



*Department of Environmental Quality  
Division of Mitigation Services*



# ILF PROGRAM EVALUATION

April 12, 2016



## HISTORY

1996 – Wetlands Restoration Program  
8 guys in a bus station

2003 – Ecosystem Enhancement Program  
Primary mitigation provider for NCDOT

2015 – Division of Mitigation Services

## Four stand-alone funds

- Statewide Stream & Wetland
- NC DOT Stream & Wetland
- Riparian Buffer
- Nutrient Offset

*Over 600 projects have restored over 650 miles of streams, 29,000 acres of wetlands, 750 acres of riparian buffer, 800 tons of stormwater pollutants*



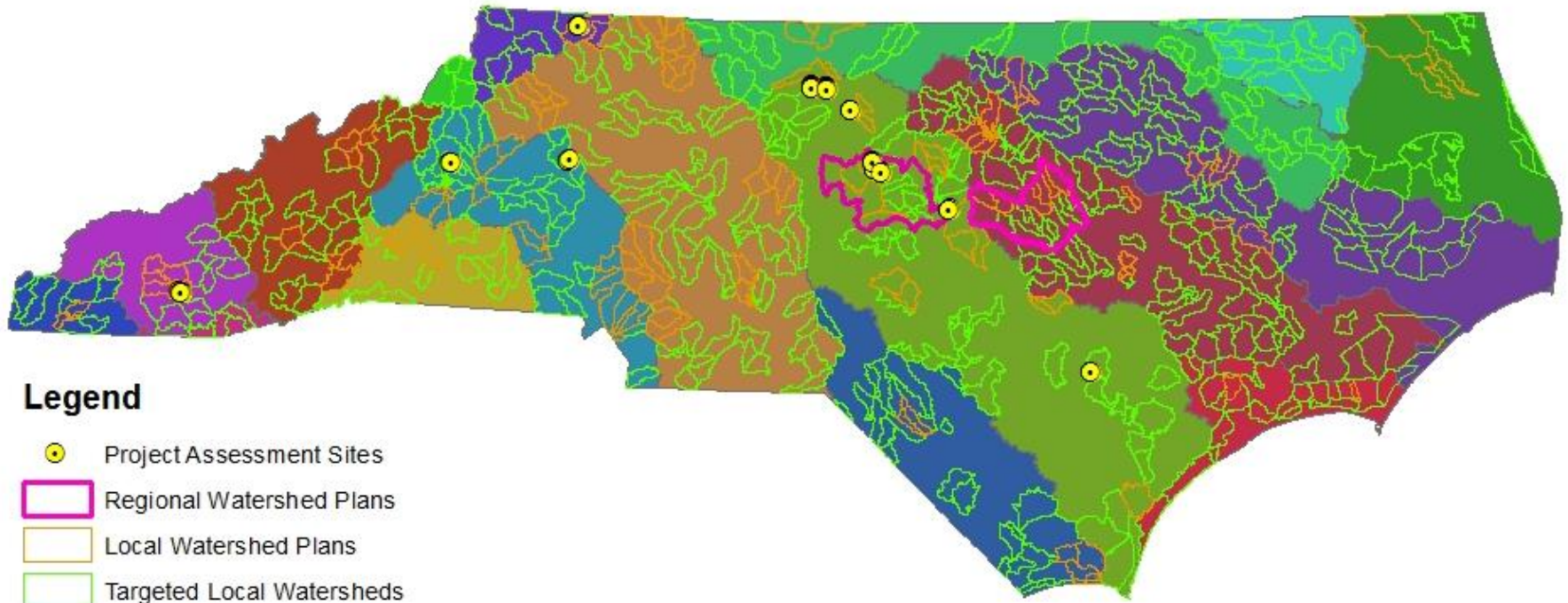
# ILF Program Evaluation

											DEBIT AMOUNTS		
River Basin	CU Requirement Location	Mitigation Category	Mitigation Category Detail	IMS Project ID	Project Name	DWR Certification	USACE Action ID Number	Site Instituted Date	Restoration Project Name	IMS ID Number	Project Phase	Stream Restoration	Stream Enhancement I
Broad	03050105	Stream	Unspecif	11188	Lowe's	1999-0301		7/22/2004	Cleghorn Creek	93	Long Term Mgmt	800.00	
Broad	03050105	Stream	Warm	10941	DOT - Dixon School Road	2003-0894	2003-31082	3/3/2006	Statewide ILF Credit Purchase Big Har	739	Design	822.00	
Broad	03050105	Stream	Unspecif	11233	Case Farms Feed Mill	2004-1816	2005-31351	7/22/2004	Cleghorn Creek	93	Long Term Mgmt	172.00	
Broad	03050105	Stream	Cold	10104	Lake Lure	2005-2000	2006-30112	6/28/2006	Statewide ILF Credit Purchase Morgan	92527	Long Term Mgmt	110.00	
Broad	03050105	Stream	Warm	12064	Cleveland Co. Off-Stream Wa	2008-1849	2009-02065	7/22/2004	Cleghorn Creek	93	Long Term Mgmt	565.00	
Broad	03050105	Stream	Unspecif	20415	Cleveland County Generating	2010-0150		7/22/2004	Cleghorn Creek	93	Long Term Mgmt	548.00	
