Mitigating Impacts to Waters and Wetlands in the United States

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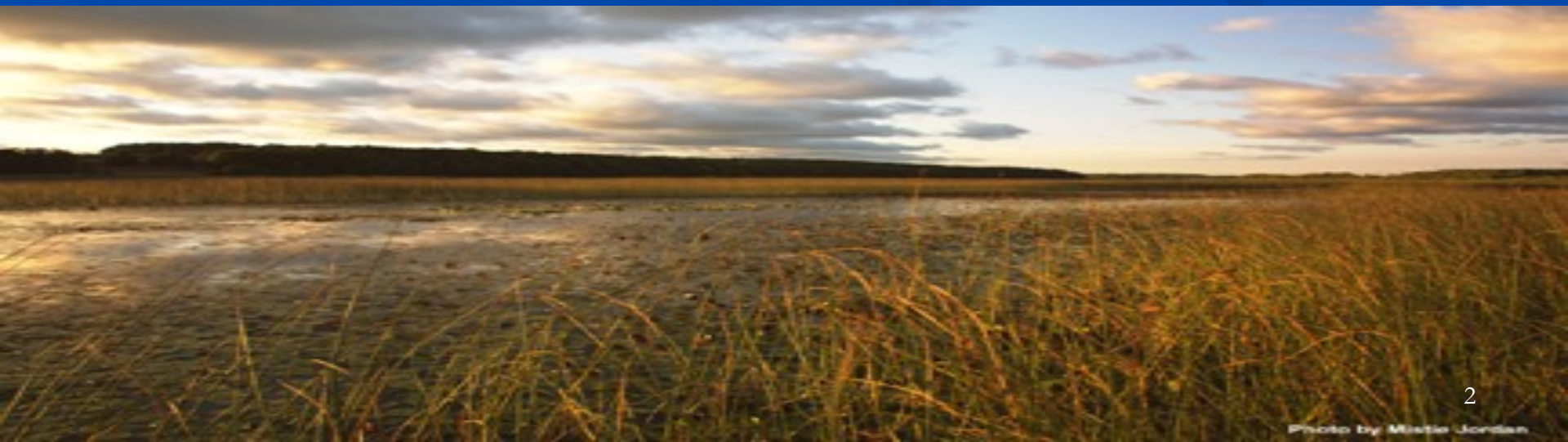
May 2013

Problem: Wetlands Loss

- Approximately 221 million acres in 1700 (lower 48)
- 110.1 million acres today (~size of CA)
- 1950 - 1970 was a time of major losses
- Rate of loss has decreased over last 40 years



Part of the Solution: Regulate

- Clean Water Act of 1972
- §404 requires a permit to discharge dredged or fill materials into waters of the US
  - Includes lakes, rivers, streams and wetlands
- Primary agencies involved:
  - U.S. Army Corps of Engineers
  - U.S. Environmental Protection Agency
- National goal of "No Net Loss" of wetlands established in 1989

Mitigation Sequence

1. Avoid
2. Minimize
   - Least Environmentally Damaging Practicable Alternative

Evaluate alternative project locations and designs

3. Compensate – restore, establish, enhance or preserve wetlands to offset unavoidable loss
   - Permittee-responsible mitigation (PRM) projects
   - Mitigation bank credits
   - In-lieu fee program credits

