



Civil & Environmental  
Consultants, Inc.

# Compensatory Mitigation & Restoration Cost Evaluations

PA DEP Aquatic Resource Restoration Conference

Christy Mower, CERP

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# Agenda

- Mitigation Types
  - Permittee-Responsible
  - In-Lieu Fee
  - Mitigation Banking
- Timeline & Decision-Making Process to Identify the Best Mitigation Solution
- PRM & Mitigation Banking Cost Evaluation
- Economic Analysis
- Success Story



# Compensatory Mitigation

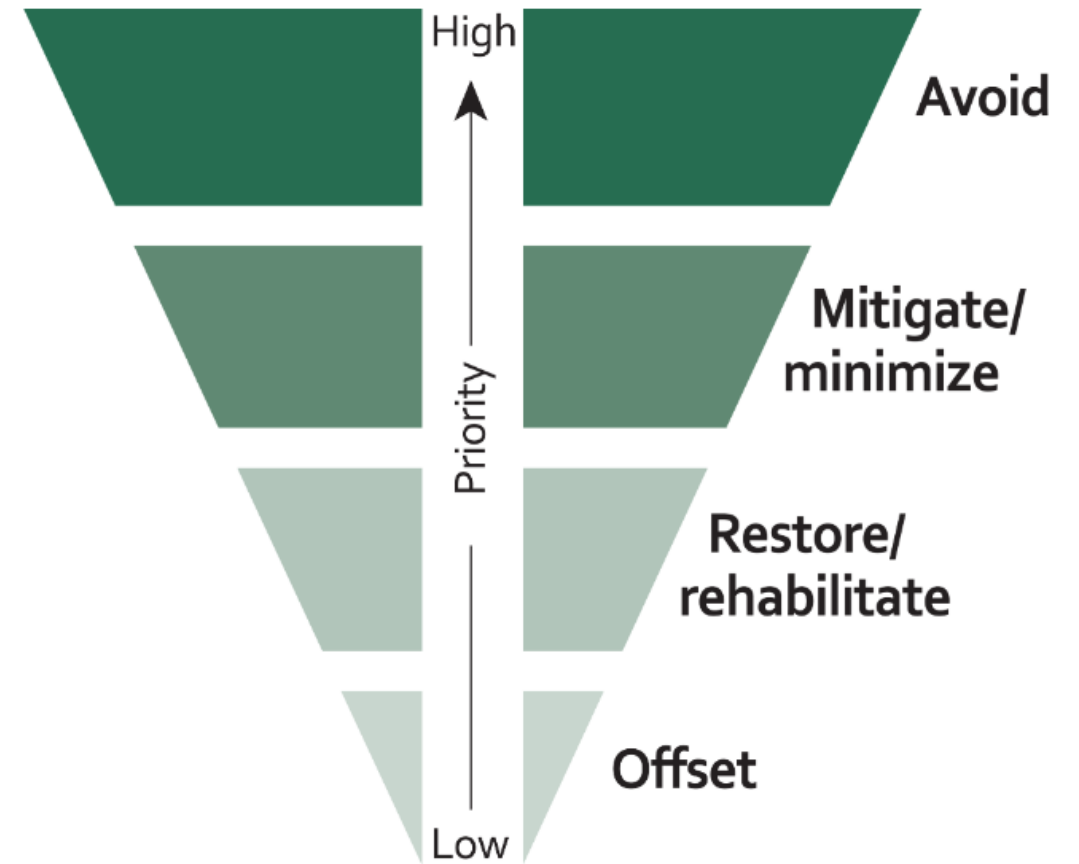
- Clean Water Act (CWA) of 1972, 1977

## Objective:

*“...to restore and maintain the physical, chemical, and biological integrity of the Nation’s waters.”*