Broad	03050105	Stream	Warm	20562	H1 Kings Mountain Mine	2011-0188		7/22/2004	Cleghorn Creek	93	Long Term Mgmt	250.00	
Broad	03050105	Stream	Cold	20791	Grey Rock Phase 1	2006-1539	2012-01013	6/28/2006	Statewide ILF Credit Purchase Morgan	92527	Long Term Mgmt	490.00	
Broad	03050105	Stream	Cold	20924	Grey Rock Phase 2	2006-1539	2012-01013	6/28/2006	Statewide ILF Credit Purchase Morgan	92527	Long Term Mgmt	530.00	
Broad	03050105	Stream	Warm	21069	Project X-Cel	2013-0874	2011-02395		BD 05 Advance Credits			283.00	
Broad	03050105	Stream	Cold	21049	Queen's Gap	2007-2227	2012-01905	6/28/2006	Statewide ILF Credit Purchase Morgan	92527	Long Term Mgmt	538.00	
Broad	03050105	Stream	Warm	21153	Tryon International Equestrian	2013-1200	2013-02262		BD 05 Advance Credits			580.00	
Broad	03050105	Stream										5,688.00	0.00
Broad	03050105	Wetland	Riparian										
Broad	03050105	Wetland	Riparian										
Broad	03050105	Wetland	Non-Ripe	20412	Kings Mountain Quarry Expan	2009-1301			BR 05 Advance Credits				
									BR 05 Advance Credits				
									BR 05 Advance Credits				
Broad	03050105	Wetland	Non-Riparian										
Broad	03050105	Wetland	Non-Riparian										
Broad	03050105	Wetland	Coastal Marsh										
Broad	03050105	Wetland	Coastal Marsh										
Broad	03050105											5,688.00	0.00
Broad	03050105											5,688.00	0.00

High altitude program evaluation is about instrument compliance: are we meeting our permit obligations?



# Environmental Evaluation — Watershed Monitoring



## Legend

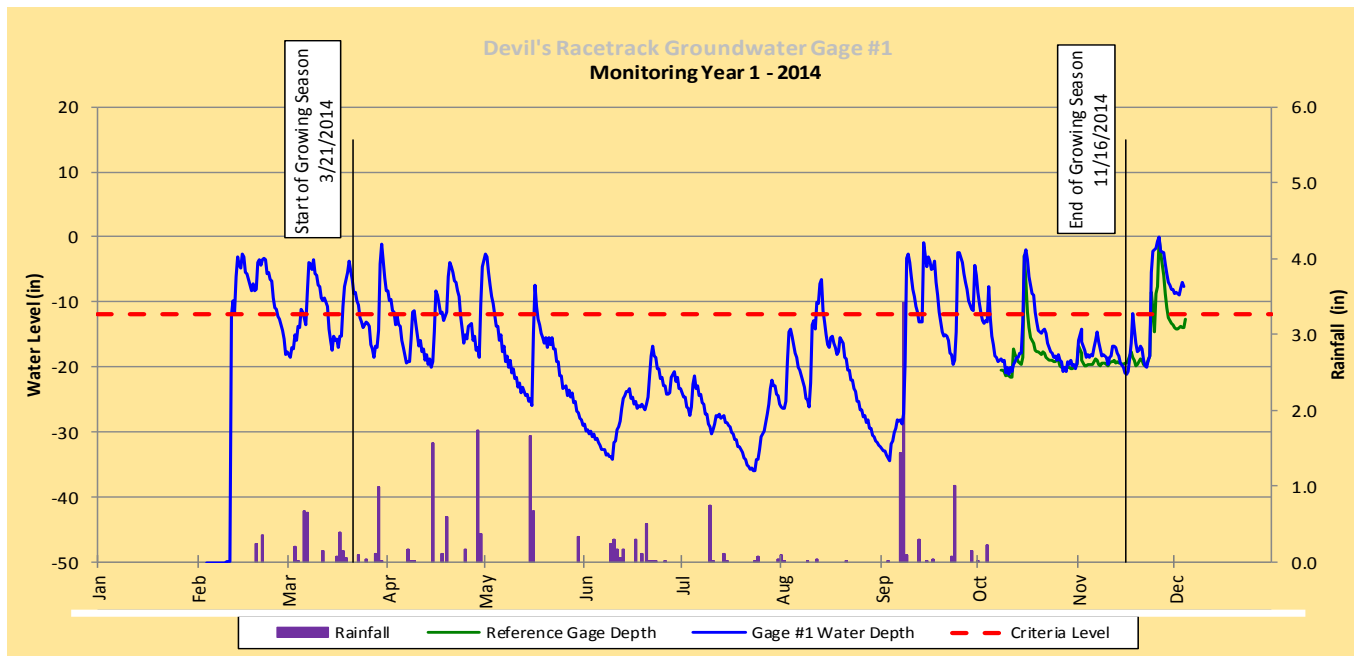
- Project Assessment Sites
- Regional Watershed Plans
- Local Watershed Plans
- Targeted Local Watersheds

