A photograph of a wetland area with tall green grasses and a body of water, overlaid with yellow text. The text is centered and reads: 

**Economics Of CREP/CRP  
Treatment Wetlands for the  
Tile Drained Cropland in the  
Corn Belt**

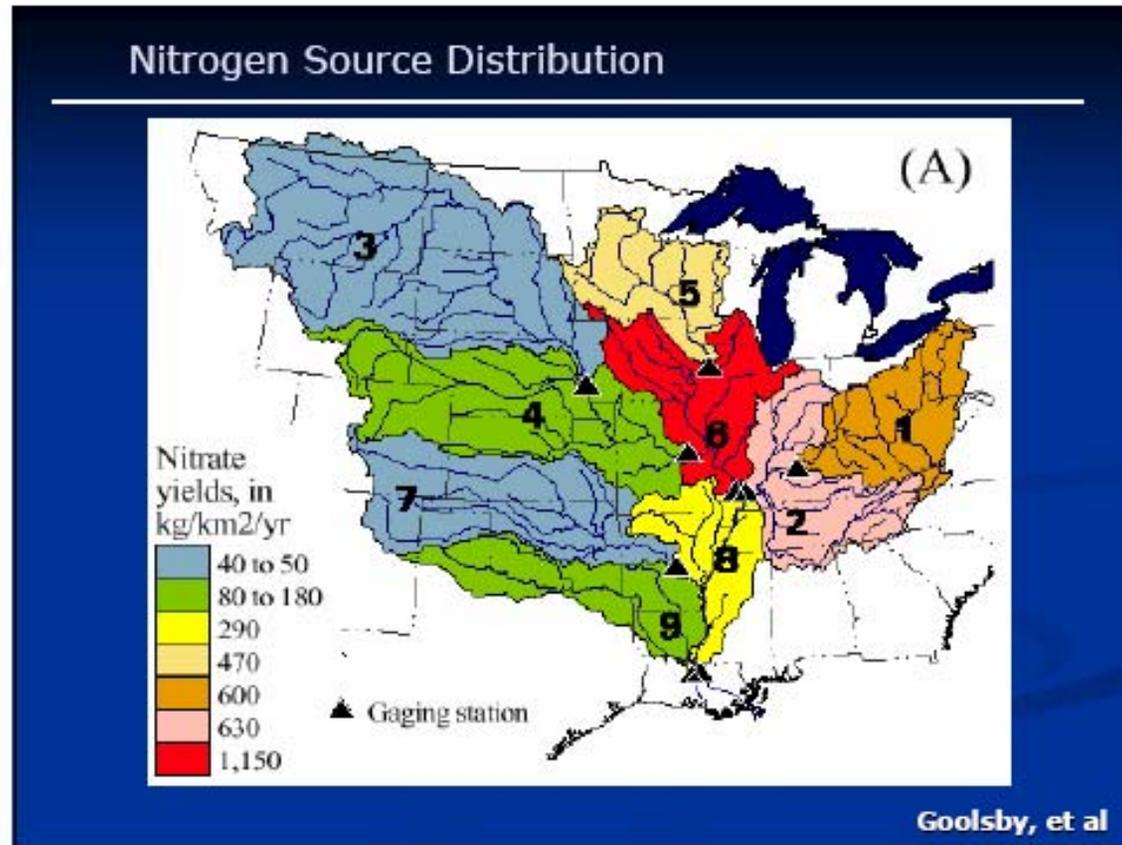
# What's the Problem?



- Summer environmental phenomenon
  - Hypoxia (hypoxic zone or “Dead Zone”) off the Louisiana Coast
  - 7,000 square miles in size
- Upper Midwest/Mississippi drainage contributes over 50% to the total nutrient load

# Nitrogen and tile-drained agricultural lands in the Midwest

Note that the Corn Belt Region Numbered here as 6, 2, 1 and 5, have the highest nitrate yields



# EPA Science Advisory Board Hypoxia Taskforce

It is not going to be addressed solely by reduced fertilizer use

## SUMMARY

Current water quality problems due to nutrients do not result primarily from the mismanagement of fertilizers and manures (although some improvement can and should be made), but are mostly due to landscape and land-use changes (with associated changes in hydrology and economic inputs of nutrients).

