

19 Exploring landscape-scale social and ecological drivers of backcountry sea kayaker campsite selection in Glacier Bay National Park, Alaska, USA

Susan Sidder¹, Ashley D'Antonio¹, Jonathan Dinkins¹, Christopher Monz², Shannon Wesstrom², ¹Oregon State University, USA. ²Utah State University, USA

Researchers and land managers increasingly consider parks and protected areas (PPAs) to be integrated social-ecological systems. To apply social-ecological concepts to recreation research in PPAs, researchers must incorporate both social and ecological factors into research on the drivers of recreation behaviors. This research presents one approach for incorporating social and ecological drivers, at the landscape-scale, into a behavioral analysis by applying movement ecology concepts to understand drivers of campsite selection among backcountry sea kayakers in Glacier Bay National Park and Preserve (GLBA).

Located in coastal southeast Alaska, United States - GLBA contains more than 2.7 million acres of federally designated terrestrial and marine wilderness. Backcountry users in GLBA can explore the park's wilderness largely without restriction, camping on beaches open for camping as desired, including in and around the park's unique tide-water glaciers. The lack of site-level camping restrictions in the park enables visitors to recreate, unconfined in the landscape, allowing social and ecological factors encountered to influence decision making. Through generating an understanding of if and how social and ecological factors influence campsite selection in consistent and predictable ways across users, managers can identify hot spots of camping for social and ecological condition monitoring.

This study employed conditional logistic regression in a used versus available design to analyze landscape-scale social, biophysical, and ecological factors hypothesized to influence campsite selection. The biophysical attribute of slope and ecological attribute of the dominant land cover composition together operationalizes the campsite attribute of bare, flat ground, considered to be a necessary attribute among campers in various settings (Brunson & Shelby, 1990). For social factors, respondents to a 2018 exit survey of backcountry kayakers in GLBA indicated that solitude, experiencing wilderness, scenic beauty, and

experiencing glaciers were four of the top five factors adding to backcountry experiences (Furr et al., 2019). Given that these factors were identified as adding the most to overall experience, they may also be influential in campsite selection. Variables quantifying exposure to tidewater glaciers may be important as campers may select available sites that provide a near-glacier experience. While this factor is site-specific to GLBA, it corresponds to other experience-oriented campsite attributes identified in other empirical work.

Another social variable incorporated into this approach includes the proximity of selected campsites to other occupied sites. Backcountry kayakers also reported that "solitude" and "experiencing wilderness" were important factors to their overall experience in GLBA (Furr et al., 2019). Being away from other campers enables one to experience solitude and is a component of the traditional conception of a "wilderness experience." Moreover, previous research shows that campsite attributes such as being away from other campers, being screened from other campers, and having privacy are consistently identified as attributes selected for among campers (Brunson & Shelby, 1990; White et al., 2001).

Results from the 2018 survey (Furr et al., 2019) suggest that backcountry users were most sensitive to the presence of cruise ships among a variety of social and ecological experience conditions evaluated. Backcountry users may view cruise ships as visual intrusions disrupting the enjoyment of natural viewsheds, auditory intrusions disrupting the enjoyment of backcountry soundscapes, and/or navigational hazards due to the strength of cruise ship wakes. For these reasons, it is expected that kayakers actively avoid exposure to cruise ships and their potential impacts. Therefore, a variable included in this analysis is the exposure of camping locations to cruise ships or boat tour routes.

This study also utilized a landscape-level approach in analyzing the social and ecological

factors. The landscape considered is the area in which potential campsites are available to each kayaking group each night. Subsequently, all available campsites in the analysis area are incorporated in the analysis. This approach is appropriate for the system, given that among constructs in the movement ecology framework, the greatest amount of variation is anticipated in social, ecological, and biophysical factors perceived by kayakers from their kayaks when making campsite selection decisions; as such, a landscape-scale approach is particularly appropriate for studying campsite selection within GLBA.

Initial results suggest that distance to the nearest glacier was positively related to campsite selection and that ecological factors alone are poor predictors of selection. Effects of social factors and results of an integrated social-ecological model will be presented. Knowledge gained through this research will help managers understand how future shifts in landscape-level factors, such as changes to cruise ship routes, backcountry visitation, or glacial activity may influence campsite use of future backcountry visitors to the park.

References

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