

I. Executive Summary

On June 3, 2005, the Iowa Department of Natural Resources (IDNR) submitted its 2004 update to its Clean Water Act (CWA) Section 303(d) list to the United States Environmental Protection Agency (EPA) for review. Subsequently, IDNR amended that submission on June 29, 2005, to provide its priority ranking of waters targeted for Total Maximum Daily Load (TMDL) development. Following its review of Iowa's complete submittal, EPA is approving that list in part, disapproving the State's removal of 6 waterbodies, and adding 20 waters to the State's CWA Section 303(d) list. This document summarizes EPA's review and the basis for its decisions.

Section 303(d)(1) of the CWA directs states to identify those waters within their jurisdictions for which effluent limitations required by Section 301(b)(1)(A) and (B) are not stringent enough to implement any applicable water quality standard (referred to as 'water quality limited segments' defined in 40 C.F.R. 130.7), and to establish a priority ranking for such waters, taking into account the severity of the pollution and the uses to be made of such waters. The CWA Section 303(d) listing requirement applies to water quality limited segments impaired by pollutant loadings from both point and/or nonpoint sources. After a state submits its CWA Section 303(d) list to EPA, the Agency is required to approve or disapprove that list.

Iowa's 2004 submittal is an update to the State's most recently approved CWA Section 303(d) list, approved by EPA on July 10, 2003 (i.e., the State's 2002 CWA Section 303(d) list). In its June 3, 2005, submittal, IDNR included its assessment methodology to identify waters that do not meet the State's approved water quality standards and, therefore, are required to be included on CWA Section 303(d) lists. This 2004 assessment methodology includes revisions to the methodology utilized to develop the 2002 CWA Section 303(d) list for Iowa. Water quality data that meet the assessment criteria included within the State's 2004 revised methodology were evaluated by IDNR. Those waters determined to be water quality limited were submitted to EPA as an update to the CWA Section 303(d) list. The methodology establishes specific protocols and thresholds for assessing waterbodies, in addition to data sufficiency and data quality requirements. The methodology contains procedures for assessing both aquatic life use support and human health use support.

In 2000, the Iowa legislature enacted its "Credible Data Law" which sets out, in statute, minimum requirements for the use of water quality data for purposes of State water quality standards development and review, water quality assessment, changes to the State's CWA Section 303(d) list, determining designated use support or classification, identification of water quality degradation and establishment of TMDLs. IDNR has stated that its assessment methodology used to develop its 2004 CWA Section 303(d) list incorporates those requirements.

All waters which were included in Iowa's approved 2002 CWA Section 303(d) list will remain on the State's CWA Section 303(d) list, unless IDNR removes a waterbody from

a future list and EPA approves the removal. On June 3, 2005, IDNR submitted to EPA for review an updated list reflecting, among other things:

- a) additional waterbodies which IDNR determined to be water quality limited segments pursuant to the State's listing methodology and, therefore, included in the update of the CWA Section 303(d) list which IDNR submitted to EPA for review; and
- b) waterbodies included on Iowa's previously approved 2002 CWA Section 303(d) list which were determined not to need TMDLs pursuant to the listing methodology and, therefore, removed from the update of the CWA Section 303(d) list submitted to EPA for review.

While the guidelines, protocols, and requirements in State statute and the IDNR methodology might be useful tools for IDNR to use in identifying impaired waters, they are not part of the State's water quality standards. Hence, EPA did not rely solely on the statute or the methodology in reviewing Iowa's list. Instead, EPA reviewed all available information including any information excluded under the State's methodology, to determine if the State's list was developed consistent with the underlying State water quality standards. EPA's review process generally followed a two-step analysis:

- 1) the Region reviewed the State's listing methodology, including data collection and data assessment requirements, to determine whether, based on Iowa's approved water quality standards, the methodology was a reasonable method for identifying water quality limited segments; and
- 2) where EPA was unsure whether the methodology was a reasonable method for identifying water quality limited segments, the Region conducted further waterbody and data analysis. Where the IDNR application of the methodology did not appear to properly implement, under the CWA, Iowa's approved water quality standards or EPA regulations, EPA addressed that inconsistency as part of this CWA Section 303(d) list review process.

Following EPA's decision to partially approve and add waters to Iowa's 2004 submission, the current CWA Section 303(d) list in the State of Iowa contains:

- o an approved 2002 CWA Section 303(d) list;
- o approved additions to the 2002 CWA Section 303(d) list;
- o EPA additions to the State's final 2004 CWA Section 303(d) list; and
- o approved removals from the 2002 CWA Section 303(d) list.

The statutory and regulatory requirements relevant to CWA Section 303(d) lists, and EPA's review of Iowa's compliance with each requirement, are described in detail below.

II. Statutory and Regulatory Background

A. Identification of Water Quality Limited Segments for Inclusion on the CWA Section 303(d) List

Section 303(d)(1) of the CWA directs states to identify those waters within its jurisdiction for which effluent limitations required by Section 301(b)(1)(A) and (B) are not stringent enough to implement any applicable water quality standard, and to establish a priority ranking for such waters, taking into account the severity of the pollution and the uses to be made of such waters. The Section 303(d) listing requirement applies to waters impaired by point and/or nonpoint sources, pursuant to EPA's long-standing interpretation of Section 303(d).

EPA regulations at 40 CFR 130.7(b)(1) provide that states do not need to list waters where the following controls are adequate to implement applicable standards:

- (1) technology-based effluent limitations required by the CWA,
- (2) more stringent effluent limitations required by State or local authority, and
- (3) other pollution control requirements required by state, local, or federal authority.

B. Consideration of Existing and Readily Available Water Quality-Related Data and Information

In developing Section 303(d) lists, states are required to assemble and evaluate all existing and readily available water quality related data and information, including, at a minimum, consideration of existing and readily available data and information about the following categories of waters:

- (1) Waters identified as partially meeting or not meeting designated uses, or as threatened, in the State's most recent Section 305(b) report.
- (2) Waters for which dilution calculations or predictive modeling indicate nonattainment of applicable standards.
- (3) Waters for which water quality problems have been reported by governmental agencies, members of the public, or academic institutions.
- (4) Waters identified as impaired or threatened in any Section 319 nonpoint assessment submitted to EPA (see 40 CFR 130.7(b)(5)).

States are also required to consider any other data and information that is existing and readily available. EPA's 1991 Guidance for Water Quality-Based Decisions describes categories of water quality related data and information that may be existing and readily available. See Guidance for Water Quality-Based Decisions: The TMDL Process, EPA Office of Water, 1991, Appendix C ("EPA's 1991 Guidance"). While states are required

to evaluate all existing and readily available water quality-related data and information, states may decide to rely or not rely on particular data or information in determining whether to list particular waters.

In addition to requiring states to assemble and evaluate all existing and readily available water quality-related data and information, EPA regulations at 40 CFR 130.7(b)(6) require states to include as part of their submissions to EPA, documentation to support decisions to rely or not to rely on particular data and information and decisions to list or not to list waters. Such documentation needs to include, at a minimum, the following information:

- (1) a description of the methodology used to develop the list,
- (2) a description of the data and information used to identify waters, and
- (3) any other reasonable information requested by the Region.

C. Priority Ranking

EPA regulations also codify and interpret the requirement in CWA Section 303(d)(1)(A) of the Act that states establish a priority ranking for listed waters. The regulations at 40 CFR 130.7(b)(4) require states to prioritize waters on their Section 303(d) lists for TMDL development, and also to identify those water quality limited segments (WQLSs) targeted for TMDL development in the next two years. In prioritizing and targeting waters, states must, at a minimum, take into account the severity of the pollution and the uses to be made of such waters (see CWA Section 303(d)(1)(A)). As long as these factors are taken into account, the Act provides that states establish priorities. States may consider other factors relevant to prioritizing waters for TMDL development, including immediate programmatic needs, vulnerability of particular waters as aquatic habitats, recreational, economic, and aesthetic importance of particular waters, degree of public interest and support, and state or national policies and priorities (see 57 FR 33040, 33045 [July 24, 1992], and EPA's 1991 Guidance).

III. Iowa's Approach to Identifying Waters for the 2004 Section 303(d) List

A. Iowa's 2004 Integrated Report Format

EPA guidance for states in meeting the requirements of CWA Section 303(d) recommends a format which integrates the requirements of both CWA Sections 305(b) and 303(d) in creating a five category "integrated report" format. The 2004 Iowa submission under CWA Section 303(d) is the first submission by the State of Iowa using this "integrated report" format. Category 5 of the 2004 list constitutes Iowa's list of impaired waters for purposes of Clean Water Act Section 303(d) and is subject to EPA review and approval. EPA is taking action only on Category 5 which includes water quality-limited segments still requiring TMDLs. The following describes the five categories constituting Iowa's Integrated Report and the number of waterbodies assigned to each category by IDNR. Under Iowa's 5 category system, most waterbodies are assigned to only 1 category.

Category 1 consists of 225 waterbody segments attaining all designated uses and no use is threatened.

Category 2 consists of 284 waterbody segments for which some, but not all, designated uses are attained and none are threatened. Attainment status of the remaining designated uses is unknown because data are insufficient to categorize a waterbody consistent with the State's listing methodology.

Category 3 consists of 107 waterbody segments for which there are insufficient or no data and information to determine, consistent with the State's listing methodology, if any designated use is attained.

Category 4 consists of 85 waterbody segments for which one or more designated uses are impaired or threatened but establishment of a TMDL is not required.

Category 5 consists of 216 waterbody segments for which a pollutant has caused, is suspected of causing, or is projected to cause an impairment or threat of impairment of one or more designated uses and the establishment of a TMDL is required. This category also includes those segments for which impairment is indicated, but the cause or source is unknown.

The State's Integrated Report format includes sub-categories within Categories 2, 3, 4 and 5. Only waterbody segments within Category 5 are subject to EPA approval. Within Categories 2 and 3, IDNR has added Categories 2b and 3b which include those waterbody segments for which there is "evaluated data" which suggest impairment. According to IDNR's methodology, "waters "evaluated" as impaired are identified as having insufficient data to determine whether beneficial uses are met." In short, those data determined by IDNR to be

“evaluated data” are not deemed by IDNR to be of adequate quality or quantity to support a determination that a use designated within State water quality standards is or is not being met. The 115 waterbody segments listed within Categories 2b and 3b served to support EPA’s evaluation of IDNR’s data assessment process and its determination whether all water quality-limited segments were listed by IDNR in Category 5.

The State’s Integrated Report format also incorporated an expansion of Category 4 into 4 sub-categories. Sub-category 4a includes waters impaired, but for which a TMDL has been completed. Sub-category 4b includes waters impaired, but for which “other control measures are expected to result in the attainment of water quality standards.” Sub-category 4c includes waters impaired, but not by a pollutant. Sub-category 4d includes waters impaired by a fish kill, but for which an enforcement action has been undertaken by the State. Sub-categories 4a through 4c are recognized within EPA guidance for the development of an integrated report. However, sub-category 4d constitutes a variation on EPA guidance. EPA’s review of the State categories and sub-categories was conducted within the context of whether or not a waterbody segment should be listed within Category 5 based on existing and readily available data and information.

The State’s Integrated Report format also included two sub-categories within Category 5 which distinguish between impairments resulting from known pollutants (Category 5a) and impairments with unknown causes or sources (Category 5b).

B. Iowa’s 2004 Methodology

IDNR’s “Methodology for Iowa’s 2004 water quality assessment, listing, and reporting pursuant to Sections 305(b) and 303(d) of the federal Clean Water Act,” May 2005, guides IDNR’s evaluation of “existing and readily available water quality-related data and information” (40 CFR 130.7(b)(5)) and identification of “water quality-limited segments still requiring TMDLs” (40 CFR 130.7(a)). IDNR’s methodology also establishes a protocol for determining “where the assessment indicates a potential impairment, but where sufficient and credible data are lacking” and, therefore, “will not be included on the 2004 303(d) list.” (IDNR Methodology, page 6). As described earlier, IDNR places these waters in Categories 2b or 3b of their Integrated Report and includes these waters in their list of “waters in need of further investigation.” IDNR specifically cites the consistency of its methodology with the requirements of Iowa’s “Credible Data Law.” Those requirements could have possibly led to listing decisions by IDNR which were inconsistent with federal regulations regarding the assembly and evaluation of “all existing and readily available water quality-related data and information.” Federal regulations at 40 CFR 130.7(b)(5) only require that states assemble and evaluate all existing and readily available data and information. Where water quality-related data is not credible, of insufficient quantity or not representative of current conditions, nothing in EPA guidance or regulation

prohibits the exclusion of that data from a listing determination. However, in its review of the State's list, EPA must ensure that the assessment of water quality data and information is performed in a manner consistent with the State's water quality standards.

