
Appendix D

Demonstration for Use of Category 4b in Salt Lick Creek

The main stem of Salt Lick Creek (in assessment unit 05060002 090) was identified as impaired by nutrients, specifically total phosphorus, during the field sampling in 2005. Upstream of the wastewater treatment plant (WWTP) in the City of Jackson, the stream was in attainment of its aquatic life use. Downstream of the treatment plant, the aquatic life in the stream was impaired. Analysis of nutrients upstream and downstream of the WWTP indicated that the large increase in nutrients from the WWTP was likely the largest contributor to impairment in this portion of the stream. Prompt action was taken to address this through the National Pollutant Discharge Elimination System (NPDES) permit renewal. Ohio EPA proposes that this impairment be handled through a category 4b alternative instead of a total maximum daily load (TMDL). Further details are discussed below. Additional information is available in the main text of the TMDL and in the forthcoming biological and water quality study publication.

Identification of segment and statement of problem causing the impairment

The cause of aquatic life use impairment was identified to be a failing sewage collection system, poor nutrient (specifically phosphorus) removal from the City of Jackson WWTP and by-passes of treatment at the WWTP. In-stream levels for phosphorus at the two uppermost Salt Lick Creek sampling locations ranged from 0.01 mg/l to 0.11 mg/l. The sample location immediately downstream from the City of Jackson's WWTP ranged from 1.37 mg/l to 4.11 mg/l. The WWTP was not sampled for chemistry during the survey. At the time of the survey the City of Jackson was not required to sample for nor had a limit for phosphorus. Ammonia results from stream samples and WWTP sample results show very little nutrient contribution from the WWTP. Attachment 1 shows that the biology scores decrease downstream of the City of Jackson's WWTP discharge.

OAC 3745-01-07, Table 7-11 states in footnote c: "Total phosphorus as P shall be limited to the extent necessary to prevent nuisance growths of algae, weeds, and slimes that result in a violation of the water quality criteria set forth in paragraph (E) of rule 3745-1-04 of the Administrative Code or, for public water supplies, that result in taste or odor problems. In areas where such nuisance growths exist, phosphorus discharges from point sources determined significant by the director shall not exceed a daily average of one milligram per liter as total P, or such stricter requirements as may be imposed by the director in accordance with the international joint commission (United States-Canada agreement)." During initial investigation of a fish kill on Salt Lick Creek in 2003, Ohio EPA observed excessive white stringy slime fungus growing at the City of Jackson's WWTP discharge point.

Poor sanitary sewer operation and maintenance leading to sewer breaks and overflows, high nutrient discharges from WWTP and by-passes at the WWTP have all contributed to poor aquatic performance. No stream flow was taken during sampling, thus loadings are not available. However, in-stream phosphorus concentrations increased from 0.06 mg/l upstream of the WWTP to 2.42 mg/l immediately downstream of the WWTP.

Description of pollution controls and how they will achieve water quality standards

The City of Jackson operates a sewer collection system and a wastewater treatment facility that handles domestic and industrial sewage for a population of about 6,000. Page 14 of the Jackson WWTP Fact Sheet (FS) states that phosphorus limits are required (see FS <http://wwwapp.epa.ohio.gov/dsw/permits/doc/OPD00008.fs.pdf>). The City of Jackson is required by their National Pollutant Discharge Elimination System (NPDES) permit (OH0020834—see permit <http://wwwapp.epa.ohio.gov/dsw/permits/doc/OPD00008.pdf>) to achieve a limit of 1.0 mg/l (monthly average) for phosphorus and eliminate all by-passes at the WWTP by August 1,

2009. The City of Jackson is required, under Consent Order (Case No. 07C1V190 – see <http://www.epa.ohio.gov/portals/35/enforcement/JacksonCO2007.pdf>) to eliminate all sewer overflows by October 1, 2009; operate and maintain sewer collection system by implementing a Capacity Management, Operation and Maintenance plan by December 31, 2008; develop an Overflow Emergency Response Plan by July 1, 2008 that identifies measures to protect public health and the environment; separate all storm sewers from sanitary sewers by April 1, 2009; and if problems persist then the City of Jackson must develop a System Evaluation and Capacity Assurance Plan to provide adequate capacity to convey and treat base and peak flows for all parts of Jackson sewer system by April 1, 2011. If the impairment continues after the 1 mg/l phosphorus limit is achieved and before the NPDES permit expires, then the limit can be lowered per OAC 3745-01-07.

Point source loadings for phosphorus associated with proper operation of the systems should be no more than 14.3 kg/day. There are no known nonpoint sources.

An estimate or projection of the time when WQS will be met

After August 1, 2009 the phosphorus limit should be met and by-passing treatment should be eliminated. The water body is expected to respond to the load reduction, but recovery will not be instantaneous. Ohio EPA will monitor the stream for recovery.

