# Use Attainability Analysis

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|---|---|
| **1 Water Body Name** | Unnamed Tributary to Iowa River |
| **2 Segment Description** | Mouth to headwaters |
| **3 Segment Length (mi)** | 5.0 |
| **4 Drainage Area (sq. mi.)** | 6.4 |
| **5 Segment Start Latitude, Longitude (DD)** | 41.19751, -91.17359 |
| **6 Segment End Latitude, Longitude (DD)** | 41.23711, -91.16657 |
| **7 Route of Flow (Next Downstream Adopted Designated Use)** | Unnamed Tributary (A2, BWW2, proposed to A1, BWW2, proposed) to Iowa River (A1, BWW1, HH) |
| **8 NPDES Facility and Permit Number (If Applicable)** | Louisa Co. Law Enforcement Center (previously Odessa Residential Care Facility) (5800901) |
| **9 Sample Site ID(s)** | 1131-2, 1131-3 |
| **10 Segment County Name(s)** | Louisa |
| **11 Field Work Date(s)** | 10/9/2014 |

## 12 Aquatic Life Use Attainability Analysis - Conclusion

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| **Recommended Highest Attainable Use: Aquatic Life Use** | BWW2 |
| **40 CFR 131.10(g)(2) (Flow)** | The natural low flow conditions of the stream segment are insufficient to create the habitat necessary to support a viable community of game fish. A lack of age ranges and diversity of game fish species indicates a non-reproducing population (see Site Observations Table). A BWW1 designation requires multiple species and age ranges to be viable. Therefore, the highest attainable aquatic life use for this stream segment is BWW2. |
| **40 CFR 131.10(g)(5) (Physical Conditions)** | Physical conditions related to the natural features of the water body are insufficient to support a viable community of game fish. Drainage area and stream width fall within the "consistently negative" game fish indicator responses (see Table 2 in Appendix I). A lack of age ranges and diversity of game fish species indicates a non-reproducing population (see Site Observations Table). A BWW1 designation requires multiple species and age ranges to be viable. Therefore, the highest attainable aquatic life use for this stream segment is BWW2. |

## 13 Recreational Use Attainability Analysis - Conclusion

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| **Recommended Highest Attainable Use: Recreational Use** | A1 (mouth to confluence with unnamed tributary) |
| Water levels and flow are sufficient to support full body immersion (see Site Observations Table). Therefore, the highest attainable recreational use for this stream segment is A1. | |

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| **Recommended Highest Attainable Use: Recreational Use** | A2 (confluence with unnamed tributary to headwaters) |
| **40 CFR 131.10(g)(2) (Flow)** | The natural low flow conditions and water levels of the stream segment prevent the attainment of an A1 recreational use (see Site Observations Table). An A1 designation requires the ability for full body immersion. Therefore, the highest attainable recreational use is A2. |

## 14 Flow

| Field Work Date | Description |
|---|---|
| 10/9/2014 | USGS stream gage 05465500 data for the area indicated stream flows were normal at the time of assessment. |

## Use Attainability Analysis - Data

**Site Observations**

| Use | Site parameter | Site ID #1131-2 |
|---|---|---|
| AL/R | 15 Latitude, Longitude (DD) | 41.23278, -91.16553 |
| AL/R | 16 Average Depth (in) | 4 |
| AL/R | 17 Maximum Depth (in) | 21 |
| AL/R | 18 Stream Width (ft) | 6 |
| AL/R | 19 Pools Observed? | Yes |
| AL only | 20 Non-Game Fish Present and Counts (Species: Number) | Central stoneroller: 1<br>Creek chub: 30<br>Fathead minnow: >50<br>Golden shiner: 2<br>Green sunfish: 22<br>Orangespotted sunfish: 1 |
| | 21 Game Fish Present and Counts (Species (Size Range): Number) | Black bullhead (juvenile): 1<br>Bluegill (juvenile): 1<br>Largemouth bass (juvenile): 12 |
| | 22 Stream Habitat (See also: #29 Site Photos) | Small creek with little flow. Steep incised banks. Shallow 1-2 inches in runs with some 5-7 inches in pooled segments. Most of the fish were caught in the pool below the culvert. The maximum depth was in a 10x20 foot pool at the culvert. |
| R only | 23 Evidence of Use for Primary Contact Recreation? (Yes*/No) | No |
| | 24 Evidence of Use by Children? (Yes*/No) | No |
| | 25 Evidence of Use for Secondary Contact Recreation? (Yes*/No) | No |
| AL/R | 26 Additional Description | Rural area, steep slopes, difficult to access. |