According to the State's "Listing Methodology," data sources used to assess water quality conditions in Iowa for purposes of Section 305(b) reporting and to aid in developing the State's 303(d) list include:

- (1) Physical, chemical, and biological data from fixed station water quality monitoring networks conducted by IDNR and other agencies;
- (2) Data from water quality monitoring conducted by adjacent states on border rivers and waters flowing into the state;
- (3) Data from biological monitoring being conducted by IDNR in cooperation with the University of Iowa Hygienic Laboratory (UHL) as part of a current effort to establish biological criteria for Iowa's ecoregions and subcoregions and as part of the on-going Regional Environmental Monitoring and Assessment Program (EMAP) project;
- (4) Data from the IDNR-sponsored lake monitoring conducted by Iowa State University;
- (5) Data from monitoring of bacterial indicators in rivers and at beaches of publicly-owned lakes;
- (6) Data from programs to monitor fish tissue for toxic contaminants;
- (7) Reports of pollutant caused fish kills;
- (8) Data, when available, from public water supplies on the quality of raw and finished water;
- (9) Drinking water source water assessments under Section 1453 of the Safe Drinking Water Act;
- (10) Data from special studies of water quality and aquatic communities;
- (11) Best professional judgment of IDNR staff;
- (12) Results of volunteer monitoring (e.g., by IOWATER trained volunteers); and
- (13) Water related information received from the public.

Additionally, sources of all existing and readily available water quality related data and information to be considered specifically for developing the State's 303(d) list include, but are not limited to, the following:

- (1) Iowa's most recent 305(b) report;
- (2) CWA Section 319 nonpoint source assessments;
- (3) Dilution calculations, trend analyses, or predictive models for determining the physical, chemical or biological integrity of streams, rivers, lakes, and estuaries; and
- (4) Water quality related data and water related information from local, state, territorial, or federal agencies (especially the U.S. Geological Survey's National Water Quality Assessment Program (NAWQA and National Stream Quality Accounting Network (NASQAN)), tribal governments, members of the public and academic institutions.

C. Coordination with Other States on the Mississippi and Missouri Rivers

EPA's "Guidance for 2004 Assessment, Listing and Reporting Requirements Pursuant to Sections 303(d) and 305(b) of the Clean Water Act: TMDL-01-03," July 31, 2003, contains specific recommendations on how states should handle shared waters with regard to the sharing of water quality data, assessment decisions for those shared waters and the accounting for listing decision inconsistencies between states. The guidance further recommends that EPA Regional offices and Interstate Commissions, where applicable, should assist in resolving inconsistencies among states with shared waters, where they arise.

IDNR's 2004 assessment methodology specifically addresses IDNR's coordination efforts with other state agencies regarding data assembly and evaluation for "border rivers and waters flowing into the state." Further, in its response to EPA's April 15, 2005, comments and questions on the State's proposed 2004 CWA Section 303(d) list with regard to border rivers (i.e., the Big Sioux River, the Missouri River and the Mississippi River), IDNR clearly described its efforts to coordinate with adjacent state water quality agencies and resolve apparent inconsistencies. This coordination included the solicitation of water quality data held by those agencies and the reconciliation of apparent inconsistencies in listing decisions and final listings for those shared waters. IDNR and EPA have also participated in water quality-related coordination meetings and projects facilitated by the Upper Mississippi River Basin Association specifically focusing on the water quality data collection and assessment process for the Upper Mississippi River. These continuing efforts will improve states' efforts to satisfy the requirements of CWA Sections 305(b) and 303(d) for the Upper Mississippi River.

IV. EPA Analysis of Iowa's Approach to Listing Waters for the 2004 List

EPA is partially approving Iowa's 2004 CWA Section 303(d) list, partially disapproving that list, and adding waters that IDNR failed to identify as water quality impaired, based on the requirements of Section 303(d) of the CWA and 40 CFR 130.7. EPA's action is based on its analysis of whether IDNR reasonably identified all water quality limited segments requiring listing. In determining whether IDNR reasonably identified all water quality limited segments still needing a TMDL, EPA first looked at IDNR's use support determinations as documented in the State's ADB+ database. As these determinations were largely guided by IDNR's methodology, EPA considered whether application of that methodology was a reasonable approach to identifying water quality-limited segments. Where the State's application of its methodology appeared to result in a listing decision inconsistent with Iowa water quality standards or EPA regulations, EPA addressed that inconsistency as part of its CWA Section 303(d) list review.

IDNR's 2004 assessment methodology identifies a December 2002 "cutoff date" for data collection in support of IDNR's water quality data assessment. EPA guidance recognizes the appropriateness of a reasonable data collection cutoff date allowing states to initiate actual data assessment and list preparation. Data not considered for the 2004 assessment should be considered for the 2006 submission. Despite the application of a "cutoff date" by IDNR for the development of the 2004 list, IDNR did consider data submitted as part of the State's public notice and comment period from February 21 through April 15, 2005. EPA believes IDNR complied with the requirements of federal regulations at 40 CFR 130.7(b)(5) regarding the assembly and evaluation of all existing and readily available water quality-related data and information.

The 2004 assessment methodology also discusses IDNR's treatment of water quality-related data collected more than 5 years prior to the current assessment period. Federal regulations and guidance recognize that, in some instances, older data might not reflect current water quality conditions. Where the state demonstrates "good cause" for not including older data in the derivation of its list, federal regulations at 40 CFR 130.7(b)(6)(iv) provide for the state not including a water or waters on its list. However, a demonstration of "good cause" relies on the state showing that there are changes in condition in the watershed or waterbody which result in older data not being representative of current water quality status. IDNR's 2004 assessment methodology generally recognizes this federal requirement. Where EPA determined that older data was excluded without demonstration of good cause, that data was evaluated to determine whether a water quality impairment existed.

In its April 15, 2005, comments to IDNR during the public comment period for the proposed 2004 list, EPA requested that IDNR identify "any waters for which existing and readily available water quality information was not used by IDNR in

its determination of impairment.” In its response, IDNR explained that it considered and evaluated data in the IOWATER database, but determined that it should not be used as a basis for listing because the data is of poor quality and did not meet IDNR’s data quality requirements. IDNR further stated that its rejection of these data was not based on the requirements of the State’s Credible Data Law. The Credible Data Law provides for assessment of volunteer monitoring data where the data have been collected according to an IDNR-approved plan. In fact, IDNR rejected that data for purposes of reporting under Clean Water Act Section 305(b) which is not specifically required by Iowa’s credible data law. IDNR’s description of its evaluation of the data within IOWATER, its findings regarding the quality of that data and its conclusion that the data does not meet the Department’s data quality requirements satisfies the requirements at 40 CFR 130.7(b)(6)(iii) regarding IDNR’s decision not to use existing and readily available data. EPA considers this to be a reasonable approach as it is generally consistent with EPA guidance regarding the utilization of water quality data for both CWA Sections 303(d) and 305(b) purposes. EPA recommends that states review and evaluate all water quality data to ensure that the data is of known quality prior to its use in a reporting or regulatory context. EPA is not aware of any information from other organizations or the public which would suggest that IDNR’s evaluation is in error or inconsistent with federal regulation.

EPA has asked IDNR staff for any data which might not have been included in the 2004 assessment for any reason, whether the result of the implementation of the State’s Credible Data Law, the IDNR methodology’s data quality or quantity requirements or other procedural determinations. As a result, additional data was identified by IDNR staff for EPA review.

As a means of confirming that Iowa’s CWA Section 303(d) list was developed in a manner compliant with the requirements at 40 C.F.R. Part 130.7 regarding the assembly and evaluation of “all existing and readily available water quality-related data and information,” EPA reviewed the information contained in IDNR’s ADB+ database for all waters listed in Iowa’s Integrated Report Categories 2b and 3b. These categories contain all of the waters for which potential use impairment is indicated by “evaluated data.” EPA believes that these two categories constitute a reasonable universe of waters to evaluate whether IDNR’s determinations of impairment were consistent with the State’s water quality standards and federal regulations.

Finally, in response to public comment regarding waters removed from the CWA Section 303(d) list by IDNR in 2002 and approved by EPA, EPA evaluated data within IDNR’s ADB+ database for these 71 waterbody segments to determine whether new water quality data and information warranted listing of any of these waters.

In its review of data within IDNR’s ADB+ database to determine whether IDNR had good cause for not including waters on the State’s impaired waters list, EPA

identified several broad categories of water quality data and evaluated IDNR's assessment of that data.

1. Utilization of Bacterial Data

IDNR's assessment methodology provides that determinations of water quality impairment for the State's recreational use (i.e., Class A) relies on data for the bacterial indicators (i.e., fecal coliforms) adopted within State water quality standards effective through IDNR's assessment period ending 2002. The State adopted different bacterial indicators (i.e., *E.coli*) as criteria within its standards which became effective in 2003. Therefore, IDNR considered only data on fecal coliform bacteria in determining use impairment for the 2004 list. EPA agrees that it is both reasonable and appropriate to rely on the State's effective water quality standards during the assessment period.

2. Utilization of Biological Data for Streams

In its April 2005 comments on Iowa's draft 2004 list, EPA requested information regarding the IDNR's proposed removal of several streams from the CWA Section 303(d) list from 2002 to 2004 based on a change in the treatment of bioassessment data within IDNR's methodology. These changes specifically addressed the application of bioassessment data and indices to aquatic life use attainment determinations.

IDNR's response to EPA's April 2005 request and IDNR's methodology state that IDNR does not believe the application of their bioassessment protocols, nor the indices assigned to various support categories, to General Use streams is scientifically supportable. General Use streams are not designated for aquatic life uses and, by definition in the State's water quality standards, are "intermittent watercourses and those watercourses which typically flow only for short periods of time following precipitation." According to the IDNR's methodology, the bioassessment methods were developed for Class B streams which have assigned aquatic life uses, typically possess perennial flows and drain larger watersheds. Further, IDNR's indices for assessing the biological integrity of streams are derived from perennial streams possessing the highest possible quality or reference conditions. The biological condition of these reference streams serve as the benchmark against which other streams of similar size and hydrology are compared to determine use attainment status. IDNR believes that smaller streams with differing hydrology and watershed characteristics and without a designated aquatic life use (i.e., General Use streams) possess inherently different biological character, too. IDNR believes it is inappropriate to apply both bioassessment protocols and benchmarks/indices developed for Class B streams to General Use streams

for purposes of determining whether water quality impairment exists (IDNR Methodology, page 21).

In its review of the State's proposed list, EPA also questioned IDNR regarding its decision not to list larger streams and rivers, which were designated for Class B uses, where bioassessment data indicated impairment. IDNR responded that those streams were of such greater flow, watershed size and biological character that some of IDNR's bioassessment methods and one of the indices were similarly not scientifically suited to a determination of water quality impairment for those waters. According to IDNR, non-wadeable streams and rivers, draining watersheds greater than 500 square miles, are not suited to field methods applied to assess the benthic macroinvertebrate communities of wadeable streams and the data gathered by their application likely does not accurately represent the biological condition of these waters. IDNR also stated that the conditions found among wadeable Class B streams representing the best attainable quality might not be representative of those conditions among larger, non-wadeable streams and rivers with respect to benthic macroinvertebrates. Therefore, IDNR does not believe that the indices developed from those "reference conditions" and used to determine use support status, with regard to biological information on benthic macroinvertebrates, should be used to evaluate these larger waters.

As a result of this change in IDNR's methodology, these bioassessment data were determined to be "evaluated" and were not used to make use attainment decisions. EPA guidance regarding the development of biological methods and the adoption of biological criteria within state water quality standards provides similar direction to states with regard to their application to different waterbody 'types' (Biological Criteria: Technical Guidance for Streams and Small Rivers, EPA 822-B-96-001, May 1996, pages 31, 32 and 94; Rapid Bioassessment Protocols for Use in Wadeable Streams and Rivers, EPA 841-B-99-002, July 1999, page 3-5 and 6; Nutrient Criteria Technical Guidance Manual: Rivers and Streams, EPA-822-B-00-002, July 2000, page 17 and 94). EPA has advised states to develop methods and benchmarks or criteria specific to unique waterbody classes or types, including lakes, wetlands, big rivers and streams of varying sizes. EPA recognizes the scientific importance of distinguishing biological differences resulting from differences in waterbody type from those differences resulting from water quality condition.