# Treatment Wetlands Engineering Structure



# Treatment Wetlands within Corn Field



# Farmstead and Treatment Wetlands



# Treatment Wetland Vegetation



# Treatment Wetland (blue) in Farmland Drainage (red)

Note how a small wetland treats water draining from large agricultural area



# Iowa CREP Project Size

**POOL  
AREA**

**DRAINAGE  
AREA**

**CONTRACT  
AREA**

**Acres**

**Acres**

**Acres**

**Average**

**9.9**

**1,390.7**

**43.0**

**Maximum**

**18.4**

**3,653.0**

**70.3**

**Minimum**

**3.4**

**514.0**

**16.0**

# Wetlands are a Cost Effective Way to Reduce Nitrogen Loadings

The next cheapest method for significant reductions are more than 2 times as expensive

Cost\* - \$ per lb  
of N Removed

Iowa CREP Wetland

**\$1.32**

Municipal and Storm  
Water Treatment

**\$90 - \$944**

Buffers\*\*

**\$3.14 - \$11.72**

Animal Waste  
Management

**\$2.32 - \$11.19**

\* Estimates from multiple sources

\*\* Buffers are ineffective in reducing nitrogen loading in tile drained landscapes

# Iowa State University Study

Shows nitrogen reduction possible using Treatment Wetlands

- Focused on nitrogen reduction
- 750,000 Acres of treatment wetland could provide 30 % reduction in N loadings in Upper Mississippi and Ohio River Basins
- 3.4 Million total acres when wetland buffers are included
- Results incorporated into Hypoxia Task Force's Scientific Advisory Board Report

# Time Frame to 30 % N Reduction

	Years to Completion
Current Rate ( 20 / yr)	3,737
Expanded program (1,400 /year)	53
• Difference between 860 and 60,200 acres of treatment wetlands per year	

# Wetlands Provide Multiple Environmental Benefits

- 11,000 pounds / yr of nitrogen removal
- Wildlife Habitat – increased waterfowl, grassland and shore birds, pollinators, et. al.
- 3 tons / acre / yr CO<sub>2</sub> sequestered
- Floodwater storage

# Iowa CREP Project Costs: Engineering, Construction, and Easement Costs

Treatment wetlands are expensive, with significant first year costs.

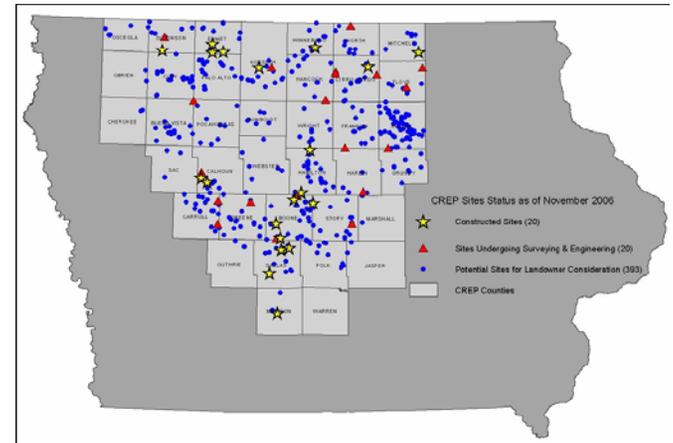
Engineering	Construction	Easement	First Year Cost
<b>\$30,486</b>	<b>\$96,625</b>	<b>\$17,623</b>	<b>\$144,734</b>
<b>21 %</b>	<b>67 %</b>	<b>12 %</b>	

***First year wetland costs range between \$59,500 and \$280,500***

# Iowa CREP Project and Costs

- Iowa CREP projects

- Established in 2001
- 37 counties eligible
- 80 / 20 Federal – State Partnership
- Landowner voluntarily enter into 15 year CRP contracts and an additional 15 year easement
- Provides additional 40 % cost share incentive
- Provides additional \$100 per acre sign up incentive
- Provides 50 % increase in annual rental rate



# Costs for Iowa CREP

- 30 year agreement: 15 year CRP contracts and an additional 15 year easement
- 15 Annual rental payments (rental rate based on local cash cropland rental rate)
- **50 percent increase in rental rate**
- **Signing Incentive Payment (SIP) \$100/Acre**
- Payments covering 90 percent of wetland installation cost
  - 50 percent Cost Share
  - **40 percent Practice Incentive Payment (PIP)**
- **Easement payment**
- **A KEY: *Avoiding Out-of-pocket costs to PRODUCER***

- Red- designates funds covered by PAYGO budgetary restrictions

# Conservation Reserve Program (CRP)

Provides an alternative means to create treatment wetlands

- Authorized to 39.2 Million Acres
- With no change in authorization CRP can provide landowners who create treatment wetlands with:

# CRP has Authority

Without PAYGO restrictions

- To provide Landowners
  - Annual rental payments for 15 years
  - 50 % cost share payment
  - 25 % cost hydrologic restoration payment
  - Technical assistance

