Ohio EPA 2004 Integrated Report Appendix D.3
Large River Assessment Unit (LRAU) Summaries

LRAU Description: Maumee River Mainstem (Indiana border to Lake Erie)
LRAU Size (mi²): 6608.0

Integrated Report Assessment Category: 5
Next Scheduled Monitoring: 2010
Priority Points: 5

Aquatic Life Use (ALU) Assessment
Subcategories of ALU: WWH
Impairment: Yes
Sampling Year(s): 1993, 1996, 1997

<table>
<thead>
<tr>
<th>LRAU Total Length (miles)</th>
<th>107.87</th>
</tr>
</thead>
<tbody>
<tr>
<td>LRAU Monitored Miles:</td>
<td>94.35</td>
</tr>
<tr>
<td>No. Sites Sampled:</td>
<td>51</td>
</tr>
<tr>
<td>% LRAU Attainment (Monitored Miles)</td>
<td>46.7  13.9  39.4</td>
</tr>
</tbody>
</table>

Flow Alteration: Nonirrigated Crop Production
Other Habitat Alterations: Channelization - Agriculture
Turbidity: Combined Sewer Overflow
Nutrients: Major Municipal Point Source
Unionized Ammonia: ?
Siltation: ?
Total Toxics: ?

Recreation Use Assessment
Subcategory of Use: Primary Contact
Impairment: No
Geometric Mean: 90

<table>
<thead>
<tr>
<th>No. of Ambient Sites</th>
<th>1</th>
</tr>
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<tbody>
<tr>
<td>No. of Ambient Sampling Records</td>
<td>20</td>
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<tr>
<td>75th %ile: 381</td>
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<table>
<thead>
<tr>
<th>No. of NPDES MOR Sites</th>
<th>7</th>
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<tbody>
<tr>
<td>No. of NPDES MOR Records</td>
<td>781</td>
</tr>
<tr>
<td>90th %ile: 1200</td>
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</table>

Fish Consumption Advisory (FCA) Assessment
Waters Within the LRAU Sampled and Assessed: Yes
FCA Issued: Yes
(See the 2003 Ohio FCA for more detailed information at "www.epa.state.oh.us/dsw/fishadvisory/index.html")
Impairment Due to FCA: Yes
Pollutant(s): PCBs

Comments
The City of Toledo is initiating a major CSO remediation project which will positively benefit the lower mainstem within Lucas County. Future monitoring of the Maumee River mainstem assessment unit will be conducted within the normal rotating basin schedule after the cessation of the project and when sufficient recovery time has elapsed. Besides the historical aquatic life use impairment, the 2004 Integrated Report assessment of fish tissue data documented body burdens of one or more pollutants at levels exceeding the threshold level upon which Ohio Water Quality Standards human health criteria are based which resulted in listing as impaired for fish consumption.
Ohio EPA 2004 Integrated Report Appendix D.3
Large River Assessment Unit (LRAU) Summaries

LRAU Description
Tiffin River Mainstem (downstream Brush Creek to mouth)

LRAU Size (mi²)
777.0

Integrated Report Assessment Category: 5
Priority Points: 2
Next Scheduled Monitoring: 2006

Aquatic Life Use (ALU) Assessment

Subcategories of ALU: WWH
Impairment: Unknown

Sampling Year(s):

No. Sites Sampled:

% LRAU Attainment (Monitored Miles)

High Magnitude Causes
Other Habitat Alterations
Siltation

High Magnitude Sources
Channelization - Agriculture
Highway/Road/Bridge/Sewer Line
Nonirrigated Crop Production

Recreation Use Assessment

Subcategory of Use: Primary Contact
Impairment: Unknown

No. of Ambient Sites:
No. of Ambient Sampling Records:
75th %ile:
No. of NPDES MOR Sites:
No. of NPDES MOR Records:
90th %ile:

Other:

Fish Consumption Advisory (FCA) Assessment

Waters Within the LRAU Sampled and Assessed: Yes
FCA Issued: Yes
(See the 2003 Ohio FCA for more detailed information at "www.epa.state.oh.us/dsw/fishadvisory/index.html")
Impairment Due to FCA: No
Pollutant(s):

Comments
The Tiffin River mainstem assessment unit has not been surveyed since 1992. Though this data is now considered historical, the mainstem will remain listed as Category 5 since it had been previously listed in the 2002 Integrated Report for aquatic life impairment.
Ohio EPA 2004 Integrated Report Appendix D.3
Large River Assessment Unit (LRAU) Summaries

**LRAU Description**

<table>
<thead>
<tr>
<th>LRAU Description</th>
<th>LRAU Size (mi²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auglaize River Mainstem (downstream Ottawa River to mouth)</td>
<td>2435.0</td>
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**Integrated Report Assessment Category:** 5  
**Priority Points:** 4  
**Next Scheduled Monitoring:** 2010

**Aquatic Life Use (ALU) Assessment**

<table>
<thead>
<tr>
<th>Subcategories of ALU</th>
<th>WWH</th>
<th>Sampling Year(s): 1996, 2000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impairment:</td>
<td>Yes</td>
<td></td>
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<tr>
<td>LRAU Total Length (miles):</td>
<td>33.26</td>
<td>No. Miles Full Attainment: 14.26</td>
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<tr>
<td>LRAU Monitored Miles:</td>
<td>23.73</td>
<td>No. Miles Partial Attainment: 4.10</td>
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<tr>
<td>No. Sites Sampled:</td>
<td>5</td>
<td>No. Miles Non-Attainment: 5.37</td>
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</table>

<table>
<thead>
<tr>
<th>% LRAU Attainment (Monitored Miles)</th>
<th>Full</th>
<th>Partial</th>
<th>Non</th>
</tr>
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<tbody>
<tr>
<td>60.1</td>
<td>17.3</td>
<td>22.6</td>
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<table>
<thead>
<tr>
<th>High Magnitude Causes</th>
<th>High Magnitude Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow Alteration</td>
<td>Flow Reg/Mod - Development</td>
</tr>
<tr>
<td></td>
<td>Channelization - Agriculture</td>
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**Recreation Use Assessment**

<table>
<thead>
<tr>
<th>Subcategory of Use:</th>
<th>Primary Contact</th>
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</thead>
<tbody>
<tr>
<td>Impairment:</td>
<td>Unknown</td>
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<tr>
<td>No. of Ambient Sites:</td>
<td>No. of Ambient Sampling Records:</td>
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<tr>
<td>No. of NPDES MOR Sites:</td>
<td>No. of NPDES MOR Records:</td>
</tr>
<tr>
<td>Other:</td>
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<table>
<thead>
<tr>
<th>Geometric Mean:</th>
<th>75th %ile:</th>
<th>90th %ile:</th>
</tr>
</thead>
</table>

