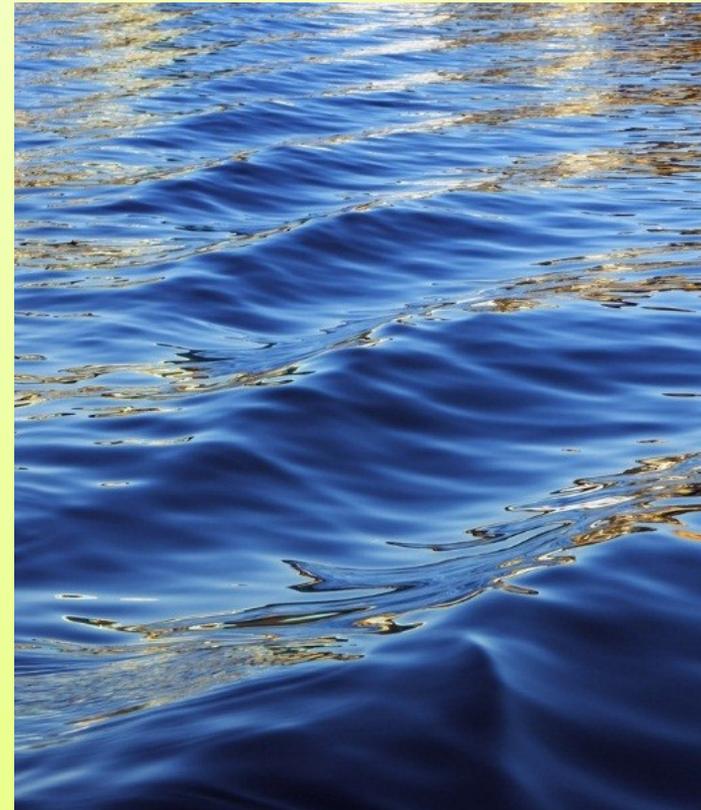




# Behavioral Science and Economics to promote compliance

Al McGartland, EPA



# Why Economics for Enforcement problems at EPA?

- Ecology and Economics both begin with the Greek prefix “Eco”
- *Eco* is a derivation from Greek, meaning an extended family unit that consists of the house, members of the family, slaves, farmland, and all property. Thus, eco now designates a broad, self-sustained unit, as in the terms ecology, ecosystem, and economy.
- The overlap of these self-sustained systems is the space that EPA operates in
  - We don’t regulate the environment; we regulate and change human behavior
- The causes and consequences of environmental problems of all environmental problems are the result of human behaviors, most of them connected to economic

## Now, Economics and Behavioral Sciences can play a major role in Enforcement and Compliance Assistance

- EPA's "enforcement program" is taking dramatic steps to include behavioral sciences and economics in our tool box for promoting environmental progress
  - Increasingly, we need to worry about small, numerous sources of pollution, impractical to regulate.
  - Technologies (CEMs, electronic reporting, fence line monitoring, satellite imaging, etc ) and their falling costs have opened many more policy options for enforcement and compliance.
  - Experimental and Behavioral Economics offers us ways to test what works; Quasi-experimental design – combining advanced econometrics and statistics to simulate experiments using existing data.
    - Combining these tools with behavioral economics opens up economics to many new questions.

# EPA's National Center for Environmental Economics

- NCEE brings the latest and most relevant economics into EPA from the research world
  - Historically, we have focused on emissions trading, fees, Valuing environmental improvements (Benefit-Cost analysis), and other modeling efforts.
  - Increasingly, economists are playing more of a role in Enforcement and Compliance
    - Transferring what we learned from Behavioral Economics,
    - Optimal enforcement penalties, Economic Gain from cheating
    - RCT on policy approaches
- NCEE also conducts research on critical questions.

# Research

- When and Why do Plants Comply? Paper Mills in the 1980s (Law and Policy 2005)
- The Environmental Performance of Polluting Plants: A Spatial Analysis (Journal of Regional Science 2007)
- Does Electronic Reporting of Emissions Information Generate Environmental Benefits? (ongoing)
- What are the effects of inspections and enforcement on drinking water treatment plants? Gray and Shimshack (2011) cite numerous studies on the effectiveness of enforcement but none in the drinking water context.
- What are the benefits of enforcement? Gray and Shimshack (2011) highlight the social benefits and costs of enforcement as an important research need.
- What are the benefits vs. the cost of new monitoring and reporting technologies (Should they be used more often?)