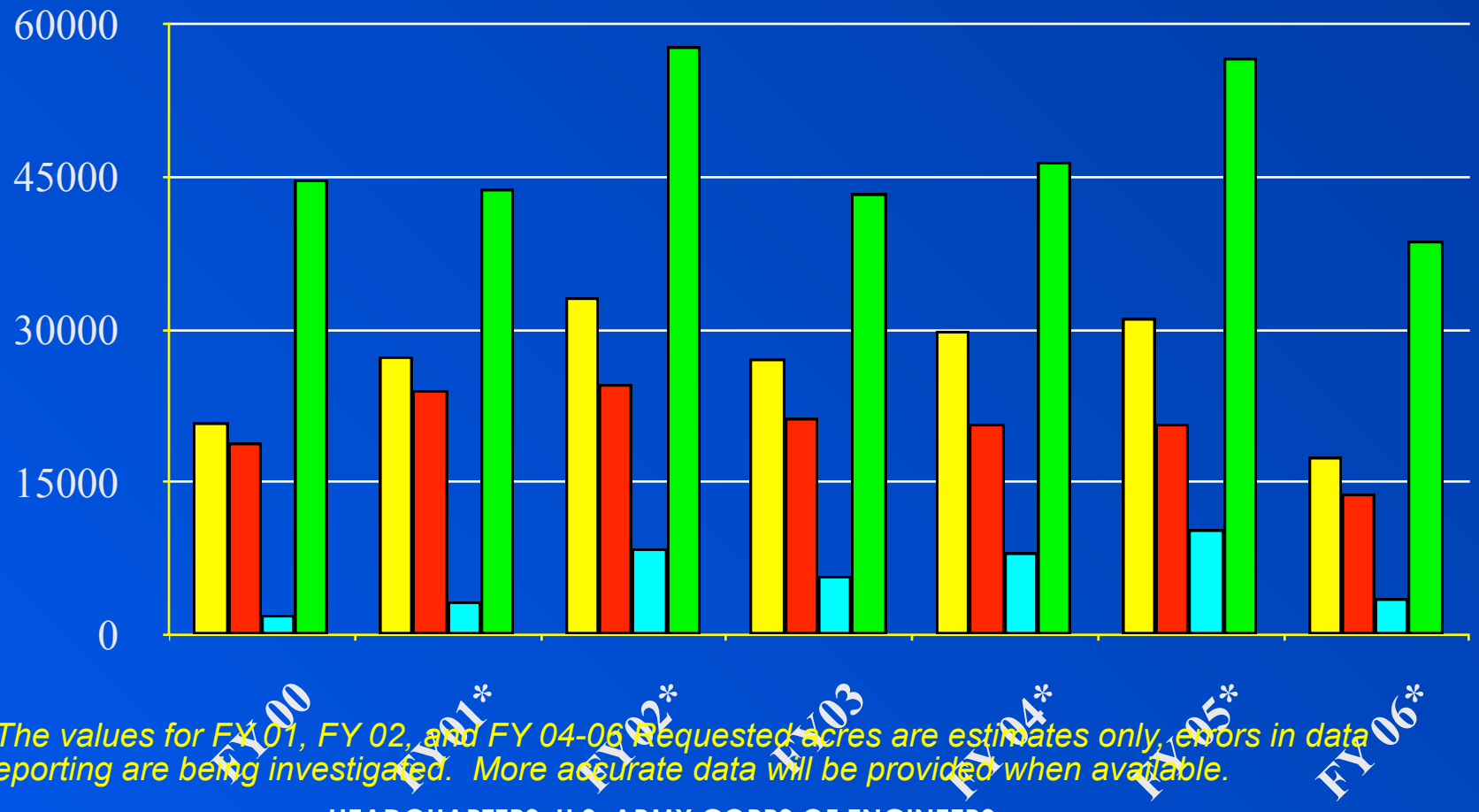
Example: California

- Yosemite Lakes Estates
  - Purpose: residential housing
  - 1,980 dwelling units
  - 730-acre site (295 ha)
- Alternatives analysis
  - 10 off-site alternatives
  - 5 on-site alternatives

- Project impacts reduced from 39.08 acres to 11.02 acres of filled wetlands/waters
- Then compensatory mitigation requirements are determined

US Army Corps of Engineers

Wetland Impacts and Mitigation



*The values for FY 01, FY 02, and FY 04-06 Requested acres are estimates only, errors in data reporting are being investigated. More accurate data will be provided when available.

Compensatory Mitigation

Methods

- Restoration
- Establishment
- Enhancement
- Preservation

What is *"Good Compensation?"*

- Ecological replacement
- Temporal loss of functions
- Appropriate location in landscape
- Cumulative impacts
- Margin of safety to reflect the expected degree of success
- Success measures/monitoring plan

Permittee-Responsible Mitigation:
How it works…

- Permittee:
  - Proposes
  - Revises
  - Implements
  - Monitors
  - Remediates
  - Manages
  - Protects