**Fish Consumption Advisory (FCA) Assessment**

| Waters Within the LRAU Sampled and Assessed: | Yes |
| FCA Issued: | Yes |

(See the 2003 Ohio FCA for more detailed information at "www.epa.state.oh.us/dsw/fishadvisory/index.html")

| Impairment Due to FCA: | Yes |
| Pollutant(s): | PCBs, mercury |

**Comments**

Development of TMDLs for pollutants is in progress for the upper Auglaize River watershed including the Auglaize River mainstem assessment unit between the Ottawa River and the Little Auglaize River (about 2/3 of the designated mainstem reach). Monitoring in support of the TMDLs was conducted in 2000. Besides the historical aquatic life use impairment, the 2004 Integrated Report assessment of fish tissue data documented body burdens of one or more pollutants at levels exceeding the threshold level upon which Ohio Water Quality Standards human health criteria are based which resulted in listing as impaired for fish consumption.
Ohio EPA 2004 Integrated Report Appendix D.3
Large River Assessment Unit (LRAU) Summaries

LRAU Description
Blanchard River Mainstem (downstream Dukes Run to mouth)

LRAU Size (mi²)
771.0

Integrated Report Assessment Category:  5
Priority Points:  4
Next Scheduled Monitoring:  2005

Aquatic Life Use (ALU) Assessment
Subcategories of ALU:  WWH
Impairment:  Yes
Sampling Year(s):  1996

| LRAU Total Length (miles): | 35.65 | 65.9 | Flow Alteration |
| LRAU Monitored Miles:      | 14.65 | 34.1 | Organic Enrichment/DO |
| No. Sites Sampled:         | 3     | 0.0  | Channelization - Agriculture |

% LRAU Attainment (Monitored Miles)
- Full: 65.9
- Partial: 34.1
- Non: 0.0

High Magnitude Causes
- Flow Alteration
- Organic Enrichment/DO

High Magnitude Sources
- Channelization - Agriculture

Recreation Use Assessment
Subcategory of Use:  Primary Contact
Impairment:  Unknown

| Geometric Mean: |
| No. of Ambient Sites: | 75th %ile: |
| No. of Ambient Sampling Records: | 90th %ile: |

Fish Consumption Advisory (FCA) Assessment
Waters Within the LRAU Sampled and Assessed:  Yes
FCA Issued:  Yes
(See the 2003 Ohio FCA for more detailed information at "www.epa.state.oh.us/dsw/fishadvisory/index.html")
Impairment Due to FCA:  No
Pollutant(s):

Comments
The 1996 sampling in the mainstem was focused primarily in the 30 mile reach upstream and downstream from Findlay. Several reference sites have been sampled in other upstream reaches of the Blanchard not included in the mainstem assessment unit.
Ohio EPA 2004 Integrated Report Appendix D.3
Large River Assessment Unit (LRAU) Summaries

LRAU Description
Sandusky River Mainstem (downstream Tymochtee Creek to mouth)

LRAU Size (mi^2)
1420.0

Integrated Report Assessment Category: 5
Priority Points: 7
Next Scheduled Monitoring: 2009

Aquatic Life Use (ALU) Assessment
Subcategories of ALU: WWH
Impairment: Yes
Sampling Year(s): 1995, 1999, 2001
LRAU Total Length (miles): 65.73
LRAU Monitored Miles: 47.73
No. Sites Sampled: 15

No. Sites Sampled:

<table>
<thead>
<tr>
<th></th>
<th>Full</th>
<th>Partial</th>
<th>Non</th>
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</thead>
<tbody>
<tr>
<td>Sampling Year(s)</td>
<td>1995, 1999, 2001</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% LRAU Attainment (Monitored Miles)</td>
<td>86.4</td>
<td>0.0</td>
<td>13.6</td>
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</table>

High Magnitude Causes
Siltation
Other Habitat Alterations
Flow Alteration

High Magnitude Sources
Hydromodification-Development
Dam Construction-Development

Recreation Use Assessment
Subcategory of Use: Primary Contact
Impairment: Yes
No. of Ambient Sites: 9
No. of Ambient Sampling Records: 22
Geometric Mean: 203
75^th %ile: 560

No. of NPDES MOR Sites: 2
No. of NPDES MOR Records: 206
90^th %ile: 2130

Other:

Fish Consumption Advisory (FCA) Assessment
Waters Within the LRAU Sampled and Assessed: Yes
FCA Issued: Yes
(See the 2003 Ohio FCA for more detailed information at "www.epa.state.oh.us/dsw/fishadvisory/index.html")
Impairment Due to FCA: Yes
Pollutant(s): PCBs

Comments
Development of TMDLs for pollutants is underway for the upper Sandusky River watershed (headwaters to north of Tiffin and covering about 1/2 of the designated mainstem reach). Monitoring in support of the TMDL was conducted in 2001. All aquatic life use impairment within the mainstem assessment unit downstream from Tymochtee Creek is restricted to habitat limited dam pools behind two dams (St. John's and Ballville). Removal of the St. John's dam commenced during the summer of 2003. Besides the historical aquatic life use impairment, the 2004 Integrated Report assessment of fish tissue data documented body burdens of one or more pollutants at levels exceeding the threshold level upon which Ohio Water Quality Standards human health criteria are based which resulted in listing as impaired for fish consumption. Additionally, assessment of available bacteria data indicated an impairment of the Primary Contact Recreation beneficial use. A report on the findings of the 2001 biological and water quality survey can be found at (www.epa.state.oh.us/dsw/document_index/psdindx.html).

D.3- 5
03/30/04
Ohio EPA 2004 Integrated Report Appendix D.3
Large River Assessment Unit (LRAU) Summaries

LRAU Description
Cuyahoga River Mainstem (downstream Brandywine Cr. to mouth incl. old channel)

LRAU Size (mi$^2$)
809.0

LRAU Size (mi)

Integrated Report Assessment Category: 5
Priority Points: 7
Next Scheduled Monitoring: 2010

Aquatic Life Use (ALU) Assessment
Subcategories of ALU: WWH, LRW
Impairment: Yes
No. Sites Sampled: 30
No. Miles Full Attainment: 5.68
No. Miles Partial Attainment: 12.38
No. Miles Non-Attainment: 7.28

% LRAU Attainment (Monitored Miles)

<table>
<thead>
<tr>
<th>Full</th>
<th>Partial</th>
<th>Non</th>
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</thead>
<tbody>
<tr>
<td>22.4</td>
<td>48.9</td>
<td>28.7</td>
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</table>

High Magnitude Causes
Organic Enrichment/DO
Unknown Toxicity
Other Habitat Alterations
Total Toxics
Unionized Ammonia

High Magnitude Sources
Combined Sewer Overflow
Major Municipal Point Source
Contaminated Sediments
Dredging/Development
Marinas
Spills
Urban Runoff/Storm Sewers (NPS)
Streambank Modification/Destabilization

Recreation Use Assessment
Subcategory of Use: Primary Contact
Impairment: Yes
No. of Ambient Sites: 6
No. of NPDES MOR Sites: 2
Geometric Mean: 648
75th %ile: 1650
90th %ile: 6080

Fish Consumption Advisory (FCA) Assessment
Waters Within the LRAU Sampled and Assessed: Yes
FCA Issued: Yes
(See the 2003 Ohio FCA for more detailed information at "www.epa.state.oh.us/dsw/fishadvisory/index.html")
Impairment Due to FCA: Yes
Pollutant(s): PCBs

