

Drops in the Bucket

The Erosion of Iowa Water Quality Funding

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The Iowa Policy Project

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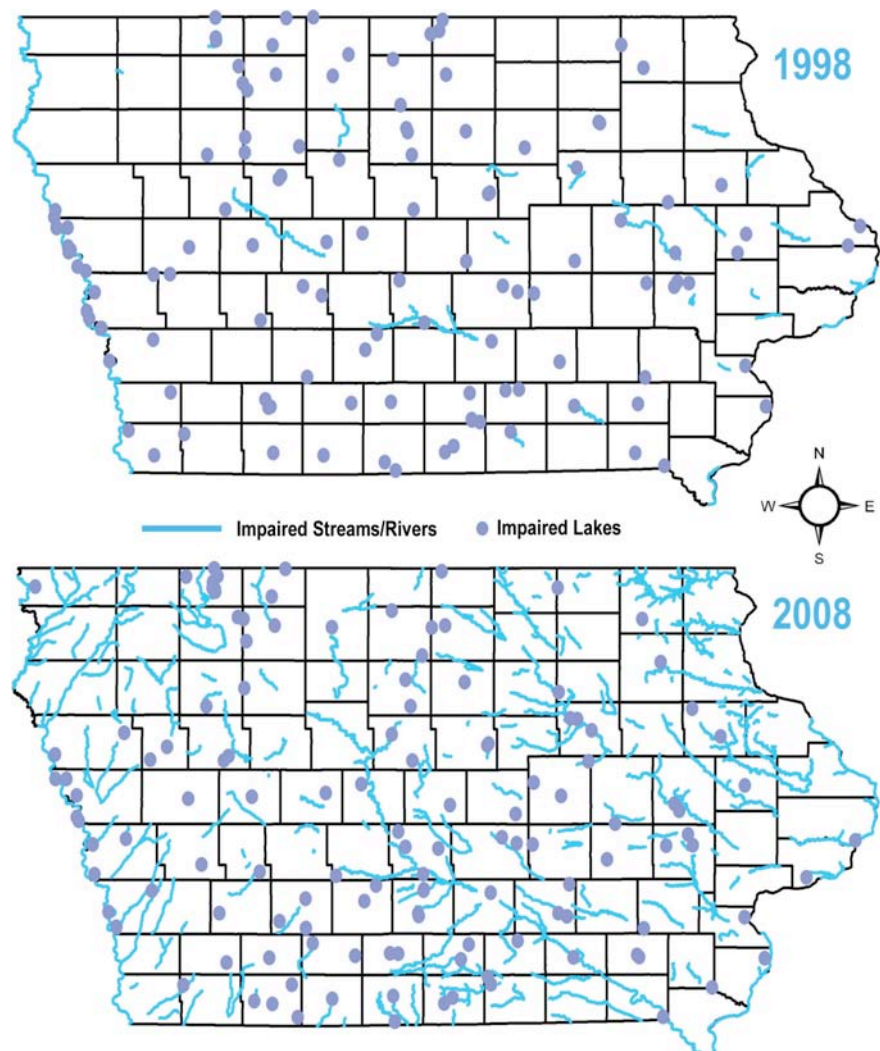
Drops in the Bucket *The Erosion of Iowa Water Quality Funding*

By Will Hoyer, Brian McDonough and David Osterberg

In a state with almost 90 percent of its land worked for agriculture, it should be of stark concern to Iowa policy makers that the water running through both our agricultural lands and urban landscapes contains excess nutrients, toxic chemicals, and sediments. These pollutants end up in Iowa's rivers and streams. The impacts upon public health, fishing and other recreational activities, and cleanup and water treatment costs show up not just in Iowa, but all the way to the Gulf of Mexico. There, the nutrients from cornbelt farm fields are creating the area of hypoxic (low oxygen) conditions known as the "Dead Zone," where sea life cannot live.