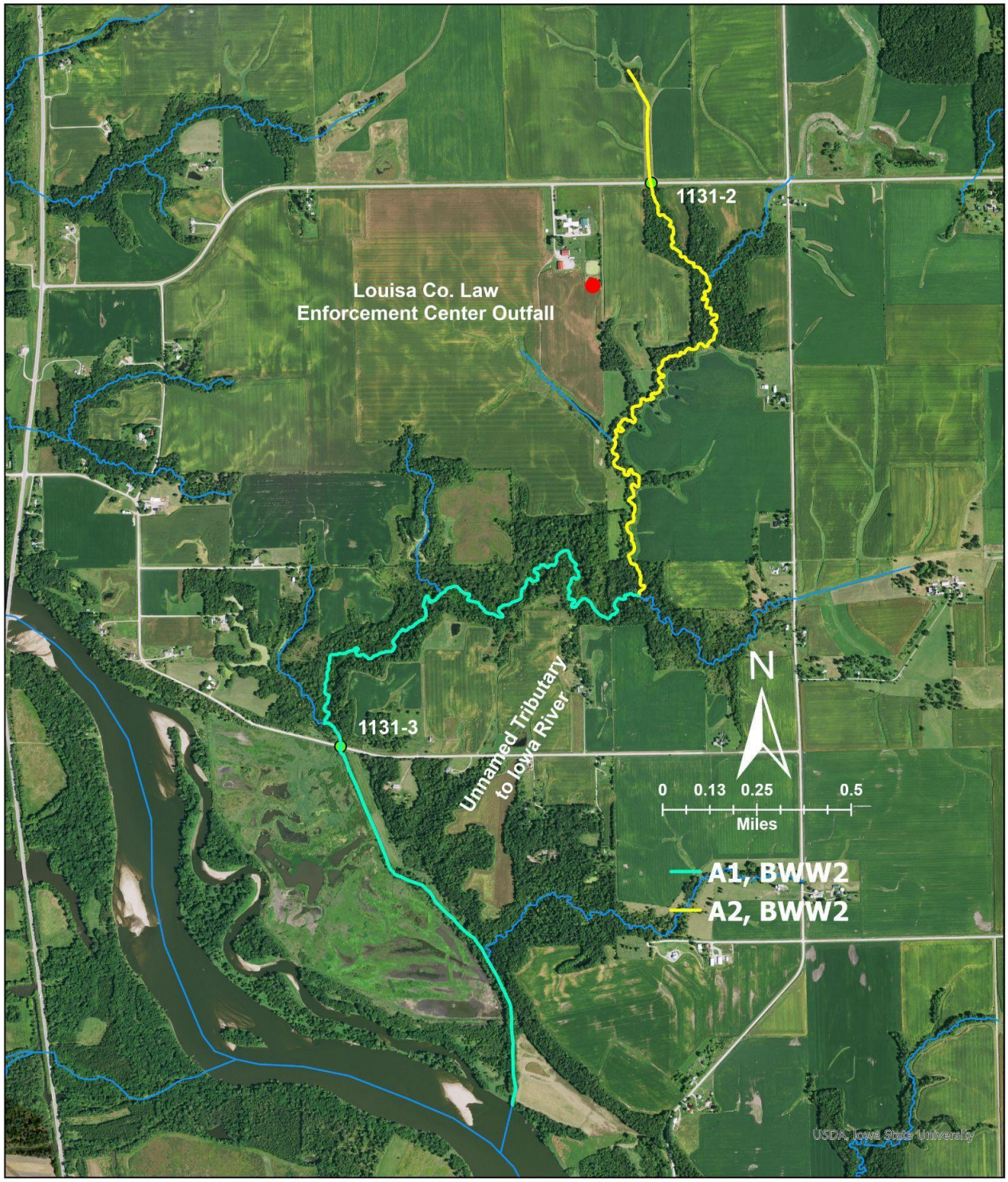
| Use | Site parameter | Site ID #1131-3 |
|---|---|---|
| AL/R | 15 Latitude, Longitude (DD) | 41.21140, -91.18194 |
| AL/R | 16 Average Depth (in) | 13 |
| AL/R | 17 Maximum Depth (in) | >39 |
| AL/R | 18 Stream Width (ft) | 10 |
| AL/R | 19 Pools Observed? | Yes |
| AL only | 20 Non-Game Fish Present and Counts (Species: Number) | Green sunfish: 3 |
| | 21 Game Fish Present and Counts (Species (Size Range): Number) | Largemouth bass: 1 |

| Use | Site parameter | Site ID #1131-3 |
|---|---|---|
| | **22 Stream Habitat (See also: #29 Site Photos)** | The pooled area created by an earthen dam was about 30 feet across and 1-3 feet deep. Past the dam 2 feet, it was about 2-6 inches deep. The stream disappears into sandy substrate approximately 200 feet downstream. It was too deep upstream of the culvert to electrofish. |
| **R only** | **23 Evidence of Use for Primary Contact Recreation? (Yes*/No)** | No |
| | **24 Evidence of Use by Children? (Yes*/No)** | No |
| | **25 Evidence of Use for Secondary Contact Recreation? (Yes*/No)** | No |
| **AL/R** | **26 Additional Description** | N/A |

AL = Aquatic Life
R = Recreation
*If yes, elaborate.