- Section 404
  - Impacts to Streams & Wetlands
  - No net loss of resources

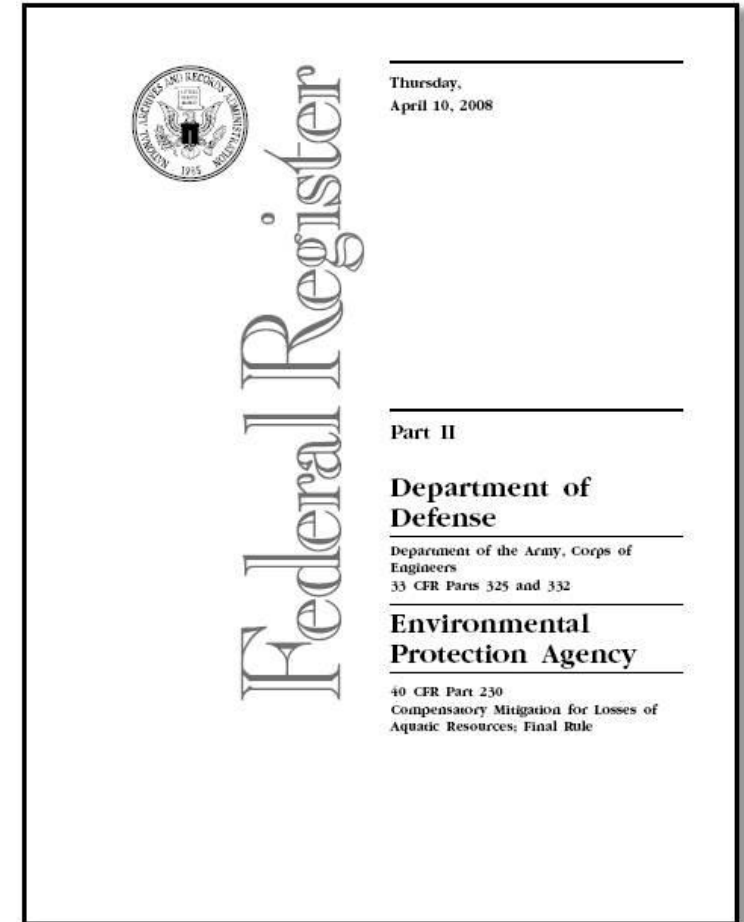
## Mitigation Hierarchy



Nordic Guidance for Nature-based Solutions (2026)

# Mitigation Options – Final Rule, 2008

- **Permittee- Responsible**
  - Applicant responsible for their own mitigation
- **In Lieu Fee**
  - Pay into an established & approved program
- **Mitigation Banking**
  - Buy or establish credits at an established and approved site developed in the Service Area (i.e., 12-digit HUC or Subbasin)



# Mitigation Options – Final Rule, 2008

- **Mitigation Banking**

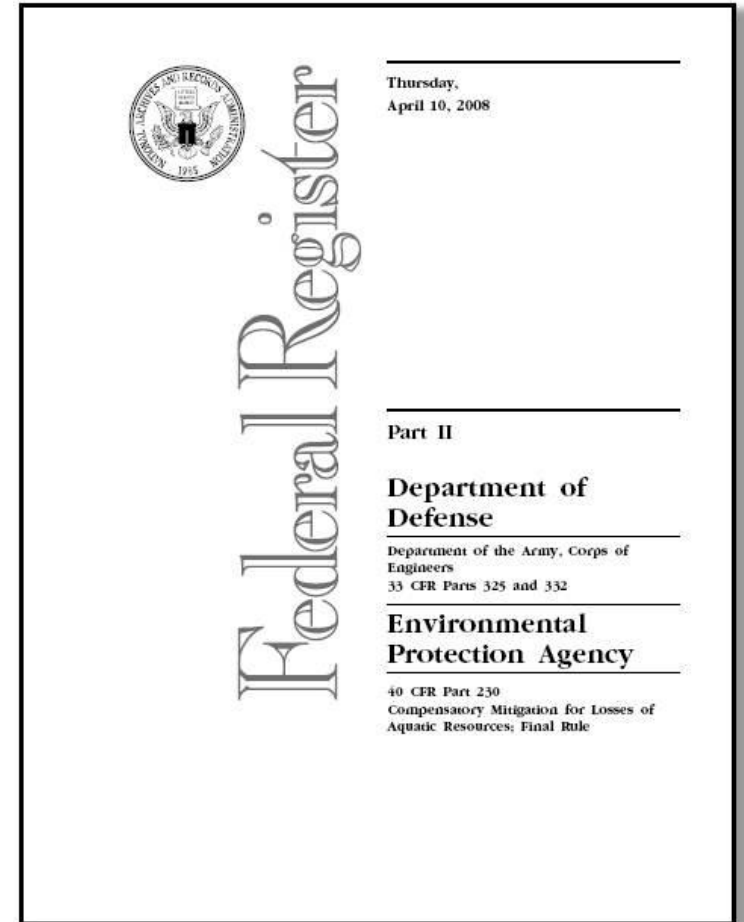
- Buy or establish credits at an established and approved site developed in the Service Area (i.e., 12-digit HUC or Subbasin)

