



Alternative Nonpoint Source Trading Partners

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Premise

The goal of CB nutrient trading programs:

Provide point sources compliance options for meeting stringent load caps.



Assert that trading ...

- should not be thought of primarily as a revenue generating source for the agricultural sector
- will not solve NPS problem



Exploring Compliance Options

Beyond Ag BMPs: Two “other” categories of options:

- 1) Enhancement of Ecosystem Assimilative Capacity
- 2) Urban Source “bubbles”



1) Enhancement of Ecosystem Assimilative Capacity

The ultimate goal for the Chesapeake is achievement of *water quality objectives*

Source load reductions (PS and NPS) are just *one* means to that end.

Using natural systems' waste assimilative capacity to remove nutrients from Bay system is another.



Ecosystem Assimilative Capacity

“Forested riparian (or streamside) wetlands remove about 80 percent of the phosphorous and 90 percent of the nitrogen from water, which act as water contaminants and may result in unhealthy algae blooms.”

“It is the oyster's eating habits that make it so important to its environment: it is a voracious filter feeder that performs several vital functions in the Bay's ecosystem”



1) Enhancement of Ecosystem Assimilative Capacity

Why not allow point sources to enhance/expand these widely acknowledged water quality enhancing services to help meet their cap?

Documented N & P removal through ecosystem enhancement could be called ***nutrient assimilation credits***



1) Enhancement of Ecosystem Assimilative Capacity

If the emphasis is on outcomes (nutrient removal performance, not installation of BMPs), might open up whole range of nutrient removal possibilities.



Illustration: Nutrient Assimilation Credits from Oyster Aquaculture

Documentation and recognition of nutrient assimilation credits could provide incentives for increased private investment in oyster aquaculture facilities for the purposes of enhancing water quality.

2006 Chesapeake Bay Targeted Watershed Grant Project: "Nutrient Assimilation Credits: Opportunities for Enhanced Oyster Production"