Comments
A report developing TMDLs for pollutants impairing beneficial uses (aquatic life and recreation) in the lower Cuyahoga River basin including the Cuyahoga River mainstem assessment unit was approved by U.S. EPA on September 26, 2003. Monitoring in support of the TMDLs was conducted in 1996, 1999, and 2000. The TMDL report is available at http://www.epa.state.oh.us/dsw/tmdl/index.html. Besides the historical aquatic life and recreation use impairments, the 2004 Integrated Report assessment of fish tissue data documented body burdens of one or more pollutants at levels exceeding the threshold level upon which Ohio Water Quality Standards human health criteria are based which resulted in listing as impaired for fish consumption.
Large River Assessment Unit (LRAU) Summaries

LRAU Description
Grand River Mainstem (downstream Mill Creek to mouth)

LRAU Size (mi^2)
705.0

Integrated Report Assessment Category: 5
Priority Points: 4
Next Scheduled Monitoring: 2004

Aquatic Life Use (ALU) Assessment
Subcategories of ALU: EWH, WWH, SSH
Impairment: Yes
Sampling Year(s): 1993-1997, 2002
LRAU Total Length (miles): 41.28
LRAU Monitored Miles: 41.28
No. Sites Sampled: 19

% LRAU Attainment (Monitored Miles)

<table>
<thead>
<tr>
<th></th>
<th>Full</th>
<th>Partial</th>
<th>Non</th>
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<tbody>
<tr>
<td>87.6</td>
<td>9.0</td>
<td>3.4</td>
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</table>

High Magnitude Causes
Salinity/TDS/Chlorides
Unknown Cause

High Magnitude Sources
Waste Storage/Storage Tank Leaks
Unknown Source

Recreation Use Assessment
Subcategory of Use: Primary Contact
Impairment: No
No. of Ambient Sites: 15
No. of Ambient Sampling Records: 68
No. of NPDES MOR Sites: 2
No. of NPDES MOR Records: 92
Other:

Fish Consumption Advisory (FCA) Assessment
Waters Within the LRAU Sampled and Assessed: Yes
FCA Issued: Yes
(See the 2003 Ohio FCA for more detailed information at "www.epa.state.oh.us/dsw/fishadvisory/index.html")
Impairment Due to FCA: Yes
Pollutant(s): PCBs, mercury

Comments
Aquatic life impairment within the mainstem assessment unit is restricted to the lacustuary reach of the river and has been attributed to waste lagoons; this led to the assignment of Category 4B (impaired) in the 2002 Integrated Report. However, the 2004 Integrated Report assessment of fish tissue data documented body burdens of one or more pollutants at levels exceeding the threshold level upon which Ohio Water Quality Standards human health criteria are based which resulted in listing as impaired for fish consumption.
Ohio EPA 2004 Integrated Report Appendix D.3
Large River Assessment Unit (LRAU) Summaries

<table>
<thead>
<tr>
<th>LRAU Description</th>
<th>LRAU Size (mi²)</th>
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<tbody>
<tr>
<td>Mahoning River Mainstem (downstream Eagle Creek to Pennsylvania Border)</td>
<td>1075.0</td>
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</table>

**Integrated Report Assessment Category:** 5  
**Priority Points:** 7  
**Next Scheduled Monitoring:** 2008

### Aquatic Life Use (ALU) Assessment

- **Subcategories of ALU:** WWH
- **Impairment:** Yes
- **Sampling Year(s):** 1994, 2002
- **LRAU Total Length (miles):** 35.40  
- **No. Sites Sampled:** 32  
- **% LRAU Attainment (Monitored Miles):**
  - **Full:** 0.8  
  - **Partial:** 16.4  
  - **Non:** 82.8

#### High Magnitude Causes
- Metals
- Nutrients
- Organic Enrichment/DO
- Pathogens
- Priority Organics
- Other Habitat Alterations
- Cause Unknown
- Chlorine

#### High Magnitude Sources
- Oil and Grease
- Thermal Modifications
- Combined Sewer Overflow
- Contaminated Sediments
- Dam Construction - Development
- Major Municipal Point Source
- Spills
- Urban Runoff/Storm Sewers (NPS)
- Flow Reg/Mod - Development
- Hazardous Wastes

### Recreation Use Assessment
- **Subcategory of Use:** Primary Contact
- **Impairment:** Yes
- **No. of Ambient Sites:** 2  
- **No. of Ambient Sampling Records:** 79  
- **No. of NPDES MOR Sites:** 5  
- **No. of NPDES MOR Records:** 268
- **Geometric Mean:** 624  
- **75th %ile:** 1965  
- **90th %ile:** 5140

**Other:** A “Dermal Contact Advisory” is in effect for the Mahoning River due to PAH and PCB contamination. The area under the advisory is from NW Bridge Rd. in Warren to the Pennsylvania border.

### Fish Consumption Advisory (FCA) Assessment
- **Waters Within the LRAU Sampled and Assessed:** Yes
- **FCA Issued:** Yes
- **Impairment Due to FCA:** Yes
- **Pollutant(s):** PCBs

### Comments
- Severe sediment and water column contamination is present in the Mahoning River from Warren to the Pennsylvania border. Biological communities are impaired throughout this reach of the river. A TMDL for bacteria is in preparation by the U.S. EPA for the Mahoning River mainstem (Duck Creek to the Shenango River) and should be completed in 2004. In addition, a major Army Corps of Engineers dredging project is under evaluation for the mainstem to help mitigate the sediment contamination issue. Besides the historical aquatic life and recreation use impairments, the 2004 Integrated Report assessment of fish tissue data documented body burdens of one or more pollutants at levels exceeding the threshold level upon which Ohio Water Quality Standards human health criteria are based which resulted in listing as impaired for fish consumption.
Ohio EPA 2004 Integrated Report Appendix D.3
Large River Assessment Unit (LRAU) Summaries

LRAU Description
Hocking River Mainstem (downstream Scott Creek to mouth)  

LRAU Size (mi²)
1197.0

Integrated Report Assessment Category:  5  
Priority Points:  5  
Next Scheduled Monitoring:  2004

Aquatic Life Use (ALU) Assessment

Subcategories of ALU:  WWH  
Impairment:  Unknown  

Sampling Year(s):  1990

<table>
<thead>
<tr>
<th>% LRAU Attainment (Monitored Miles)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full</td>
</tr>
</tbody>
</table>

High Magnitude Causes

High Magnitude Sources

Recreation Use Assessment

Subcategory of Use:  Primary Contact  
Impairment:  Yes  

No. of Ambient Sites:  1  
No. of Ambient Sampling Records:  19  
Geometric Mean:  250  
75th %ile:  550

No. of NPDES MOR Sites:  5  
No. of NPDES MOR Records:  398  
90th %ile:  2540

Fish Consumption Advisory (FCA) Assessment

Waters Within the LRAU Sampled and Assessed:  Yes  
FCA Issued:  Yes  
(See the 2003 Ohio FCA for more detailed information at "www.epa.state.oh.us/dsw/fishadvisory/index.html")

Impairment Due to FCA:  Yes  
Pollutant(s):  PCBs

Comments

The Hocking River mainstem assessment unit downstream Scott Creek has not been intensively sampled since 1990. This led to the assignment of Category 3 (unassessed) in the 2002 Integrated Report. However, the 2004 Integrated Report assessment of fish tissue data documented body burdens of one or more pollutants at levels exceeding the threshold level upon which Ohio Water Quality Standards human health criteria are based which resulted in listing as impaired for fish consumption. Additionally, assessment of available bacteria data indicated an impairment of the Primary Contact Recreation beneficial use. Monitoring in support of TMDL development for the Hocking River basin is scheduled for completion in 2004.
Ohio EPA 2004 Integrated Report Appendix D.3
Large River Assessment Unit (LRAU) Summaries

