

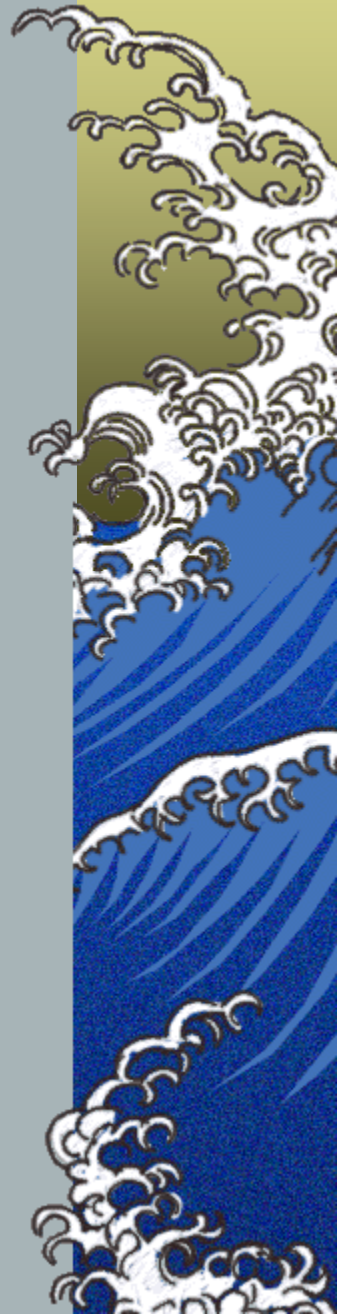
# Ecosystem Services: Farmers Once Again Save the World

- ▶ *“Ecologically Enlightened Public Trustees” ...is this you?*
- ▶ *OK as long as there are funds to go with the title,*



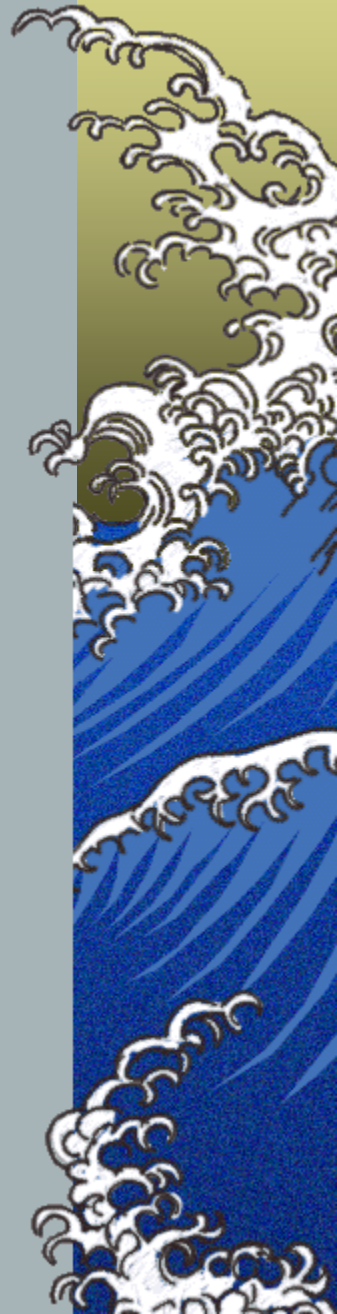
# Ecosystem Services Trading

- ▶ *Nutrients: Water quality and quantity*
- ▶ *Carbon: Global Warming mitigation?*
- ▶ *Wildlife Benefits: Birds and Bees need you!*



