

Office of Compliance



**Telling Our Story –
Moving from Pounds to
Environmental Measures**

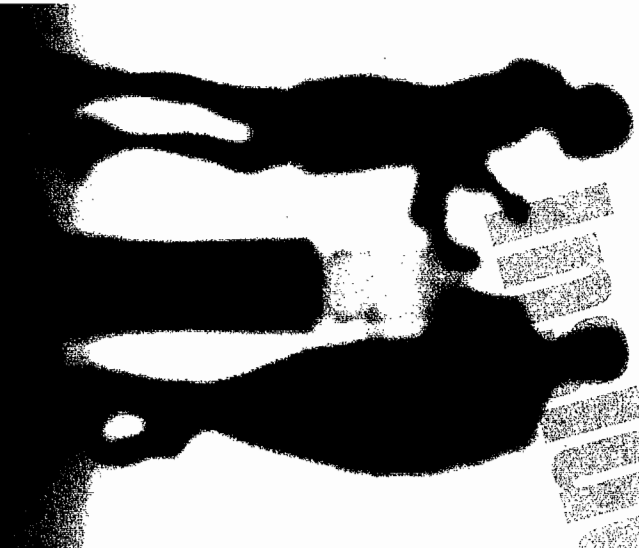
June 2009



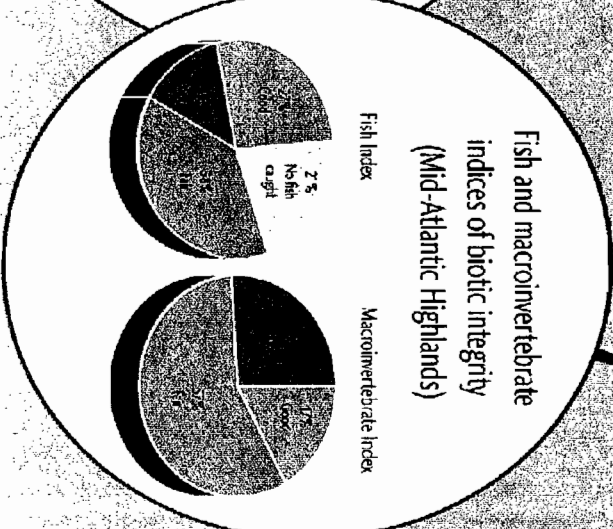
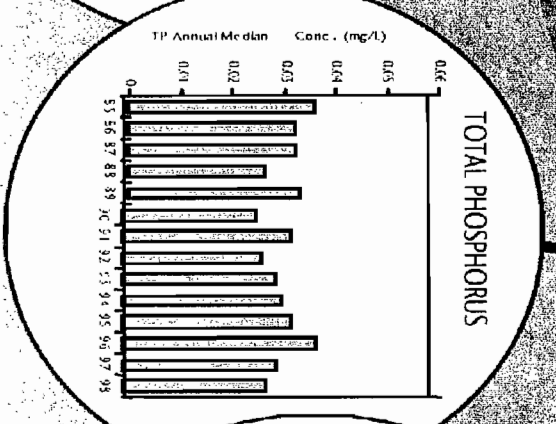
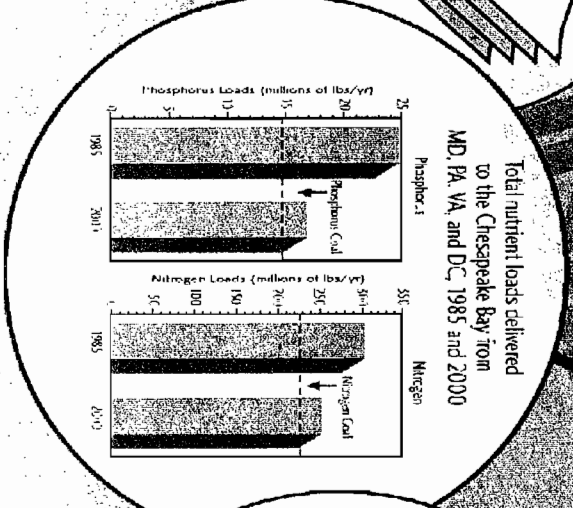
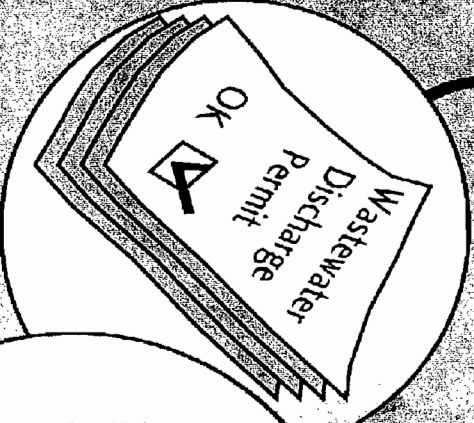
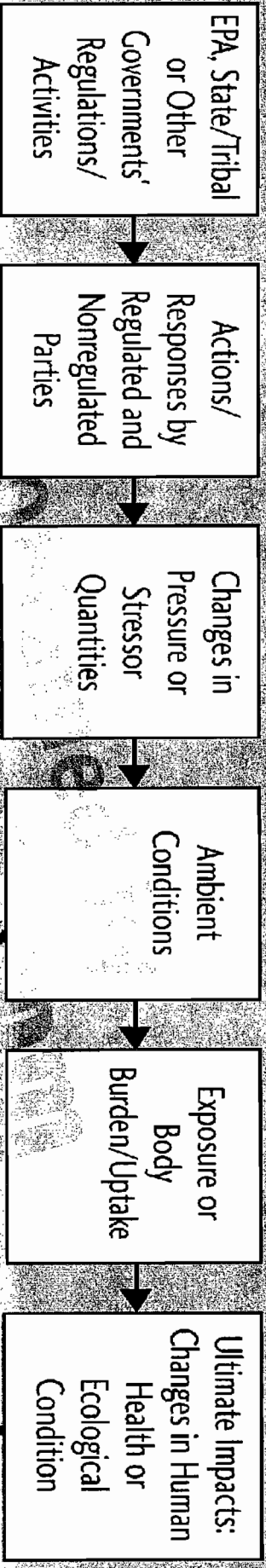
Water Cooler Conversation

