HERDING CATS: INCREASING PUBLIC AVALANCHE AWARENESS AT COPPER MOUNTAIN RESORT

Reed B. Ryan¹ and Max J. Tyler¹

¹Copper Mountain Resort, Copper Mountain, CO, USA

ABSTRACT: During the 2015-2016 season, Copper Mountain Resort (CMR), in Summit County, Colorado, introduced a program encouraging guests to wear avalanche beacons in avalanche terrain. CMR gave beacon-wearers priority access to the resort’s free snowcat skiing. Guests were surveyed to determine the percentage wearing an avalanche beacon—before and after the implementation of a “beacon-only” snowcat. Increasing inbounds avalanche fatalities in the United States highlights a need for avalanche awareness for in-bounds skiers and riders. Rather than presenting avalanche hazard inside the resort as non-existent, there is opportunity—and potential responsibility—for initiatives that promote the use of avalanche safety equipment and provide information on in-bounds avalanche hazard. This paper will present the results of a survey performed in 2015 and 2016 that begins to quantify one such initiative.

KEYWORDS: avalanche beacon, inbounds avalanche, avalanche education, avalanche awareness.

1. INTRODUCTION

As every commercial airplane taxis towards the runway, we hear the same safety message from the flight attendant. The likelihood of a fatal airline accident averages .018 per 100,000 departures, yet every commercial airline passenger is educated on the use of basic safety equipment every time they travel (National Transportation Safety Board 2014). Ski areas work much like airlines. They provide a service to a paying customer in a safe environment. During the winter of 2013-2014 ski resorts in the United States received approximately 56 million skier visits. (Colorado Ski Country 2014). As of 2015, the running average of inbounds avalanche fatalities in the United States was 1.4 deaths annually. Thus, the number of guests who are involved in inbounds avalanches is extremely small, but not nonexistent. As seen in Figure 1, the linear average shows a steady increase in inbounds fatalities since 1952 (Colorado Avalanche Information Center 2015).

The basic fact that operational perfection in avalanche forecasting is unachievable is pitted against the masses of guests regularly accessing in-bounds avalanche terrain. In an article about a 2007 inbounds avalanche at the Canyons Resort in Park City, Utah, Liam Fitzgerald states, “The public demands powder skiing in avalanche-prone areas, but what is their understanding of the small but residual risk that cannot be eliminated? What is their understanding of the uncertainty that may have surrounded the decision that allowed them the opportunity to experience the thrills they are seeking?” (Fitzgerald 2014). There is a need to better engage ski area guests in their own safety while accessing inbounds avalanche terrain because of the unlikely event of an inbounds avalanche.

![Fig. 1: Inbounds avalanche fatalities in the United States by year. Number of fatalities is depicted in blue and the five-year moving average is in red. Linear average in black illustrates the increasing trend.](image)

In 2015, Copper Mountain Resort (CMR) in Summit County, Colorado initiated a survey of guests utilizing a snowcat to access inbounds avalanche terrain on Tucker Mountain. The purpose of the survey centered on the simple question: Are you wearing an avalanche beacon? The following winter, CMR instituted a “beacon cat” program, in which guests wearing an avalanche beacon were given prioritized access to the snowcat. That season, the survey was conducted again, and there

* Corresponding author address:
Reed B. Ryan
P.O. Box 1084, Dillon CO 80435
email: iamreed@gmail.com
was a marked increase in the number of guests wearing avalanche beacons. This article looks to examine one initiative that actively engages these guests in their own inbounds avalanche safety.

2. THE SURVEY

CMR averages around one million guests per winter season. CMR operates a free snowcat service from approximately January through April every winter. The snowcat brings upwards of 4,000 guests per season to single and double black avalanche terrain on Tucker Mountain. In 2015, CMR ski patrollers surveyed 1,619 guests riding the snowcat and asked them 5 questions:

1. Who owns a beacon, shovel, and probe?
2. Who owns equipment with a RECCO reflector?
3. Who is wearing their beacon?
4. Who is wearing a RECCO reflector?
5. Who has avalanche training of any kind?

As shown in Table 1, 4% of CMR guests riding the snowcat were wearing their beacons in 2015. 17% of the guests surveyed owned beacons. Our goal for 2016 was simple: convince the guests that own beacons to wear them.

