HINKSTON CREEK WATERSHED STAKEHOLDER MEETING

November 8, 2019
Neal Welcome Center
AGENDA

1. Introductions

2. Watershed Overview

3. Review of Improvement Efforts
   - Watershed Based Plan Development and Implementation
   - Conservation District State Cost-Share Projects in Bourbon County
   - Septic and Riparian Buffer 319 Watershed Improvement Projects
   - Conservation District State Cost-Share Projects in Nicholas County

4. Current Water Quality Data (LRWW)

5. Open discussion of goals, focus areas for the future, idea sharing, etc.
STAKEHOLDER ROLES

GOALS OF THE STAKEHOLDER GROUP

1. Improve water quality in the Hinkston Creek watershed
2. Identify areas of concern and provide input on watershed problems and management strategies
3. Foster partnerships and collaboration
4. Help with community education and outreach
WATERSHED FACTS

- 260 square miles
- Land Use/ Land Cover: Rolling pasture-land
  - 70% pasture/ hay/ fallow fields
  - 20% forest/ shrub
  - 7% low intensity development
  - 2% cultivated crops
  - 0.5% high intensity development
  - 0.2% open water/ wetlands
- Joins Stoner Creek in Ruddels Mills to form the headwaters of the South Fork of the Licking River
WATERSHED FACTS CONT.

Water Withdrawals:
- Carlisle Water Department
- Millersburg Municipal Water Works

Permitted Discharges:
- Carlisle STP
- Millersburg STP
- Sharpsburg STP
- Mt. Sterling STP
- Construction/ Industrial Stormwater Permits

BLUEGRASS GREENSOURCE
small changes BIG IMPACT
WATERSHED IMPAIRMENTS

Nonpoint Source Pollution:

• Agriculture
  – Topsoil wash off
  – Fertilizer/pesticide runoff
  – Improperly managed livestock waste

• Failing Septic Systems
  – Malfunctioning septic systems
  – Straight pipes

• Urban Runoff
  – Impervious surfaces
  – Construction/Residential
WATERSHED IMPAIRMENTS

Water Quality Impairments:
- Fecal Coliform
- Sedimentation/ Siltation
- Nutrient/ Eutrophication

Riparian Buffer Deficiency
- 75 percent deficient
- Areas of greatest concern include the Big Brushy Creek and Hinkston Headwaters areas
WATERSHED IMPAIRMENTS

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- Fecal Coliform
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- Nutrient/ Eutrophication

Riparian Buffer Deficiency
- 75 percent deficient
- Areas of greatest concern include the Big Brushy Creek and Hinkston Headwaters areas
WATERSHED PLAN DEVELOPMENT AND IMPLEMENTATION EFFORTS (BARRY TONNING)
HINKSTON CREEK WATERSHED

IMPROVEMENT PROGRAM
UPDATES

Hinkston Stakeholder Meeting
November 8, 2019
HINKSTON CREEK WATERSHED

[Map showing Hinkston Creek Watershed with designated areas highlighted.]
HIGH BACTERIA LEVELS

Reaches of Hinkston Creek are not safe for activities such as swimming, where there is significant risk of ingesting water.
SOURCES OF BACTERIA

• Septic Systems
• Livestock
• Straight Pipes
• Leaking Sewer Lines
• Pets
• Wildlife

RECOMMENDATIONS

• Reduce human bacteria inputs from septic tanks and sewer leaks

• Identify and replace failing and improperly maintained septic systems and straight pipes
RECOMMENDATIONS

• Reduce pollution from livestock waste

• Restrict agriculture grazing from the riparian zone and install streamside buffers and fencing to reduce fecal input from stormwater runoff
319 WATER QUALITY GRANT

• Administered through the KY Division of Water
• Implementation of portions of the Hinkston Creek Watershed Assessment and Management Plan
• Objectives:
  ✓ Implement practices to reduce human and livestock fecal inputs and address high pathogen and nutrient levels
  ✓ Increase riparian buffer width
  ✓ Increase knowledge of water quality issues for local citizens, officials, and students
SEPTIC PUMPOUT & REPAIR PROGRAM

SEPTIC WORKSHOPS:

• Education on septic system function
• Instruction on how to properly maintain septic systems
• Information and applications for financial assistance
SEPTIC SYSTEM FUNDING ASSISTANCE

APPLICATIONS AVAILABLE FOR:

• FREE septic tank pumpout
  ✓ Includes riser installation up to a designated amount, if necessary

