

Division of Mitigation Services 2023-24 Annual Report

DMS-WIDE

FLOOD MITIGATION
AND PLANNING

APPENDICES

REGULATORY
ADDENDUM

NCDOT
PROGRAM

STATEWIDE
PROGRAM

RIPARIAN BUFFER
PROGRAM

NUTRIENT OFFSET
PROGRAM

MISSION: To provide cost-effective mitigation alternatives that improve the state's water resources.



Executive Summary

In fiscal year (FY) 2023-24, the NC Division of Mitigation Services (DMS):

- Assisted the North Carolina Department of Transportation (NCDOT) in obtaining permits for 52 transportation projects by providing 22,728 stream mitigation credits and 32.230 wetland mitigation credits.
- Assisted customers with 178 development projects in the Statewide Stream and Wetland, Riparian Buffer, and Nutrient Offset In-Lieu Fee (ILF) Programs by providing:
 - 20,623.300 stream credits
 - 97.491 wetland credits
 - 683,345 credits of buffer mitigation (equivalent to 27 acres of buffer restoration)
 - 1,202 pounds of nitrogen reduction
 - 5,481 pounds of phosphorus reduction (a significant increase over previous years)
- Natural Infrastructure Flood Mitigation Program (NIFMP):
 - Completed hydrologic and hydraulic modeling of the Stoney Creek watershed (Neuse River basin). Modeling shows existing conditions and future conditions after implementation of flood mitigation projects.
 - First two projects in the Stoney Creek Pilot Project are underway.
 - Awarded additional contract to map and model Carolina Bays for flood mitigation potential.
- Statewide Flood Resiliency Blueprint:
 - Published the Draft Blueprint document and completed Neuse River Basin Flood Resiliency Action Strategy.
 - Began development of the web-based decision support tool, the NC Flood Resiliency Blueprint Tool (Blueprint Tool).
 - Phase III underway to Beta test the Blueprint Tool and develop flood action strategies in five additional river basins.



Program-Wide

The FY 2023-2024 DMS annual report fulfills statutory and regulatory reporting requirements as detailed in the 2010 NCDEQ – DMS In-Lieu Fee Instrument governing in-lieu fee programs for stream & wetland mitigation and the Federal Rules in 33 CFR Parts 325 and 332 & 40 CFR Part 230, and North Carolina G.S. §143-214.13.

DMS operates four in-lieu fee programs:

- NC DOT Statewide Stream and Wetland ILF
- Statewide Stream and Wetland ILF
- Riparian Buffer ILF, and
- Nutrient Offset ILF Program

and also implements Flood Mitigation and Planning.



Property



- During FY 2023-2024, the State Property Office closed 27 conservation easement transactions totaling 418.402 acres associated with DMS' projects.
- All properties that closed during FY 2023-2024 are shown in Appendix A-1.
- A full inventory of all properties associated with DMS projects acquired to date is presented in Appendix A-2.
- More than 80,700 acres of conservation land or conservation easements have been acquired by DMS and partners to date.
- Full lists of DMS projects are in Appendices A-3, A-4, A-5, and A-6.



Program Costs

Recent credit costs were summarized by analyzing full delivery contracts and mitigation bank purchases awarded over the last three fiscal years. The data includes project contracts, administrative costs, overhead, and other costs required to complete these projects. The program rates for the last three years are also summarized.

CREDIT TYPE	RANGE OF RECENT CREDIT COSTS PER CREDIT	PROGRAM RATES**
Stream	\$425.00 to \$800.00	\$740.09
Freshwater Wetland	\$41,819.00 to \$125,000.00	\$76,150.13 to \$152,707.36
Coastal Marsh Wetland	N/A*	\$560,000
Riparian Buffer	\$0.85 to \$4.95	\$1.35 to \$6.16
Nutrient Offset Nitrogen	\$9.24 to \$180.00	\$12.37 to \$133.95
Nutrient Offset Phosphorus	\$1.25 to \$675.00	\$190.31 to \$580.79

*DMS did not implement any Coastal Marsh wetland projects in the last three fiscal years.

**Program rates are set using the Actual Cost Method, which is a full cost accounting method and may result in premium rates in high-cost watersheds.



Cost Analysis of Private Mitigation Banks

Reporting requirements of G.S. §143 214.13 require DMS to compare project costs with private mitigation bank rates. For this analysis, DMS used the actual submitted prices for mitigation bank credits from requests for bids in the last fiscal year. A complete list of purchased bank credits during 2023-2024 are listed in [Appendix B](#).

