



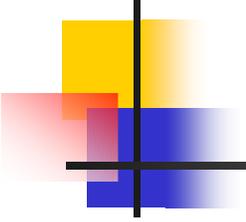
# Economics of the Quality & Quantity of Freshwater:

## Empirical research needs/opportunities

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### **Outline:**

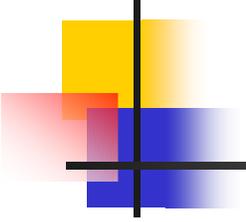
- ❖ Valuation dilemmas
- ❖ Empirical research needs



# Dilemmas of Economic Valuation

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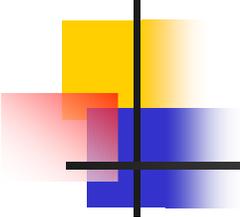
- ❖ The pressing contemporary dilemmas associated with freshwater resources are less matters of physical and biological science than they are social science (economic, sociological, political).
- ❖ Values held for water are mostly indirect and non-market
- ❖ Change in water quality and quantity affects goods and services that are both private and public
  - ❖ distribution of benefits and costs are only partially comparable
- ❖ Attributions of/to change in water resources are highly qualified
  - ❖ analysis requires assessment of “with” vs. “without” - or marginal change



# Empirical Research Problems

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1. What are the economic consequences of fluctuating water levels on adjacent private property owners?
  - ❖ affect on recreational use of water bodies including docks, boat storage, and beach use
  - ❖ affect of shoreline change on parcel values
2. How does water quality change affect public recreational use of water resources and what impact does this affect have on use characteristics?
  - ❖ angling
  - ❖ navigation
  - ❖ immersion activities including public beach use, diving, water skiing, and other direct recreation
3. What are the economic impacts of #1 and #2 on local water sports business activity and “quality-of-life”
4. How do costs compare to benefits and what are the distributional elements necessary to make informed public policy decisions?

