

# EGLE Wetland and Stream Mitigation Updates

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# Objectives

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- Wetland Mitigation Update
- Stream Mitigation Update
- Case Studies/Success Stories



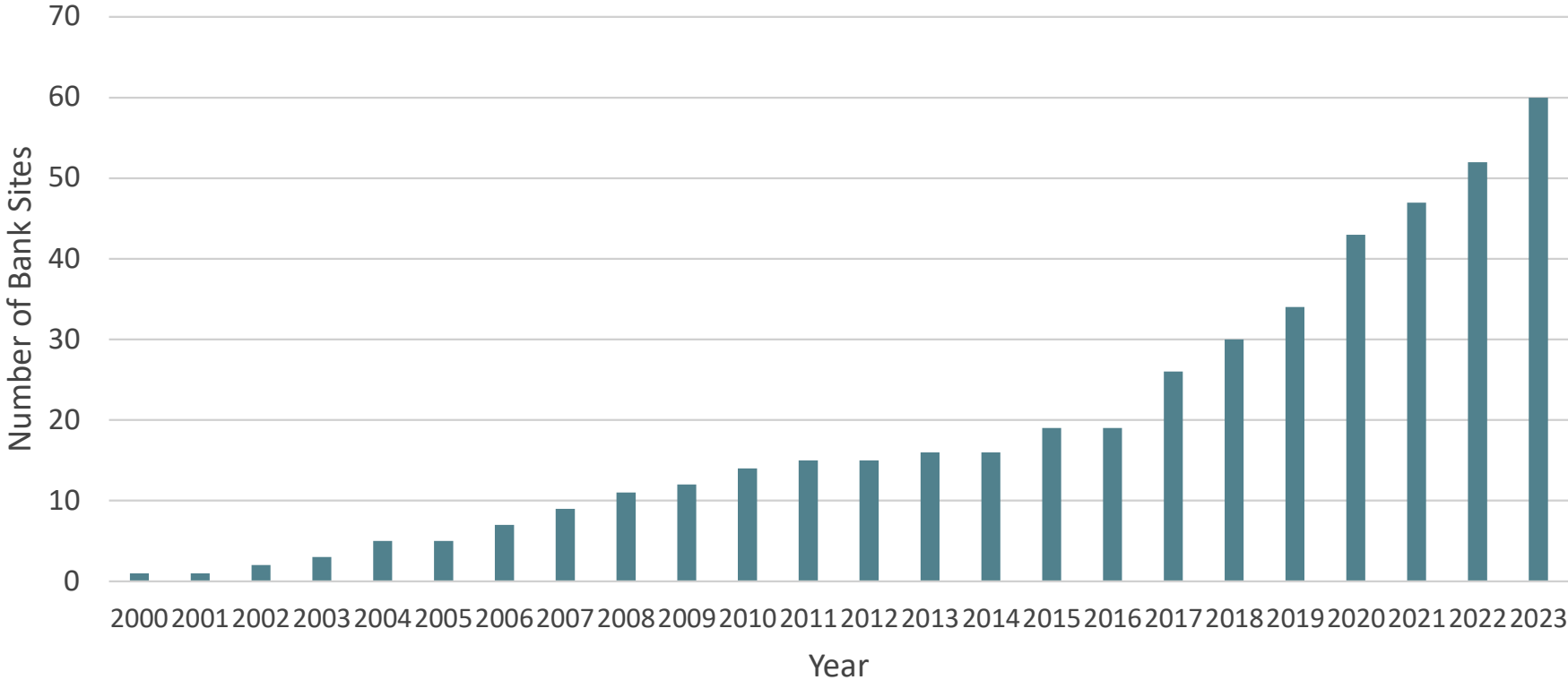
# Wetland Mitigation Update

It's all about that  
Bank...bout that Bank



# Wetland Banking Trends

Wetland Bank Sites in Michigan by Year




# Location of Wetland Bank Sites





# Wetland Bank Service Areas



The image consists of three vertical panels showing different views of a wetland landscape. The left panel shows a dense thicket of green trees and shrubs. The middle panel shows a similar thicket with a utility pole visible in the distance. The right panel shows a wide, shallow waterway or stream flowing through a grassy wetland area under a blue sky with scattered white clouds. The text is overlaid in white on the middle panel.