- **In Lieu Fee**

- Pay into an established & approved program

- **Permittee- Responsible**

- Applicant responsible for their own mitigation



# Timeline & Decision-Making Process

- **2010** – Joined a large PA-based coal company
- **2011** – Evaluate long-term (10-20 yrs) projects across Appalachia region
  - PA impacts: ~125,000 linear feet (~24 miles)  
~25 acres of wetland
- **2012** – Mitigation education
  - Across 3 offices with 3 different departments (i.e., land, permitting, ops)
  - C-Suite presentations



# Permittee-Responsible Mitigation (PRM) Costs

- **2013** - Collaboration with corporate economic & financial analysts
- Used PRM projects completed only in PA
- Approximately 5-years worth of data
- Used total PRM project costs
  - Site Acquisition
  - Design & Permitting
  - Construction
  - Monitoring (10-years)
  - Maintenance



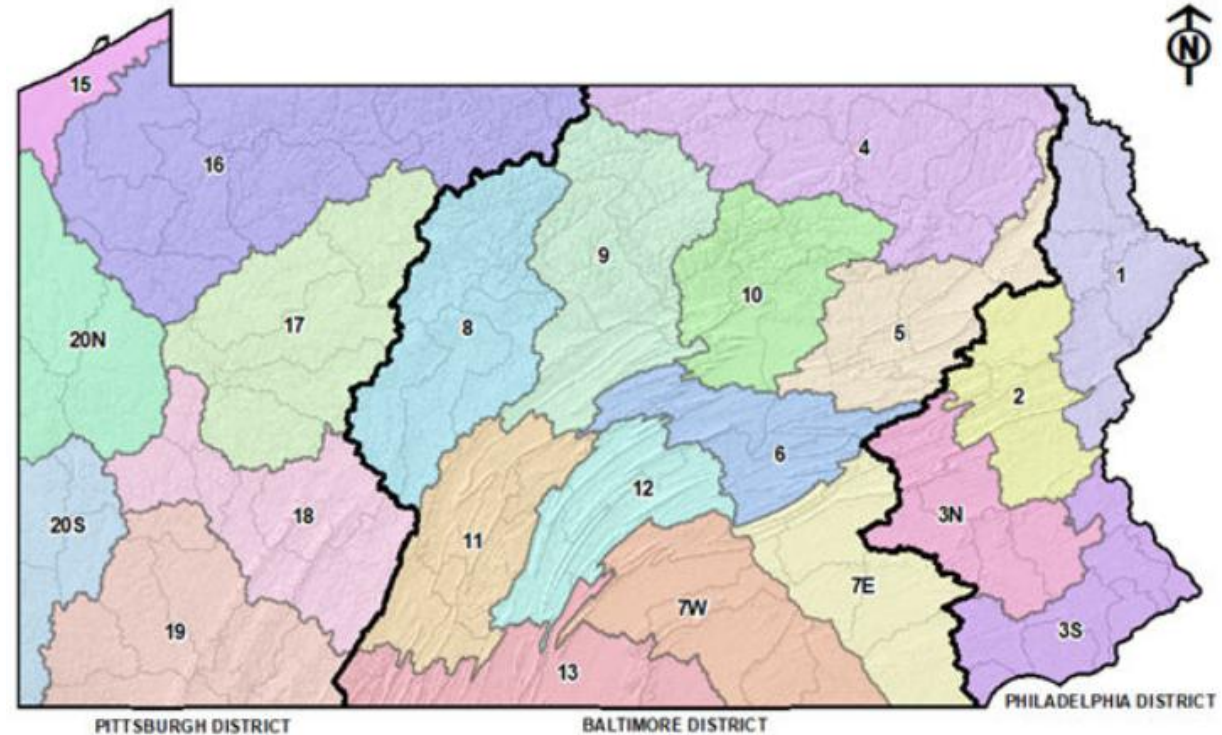
# Permittee-Responsible Mitigation (PRM) Costs

