Cache River Monitoring
11-6000

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Cache River

- Delta – bottomland hardwood forests
- Agricultural land
- 2 main channels of watershed
- Cache & Bayou DeView
95% of watershed in NE AR

- Impairment turbidity, total dissolved solids, and lead.
- Agriculture activities the major source
- Upper Cache highly channelized
- Lower Cache not channelized
- Except for last 7 miles
- Forms Big Woods connected to White River bottomland hardwood forests
- Bayou DeView & Cache River channels

arkansaswater.org
Wetland of International Importance

- Ramsar Wetland
  - 1989
  - Ramsar site 442

- Commitment to maintain
  - Ecological character
  - Sustainable use of wetlands in their territories
Sampling sites

- Site 1 – upstream of target subwatersheds
- Sites 2-6 – Bayou De View subwatersheds
- Site 7 – Cache River main channel
Measured Parameters

- pH
- Dissolved Oxygen
- Total Suspended Solids (TSS)
- Turbidity
- Dissolved Nitrate, Nitrite, Orthophosphate
- Total Nitrogen, Total Phosphorus
Site 5
Turkey Creek

- NO3 (ppm)
- PO4 (ppm)

- TSS (mg/L)
- Turb (NTU)
Site 6
Channey Slough

Legend
- Potential Monitoring Sites
- County Roads
- Secondary Waters
- City Limits

12 Digit HUCs
- 08023020702 (Buffalo Creek)
- 08023020703 (Morrison Lake)
- 08023020704 (Caney Creek)
- 08023020705 (Turkey Creek)
- 08023020706 (Channey Slough)
- 08023020807 (Malloy Bayou)
- County Boundaries

Graphs showing:
- NO3 (ppm)
- PO4 (ppm)
- TSS (mg/L)
- Turb (NTU)
Sites 1, 2, 5, 6
Sites 1,2,5,6
Sites 1,2,5,6
Sites 3,4

Bayou DeView tributaries – confluence between Morrison Lake and Turkey Creek (sites 2 and 5)
Site 3
Buffalo Creek
Site 4
Caney Creek
Site 7
Cache River

Legend
Potential Monitoring Sites
County Roads
Secondary Waters
City Limits
12 Digit HUCs
- 06023020702 (Buffalo Creek)
- 060230202703 (Morrison Lake)
- 060230202704 (Caneey Creek)
- 060230202705 (Turkey Creek)
- 060230207375 (Charmeau Slough)
- 080230208087 (Maloy Bayou)
- County Boundaries

Graphs showing NO3 (ppm) and PO4 (ppm) concentrations over time, along with TSS (mg/L) and Turb (NTU) levels.
Bayou DeView & Cache River

- 2011-2012 Mean PO4 (ppm)
- 2012-2013 Mean PO4 (ppm)
- 2013-2014 Mean PO4 (ppm)
- 2011-2012 Mean NO3 (ppm)
- 2012-2013 Mean NO3 (ppm)
- 2013-2014 Mean NO3 (ppm)

- Mean Total P 2011-2012 (mgP/L)
- Mean Total P 2012-2013 (mgP/L)
- Mean Total P 2013-2014 (mgP/L)
- Mean Total N 2011-2012 (mgN/L)
- Mean Total N 2012-2013 (mgN/L)
- Mean Total N 2013-2014 (mgN/L)
Bayou DeView & Cache River

<table>
<thead>
<tr>
<th></th>
<th>Channey-Slough</th>
<th>Cache River</th>
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<tbody>
<tr>
<td>TSS</td>
<td>19,217.5</td>
<td>122,557.4</td>
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<tr>
<td>NO3</td>
<td>604.1</td>
<td>2,368.5</td>
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<tr>
<td>PO4</td>
<td>164.1</td>
<td>162.5</td>
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<tr>
<td>Total N</td>
<td>1,108.7</td>
<td>2,597.7</td>
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<tr>
<td>Total P</td>
<td>497.4</td>
<td>1,360.4</td>
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</tbody>
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2013-2014 mean annual loading from Bayou DeView channel as measured at Channey-Slough and Cache River channel, upstream from their confluence.

USGS streamflow data from Morton (Bayou DeView) and Patterson (Cache) 1997-2014, 1987-2014
Results

• Nutrient and sediment total input greater for Cache River channel
• Trend of lower sediment and nutrient values at downstream sites in Bayou De View channels
• Established wetlands and meanders in the Bayou DeView channel reduce nutrient and sediment loading
• Drought year (2012) and wet years (2013 & 2014)
Questions?

Thanks to ANRC, Billy Justus (USGS), Carlos Rosado-Berrios, students and technicians at Ecotox