LRAU Description
Tuscarawas River Mainstem (downstream Sippo Creek to mouth)

LRAU Size (mi²)
2596.0

Integrated Report Assessment Category: 5
Priority Points: 9
Next Scheduled Monitoring: 2004

Aquatic Life Use (ALU) Assessment
Subcategories of ALU: EWH, WWH
Impairment: Yes

|--------------------|------------------------|

| LRAU Total Length (miles): | 90.77 |
| LRAU Monitored Miles:      | 38.60 |
| No. Sites Sampled:         | 17    |

% LRAU Attainment (Monitoring Miles)

<table>
<thead>
<tr>
<th>Full</th>
<th>Partial</th>
<th>Non</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.6</td>
<td>41.7</td>
<td>48.7</td>
</tr>
</tbody>
</table>

High Magnitude Causes
- Cause Unknown
- Organic Enrichment/DO
- Priority Organics
- Nutrients

High Magnitude Sources
- Source Unknown
- Contaminated Sediments
- Industrial Point Sources
- Municipal Point Sources
- Urban Runoff/Storm Sewers (NPS)

Recreation Use Assessment
Subcategory of Use: Primary Contact
Impairment: Yes

| Geometric Mean: | 1025 |

| No. of Ambient Sites: 28 | No. of Ambient Sampling Records: 171 | 75th %ile: 2400 |
| No. of NPDES MOR Sites: 2 | No. of NPDES MOR Records: 142 | 90th %ile: 7480 |

Fish Consumption Advisory (FCA) Assessment
Waters Within the LRAU Sampled and Assessed: Yes
FCA Issued: Yes

(See the 2003 Ohio FCA for more detailed information at "www.epa.state.oh.us/dsw/fishadvisory/index.html")

Impairment Due to FCA: Yes
Pollutant(s): PCBs, hexachlorobenzene

Comments
A full survey of the Tuscarawas River including the mainstem assessment unit has not been conducted since 1989. Most of the sampling on the mainstem has been targeted at hazardous waste sites and biological reference sites. The lower 20 miles of the stream were sampled as part of the 1994 upper Muskingum River survey. Sampling of the entire assessment unit, scheduled for 2003, was postponed until 2004 due to elevated river flows caused by excessive flooding in the upper watershed in July and August 2003.
Ohio EPA 2004 Integrated Report Appendix D.3
Large River Assessment Unit (LRAU) Summaries

LRAU Description
Mohican River Mainstem (entire length)

LRAU Size (mi²)
1004.0

Integrated Report Assessment Category: 2
Next Scheduled Monitoring: 2007

Aquatic Life Use (ALU) Assessment
Subcategories of ALU: WWH
Impairment: No

<table>
<thead>
<tr>
<th>Sampling Year(s):</th>
<th>1997, 1998</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. Sites Sampled:</td>
<td>2</td>
</tr>
<tr>
<td>% LRAU Attainment (Monitored Miles)</td>
<td>100.0</td>
</tr>
</tbody>
</table>

| LRAU Total Length (miles): | 27.58 |
| LRAU Monitored Miles: | 8.10 |
| No. of Ambient Sites: | 11 |
| Geometric Mean: | 75th %ile: |
| Other: | |
| Impairment: | No |
| No. of Ambient Sites: | 11 |
| No. of NPDES MOR Sites: | 0 |
| No. of Ambient Sampling Records: | 75th %ile: |
| No. of NPDES MOR Records: | 90th %ile: |
| Impairment Due to FCA: | Pollutant(s): |

Recreation Use Assessment
Subcategory of Use: Primary Contact
Impairment: Unknown

| Geometric Mean: | 75th %ile: |
| No. of Ambient Sites: | 11 |
| No. of NPDES MOR Sites: | 0 |
| No. of Ambient Sampling Records: | 75th %ile: |
| No. of NPDES MOR Records: | 90th %ile: |

Fish Consumption Advisory (FCA) Assessment
Waters Within the LRAU Sampled and Assessed:
FCA Issued:
(See the 2003 Ohio FCA for more detailed information at "www.epa.state.oh.us/dsw/fishadvisory/index.html")
Impairment Due to FCA: Pollutant(s):

Comments
Sampling of the Mohican River mainstem assessment unit has been limited (2 sites), but both sites indicated full attainment of ecoregional biological criteria and the WWH aquatic life use.
Ohio EPA 2004 Integrated Report Appendix D.3
Large River Assessment Unit (LRAU) Summaries

LRAU Description
Walhonding River Mainstem (entire length)

LRAU Size (mi^2)
2256.0

Integrated Report Assessment Category: 5
Priority Points: 1
Next Scheduled Monitoring: 2007

Aquatic Life Use (ALU) Assessment

<table>
<thead>
<tr>
<th>Subcategories of ALU:</th>
<th>EWH</th>
<th>Sampling Year(s):</th>
<th>1994</th>
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<tbody>
<tr>
<td>Impairment:</td>
<td>No</td>
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</tr>
<tr>
<td>LRAU Total Length (miles):</td>
<td>23.19</td>
<td>No. Miles Full Attainment:</td>
<td>23.19</td>
</tr>
<tr>
<td>LRAU Monitored Miles:</td>
<td>23.19</td>
<td>No. Miles Partial Attainment:</td>
<td>0.00</td>
</tr>
<tr>
<td>No. Sites Sampled:</td>
<td>3</td>
<td>No. Miles Non-Attainment:</td>
<td>0.00</td>
</tr>
</tbody>
</table>

% LRAU Attainment (Monitored Miles)

<table>
<thead>
<tr>
<th>Full</th>
<th>Partial</th>
<th>Non</th>
</tr>
</thead>
<tbody>
<tr>
<td>100.0</td>
<td>0.0</td>
<td>0.0</td>
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</tbody>
</table>

High Magnitude Causes
High Magnitude Sources

Recreation Use Assessment

<table>
<thead>
<tr>
<th>Subcategory of Use:</th>
<th>Primary Contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impairment:</td>
<td>Unknown</td>
</tr>
<tr>
<td>Geometric Mean:</td>
<td></td>
</tr>
<tr>
<td>No. of Ambient Sites:</td>
<td></td>
</tr>
<tr>
<td>No. of Ambient Sampling Records:</td>
<td>75th %ile:</td>
</tr>
<tr>
<td>No. of NPDES MOR Sites:</td>
<td></td>
</tr>
<tr>
<td>No. of NPDES MOR Records:</td>
<td>90th %ile:</td>
</tr>
<tr>
<td>Other:</td>
<td></td>
</tr>
</tbody>
</table>

Fish Consumption Advisory (FCA) Assessment

| Waters Within the LRAU Sampled and Assessed: | Yes |
| FCA Issued: | Yes |
| (See the 2003 Ohio FCA for more detailed information at "www.epa.state.oh.us/dsw/fishadvisory/index.html") |
| Impairment Due to FCA: | Yes |
| Pollutant(s): PCBs |