- Key Factors improved strength of analysis
- **CEC** was involved in over 90% of PRM projects
  - Increased # of projects
  - Reduced variability in consultant fees
  - Increased certainty with the data
  - Greater budget predictability
  - Improved confidence of analysis



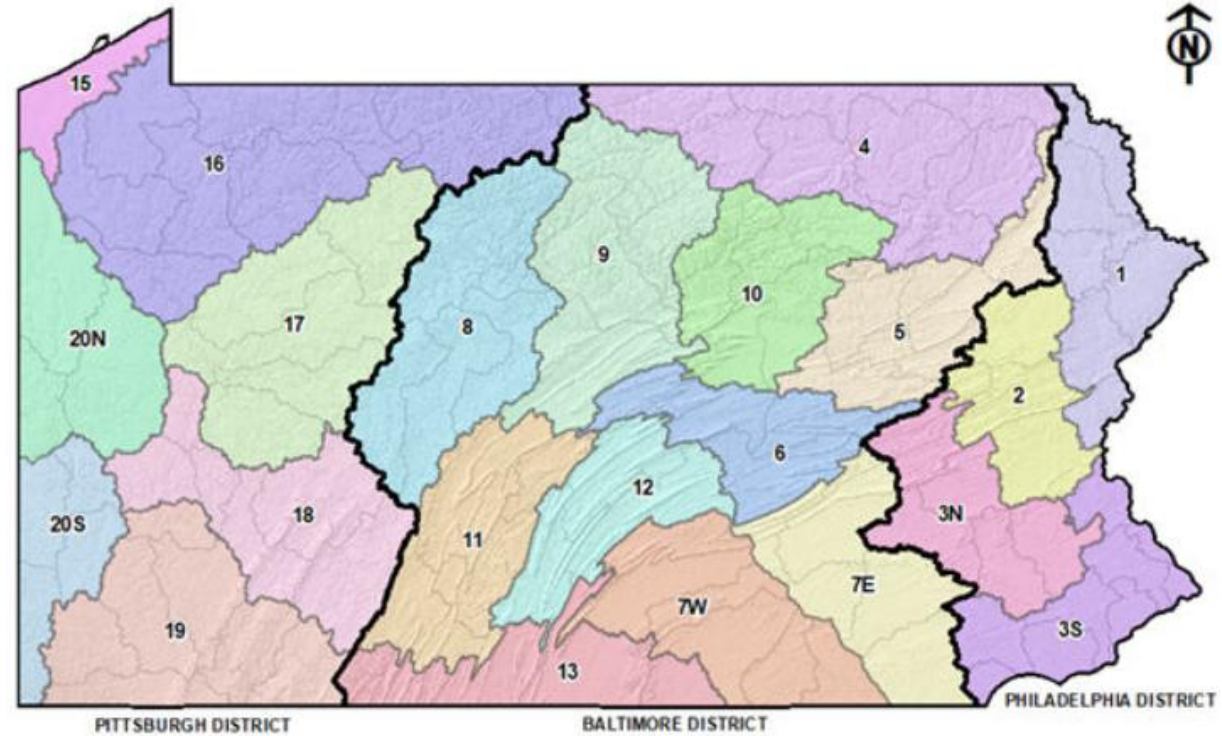
# Mitigation Banking Costs

- Environmental Banc & Exchange, LLC (EBX)
  - George Kelly & Randy Wilgis
- **2014** – Resource Environmental Solutions (RES) purchased EBX
- First Pennsylvania Resource, LLC (RES)
  - 1<sup>st</sup> and only Umbrella Instrument in PA



# Mitigation Banking Costs

- **2014** - Worked with RES to provide full delivery mitigation bank costs
  - Site Acquisition
  - Design & Permitting
  - Construction
  - Monitoring (10 yrs)
  - Maintenance
- PRM & Bank cost data entered in the economic model

