



# Transitioning the EEP Nutrient Offset Program to an Actual Cost Method

## Results and Discussion

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Ecosystem Enhancement Program



April 8, 2009

- Review of Issues and Choices
- Actual Cost Method Results
  - Program Level View
  - River Basin View
  - Cataloging Unit View

# Issues and Choices

- Geographic Application?
  - Program Level
  - Basin Level
  - Cataloging Unit Level
- Frequency of Adjustment?
- Length of Adjustment Period?
- Should Costs be Adjusted below Actual Costs?

# Draft Actual Cost Method

$$\text{Actual Cost Rate} = \frac{\text{Actual Costs}}{\text{Total Pounds Offset}} + \text{Adjustment Factor}$$

# Draft Actual Cost Method

$$\text{ActualCostRate} = \frac{\text{ActualCosts}}{\text{TotalPoundsOffset}} + \text{AdjustmentFactor}$$

$$\text{ActualCosts} = \text{ProjectCosts} + \text{AdministrationCosts}$$

Completed Projects  
Terminated Projects  
Projects in Process

Staff  
Supplies  
Rent

# Draft Actual Cost Method

$$\text{Actual Cost Rate} = \frac{\text{Actual Costs}}{\text{Total Pounds Offset}} + \text{Adjustment Factor}$$



Total Pounds of Nutrients that will be offset  
by Projects

# Adjustment Factor

$$\text{Adjustment Factor} = \frac{(\text{Actual Costs} - \text{Actual Receipts})}{\text{Number of Pounds Paid During Adjustment Period}}$$

Differences Between Actual Costs and Actual Receipts are distributed to future pounds paid into program

- Upward or Downward Adjustments

# ACM Assumptions

- Adjustment Frequency- Annually
- Use 3 year running average to calculate average pounds expected to be paid per year
- Adjustment Period – 4 years
- Inflation Index – USACE Civil Works Construction Cost Index
- Admin Costs Per Payment limited to 8 years

# **Program Level Application**

## **Nitrogen**

# Actual Cost of Program

## Geographic Level – Program

<u>Actual Costs</u>	<u>Nitrogen Costs</u>	<u>Nitrogen Pounds</u>
Existing Projects	\$11,013,605.60	1,103,941
Future Projects	\$5,656,677.50	421,558
Complete Projects	\$0	0
Terminated Projects	\$0	0
Administration Costs	\$830,879.35	
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Total Actual Cost	\$ 17,501,162.46	1,525,499 lbs N

# Program Level Nitrogen - Receipts

Nitrogen Receipts			
Year	Number of Payments	Pounds Nitrogen	Dollars
2001	80	35,188	\$387,064.55
2002	220	125,797	\$1,383,765.46
2003	231	116,457	\$1,281,029.78
2004	223	139,812	\$1,537,935.15
2005	267	210,382	\$2,314,202.64
2006	321	251,597	\$2,868,111.66
2007	351	377,063	\$4,743,748.25
2008	223	106,457	\$2,995,455.24
2009	25	7,290	\$203,063.58
Grand Total	1941	1,370,043	\$17,714,376.31

# ACM Program Level Results

$$\text{Actual Cost Rate} = \frac{\text{Actual Costs}}{\text{Total Pounds Offset}} + \text{Adjustment Factor}$$

$$\text{Actual Cost Rate} = \frac{17,501,162.46}{1,525,499.04 \text{ lbs N}} + \frac{17,501,162.46 - 17,714,376.31}{1,719,787 \text{ lbs N}}$$

## Nitrogen Program Level

$$\text{Actual Cost Rate} = \$11.47 + (-0.12) = \$11.35/\text{lb N}$$

# **Basin Level Application**

**Neuse Nitrogen Rate**

# Basin Level – Neuse Nitrogen

<u>Actual Costs</u>	<u>Nitrogen Costs</u>	<u>Nitrogen Pounds</u>
Existing Projects	\$10,221,377.05	930,343
Future Projects	\$5,651,202	419,626
Complete Projects	\$0	0
Terminated Projects	\$0	0
Administration Costs	\$735,275.24	
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Total Actual Cost	\$16,607,854.28	1,349,969.36 lbs N

# Basin Level - Neuse N Receipts

Nitrogen Receipts			
Year	Number of Payments	Pounds Nitrogen	Dollars
2001	80	35,187.686	\$387,064.55
2002	220	125,796.860	\$1,383,765.46
2003	231	116,457.253	\$1,281,029.78
2004	223	139,812.286	\$1,537,935.15
2005	267	210,382.058	\$2,314,202.64
2006	314	244,642.078	\$2,791,609.15
2007	341	372,300.323	\$4,680,378.01
2008	212	102,871.016	\$2,916,394.08
2009	22	6,748.836	\$191,328.90
<b>Total</b>	<b>1910</b>	<b>1,354,198.40</b>	<b>\$17,483,707.72</b>