As EPA cannot find fault in IDNR's reasoning regarding its application of bioassessment information to various classes of streams, there is no basis for EPA to disagree with IDNR's contention that either General Use streams or large non-wadeable streams and rivers should not be listed as water quality impaired based on the comparison of bioassessment data to

those indices developed for wadeable Class B streams. IDNR has committed to the development of appropriate methods, metrics and indices for these different classes of streams in the near future and EPA intends to support IDNR's work in this area. EPA applied this rationale in its review of Iowa Integrated Report Category 2b and Category 3b waters. In its review of waters removed by IDNR from the Iowa CWA Section 303(d) list, EPA also approved IDNR's removal of 5 streams from the State's impaired waters list using this rationale (Bear Creek, 03-SSK-0080_2; Buck Creek, 03-NSK-0042_0; Pigeon Creek, 06-WED-0042_0; Springbrook Creek, 04-RAC-02415_0; and Buffington Creek, 02-IOW-00903_1). These waters are included in Table 3 and Appendix 2 which lists Iowa's Integrated Report Category 3b waters.

Regarding a related, but different, component of IDNR's treatment of bioassessment data, IDNR responded to EPA's April 2005 request for information regarding several Class B streams for which bioassessment data was incomplete. IDNR's 2004 methodology describes how stream bioassessment data are to be reviewed in those instances where the assessment lacks data either on the fish or benthic macroinvertebrate communities (IDNR's 2004 Methodology, page 36). In a change from its 2002 methodology, IDNR stated that where biological assessment data is absent for one community (fish or benthic macroinvertebrates), that bioassessment is treated as "evaluated" and will not serve as the basis for listing as water quality impaired. Although EPA guidance recognizes the scientific benefits for evaluating the biological integrity of waterbodies based on multiple indicator communities (e.g., fish, benthic macroinvertebrates, algae) (Biological Criteria: Technical Guidance for Streams and Small Rivers, EPA 822-B-96-001, May 1996, page 59), that same guidance clearly supports the validity of the information provided by evaluating individual indicators. Further, EPA guidance for 2004 CWA Section 303(d) list development (Guidance for 2004 Assessment, Listing and Reporting Requirements Pursuant to Sections 303(d) and 305(b) of the Clean Water Act: TMDL-01-03, July 21, 2003) cautions against overly rigid rules regarding data quantity, particularly with regard to biological data. In assessing biological data, neither the absence of data nor a different measured response from one indicator should serve as the basis for dismissing conclusions based on another indicator. IDNR's methodology supports the independent application of the data gathered from individual biological indicators by providing for a determination of impairment based solely on the poor or fair condition of either indicator without agreement from the other. However, the methodology, in a change from provisions applied in 2002, requires that data must be available from both indicators. In this instance, EPA disagrees with IDNR's position that bioassessment results from both fish and macroinvertebrate communities are necessary for determinations of aquatic life use support. As a result, EPA is adding 3 streams from the

State's Categories 2b (Bear Creek, 02-IOW-0180_1) and 3b (Muchakinock Creek, 04-LDM-0140_2; Little River, 05-GRA-0080_0) to Category 5b of the 2004 CWA Section 303(d) list for Iowa where bioassessment data based on any one of the indicators suggested use impairment. Table 1 includes Bear Creek and Little River as waters added to the State's Integrated Report Category 5 and Table 2 includes Muchakinock Creek as delisted by IDNR, disapproved by EPA and restored to Category 5.

EPA is also adding waters to the 2004 CWA Section 303(d) for Iowa where bioassessment data show impairment, but which IDNR determined was too old to be used for determinations of use support. EPA guidance for 2004 list development specifically states that data should not be excluded based solely on age, but rather could be excluded if it is determined that the data "are no longer representative of current conditions" (2004 Integrated Report Guidance, page 25). In addition, such a determination that data was no longer representative of current conditions should also specifically identify how conditions within a given watershed have changed with time to such a degree that previously gathered data could not be representative (e.g., placement or removal of wastewater treatment plant, completion of remediation activities, etc.). In its assessment of the bioassessment data, EPA looked for information in the IDNR database which might suggest that older data was not representative of current conditions. Where the ADB+ entry referred only to data age, EPA assessed the quality of the data. In that assessment, EPA determined that bioassessment data which were of adequate quality to be used by IDNR to generate an Index of Biological Integrity (IBI) for either fish or benthic macroinvertebrates were suitable for such determinations, regardless of age. In those instances where bioassessment data were collected prior to IDNR's development of its indices of biological condition (i.e., approximately 1995) and were, therefore, dependent upon qualitative descriptions of condition, EPA did not believe there was adequate scientific information to make use support determinations. Where IDNR had utilized bioassessment data to calculate an IBI and did not provide information indicating that older data was not representative of current water quality conditions in a given stream or watershed, EPA could not establish good cause to exclude these data from its assessment. As a result, EPA is adding 5 streams from the State's Category 3b to Category 5b of the 2004 CWA Section 303(d) list for Iowa where bioassessment data based on any one of the indicators, where an IBI was calculated, suggested Class B aquatic life use impairment (East Fork Wapsipinicon River, 01-WPS-0190_3; Sugar Creek, 02-CED-0170_1; Walnut Creek, 05-NSH-0100_1; West Branch One Hundred and Two River, 05-PLA-0040_1; West Tarkio Creek, 05-TAR-0020_0). These waters are included in Table 1 and in Appendix 2 of this document.

Finally, as a result of a review of comments solicited from IDNR staff by EPA during the review process, EPA identified several streams for which IDNR's Fisheries Division staff had conducted a bioassessment of the fish community and for which IDNR water quality staff had calculated a fish IBI which indicated impairment, but which had not been listed. IDNR commented to EPA that these data generated by IDNR's Fisheries Division were not included in its determinations of water quality impairment. EPA evaluated these data within the ADB+ database in the same manner as described above and is adding 5 streams to the State's list (South Skunk River, 03-SSK-0020_1; West Jackson Creek, 05-CHA-0064_0; Dick Creek, 05-CHA-0067_0; Walnut Creek, 05-NSH-0100_2; Silver Creek, 05-NSH-0120_0) for impairment of their Class B aquatic life use. These waters are included in Table 1 and in Appendix 2 of this document.

In a review of the list of 71 waterbody segments previously removed from the CWA Section 303(d) list by IDNR in 2002 and approved by EPA, EPA identified 1 segment with new bioassessment data in IDNR's ADB+ database which indicated aquatic life use was impaired. These bioassessment data would not have been available during IDNR's compilation of the 2002 list. Buffalo Creek (01-WPS-0110_1) is being added to Category 5b of the 2004 CWA Section 303(d) list for Iowa. This water is included in Table 1 and Appendix 3 of this document.

In all, EPA is adding 13 streams and restoring 1 stream to Iowa's 2004 CWA Section 303(d) list based on bioassessment data.

3. Waters Listed by IDNR in Category 4d Based on Fish Kills with Known Causes

IDNR included as part of its Integrated Report format for 2004, a subcategory (4d) for waters considered impaired based on fish kills, but for which the alternative to a TMDL is the enforcement response implemented by IDNR's Fisheries Division. EPA did not identify any segments in Iowa's subcategory 4d as not meeting applicable water quality standards. Hence, EPA does not consider waters listed in subcategory 4d as impaired and belonging on the State's CWA Section 303(d) list.

4. Application of Numeric Water Quality Criteria to General Use Waters

In some instances within its ADB+ database, IDNR identified water quality conditions in surface waters classified for General Use which would violate the State's numeric pollutant-specific water quality criteria. IDNR describes this as "evaluated data" since the numeric water quality criteria within the State's water quality standards do not apply to General

Use waters. EPA recognizes this application of the State's water quality standards provisions.

5. Reliance on Best Professional Judgment to Determine Impairment

IDNR's assessment methodology discusses the treatment of information provided as "best professional judgment" by staff from IDNR and other agencies. Where the basis of an assessment of water quality condition was solely "best professional judgment" (BPJ), that information was assessed but not utilized by IDNR to determine water quality impairment. Instead, IDNR identifies BPJ information suggesting a possible water quality problem as warranting further investigation. Certain waters included in Iowa's Integrated Report Category 3b, as well as several of those removed from the State's impaired waters list in 2002, are lakes and wetlands where there is no data supporting the identification of a water quality problem. Waterbody-specific judgments based on BPJ and without water quality data or information likely require further investigation to determine water quality status. EPA agrees with IDNR's approach in this specific instance where there is no water quality data or information upon which to base a determination of use impairment through the application and interpretation of the State's water quality standards. Appendices 2 and 3 include waters for which the only available water quality information is narrative descriptions of waterbody condition based on BPJ.

6. Review of Additional Water Quality Data

EPA's assessment of information provided by IDNR staff on two streams in eastern Iowa, Clear (02-IOW-0160_3) and Duck (01-NEM-0060_1) Creeks, resulted in EPA adding one of those stream segments to Iowa's 2004 CWA Section 303(d) list.

Information provided by IDNR on Clear Creek clearly shows gross water quality impairment and exceedences of Iowa's narrative water quality standards. Photographs provided by IDNR to EPA show the presence of fecal and sanitary waste material in Clear Creek. Table 1 includes this segment.

IDNR staff also provided bacterial data for Duck Creek based on the indicator-based criteria for *E.coli*. As discussed previously, EPA acknowledges that this indicator-based criterion was not the effective State water quality standard at the time of IDNR's water quality assessment. Therefore, these data should not be used to place this segment on the State's CWA Section 303(d) list.

For the remainder of the waterbodies listed by IDNR within the State's Integrated Report Category 2b or Category 3b or approved for removal from the State's

CWA Section 303(d) list in 2002, EPA reviewed IDNR's rationale supporting these waters being excluded from the State's 2004 Integrated Report Category 5. Those waterbodies for which IDNR's ADB+ database included water quality data which indicated attainment of the designated uses or did not include water quality data or information which indicated impairment were not added by EPA to the State's CWA Section 303(d) list. EPA also evaluated comments received by IDNR during the public comment period in conducting its evaluation. Appendices 1, 2 and 3 include the rationales provided by IDNR in its ADB+ database for each waterbody's assigned status within the State's Integrated Report with footnotes denoting EPA's determination regarding each assignment.

Conclusions

As a result of EPA's review of the State's methodology, the ADB+ database as it describes the assessment of waters listed in Categories 2b and 3b of the State's integrated report and other data made available to EPA, EPA is adding 14 more waters to the State's Category 5 which constitutes the CWA Section 303(d) list for 2004. Table 1 contains a listing of those waters.

Table 1. Waterbody/Pollutant Combinations Placed on Iowa's 2004 CWA Section 303(d) List by EPA

#	Waterbody	ADB+ Code	Use(s) Impaired	Added to 2004 IDNR Category	Pollutant	Comments
1	Bear Creek	02-IOW-0180_1	B(LR)	5b	Unknown	1999 bioassessment shows impairment (F-IBI). BM sampling results were incomplete. Not listed by IDNR for lack of BM data. F-IBI data are adequate indication of impairment.
2	East Fork Wapsipinicon River	01-WPS-0190_3	B(LR)	5b	Unknown	1995 bioassessment data show impairment. F-IBI was fair and BM-IBI was fair. Not listed by IDNR because of age. No information available indicating that these data are not representative of current conditions.
3	Sugar Creek	02-CED-0170_1	B(WW)	5b	Unknown	1996 bioassessment shows impairment. BM-IBI was fair and F-IBI was good. Not listed by IDNR because of age of data. No information available indicating that these data are not representative of current conditions.

ADB+: Iowa DNR's Clean Water Act, Section 305(b) data base

F-IBI: Index of Biotic Integrity using fish community data.

BM-IBI: Index of Biotic Integrity using benthic macroinvertebrate community data.

B(WW): Iowa's Class B, Significant resource warm water aquatic life use.

B(LR): Iowa's Class B, Limited resource warm water aquatic life use

Table 1. Waters Placed on Iowa’s 2004 CWA Section 303(d) List by EPA

4	South Skunk River	03-SSK-0020_1	B(LR)	5b	Unknown	1999-2002 IDNR WQ bioassessment shows impairment with fair BM conditions and no F-IBI. IDNR staff believes streams draining watersheds larger than 500 sq. miles are beyond the calibration range for the BM-IBI. However, 2002 IDNR Fisheries bioassessment shows fair conditions (F-IBI). Not listed by IDNR because of stream size (BM-IBI) and fisheries data collected by IDNR-Fisheries Division. Fisheries Division data are adequate indication of impairment.
5	West Jackson Creek	05-CHA-0064_0	B(LR)	5b	Unknown	1999-2002 IDNR Fisheries bioassessment shows impairment with poor conditions (F-IBI). Not listed by IDNR with IDNR Fisheries Division data. Fisheries Division data are adequate indication of impairment.
6	Dick Creek	05-CHA-0067_0	B(LR)	5b	Unknown	1999 and 2001 IDNR Fisheries bioassessments show impairment with poor conditions (F-IBI). Not listed by IDNR with IDNR Fisheries Division data. Fisheries Division data are adequate indication of impairment.
7	Little River	05-GRA-0080_0	B(LR)	5b	Unknown	2002 bioassessment shows impairment with poor conditions (F-IBI). Not listed by IDNR for lack of macroinvertebrate data. F-IBI data are adequate indication of impairment.

