Lecture 1: Introduction

Profs. Austin & Theising

Environmental Economics

Econ 4075

What is this class about?

Question 1: Why and when do environmental problems occur?

- Ex: What causes the annual summer hypoxia "Dead Zone" in the Gulf of Mexico?
- Ecological impacts on marine habitats →
  - Lost commercial seafood revenues
  - Potential for regional fishery collapses
  - Lost tourism

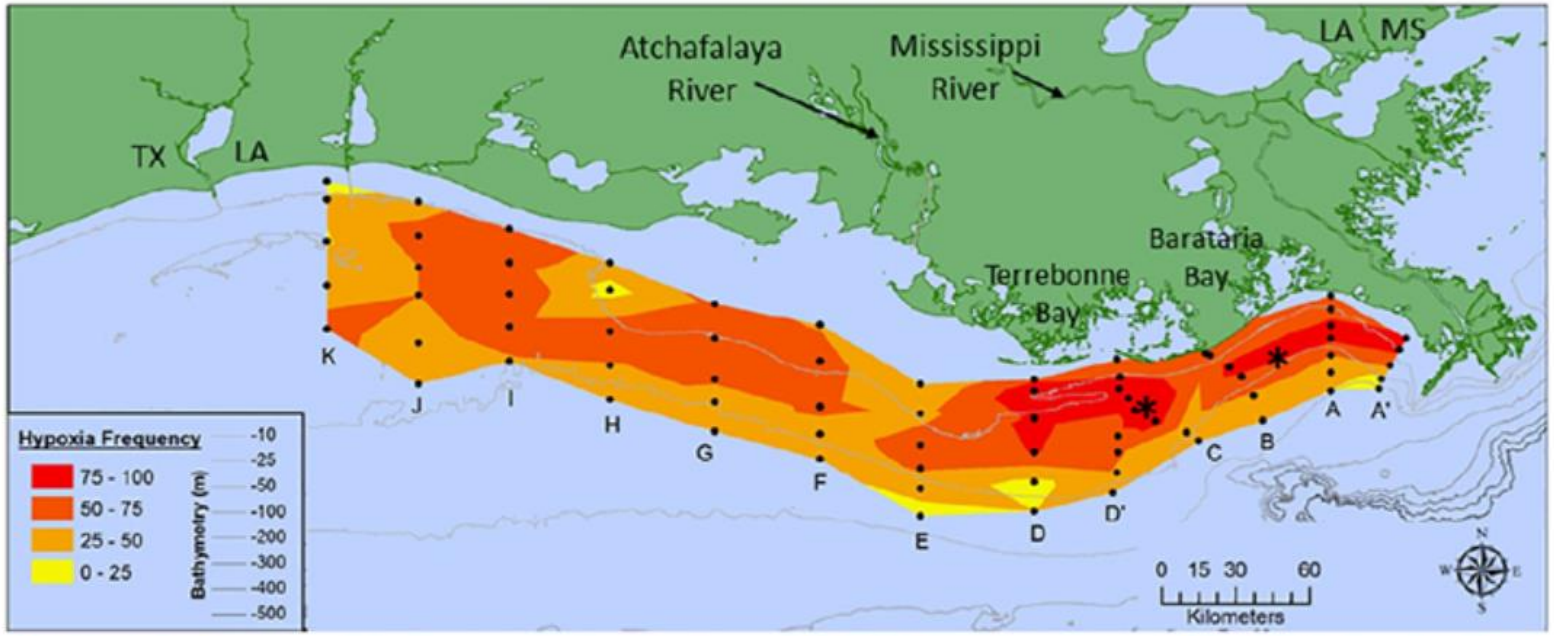

FIG. 1. The frequency of bottom-water hypoxia from shelf-wide hypoxia mapping (1985–2014) (updated from Rabalais et al. (2007b); frequency is determined from stations for which there are data for at least half of all cruises. Asterisks (*) indicate locations of near-bottom oxygen meters; transects C and F identified. Data source: N. N. Rabalais and R. E. Turner.