Key: Proper Design, Appropriate  
Management, Money and a Little  
Luck

Are all wetland  
bank sites amazing?



# Wetland Hydrology Pilot Project

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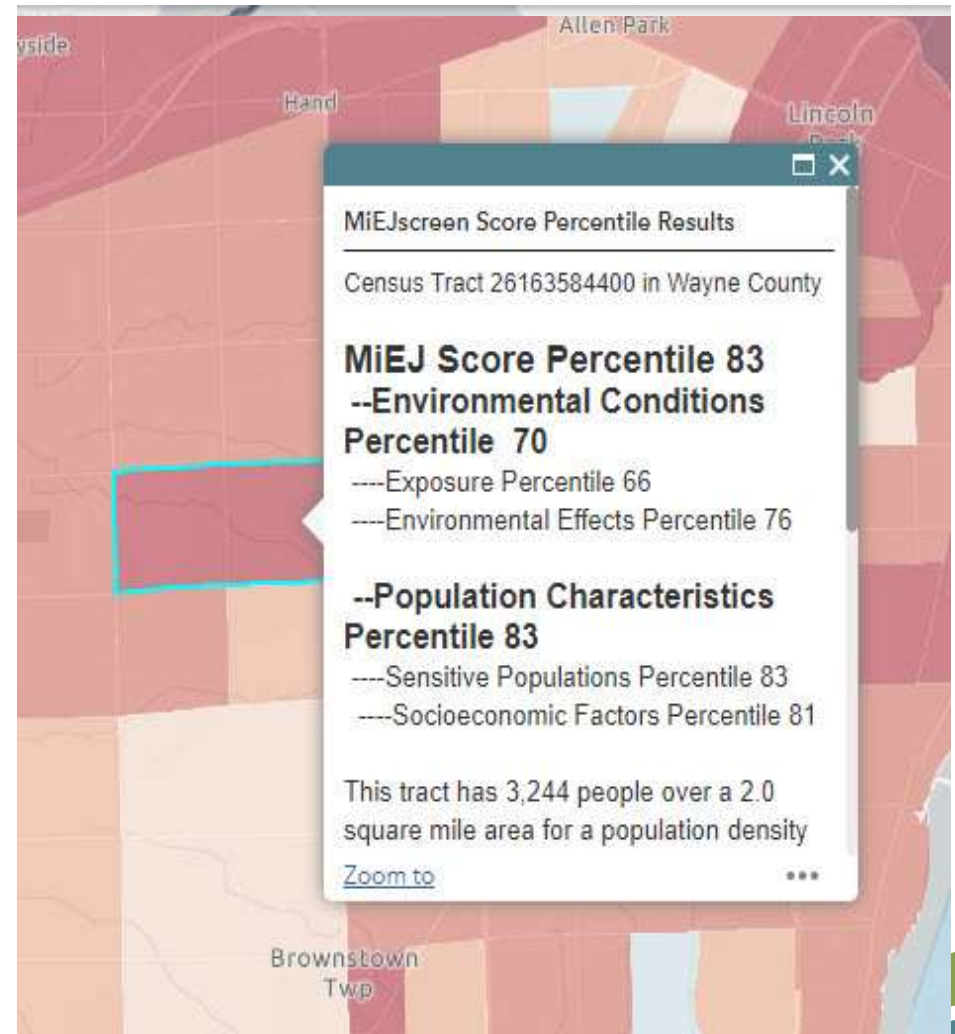
- EPA grant to install 70 monitoring wells in existing wetlands
- Collect data on hydroperiods of different wetland types
- ½ sites will use Michigan's Wetland Monitoring and Assessment sites
- 7-10 years of data collection
- Results may be used to modify existing hydrology standards for permits/bank sites