Enhancing Nutrient Assimilation with Oyster Aquaculture

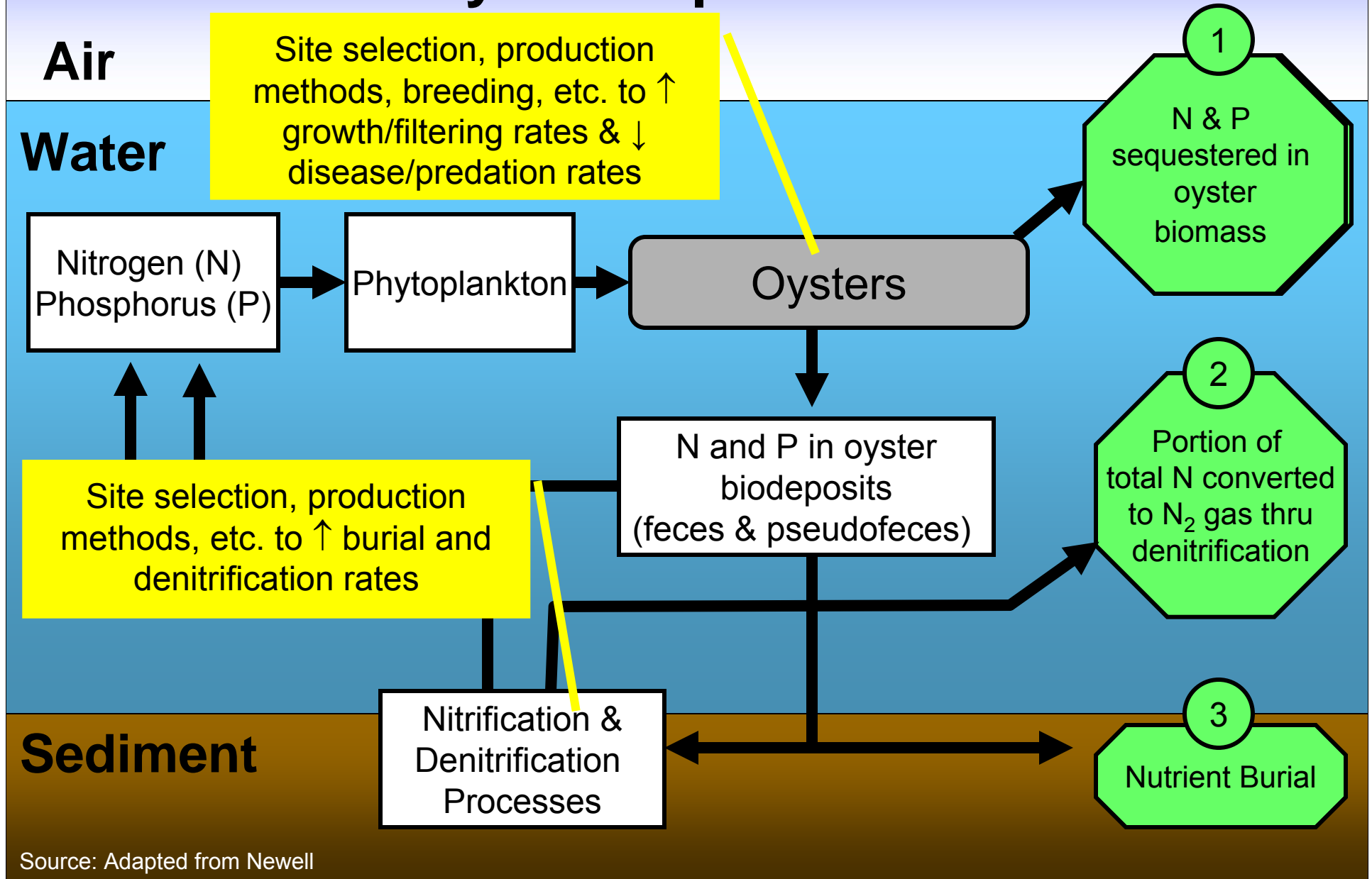


Illustration: Nutrient Assimilation Credits from Algal Turf Scrubber



ATS designed to rapidly grow algae in order to remove nutrients from ambient water or stormwater runoff.

Nutrients removed from algal harvest

Illustration: Nutrient Assimilation Credits from Algal Turf Scrubber



"Annual **nitrogen removal rates** of over 6,400 pounds per acre of treatment area have been achieved while treating stormwater runoff in the Lake Okeechobee watershed. When compared to large constructed treatment wetlands... the Algal Turf Scrubber was able to remove over 200 times more nitrogen per acre of treatment area."

-HydroMentia Website



Possible Advantages of Nutrient Assimilation Credits

- Perhaps less uncertainty in quantifying, tracking, & verifying load reductions
- May avoid some difficult baseline issues encountered with NPS BMPs
- Possible spillover benefits
- Cost effectiveness?



Challenges for Nutrient Assimilation Credits

- Can legal issues/uncertainties arising from the Clean Water Act (emphasis on end-of-pipe source reduction) be resolved?



2) Urban Source Bubbles

Faced with stringent load caps, point sources are required to offset long term growth in loads (associated with higher flows)...

In essence find a way to expand their cap by long term nutrient offsets somewhere else.



2) Urban Source Bubbles

Challenge: There is no transfer (trade) of nutrient control responsibility between point and nonpoint sources.

Any nonpoint source offsets are conditions/requirements for point sources (incorporated in their permit)



2) Urban Source Bubbles

Avoiding legal exposure for NPS nonperformance:

Expand thinking of the legal party responsible for discharge from municipal wastewater authority to local government

2006 Chesapeake Bay Targeted Watershed Grant Project: "Effective Strategies for Reducing Nutrient Loads in the Opequon Creek Watershed"



2) Urban Source Bubbles

Options:

- 1) Urban NPS strategies/practices under local control
- 2) Bring private septic under public service
- 3) Land conversion on land owned or controlled by local government