ADB+: Iowa DNR’s Clean Water Act, Section 305(b) data base

F-IBI: Index of Biotic Integrity using fish community data.

BM-IBI: Index of Biotic Integrity using benthic macroinvertebrate community data.

B(WW): Iowa’s Class B, Significant resource warm water aquatic life use.

B(LR): Iowa’s Class B, Limited resource warm water aquatic life use

Table 1. Waters Placed on Iowa’s 2004 CWA Section 303(d) List by EPA

8	Walnut Creek	05-NSH-0100_1	B(WW)	5b	Unknown	1996 IDNR WQ bioassessment shows impairment with poor and fair (F-IBI and BM-IBI) conditions corroborated by a 1999 IDNR Fisheries bioassessment showing fair conditions (F-IBI). IDNR did not list because of age of 1996 data and Fisheries Division fish data. No information available indicating that these data are not representative of current conditions.
9	Walnut Creek	05-NSH-0100_2	B(LR)	5b	Unknown	1998 IDNR Fisheries bioassessment shows impairment with fair conditions (F-IBI). IDNR did not list because fish data came from Fisheries Division. Fisheries Division data are adequate indication of impairment.
10	Silver Creek	05-NSH-0120_0	B(LR)	5b	Unknown	1998 IDNR Fisheries bioassessment shows impairment with poor conditions (F-IBI). Not listed by IDNR because data came from Fisheries Division. Fisheries Division data are adequate indication of impairment.

ADB+: Iowa DNR’s Clean Water Act, Section 305(b) data base

F-IBI: Index of Biotic Integrity using fish community data.

BM-IBI: Index of Biotic Integrity using benthic macroinvertebrate community data.

B(WW): Iowa’s Class B, Significant resource warm water aquatic life use.

B(LR): Iowa’s Class B, Limited resource warm water aquatic life use

Table 1. Waters Placed on Iowa’s 2004 CWA Section 303(d) List by EPA

11	West Branch One Hundred and Two River	05-PLA-0040_1	B(WW)	5b	Unknown	1995 bioassessment shows impairment with fair conditions for fish and BM with calculated IBI values. Not listed by IDNR because of age of data. No information available indicating that these data are not representative of current conditions.
12	West Tarkio Creek	05-TAR-0020_0	B(LR)	5b	Unknown	1995 bioassessment shows impairment with fair conditions for fish and BM with calculated IBI values. Not listed by IDNR because of age of data. No information available indicating that these data are not representative of current conditions.
13	Clear Creek	02-IOW-0160_3	B(LR)	5a	Organic enrichment	Fecal material in stream contrary to State’s General Water Quality Criteria. IDNR has not demonstrated that there is good cause not to list.
14	Buffalo Creek	01-WPS-0110_1	B(WW)	5b	Unknown	2001 bioassessment shows impairment (F-IBI is good, BM-IBI is fair). Data not previously available during 2002 listing process. IDNR has not demonstrated that there is good cause not to list.

ADB+: Iowa DNR’s Clean Water Act, Section 305(b) data base

F-IBI: Index of Biotic Integrity using fish community data.

BM-IBI: Index of Biotic Integrity using benthic macroinvertebrate community data.

B(WW): Iowa’s Class B, Significant resource warm water aquatic life use.

B(LR): Iowa’s Class B, Limited resource warm water aquatic life use.

V. EPA Analysis of IDNR Changes to the State's CWA Section 303(d) List

EPA compared waters listed in Parts 1 and 5 of the State's 2002 CWA Section 303(d) list with waters listed in Category 5 of the State's 2004 Integrated Report to determine whether waters were removed from the list, pollutants identified as causing impairment were changed or waterbody descriptions had changed. In each case, such changes could constitute a change to the State's CWA Section 303(d) list requiring EPA approval. Iowa's 2002 impaired waters list is formatted after a proposed EPA regulation revision which was later withdrawn. The State's 2002 list is composed of waters placed in four listing categories or parts. Part 2 included waters impaired by pollution, Part 3 waters are impaired but with a TMDL and IDNR omitted a Part 4 category. Parts 1 and 5 of the 2002 list constitute the State's 2002 CWA Section 303(d) list. Under the State's 2002 list format, Part 1 waters are those impaired by one or more pollutants. Part 5 waters are biologically impaired with no identified cause of impairment. As described earlier in this document, Iowa's 2004 CWA Section 303(d) list is a part of the State's Integrated Report. The Integrated Report format is consistent with EPA guidance and includes 5 categories of waters. Category 5 of the State's Integrated Report constitutes the State's 2004 CWA Section 303(d) list.

In its April 15, 2005, comments provided to IDNR during the public comment period for the proposed 2004 list, EPA identified **51 waterbodies** previously listed as impaired under Parts 1 and 5 of Iowa's CWA Section 2002 list. These waters were proposed by IDNR for exclusion from Category 5 of Iowa's 2004 CWA Section 303(d) list or for changes in their listing status which could be considered as a change to the CWA Section 303(d) list (e.g., segment description changed, listed causal pollutant changed). In addition, IDNR removed **2 more waterbodies** not previously identified by EPA from its final 2004 CWA Section 303(d) list in its June 3, 2005, submission to EPA (Middle Fork South Beaver Creek, 02-CED-0432_1 and Buffington Creek, 02-IOW-00903_1). In that final submission, IDNR also restored **3 lakes** to its impaired waters list (Lake Darling, 03-SKU-01450_1; Lake Cornelia, 04-UDM-02290_L; Five Island Lake, 04-UDM-03850_L) and corrected its use impairment description for **Lake Hendricks** (01-WPS-00375_L). As a result of IDNR's changes to the list of waterbodies which were modified or removed from Iowa's CWA Section 303(d) list, EPA initiated its review of **49 waterbodies** to determine whether IDNR had "good cause" for modifying or not including these waters on its 2004 CWA Section 303(d) list.

In its review of the State's 2004 list, EPA has reviewed Iowa's description of the data and information the State relied upon in developing its list, its methodology for identifying waterbodies and IDNR's responses to public comment. In accordance with 40 CFR 130.7(d)(2), EPA is partially approving Iowa's 2004 CWA Section 303(d) list (Category 5 of their 2004 Integrated Report), consisting of a total of 216 waterbodies. In its June 3, 2005, submission of Iowa's final 2004 CWA Section 303(d) list, IDNR provided water-specific response to EPA's comments and questions regarding the 51 waters previously listed on the State's 2002 list. As a result of EPA's review of IDNR's response, the State's record of public comment to the 2004 proposed list and the IDNR ADB+ database, EPA is disapproving the State's removal of and is restoring 5 of those 51 waters

to Iowa's final 2004 CWA Section 303(d) list. In addition, IDNR removed an additional 2 waters from its Category 5 in its June 3, 2005, submission of its final 2004 CWA Section 303(d) list. EPA is partially disapproving that removal and is restoring 1 of those 2 waters to the State's final list. Three of the waters identified in IDNR's February 21, 2005, proposed list for removal were also identified in the State's June 3, 2005, submission of its final list for removal constituting duplication between the list of waters proposed for change or removal and those added to that group as part of the State's final submission (Mississippi River, 01-NEM-0010_4; Bear Creek, 03-SSK-0080_2; Milford Creek, IA 06-LSR-0305_0). Hence, in total, EPA is disapproving the removal of and restoring 6 waters to the State's CWA Section 303(d) list. The modification or removal of the remainder of those waters (43 waterbodies) from the State's CWA Section 303(d) list is approved by EPA. Table 2 contains those waters removed from the State's CWA Section 303(d) list and restore to the list by EPA. Table 3 contains those waters modified or removed from the State's CWA Section 303(d) list and approved by EPA.

A. IDNR Changes to Iowa's CWA Section 303(d) List Disapproved by EPA

IDNR delisted a segment of the Mississippi River near Clinton, Iowa (01-NEM-0010_4) on the basis that a TMDL was not needed because of the presence of an alternative control mechanism, which would restore water quality. This single Category 4b water was removed from the State's CWA Section 303(d) list based on the merits of its National Pollutant Discharge Elimination System (NPDES) permit. Federal regulations at 40 CFR 130.7(b)(ii) broadly provide for and EPA guidance supports such determinations where the state provides its rationale that the effluent limitations will achieve water quality standards within a reasonable period of time. It is EPA's determination that IDNR has not adequately demonstrated that the existing and effective NPDES permit will achieve water quality standards in a reasonable period of time.

Muchakinock Creek (04-LDM-0140_2) was proposed for delisting as part of IDNR's proposed list. IDNR cited its 2004 methodology as the basis for this delisting. The IDNR methodology states that previous listing of these General Use streams as impaired based on bioassessment data was in error. As described earlier in this document, IDNR does not believe that its bioassessment methods, developed for Class B streams, should be applied to General Use waters. In its response to EPA comment on the draft list, IDNR stated that this segment was not designated for an aquatic life use. EPA verified that the Iowa water quality standards include this segment as a Class B (Limited Resource) stream. This segment also lacks data on both biological indicators. IDNR's methodology would treat the absence of data for both indicators as "evaluated" rather than "monitored" data. As described earlier in this document, EPA does not agree with that assessment. In either instance, EPA does not agree with IDNR's decision to remove this Class B segment from the State's list because data indicating biological impairment derived from a single biological indicator is an adequate demonstration of aquatic use impairment. Therefore, EPA does not believe IDNR has demonstrated good cause for not listing consistent with the requirements of 40 CFR 130.7(b)(6)(iv).

A segment of Milford Creek (06-LSR-0305_0) and a segment of the Middle Fork of South Beaver Creek (02-CED-0432_1) were removed by IDNR because of provisions within its methodology regarding the application of bioassessment methods and indices for Class B streams to General Use waters. This provision was discussed earlier in this document. EPA is in agreement with IDNR regarding this assessment provision within the methodology and is approving the exclusion of other streams from the State's impaired waters list based on this provision. Neither of these two segments is designated for Class B use. However, EPA reviewed documentation created by IDNR staff for the development of TMDLs for these streams in which "severe" impairment was identified as part of IDNR's stressor identification process. These "Stressor Identification Documents" clearly identified water quality impairments inconsistent with the State's General Water Quality Criteria (e.g., algal blooms, extremely low dissolved oxygen levels, undesirable or nuisance aquatic life, aesthetically objectionable conditions) generally attributable to nutrient concentrations. Consistent with the provisions at 40 CFR 130.7(b)(iv), the State has not demonstrated that there is good cause not to list these two segments.

The State also removed a pollutant-specific listing for Windmill Lake (05-PLA-00430_L) from its 2004 list. IDNR stated that information gathered as part of the Iowa State University (ISU) Iowa Lakes Study suggests that the only cause of water quality impairment to the lake is algae and removed turbidity as a joint cause of impairment. EPA evaluated the data provided by ISU, particularly regarding inorganic suspended solids, and did not agree that the available data adequately supports excluding turbidity as a cause for impairment. Given that data, it is possible that inorganically-derived turbidity could contribute to the lakes water quality problems. EPA is restoring that existing listing to reflect both algae and turbidity as causes of impairment for listing purposes.

A segment of the North River (04-LDM-0300_2) was removed from the State's list. EPA assessed the data within IDNR's ADB+ database regarding the biological integrity of this segment. According to this data, the fish community within this segment is considered in fair condition only. Although IDNR reports within the ADB+ that the biological condition of the segment has improved since it was assessed in 1998, the fair condition of the segment's fish community warrants maintaining its listing as impaired for 2004. IDNR has not demonstrated good cause for not listing this segment.

EPA is disapproving the removal of 6 waterbodies from Iowa's CWA Section 303(d) list and is restoring those in the appropriate sub-categories within Category 5 of the State's Integrated Report. Table 2 lists each waterbody and supporting rationale.