# Environmental Justice and Mitigation

- Environmental Justice is the equitable treatment and meaningful involvement of all people, regardless of race, color, national origin, ability, or income.
- Historically some areas of the state have lost significant wetland resources values caused by development
- EGLE considers EJ in decision making process when issuing permits
- May result in partial on-site mitigation or purchase of bank credits in EJ areas



# “No Net Loss”

- Most projects require purchase of bank credits
- Preservation as mitigation is usually accompanied by bank credit purchase or restoration
- At least 1:1 restoration/credits for no net loss





## Where do we go from here?

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- There's room for improvement
- More focus on functions and values
- Increase diversity of wetland types or incorporate existing wetlands, upland buffers, etc.
- Restore historically lost wetland types?



Photo by Bradford S. Slaughter





# Stream Mitigation

- Status of stream mitigation
- New stream mitigation web page
- MiSQT
- Common challenges
- What's next?

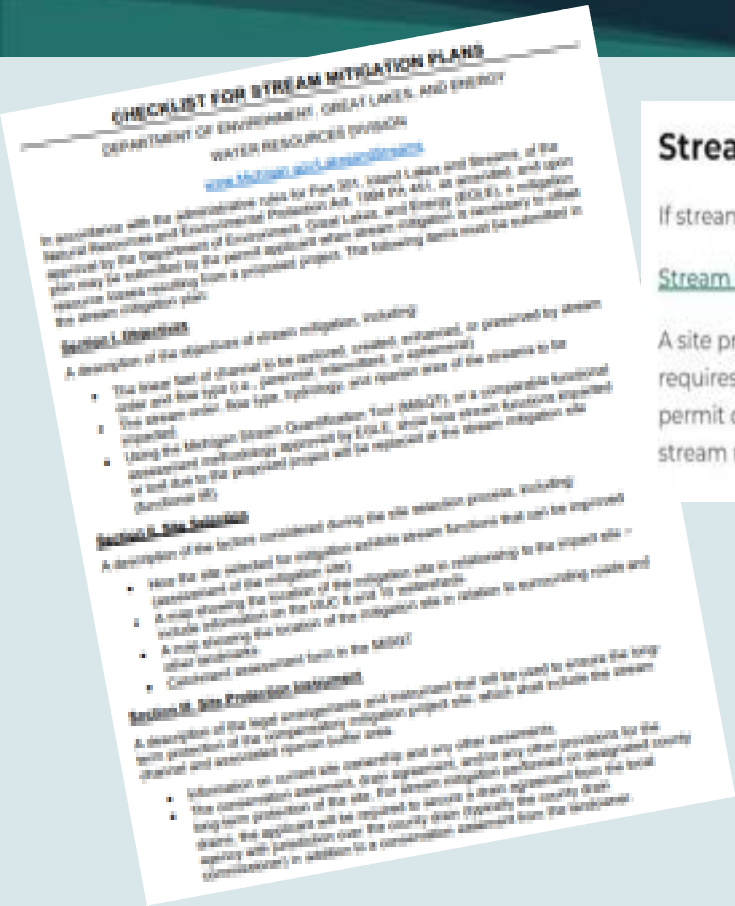




# Status of Stream Mitigation

- MiSQT officially available since 2021
- 15 permitted stream mitigation projects using MiSQT
- 4 permitted in 2022, and 11 in 2023
- Types of Projects:
  - 11 private development
  - 2 public sector
  - 2 utility projects
- Distribution:
  - 8 Warren District
  - 3 Grand Rapids District
  - 2 Jackson District
  - 1 Bay City District
  - 1 Gaylord District
- 6 projects had off-site mitigation
- 6 projects have been completed
- 1 monitoring report submitted

# Stream Mitigation



## Stream Mitigation Plans

If stream mitigation is required, applicants must submit an acceptable mitigation plan before a permit is issued.

