Waterbody specific rationale for those waterbodies and impairments on the 1998 303(d) list, but not included on the 2002 303(d) list.

IA 02-ICM-00145-L Allen Green Refuge Marsh (nutrients) New Data

This wetland was assessed from 1994-1998 as FST, but in 1998 was downgraded to PS. Comments from the DNR Wildlife Biologist indicate wetland quality is adversely impacted by chronic drying from a drainage ditch that runs adjacent to the wetland. This assessment of the Class B(LW) aquatic life uses as "partially supported" continues through the 2002 305(b) report. The previous (1998) assessment of support of the Class B(LW) uses ("partially supported") was reviewed by the DNR Wildlife Bureau in 2002. According to the DNR Wildlife Biologist, the nutrient impact identified for this wetland in previous Section 305(b) assessments no longer exists: the cattle feedlot virtually on the banks of the wetland has now been abandoned for several years. The impacts from hydrological modification caused by the adjacent drainage ditch, however remain. This ditch has completely altered the natural hydrology of the wetland. The ditch is lower than the bottom of the wetland basin and tends to speed drying of the basin such that the wetland has been altered from a mostly open semi-permanent wetland to a seasonal wetland dominated by perennial emergent vegetation. Water is pumped into the wetland in the fall for use by migratory waterfowl, but the rate of water loss to the drainage ditch makes year-round pumping to restore wetland function (1) impossible given current pumping capabilities and (2) cost prohibitive. Therefore, the unknown impairment to Allen Green Refuge as listed on the 1998 303(d) list has been changed to flow alteration and included on Part 2 of the 2002 303(d) list, and the nutrient impairment included on the 1998 303(d) list has been removed due to changes in conditions and an updated assessment from the DNR Wildlife Biologist.

IA 02-IOW-00505-L Amana Lily Pond (siltation) New Data

This wetland was assessed as PS from 1994-1998 due to impacts from siltation. A watershed analysis was completed by the Natural Resource Conservation Service (NRCS) in cooperation with the Amana Society as part of a Watershed Protection Development Grant from the Iowa Department of Agriculture and Land Stewardship, Division of Soil Conservation. This report indicates that sediment delivery from the watershed is not significant, and that any shoreline erosion likely stays near the edge of the pond. The upland watershed of the wetland is not large enough to adequately supply and maintain open water on a yearly basis, and it is thought that the millrace off the Iowa River is the major supply of water through seepage to the wetland. Based on this new assessment, siltation is not an impairment to the wetland and is not included on the 2002 303(d) list.

IA 06-WEM-00450-L Badger Lake (siltation) New Data / New Modeling Data

This wetland was assessed as FST in 1994 and 1996, but at the recommendation of DNR Wildlife Bureau, was downgraded to NS in 1998 due to hydrologic modifications and siltation. A site visit by TMDL staff and DNR Wildlife Biologist in 2000 indicates that this oxbow lake is approximately 4 miles from the Missouri River and has only a few feeder streams to supply surface runoff. This wetland has very little non-point source sedimentation potential, and the water level in the wetland reflects that of the groundwater table. It appears the only way to raise the water level in the wetland is to pump water in from another source. In addition to the site visit, watershed modeling on this wetland indicates that sediment delivery to the wetland is very low. Therefore, Badger Lake will remain on Part 2 of the 2002 303(d) list as impaired by flow altertions, but the siltation impairment will be removed based on the new modeling data, and the analysis of this new data.

IA 04-UDM-03395-L Badger Lake (siltation and organic enrichment) New Data

This lake has been assessed as PS since 1992. Water quality improvements were noted in 1998 when the water quality trend was changed from declining to improving. A 2002 assessment by the DNR Fisheries Biologist indicates that the water quality continues to be stable and fish growth in the lake is

improving. Therefore, based on the new biologist assessment, the impairments due to siltation and organic enrichment are not included on the 2002 303(d) list.

IA 04-RAC-02085-L Bays Branch (siltation) Flaws in Analysis

Bays Branch was placed on the 303(d) list in 1998 based on an assessment from 1994. This assessment was based only on best professional judgement of DNR biologists. This 1994 assessment was “rolled over” from 1994 to 1996 and also for the 1998 305(b) report. Based on the flaws in the original analysis, including the lack of any water quality data or water quality criteria upon which to base an assessment of the aquatic life uses of this wetland, the siltation impairment at Bays Branch will not be included on the 2002 303(d) list.

IA 02-WFC-0090-L Beeds Lake (siltation and nutrients) New Data

Beeds Lake was assessed as PS from 1992–2000 due to impacts from siltation and nutrients. In 1994, a water quality project for the Beeds Lake watershed set goals of reducing sediment delivery to Beeds Lake by 70%. In 2002, the Class B(WW) aquatic life uses are assessed as "fully supporting / threatened" based on recent (2002) information from the DNR Fisheries Bureau. That is, the Section 319 nonpoint source control project in the lake's watershed appears to have improved water quality, with secchi depths ranging from 3 to 5 feet in recent years. However, the Class A (primary contact recreation) uses are assessed (monitored) as "not supporting” based on levels of indicator bacteria at the Beeds Lake beach, and this lake has been added to the 2002 303(d) list as impaired by indicator bacteria. The siltation and nutrient impairments are not included on the 2002 303(d) list based on the new conditions in the watershed and the new assessment of the water quality at Beeds Lake.

IA 04-UDM-0140-L Big Creek Lake (siltation and nutrients) New Data

This lake was assessed as PS in 1992, but has been assessed as FST since 1994. In 1996, the DNR voiced concern over the potential construction of a national swine research center by USDA; DNR believes that operation of the center would threaten the continued support of the designated uses of the lake. This was one factor for the lake being included on the 1998 303d) list. This facility was not constructed. A recent lake improvement project has also resulted in improved water quality at Big Creek Lake. Based on the assessments of FS and FST since 1994 and the lake improvement project resulting in new conditions, the impairments due to siltation and nutrients are not included on the 2002 303(d) list.

IA 02-WFC-00260-L Big Marsh (siltation) Flaws in Analysis

Big Marsh was placed on the 303(d) list in 1998 based on best professional judgement of DNR biologists. This assessment was completed without any water quality-related data, and it is unclear what water quality criteria are being violated. Based on the flaws in the original analysis, including the lack of any water quality data or water quality criteria upon which to base an assessment of the aquatic life uses of this wetland, the siltation impairment at Big Marsh will not be included on the 2002 303(d) list. Big Marsh will be included on Part 2 of the 2002 303(d) list as impaired by exotic species (reed’s canarygrass).

IA 02-IOW-00860-L Big Wall Lake (siltation and unknown) New Data

This wetland was assessed as FST from 1994–1998. In 1998, the DNR Wildlife Biologist indicated the wetland is impacted by a lack of water level fluctuations and an outlet structure to properly manipulate the water level. Use support status downgraded to PS from FST based on these comments. A site visit in October 2000 by IDNR staff, and EPA Region VII staff indicate that the wetland does not have a siltation impairment, but suffers from an inability to manipulate the water level, and also from a common carp population that moved in to the wetland during the high waters of 1993. The carp are grazing on the macrophytes and also causing turbid waters which are resulting in light limitation for some aquatic

macrophytes. Therefore, based on this new data and data and assessment, the siltation impairment is not included on the 2002 303(d) list, and the unknown pollutant on the 1998 list has been changed to exotic species (carp) and included on Part 2 of the 2002 303(d) list.

IA 04-RAC-00477-L Black Hawk Wildlife Area (siltation) Flaws in Analysis

This wetland was originally assessed solely on the comments of the local DNR wildlife biologist. There is no data to verify that the wetland is receiving excessive amounts of sediment, and therefore, the possibility that Black Hawk Wildlife Area was included on the 1998 303(d) list in error is great. Black Hawk Wildlife Area has also suffered from water level fluctuations in the past, which may influence judgement on how much sediment is present in the wetland. Black Hawk Wildlife Area is included on the 2002 303(d) list as impaired by exotic species (purple loosestrife), but will not be included as impaired by siltation.

IA 06-WEM-00453-L Blackbird Bend (siltation and unknown) Modeling Data and New Conditions

This Missouri River wetland has been assessed as NS since 1994 due to siltation from agricultural nonpoint sources and due to habitat alterations (water level instability) due to hydrologic modification (degradation) of the Missouri River channel. Blackbird Bend is part of an Army Corps of Engineers mitigation project along the Missouri River, and will result in water being pumped into the wetland and correct the unknown (flow alteration) impairment. Watershed modeling completed on Blackbird Bend indicates that sediment delivery to the wetland from the watershed is very low. The local DNR biologist indicates that the Missouri River does not breach the original high bank, but occasionally (10 –15 years) flood waters do enter the wetlands directly adjacent to the river. Based on the watershed modeling data, the siltation impairment is not included on the 2002 303(d) list, and based on the ACOE mitigation project, the unknown (flow alteration) impairment will not be included on the 2002 303(d) list.

IA 06-WEM-00420-L Blencoe Lake (siltation and unknown) Modeling Data

This Missouri River wetland has been assessed as NS since 1994 due to siltation from agricultural nonpoint sources and due to habitat alterations (water level instability) due to hydrologic modification (degradation) of the Missouri River channel. Watershed modeling completed on Blencoe Lake indicates that sediment delivery to the wetland from the watershed is very low. The local DNR biologist indicates that the Missouri River does not breach the original high bank, but occasionally (10 –15 years) flood waters do enter the wetlands directly adjacent to the river. Based on the watershed modeling data, the siltation impairment is not included on the 2002 303(d) list. The unknown impairment included on the 1998 303(d) list has been changed to flow alterations and included on Part 2 of the 2002 303(d) list.

IA 05-CHA-00690-L Bob White Lake (nutrients) Flaws in Analysis

In the December 13, 2001 TMDL submission letter to EPA, the DNR identified that a TMDL for nutrients was not required at this time. At this time there is no evidence indicating that aquatic life is impaired by nutrients. EPA agreed with this rationale in their January 28, 2002 approval letter, due to the fact there is no data or information available to support the 1998 303(d) listing of Bob White Lake as not supporting the aquatic life designated use due to nutrient impacts. The TMDL for siltation at Bob White Lake was submitted to EPA on December 13, 2001 and approved on January 28, 2002. In addition, Bob White Lake is listed on the 2002 303(d) list as impaired by indicator bacteria and non-algal turbidity.

IA 05-CHA-00310-L Brown's Slough (siltation) New Data

This wetland was assessed as PS from 1994–2000. In 2002 the assessment was upgraded to FST based on comments from the DNR Wildlife Biologist. According to the local DNR Wildlife Biologist, this area is now managed as a moist soil waterfowl impoundment. Thus, although siltation impacts remain a

concern, these impacts are now less significant to the management goals for this wetland. Therefore, the siltation impairment on the 1998 303(d) list is not included on the 2002 list.

IA 01-WPS-0110_1 Buffalo Creek (unknown) New Data

The segment identification number for this segment was previously IA 01-WPS-00110_0. This stream segment was listed in 1998 based on the occurrence of fish kills. The most recent fish kill was in August 1996. This segment has been assessed as FST since 2000. Stream monitoring done in support of TMDL development suggest good water quality, with no violations of state water quality criteria. There have been no fish kills reported since 1996. Biological assessment data were collected in 2001 as part of the DNR/UHL stream biocriteria project. A series of biological metrics which reflect stream water quality and habitat integrity were calculated from the biocriteria sampling data. The biological metrics are based on the numbers and types of benthic macroinvertebrate taxa and fish species that were collected in the stream sampling reach. The biological metrics were combined to make a fish community index of biotic integrity (F-IBI) and a benthic macroinvertebrate index (BM-IBI). The indexes rank the biological integrity of a stream sampling reach on a rising scale from 0 (minimum) to 100 (maximum). The 2001 Fish IBI score was 68 (good) and the BM-IBI score was 52 (fair). The aquatic life use support was assessed as fully supporting / threatened (=FST) based on a comparison of the F-IBI and BM-IBI scores with biological assessment criteria established specifically for the 2002 Section 305(b) report. The biological assessment criteria were determined from a statistical analysis of data collected at stream ecoregion reference sites from 1994-2001. Based on this new data, the listing of Buffalo Creek as impaired by unknown causes will not be included on the 2002 303(d) list.

[Note: For the 2002 report, the previous waterbody segment IA 01-WPS-0110-0 from the mouth of Buffalo Creek to Coggon Dam was split into three subsegments: (1) mouth to Jones/Linn county line (IA 01-WPS-0110-1), (2) Jones/Linn county line to Boulder Creek (IA 01-WPS-0110-2), and (3) Boulder Creek to Coggon Dam (IA 01-WPS-0110-3). All of these segments are assessed as FS or FST.]

IA 04-BLU-00800-L Burt Lake (nutrients) Flaws in Analysis

Burt Lake was placed on the 303(d) list in 1998 based on an assessment from 1994. This assessment was based only on best professional judgement of DNR biologists. This 1994 assessment was “rolled over” from 1994 to 1996 and also for the 1998 305(b) report without being verified. Based on the flaws in the original analysis, including the lack of any water quality data or water quality criteria upon which to base an assessment of the aquatic life uses of this wetland, the nutrient impairment at Burt Lake will not be included on the 2002 303(d) list.

IA 06-WEM-00360-L California Bend (siltation and unknown) New Conditions and New Modeling Data

This Missouri River wetland has been assessed as NS since 1992 due to siltation from agricultural nonpoint sources and due to habitat alterations (water level instability) due to hydrologic modification (degradation) of the Missouri River channel. California Bend is part of an Army Corps of Engineers mitigation project along the Missouri River, and was completed in 1999. The side channel at California Bend was closed in conjunction with the Missouri River Bank Stabilization and Navigation Project. The main project element for the mitigation at California Bend is reopening the mile-long channel and creation of additional shallow water habitat in backwater areas. Restoration of this area was completed in 1999. A flow through side channel was constructed using a 10-foot bottom width pilot channel, which has been allowed to erode and expand over time. The side channel is now approximately 50 feet across and provides excellent shallow water habitat for a variety of fish. Watershed modeling completed on California Bend indicates that sediment delivery to the wetland from the watershed is very low. Based on the watershed modeling data, the siltation impairment is not included on the 2002 303(d) list, and based on the completion of the ACOE mitigation project, the unknown (flow alteration) impairment will not be included on the 2002 303(d) list.