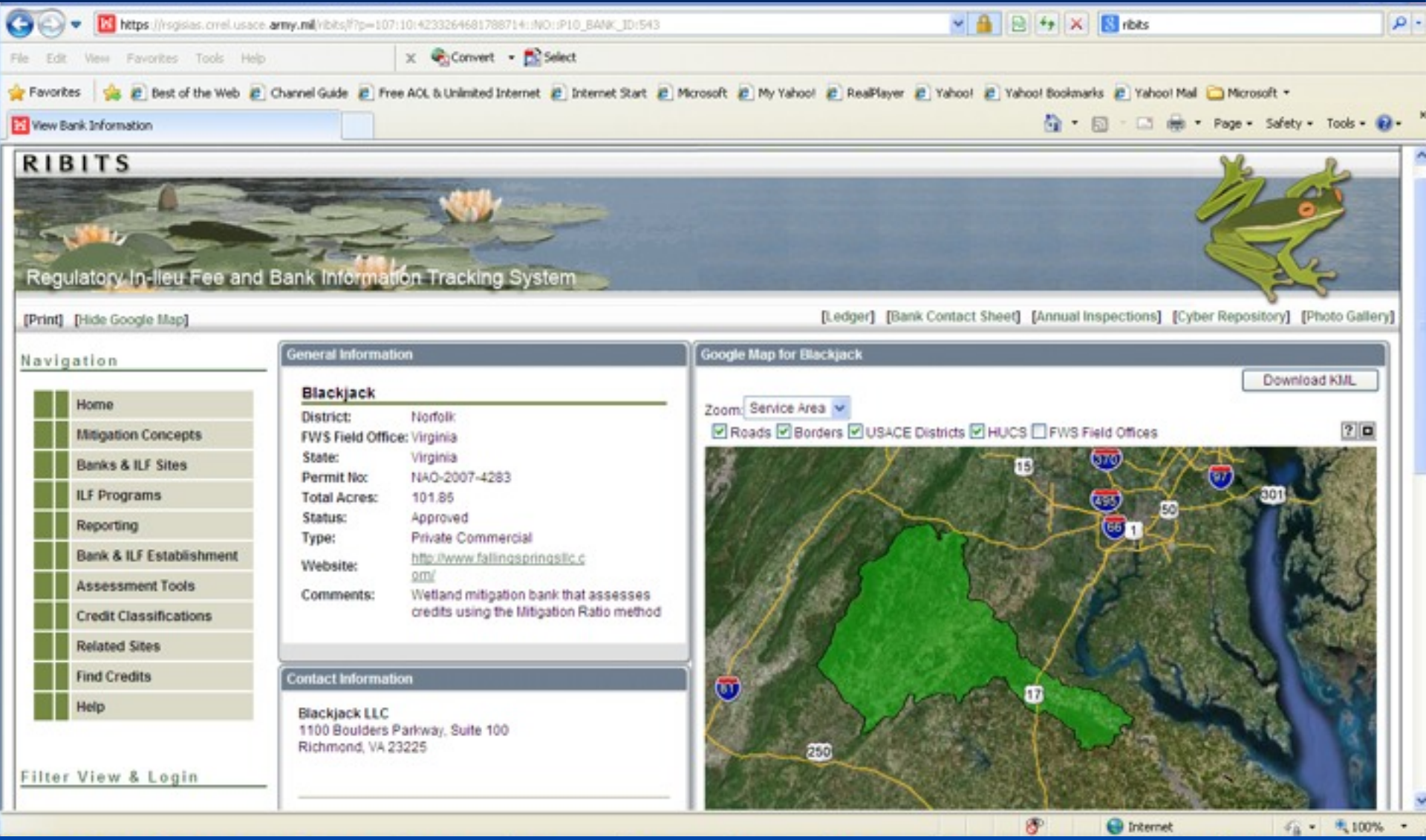
Hydroseeding mitigation site in Portland, Maine (Ladd, USACOE)

What is a Mitigation Bank?

A site, or suite of sites, where resources (e.g., wetlands, streams, riparian areas) are restored, established, enhanced, and/or preserved for the purpose of providing compensatory mitigation

Restored perennial and seasonal marsh and riparian forest at Wildlands Mitigation Bank, Placer County, California

