Social Science Workgroup Lightning Talks

Leah

Christine

Yusuke

Ellen

John

Valerie

Scott

Leah H. Palm-Forster

Associate Professor and Associate Chair
Dept. of Applied Economics & Statistics

Director, Center for Experimental & Applied Economics

206 Townsend Hall leahhp@udel.edu **Website Link**

UNIVERSITY OF DELAWARE
CENTER FOR EXPERIMENTAL & APPLIED ECONOMICS

CBEAR | THE CENTER FOR Behavioral & Experimental Agri-Environmental Research

USDA NOAA Sea Grant NSF Delaware EPSCoR PROJECT WiCCED WATER in the CHANGING COASTAL ENVIRONMENT of DELAWARE stac

My research group ….

uses economic experiments to analyze resource management and climate change adaptation decisions in coastal contexts.

examines farmer decision making related to nutrient and water management, & adoption of climate-smart practices.

informs the design of cost-effective programs that enhance ecosystem services and resilience to hazards exacerbated by climate change.

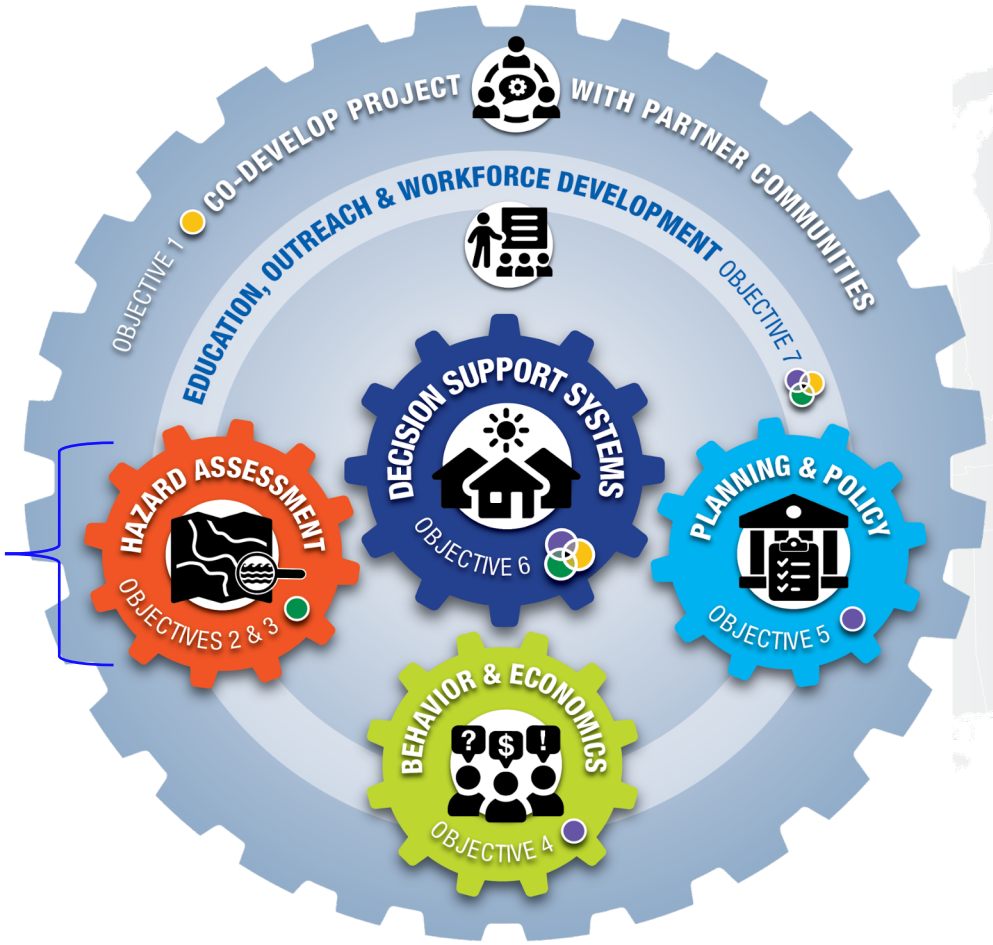
Collaborative Research: RII Track-2 FEC:
Risks, Impacts, & Strategies for Coastal Communities (RISCC):
Advancing Convergent Science to Support Climate Change Adaptation & Resilience

