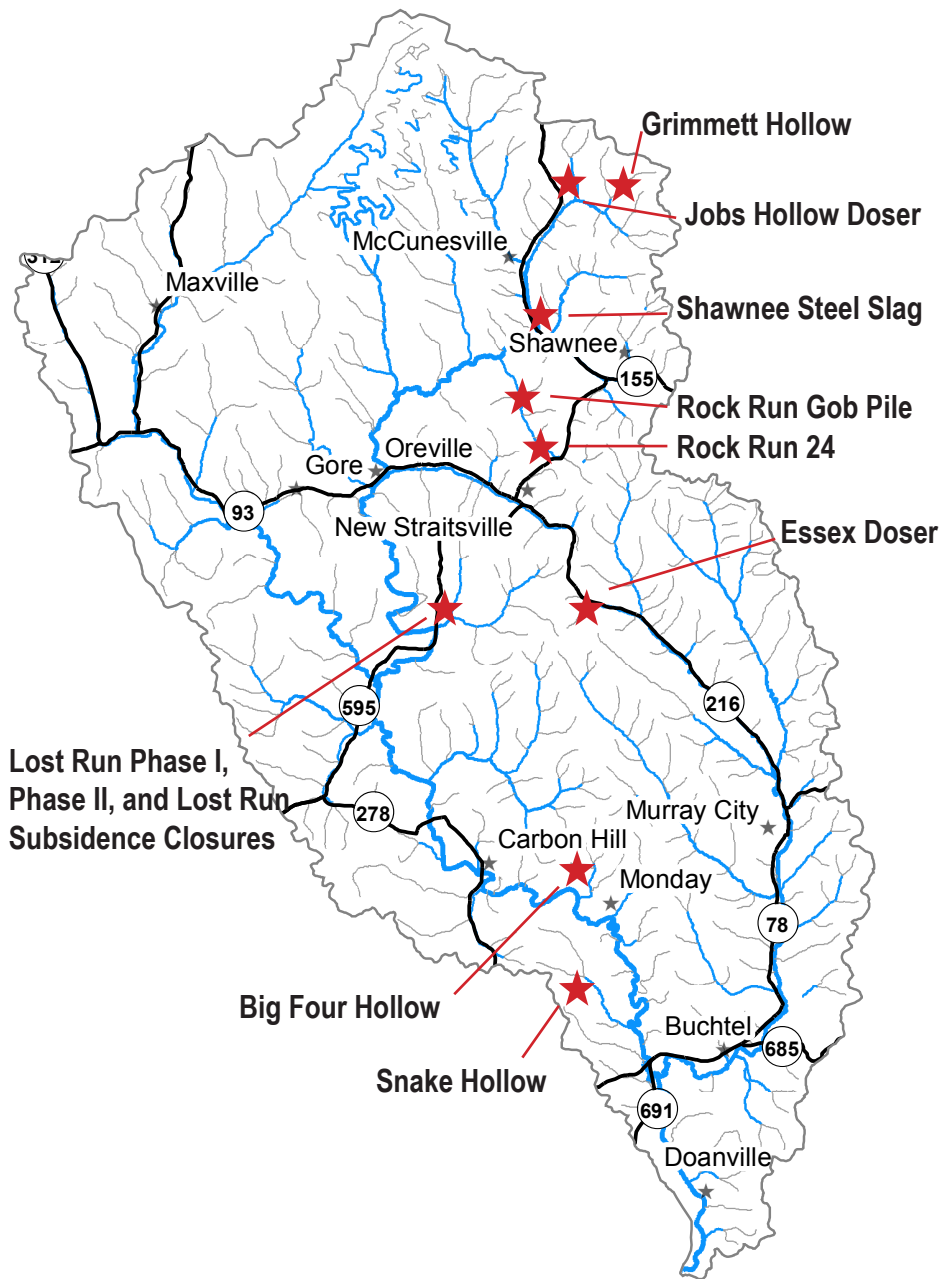


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- Monday Creek, located in the Appalachian Region of southeastern Ohio, is a 27-mile long tributary of the Hocking River, the latter which flows directly into the Ohio River. The Monday Creek Watershed drains a 116 square-mile area, with streams winding through portions of Athens, Hocking, and Perry Counties.
- Our project is a collaborative partnership of officials and residents of the Monday Creek watershed, along with more than 20 other organizations and state and federal agencies. Our shared goal is to restore the watershed for the benefit of local communities. Large portions of Monday Creek and its tributaries are dead due to acid mine drainage (AMD) left behind from a century of coal mining.
- Since 1994, our partnership has worked together to identify water quality problems, conduct field research and site characterization, and prioritize and plan on-going restoration activities. The MCRP has completed the reclamation of the Rock Run gob pile in southern Perry County through an EPA Section 319 grant and is beginning another project in the headwaters of Jobs Hollow through 319.
- In 1997-1998, we identified issues to be addressed for the long-term improvement of the watershed, and to the benefit of local communities. These issues, along with goals, objectives, action strategies, and progress indicators are discussed in detail in the Monday Creek Comprehensive Management Plan.
- To learn more about the Monday Creek Restoration Project, visit our website at www.mondaycreek.org or call 740-394-2047



333,935,000 gallons per year eliminated from entering into the deep mines as the result of conducting six stream capture closure projects in Monday creek



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Reductions

Total acid load reduction = 3,463 lbs/day