# Basin Level Neuse Nitrogen Results

$$\text{Actual Cost Rate} = \frac{\text{Actual Costs}}{\text{Total Pounds Offset}} + \text{Adjustment Factor}$$

$$\text{Actual Cost Rate} = \frac{16,607,854.28}{1,349,969.36 \text{ lbs N}} + \frac{16,607,854.28 - 17,483,707.72}{959,752 \text{ lbs N}}$$

$$\text{Actual Cost Rate} = \$12.60 + (-0.91) = \$11.39/\text{lb N}$$

# **Basin Level Application**

**Tar Pamlico Nitrogen Rate**

# Basin Level Tar Pamlico Nitrogen

<u>Actual Costs</u>	<u>Nitrogen Costs</u>	<u>Nitrogen Pounds</u>
Existing Projects	\$792,228.56	173,598
Future Projects	\$5,475.50	1,932
Complete Projects	\$0	0
Terminated Projects	\$0	0
Administration Costs	\$95,604.12	
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Total Actual Cost	\$893,308.17	175,530lbs N

# Basin Level Tar Pamlico Nitrogen

Nitrogen Receipts			
Year	Number of Payments	Pounds Nitrogen	Dollars
2001	80	35,187.686	\$387,064.55
2002	220	125,796.860	\$1,383,765.46
2003	231	116,457.253	\$1,281,029.78
2004	223	139,812.286	\$1,537,935.15
2005	267	210,382.058	\$2,314,202.64
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2009	22	6,748.836	\$191,328.90
<b>Total</b>	<b>1910</b>	<b>1,354,198.40</b>	<b>\$17,483,707.72</b>

# Basin Level Tar Pamlico Nitrogen

$$\text{Actual Cost Rate} = \frac{\text{Actual Costs}}{\text{Total Pounds Offset}} + \text{Adjustment Factor}$$

$$\text{Actual Cost Rate} = \frac{893,308.17}{175,529 \text{ lbs N}} + \frac{893,308.17 - 217,649.72}{22,984 \text{ lbs N}}$$

$$\text{Actual Cost Rate} = \$5.09 + 29.40 = \$34.49 / \text{lb N}$$

# **Basin Level Application**

**Tar Pamlico Phosphorus Rate**

# Basin Level Tar Pamlico Phosphorus

<u>Actual Costs</u>	<u>Phosphorus Costs</u>	<u>Phosphorus Pounds</u>
Existing Projects	\$792,228.56	11,217
Future Projects	\$5,475.50	140
Complete Projects	\$0	0
Terminated Projects	\$0	0
Administration Costs	\$32,054.29	
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Total Actual Cost	\$829,758.35	11,356.51 lbs P

# Basin Level Tar Pamlico Phosphorus

Phosphorus Receipts			
Year	# of Payments	Pounds	Dollars
2006	9	307.974	79,237.260
2007	22	1,267.440	315,201.880
2008	11	764.124	218,692.310
2009	1	29.460	8,431.450
<b>Total</b>	<b>43</b>	<b>2,369.00</b>	<b>\$621,562.90</b>

# Basin Level Tar Pamlico Phosphorus

$$\text{Actual Cost Rate} = \frac{\text{Actual Costs}}{\text{Total Pounds Offset}} + \text{Adjustment Factor}$$

$$\text{Actual Cost Rate} = \frac{829,758.35}{11,356.51 \text{ lbs N}} + \frac{829,758.35 - 621,562.90}{3,872 \text{ lbs P}}$$

$$\text{Actual Cost Rate} = \$73.09 + 53.77 = \$126.83 / \text{lb P}$$

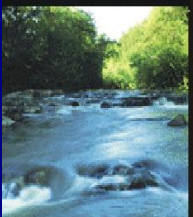
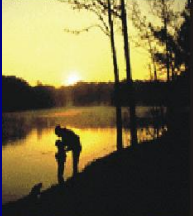
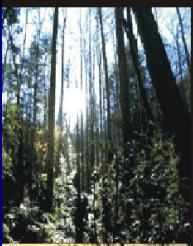
# CU Level Application

## Problems:

- Downstream Projects Used to Mitigate Upstream Impacts
  - Would require additional accounting and programming
- Some CUs have no payments, Many CUs have few
  - Projections Difficult
- Only 3% of N requirements are located outside of Neuse 01
- Will cause large adjustment factors because insufficient number of payments exist

# Summary

			Program Costs (\$/lb)	Adjustment Factor	Actual Cost Rate (\$/lb)
<b>Current Level</b>	Neuse	Nitrogen			\$28.35
	Tar Pamlico	Nitrogen			\$21.67
		Phosphorus			\$286.20
<b>Program Level</b>					
	Nitrogen		\$11.47	(\$0.12)	\$11.35
		Phosphorus	\$73.09	\$53.77	\$126.83
<b>River Basin Level</b>	Neuse	Nitrogen	\$12.60	(\$0.91)	\$11.39
	Tar Pamlico	Nitrogen	\$5.09	\$29.40	\$34.49
	Tar Pamlico	Phosphorus	\$73.09	\$53.77	\$126.83



# Questions?

NC Ecosystem Enhancement Program

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[www.nceep.net](http://www.nceep.net)

# Adjustment Frequency

## Adjust when:

1. Actual Costs – Actual Receipts differs by specified % or amount
2. If Unencumbered Cash – Future Contract Costs  $< 0$
3. Adjustment shall implemented at least once per year.