MITIGATION TYPE	RANGE OF BANK PRICES PER CREDIT
Stream Mitigation Credits	\$520.00 to \$787.00
Riparian Wetland Mitigation Credits	\$50,000.00 to \$125,000.00
Non-Riparian Wetland Mitigation Credits	\$55,000.00 to \$80,000.00
Coastal Marsh Mitigation Credits	None Submitted
Riparian Buffer Mitigation Credits	\$0.89 to \$4.95
Nitrogen Offset Credits	\$9.25 to \$180.00
Phosphorus Offset Credits	\$1.25 to \$660.00



Advance Credits



DMS' in-lieu fee mitigation instrument allocated advance credits by river basin and eight-digit cataloging units. Pursuant to this operating agreement, this annual report includes a summary of the status and use of "Advance Credits" as defined by federal rules in Appendix C.



Mitigation Losses and Gains

G.S. §143-214.13 requires DMS to document statewide wetland losses and gains and compensatory mitigation performed under G.S. §143-214.8 through G.S. §143-214.12. The data below have been provided by the Division of Water Resources (DWR*) and reflect permitting by the Department of Environmental Quality (DEQ). The remainder of this report documents DMS compensatory mitigation. Complete lists of DMS mitigation requirements and assets are provided in the Regulatory Addendum.

DWR Fiscal Year 7/1/2023 through 6/30/2024	
Streams (Linear Feet)	YTD
Lost from permitting	30,177
Gained from permitting (mitigation)	22,763
Wetlands (Acres)	YTD
Lost from permitting	60.20
Gained from permitting (mitigation)	46.00
Riparian Buffers (Acres)	YTD
Lost from permitting	19.423
Gained from permitting (mitigation)	9.436

* Data is from the DWR database only. Due to permit processes, mitigation and impacts may not (usually do not) occur in the same reporting period. Data may include impacts to resources that do not require mitigation (under required thresholds, for example). Due to versions and revisions, different versions of the same project may occur in the same reporting period causing a double calculation of impacts. As of May 4, 2017, the stream mitigation threshold requirements changed. Only impacts 300 lf or greater of perennial stream require mitigation. As of June 15, 2020, the wetland mitigation threshold requirements changed. Impacts 0.10 acre or greater of wetlands require mitigation. Mitigation required by USACE applicable to permitted impacts is not tracked by DWR.



DMS Program Fiscal Summary

FY 2023-2024 fund status detail for each of the DMS in-lieu fee programs.

	NCDOT In-Lieu Fee Program	Statewide Stream & Wetland In-Lieu-Fee Program	Riparian Buffer In-Lieu-Fee Program	Nutrient Offset In-Lieu Fee Program	Flood Resiliency Blueprint	Natural Infrastructure Flood Mitigation Program
Beginning Cash	\$1,969,056.45	\$108,829,086.46	\$16,606,187.38	\$9,649,443.25	\$19,839,489.75	\$3,462,232.10
Revenues	\$20,193,832.50	\$30,805,327.65	\$2,160,281.36	\$2,318,807.40	\$493,593.00	\$5,000,000.00
Expenditures	\$15,869,652.72	\$16,147,238.16	\$5,156,034.70	\$1,789,020.96	\$3,328,708.66	\$678,381.68
Long Term Investments Pool (Pensions)	\$0	\$500,000.00	\$0	\$200,000.00	\$0	\$0
Equity Index Fund	\$0	\$2,500,246.18	\$0	\$1,474,529.01	\$0	\$0
Bond Index Fund	\$0	\$156,047.19	\$0	\$156,224.38	\$0	\$0
Ending Cash and Cash Equivalents	\$6,293,236.23	\$126,643,469.32	\$13,610,434.04	\$12,009,983.08	\$17,004,374.09	\$7,783,850.42



Flood Mitigation and Planning

NATURAL INFRASTRUCTURE
FLOOD MITIGATION PROGRAM

NIFMP
FUND STATUS

FLOOD RESILIENCY BLUEPRINT

BLUEPRINT
FUND STATUS

DMS' newest mission is to identify and reduce flood risks through flood resiliency planning and the implementation of natural infrastructure projects.



Flood Mitigation and Planning

Natural Infrastructure Flood Mitigation Program (NIFMP)

- NIFMP seek to mitigate flooding using natural infrastructure and constructed systems that mimic natural processes. These systems can include strategies like building wetlands and restoring streams.
- DMS contracted with Ecosystem Planning and Restoration, PLLC (EPR) for a hydrologic and hydraulic model quantifying the effect of buffer, stream and wetland restoration on flood attenuation in the Stoney Creek watershed. This work will be used to evaluate projects for performance and for project selection in the project procurement process.
- EPR has designed the first project within the Stoney Creek Pilot Project, a stormwater wetland and detention basin. The design for a second project, a detention pond, is underway.
- DMS contracted Resource Environmental Solutions (RES) to inventory, map and model Carolina Bay type wetland areas for restoration and flood mitigation potential.
- Staff have engaged in literature reviews summarizing natural infrastructure and nature-based solutions suitable for different areas of the state (mountains, piedmont and coastal).
- DMS is working on the easement and maintenance agreement for the potential second project within the Stoney Creek Pilot Project.



