



Newsletter

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Air Quality & Winter Outdoor Recreation - By Chris Zajchowski & Matt Brownlee, University of Utah – Parks, Recreation, and Tourism

The Central Wasatch Mountains provide an ideal setting for winter outdoor recreation. As Utah residents know all too well, these mountains also aid in the formation of inversion weather events. When combined with high-pressure weather systems, the mountainous terrain of the Wasatch colludes to create temperature inversions, where cold air and anthropogenic emissions created by automobiles, homes, and businesses are trapped beneath a low-lying layer of clouds (Lareau et al., 2013; Silcox et al., 2012). During these inversion events, criteria pollutants, such as particulate matter (PM 2.5), accumulate and can exceed federal standards for air pollution (Utah Division of Air Quality, 2013). Elevated levels of these harmful pollutants have been shown to lead to a variety of health concerns for Utah residents (e.g., Currie et al., 2011; Parker et al., 2008; Roberts et al., 2013).

This past winter, in partnership with Alta Ski Area and the Alta Environmental Center, a team of researchers from the [Outdoor Recreation Education and Tourism Lab](#) at the University of Utah investigated one way in which Utah residents respond to these acute air pollution events: outdoor recreation. As many of Alta's pass-holders and employees are aware, when there is an inversion weather event in Salt Lake or Utah Valley, there are often blue-bird skies in Alta. Additionally, popular press (Catino, 2015) and recent transportation scholarship (Tribby et al., 2013) have suggested popular Wasatch canyons receive higher levels of visitation during these inversion events; some local resorts have even incentivized visitation during periods of acute air pollution (Best, 2013). Until this study, however, no empirical research had surveyed recreationists to explore this regional phenomenon.

Over thirty-eight days during the months of December, January, and February, we set out to understand recreationists' evaluative perceptions of variable air quality (i.e., good, moderate, unhealthy), and their corresponding self-reported recreational behaviors. Undergraduate research interns from the University of Utah and Alta Ski Area employees used stratified probability sampling (Creswell, 2012) to intercept winter backcountry recreationists at the Summer Road/Grizzly Gulch trailhead. ...continued on next page



University of Utah student, Sabrina Stein, sampling in style, by Jake Ward



canyon has become an all too familiar sight, motivating the need to find acceptable transit solutions. By reducing the number of vehicles entering Hwy 210, there is potential to increase ski area capacity, while minimizing commute times and decreasing the daily air pollution in the canyon. The purpose of this study was to research the level of success for one possible action that could be taken to address these goals. Upon parking, guests were greeted with a survey, which will provide Alta Ski Area with a greater understanding of guest habits, opinions and likelihood to carpool. ...continued on next page

Preferred Carpool Parking Test & Survey

- By Mackenzie Epperson-Valum, University of Utah & Alta Environmental Center Intern

This season, the Alta Environmental Center and a student from the [Environmental & Sustainability Studies program](#) of the University of Utah conducted a carpool study in the Wildcat parking lot. The study ran three weeks between February and March on Wednesday, Friday and Saturday mornings. Intended to test the feasibility of preferred carpool parking for visitors and survey their respective opinions on the strategy, the study incentivized carpooling by providing carpools with parking spots closer to the lifts, and requiring non-carpools to park further away.

A line of cars running bumper-to-bumper through the



Be the change you wish to see in the world. —Gandhi

Air Quality & Winter Outdoor Recreation - continued....

Backcountry recreationists were of particular interest for this study, as they have been regularly shown to hold pro-environmental values and beliefs (Larson et al., 2011). Subsequently, a set of items in the administered questionnaire asked recreationists to share regular transportation practices; ultimately, we were curious to see if their evaluative beliefs about poor air quality translated into normative pro-environmental transportation practices, such as carpooling or riding the UTA ski bus.

At the close of sampling, we intercepted 610 winter backcountry recreationists with a final total of 417 responses yielding a response rate of 78%. We are currently in the process of completing data entry, cleaning and analysis, and plan to share our results with the Alta community during the 2016-2017 season. Though the practical implications of this study are dependent on our results, management implications may help to inform the transportation planning process proposed through 'The Central Wasatch Blueprint' (Mountain Accord, 2016).

Thanks are due to the Alta Environmental Center and [DPS Skis](#) for providing incentives to survey respondents, as well as to Alta Ski Area for providing an engaging internship opportunity for our students. Additionally, we thoroughly appreciate the support of [The Global Change & Sustainability Center](#) at the University of Utah for providing research start-up funding and support. We look forward to sharing our findings in the coming months. For additional information, please contact c.zajchowski@utah.edu.

Preferred Carpool Parking Test & Survey - continued....

Preliminary analysis of the survey reveals fairly positive responses if a preferred carpool parking area were to be implemented by Alta Ski Area. The study acquired a total of 1167 surveys. Of these responses, 41.4% of participants were Utah residents, and 41.7% of the total survey-takers are season pass holders. 88.7% of all the surveys were taken by the driver and the majority of surveyed guests ranged between the ages of 27 to 46.

Approximately 90% of guests who parked in the Wildcat parking lot reported to have had good or excellent parking experience. Because the majority of guests had positive parking experiences during the carpool parking test, we can infer separating carpool vehicles does not have a negative effect on the skier experience. 46% of survey participants favored the idea of a preferred carpool parking area, indicating that they would be more likely to carpool to Alta Ski Area if carpooling was incentivized with closer parking. Furthermore, 56% of all surveyed guests agree that the minimum number of passengers per vehicle to receive preferred parking should be 3 or more. Guests were offered the opportunity to provide comments regarding canyon transportation and their feelings toward the carpool parking area. The most common comment received stated the need for better bus access to the resorts in Little Cottonwood Canyon. This includes, more buses each hour, mid-day buses, more bus stops along each route, and more parking at Park & Ride locations.

The parking lot crew provided outstanding assistance that led to the success of this project. Their expertise in working with the public and parking thousands of vehicles each week offers valuable insight to this study. Each day of the test, the parking crew was given the opportunity to evaluate the success of the potential parking configuration. Results from those evaluations indicate that 94% of the parking crew staff supports the idea of a preferred carpool area and do think that a new parking configuration would be achievable and successful. For more information on this study email environment@alta.com.



Surveying in snow, by Jake Ward

