life.

LAL Limited Aquatic Life (marginal surface waters); includes surface waters severely limited because of low flow and naturally poor water quality or poor habitat. These surface waters are capable of supporting only a limited community of aquatic life.

Potential Biological Use This column indicates the biological use that the investigator believes the stream or stream segment could achieve through proper management of "controllable" pollution sources. Beaver dams, hydroelectric dams, low gradient streams, and naturally occurring low flows are generally not problems that can be controlled.

The potential use may be the same as the existing use or it may be higher. Abbreviations for "potential use" are the same as those used in the "existing use" column. Unless otherwise noted, the source for trout streams was *Wisconsin Trout Streams* (DNR Publ. 6-3600[80]), Wis. Adm. Code NR102.10 and NR102.11, and the professional judgment of WDNR personnel.

Supporting Potential Biological Use: This column indicates whether a stream is threatened, or is fully, partially, or not meeting its potential biological use. An entry in this column shows the relationship between the stream's current and potential biological use. To determine if a waterbody or segment supports a potential use, one of more of the following is used: chemical, physical (habitat or morphology, etc.) or biological information, or direct observation and professional judgement. When biological data contrary to chemical or physical data exists, the biological data overrides the other data.

Fully Supporting "Full"

A stream or stream segment's existing biological use is the same as its potential biological use (E = P). This includes stream or stream segments that are *not affected* and stream or stream segments that have *culturally irreversible* impacts. An example of culturally irreversible impacts are those effects in a river system with an "optimally operating" dam--a dam that operates with minimal to no effect on the fish and aquatic life community assemblage, productivity, and diversity. Note that fairly to poorly operating dams are not considered "culturally irreversible" and their effect on biological resources is factored into the use support designation (see partially supporting).

Fully Supporting/Threatened "Full-Thr"

A stream or stream segment's existing biological use is the same as its potential biological use (E = P), but there is a *clear and imminent* "threat" to the existing use remaining at its current level of biological productivity and ecological health. This threat could be due to actions likely to occur on or to the stream and/or in the watershed, such as:

1. Rapid commercial, residential, and/or industrial development in the watershed,
2. The advent of large-scale industrial operations in the watershed,
3. Planned or active channel modifications that have been, or will be permitted, or cannot be regulated under existing state or federal rules (i.e., drainage districts).

Partially Supporting "Part"

A stream or stream segment's existing biological use is the same as its potential biological use, except that implementation of management practices could enhance the overall ecological health of the biological community. Management practices in this category include modification of hydro-regimes to reduce the impact of dam operations on the biological community.

Thus, E = P, but the potential use assessment is below the stream or stream segment's maximum biological potential and this "less than optimal" condition is reversible.

Not Supporting "Not"

When a stream or stream segment's existing biological use is less than its potential biological use by a factor of 1 or more of the following codified use classifications: WWSF, WWFF, LFF, LAL, and Cold (includes Cold I, II, and III in one group). Thus, E < P, with problems considered reversible by implementation of management actions.

Codified Use: This is the waterbody's classification that is formally and legally recognized by NR102 and 104, Wis. Adm. Code. This column shows the classification that will be used to determine water quality criteria and effluent limits. A stream can obtain a codified use by applying formal stream classification procedures, which are undergoing revision in 1996. Classifications in this column are derived from:

1. Streams classified and listed in NR102 and NR104.
2. Streams formally classified during the WPDES permitting process. These streams are surveyed and classified to provide the basis for the permit's effluent discharge limitations.
3. Trout streams as defined by *Wisconsin Trout Streams* (1980) and listed in NR 104.
4. ORW and ERW streams officially approved as such by the DNR board and listed in NR102.10 and NR102.11. Officially, ORW/ERW waterbodies are not fish and aquatic life use designations but are a separate category for the WDNR antidegradation program. These waterbodies also receive a fish and aquatic life use classification for the purpose of determining water quality criteria and/or effluent discharge limitations. See description of ORW and ERW below.