IA 01-TRK-02285-L Cardinal Marsh (siltation) New Data

This wetland has been assessed as PS since 1994. This assessment has continued to be used without additional input from the local DNR wildlife biologist. The local biologist stated in 2002 that the wetland has very little watershed and that siltation is not a problem at Cardinal Marsh. Based on this new data from the local biologist, the siltation impairment will not be included on the 2002 303(d) list.

IA 06-WEM-00265-L Carter Lake (turbidity) Flaws in Analysis

Carter Lake was listed on the 1998 303(d) list as impaired by turbidity. The current assessment based on data collected in 2000 and 2001 indicates that algae is the more appropriate listing for this lake. Therefore, the turbidity impairment for Carter Lake has been removed. Carter lake is included on the 2002 303(d) list as impaired by algae, indicator bacteria, and PCBs (fish consumption).

IA 04-LDM-03085-L Cedar Lake (atrazine) New Data

This lake was assessed as FST from 1994–1998. In 1998, Cedar Lake was assessed as PS due to exceedance of the drinking water MCL for nitrate in 1999. Although levels of nitrate suggest a water quality impairment, levels of atrazine were relatively low and suggest only a "threat" to support of drinking water uses of this waterbody. The 1998 results of the Novartis "Iowa Voluntary Atrazine Monitoring Program" showed that the time-weighted mean level of atrazine in samples collected from the Winterset raw water source from January to December 1998 (1.2 ug/l, N=29, maximum=7.9 ug/l) was below the MCL of 3.0 ug/l. Based on DNR's Section 305(b) assessment methodology, if the average contaminant level in source water is less than the MCL, but a level in one or more samples is above the MCL, the Class C (drinking water) uses of the source water should be assessed as "fully supported / threatened." Due, however, to the three notices of MCL violations for nitrate in 1999, the Class C uses were assessed as "partially supported." In 2002, Cedar Lake was again assessed as PS due to violations of the drinking water MCL. However, data from the Iowa Voluntary Atrazine Monitoring Program from 1999, 2000, and 2001 showed that the time-weighted mean levels of atrazine in samples collected from Cedar Lake in these three calendar years were below the MCL of 3.0 ug/l. The timeweighted mean of atrazine in 1999 (N=31) was 1.6 ug/l, in 2000 (N=30) was 2.42 ug/l, and in 2001 (N=31) was 1.61 ug/l. Five of the 31 samples collected in 1999 exceeded the MCL of 3 ug/l with a maximum value of 8.0 ug/l; three of the 30 samples collected in 2000 exceeded the MCL, with a maximum value of 7.2 ug/l; none of the 31 samples collected in 2001 exceeded the MCL. Based on DNR's Section 305(b) assessment methodology, if the average contaminant level in source water is less than the MCL, but a level in one or more samples is above the MCL, the Class C (drinking water) uses of the source water should be assessed as "fully supported / threatened." Thus, atrazine is not causing impairment to Cedar Lake and the impairment will not be included on the 2002 303(d) list. However, violations of the nitrate MCL for drinking water will result in Cedar Lake being on the 2002 303(d) list impaired by nitrate.

IA 02-CED-0030_1 Cedar River (indicator bacteria) New Data

This waterbody segment was assessed as PS from 1994-1998 due to violations of the indicator bacteria criteria for Class A (primary contact recreation) waters. The use support was upgraded to FS in 2000 and 2002, based on new data from 1998 – 2001 collected as part of monitoring program.

[Note: For the 2002 report, the previous waterbody segment IA 02-CED-0030-0, which extended 57 miles from Prairie Creek at Cedar Rapids to Wolf Creek at LaPorte City, was split into four subsegments: (1) Praire Creek to McCloud Run at Cedar Rapids (IA 02-CED-0030-1), (2) McCloud Run to Bear Creek near Palo (IA 02-CED-0030-2), (3) Bear Creek to Hinkle Creek near Vinton (IA 02-CED-0030-3), and (4) Hinkle Creek to Wolf Creek (IA 02-CED-0030-4).

IA 02-CED-0050-L Cedar River (indicator bacteria) New Data

The assessment completed on this segment of the Cedar River in 1996 was based on a lack of complete data (only 4 samples over two years), and therefore would be considered an evaluated, or lesser confidence assessment with a greater potential for error. This assessment was also used in 1998 without any additional monitoring. For the 2002 305(b) report, the assessment again did not meet the completeness criteria for a monitored (higher confidence) assessment. According to the Iowa Water Quality Standards (IAC 1990:8), the water quality criterion for fecal coliform bacteria (200 orgs/100 ml) does not apply "when the waters are materially affected by surface runoff." Seven of the 8 samples collected from the Cedar Falls station during the 2000 and 2001 recreational seasons were collected at flows not materially affected by surface runoff. The geometric mean level of indicator bacteria (fecal coliforms) in these seven non-runoff-affected samples (109 orgs/100ml) is below the Iowa Class A water quality criterion of 200 orgs/100ml. However, one of the seven samples (14%) contained a level of fecal coliform bacteria that exceeded the U.S. EPA-recommended single-sample maximum value of 400 orgs/100 ml. According to U.S. EPA guidelines for Section 305(b) reporting, if more than 10% of samples exceed this single sample maximum value, the primary contact recreation uses are "partially supported" (see pgs 3-33 to 3-35 of U.S. EPA 1997b). Because less than 10 non-flow affected samples were available for this assessment, the assessment type is considered "evaluated"; thus, this assessment is not of sufficient quality to support a Section 303(d) listing. Therefore, the indicator bacteria impairment will not be included on the 2002 303(d) list.

IA 01-MAQ-01580-L Central Park Lake (aquatic plants, siltation, nutrients) New Conditions and New Data

This lake was included on the 1998 303(d) list as impaired by siltation, nutrients, and aquatic plants. The local DNR Fisheries Biologist indicates that siltation and nutrient delivery is no longer a serious concern due to the construction of a wetland directly above the lake. This wetland is constructed on the main tributary to the lake and greatly reduces any sediment and nutrient delivery before entering the lake. The DNR Fisheries Biologist also states that excess aquatic vegetation is no longer a problem at Central Park Lake, as it is being controlled with stockings of grass carp. Therefore, the aquatic plant and nutrient impairments will not be included on the 2002 303(d) list.

IA 05-CHA-0010_2 Chariton River (atrazine) New Data

This stream segment has been assessed as FST since 1998 for Class C uses. For the 1998 305(b) report, levels of atrazine in 3 of the 24 samples collected over the two year period exceeded the atrazine MCL. These samples were collected from July through Septemeber 1996 and ranged from 3.1 to 4.3 ug/l*. [*Summary statistics for atrazine: 24 samples analyzed; mean= 2.1 ug/l; median=2.0 ug/l; 13% (3 of 24 samples) exceeded the MCL of 3.0 ug/l; range of 0.18 to 4.3 ug/l.] For the 2000 report, the Class C (drinking water) uses, continue to be assessed as "fully supporting / threatened due to the relatively low average level of atrazine (0.9 ug/l) and due to the single violation (1) of the U.S. EPA MCL for atrazine. The only one of the 23 samples that contained atrazine above the 3.0 ug/l MCL (4.80 ug/l) was collected on May 26, 1998; the sample with the next highest concentration contained 1.6 ug/l of atrazine. The average level of atrazine in the 23 samples was 0.9 mg/l (standard deviation = 9.0 mg/l) (median = 0.6 ug/l). Based on DNR's Section 305(b) assessment methodology, the results of monitoring suggest that the drinking water uses are fully supported / threatened. For the 2002 report, the Class C (drinking water) uses remain assessed as "fully supporting / threatened." This is based on results from the IDNR ambient station which show a relatively low average level of atrazine (0.5 ug/l) and the occurrence of a single violation of the U.S. EPA MCL for atrazine during the 2000-2001 biennnial period. Only one of the 24 samples from this station contained atrazine above the 3.0 ug/l MCL: the sample collected on June 1, 2001, contained 5.7 ug/l of atrazine. The average level of atrazine in the 24 samples was 0.5 ug/l. Monitoring at Rathbun Project station RA-28 produced similar results: one of 12 samples exceeded the atrazine MCL: the sample collected on June 13, 2001, contained 3.87 ug/l of atrazine. The average level of atrazine in the 12 samples was 1.05 ug/l. Based on DNR's Section 305(b) assessment methodology,

the results of monitoring suggest that, due to the single violation of the MCL for atrazine, the drinking water uses are assessed as "fully supported / threatened": if the average level of atrazine is less than the MCL, but one or more samples exceeds the MCL, the drinking water uses should be assessed as "fully supported / threatened." Therefore, based on the monitoring data from 1998 – present, the mean atrazine concentration was 2.1 ug/l for 1996-97 biennial period, 0.9 ug/l for the 1998-99 biennial period, and 0.5 ug/l for the 2000-01 biennial period. Based on this data, the atrazine impairment for this segment of the Chariton River is being removed form the 2002 303(d) list.

IA 02-IOW-04095-L Crystal Lake (aquatic plants) New Data

Crystal Lake was listed on the 1998 303(d) list as impaired by organic enrichment and aquatic plants. Crystal Lake was assessed in 1994 as partially supporting due to both organic enrichment and excessive aquatic macrophyte growth. These assessments have been used through the 1998 listing. Eurasian water milfoil was positively identified by IDNR Fisheries biologists in August 1993. At that time it was estimated that approximately 50% of the lake surface area was heavily covered with milfoil. Grass carp were stocked in Crystal Lake from 1992 through 1994 in an attempt to reduce the aquatic vegetation, but at the stocking rates used, no decrease in the amount of vegetation was observed. Crystal Lake was chemically treated in April 1994 with SONAR brand herbicide. This chemical treatment successfully eradicated water milfoil and curly leaf pondweed during the summer of 1994. During the flood of 1993 common carp migrated into the lake through the outlet creek (headwaters of the Iowa River). The common carp brood stock achieved a successful spawn in 1995. With the existing grass carp and the increasing common carp population, the carp population had become so plentiful by 1998 that submergent vegetation was no longer able to grow in Crystal Lake. There has been no reoccurrence of Eurasian water milfoil since the chemical application in 1994. According to IDNR Fisheries biologists, the lake has been void of aquatic macrophytes since 1998. It is currently part of the management plan for Crystal Lake to allow for increased aquatic macrophyte growth by removal of grass and common carp through commercial harvesting. A TMDL for organic enrichment and the request to delist the aquatic plant impairment was submitted to EPA on August 13, 2002. In a letter dated October 28, 2002, the EPA approved the TMDL for organic enrichment at Crystal Lake, and agreed with IDNR's conclusion that a TMDL was not needed for aquatic plants. Therefore, the aquatic plant impairment will be removed from the 2002 303(d) list.

IA 01-MAQ-01110-L Dalton Lake (nutrients) Flaws in Analysis

Dalton Lake was included on the 1998 303(d) list as impaired by nutrients. Since then, the TMDL staff have inquired with the Fisheries Bureau regarding the water quality of Dalton Lake. The Iowa State Fish and Wildlife Department (later the DNR) took a 100 year lease in 1929 on a two acre parcel of land containing a spring known as Dalton Spring, with the agreement that the Department would develop a pond open to the public for fishing recreation. An approximate one-acre pond was created by damming the spring flow. A drop outlet structure was installed on the dam to control water levels. It is documented that trout have been stocked in the pond since 1943 and it is assumed that stockings took place from the time the dam was first constructed. Today, DNR Fisheries staff routinely drain the water from Dalton Lake to control aquatic vegetation. As part of the dam construction, a berm along both sides of the stream leading from the spring was also included. As a result, the only water reaching Dalton Lake comes from the spring and direct precipitation. The Iowa DNR can find no information that substantiates an impairment resulting from nutrients, therefore, the nutrient impairment for Dalton Lake is not included on the 2002 303(d) list.

IA 06-WEM-00430-L Decatur Lake (siltation and unknown) New Conditions and New Modeling Data

This Missouri River wetland has been assessed as NS since 1994 due to siltation from agricultural nonpoint sources and due to habitat alterations (water level instability) due to hydrologic modification (degradation) of the Missouri River channel. Decatur Lake is part of an Army Corps of Engineers

mitigation project along the Missouri River, and will result in water being pumped into the wetland and correct the unknown (flow alterations) impairment. Watershed modeling completed on Decatur Lake indicates that sediment delivery to the wetland from the watershed is very low. The local DNR biologist indicates that the Missouri River does not breach the original high bank, but occasionally (10 –15 years) flood waters do enter the wetlands directly adjacent to the river. Based on the watershed modeling data, the siltation impairment is not included on the 2002 303(d) list, and based on the ACOE mitigation project, the unknown (flow alterations) impairment will not be included on the 2002 303(d) list.

IA 04-LDM-0020_1 Des Moines River (indicator bacteria) Flaws in Analysis

This stream segment was included on the 1998 303(d) list as impaired by indicator bacteria. However, this stream segment was assessed based only on best professional judgement, and with no data to indicate a violation of the water quality standards. Samples were collected in 2000-01 as part of the IDNR's ambient water quality monitoring program, but did not meet the data completeness criteria for 305(b) assessment and subsequent 303(d) listing. Without adequate data to verify impairment, this stream segment will not be included on the 2002 303(d) list.

IA 04-UDM-01650-L Don Williams Lake (siltation and organic enrichment) Flaws in Analysis

This lake was placed on the 1998 303(d) list based on the best professional judgement of DNR staff as impaired by siltation and organic enrichment. For the 1994 assessment, levels of swimming use was relatively high for a SPOL, thus swimmable uses assessed as FST. Based on the flaws in the original analysis, including the lack of any water quality data or water quality criteria upon which to base an assessment of the aquatic life uses of this lake, the siltation and organic enrichment impairments at Don Williams Lake will not be included on the 2002 303(d) list.

IA 06-BOY-00270-L Dunlap Pond (siltation) New Modeling Data

This wetland was assessed as NS in 1994 and 1996, but at the recommendation of DNR Wildlife Bureau, was upgraded to PS in 1998 with siltation listed as the primary threat to water quality. These assessments were based only on best professional judgement of DNR biologists. Based on the flaws in the original analysis, including the lack of any water quality data or water quality criteria upon which to base an assessment of the aquatic life uses of this wetland, the siltation impairment at Dunlap Pond will not be included on the 2002 303(d) list. In addition, watershed modeling on this wetland indicates that sediment delivery to the wetland is very low.

