The Role of Perception, Genes, and Culture on Risky Behaviors
By Jerry Dzugan
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The following chapter addresses the concepts of risk perception and risk tolerance. The author, a marine safety expert and educator, takes a look at how each of these concepts plays a role in the overall safety culture of an organization or industry. He also attempts to identify what, if anything, can be done to modify a culture. Much of the information presented here is based on information and evidence obtained through the commercial fishing industry. The information, however, can easily be applied to any risk-based industry.

In the late 1970s in Southeast Alaska, a small fishing vessel sank in a winter's gale. Two young, adventurous people were aboard: a man who was the owner of the vessel and a woman crewmember. As the vessel was sinking, the owner had to deal with a moral dilemma that would influence the safety culture of commercial fishing in the region for years to come. There was only one immersion (survival) suit available to protect a wearer from the near freezing waters, and the owner had to decide who would use it. He gave his crew member the protective suit to don and they both went overboard. Unprotected from the cold, the owner died of hypothermia within an hour. The crewmember made it to shore and was rescued a number of days later.

For centuries mariners have been aware of the hazards of the seas. Fishermen had certainly been aware of the existence of immersions suits prior to this incident. But few mariners purchased them, and at the time of the casualty, there was no law that required that they be carried on vessels. Many fishermen, in fact, considered the suits to be "body finders," at best. Others viewed them as objects of ridicule.

But for some reason, when word of this particular incident spread throughout the fishing fleet, vessel owners started voluntarily buying suits for all their crewmembers. And in essence, a change in the region's safety culture began—more than a decade before immersion-suit rules were established. Today the crewmen who do not carry the suits are the ones who are ridiculed. People who go to sea without them are even considered reckless.

Fishermen generally are an extremely independent and high risk-tolerant group. Yet without being told to do so, they collectively agreed to change their safety behavior for the better. And while the subsequent changes in behavior and attitude among this population have been unmistakable, the impetus behind those changes is not as clear. Could it really be that a single, relatively low-profile tragedy influenced an entire industry? And what were the contributing factors that influenced this group's long-held tolerance for risk?

Life-saving technology exists in many professions, but it is often ignored. Helmets for bikers, lifejackets for boaters, safety harnesses for roofers, and avalanche beacons for those on snowy mountains are just a few examples of products that are available, are affordable, and have proven to save lives. Nonetheless, the products are not used consistently despite their beneficial qualities.

Then something happens—via a single event or through a gradual shift—that influences the way people think, believe, and act. The tide turns. Bike helmets become the "in" thing. Safety harnesses become the norm. The majority of Americans now wear seatbelts. Fishermen carry survival equipment. A whole country no longer smokes indoors.

This chapter will take a look at how and why this type of change occurs. I'll start by introducing a concept called *risk tolerance*; i.e., people's willingness to be exposed to (if not seek out) potential dangers. Given that risk is integral to the lives of most outdoor professionals—be it fishermen, outdoor leaders, or biologists who work in remote areas—I'll try to identify how risk tolerance is developed (or bred) in people. I'll also define the term *risk perception* and describe how it affects people's behaviors. And finally, I'll explore whether or not a safety culture—the shared values of a group—can be changed.

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Long before adventure sports and outdoor education became popular, at-sea adventures were accepted (if not respected) as high-risk activities. In the early days of the Dutch East India Company, most sailors did not return alive. Yet sailors were always found to go out on the next ship. Mariners had an extremely hazardous life no matter where they worked. In 1876 in the Bering Sea, 30 whaling ships were lost in just one winter. Some ports such as Gloucester, Massachusetts, lost hundreds of fishermen in the 1800s. Conditions were so bad in Norwegian ports that the government forcibly moved whole communities because so many of their fishermen were being lost.