<table>
<thead>
<tr>
<th></th>
<th># of Guests</th>
<th>% of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Own Recco</td>
<td>194</td>
<td>12%</td>
</tr>
<tr>
<td>Own Beacon</td>
<td>274</td>
<td>17%</td>
</tr>
<tr>
<td>Wearing Recco</td>
<td>138</td>
<td>9%</td>
</tr>
<tr>
<td>Wearing Beacon</td>
<td>63</td>
<td>4%</td>
</tr>
<tr>
<td>Avalanche Training</td>
<td>252</td>
<td>16%</td>
</tr>
</tbody>
</table>

3. BEACON CAT OPERATIONS

While conducting the initial survey in 2015, CMR was constructing a plan to implement a "beacon-only" snowcat for the following season. The "beacon cat" operates only when there are two snowcats running. The maze for the beacon cat is positioned adjacent to the normal maze so that the guests in both lines can see and read the information posted on the beacon cat sign (pictured in Figure 3), which includes recommended safety gear and travel techniques, signs of snow instability, and basic avalanche rescue.

A beacon checker is mounted on the beacon cat sign, powered by battery so that the cat operators can easily check everyone’s signal before allowing him or her to board the cat. If there are not enough beacon-wearing guests to fill the cat, guests are brought in from the normal maze. While the snowcat is in motion, a short avalanche awareness video is played.

The goal of the beacon cat was to raise our guests’ awareness about avalanches and how CMR manages avalanche hazard. The waiting area for the snowcat is often full and presents a unique opportunity to start a conversation about inbounds avalanche hazard.

4. RESULTS

The focus of the 2016 season was to increase the number of guests wearing beacons at CMR. While the beacon cat program included more general avalanche awareness components and the survey was expanded in scope, the prioritized access to the beacon cat hinged on whether or not a guest was wearing a transmitting beacon.

In year two of the study, we conducted the same survey to attempt to begin to quantify the effects of the beacon cat. In 2016, the data set increased to 2,465 guests, with 10% wearing avalanche beacons, an increase of 6% from 2015 as demonstrated in Figure 2. It is our belief that the 2015 and 2016 data sets were independent of one another and that guests surveyed represent an acceptably random group. Due to the size of each data set, the difference in proportions of guests wearing avalanche beacons between the two surveys is statistically significant at a 95% confidence level. While we did not meet our goal of convincing 100% of the avalanche beacon owners to wear their beacons, we still view the program as a success in its first year.
A broader look at the data shown in Tables 1 and 2 shows that while beacon use by guests increased there were several other areas that did not. The average number of guests that owned equipment with RECCO decreased. The average number of guests that owned beacons decreased. The average number of guests with avalanche training of any kind decreased. These changes could have to do with the nascent nature of the study temporally or the acknowledged focus on beacon use.

<table>
<thead>
<tr>
<th># of Guests</th>
<th>% of total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Own Recco</td>
<td>127</td>
</tr>
<tr>
<td>Own Beacon</td>
<td>273</td>
</tr>
<tr>
<td>Wearing Recco</td>
<td>113</td>
</tr>
<tr>
<td>Wearing Beacon</td>
<td>237</td>
</tr>
<tr>
<td>Avalanche Training</td>
<td>267</td>
</tr>
</tbody>
</table>

Fig. 3: Beacon cat sign in snowcat waiting area. Note beacon checker on lower left.

This question represents one of many potential avenues for further study. The basic goal of the initial survey was to provide hard data on inbounds avalanche awareness at CMR. It is our hope that existing and future avalanche awareness initiatives at CMR will integrate with the beacon cat program and began to actively engage guests in inbounds avalanche safety.

ACKNOWLEDGMENTS

The authors would like to thank the members of the Copper Mountain Ski Patrol for its support of the program and for performing the bulk of the survey, especially Dick Jacquemard, Jim Sears, and Joe Fassel. Bill Blair also helped immensely with data analysis and should be recognized.

REFERENCES


5. CONCLUSIONS

Analysis of the survey data shows that the implementation of the beacon cat program positively affected the number of CMR guests wearing avalanche beacons. Still, the question remains: did the program increase the collective avalanche awareness of CMR guests utilizing the snowcat?