IA 04-LDM-00490-L Easter Lake (siltation and nutrients) Flaws in Analysis

In the 1994 305(b) assessment, comments by Bachmann et al. (1994) represent relatively high levels of use for both fishing and swimming, and the lake was said to have relatively good water qualitiy. However, DNR Fisheries feels that lake is impaired by siltation; and therefore the lake was assessed as PS. This assessment was based only on best professional judgement of DNR biologists. Based on the flaws in the original analysis, including the lack of any water quality data or water quality criteria upon which to base an assessment of the aquatic life uses of this lake, the siltation and nutrient impairments at Easter Lake will not be included on the 2002 303(d) list.

IA 02-SHL-00390-L Elk Creek Marsh (siltation) Flaws in Analysis

Elk Creek Marsh was placed on the 303(d) list in 1998 based on an assessment from 1994. This assessment was based only on best professional judgement of DNR biologists. This 1994 assessment was "rolled over" from 1994 to 1996 and also for the 1998 305(b) report without being verified. Based on the flaws in the original analysis, including the lack of any water quality data or water quality criteria upon

which to base an assessment of the aquatic life uses of this wetland, the siltation impairment at Elk Creek Marsh will not be included on the 2002 303(d) list.

IA 02-IOW-00870-L Elm Lake (siltation) New Modeling Data

This wetland was listed on the 1998 303(d) list as impaired by siltation. Watershed modeling on this wetland indicates that sediment delivery to the wetland is very low, estimated at 1.6 tons/2" rainfall event from the entire watershed. This is a very low sediment delivery rate and would be difficult to reduce further. Based on this modeling data, the siltation impairment will not be included on the 2002 303(d) list.

IA 02-CED-00490-L Fisher Lake (siltation) Flaws in Analysis

Fisher Lake was placed on the 303(d) list in 1998 based on an assessment from 1992. Nearly all lakes in Iowa were assessed as PS in 1992 due to impacts from agricultural nonpoint sources. This assessment was not based on any water quality data (including biologist comments) or violations of water quality criteria. Fisher Lake was not assessed in 1994, but the 1992 assessment was "rolled over" to 1996 and also for the 1998 305(b) report. Based on the flaws in the original analysis, including the lack of any water quality data or water quality criteria upon which to base an assessment of the aquatic life uses of this lake, the siltation impairment at Fisher Lake will not be included on the 2002 303(d) list.

IA 04-UDM-03850-L Five Island Lake (low DO and suspended solids) New Conditions

Five Island Lake was assessed in 1994 as PS the Class B (aquatic life) uses. The low dissolved oxygen and suspended solids impairments were not based on any water quality samples or violations of water quality criteria. A recently completed lake dredging project has improved water quality at this lake and in 2000 and 2002 the lake has been upgraded to FST and it has been noted that the water quality trend is improving. Based on the new conditions and improving water quality, the low dissolved oxygen and suspended solids impairments will not be included on the 2002 303(d) list.

IA 01-NEM-00230-L Green Island Lake (siltation) Flaws in Analysis

Green Island Lake was placed on the 303(d) list in 1998 based on an assessment from 1992. This assessment was based only on best professional judgement of DNR biologists. This 1992 assessment was "rolled over" from 1992 to 1994 and also for the 1996 and 1998 305(b) reports. Based on the flaws in the original analysis, including the lack of any water quality data or water quality criteria upon which to base an assessment of the aquatic life uses of this wetland, the siltation impairment at Green Island Lake will not be included on the 2002 303(d) list.

IA 02-IOW-00410-L Hawkeye Wildlife Area (siltation) New Data

This wetland was included on the 1998 303(d) list due to impairments caused by siltation. The local DNR biologist states that water level fluctuations in Coralville Reservoir adversely affect water quality of the wetland from year to year. A report from the U.S. Army Corps of Engineers states that the rate of sedimentation has been less than originally predicted when the reservoir was constructed. Based on this recent data from the ACOE, the sediment impairment will not be included on the 2002 303(d) list.

IA 03-SSK-00450-L Hendrickson Marsh (siltation) Flaws in Analysis

The waterbody ID of Hendrickson Marsh was changed from IA 02-IOW-02495-L to IA 03-SSK-00450-L in May 2002. The assessment of Hendrickson Marsh was based only on best professional judgement of DNR biologists. This 1994 assessment was "rolled over" from 1994 to 1996 and also for the 1998 305(b) report. Based on the flaws in the original analysis, including the lack of any water quality data or water

quality criteria upon which to base an assessment of the aquatic life uses of this wetland, the siltation impairment at Hendrickson Marsh will not be included on the 2002 303(d) list.

IA 04-LDM-00150-L Indian Lake (aquatic plants and organic enrichment) New Data / Flaws in Analysis

The assessment of Indian Lake was based only on best professional judgement of DNR biologists. Indian Lake has been assessed as PS since 1992 based on estimated fishkill frequency from Bachmann et al. (1994). There have not been any recent fishkills at Indian Lake. Based on the flaws in the original analysis, including the lack of any water quality data or water quality criteria upon which to base an assessment of the aquatic life uses of this lake, the organic enrichment impairment at Indian Lake will not be included on the 2002 303(d) list. According to the local DNR biologist, Indian Lake has not recently had a problem with aquatic plants, therefore, the aquatic plant impairment will not be included on the 2002 303(d) list.

IA 02-IOW-0030_2 Iowa River (nitrate) New Data

This river segment has been assessed as FS or FST since 1996 due to nitrates impacting the Class C uses. There have been exceedences of the Class C nitrate standard in the most recent biennial period in 5 of 43 samples (12%). Following the DNR's Section 305(b) assessment methodology, if less than 15% of samples collected monthly or more frequently exceed the MCL for nitrate, drinking water uses should be assessed as "fully supporting / threatened." In addition, the Iowa City Water Supply is currently in compliance with the SDWA. Therefore, the nitrate impairment on this river segment will not be included on the 2002 303(d) list.

IA 02-IOW-0060_2 Iowa River (indicator bacteria) Flaws in Analysis

[NOTE: For the 2002 report, the previous waterbody segment IA 02-IOW-0060-1, which extended 61 miles from Salt Creek (Benton Co.) to Asher Creek at Marshalltown, was split into four subsegments: (1) Salt Creek to Richland Creek in Tama Co. (IA 02-IOW-0060-1), (2) Richland Creek to Deer Creek at Tama (IA 02-IOW-0060-2), (3) Deer Creek to Timber Creek in Marshall Co. (IA 02-IOW-0060-3), and (4) Timber Creek to Asher Creek at Marshalltown (IA 02-IOW-0060-4). See assessment information for segment IA 02-IOW-0060-1 (Salt Creek to Asher Creek) for previous Section 305(b) assessments for this river reach.] As part of this splitting, the previous identification number for segment IA 02-IOW-0060-2 (from Asher Creek to Minerva Creek) was changed to IA 02-IOW-0060-5. This distance of this segment did not change.]

This segment of the Iowa River was included on the 1998 Section 303(d) list in error based on analysis of water quality samples from the 1996-97 period. Only five samples were non-flow affected during this period, and while the geometric mean (184 orgs/100 ml) was below state water quality standards (200 orgs/100 ml), two of the samples exceeded the single sample maximum. Monitoring at this station was increased to monthly as part of the expanded ambient monitoring program. Samples were collected in 2000-01 as part of the IDNR's ambient water quality monitoring program, but did not meet the data completeness criteria for 305(b) assessment and subsequent 303(d) listing. Without adequate data to verify impairment, this stream segment will not be included on the 2002 303(d) list.

IA 01-NEM-00115-L Klum Lake (nutrients) New Data

According to the local DNR Wildlife Biologist this wetland is not impaired by excess nutrients from agricultural lands. Impacts from hydrological modification, however, continue. This wetland lies in a levee and drainage district, and the main drainage ditch is adjacent to the wetland basin. Deepening of the ditch and increased pumping back in the late 1960's or early 1970's completely altered Klum Lake from a mostly open semi-permanent wetland to a seasonal wetland dominated by thick stands of perennial emergent vegetation. Water is pumped into the basin in the fall for migratory waterfowl use,

but this pumping does not remedy the problem. The impacts from hydrological modification at this wetland are similar to those at Allen Green Refuge Marsh. Pumping sufficient water to maintain previous wetland conditions at either wetland is not possible given (1) summer evaporation and transpiration rates, (2) current pumping capabilities, and (3) the cost of such pumping. Based on this new assessment, the nutrient impairment will not be included on the 2002 303(d) list, however, the unknown (flow alterations) impairment will remain on Part 2 of the list.

IA 04-LDM-00160-L Lacey Keosauqua Lake (turbidity) New Conditions

The dam at Lacey Keosaqua was breached in 2002. The dam is expected to be repaired by spring 2003. In lake work may also be completed while the lake is drained. It is expected that the water quality of the lake will be different (improved) after the reconstruction of the dam. The lake will be reassessed for the 2004 305(b) report and subsequent 303(d) lists. Therefore, the turbidity impairment will not be included on the 2002 303(d) list.

IA 04-LDM-0175-L LaHart Area (siltation) New Data / Flaws in Analysis

LaHart Area is not designated in the Iowa Water Quality Standards, and was first assessed in 1998. Best professional judgement by the local DNR wildlife biologist indicated that siltation from agricultural nonpoint sources was impacting the wetland. This assessment was not based on any water quality data or on any violations of water quality criteria. Based on the flaws in the original analysis, including the lack of any water quality data or water quality criteria upon which to base an assessment of the aquatic life uses of this wetland, the siltation impairment at LaHart Area will not be included on the 2002 303(d) list.

IA 04-UDM-02290-L Lake Cornelia (suspended solids) New Data

The IDNR Fisheries Bureau in 2002 stated that Lake Cornelia has definitely shown improvement over the past 15 years. Secchi disc readings during early summer over the past 5 years have varied from 1 ½ feet to 3 feet. Although suspended solids do not appear to impair water quality, the lake still has excess nutrients which stimulate summer algae blooms. However, nuisance blue-green algae blooms have not been a problem in recent years. Much of the improvement in water quality can be attributed to completion of a sanitary sewer system around this lake in the mid-1980's. The eutrophic conditions at this lake, along with information from the IDNR Fisheries Bureau, suggest that the Class B(LW) aquatic life uses should be assessed as "fully supported / threatened." Based on the new data from the local DNR Fisheries Biologist, the suspended solids impairment will not be included on the 2002 303(d) list.

IA 03-SSK-00120-L Lake Keomah (aquatic vegetation) New Data

Lake Keomah was listed on Iowa's 1998 303(d) list as impaired (fully supporting-threatened) by siltation and aquatic vegetation. Lake Keomah was assessed in 1994 as fully supporting-threatened due to both siltation and excessive aquatic macrophyte growth. These assessments have been used through the 1998 listing. Grass carp were introduced into Lake Keomah from 1982 through 1996 at a rate of 2 to 10 per acre to remove the aquatic vegetation. According to IDNR Fisheries biologists, the lake has been void of aquatic macrophytes since at least 1997. It is currently part of the management plan for Lake Keomah to allow for increased aquatic macrophyte growth by removal and natural mortality of grass carp. A TMDL for siltation and the request to delist the aquatic vegetation impairment was submitted to EPA on August 13, 2002. In a letter dated October 28, 2002, the EPA approved the TMDL for siltation at Lake Keomah, and agreed with IDNR's conclusion that a TMDL was not needed for aquatic vegetation. Therefore, the aquatic vegetation impairment will be removed from the 2002 303(d) list.

IA 02-IOW-00390-L Lake MacBride (siltation and nutrients) New Conditions

Lake MacBride has been assessed as FST since 1994. A recently completed lake restoration project has reduced the impacts of siltation and nutrients to the lake. According to DNR Fisheries, the lake is impaired by rough fish that gain access to lake during high water in Coralville Reservoir. Therefore, the siltation and nutrient impairments have been removed from the 2002 list, and an impairment from exotic species (carp) has been added to Part 2 of the list.

IA 01-TRK-02245-L Lake Meyers (siltation and nutrients) Flaws in Analysis

Lake Meyers was assessed as PS in 1994 due to siltation and nutrients from agricultural nonpoint sources. This assessment was based on data from Bachmann et al. (1994). This report estimated the sedimentation rate at 3.9 cm/yr and a life expectancy of 91 years. This determination was based on an equation developed from the evaluation of several Iowa lakes by Laube (1991), and is based primarily on watershed area. This equation does not take into account landuse or structures within the watershed that reduce sediment and nutrient delivery and therefore, is not seen to be accurate and suitable for including waterbodies on the 303(d) list. Based on the flaws in the original analysis and use of an inadequate model, the siltation and nutrient impairments for Lake Meyers will not be included on the 2002 list.

IA 04-EDM-00610-L Lake Smith (noxious aquatic plants) New Data

In 2002 Lake Smith was assessed as FST. According to the IDNR Fisheries Bureau, Lake Smith previously suffered from nuisance blue-green algae blooms. During the winter of 2000-2001, however, Lake Smith suffered a severe winterkill. Because the sportfish population was reduced dramatically, IDNR Fisheries chemically renovated the lake in September of 2001. Both common carp and grass carp were successfully eliminated. The water quality in 2002 has been very good: the water is clear and submergent vegetation is starting to get reestablished. Although the relative permanence of these positive changes is difficult to determine, the IDNR Fisheries does not consider this lake to be currently "impaired" for aquatic life uses. Based on these new conditions within the lake and the new data from the local Fisheries Biologist, the noxious aquatic plant impairment will not be included on the 2002 303(d) list.

IA 04-RAC-01620-L Little Clear Lake (nutrients) Flaws in Analysis

Little Clear Lake was assessed in 1994 as PS due to impacts from nutrients from nonpoint agricultural sources. This assessment was based solely on the best professional judgement of DNR biologists, and not on any water quality data or on any violations of water quality criteria. Based on the flaws in the original analysis, including the lack of any water quality data or water quality criteria upon which to base an assessment of the aquatic life uses of this wetland, the nutrient impairment at Little Clear Lake will not be included on the 2002 303(d) list. Little Clear Lake will be included on Part 2 of the impaired waters list as impaired by exotic species (purple loosestrife).

