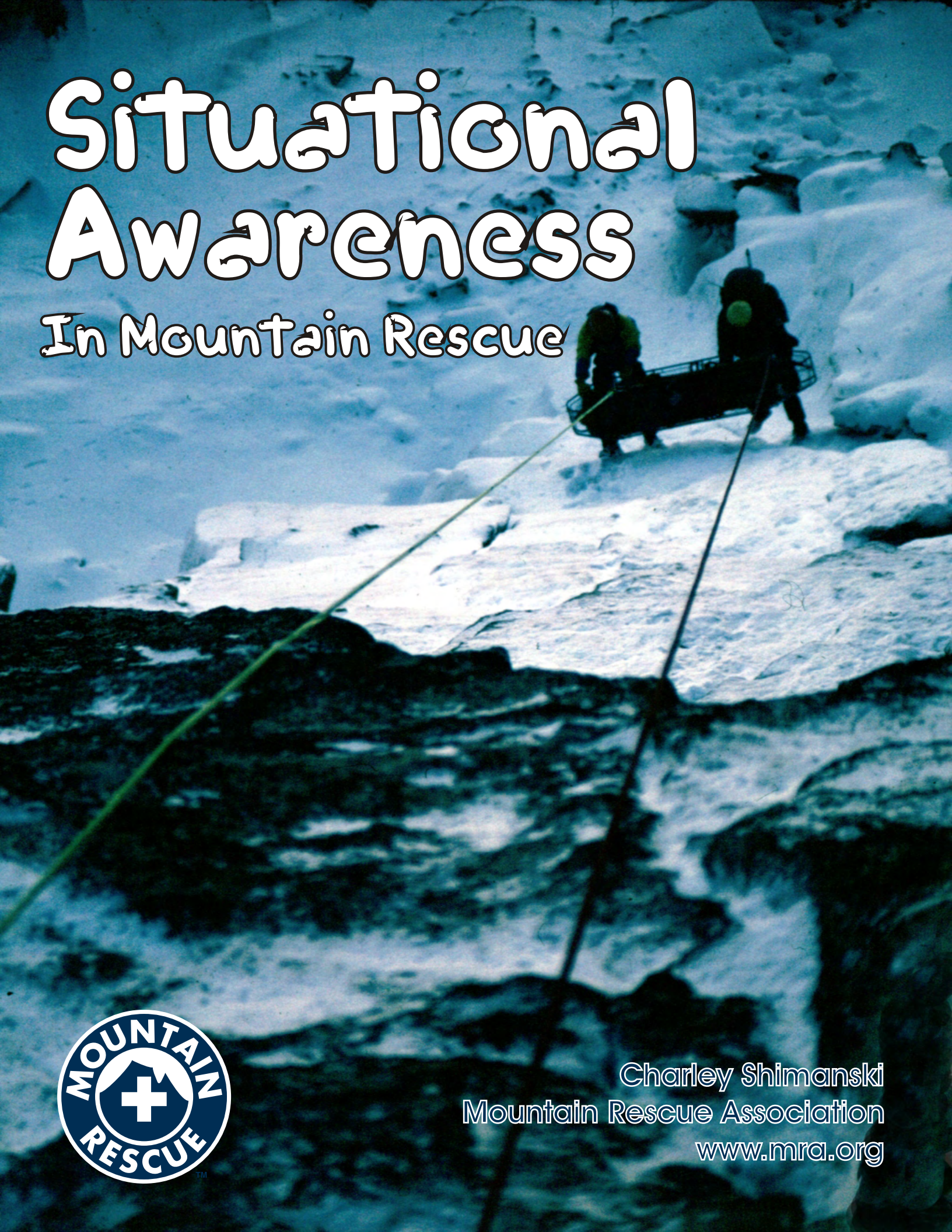

Situational Awareness

In Mountain Rescue

Charley Shimanski
Mountain Rescue Association
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COVER PHOTO: Rescuers on a litter lowering at 14,000 feet on Mount Evans, Colorado. Photo by Charley Shimanski.

"OBJECTIVE" PAGE PHOTO: Courtesy Howard Paul

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Objective

The Mountain Rescue Association, a national non-profit membership association dedicated to saving lives through rescue and mountain safety education, has developed this program to be used by any organization that may be required to respond to a backcountry rescue operation.