Impaired waterways are growing among Iowa's 71,000 miles of rivers and streams (see Figure 1).¹ This growing list, by itself, is not indicative of water quality trends as the list is influenced by new water quality standards, designations and expanded monitoring efforts. However, some evidence demonstrates deteriorating quality. An assessment report, including the list of impaired waters, is generated every two years. Assessed waters are categorized using a system of 1 through 5. Category 4 waters are considered impaired and category 5 waters are so impaired they require remediation. The most recent available DNR data show that while there was more monitoring in

Figure 1. Growing Impairment of Iowa's Surface Waters
Impaired Surface Waters Compared, 1998 and 2008



Sources: Iowa Natural Resources GIS Library, www.iqsb.uiowa.edu

2008 than 2006, the percentage of waters in category 5 also increased.

Furthermore, a recent study completed by Iowa State University researchers demonstrates that Iowa's natural lakes are seeing increased sedimentation rates and nutrient levels since the arrival of settlers, with very dramatic increases since the arrival of industrial agriculture in the mid-20th century. Sedimentation rates from 1990-1999 were eight times that of pre-settlement rates and double that found in other regional studies.² Long-term monitoring efforts of the Iowa Water Quality Index at sites in Iowa fail to show declining water quality, but neither does it show significant improvements, with most Iowa sites still listed as "poor" or worse.³ For many Iowa waters it may be that there is nowhere to go but up.

Iowa voters demonstrated strongly that they favor additional efforts to protect Iowa waterways when 63 percent voted in 2010 to approve the Water and Land Legacy amendment, so one might expect the state to increase its commitment to protecting its water. While funding by itself is not an indicator of performance, it is a necessary ingredient in the fight to protect and improve Iowa's water resources. This report looks at funding for several key state water programs over the last decade and finds that, from a fiscal perspective, the state's commitment to water protection programs is woefully lacking.

State Agencies Responsible for Water Quality

Two state agencies have the task of protecting Iowa's waters: the Iowa Department of Natural Resources (DNR) and the Iowa Department of Agriculture and Land Stewardship (IDALS). Within IDALS, the Division of Soil Conservation (DSC) oversees the agency's environmental efforts. The DSC is responsible for protecting and managing soil, water and mineral resources and for working with private landowners and soil and water conservation districts. The Division administers several programs specific to water quality for the state. These programs improve water quality in a variety of ways including: Development of wetlands to treat contaminated farm runoff, research and recommended closure of agricultural drainage wells in order to prevent groundwater contamination, and providing a variety of financial assistance for private land owners and soil and water conservation districts to address various water quality issues.⁴ The DSC plays a very important role in Iowa water protection, due to the importance of agriculture, unsustainable soil loss and degradation of soil quality occurring on some farms, and the closely related high number of impaired waterways in the state.

DSC Programs

Of the several programs administered by the DSC, the Conservation Reserve Enhancement Program (CREP) and the Resource Enhancement and Protection Fund (REAP), account for a significant amount of measurable water quality improvements. CREP combines federal and state dollars in developing and restoring wetlands aimed at reducing runoff from tile-drained farmland. This geographically targeted program provides landowners with payments for up to 15 years, and also provides incentives for entering into 30-year and perpetual easements, ensuring that these wetlands will have a lasting impact. Research of CREP wetlands has shown that they can remove 40 percent to 90 percent of nitrates and over 90 percent of herbicides from farm tile drainage.⁵ The result is improved surface and drinking water as well as constructed or re-established native wetlands. Furthermore, an increased number of wetlands might serve to reduce the severity of flooding within watersheds.

The Resource Enhancement and Protection Fund (REAP) provides part of a combined funding stream for water quality protection projects implemented by IDALS. The other funding comes from the Watershed Protection Fund within IDALS as well as federal dollars from the Environmental Protection Agency funneled through DNR. These projects address water quality at a watershed level. Water Quality Protection Projects include the construction of basins, the adoption of no-till farming practices, urban storm water management practices (such as bioswales), among others. These projects protect private cropland as well as publicly owned and utilized land and waterways, and therefore education and

community outreach play key roles in successful implementation.⁶ Watersheds cross jurisdictional boundaries and thus present challenges for traditional planning and management. Yet, watersheds are the most effective geographical areas to consider for improving overall water quality. For this reason water quality protection projects, and the REAP dollars that support them, are extremely valuable both in terms of real outcomes as well as the management example that they set.