IA 06-LSR-02870-L Little Spirit Lake (noxious aquatic plants) New Data

For the 2002 305(b) report, the Class A (primary contact recreation uses) are assessed (monitored) as "partially supported." The Class B(LW) aquatic life uses remain assessed (evaluated) as "partially supported." Sources of data for this assessment include (1) results of the statewide survey of Iowa lakes conducted in 2000 and 2001 by Iowa State University (ISU), (2) information from the IDNR Fisheries Bureau, and (3) information on phytoplankton communities at Iowa lakes in 2000 from Downing et al. (2002). Results of monitoring conducted by ISU in 2000 and 2001 as part of the statewide survey of Iowa lakes suggest that the Class A (primary contact) uses are only "partially supported." Using the median values from this survey in 2000 and 2001 (approximately six samples), Carlson's (1977) trophic state indices for total phosphorus, chlorophyll-a, and secchi depth are 84, 68, and 74, respectively, for Little Spirit Lake. According to Carlson (1977), these index values place this lake in the range of hyper-eutrophic lakes and suggest both excessive phosphorus loading to the water column, moderately high

production of suspended algae, and poor water transparency. These conditions indicate impairments to the Class A (primary contact) uses through presence of aesthetically objectionable blooms of algae and presence of nuisance algal species (i.e., bluegreen algae). Data from Downing et al. (2002) suggest that bluegreen algae (Cyanophyta), comprise a significant portion of the summertime phytoplankton community of Little Spirit Lake, especially in late summer. Sampling in 2000 showed the percent wet mass of bluegreens ranged from less than 20% in the mid-June sampling, to approximately 30% in the mid-July sampling, and up to approximately 85% in the early August sampling. Based on median values from ISU sampling in 2000 and 2001, the ratio of total nitrogen to total phosphorus for this lake is 10. Data on inorganic suspended solids from the ISU survey suggest that this lake is also subject to occasional episodes of high levels of nonalgal turbidity. The median level of inorganic suspended solids in the 130 lakes sampled for the ISU lake survey in 2000 and 2001 was 5.27 mg/l. The median level of inorganic suspended solids at Little Spirit Lake (17.6 mg/l) was the seventeenth highest of the 130 lakes, thus suggesting that non-algal turbidity may limit the production of algae as well as impair beneficial uses. Based on this information, turbidity-related impacts to the primary contact and aquatic life uses at this lake will be attributed to both suspended algae and re-suspended inorganic material. The hyper-eutrophic conditions at this lake, along with information from the IDNR Fisheries Bureau, suggest that the Class B(LW) aquatic life uses are "partially supported" due to excessive nutrient loading to the water column, nuisance blooms of algae, and re-suspension of sediment. According to the IDNR Fisheries Bureau, the impairments to the aquatic life uses of this natural lake are rather hard to quantify but probably affect some spawning activities of nest building species in varying degrees; e.g., bluegill, bullhead, crappie and largemouth bass. Algal blooms do impact water quality through their contribution to sags in dissolved oxygen and the potential fish mortality that can result. Based on this updated information it is more accurate and consistent with the 2002 303(d) list to change the impairment from noxious aquatic plants to algae on the 2002 303(d) list. In addition, turbidity has been listed as an impairment to Little Spirit Lake.

IA 03-SSK-00360-L Little Wall Lake (noxious aquatic plants) New Data

For the 2002 305(b) report: The Class A (primary contact recreation) uses remain assessed (monitored) as "partially supported." The Class B(LW) aquatic life uses remain assessed (evaluated) as "partially supported." Sources of data for this assessment include (1) results of the statewide survey of Iowa lakes conducted in 2000 and 2001 by Iowa State University (ISU), (2) information from the IDNR Fisheries Bureau, and (3) information on phytoplankton communities at Iowa lakes in 2000 from Downing et al. (2002) and (4) results of U.S. EPA/IDNR fish tissue monitoring in 1998. Results of monitoring conducted by ISU in 2000 and 2001 as part of the statewide survey of Iowa lakes suggest that the Class A (primary contact) uses are only "partially supported." Using the median values from this survey in 2000 and 2001 (approximately six samples), Carlson's (1977) trophic state indices for total phosphorus, chlorophyll-a, and secchi depth are 84, 72, and 79, respectively, for Little Wall Lake. According to Carlson (1977), these index values place this lake in the range of hyper-eutrophic lakes and suggest (1) excessive phosphorus loading to the water column, (2) excessive, although somewhat less than expected, production of suspended algae, and (3) poor water transparency. These conditions indicate impairments to the Class A (primary contact) uses through presence of aesthetically objectionable blooms of algae and presence of nuisance algal species (i.e., bluegreen algae). Data from Downing et al. (2002) suggest that bluegreen algae (Cyanophyta), tend to dominate the summertime phytoplankton community of Little Wall Lake. Sampling in summer 2000 showed that from between 70 and 80% of the wet mass of the phytoplankton in the three summer samples from this lake was in bluegreen algae. Based on median values from ISU sampling in 2000 and 2001, the ratio of total nitrogen to total phosphorus for this lake is 7. Data on inorganic suspended solids from the ISU survey suggest that this lake is also subject to occasional episodes of high levels of non-algal turbidity. The median level of inorganic suspended solids in the 130 lakes sampled for the ISU lake survey in 2000 and 2001 was 5.27 mg/l. The median level of inorganic suspended solids at Little Wall Lake (21.0 mg/l) was the ninth highest of the 130 lakes, thus suggesting that non-algal turbidity may limit the production of algae as well as impair beneficial uses. Based on this information, turbidity-related impacts to the primary contact and aquatic life uses at this lake will be attributed to both suspended algae and re-suspended inorganic material. The hyper-

eutrophic conditions at this lake, along with information from the IDNR Fisheries Bureau, suggest that the Class B(LW) aquatic life uses are "partially supported" due to excessive nutrient loading to the water column, nuisance blooms of algae, and re-suspension of sediment. Based on this updated information it is more accurate and consistent with the 2002 303(d) list to change the impairment from noxious aquatic plants to algae on the 2002 303(d) list.

IA 05-NSH-00675-L Littlefield Lake (siltation) Flaws in Analysis

Littlefield Lake was assessed as PS in 1994 due to siltation from agricultural nonpoint sources. This assessment was based on data from Bachmann et al. (1994). This report estimated the sedimentation rate at 3.9 cm/yr and a life expectancy of 62 years. This determination was based on an equation developed from the evaluation of several Iowa lakes by Laube (1991), and is based primarily on watershed area. This equation does not take into account landuse or structures within the watershed that reduce sediment and nutrient delivery and therefore, is not seen to be accurate and suitable for including waterbodies on the 303(d) list. Based on the flaws in the original analysis and use of an inadequate model, the siltation impairment for Littlefield Lake will not be included on the 2002 list.

IA 04-UDM-03110-L Lizard Lake (siltation) Flaws in Analysis

Lizard Lake was assessed in 1998 as PS due to impacts from siltation from nonpoint agricultural sources. This assessment was based solely on the best professional judgement of DNR biologists, and not on any water quality data or on any violations of water quality criteria. Based on the flaws in the original analysis, including the lack of any water quality data or water quality criteria upon which to base an assessment of the aquatic life uses of this wetland, the siltation impairment at Lizard Lake will not be included on the 2002 303(d) list. Lizard Lake will be included on Part 2 of the impaired waters list as impaired by exotic species (purple loosestrife).

IA 06-WEM-00446-L Louisville Bend (siltation and unknown) New conditions and New Modeling Data

The chute at Louisville Bend was closed in conjunction with the Missouri River Bank Stabilization and Navigation Project. Construction during the project used dikes and revetments to cut off the side channel across bend in the Missouri River. The main project elements for the mitigation at this site is re-establishing the open water and floodplain habitat at this site. In order to reconnect the land with the river, controlled openings were constructed at the inlet and outlet of the closed chute. Because the constructed side channel is at a higher elevation than the adjacent river, a pump was also installed at the inlet to pump in water during periods of low river flows. Water in the constructed chute is maintained by the regulating outlet. Restoration of this area was completed in 1995. The site continues to function as planned providing 270 acres of valuable shallow water fish and waterfowl habitat. Watershed modeling on this wetland indicates that sediment delivery to the wetland is very low. DNR Wildlife Biologist indicates that the Missouri River does not breach the original high bank, but occasionally (10-15 years) flood waters do enter the wetlands directly adjacent to the river. However, it is not thought that the resulting deposition is significant. Based on this new modeling data and the completed ACOE mitigation project, the unknown (flow alteration) and siltation impairments will be removed from the 2002 303(d) list.

IA 06-WEM-00428-L Lower Decatur Bend (siltation and unknown) New Modeling Data and New Conditions

This Missouri River wetland has been assessed as NS since 1994 due to siltation from agricultural nonpoint sources and due to habitat alterations (water level instability) due to hydrologic modification (degradation) of the Missouri River channel. Lower Decatur Bend is part of an Army Corps of Engineers mitigation project along the Missouri River, and will result in water being pumped into the wetland and correct the unknown (flow alteration) impairment. Watershed modeling completed on Lower Decatur Bend indicates that sediment delivery to the wetland from the watershed is very low. The local DNR

biologist indicates that the Missouri River does not breach the original high bank, but occasionally (10 – 15 years) flood waters do enter the wetlands directly adjacent to the river. Based on the watershed modeling data, the siltation impairment is not included on the 2002 303(d) list, and based on the ACOE mitigation project, the unknown (flow alteration) impairment will not be included on the 2002 303(d) list.

IA 06-LSR-02805-L Lower Gar Lake (siltation) Flaws in Analysis

Lower Gar Lake has been assessed as PS in 1994 due to siltation from agricultural nonpoint sources. This assessment was based on data from Bachmann et al. (1994). This report estimated the lake had a high sedimentation rate (2.6 cm/yr) and short life expectancy of 41 years. This determination was based on an equation developed from the evaluation of several Iowa lakes by Laube (1991), and is based primarily on watershed area. This equation does not take into account landuse or structures within the watershed that reduce sediment and nutrient delivery and therefore, is not seen to be accurate and suitable for including waterbodies on the 303(d) list. Based on this assessment, the lake was listed as impaired by siltation from agricultural nonpoint sources. Based on the flaws in the original analysis and use of an inadequate model, the siltation impairment for Lower Gar Lake will not be included on the 2002 list.

IA 02-IOW-0330-L Lower Pine Lake (aquatic plants) New Data

The aquatic plants impairment for Lower Pine Lake was based on a comment by a DNR fisheries biologist prior to the renovations in the Upper and Lower Pine Lake system that included dredging 140,000 cubic yards from Lower Pine Lake and 40,000 cubic yards from Upper Pine Lake. The deepening of Lower Pine Lake removed the conditions for excessive aquatic plant growth. The same fisheries biologist does not mention aquatic plants as a problem in a 2001 report on the lake. Based on the new conditions in the lake and new data from the local biologist, the aquatic plant impairment will not be included on the 2002 303(d) list.

IA 06-BOY-00263-L Manteno Park Pond (siltation and nutrients) Flaws in Analysis

Manteno Park Pond has been assessed as PS in 1994 due to siltation and nutrients from agricultural nonpoint sources. This assessment was based on data from Bachmann et al. (1994). This report estimated the lake had a high sedimentation rate and short life expectancy of 15 years. This determination was based on an equation developed from the evaluation of several Iowa lakes by Laube (1991), and is based primarily on watershed area. This equation does not take into account landuse or structures within the watershed that reduce sediment and nutrient delivery and therefore, is not seen to be accurate and suitable for including waterbodies on the 303(d) list. Based on this assessment, the lake was listed as impaired by siltation and nutrients from agricultural nonpoint sources. Based on the flaws in the original analysis and use of an inadequate model, the siltation and nutrient impairments for Manteno Park Pond will not be included on the 2002 list.

IA 03-NSK-00350-L Mariposa Lake (siltation and nutrients) Updated Listing

Mariposa Lake was included on the 1998 303(d) list as impaired by siltation and nutrients. This assessment was based on the best professional judgement of the DNR Fisheries Biologist. For the 2002 305(b) report the Class A (primary contact recreation) uses are assessed (monitored) as "partially supporting." The sources of data for this assessment include (1) results of the statewide survey of Iowa lakes conducted in 2000 and 2001 by Iowa State University (ISU), (2) information from the IDNR Fisheries Bureau, and (3) information on phytoplankton communities at Iowa lakes in 2000 from Downing et al. (2002). Results of monitoring conducted by ISU in 2000 and 2001 as part of the statewide survey of Iowa lakes suggest that the Class A (primary contact) uses and Class B(LW) aquatic life uses are only "partially supported." Using the median values from the Iowa State University statewide surveys of Iowa lakes in 2000 and 2001 (approximately six samples), Carlsons's trophic state indices for total phosphorus, chlorophyll-a, and secchi depth at Mariposa Lake are 82, 69, and 74, respectively.

According to Carlson (1977), the index value for chlorophyll-a places this lake in the upper range between eutrophic and hyper-eutrophic lakes; these index values suggest excessive levels of phosphorus in the water column, less than expected production of suspended algae, and poor water transparency. These conditions suggest impairments to the Class A (primary contact) uses through presence of aesthetically objectionable blooms of algae and presence of nuisance algal species (i.e., bluegreen algae). Data from Downing et al. (2002) suggest that bluegreen algae (Cyanophyta), dominate the summertime phytoplankton community of Mariposa Lake. Based on median values from ISU sampling in 2000 and 2001, the ratio of total nitrogen to total phosphorus for this lake is 13. Data on inorganic suspended solids from the ISU survey suggest that this lake is also subject to occasional episodes of high levels of nonalgal turbidity. The median level of inorganic suspended solids in the 130 lakes sampled for the ISU lake survey in 2000 and 2001 was 5.27 mg/l. The median level of inorganic suspended solids at Mariposa Lake (10.8 mg/l) was the 34th highest of the 130 lakes, thus suggesting that non-algal turbidity may limit the production of algae as well as impair beneficial uses. Based on this information, turbidity-related impacts to the primary contact and aquatic life uses at this lake will be attributed to both suspended algae and re-suspended inorganic material. Based on this information, the siltation and nutrient impairments are more accurately categorized as algae and turbidity. The siltation and nutrient impairments are therefore removed from the 2002 303(d) list, and algae and turbidity impairments have been added to the 2002 303(d) list.