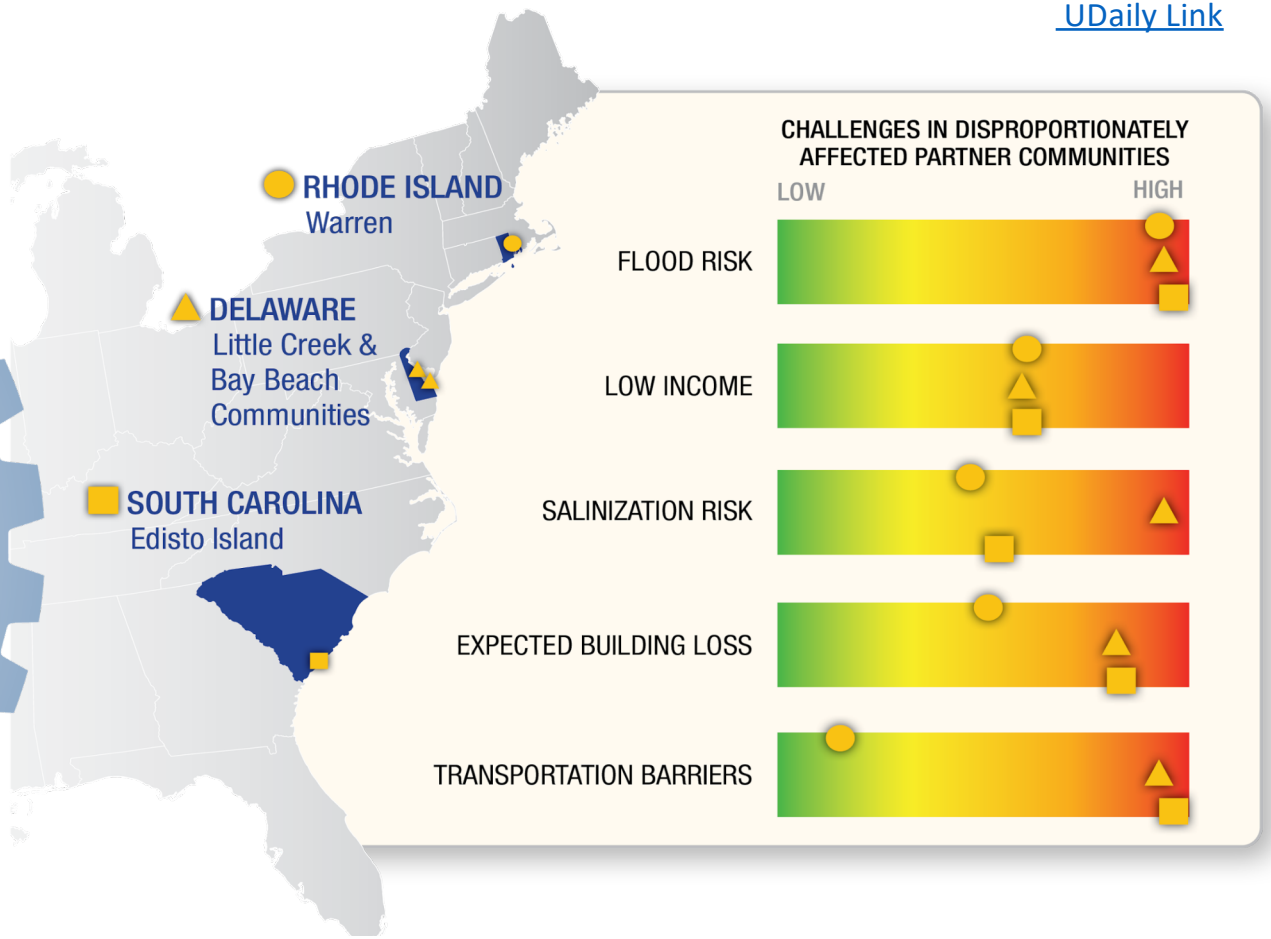
Award Numbers
2418394
2418395
2418396

UDaily Link

Hazards:
- **Flooding**
- **Salinization**

Landscapes
- **Agricultural**
- **Residential**





Participating Institutions and Advisors:
U Delaware, U Rhode Island, College of Charleston, U South Carolina, South Carolina Sea Grant Consortium, Rhode Island Sea Grant, Delaware Technical Community College, The Citadel, MainSpring Agency, and a Community Advisory Board with members from each of the partner communities shown above.

Collaborative Research: RII Track-2 FEC:
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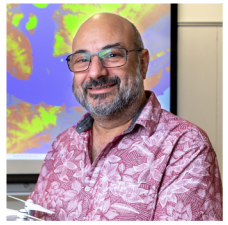
RISCC will advance the assessment of **risks and vulnerabilities to flooding and salinization**, identify effective **adaptation strategies**, develop **decision support tools** based on iterative feedback from our partner communities, and create **education and outreach materials** that will enhance the capacity of **disproportionately affected communities** to increase resilience to climate change threats through **evidence-based planning and workforce development**. RISCC integrates behavioral and natural sciences, engineering, economics, public policy, planning, education, and outreach.