Flood Mitigation and Planning

Natural Infrastructure Flood Mitigation Program

(Fund 205601)

Beginning Cash	\$3,494,600.110
Revenues	\$5,000,000.00
Expenditures	\$ 678,381.68
Adjustment To Cash Basis	\$0
Ending Cash and Bond Balance	\$ 7,7863,850.42

Appendix E provides a full listing of expenditures by fund.



Flood Mitigation and Planning

NC Flood Resiliency Blueprint

- The 2021 Appropriations Act provided \$20 million for DMS to develop North Carolina's first Flood Resiliency Blueprint. The blueprint is a statewide watershed planning effort to establish a framework and tools to assist local communities in decision-making related to reducing flood risk and increasing resilience.

Progress:

- Phase I research and recommendations deliverables and the Gap Analysis complete. The draft blueprint was completed December 2023, and the draft Neuse Basin Action Strategy was completed in June 2024.
- Phase II involves the development of the Flood Resiliency Blueprint Tool and began in November 2023. DMS and NCDEQ-IT staff meet weekly with the vendor. A small user group of external stakeholders are also involved.
- Phase III has begun. DMS staff are in the process of contracting with vendors to support flood resiliency action strategy development in five additional targeted river basins.
- DMS is collaborating with the N. C. Emergency Management to conduct additional modeling in the six targeted basins.



Flood Mitigation and Planning

NC Flood Resiliency Blueprint

(Fund 205600)

Beginning Cash	\$19,839,489.75
Revenues	\$493,593.00
Expenditures	\$ 3,328,708.66
Adjustment To Cash Basis	\$0
Ending Cash and Bond Balance	\$ 17,004,734.09

Appendix E provides a full listing of expenditures by fund.



DMS ILF Programs

NCDOT
Stream &
Wetland

Statewide
Stream &
Wetland

Riparian
Buffer

Nutrient
Offset

Each of the four DMS in-lieu fee programs are financially independent funds that operate solely on receipts and do not receive any appropriations from the North Carolina General Assembly.



NCDOT Stream & Wetland ILF

REQUIREMENTS

FUND STATUS

EXPENDITURES



COMPLIANCE

INVENTORY



NCDOT Stream & Wetland ILF

- ❖ The goal of this program is to produce mitigation credits to offset anticipated impacts from the implementation of the NCDOT seven-year Strategic Transportation Improvement Program (STIP). Anticipated impacts are provided to DMS by the Natural Environment Unit at NCDOT.
- ❖ In fiscal year 2023-2024 DMS provided mitigation for 52 NCDOT transportation permitted projects requiring stream and/or wetland mitigation.
- ❖ For these NCDOT projects, DMS is providing 22,728 stream mitigation credits and 32.23 wetland mitigation credits.
- ❖ Appendix D-1 provides NCDOT Stream and Wetland Program permitted requirements for fiscal year 2023-24.



NCDOT Stream & Wetland ILF Fund Status

(205454, 205454-1609310, 205454-1609841)

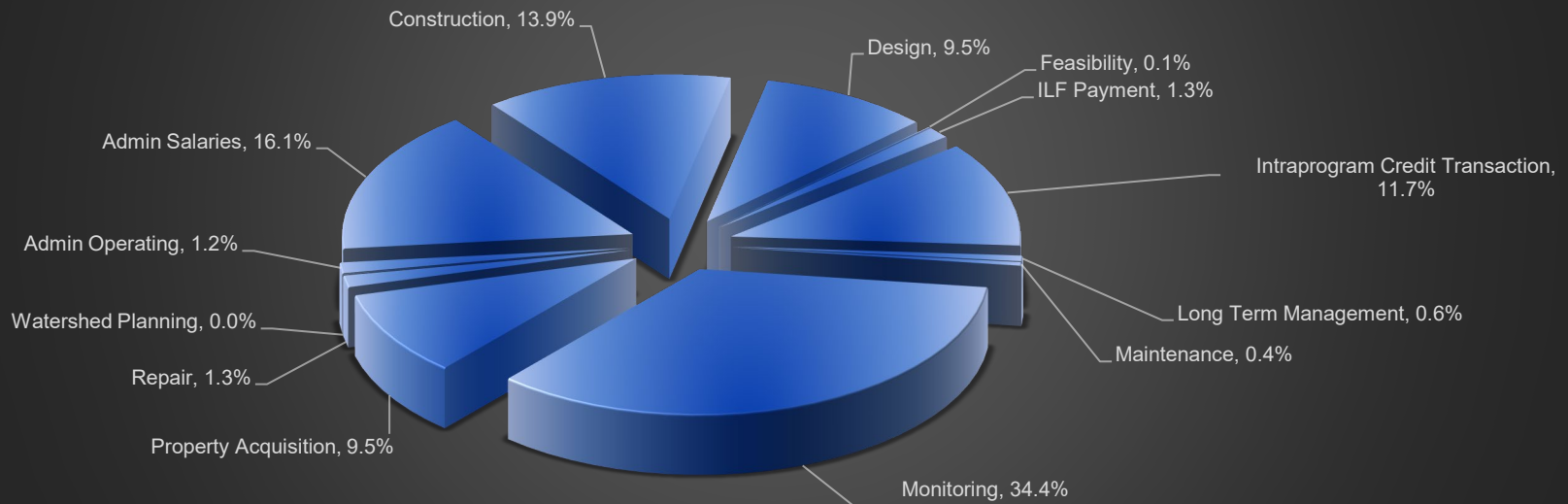
Beginning Cash	\$1,969,056.45
Revenues	\$20,193,832.50
Expenditures	\$15,869,652.72
Adjustment To Cash Basis	\$0
Ending Cash and Bond Balance	\$6,293,236.23