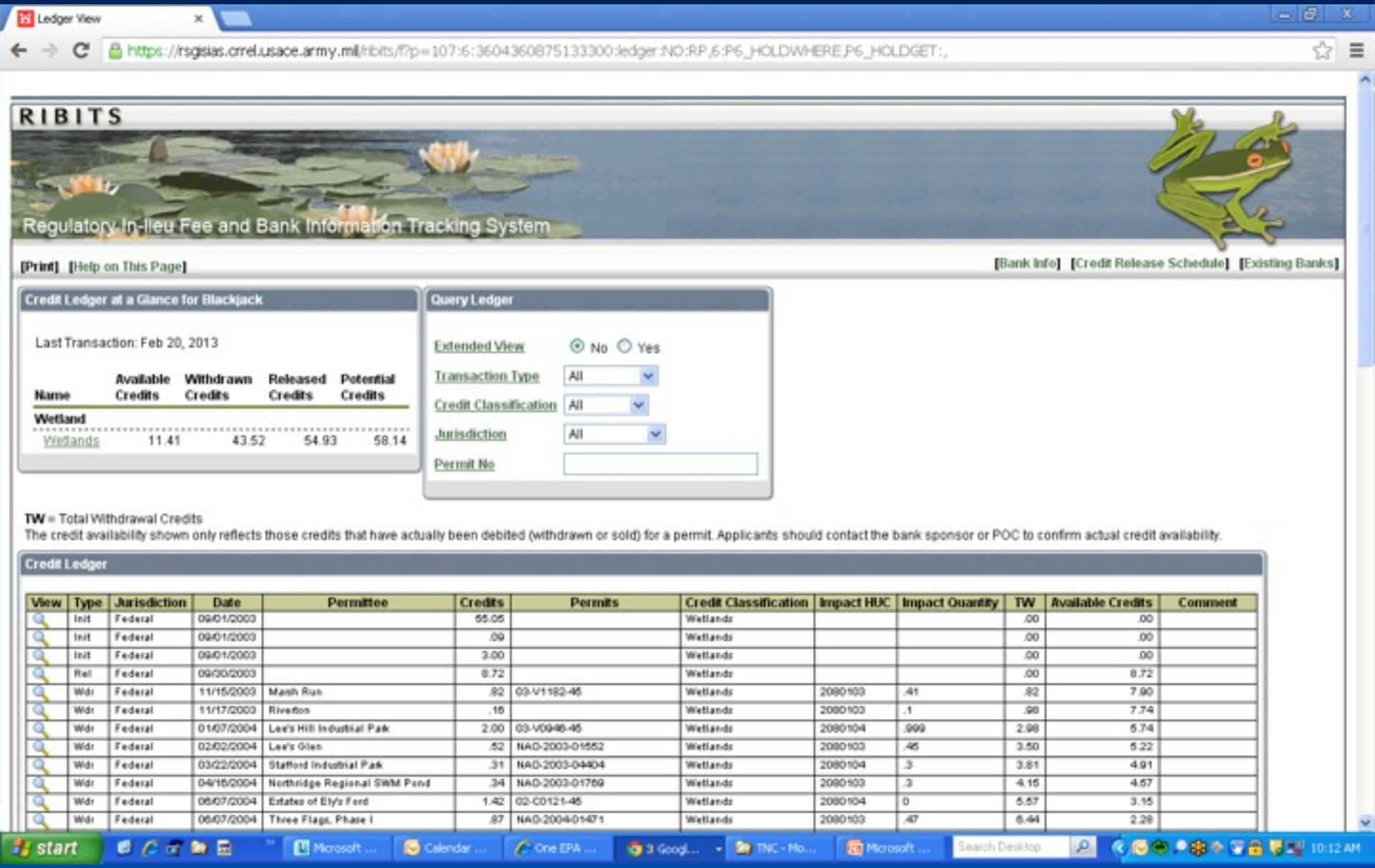
Example: Virginia



Type of Action	Mitigation Credit Assigned
Created Palustrine Open Water (POW)	No Bank Credit Allowed
Created/Restored Wetlands	1.00 credits for each acre (i.e., 1:1)
Enhanced Wetlands - Conversion from PEM to PSS or PFO	0.20 credits for each acre (i.e., 5:1)
Preserved Wetlands	0.067 credits for each acre (i.e., 15:1)
Preserved/Reforested Upland Forest Buffers	0.067 credits for each acre (i.e., 15:1)

Type of Action	Acres	Ratio	Credits Produced
Created/Restored Wetlands	55.05	1:1	55.05
Preserved Wetlands	1.42	15:1	0.09
Preserved Upland Forest Buffers	45.00	15:1	3.00
TOTALS	**101.47**	—	**58.14**

Bank Credit Ledger



What is In-Lieu Fee?