**Table 2. Waters Removed by IDNR from Iowa’s CWA Section 303(d)
List and Restored to the List by EPA**

#	Waterbody	ADB+ Code	Use(s) Impaired	Added to 2004 IDNR Category	Pollutant	Comments
1	Mississippi River	01-NEM-0010_4	B(WW)	5a	Nutrients	De-listed by IDNR for 2004 list based on alternative control mechanism (NPDES permit) in-place. Archer Daniels Midland 1998 NPDES permit expired. No indication that permit conditions are resulting in the elimination of the impairment.
2	Muchakinock Creek	04-LDM-0140_2	B(LR)	5b	Unknown	2000 bioassessment shows poor condition of fish community, but lacks BM-IBI data. De-listed by IDNR for 2004 list for lack of BM data. F-IBI data is adequate indication of impairment.
3	Milford Creek	06-LSR-0305_0	General	5a	Nutrients	De-listed by IDNR for 2004 list for misapplication of bioassessment data to General Use stream. IDNR Stressor Identification Document identifies nutrients as a possible cause of impairment as well as conditions inconsistent with State’s General Water Quality Criteria. Downstream segment (06-LSR-0300_0) is listed in Category 5b. IDNR has not demonstrated that there is good cause not to list.

ADB+: Iowa DNR’s Clean Water Act, Section 305(b) data base

F-IBI: Index of Biotic Integrity using fish community data.

Gen. Use: Iowa’s General Use classification.

A: Iowa’s Class A, Recreational use.

BM-IBI: Index of Biotic Integrity using benthic macroinvertebrate community data.

B(WW): Iowa’s Class B, Significant resource warm water aquatic life use.

B(LR): Iowa’s Class B, Limited resource warm water aquatic life use.

Table 2. Waters Removed by IDNR from Iowa’s CWA Section 303(d) List and Restored to the List by EPA

4	Middle Fork South Beaver Creek	02-CED-0432_1	Gen. Use	5a	Nutrients	De-listed by IDNR for 2004 list. IDNR Stressor Identification Document identifies nutrients as a possible cause of impairment as well as conditions inconsistent with State’s General Water Quality Criteria. Downstream segment (06-LSR-0300_0) is listed in Category 5b. IDNR has not demonstrated that there is good cause not to list.
5	Windmill Lake	05-PLA-00430_L	A	5a	Turbidity	IDNR removed turbidity as pollutant for listing. ISU lake study data does not support IDNR contention that cause of impairment is solely algae. IDNR has not demonstrated that there is good cause not to list for turbidity.
6	North River	04-LDM-0300_2	B(WW)	5b	Unknown	2002 bioassessment shows impairment. F-IBI was fair and BM-IBI was good. Condition improved from 1998 bioassessment. IDNR has not demonstrated that there is good cause not to list.

ADB+: Iowa DNR’s Clean Water Act, Section 305(b) data base

F-IBI: Index of Biotic Integrity using fish community data.

Gen. Use: Iowa’s General Use classification.

A: Iowa’s Class A, Recreational use.

BM-IBI: Index of Biotic Integrity using benthic macroinvertebrate community data.

B(WW): Iowa’s Class B, Significant resource warm water aquatic life use.

B(LR): Iowa’s Class B, Limited resource warm water aquatic life use.

B. IDNR Changes to Iowa's CWA Section 303(d) List Approved by EPA

EPA is approving the modification to or removal of 43 waterbodies from the State's CWA Section 303(d) list consistent with the requirements of federal regulations at 40 CFR 130.7(b)(6)(iv). 40 CFR 130.7(b)(6)(iv) provides for the exclusion of waters from the State's CWA Section 303(d) list. These regulations require that the State "demonstrate good cause for not including water or waters on the list. Good cause includes, but is not limited to:

- more recent or accurate data;
- more sophisticated water quality modeling;
- flaws in the original analysis that led to the water being [listed]; or
- changes in conditions."

The rationale supporting the removal of these 43 waters from the State's list can be grouped into 5 general categories.

1. Waters with Approved TMDLs (12)

Twelve waterbodies were removed from the State's list because TMDLs have been developed for those waters and approved by EPA. In each instance, a TMDL has been developed for the listed pollutant or condition or IDNR and EPA have agreed that the TMDL will address the listed pollutant or condition. For some waters, they continue to be listed in Iowa's Category 5 for another pollutant or condition or they are listed in another Category within Iowa's Integrated Report based on other water quality data. These waters are included in Table 3 with information regarding each TMDL described in the last column.

2. New Water Quality Data Supports Change in Listing (13)

Three stream segments are being removed from the State list based on new water quality data which indicates that the use is supported with regard to the previously specified pollutants (Fivemile Creek, 05-CHA-0077_0; Jackson Creek, 05-CHA-0063_0; Walker Branch, 05-CHA-0061_0). New water quality data for the Elk River (01-MAQ-0030_1) also shows that pollutant-specific criteria for listed pollutants are not being exceeded, but biological impairment continues to exist. IDNR has moved this sub-segment into Category 5b.

IDNR has changed the pollutant cause supporting its listing of Littlefield Lake (05-NSH-00675_L) from siltation to algae and turbidity based on a review of available data. IDNR and EPA agree that any TMDL developed to address inorganic turbidity will address siltation-related impairment.

New water quality data for Spring Lake (04-RAC-00805_L) indicates water quality impairment is caused by turbidity. The previous listing identified rooted

aquatic plants as a water quality problem based on best professional judgment. This new data serves as a more accurate basis for listing and TMDL development.

New bioassessment data for Black Hawk Creek (02-CED-0370_2) indicates that there is no impairment.

IDNR removed six lakes from the State's list based on an evaluation of data provided by Iowa State University's (ISU) Lakes Study begun in 2000 which indicated that no water quality impairment exists (Badger Lake, 04-UDM-3395_L; Big Creek Lake, 04-UDM-0140_L; Central Park Lake, 01-MAQ-01580_L; Lacey Keosauqua Lake, 04-LDM-00160_L; Manteno Park Pond, 06-BOY-00263_L; Springbrook Lake, 04-RAC-02220_L). As the State's water quality standards do not presently contain numeric criteria for nutrients, IDNR's determination is based on the application of Carlson's (1977) Trophic State Index (TSI) approach for lakes to data for chlorophyll-a and secchi depth. Carlson's TSI functions as an interpretation or translation of the State's narrative water quality standards or General Water Quality Criteria. IDNR's assessment methodology for developing the 2004 CWA Section 303(d) list describes the approach in detail. EPA believes this approach generally represents a reasonable method of assessing lake water quality for nutrients until numeric criteria are adopted into State water quality standards. EPA will continue to work with IDNR regarding the assessment of nutrient-related impacts on water quality in Iowa. IDNR's approach will evolve in response to the collection of additional data regarding causative nutrient components and aquatic responses, particularly with regard to blue-green algae blooms and associated conditions. Never-the-less, EPA evaluated the State's final 2004 list to determine whether IDNR demonstrated "good cause" for not including these lakes on their list as is required at 40 CFR 130.7(b)(6)(iv). EPA evaluated the TSI values for each lake and the data collected by ISU to determine the water quality status of the lake and the overall trend in water quality over time since 2000. Specifically, EPA evaluated 3-year running averages for TSI values for chlorophyll-a and secchi depth to establish water quality status and trends. Based on a review of this data, EPA believes IDNR has established "good cause" for removing these waters from the State list.

EPA approves these changes to the State's list based on new water quality data which shows no impairment of the designated uses.

3. Flaw in the Original Analysis Supports Change in Listing (12)

As was previously discussed in this document, IDNR believes that smaller streams with differing hydrology and watershed characteristics and without a designated aquatic life use (i.e., General Use streams) possess inherently different biological character. IDNR believes it is inappropriate to apply both bioassessment protocols and benchmarks/indices developed for Class B streams to General Use streams for purposes of determining whether water quality

impairment exists. IDNR believes its reliance on these bioassessment tools to list General Use streams in 2002 was a flaw or error in that analysis. EPA agrees with the general principle supporting this rationale, assuming that streams not designated for aquatic life use (i.e., Class B) do indeed reflect the conditions attributed to General Use waters. As these streams are currently classified within State water quality standards for only General Use, EPA approves the removal of these 5 General Use streams from the State's list (Bear Creek, 03-SSK-0080_2; Buck Creek, 03-NSK-0042_0; Pigeon Creek, 06-WED-0042_0; Springbrook Creek, 04-RAC-02415_0; Buffington Creek, 02-IOW-00903_1).

Four stream sub-segments (Iowa River, 02-IOW-0070_3; Big Sioux River, 06-BSR-0010_2; Des Moines River, East Branch, 04-EDM-0020_1; W. Nishnabotna River, East Branch, 05-NSH-0140_0) were listed in error in 2002 based on data collected from another sub-segment. IDNR has removed these four sub-segments for which no water quality data is available and EPA approves that action.

IDNR modified its listing of Silver Lake (06-LSR-03105) from algae and turbidity to only turbidity based on a review of the existing data. IDNR believes the data does not support algae as a cause of impairment and is maintaining this listing for turbidity only. EPA agrees with this decision.

Skillet Creek (04-UDM-0170_0) was previously listed as impaired due to ammonia based on best professional judgment. IDNR maintains that there is no data for ammonia which supports listing this segment as impaired for this pollutant. IDNR has changed the listing of this segment to Category 5b with unknown causes of impairment. EPA approves that action to correct the error in 2002.

The 2002 listing for Williamson Pond (04-LDM-01995_L) included organic enrichment and turbidity as causes of impairment. IDNR removed the listing for organic enrichment as there is no data supporting its listing as a cause of impairment. IDNR has retained turbidity as a cause of impairment based on existing water quality data. EPA agrees with this modification.

4. Listing Change Limited to Segment Description (6)

Six stream segments remained on the State's list within Category 5, but with different location descriptions (Mississippi River, 03-SKM-0010_1; DD#3, 02-CED-0505_1; DD#71, 03-SSK-0100_0; Floyd River, 06-FLO-0020_2; Lytle Creek, 01-NMQ-0050_2; Prairie Creek, 01-MAQ-0130_0). In some instances, IDNR modified the description of the uppermost reach of a segment from "headwaters" to a specific location to more accurately reflect the beginning of the segment. In other instances, IDNR modified the location description to more accurately describe the location of the impairment or to simply correct an error in the previous description. EPA approves these modifications to listing descriptions.

Table 3 lists each modification or waterbody approved for removal from the State's CWA Section 303(d) list and the rationale supporting each removal.

Table 3. IDNR Changes to Iowa's CWA Section 303(d) List Approved by EPA

2002 Part 1 Waters					
	Waterbody Name	Waterbody Id.	2004	Rationale	TMDL
1	Badger Lake	04-UDM-3395_L	2b	TSI values for Chl-a and secchi below 65 with no increasing trend.	
2	Big Creek Lake	04-UDM-0140_L	1	TSI values for Chl-a and secchi below 60 with decreasing trend.	
3	Central Park Lake	01-MAQ-01580_L	2a	TSI values for Chl-a and secchi below 65 with no increasing trend.	
4	Don Williams Lake	04-UDM-01650_L	2b	Added by EPA in 2002. Listed in 2002 for organic enrichment.	TMDL for siltation and org. enrichment (3.10.05).
5	Lacey Keosauqua Lake	04-LDM-00160_L	2a	TSI values for Chl-a and secchi below 65 with mixed trend.	
6	Lake McBride	02-IOW-00390_L	2a	Added by EPA in 2002. Listed in 2002 for siltation and nutrients.	TMDL for siltation and nutrients (5.3.05).
7	Lake Meyers	01-TRK-02245_L	2b	Added by EPA in 2002. Listed in 2002 for siltation and nutrients.	TMDL for siltation and nutrients (3.10.05).
8	Lake Smith	04-EDM-00610_L	2a	Added by EPA in 2002. Listed for nox. aq. plants.	TMDL for nox. aq. plants (3.10.05).
9	Manteno Park Pond	06-BOY-00263_L	2b	TSI values for Chl-a and secchi mostly below 60.	
10	Springbrook Lake	04-RAC-02220_L	2b	TSI values for Chl-a and secchi below 60 with no increasing trend.	

TSI: Carlson's Trophic State Index.

Chl-a: Chlorophyll-a is a measure of water productivity and algal content.

Secchi: Secchi depth is a measure of water clarity.

DO: Dissolved oxygen

pH: A measure of water's acidity or basic condition.

BPJ: Best Professional Judgment.

Table 3. IDNR Changes to Iowa's CWA Section 303(d) List Approved by EPA

11	Upper Gar Lake	06-LSR-02830_L	2b	Added by EPA in 2002. Listed in 2002 for nox. aq. plants. TSI values for Chl-a and secchi below 65 with most values below 60.	TMDL for nox. aq. plants (1.13.05).
12	Fivemile Creek	05-CHA-0077_0	1	New water quality data for DO and pH support attainment.	
13	Jackson Creek	05-CHA-0063_0	1	New water quality data for DO support attainment.	
14	Iowa River	02-IOW-0070_3	3a	Correction of error in 2002. Data used for listing was for sub-segment 0070_2 which is listed as 5a in 2004. No data available for sub-segment 0070_3.	
15	Mariposa Lake	03-NSK-00350_L	4a	Listed in 1998 for siltation and nutrients. IDNR relisted in 2002 for algae and turbidity. TMDL will address cause of impairment.	TMDL for siltation and nutrients (12.14.04).
16	North Twin Lake	04-RAC-01390_L	4a	Listed in 2002 for turbidity and algae.	TMDL for turbidity and algae (12.14.04).