**27 Supplemental Data**
Desktop review verified that the UAA field work is still valid.

**28 Map of Segment, Outfall, and Site(s)**



**29 Site Photos**

**Figure 1. 1131-2 Recreational use assessment midpoint looking downstream.**

**Figure 2. 1131-2 Recreational use assessment upstream looking upstream.**

**Figure 3. 1131-2 Recreational use assessment upstream looking downstream.**

**Figure 4. 1131-2 Recreational use assessment downstream looking upstream.**

**Figure 5. 1131-2 Recreational use assessment downstream looking downstream.**

**Figure 6. 1131-2 Bridge view looking east.**


**Figure 7. 1131-2 Bridge view looking west.**

**Figure 8. 1131-2 End of aquatic use assessment looking upstream.**

**Figure 9. 1131-2 End of aquatic use assessment looking downstream.**

**Figure 10. 1131-2 Golden shiner.**

**Figure 11. 1131-2 Orangespot sunfish.**

**Figure 12. 1131-2 Pool beneath culvert downstream.**

**Figure 13. 1131-2 Looking downstream from pool.**

**Figure 14. 1131-2 Tile line draining into culvert upstream.**

**Figure 15. 1131-2 Tile line draining into culvert upstream view 2.**

**Figure 16. 1131-3 Recreational use assessment midpoint looking upstream.**

**Figure 17. 1131-3 Recreational use assessment midpoint looking downstream.**

**Figure 18. 1131-3 Recreational use assessment upstream looking upstream.**

**Figure 19. 1131-3 Recreational use assessment upstream looking downstream.**

**Figure 20. 1131-3 Recreational use assessment downstream looking upstream.**

**Figure 21. 1131-3 Recreational use assessment downstream looking downstream.**

**Figure 22. 1131-3 Dried up stream channel downstream looking upstream.**

**Figure 23. 1131-3 Dried up stream channel downstream looking downstream.**

**Appendix I.**

**c. Stream Flow and Habitat Data**

Data analysis results for stream flow and habitat variables were similar to game fish indicator results. Stream width, average thalweg depth, maximum depth, and flow appear to be the characteristics that correlate the best with consistently positive game fish indicators. Stream flow and habitat dimensions (where available) were consistently larger for streams with watershed sizes exceeding 275 square miles. Habitat measurements are not available for the largest sample sites that were sampled by boat instead of the typical wading method.

Ranges of stream size, habitat and flow associated with varying levels of game fish indicator responses are listed in Table 2. These are general statewide values, which may assist in decision making related to the recommendation of warm water aquatic life use designations. In general terms, stream segments that have watershed area, flow and habitat characteristics in the green shaded boxes have a greater probability that game fish indicators will be consistently positive (i.e., consistent with Class B(WW-1)), while stream habitat and flow levels that equate to the red boxes are much less likely to support game fish populations (i.e., Class B(WW-2) or Class B(WW-3)). Stream segments that have a mixture of characteristics, mainly in the yellow range, may require consideration of the additional habitat features collected during the field assessment, to determine the appropriate aquatic life use designation.

**Table 2. Generalized statewide ranges of stream habitat indicator levels and associated game fish indicator responses.**

| Game Fish Indicator Responses | Stream Watershed Area (sq.mi.) | Stream Flow (typical base flow - cfs) | Stream Width Average (ft) | Average Depth (ft) | Avg. Thalweg Depth (ft) | Maximum Depth (ft) |
|---|---|---|---|---|---|---|
| Consistently Positive | >275 | >30 | >65 | >1.2 | >2.2 | >4.4 |
| Mixed | 25-275 | 0.8-30 | 11-65 | 0.2-1.2 | 0.8-2.2 | 1.8-4.4 |
| Consistently Negative | <25 | <0.8 | <11 | <0.2 | <0.8 | <1.8 |

Iowa uses U.S. EPA's Level IV Ecoregions as a template for wadeable stream biological condition assessment. Stream flow and habitat characteristics can vary from ecoregion to ecoregion. To provide additional insight into where the area of overlap exists between Class B(LR/WW-2) and Class B(WW/WW-1) streams, a query of Iowa's bioassessment database produced 476 habitat assessment records from which a summary of habitat characteristics was prepared (Table 3a-f) (see appendix for full spreadsheet). The summary is grouped by ecoregion and **former** designated uses in order to illustrate the extremes and ranges of overlap in habitat characteristics.