• 80/20 Cost-share grants for septic system repairs
  ✓ Solution for those with chronically failing systems or straight pipe conditions
  ✓ Based on guidance from the County Health Department
SEPTIC FUNDING ELIGIBILITY

ELIGIBLE APPLICANTS MUST:

- Reside within the Hinkston Creek watershed
- Attend a septic workshop hosted by Bluegrass Greensource
- Submit a signed “Application for Septic Pumpout Program” or “Application for Septic System Repair Program”
SEPTIC PROGRAM PROMOTION

• Attended Community Events (tabled and presented)
• Local Health Department coordination/promotion
• Conservation District Tree Giveaways
• Promotion through County Chamber of Commerce
• Cooperative Extension Newsletters
• Articles in local newspapers
• Flyers in local business windows and on Library bulletin boards
• Facebook/Instagram promotion
Workshops were held in each county and applications collected throughout the month of April. The deadline for application submittal was May 4 and applicants were mailed a letter with funding decisions by May 16.

<table>
<thead>
<tr>
<th>County</th>
<th>Workshop Date</th>
<th>No. Attendees</th>
<th>Pumpout Applications</th>
<th>Repair Applications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nicholas</td>
<td>4/09/2018</td>
<td>40</td>
<td>15</td>
<td>20</td>
</tr>
<tr>
<td>Montgomery</td>
<td>4/12/2018</td>
<td>25</td>
<td>10</td>
<td>14</td>
</tr>
<tr>
<td>Bourbon</td>
<td>4/17/2018</td>
<td>41</td>
<td>12</td>
<td>10</td>
</tr>
<tr>
<td>Boyle</td>
<td>4/21/2018</td>
<td>18</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Lincoln</td>
<td>4/24/2018</td>
<td>7</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>45</strong></td>
<td><strong>48</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total Applications Received = 93
SEPTIC PROGRAM SPRING 2019

- Workshops were held in each county and applications collected throughout the month of March. The deadline for application submittal was April 1.

<table>
<thead>
<tr>
<th>County</th>
<th>Workshop Date</th>
<th>No. Attendees</th>
<th>Pumpout Applications</th>
<th>Repair Applications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boyle</td>
<td>2/26/2019</td>
<td>10</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Montgomery</td>
<td>3/5/2019</td>
<td>18</td>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td>Bourbon/Nicholas</td>
<td>3/7/2019</td>
<td>22</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Lincoln</td>
<td>3/12/2019</td>
<td>16</td>
<td>9</td>
<td>6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>24</strong></td>
<td><strong>21</strong></td>
<td></td>
</tr>
</tbody>
</table>

Total Applications Received = 45
SEPTIC CARE WORKSHOPS
APPLICATION PRIORITIZATION

- Proximity of homeowner’s property to a stream or tributary
- Current septic system condition and age (if available)
- Proximity to a priority area identified in the watershed based plan
- Proximity to other implementation projects
- Annual household income
SEPTIC PROGRAM PROGRESS

• **44** pumpout applications approved in 2018 &
**20** pumpout applications approved in 2019

• Repair Applications reviewed and prioritized for assistance award. Number of projects selected based on the funding available and the average cost of septic installation or repair ($7,000)

<table>
<thead>
<tr>
<th>Septic Repair Summary</th>
<th>2018</th>
<th>2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approved:</td>
<td>24</td>
<td>9 (11 total)</td>
</tr>
<tr>
<td>Waiting List</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Denied at this time:</td>
<td>18</td>
<td>12</td>
</tr>
<tr>
<td>Total</td>
<td>48</td>
<td>21</td>
</tr>
</tbody>
</table>
SEPTIC PROGRAM PROGRESS

• Completed Projects:

<table>
<thead>
<tr>
<th></th>
<th>Pumpout Program</th>
<th>Septic Repairs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Completed</td>
<td>46</td>
<td>29</td>
</tr>
<tr>
<td>Remaining</td>
<td>18</td>
<td>4</td>
</tr>
<tr>
<td>Total</td>
<td>64</td>
<td>33</td>
</tr>
</tbody>
</table>

• Hinkston Projects:

<table>
<thead>
<tr>
<th></th>
<th>Completed Hinkston Projects</th>
<th>Total Hinkston Projects</th>
<th>Overall (both watershed areas)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pumpouts</td>
<td>36</td>
<td>47</td>
<td>64</td>
</tr>
<tr>
<td>Septic Repairs</td>
<td>27</td>
<td>28</td>
<td>33</td>
</tr>
<tr>
<td>Riparian Buffers</td>
<td>1</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Total</td>
<td>64</td>
<td>76</td>
<td>103</td>
</tr>
</tbody>
</table>
HINKSTON PROJECT MAP