Total metal load reduction = 511 lbs/day

Data derived using the Mean Annual Load Method (Stoertz, 2004).
(excludes Rock Run Gob Pile Project)

Costs

Design \$304,056 (excluding Snake Hollow)

Construction \$3,658,851

Total costs through 2009 = \$3,962,906

Monday Creek Stream Capture Projects

Project status: Six subsidence closures projects were completed from 1995-2007

Project Name	Year project complete	Acres Captured	Agencies funding	Estimated gallons/yr of water diverted from entering the deep mine
Majestic Mine	1999	100	ODNR-DMRM	36,860,000
Salem Hollow	2000	60	ODNR-DMRM	22,116,000
Murray City	2004	5	ODNR-DMRM	1,843,000
Goose Run	1995	506	ODNR-DMRM	186,512,000
Snow Fork	1999	140	ODNR-DMRM	51,604,000
Lost Run	2007	100	USFS	35,000,000

Six stream captures located in the Monday Creek Watershed were closed and completed from 1995 to 2007. A total of 911 acres surface drainage area drained year round into the deep mines and as a result of closing these subsidence holes, 333,935,000 gallons per year were diverted from entering into the deep mine thus abating the generating of acid mine drainage.

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Completion



Sub-target 2: Total projects proposed in 1999 AMDAT = 13
Total projects complete = **10 (plus 5 subsidence closures)**

Attainment Miles



Total stream miles assessed impacted by mine drainage = **83 miles**

Target #1 indicates 30% attainment of impaired streams by 2010 = **25 miles**

2006 progress = **0 miles** meeting Full WWH attainment (*33 miles assessed in 2006*)

Cumulative BMP's Installed

Shawnee Steel Slag

Treatment Installed

Steel slag bed	22,800 square feet
Open limestone channel	190 linear feet
Sand filter	1 pre-treatment

Projects Completed Jan. 1, 2009–Dec. 31, 2009

Shawnee Steel Slag	\$219,791
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Concentrations and Loads