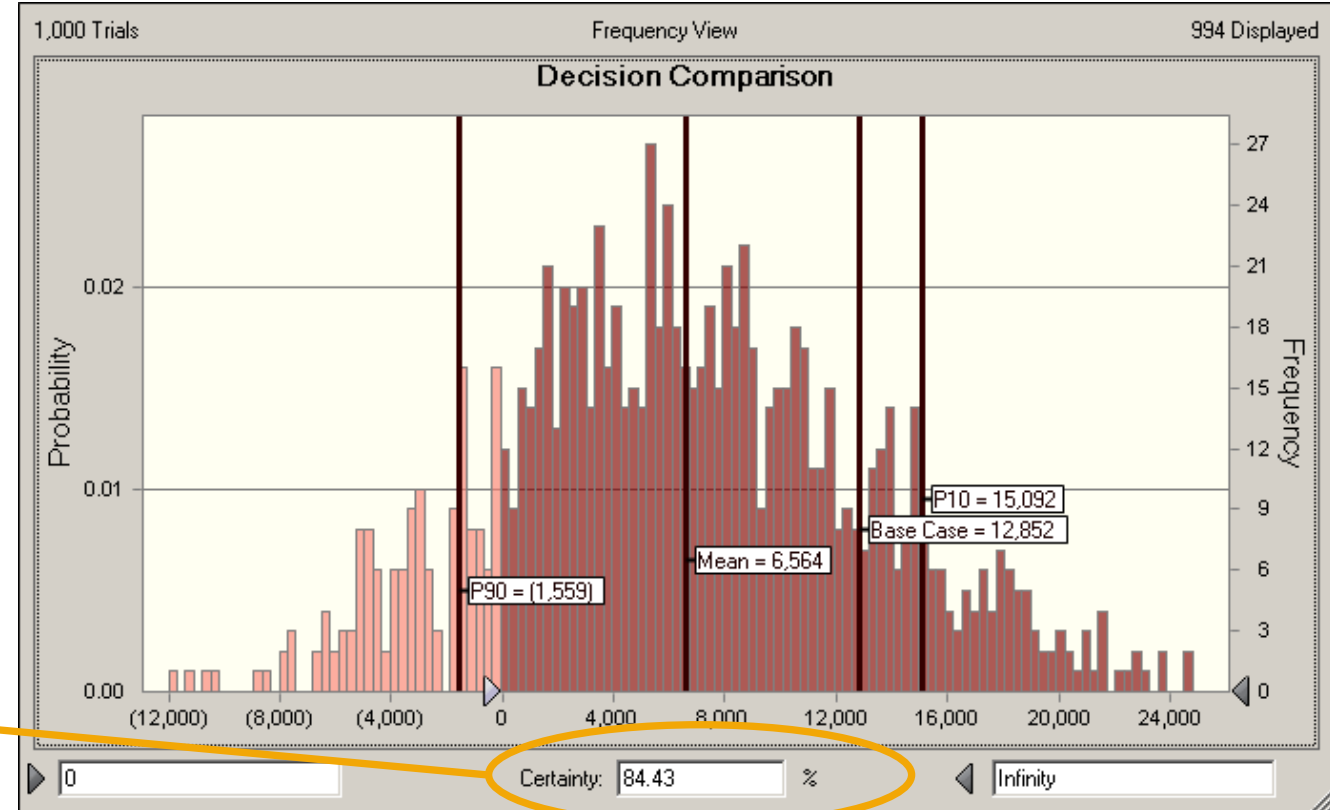


• **DRUM ROLL.....**



# Economic Analysis - Mitigation Banking

- A positive number indicates Mitigation Banking is the best decision
- A negative number indicates Permittee-Responsible is the best decision
- **84% certainty that Mitigation Banking is the best strategy**



# Next Steps – Turnkey Mitigation Banking

- Largest private investor of bank
- Contracts between company & RES
- Contracts between RES & consultants/contractors
- Schedule w/ Timeline Milestones
  - Reliant on potential company layoffs
- Resulted in:
  - No long-term Liability for company
  - Over \$64M in savings
  - Hundreds of new jobs
  - Research project for universities
  - New rare species (i.e., Mt. Chorus Frog)
  - New job for Christy!



# Robinson Fork Mitigation Banks – Phase 1 & 2

- Phase 1 - Submitted in 2014, Approved in September 2015
- Phase 2 – Submitted in 2018, Approved in December 2019
- Coal permit approved with no long-term liability, showing assets on the books
- Huge Success Story for PA, Mitigation Banking, and Industry, saving millions of dollars



PA Env. Digest



RES Business Achievement Award



<https://vimeo.com/340928994?fl=pl&fe=sh>



Art Parela; Robinson Fork, PA



# Contact Information



**Christy Mower, CERP**

Direct: 412.275.2996

Mobile 304.228.4258

mail: [cmower@cecinc.com](mailto:cmower@cecinc.com)