Leah Palm-Forster (PI)
Univ. of Delaware

Emi Uchida (PI)
Univ. of Rhode Island

Norman Levine (PI)
College of Charleston

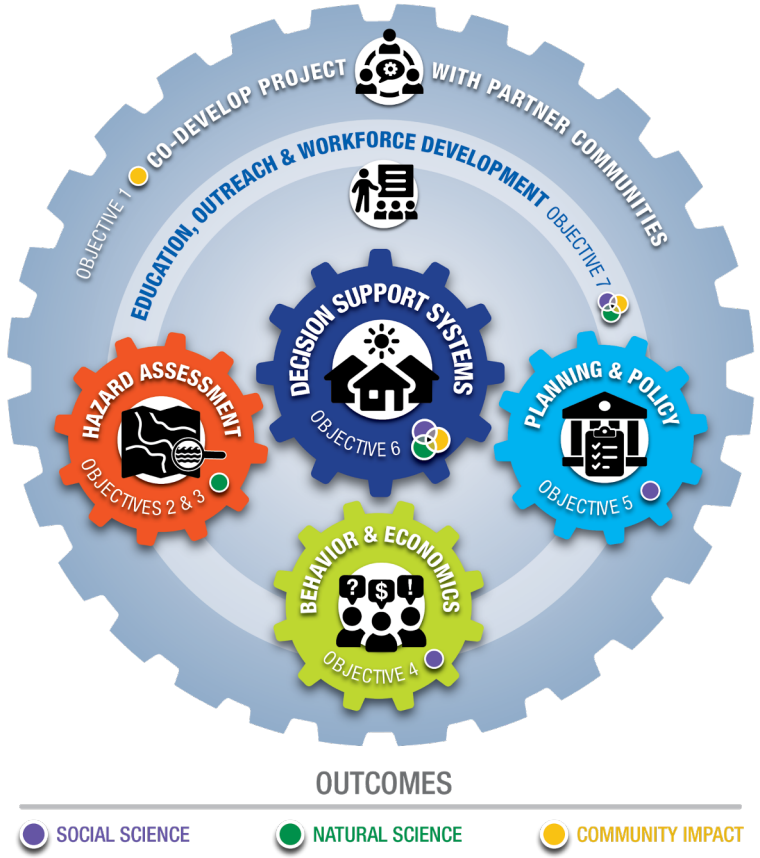


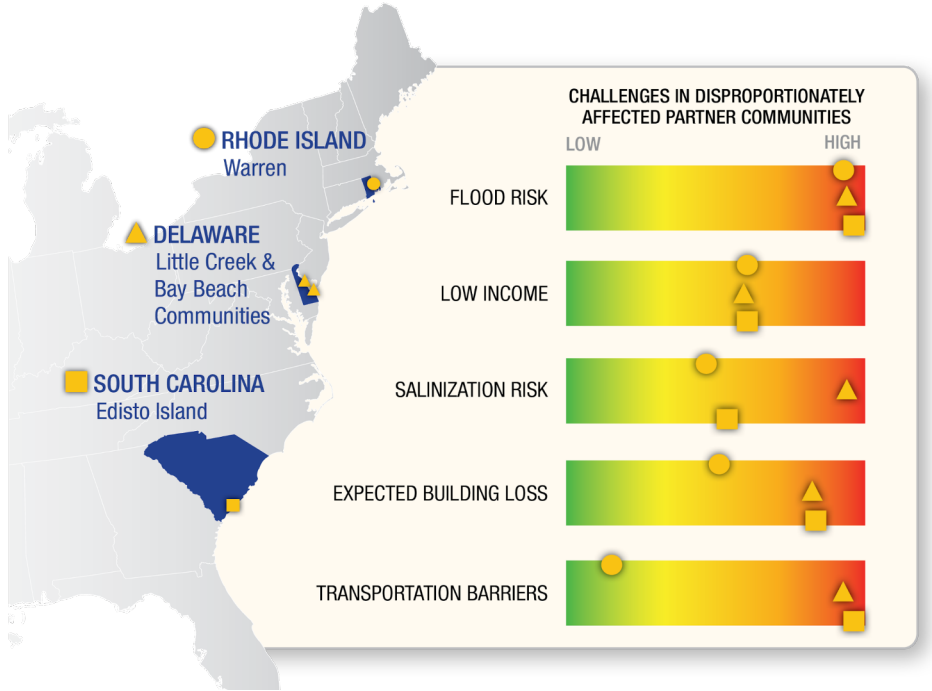
Co-PIs & Senior Personnel

UD: Nina David, Jennifer Volk, Samantha Clem, Pinki Mondal
Christina McGranaghan, Cherie Conrad, Jon Cox, Kent Messer, Holly Michael, AR Siders, Amy Slocum, Heidi Gurdo (DTCC), Ben Hemmings (Mainspring)

Pengfei Liu (URI)
Chris Russoniello (URI)
Mehrshad Amini (URI)
Eliza Berry (URI)
Kim Ohnemus (RI Sea Grant)

Scott Curtis (The Citadel)
Amanda Guthrie (SC Sea Grant)
Alicia Wilson (USC)
Shu-Mei Huang (SC Sea Grant)
Kendra Stewart (CofC)
William Veal (CofC)





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U Delaware, U Rhode Island, College of Charleston, U South Carolina, South Carolina Sea Grant Consortium, Rhode Island Sea Grant, Delaware Technical Community College, The Citadel, MainSpring Agency, and a Community Advisory Board with members from each of the partner communities shown above. External evaluator: Michelle Terwilliger

Christine J. Kirchhoff

Example questions (Q) and methods (M):

- **M:** interviews and systematic analysis; **Q:** What factors explain water quality improvement in collaborative governance? Are current water policies climate ready?
- **M:** EHC, interviews, infrastructure and census data; text analysis, **Q:** What conditions foster resilience and transformation in water infrastructure? Who experiences persistent disruption from underperforming infrastructure?
- **M:** surveys, interviews; **Q:** What factors and processes support the production of actionable knowledge and research impact?

NSF

NOAA

Office of Naval Research

ONR

Science & Technology

CALIFORNIA DEPARTMENT OF WATER RESOURCES

CALIFORNIA Water Boards

GORDON AND BETTY MOORE FOUNDATION

PennState College of Engineering

LAW, POLICY, AND ENGINEERING

Social Science Workgroup: Member intros

Yusuke Kuwayama

Associate Professor of Public Policy, UMBC
Fellow, Resources for the Future

- Associate Professor and Graduate Program Director, School of Public Policy, UMBC
- Fellow, Resources for the Future

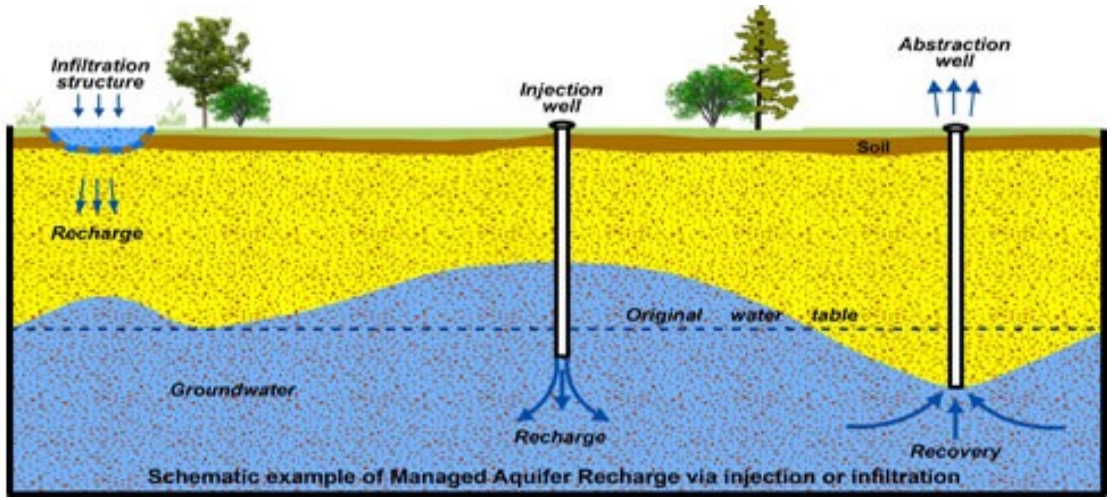
- Ph.D., Agricultural and Applied Economics, U. of Illinois

