

An Assessment
of
Dodge Branch

WBIC = 910800

Iowa County, Wisconsin

Implications for watershed and fisheries management

Project: SCR_10_SCR14



Dodge Branch along Birch Lake Road

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Dodge Branch is a 35 kilometer (22 mile) long stream that lies within the Upper East Branch Pecatonica Watershed. At 176 km² (68 mi²), it has the third largest watershed area of any stream system that lies wholly within the county. Originating as a spring fed tributary near the city of Dodgeville, it flows southeastward and joins the East Branch of the Pecatonica River near Hollandale. Along the way, the tributaries of Blotz, Conley-Lewis, Gribble, Lynch, Simmons, and Whitford creeks feed into the Dodge Branch. The cold-cool water streams that come together in the upper reaches of the Dodge Branch allow a certain portion of the stream to support trout. However, stormwater runoff, hydraulic manipulation, streambank pasturing and woodlot pasturing all affect this system (WDNR, 2003).

The reach from the headwaters to CTH Y is impacted due to urban non-point pollution as well as discharge from the Dodgeville wastewater treatment plant. While the headwaters of the stream, specifically the upper mile, are codified as a limited forage fishery, the stream mainly contains a warm water forage fishery. Seven miles of the stream is designated as class II trout water from CTH Y downstream to CTH W. The village of Hollandale also discharges its wastewater to Dodge Branch, approximately 0.5 miles upstream from its confluence with the East Branch Pecatonica River (Ibid).

Dodge Branch is currently on the state's 303(d) list of impaired streams because of degraded habitat caused by excessive sedimentation. It has an approved total maximum daily load (TMDL) plan.

Fisheries management efforts have included stocking of trout in the area between CTH Y and CTH W. Approximately 1200-1500 brown trout are stocked annually. In 2001, channel catfish were stocked in the area of CTH Z and northern pike, bluegill and crappie were stocked in the CTH Y area of Section 12, T5N, R3E. Subsequent fishery surveys were unable to turn up any of the stocked fish. In 2014, 300 large fingerling smallmouth bass were stocked with follow up surveys yet to be conducted.

Hydrologic modifications present problems for fish migration. A box culvert under Blotz Road, the culvert under the USH 151 bypass, and also culverts on private property create barriers to upstream movement of fish (Ibid).

In 2010, an EPA sponsored project to look at a geometric sampling design in Upper East Branch Pecatonica watershed also included sites on the Dodge Branch (WDNR, 2013). The study looked at 68 stream sites within the watershed and included chemical, biological (fish and macroinvertebrates) and physical (habitat) measurements. The study showed while most of the stream reaches sampled in the Pecatonica watershed appeared to be groundwater-dominated based on the presence of obligate "coldwater" fish and invertebrate species, warmer water temperatures in the Dodge Branch sub-watershed suggest this catchment had the higher proportions of surface runoff relative to the rest of the Pecatonica watershed. In addition to influencing water temperature, water source has a number of significant physical, chemical, and biological ramifications, including increased delivery of sediment and nutrient to the streams receiving substantial surface runoff. The Dodge Branch sites had lower water transparency and dissolved oxygen

concentrations, and higher total phosphorus, total kjeldahl nitrogen and suspended sediment measured relative to other sites in study. The Dodge Branch also had the greatest proportion of sites within a subwatershed with three or more biological stressors per stream site (Ibid).

Methods

This study looked at various sites along Dodge Branch (Figure 1) in an attempt to assess the resource and look at potential management options from a fish, habitat, and watershed perspective. As a prelude to this project, continuous temperature loggers were placed at 6 sites in 2013 and programmed to take hourly water temperatures from June through October. These 6 sites were chosen to represent the upper section (STH 191, Brennan Road and CTH Y) which contains many coldwater tributaries, the middle segment (Sunny Ridge Road) which is designated as trout water, and lower reaches of the stream (Paulson Road and STH 191/CTH K) which are classified as warm water sport fish. Monthly water grab samples were collected at 6 sites during the “growing season”, May to October, 2014, and analyzed for total phosphorus. These sites represent the background conditions upstream of the Dodgeville waste water treatment plant (WWTP), immediately downstream of the treatment plant, and then various points downstream to capture potential source inputs from contributing subwatersheds.

The fisheries assemblage was determined by electroshocking a section of stream with a minimum station length of 35 times the mean stream width (Lyons, 1992) to a maximum of 400 meters. A stream tow barge with a generator and two probes was used at all sites. All fish were collected, identified, and counted. All gamefish were measured for length. The exception to this was for the 3 most downstream sites at Banner Road, Paulson Road, and the Hollandale WWTP in an effort to be consistent with the smallmouth bass sampling protocol conducted by fisheries management (Simonson, 2013). At these 3 sites, the typical 35x the mean stream width was shocked for all species. Fish Index of Biotic Integrity (IBI), species relative abundance and gamefish catch per effort (CPE) are estimated over this station length. The smallmouth bass (gamefish) assessment was then extended to a full 800 meters (0.5 mile) that targeted gamefish only. At each site, qualitative notes on average stream width and depth, riparian buffers and land use, evidence of sedimentation, fish cover and potential management options were also recorded. A qualitative habitat survey (Simonson, et. al., 1994) was also performed at each site.

Macroinvertebrate data collected via the 2010 watershed project (WDNR, 2013) was also reviewed.

Results

Five of the 6 temperature monitors were successfully retrieved. The unit at the uppermost site (STH 191 by Dodgeville) went missing. Temperature monitoring conducted in 2013 showed maximum water temperatures at or below 25°C at all sites. Maximum daily mean temperatures varied by site but ranged from 20.5 to 23°C (Appendix A). Water temperatures gradually increased from upstream to downstream, but generally remained in the cold to cool-cold transitional range (Lyons, et. al., 2009). Maximum daily mean water temperatures did climb slightly (0.1-0.3°C) above the cold-

cool transitional temperature of 22.5°C for several days at Paulson Road and at STH 191. Air temperature data for the summer 2013 was not considered “extreme” in that the average air temperature 30 days prior to any given sampling date was between the lower 10th and upper 90th percentiles (WDNR, 2014).

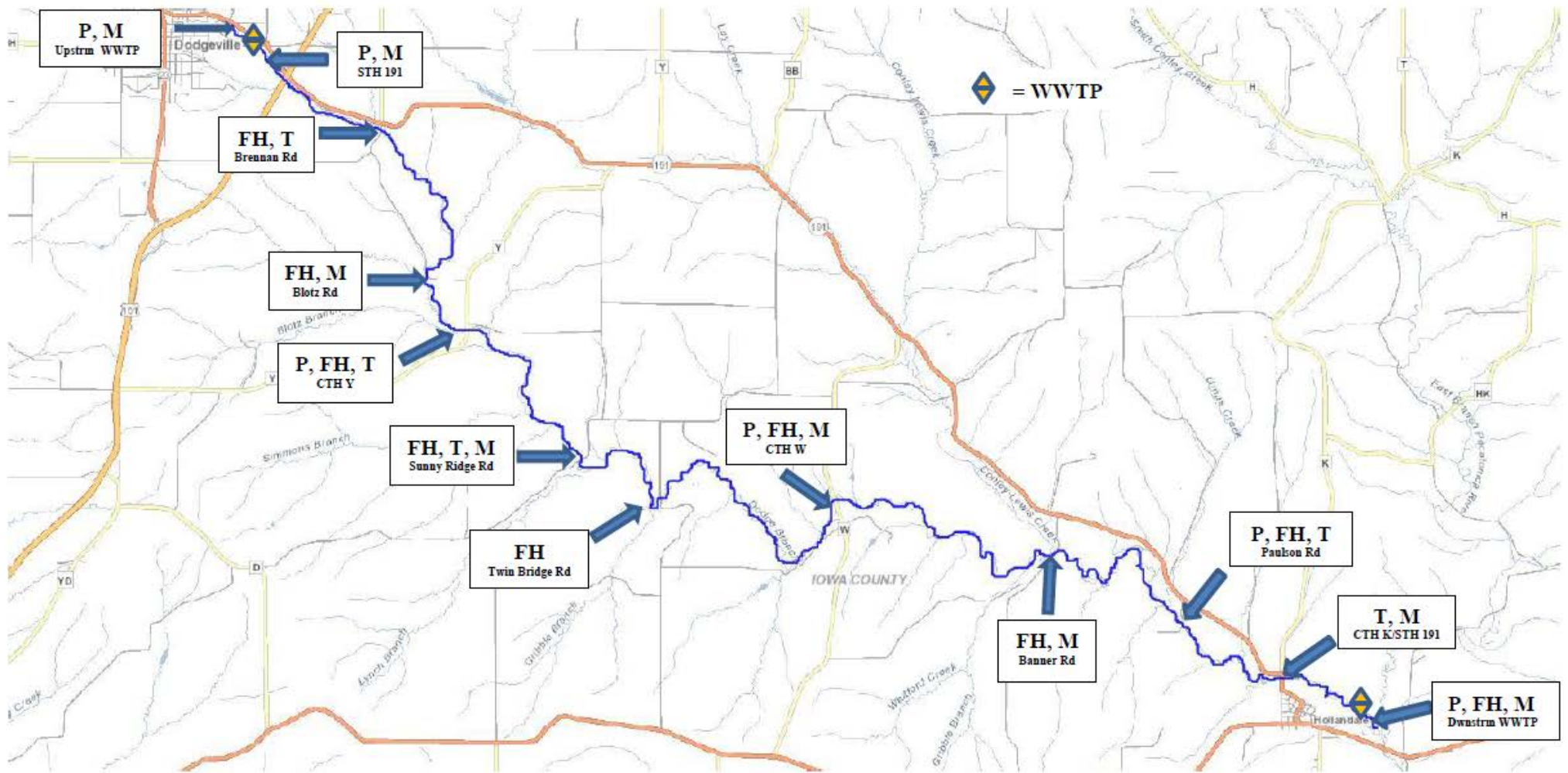
Fisheries data is summarized in Table 1. A total of 26 species were collected from the various sites in the survey. Common shiner, white sucker, and hornyhead chub were the most common species and found at all the sites. Creek chubs were also found at all the sites, but in lesser numbers. Brown trout were found at most sites, but in minimal numbers. Smallmouth bass were found at Twin Bridges Road and all sites downstream from there, but their abundance was also limited to several individuals at those sites. Because the natural communities model predicted the Dodge Branch to be either a cold-cool headwater or cold-cool mainstem (Lyons, 2008), the coolwater index of biotic integrity (IBI) (Lyons, 2012) was applied to each site. A validation process (Lyons, 2013) was also conducted on each site to determine if the fishery assemblage reflected the natural community model prediction. In all cases, the natural community model prediction was not validated, and the fishery community reflected either a warm or cool-warm mainstem system. Air temperature and precipitation for the sampling period was not considered “extreme” (WDNR, 2014).