Map Link:
https://batchgeo.com/map/221ed1df2cbe339b3bcdff7afa7e4b
PROJECT MAP
RIPARIAN BUFFER PROGRAM

SAVING YOUR STREAMBANKS WORKSHOPS:

• Education on the benefits of streamside native plantings
• Instruction on how to plant and maintain a riparian buffer, as well as identify and remove invasive species
• Information and applications for financial assistance
RIPARIAN BUFFER ASSISTANCE

APPLICATIONS AVAILABLE FOR:

• 80/20 cost-share grants for establishing streamside buffers
  ➢ BGGS will reimburse 80 percent of project cost, Up to $2,000
  ➢ Applicant responsible for 20 percent of the project cost and any additional amount over the maximum reimbursable amount
  ➢ Open to public community projects, as well as private property owners
RIPARIAN BUFFER ASSISTANCE

STATE AND FEDERAL PROGRAMS:

• Kentucky State Cost-Share Program
  ➢ Local Conservation District Office
  ➢ Streambank BMPs to help agricultural operations protect the soil and water resources

• Environmental Quality Incentives Program (EQIP) Program
  ➢ Local Natural Resources Conservation Service (NRCS) Office - Similar conservation practices as offered in State Cost-Share Program
RIPARIAN PROGRAM PROMOTION

- Attended Community Events (tabled and presented)
- Local Health Department coordination/promotion
- Conservation District Tree Giveaways
- Promotion through County Chamber of Commerce
- Cooperative Extension Newsletters
- Articles in local newspapers
- Flyers in local business windows and on Library bulletin boards
- Facebook/Instagram promotion
RIPARIAN PROGRAM FALL 2018

- Workshops were held in each county. The deadline for application submittal was Nov 30th. Applications reviewed and approved in December for installation in Spring 2019.

<table>
<thead>
<tr>
<th>County</th>
<th>Workshop Date</th>
<th>No. Attendees</th>
<th>Riparian Applications</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boyle</td>
<td>10/2/2018</td>
<td>14</td>
<td>4</td>
<td>Danville/WTE/ 2-Private Properties</td>
</tr>
<tr>
<td>Nicholas</td>
<td>10/9/2018</td>
<td>10</td>
<td>1</td>
<td>4-H Camp project</td>
</tr>
<tr>
<td>Bourbon</td>
<td>10/16/2018</td>
<td>23</td>
<td>1</td>
<td>Millersburg Community Park</td>
</tr>
<tr>
<td>Lincoln</td>
<td>10/18/2018</td>
<td>10</td>
<td>1</td>
<td>Hustonville Park Project</td>
</tr>
<tr>
<td>Montgomery</td>
<td>10/22/2018</td>
<td>7</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

Total Applications Received = 7
RIPARIAN WORKSHOPS
RIPARIAN PROGRAM PROGRESS

• Native plants ordered in March/April
  ➢ Mix of native trees (1 and 2 gal), native shrubs (3 gal and nursery quart sizes), native grasses and perennials (plugs and nursery quart sizes)
  ➢ Willow live staking in February at 2 project locations
• Plantings scheduled for May and June 2019
• Projects completed by July 2019
MILLERSBURG BUFFER

COMMUNITY PARK PROJECT

City of Millersburg and Bourbon Christian Academy partnered to establish a riparian buffer along a spring that discharges into Hinkston Creek
NO MOW SIGNAGE

NO MOW ZONE
Managed Planted Buffer Area

Those Kentucky native plants stop pollution from entering the stream and their roots hold the soil in place. They form a buffer that provides wildlife habitat and improves water quality.

Let it grow

Bluegrass Greensource
small changes BIG IMPACT
COMMUNITY OUTREACH

• Working with local watershed partners and community groups to establish long-term water quality awareness and protection as a local priority:
  ➢ Work with local agencies, organizations, and others to expand the reach of the project into the communities
  ➢ Build stakeholder capacity for greater watershed improvement – Hinkston Creek Watershed Meeting Friday, November 8, 2019 (10-12PM Neal Welcome Center in Carlisle, KY)
  ➢ Table and present at local events and meetings throughout the year to build awareness and promote workshops and financial assistance opportunities
COMMUNITY OUTREACH

[Images of community outreach events]
K-12 OUTREACH

• Working with schools to establish long-term water quality awareness and protection as a local priority
  ➢ Our environmental educators work with local teachers and school groups
  ➢ Build water-related environmental education in the community for greater watershed improvement
  ➢ K-12 education and classroom activities, 3 or 4 visits a year with an end of year water-related project
K-12 OUTREACH

The Friends of Stoner Creek and Bluegrass Greensource are partnering with St. Mary School in a project to teach students about their environment and the importance of proper stewardship.