IA 06-WEM-00429-L Middle Decatur Bend (siltation and unknown) New Modeling Data and New Conditions

This Missouri River wetland has been assessed as NS since 1994 due to siltation from agricultural nonpoint sources and due to habitat alterations (water level instability) due to hydrologic modification (degradation) of the Missouri River channel. Middle Decatur Bend is part of an Army Corps of Engineers mitigation project along the Missouri River, and will result in water being pumped into the wetland and correct the unknown (flow alteration) impairment. Watershed modeling completed on Middle Decatur Bend indicates that sediment delivery to the wetland from the watershed is very low. The local DNR biologist indicates that the Missouri River does not breach the original high bank, but occasionally (10 – 15 years) flood waters do enter the wetlands directly adjacent to the river. Based on the watershed modeling data, the siltation impairment is not included on the 2002 303(d) list, and based on the ACOE mitigation project, the unknown (flow alterations) impairment will not be included on the 2002 303(d) list.

IA 03-SKM-0010_1 Mississppi River (indicator bacteria and ammonia) New Data

For the 2002 305(b) report, the Class A (primary contact recreation) uses and Class B(WW) aquatic life uses were assessed as "fully supported". Sources of data for this assessment include (1) results of monitoring conducted by the Illinois Environmental Protection Agency at station K 04, at the east edge of Keokuk, IA, immediately downstream from Lock and Dam 19 at river mile 364 and (2) information in the report "Ecological status and trends of the Upper Mississippi River System, 1998: a report of the Long-Term Resource Monitoring Program, U.S. Geological Survey" (U.S. Geological Survey 1999). According to the Iowa Water Quality Standards (IAC 1990:8), the water quality criterion for fecal coliform bacteria (200 orgs/100 ml) does not apply "when the waters are materially affected by surface runoff." For purposes of Section 305(b) assessments, DNR uses the long-term average monthly flow plus one standard deviation of this average to identify river flows that are materially affected by surface runoff. Of the 12 samples from the Illinois EPA station analyzed for indicator bacteria (fecal coliforms) during summers of 1999 and 2000, three samples were collected during conditions of high river flow. These high river flows resulted in monitoring at river discharges that exceeded the long-term monthly average flow plus one standard deviation of this average (flow statistics from Fischer et al. 1990); thus, the data from these three samples were not used in this assessment. The geometric mean of fecal coliform bacteria in the nine non-runoff affected samples was 139 orgs/100 ml; one of the nine samples (11%) exceeded the EPA-recommended single-sample maximum value of 400 orgs/100 ml. The geometric mean (139 orgs/100 ml) is below the state water quality criterion of 200 orgs/100 ml. According to U.S. EPA guidelines for Section 305(b) reporting, if more than 10% of samples exceed the single sample

maximum value of 400 orgs/100 ml, the primary contact recreation uses are only "partially supported" (see pgs 3-33 to 3-35of U.S. EPA 1997b). Due, however, to (1) the lack of sufficient data points for developing a "monitored" assessment (according to DNR's 305(b) assessment methodology, "monitored" assessments require at least 10 non-runoff-affected samples), and (2) the relatively low geometric mean, the Class A uses of this river reach were assessed as "fully supporting" for the current biennial period. Monitoring data from the Illinois EPA station showed (1) no violations of Class B(WW) water quality criteria for pH, or ammonia-nitrogen in the 18 samples collected between December 1998 and September 2000, (2) no violations of the Class B(WW) chronic water quality criteria for pesticides and toxic metals. Thus, based on results of chemical/physical water quality monitoring, the Class B(WW) aquatic life uses were assessed as "fully supported." For previous Section 305(b) reporting periods, the Class B(WW) aquatic life uses of this reach of the Upper Mississippi River have been assessed as "partially supported" primarily due to documented declines of the bottom fauna (fingernail clams and mayflies) of Pool 19 (see assessment for the 1994 report above). More recent information, however, documents recovery of the benthic fauna of Pool 19 in the mid-1990s following the scouring that accompanied the floods of 1993 and suggests that the densities of the benthic fauna of Pool 19 and other UMR pools is cyclical and is likely controlled by local conditions (Sauer and Lubinski 1999). Although the development of silty substrates and toxic sediments is likely influencing long-term declines in the benthic fauna of Pool 19, these authors conclude that knowledge of long-term population cycles of the benthos is poor, and that distinguishing short-term changes influenced by human activities from changes controlled by natural forces is difficult. Thus, this information suggests that additional studies are needed to accurately determine the significance of human versus natural factors in determining the status of benthic organisms in Pool 19. Based on this information, the status of the benthic fauna of Pool 19 will not be used for developing the assessment of support of aquatic life uses for this Section 305(b) reporting period. Based on this new data, the ammonia and indicator bacteria impairments for this segment of the Mississippi River will not be included on the 2002 303(d) list. However, Class C (drinking water) uses were assessed as "not supported" in 2002 due to violations of the human health water quality criterion for arsenic. Violations of the human health criterion for arsenic (0.18 ppb) occurred in seven of the 18 samples (39%) collected, with a maximum level of 2.6 ppb and mean level of 1.77 ppb. According to IDNR guidelines for Section 305(b) assessments, if the mean level of a toxic metal or pesticide is greater than an MCL or human health criterion, "nonsupport" of the drinking water use is indicated. The mean level of arsenic during the biennial period (1.77 ppb) is well above the human health criterion of 0.18 ppb; thus, nonsupport of drinking water uses is indicated. Based on this new information, the indicator bacteria impairment will not be included on the 2002 303(d) list, but the arsenic impairment will be.

IA 01-NEM-0010_2 Mississippi River (indicator bacteria) Flaws in Analysis

There is no data or indication of impairment by indicator bacteria in any 305(b) assessment completed by the DNR. While this segment of the river did have problems with levels of PCBs in fish tissue through the 1990's, these problems also seem to be remedied, with the fish consumption advisory lifted in August 2000, and the 2002 305(b) assessment of fish consumption as FS. This segment of the Mississippi River was listed in error as impaired by indicator bacteria, and based on this error, this impairment will not be included on the 2002 303(d) list.

IA 06-WEM-0010_0 Missouri River (siltation) Flaws in Analysis

In the 1998 305(b) report, the Class B(WW) aquatic life uses were assessed as PS due to habitat alterations and flow modifications that resulted from development of the river for navigation uses in the mid-Twentieth Century. This assessment was presented to the Nebraska fisheries biologist for the Missouri River and to DNR/EPD staff with historical involvement with Missouri River issues. These professionals agreed with the assessment that aquatic life uses are "partially supported." The habitat alterations are due to channelilzation of the river, while the flow modifications are due primarily to control of river flows through the system of mainstem dams upriver from Sioux City. This assessment continues to be used through the 2002 assessment period. The inclusion of sediment as an impairment is in error,

as there is no documentation that sediment is causing impairment to any of the designated uses. Therefore, the siltation impairment will not be included on the 2002 303(d) list, but the unknown (flow alteration) impairment will remain on Part 2 of the 2002 list.

IA 06-WEM-0020_1 Missouri River (siltation) Flaws in Analysis

In the 1998 305(b) report, the Class B(WW) aquatic life uses were assessed as PS due to habitat alterations and flow modifications that resulted from development of the river for navigation uses in the mid-Twentieth Century. This assessment was presented to the Nebraska fisheries biologist for the Missouri River and to DNR/EPD staff with historical involvement with Missouri River issues. These professionals agreed with the assessment that aquatic life uses are "partially supported." The habitat alterations are due to channelilzation of the river, while the flow modifications are due primarily to control of river flows through the system of mainstem dams upriver from Sioux City. This assessment continues to be used through the 2002 assessment period. The inclusion of sediment as an impairment is in error, as there is no documentation that sediment is causing impairment to any of the designated uses. Therefore, the siltation impairment will not be included on the 2002 303(d) list, but impairments for unknown) (flow alterations) and habitat modification will remain on Part 2 of the 2002 list.

IA 06-WEM-0030_0 Missouri River (siltation) Flaws in Analysis

In the 1998 305(b) report, the Class B(WW) aquatic life uses were assessed as PS due to habitat alterations and flow modifications that resulted from development of the river for navigation uses in the mid-Twentieth Century. This assessment was presented to the Nebraska fisheries biologist for the Missouri River and to DNR/EPD staff with historical involvement with Missouri River issues. These professionals agreed with the assessment that aquatic life uses are "partially supported." The habitat alterations are due to channelilzation of the river, while the flow modifications are due primarily to control of river flows through the system of mainstem dams upriver from Sioux City. This assessment continues to be used through the 2002 assessment period. The inclusion of sediment as an impairment is in error, as there is no documentation that sediment is causing impairment to any of the designated uses. Therefore, the siltation impairment will not be included on the 2002 303(d) list, but impairment for unknown (flow alteration) will remain on Part 2 of the 2002 list.

IA 06-WEM-0040_1 Missouri River (siltation) Flaws in Analysis

In the 1998 305(b) report, the Class B(WW) aquatic life uses were assessed as PS due to habitat alterations and flow modifications that resulted from development of the river for navigation uses in the mid-Twentieth Century. This assessment was presented to the Nebraska fisheries biologist for the Missouri River and to DNR/EPD staff with historical involvement with Missouri River issues. These professionals agreed with the assessment that aquatic life uses are "partially supported." The habitat alterations are due to channelization of the river, while the flow modifications are due primarily to control of river flows through the system of mainstem dams upriver from Sioux City. This assessment continues to be used through the 2002 assessment period. The inclusion of sediment as an impairment is in error, as there is no documentation that sediment is causing impairment to any of the designated uses. Therefore, the siltation impairment will not be included on the 2002 303(d) list, but impairment for unknown (flow alterations) will remain on Part 2 of the 2002 list.

[Note: For the 2002 report, the previous waterbody segment for the Missouri River (IA 06-WEM-0040-0), which extended 63 miles from the Little Sioux River to the Big Sioux River, was split into three subsegments: (1) Little Sioux River to Elm Creek near Decatur, NE (near Onawa in Monona Co.) (IA 06-WEM-0040-1), (2) Elm Creek to Omaha Creek Ditch near Homer, NE (near Salix in Woodbury Co.) (IA 06-WEM-0040-2), and (3) Omaha Creek Ditch to the Big Sioux River at Sioux City, Woodbury County. (IA 06-WEM-0040-3).]

IA 01-WPS-00180-L Muskrat Slough (siltation) Flaws in Analysis

Muskrat Slough was assessed in 1994 as PS due to impacts from siltation from nonpoint agricultural sources. This assessment was based solely on the best professional judgement of DNR biologists, and not on any water quality data or on any violations of water quality criteria. Based on the flaws in the original analysis, including the lack of any water quality data or water quality criteria upon which to base an assessment of the aquatic life uses of this wetland, the siltation impairment at Muskrat Slough will not be included on the 2002 303(d) list.

IA 06-WEM-00343-L Nobles Lake (unknown and siltation) New Conditions and New Modeling Data

The waterbody ID of Nobles Lake was changed from IA WETLAND-30 to IA 06-WEM-00343-L in December 2002. This Missouri River wetland was included on the 1998 303(d) list as impaired by siltation and for unknown impairments. The unknown impairment is due to hydrologic modifications. The DeSoto Bend Wildlife Refuge currently manages the water level in the wetland by pumping water into the wetland. Watershed modeling completed on Nobles Lake indicates that sediment delivery to the wetland from the watershed is very low. The local DNR biologist indicates that the Missouri River does not breach the original high bank, but occasionally (10 –15 years) flood waters do enter the wetlands directly adjacent to the river. Based on this information, the siltation and unknown (hydrologic modification) impairments will not be included on the 2002 303(d) list.

IA 05-CHA-00315-L North Colyn Marsh (siltation) New Data

For the 2002 305(b) report, the assessment of support of the Class B(LW) aquatic life uses was changed from "partially supported" to "fully supported / threatened". The previous (2000) assessment of support of the Class B(LW) uses ("partially supported") was reviewed by the DNR Wildlife Bureau in 2002. According to the local DNR Wildlife Biologist, this area is now managed as a moist soil waterfowl impoundment. Thus, although siltation impacts remains a concern, these impacts are now less significant to the management goals for this wetland. Based on this information, the siltation impairment will not be included on the 2002 303(d) list.

IA 02-IOW-02015-L Otter Creek Marsh (siltation) Flaws in Analysis

Otter Creek Marsh was assessed in 1994 as PS due to impacts from siltation from nonpoint agricultural sources. This assessment was based solely on the best professional judgement of DNR biologists, and not on any water quality data or on any violations of water quality criteria. Based on the flaws in the original analysis, including the lack of any water quality data or water quality criteria upon which to base an assessment of the aquatic life uses of this wetland, the siltation impairment at Otter Creek Marsh will not be included on the 2002 303(d) list.

IA 04-LDM-00215-L Ottumwa Lagoon (indicator bacteria) Flaws in Analysis

The Ottumwa Lagoon was assessed in 1995 based on observations by DNR of the CSO's at Ottumwa discharging to the lagoon. The NPDES permit for Ottumwa is currently in draft form and contains CSO requirements, including the nine minimum controls for communities with combined sewer overflows. The permit requirements are in place to reduce the impacts of CSO's on the receiving waters. In addition, a TMDL for indicator bacteria at the Ottumwa Lagoon would only duplicate the efforts underway in the permitting process. The indicator bacteria impairment at the Ottumwa Lagoon has not been supplemented with any water quality data or violations of the bacteria standard. Based on this lack of data to verify an impairment exists, the indicator bacteria impairment will not be included on the 2002 303(d) list. However, based on the 2002 305(b) assessment, Ottumwa Lagoon will be included on the 2002 303(d) list as impaired by chlordane (fish consumption), algae (primary contact), and turbidity (primary contact).