At the conclusion of this course, students should be able to:

1. Identify how mother nature, physical elements, mental and emotional elements, and external influences contribute to risk in rescue operations;
2. Understand other external hazards affecting risks in rescues, and;
3. Understand methods to reduce risk on the basis of the elements presented.

This program would not have been possible without the kind assistance of many mountaineers and rescuers. Our thanks to all whom offered assistance.

About the Author

Charley Shimanski is President and Education Director for the Mountain Rescue Association, a national organization of rescue mountaineers. A 20-year veteran of Colorado's *Alpine Rescue Team*, Charley has participated as a field member and Incident Commander for hundreds of rescues among Colorado's highest peaks.

The author of the Mountain Rescue Association's *Helicopters in Mountain Rescue Operations* manuals and several others, Charley has consulted rescue mountaineers, mountain guides, and climbers throughout the world, from Israel to China, from Kilimanjaro to Aconcogua. Charley is a frequent speaker at meetings of the International Technical Rescue Symposium, The National Association of Search and Rescue, the Wilderness Medical Society, and the Mountain Rescue Association.

Introduction

In the past number of years, search and rescue teams have turned their attention to risk management. This focus on risk, and the subsequent increased efforts to mitigate risk, means that search and rescue organizations must constantly stay aware of trends and advances in risk management techniques and philosophies. "Situational Awareness" is a term that has found its way into the vocabulary of SAR teams and SAR leaders over the past few years.

Situational Awareness

"Situational Awareness" is "*the degree of accuracy by which one's perception of his/her current environment mirrors reality*." The essence of Situational Awareness is fairly simple... perception vs. reality.

For over 30 years, Situational Awareness has been studied and applied in military, civil, commercial and aerospace applications. More and more, emergency service organizations are focusing on situational awareness as a key factor in reducing risk and increasing safety.

Situational Awareness can also be looked at as a constantly evolving picture of the state of the environment. It is the perception and comprehension of the relevant elements in an incident within a volume of time and space. In this regard, Situational Awareness is not an event, but rather a process that only ends when the SAR incident is concluded.

Data Collection and Interpretation

Situational Awareness requires the human operator to quickly detect, integrate and interpret data gathered from the environment. In the case of search and rescue operations, the "human detector" can be anything from the Incident Commander to a "field grunt." That is the beauty (and challenge) of situational awareness – it requires and demands awareness by all users.

In a search and rescue response, the "information" that is collected can come in many forms, including:

1. Information provided by outside sources (e.g. interviews with reporting parties, information provided by local law enforcement, etc.)
2. Information from the environment (e.g. weather)
3. Information from previous experiences (e.g. other SAR missions in the same location)

Situational Awareness is also much like the Incident Command System (ICS), in that it is flexible and should grow or shrink as the SAR incident grows or shrinks.

The Three Stages of Situational Awareness

To fully understand Situational Awareness, we need to look closely at its three important stages. They are:

1. The perception of the relevant information;
2. The comprehension and interpretation of that information; and
3. The projection of their states into the future.

Each of these stages is examined in detail below:

Stage I - Perception of the Relevant Information

Yogi Berra once said, "You can observe a lot by just watching." Observation is the key to perception. In this first step of situational awareness, we are looking for clues. These clues can come in many forms, including:

- Sensory clues - something you see, hear, smell, touch;
- Anticipated clues - something that comes from prior experience; and
- Innate clues – something you just "feel in your gut."

In conventional search missions, for example, rescuers are looking for CLUES more than they are looking for the missing subject. Why? Simply because there are far more clues than there are missing subjects, and by finding and following clues, one can find the missing subject much more quickly.

The first stage of situational awareness – perception – is arguably the most important stage. After all, without perception of information, one cannot really comprehend, interpret and draw conclusions.

Many accidents in search and rescue operations result from a series of different things happening. There are often a number of contributing factors that, if occurring individually, might not have resulted in an accident. Break any rescue accident down, and you will often find that there were a number of elements that came together to make that accident possible.

In this important perception stage of Situational Awareness, rescuers need to be very attentive – not only to the occurrence of situations that are beyond their expectations, but to the frequency and number of those situations.

This perception stage requires that you OBSERVE! In order to be an effective observer, one must remain attentive. This can be one of the greatest challenges to a search and rescue professional, as periods of inactivity and boredom can hamper one's ability to be an effective observer.

Similarly, searchers and/or rescuers who are overworked might not be able to observe the environment around them. This too can be a serious detriment to one's ability to be an effective observer.