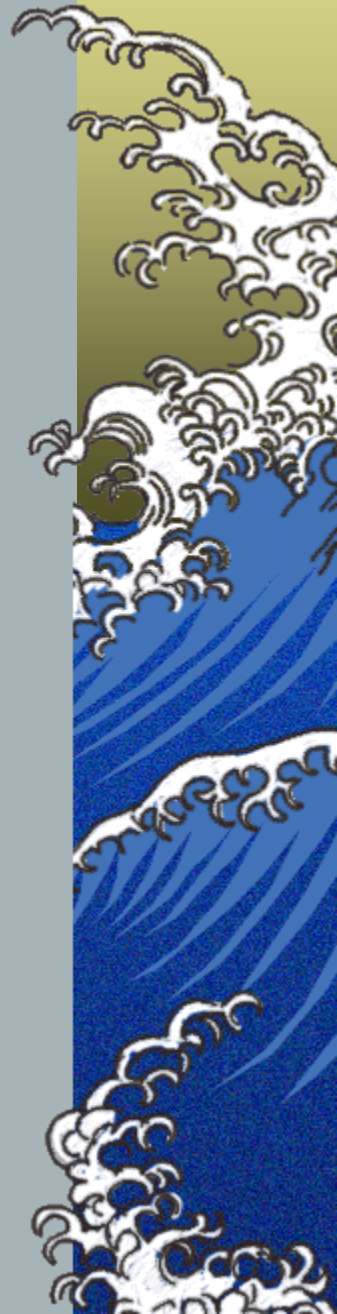
# Key Terms

- ▶ *Supply and Demand: I've got it, you need it, ...Let's Make a Deal.*
- ▶ *Cap and Trade: You can only add so much to the system and then you have to buy some credits to offset your actions!*



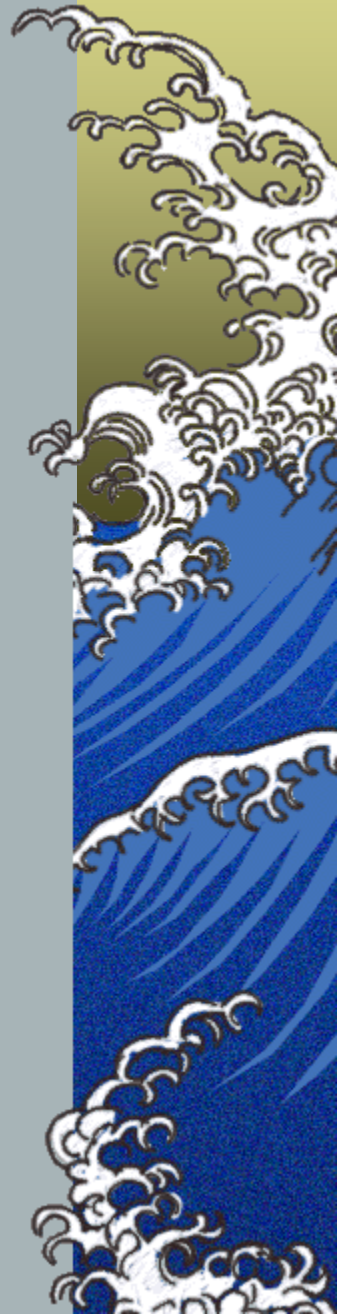
# What is Trade-able?

- ▶ *Nutrients: Nitrogen, Phosphorus kept out of the Bay*
- ▶ *Carbon: Carbon Dioxide and Methane kept out of the air*
- ▶ *Wildlife: Habitat created or maintained*