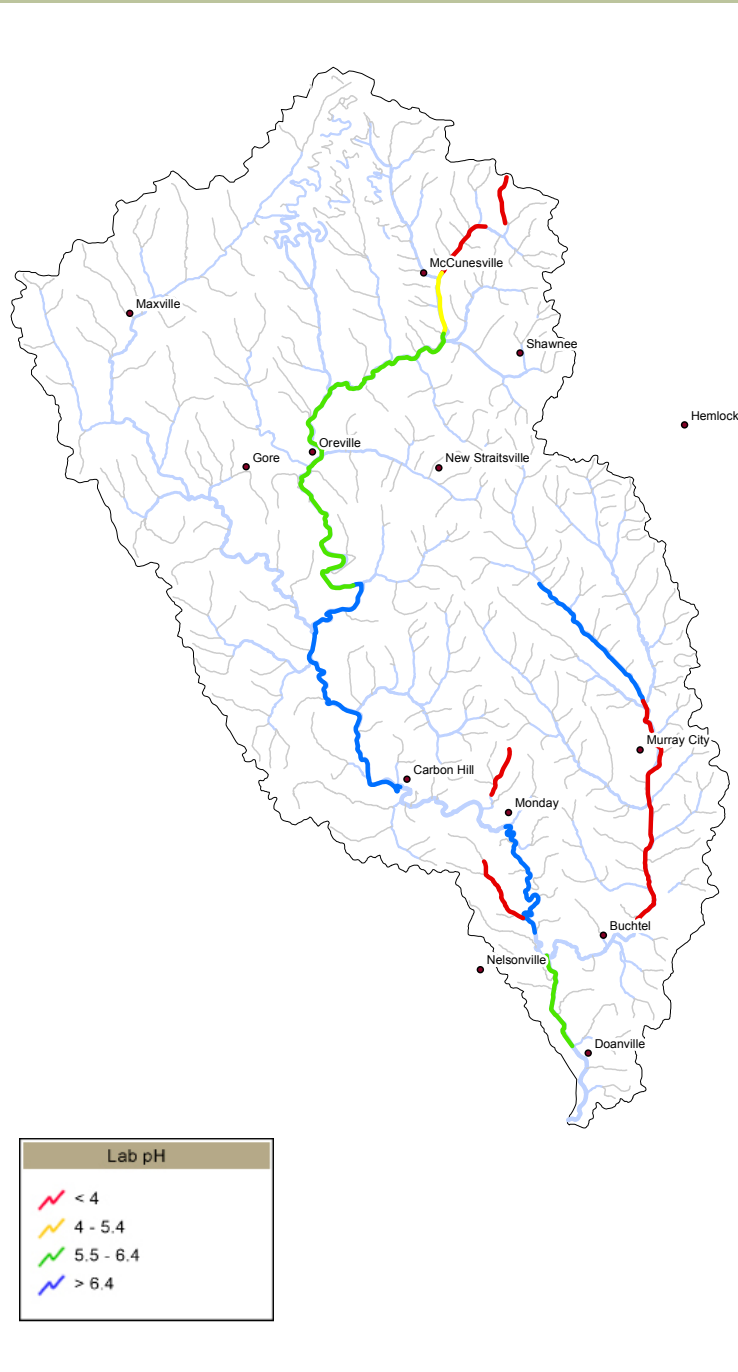
Shawnee Steel Slag	Pre	Post
Acid Concentration	15 mg/l	36 mg/l
Metal Load	97 lbs/day	51 lbs/day

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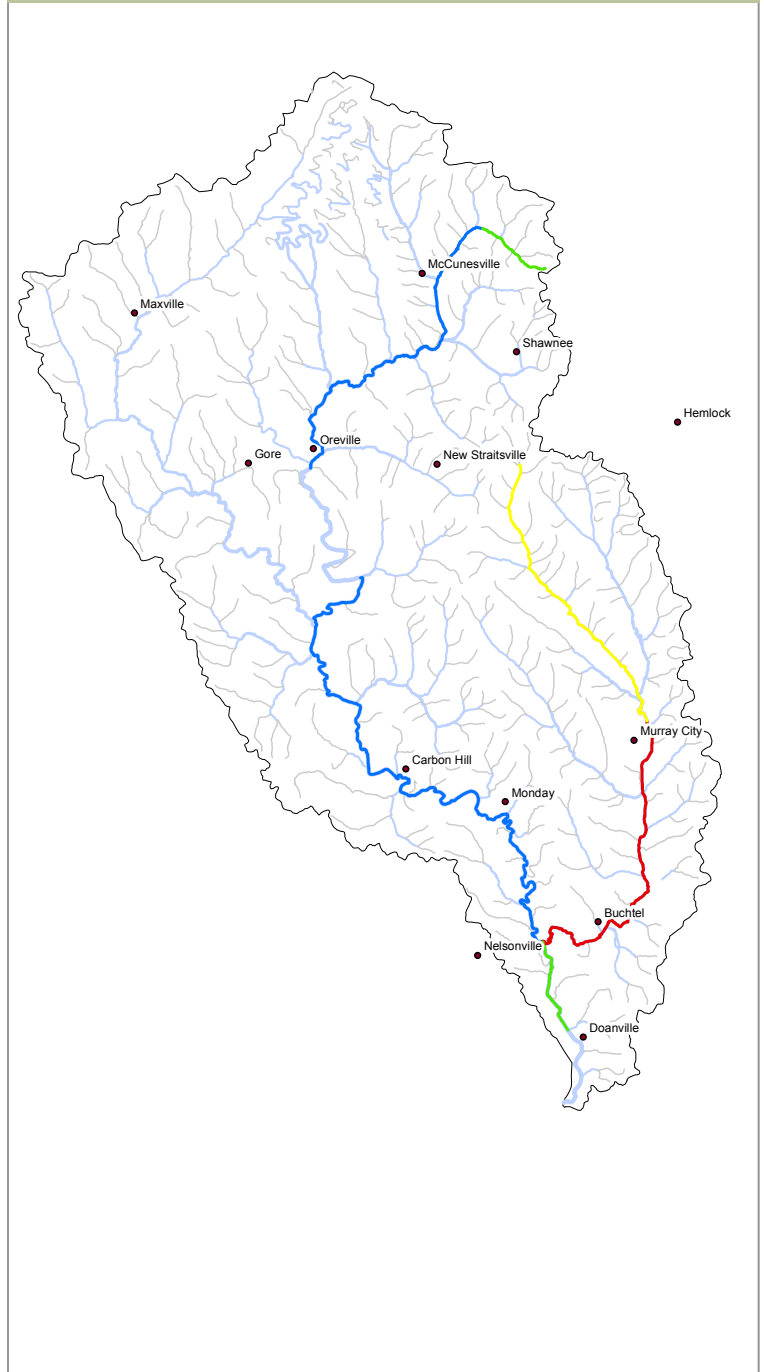
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Chemical Water Quality