### Stream Mitigation Checklist

A site protection instrument is necessary to protect the stream mitigation and the functions and values it provides in perpetuity. EGLE typically requires site protection in the form of a conservation easement from the property owner, and financial assurance to guarantee compliance with permit conditions. Contact Michael Pennington at [penningtonm@michigan.gov](mailto:penningtonm@michigan.gov) for a copy of the appropriate conservation easement model for stream mitigation and financial assurance documents.

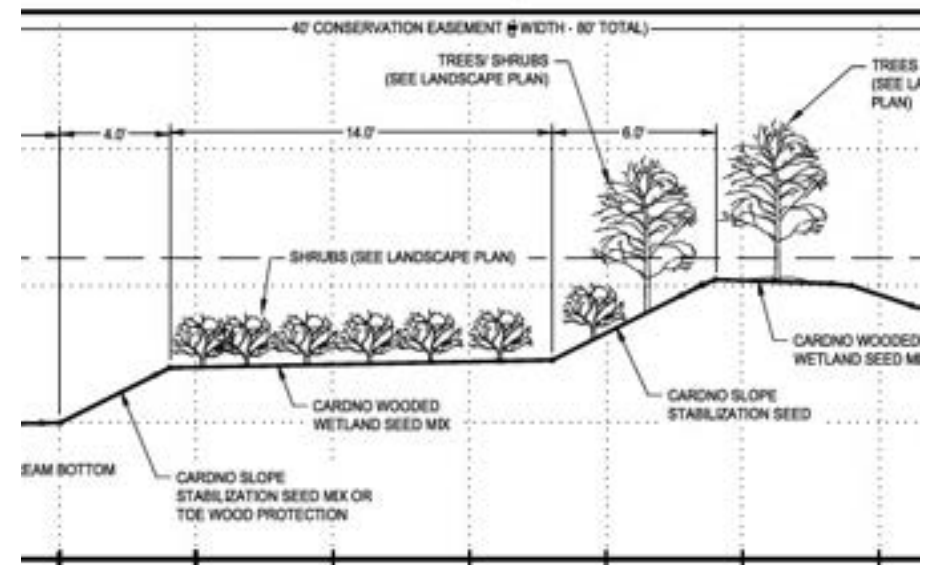
## New EGLE Stream Mitigation web page!

- [www.mi.gov/lakesandstreams](http://www.mi.gov/lakesandstreams)
- Stream Mitigation Plan Checklist
- Info on Financial Assurance and Conservation Easement models coming soon



# Stream Mitigation Plan Checklist --- *new!*

- 1) Site Selection
- 2) Site Protection Instruments and Financial Assurances
- 3) Baseline Assessment Information (MiSQT) for the Impact and Mitigation sites
- 4) Functional lift at the Mitigation Site (MiSQT)
- 5) Design plans including vegetation plan
- 6) Monitoring and Performance Standards
- 7) Adaptive Management



# Michigan Stream Quantification Tool

- What is the MiSQT?
- Quantitative stream functional assessment

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- Looks at stream functions:
  - Pre- and post-impact
    - Quantifies functional loss
  - Pre- and post-mitigation/restoration
    - Quantifies functional lift
- Includes metrics like floodplain connectivity, riparian buffer, bedform diversity, large woody debris
- Categorizes functions as: functioning, not functioning, and functioning-at-risk



## ON-BASED PARAMETER SUMMARY

Function-Based Parameters	Existing Parameter	Proposed Parameter
Peak Runoff	0.05	1.00
Floodplain Connectivity	0.15	1.00
Large Woody Debris	0.00	0.21
Channel Migration	0.87	1.00
Riparian Vegetation	0.29	0.50
Bedform Diversity	0.64	1.00
Temperature	1.00	1.00
Area		
Perimeters		
Dissolved Oxygen	0.67	0.70
Macroinvertebrates	0.23	0.66