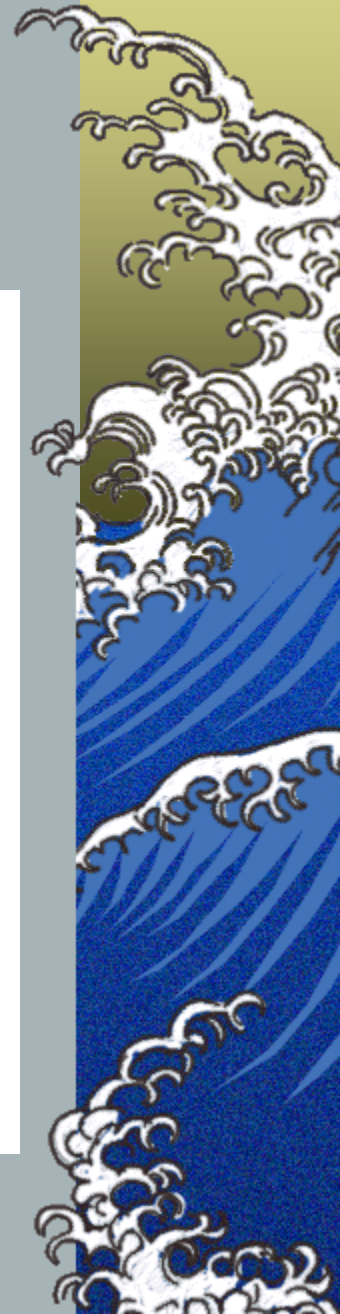
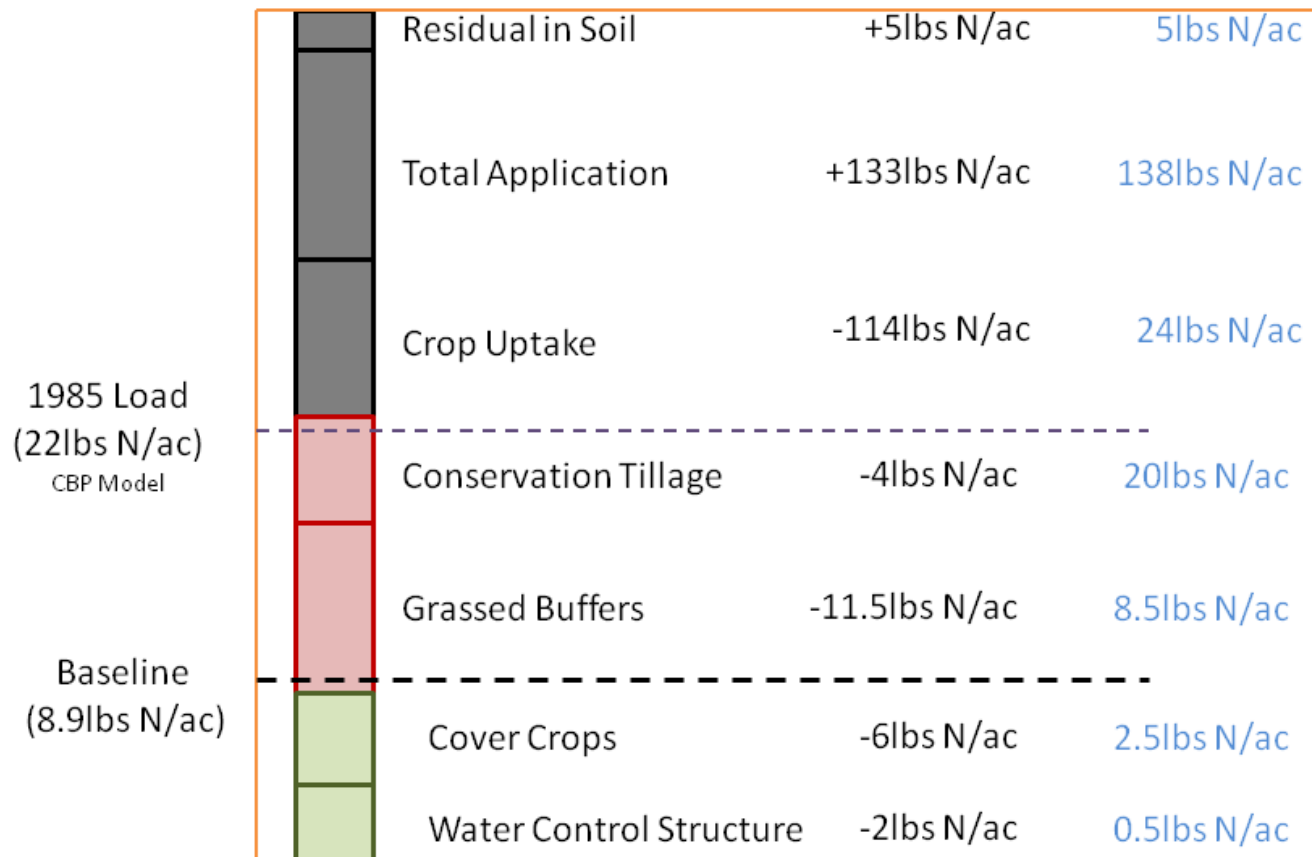


# Players

- ▶ *Buyers and Sellers: the “haves” and “have-nots”*
- ▶ *Aggregators: get all the “haves” together*
- ▶ *Brokers: Big business at the stock exchange*
- ▶ *Verifiers: The conservation contract experts*