IA 05-NSH-00220-L Pierce Creek Pond (siltation and nutrients) New Data

Pierce Creek Pond was included on the 1998 303(d) list as impaired by siltation and nutrients. Information from the 2002 assessment indicates that non-algal turbidity is a more accurate impairment for this lake. This is based on the results of the statewide survey of Iowa lakes conducted in 2000 and 2001 by Iowa State University (ISU) and information on phytoplankton communities at Iowa lakes in 2000 from Downing et al. (2002). Results from the ISU statewide survey of Iowa lakes suggest that high levels of algal and non-algal turbidity may adversely affect the Class A and Class B(LW) uses of Pierce Creek Pond. Using the median values from this survey in 2000 and 2001 (approximately six samples), Carlson's (1977) trophic state indices for total phosphorus, chlorophyll-a, and secchi depth are 76, 62, and 71, respectively. According to Carlson (1977), the index values for total phosphorus and secchi depth place this lake in the middle to lower range, respectively, of hyper-eutrophic lakes; the index value for chlorophyll-a is in the lower range between eutrophic and hyper-eutrophic lakes. These index values suggests excessive levels of phosphorus in the water column, moderately low (and less than expected) levels of chlorophyll-a, and poor water transparency. The median level of inorganic suspended solids in the 130 lakes sampled for the ISU lake survey in 2000 and 2001 was 5.27 mg/l. Of 130 lakes sampled, Pierce Creek Pond had the fifth highest median level of inorganic suspended solids (26.1 mg/l), thus suggesting that non-algal turbidity limits the production of algae as well as contributes to impairments of both the primary contact recreation and aquatic life uses. Sources of sediment resuspension include lake shallowness (mean depth is 1.8m) and presence of an increasingly large population of common carp (exotic species). These conditions indicate potential impairments to the Class A (primary contact) uses through presence of aesthetically objectionable blooms of algae and high levels of non-algal turbidity. Data from Downing et al. (2002) suggest that bluegreen algae (Cyanophyta) are a relatively small portion of the summertime phytoplankton community of Pierce Creek Lake, with species of green algae tending to dominate. Sampling in 2000 showed the percent wet mass of bluegreens ranged from approximately 40% in the mid-June sampling, to approximately 20% in the mid-July sampling, and down to approximately 15% in the early August sampling. Based on median values from ISU sampling in 2000 and 2001, the ratio of total nitrogen to total phosphorus for this lake is 11. Additional data for this lake are being generated as part of the ongoing ISU lake survey; these data will be used to improve the accuracy of future water quality assessments. According to the IDNR Fisheries Bureau, Pierce Creek Pond suffers from an unfavorably large watershed-to-lake area ratio of over 80/1. The water quality and fisheries of this lake will always be difficult lake to manage due to its large watershed area. IDNR Fisheries suggests that the following efforts are needed to improve this lake: improved soil conservation efforts in the watershed, lake dredging, renovation of the fish population, and raising the dam and water level to at least double the lakes historical surface acreage. Based on information from this more recent assessment, the siltation and nutrient impairments will not be included on the 2002 list, however, Pierce Creek Pond will be listed for non-algal turbidity.

IA 06-WEM-00452-L Rabbit Island Lake (siltation) New Modeling Data

This Missouri River wetland has been assessed as NS since 1994 due to siltation from agricultural nonpoint sources and due to habitat alterations (water level instability) due to hydrologic modification (degradation) of the Missouri River channel. Watershed modeling completed on Rabbit Island Lake indicates that sediment delivery to the wetland from the watershed is very low. The local DNR biologist indicates that the Missouri River does not breach the original high bank, but occasionally (10 –15 years) flood waters do enter the wetlands directly adjacent to the river. Based on the watershed modeling data, the siltation impairment is not included on the 2002 303(d) list. The unknown (flow alterations) remains on Part 2 of the 2002 303(d) list.

IA 05-CHA-0020-L Rathbun Reservoir (atrazine) New Data

For the 2000 305(b) report, the Class C drinking water uses were assessed as "fully supported / threatened." This assessment was based on results of approximately 18 water quality monitoring events conducted at Rathbun Lake in 1998 (11 events) and 1999 (7 events) by the U.S. Army Corps of

Engineers at the following stations in Rathbun Lake: (1) outlet (RA-28), (2) Honey Creek arm (RA-25), (3) downlake near dam (RA-3), (4) 10 miles uplake from dam in the Chariton arm (RA-7), and (5) 10.4 miles uplake from dam in the South Fork arm (RA-8). The results of this monitoring are summarized in the "Rathbun Lake Water Quality Reports" for 1998 and 1999 (see ACOE 1999 and Kirsh and Leonard 2000). The Class C drinking water uses remain assessed as "fully supported / threatened." Results of pesticide monitoring in 1998 and 1999 near the dam (station RA-3) and at the lake outlet area (RA-28) showed no violations of the MCL for atrazine. The mean, minimum, and maximum atrazine levels at station RA-3 were 1.2 ug/l, 0.73 ug/l, and 1.71 ug/l in 1998 and 0.86 ug/l, 0.52 ug/l, and 1.31 ug/l in 1999. The mean, minimum, and maximum atrazine levels at the outlet area (station RA-28) were 1.15 ug/l, 0.90 ug/l, and 1.72 ug/l in 1998 and 0.85 ug/l, 0.51 ug/l, and 1.50 ug/l in 1999. Levels of atrazine did exceed the MCL at the uplake stations (RA-7 and RA-8) in May and June 1998, with mean/maximum levels of 2.14/12.60 ug/l at RA-7 (Chariton arm) and 3.54/16.7 ug/l at RA-8 (South Fork arm). All samples were below the MCL at these station in 1999 (maximum levels: RA-7: 1.00 ug/l; RA-8: 1.91 ug/l). Although levels of atrazine were below the MCL at the stations near the dam and at the outlet area (the vicinity of the drinking water intake), the occasionally higher levels at the uplake stations, and the routinely higher levels suggest a continued threat to the full support of the drinking water uses of this reservoir. In addition to the Army Corps of Engineer monitoring for pesticides, data on atrazine were collected in 1998 as part of the Novartis "Iowa Voluntary Atrazine Monitoring Program." This monitoring showed that the time-weighted mean level of atrazine in samples collected from the Rathbun raw water source from January to December 1998 (0.9 ug/l, N=31, maximum=1.6 ug/l) was well below the MCL of 3.0 ug/l. Based on DNR's Section 305(b) assessment methodology, if the average contaminant level in source water is less than the MCL, and levels in all samples are below the MCL, the Class C (drinking water) uses of the source water should be assessed as "fully supported." Due, however, to the relatively high levels of atrazine in tributaries to Rathbun Reservoir, the Class C (drinking water) uses were assessed as "fully supported / threatened." For the 2002 305(b) report, the Class C drinking water uses were assessed as "fully supported / threatened." The assessments of support of the Class C uses was based on results of approximately 10 water quality monitoring events conducted at Rathbun Lake in 2000 (7 events) and 2001 (3 events) by the U.S. Army Corps of Engineers at the following stations in Rathbun Lake: (1) downlake near dam (RA-3), (2) 10 miles uplake from dam in the Chariton arm (RA-7), (3) 10.4 miles uplake from dam in the South Fork arm (RA- 8), and (4) Honey Creek arm (RA-25). The results of this monitoring are summarized in the "Rathbun Lake Water Quality Reports" for 1999, 2000, and 2001. In addition, the 2000-2001 results from the "Iowa Voluntary Atrazine Monitoring Program" sponsored by Syngenta Crop Protection Inc (formerly Novartis Crop Protection, Inc.) were used to assess support of the Class C uses. Results of pesticide monitoring by ISU/ACOE in 2000 and 2001 near the dam (station RA-3) showed no violations of the MCL for atrazine in the 12 samples collected. The mean, minimum, and maximum atrazine levels at station RA- 3 during the 2000-2001 biennial period were 1.0 ug/l, 0.47 ug/l, and 1.8 ug/l, respectively. These results are similar to those for the 1998-1999 biennial period (see assessment for the 2000 report above). One of 12 samples collected at Station RA-28 (reservoir outlet) exceeded the atrazine MCL (3.9 ug/l on June 13, 2001. The mean, minimum, and maximum atrazine levels at the outlet area during the biennial period were 1.05 ug/l, 0.50 ug/l, and 3.9 ug/l. Levels of atrazine during the 2000-2001 period did occasionally exceed the atrazine MCL at the uplake stations (RA-7 and RA-8) with mean/maximum levels of 2.0/12.4 ug/l at RA-7 (Chariton arm) and 2.5/13.2 ug/l at RA-8 (South Fork arm). In addition, results from Syngenta's "Iowa Voluntary Atrazine Monitoring Program" show relatively low levels of atrazine in Rathbun Reservoir. This monitoring showed that the time-weighted mean levels of atrazine in samples collected from Rathbun Reservoir in calendar years 1999, 2000 and 2001 were far below the MCL of 3.0 ug/l. The time-weighted mean of atrazine in 1999 (N=30) was 0.05 ug/l, in 2000 (N=29) was 0.89 ug/l, and in 2001 (N=30) was 0.96 ug/l. None of the combined 59 samples collected in 1999 and 2000 exceeded the MCL of 3.0 ug/l with a maximum value of 1.2 ug/l; one of the 30 samples collected in 2001 exceeded the MCL for atrazine (maximum value = 5.0 ug/l). Although atrazine is detected in Rathbun Reservoir and its tributaries, it rarely exceeds the MCL and the water quality trend is not declining. Based on this new data, the atrazine impairment will not be included on the 2002 303(d) list.

IA 02-WIN-00210-L Rice Lake (nutrients) Flaws in Analysis

Rice Lake was assessed in 1994 as PS due to impacts from nutrients from nonpoint agricultural sources. This assessment was based solely on the best professional judgement of DNR biologists, and not on any water quality data or on any violations of water quality criteria. Based on the flaws in the original analysis, including the lack of any water quality data or water quality criteria upon which to base an assessment of the aquatic life uses of this wetland, the nutrient impairment at Rice Lake will not be included on the 2002 303(d) list.

IA 05-NSH-0015-L Riverton (siltation) New Data / Flaws in Analysis

Riverton was assessed as PS in 1998 due to impacts of siltation caused by frequent flooding of the Nishnabotna River. The assessment is based solely on the best professional judgement of DNR biologists, and not on any water quality data or on any violations of water quality criteria. For the 2002 305(b) assessment, the local DNR biologist stated that wetland normally has very good water quality, but sediment from agricultural sources and flooding of the Nishnabotna rivers is still a threat. Based on this new assessment and flaws in the original assessment, this impairment is not included on the 2002 303(d) list.

IA 04-LDM-00380-L Roberts Creek Lake (siltation) Flaws in Analysis

Roberts Creek Lake was included as impaired by siltation based on a 1996 305(b) assessment that the Class B uses were PS. This assessment was based on an application by the Marion County Soil & Water Conservation District for CWA Section 319 funding. The application states that the lake is being "significantly impacted by sediment that is caused by soil erosion in the predominantly agricultural 7,691-acre watershed." However, this assessment is not based on any water quality data or on any violations of water quality criteria. Based on the flaws in the original analysis, including the lack of any water quality data or water quality criteria upon which to base an assessment of the aquatic life uses of this lake, the siltation impairment at Roberts Creek Lake will not be included on the 2002 303(d) list.

IA 02-CED-02750-L Rodgers Park Lake (siltation) New Conditions

This lake was assessed as PS since 1992. According to the local DNR Fisheries Biologist, recent dredging of the upper arm of the lake and the construction of a wetland directly above the lake have improved the water quality of this lake and reduced the amount of sediment delivered to the lake. Based on these new conditions and new assessment, the sediment impairment is not included on the 2002 303(d) list.

IA 06-WEM-00380-L Round Lake (siltation) New Modeling Data

The waterbody ID of Round Lake was changed from IA WETLAND-31 to IA 06-WEM-00380-L in December 2002. This Missouri River wetland has been assessed as NS since 1994 due to siltation from agricultural nonpoint sources and due to habitat alterations (water level instability) due to hydrologic modification (degradation) of the Missouri River channel. This watershed of this oxbow wetland was modeled and indicates that sediment delivery to the wetland from the watershed is very low. The local DNR biologist indicates that the Missouri River does not breach the original high bank, but occasionally (10 –15 years) flood waters do enter the wetlands directly adjacent to the river. Flooding events do not reach Round Lake, and therefore this wetland does suffer from hydrologic modification and a lack of necessary water. Based on the watershed modeling data, the siltation impairment is not included on the 2002 303(d) list. The unknown (flow alterations) remains on Part 2 of the 2002 303(d) list.

IA 02-SHL-00295-L Silver Lake (aquatic plants and low DO) New Data and Flaws in Analysis

For the 2002 report the Class A (primary contact recreation) uses are assessed (monitored) as "partially supported." Sources of data for this assessment include (1) results of the statewide survey of Iowa lakes conducted in 2000 and 2001 by Iowa State University (ISU), (2) information from the IDNR Fisheries Bureau, and (3) information on phytoplankton communities at Iowa lakes in 2000 from Downing et al. (2002). Results of monitoring conducted by ISU in 2000 and 2001 as part of the statewide survey of Iowa lakes suggest that the Class A (primary contact) uses are only "partially supported." Using the median values from this survey in 2000 and 2001 (approximately six samples), Carlsons's (1977) trophic state indices for total phosphorus, chlorophyll-a, and secchi depth are 84, 71, and 66, respectively, for Silver Lake. According to Carlson (1977), these index values place this lake in the range of hyper-eutrophic lakes and suggest excessive phosphorus loading to the water column, high (but less than expected) levels of chlorphyll-a, and moderately poor water transparency. These conditions indicate impairments to the Class A (primary contact) uses through presence of aesthetically objectionable blooms of algae and presence of nuisance (=noxious) algal species (i.e., bluegreen algae). Data from Downing et al. (2002) suggest that bluegreen algae (Cyanophyta), tend to dominate the summertime phytoplankton community of Silver Lake). Sampling in summer 2000 showed that bluegreen algae comprise more than 95% of the wet mass of the phytoplankton community in the early July sample, 70% in the late July sample, and nearly 100% in the early September sample. Based on median values from ISU sampling in 2000 and 2001, the ratio of total nitrogen to total phosphorus for this lake is 7. Data on inorganic suspended solids from the ISU survey suggest that this lake is also subject to occasional episodes of high levels of non-algal turbidity. The median level of inorganic suspended solids in the 130 lakes sampled for the ISU lake survey in 2000 and 2001 was 5.27 mg/l. The median level of inorganic suspended solids at Silver Lake (11.5 mg/l) was the thirtieth-highest of the 130 lakes, thus suggesting that non-algal turbidity may, at times, limit the production of algae as well as impair beneficial uses. According to the IDNR Fisheries Bureau, this lake does have problems with resuspension of sediments and nutrients due primarily to the shallowness of the lake. The lake does not have a population of common carp but does have significant numbers of bullheads. Based on this information, turbidity-related impacts to the primary contact and aquatic life uses at this lake will be attributed to both suspended algae and re-suspended inorganic material. The low DO impairment included on the 1998 303(d) list was not based on any water quality data or violations of water quality criteria, and will not be included on the 2002 303(d) list. Based on this new assessment and new data, the aquatic plant impairment is more accurately listed as an algae impairment and will be changed to algae on the 2002 list. In addition, information from the 2002 assessment indicates that Silver Lake is impaired by excessive turbidity and this impairment will also be included on the 2002 list.