Source: https://www.epa.gov/ms-htf/northern-gulf-mexico-hypoxic-zone

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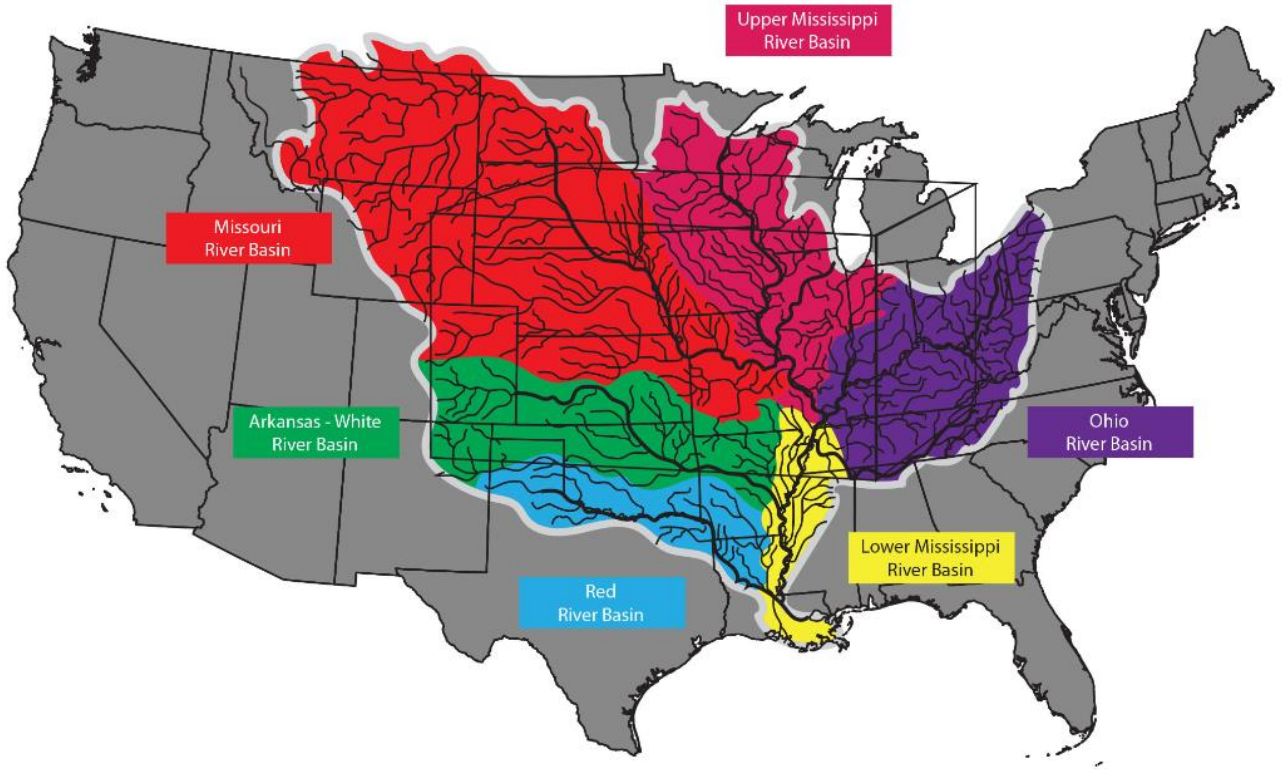
Question 1: Why and when do environmental problems occur?



- Major concepts: market failure, externalities, economic efficiency, property rights, environmental policies

- Environmental issues: water pollution, air pollution, toxic chemical use, hazardous waste management, climate change…

Source:
https://www.lsuagcenter.com/profiles/lbenedict/articles/page1515431998585