For generations, fishermen, like many others who work and recreate in the outdoors, have seemed to accept that they might be hurt or killed. It was understood that the risks come with the territory. But fishermen seemed to tolerate an inordinate amount of risk, even when compared to the average adventurer. You see, fishermen risk more than just harm to themselves: They are willing to risk the well-being of their families, too. If a fisherman gets hurt, his family doesn't get fed. And a fisherman's success is based on his ability to remain healthy while working in an unpredictable environment that can fluctuate greatly from year to year if not day to day. Fishermen are, perhaps, the ultimate risk manager.

Until recently, commercial fishing in the U.S. was the most hazardous major occupation in the United States. But over the last two decades, things have changed. In the year 2000, for instance, commercial fishing lost its dubious distinction of having the highest occupational fatality rate in the country. And during the last decade, the fishing fatality rate in the United States has fallen 30 percent; in Alaska, it has fallen 61 percent.

By examining how this industry—steeped in tradition and often stuck in its ways—has evolved, it is hoped that we can begin to understand what it takes to change a safety culture. And while fishing and fishermen might be used to make certain points, the same influences that affected this profession can ultimately alter any group of people, whether they work in the office or outdoors, on land or at sea.

Risk Tolerance versus Risk Perception: What's the Difference? In 1914, Antarctic explorer Earnest Shackelton published an advertisement for shipmates:

"Men Wanted for Hazardous Journey. Small Wages. Bitter Cold. Long Months of Complete Darkness. Constant Danger, Safe Return Doubtful. Honor and Recognition in Case of Success."

Rumor has it that over 5,000 men applied.

Risk is ubiquitous. We face it every day. And while some people do everything possible to avoid being injured, other people, such as the 5,000 men who responded to Shackelton's ad, seem to thrive when the chance of harm is prevalent. Shackelton made it clear that there would be risk associated with the work. He did not hide from the fact that the men could be hurt if not killed. So why were so many men be willing to accept this challenge? Was it the small potential for "honor and success" that Shackelton mentioned? Or did other factors play a greater role? And why is that some people seem to be averse to risky situations while others rise to the occasion?

I'll attempt to address some of these questions throughout this chapter, but I'll begin by first defining risk perception and risk tolerance.

Risk perception is an individual's awareness of the likelihood of loss or injury. Risk perception is affected not only by the characteristics of a situation (i.e., some situations are more dangerous than others), but it is also influenced by a person's assessment of his or her own personal abilities. That is, if a person over- or underestimates his capacity to deal with a situation, his or her perception of the risk associated with the situation will be lower than someone else's. As long as a person has good risk assessment skills and is able to determine the probability of harm, things will likely be okay. He or she can conduct an effective risk-benefit analysis and make an appropriate decision.

Risk tolerance, on the other hand, has to do one's threshold. Risk tolerance may be defined as the amount of risk an individual is willing to accept in the pursuit of a desired goal. Some goals may be judged as worthy of higher levels of risk than other goals. This threshold will ultimately help a person determine if or when the benefits outweigh the risks. Consequently, a person's risk tolerance will make a significant difference in that person's decision-making process.

Though the two concepts—risk perception and risk tolerance—differ, they are integrally related. Each affects how and why people engage in risky behaviors. To explain further, I've included several theories that try to explain why people do what they do.

The first proposition, which Gerald Wilde calls *Risk Homeostasis*, states that people in any given activity have a target level of risk which is considered acceptable. Wilde believes that people do not attempt to eliminate risk. Rather, they seek to maintain equilibrium, and they adjust their behaviors so that they are able to perform within the accepted level. People create technologies and even laws to "make people safe." But Wilde postulates that for many, this just won't work.

According to Wilde, when hazards or risks are reduced in one area, people will compensate by changing their behaviors in another area. For example, studies have shown that once safety features were added to cars—such as air bags and anti-lock brakes—people began driving faster, more carelessly, and closer to the cars in front of them. The people modified their behaviors to bring the risk back up to acceptable levels.