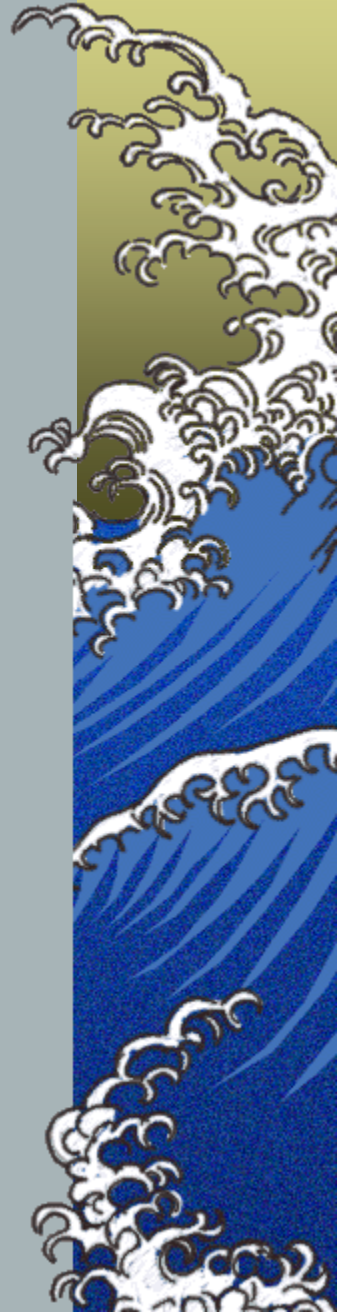


# Baseline and Credit Calculation Example



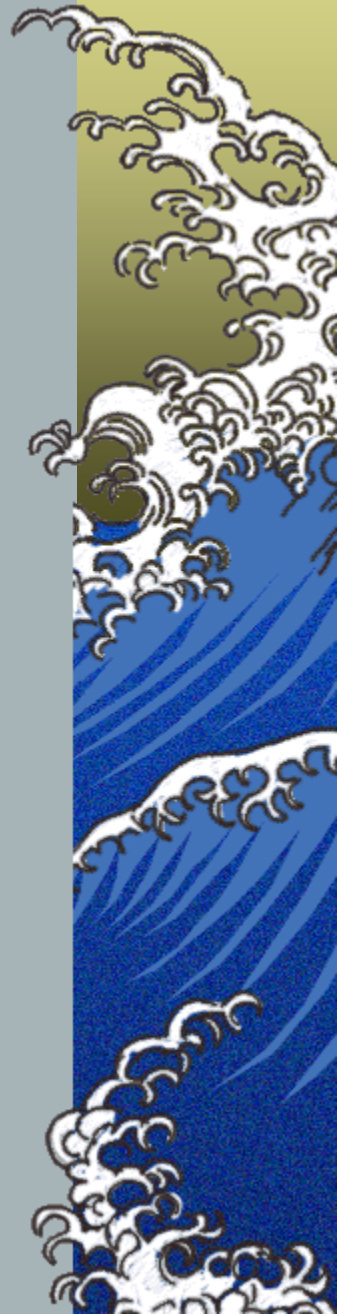
# Where do you sell these things?

- ▶ *Nutrients; State is setting up a program*
- ▶ *Wildlife: Private investors and businesses*
- ▶ **Carbon:**
  - ▶ *Chicago Climate Exchange for Carbon Credits*
  - ▶ *Northeast Regional Greenhouse Gas Initiative (land conversions to woodland only at the moment)*
  - ▶ *Lots of State Initiatives, all with different criteria and mandates*