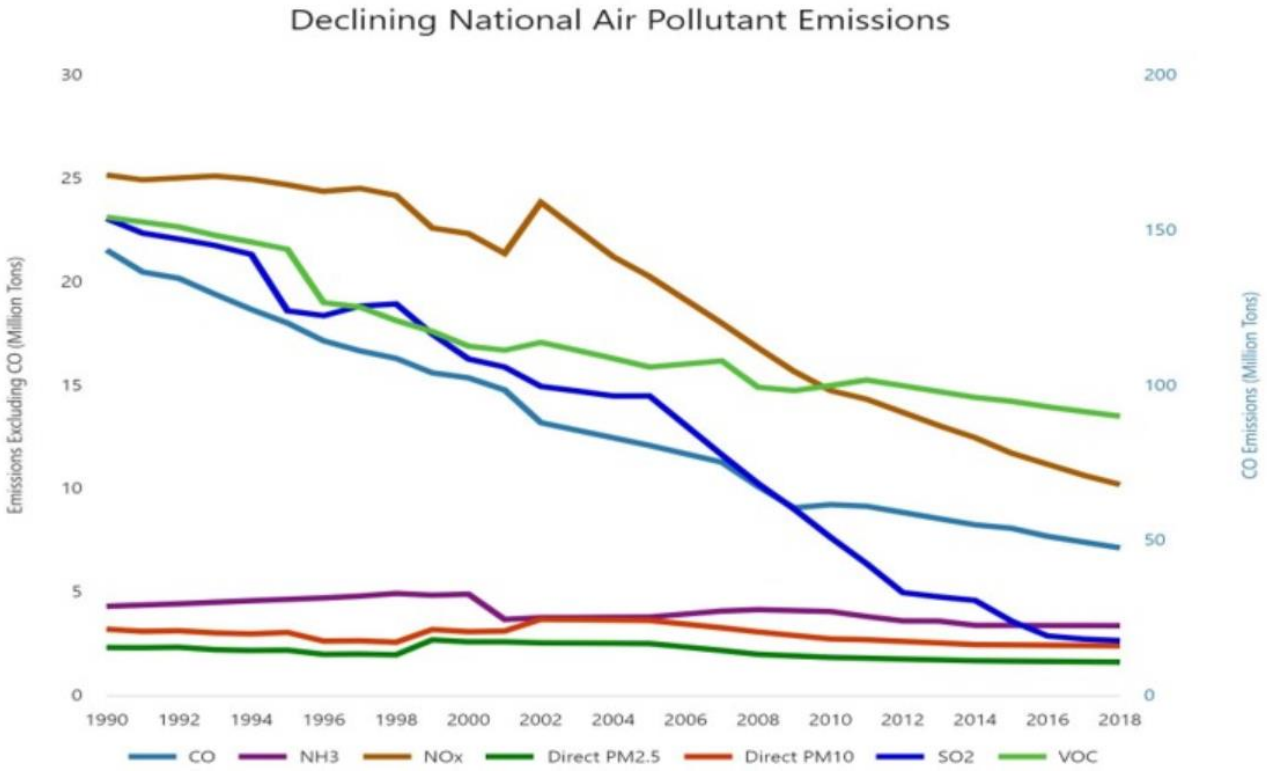
Question 2: How much environmental damage should society allow?

- Ex: how much of a toxic chemical should we allow to be released via air or water?
- Ex: should we save the Virginia big-eared bat from extinction?
- Major concepts: nonmarket valuation, cost-benefit and regulatory analysis, discounting, efficiency versus equity, environmental justice

Source: https://environmentlawhistory.blogspot.com/2015/09/air-pollution-law-before-clean-air-act.html

Source: https://fw.ky.gov/Wildlife/Pages/Virginia-Big-Eared-Bat.aspx

Question 3: How has US environmental policy leveraged economic insights to reduce pollution?



Source: https://www.epa.gov/clean-air-act-overview

- Major concepts: pollution monitoring, information provision, liability, Pigouvian taxes, cap-and-trade systems, emissions standards, and many more…

- An overview and discussion of successes and failures from: the CAA, CWA, SDWA, TSCA, CERCLA, RCRA…

Question 4: What are environmental economists working on now?

House passes Inflation Reduction Act, sending climate and health bill to Biden

The successful vote Friday marked the end of a debate that spanned more than a year and a half, at times pitting Democrats against each other over the final major component of the president's agenda

By Tony Romm

Updated August 12, 2022 at 5:55 p.m. EDT | Published August 12, 2022 at 6:00 a.m. EDT

POLITICS

Biden signs $1 trillion bipartisan infrastructure bill into law, unlocking funds for transportation, broadband, utilities

PUBLISHED MON, NOV 15 2021•10:33 AM EST | UPDATED MON, NOV 15 2021•9:16 PM EST

Jacob Pramuk

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LAW

The Supreme Court has narrowed the scope of the Clean Water Act

Updated May 25, 2023 · 4:25 PM ET

Heard on All Things Considered

Nina Totenberg

DAILY COMMENT

THE SUPREME COURT TRIES TO OVERRULE THE CLIMATE

A destructive decision in West Virginia v. E.P.A.