<b>Basin Planning (RBRP)</b>	Avg. 10,596 mi <sup>2</sup>
<b>Targeted Local Watershed</b>	62 – 390 mi <sup>2</sup>
<b>Regional Plan</b>	Avg 600 mi <sup>2</sup>
<b>Local Watershed Plan</b>	Avg 100 mi <sup>2</sup>

Nitty-gritty nuts and bolts down and dirty on the ground in the weeds ILF program evaluation is  
***a continuous exercise in project-level risk management.***

$$\text{RISK} = \text{LIKELIHOOD OF OCCURRENCE} \times \text{CO\$T}$$

This approach presupposes that the program is the sum of its projects



Wetlands are easy!

WATER + TREES

Scientific Name	Common Name	Species Type	94643-WEI-0001			94643-WEI-0002		
			P-noLS	P-all	T	P-noLS	P-all	T
<i>Acer floridanum</i>	Southern Sugar Maple, Florida Maple	Tree						
<i>Acer negundo</i>	boxelder	Tree	1	1	1			
<i>Acer rubrum</i>	red maple	Tree						
<i>Alnus serrulata</i>	hazel alder	Shrub	1	1	1	1	1	1
<i>Populus deltoides</i>	eastern cottonwood	Tree						
<i>Prunus serotina</i>	black cherry	Tree						
<i>Quercus michauxii</i>	swamp chestnut oak	Tree						
<i>Quercus phellos</i>	willow oak	Tree				1	1	1
<i>Quercus rubra</i>	northern red oak	Tree						
<i>Rosa palustris</i>	swamp rose	Shrub						
<i>Salix sp.</i>	willow	Shrub						
<i>Salix nigra</i>	black willow	Tree			2			
<i>Salix sericea</i>	silky willow	Shrub						
<i>Sambucus canadensis</i>	Common Elderberry	Shrub						
<i>Ulmus alata</i>	winged elm	Tree						
<i>Ulmus americana</i>	American elm	Tree						
Stem count			10	10	12	9	9	9
size (ares)			1			1		
size (ACRES)			0.02			0.02		
Species count			4	4	5	6	6	6
Stems per ACRE			404.6856	404.6856	485.623	364.2170778	364.2171	364.22



Streams are not so easy.