Schedule for implementing pollution controls

The City of Jackson is currently in the process of a WWTP expansion that will include advanced treatment, ability to handle higher flows and eliminate overflows and by-passes by August 1, 2009. The City of Jackson is required to provide annual status reports to Ohio EPA every August first.

If they are unsuccessful, Ohio EPA will hold the City in contempt of the consent order and initiate enforcement on non-compliance with the NPDES permit schedule and effluent limits.

Ohio EPA has approved the NPDES permit with compliance schedule to meet a phosphorus limit of 1.0 mg/l.

Monitoring plan to track effectiveness of pollution controls

The City of Jackson is required to submit an annual status report to Ohio EPA every August first and submit monthly Discharge Monitoring Reports for effluent quality from the WWTP.

Prior to the NPDES permit expiration on January 31, 2011, Ohio EPA will sample the impaired section of Salt Lick Creek for chemistry, fish and macroinvertebrates (summer of 2010). The chemistry will be sampled at four locations and five sampling events will be completed. The fish will be sampled at four locations with two passes each. The macroinvertebrates will be sampled at four locations once per standard protocols. The sampling will take place during the summer/fall sampling season with analysis by Ohio EPA's laboratory and reporting to Southeast District Office (SEDO) DSW Manager, DSW NPDES Manager, and TMDL Coordination.

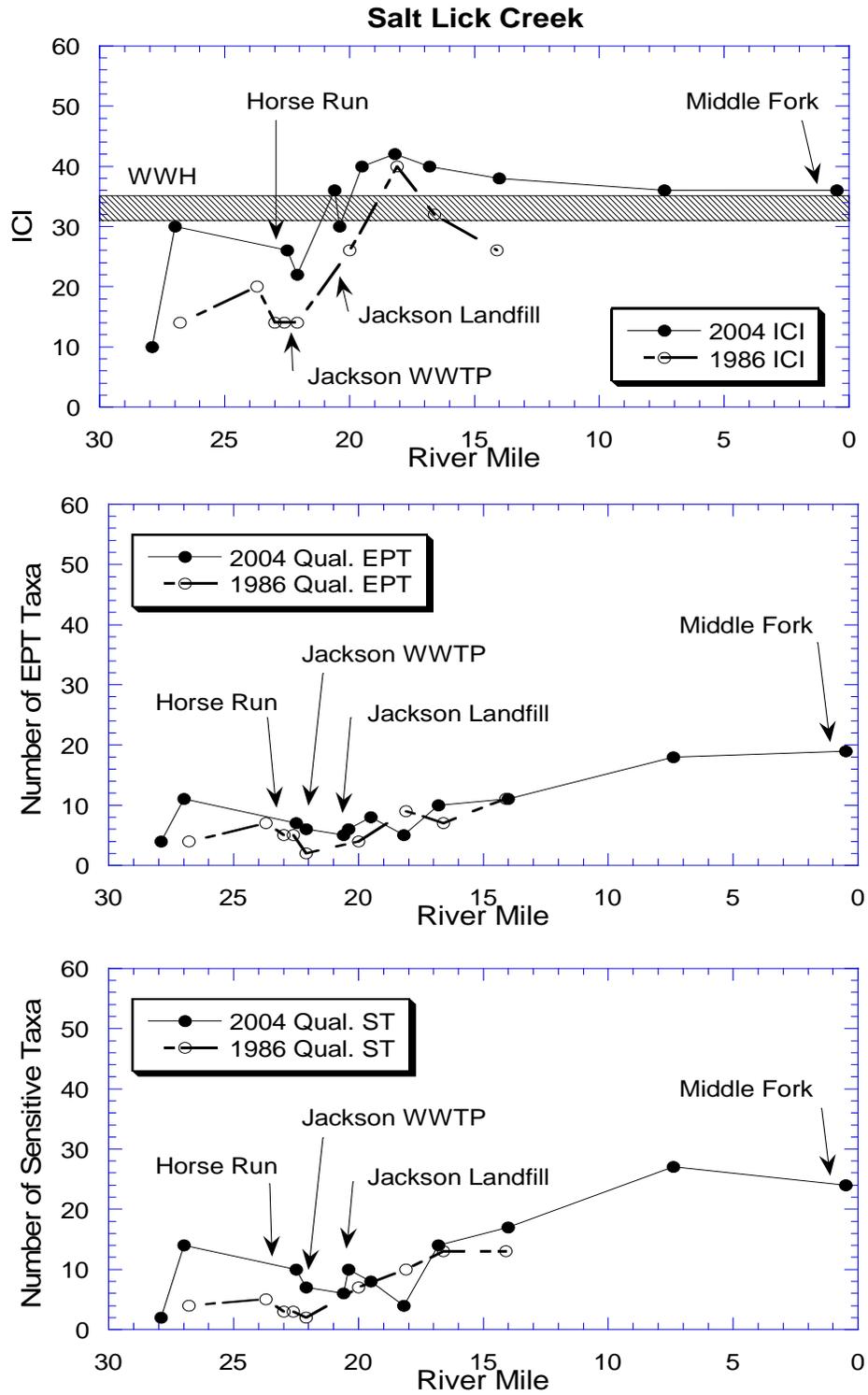
The City of Jackson, SEDO Water Quality (WQ) staff and Ecological Assessment Section staff will do the monitoring.