DNR Programs

Like the DSC, the DNR is charged to protect and improve Iowa's water resources through a variety of programs including law enforcement, water permitting, lakes restoration, watershed improvement, and water monitoring and assessment. This monitoring effort includes testing lakes, streams, wetlands, groundwater, wildlife (such as conducting fish tissue studies), and Iowa's public beaches.⁷ Measured high levels of contaminant(s) result in the closure of recreational areas, publishing of fish consumption advisories, and potential closure of local drinking water supplies (in accordance with the federal Safe Drinking Water Act) until specified contaminants return to safe levels. Strangely, IDALS' water programs and DNR's water protection programs receive little to no funding from the state General Fund. Most state funding for these programs comes through the state's Environment First Fund (EFF).

Established by the state General Assembly in 2000, the EFF provides a standing appropriation for the "protection, conservation, enhancement and improvement of natural resources."⁸ The source of the EFF funds is the state's gambling receipts. In other words, the state of Iowa relies on Iowans and tourists to continue gambling in order to protect its natural resources.

Overall Water Quality in Iowa

For this report we talked to several former and current agency staff and administrators and surveyed data collected by the Legislative Services Agency, DNR and IDALS. It became very clear from those conversations and reports that the budgets for the DNR are complicated. One former DNR administrator said it took him years to understand the agency's budget. Part of the complexity stems from the variety of funding sources and the variety of programs to which the money goes. To fully explore the funding picture over time within the agencies, an expensive open records request would be required. This report thus focuses on a few very clear line items within the budget that directly relate to water quality. These include the following programs receiving EFF dollars.

The following programs analyzed here are important to Iowa's water quality; many work together.

- *Conservation Reserve Enhancement Program (CREP)* — through IDALS, this federal-state-local partnership provides incentives for private landowners to construct or restore wetlands in targeted parts of Iowa, to remove nitrates and other agricultural chemicals from Iowa waterways.
- *Conservation Reserve Program (CRP)* — through IDALS, this is primarily known as a federal program, but state dollars also support incentives for private landowners to reduce erosion, protect water quality and provide habitat through measures like tree and prairie planting, buffer strips and wetland restoration.
- *Watershed Protection Fund* — through IDALS, provides funding to address water quality problems with the goal of building local governments' capacities to sponsor watershed protection efforts and to leverage federal and local dollars.
- *Soil Conservation Cost Share* — through IDALS, provides funding for permanent soil and water conservation practices and leverages private landowners' dollars.
- *Agricultural Drainage Well Closure* — through IDALS, provides assistance to close high priority agricultural drainage wells and develop alternative drainage to surface streams.
- *Resource Enhancement and Protection* — through DNR and IDALS, provides funding for a variety of purposes, but through a formula a little under 20 percent of the total goes to soil- and water-enhancing purposes.

- *Geographic Information Systems (GIS) for Watersheds* — through DNR, provides funding for the mapping and analysis of geospatial data related to watersheds.
- *Water quality monitoring* — through DNR, provides funding for water quality testing at lakes, rivers, streams and beaches across the state.
- *Water Quality Protection Fund* — through DNR, provides funding for the administration of the federal Safe Drinking Water Act.
- *Water Protection Loan Program* — through IDALS, provides funding as low-interest loans to landowners interested in taking steps to improve water quality (Uses General Fund dollars).

Dollar amounts over time for the programs above are summarized in Table 1, and adjusted for inflation in Table 2.¹ After all, a million dollars does not buy as much today as it did a decade ago.