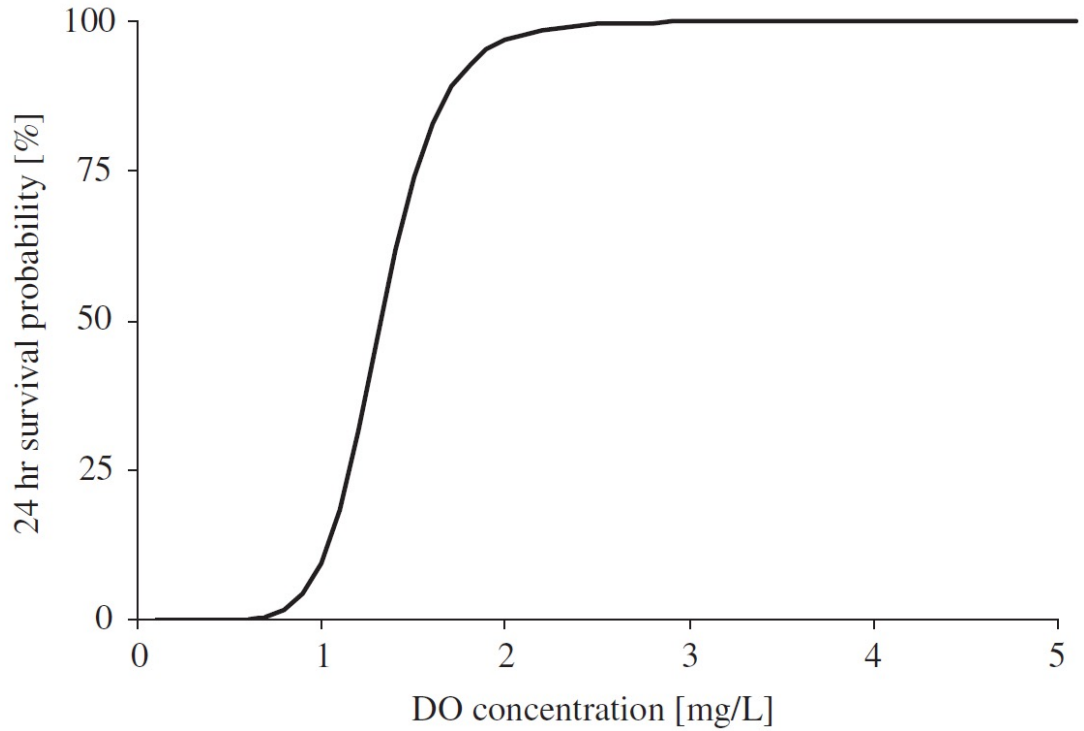
Research methods/approaches

- **Nonmarket valuation:** Placing dollar values on things that you can't buy in markets—like a 1 mg/L increase in DO.

- **Dynamic/stochastic optimization:** Developing models that can guide how to make decisions in the presence of uncertainty, time lags, and thresholds—given a set of objectives and values.

- **Socio-environmental systems modeling:** Collaborating with hydrologists and ecologists to represent costs and benefits to humans within integrated models.


Infiltration structure
Injection well
Abstraction well
Soil
Recharge
Original water table
Groundwater
Recharge
Recovery
Schematic example of Managed Aquifer Recharge via injection or infiltration


100
75
50
25
0
24 hr survival probability [%]
0
1
2
3
4
5
DO concentration [mg/L]

Ellen Kohl

Assistant Professor
Geography & Environmental Systems
University of Maryland, Baltimore County

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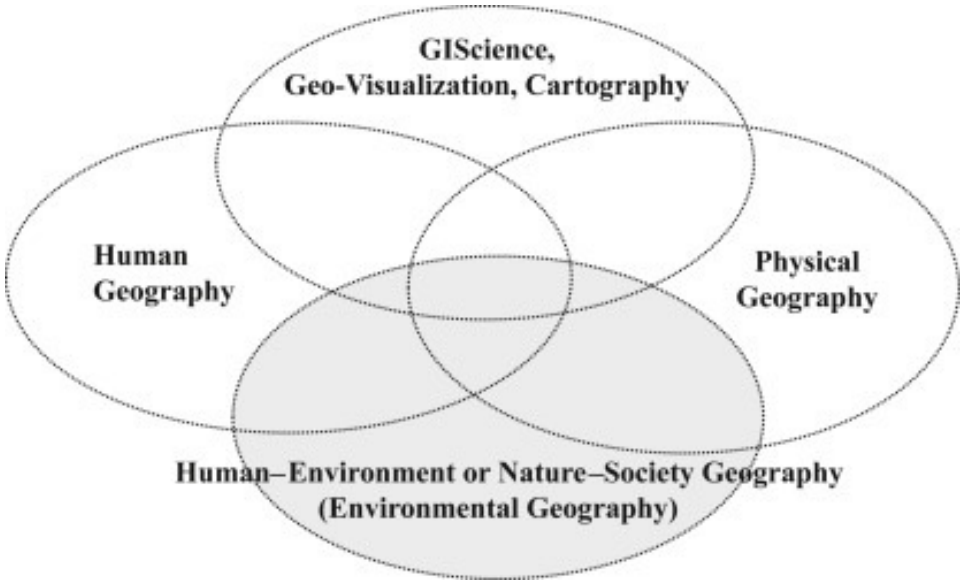