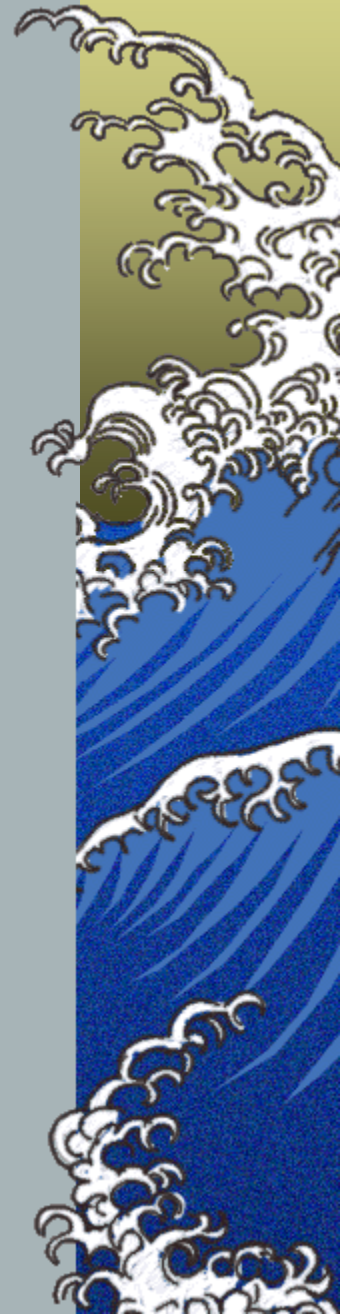
# It All Starts With a Good Plan!

- ▶ *A thorough assessment of all the natural resources, management factors, farm balance sheets and problems on the farm is the starting point.*





# Conservation Planning



# BMP's with Approved Nutrient Load Reductions and Carbon Benefit

Nutrients	Carbon
-----------	--------

- ▶ *Continuous No-Till*
- ▶ *Buffers, both grass and forested*
- ▶ *Tree planting*
- ▶ *Cover Crops*
- ▶ *Stream fencing*
- ▶ *Animal Waste Management Systems*
- ▶ *Barnyard runoff control*

- ▶ *Continuous No-Till*
- ▶ *Buffers, both grass and forested*
- ▶ *Tree planting, land use conversions*
- ▶ *Cover Crops*
- ▶ *Precision Ag Fertilizer Management*
- ▶ *Wetland Restoration*



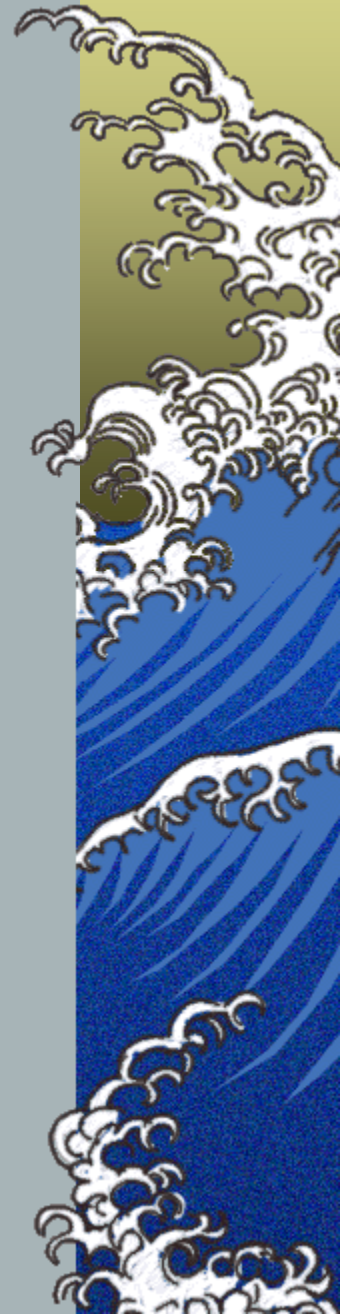
# BMP's Requiring Technical Review for Nutrient Reductions

- ▶ *Dairy Precision Feeding*
- ▶ *Precision Agriculture*
- ▶ *Water Control Structures*
- ▶ *Stream Restoration*
- ▶ *Cropland conversion to less intense use*
- ▶ *Enhanced Nutrient Efficiency*
- ▶ *Ammonia Emission Reduction*