Table 1. Most Water Protection Programs Funded at Similar Levels — Before Inflation
Figures in thousands of dollars

	CREP	CRP	Watershed Protection Fund	Soil Conservation Cost Share	Ag Drainage Well Closure	Water Protection Loan Program	REAP (soil and water only)	GIS Information for Watershed	Water Quality Monitoring	Water Quality Protection
FY02		1,128	2,215	7,276	500	-	1,356	195	2,400	-
FY03	1,500	-	2,700	3,500	-	-	327	-	2,605	500
FY04	1,500	2,000	2,700	5,500	500	-	2,109	195	2,955	500
FY05	1,500	2,000	2,700	5,500	500	50	2,109	195	2,955	500
FY06	1,500	2,000	2,700	5,500	500	77	2,109	195	2,955	500
FY07	1,500	2,000	2,700	5,500	500	87	2,109	195	2,955	500
FY08	1,500	1,500	2,550	7,000	1,480	97	3,000	195	2,955	500
FY09	1,500	1,500	2,550	7,000	1,500	138	3,495	195	2,955	500
FY10	1,500	1,500	2,550	7,000	1,500	164	3,495	195	2,955	500
FY11	1,500	1,300	1,500	1,050	1,250	141	2,901	176	2,955	500
FY12	1,000	1,000	900	6,300	-	*	2,307	195	2,955	500

* Figure was unavailable at the time this report was released.

Table 2. In Real, Inflation-Adjusted Dollars Most Water Protection Programs Declined
Figures in thousands — 2011 dollars

	CREP	CRP	Watershed Protection Fund	Soil Conservation Cost Share	Ag Drainage Well Closure	Water Protection Loan Program	REAP (soil and water only)	GIS Information for Watershed	Water Quality Monitoring	Water Quality Protection
FY02		1,611	3,164	10,395	714	-	1,938	279	3,429	-
FY03	2,053	-	3,695	4,789	-	-	447	-	3,565	684
FY04	1,985	2,646	3,572	7,277	662	-	2,790	258	3,910	662
FY05	1,851	2,468	3,332	6,787	617	62	2,602	241	3,646	617
FY06	1,767	2,356	3,181	6,480	589	91	2,484	230	3,482	589
FY07	1,677	2,236	3,019	6,149	559	97	2,358	218	3,304	559
FY08	1,573	1,573	2,675	7,343	1,552	101	3,147	205	3,100	524
FY09	1,582	1,582	2,689	7,382	1,582	145	3,686	206	3,116	527
FY10	1,551	1,551	2,636	7,237	1,551	170	3,613	202	3,055	517
FY11	1,500	1,300	1,500	1,050	1,250	141	2,901	176	2,955	500
FY12	1,000	1,000	900	6,300	-	*	2,307	195	2,955	500

¹ Inflation adjusted dollar amounts in Tables 2-3 used a fiscal year inflation index and adjusted to FY11. This was done using quarterly data from the Bureau of Economic Analysis' price index for state and local governments. Raw numbers were provided by Legislative Services Agency staff or collected from state Gray Books. FY12 numbers remain unadjusted.

When adjusted for inflation most of these programs saw significant decreases; the average inflation-adjusted decrease for these seven budget items is over 30 percent.⁹ In seven of the 10 programs, funding declined over the span of 10 budget cycles.¹⁰

It must be noted that not all water quality funding streams saw decreases. The Water Protection Loan program funded through the Clean Water State Revolving Fund more than doubled from when it began in FY05 to a modest \$141,000 in FY11. The Ag Drainage Well Closure program also saw significant growth, increasing by 75 percent since FY02 but was then zeroed out for FY12.

Table 3. In 7 of 10 Water Programs, Funding Dropped From FY2002-12

	Percentage decrease below initial amount FY02-FY12	Percentage decrease below average amount FY02-FY12
CREP	51	40
CRP	38	40
Watershed Protection Fund	72	67
Soil Conservation Cost Share	42	7
GIS for Watersheds	30	3
Water Quality Monitoring	14	11
Water Quality Protection	27	12

The REAP funds for soil and water improvements also saw modest gains. Further, beginning in FY08 the DNR began receiving almost \$500,000 annually from the EFF to go toward work to analyze and protect Iowa water *quantity*, in addition to quality.