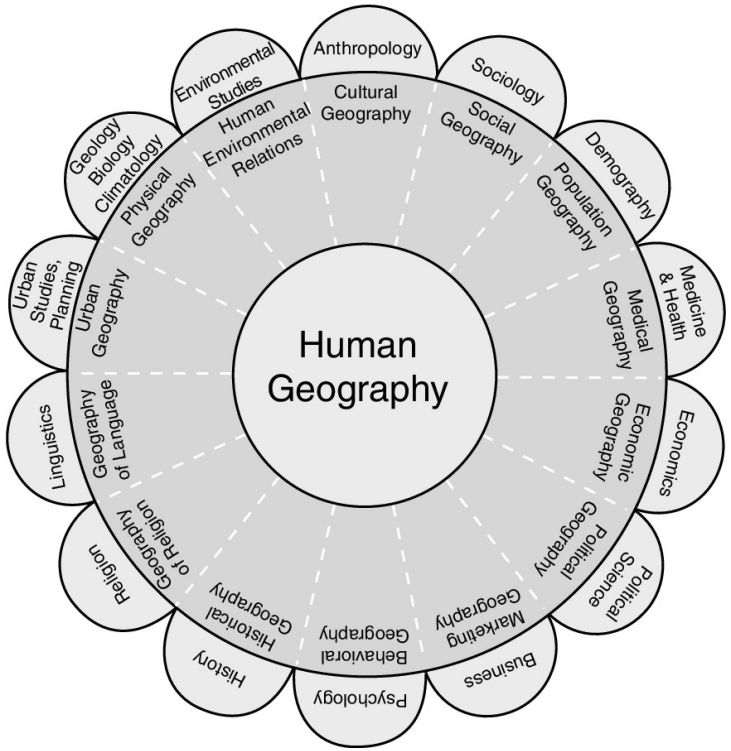

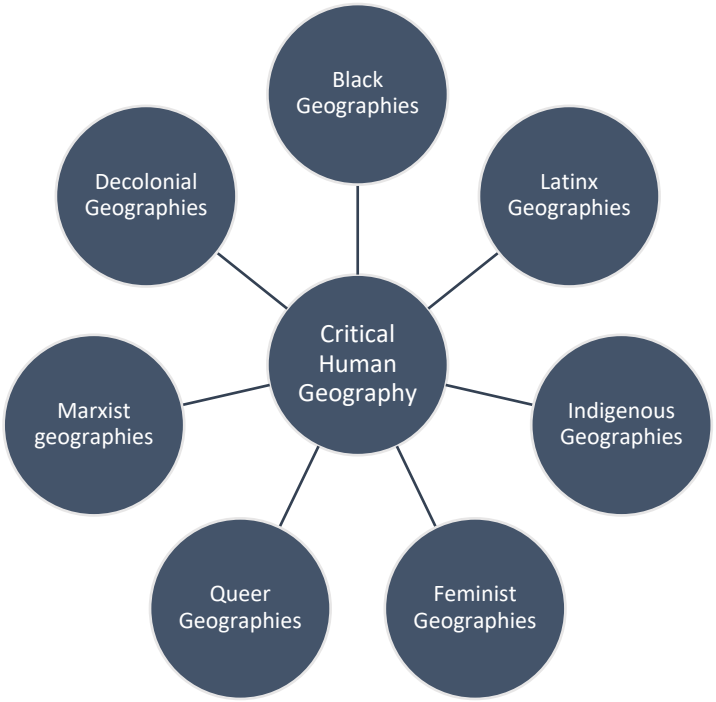

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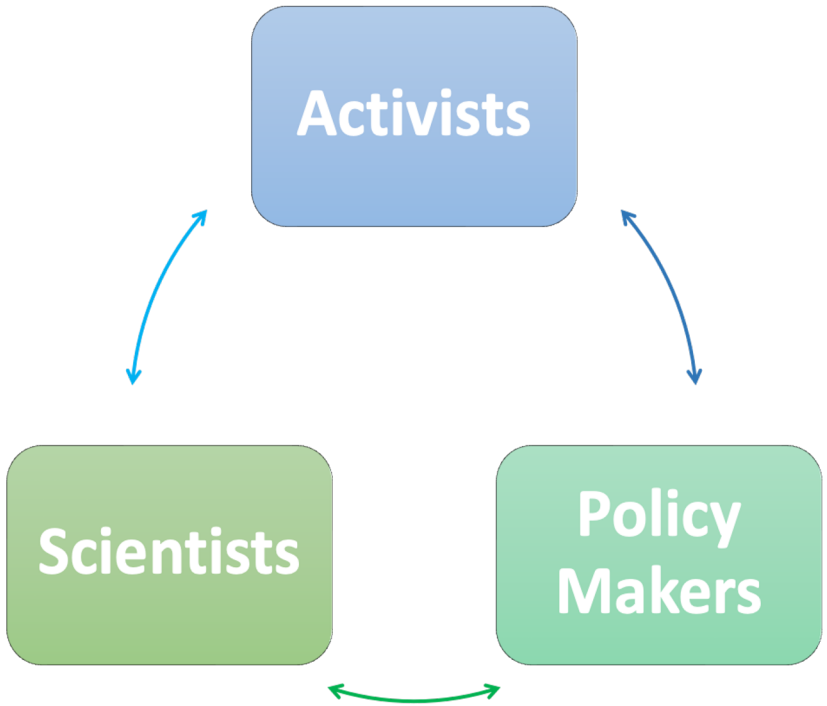

