POSSIBLE RELATIONSHIP OF MEDIA AND LAND MANAGEMENT TO THREE SEPARATE AVALANCHE ACCIDENTS IN HAINES, ALASKA 2012-2014
Mark E Kelly*
Alaska Heliskiing, Haines, Alaska, USA
American Mountain Guide Association
American Institute for Avalanche Research and Education

KEYWORDS: Accidents, Avalanche, Guiding, Heli-skiing, Fatalities, Land management

ABSTRACT: During the first 23 years+ of guided, helicopter accessed, skiing in Alaska, there were zero avalanche fatalities with guided groups. It should be noted that there were a number of avalanche involvements and close calls during this time, although none that resulted in fatalities. Comparatively, during the same period the Canadian mechanized ski guiding industry experienced more than sixty guest and guide avalanche fatalities. It should also be noted that the Canadian mechanized industry is much larger with considerably more guided days per season. Regardless, Alaska has had a long-standing reputation as the “North Shore” or “Mecca” of big mountain skiing. Alaska hosts more than a dozen guided Heli-skiing operations across the state. Each of these operations conducts operations in high-consequence and avalanche-prone terrain. Alaska is also known as the epicenter for film production, arguably the highest consequence form of helicopter accessed ski guiding.

The prime take away point of these numbers is that Alaskan Heli-ski operators must be doing something right. Many big-mountain ski guiding techniques and protocols were developed and refined in this extremely dynamic environment. Unfortunately, this record of fatality-free operations ended with series of tragic accidents. Beginning with a serious 2012 accident resulting in the deaths of one guest and one guide. In the two following season of 2013 and 2014, two more guides were unfortunately killed in two separate accidents, each of these occurred In the Chilkat Range outside of Haines, AK. In this paper, I wish to explore the roles of media and land management in these incidents.

1. INTRODUCTION

As avalanche professionals, we are trained to consider a number of factors when investigating avalanche accidents. It is imperative to look at the factors of snowpack, weather, terrain, recent avalanche activity and the human factors involved. In the world of ski guiding, the observation of snowpack, weather, terrain and recent avalanche activity are generally well documented, as they were in all three of these accidents.

Human factors involved in the decision making process of the operation’s guide team, or the individual guide, are considerably more difficult to document. Many times when looking at guided accidents, human factors are attributed to financial motivation, levels of experience, client pressures, ego, fatigue etc. In this presentation, I would like to suggest that there are possibly more factors to be considered. By looking at the roles of media and land management in these incidents, I will also offer some possible solutions to these situations.

Mechanized ski operators need to adhere to strict rules and regulations set forth by the land managers that issue permits for commercial operations upon theses lands. In most all cases these rules and regulations are set forth to protect resources such as wildlife, watersheds, or other user groups and local populations. Depending upon the agency that manages these lands, regulations can be general, or in some cases very specific.

The Alaskan Heli-ski industry is extremely unique, with the majority of operations focused in the two population centers of Valdez and Haines, AK. There exist a number of other Heli-ski operations distributed throughout Alaska. Valdez and Haines are unique in that they feature multiple operations that share terrain, operate under similar permit conditions, and are close to one population center. These locations also are well-recognized locations for big-mountain Alaskan skiing both by the skiing

* Corresponding author address:
Mark E Kelly, Alaska Heliskiing, PO Box 2511, Valdez, AK 99686; tel: 970-744-0024; email: pwdrjnk@mac.com
community at large, and the ski film industry. In recent years the World Freeride Tour has selected Haines, Alaska, as it’s only North American venue for this international championship event showcasing the worlds most elite skiers and riders on the worlds most extreme terrain. In this document I will use these similarities in order to compare both similarities and differences between the land management, media, and community relationships that effect guided ski operations in these locals. The techniques and protocols employed by Heli-ski guides in Haines, AK do not differ from any other location in Alaska.

2. MEDIA

During the past 26 plus years, the Alaska guided helicopter skiing industry was born, grew, and has matured considerably. During this quarter century period of time that the AK Heli ski industry was growing and changing, the world of media was also changing considerably. Not only has the nature of media transmission changed in terms of speed and perspective, the popularity of snow sports in visual media has exploded.

It has become common for any athlete, whether established or aspiring, to release a season edit. These “mini movies” are filled with both point of view and wider-angle footage of incredible feats of skiing and riding performed in serious high consequence terrain. It is the hopes of these skiers and riders to attract the attention of not only potential sponsors, but to gain notoriety and be invited to participate in professional ski and snowboard film production. One of the benchmarks of success for these riding edits is the number of “hits” or “likes” on various media platforms such as Facebook.