Comments
The Walhonding River supports exceptional biological diversity and full attainment of the EWH aquatic life use ecoregional biological criteria. As such, it was listed as Category 2 (unimpaired) in the 2002 Integrated Report. However, the 2004 Integrated Report assessment of fish tissue data documented body burdens of one or more pollutants at levels exceeding the threshold level upon which Ohio Water Quality Standards human health criteria are based which resulted in listing as impaired for fish consumption.
Ohio EPA 2004 Integrated Report Appendix D.3
Large River Assessment Unit (LRAU) Summaries

<table>
<thead>
<tr>
<th>LRAU Description</th>
<th>LRAU Size (mi²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Muskingum River Mainstem (entire length)</td>
<td>8051.0</td>
</tr>
</tbody>
</table>

**Integrated Report Assessment Category:** 5  
**Priority Points:** 9  
**Next Scheduled Monitoring:** 2008

## Aquatic Life Use (ALU) Assessment

<table>
<thead>
<tr>
<th>Impairment</th>
<th>Sampling Year(s)</th>
<th>LRAU Total Length (miles)</th>
<th>LRAU Monitored Miles</th>
<th>No. Sites Sampled</th>
<th>% LRAU Attainment (Monitored Miles)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>1994</td>
<td>111.14</td>
<td>21.73</td>
<td>9</td>
<td>54.4      45.6      0.0</td>
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</tbody>
</table>

### High Magnitude Causes

- Organic Enrichment/DO

### High Magnitude Sources

- Major Industrial Point Source

## Recreation Use Assessment

<table>
<thead>
<tr>
<th>Impairment</th>
<th>Geometric Mean</th>
<th>No. of Ambient Sites: 4</th>
<th>No. of Ambient Sampling Records: 18</th>
<th>No. of NPDES MOR Sites: 1</th>
<th>No. of NPDES MOR Records: 53</th>
<th>75th %ile: 1221</th>
<th>90th %ile: 2300</th>
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<tbody>
<tr>
<td>Yes</td>
<td>332</td>
<td>4</td>
<td>18</td>
<td>1</td>
<td>53</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Fish Consumption Advisory (FCA) Assessment

- Waters Within the LRAU Sampled and Assessed: Yes  
- FCA Issued: Yes  
- Impairment Due to FCA: Yes  
- Pollutant(s): PCBs

**Comments**

The Muskingum River has not been completely sampled since 1988. The upper 20 miles of the mainstem were sampled in 1994. The lower 90 miles has virtually no recent data, with the exception of one monthly ambient monitoring chemistry site at McConnelsville. Besides the historical aquatic life use impairment, the 2004 Integrated Report assessment of fish tissue data documented body burdens of one or more pollutants at levels exceeding the threshold level upon which Ohio Water Quality Standards human health criteria are based which resulted in listing as impaired for fish consumption. Additionally, assessment of available bacteria data indicated an impairment of the Primary Contact Recreation beneficial use.
Large River Assessment Unit (LRAU) Summaries

LRAU Description: Wills Creek Mainstem (downstream Leatherwood Creek to mouth)

LRAU Size (mi²): 853.0

Integrated Report Assessment Category: 5
Priority Points: 2
Next Scheduled Monitoring: 2008

Aquatic Life Use (ALU) Assessment

Subcategories of ALU: WWH
Impairment: Yes
Sampling Year(s): 1994

<table>
<thead>
<tr>
<th>LRAU Total Length (miles)</th>
<th>No. Sites Sampled</th>
<th>% LRAU Attainment (Monitored Miles)</th>
</tr>
</thead>
<tbody>
<tr>
<td>64.98</td>
<td>4</td>
<td>Full: 15.2, Partial: 64.5, Non: 20.3</td>
</tr>
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</table>

High Magnitude Causes:
Siltation

High Magnitude Sources:
Surface Mining

Recreation Use Assessment

Subcategory of Use: Primary Contact
Impairment: No

<table>
<thead>
<tr>
<th>Geometric Mean:</th>
<th>329</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geometric Mean:</td>
<td>75th %ile:</td>
</tr>
<tr>
<td>Geometric Mean:</td>
<td>90th %ile:</td>
</tr>
</tbody>
</table>

Fish Consumption Advisory (FCA) Assessment

Waters Within the LRAU Sampled and Assessed:
FCA Issued:
(See the 2003 Ohio FCA for more detailed information at "www.epa.state.oh.us/dsw/fishadvisory/index.html")

Impairment Due to FCA: Pollutant(s):

Comments
The middle and upper reaches of the Wills Creek mainstem assessment unit are impaired by a combination of heavy sedimentation and low stream gradient. Biological communities in this stretch of the river fell below ecoregional biological criteria in 1994. Downstream from Wills Creek Reservoir, biological communities in the mainstem were significantly improved, meeting (or nearly meeting) Warmwater Habitat biological criteria.
Ohio EPA 2004 Integrated Report Appendix D.3
Large River Assessment Unit (LRAU) Summaries

LRAU Description
Licking River Mainstem (entire length)

LRAU Size (mi²)
779.0

Integrated Report Assessment Category: 5
Priority Points: 3
Next Scheduled Monitoring: 2007

Aquatic Life Use (ALU) Assessment
Subcategories of ALU: WWH
Impairment: Yes

Sampling Year(s): 1993, 1994
No. Sites Sampled: 11
% LRAU Attainment (Monitored Miles)
Full: 94.0  Partial: 6.0  Non: 0.0

High Magnitude Causes
Unionized Ammonia

High Magnitude Sources
Upstream Impoundment

Recreation Use Assessment
Subcategory of Use: Primary Contact
Impairment: Unknown

Geometric Mean:
No. of Ambient Sites: Geometric Mean: 75th %ile:
No. of Ambient Sampling Records: 90th %ile:
No. of NPDES MOR Sites: No. of NPDES MOR Records:
Other:

Fish Consumption Advisory (FCA) Assessment
Waters Within the LRAU Sampled and Assessed:
FCA Issued:
(See the 2003 Ohio FCA for more detailed information at "www.epa.state.oh.us/dsw/fishadvisory/index.html")
Impairment Due to FCA: Pollutant(s):

Comments
The Licking River mainstem has undergone dramatic improvement since the early 1980s. Sampling conducted in 1994 indicated 94% full attainment of the WWH aquatic life use. Improvements are attributed to upgrades at the Newark WWTP. Aquatic life non-attainment is restricted to a short reach below Dillon Reservoir and is most likely due to the hypolimnetic reservoir release of hypereutrophic/eutrophic water.
Ohio EPA 2004 Integrated Report Appendix D.3
Large River Assessment Unit (LRAU) Summaries

<table>
<thead>
<tr>
<th>LRAU Description</th>
<th>LRAU Size (mi²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scioto River Mainstem (downstream Little Scioto River to mouth)</td>
<td>6517.0</td>
</tr>
</tbody>
</table>

Integrated Report Assessment Category: 5  
Next Scheduled Monitoring: 2011  
Priority Points: 8