Monday Creek baseline pH



Monday Creek 2009 pH



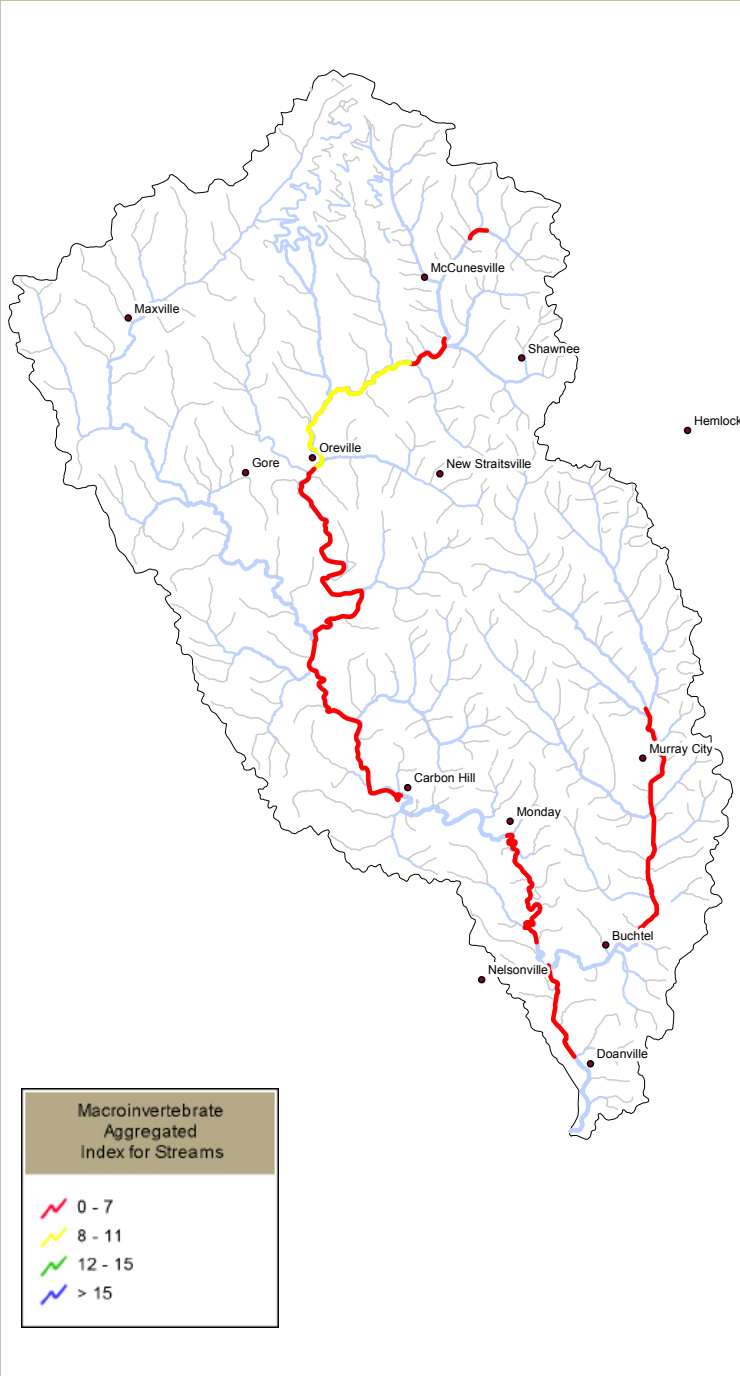
In Monday Creek pH values have improved throughout the watershed from baseline conditions (2001) to 2009.