IA 04-UDM-01020-L Silver Lake (low DO) Flaws in Analysis

For the 2002 report the Class A (primary contact recreation uses) are assessed (monitored) as "partially supported." Sources of data for this assessment include (1) results of the statewide survey of Iowa lakes conducted in 2000 and 2001 by Iowa State University (ISU), (2) information from the IDNR Fisheries Bureau, and (3) information on phytoplankton communities at Iowa lakes in 2000 from Downing et al. (2002). Results of monitoring conducted by ISU in 2000 and 2001 as part of the statewide survey of Iowa lakes suggest that the Class A (primary contact) uses are only "partially supported." Using the median values from this survey in 2000 and 2001 (approximately six samples), Carlsons's (1977) trophic state indices for total phosphorus, chlorophyll-a, and secchi depth are 90, 72, and 79, respectively, for Silver Lake. According to Carlson (1977), these index values place this lake in the upper range of hyper-eutrophic lakes and suggest excessive levels of phosphorus, (2) excessive, but somewhat less than expected, production of suspended algae, and (3) poor water transparency. These conditions indicate impairments to the Class A (primary contact) uses through presence of aesthetically objectionable blooms of algae and presence of nuisance algal species (i.e., bluegreen algae). Data from Downing et al. (2002) suggest that bluegreen algae (Cyanophyta), comprise a significant portion (approximately 35%) of the summertime phytoplankton community of Silver Lake. Sampling in summer 2000 showed that bluegreen algae comprised approximately 15% of wet mass of the phytoplankton community in the mid-June sample, 55% of the mid-July sample, and 30% of the early August sample. Based on median values from ISU sampling in 2000 and 2001, the ratio of total nitrogen to total phosphorus for this lake is

8. Data on inorganic suspended solids from the ISU survey suggest that this lake is also subject to occasional episodes of high levels of nonalgal turbidity. The median level of inorganic suspended solids in the 130 lakes sampled for the ISU lake survey in 2000 and 2001 was 5.27 mg/l. The median level of inorganic suspended solids at Silver Lake (21.4 mg/l) was the seventh highest of the 130 lakes, thus suggesting that non-algal turbidity may limit the production of algae as well as impair beneficial uses. Based on this information, turbidity-related impacts to the primary contact and aquatic life uses at this lake will be attributed to both suspended algae and re-suspended inorganic material. The low DO impairment included on the 1998 303(d) list was not based on any data or violations of water quality criteria and therefore was made in error. However, the more recent assessment indicates that Silver Lake is impaired by turbidity and algae, and both of these impairments are included on the 2002 303(d) list.

IA 05-GRA-01015-L Slip Bluff Lake (nutrients) Flaws in Analysis

Slip Bluff Lake was listed on the 1998 303(d) list as impaired by siltation and nutrients. In the TMDL submittal letter from the IDNR on July 27, 2001, the IDNR identified that the lake was erroneously listed as impaired by nutrients. There is no evidence of an impairment due to excess nutrients. The lake does not suffer from heavy algae blooms or algae related fish kills. Therefore, the nutrient impairment is not included on the 2002 303(d) list.

IA 06-WEM-00475-L Snyder Bend Lake (unknown) New Conditions

This Missouri River wetland has been assessed as PS since 1994 due to habitat alterations (water level instability) due to hydrologic modification (degradation) of the Missouri River channel. This wetland now receives discharge water from the Port Neal Generating Station, which maintains the necessary water level in the wetland. Therefore, the unknown impairment (flow alterations) will not be included on the 2002 303(d) list.

IA 05-CHA-00316-L South Colyn Marsh (siltation) New Data

For the 2002 305(b) report, the assessment of support of the Class B(LW) aquatic life uses was changed from "partially supported" to "fully supported / threatened". The previous (2000) assessment of support of the Class B(LW) uses ("partially supported") was reviewed by the DNR Wildlife Bureau in 2002. According to the local DNR Wildlife Biologist, this area is now managed as a moist soil waterfowl impoundment. Thus, although siltation impacts remains a concern, these impacts are now less significant to the management goals for this wetland. Based on this information, the siltation impairment will not be included on the 2002 303(d) list.

IA 04-RAC-01395-L South Twin Lake (siltation) New Data

The local DNR Wildlife Biologist states that siltation is not a serious problem because (1) the wetland has a rather small watershed and (2) most of the contributing watershed comes from the outlet of North Twin Lake and contains relatively little silt. Some progress has been made on the north side of the lake on private property with the establishment of grass that reduces silt. DNR has purchased a small tract on the southwest side of the lake that includes a small wetland and some adjacent uplands which have been seeded to native grasses. Based on this information from a more recent assessment, the siltation impairment will not be included on the 2002 list.

IA 04-RAC-00805-L Spring Lake (noxious aquatic plants) New Data

In 2002, the eutrophic conditions at this lake, along with information from the IDNR Fisheries Bureau, suggest that the Class B(LW) aquatic life uses should be assessed as "fully supported / threatened." No information is available to support the previous assessment that these uses were "partially supported." The natural shallowness of this lake leads to problems with excessive growth of aquatic macrophytes

(="noxious" aquatic plants"); however, this problem threatens, but does not impair, the aquatic life uses of this lake. Based on this recent assessment, the noxious aquatic plant impairment at Spring Lake will not be included on the 2002 303(d) list.

IA 04-RAC-02220-L Springbrook Lake (siltation and nutrients) Flaws in Analysis

Springbrook Lake has been assessed as PS in 1994 due to siltation and nutrients from agricultural nonpoint sources. This assessment was based on data from Bachmann et al. (1994). This report estimated the lake had a high sedimentation rate and short life expectancy of 24 years. This determination was based on an equation developed from the evaluation of several Iowa lakes by Laube (1991), and is based primarily on watershed area. This equation does not take into account landuse, best management practices, or structures within the watershed that reduce sediment and nutrient delivery and therefore, is not seen to be accurate and suitable for including waterbodies on the 303(d) list. Based on this assessment, the lake was listed as impaired by siltation and nutrients from agricultural nonpoint sources. Based on the flaws in the original analysis and use of an inadequate model, the siltation and nutrient impairments for Springbrook Lake will not be included on the 2002 list.

IA 04-RAC-00530-L Storm Lake (organic enrichment) Flaws in Analysis

Storm Lake was included on the 1998 3030(d) list based on comments included in the 1996 and 1998 305(b) assessments. Comments by the DNR Fisheries Bureau state that organic enrichment from natural shallowness could lead to a fishkill. However, there were no documented fishkills at Storm Lake, and no documented violations of water quality standards. This assessment was based solely on the best professional judgement of DNR biologists, and not on any water quality data or on any violations of water quality criteria. Based on the flaws in the original analysis, including the lack of any water quality data or water quality criteria upon which to base an assessment of the aquatic life uses of this lake, the organic enrichment impairment at Storm Lake will not be included on the 2002 303(d) list Storm Lake will be included on Part 1 of the 2002 303(d) list as impaired by turbidity, primarily from internal sources.

IA 02-CED-0170-2 Sugar Creek (organic enrichment) New Data

For the 2002 305(b) report, the Class B(LR) aquatic life uses have been upgraded from “partially supporting” to "fully supported / threatened." Sources of information for this assessment include (1) results of biological monitoring in 2001 as part of the DNR/UHL stream biocriteria project and (2) water quality monitoring conducted at two sites in this segment from March to November 2001 by IDNR and UHL in support of TMDL development. The Class B(LR) uses are assessed as "fully supported / threatened" based on results of biological monitoring conducted in 2001. The biological assessment was based on data collected in 2001 as part of the DNR/UHL stream biocriteria project. The 2001 Fish IBI scores were 32 (fair) and 71 (excellent), and the BM-IBI scores were 52 (fair) and 58 (good). The aquatic life use support was assessed as "fully supported / threatened" (=FST), based on a comparison of the F-IBI and BM-IBI scores with biological assessment criteria established specifically for the 2002 Section 305(b) report. The biological assessment criteria were determined from a statistical analysis of data collected at stream ecoregion reference sites from 1994-2001. Results of chemical/physical monitoring conducted in 2001 in support of TMDL development show no violations of Class B(LR) water quality criteria for conventional parameters and ammonia-nitrogen in the nine monthly samples collected between March and November 2001 at the sites 2 miles NW of Wilton (Site 6) and 6 miles SE of Tipton (Site 7) (the maximum values of ammonia-nitrogen were 0.100 mg/l at Site 6 and 0.150 mg/l at Site 7). These results suggest "full support" of the Class B(LR) aquatic life uses. Biological monitoring, however, is better able to reflect cumulative impacts of water quality over time and thus is believed to more accurately represent water quality conditions of this segment of Sugar Creek than do results from the 2001 monthly TMDL monitoring sites. Thus, the aquatic life uses are assessed as "fully supported / threatened." Based on this new data, the organic enrichment impairment at Sugar Creek will not be included on the 2002 303(d) list.

IA 04-RAC-01610-L Sunken Grove Lake (siltation) Flaws in Analysis

Sunken Grove Lake was assessed in 1994 as PS due to impacts from siltation from nonpoint agricultural sources. This assessment was based solely on the best professional judgement of DNR biologists, and not on water quality data or on any violations of water quality criteria. Based on the flaws in the original analysis, including the lack of any water quality data or water quality criteria upon which to base an assessment of the aquatic life uses of this wetland, the siltation impairment at Sunken Grove Lake will not be included on the 2002 303(d) list. Sunken Grove Lake will be included on Part 2 of the impaired waters list as impaired by exotic species (purple loosestrife).

IA 04-RAC-02370-L Swan Lake (indicator bacteria) Flaws in Analysis

For the 2002 305(b) report the Class A (primary contact recreation) uses are assessed (monitored) as "not supported." Sources of data for this assessment include (1) results of the statewide survey of Iowa lakes conducted in 2000 and 2001 by Iowa State University (ISU), (2) information from the IDNR Fisheries Bureau, and (3) information on phytoplankton communities at Iowa lakes in 2000 from Downing et al. (2002). Results of monitoring conducted by ISU in 2000 and 2001 as part of the statewide survey of Iowa lakes suggest that the Class A (primary contact) uses are only "partially supported." Using the median values from this survey in 2000 and 2001 (approximately six samples), Carlsons's (1977) trophic state indices at this lake for total phosphorus, chlorophyll-a, and secchi depth are 97, 84, and 92, respectively. According to Carlson (1977), these index values place this lake in the upper range of hyper-eutrophic lakes and suggest extremely high levels phosphorus in the water column, excessive production of suspended algae, and extremely poor water transparency (all three TSI values for Swan Lake are the highest of the 130 Iowa lakes sampled in 2000 and 2001 as part of the ISU survey). These conditions indicate impairments to the Class A (primary contact) uses through presence of aesthetically objectionable blooms of algae and presence of nuisance algal species (i.e., bluegreen algae). Data from Downing et al. (2002) suggest that bluegreen algae (Cyanophyta), tend to completely dominate the summertime phytoplankton community of Swan Lake. Sampling in 2000 showed that bluegreens comprised 100% of the wet mass of the phytoplankon community during all three sample events. Based on median values from ISU sampling in 2000 and 2001, the ratio of total nitrogen to total phosphorus for this lake is 4. Data on inorganic suspended solids from the ISU survey suggest that this lake is also subject to occasional episodes of very high levels of non-algal turbidity. The median level of inorganic suspended solids in the 130 lakes sampled for the ISU lake survey in 2000 and 2001 was 5.27 mg/l. The median level of inorganic suspended solids at Swan Lake (46.9 mg/l) was the highest of the 130 lakes, thus suggesting that non-algal turbidity limits the production of algae as well as impairs beneficial uses. Much of the suspended inorganic material in the water column of Swan Lake is believed due to a large population of common carp that resuspend sediments and nutrients during feeding and spawning activities. Based on this information, turbidity-related impacts to the primary contact and aquatic life uses at this lake will be attributed to both suspended algae and re-suspended inorganic material. According the the IDNR Fisheries Bureau, a new wetland has been constructed in the upper end of the lake; this wetland is expected to improve water quality. IDNR Fisheries has requested that a fish barrier be constructed at the lake outlet to prevent common carp from entering the lake (as has happened during high-flow periods in the past). Once this barrier is constructed, plans are to chemically renovate and restock the lake. Swan Lake was placed on the 1998 303(d) list as impaired by indicator bacteria. There were no data or violations of water quality criteria available to base this assessment on, and therefore, the placement of this impairment on the list was in error and it will not be included on the 2002 303(d)list. However, Swan Lake will be included on Part 1 of the 2002 list as impaired by algae and turbidity, and on Part 2 due to exotic species (carp).

IA 02-IOW-00405-L Swan Lake (siltation) New Data

The assessment of this wetland has been upgraded from PS to FST based on the recommendation of the local DNR Biologist. While sediment still remains a threat, it is not impairing the waterbody and it is

currently fulfilling its function as a wetland. Therefore, this siltation impairment will not be included on the 2002 list.

IA 01-WPS-01905-L Sweet Marsh Reservoir (siltation) Flaws in Analysis

Sweet Marsh Reservoir was assessed in 1994 as PS due to impacts from siltation from nonpoint agricultural sources. This assessment was based solely on the best professional judgement of DNR biologists, and not on water quality data or on any violations of water quality criteria. Based on the flaws in the original analysis, including the lack of any water quality data or water quality criteria upon which to base an assessment of the aquatic life uses of this wetland, the siltation impairment at Sweet Marsh Reservoir will not be included on the 2002 303(d) list.

IA 01-WPS-01908-L Sweet Marsh Seg. A (siltation) Flaws in Analysis

Sweet Marsh Segment A was assessed in 1994 as PS due to impacts from siltation from nonpoint agricultural sources. This assessment was based solely on the best professional judgement of DNR biologists, and not on water quality data or on any violations of water quality criteria. Based on the flaws in the original analysis, including the lack of any water quality data or water quality criteria upon which to base an assessment of the aquatic life uses of this wetland, the siltation impairment at Sweet Marsh Segment A will not be included on the 2002 303(d) list.