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Chl-a: Chlorophyll-a is a measure of water productivity and algal content.

Secchi: Secchi depth is a measure of water clarity.

DO: Dissolved oxygen

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BPJ: Best Professional Judgment.

Table 3. IDNR Changes to Iowa’s CWA Section 303(d) List Approved by EPA

17	Swan Lake	04-RAC-02370_L	4a	Listed in 1998 for exotic species and bacteria and in 2002 for turbidity and algae. IDNR deemed 1992 data for bacteria not representative of current conditions.	TMDL for turbidity and algae (12.14.04).
18	Walker Branch	05-CHA-0061_0	1	New water quality data for DO and ammonia supports attainment.	
19	Big Sioux River	06-BSR-0010_2	3a	This segment was inappropriately listed in 2002. There is no data available for sub-segment 0010_2. Sub-segments 0010_3 and _4 are listed as 5a.	
20	Bob White Lake	05-CHA-00690_L	5a	Change in cause of listing. Listed in 1998 for siltation and nutrients. Listed in 2002 for non-algal turbidity and bacteria. TMDL for siltation and nutrients will address the non-algal turbidity problem. Listed in 2004 in Category 5a for bacteria.	TMDL for siltation and nutrients (1.28.02).
21	Clear Lake	02-WIN-00450_L	5a	Listed for nutrients and algae in 2002. Listed in Category 5a in 2004 for bacteria, algae and turbidity.	TMDL for aquatic plants and nutrients (3.10.05).

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Chl-a: Chlorophyll-a is a measure of water productivity and algal content.

Secchi: Secchi depth is a measure of water clarity.

DO: Dissolved oxygen

pH: A measure of water’s acidity or basic condition.

BPJ: Best Professional Judgment.

Table 3. IDNR Changes to Iowa’s CWA Section 303(d) List Approved by EPA

22	Easter Lake	04-LDM-00490_L	5a	Listed in 2002 for siltation and nutrients. Listed in Category 5a in 2004 for turbidity.	TMDL for nutrients and siltation (5.3.05).
23	Elk River	01-MAQ-0030_1	5b	Listed in 2002 for DO and ammonia. New water quality data shows no violations of water quality criteria. Basis of listing changed to Category 5b in 2004 for biological impairment, unknown cause.	
24	Indian Lake	04-LDM-00150_L	5a	Added by EPA in 2002 for organic enrichment and nox. aq. plants. Listed in Category 5a in 2004 for turbidity and algae.	TMDL for org. enrichment and nox. aq. plants (3.10.05).
25	Littlefield Lake	05-NSH-00675_L	5a	Added by EPA in 2002. Change in cause of listing. Listed in 2002 for siltation. Listed in 2004 in Category 5a for algae and turbidity. Treatment of siltation and turbidity for purposes of a TMDL is equivalent.	
26	Mississippi River	03-SKM-0010_1	5a	Location description changed by IDNR to better reflect location of impairment.	

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Chl-a: Chlorophyll-a is a measure of water productivity and algal content.

Secchi: Secchi depth is a measure of water clarity.

DO: Dissolved oxygen

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BPJ: Best Professional Judgment.

Table 3. IDNR Changes to Iowa’s CWA Section 303(d) List Approved by EPA

27	Silver Lake	06-LSR-03105_L	5a	Change in cause of impairment. Listed in 2002 for algae and turbidity. Listed in 2004 for turbidity only. Data supports limiting listing to turbidity only.	
28	Skillet Creek	04-UDM-0170_0	5b	Listed in 2002 for ammonia based on BPJ. 2004 listing for unknown causes corrects previous error. No data supports ammonia as cause of impairment.	
29	Spring Lake	04-RAC-00805_L	5a	Added by EPA in 2002 for nox. aq. plants based on BPJ regarding rooted aq. vegetation. Corrected listing in 2004 for turbidity based on secchi data.	
30	Unnamed Creek (aka DD#3)	02-CED-0505_1	5a	Location description changed to specify “headwaters” location.	
31	Williamson Pond	04-LDM-01995_L	5a	Added by EPA in 2002 for organic enrichment and turbidity based on BPJ. Listed in 2004 for turbidity only based on secchi data.	
2002 Part 5 Waters					
32	Bear Creek	03-SSK-0080_2	3b	Location description changed to specify “headwaters” location. Bioassessment data not applicable to General Use stream.	

TSI: Carlson’s Trophic State Index.

Chl-a: Chlorophyll-a is a measure of water productivity and algal content.

Secchi: Secchi depth is a measure of water clarity.

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BPJ: Best Professional Judgment.

Table 3. IDNR Changes to Iowa’s CWA Section 303(d) List Approved by EPA

33	Black Hawk Creek	02-CED-0370_2	1	2002 bioassessment data shows attainment.	
34	Buck Creek	03-NSK-0042_0	3b	Bioassessment data not applicable to General Use stream.	
35	Pigeon Creek	06-WED-0042_0	3b	Bioassessment data not applicable to General Use stream.	
36	Springbrook Creek	04-RAC-02415_0	3b	Bioassessment data not applicable to General Use stream.	
37	Des Moines River, East Branch	04-EDM-0020_1	3a	Bioassessment data collected in sub-segment 0020_2 which is in Category 5b. Incorrect segment listed in 2002.	
38	DD#71	03-SSK-0100_0	5b	Location description changed to specify “headwaters” location.	
39	Floyd River	06-FLO-0020_2	5b	Location description corrected.	
40	Lytle Creek	01-NMQ-0050_2	5b	Location description corrected.	
41	Prairie Creek	01-MAQ-0130_0	5b	Location description changed to specify “headwaters” location.	
42	W. Nishnabotna River, E. Br.	05-NSH-0140_0	5b	Bioassessment data is for sub-segment 0140_1, but there is no data for sub-segment 0140_2.	
43	Buffington Creek	02-IOW-00903_1	3b	Bioassessment data not applicable to General Use stream.	

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Secchi: Secchi depth is a measure of water clarity.

DO: Dissolved oxygen

pH: A measure of water’s acidity or basic condition.

BPJ: Best Professional Judgment.

VI. Priority Ranking in Iowa's CWA Section 303(d) List

IDNR's listing methodology describes how the State will prioritize waterbodies for purposes of establishing TMDLs. Iowa's submission of its 2004 CWA Section 303(d) list included a priority ranking of each waterbody as required in Section 303(d)(1)(A) of the CWA and 40 CFR 130.7(b)(4) of EPA's implementing regulations.

VII. Iowa's Public Participation Process

IDNR public noticed its 2004 draft CWA Section 303(d) list beginning with the February 21, 2005, meeting of Iowa's Environmental Protection Commission. The list and IDNR's ADB+ water quality database were also made available for public review and comment through the IDNR website beginning February 21st. IDNR extended the public comment period from April 1, 2005 to April 15, 2005 at the request of several parties, including EPA. IDNR also published a public notice regarding public comment on the draft list in February 2005. IDNR received a total of 6 pieces of public comment, including those from EPA. IDNR finalized its 2004 CWA Section 303(d) list and submitted it for approval on May 26, 2005, and it was received by EPA on June 3, 2005.

EPA has reviewed Iowa's public participation process and has concluded that the State provided adequate public notice and opportunity for the public to comment on its decision regarding the CWA Section 303(d) list in compliance with federal requirements.

Appendix 1

2004 Iowa Integrated Report, Category 2b Waters

Waterbody	ADB+ Code	Use(s) Affected	Rationale for Category 2b
1) Turkey Creek ¹	01-TRK-0210_1	B(WW)	Partial support Class B, evaluated. 2000 Fish IBI was good. No BM-IBI available.
2) Lake Meyer ^{3*}	01-TRK-02245_L	A,B(LW)	Partial support Class B, evaluated. Full support/threatened Class A, monitored. Elevated nutrients, B-G levels. Delisted by IDNR in 2004. TSI 3 year rolling average for chl-a are 60/61/62 and secchi are 55/55/59. Original 1998 listing based on BPJ from Fisheries Division. Listed in 2002 for siltation and nutrients. TMDL completed for siltation and nutrients in 2005.
3) Cedar River ⁵	02-CED-0110_1	B(WW)	Partial support Class B, evaluated. 2002 BM IBI was fair. No F-IBI. Lack of violations of water quality criteria contrasts with IBI data. IDNR classifies bioassessment data as 'evaluated' because the methods and metrics for BM are believed by IDNR to be inappropriate for large non-wadeable streams.
4) Rodgers Park Lake ¹	02-CED-02750_L	A,B(LW)	Partial support Class A, evaluated. Full support/threatened Class B, evaluated. Low TSI values for response variables (chl-a and secchi below 60) with declining trend. ISU data on B-G problems in lake suggest possible aesthetics problems.

* Delisted from 2002 Impaired Waters List by IDNR.

Added to Iowa 2004 Impaired Waters List by EPA.

¹ Water quality data does not indicate the use is impaired.

² Water quality data is not representative of current conditions or is inconclusive.

³ TMDL has been completed and approved by EPA.

⁴ Bioassessment indices and water quality criteria do not apply to General Use streams. ⁵Bioassessment data are not representative of large river systems.

⁶ E. coli indicator not the effective water quality standard.

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2004 Iowa Integrated Report, Category 2b Waters

5) Green Belt Lake ¹	02-CED-03725_L	A,B(LW)	Partial support Class A, evaluated. Full support Class B, evaluated. TSI values are low. B-G blooms are of concern.
6) Rock Creek ¹	02-CED-0510_2	B(WW)	Partial support Class B, evaluated. Fish kill in July 2002 with no known cause. August 2002 F IBI was excellent and BM IBI was good.
7) Iowa River ⁵	02-IOW-0010_1	B(WW)	Class A not assessed because of USGS switch to E.coli as indicator. E.coli data from NAWQA project not available for Wapello, Iowa station according to IDNR staff. Partial support Class B, monitored. 2002 BM-IBI was fair. Lack of exceedences of water quality criteria contrasts with BM-IBI data. No F-IBI. IDNR classifies bioassessment data as 'evaluated' because the methods and metrics for BM are believed by IDNR to be inappropriate for large non-wadeable streams.
8) Iowa River ⁵	02-IOW-0010_2	B(WW)	Same as above.
9) Iowa River ⁶	02-IOW-0050_2	A	Class A not supported, evaluated, but fecal coliforms data was insufficient in data points. Additional E.coli data suggests impairment, but not the effective standard. Full support Class B, evaluated.
10) Morse Lake ⁷	02-IOW-00890_L	B(LW)	Partial support Class B, evaluated. BPJ by IDNR Wildlife Bureau.
11) Bear Creek [#]	02-IOW-0180_1	B(LR)	Fully support/threatened Class B, evaluated. Fish IBI was fair. BM-IBI not available because BM sampling incomplete, but indicated impairment.

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Added to Iowa 2004 Impaired Waters List by EPA.

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³ TMDL has been completed and approved by EPA.

⁴ Bioassessment indices and water quality criteria do not apply to General Use streams. ⁵Bioassessment data are not representative of large river systems.

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2004 Iowa Integrated Report, Category 2b Waters

12) Geode Lake ^{1,7}	03-SKU-00650_L	A, B(LW)	Partial support Class A, evaluated. ISU study showed large populations of B-G in late summer. TSI values for TP, secchi and chl-a are all below 60. N:P ratio very high (133). Fully support/ threatened Class B, evaluated was likely based completely on BPJ.
13) Cedar Creek ⁵	03-SKU-0090_1	B(WW)	Partial support Class B, evaluated. Ambient water quality data indicates full support, but 2002 BM-IBI was fair. No F-IBI.IDNR classifies bioassessment data as 'evaluated' because the methods and metrics are believed by IDNR to be inappropriate for large non-wadeable streams.
14) Hickory Creek ²	04-RAC-0051	B(LR)	Incomplete and dated bioassessment information (1994) prior to application of biometrics. Field sampling judged to be inadequate.
15) Springbrook Lake ^{1*}	04-RAC-02220_L	B(LW)	Full support Class A, monitored. Partial support Class B, evaluated. Primarily assessed based on BPJ. 3 year rolling average TSI values for chl-a and secchi are lower than 60. ISU study suggested possible issues with B-G. Delisted by IDNR in 2004.