### Aquatic Life Use (ALU) Assessment

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
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<tbody>
<tr>
<td>Impairment:</td>
<td>Yes</td>
<td></td>
<td></td>
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<tr>
<td>LRAU Total Length (miles):</td>
<td>177.35</td>
<td></td>
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<tr>
<td>LRAU Monitored Miles:</td>
<td>151.79</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No. Sites Sampled:</td>
<td>67</td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>% LRAU Attainment (Monitored Miles)</th>
<th>Full</th>
<th>Partial</th>
<th>Non</th>
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</thead>
<tbody>
<tr>
<td>90.0</td>
<td>4.1</td>
<td>5.9</td>
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<table>
<thead>
<tr>
<th>High Magnitude Causes</th>
<th>High Magnitude Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organic Enrichment/DO</td>
<td>Streambank Destabilization - Agriculture</td>
</tr>
<tr>
<td>Other Habitat Alterations</td>
<td>Major Industrial Point Source</td>
</tr>
<tr>
<td>Unionized Ammonia</td>
<td>Major Municipal Point Source</td>
</tr>
<tr>
<td>Flow Alteration</td>
<td>Dam Construction - Agriculture</td>
</tr>
<tr>
<td></td>
<td>Dam Construction - Development</td>
</tr>
<tr>
<td></td>
<td>Combined Sewer Overflow</td>
</tr>
<tr>
<td></td>
<td>Flow Reg/Mod - Development</td>
</tr>
</tbody>
</table>

### Recreation Use Assessment

Subcategory of Use: Primary Contact  
Impairment: Yes  
Geometric Mean: 595  
No. of Ambient Sites: 2  
No. of Ambient Sampling Records: 84  
75th %ile: 2100  
No. of NPDES MOR Sites: 6  
No. of NPDES MOR Records: 608  
90th %ile: 5200  
Other: 

### Fish Consumption Advisory (FCA) Assessment

Waters Within the LRAU Sampled and Assessed: Yes  
FCA Issued: Yes  
(See the 2003 Ohio FCA for more detailed information at "www.epa.state.oh.us/dsw/fishadvisory/index.html")  
Impairment Due to FCA: Yes  
Pollutant(s): PCBs

### Comments

The Scioto River mainstem assessment unit has been extensively monitored between Columbus and Circleville since 1988 to assess the improvements in the river due to upgrades at the two major WWTPs in Columbus. Additionally, large scale surveys were done in 1995 (upper Scioto River) and 1997 (lower Scioto River). While biological communities have recovered significantly since the 1970s and are generally performing very well, fish consumption advisories exist for several species of fish throughout the length of the river. As a result, the 2004 Integrated Report assessment of fish tissue data documented body burdens of one or more pollutants at levels exceeding the threshold level upon which Ohio Water Quality Standards human health criteria are based which resulted in listing as impaired for fish consumption. Additionally, assessment of available bacteria data indicated an impairment of the Primary Contact Recreation beneficial use.
## LRAU Description

<table>
<thead>
<tr>
<th>LRAU Description</th>
<th>LRAU Size (mi²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paint Creek Mainstem (downstream Rocky Fork to mouth)</td>
<td>1144.0</td>
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</table>

## Integrated Report Assessment Category

<table>
<thead>
<tr>
<th>Integrated Report Assessment Category</th>
<th>Priority Points</th>
<th>Next Scheduled Monitoring</th>
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<tbody>
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<td>5</td>
<td>1</td>
<td>2006</td>
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## Aquatic Life Use (ALU) Assessment

<table>
<thead>
<tr>
<th>Subcategories of ALU:</th>
<th>Sampling Year(s):</th>
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<tbody>
<tr>
<td>EWH, WWH</td>
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<table>
<thead>
<tr>
<th>Impairment:</th>
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</table>

<table>
<thead>
<tr>
<th>LRAU Total Length (miles):</th>
<th>No. Miles Full Attainment:</th>
<th>LRAU Monitored Miles:</th>
<th>No. Miles Partial Attainment:</th>
<th>No. Sites Sampled:</th>
<th>No. Miles Non-Attainment:</th>
</tr>
</thead>
<tbody>
<tr>
<td>37.12</td>
<td>37.12</td>
<td>12</td>
<td>0.00</td>
<td>12</td>
<td>0.00</td>
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</table>

<table>
<thead>
<tr>
<th>% LRAU Attainment (Monitored Miles)</th>
<th>Full</th>
<th>Partial</th>
<th>Non</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>100.0</td>
<td>0.0</td>
<td>0.0</td>
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</table>

**High Magnitude Causes**

**High Magnitude Sources**

## Recreation Use Assessment

<table>
<thead>
<tr>
<th>Subcategory of Use:</th>
<th>Impairment:</th>
<th>Geometric Mean:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary Contact</td>
<td>Unknown</td>
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<table>
<thead>
<tr>
<th>No. of Ambient Sites:</th>
<th>No. of Ambient Sampling Records:</th>
<th>75th %ile:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>No. of NPDES MOR Sites:</th>
<th>No. of NPDES MOR Records:</th>
<th>90th %ile:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</table>

**Other:**

## Fish Consumption Advisory (FCA) Assessment

<table>
<thead>
<tr>
<th>Waters Within the LRAU Sampled and Assessed:</th>
<th>FCA Issued:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

**Impairment Due to FCA:**

Yes

**Pollutant(s):**

(See the 2003 Ohio FCA for more detailed information at "www.epa.state.oh.us/dsw/fishadvisory/index.html")

## Comments

A Watershed Management Plan prepared by a CWA Section 319 funded Watershed Coordinator under the direction of the Paint Creek watershed SWCDs (Ross, Fayette, Highland, Greene, Madison, and Clinton) was submitted to Ohio EPA in October, 2002; the plan is currently under review and revision. Monitoring in support of the project was conducted in the Paint Creek watershed by the Ohio EPA in 1997; survey results indicated full WWH and EWH aquatic life use attainment of ecoregional biocriteria in the Paint Creek mainstem assessment unit which was assigned to Category 2 (unimpaired) in the 2002 Integrated Report. However, the 2004 Integrated Report assessment of fish tissue data documented body burdens of one or more pollutants at levels exceeding the threshold level upon which Ohio Water Quality Standards human health criteria are based which resulted in listing as impaired for fish consumption.
Ohio EPA 2004 Integrated Report Appendix D.3
Large River Assessment Unit (LRAU) Summaries

LRAU Description
Great Miami River Mainstem (downstream Tawawa Creek to mouth)

LRAU Size (mi²)
5371.0

Integrated Report Assessment Category: 5
Priority Points: 10
Next Scheduled Monitoring: 2008

Aquatic Life Use (ALU) Assessment
Subcategories of ALU: EWH, WWH
Impairment: Yes
Sampling Year(s): 1994, 1995, 2000

LRAU Total Length (miles): 130.41
LRAU Monitored Miles: 130.38
No. Sites Sampled: 89

% LRAU Attainment (Monitored Miles)

<table>
<thead>
<tr>
<th>Full</th>
<th>Partial</th>
<th>Non</th>
</tr>
</thead>
<tbody>
<tr>
<td>67.0</td>
<td>30.2</td>
<td>2.8</td>
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</table>

High Magnitude Causes
Flow Alteration
Other Habitat Alterations
Organic Enrichment/DO
Nutrients
Priority Organics