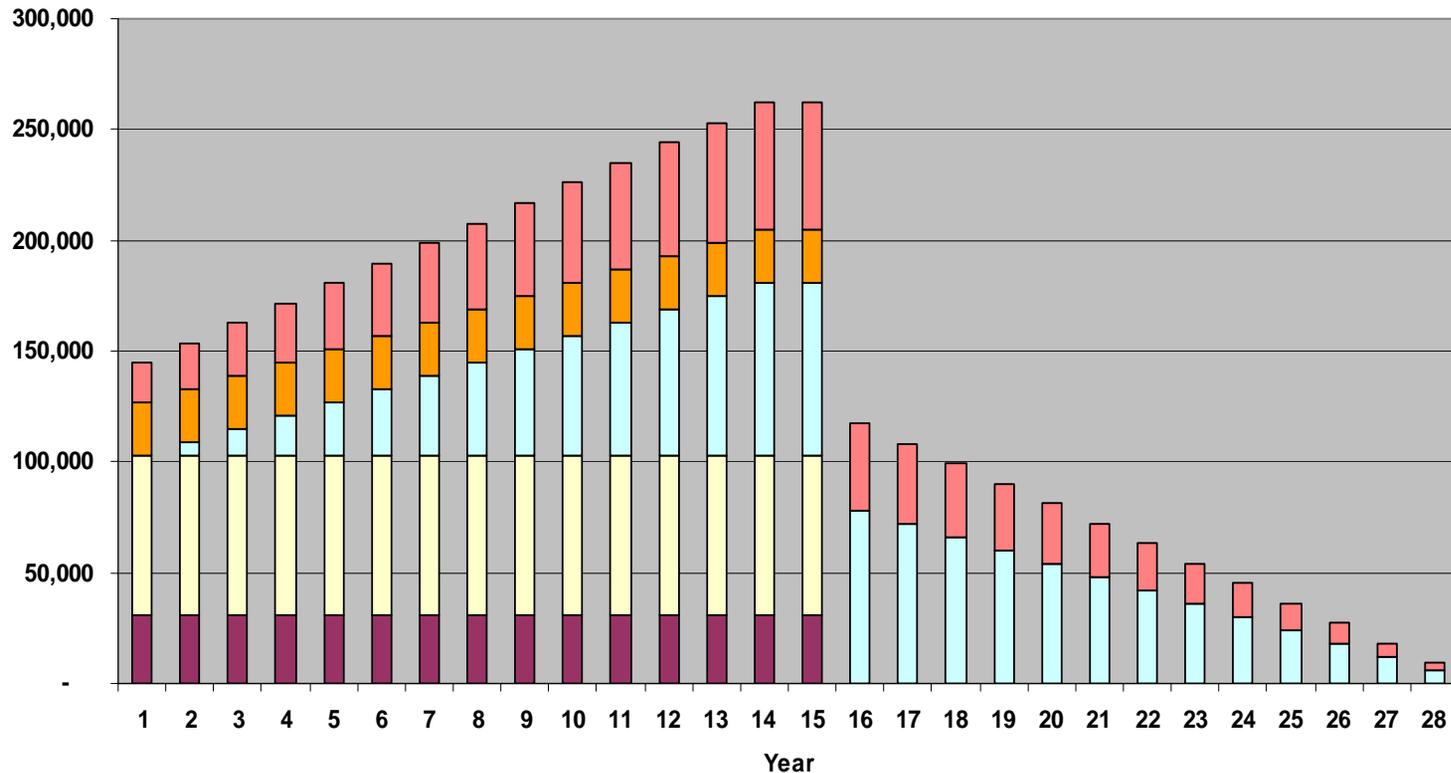
# Wetland Costs Under CRP

For comparison with Iowa CREP

- Assume 30 year agreement: 15 year CRP contracts and an additional 15 year easement
- 15 Annual rental payments (rental rate based on local cash cropland rental rate) – Covered
- **50 percent increase in rental rate - Uncovered**
- Technical Assistance - Covered
- **Signing Incentive Payment (SIP) \$100/Acre - Uncovered**
- Payments for 75 % wetland installation cost - Covered
  - 25 % Wetland restoration - Covered
  - 50 % Cost Share - Covered
  - **25 % installation cost - Uncovered**
- **Easement payment – Uncovered**

• Red- designates funds covered by PAYGO budgetary restrictions

## Annual Costs: For CREP and CRP One Wetland per Year for 15 Years



**Easements and 50 % rental rate increase covered by CREP but not by CRP, Construction covered by CREP but paid by Landowner under CRP, and (Engineering, Construction, and Rental payments costs covered by both CRP and CREP)**

# Additional Resources Needed to Match Iowa CREP Incentives

- **50 percent increase in rental rate**
- **Cost Share funding – CREP/CRP**
  - **Signing Incentive Payment (SIP) \$100/Acre**
  - **40 Percent Practice Incentive Payment (PIP)****OR Under**
  - **25 Percent Cost Share Supplement**
- **Easement payment**
- **Engineering TSPs**
- **Outreach to Landowners**
- **Easement management**