Smallmouth bass and brown trout were the two gamefish species collected during this survey. Brown trout sizes ranged from young-of-the-year (2 inches) to 15.2 inches. Several year classes were present. Smallmouth bass ranged from 6.7 to 10.0 inches long. No young-of-the-year bass were found in this survey. Extending the length of the survey stations at Banner Road, Paulson Road, and the Hollandale WWTP to be consistent with the smallmouth bass protocol yielded only an additional 2-3 individuals per site, which was similar in number to the IBI portion of the survey. A full listing of the fisheries data can be found in Appendix B.

Qualitative habitat measures are found in Table 2 and ranged from 23 (poor) to 72 (good). The CTH Y site had the poorest habitat score while 3 sites (Brennan Road, Banner Road, and Paulson Road) had a score of 72 (good). Riparian buffer scores varied widely by site, as did bank erosion and riffle-to-riffle scores. Pool area was routinely fair with a few sites ranging into the good category. This was a similar case for the width-to-depth ratio. With the exception of the upper reach at Brennan Road, the average stream width was typically 7 to 9 meters. Fine sediment percentage scores were generally good while fish habitat varied from fair to excellent.

Water chemistry sampling showed the average total phosphorus concentration varied from 0.04 mg/l upstream of the Dodgeville WWTP to 0.21 mg/l immediately downstream from it. Likewise, the median phosphorus concentration varied from 0.03 and 0.17 mg/l at these same sites respectively (Table 3). The average and median phosphorus concentration tended to decrease as one moved further downstream with the lower ½ of the stream being very similar in total phosphorus concentration. The entire phosphorus data set can be found in Appendix C.

Figure 1: Sampling Sites on Dodge Branch



P = Phosphorus (2014); FH = Fish and Qualitative Habitat (2014); T = Temperature (2013); M = Macroinvertebrates (2010)

Table 1: Summary of Fisheries Data from Dodge Branch – 2014

Species	Dodge Branch Sites Fisheries IBI Sites								
	Brennan Rd	Blotz Rd	CTH Y	Sunny Ridge Rd	Twin Bridge Rd	CTH W	Banner Rd	Paulson Rd	Upstream Hollandale WWTP
<i>American Brook Lamprey</i>					2				
<i>Banded Darter</i>				1	1	2		2	11
<i>Bigmouth Shiner</i>				6	3				
<i>Blackside Darter</i>								6	6
<i>Bluntnose Minnow</i>		2	2	7	12	3	1	2	5
<i>Brassy Minnow</i>				2	4	13			
<i>Brook Stickleback</i>	2								
<i>Brown Trout</i> (Size range-inches)	7 (2-15.2)	8 (2-13.5)	4 (10.5-12.0)	3 (6.9-13.0)	7 (9.2 - 15.0)		3 (11.5-14.7)	2 (12.0-12.5)	
<i>Central Stoneroller</i>	48	2		1	4				
<i>Common Shiner</i>	252	296	61	100	179	201	100	83	43
<i>Creek Chub</i>	82	29	7	9	7	11	5	9	1
<i>Fantail Darter</i>			1	1			3	17	
<i>Fathead Minnow</i>	2								
<i>Green Sunfish</i>								1	
<i>Hornyhead Chub</i>	131	118	17	44	15	62	19	22	14
<i>Johnny Darter</i>	6	1		2	1	1		13	10
<i>Mottled Sculpin*</i>	12	1							
<i>Northern Hog Sucker</i>					2		1	4	2
<i>Shorthead Redhorse</i>			1		1	7	25	13	25
<i>Silver Redhorse</i>									5
<i>Smallmouth Bass</i> (Size range - in)					2 (6.7 - 6.9)	2 (7.0)	4 (6.8-10.0)	3 (7.1-8.5)	5 (7.2-8.0)
<i>Southern Redbelly Dace</i>	61	5		1		2			
<i>Spotfin Shiner</i>								4	2
<i>Stonecat</i>		4	1	1	8	3	9	5	3
<i>W. Blacknose Dace</i>	41	2							
<i>White Sucker</i>	4	81	65	91	95	108	63	60	57
Modelled Natural Community	CCHW	CCMS	CCMS	CCMS	CCMS	CCMS	CCMS	CCMS	CCMS
Verified?	No	No	No	No	No	No	No	No	No
Fisheries Natural Community	WMS	WMS	CWMS	CWMS	CWMS	CWMS	CWMS	CWMS	CWMS
Stenothermal Coldwater Species (*Mottled sculpin also intolerant)									
Tolerant Species									
Intolerant Species									
<i>Species names in italics indicate warmwater species</i>									

Table 3: Total Phosphorus Sampling in 2014

Site	Mean Total P (mg/L)	Median Total P (mg/l)
Upstream of Dodgeville WWTP	0.04	0.03
STH 191 (downstream Dodgeville WWTP)	0.21	0.17
CTH Y	0.12	0.09
CTH W	0.12	0.06
Paulson Road	0.11	0.06
Downstream of Hollandale WWTP	0.13	0.06

Discussion

As was mentioned in the introduction, Dodge Branch is listed on the state's 303(d) list of impaired waters because of habitat degradation caused by excessive sediment deposition. One of the objectives of this study was to (qualitatively) look at the habitat of the stream and determine if there are any management actions that could be taken to improve the system. It was also a chance to look at the landscape to see if better management practices could be put in place to reduce sediment delivery to the stream. Before this can be done, it is logical to determine the appropriate attainable use to ascertain the appropriate species for the system and to identify possible factors limiting the stream from reaching its attainable use.

Temperature monitoring conducted in 2013 showed that cold water temperatures (Lyons, et. al., 2009) were maintained only at the Brennan Road site, while other sites ranged into the cold-cool regime. Mottled sculpin, a stenothermal coldwater indicator species, were found only at the two most upstream sampled sites – Brennan Road and Blotz Road – and only in modest numbers. In fact, based on the draft verification process (Lyons, 2013), the fishery assemblage at Brennan and Blotz Roads more closely resembles a warm water fishery than a cold one. With the exception of brown trout, no other coldwater indicator species were found at any other sites further downstream. Fish at the other sites represent a cool-warm thermal regime as opposed to the cold-cool modelled community. Overall, warmwater species made up the majority (52-78%) of the fishery assemblage at all sites, with transitional species making up another one-third of the fish present. Common shiners and hornyhead chubs, both warm water indicator species, were predominant species at most sites. White suckers, a tolerant transitional species, were also common at most sites. Fishery data collected on Dodge Branch as part of the 2010 watershed study also found the species tended more toward a cool-warm or warm thermal regime (WDNR, 2013).

The discrepancy between the temperature data and the fishery community can happen for several reasons: either the year of the thermal measurement wasn't representative of the long-term average, the modeled thermal values were inaccurate, or both (Lyons, personal communication). In this case, air temperatures during the 2013 "summer" season over which the thermistors were deployed were not considered abnormal. The fishery assemblage encountered in 2014 is similar to that found in other years dating back to 2001 (WDNR, unpublished data), and therefore can also be considered representative of the stream. The fishery is a long-term gauge of conditions in the stream and is therefore

most important for bioassessment. That’s not to say measured water temperatures aren’t useful, but for natural community determination and IBI purposes, and in the absence of moderate to severe environmental perturbation, the fishery assemblage trumps water temperature data (Lyons, personal communication).

Based on this, when one assumes the appropriate attainable use for Dodge Branch is a cool-warm mainstem, the questions then become: Is Dodge Branch meeting its full attainable use in all segments? Is habitat impairment and/or water quality an issue in this system? What are the options for resource and fisheries management?

The species assemblage indicates that degraded habitat and water quality are likely not strong factors influencing the fishery. The stream contains multiple lithophilic species and there are multiple intolerant species present throughout the system. Tolerant species, a possible indicator of environmental perturbation, were present, but only in moderate amounts. According to the draft process for natural community validation (Lyons, 2013), the number of tolerant species do not indicate that environmental degradation is a strong reason for the disparity between the modeled natural community and the community indicated by the fishery assemblage. The cool IBIs show the system to be healthy, with scores and rankings for most sites in the excellent range for both the cold-cool and cool-warm IBIs (Table 4). The exception was at CTH Y where the cool IBI was “good”. This may be reflecting the “poor” habitat rating at this site.

Dodge Branch is managed as a Class II trout water from CTH Y downstream to CTH W. Even though the daily mean temperatures in this section rise above the cold water threshold, they remain cool enough to be appropriate for survival of brown trout (Becker, 1983). For this reason, the coldwater IBI (Lyons, et. al. 1996) was also analyzed. Not surprisingly it showed all sites to be “very poor” to “poor” as all sites lack populations of coldwater species such as trout and mottled sculpin.

