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Labeled Versus Unlabeled Choice Experiments for Valuing Great Lakes Beach Characteristics

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Introduction

- Choice experiments allow researchers to estimate the demand and value for attributes of goods across a wide variety of applications.
- In labeled choice experiments, labels capture characteristics consumers associate with the name apart from the other attributes in the choice experiment.
- It can be unclear what respondents infer about labeled alternatives (Louviere, Hensher, and Swait, 2000), and labeling alternatives may increase cognitive burden by adding another attribute to a task that may already be difficult for respondents (Hanley et al, 2001).

Application: Great Lakes beaches

- The Great Lakes are a vast and varied resource, providing Michigan with over 600 public beaches along over 2,100 miles of Great Lakes coastline.
- Site quality and characteristics vary widely, some appear to vary by Great Lake.
- Great Lakes beaches come under a variety of natural and man-made threats.
- There is no data on visitation or preferences for site characteristics.
- Outside of smaller scale study (Murray, Sohngen, and Pendelton 2001) beach valuation literature is focused on Pacific and Atlantic coasts (e.g. Parsons and Powell 2001; Lew and Larson 2005)



Objectives

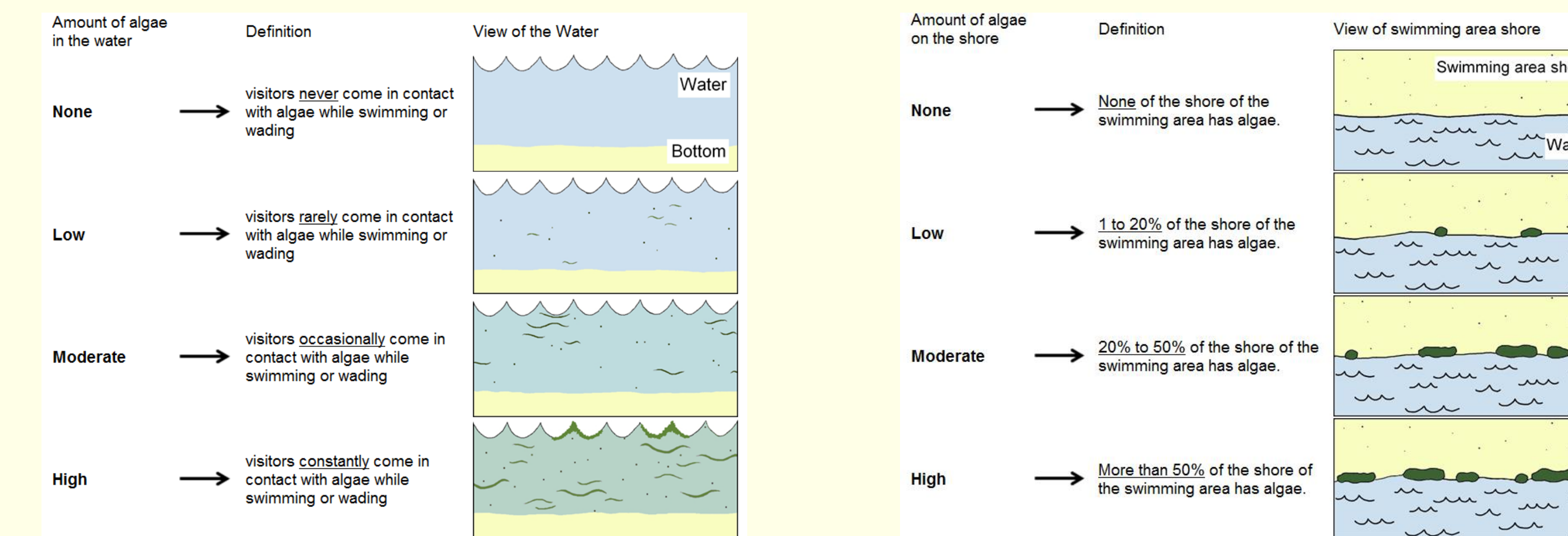
- Conduct choice experiment measuring preferences for changes in water quality and other characteristics at Great Lakes beaches in Michigan.
- Test for the effects of labeling alternatives by comparing Marginal Rates of Substitution (MRS) observed in labeled, same-labeled, and unlabeled designs.
- Use MRS to inform decision makers and resource managers

Data

- Web Survey conducted in the Spring of 2012
- Sampled 5,600 Michigan residents who indicated on an earlier mail survey that they visited a Great Lakes since June 1, 2010. Response rate= 58%
- Each respondent provided trip details for visits taken during the last year for use in revealed preference valuation using travel cost method
- In stated choice section, each respondent faced three choice sets.
- Experimental design generated using NGene