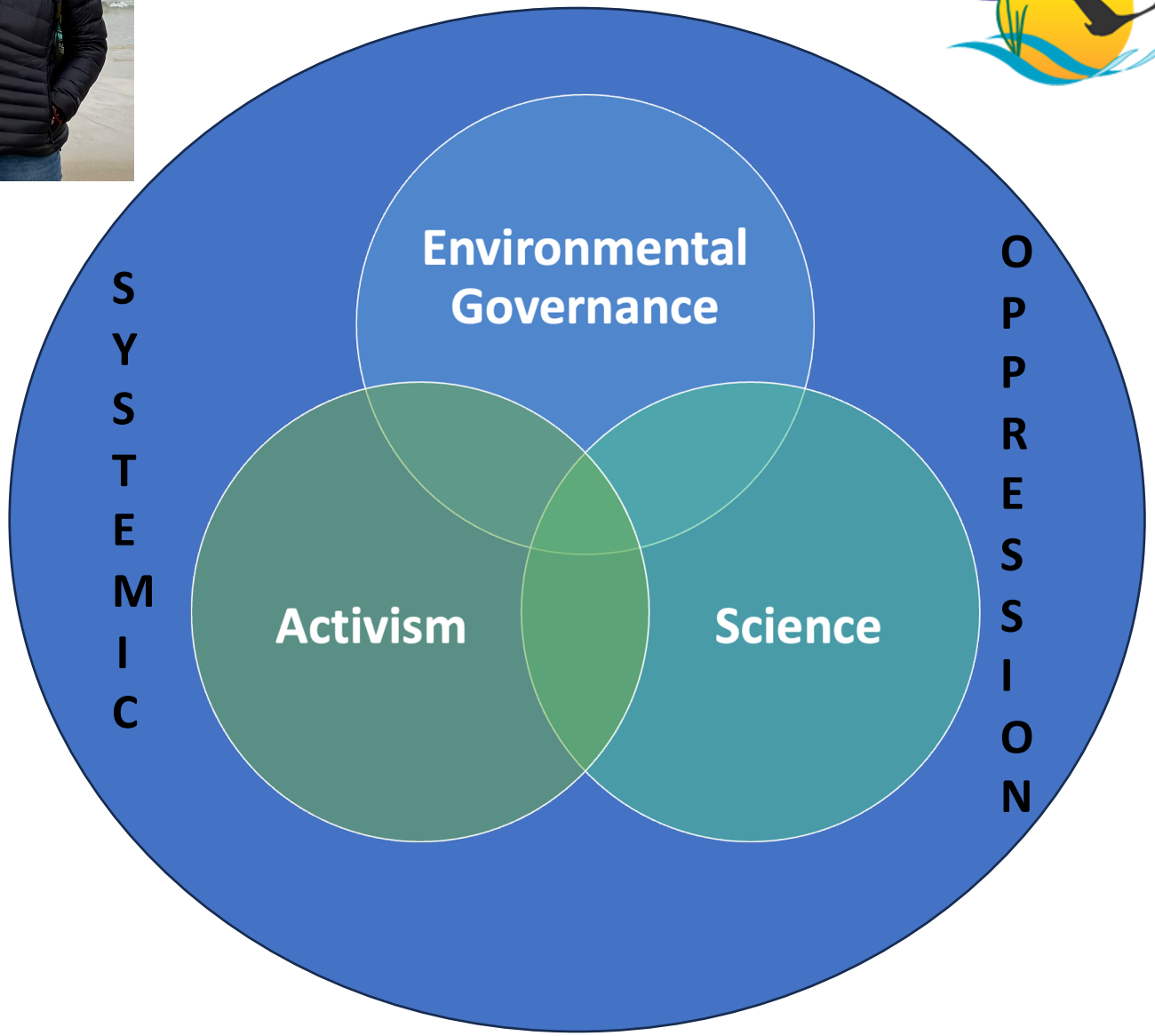

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Environmental Justice Governance and Activism

Institutional Environmental Justice Governance

Intersectional Geographies

Lightning Talk on Social Science Connections

John Bovay

Associate Professor, Agricultural & Applied Economics
Specialist, Virginia Cooperative Extension

bovay@vt.edu

Chesapeake Bay STAC
5 March 2025

What was economics?

- Traditionally: Developing theories to explain producer and consumer behavior, and the macro/market implications of individuals' behavior

What was economics?

- Traditionally: Developing theories to explain producer and consumer behavior, and the macro/market implications of individuals' behavior
  - Sometimes, testing these theories with data

What is economics?

- Currently: Economics is a **quantitative social science** that uses **causal inference methods** to identify the effects of X on Y, where X and Y are two variables, at least one of which usually has clear relevance to human beings

What is economics?

- Currently: Economics is a **quantitative social science** that uses **causal inference methods** to identify the effects of X on Y, where X and Y are two variables, at least one of which usually has clear relevance to human beings
  - Sometimes, it relates to neoclassical economic theory