Table 4: Coolwater IBIs for Dodge Branch

Site	Cold-Cool IBI score (rank)	Cool-Warm IBI score (rank)
Brennan Road	90 (Excellent)	90 (Excellent)
Blotz Road	90 (Excellent)	90 (Excellent)
CTH Y	60 (Good)	50 (Good)
Sunny Ridge Road	80 (Excellent)	80 (Excellent)
Twin Bridge Road	100 (Excellent)	90 (Excellent)
CTH W	90 (Excellent)	90 (Excellent)
Banner Road	100 (Excellent)	80 (Excellent)
Paulson Road	100 (Excellent)	90 (Excellent)
Hollandale WWTP	100 (Excellent)	90 (Excellent)

Phosphorus sampling conducted according to the department’s protocol (WDNR, 2014) showed median levels of total phosphorus to be below the impaired listing threshold of 0.075 mg/l at 4 of the 6 sites. The exceptions were the site immediately downstream of the Dodgeville WWTP – a known source of phosphorus, where the median concentration was 0.17 mg/l, and 5 km downstream at CTH Y. However, even at CTH Y, the median

phosphorus concentration was considerably less, 0.09 mg/l, likely owing to dilution. This differed from the 2010 pilot project survey (WDNR, 2013) where 5 of the 8 sites sampled exceeded the listing criteria (Appendix C2). However, it should be noted this 2010 sampling was not conducted according to WisCALM protocol (WDNR, 2014) requiring 1 sample in each of the 6 growing season months from May to October. This sampling only occurred from August to October. It also occurred immediately following a habitat rehabilitation project just upstream of Banner Road. This disturbance may have enhanced total phosphorus concentrations at those two sites.

Macroinvertebrate data was collected in 2010 as part of the watershed project. The samples were analyzed for macroinvertebrate IBI (Weigel, 2003) and Hilsenhoff Biotic Index (HBI) (Hilsenhoff, 1987). Only 1 headwater sample of the macroinvertebrate IBIs from samples taken during the 2010 pilot project survey indicated a “poor” rating (Table 5). This site is immediately downstream of the WWTP outfall. A 2012 sample taken for other reasons yielded similar results. Other sites downstream showed fair to good IBIs. The HBI’s ranged from fair to very good, with better quality trending as one proceeds from upstream to downstream.

Table 5: Macroinvertebrate Data for Dodge Branch (from 2010 Watershed Study)

Site	River Mile (from Mouth)	IBI (Rating)	HBI (Rating)
Upstream of WWTP	21.8	2.7 (Fair)	5.7 (Fair)
STH 191 (2010)	21.4	1.2 (Poor)	5.67 (Fair)
STH 191 (2012)	21.4	-1.08 (Poor)	6.05 (Fair)
Blotz Road	17.7	3.72 (Fair)	4.64 (Good)
Sunny Ridge Rd	14.4	5.62 (Good)	6.47 (Fair)
Below Jonesdale (downstream of CTH W)	9.0	4.73 (Fair)	5.11 (Good)
At Whitford Crk (upstream of Banner Rd)	6.5	3.86 (Fair)	5.21 (Good)
Dwnstream of Banner Rd	6.0	3.24 (Fair)	4.6 (Good)
Dwnstream of Banner Rd (replicate)	6.0	5.48 (Good)	3.93 (V. Good)
CTH K	1.7	4.20 (Fair)	3.98 (V. good)
1 km upstream of E. Br. Pecatonica	0.6	5.23 (Good)	4.44 (V. Good)

The macroinvertebrate IBI (MIBI) has shown the combination of watershed land cover and local riparian and instream conditions strongly influence one another (Weigel, 2003). While watershed and local variables explain a significant portion of variance among sites, Weigel found that in the driftless region, localized stressors were of greater importance to explain the IBI than in other parts of the state. Livestock grazing measured disturbance intensity and indicated its proximity to the stream. The modest macroinvertebrate scores are likely a reflection of the agricultural intensity within the watershed, and particularly the localized riparian grazing and streambank instability.

In short, the fishery community suggests the stream is meeting its attainable use. The phosphorus data shows the Dodge Branch has issues related to point source input at its headwaters, but this effect is mitigated as one travels downstream and that nonpoint inputs do not appreciably increase phosphorus concentration. Macroinvertebrate data

indicates a system that is impaired in the headwaters downstream of Dodgeville, likely due to point source (wastewater) and nonpoint source (stormwater runoff) inputs. The modest macroinvertebrate scores and ratings throughout the stream further suggest a system that is impacted, but has not yet reached impaired status.

The lack of “poor” ratings in the biologic and habitat measures should not be used to suggest that there are not environmental issues influencing the health of the biotic community or that there cannot be improvements to environmental quality. The macroinvertebrate data and specific metrics of the qualitative habitat measure – those measures which are consistently below the “good” level - indicate that there are stressors on the system. The MIBI scores (and HBI in the upper half of the system) would seem to indicate there is a fair amount of localized stress on these systems – likely from intensive riparian grazing - leading to potential depression of the macroinvertebrate community. From a habitat perspective, bank erosion was consistently the lowest score and generally corresponded to the width of the riparian buffer and grazing in particular. Deep pools were typically scarce. Fish cover scores were only “fair” in the middle four Dodge Branch stations between and CTH Y and Banner Road, with biologists noting the lack of habitat as part of their observations. The high width to depth ratio, and its associated lower ranking, indicates that the stream is now unnaturally wide and shallow, likely due to the historic and current agricultural practices in the riparian corridor.

Is this reflected by the depauperate gamefish community - namely brown trout and smallmouth bass? The data does not clearly answer this question. Their populations have always been modest at best, with numbers typically ranging from a half dozen to dozen specimens in both historic and more current surveys. Currently, the Dodge Branch does not support a fishable population of brown trout or smallmouth bass. For all sites which held smallmouth bass, the mean catch per effort was 12.4 bass per mile. The mean catch per effort for brown trout was 19.6 per mile. Similar streams in the area will support between 30 and 80 smallmouth bass per mile and 60 to 150 brown trout per mile. Considering that 1200-1500 trout are stocked annually in Dodge Branch, the returns are very low. Of the smallmouth bass captured, most are in the 6 to 10 inch range with fish larger than that a rarity. Even in areas of Dodge Branch where the habitat and fish cover was considered good such as at Banner and Paulson Road, gamefish returns did not reflect the better habitat.

Smallmouth bass populations tend to thrive in warm water streams dominated with rock substrate with ample pools and deeper runs available. Habitat surveys showed pools are uncommon, deep runs are scarce and the availability of rock substrate is limited to isolated areas. These shortcomings are not easily overcome and therefore the potential for the Dodge Branch to support a fishable smallmouth bass population in its entirety is likely to be low.

In an interesting juxtaposition, while the fish assemblage is more similar to that of a southwestern Wisconsin smallmouth bass stream than that of a trout stream, brown trout seem to be expanding their range within the Dodge Branch - albeit in low numbers. Dodge Branch does show possible signs of establishing a low density, fishable brown

trout population particularly within its upper reaches. The most brown trout were found at Brennan and Blotz Road – upstream of the designated trout area, and there was even some evidence of natural reproduction. The Dodge Branch is on a 3 year sampling rotation. Stocking of brown trout should continue until 2017. If there is no continued positive response found in the 2017 sample, discontinuing the stocking of brown trout should strongly be considered. Habitat degradation was listed as the primary impairment of the Dodge Branch. In 2009/10 the Wisconsin Department of Natural Resources completed 2,500 feet of habitat work at Banner Road. An additional 2,000 to 2,500 feet of habitat work was completed in 2011/12 by the Natural Resources Conservation Service in cooperation with a private land owner approximately 0.75 miles downstream of CTH W. Before future habitat projects are considered, evaluation of the current projects for gamefish population response should be completed. Initial results from the Banner Road project show no significant increase in the game fish populations post habitat work.

Summary

Overall, Dodge Branch appears to be meeting its attainable use from a fishery standpoint at most locations. While temperatures indicate a cool-cold thermal regime, the fishery community more similarly reflects a cool-warm community. The possibility of enhancing the game fishery for brown trout and smallmouth bass is unknown. While water temperatures are tolerable for brown trout, it may not be ideal for a sustainable, fishable population. Future monitoring should look at possible establishment of a trout fishery in the upper Dodge Branch where water temperatures may be more favorable. It is very likely smallmouth bass will continue to be present only in low numbers, especially in the absence of major habitat manipulation. Even then, the success at establishing larger smallmouth bass populations through this type of work is uncertain. Further monitoring of the fishery response to the habitat work that has been installed should be conducted.

Dodge Branch also appears to be meeting the criteria established for phosphorus (WDNR, 2014) at most stations. The Dodgeville WWTP does impact water quality and potentially certain aspects of the biological community, namely macroinvertebrates, in the upper several miles of the stream. There could also be other disturbances related to urban runoff. These effects appear to be mitigated as one moves downstream.

It should be recognized that agricultural practices such as contour strips and row cropping have changed to reduce soil and nutrient loss. This may be in part responsible for a biotic community that is impacted, but not considered impaired. Prior to the widespread implementation of conservation practices, severe erosion resulted in sediment deposits several feet thick in the riparian corridor. These deposits of post-settlement sediments are highly erosive during high stream flows corresponding to precipitation and runoff events. Lack of buffers and intense riparian grazing continue to be the major issue and unstable, steep banks continue to add sediments to the stream during high flow events. As a result, the stream system is very unstable, overly wide and shallow, and projected to remain so unless a major streambank stabilization effort is implemented. While most sections of Dodge Branch are currently meeting their attainable use from a fishery standpoint, resource managers should endeavor to maintain or enhance the status of the watershed

and riparian corridor and ensure the biotic community does not degrade to an impaired status.