* Delisted from 2002 Impaired Waters List by IDNR.

Added to Iowa 2004 Impaired Waters List by EPA.

¹ Water quality data does not indicate the use is impaired.

² Water quality data is not representative of current conditions or is inconclusive.

³ TMDL has been completed and approved by EPA.

⁴ Bioassessment indices and water quality criteria do not apply to General Use streams. ⁵Bioassessment data are not representative of large river systems.

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16) Des Moines River ²	04-UDM-0030_1	B(WW)	Fully support/threatened Class B, monitored. Fish consumption use not assessed. Violations of human health, fish consumption criterion for mercury. IDNR cites issues with quality of analyses for mercury in water and lack of fish tissue evidence above or below segment. Reliability of water column-based data is low.
17) Don Williams Lake ^{3*}	04-UDM-01650_L	A,B(LW)	Full support/threatened Class A, monitored and partial support Class B, evaluated. 3 year rolling average TSIs for chl-a and secchi below 60 and steady. TSI for P is high and N:P ratio is reported to be very high (186). TMDL for organic enrichment and siltation in 2005. Delisted by IDNR in 2004.
18) Badger Lake ^{1*}	04-UDM-03395_L	A,B(LW)	Full support/threatened Class A, monitored and partial support Class B, evaluated due to siltation. High inorganic turbidity. TSIs for chl-a and secchi are in low 60s with very high P. N:P ratio is high (122). Carp problems cited. Productivity data inconclusive. Delisted by IDNR in 2004.
19) Wilson Park Lake ¹	05-PLA-00380_L	A,B(LW)	Partial support Class A, evaluated and full support/threatened Class B, evaluated. 3 year rolling average TSIs for chl-a and secchi are at 65 or below and appear to be increasing with high TSIs for P (>65). N:P ratio is 17. B-G cited as a problem. TSIs show significant decrease in 2005 (50+). Productivity data inconclusive.

* Delisted from 2002 Impaired Waters List by IDNR.

Added to Iowa 2004 Impaired Waters List by EPA.

¹ Water quality data does not indicate the use is impaired.

² Water quality data is not representative of current conditions or is inconclusive.

³ TMDL has been completed and approved by EPA.

⁴ Bioassessment indices and water quality criteria do not apply to General Use streams. ⁵Bioassessment data are not representative of large river systems.

⁶ E. coli indicator not the effective water quality standard.

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2004 Iowa Integrated Report, Category 2b Waters

20) Manteno Park Pond ^{1,7*}	06-BOY-00263_L	B(LW)	Class A full support, monitored and partial support for Class B, evaluated due largely to fisheries staff BPJ. 3 year rolling average TSIs for chl-a and secchi are mostly mid-50s with low N and moderate P. N:P ratio is 13.
21) Crawford Creek Impoundment ¹	06-LSR-00790_L	A,B(LW)	Partial support of Class A, evaluated and full support/threatened for Class B, evaluated. TSIs for chl-a and secchi are in the high 50s showing improvement. TP and TN concentrations are low. N:P ratio is 16. IDNR cites significant B-G problems.
22) Mill Creek Lake ¹	06-LSR-01760_L	A,B(LW)	Partial support of Class A, evaluated and full support/threatened for Class B, evaluated. TSIs for chl-a and secchi have decreased from high/mid-60s to low 50s. N:P ratio is 12. IDNR cites significant B-G problems.
23) Upper Gar Lake ^{3*}	06-LSR-02830_L	A,B(LW)	Full support/threatened of Class A, monitored and partial support of Class B, evaluated. 3 year rolling average TSIs for chl-a and secchi are in the upper 50s, lower 60s. N:P ratio is 14. Inorganic suspended solids are high. IDNR cites B-G problems, but a TMDL for noxious aquatic plants was completed in 2005. IDNR delisted in 2004.

* Delisted from 2002 Impaired Waters List by IDNR.

Added to Iowa 2004 Impaired Waters List by EPA.

¹ Water quality data does not indicate the use is impaired.

² Water quality data is not representative of current conditions or is inconclusive.

³ TMDL has been completed and approved by EPA.

⁴ Bioassessment indices and water quality criteria do not apply to General Use streams. ⁵Bioassessment data are not representative of large river systems.

⁶ E. coli indicator not the effective water quality standard.

⁷ Best Professional Judgment (BPJ) serves as sole basis of assessment. No water quality data indicating water quality standards are violated.

Appendix 2

2004 Iowa Integrated Report, Category 3b Waters

#	Waterbody	ADB+Code	Use(s) Affected	Rationale for Category 3b
1	Goose Lake ⁷	01-MAQ-01160_L	B(LW)	Wetland - BPJ
2	Green Island Lake ⁷	01-NEM-00230_L	B(LW)	Wetland - BPJ
3	Muscatine Slough ⁴	01-NEM-0050_2	Gen. Use	2002 bioassessment of Gen. Use stream. F-IBI poor and BM-IBI good. IDNR considers this 'evaluated' data for General Use stream.
4	Duck Creek ⁴	01-NEM-0061_0	Gen. Use	2002 bioassessment of Gen. Use stream. F-IBI poor, no BM-IBI. IDNR considers this 'evaluated' data. Duck Creek has 3 segments. This is the upper/headwaters segment. The lower segments to mouth are B(LR) and A, B(LR), respectively. IDNR considers this 'evaluated' data for General Use stream.
5	Lytle Creek ²	01-NMQ-0050_1	B(WW)	Citation to Methodology protocol addressing mussel data. Baseline mussel data contains less than 4 species.

* Delisted from 2002 Impaired Waters List by IDNR.

Added to Iowa 2004 Impaired Waters List by EPA.

¹ Water quality data does not indicate the use is impaired.

² Water quality data is not representative of current conditions or is inconclusive.

³ TMDL has been completed and approved by EPA.

⁴ Bioassessment indices and water quality criteria do not apply to General Use streams. ^{5,5} Bioassessment data are not representative of large river systems.

⁶ E. coli indicator not the effective water quality standard.

⁷ Best Professional Judgment (BPJ) serves as sole basis of assessment. No water quality data indicating water quality standards are violated.

2004 Iowa Integrated Report, Category 3b Waters

6	Unnamed Tributary to Otter Creek ⁴	01-TRK-0399_0	Gen. Use	Single (July 2002) fish kill attributed to unknown/natural causes (i.e., runoff after dry weather). 2002 bioassessment of Gen. Use stream. F-IBI good/fair and BM-IBI fair/fair. IDNR considers this 'evaluated' data for General Use stream.
7	Upper Iowa River ²	01-UIA-0120_2	B(WW)	Citation to Methodology protocol addressing mussel data. Baseline mussel data contains less than 4 species.
8	Ten Mile Creek ¹	01-UIA-0340_0	B(CW)	Single (July 2002) fish kill attributed to unknown/natural causes (i.e., runoff after dry weather).
9	Princeton State Wildlife Area ⁷	01-WPS-0005_L	Gen. Use	Wetland – BPJ
10	Muskrat Slough ⁷	01-WPS-00180_L	B(LW)	Wetland – BPJ
11	Troy Mills Marsh ⁷	01-WPS-00260_L	B(LW)	Wetland – BPJ
12	East Fork Wapsipinicon River [#]	01-WPS-0190_3	B(LR)	1995 bioassessment data show impairment. F-IBI was fair and BM-IBI was fair. Not listed by IDNR because of age of data. No information available indicating that these data are not representative of current conditions.
13	East Fork Wapsipinicon River ⁴	01-WPS-0190_6	Gen. Use	2002 bioassessment of Gen. Use stream. F-IBI fair and BM-IBI fair. IDNR considers this 'evaluated' data for General Use stream.

* Delisted from 2002 Impaired Waters List by IDNR.

Added to Iowa 2004 Impaired Waters List by EPA.

¹ Water quality data does not indicate the use is impaired.

² Water quality data is not representative of current conditions or is inconclusive.

³ TMDL has been completed and approved by EPA.

⁴ Bioassessment indices and water quality criteria do not apply to General Use streams. ⁵ Bioassessment data are not representative of large river systems.

⁶ E. coli indicator not the effective water quality standard.

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14	Sweet Marsh Reservoir ⁷	01-WPS-01905_L	B(LW)	Wetland – BPJ
15	Sweet Marsh Segment C ⁷	01-WPS-01906_L	B(LW)	Wetland –BPJ
16	Sweet Marsh Segment B ⁷	01-WPS-01907_L	B(LW)	Wetland – BPJ
17	Sweet Marsh Segment A ⁷	01-WPS-01908_L	B(LW)	Wetland – BPJ
18	Unnamed Tributary to North Fork Walnut Creek ⁴	01-WPS-0253_0	Gen. Use	2002 bioassessment of Gen. Use stream. F-IBI good/good and BM-IBI fair/fair. IDNR considers this ‘evaluated’ data for General Use stream.
19	Miners Creek ²	01-YEL-0010_1	B(LR)	1994 bioassessment notes regarding overall water quality condition, but ‘evaluated’ because of age. No biological metrics applied, no IBI calculated.
20	Sugar Creek#	02-CED-0170_1	B(WW)	1996 bioassessment shows impairment. BM-IBI was fair and F-IBI was good. Not listed by IDNR because of age of data. No information available indicating that these data are not representative of current conditions.

* Delisted from 2002 Impaired Waters List by IDNR.

Added to Iowa 2004 Impaired Waters List by EPA.

¹ Water quality data does not indicate the use is impaired.

² Water quality data is not representative of current conditions or is inconclusive.

³ TMDL has been completed and approved by EPA.

⁴ Bioassessment indices and water quality criteria do not apply to General Use streams. ⁵ Bioassessment data are not representative of large river systems.

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2004 Iowa Integrated Report, Category 3b Waters

21	Middle Fork South Beaver Creek#	02-CED-0432_1	Gen. Use	De-listed by IDNR for 2004 list. IDNR Stressor Identification Document identifies nutrients as a possible cause of impairment as well as conditions inconsistent with State's General Water Quality Criteria. Upstream segment receives POTW discharge. IDNR has not demonstrated that there is good cause not to list.
22	Middle Fork South Beaver Creek ²	02-CED-0432_2	Gen. Use	2001 water quality data for Gen. Use stream. Fish kills in 1991, 1994, 1995 and 1997. IDNR reports that responsible facilities are no longer in the watershed. Not representative of current conditions. Single violation of ammonia chronic wqc and double violation of criterion for dissolved oxygen. No violations of the acute wqc. Water quality criteria are not applicable to Gen. Use waters.
23	Dry Run (aka Twomile Creek) ¹	02-CED-0460_2	Gen. Use	Single (1998) fish kill with unknown source.
24	Burr Oak Creek ²	02-CED-0490_1	B(LR)	1992 and 1994 bioassessment notes prior to development of metrics. IDNR considers 'evaluated' because of age.
25	Unnamed Creek (aka Ray Lake Drain) ²	02-ICD-00345_0	B(LR)	1994 bioassessment notes prior to development of metrics. IDNR considers 'evaluated' because of age.