Existing Condition Score (ECS)	0.34
Proposed Condition Score (PCS)	0.84
Change in Functional Condition (PCS - ECS)	0.50
Percent Condition Change	147%
Existing Stream Length (ft)	609
Proposed Stream Length (ft)	700
Additional Stream Length (ft)	91
Existing Functional Foot Score (FFS)	207
Proposed Functional Foot Score (FFS)	588
Proposed FFS - Existing FFS ( $\Delta$ FF)	<b>380.9 P2</b>



# Michigan Stream Quantification Tool

- Officially available since 2021
- 15 projects permitted using the MiSQT
- Outreach efforts:
  - ❖ Introductory Webinars
  - ❖ Workshop at this conference
  - ❖ Currently planning workshops for EGLE and other agency staff
- Ongoing data collection efforts to support Michigan reference standards
  - ❖ LWD
  - ❖ Bedform Diversity
- New EGLE MiSQT web page!



# Michigan Stream Quantification Tool

The logo for the Michigan Department of Environment and Great Lakes Energy (EGLE), consisting of the letters 'EGLE' in a bold, white, sans-serif font.

## Michigan Stream Quantification Tool (MiSQT)

### Information and Tools

Visit the [Stream Mechanics Resources](#) page for more information and tools on:

- Mecklenburg Reference Reach spreadsheets
- Large Woody Debris field manual and spreadsheet
- BEHI/NBS Calculation spreadsheet
- And More!



## MiSQT Spreadsheet User Manual

### EGLE Water Quality and Biological Procedures

- P51 Survey Protocols for Wadable Streams/Rivers
- P51 Metric Scoring and Interpretation
- P22 Survey Protocols for Non-wadable Rivers
- E. coli in Surface Waters



## Data Collection and Analysis Manual

### SQT Catchment Assessment

- Wetlands Map Viewer
- Model My Watershed
- MDOT State Transportation Improvement Program (STIP)
- Michigan Richards-Baker Flashiness Index Report
- Michigan Integrated Report 305(b) and 303(d) status




## A Function-Based Framework for Stream Assessment & Restoration Projects

## New EGLE MiSQT web page!

- [www.mi.gov/lakesandstreams](http://www.mi.gov/lakesandstreams)
- MiSQT workbooks and field manuals; Field methodologies and calculators; Introductory webinar recordings