Recommendations

Fisheries should continue to evaluate the gamefish potential of Dodge Branch through 2018. At that time management decisions can be made regarding continued stocking of brown trout and/or habitat improvements for both brown trout and smallmouth bass.

Impasses to fish migration should be noted, mapped and corrected in conjunction with projects conducted by the Department of Transportation. Impasses on private property should be addressed in efforts to improve fishery habitat.

Dodge Branch should be considered as impaired for total phosphorus from the Dodgeville wastewater treatment plant down to CTH Y.

While overall habitat scores are moderate, bank erosion continues to be a major issue along the length of Dodge Branch. Therefore the impairment status which currently exists for the entire length of stream should remain at this time.

Opportunities exist to improve and protect the health of the stream. The “Southwest Wisconsin Grassland and Stream Conservation Area Report” (Thrall, 2013) outlined specific measures to improve the water quality and overall health of the stream. These measures include:

- Organize a team of agencies and groups interested in the Dodge Branch.
- Inventory potential hotspots of sediment and phosphorus runoff, streambanks with excessive erosion, and pastures that are in need of improved management.
- Contact landowners on a one-on-one basis to get feedback from them. Provide the right technical assistance to design plans to improve land management while preserving a sustainable agricultural economy, and provide funding opportunities to implement the plans.
- Work with the city of Dodgeville to help them implement stormwater runoff management plans.
- Work with the two municipal wastewater treatment plants regarding potential use of adaptive management strategies to meet output goals.
- Evaluate sites that have the best potential for warmwater and coldwater habitat preservation and improvement and obtain easements/purchase on fish project areas if fisheries management determines a sustainable game fishery is viable.

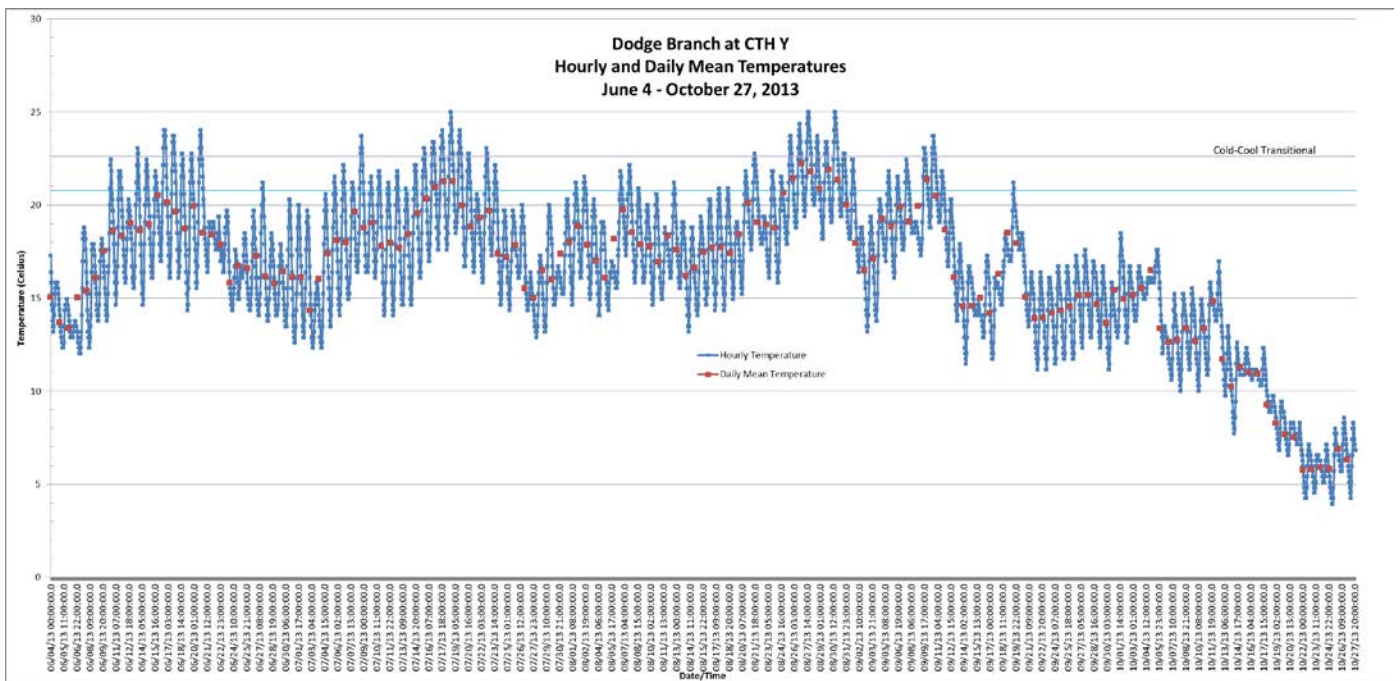
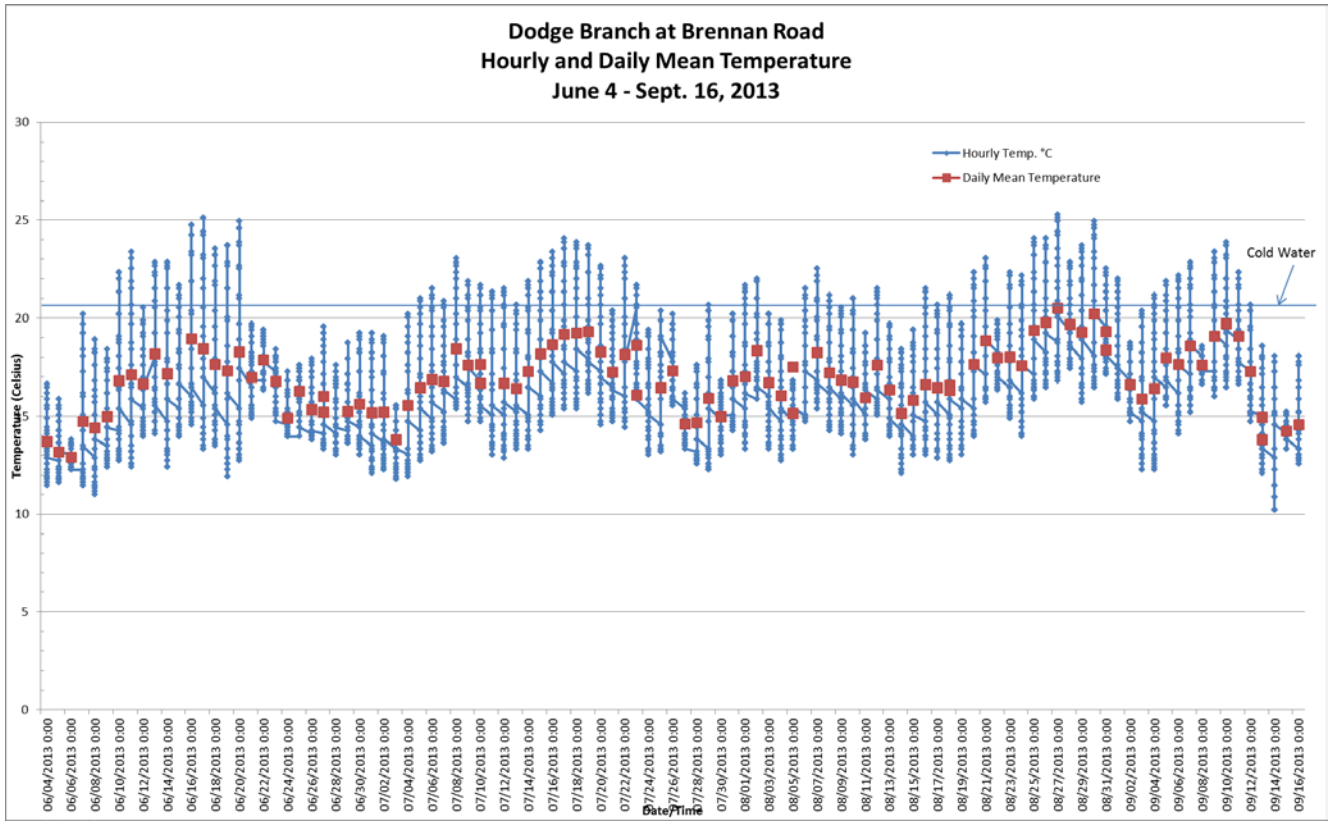
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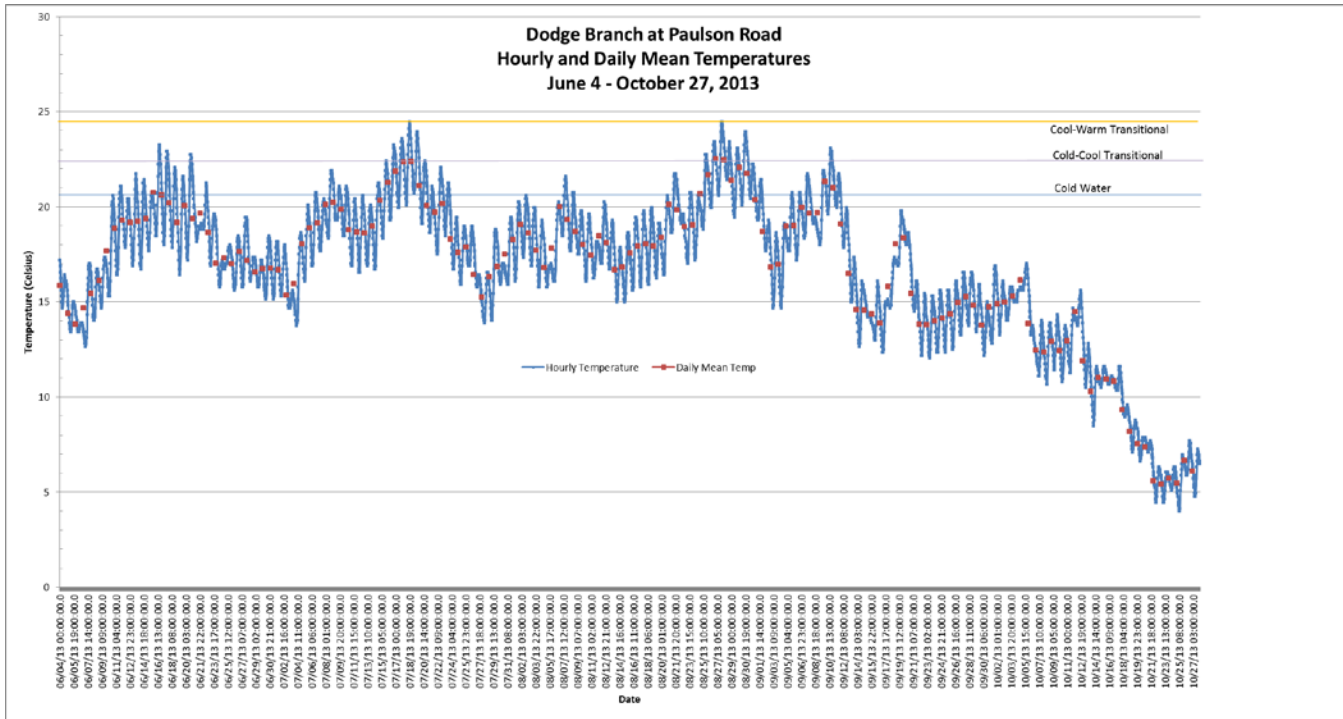
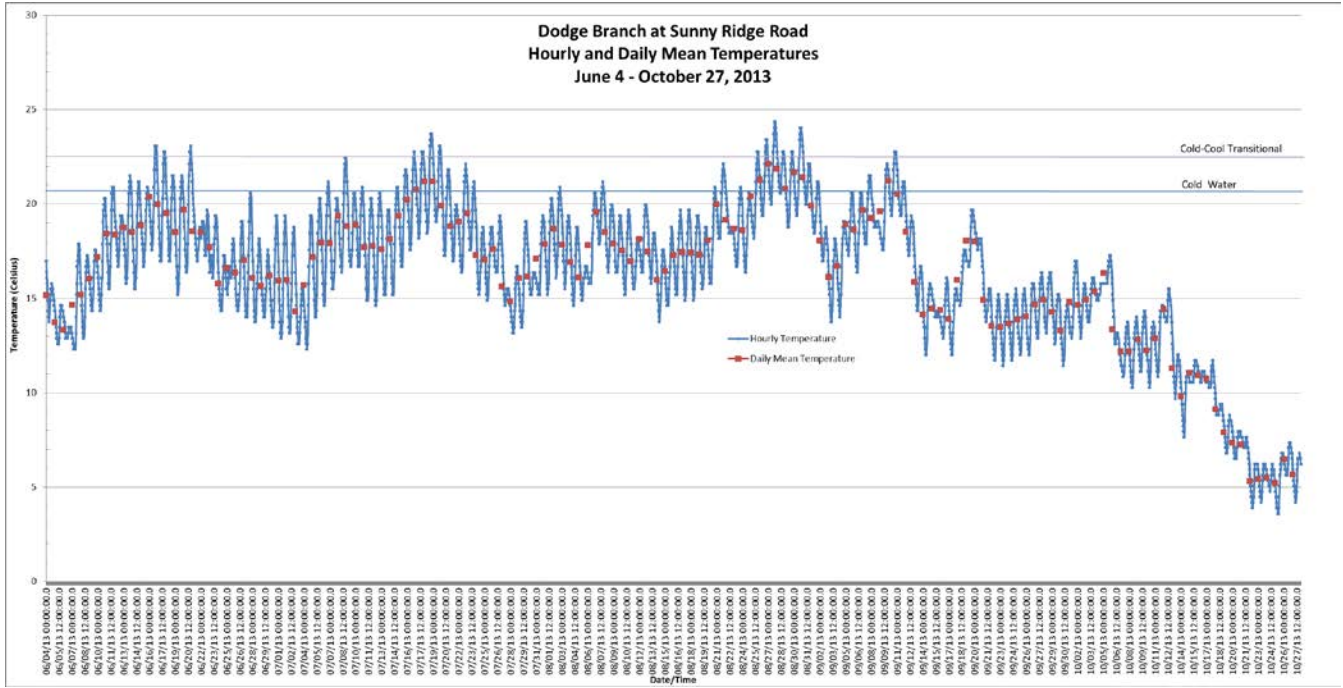
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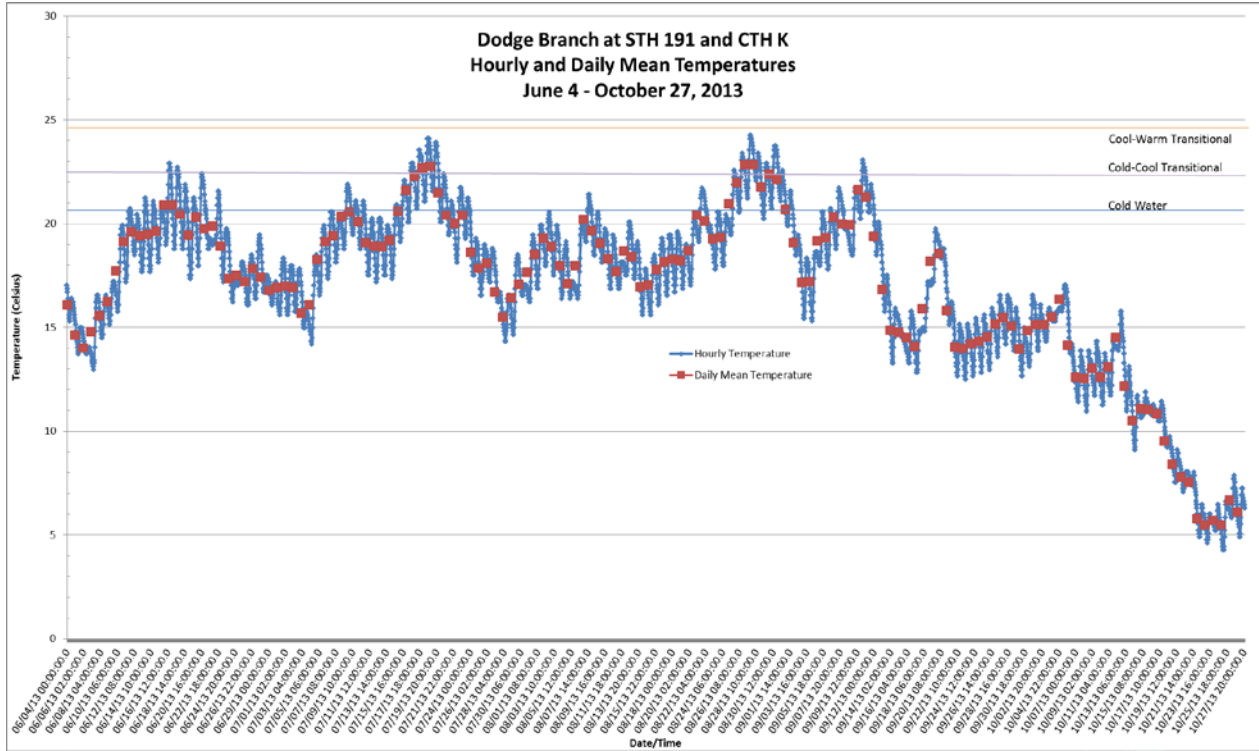
Appendix A: 2013 Continuous Temperature Monitoring Data for Dodge Branch