NCDOT Stream & Wetland ILF Expenditures

This figure summarizes the expenditures by payment type for the NCDOT Stream and Wetland ILF Program. [Appendix E](#) provides a full listing of the expenditures by fund.

\$ 15.87 Million Total in 2023-2024



NCDOT Stream & Wetland ILF Compliance

The NCDOT Stream and Wetland ILF Program is a national leader in producing compensatory mitigation in advance of unavoidable environmental impacts. Since 2003, the agreements between NCDOT, NCDEQ, and the U.S. Army Corps of Engineers have allowed NCDOT to move forward with more than \$33 billion in road development projects without delays associated with compensatory mitigation. Regulatory Addendum IV provides a detailed compliance action strategy by cataloging unit.

DOT Program Type	Requirements Due (credits)	Requirements Met (credits)	Requirements Not Met (credits)	Compliance (credits)	Advance Credits Applied	Total Advanced Mitigation * (unassigned)
Stream	1,182,751.200	1,182,751.200	0.000	100.00%	76,915.001	551,519.959
Wetlands	2,691.124	2,691.124	0.000	100.00%	60.725	8,532.415

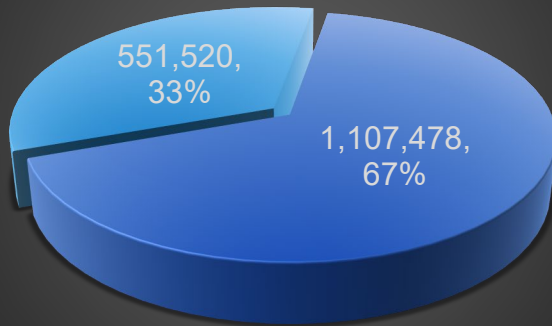
**Includes surplus credits developed by NCDOT and managed by DMS*



NCDOT Stream & Wetland ILF Inventory

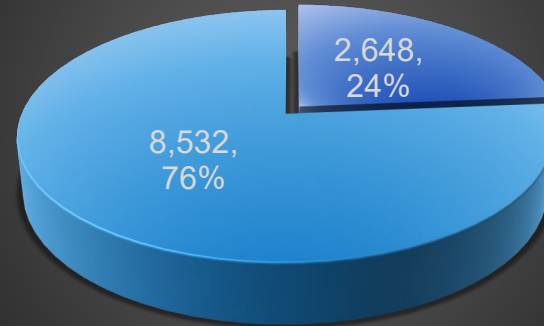
The NCDOT Stream and Wetland ILF Program's gross inventory* totaled 1,658,998 stream credits and 11,180 wetland credits. A large portion of these credits are unassigned and available for future permit requirements as projected in the state's Strategic Transportation Improvement Program. Detailed information about the NCDOT Stream and Wetland ILF Program Gross and Net inventories can be found in Appendices F-1 and F-2 (for non HQP), and F-3 and F-4 (for HQP).

Stream Inventory fiscal 2023-24



■ Applied Credits (59%) ■ Unassigned Credits (41%)

Wetland Inventory fiscal 2023-24



■ Applied Credits (22%) ■ Unassigned Credits (78%)

**Includes surplus credits developed by NCDOT and managed by DMS.
Unassigned credits are available for use on future development projects.*



Statewide Stream & Wetland ILF

REQUIREMENTS

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Statewide Stream & Wetland ILF

- ❖ In fiscal year 2023-2024, DMS accepted 120 new customer ILF payments into the Statewide Stream and Wetland ILF Program, totaling \$22,742,153.
- ❖ These 120 customer payments represent 105 development projects, 20,623 stream credits and 97,491 wetland credits.
- ❖ The number of stream mitigation credits paid into DMS decreased from previous fiscal years while the number of wetland mitigation credits more than doubled.
- ❖ Appendix D-2 provides Statewide Stream and Wetland ILF Program fiscal year 2023-2024 receipts and requirements.