*MOST YEARS,  
STREAMS ARE ABOUT  
90% OF FEES AND  
EXPENDITURES*





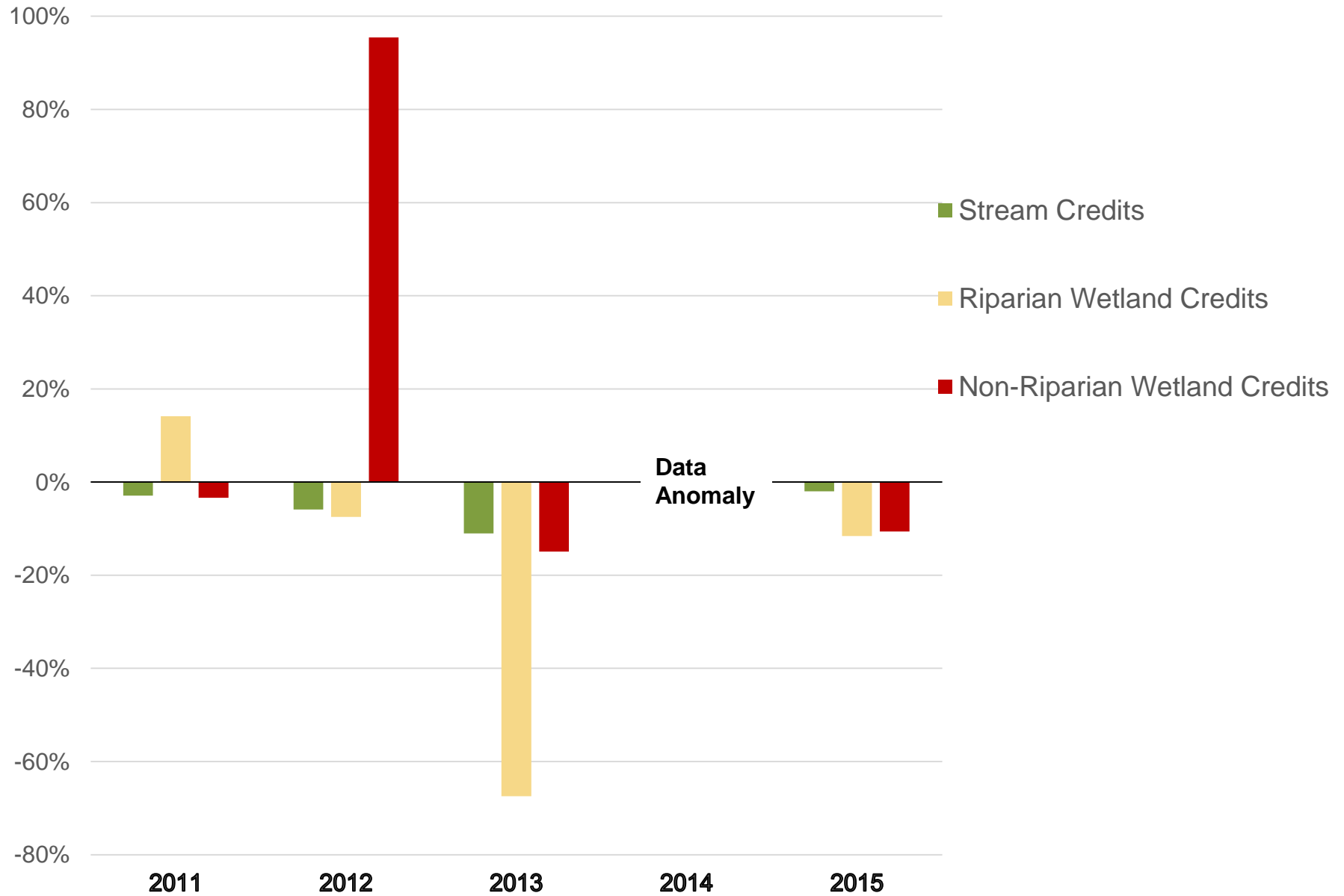
## **Regulatory Risk**

Is the project delivering the expected credits (amount and type(s))?