High Magnitude Sources
Dam Construction - Development
Flow Reg/Mod - Development
Major Municipal Point Source
Upstream Impoundment
Combined Sewer Overflow
Major Industrial Point Source
Removal of Riparian Vegetation - Development

Recreation Use Assessment
Subcategory of Use: Primary Contact
Impairment: Yes

Geometric Mean: 363

No. of Ambient Sites: 4
No. of Ambient Sampling Records: 59
75th %ile: 920

No. of NPDES MOR Sites: 14
No. of NPDES MOR Records: 993
90th %ile: 2800

Fish Consumption Advisory (FCA) Assessment
Waters Within the LRAU Sampled and Assessed: Yes
FCA Issued: Yes

Impairment Due to FCA: Yes
Pollutant(s): PCBs

Comments
Biological and water quality surveys were conducted throughout the mainstem in 1994 (upper Great Miami River) and 1995 (lower Great Miami River). Sampling was conducted in the Middletown reach of the river in 2000. Most of the mainstem assessment unit is in full or partial attainment of designated aquatic life uses (EWH and WWH) based on biological criteria. However, the 2004 Integrated Report assessment of fish tissue data documented body burdens of one or more pollutants at levels exceeding the threshold level upon which Ohio Water Quality Standards human health criteria are based which resulted in listing as impaired for fish consumption. Additionally, assessment of available bacteria data indicated an impairment of the Primary Contact Recreation beneficial use.
Stillwater River Mainstem (downstream Greenville Creek to mouth)

Aquatic Life Use (ALU) Assessment

Subcategories of ALU: EWH

Impairment: Yes

LRAU Total Length (miles): 32.38
LRAU Monitored Miles: 32.38
No. Sites Sampled: 16

% LRAU Attainment (Monitored Miles)

<table>
<thead>
<tr>
<th>Full</th>
<th>Partial</th>
<th>Non</th>
</tr>
</thead>
<tbody>
<tr>
<td>96.9</td>
<td>0.0</td>
<td>3.1</td>
</tr>
</tbody>
</table>

High Magnitude Causes

Other Habitat Alterations

High Magnitude Sources

Dam Construction - Development

Recreation Use Assessment

Subcategory of Use: Primary Contact

Impairment: No

No. of Ambient Sites: 14
No. of Ambient Sampling Records: 48
No. of NPDES MOR Sites: 5
No. of NPDES MOR Records: 439

Other:  

Fish Consumption Advisory (FCA) Assessment

Waters Within the LRAU Sampled and Assessed: Yes

FCA Issued: Yes

(See the 2003 Ohio FCA for more detailed information at "www.epa.state.oh.us/dsw/fishadvisory/index.html")

Impairment Due to FCA: No

Pollutant(s):

A report developing TMDLs for pollutants impairing designated aquatic life uses is in progress for the Stillwater River basin. Monitoring in support of the TMDLs was conducted in 1999. Additional limited data were available from 1994 and 2001. The entire mainstem assessment unit was in full attainment of the designated EWH aquatic life use based on biological criteria with the exception of one modified site (impounded) upstream from Englewood Dam. The aquatic life non-attainment was due to habitat modifications associated with the impounded reach. As such, it was listed as Category 4C (impairment not caused by a pollutant) in the 2002 Integrated Report.
Ohio EPA 2004 Integrated Report Appendix D.3
Large River Assessment Unit (LRAU) Summaries

LRAU Description
Mad River Mainstem (downstream Donnels Creek to mouth)

LRAU Size (mi²)
657.0

Integrated Report Assessment Category: 5
Priority Points: 8
Next Scheduled Monitoring: 2003

Aquatic Life Use (ALU) Assessment
Subcategories of ALU: WWH
Impairment: Yes
Sampling Year(s): 1994

<table>
<thead>
<tr>
<th>LRAU Total Length (miles)</th>
<th>No. of Sites Sampled</th>
<th>% LRAU Attainment (Monitored Miles)</th>
</tr>
</thead>
<tbody>
<tr>
<td>18.38</td>
<td>12</td>
<td>Full: 86.3 Part: 13.7 Non: 0.0</td>
</tr>
</tbody>
</table>

High Magnitude Causes
- Cause Unknown
- Other Habitat Alterations

High Magnitude Sources
- Source Unknown
- Channelization - Agriculture

Recreation Use Assessment
Subcategory of Use: Primary Contact
Impairment: Yes

<table>
<thead>
<tr>
<th>Geometric Mean</th>
<th>75th %ile</th>
<th>90th %ile</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Ambient Sites: 4</td>
<td>No. of Ambient Sampling Records: 20</td>
<td>1520</td>
</tr>
<tr>
<td>No. of NPDES MOR Sites: 3</td>
<td>No. of NPDES MOR Records: 288</td>
<td>5653</td>
</tr>
</tbody>
</table>

Fish Consumption Advisory (FCA) Assessment
Waters Within the LRAU Sampled and Assessed: Yes
FCA Issued: Yes

Impairment Due to FCA: Yes
Pollutant(s): PCBs

Comments
A biological and water quality survey conducted in 1994 indicated that the entire length of the Mad River mainstem assessment unit was either in full or partial attainment of the designated aquatic life use (WWH) based on biological criteria. Monitoring in support of the development of TMDLs for pollutants impairing beneficial uses in the entire Mad River basin was conducted in 2003. Besides the historical partial aquatic life use attainment, the 2004 Integrated Report assessment of fish tissue data documented body burdens of one or more pollutants at levels exceeding the threshold level upon which Ohio Water Quality Standards human health criteria are based which resulted in listing as impaired for fish consumption. Additionally, assessment of available bacteria data indicated an impairment of the Primary Contact Recreation beneficial use.
Ohio EPA 2004 Integrated Report Appendix D.3
Large River Assessment Unit (LRAU) Summaries

LRAU Description
Whitewater River Mainstem (entire length)

LRAU Size (mi²)
1474.0

Integrated Report Assessment Category: 5
Priority Points: 1
Next Scheduled Monitoring: 2010

Aquatic Life Use (ALU) Assessment
Subcategories of ALU: EWH
Sampling Year(s): 1995, 1996, 2000
Impairment: No

<table>
<thead>
<tr>
<th>LRAU Total Length (miles)</th>
<th>No. Sites Sampled</th>
<th>% LRAU Attainment (Monitored Miles)</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.26</td>
<td>6</td>
<td>100.0</td>
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</table>

High Magnitude Causes

Recreation Use Assessment
Subcategory of Use: Primary Contact
Impairment: Unknown

<table>
<thead>
<tr>
<th>No. of Ambient Sites</th>
<th>No. of Ambient Sampling Records</th>
<th>Geometric Mean</th>
<th>75th %ile</th>
<th>90th %ile</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>75th %ile:</td>
<td>75th %ile:</td>
<td></td>
</tr>
</tbody>
</table>

Waters Within the LRAU Sampled and Assessed: Yes
FCA Issued: Yes

Fish Consumption Advisory (FCA) Assessment
Waters Within the LRAU Sampled and Assessed: Yes
FCA Issued: Yes

<table>
<thead>
<tr>
<th>Pollutant(s):</th>
<th>PCBs</th>
</tr>
</thead>
</table>