The numbers themselves in the figures above do not tell the whole story. One example is the DNR’s water quality monitoring program, which receives the vast majority of its money from the EFF. This amount has remained constant (in current dollars) since FY02 at just over \$2.9 million dollars. But beginning in FY05 some of that money was diverted to pay water monitoring staff salaries rather than to pay for all the other costs associated with monitoring. Previously these salaries were paid out of a different pot of money. This meant a decrease in monitoring capacity and the monitoring program has dramatically scaled back or eliminated groundwater, pesticide, pharmaceutical and fungicide monitoring. The water monitoring program also relies upon federal dollars for a much smaller, though still significant, portion of its funding, but these dollars can fluctuate dramatically from year to year and show no clear trend up or down over the last decade.

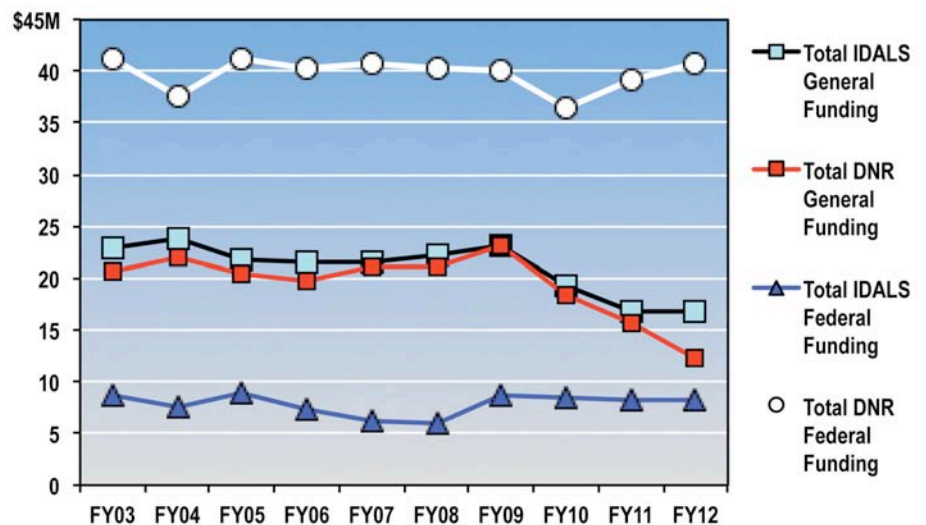
All Natural Resources Funding Flat or Decreasing

Looking at both DNR and IDALS funding as a whole it is clear that over the last decade there has been no significant boost in funding to either agency either from the state’s General Fund or from the federal government. These inflation-adjusted figures can be seen in Figure 2. In fact, over the last four years General Fund dollars to both IDALS and DNR have declined.