Choice experiment

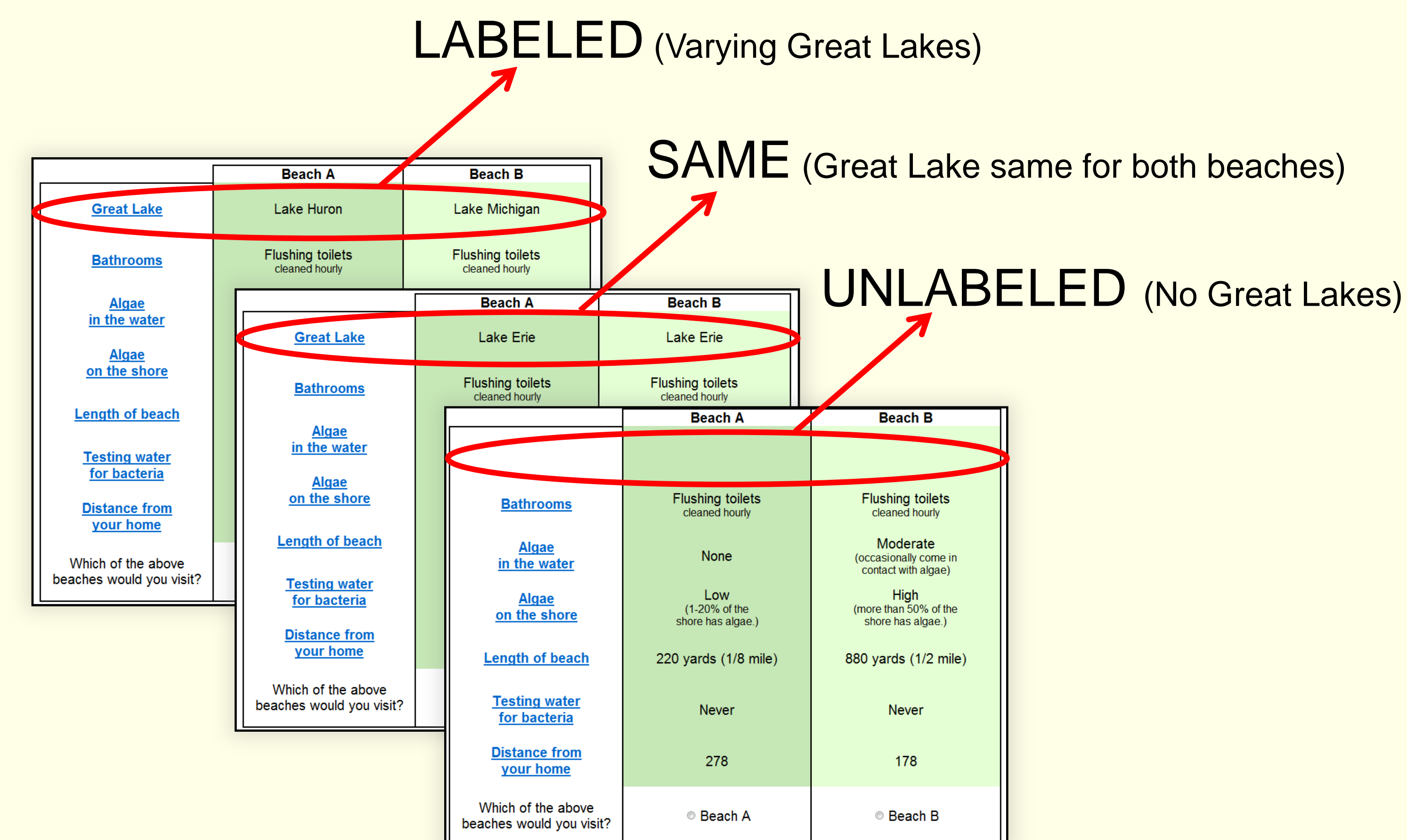
- First, provided respondents with descriptions of attributes and attribute levels
- Included questions to engage respondents in the information used in choice sets