Looking back to the period of the inception of helicopter accessed riding in Alaska, there were only a handful of film production companies creating snow sports films. At that time in history, the audience for these films needed to either attend the showing of the film in a theater or soon after, purchase or rent a VHS tape and view in their home. These films were generally only released once each season and some companies only released a production once every few years. In comparison to the modern snow sport film industry, the content of these films were fairly tame by modern standards, containing footage of riding in terrain those recreational snow sport participants viewing could realistically aspire to.

As the tools of snow sports evolved, so did the tools of media producers and distributors. As media went digital with the introduction of CD’s, so did the evolution of filming techniques and tools. Now, not only could the audiences for the films view them in the comfort of their home, they were now also able to simply skip to the portions of the films that intrigued them and watch them over and over again with ease. Production companies soon began to experiment with strapping cameras to helmets of riders in order to achieve point of view perspectives to put the viewer “into the moment”

As the film and snow sports industries continued to evolve, the athletes being covered became minor celebrities within the industry. Seeing an opportunity to showcase their products, manufactures of skiing and riding equipment recognized an opportunity to employ these athletes as ambassadors of their product. Film production companies began to not only seek these athletes for their talents but also for their respective sponsors financial backing. As is common in any growing industry, soon more and more production companies appeared, many trying to find that next great product. In this case that product was the athlete, seeking athletes not only with the talent but also with the courage to challenge bigger, steeper and higher consequence terrain.

As the skills and equipment of the athletes progressed, so did the tools and talents of the production companies. Now it is common for any athlete’s descent to be recorded from three to five, or more angles rather than just one or two. As point of view cameras (POV’s) became extremely affordable, durable, and capable of high-resolution recording, each athlete soon was wearing at least one and sometimes two or three. While production companies once utilized 8mm film that was very difficult to handle in cold environments, expensive and required considerable skill to use, times have changed. Most modern film crews now utilize incredibly high-format digital cameras that may allow a greater margin of error when recording allowing them to film an entire face and edit appropriately. In some cases, this ability reduces the need to follow the athlete’s descent as closely or miss the shot. The introduction of drones has also enhanced the videographer’s
ability to capture the moment from new and exciting perspectives. POV's and drones not only increase the ability to record the moment but also produce angles that enhance the perspective of the viewer and produce impressive edits that captivate audiences.

As the world moved into the age of the Internet, suddenly viewers were able to instantly see dozens, if not hundreds and now thousands of clips of skiers and riders challenging the most demanding terrain in the world. Most all of the snow sport production companies and athletes have looked to test their mettle on the unique and demanding terrain of Alaska. It is actually uncommon for any modern films or edits to not include an Alaska segment. While looking for that next great place, production companies have of course explored other locations in Alaska. Valdez and Haines still remain the biggest draws and host more snow sport film projects than anywhere else on the planet.

It is important to understand this progression of media in the world of snow sport because, as in any sport, the average participants often look at these athletes as idols and invariably will try to emulate them. It is very common to have public skiers and riders on their “vacation of a lifetime” in Alaska, approach the guides wanting to ride the same lines that they have viewed in an edit or full-length production. While many of the guests that come to Alaska want nothing to do with the more serious descents, invariably there will be a number of extremely talented guests that have also come to these locations with the belief that their skills are on par with the athletes that they idolize. Many of these more aggressive guests are sporting their own POV units and as soon as they return from the day are immediately posting on Facebook or other forums.

When these guests first arrive, all are given briefings informing them of the protocols that will be followed. All guests are given a briefing on the aircraft, and general mountain hazards like cornices and crevasses. The majority of these briefings focus on how to respond if they’re caught in an avalanche, if one of the others in their group or their guide is captured in an avalanche. These safety briefings may last anywhere from an hour to several hours depending on the guide service with which they are choosing to ski with and the groups previous experience levels. Fortunately it is becoming quite common to have guests that have received formal avalanche training. Unfortunately, it is just as common to have an even greater number of guests that have never skied in the backcountry or received formal training.

Another factor of client profiles that has occurred in recent years is that these guests have often spent their season preparing for this trip skiing or riding at destination resorts looking for the most challenging terrain they can find. In the past decade, in response to demand, ski areas have been introducing more and more backcountry style and higher consequence terrain. These guests are learning the skills to ride this type of terrain without needing to learn the requisite mountain skills to assess risk and exposure to avalanche hazard. As more ski areas open this type of complicated terrain, ski patrols have stepped up to the challenge and learned to control the avalanche hazard extremely well. Regardless, there have been a number of in-bounds avalanches that have resulted in some serious injuries and fatalities over the past decade.