Impairment Due to FCA: Yes

Comments
Biological and water quality monitoring conducted in the Whitewater River mainstem assessment unit (lower 8.26 miles of stream located in Ohio) in 1995 and 1996 showed full attainment of the designated EWH aquatic life use based on biological criteria. This is one of the few large Ohio rivers with 100% attainment of the aquatic life use and that supports exceptional aquatic communities. However, the 2004 Integrated Report assessment of fish tissue data documented body burdens of one or more pollutants at levels exceeding the threshold level upon which Ohio Water Quality Standards human health criteria are based which resulted in listing as impaired for fish consumption.
## LRAU Description

Raccoon Creek Mainstem (downstream Little Raccoon Creek to mouth)

<table>
<thead>
<tr>
<th>LRAU Description</th>
<th>LRAU Size (mi²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raccoon Creek Mainstem</td>
<td>681.0</td>
</tr>
</tbody>
</table>

## Integrated Report Assessment Category

<table>
<thead>
<tr>
<th>Integrated Report Assessment Category</th>
<th>Priority Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Next Scheduled Monitoring: 2009</td>
</tr>
</tbody>
</table>

## Aquatic Life Use (ALU) Assessment

<table>
<thead>
<tr>
<th>Subcategories of ALU</th>
<th>Sampling Year(s)</th>
<th>No. Sites Sampled</th>
<th>LRAU Total Length (miles)</th>
<th>No. Miles Full Attainment</th>
<th>No. Miles Partial Attainment</th>
<th>No. Miles Non-Attainment</th>
</tr>
</thead>
<tbody>
<tr>
<td>WWH</td>
<td>1993, 1994, 1995</td>
<td>6</td>
<td>37.55</td>
<td>100.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
</tbody>
</table>

### Impairment

- High Magnitude Causes: No
- High Magnitude Sources: No

### No. of Ambient Sites: 3

<table>
<thead>
<tr>
<th>Geometric Mean</th>
<th>75th %ile</th>
<th>90th %ile</th>
</tr>
</thead>
<tbody>
<tr>
<td>206</td>
<td>315</td>
<td>690</td>
</tr>
</tbody>
</table>

### No. of Ambient Sampling Records: 31

### No. of NPDES MOR Sites: 0

### No. of NPDES MOR Records: 0

### Impairment Due to FCA: No

### Pollutant(s):

## Recreation Use Assessment

### Subcategory of Use: Primary Contact

<table>
<thead>
<tr>
<th>Impairment</th>
<th>Geometric Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>206</td>
</tr>
</tbody>
</table>

### No. of Ambient Sites: 3

<table>
<thead>
<tr>
<th>No. of Ambient Sampling Records</th>
<th>75th %ile</th>
<th>90th %ile</th>
</tr>
</thead>
<tbody>
<tr>
<td>31</td>
<td>315</td>
<td>690</td>
</tr>
</tbody>
</table>

### No. of NPDES MOR Sites: 0

### No. of NPDES MOR Records: 0

## Fish Consumption Advisory (FCA) Assessment

- Waters Within the LRAU Sampled and Assessed:
- FCA Issued:
  - (See the 2003 Ohio FCA for more detailed information at "www.epa.state.oh.us/dsw/fishadvisory/index.html")
- Impairment Due to FCA: No
- Pollutant(s):

## Comments

Full attainment of the designated WWH aquatic life use based on biological criteria was achieved at all sampling locations monitored in the Raccoon Creek mainstem assessment unit in 1995. Despite extensive mining activities in the upper portion of the basin, the lower Raccoon mainstem reflected no major adverse effects. Monitoring to assess the recreation beneficial use and human health issues related to fish consumption also revealed no problems. A report developing TMDLs for pollutants impairing beneficial uses (aquatic life) in the upper Raccoon Creek watershed was approved by U.S. EPA on March 20, 2003. Monitoring in support of these TMDLs was conducted in 1995 and 1999. The TMDL report is available at (www.epa.state.oh.us/dsw/tmdl/index.html).
**Ohio EPA 2004 Integrated Report Appendix D.3**

**Large River Assessment Unit (LRAU) Summaries**

<table>
<thead>
<tr>
<th>LRAU Description</th>
<th>LRAU Size (mi²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Little Miami River Mainstem (downstream Caesar Creek to mouth)</td>
<td>1757.0</td>
</tr>
</tbody>
</table>

**Integrated Report Assessment Category:** 5  
**Priority Points:** 2  
**Next Scheduled Monitoring:** 2007

**Aquatic Life Use (ALU) Assessment**

<table>
<thead>
<tr>
<th>Subcategories of ALU: EWH, WWH</th>
<th>Sampling Year(s): 1998</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impairment: Yes</td>
<td></td>
</tr>
<tr>
<td>LRAU Total Length (miles): 50.92</td>
<td>No. Miles Full Attainment: 11.80</td>
</tr>
<tr>
<td>LRAU Monitored Miles: 48.02</td>
<td>No. Miles Partial Attainment: 34.92</td>
</tr>
<tr>
<td>No. Sites Sampled: 16</td>
<td>No. Miles Non-Attainment: 1.30</td>
</tr>
</tbody>
</table>

**% LRAU Attainment (Monitored Miles)**

<table>
<thead>
<tr>
<th></th>
<th>Full</th>
<th>Partial</th>
<th>Non</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>24.6</td>
<td>72.7</td>
<td>2.7</td>
</tr>
</tbody>
</table>

**High Magnitude Causes**

- Nutrients
- Siltation
- Suspended Solids
- Cause Unknown
- Metals
- Organic Enrichment/DO
- Other Habitat Alterations

**High Magnitude Sources**

- Major Municipal Point Source
- Minor Municipal Point Source
- Nonirrigated Crop Production
- Combined Sewer Overflow
- Dam Construction - Development
- Land Development/Suburbanization
- Urban Runoff/Storm Sewers (NPS)

**Recreation Use Assessment**

<table>
<thead>
<tr>
<th>Subcategory of Use: Primary Contact</th>
<th>Impairment: No</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Ambient Sites: 0</td>
<td>No. of Ambient Sampling Records: 0</td>
</tr>
<tr>
<td>No. of NPDES MOR Sites: 4</td>
<td>No. of NPDES MOR Records: 123</td>
</tr>
<tr>
<td>Geometric Mean: 283</td>
<td>75th %ile: 577</td>
</tr>
<tr>
<td>90th %ile: 1000</td>
<td></td>
</tr>
</tbody>
</table>

**Fish Consumption Advisory (FCA) Assessment**

<table>
<thead>
<tr>
<th>Waters Within the LRAU Sampled and Assessed: Yes</th>
<th>FCA Issued: Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impairment Due to FCA: No</td>
<td>Pollutant(s):</td>
</tr>
</tbody>
</table>

**Comments**

Monitoring for development of TMDLs for pollutants impairing beneficial uses in the lower watershed, including the Little Miami mainstem assessment unit, is scheduled for 2007. A report developing TMDLs for pollutants impairing beneficial uses (aquatic life) in the upper Little Miami watershed (to and including the Caesar Creek watershed) was approved by U.S. EPA on July 2, 2002. Monitoring in support of these TMDLs was conducted in 1998. The TMDL report is available at (www.epa.state.oh.us/dsw/tmdl/index.html).