IA 01-WPS-01907-L Sweet Marsh Seg. B (siltation) Flaws in Analysis

Sweet Marsh Segment B was assessed in 1994 as PS due to impacts from siltation from nonpoint agricultural sources. This assessment was based solely on the best professional judgement of DNR biologists, and not on water quality data or on any violations of water quality criteria. Based on the flaws in the original analysis, including the lack of any water quality data or water quality criteria upon which to base an assessment of the aquatic life uses of this wetland, the siltation impairment at Sweet Marsh Segment B will not be included on the 2002 303(d) list.

IA 01-WPS-01906-L Sweet Marsh Seg. C (siltation) Flaws in Analysis

Sweet Marsh Segment C was assessed in 1994 as PS due to impacts from siltation from nonpoint agricultural sources. This assessment was based solely on the best professional judgement of DNR biologists, and not on water quality data or on any violations of water quality criteria. Based on the flaws in the original analysis, including the lack of any water quality data or water quality criteria upon which to base an assessment of the aquatic life uses of this wetland, the siltation impairment at Sweet Marsh Segment C will not be included on the 2002 303(d) list.

IA 05-GRA-01420-L Talmadge Hill Marsh (low DO) Flaws in Analysis

There is no data to indicate impairment to Talmadge Hill Marsh by low dissolved oxygen. Talmadge Hill Marsh was listed on the 1998 303(d) list in error. A site visit in 2000 by DNR (Asell) and EPA (Hutton) officials agreed with the determination that this waterbody was listed in error. Therefore, this impairment will not be included on the 2002 list.

IA 01-WPS-00260-L Troy Mills Marsh (siltation) Flaws in Analysis

Troy Mills Marsh was assessed in 1994 as PS due to impacts from siltation from nonpoint agricultural sources. This assessment was based solely on the best professional judgement of DNR biologists, and not on water quality data or on any violations of water quality criteria. Based on the flaws in the original analysis, including the lack of any water quality data or water quality criteria upon which to base an assessment of the aquatic life uses of this wetland, the siltation impairment at Troy Mills Marsh will not be included on the 2002 303(d) list.

IA 06-LSR-02450-L Trumbull Lake (low DO) Flaws in Analysis

For the 2002 305(b) report the Class A (primary contact recreation) uses are assessed (monitored) as "not supported." Sources of data for this assessment include (1) results of the statewide survey of Iowa lakes conducted in 2000 and 2001 by Iowa State University (ISU), (2) information from the IDNR Fisheries Bureau, and (3) information on phytoplankton communities at Iowa lakes in 2000 from Downing et al. (2002). Results of monitoring conducted by ISU in 2000 and 2001 as part of the statewide survey of Iowa lakes suggest that the Class A (primary contact) uses are "not supported." Using the median values from this survey in 2000 and 2001 (approximately six samples), Carlsons's (1977) trophic state indices for total phosphorus, chlorophyll-a, and secchi depth are 89, 80, and 85, respectively, for Trumbull Lake. According to Carlson (1977), these index values place this lake in the upper range of hyper-eutrophic lakes and suggest extremely high levels phosphorus in the water column as well as excessive production of suspended algae and very poor water transparency. These conditions indicate impairments to the Class A (primary contact) uses through presence of aesthetically objectionable blooms of algae and presence of nuisance algal species (i.e., bluegreen algae). Data from Downing et al. (2002) suggest that bluegreen algae (Cyanophyta), dominate the summertime phytoplankton community of Trumbull Lake. Sampling in 2000 showed that bluegreens comprised approximately over 95% of the wet mass of the phytoplankton during the three summer samplings. Data on inorganic suspended solids from the ISU survey suggest that this lake is also subject to high levels of nonalgal turbidity. Based on median values from ISU sampling in 2000 and 2001, the ratio of total nitrogen to total phosphorus for this lake is 10. The median level of inorganic suspended solids in the 130 lakes sampled for the ISU lake survey in 2000 and 2001 was 5.27 mg/l. The median level of inorganic suspended solids at Trumbull Lake (40.4 mg/l) was the third highest of the 130 lakes, thus suggesting that non-algal turbidity limits the production of algae as well as impairs beneficial uses. Based on this information, turbidity-related impacts to the primary contact and aquatic life uses at this lake will be attributed to both suspended algae and re-suspended inorganic material. The low DO impairment included on the 1998 303(d) list was not based on any data or violation of water quality criteria. This impairment was included on the 1998 list in error and will not be included on the 2002 list. However, based on the 2002 assessment, Trumbull Lake will have impairments caused by algae and turbidity on Part 1 of the 2002 303(d) list.

IA 04-EDM-00290-L Tuttle Lake (noxious aquatic plants and low DO) New Data / Flaws in Analysis

For the 2002 report the Class A (primary contact recreation) uses are assessed (monitored) as "partially supported." Sources of data for this assessment include (1) results of the statewide survey of Iowa lakes conducted in 2000 and 2001 by Iowa State University (ISU), (2) information from the IDNR Fisheries Bureau, and (3) information on phytoplankton communities at Iowa lakes in 2000 from Downing et al. (2002). Results of monitoring conducted by ISU in 2000 and 2001 as part of the statewide survey of Iowa lakes suggest that the Class A (primary contact) uses are only "partially supported." Using the median values from this survey in 2000 and 2001 (approximately six samples), Carlsons's (1977) trophic state indices for total phosphorus, chlorophyll-a, and secchi depth are 83, 71, and 80, respectively, for Tuttle Lake. According to Carlson (1977), these index values place this lake in the range of hyper-eutrophic lakes and suggest (1) extremely high levels phosphorus in the water column, (2) excessive, but less than expected, production of suspended algae, and (3) very poor water transparency. These conditions indicate impairments to the Class A (primary contact) uses through presence of aesthetically objectionable blooms of algae and presence of nuisance algal species (i.e., bluegreen algae). Data from Downing et al. (2002) suggest that bluegreen algae (Cyanophyta), tend to dominate the summertime phytoplankton community of Tuttle Lake. Sampling in summer 2000 showed that bluegreen algae comprised approximately 85% of the wet mass of the phytoplankton community in the mid-June sample, 65% in the mid-July sample, and 90% in the early August sample. Based on median values from ISU sampling in 2000 and 2001, the ratio of total nitrogen to total phosphorus for this lake is 10. Data on inorganic suspended solids from the ISU survey suggest that this lake is also subject to occasional

episodes of high levels of non-algal turbidity. The median level of inorganic suspended solids in the 130 lakes sampled for the ISU lake survey in 2000 and 2001 was 5.27 mg/l. The median level of inorganic suspended solids at Tuttle Lake (17.1 mg/l) was the twentieth highest of the 130 lakes, thus suggesting that non-algal turbidity may limit the production of algae as well as impair beneficial uses. Based on this information, turbidity-related impacts to the primary contact and aquatic life uses at this lake will be attributed to both suspended algae and re-suspended inorganic material. The low DO impairment included on the 1998 list was not based on any data or violations of water quality criteria. This impairment was listed in error and will not be included on the 2002 list. Based on this new assessment, it is more accurate to list Tuttle Lake as impaired by algae rather than noxious aquatic plants, therefore this change will be made on the 2002 list. Tuttle Lake will also be listed as impaired by turbidity on Part 1 of the 2002 list.

IA 06-WEM-00370-L Tyson Bend (unknown and siltation) New Conditions / New Modeling Data

This Missouri River wetland has been assessed as NS since 1998 due to siltation from agricultural nonpoint sources and due to habitat alterations (water level instability) due to hydrologic modification (degradation) of the Missouri River channel. Watershed modeling completed on Tyson Bend indicates that sediment delivery to the wetland from the watershed is very low. The local DNR biologist indicates that the Missouri River does not breach the original high bank, but occasionally (10 –15 years) flood waters do enter the wetlands directly adjacent to the river. Based on the watershed modeling data, the siltation impairment is not included on the 2002 303(d) list. A mitigation project by the Army Corps of Engineers is in place, providing a flow through structure at the bend, allowing water to again enter the bend, and mitigating the unknown (flow alterations) impairment. Therefore, these impairments will not be included on the 2002 303(d) list.

IA 04-EDM-00190-L Union Slough (siltation) Flaws in Analysis

Union Slough was assessed in 1994 as PS due to impacts from siltation from nonpoint agricultural sources. This assessment was based solely on the best professional judgement of DNR biologists, and not on water quality data or on any violations of water quality criteria. Based on the flaws in the original analysis, including the lack of any water quality data or water quality criteria upon which to base an assessment of the aquatic life uses of this wetland, the siltation impairment at Union Slough will not be included on the 2002 303(d) list.

IA 06-WEM-00422-L Upper Blencoe Bend (siltation) New Modeling Data

The waterbody ID of Upper Blencoe Bend was changed from IA-WETLAND-40 to IA 06-WEM-00422-L in December 2002. This Missouri River wetland has been assessed as NS since 1998 due to siltation from agricultural nonpoint sources and due to habitat alterations (water level instability) due to hydrologic modification (degradation) of the Missouri River channel. Watershed modeling completed on Upper Blencoe Bend indicates that sediment delivery to the wetland from the watershed is very low. The local DNR biologist indicates that the Missouri River does not breach the original high bank, but occasionally (10 –15 years) flood waters do enter the wetlands directly adjacent to the river. Based on the watershed modeling data, the siltation impairment is not included on the 2002 303(d) list. The unknown (hydrologic modification) remains on Part 2 of the 2002 303(d) list.

IA 06-LSR-02830-L Upper Gar Lake (noxious aquatic plants) New Data

Upper Gar Lake was assessed in 1994 as PS its designated uses. This assessment was based solely on the best professional judgement of DNR biologists, and not on water quality data or on any violations of water quality criteria. Subsequent assessments by the local DNR biologist have not indicated an impairment caused by noxious aquatic plants. Based on the flaws in the original analysis, including the lack of any water quality data or water quality criteria upon which to base an assessment of the aquatic

life uses of this lake, the noxious aquatic plant impairment at Upper Gar Lake will not be included on the 2002 303(d) list.

IA 05-GRA-01950-L Walnut Creek Marsh (siltation and nutrients) Flaws in Analysis

Walnut Creek Marsh was assessed in 1992 as PS due to impacts from siltation and nutrients from nonpoint agricultural sources. This assessment was "rolled over" from 1992 to 1994 and also 1996 without verification. This assessment was based solely on the best professional judgement of DNR biologists, and not on water quality data or on any violations of water quality criteria. Based on the flaws in the original analysis, including the lack of any water quality data or water quality criteria upon which to base an assessment of the aquatic life uses of this wetland, the siltation and nutrient impairments at Walnut Creek Marsh will not be included on the 2002 303(d) list.

IA 06-LSR-02327-L Wapiti Marsh (unknown) New Data

The waterbody ID of Wapiti Marsh was changed from IA-WETLAND-08_0 to IA 06-LSR-02327-L in December 2002. In 1998, the local DNR Wildlife Biologist indicated that Wapiti Marsh is impacted by unknown (hydrological modifications) reasons. A field visit by EPA staff, DNR TMDL staff, and the local biologist, indicated that there was no impairment to this wetland. The wetland drains to a lake with an outlet control structure to maintain a constant water level. The control structure at the lake therefore controls the water level in the wetland. Based on this information, this impairment will not be included on the 2002 303(d) list.

IA 02-IOW-04045-L West Twin Lake (siltation) Flaws in Analysis

West Twin Lake was assessed in 1992 as PS due to impacts from siltation from nonpoint agricultural sources. This assessment was "rolled over" from 1992 to 1994 and also 1996 without verification. This assessment was based solely on the best professional judgement of DNR biologists, and not on water quality data or on any violations of water quality criteria. Based on the flaws in the original analysis, including the lack of any water quality data or water quality criteria upon which to base an assessment of the aquatic life uses of this wetland, the siltation impairment at West Twin Lake will not be included on the 2002 303(d) list.

IA 04-LDM-01995-L Williamson Pond (organic enrichment and turbidity) Flaws in Analysis

Williamson Pond was assessed as PS in 1998 due to organic enrichment and turbidity impairing the Class A and B uses. This assessment was not based on any data or other evidence of impairment. No violations of the water quality criteria were noted. . Based on the flaws in the original analysis, including the lack of water quality data or water quality criteria upon which to base an assessment of the aquatic life uses of this lake, the organic enrichment and turbidity impairments for Williamson Pond will not be included on the 2002 list.

IA 05-NSH-00820-L Willow Slough (siltation) New Data

This wetland was upgraded from PS to FST in 2000 based on an updated assessment by the local DNR Wildlife Biologist. While siltation still threatens the wetland, Willow Slough normally has very good water quality. Based on this updated assessment, this impairment will not be included on the 2002 list.

IA 06-WEM-00470-L Winnebago Bend Lake (siltation and unknown) New Modeling Data / New Conditions

This Missouri River wetland has been assessed as NS since 1994 due to siltation from agricultural nonpoint sources and due to habitat alterations (water level instability) due to hydrologic modification (degradation) of the Missouri River channel. A mitigation project was completed at Winnebago Bend

Lake in the fall of 1999 by the Army Corps of Engineers. As part of this mitigation project, two dams with gated overflows have been constructed both at the lower end and midway through the oxbow. At the upper end, a feeder channel from the Missouri River has been dug leading to an electrically powered pumping station where water is lifted from the river into the wetland at a rate of 11,000 gallons per minute. The pumping only occurs during non-turbid periods to reduce the risk of sedimentation in the wetland. As the upper half of the wetland fills with water, the center structure is opened allowing water to flow to the lower end and exit the wetland if water levels require. This mitigation project has corrected the unknown (hydrologic modification) impairment to the wetland. Watershed modeling completed on Winnebago Bend Lake indicates that sediment delivery to the wetland from the watershed is very low. The local DNR biologist indicates that the Missouri River does not breach the original high bank, but occasionally (10 –15 years) flood waters do enter the wetlands directly adjacent to the river. Based on the watershed modeling data, the siltation impairment is not included on the 2002 303(d) list, and based on the ACOE mitigation project, the unknown (flow alterations) impairment will not be included on the 2002 303(d) list.