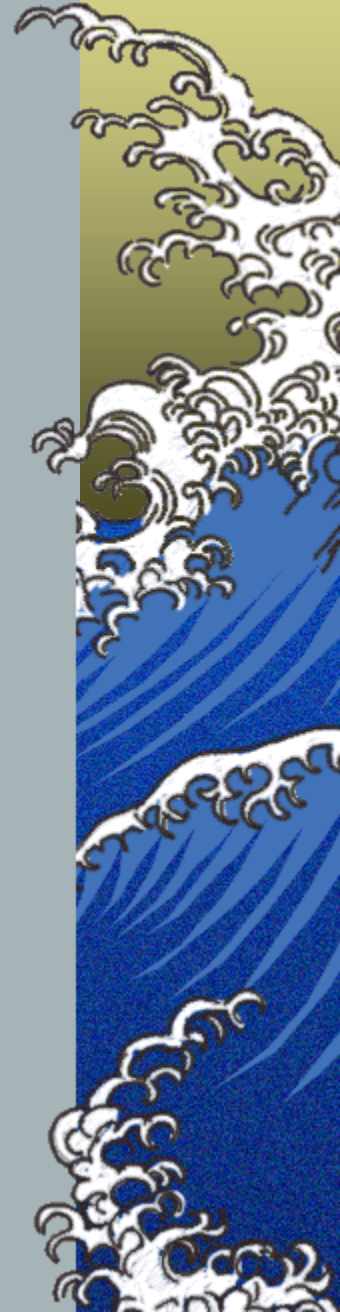


# Other BMP's, These Will Require Close Scrutiny by Specialists for Nutrient Reductions

- ▶ *Innovative practices and approaches  
(check before you commit!)*
- ▶ *Alternative Crops*
- ▶ *Carbon Sequestration*
- ▶ *Algal Turf Scrubber*
- ▶ *Oyster Aquaculture*