This same type of compensatory response can be found in the fishing industry. For example, larger vessels, overall, are considered "safer" than their smaller counterparts. But larger vessels are usually more willing to work in bad weather; thus, they take greater risks because they are in the safer vessel. Further, when people fish or travel close to shore, especially if it is in calm weather, they often feel little need to wear life vests or carry immersion suits, even though the water may be breathtakingly cold.

If risk homeostasis was the only factor affecting people's view of risk, technological or regulatory "improvements" would likely be moot when it comes to changing behaviors. If some people have a high tolerance level for risk, one can conclude that they will engage in actions that unnecessarily expose them to dangers regardless of rules or safety features. In fact, if risk tolerance reflects a basic personality trait of an individual, then it would be exceptionally difficult to substantially change that trait by using simple intervention programs.

A second theory that attempts to explain behaviors is called the *Zero Risk Theory* (Naatanem & Summala 1974). This theory assumes that decisions are based on motivation. It suggests that one's assessment a situation has to do with the perceived likelihood of a hazardous event. The risk perceived is influenced by the importance attached to the potential consequences—good or bad. According to this theory, as self-confidence increases (largely due one's experience) perceived risk diminishes to the point of zero. In other words, people who are very experienced doing risky things feel that there is no real risk at all.

To help readers understand how this might work, consider the following examples. Research has found that the more experience a pilot has, the lower his (or her) risk perception score will be. As the hazards become more familiar, and as the pilot becomes more experienced in assessing and managing those hazards, the less he or she worries about them. In fact, a 1984 study found that a significant number of experienced pilots indicated that they felt no risk when they were asked to assess a risky scenario.

This finding has led to interesting debate among safety educators. People who abide by the Zero Risk Theory believe that the key to changing risky behaviors is through education and experience. If people can improve their risk recognition and assessment skills, and once they are exposed to accident statistics, and if they are able to see that the dangers apply to them, then they will be equipped to avoid the risks around them.

A third theory that might help explain human behavior is the *Threat Avoidance Model* (Fuller, 1988;1984). This theory suggests that people learn to anticipate hazardous events and situations and will then simply avoid them. Because the potentially hazardous situations are never encountered, the individual rarely feels threatened.

To put this third theory in context, consider the following. Novice kayakers sometimes avoid large open-water passages due to the potential of rough or hazardous sea conditions. Although this response might make sense at one level, it can lead to problems in the long run. Because these paddlers always stay close to land, and because they may have never experienced the rougher conditions, they might be unable to deal with a situation if/when it does arise. Not only would this person never feel the need to take training to advance their kayaking skills, they would likely be unable to accurately assess risk due to their limited experience. Consequently, a rouge wave/wake or sudden change in water conditions can be quite dangerous, especially since they were not anticipated.

On land, this theory might imply that hikers who have poor orienteering skills will stick to established trails to avoid getting lost. Unfortunately, because they have not learned to look around and recognize environmental features, they would likely be unprepared if they ever had to deal with an unexpected off-trail experience, or worse, a backcountry bivouac. To them, the probability of ever have to deal with such a situation is virtually non-existent; it doesn't even register as a perceived risk.

The truth is, life is full of risks, especially if we venture into the outdoors. So while Threat Avoidance Model might apply to the average citizen, it cannot fully explain why some people actually seek out risk (see the Type T theory, below). To the adventurer, seeking out the unknown is what its all about.

Last but not least is the Type T theory. In the 1970s, psychologist Frank Farley came up with the idea that some people actually seek out risk due to an inheritable trait. These people, Farley suggested, thrive in intense environments. The men who applied to work on Shakelton's vessel would have likely fallen into this group.

Farley, who coined the trait as "Type T" (as in thrill seeking) has spent decades figuring out what makes risk-taking and thrill-seeking personalities tick. "Extreme behavior, and extreme sports, are fascinating," he says. "Climbing Mount Everest is one of the riskiest things a person can do. The mountain is strewn with bodies. One hundred seventy-five people have died attempting it." But, he adds, people line up and pay lots of money every year for the opportunity to join the ranks. Why do people do it? It's in interesting question, and Farley is working to come up with some answers. Not only is the researcher examining psychological differences between men and women who have ascended the mountain, Farley has explored the implications of Type T personalities beyond sports to include business, work, relationships and education.