Outstanding Resource Waters, have excellent water quality and high-quality fisheries. They do not receive wastewater discharges; these point source discharges will not be allowed in the future unless the quality of such discharges meets or exceeds the quality of the receiving water. This classification includes national and state wild and scenic rivers and the highest quality Class I trout streams.

Exceptional Resource Waters have excellent water quality and valued fisheries but may already receive wastewater discharges or may receive future discharges necessary to correct environmental or public health problems. All COLD I streams are ERW's, but not all ERW's are COLD I streams.

All waters not officially codified in NR102 or NR104 will be codified Warm Water Sport Fishery (WWSF) which is the default (DEF) classification and listed as "DEF."

Most Recent Survey: Most recent year of biological survey.

Fish Found: Fish species found in the most recent biological survey. Some fish species are grouped (i.e. forage) and some fish species are abbreviated (SMB - Smallmouth Bass)

Natural Reproduction: A yes in this column means that biological surveys indicate game fish are naturally reproducing.

Monitored, Evaluated, or Unassessed: This column states generally whether a stream has been assessed. It does not specify which stream segments have been monitored or evaluated. The terms *monitored*, *evaluated* or *unassessed* are defined as the following:

Monitored: A stream has been "monitored" for the purposes of Wisconsin water quality management plans and/or Wisconsin's Water Quality Assessment Report to Congress (305[b]). This data is site-specific data collected in the past five years and is used to determine the quality or integrity of the resource.

Evaluated: A stream has been "evaluated" if information other than site-specific data has been collected.

Sources of "evaluated" information may include:

1. Site-specific data that is more than five years old,
2. Information on file provided by the public or others,
3. Best professional judgment of a WDNR biologist or a WDNR fish manager.

Unassessed: A stream has been not been assessed.

Trend This column can be based upon best professional judgment, or by comparing data from past plans to find that a waterbody has improved over previous assessments, or declined. This decline/improvement should not be the result of gaining data, but a relative assessment of changes occurring on the waterbody. The stream may be improving (I), stable (S), declining (D) or unknown (U).

Data Level: In this column, indicate what level of data was used to make your decisions on this stream/segment. Ideally, the number is a composite of physical, chemical, biological and habitat data.

Bioassessments:

B1: Visual observations of biota, limited monitoring and extrapolations from other sites – unknown or low precision and sensitivity – professional biologist not required.

B2: One assemblage required with reference conditions of available, biotic index or narrative evaluation of historical records; limited to single sampling and site specific studies; low to moderate precision and sensitivity, professional biologist may provide oversight.

B3: Single assemblage, reference condition preferred; biotic index used or supplemented by historical records. Monitoring targeted sites during a single season; may be site specific study but may include spatial coverage for watershed level assessments. Moderate precision and sensitivity; professional biologist performs survey or training for sampling and assessment.

B4: generally two assemblages, may be one if data quality high. Regional reference conditions use; biotic index used. Monitoring over 1 –2 sampling seasons; broad coverage of sites for site specific or watershed specific assessments; use of probabilistic design. High precision and sensitivity; professional biologist surveys and assesses.

Habitat:

H1: Visual observation of habitat characteristics; no true assessment; documentation or readily discernible land use characteristics that might alter habitat quality, no reference conditions.

H2: Visual observation of habitat characteristics and simple assessment; use of land use maps for characterizing watershed condition; reference condition preestablished by professional scientist.

H3: Visual-based habitat assessment using SOPs; may be supplemented with quantitative measurements of selected parameters; conducted with bioassessment; data on land use compiled and used to supplement assessment; reference condition used as a basis for assessment.

Toxicological Approaches:

T1: Any one of the following: Acute or chronic WET, Acute ambient, or acute sediment

T2: Any of the following: Acute or chronic ambient, acute sediment, acute and chronic WET for effluent dominated stream

T3: chronic ambient or acute or chronic sediment, acute and chronic WET for effluent dominated stream

T4: Both of the following: acute and chronic ambient and acute or chronic sediment

Physical/Chemical

P1: any one of the following: water quality with grab sample or water data extrapolated from upstream or downstream, monitoring data more than five years old, BPJ based on land use data, etc.