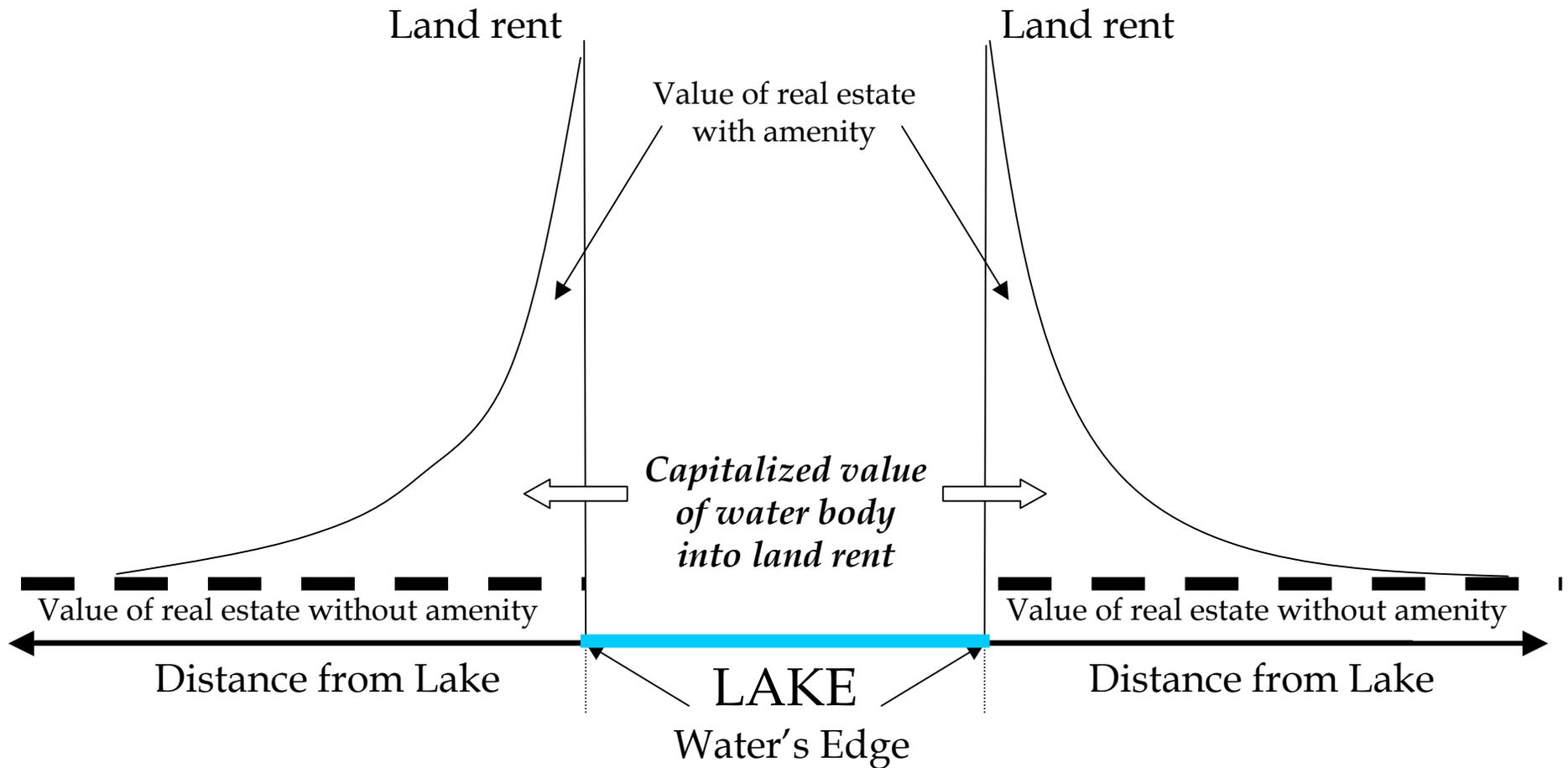


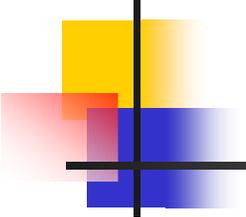
# Water Economics - Research Methods

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- ❖ “Stated” preference metrics & tools
  - ❖ measure willingness-to-pay and/or willingness to accept change
    - ❖ stated preference approaches (e.g. contingent valuation and ranking)
    - ❖ often suffer from a lack of any recognizable market
- ❖ “Revealed” preference metrics & tools
  - ❖ use a market-based proxy to reflect the value of the underlying amenity
    - ❖ hedonic price models of real estate markets
    - ❖ travel cost and expenditure assessments of recreational use
    - ❖ useful because they relate to active and operating markets.
- ❖ Economic impact assessment metrics & tools
  - ❖ assess the impact of change on regional economic structure
    - ❖ fixed-price regional modeling (analysis using input-output and social accounting)
    - ❖ price endogenous modeling (econometric and regional equilibrium models)
    - ❖ often suffers from a difficulty to attribute structural change to underlying resources

# Illustrating Hedonic Values for Water





# Restating the Obvious

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- ❖ Change in both quality and quantity of water resources affect private and public benefits ... locally, regionally, state-wide, and nationally
- ❖ Distribution of costs and benefits for management action are difficult to compare and highly politicized
- ❖ Empirical valuation research is important for assessing alternative uses and the distribution of benefits and costs.
- ❖ Water values and their marginal attribution are evasive
- ❖ Locally, impacts are wide-ranging
- ❖ Demands are increasing
- ❖ Research & education → critical

A scenic sunset over a lake. The sky transitions from a deep blue at the top to a bright orange and yellow near the horizon. The sun is low on the horizon, casting a long, shimmering reflection on the calm water. In the foreground, the dark silhouette of a pontoon boat is visible, docked at a pier. The boat has a canopy and some equipment on board. The overall mood is peaceful and serene.

# Questions, comments, and discussion

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