In evolutionary terms, the risk takers (who survive) may be the ones who advance a species. In commercial fishing, these are the people who fish the hardest, the most hours, and in the worst weather. By bringing in the greatest haul, they get the greatest reward. In turn, they are able to afford bigger boats, which allow for even bigger catches. And they are able to support the biggest families who then pass on those T cells.

Farley's theory can indeed be used to help explain why certain people tend to take more risks. But if risk-taking behaviors are genetically "hard wired," one might surmise that it would be difficult, if not impossible, to change their ways. The zero risk and threat avoidance risk theories, in fact, offer hope that behaviors can be changed. Even Farley acknowledges that, with guidance, people can learn to take risks in more socially acceptable ways. To understand how outside "guidance" and influences may affect behavior, it is important to recognize how forces outside of the individual influence the process. The fact that Type T fishermen have altered their perception of risk and have modified their behaviors suggests that there is more to the story than genetics.

The Affect of Culture on Risky Behaviors. In the context of this chapter, *culture* is defined as the sum total of all knowledge, skills, attitudes, and behaviors that are passed down from one generation to the next. This definition is important since it demonstrates that major changes in risk perception and risk tolerance are passed on through family, coworkers, and society at large.

Cultural differences are related to how people within a group collectively view the world. For example, countries built from immigration (e.g., Australia, New Zealand, and

the United States) tend to have more of an individualistic culture than a collective one. In an individualistic culture, the efforts, or at least successes, of an individual tend to be more valued than those of a group. As such, individual risk taking is encouraged in that it can be used to differentiate the best from the rest.

Psychologists also believe that an "organizational culture" can be established if and when people in a group see themselves as having unique qualities. When members are able to share myths, rituals, legends, and even a specialized language (as mariners, paddlers, and climbers do), they develop a sense of identity that separates them from other groups. It establishes a commitment to something that is greater than an individual. And the values and beliefs that group (or organization or industry) has about safety is known, simply, as a "safety culture."

Various cultures have demonstrated that they differ in their belief in the role of fate in their lives. What we cannot control we tend to mystify. These beliefs can influence a safety culture within a group. Fate is especially strong in the participants of many outdoor activities who often have to confront the forces of nature.

Fatalism is one of the reasons that mariners have had a long and strong history of superstition. Even today, leaving port on a Friday or bringing a black bag aboard is avoided by the even the most technologically advanced fishermen. Not that long ago fishermen would not allow safety to be discussed on the vessel; to discuss the topic was to tempt fate. So-called "customs of the sea" that developed were often based on the belief that "stuff happens." For example, the desire to die quickly to avoid suffering has continued into modern times. Until recently, leaded boots for fishermen (so you will quickly sink if overboard) were available in several American ports.

Heavily fate based cultures can be especially challenging to change, even with training. At a maritime survival school in the United Kingdom, for example, a group of very devout religious mariners refused to practice CPR skills. When asked why they did not practice they responded, "If it is willed, why bother?"

In other words, collective values garnered from one's family, community, or colleagues, can and do influence an individual's view of risk. We might be able to modify an individual's behavior through rewards or punishment; but to change a "safety culture," one is tasked with changing the way an entire population thinks and reasons. It is no small task, and changes that occur usually happen incrementally. Safety culture trends, thus, are often more of an evolutionary, rather than revolutionary, process.

The research on what it takes to change an organization's or industry's safety cultures has been quite recent. One impetus for this work came only after the Chernobyl nuclear accident in 1986. After the two explosions blew off the 1000-ton concrete cap that sealed the reactor, researchers began examining the accident in terms of the group thinking or safety culture that led to the accident. Through this research safety educators realized that an employee's risky behaviors were typically a reflection of the group as a whole. And an industry's safety culture will be influenced by a variety of factors within that community.