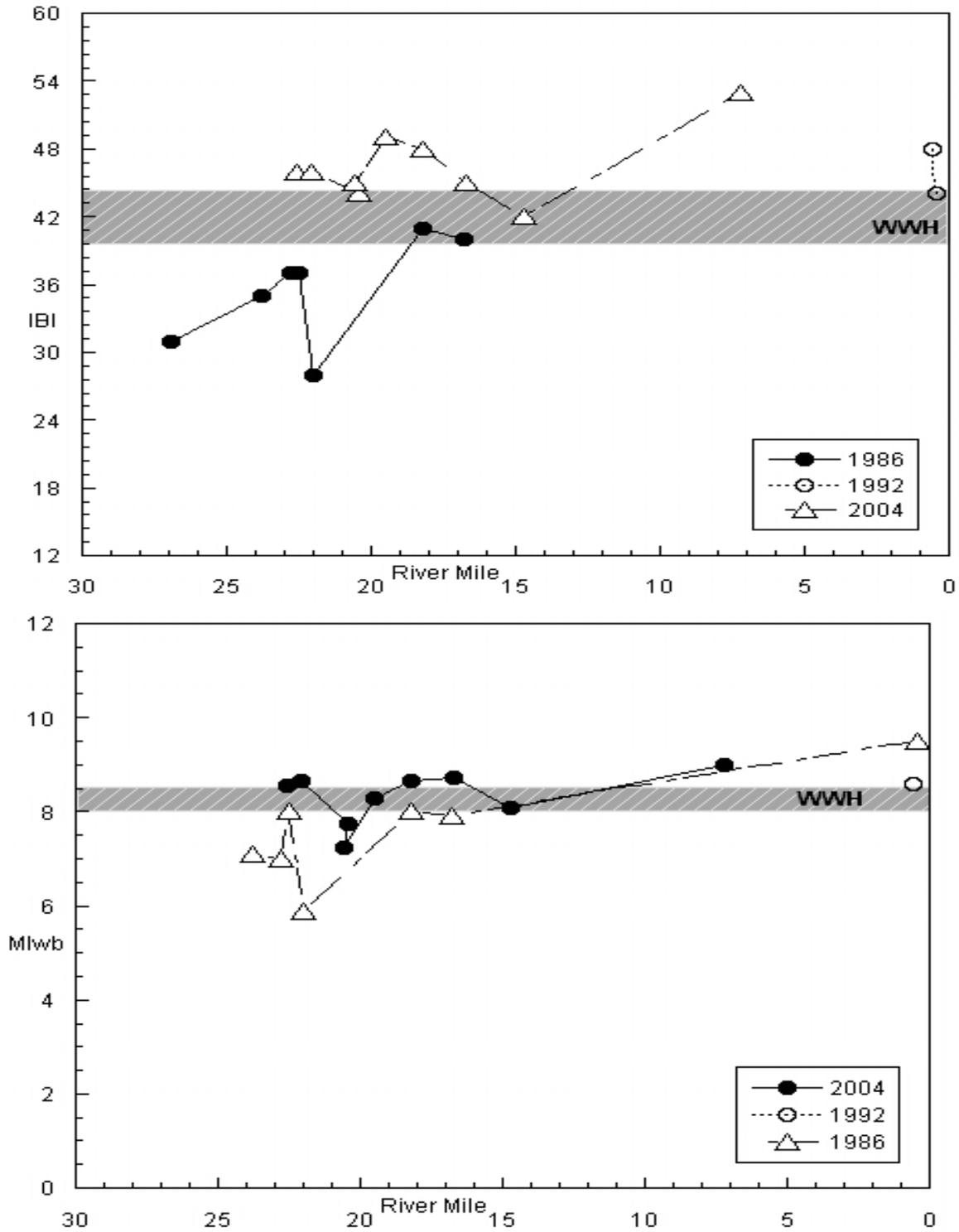
Commitment to revise pollution controls, as necessary

Pollution controls will be revised by SEDO WQ and NPDES staff, supported by SEDO DSW Manager.

Ohio EPA will report on the progress of any approved 4b in future 303(d) lists.

Attachment 1





Historical trend for IBI and MIwb for Salt Lick Creek main stem.