Testing for effect of labeling alternatives

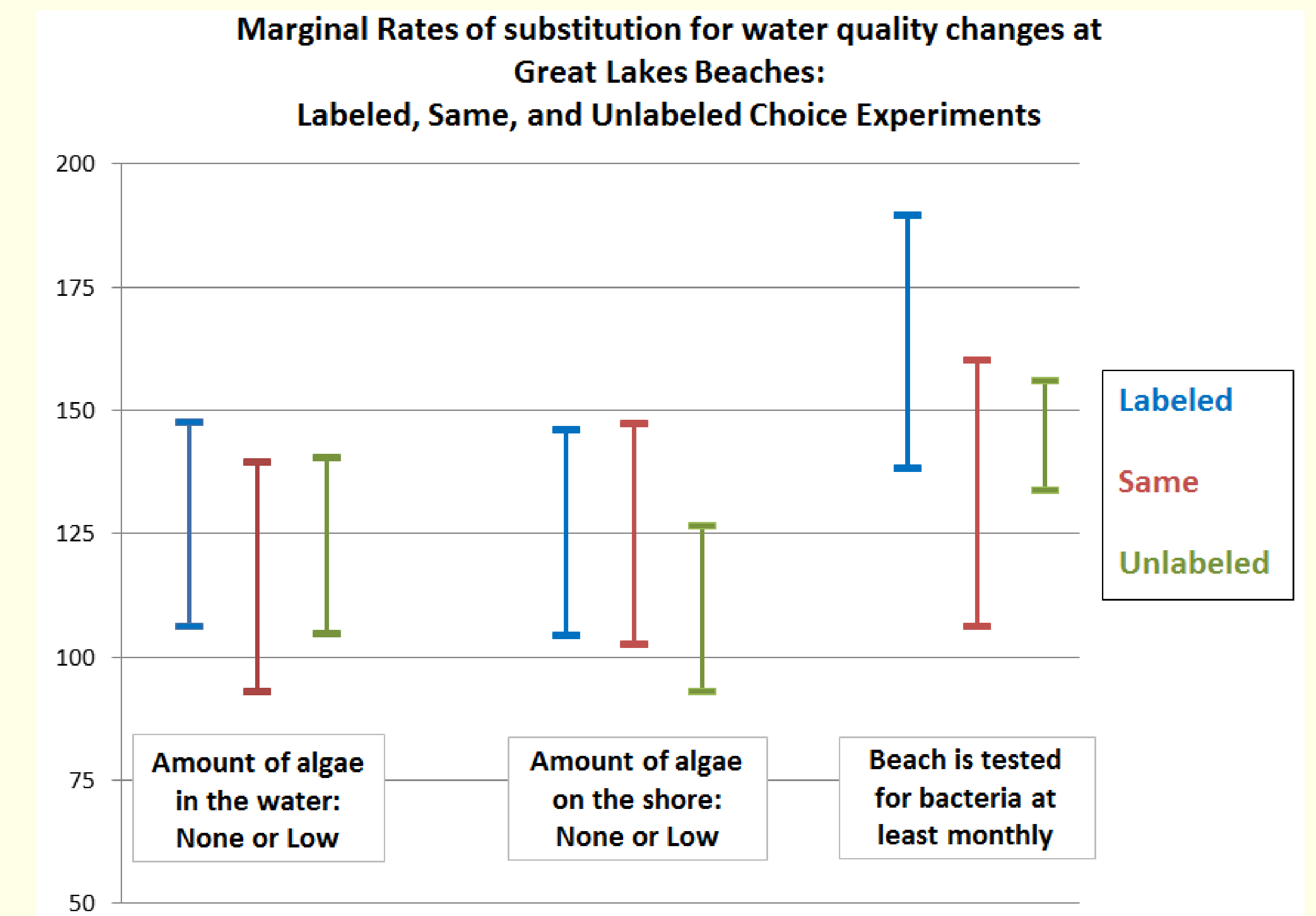
Respondents were shown one of three different versions of choice sets:

- Labeled:** Great Lake included as attribute and allowed to vary across alternatives
- Same:** Great Lake included as attribute but restricted to be the same across alternatives
- Unlabeled:** Great Lake not included as an attribute



- Each choice set presented respondents with two beaches with varying characteristics including driving distance, the cost parameter (payment vehicle)
- Separate logit random effects models estimated for each of the choice experiment versions.
- LR tests indicate significant difference in parameters across models.
- MRS were calculated for three water quality measures: amount of algae in the water, amount of algae on the shore, and frequency of testing for bacteria.
- To compare MRS, 95% Confidence Intervals were calculated using the Delta method.

Results



- All of the MRS statistically different from zero.
- All of the MRS's 95% CIs overlap (all estimates of MRS are within 95% confidence interval of one another)
- Preferences of respondents for Great Lakes beach site characteristics are relatively independent of naming or not naming a Great Lake

Conclusions

- Results show that Marginal Rates of Substitution for labeled, "same," and "unlabeled" models are highly similar
- Similar estimates of Marginal Rates of Substitution enhances confidence in researchers' abilities to transfer values to different sites.
- Indication that results are fit for robust application to policy analysis.

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