The Type T and risk homeostasis theories are valid, and I'm certain that they affect people's decisions regarding risk. But while the born risk-takers may have been the ones to start a new country or a new business, there is no doubt that encouragement, support, and approval (or disapproval) from peers influence future behaviors within the society. Even in our individualistic world, people care what others think.

Modifying Risky Behaviors. Although few readers will advocate for a truly "safe" society, we can probably all agree that some behaviors and attitudes are more injurious than helpful. And while theorists will likely never agree on what exactly motivates people's behaviors, nearly all behavior scientists acknowledge that behaviors—including risky ones—can be modified. So if we hope to create safer industries, the question becomes: How do we do it?

According to experts who are charged with changing an organization's or industry's safety culture, the following elements are required for success: The industry's leaders must share the same core values in safety. These same leaders must understand that the operative word in safety is not accident, but error. They must also understand and accept that the most concerning errors exist in the systems, not in the people. Employees and field workers must be confident in their leaders. And finally, the field workers' must perceive that by changing their ways, "they are doing the right things for the right reasons."

So how is this accomplished? The answer lies in education, training, technology, and regulation. The rest of this chapter will be used to take a look at how each of these steps might be used to positively modify safety culture across outdoor industries.

1. Education. Education has long been a leading tool used in the quest to modify behavior. In fact, if one believes that improved risk perception will lead to less risky behaviors, education could be the means to the end. That is, if we can help people accurately assess the risks, the rest (safer behaviors) should follow, right? Unfortunately, behavior modification isn't quite this simple. While education is a key to improved safety, unless safety information is presented carefully, it will likely fall on deaf ears.

Researchers have found that younger drivers rate potentially hazardous situations as less hazardous than older drivers do, mainly because they lack knowledge and experience. In order to help drivers improve their risk assessment skills, one would think that education could do the trip. The study also found, however, that young drivers do not believe that the "dangers" associated with driving apply to them. That is, while young (male especially) drivers are able to rattle off abstract statistical numbers regarding driving dangers and fatality rates, they have not personalized the risks. In other words, educators must improve their delivery methods, and story telling can help.

Despite the advent of the Internet and other ten-second news sources, story telling is still strong in many societies. The fishing industry, in fact, is rich with anecdotes. Not only is it fun to hear about people who engage in similar work, but when the accounts are relevant and applicable, they can be educational as well. In the case study that was used to introduce this chapter, fishermen in the area related well to the story of the two young crewmembers. The two were widely known. The fact that an immersion suit had saved someone under the harshest conditions made an impact. And because they were able to personalize the event, fishermen modified their own behaviors long before they were forced to do so.

Local marine safety instructors began using the case study in their classes and were able to gain credibility with even the most skeptical audiences. Not only did these "teachers" have practical information, they were able to convey an important message: With some training, with the right survival equipment, and with the right attitude, you

don't need to become a lost-at-sea statistic. Survival was no longer simply a matter of fate, but it was a in fisherman's own hands. Because the woman lived through a worst-case scenario, fishermen were forced to acknowledge that injury and death weren't necessarily job requirements. Instead, tools and education can mitigate the hazards. No preaching was necessary; the story spoke for itself.

The use of videos showing actual casualties at sea with fishing vessels also has been a very valuable tool to use during safety education classes. This methodology has affected people whose risk behavior is described under the zero risk theory. By watching a vessel capsize and sink quickly, viewers are able to improve their understanding of the hazard—as well as the immediacy of the situation. Commonly, viewers were heard to say, "I didn't know a boat could sink so fast!" The visual aid was particularly effective for new fisherman who had little at-sea experience. In fact, on at least two occasions, prospective fishermen were so impressed by the footage that they decided to go into a different profession.