- Hey! We reduced pollution by 3.9 billion pounds last year.

- That's great. So then we're breathing cleaner air and swimming in cleaner water?
- We must be! (But don't ask me by how much.)



Pollutants Reduced **Improved Air/Water** **Fewer People Affected** **Improved Health/Env**



Source: Revised from EPA, Chesapeake Bay Program. Chesapeake Bay Hierarchy of Indicators. 2000.

Ideas for Improving Our Environmental Message

- Describe hazards of pollutants (level 3+)
- Describe impacts of pollutants, both on health and the environment (levels 4 & 6)
- Describe non-pollutant load benefits (levels 4 & 5)
- Identify location of enforcement actions (levels 4 & 5)

Pre FY 2008: Air Health Impacts and Other Measures

- Started reporting health benefits accrued from reducing criteria air pollutants (SO₂, NO_x, particulate matter) in FY 2005
- Information reported as part of annual results (<http://www.epa.gov/compliance/resources/reports/endofyear/eoy2008/fy2008results.pdf#page=5>)
- Examples:
 - approximately 4,000 avoided premature deaths in people with heart or lung disease
 - over 50,000 fewer cases of upper and lower respiratory symptoms
- Also wetland acres protected, river miles protected, people protected from impure drinking water, etc.

FY 2008: Add Pollutant Hazards

- Presented narratives for top 5 pollutants reduced for air, water, waste
- Information reported as part of annual results (<http://www.epa.gov/compliance/resources/reports/endofoyear/eoy2008/2008-sp-pollutants.html>)
- Example:
 - Nutrients can lead to significant water quality problems including harmful algal blooms, hypoxia and declines in wildlife and wildlife habitat. Excess nutrients can cause respiratory distress and neurological problems, taste and odor problems, increased longevity of fecal bacteria in surface waters.

FY 2009: Expand Pollutant Counting

- Speciate Hazardous Waste
 - Allows us to count the pollutants in the waste
 - Example: Phosphorus, fluoride, sulfate, metals in phos-gyp plant releases can be large
 - Feeds into the narrative hazard descriptions
 - Sets the stage for toxic weighting and more outcome oriented performance measures (e.g. exposure-based)
 - Have phosphoric acid process complete; working on similar process for other hazardous waste

FY 2009: Add Geospatial Assessment

- Overlays enforcement cases on maps of air non-attainment areas, and water impaired watersheds
- Allows reports such as:
 - Reduced impact of XXX air non-attainment areas
 - Reduced impact of XXX impaired watersheds
 - Might be able to relate to people and river miles affected if relevant geospatial data are available
- Also could show enforcement cases in environmentally important areas (e.g., Chesapeake Bay), and will need Regional help to do this
- Technology to do this available, but need to link pollutant reductions to facility, not just cases, and get accurate locational information.

FY 2010 and Beyond

- Improved Geospatial Analysis
 - Apply to EJ areas (once defined)
 - Apply to air toxics
- Aggregate Toxics
 - Using weighting, can characterize sum of toxics loads as equivalent to one toxic (e.g, copper)
 - Using National Air Toxics Assessment data, can calculate reduction in cancer risk to maximally exposed individual
- Quantify Impact on Ambient Air/Water
 - Using models, can quantify changes in ambient concentrations
- Develop Measures Based on Environmental/Health Targets

Challenges

- Pollution reductions based on case, not facility. Some cases are multi-facility. Can't always link reductions to facilities.
 - Need to input reductions based on facility
- Many pollutants are listed in non-specific groups (total hazardous waste, HAPs, VOCs). Models need speciated chemicals.
 - Either need to start inputting specific pollutants into ICIS or develop ways to disaggregate pollutant groups
- List of reported pollutants is inconsistent (9 different classes of pollutants for BOD, 6 for suspended solids)
 - Need to address through CCDS guidance revisions
- Many models require additional inputs (ambient concentrations, change in concentrations) that are not always available.
 - Need to start gathering information when cases are complete
- Not all facilities are geo-located. Need location for GIS mapping,
 - Need to start ensuring correct locational data accompanies case reporting.
- Environmental Justice areas not defined yet.
 - Need to delineate these areas.