Appendix A: (continued)



Appendix A: (continued)



Appendix B: Fisheries Data for Sites on Dodge Branch – 2014

Station Name	Sample Date	Target Species	Species	Number of Fish	Length (Inches)
DODGE BR - 100M DOWNSTREAM PAULSON ROAD	07-Aug-14	ALL SPECIES	WHITE SUCKER	60	
DODGE BR - 100M DOWNSTREAM PAULSON ROAD	07-Aug-14	ALL SPECIES	SHORTHEAD REDHORSE	13	
DODGE BR - 100M DOWNSTREAM PAULSON ROAD	07-Aug-14	ALL SPECIES	BANDED DARTER	2	
DODGE BR - 100M DOWNSTREAM PAULSON ROAD	07-Aug-14	ALL SPECIES	BLACKSIDE DARTER	6	
DODGE BR - 100M DOWNSTREAM PAULSON ROAD	07-Aug-14	ALL SPECIES	JOHNNY DARTER	13	
DODGE BR - 100M DOWNSTREAM PAULSON ROAD	07-Aug-14	ALL SPECIES	FANTAIL DARTER	17	
DODGE BR - 100M DOWNSTREAM PAULSON ROAD	07-Aug-14	ALL SPECIES	NORTHERN HOG SUCKER	4	
DODGE BR - 100M DOWNSTREAM PAULSON ROAD	07-Aug-14	ALL SPECIES	CREEK CHUB	9	
DODGE BR - 100M DOWNSTREAM PAULSON ROAD	07-Aug-14	ALL SPECIES	HORNYHEAD CHUB	22	
DODGE BR - 100M DOWNSTREAM PAULSON ROAD	07-Aug-14	ALL SPECIES	COMMON SHINER	83	
DODGE BR - 100M DOWNSTREAM PAULSON ROAD	07-Aug-14	ALL SPECIES	STONECAT	5	
DODGE BR - 100M DOWNSTREAM PAULSON ROAD	07-Aug-14	ALL SPECIES	BLUNTNOSE MINNOW	2	
DODGE BR - 100M DOWNSTREAM PAULSON ROAD	07-Aug-14	ALL SPECIES	SPOTFIN SHINER	4	
DODGE BR - 100M DOWNSTREAM PAULSON ROAD	07-Aug-14	ALL SPECIES	GREEN SUNFISH	1	
DODGE BR - 100M DOWNSTREAM PAULSON ROAD	07-Aug-14	ALL SPECIES	SMALLMOUTH BASS	1	7.1
DODGE BR - 100M DOWNSTREAM PAULSON ROAD	07-Aug-14	ALL SPECIES	SMALLMOUTH BASS	1	8
DODGE BR - 100M DOWNSTREAM PAULSON ROAD	07-Aug-14	ALL SPECIES	SMALLMOUTH BASS	1	8.5
DODGE BR - 100M DOWNSTREAM PAULSON ROAD	07-Aug-14	ALL SPECIES	BROWN TROUT	1	12.5
DODGE BR - 100M DOWNSTREAM PAULSON ROAD	07-Aug-14	ALL SPECIES	BROWN TROUT	1	12
DODGE BR - 100M DOWNSTREAM PAULSON ROAD	07-Aug-14	GAMEFISH SPECIES	SMALLMOUTH BASS	1	9.4
DODGE BR - 100M DOWNSTREAM PAULSON ROAD	07-Aug-14	GAMEFISH SPECIES	BROWN TROUT	1	14.1
DODGE BR - 50M UPSTREAM OF BANNER ROAD	04-Aug-14	ALL SPECIES	WHITE SUCKER	63	
DODGE BR - 50M UPSTREAM OF BANNER ROAD	04-Aug-14	ALL SPECIES	SHORTHEAD REDHORSE	25	
DODGE BR - 50M UPSTREAM OF BANNER ROAD	04-Aug-14	ALL SPECIES	NORTHERN HOG SUCKER	1	
DODGE BR - 50M UPSTREAM OF BANNER ROAD	04-Aug-14	ALL SPECIES	COMMON SHINER	100	
DODGE BR - 50M UPSTREAM OF BANNER ROAD	04-Aug-14	ALL SPECIES	HORNYHEAD CHUB	19	
DODGE BR - 50M UPSTREAM OF BANNER ROAD	04-Aug-14	ALL SPECIES	STONECAT	9	
DODGE BR - 50M UPSTREAM OF BANNER ROAD	04-Aug-14	ALL SPECIES	CREEK CHUB	5	
DODGE BR - 50M UPSTREAM OF BANNER ROAD	04-Aug-14	ALL SPECIES	BLUNTNOSE MINNOW	1	
DODGE BR - 50M UPSTREAM OF BANNER ROAD	04-Aug-14	ALL SPECIES	FANTAIL DARTER	3	
DODGE BR - 50M UPSTREAM OF BANNER ROAD	04-Aug-14	ALL SPECIES	BROWN TROUT	1	14.7
DODGE BR - 50M UPSTREAM OF BANNER ROAD	04-Aug-14	ALL SPECIES	BROWN TROUT	1	14.1
DODGE BR - 50M UPSTREAM OF BANNER ROAD	04-Aug-14	ALL SPECIES	BROWN TROUT	1	11.5
DODGE BR - 50M UPSTREAM OF BANNER ROAD	04-Aug-14	ALL SPECIES	SMALLMOUTH BASS	1	7.2
DODGE BR - 50M UPSTREAM OF BANNER ROAD	04-Aug-14	ALL SPECIES	SMALLMOUTH BASS	1	7.4
DODGE BR - 50M UPSTREAM OF BANNER ROAD	04-Aug-14	ALL SPECIES	SMALLMOUTH BASS	1	10
DODGE BR - 50M UPSTREAM OF BANNER ROAD	04-Aug-14	ALL SPECIES	SMALLMOUTH BASS	1	6.8
DODGE BR - 50M UPSTREAM OF BANNER ROAD	04-Aug-14	GAMEFISH SPECIES	SMALLMOUTH BASS	1	8.4
DODGE BR - 50M UPSTREAM OF BANNER ROAD	04-Aug-14	GAMEFISH SPECIES	SMALLMOUTH BASS	1	7.2
DODGE BR - 50M UPSTREAM OF BANNER ROAD	04-Aug-14	GAMEFISH SPECIES	BROWN TROUT	1	13.5
DODGE BRANCH - CTH Y	10-Jun-14	ALL SPECIES	WHITE SUCKER	65	
DODGE BRANCH - CTH Y	10-Jun-14	ALL SPECIES	COMMON SHINER	61	
DODGE BRANCH - CTH Y	10-Jun-14	ALL SPECIES	SHORTHEAD REDHORSE	1	
DODGE BRANCH - CTH Y	10-Jun-14	ALL SPECIES	CREEK CHUB	7	
DODGE BRANCH - CTH Y	10-Jun-14	ALL SPECIES	HORNYHEAD CHUB	17	
DODGE BRANCH - CTH Y	10-Jun-14	ALL SPECIES	STONECAT	1	
DODGE BRANCH - CTH Y	10-Jun-14	ALL SPECIES	BLUNTNOSE MINNOW	2	
DODGE BRANCH - CTH Y	10-Jun-14	ALL SPECIES	FANTAIL DARTER	1	
DODGE BRANCH - CTH Y	10-Jun-14	ALL SPECIES	BROWN TROUT	1	12
DODGE BRANCH - CTH Y	10-Jun-14	ALL SPECIES	BROWN TROUT	1	11.5
DODGE BRANCH - CTH Y	10-Jun-14	ALL SPECIES	BROWN TROUT	1	12
DODGE BRANCH - CTH Y	10-Jun-14	ALL SPECIES	BROWN TROUT	1	10.5
DODGE BRANCH - HOLLANDALE STP	04-Aug-14	ALL SPECIES	WHITE SUCKER	57	
DODGE BRANCH - HOLLANDALE STP	04-Aug-14	ALL SPECIES	HORNYHEAD CHUB	14	
DODGE BRANCH - HOLLANDALE STP	04-Aug-14	ALL SPECIES	SHORTHEAD REDHORSE	25	
DODGE BRANCH - HOLLANDALE STP	04-Aug-14	ALL SPECIES	BLUNTNOSE MINNOW	5	
DODGE BRANCH - HOLLANDALE STP	04-Aug-14	ALL SPECIES	SILVER REDHORSE	5	
DODGE BRANCH - HOLLANDALE STP	04-Aug-14	ALL SPECIES	STONECAT	3	
DODGE BRANCH - HOLLANDALE STP	04-Aug-14	ALL SPECIES	NORTHERN HOG SUCKER	2	
DODGE BRANCH - HOLLANDALE STP	04-Aug-14	ALL SPECIES	COMMON SHINER	43	
DODGE BRANCH - HOLLANDALE STP	04-Aug-14	ALL SPECIES	SPOTFIN SHINER	2	
DODGE BRANCH - HOLLANDALE STP	04-Aug-14	ALL SPECIES	CREEK CHUB	11	
DODGE BRANCH - HOLLANDALE STP	04-Aug-14	ALL SPECIES	BANDED DARTER	11	
DODGE BRANCH - HOLLANDALE STP	04-Aug-14	ALL SPECIES	BLACKSIDE DARTER	6	
DODGE BRANCH - HOLLANDALE STP	04-Aug-14	ALL SPECIES	JOHNNY DARTER	10	
DODGE BRANCH - HOLLANDALE STP	04-Aug-14	ALL SPECIES	SMALLMOUTH BASS	1	7.4
DODGE BRANCH - HOLLANDALE STP	04-Aug-14	ALL SPECIES	SMALLMOUTH BASS	1	7.2
DODGE BRANCH - HOLLANDALE STP	04-Aug-14	ALL SPECIES	SMALLMOUTH BASS	2	7.8
DODGE BRANCH - HOLLANDALE STP	04-Aug-14	ALL SPECIES	SMALLMOUTH BASS	1	8
DODGE BRANCH - HOLLANDALE STP	04-Aug-14	GAMEFISH SPECIES	SMALLMOUTH BASS	1	7.3
DODGE BRANCH - HOLLANDALE STP	04-Aug-14	GAMEFISH SPECIES	SMALLMOUTH BASS	1	8.3

Appendix B: (continued)