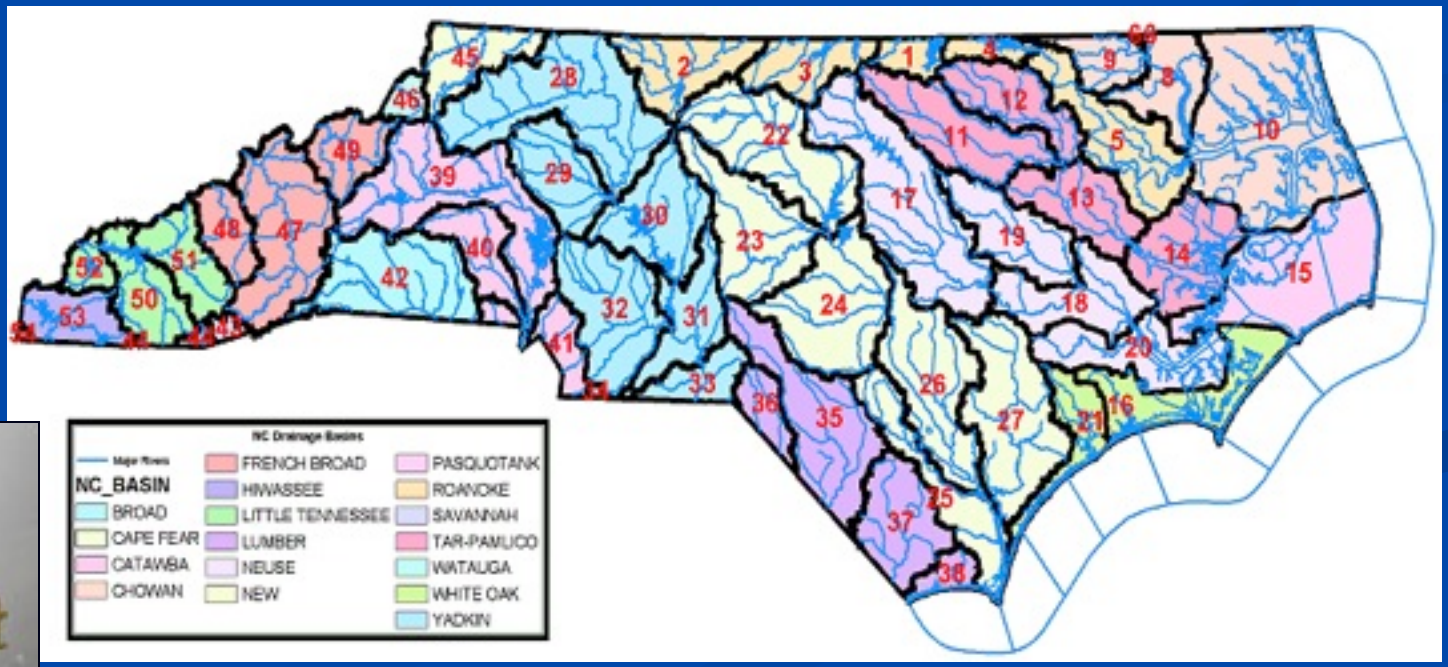
- A program involving the restoration, establishment, enhancement, and/or preservation of aquatic resources through funds paid to a government agency or non-profit natural resources management entity to satisfy compensatory mitigation requirements for Department of Army permits.

Riparian enhancement, North Carolina In-Lieu Fee Program (NC EEP)

Example: North Carolina

- Has formal agreement with Federal/State gov't, operates statewide
- Collects funds for impacts within service areas – based on fee schedule
- Conducts mitigation projects within same service area
  - Generally not in advance of impacts

Service Areas, North Carolina Ecosystem Enhancement Program (NC EEP)