Kara Sayles, from Bluegrass Greensource, presented an enviroscape lesson with the fourth and fifth graders to explain the purpose of watersheds.
QUESTIONS/CONTACT

Lindsie Nicholas, P.E.
Watershed Coordinator
Bluegrass Greensource
835 National Ave, Lexington, KY
lindsie@bggreensource.org
859-266-1572
CONSERVATION DISTRICT
STATE COST-SHARE
PROJECTS IN NICHOLAS
COUNTY
(ERICA BRIERLY)
LRWW WATER QUALITY DATA UPDATES
KY WATER QUALITY STANDARDS

Surface Water Standards (401 KAR 10:031)
Bacteria Standard - Section 7(1)(a)
Primary Contact Recreation
May 01 – October 31
• E. coli not to exceed **130 colonies per 100ml** as a geometric mean (>5 samples in 30 days)
• E. coli not to exceed **240 colonies per 100ml** in less than 20% samples in 30 days
LRWW WATER QUALITY DATA

Hinkston Creek E.coli Results

- **Site ID**
  - 1385
  - 1405
  - 1422
  - 1537

- **E.coli (MPN/100ml)**
  - (Upstream)
    - 768
    - 187
    - 456
    - 342
  - (Downstream)
    - 1850
    - 2895
    - 1515
    - 85

- **Dates**
  - 5/11/19
  - 7/13/19
  - 9/14/19

- **Legend**
  - 5/11/19
  - 7/13/19
  - 9/14/19

- **Note**
  - (Downstream)
LRWW WATER QUALITY DATA
LRWW WATER QUALITY DATA

Analyte: E. coli (column) and Field Analyte: Rainfall (line)

Site Number: 1537
Use the scale below or button on left to change date range.

Zoom 1m 3m 6m YTD 1y All
From Sep 11, 2004 To Sep 14, 2019

Rainfall

2.5
2
1.5
1
0

2008 2014 2018

10000 MPN/100mL
100 MPN/100mL
1 MPN/100mL

Highcharts.com
LRWW WATER QUALITY DATA

Analyte: E. coli (column) and Field Analyte: Rainfall (line)

Site Number: 1422
Use the scale below or button on left to change date range.

From Sep 23, 2000 To Sep 14, 2019

E. coli
10000 MPN/100mL
100 MPN/100mL
1 MPN/100mL

Rainfall
0
2


Highcharts.com
LRWW WATER QUALITY DATA
LRWW WATER QUALITY DATA

Analyte: E. coli (column) and Field Analyte: Rainfall (line)

Site Number: 1385
Use the scale below or button on left to change date range.

Zoom 1m 3m 6m YTD 1y All
From May 11, 2013 To Sep 14, 2019

Rainfall

2015 2017 2019
0 1 2

10000 MPN/100mL
1000 MPN/100mL
100 MPN/100mL
10 MPN/100mL

E. coli

2016 2019

Highcharts.com

BLUEGRASS GREENSOURCE small changes BIG IMPACT
LRWW WATER QUALITY DATA
LRWW WATER QUALITY DATA

Analyte: E. coli (column) and Field Analyte: Rainfall (line)

Site Number: 1405
Use the scale below or button on left to change date range.

Zoom 1m 3m 6m YTD 1y All

From Jun 3, 2001 To Sep 14, 2019

Rainfall

E. coli

10000 MPN/100mL
1000 MPN/100mL
100 MPN/100mL

Highcharts.com
LRWW WATER QUALITY DATA

Analyte: E. coli (column) and Field Analyte: Rainfall (line)

Site Number: 1403
Use the scale below or button on left to change date range.

Zoom: 1m 3m 6m YTD 1y All

From: Jun 3, 2001 To: May 11, 2019

Rainfall

2007 2010 2014 2019

E. coli

10000 MPN/100mL
100 MPN/100mL
1 MPN/100mL

Highcharts.com
OPEN DISCUSSION
OPEN DISCUSSION

WHAT DOES CLEAN WATER IN THE HINKSTON CREEK WATERSHED LOOK LIKE TO YOU?
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