Stage II - Comprehension and Interpretation of the Relevant Information

The second stage of Situational Awareness, "comprehension and interpretation," requires you to have and utilize your training and experience. Training is a key component of teaching SAR workers, but

experience is the key to understanding how to best utilize that training.

The second stage of Situational Awareness is the stage wherein one attempts to comprehend and interpret the data collected in the first stage. While the collection of data and the perception of the relevant information are important, the comprehension and interpretation of that data can not be overlooked.

The key to this stage of Situational Awareness is that it requires one to have and utilize key training and experience. For example, a rescuer in a high mountain rescue might have already perceived that the temperature is very hot. Still, without proper training in helicopter management, that rescuer he might not be able to interpret that the high temperatures will have an effect on the rescue team's use of helicopter resources – since temperature has a significant effect on helicopter performance at altitude. Without the proper training, a SAR worker might not be aware of the limitation that temperature has on the performance of helicopter assets.

Experience is also a key factor in this stage of Situational Awareness. While training is essential for any SAR professional, there is no substitute for experience. It is through experience that we learn and master the important skills associated with interpreting data that is presented in the first stage of situational awareness.

Understanding the Clues

In order to interpret clues, you must first understand them. But how do you interpret clues if those clues do not make sense? On a search for a missing hiker one summer night, a rescue professional notified the search command post that he'd found "a bunch of orange pails" in the middle of a trail while searching. The searcher went on to say that the pails were meticulously laid out in the shape of an arrow, pointing down the trail. The Incident Command team struggled to figure out why there would be orange pails many miles back on a remote backcountry trail. Several minutes later, the command team asked for a clarification from the rescuer, who coincidently was a southerner with a deep southern drawl in his voice. He was asked, "What kind of orange pails are these?" The man replied "You know, the kind of pails you pail off an orange before you eat it!" The man was talking about orange PEELS, but that only became evident after the command team asked more questions. The data presented did not make sense at first, but made complete sense later, once the command team remembered that the field rescuer was from Georgia, and had a distinct southern drawl.

Interpreting the Clues Requires Training

Do you have sufficient experience to interpret the information that you have assembled? Traditional training might not teach you the skills necessary. For example, one search and rescue team trains its members on helicopter skills in a unique and different way... the rescuers are not schooled in how to help a helicopter pilot, rather they are schooled in how to BE a helicopter pilot by learning how a pilot actually FLIES a helicopter. As such, these SAR professionals are better able to think like a pilot.

Recognizing the Frequency of those Clues

As mentioned earlier, one should not only pay attention to the clues themselves, but also to the frequency of clues. This can help a rescuer ascertain whether numerous seemingly inconsequential anomalies are coming together to draw one large problem.

In a later section, "Break the Chain," we will review an example of a rescue accident

where numerous elements compounded upon themselves and the accident occurred.

Stage III - Projection into the Future

The third stage of situational awareness – projection into the future – is the stage where one puts it all together. Once the clues are interpreted, the next step is to project how that information will affect the future of the operation.

Let's use an example of a traditional backcountry search. Rescuers are called to a local trailhead to search for a subject who is 6 hours overdue from a planned hike. The subject told the reporting party (his wife) that he was going fishing at a local lake on the trail. While some rescuers are searching the trail to the lake, other rescuers also search the subject's car, and find that his fishing equipment is still in the back seat, including his fishing license. Using this new information, the rescuers conclude that they need to expand their search area based on the projection that the man changed his plans, and did not go fishing at the lake as expected.

An Everyday Example of Situational Awareness

Let's consider another example of situational awareness, one that takes place in an everyday setting.

If you want to know if it is going to rain, you don't look for rain, you look for CLOUDS. If you look for rain you'll only know that rain is coming at the very moment that it arrives. Looking for rain alone would mean that you are only OBSERVING and INTERPRETING, but not PROJECTING into the future.

If, on the other hand, you instead look for clouds, then you have added PROJECTING into your situational awareness. In that case, you are more able to anticipate rain BEFORE it arrives.

Still, even looking for clouds does not constitute the only important element that is missing if you only look for rain. You need some training to know WHAT TYPES of clouds cause rain. For example, a sudden build up of high cirrus clouds means something completely different than a steady accumulation of cumulonimbus clouds. Only through training and experience can you learn this important distinction.