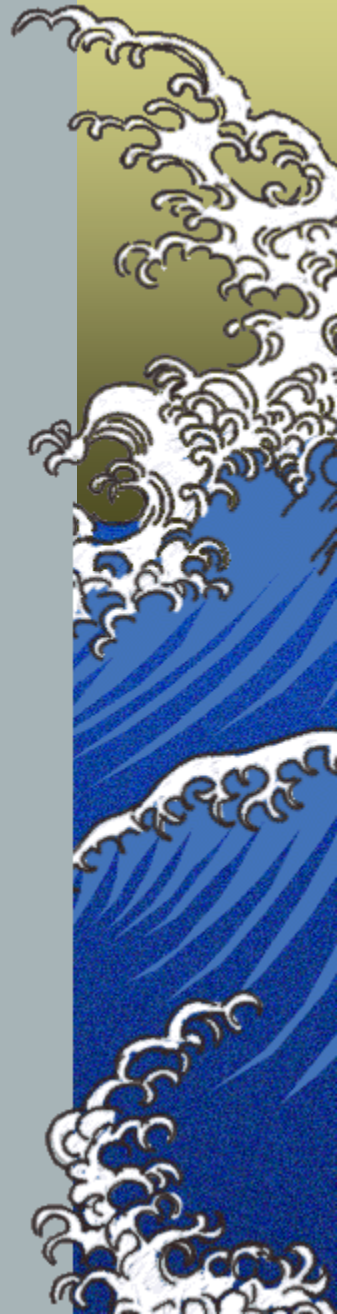


# Cover Crops and No Till

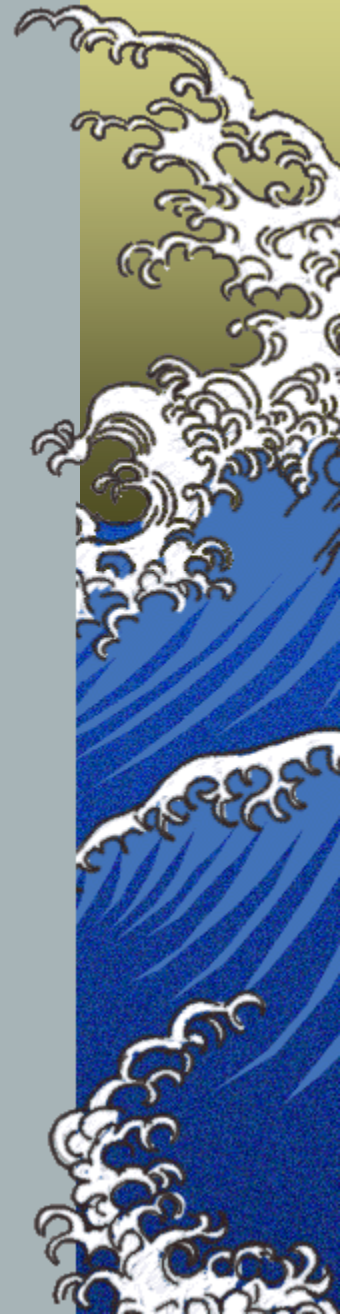


# Technical Assistance

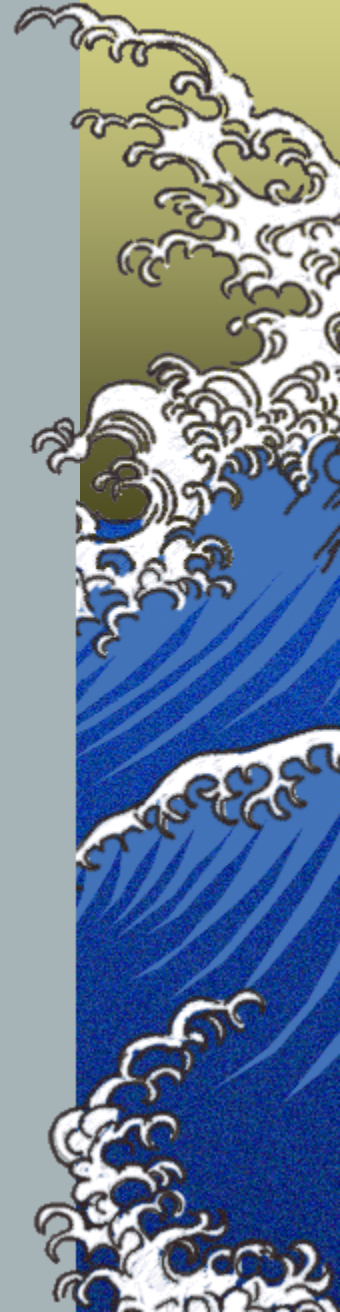
- ▶ *Remember that Conservation Districts provide oversight on all practices in the plan*
- ▶ *Practices are Certified as meeting Standards and Specifications in the State Technical Guide.*
- ▶ *Gold Star Stuff!*



# Grassed Waterways and Protected Ditches



# Unmanaged Manure





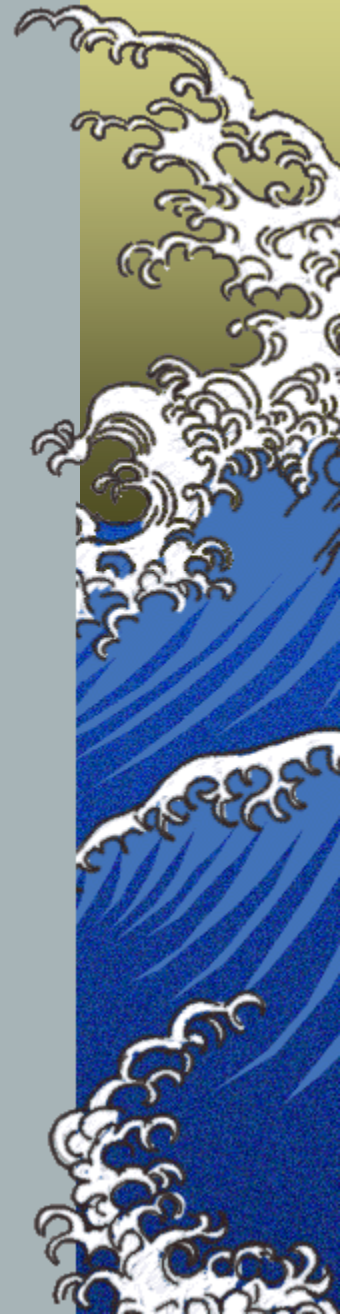
# Managed Manure



# How Many Nutrient Credits?

## ...And now the strings

- ▶ *Must first meet baseline requirements for the watershed based on Tributary Strategy and TMDL*
- ▶ *Can't use cost-share funds to generate credits*
- ▶ *Can't generate credits by retiring land*
- ▶ *Must result in a net decrease in loads*
- ▶ *Credits only count after a BMP is installed*