By Bill McKibben

June 30, 2022

Overview

Motivating Question:	Module:	Lecture #s:
Q1: Why and when do environmental problems occur?	1: Market Failure and the need for Environmental Regulation	2 – 3
Q2: How much environmental damage should society allow?	2. Measuring Environmental Benefits	4 – 10
	3. Environmental Regulatory Impact Analysis	11 – 14
Q3: How has US environmental policy leveraged economic insights to reduce pollution?	4. Economics and Environmental Policy	15 – 21
Q4: What are environmental economists working on now?	5. International Environmental Economics and Policy Frontiers	22 – 23

Course objective:

- In one sentence: you should leave this class with a rigorous economic framework for evaluating environmental issues.
- The course should provide you with the following (high-level) understanding of economists' thinking on the environment:
  1. Economists do not believe that the free market solves all environmental problems
  2. Environmental goods and services have economic value, even if they're not traded in a market.
  3. All decisions concerning environmental policy involve trade-offs.

Logistics

- Course materials (lecture notes, case studies) will be available here: https://github.com/adamtheising/environmental_economics
- TA for the course: Yagmur Menzilcioglu (ym406@georgetown.edu)
- We'll send any class announcements via email
- We welcome questions by email; please follow up if no response within 2 days
- Office hours: via Zoom/Teams, by appointment
- Grading:
  - Reflection posts and case studies **(30%)**
  - Exams: Midterm **(Oct. 18, 35%)** and Final exam **(Dec. 4, 35%)**
  - See syllabus for grade scale

About us:

About Prof. Theising

Professional-wise:

- At EPA since April 2021
  - Contributions on economics for water regs (WOTUS)
  - Economics and EJ analysis on TSCA chemical regs (lead paint, asbestos, 1,4 dioxane, & more)
  - Research focus on assessing nonmarket benefits of air + water quality, climate, and avoided health outcomes

Outside the office:

About Prof. Austin

Outside the office:

Professional-wise:

- At EPA since August 2020
- Contributions on SDWA, CWA, RCRA, and TSCA regulations (esp., PFAS)
- Drinking water data development
- Research focus on health implications of pollution exposure (e.g., school buses, coal ash, PM 2.5)

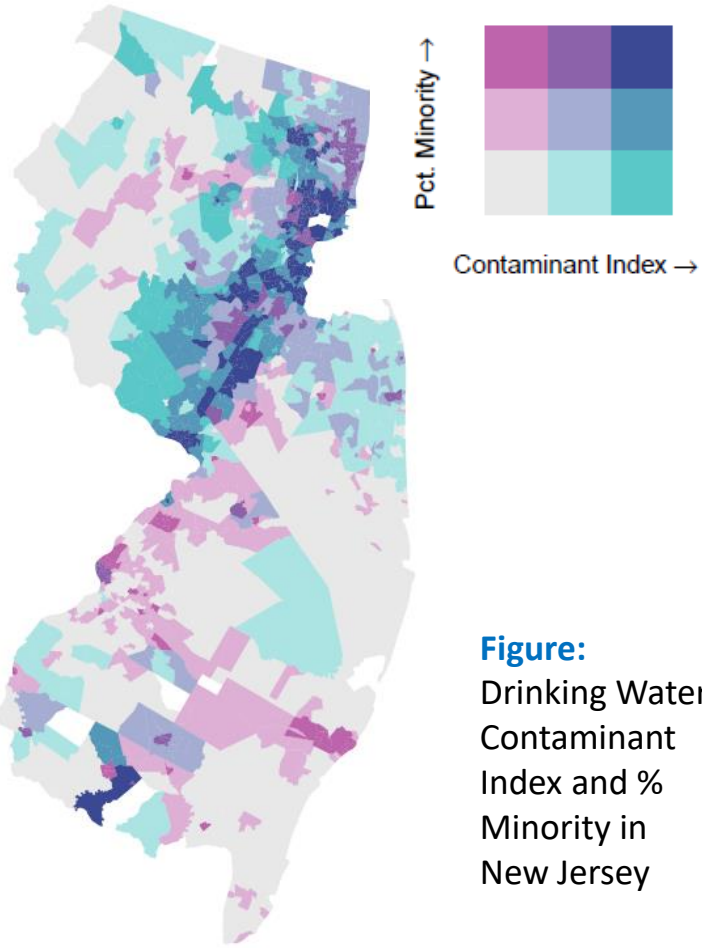

Figure: Drinking Water Contaminant Index and % Minority in New Jersey