Visualize While En Route to a Call

In many emergency medical training programs, students are taught the value of visualizing the scenario prior to arriving at the rescue call. In search and rescue operations, rescuers often have an extended period of time traveling to the scene of the SAR call. During that transport time, it can be valuable to take the clues given (e.g. the description of the rescue accident) and project into the future what kind of problems will be encountered by the rescue team. For example, a rescuer may know that a rescue of an injured climber on the east side of Highway 9 means that the rescue team will need to create a technical system to cross above a large creek. While en route to the call, rescuers will already be planning in their heads the tyrolean system necessary for the creek crossing.

Similarly, SAR field teams can talk about their pending rescue while heading into the field. On a recent rescue of a survivor from an avalanche, rescuers were performing a technical lowering of the patient to a rock band where the helicopter could "hover-

load" the patient. During that technical lowering, the helicopter crew members were sitting in their helicopter at the trailhead parking lot. The rotors were turning, and the crew was discussing in great detail how they would do the "hot-load" of the subject. They could have been discussing the latest basketball game, or the lovely weather, but instead they used the opportunity to brief each other on what their duties would be, and on what possible complications might occur.

Experience teaches rescuers to ANTICIPATE possible scenarios based on information provided. Still, that same experience teaches rescuers that the information provided may be wrong. While at work one day, an out-of-breath co-worker ran into my office and said, "Charley do you know CPR?" I followed the co-worker to the hallway, where another staff member was lying on the ground, seemingly lifeless. Prior to starting CPR, I checked my colleague for a pulse, and asked bystanders what happened. They described the patient as having experienced what sounded to me like a Grand Mal seizure. Indeed the patient was in a Post Ictal state, and was not in need of CPR.

Seven Key Factors that Reduce Situational Awareness

The United States Navy developed seven key factors that reduce situational awareness: Navy

1. Insufficient or poorly communicated information and communication;
2. Fatigue and stress ;
3. Task underload;
4. Task overload;
5. Group mindset;
6. "Press on Regardless" philosophy; and,
7. Degrading operating conditions.

Each of these factors is detailed below.

Insufficient or poorly communicated information and communication

Insufficient or poorly communicated information and communication can be disastrous, particularly when the well-being of a search or rescue subject is concerned.

One particular example where information can be poorly communicated is when SAR teams in remote areas use radio relays in places where radio communication is poor between field teams and the command post. Inexperienced relays can reinterpret the message when transmitting it, rather than repeating EXACTLY what they heard.

After the Space Shuttle Challenger was destroyed 73 seconds after liftoff, NASA determined that one of the contributory causes was that "The Commission is troubled by what appears to be a propensity at Marshall (Space Flight Center) to contain potentially serious problems, and to attempt to resolve them internally rather than communicate them forward. This tendency is altogether at odds with the need for Marshall to function as part of a system working toward successful flight mission, interfacing and communicating with the other parts of the system that work to the same end.[i]"

After the Space Shuttle Columbia was destroyed on re-entry, NASA convened a panel of experts to review the accident. The Columbia Accident Investigation Board (CAIB) concluded that "poorly communicated information" was a contributing factor in the events that led up to the loss of the orbiter on re-entry. They went on to specify that the use of the computer presentation software, "PowerPoint," played a role, as presenters often had to find ways to distill pages and pages of information onto single PowerPoint slides for their presentations.

Fatigue and stress

Fatigue and stress reduce one's ability to make important observations and interpretations. For this reason, it is very important that rescuers monitor each other, and monitor shift durations during SAR operations. Any extended SAR operation should include a place for rescuers to rest or sleep in between shifts.

Realizing that fatigue and stress reduce one's abilities, the airline industry has implemented strict regulations regarding the number of hours that flight crew members can fly before they are required to have a day off. For the same reason, most Emergency Medical Services agencies have instituted similar regulations.

Task underload

Task underload can introduce an important problem... the boredom factor. Task underload is one contributory factor in many motor vehicle accidents. It has also has been cited as a frequent problem for persons in certain occupations, such as security guards.

Task underload was a factor in a fatal plane crash during a search operation in Colorado in 1988. While flying at their assigned altitude of 13,000 feet during a search, the plane's pilot told the spotter that he was bored, and that they were going to fly at 11,000 feet. He descended to this lower altitude. Shortly thereafter, the plane crashed in a downdraft. The pilot was killed, although his spotter survived.