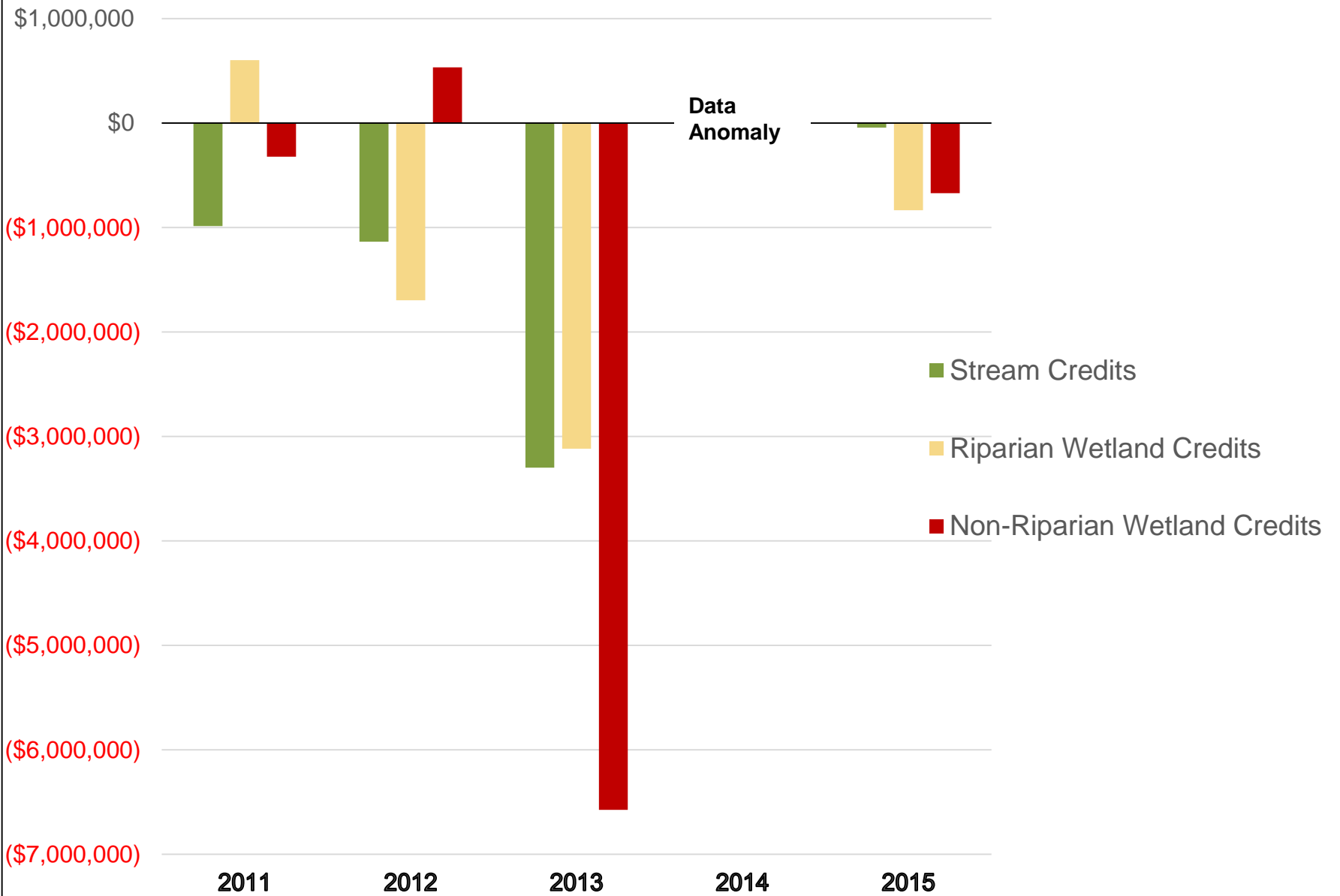
## **Financial Risk**

Is the project delivering credits on budget?