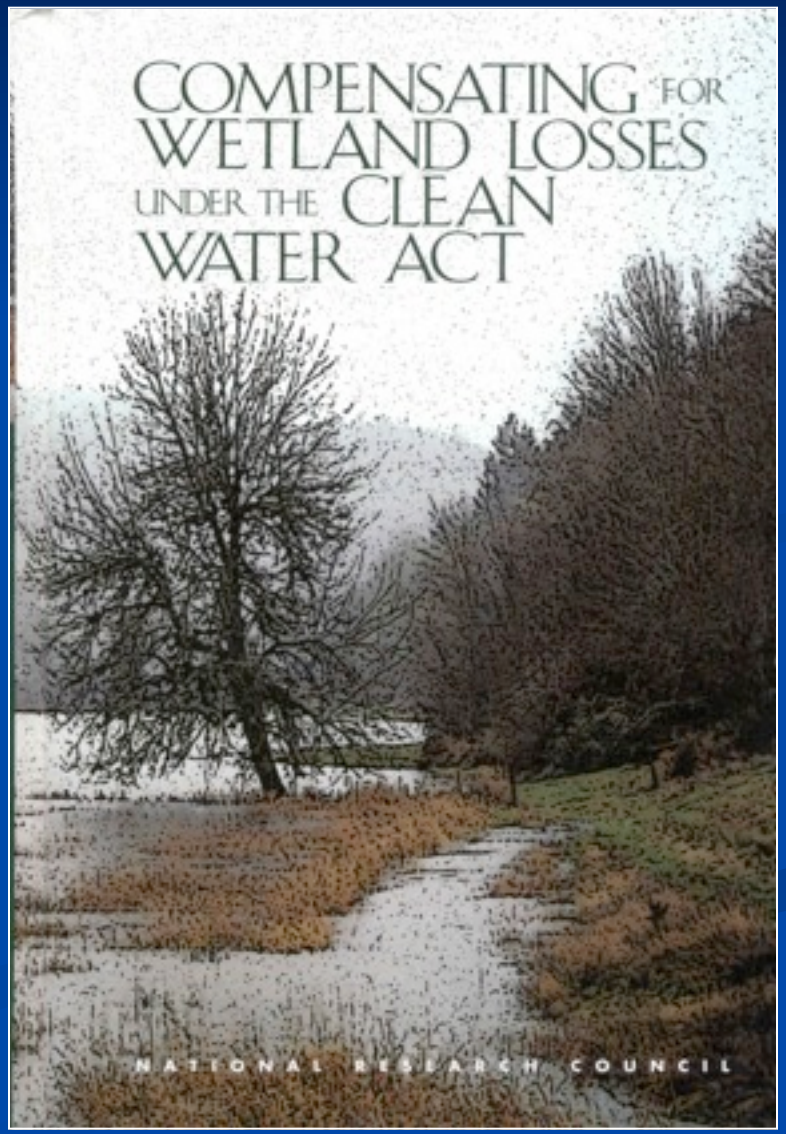


NC EEP Fee Schedule

Fee Category	Credit Unit	Fee per Unit (Higher Fee HUs)	Fee per Unit (Lower Fee HUs)
Riparian Buffer	square foot	$0.99	$0.99
Stream	linear foot	$365	$276
Nonriparian Wetland	acre	$48,311	$24,844
Riparian Wetland	acre	$66,961	$37,859
Coastal Wetland	acre	$164,721	$164,721