Statewide Stream & Wetland ILF Fund Status

(205451, 205451-1609811, 205451-1609818, 205201)

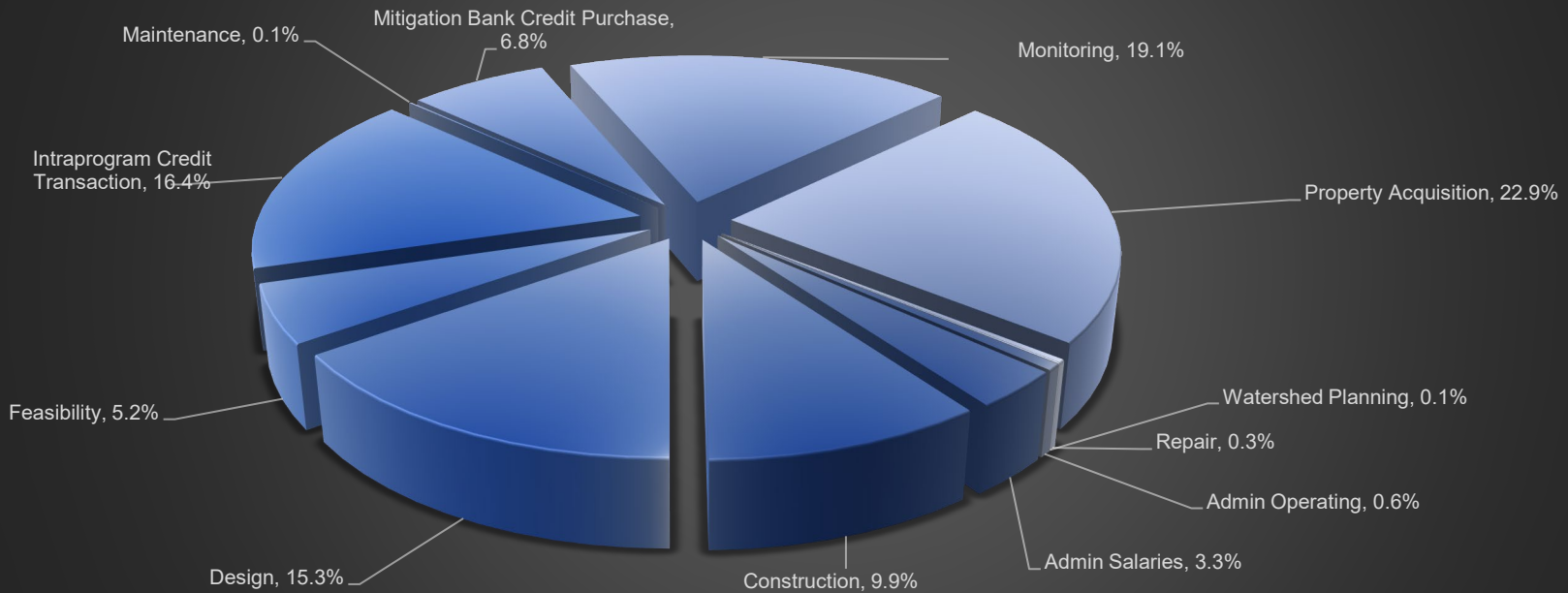
Beginning Cash	\$108,829,086.46
Revenues	\$30,805,327.65
Expenditures	\$16,147,238.16
Adjustment to Cash Basis (rename Investment – Long Term)	\$500,000.00
Equity Index Fund	\$2,500,246.18
Bond Index Fund	\$156,047.19
Ending Cash and Bond Balance	\$126,643,469.32



Statewide Stream & Wetland ILF Expenditures

This figure summarizes the expenditures by payment type for the Statewide Stream and Wetland ILF Program. [Appendix E](#) provides a full listing of the expenditures by fund.

\$16.147 Million Total Fiscal 2023-2024



Statewide Stream & Wetland ILF Compliance

For fiscal year 2023-2024, the Statewide Stream and Wetland ILF Program had satisfied 99.99 percent of all stream requirements and 99.99 percent of all wetland requirements. DMS continues to implement projects to address all its permit requirements. Regulatory Addendum IV provides a detailed compliance action strategy by cataloging unit.