These new additions are heavily marketed to the skiing public through a variety of media outlets. Many of these media campaigns will feature the same athletes that the skiing and riding public already idolize, and show them riding this terrain aggressively. In some cases the marketing departments will even utilize the same production crews that are later arriving in Haines and Valdez.

As the skiing and riding public becomes more comfortable in this terrain, they are often spending much of their time off of the snow absorbing the abundance of media available showing aggressive riding in high consequence and avalanche prone terrain. When these guests arrive in Alaska with dreams of emulating their idols, the guides only have an extremely small window of opportunity to help them recognize the difference between where they have been, and where they are going. Even if guide services were to double, triple or quadruple the length of their briefings, they would be combating a constant and relentless bombardment of year-round information that is contrary to the message the guides may be trying to deliver.

There was a period of time in the late 90’s and early 2000’s where almost every Alaska film segment featured riders triggering and riding or
out-running avalanches. In recent years, it has become considerably less “cool” to include this sort of footage. I would partially attribute this to the modern professional athletes becoming considerably more mountain savvy. There was a time when athletes were just that, athletes. In the modern age of big-mountain filming the athletes and film crews have become considerably more well-rounded mountain athletes and skilled in risk assessment and avalanche awareness. Some sponsors have even gone as far as requiring their sponsored athletes to participate in formal avalanche training. I applaud this move, and appreciate the professional athletes, photographers and videographers that I work with that have become much easier to work with as they now recognize hazard and consequence. These athletes and media teams now participate more thoroughly in the risk assessment process. Unfortunately, this is still a bit of a behind the scenes phenomena that is seldom (although occasionally) included in the final cuts of that year’s production.

All of these factors of the progression of the film industry, and the inundation of the message that guests relentlessly receive result in human factors that may not have been considered in the investigations of these three unfortunate accidents. These factors of media have been recognized in part as a portion of the human factor problem in recreational users accidents. It should be recognized that the messages delivered constantly to the public greatly exacerbate the many challenges of the modern Heli-ski guide.

3. LAND MANAGEMENT

In 2008, the Borough of Haines town council decided that it needed to “control” Heli skiing. Prior to this, the permitted terrain spanned west from the border of Glacier Bay National Park to east of the Takshanuk Mountains. The international border shared with Canada dictates the Northern border of the commercially permitted terrain. By the end of the 2011 season, the Borough introduced the current Commercial Heli-ski map. The impetus for the creation of this map was a perceived threat to local goat populations and a very strong local opposition to Helicopters in General. In the following three years, the three accidents upon which this paper is focused occurred with a double fatality in 2012, and the deaths of two experienced guides in 2012 and 2013 respectively. The introduction of this map reduced the amount of available terrain by Approximately 80%.

The current map defines aircraft flight corridors and specific terrain upon which guided skiing can occur. The established flight corridors primarily addressed noise considerations for the local population. The areas permitted for skiing were by and large determined to protect local goat populations. During the process of determining the approved areas for guided skiing, the local helicopter operators were consulted, but only to a limited extent. During the summer months, there is as much if not more helicopter traffic supporting mining exploration and other studies that does not need to follow the same strict flight corridors

3.1 Goat Studies The goat population in the Haines area is as unique as the mountains themselves. The majorities of the guides working in the Haines Heli-ski operations and all of the owners are Alaska residents and have a vested interest in protecting this delicate resource.

The following is a paragraph from the Alaska Department of Fish and Game discussing this population:

The Haines-Skagway area is an interesting place to study seasonal habitat selection patterns of mountain goats because the area is geographically situated in a climatic transition zone between the coast and interior regions. In most parts of coastal Alaska, mountain goats winter in low elevation forested areas in order to escape the deep snowfall that occurs in the alpine (up to 12 feet). However, in interior climates winter conditions are colder and drier and alpine zones accumulate much less snow resulting in ridges being windblown and devoid of significant snow. Thus, in interior climates mountain goats winter at high elevations, and do not descend to low elevations during winter. Consequently, in the Haines-Skagway area local variation in climate results in mountain goats wintering at low elevations in some areas (i.e. near the coast) and high elevations in other areas (i.e. upper reaches of large river valleys). Correctly determining mountain goat winter range in the Haines-Skagway area requires GPS radio-marking mountain goats in a systematic manner across a range of different geographic areas. Identifying high elevation winter ranges is particularly relevant to
helicopter skiing management because such areas have the greatest potential for overlap. Yet, it is also important to identify areas where mountain goats winter at low elevation so that helicopter skiing activities are not inappropriately regulated.