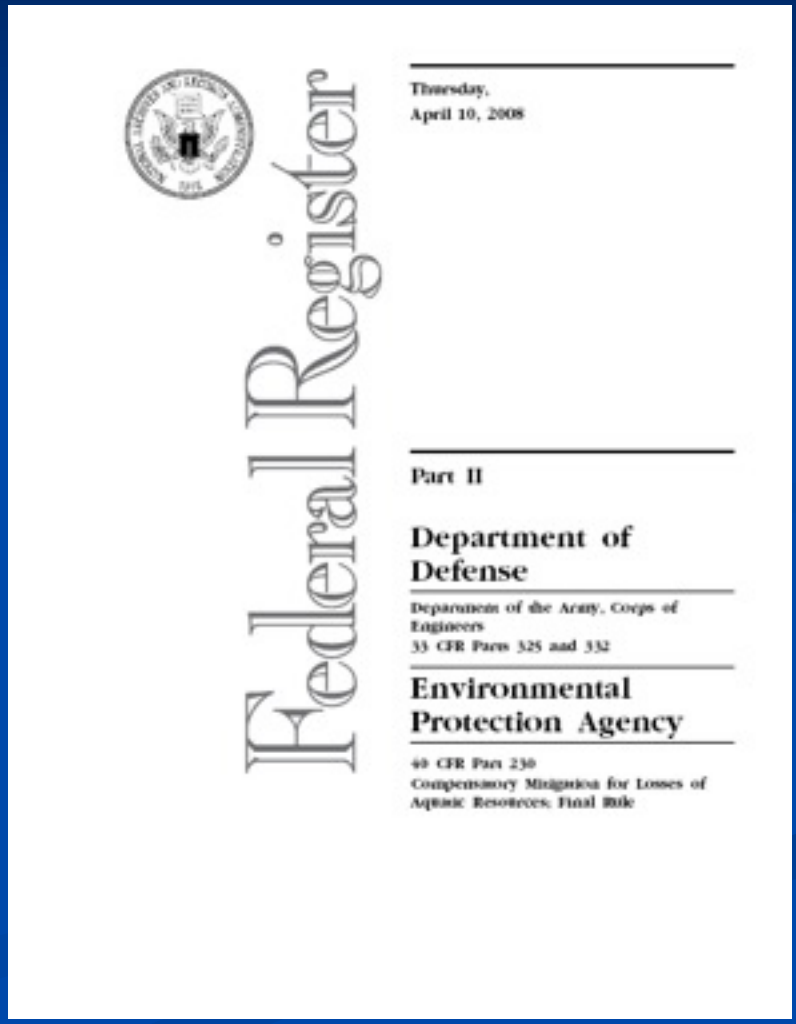
Compensation Rule: Background

- **1999 –** EPA/Corps seek NRC study
- **2001 –** NRC study published
- **11/03** – Congressional directive
- **3/28/06** – Proposal in Fed Reg
- **4/10/08** – Final Rule in Fed Reg
- **6/9/08** – Effective date of rule



Compensation Rule: Goals

- Sustainable compensatory mitigation
- Equivalent and effective standards
- Use of best available science
  - Addresses all applicable NRC recommendations
- Predictability and efficiency
- Expansion of public participation



Preference Hierarchy for Mitigation

(33 CFR 332.3(b))

1. Mitigation bank credits
2. In-lieu fee program credits
3. Permittee-responsible mitigation under a watershed approach
4. On-site and/or in-kind permittee-responsible mitigation
5. Off-site and/or out-of-kind permittee-responsible mitigation

- Consider what is "environmentally preferable" (33 CFR 332.3 (a)(1))
- Also consider likelihood of success, risk, uncertainty, and temporal loss

Type and Amount of Mitigation

(33 CFR 332.3(e) and (f))

- Mitigation type
  - In-kind preferred over out-of-kind
  - For example:
    - Tidal wetland compensation for impacts to tidal wetlands
    - Perennial stream compensation for impacts to perennial streams
- Amount of compensation
  - Should use assessment methods
  - If not available, 1:1 minimum*

Watershed Approach Overview
(33 CFR 332.3(c)(1))

- Watershed approach is a general framework for better decision-making for compensatory mitigation
- Ultimate goal: "maintain and improve the quality and quantity of aquatic resources within watersheds through **strategic selection** of compensatory mitigation sites"
- Watershed approach must be used
  - "to the extent appropriate and practicable"
- May use an existing watershed plan
  - Watershed plan may identify priority sites for aquatic resource restoration and protection
  - If no plan or suitable plan, watershed approach should be based on information from sponsor or other sources
  - Does not require development of a watershed plan

Mitigation Plan Components

(33 CFR 332.4(c))

1. Objectives
2. Site selection factors
3. Site protection instrument

- Baseline information
- Credit determination
- Work plan
- Maintenance plan
- Performance standards
- Monitoring requirements
- Financial assurances
- Long-term management plan
- Adaptive management plan

Financial Assurances

(33 CFR 332.3(n))

- Financial assurances required to ensure a "high level of confidence" mitigation project will meet performance standards.
- Necessary in the event that project sponsor is unwilling or unable to complete project.
- Acceptable forms of FA include: performance bonds, escrow accounts, casualty insurance, letters of credit, legislative appropriations for govt projects.

Long-term Management
(33 CFR 332.7(d))

- *"The presumption that once mitigation sites meet their permit criteria they will be self-sustaining in the absence of any management or care is flawed."*
  - National Research Council Report 2001
- Rule requires long-term management plans:
  - Identify responsible party
  - Describe necessary tasks (e.g., fence upkeep, easement monitoring, fire management, invasive species control)
  - Establish mechanisms to fund these tasks (e.g., endowments, trusts).

Questions

http://www.epa.gov/wetlandsmitigation
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