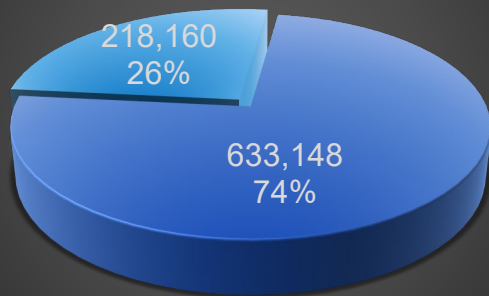
Statewide Program Type	Requirements Due (credits)	Requirements Met (credits)	Requirements Not Met (credits)	Compliance (credits)	Advance Credits Applied	Total Advanced Mitigation (Unassigned)
Stream	837,190.715	837,119.315	71.400	99.99%	216,253.127	218,160.320
Wetlands	1,677.839	1,677.836	0.003	99.99%	261.913	348.013



Statewide Stream & Wetland ILF Program Inventory

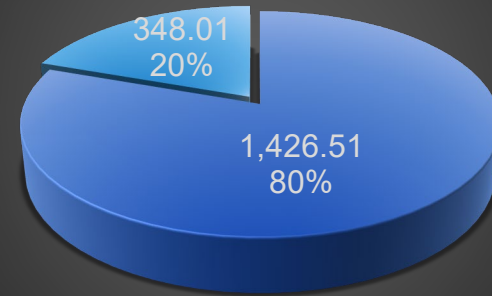
The Statewide Stream and Wetland ILF Program's gross inventory totaled 851,308.158 stream credits and 1,774.527 wetland credits. Detailed information about the Statewide Stream and Wetland ILF Program Gross and Net Inventories can be found in Appendices [F-5](#) and [F-6](#).

Stream Inventory Fiscal 2023-24



■ Applied Credits ■ Unassigned Credits

Wetland Inventory Fiscal 2023-24



■ Applied Credits ■ Unassigned Credits

Unassigned credits are available for use on future development projects.



Riparian Buffer Mitigation ILF

REQUIREMENTS

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EXPENDITURES

COMPLIANCE &
INVENTORY



Riparian Buffer Mitigation ILF

- ❖ In fiscal year 2023-2024, DMS received 29 new customer payments into the Riparian Buffer Mitigation Program, totaling \$1,390,263.57.
- ❖ These 29 customer payments represent 683,345 credits of buffer mitigation – equivalent to 15.7 acres of buffer restoration.
- ❖ Approximately 39 percent of the fiscal 2023-24 requirements came from eleven NCDOT / Government related projects.
- ❖ The total amount of riparian buffer mitigation paid into DMS continues to decrease as more private mitigation banks are developed in river basins with buffer rules.
- ❖ Appendix D-3 provides Riparian Buffer Program fiscal year 2023-2024 receipts and requirements.



Riparian Buffer ILF Fund Status

(205456, 205457, 205458, 205459, 205460)

Beginning Cash	\$16,606,187.38
Revenues	\$2,160,281.36
Expenditures	\$5,156,034.70
Bond Index Fund	\$0
Ending Cash and Bond Balance	\$13,610,434.04

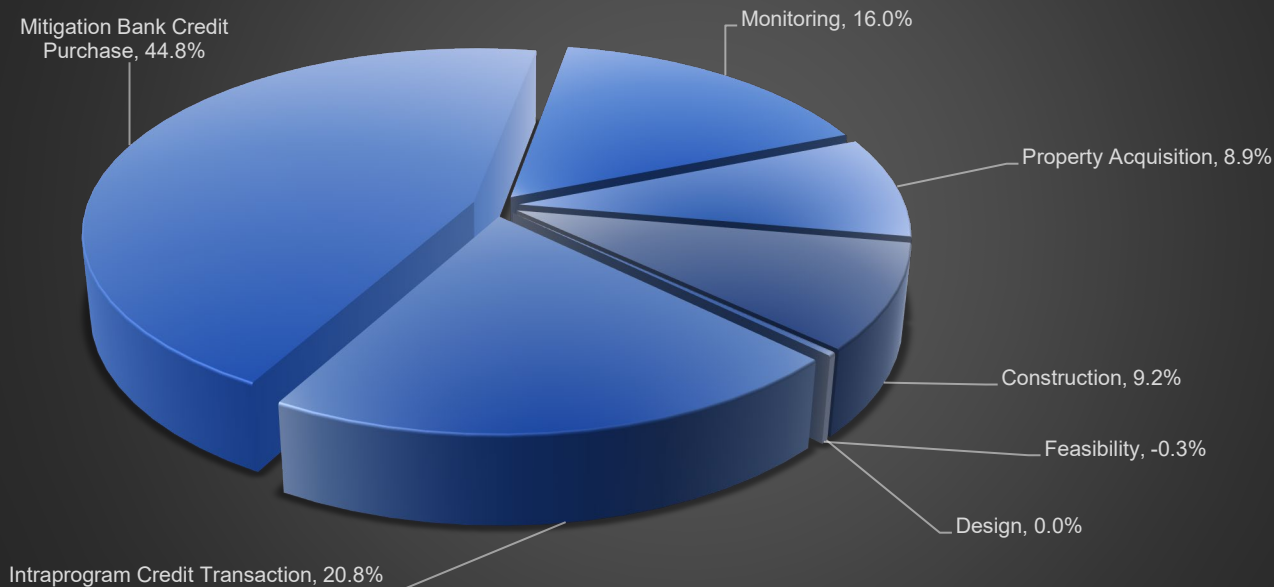
This table summarizes the finances of all five riparian buffer river basin funds.