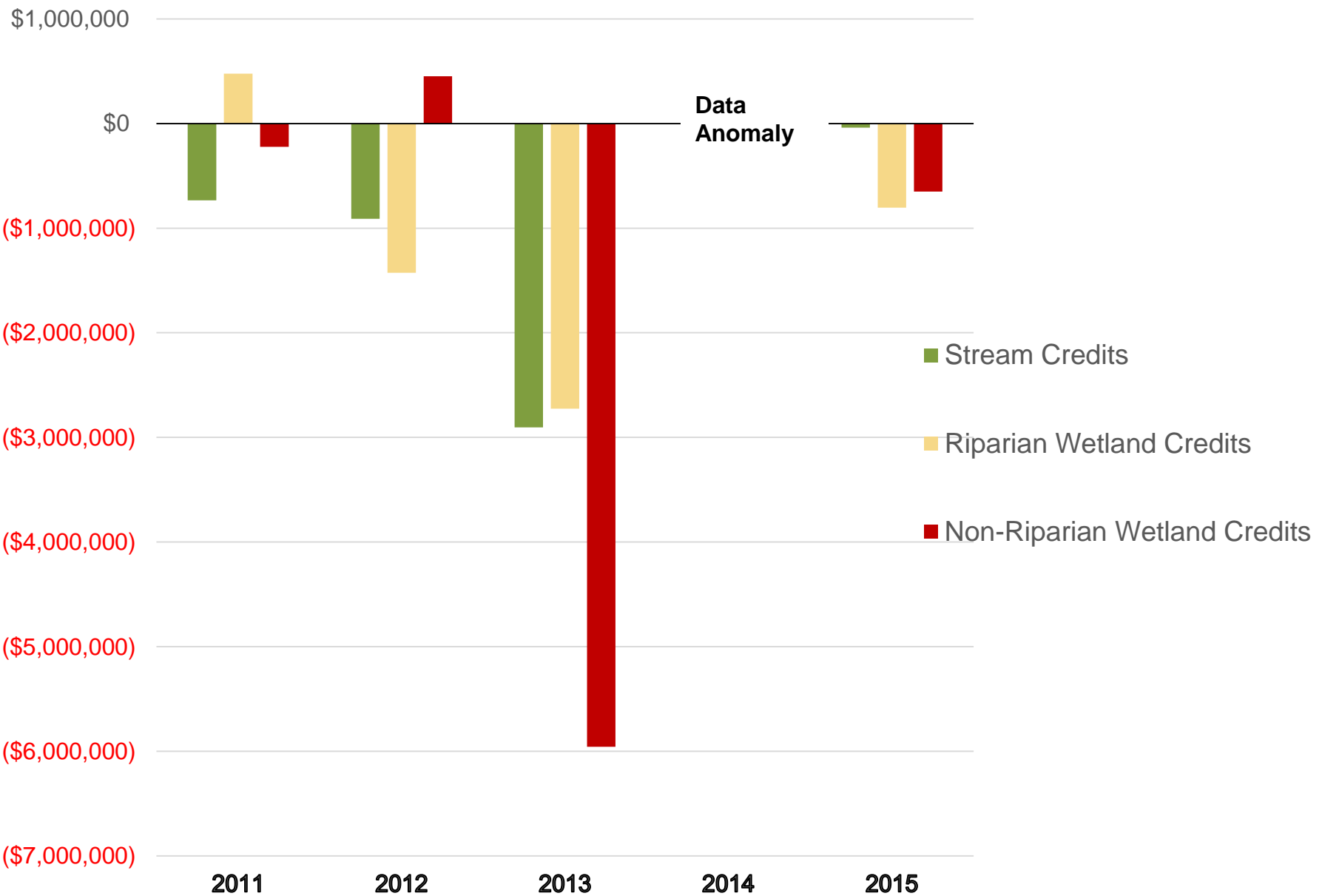
# Credit Volatility - Mitigation Plan to Project Closeout



# Replacement Costs By Mitigation Type



# Fee Differences By Mitigation Type By Year



Dye Branch  
3685 Stream Credits  
Mooreville, NC

PROJECT COST	
Acquisition	\$ 67,338.50
Design	\$ 336,099.79
Construction	\$ 567,285.44
Re-Design	\$ 269,262.00
Re-Construction	\$ 386,407.20
Monitoring	\$ 91,558.06
Legal	\$ 40,043.23
Admin (8%)	\$ 140,639.54

<b>Total Spent</b>	<b>\$ 1,898,633.76</b>
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PAYMENTS					
DWQ Permit	USACE Permit(s)	Pay Date	Debit	Fee	Collected
1999-0772		Jun-00	257.00	\$ 125.00	\$ 32,125.00
1999-0580		Aug-99	250.00	\$ 125.00	\$ 31,250.00
1999-0243		Jun-99	475.00	\$ 125.00	\$ 59,375.00
2000-1422	2001-31029, 2001-31030	Nov-01	391.00	\$ 125.00	\$ 48,875.00
2001-1896		Apr-02	333.00	\$ 125.00	\$ 41,625.00
2002-1411	2002-31309, 2002-30752	Jan-03	470.00	\$ 125.00	\$ 58,750.00
2003-0815	2003-30972	Dec-03	225.00	\$ 200.00	\$ 45,000.00
2004-1979	2005-30418	Apr-05	93.00	\$ 205.00	\$ 19,065.00
2005-1068	2004-31226	Sep-05	34.67	\$ 219.00	\$ 7,592.73
2005-1180	2005-31394	Sep-05	473.53	\$ 219.00	\$ 103,703.07
2007-1551	2007-2970-313	Jun-08	162.80	\$ 245.00	\$ 39,886.00
2005-1180	2005-31394	Sep-05	326.47	\$ 219.00	\$ 71,496.93
2007-1441	2009-00706	Aug-09	193.53	\$ 323.00	\$ 62,510.19
				<b>Total</b>	<b>\$ 621,253.92</b>

**Houston,  
we have a  
problem...**

# Credit Volatility - Closout Report to Final Approval