Inadequate Water Funding

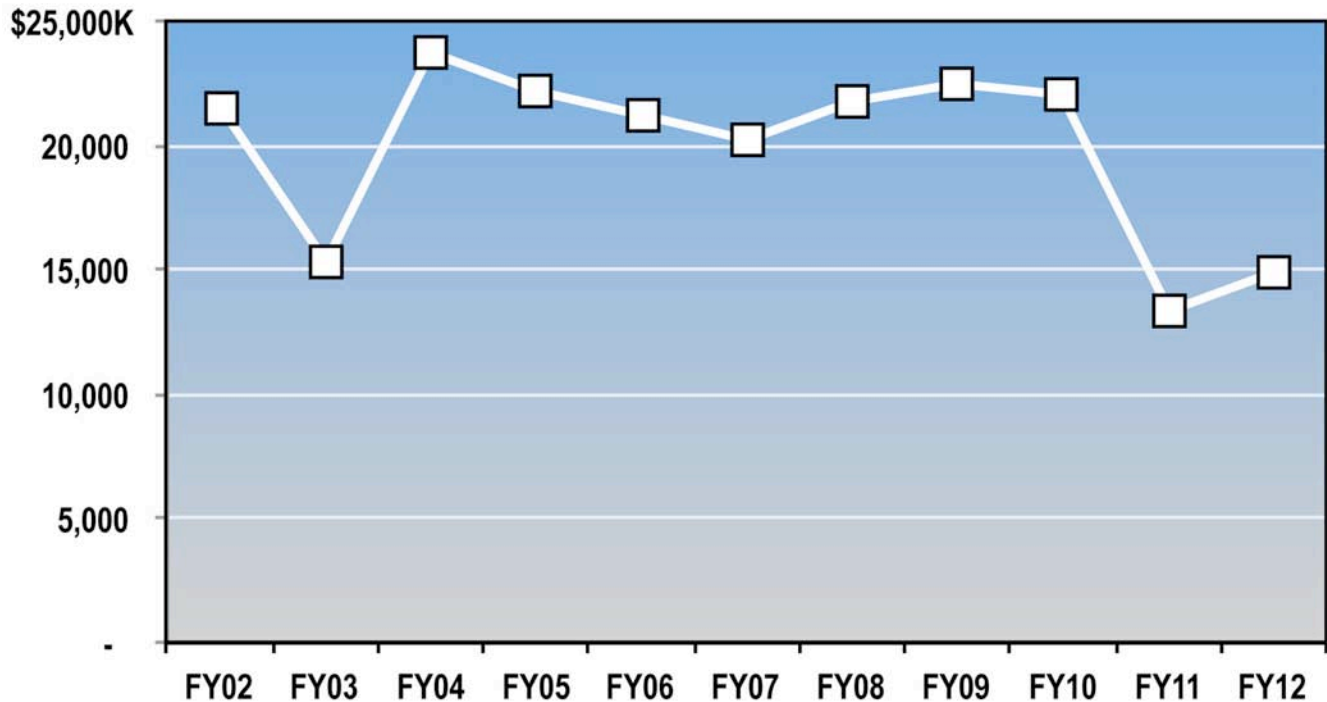
While it is very difficult to tease out exactly how much the state spends each year on water quality, Figure 3 does supply inflation-adjusted totals for the programs analyzed in this

Figure 2. Adjusted for Inflation, General Funding Flat or Down from Iowa, U.S.
Values in Millions — 2011 Dollars



report. For most of the decade totals have hovered just over \$20 million but FY03 and FY11 showed significant drops with little rebound in FY12.

Figure 3. Water Quality Dollars in Selected Programs Fairly Constant, with Declines
Figures in thousands



So what does all this mean? At a minimum, the state Legislature would have to restore \$5 million in state water quality funding just to move to what it had been during the previous decade. Staff in state agencies who run many programs to protect and enhance water quality have been told to make do with less, and they are in fact trying to make do with a lot less. The DNR and IDALS have not been able to make any significant dent in Iowa’s water quality problems under current funding levels, so to expect improved results with even less is asking a lot.

Why Even More is Needed

Iowans clearly want better results. The November 2010 vote on the constitutional amendment to create a trust fund devoted to improving natural resources demonstrated an overwhelming willingness to invest more of available dollars in environmental protection and enhancement. Sixty-three percent of Iowans favored the creation of such a fund. And more funding is needed because of the potential water quality effects of recent record-high corn prices, which put pressure on state farmers to grow as much corn as possible, on as many acres as possible. More row crop agriculture can only exacerbate the state’s water quality problems, which are mostly a result of what happens on the state’s farmland.¹¹

On the other hand, many farmers continue to demonstrate a commitment to improve water quality but farmers’ requests for many DSC programs continue to exceed what the DSC is able to fund. Inadequate funding means the state loses opportunities to protect our environment. It also loses the additional money it could have leveraged. Because many DSC programs require the participating landowner to pay most of the cost, the landowner’s match is also lost when the DSC does not have the money to fund projects. And because some of these dollars are also matched by the federal government, sometimes more than dollar for dollar, the state loses that investment as well.¹²

It must be emphasized that Iowa's waters are not a lost cause. They can be improved with consistent and adequate funding. The shining example of this is the turnaround of trout streams in northeast Iowa. Trout are very sensitive to water quality and in the 1980s there were as few as five streams that had naturally reproducing trout populations. Now, thanks to targeted watershed improvements in the area, the latest figures from DNR staff indicate 36 streams have naturally reproducing trout. These improvements took time to see but they also took a significant investment of public dollars. To believe that waters across the state could see those sorts of improvements with a decreasing budget is simply wishful thinking.