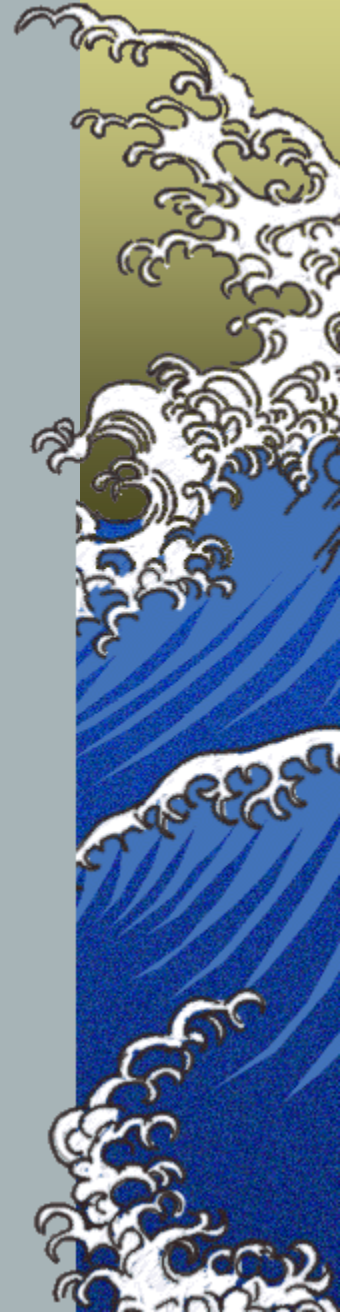
# And How many Carbon Credits from the 200 acres of Cropland Do we get?

- ▶ *About 795 Tons sequestered annually on the farm*
- ▶ *Total value at \$30 per ton is around \$23,000 per year (most from the No-Till fuel savings)*
- ▶ *Not too many strings yet.*



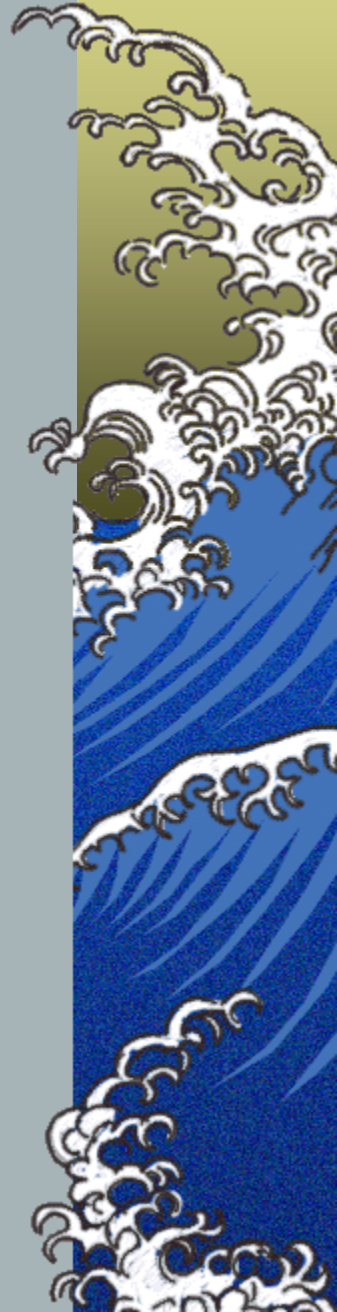
# Nutrient and Carbon Credit Calculators

- ▶ *Local Conservation District trained in use, and familiar with Farm*
- ▶ *Reviews the Conservation Plan with owner/operator to verify practices are current and properly maintained*
- ▶ *Calculate credits available for sale/trade (Nutrient, Carbon, Bio-diversity, etc.)*



# Contract Time Frames

- ▶ *Nutrient Credit Trading Contracts will probably be 10 year contracts*
- ▶ *Carbon Credit Trading Contracts will probably be 5 year contracts*



# It's a Whole New World Out There!

- ▶ *Questions, Comments?*
- ▶ *Statement of Interest?*
- ▶ *Next Steps?*