It should be noted that if goats are observed, it is a requirement of the Helicopter guide service’s permit to report this observation. Also of note is that the Haines operating area borders Canada and just North of the Border is a newer Heli-ski operation (Yukon Heliski) operating on Provincial and Native lands. In the process of defining this areas permitted zones, the Heli-ski operation (YH) is required to occasionally take biologists into the terrain with them to observe the goat population during actual operating periods. The Canadian operation is far deeper into the interior and features a considerably more transitional snowpack than South of the international border.

In the Haines area the majority of the studies were conducted in the fall, before the heavy snowfalls that are indicative of the region. The rest of the study relies on radio collar tracking that is years old and primarily on the older male goats. It is the nurseries with kids that are the most sensitive to disturbance. These nurseries are likely far deeper into the interior during the months of Heli-ski operation, where the snowpack is much shallower and more food is available.

During the process of placing these collars, the goats experienced what was likely their only negative interaction with helicopters when they were chased down and darted from helicopters. A number of goats died during this process. It has been observed that the goat populations try to avoid the areas of the deepest snowfalls. The interesting dichotomy of this observation is that Heli-skiing is invariably trying to operate in areas where the snowpack is the deepest. Goats may be found on the highest Southern faces where Heli-skiing does not occur (Alaska Helicopter skiing occurs primarily on NE trough NW aspects). Regardless, this study is what the majority of the regulation was built upon. It is the belief of this author that this study could be revisited as virtually no goats have been observed by the Heliski operators during their more than 25 years of operating in the Tsirku Glacier valley. Until better studies can be conducted, all Heliski operators will respect these boundaries.

3.2 COMPARING LAND MANAGEMENT BETWEEN VALDEZ AND HAINES, AK.

Understanding that Valdez and Haines are similar in the manner of being two small towns in coastal Alaska that are destination points for Heli-skiing is simple yet important for this discussion. Understanding the differences in land management is a bit more complicated.

Looking at the permitted Heli-ski operating area around Valdez and Thompson Pass, AK, there are five Heli-ski providers sharing lands managed by three primary land managers. The BLM (Bureau of Land Management), Alaska DNR (Department of Natural Resources) and the NFS (National Forest service) manage the lands around Valdez and Thompson Pass. Almost all of the providers operate on the BLM and ADNR lands. There is one operator that has access to the NFS lands. The BLM and ADNR permit area is roughly a parallelogram that measures approximately 65 miles W-E, and 50 miles N-S. The NFS operating area is similar in size but only permitted to one Valdez operator at this time.

In the Haines and Chilkat pass area; there are three Heli-ski operators and two primary land managers. The Haines Borough (the town council of Haines) and the BLM. Only a small portion of the Haines operating area is BLM lands and has an extremely limited number of user day for each permit operator of 100 landings (six runs is twelve landings). The overall land area of the Haines Borough is approximately 40 mile W-E and 50 mile N-S. The Haines area is shared by three operators and does not feature nearly as much viable terrain.

Within the Valdez Heli-ski operating area under the supervision of the BLM and ADNR there is very little restricted terrain (less than 10%) and virtually no restricted flight corridors etc. Under the newly introduced Haines Borough Commercial Operator Map, there are many specific areas that are divided into zones, each with their own stipulations such as “only useable until March 31”.

It is important to understand the difference between these land managers in terms of
experience. The BLM, NFS and ADNR have decades upon decades of experience managing their respective lands and addressing the concerns of all users both private and commercial. The Haines Borough is new to managing commercial guided operations upon these lands and is gradually learning. A recognizable example when looking at the Haines operating map is the Boundary between Glacier Bay National Park and the Haines Borough. The boundary for the National Park follows a defined terrain boundary, Essentially if on top of this ridge and you head southwest, you are traveling into the National Park, If heading northeast, you are heading into the Haines Borough. In the Valdez operating area, the boundary between the NFS and ADNR/BLM lands also follows terrain features.

