The discussant comments provided here were delivered at a workshop on valuing ecosystem services, specifically for a session on valuing outdoor recreation. The conference papers for which discussant comments were offered are listed here and the papers and presentations for these topics can be found at the Northeastern Agricultural and Resource Economics Association website referenced below:3


Dissanayake, S. and A. Meyer. “Resource Use Conflicts and Beliefs on Future Status-Quo Outcomes into Choice Experiment Analysis: Implications for the National Park Service”.

General comments are offered that cover all three papers, followed by comments that are specific to each one.

**General comments**

The three papers presented were all very interesting and well researched, but they were also very different. Data sources varied between backcountry hiking permits, choice experiment survey data for determining recreational activities in Maine, and hydrological modelling combined with a meta-analysis of Willingness to Pay (WTP) for various water-related recreational activities or other aquatic ecosystem services. All the analyses are excellent and timely for policy decisions.

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1 This paper was prepared for the USDA Workshop on Applications and Potential of Ecosystem Services Valuation within USDA-Advancing the Science, Washington DC, April 23-24, 2019.
2 Frank Casey is the Ecosystem Services Theme Lead for the Science and Decisions Center at the U.S. Geological Survey. He can be contacted at ccasey@usgs.gov.
3 All papers can be found at the Northeastern Agricultural and Resource Economics Association website at: http://www.narea.org/esworkshopproceedings
Individual Papers

Social Change and Wilderness Demand

The charge of this paper was to examine the policy question of what role social change (in this case an aging population) plays in the evolution of wilderness values. Will the values of the current population reflect the values of future citizens?

This is an important question for determining how we manage and adjust priorities for the use (or non-use) and management of our National Wilderness Areas. These are, after all, unique and special places. One thought that came to mind in reading this paper is the importance of outreach/education to the public about the physical, social and mental health benefits of wilderness. This is a relatively new area of inquiry.

I found the use of the Environmental Protection Agency’s (EPA) Level 3 ecosystems classification to be a good way of organizing the backcountry hiking data and drawing a distinction between the various geophysical aspects of those ecosystems and possible implications for transition. The variation in the physical aspects of the EPA classification made the economic analysis richer.

One issue left relatively untouched in the paper is the impact of how differences in education and income will affect demand for wilderness. Going forward, it would be useful to have more insight about the impacts of income and educational status on values for wilderness areas. For example, the data in Table 1 report statistics for various income and education levels, but these variables are not analyzed. On page 9 of the paper, the valuation results for the age variable change annually. Does this assume that the same people go backcountry hiking each year? Or, does it matter for this analysis? The study found that as the population ages, people prefer less rigorous hiking in areas like the Central Basin and Range and the Eastern Cascades. This is understandable. An important question is whether the backcountry experience is changing among the younger generations. To answer that, I think there is a need to organize and analyze more recent permit data.

An Integrated Assessment Model for Valuing Water Quality Changes in the U.S.

The charge of this paper was to examine the feasibility of combining a biophysical water quality model with an economic analysis of WTP for improvements in water quality through agricultural and urban conservation practices.

The paper is very relevant to today’s issues and particularly to the U.S. Geological Survey which is engaged in this type of integrated modelling. The paper demonstrates well the linkage between recreation and the EPA’s Water Quality Index (WQI). An Integrated Assessment Model (IAM) approach is developed that can be run at several geographic scales. The array of independent variables taken into consideration for impacts on water quality, including management practices and sources of impairment, is impressive. Breaking out the impact of climate change will be an important task going forward.

The biophysical state of water quality and the economic value of improved water quality for both the baseline (business as usual) and different management scenarios will be very useful for policy decisions. The WQI is a relevant measure over a larger scale, but it would be useful to demonstrate...
how it could be disaggregated at the local scale where we know the type and size of impairments can vary significantly.

The WTP values for improved water quality are based on 140 metadata observations from 51 stated preference studies conducted between 1981 and 2011. Is it possible to update the meta-analysis with more recent WTP studies? Also, is it possible to analyze WTP by various types of recreation: fishing, boating, swimming?

The Republican River case study is very informative in terms of how the components of the IAM can interact efficiently. In terms of WTP for water quality improvements, it would be useful to break out rural and urban areas. Will residents of both areas have the same WTP? That said, the reported total WTP (Table 5) illustrated some very significant amounts.

The next steps in applying the IAM model are very intriguing. These include: encourage the application of a recreation-based index, aquatic health indices, and the application of the IAM to other water bodies such as wetlands, estuary/coastal areas, lakes, and swamps. This could be especially relevant to the National Wildlife Refuges managed by the U.S. Fish and Wildlife Service.

**Incorporating Resource Use Conflicts and Beliefs on Future Status Quo Outcomes into Choice Experiment Analysis: Implications for the National Park Service.**

The charge described in this paper was to solicit respondent’s beliefs about future outcomes (use and non-use) and prior recreational experiences using choice experiments and how beliefs and prior experiences inform policy decisions. New England residents WTP for a new Maine National Park differs by respondent beliefs about the status of long-term land use. For example, respondents who hunt and snowmobile are willing to pay significantly more to have access to a new Park in an undeveloped area than those who hike. Park managers may consider a two-park solution as a policy recommendation, but it is likely to cost more overall and managers may have serious budget constraints.

The choice experiment is well designed, but it would be interesting to know how the accuracy of the on-line response venue would compare to a mail or personal survey. The topic of potential conflicting recreational uses is important, but I wonder how much conflict there would be between snowmobiling and other activities since snowmobiling is a seasonal activity versus spring/summer/fall recreational activities such as hiking.

The paper provides an important contribution with respect to accounting for uncertainty over the future state of land resources: this is the question of developed versus undeveloped land and how potential loss of undeveloped land would affect choices. The assumption is that land use will not remain as a status quo resource. Additional analysis may be needed to answer the question of what would happen to the land base in the absence of a park.

The paper provides an excellent literature review on the WTP for various recreational activities. The focus on looking at the responses by out-of-state visitor’s WTP is a much-needed contribution, as is the analysis of how past recreation activities and beliefs about future land use can impact preferences, valuation, and desired management actions.
It would be useful if the paper addressed the following analytical and policy topics:

With respect to those preferring hunting and snowmobiling uses, can we add WTP for the two groups?

What is the policy relevance of a two-park solution if it would cost more?

With respect to distributional issues, is the intensity of preferences by different users measured and/or relevant to the policy choice?

Page 24 of the paper includes a statement that there is “disutility associated with a creation of a park that does not provide one’s preferred amenities, even if one doesn’t actually visit the park.” It is suggested that other non-use values be included in any follow-up analysis.

Status quo beliefs about future land use are most important for non-hunter snowmobilers and their WTP is higher for more protection. A more detailed explanation should be presented in the paper as to why this is the case.

The survey responses are important in that the paper emphasizes that recreational preferences are a function of past experiences. Can the data be applied to a benefits-transfer analysis, or is it too case/site specific?

One area of further inquiry would be whether there is a difference between WTP by non-Maine residents compared to in-state residents. It would be useful to break down the analysis further by these two user categories.