Station Name	Sample Date	Target Species	Species	Number of Fish	Length (Inches)
DODGE BRANCH - Brennan Rd	10-Jun-14	ALL SPECIES	WHITE SUCKER	4	
DODGE BRANCH - Brennan Rd	10-Jun-14	ALL SPECIES	CREEK CHUB	82	
DODGE BRANCH - Brennan Rd	10-Jun-14	ALL SPECIES	HORNYHEAD CHUB	131	
DODGE BRANCH - Brennan Rd	10-Jun-14	ALL SPECIES	COMMON SHINER	252	
DODGE BRANCH - Brennan Rd	10-Jun-14	ALL SPECIES	WESTERN BLACKNOSE DACE	41	
DODGE BRANCH - Brennan Rd	10-Jun-14	ALL SPECIES	BROWN TROUT	1	2
DODGE BRANCH - Brennan Rd	10-Jun-14	ALL SPECIES	BROWN TROUT	1	7.8
DODGE BRANCH - Brennan Rd	10-Jun-14	ALL SPECIES	BROWN TROUT	1	15.2
DODGE BRANCH - Brennan Rd	10-Jun-14	ALL SPECIES	BROWN TROUT	1	11.7
DODGE BRANCH - Brennan Rd	10-Jun-14	ALL SPECIES	BROWN TROUT	1	12.3
DODGE BRANCH - Brennan Rd	10-Jun-14	ALL SPECIES	BROWN TROUT	1	12.5
DODGE BRANCH - Brennan Rd	10-Jun-14	ALL SPECIES	BROWN TROUT	1	7.1
DODGE BRANCH - Brennan Rd	10-Jun-14	ALL SPECIES	SOUTHERN REDBELLY DACE	61	
DODGE BRANCH - Brennan Rd	10-Jun-14	ALL SPECIES	MOTTLED SCULPIN	12	
DODGE BRANCH - Brennan Rd	10-Jun-14	ALL SPECIES	CENTRAL STONEROLLER	48	
DODGE BRANCH - Brennan Rd	10-Jun-14	ALL SPECIES	JOHNNY DARTER	6	
DODGE BRANCH - Brennan Rd	10-Jun-14	ALL SPECIES	BROOK STICKLEBACK	2	
DODGE BRANCH - Brennan Rd	10-Jun-14	ALL SPECIES	FATHEAD MINNOW	2	
DODGE BRANCH AT CTY W BRIDGE	11-Jun-14	ALL SPECIES	WHITE SUCKER	108	
DODGE BRANCH AT CTY W BRIDGE	11-Jun-14	ALL SPECIES	COMMON SHINER	201	
DODGE BRANCH AT CTY W BRIDGE	11-Jun-14	ALL SPECIES	JOHNNY DARTER	1	
DODGE BRANCH AT CTY W BRIDGE	11-Jun-14	ALL SPECIES	HORNYHEAD CHUB	62	
DODGE BRANCH AT CTY W BRIDGE	11-Jun-14	ALL SPECIES	BRASSY MINNOW	13	
DODGE BRANCH AT CTY W BRIDGE	11-Jun-14	ALL SPECIES	STONECAT	3	
DODGE BRANCH AT CTY W BRIDGE	11-Jun-14	ALL SPECIES	BANDED DARTER	2	
DODGE BRANCH AT CTY W BRIDGE	11-Jun-14	ALL SPECIES	BLUNTNOSE MINNOW	3	
DODGE BRANCH AT CTY W BRIDGE	11-Jun-14	ALL SPECIES	CREEK CHUB	11	
DODGE BRANCH AT CTY W BRIDGE	11-Jun-14	ALL SPECIES	SHORHEAD REDHORSE	7	
DODGE BRANCH AT CTY W BRIDGE	11-Jun-14	ALL SPECIES	SOUTHERN REDBELLY DACE	2	
DODGE BRANCH AT CTY W BRIDGE	11-Jun-14	ALL SPECIES	SMALLMOUTH BASS	1	7
DODGE BRANCH AT CTY W BRIDGE	11-Jun-14	ALL SPECIES	SMALLMOUTH BASS	1	7
DODGE BRANCH AT SUNNY RIDGE RD.	11-Jun-14	ALL SPECIES	WHITE SUCKER	91	
DODGE BRANCH AT SUNNY RIDGE RD.	11-Jun-14	ALL SPECIES	COMMON SHINER	100	
DODGE BRANCH AT SUNNY RIDGE RD.	11-Jun-14	ALL SPECIES	HORNYHEAD CHUB	44	
DODGE BRANCH AT SUNNY RIDGE RD.	11-Jun-14	ALL SPECIES	CENTRAL STONEROLLER	1	
DODGE BRANCH AT SUNNY RIDGE RD.	11-Jun-14	ALL SPECIES	BLUNTNOSE MINNOW	7	
DODGE BRANCH AT SUNNY RIDGE RD.	11-Jun-14	ALL SPECIES	CREEK CHUB	9	
DODGE BRANCH AT SUNNY RIDGE RD.	11-Jun-14	ALL SPECIES	BIGMOUTH SHINER	6	
DODGE BRANCH AT SUNNY RIDGE RD.	11-Jun-14	ALL SPECIES	STONECAT	1	
DODGE BRANCH AT SUNNY RIDGE RD.	11-Jun-14	ALL SPECIES	BRASSY MINNOW	2	
DODGE BRANCH AT SUNNY RIDGE RD.	11-Jun-14	ALL SPECIES	SOUTHERN REDBELLY DACE	1	
DODGE BRANCH AT SUNNY RIDGE RD.	11-Jun-14	ALL SPECIES	BANDED DARTER	1	
DODGE BRANCH AT SUNNY RIDGE RD.	11-Jun-14	ALL SPECIES	FANTAIL DARTER	1	
DODGE BRANCH AT SUNNY RIDGE RD.	11-Jun-14	ALL SPECIES	JOHNNY DARTER	2	
DODGE BRANCH AT SUNNY RIDGE RD.	11-Jun-14	ALL SPECIES	BROWN TROUT	1	13
DODGE BRANCH AT SUNNY RIDGE RD.	11-Jun-14	ALL SPECIES	BROWN TROUT	1	11.9
DODGE BRANCH AT SUNNY RIDGE RD.	11-Jun-14	ALL SPECIES	BROWN TROUT	1	6.9
DODGE BRANCH AT TWIN BRIDGE RD	11-Jun-14	ALL SPECIES	WHITE SUCKER	80	
DODGE BRANCH AT TWIN BRIDGE RD	11-Jun-14	ALL SPECIES	WHITE SUCKER	15 (YOY)	
DODGE BRANCH AT TWIN BRIDGE RD	11-Jun-14	ALL SPECIES	JOHNNY DARTER	1	
DODGE BRANCH AT TWIN BRIDGE RD	11-Jun-14	ALL SPECIES	HORNYHEAD CHUB	15	
DODGE BRANCH AT TWIN BRIDGE RD	11-Jun-14	ALL SPECIES	NORTHERN HOG SUCKER	2	
DODGE BRANCH AT TWIN BRIDGE RD	11-Jun-14	ALL SPECIES	BLUNTNOSE MINNOW	12	
DODGE BRANCH AT TWIN BRIDGE RD	11-Jun-14	ALL SPECIES	COMMON SHINER	179	
DODGE BRANCH AT TWIN BRIDGE RD	11-Jun-14	ALL SPECIES	CREEK CHUB	7	
DODGE BRANCH AT TWIN BRIDGE RD	11-Jun-14	ALL SPECIES	CENTRAL STONEROLLER	4	
DODGE BRANCH AT TWIN BRIDGE RD	11-Jun-14	ALL SPECIES	STONECAT	8	
DODGE BRANCH AT TWIN BRIDGE RD	11-Jun-14	ALL SPECIES	BIGMOUTH SHINER	3	
DODGE BRANCH AT TWIN BRIDGE RD	11-Jun-14	ALL SPECIES	AMERICAN BROOK LAMPREY	2	
DODGE BRANCH AT TWIN BRIDGE RD	11-Jun-14	ALL SPECIES	BRASSY MINNOW	4	
DODGE BRANCH AT TWIN BRIDGE RD	11-Jun-14	ALL SPECIES	SHORHEAD REDHORSE	1	
DODGE BRANCH AT TWIN BRIDGE RD	11-Jun-14	ALL SPECIES	BANDED DARTER	1	
DODGE BRANCH AT TWIN BRIDGE RD	11-Jun-14	ALL SPECIES	BROWN TROUT	1	15
DODGE BRANCH AT TWIN BRIDGE RD	11-Jun-14	ALL SPECIES	BROWN TROUT	1	13.4
DODGE BRANCH AT TWIN BRIDGE RD	11-Jun-14	ALL SPECIES	BROWN TROUT	1	11.1
DODGE BRANCH AT TWIN BRIDGE RD	11-Jun-14	ALL SPECIES	BROWN TROUT	1	11.2
DODGE BRANCH AT TWIN BRIDGE RD	11-Jun-14	ALL SPECIES	BROWN TROUT	1	9.2
DODGE BRANCH AT TWIN BRIDGE RD	11-Jun-14	ALL SPECIES	BROWN TROUT	1	11.5
DODGE BRANCH AT TWIN BRIDGE RD	11-Jun-14	ALL SPECIES	BROWN TROUT	1	9.5
DODGE BRANCH AT TWIN BRIDGE RD	11-Jun-14	ALL SPECIES	SMALLMOUTH BASS	1	6.9
DODGE BRANCH AT TWIN BRIDGE RD	11-Jun-14	ALL SPECIES	SMALLMOUTH BASS	1	6.7

Appendix B: (continued)

Station Name	Sample Date	Target Species	Species	Number of Fish	Length (Inches)
DODGE BRANCH STATION 3 (Blotz Rd)	10-Jun-14	ALL SPECIES	WHITE SUCKER	81	
DODGE BRANCH STATION 3 (Blotz Rd)	10-Jun-14	ALL SPECIES	CREEK CHUB	29	
DODGE BRANCH STATION 3 (Blotz Rd)	10-Jun-14	ALL SPECIES	COMMON SHINER	296	
DODGE BRANCH STATION 3 (Blotz Rd)	10-Jun-14	ALL SPECIES	SOUTHERN REDBELLY DACE	5	
DODGE BRANCH STATION 3 (Blotz Rd)	10-Jun-14	ALL SPECIES	JOHNNY DARTER	1	
DODGE BRANCH STATION 3 (Blotz Rd)	10-Jun-14	ALL SPECIES	WESTERN BLACKNOSE DACE	2	
DODGE BRANCH STATION 3 (Blotz Rd)	10-Jun-14	ALL SPECIES	CENTRAL STONEROLLER	2	
DODGE BRANCH STATION 3 (Blotz Rd)	10-Jun-14	ALL SPECIES	STONECAT	4	
DODGE BRANCH STATION 3 (Blotz Rd)	10-Jun-14	ALL SPECIES	MOTTLED SCULPIN	1	
DODGE BRANCH STATION 3 (Blotz Rd)	10-Jun-14	ALL SPECIES	BLUNTNOSE MINNOW	2	
DODGE BRANCH STATION 3 (Blotz Rd)	10-Jun-14	ALL SPECIES	BROWN TROUT	1	11.5
DODGE BRANCH STATION 3 (Blotz Rd)	10-Jun-14	ALL SPECIES	BROWN TROUT	1	13.1
DODGE BRANCH STATION 3 (Blotz Rd)	10-Jun-14	ALL SPECIES	BROWN TROUT	1	13.5
DODGE BRANCH STATION 3 (Blotz Rd)	10-Jun-14	ALL SPECIES	BROWN TROUT	1	10.8
DODGE BRANCH STATION 3 (Blotz Rd)	10-Jun-14	ALL SPECIES	BROWN TROUT	1	11.8
DODGE BRANCH STATION 3 (Blotz Rd)	10-Jun-14	ALL SPECIES	BROWN TROUT	1	11
DODGE BRANCH STATION 3 (Blotz Rd)	10-Jun-14	ALL SPECIES	BROWN TROUT	1	2
DODGE BRANCH STATION 3 (Blotz Rd)	10-Jun-14	ALL SPECIES	BROWN TROUT	1	2
DODGE BRANCH STATION 3 (Blotz Rd)	10-Jun-14	ALL SPECIES	HORNHEAD CHUB	118	