Riparian Buffer ILF Expenditures

This figure summarizes the expenditures by payment type for the Riparian Buffer Mitigation ILF Program. [Appendix E](#) provides a full listing of the expenditures by fund.

\$5.16 Million Total Fiscal 2023-24



Riparian Buffer ILF Compliance and Inventory

Detailed information about the Riparian Buffer ILF Program's compliance action strategy can be found in [Regulatory Addendum IV](#) and about the program's gross and net Inventories can be found in Appendices [F-7](#) and [F-8](#).

Buffer Program Type	Requirements Due (credits)	Mitigation Applied Required (credits)	Requirements Not Met (credits)	Compliance	Total Advance Mitigation (Unassigned*)
Cape Fear	13,431,909.510	12,226,347.101	1,205,562.409	91.025%	52,232.607
Catawba	290,363.000	290,363.000	0.000	100.00%	200,000.000
Neuse	37,517,294.830	36,480,107.564	1,037,187.266	97.235%	558,473.128
Tar-Pamlico	6,092,950.910	6,092,950.910	0.000	100.00%	7,700.295
Yadkin	824,746.000	824,746.000	0.000	100.00%	0.433
Grand Total	58,157,264.250	55,914,514.575	2,242,749.675	96.144%	818,406.463

**Unassigned credits are available for future use on development projects.*



Nutrient Offset ILF

REQUIREMENTS

FUND STATUS

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COMPLIANCE &
INVENTORY



Nutrient Offset ILF

- ❖ In fiscal year 2023-2024, DMS received 54 customer payments into the Nutrient Offset ILF Program, totaling \$1,743,395.94.
- ❖ These 54 customer payments represent reductions of 1,201.940 pounds of nitrogen and 5,480.930 pounds of phosphorus. Phosphorus offset demand continues to increase from previous fiscal years.
- ❖ Phosphorus offset demand increased by 66% represented more than 82% of the total Nutrient Offset demand and more than 97% of the total customer payments.
- ❖ Nitrogen offset demand decreased by 97% and more than 40,000 pounds.
- ❖ Appendix D-4 provides Nutrient Offset Program fiscal year 2023-2024 receipts and requirements.



Nutrient Offset ILF Fund Status

(205452-1609829)

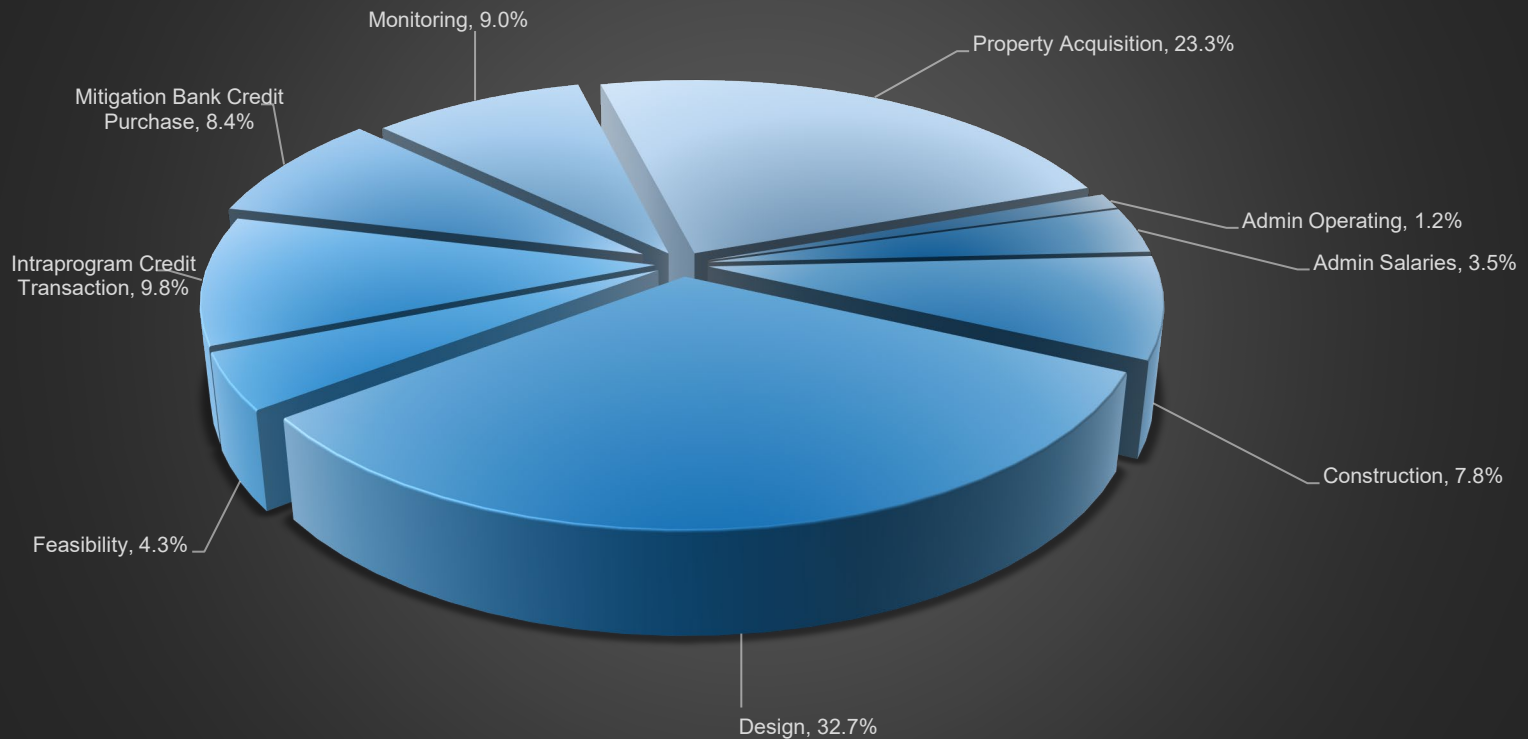
Beginning Cash	\$9,649,443.25
Revenues	\$2,318,807.40
Expenditures	\$1,789,020.96
Adjustment to Cash Basis (rename Investment – Long Term)	\$200,000.00
Equity Index Fund	\$1,474,529.01
Bond Index Fund	\$156,224.38
Ending Cash Balance	\$12,009,983.08