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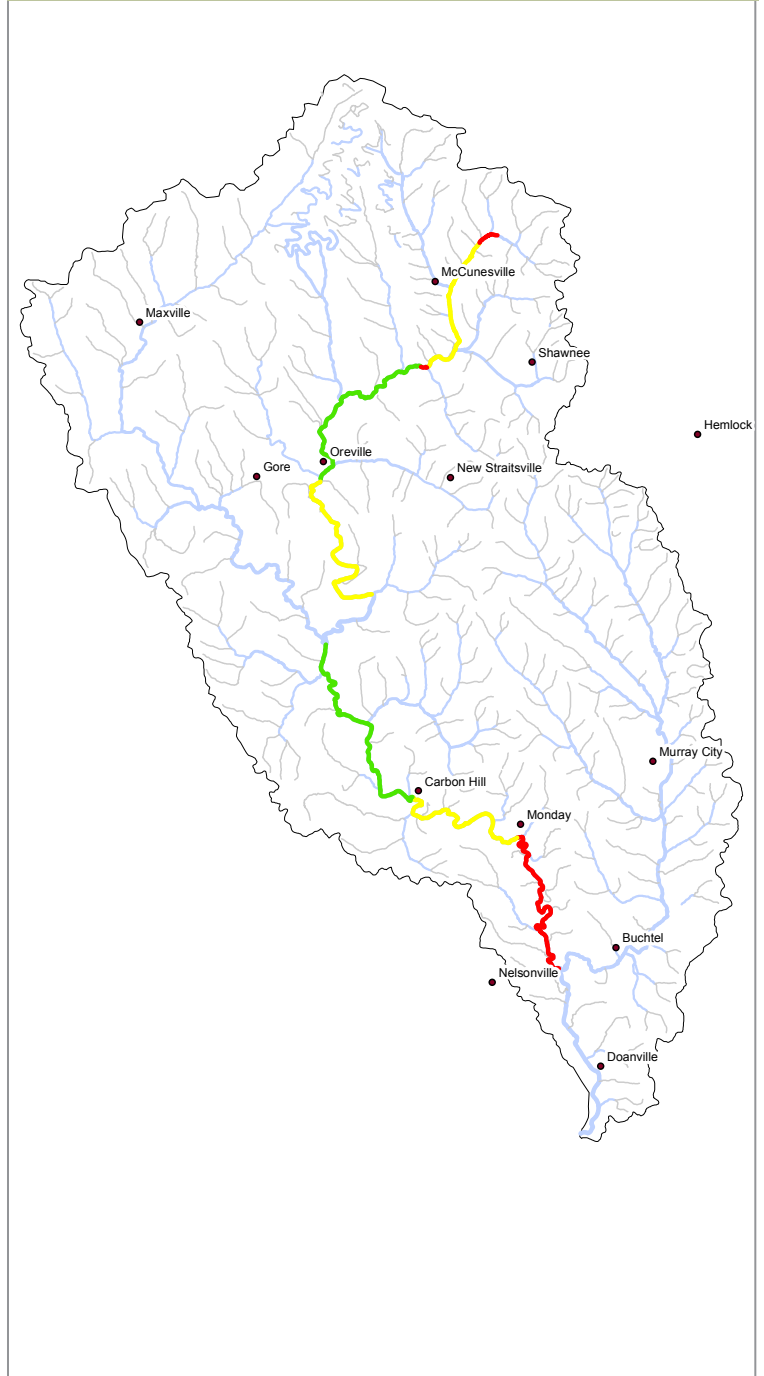
Generated by Non-Point Source Monitoring System
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Biological Water Quality

Monday Creek baseline MAIS



Monday Creek 2009 MAIS



MAIS samples were collected throughout Monday Creek at established annual monitoring stations from 2001 through 2009.