Appendix C1: Growing Season 2014 Phosphorus Data for Dodge Branch

Total P (mg/l)	Start Date/Time	Site	Median	
0.01	05/21/2014 9:15	Above Dodgeville Stp		0.0146
0.07	06/17/2014 9:00	Above Dodgeville Stp		0.0263
0.03	07/22/2014 8:43	Above Dodgeville Stp		0.0299
0.04	08/18/2014 11:00	Above Dodgeville Stp	0.03355	0.0372
0.04	09/16/2014 13:30	Above Dodgeville Stp		0.0406
0.03	10/30/2014 11:50	Above Dodgeville Stp		0.0717
0.04	= Average			
0.13	05/21/2014 9:30	STH 191		0.131
0.17	06/17/2014 9:20	STH 191		0.147
0.27	07/22/2014 8:53	STH 191		0.165
0.41	08/18/2014 11:10	STH 191	0.1665	0.168
0.15	09/16/2014 13:40	STH 191		0.267
0.17	10/30/2014 11:55	STH 191		0.407
0.21	= Average			
0.12	05/21/2014 10:10	CTH Y		0.0544
0.28	06/17/2014 10:00	CTH Y		0.0853
0.09	07/22/2014 9:08	CTH Y		0.0863
0.09	08/18/2014 11:20	CTH Y	0.0902	0.0941
0.09	09/16/2014 14:05	CTH Y		0.123
0.05	10/30/2014 12:20	CTH Y		0.281
0.12	= Average			
0.07	05/21/2014 11:20	CTH W Bridge		0.0349
0.40	06/17/2014 10:20	CTH W Bridge		0.0547
0.05	07/22/2014 9:30	CTH W Bridge		0.0564
0.08	08/18/2014 11:30	CTH W Bridge	0.0612	0.066
0.06	09/16/2014 14:30	CTH W Bridge		0.0787
0.03	10/30/2014 12:45	CTH W Bridge		0.4
0.12	= Average			
0.06	05/21/2014 11:50	Paulson Rd.		0.0433
0.38	06/17/2014 10:20	Paulson Rd.		0.0518
0.05	07/22/2014 9:45	Paulson Rd.		0.054
0.08	08/18/2014 11:50	Paulson Rd.	0.05745	0.0609
0.05	09/16/2014 15:00	Paulson Rd.		0.0809
0.04	10/30/2014 13:10	Paulson Rd.		0.375
0.11	= Average			
0.06	05/21/2014 13:15	Downstream of Hollandale WWTP		0.0471
0.43	06/17/2014 10:30	Downstream of Hollandale WWTP		0.0571
0.06	07/22/2014 10:00	Downstream of Hollandale WWTP		0.0589
0.13	08/18/2014 12:00	Downstream of Hollandale WWTP	0.0589	0.0589
0.06	09/16/2014 15:35	Downstream of Hollandale WWTP		0.126
0.05	10/30/2014 13:30	Downstream of Hollandale WWTP		0.432
0.13	= Average			

Appendix C2: 2010 Phosphorus Data for Dodge Branch (WDNR, 2013)

Total P (mg/l)	Start Date/Time	Station ID	Station Name	Median
<i>0.04</i>	07/21/2010 9:00	253043	UPSTRM DODGEVILLE WWTP	<i>0.04</i>
<i>0.04</i>	08/04/2010 10:00	253043	UPSTRM DODGEVILLE WWTP	<i>0.04</i>
<i>0.04</i>	08/17/2010 8:30	253043	UPSTRM DODGEVILLE WWTP	<i>0.04</i>
<i>0.04</i>	08/30/2010 11:15	253043	UPSTRM DODGEVILLE WWTP	<i>0.04</i> ✓ 0.04
<i>0.07</i>	09/30/2010 14:30	253043	UPSTRM DODGEVILLE WWTP	<i>0.04</i>
<i>0.04</i>	10/21/2010 10:30	253043	UPSTRM DODGEVILLE WWTP	0.07
0.31	07/21/2010 9:30	253044	Sth 191	0.25
0.25	08/04/2010 10:30	253044	Sth 191	0.31
0.41	08/17/2010 8:45	253044	Sth 191	0.41
0.41	08/30/2010 11:30	253044	Sth 191	0.41 ✓ 0.41
0.61	09/30/2010 13:45	253044	Sth 191	0.41
0.41	10/21/2010 10:15	253044	Sth 191	0.61
0.40	= Average			
<i>0.04</i>	07/21/2010 12:00	10008143	Station 3 (Blotz Rd)	0.04
<i>0.04</i>	08/04/2010 11:45	10008143	Station 3 (Blotz Rd)	<i>0.04</i>
0.08	08/17/2010 9:10	10008143	Station 3 (Blotz Rd)	0.08
0.11	08/30/2010 13:15	10008143	Station 3 (Blotz Rd)	0.11 ✓ 0.095
0.12	09/29/2010 12:15	10008143	Station 3 (Blotz Rd)	0.12
0.21	10/20/2010 15:00	10008143	Station 3 (Blotz Rd)	0.21
0.10	= Average			
0.27	07/21/2010 13:00	10031445	Sunny Ridge Rd.	<i>0.04</i>
0.04	08/04/2010 12:15	10031445	Sunny Ridge Rd.	0.04
0.13	08/17/2010 9:30	10031445	Sunny Ridge Rd.	0.06
0.41	09/01/2010 9:30	10031445	Sunny Ridge Rd.	0.13 ✓ 0.095
0.06	10/04/2010 12:30	10031445	Sunny Ridge Rd.	0.27
<i>0.04</i>	10/20/2010 14:20	10031445	Sunny Ridge Rd.	0.41
0.16	= Average			
<i>0.04</i>	07/21/2010 12:15	10015258	Below Jonesdale (CTH W)	<i>0.04</i>
0.05	08/03/2010 14:00	10015258	Below Jonesdale (CTH W)	<i>0.04</i>
0.12	08/17/2010 10:00	10015258	Below Jonesdale (CTH W)	0.05
0.57	09/01/2010 10:30	10015258	Below Jonesdale (CTH W)	0.07 ✓ 0.06
0.07	09/30/2010 13:45	10015258	Below Jonesdale (CTH W)	0.12
<i>0.04</i>	10/20/2010 14:00	10015258	Below Jonesdale (CTH W)	0.57
0.15	= Average			
0.10	07/21/2010 11:30	10031444	At Whitford Creek (upstrm Banner Rd)	0.06
0.21	08/03/2010 13:30	10031444	At Whitford Creek (upstrm Banner Rd)	0.07
0.14	08/17/2010 11:30	10031444	At Whitford Creek (upstrm Banner Rd)	0.1
0.48	09/01/2010 11:45	10031444	At Whitford Creek (upstrm Banner Rd)	0.14 ✓ 0.12
0.07	09/30/2010 13:15	10031444	At Whitford Creek (upstrm Banner Rd)	0.21
0.06	10/19/2010 13:15	10031444	At Whitford Creek (upstrm Banner Rd)	0.48
0.18	= Average			
<i>0.04</i>	07/21/2010 10:45	10015257	50m Downstream Banner Rd	<i>0.04</i>
0.13	08/03/2010 13:15	10015257	50m Downstream Banner Rd	<i>0.04</i>
0.16	08/17/2010 11:00	10015257	50m Downstream Banner Rd	0.08
0.52	09/01/2010 11:00	10015257	50m Downstream Banner Rd	0.13 ✓ 0.105
0.08	09/30/2010 11:45	10015257	50m Downstream Banner Rd	0.16
<i>0.04</i>	10/19/2010 13:00	10015257	50m Downstream Banner Rd	0.52
0.16	= Average			
0.06	07/21/2010 10:00	253099	Cth K	0.06
0.06	08/02/2010 14:45	253099	Cth K	<i>0.04</i>
0.16	08/17/2010 11:45	253099	Cth K	0.04
0.04	08/31/2010 13:00	253099	Cth K	0.06 ✓ 0.05
0.06	09/28/2010 14:30	253099	Cth K	0.06
<i>0.04</i>	10/19/2010 12:45	253099	Cth K	0.16
0.07	= Average			
0.20	08/17/2010 12:30	10031624	(200 m down from Hollandale WWTF pipe)	
0.07	08/31/2010 14:00	10031624	(200 m down from Hollandale WWTF pipe)	N/A
0.07	09/30/2010 11:00	10031624	(200 m down from Hollandale WWTF pipe)	
<i>0.04</i>	10/19/2010 12:30	10031624	(200 m down from Hollandale WWTF pipe)	
0.09	= Average			

Note: Numbers in *italics* indicate values less than the detection limit (0.04 mg/l)