Shaming, stringency, and shirking: Evidence from food-safety inspections

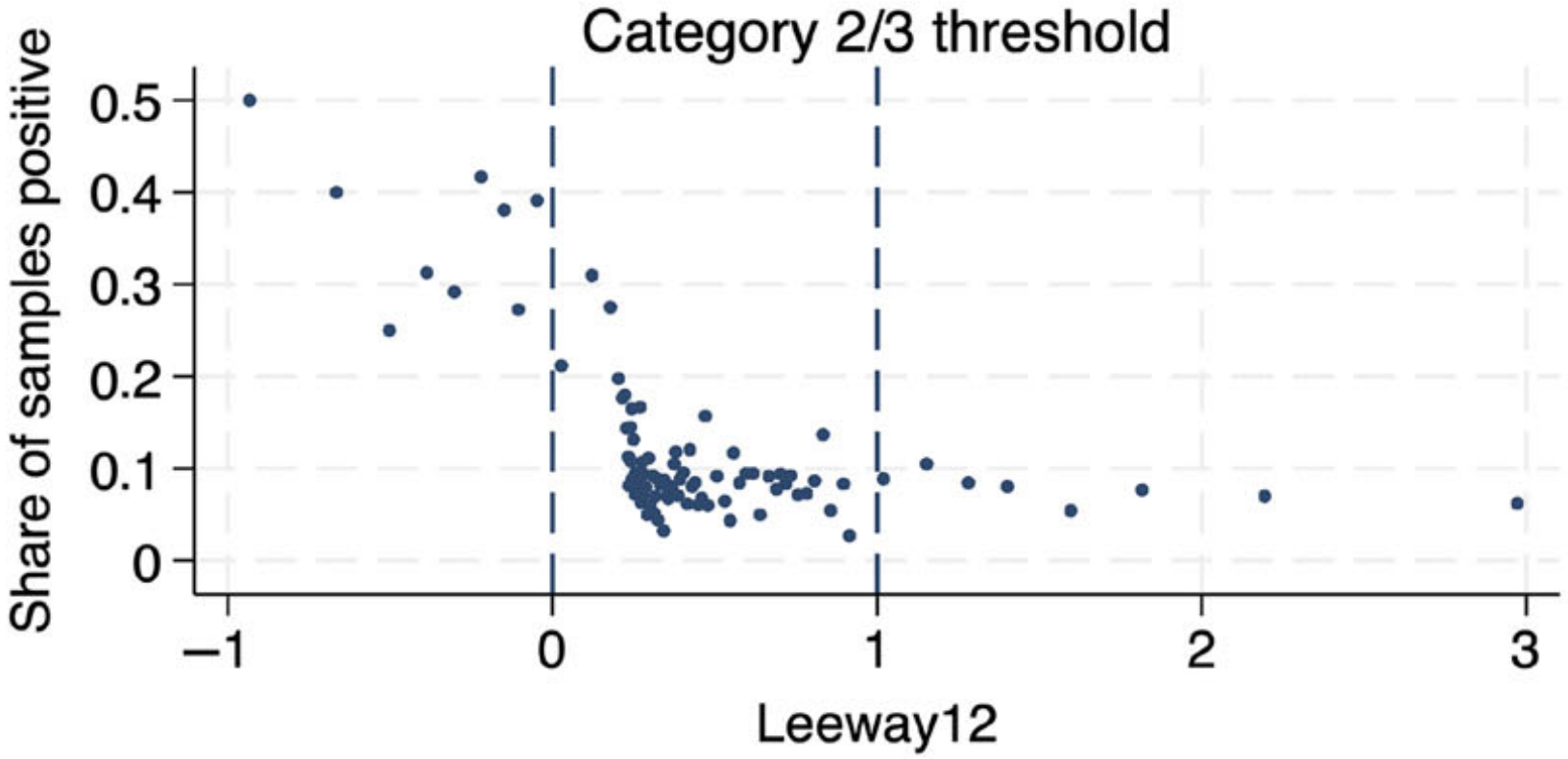
John Bovay

Abstract

This paper examines the responses of chicken producers to public disclosure of quality information (or categorization) regarding *Salmonella* in chicken carcasses. Producers exert effort to attain better categorization and shirk when failing to meet the thresholds required for better categorization. Public disclosure reduces this shirking effect. However, some producers shirk even under public disclosure when the threshold for disclosure is too stringent. The results suggest that the most effective quality disclosure policies would either disclose continuous (noncategorical) information or impose fines or other sanctions on producers attaining the poorest quality.

DOI: 10.1111/ajae.12480

Food safety example



On-farm food loss and waste

- How do farm decisions, institutions, and market and weather conditions cause gaps between vegetable plantings, harvests, and sales?

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On-farm food loss and waste

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  - Crop insurance
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- We link restricted access farm-level data from multiple USDA surveys to create the most comprehensive granular panel data set with information about on-farm food loss and waste
- Implications for the environment, resource (land and other input) use, and food prices and affordability

Climate-smart agriculture

- Alliance to Advance Climate-Smart Agriculture, led by Virginia Tech
  - Large-scale experiment to pay farmers to adopt conservation practices (conditional on continued funding)

Social Science Workgroup: Member Intros

Valerie Were

Social and Behavioral Science Program Analyst

Cooperative Institute for Research In the Atmosphere (CIRA)

Colorado State University

Social Science Expertise: Applied Sociology

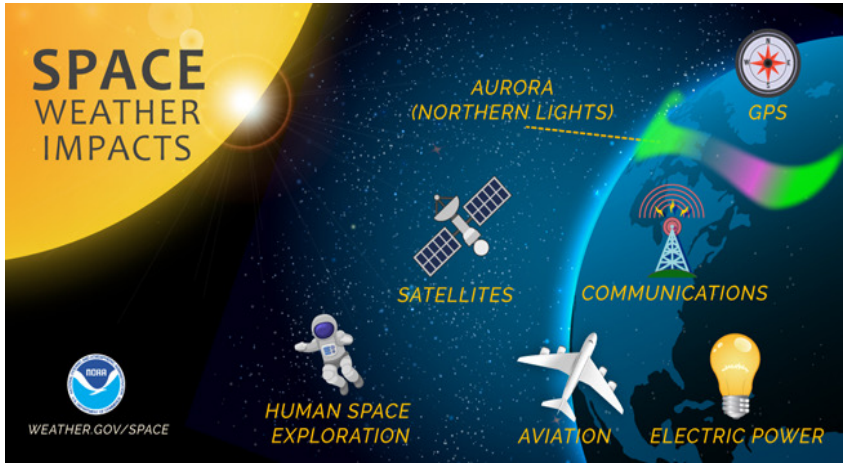
Methods: Structured and semi-structured interviews, focus groups, participant observation, surveys

Relevance to Physical Science

- Value of environmental observations is realized when negative societal outcomes from hazardous weather and climate events are mitigated
- Must know who uses those data, how they use them, what outcomes are improved, and by how much

Social Science Workgroup: Member Intros

Project: Space Weather Advisory Group (SWAG) User Needs Assessment



"Conduct a comprehensive survey of the needs of users of space weather products to identify the space weather research, observations, forecasting, prediction, and modeling advances required to improve space weather products"

Val's Tasks

- Developed Focus Group Protocols (Script w/ Questions)
- Obtaining Paperwork Reduction Act approval from OMB
- Training SWAG members on collecting information*

*Analysis was done by social scientists

Environmental & Natural Resource Economics

Mission: To understand how environmental policies and natural resource management affect human social and economic well-being

Personnel

Scott Knoche
Michigan State U.
Ph.D. Fisheries and Wildlife (Env. & Nat. Res. Econ)

Kehinde Ojo
U. Georgia
Ph.D. Ag & Applied Econ

Anjali Gulati
Georgetown U.
M.S. Political Econ

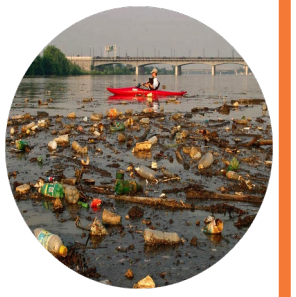
Emily Hoyt
Virginia Tech.
M.S. Natural Resources