Virtually none of the smaller permitted zones within the Haines Borough follow terrain features but are instead drawn-in shapes that may cross back and forth over ridgelines, not reach valley bottoms, or even follow elevation contours. This is an important factor when it comes to conducting ski operations within these zones. Along single ridgelines, there are places where landing is permitted and other places where they are not. There are numerous historical ski runs that the slope itself may be within the legal boundary but the top of the ridge where you would access it is not. In other cases the top landing and access may be legal, and the slope itself within the boundary but in order to get outside of the alpha angle of the slope, the helicopter pick up at the bottom would be outside of the legal boundary. Obviously, it is not acceptable to stage groups or land helicopters under slopes with avalanche potential. Within the Valdez operating area, for the most part “if you can see it, you can ski it”.

3.3 EFFECTS UPON THE GUIDE DISTRACTION

The result of this operational map layout is that it affects guide in the field in two distinct and important ways. The first effect is a considerable increase in mental tasks. As the guide is trying to determine whether or not they are landing legally, will be able to access the run legally, and regroup and pick-up legally, they are also managing a number of other problems.

A Heli-ski guide has an incredible mental workload. As a guide enters the field they are constantly assessing a variety of conditions and evaluating risks. Not only is the guide assessing complex avalanche problems but also considering many other mountain hazards such as crevasses exposure, current and changing weather conditions, riding conditions on a array of aspects and elevations and a variety of other factors. Add on top of this managing all the flight logistics involved with utilizing rotary wing aircraft and coordinating multiple groups in the field. When coupled with client care, radio communications and personal care, the number of mental tasks adds up quickly.

Guides are selected not just for interpersonal skills and ski ability but also for their aptitude to be able to handle this multitude of tasks and still perform them capably. Most any guide, no matter how experienced or skilled, is at times, operating at the brink of their mental ability. With the introduction of this now complicated task of determining whether or not they are inside or outside of a newly implemented legal boundary, their mental workload is again increased. Ultimately the human mind needs to budget its resources and allocate energies toward each task accordingly. By diluting the amount of energies able to be applied to each individual task, observations may be missed or dismissed.

This is a human factor of distraction that may not have been considered when third party observers or investigators are looking at the three accidents discussed in this paper. In the years immediately following the introduction of the newly introduced Commercial Operations Map, this distraction was at an all-time high. Now that the operators have had a few seasons to figure out where they can and cannot land and ski legally, this factor of distraction has decreased. The second factor to be discussed has not.

3.4 EFFECTS UPON THE GUIDE, TERRAIN SELECTION

The second and possibly more understandable factor that the Haines Commercial Heli-ski Operations Map introduces is limited terrain selection. As a ski guide, I have always felt that “there is always something safe to ski” as long as I am able to select the appropriate combination of incline, aspect and elevation. As mentioned earlier, after the introduction of the new map, terrain was reduced by approximately 80%. Of the permitted terrain
available, a vast majority lies on south aspects. In Alaska, 90% of Heli-skiing is conducted on NW-N-NE aspects due to solar effects. In all three of the accidents this paper is focused on there were safer terrain options nearby that were not in the permitted area. In the Valdez area, and Haines prior to introduction of the new map, when hazardous conditions are present, terrain options allow guides to select more appropriate elevations, inclines and aspects. It also allowed greater options for selection of dissipation slopes with lesser consequence in the event of snow movement. This option for terrain selection is probably one of the biggest factors of having such a long-standing record of zero fatalities.

4. SOLUTIONS – MEDIA

While the factors of media influence and limited terrain selections are not solely to blame for these three accidents, they are without questions factors that may have not been considered by outside observers. I myself was guiding in the Valdez region in 2012 when the first accident occurred and my colleagues and I all made assumptions about what had occurred. It was not until the following season when I came to Haines to guide that I became aware of the Commercial Heli-ski map and felt the effects of its implementation myself.

In terms of solutions to the role of media affecting not just Haines, but the ski-guiding world at large, I think about similar problems in the past that have created problems within the outdoor industry and solutions introduced.

At one point in time, it was common to venture into the mountains and commonly find many campsites with trash left behind, ground cover damaged by tents and traffic, multiple fire rings with broken bottles and many scars of the like. At some point the outdoor industry recognized this issue as a threat to their bottom line. As a result, soon most every backpack purchased featured a sewn-in patch listing Leave No trace ethics. Before long, better camping practices began to be practiced and as a result, the impact of users became less severe. This was a great move by the outdoor industry that protected resources, and modified social behavior through education.