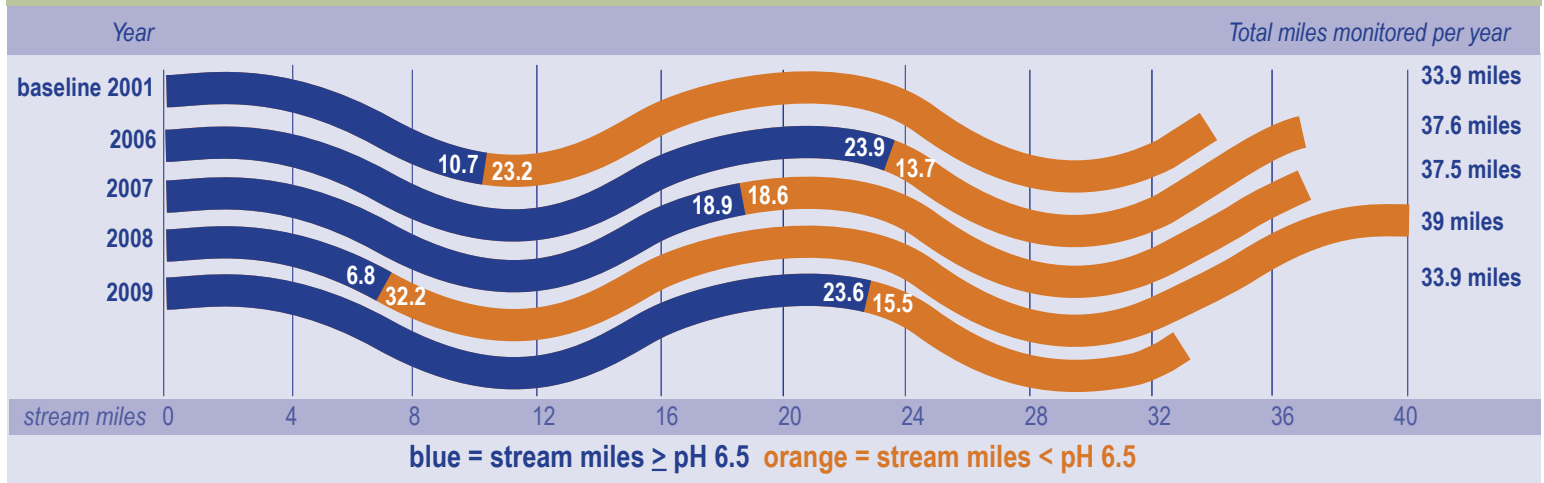
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Chemical Water Quality

There are approximately 38 stream miles monitored each year along the mainstem of Monday Creek and major tributary Snow Fork. A restoration target for pH is 6.5. Since 2007 there have been increases and decreases in the number of stream miles that meet this target. In 2007, 19 stream miles of the 38 monitored met the pH target of 6.5. However in 2008 only 7 miles of the 39 miles monitored met this target. Recent 2009 data shows an increase again with 24 miles of the 39 monitored meeting the pH target (Figure A).

Figure A. Monday Creek pH



Biological Water Quality

The mainstem of Monday declined relative to the most recent two years, 2007 and 2008, during which biological quality appeared to have improved substantially, especially at RM 10.5 and downstream. In 2009, however, quality declined in the section upstream of RM 19.6 and again upstream of RM 10.5. However, overall the area of degradation in 2009 (-128) is half that recorded in 2003 (-331.9).

Figure B. Area of Degredation

RM	2003	2005	2006	2007	2008	2009
25.3						
24.3	-24	-11	-8	-5	-8	-4
23.5	-18.4	-5.6	-7.2	-2.4	0	-4.8
19.6	-50.7	0	-23.4	-11.7	0	-15.6
16	-50.4	-39.6	-21.6	-14.4	-19.8	-21.6
10.5	-60.5	-60.5	-27.5	-11	-24.75	-38.5
9.35	-12.65	-12.65	-4.6	-1.15	-1.15	-3.45
7.27	-49.92	-33.28	-18.72	-16.64	-12.48	-10.4
4.3	-65.34	-23.76	-32.67	-23.76	-26.73	-29.7
Total	-331.91	-186.39	-143.69	-92.91	-128.05	

Area of Degradation Improved relative to 2003-2006, but declined relative to 2007-2008

Figure C. Area of Degredation