One way to combat this problem is to closely monitor the tasks that are assigned to people. If some personnel are without tasks, find tasks for them to do.

On a recent search, a rescuer who was awaiting a field assignment decided to set up his spotting scope at the command Post. Within several minutes, he spotted the missing party high on a ridge. Similarly, a rescuer at an avalanche rescue decided to spot probe the avalanche debris while she was awaiting her assignment. While doing so, she happened to find the buried victim.

Task overload

Task overload is also an important factor that reduces situational awareness. The probability of human error increases with length and complexity of tasks.

Task overload is one reason why many states have made it illegal to operate a motor vehicle while using a cellular telephone.

Again, an effective method to combat this problem is to closely monitor the tasks that are assigned to any individual. Task overload is often easy to recognize.

Although not specifically stated in the Navy's "Seven Factors that Reduce Situational Awareness," some studies have shown that one key time where serious mistakes are made is during the TRANSITION from task overload to task underload – at time at which a rescuer might "let his guard down." Similarly, the transition from task underload to task overload may be a time when rescuers make mistakes – particularly because the brain takes some time to transition from a level of boredom to a level of high activity.

Group mindset

Group mindset was also cited as a factor that reduces situational awareness. Group mindset refers to the fact that one's propensity to agree with a group increases as the size of the group increases.

So, the group all agrees, right? Or does it? Could it be that some of the group members agreed due to peer pressure?

An accident investigation board was assembled in 1967 after the Apollo I disaster in which Gus Grissom, Edward White, and Roger Chaffee were killed in a fire aboard the spacecraft just days before their planned launch. In assembling their list of contributing factors, the Board coined a new phrase: "Go Fever."

"Press on Regardless" Philosophy

Once a plan has been developed, a "press on regardless" philosophy can take shape. This can be detrimental to the ability to adequately reevaluate and alter or abandon a plan.

The first disaster involving a Space Shuttle – The Challenger on January 28, 1986 – is a good example of the "press on regardless" philosophy. Known defects in the O-rings of the solid rocket booster had been identified as early as 1979, but NASA officials pressed on with the Space Shuttle program anyways. Numerous shuttle engineers expressed their concerns, but those concerns were dispelled and the space shuttle program continued.

"The decision to delay a shuttle launch had developed into an "unwanted" decision by the members of the Shuttle team. In other words, suggestions made by any group member that would ultimately support a shuttle launch were met with positive support by the group. Any suggestion that would lead to a delay was rejected by the group[ii]"

Degrading operating conditions

In SAR operations, degrading operating conditions can come in many forms. Often, this can be associated with bad weather conditions. Whenever this occurs, rescuers should consider slowing their pace to provide time to recognize whether the change in weather is affecting their efforts.

Additional Factors that Reduce Situational Awareness

In addition to the seven key factors identified by the Navy above, we have identified two additional factors that can reduce situational awareness in rescue organizations

Complacency at the Highest Level

One factor that seems to be prevalent in many SAR organizations is complacency among those most experienced members of the team. It seems that as members of SAR teams acquire ten or more years' experience, they can tend to develop a perception that they are the teachers in the organization, and that there is little left for them to learn. Still, as the world of SAR evolves, there is more for these experienced members to learn.

Young or newer members of SAR teams seem less prone to this complacency during the period where they experience a steep learning curve.

Overconfidence Based on Experience

Dr. Ken Kamler was an expedition physician on a Mt. Everest expedition in 1996 – the year that several climbers tragically lost their lives in a storm. Dr. Kamler hypothesized from that tragedy that some of the climbers were lulled into a false sense of security on the mountain, due in large part to the fact that they had successfully climbed Mt. Everest many times before. From this observation, Kamler suggested that, "Familiarization, and prolonged exposure without incident, leads to a loss of appreciation of risk."

This can be especially true in SAR organizations, where leaders can tend to stay with the organization for a long time. The longer and more frequently that one is successful and error-free, the easier it is for that person to lose sight of the risks associated with the particular activity.

Consider, as an example, that most avalanche victims have had avalanche

training. It is not the novice who is normally caught in an avalanche, but rather the experienced and educated winter backcountry traveler. This is because the experienced backcountry user can tend to let his/her guard down.

Common Errors in Situational Awareness

Bill Wade is a recently retired National Park Service Superintendent for many years, and former Education Director for the National Association for Search and Rescue (NASAR). Mr. Wade developed several "Common Errors in Situational Awareness.[iii]" These are presented in detail on the following pages.