P2: Any one of the following: water quality with grab sample or rotating basin surveys with multiple visits or automatic sampling synthesis of existing or historical info on fish contaminant levels, screening models based on loading data (not calibrated or verified)

P3: Any one of the following, composite or a series of grab water samples (diurnal coverage as appropriate), calibrated models

P4: All of the following: water quality monitoring used composite or series of grabs, limited sediment quality samples and fish tissue analyses at sites with high probability of contamination

Use Impairments: These two columns indicate probable sources of pollution in the stream (problem) and types of water quality problems present (impact of problems). Often more detail is provided in the narrative. Unless otherwise shown, the sources and impacts are generalized for the entire stream. Following is a key to abbreviations in the stream tables:

Problem (cause of problem). This is the source of threat or impairment.

ACC - No or limited access

BDAM - Beaver dam

BY - Barnyard or exercise lot runoff

CE - Construction site erosion

CH - Channelization (either by ditching or concrete)

CL - Cropland erosion

CM - Cranberry marsh

DEV - Intense development pressure

DRDG - Dredging

EX - Introduced species

F - Forestry (logging and roads, stream crossings)

HM - Hydrological modification (dam, ditching, wetland drainage)

LF - Landfill

MS - Mine wastes and/or roaster piles

NMM - Non-metallic mining

NPS - Unspecified nonpoint sources

PONDS - ponds on a stream or adjacent springs

PSB - Streambank pasturing

PSI - Point source, industrial discharge

PSM - municipal treatment plant discharge – point

PWL - Woodlot pasturing

RS - Roadside erosion

SB - Streambank erosion

URB - Urban storm water runoff

Impact of Problems (effect or impact of source on a stream) Variously known as the cause, impact or stressor, this column lists the effect on the stream as a result of the source.

AD - Animal deformity

BAC - Bacteriological contamination

CL - Chlorine toxicity

COM - Competition (i.e., encroachment by introduced species)

DO - Dissolved oxygen

FAD - Fish advisory (Special advisory would be FAD-SA (Hg or PCB or whatever the chemical is) - all waters of the state fall under a FAD-GA for Hg)

FLOW - Stream flow fluctuations caused by unnatural conditions

HAB - Habitat (in-stream sedimentation, scouring, etc.)

HM - Heavy metal toxicity

MAC - Undesirable rooted aquatic plant (macrophyte) or algal growth

MIG - Fish migration interference

NH₃ - Ammonia toxicity

NUT - Nutrient enrichment

ORG - Organic chemical toxicity/bioaccumulation
PCB - PCB bioaccumulation
pH - pH (fluctuations or extreme high or low)
PST - Pesticide/herbicide toxicity
SC - Sediment contamination
SED - Sedimentation of in-stream habitat
TEMP - Temperature (fluctuations or extreme high or low)
TOX - General toxicity problems
TURB - Turbidity

Monitoring Recommendations: Indicates the type of monitoring that should be conducted.

FH Survey = Fish and Habitat Survey
Temperature = Continuous temperature logging

Management Recommendations: Indicates the type of management that should be carried out to benefit the stream.

Acquisition = acquisition of land along and around a stream
County TRM Project = Continue support of County Targeted Runoff Management Project
Easement = acquisition of easements along and around a stream
Habitat Restoration = installation of in-stream habitat to benefit game fish
Habitat Maintenance = maintenance of already installed in-stream habitat
Reduce NPS = reduce non-point sources of pollution
Sediment Traps = install and/or maintain in-stream sediment traps

Public Easements or Ownership: This column identifies if the stream flows through Federal, State, or County owned land. DNR easements are also noted.

Habitat Structures: A Yes indicates that habitat structures for trout have been installed in the stream. Habitat structures include but are not limited to LUNKER structures, brush bundles, half - log structures, boulder retards, and plunge pools. A blank space in this column indicates no structures have been installed.

References: The reference material used to complete the table for each stream is indicated by a number. A numeric list of references is provided for each watershed at the end of each watershed narrative sub-chapter.