Nutrient Offset ILF Expenditures

This figure summarizes the expenditures by payment type for the Nutrient Offset ILF Program. [Appendix E](#) provides a full listing of the expenditures by fund.

\$1.789 Million Total Fiscal 2023-24



Nutrient Offset ILF Compliance and Inventory

DMS accepts payments for nitrogen reduction in the Neuse basin and nitrogen and phosphorus reductions in the Tar-Pamlico basin, the Falls Lake watershed and in the Jordan Lake watershed. Detailed information about the Nutrient Offset ILF Program's gross and net inventories can be found in Appendices [F-9](#) and [F-10](#), and the program's compliance action strategies can be found in [Regulatory Addendum IV](#).

Nutrient Offset Program Type	Requirements Due (credits)	Requirements Met (credits)	Requirements Not Met (credits)	Compliance (credits)	Total Advanced Mitigation (Unassigned*)
Falls Nitrogen	15,516.980	15,516.980	0.000	100.00%	65,919.060
Falls Phosphorus	15,055.142	5,005.712	10,049.430	32.249%	0.000
Jordan Nitrogen	54,035.350	45,215.300	8,820.050	82.29%	0.000
Jordan Phosphorus	18.670	6.440	12.230	34.49%	1,542.740
Neuse Nitrogen	1,508,324.671	1,508,324.671	0.000	100.00%	122,025.416
Tar Pamlico Nitrogen	156,361.810	156,361.810	0.000	100.00%	35,469.368
Tar Pamlico Phosphorus	12,929.439	12,360.656	568.783	95.601%	632.81
Grand Total	1,762,242.062	1,742,791.569	19,450.493	98.896%	225,589.394

**Unassigned credits are generated for use on future development projects.*



Appendices

Appendix A - Property

[A-1. Closed Fiscal Year](#)

[A-2. Cumulative Properties](#)

[A-3. Non-HQP Site List](#)

[A-4. HQP Site List](#)

Appendix B - Mitigation Bank Costs

[A-5. Riparian Buffer ILF Projects](#)

[A-6. Nutrient Offset ILF Projects](#)

Appendix C - Advance Credits

[C. Advance Credit Summary](#)

Appendix D - FY Requirements

[D-1. NCDOT FY Requirements](#)

[D-2. Statewide FY Requirements](#)

[D-3. Riparian Buffer FY Requirements](#)

Appendix E - Expenditures

[D-4. Nutrient Offset Requirements](#)

Appendix F - Inventory

Regulatory Addendum

[F-1. NCDOT Gross Assets \(no HQP\)](#)

[F-2. NCDOT Net Assets \(no HQP\)](#)

[F-3. NCDOT Gross Assets \(HQP\)](#)

[F-4. NCDOT Net Assets \(HQP\)](#)

[F-5. Statewide Gross Assets](#)

[F-6. Statewide Net Assets](#)

[F-7. Riparian Buffer Gross Assets](#)

[F-8. Riparian Buffer Net Assets](#)

[F-9. Nutrient Offset Program Gross Assets](#)

[F-10. Nutrient Offset Program Net Assets](#)

click on each to download, or here for [Full Appendices](#)



Regulatory Addendum



[click on each to download, or here for Full Addendum](#)