Research Snapshot

Urban Coastal Greenspace (MPA)

Urban Coastal Access (MDSG)

Salmon Consumer Preferences (USDA)



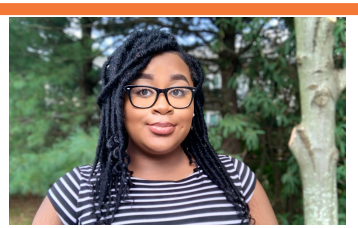
Anacostia Trash TMDL (MDE, EPA)

Research Interests

- Social Science Survey Research Methods
- Non-Market Valuation
- Regional Economic Impact Analysis
- Benefit-Cost & Policy Analysis

Graduate Students

Abubakar Ringim
Morgan State
Ph.D. Student
Bio-Env. Science



Kristen Jones
Morgan State
Ph.D. Student
Bio-Env. Science

Ebram Victoria
Morgan State, Ph.D. Student
Architecture, Urbanism, and the Built Environment

Alberta Agbede
Morgan State
MBA Student

2 Ways Economics Useful for Chesapeake Bay Program

- **Regional Economic Activity** (Change in Sales & Employment)
  - Helps stakeholders understand changes in economic activity in their specific region
  - **Knoche recent work**: Regional economic impacts of oyster reef restoration resulting from enhanced commercial Fisheries (MD Choptank and VA Middle Peninsula)

- **Non-Market Valuation** (Willingness to Pay[WTP]; Consumer Surplus)
  - Component of Benefit-Cost Analysis
    - Mandated by Federal Agencies (e.g., EPA, USACE depending on nature of project)
  - **Knoche recent work**: Trout Angler WTP for Acid Mine Drainage Remediation (NBPR)

Estimating the Regional Economic Impacts o
Restored Oyster Reefs - Choptank River, MD

Coupled Ecological-Economic Model

Photo: Stephanie Westby, NOAA

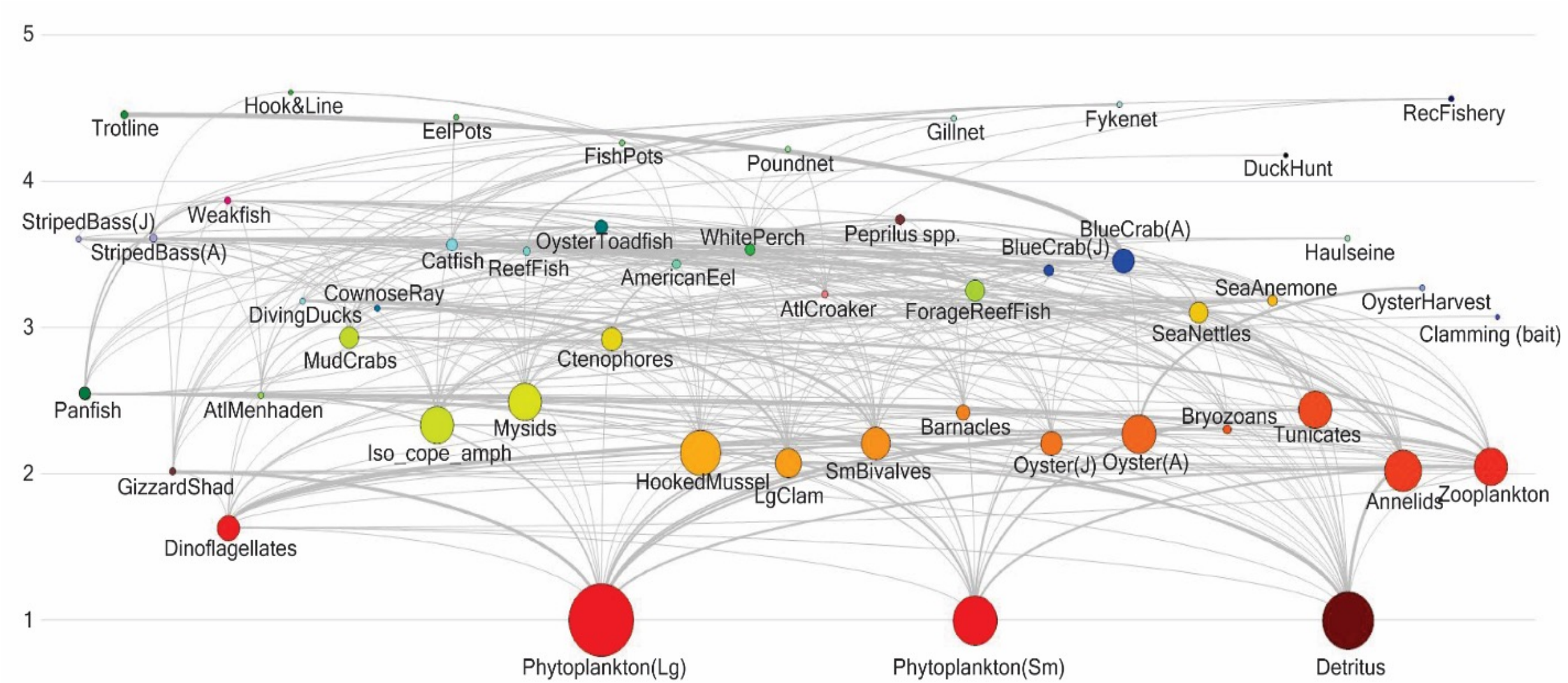
Tom Ihde

Scott Knoche

Howard Townsend

Giselle Samonte

Natural Scientist Alert: Ecological Modeling Outputs an Input into Economic Model



Linking Ecology and Economics

Trophic Model

Ecopath with Ecosim

No fish is an island

Output:

Fisheries Landings

(Convert to Dockside sales)

Regional Economic Impact Model

IMPLAN

Backwards linked supply chain

Total Output:

Employment, Sales, Income

Socio-economic Impact: Jobs & $$$

Oyster Reef Restoration Scenarios