Stage I - Perception

Too much or too little information

It is a challenge to interpret information if there is too little information to interpret in the first place. Similarly, rescuers can be particularly challenged if there is too much information to interpret.

Failure to adequately review the information

Another common error is for the rescuers to spend too little time adequately reviewing the information that has become available. A prudent Incident Commander will dedicate sufficient resources so that the overhead team and field rescuers each have sufficient time to carefully review the information that is presented to them. Carefully and frequently monitoring the number and complexity of tasks assigned is an effective method to accomplish this.

Too much stress

Too much stress can make it difficult for rescuers to evaluate and interpret the information available. Since stress is inherent in search and rescue operations, it is important to monitor the level of stress associated with the functions being performed, and to mitigate that to the greatest extent possible.

Stage II - Comprehension

Too little experience

It can be difficult for rescuers with little experience to adequately assemble and interpret information. For this reason, rescue leaders should be careful to limit the roles and responsibilities of novice rescue professionals. Give those rescuers important tasks and challenges, but be careful not to overextend them.

Using previous experience incorrectly

It is possible for experienced rescuers to rely on previous experience, which can create artificial blinders for those rescuers. This will be discussed in greater detail in subsequent pages.

Interpreting data incorrectly or using it incorrectly

Misinterpreting the data available can be a serious problem, as the conclusions drawn can be specious as a result. For this reason, a series of "checks and balances" should be developed in certain situations. Have more than one person review and interpret the information available, and see if they all come to the same conclusions.

Stage III - Projection

Doing something the same way over and over

Doing something the same way over and over can effect your future projections. This represents one of the greater challenges to the very experienced rescue professional, especially if "the way we've always done it" has been successful in the past. Rescue

leaders may get stuck on one way of doing things, reducing creativity when it is most needed.

Not questioning what you're doing

Wade summarized his thoughts by concluding that "You need to be always questioning what you're doing." This is especially true in SAR operations where your expectations are not being met. If you are involved in a lengthy search operation, for example, then perhaps its time to stop and ask yourself what assumptions you've been making. Ask then whether your plan would change if you stopped making any of those assumptions.

One of the keys to applying Situational Awareness in rescue operations is to anticipate – always anticipate. The more one looks to the future and considers the possibilities, the better one can project possible outcomes.

For many years, rescuers have applied a "What if?" mentality to their efforts. For example, an Incident Commander keeps a "bash team" back at the command post during large scale operations, in the event that a rescuer is injured. Similarly, and Air Operations Chief keeps a fire truck at the Heliport, to respond in the event of a crash or other accident. This type of pre-planning is important in SAR operations, and represents an element of Situational Awareness.

Ways to Avoid the Loss of Situational Awareness

The U.S. Navy also developed these ten helpful methods to prevent the loss of situational awareness. These techniques should be considered frequently, and throughout the incident.

1. Actively question and evaluate your mission progress;
2. Analyze your situation;
3. Update and revise your image of the mission;
4. Use assertive behaviors when necessary;
5. Make suggestions;
6. Provide relevant information without being asked;
7. Ask questions as necessary;
8. Confront ambiguities;
9. State opinion on decisions/procedures; and,
10. Refuse unreasonable requests.

Again, each of these will be discussed in detail below.

Actively question and evaluate your mission progress

This advice applies to everyone in a SAR response, from the Incident Command team to the field grunt. Rather than simply carrying out the task given them, the experienced rescuer will stop on occasion and evaluate the progress of the mission and their assignment.

Are your personnel having more or less success than expected? If the answer is "less," then you should actively question your methods and consider whether alternatives should be considered.

Analyze your situation

A frequent evaluation of the situation surrounding the Incident is also helpful. Is

the weather changing? If so, how will that affect your present plan and your future decision-making?

By evaluating the current situation, you will be better able to project the future needs of the Incident.

Update and revise your image of the mission

As the situation changes, so should your image of the rescue mission. Information is constantly being presented, and with that new information comes the need to adjust your expectations.

Use assertive behaviors when necessary

If something looks wrong, it probably is wrong. Be assertive, and mention that something looks wrong. Also, experienced rescue professionals should encourage their less-experienced colleagues to speak up any time something looks wrong.

Make suggestions

Providing input to decision makers is important. To this end, it is equally important for the decision makers to ASK for input from others. Again, newer members of the search and rescue agency should be encouraged to provide input.