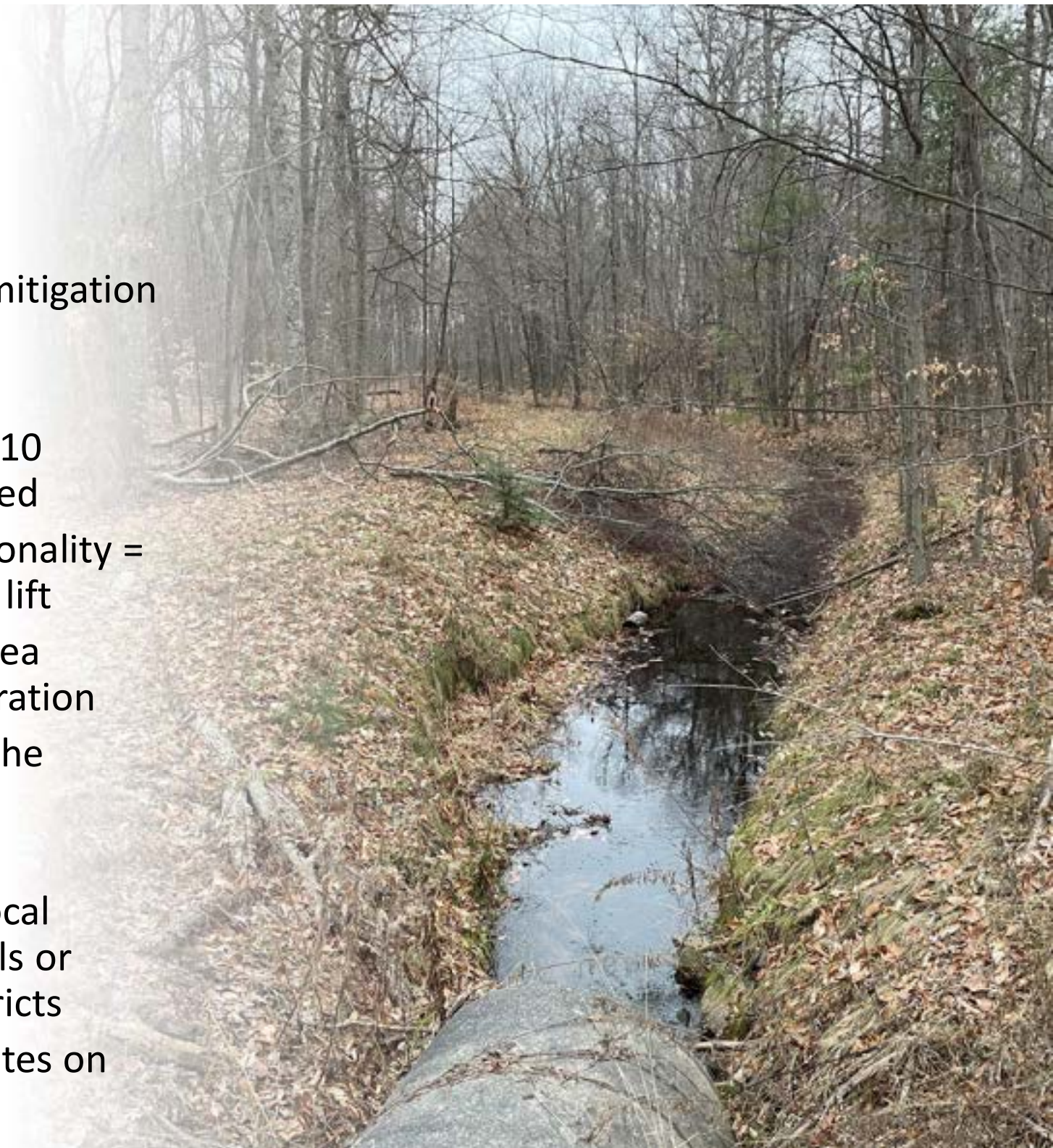
# Common Challenges

- Learning curve with MiSQT assessment
  - Unfamiliar methodology and timeframe
  - Starting the assessment late in the process
  - Leads to.....
- Stream mitigation plan not finalized by permit issuance
  - Conceptual plan submitted
  - Mitigation amounts and location are known
  - But detailed plans are still in process
- Will improve with time and better web resources for applicants



# Common Challenges

- Finding good off-site mitigation locations
- Site selection criteria:
  - Within same HUC 10 watershed preferred
  - Low stream functionality = highest functional lift
  - Site constraints/area available for restoration
  - Ability to protect the improvements
- Recommendations:
  - Cooperate with local watershed councils or conservation districts
  - Look for stream sites on public lands





# Common Challenges

- Difficulty in getting site protection instruments
  - Conservation Easements
  - Drain Agreements
- All mitigation **must** be protected so that functional improvements will remain.
- A site that cannot be protected in perpetuity cannot be used for mitigation.
- This should be determined early in process; before costly plans are developed.







# Common Challenges

## Drain Agreements

- Legal agreement between the drain commissioner and EGLE
- For any mitigation projects in designated county drains
- Drain maintenance activities in the mitigation area must protect functional improvements
- Discussions with Drain Commissioners are ongoing
- More education and outreach is needed





# What's Next?

- Development of additional resources for applicants on EGLE's web page
  - ❖ Financial Assurance and Conservation Easement models
  - ❖ Example Stream Mitigation Plan and Monitoring Report
- MiSQT and bankfull workshops for EGLE and other agency staff
- Review of additional data for LWD and Bedform Diversity reference standards