DNR and IDALS employees are working to complete a draft of the state's nutrient reduction strategy for release to the public later this year. The strategy will be a good starting point for discussions about how to best improve Iowa's water quality in the coming years and decades. Even the best strategy is unlikely to make a significant difference without adequate funding to implement it, however. Iowa's budget for water quality programs over the last decade shows an erosion of most programs. Only a few have seen modest gains. While there may be some ability to wring additional water quality improvements by improving the effectiveness and targeted-nature of some programs, ultimately more funding is needed. Without the Legislature appropriating additional dollars or a new source of funding, such as the voter-approved trust fund, Iowa waterways will continue to be plagued with problems that limit Iowans' ability to get out and enjoy them.

¹ Iowa, like all states, is required to provide a list of waters every two years that do not meet state standards for water quality in order to comply with the federal Clean Water Act. In 2006, DNR listed a total of 2,119 assessed waters in its final integrated report to the Environmental Protection Agency. Of these, 359 were a category 5. In other words, nearly 17 percent (16.94 percent to be precise) of the assessed waters were highly impaired, requiring remediation. In 2008, DNR listed a total of 2,292 assessed waters in its final integrated report, and 586 of these were listed as a category 5. In 2008 then, just over 25 percent (25.57 percent to be exact) of assessed waters were highly impaired, requiring remediation. This is just over a 50 percent increase in category five impaired waters between 2006 and 2008.

² Heathcote, A.J., C.T. Filstrup and J. Downing. 2012. Historic Water Quality in Iowa Lakes. Executive summary available <http://limnology.eeob.iastate.edu/doc/historicwaterquality.pdf>

³ Iowa Department of Natural Resources. Iowa Water Quality Index – All Years Average, <http://www.igsb.uiowa.edu/wqm/Data/WQI/WqiAllYears.htm>

⁴ Iowa Department of Agriculture and Land Stewardship, *IDALS-DSC Programs*. http://www.iowaagriculture.gov/soil/pdf/IDALSDSC_ProgramSummary_Nov08.pdf

⁵ Iowa Department of Agriculture and Land Stewardship, Division of Soil Conservation. *2010 Review: Soil and Water Quality*. <http://www.iowaagriculture.gov/soil/pdf/2010SWQualityReview.pdf>

⁶ Iowa Department of Agriculture and Land Stewardship, Programs. *Water Quality Protection Programs* <http://www.iowaagriculture.gov/FieldServices/waterQualityProtectionProjects.asp>

⁷ Iowa Department of Natural Resources. *Water Monitoring*. <http://www.iowadnr.gov/DNR/Environment/WaterQuality/WaterMonitoring.aspx>

⁸ https://www.legis.iowa.gov/DOCS/LSA/Fiscal_Topics/2012/FTDFK000.PDF

⁹ This was calculated two separate ways. First, the earliest funding level between FY02 and FY12 was compared to the FY12 figures for each program and then the declines were averaged. This resulted in a 39 percent decrease. Second, the average funding levels for each program between FY02 and FY12 were compared to FY12 figures. This showed a 26 percent decrease.

¹⁰ These are compared to FY11 rather than FY12 because dollar figures are indexed to FY11. Most programs saw decreases or remained stable between FY11 and FY12. Soil Conservation Cost Share dollars, which saw dramatic decreases over the 10-year period ending FY11, rebounded significantly in FY12.

¹¹ <http://www.iowapolicyproject.org/2010docs/100927-nutrients.pdf>

¹² <http://www.iowapolicyproject.org/2007docs/071127-DSC.pdf>