Economics of the Quality & Quantity of Freshwater: Empirical research needs/opportunities

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Outline:
- Valuation dilemmas
- Empirical research needs
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
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?
“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

Distance from Lake

Land rent

Value of real estate without amenity

Capitalized value of water body into land rent

Value of real estate with amenity

LAKE

Water’s Edge

Distance from Lake

Value of real estate without amenity
Restating the Obvious

- 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
Questions, comments, and discussion

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