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26	Hawkeye Wildlife Area ⁷	02-IOW-000410_L	B(WW)	Wetland – BPJ
27	Buffington Creek ⁴	02-IOW-00903_1	Gen. Use	2001 bioassessment of Gen. Use stream shows good fish community condition and fair benthic macroinvertebrate community condition. IDNR considers this ‘evaluated’ data for General Use stream.
28	Miller Creek ⁴	02-IOW-0147_0	Gen. Use	2002 bioassessment data with substantially reduced dissolved oxygen levels. F-IBI poor and BM-IBI poor. Neither bioassessment nor water quality criteria apply to Gen. Use waters.
29	Otter Creek Marsh ⁷	02-IOW-02015_L	B(LW)	Wetland - BPJ
30	West Twin Lake ⁷	02-IOW-04045_L	B(LW)	Wetland – BPJ
31	Elk Creek ²	02-SHL-0030_0	B(LR)	1999 and 2000 bioassessment data shows fair (BM) and fair/poor (fish) conditions, but considered ‘evaluated’ because of proximity to upstream marsh.
32	Elk Creek Marsh ⁷	02-SHL-00390_L	B(LW)	Wetland - BPJ
33	Big Marsh ⁷	02-WFC-00260_L	B(LW)	Wetland - BPJ
34	Rice Lake ⁷	02-WIN-00210_L	B(LW)	Wetland – BPJ
35	Clear Lake Marsh ⁷	02-WIN-00370_L	B(LW)	Wetland – BPJ
36	Wild Goose Slough ⁷	02-WIN-00850_L	B(LW)	Wetland – BPJ

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37	North Skunk River ²	03-NSK-0020_1	B(LR)	2002 bioassessment shows good (BM) and poor (fish) conditions, but 'evaluated' because watershed/river size too large for methods. IDNR cites difficulties in collecting fish at site.
38	Buck Creek ^{4*}	03-NSK-0042_0	Gen. Use	2001 bioassessment of Gen. Use stream shows poor F-IBI and excellent BM-IBI. IDNR considers this 'evaluated' data for General Use stream.
39	South Skunk River [#]	03-SSK-0020_1	B(LR)	1999-2002 IDNR WQ bioassessment shows impairment with fair BM conditions and no F-IBI. IDNR staff believes streams draining watersheds larger than 500 sq. miles are beyond the calibration range for the BM-IBI. However, 2002 IDNR Fisheries bioassessment shows fair conditions (F-IBI). Not listed by IDNR because of stream size (BM-IBI) and fisheries data collected by IDNR-Fisheries Division. Fisheries Division data are adequate indication of impairment.
40	Hendrickson Marsh ⁷	03-SSK-00450_L	B(LW)	Wetland – BPJ

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41	Bear Creek ^{1,4}	03-SSK-0080_2	Gen. Use	1997 bioassessment of Gen. Use stream shows poor/fair F-IBI and good/fair BM-IBI. IDNR considers this 'evaluated' data for General Use stream. Single fish kill in 2001.
42	Burt Lake (aka Swag Lake) ⁷	04-BLU-00800_L	B(LW)	Wetland – BPJ
43	East Fork Des Moines River ¹	04-EDM-0010_2	B(WW)	2002 bioassessment shows good (BM) conditions with no fish data.
44	Union Slough ⁷	04-EDM-00190_L	B(LR)	Wetland – BPJ
45	Lotts Creek ⁴	04-EDM-0041_0	Gen. Use	2002 bioassessment of Gen. Use stream shows fair F-IBI and fair BM-IBI. IDNR considers this 'evaluated' data for General Use stream.
46	Des Moines River ¹	04-LDM-0010_4	B(WW)	Single (2002) fish kill involving shovelnose sturgeon.
47	Muchakinock Creek*#	04-LDM-0140_2	B(LR)	2000 bioassessment shows poor condition of fish community, but lacks BM-IBI data. De-listed by IDNR for 2004 list for lack of BM data. F-IBI data is adequate indication of impairment.
48	Lahart Area ⁷	04-LDM-0175_L	B(LW)	Wetland – BPJ
49	Black Hawk Wildlife Area ⁷	04-RAC-00477_L	B(LW)	Wetland – BPJ
50	North Raccoon River ²	04-RAC-0050_3	B(LR)	1994 bioassessment notes prior to development of metrics, 'evaluated' because of age.

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51	Little Storm Lake ⁷	04-RAC-00531_L	B(LW)	Wetland – BPJ
52	South Twin Lake ⁷	04-RAC-01395_L	B(LW)	Wetland – BPJ
53	Cedar Creek ²	04-RAC-0150_2	B(LR)	1994 bioassessment notes prior to development of metrics, ‘evaluated’ because of age. 1998 fish kill in tributary stream (DD21).
54	Cedar Creek ⁴	04-RAC-0160_1	Gen. Use	2001 bioassessment of Gen. Use stream shows fair F-IBI and BM-IBI. IDNR considers this ‘evaluated’ data for General Use stream.
55	Sunken Grove Lake ⁷	04-RAC-01610_L	B(LW)	Wetland – BPJ
56	South Raccoon River ²	04-RAC-0180_2	B(LR)	1994 bioassessment notes prior to development of metrics, ‘evaluated’ because of age.
57	Bays Branch ⁷	04-RAC-02085_L	B(LW)	Wetland – BPJ
58	Springbrook Creek ^{4*}	04-RAC-02415_0	Gen. Use	2001 bioassessment of Gen. Use stream shows fair fish condition and poor benthic macroinvertebrate condition. IDNR considers this ‘evaluated’ data for General Use stream.
59	Burr Oak Lake ⁷	04-UDM-01055_L	B(LW)	Wetland – BPJ
60	Brushy Creek ²	04-UDM-0270_2	B(LR)	1994 bioassessment notes prior to development of metrics, ‘evaluated’ because of age.
61	Soldier Creek ²	04-UDM-0290_0	B(LR)	1994 bioassessment notes prior to development of metrics, ‘evaluated’ because of age.

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62	Lizard Creek ²	04-UDM-0300_1	B(WW)	Citation to Methodology protocol addressing mussel data. Baseline mussel data contains less than 4 species. 2002 bioassessment data shows excellent and good conditions, fish and macroinvertebrates, respectively.
63	Lizard Lake ⁷	04-UDM-03110_L	B(LW)	Wetland – BPJ
64	North Branch Lizard Creek ²	04-UDM-0327_0	B(LR)	1994 bioassessment notes prior to development of metrics, 'evaluated' because of age.
65	Badger Creek ²	04-UDM-0330_0	B(LR)	1994 bioassessment notes prior to development of metrics, 'evaluated' because of age.
66	Deer Creek ²	04-UDM-0335_0	B(LR)	1994 bioassessment notes prior to development of metrics, 'evaluated' because of age.
67	Beaver Creek ²	04-UDM-0340_0	B(LR)	1994 bioassessment notes prior to development of metrics, 'evaluated' because of age.
68	Indian Creek ²	04-UDM-0350_0	B(LR)	1994 bioassessment notes prior to development of metrics, 'evaluated' because of age.
69	Silver Creek ¹	04-UDM-0385_0	B(LR)	Single (2002) fish kill of unknown cause.

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70	Chariton River ⁴	05-CHA-00301_0	Gen. Use	Neither designated use-based wqc nor bioassessment metrics apply to Gen. Use waters. F-IBI is poor. IDNR considers this 'evaluated' data for General Use stream. ADB+ identifies DO, nutrient and atrazine problems and poor conditions (fish).
71	Chariton Creek ⁴	05-CHA-00302_0	Gen. Use	Designated use-based wqc do not apply to Gen. Use waters. IDNR considers this 'evaluated' data for General Use stream. ADB+ identifies, DO, nutrient and atrazine problems.
72	West Jackson Creek#	05-CHA-0064_0	B(LR)	1999-2002 IDNR Fisheries bioassessment shows impairment with poor conditions (F-IBI). Not listed by IDNR with IDNR Fisheries Division data. Fisheries Division data are adequate indication of impairment.
73	Dick Creek#	05-CHA-0067_0	B(LR)	1999 and 2001 IDNR Fisheries bioassessments show impairment with poor conditions (F-IBI). Not listed by IDNR with IDNR Fisheries Division data. Fisheries Division data are adequate indication of impairment.

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74	Little River#	05-GRA-0080_0	B(LR)	2002 bioassessment shows impairment with poor conditions (F-IBI). Not listed by IDNR for lack of macroinvertebrate data. F-IBI data are adequate indication of impairment.
75	Talmadge Hill Marsh ⁷	05-GRA-01420_L	B(LW)	Wetland – BPJ
76	Walnut Creek Marsh ⁷	05-GRA-01950_L	B(LW)	Wetland – BPJ
77	East Nishnabotna River ⁵	05-NSH-0020_2	B(WW)	2002 bioassessment data show fair conditions (BM), but no F-IBI data. IDNR considers this ‘evaluated’ data as this segment drains a watershed of greater than 500 sq. miles and exceeds the calibration range of the BM indices for Class B streams.

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78	Unnamed Tributary to East Nishnabotna River ⁴	05-NSH-0038_0	Gen. Use	2002 bioassessment of Gen. Use stream with poor fish community. IDNR considers this 'evaluated' data for general use stream.
79	Walnut Creek#	05-NSH-0100_1	B(WW)	1996 IDNR WQ bioassessment shows impairment with poor and fair (F-IBI and BM-IBI) conditions corroborated by a 1999 IDNR Fisheries bioassessment showing fair conditions (F-IBI). IDNR did not list because of age of 1996 data and Fisheries Division fish data. No information available indicating that these data are not representative of current conditions.
80	Walnut Creek#	05-NSH-0100_2	B(LR)	1998 IDNR Fisheries bioassessment shows impairment with fair conditions (F-IBI). IDNR did not list because fish data came from Fisheries Division. Fisheries Division data are adequate indication of impairment.
81	Silver Creek#	05-NSH-0120_0	B(LR)	1998 IDNR Fisheries bioassessment shows impairment with poor conditions (F-IBI). Not listed by IDNR because data came from Fisheries Division. Fisheries Division data are adequate indication of impairment.

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82	West Branch One Hundred and Two River#	05-PLA-0040_1	B(WW)	1995 bioassessment shows impairment with fair conditions for fish and BM with calculated IBI values. Not listed by IDNR because of age of data. No information available indicating that these data are not representative of current conditions.
83	West Tarkio Creek#	05-TAR-0020_0	B(LR)	1995 bioassessment shows impairment with fair conditions for fish and BM with calculated IBI values. Not listed by IDNR because of age of data. No information available indicating that these data are not representative of current conditions.
84	Dunlap Pond ⁷	06-BOY-00270_L	B(LW)	Wetland – BPJ
85	Perry Creek ²	06-BSR-0021_0	B(LR)	1991 bioassessment notes prior to development of metrics, 'evaluated' because of age.

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86	Bear Creek ⁴	06-LSR-0193_0	Gen. Use	2002 bioassessment of Gen. Use stream shows fair fish community. IDNR considers this 'evaluated' data for General Use stream.
87	Milford Creek* [#]	06-LSR-0305_0	Gen. Use	De-listed by IDNR for 2004 list for misapplication of bioassessment data to General Use stream. IDNR Stressor Identification Document identifies nutrients as a possible cause of impairment as well as conditions inconsistent with State's General Water Quality Criteria. Downstream segment (06-LSR-0300_0) is listed in Category 5b. IDNR has not demonstrated that there is good cause not to list.
88	Pigeon Creek ^{4*}	06-WED-0042_1	Gen. Use	1997 bioassessment of Gen. Use stream shows poor fisheries and good BM conditions. 2002 IDNR Fisheries Division data also shows poor fisheries condition. IDNR considers this 'evaluated' data for General Use stream.
89	Lower Decatur Lake ⁷	06-WEM-00428_L	B(LW)	Wetland – BPJ
90	Middle Decatur Lake ⁷	06-WEM-00429_L	B(LW)	Wetland – BPJ
91	Decatur Lake ⁷	06-WEM-00430_L	B(LW)	Wetland – BPJ
92	Blackbird Bend ⁷	06-WEM-00453_L	B(LW)	Wetland – BPJ

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Appendix 3

Waterbodies Removed with Good Cause from Iowa's 1998 List in 2002

#	Waterbody	ADB+	2004 Category	IDNR Rationale
1	Allen Green Refuge ³	02-ICM-00145_L	4c	Impairment caused by hydrologic modification.
2	Amana Lily Pond ¹	02-IOW-00505_L	2a	Aquatic life use supported based on re-assessment of siltation issue.
3	Badger Lake (Monona) ³	06-WEM-00450_L	4c	Impairment caused by hydrologic modification resulting from isolation of ox bow lake.
4	Bays Branch ⁴	04-RAC-02085_L	3b	Wetland – BPJ
5	Big Marsh ⁴	02-WFC-00260_L	3b	Wetland – BPJ
6	Big Sioux River ²	06-BSR-0020_1,2,3	5a,5a,3a	Single segment now 3 sub-segments which are either listed or have no information.
7	Big Wall Lake ²	02-IOW-00860_L	4c	Impaired caused by hydrology and nuisance species.
8	Black Hawk Wildlife Area ⁴	04-RAC-00477_L	3b	Wetland – BPJ

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Waterbodies Removed with Good Cause from Iowa's 1998 List in 2002

9	Blackbird Bend ⁴	06-WEM-00453_L	3b	Wetland – BPJ
10	Blencoe Lake ³	06-WEM-00420_L	4c	Impairment caused by hydrologic modification resulting from isolation of Missouri River floodplain lake.
11	Brown's Slough ²	05-CHA-00310_L	2a	IDNR management objectives changed to reflect wet soil wetland.
12	Buffalo Creek#	01-WPS-0110_1,_2,_3	2a,2a,2a	Single segment now 3 sub-segments. 2001 bioassessments for each segment show impairment in segment 1 and attainment in segments 2 and 3. Impairment for segment 1 based on BM-IBI (fair) with F-IBI (good). EPA added sub-segment _1.
13	Burt Lake ⁴	04-BLU-00800_L	3b	Wetland – BPJ

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