If the snow sports media and product manufacturers can find a way to also educate the consumers of their products, the industry and the public can both benefit greatly. In 2010 Project Zero began with this goal in mind, this has since evolved into The Avalanche Project. The Avalanche Project is a collaboration of avalanche educators and forecast centers and equipment manufacturers. The core of the campaign is “The Backcountry Basics”; Get The Gear, Get The Training, Get the Forecast. Delivering this message is difficult; those that seek it find it easily, those the most in need of this message may never hear it. In essence, if we can make being careful as attractive as taking risks, we can again modify social behavior and benefit the snow sport public. Cooperation of media is without question the best way to deliver this message.

Similar to placing a LNT patch in every backpack sold, if media were to choose to include this message alongside their product, vast numbers of participants could be reached. Just as some equipment manufacturers are requiring their sponsored athletes to receive formal avalanche education, financial backers of snow sport media production could require productions to also include this message of “Get The Gear, Get The Training, Get the Forecast”. Just as athletes can be utilized as ambassadors of products, they can also be utilized to be ambassadors of responsible mountain behavior. The pressure for this change would be most influential if financially backed by gear manufacturers and media outlets. This would not necessarily require more monies to be spent, but would require some stipulations for investment. Invariably companies that show concern for their clients ultimately benefit in the long term.

4.2 SOLUTIONS - LAND MANAGERS

There is surely no desire from any land manager to create dangerous situations or maliciously create difficult conditions for a commercial operation. As land managers develop policy, they are trying to address many complicated issues and reach a middle ground where hopefully everyone is satisfied or more likely, at least no one is treated unfairly. Resources must be protected, user groups recognized and all concerns addressed.

In the creation of the Haines Commercial Heli-ski Map local Heli operators were consulted but only in a cursory manner. The creators of the
map most likely had only a minor understanding of all of the complications involved in conducting Heli-ski operations. Only those intimately involved in operations can understand all of the aspects involved. Trying to be considerate of all concerns, areas were chosen, and the map was drawn. Since its creation, some modifications have occurred.

After multiple illegal landings in one high use region resulted in numerous fines for one operator, the question was asked, “why do you keep violating this boundary”? When explained that this boundary did not allow safe distance for a helicopter pick-up, the map was slightly modified allowing for a safe pick-up without a violation. There are many, many other areas similar to this that may never be addressed due to only limited use. The bottom line of this example is that if there was more thorough cooperation between the land managers and the commercial operators, a middle ground could be reached while still respecting all involved.

A single pixel-width line drawn on a map currently delineates operating boundaries. If these boundaries were instead given a 500’ buffer on either side of this line, all of the resources, user groups and local residents would still be respected. In turn, this would reduce complications for the guides and pilots that distract them from the many other hazards that they are assessing.

If able to sit down with the land managers and look more closely at where operations are most viable and where concerns lie, all needs could be addressed more completely and perhaps the options for safe terrain selections expanded. Part of the complications of this is that the majority of maps for Alaska are in a 1:63,360 resolutions. This resolution features 100’ contour intervals where a 200’ cliff may be only barely represented or, not at all. Changing crevasse conditions or cornice formation are represented in any way. The operators that work in this terrain are intimate with its features while the land managers may only have a low-resolution map to base their decisions on. This difference in perspective may lead to misunderstanding and an accidental belief that concerns are not being respected. As with any conflict, this can be addressed through communication, understanding and cooperation.

Currently all eyes in the avalanche world are on Haines, AK due to these three accidents. Hopefully this paper will help those interested understand the complexities of ski guiding in this region. The greater hope is that these three accidents may serve as a catalyst for change. If greater communication, cooperation and understanding can happen between all involved including land managers, wildlife biologists, commercial operators, local residents, and other user groups, the entire community can benefit.

Three of the four victims of the three avalanche accidents discussed in this paper were not only colleagues but friends as well. The communities of Valdez and Haines are small and extremely tight-knit. An accident affects not only that community directly, but also sends shock waves around the world. If the entire snow sports industry can unite with these unique communities, tragedies such as these accidents can be reduced. In addition, the examples of the effects of policy on guided operations in avalanche terrain can assist land managers and operators with future projects and prevent creation difficult conditions.

CONFLICT OF INTEREST

The observations and conclusions expressed in this paper are the views of Mark Kelly alone who is not speaking on behalf of Alaska Heliskiing or any other entity. Mr. Kelly has received no financial or personal gain from the generation of this document. Mr. Kelly is a lead guide and the primary avalanche forecaster for Alaska Heliskiing based in Haines, AK and a resident of Valdez, AK.

Mark Kelly is a
AMGA Certified Ski Mountaineering Guide
AAA Professional Member
AIARE Course Leader