Provide relevant information without being asked

Rescue professionals are generally not inherently timid people. Still, your rescue organization should encourage teammates to speak up whenever they feel the need to. Newer members of the organization should be encouraged to provide feedback without being asked.

Ask questions as necessary

It is an overused cliché that "there is no such thing as a stupid question." Still, that cliché applies here. Many accident investigations have concluded that some individuals were aware of a problem, but chose to not say or ask anything. After a fatal plane crash during a search operation in 1988, it was later learned that members of the search and rescue team questioned in their own minds the decision to use fixed wing aircraft on the fifth day of a search, but they did not mention their concerns to any member of the Incident Command Team.

Confront ambiguities

Again, if something looks wrong, it probably is wrong. Even if the ambiguities are relatively insignificant, you should confront them. Keep in mind that a series of relatively minor ambiguities can compound upon each other to create a major problem.

State opinion on decisions/procedures

Too many times, rescuers will carry out a task given to them, even when they question the need for that task to be carried out.

Refuse unreasonable requests

This advice should be communicated to newer members of the organization often, as they are the most prone to intimidation, and might feel obliged to carry out a task that may otherwise be unreasonable.

Ways to Increase Situational Awareness

One way to increase situational awareness is to increase the resources you are using to make decisions. This includes resources such as computers, maps, decision-making models, other people, etc.

Identify what your assumptions are in your current decision-making model. If you are having less success than expected, you may need to go back and reevaluate those assumptions. In a search for a missing party, rescuers suddenly asked themselves if they would change their search methodology if they presumed that the missing subject was suicidal. They made the appropriate changes, and indeed found the subject within a matter of a few hours – indeed it was a suicide.

Break the chain

As mentioned earlier, most accidents occur when a number of elements go wrong and compound upon each other.

On June 25, 1994, a contract helicopter responded to a rescue effort in Rocky Mountain National Park. The helicopter crashed, although nobody was seriously injured. The Office of Aircraft Services report on the accident concluded that numerous elements went wrong that day, each of them contributing to the accident. Specifically, the report stated that "Incorrect load calculation, argument between flight crew members, loss of natural light, and a hurried pilot were all contributory causes.[iv]" Had any of the participants recognized that there was a sequence of problems building up, someone might have called for a closer look at the situation.

The Mountain Rescue Association has published a training document entitled, "Accidents in Mountain Rescue Operations." A quick review of the dozens of rescue accidents profiled in that document will underscore how numerous elements can compound upon each other to create a dangerous situation.

For example, if rescuers are working a rescue on a small slope with some low to moderate avalanche potential, there may be the perception that there is little risk. But how does the risk evaluation change if that small slope is directly above a 100 foot-cliff? Add one additional element and the whole projection of possible outcome changes.

Useful Tips in Situational Awareness

Finally, we have compiled these additional tips, which come from a variety of sources:

1. If something doesn't look or feel right, then it probably isn't right;
2. Watch out when you are busy or bored;
3. Old habits are hard to break;
4. Expectations can reduce awareness;
5. Things that take longer are less likely to get done right;
6. It's hard to detect something that isn't there.
7. Distraction comes in many forms;
8. Don't rely on reliable systems;
9. Don't get too excited if an emergency occurs. That's when you'll make poor decisions; and,
10. Prevention is the best way to avoid emergencies, and Situational Awareness is one of the best forms of prevention there is.

Conclusion

In a perfect world, search and rescue incidents would be simple affairs – carried out expeditiously and without complication. But while most rescues fit that idyllic pattern, many do not. And far too often, those rescues that do not flow seamlessly cannot be anticipated in advance. For this reason, SAR professionals need to constantly be aware of the information that is available, and interpret and project future needs based on that information.

This training material is intended to be used by SAR teams and individuals. To be most effective, it should be reviewed frequently.

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[i] The Presidential Commission on the Space Shuttle Challenger Accident Report; June 6, 1986

[ii] "The Challenger Shuttle Disaster: A Failure in Decision Support System and Human Factors Management; Jeff Forrest; Metropolitan State College of Denver

[iii] Wade, Bill; Situational Awareness, NASAR Response conference, Reno, NV, May 2003

[iv] United States Office Of Aircraft Services report

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The Mountain Rescue Association is an organization dedicated to saving lives through rescue and mountain safety education

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