Through the use of applicable case studies and close calls, fishermen and outdoor users can become more educated regarding the real hazards of their respective industries. Not only will their risk assessment skills improve, but the message that "stuff happens" hits home. As one fishermen stated recently during a discussion on this topic in a harbor, "Look at the people we can see in the harbor right now. Three-quarters of the guys have lost boats and survived!" When reality is so close at hand, it becomes very difficult to maintain a belief that, "It can't happen to me."

2. Training. In the 1970s, a group of Alaskan safety trainers conducted a series of workshops to fishermen. Each of trainers had a background in commercial fishing. Their hope was to educate fishermen in the use of survival equipment in an effort to help reduce the rate of marine fatalities. Even the way they were promoted—they were called 'survival' classes, not 'safety' classes—was made to appeal to their membership in a risk-tolerant culture. The facilitators were credible, and through the use of hands-on trainings (no preaching was allowed) they were able to modify behaviors in the commercial fleet. The way the safety message was delivered was not condescending nor was it out of touch with the real world of fishing.

Practical, hands-on trainings can play an important role in behavior modification. While cognitive ideas and concepts can be successfully presented in a lecture or discussion format, performance based skills are best learned through kinesthetic techniques. Fishermen and other outdoor enthusiasts are very practical. Not only do they work with their hands, but hands-on techniques are typically conducive to their learning styles.

During these trainings, fishermen made several discoveries that probably would have been missed had the same information been offered in a lecture or brochure. During pool and lake sessions, for example, they learned how important it is to have a properly fitting immersions suit. There were no written tests used to assess student progress. Rather, participants were required to perform certain skills, such as donning an immersion suit, in a given time (60 seconds).

To determine if this training made a difference in safety, Ron Perkins of the Alaska Native Health Service, did a follow up study. Perkins found that 1,500 fishermen had been trained between 1991 and 1995. One hundred fourteen fishermen died in Alaska

during this same timeframe, but no trained fishermen were included in the fatality list. The study was able to show a high correlation between trainings and survival rates. But also revealing were the numerous statements that had been collected from workshop graduates. They said that, as the result of the training, their risk perception has been raised, and they were able to avoid some previously unanticipated problems.

3. Improved Technology. In the 1990s, significant improvements were made in marine safety equipment and a number of survival equipment requirements were implemented. Not surprisingly, a decrease in the number of fatalities followed. Although liferafts, immersions suits, and emergency position indicators (EPIRBs) have helped saved hundreds of lives through the years, it is interesting to note that these changes in technology have not had an effect on how many vessels are lost at sea. In other words, improved technologies have not modified the mariners' risky behaviors. Fishermen apparently were exposing themselves to the same risks on the ocean, the number of sinkings has not changed. But because "survival" equipment is now engineered better, mariners are surviving events that had previously killed them.

A key in the fatality rate drop had to do with the fact that fishermen began believing that the equipment could make a difference to them and to their outcomes. Acting as credible spokesmen, the survivors, (some of whom were leaders of their "communities") told their stories to others. Fishermen became aware of friends and colleagues who had lived through harrowing incidents. And the equipment, which had previously been "suspect" became trusted. As it became obvious that these tools were saving more and more fishermen, the equipment gained acceptance in the fleet.

4. Regulations. In the 1950s, a man named Leon Festinger began studying what he described as the Cognitive Dissonance Theory. According to Festinger, cognitive dissonance is a state of internal tension that results from an inconsistency between any knowledge, belief, opinion, attitude, or feeling about the environment, oneself, or one's behavior. It is psychologically uncomfortable. Additionally, Festinger believed that in order to minimize this discomfort, people tend to 1) avoid situations that create or increase dissonance, 2) pass the experience off as an exception to the rule, or 3) change their values or belief systems so that it matches the behavior.

The following is an excerpt taken from one of Festinger's papers on the topic:

> *When there is an inconsistency between attitudes or behaviors (dissonance), something must change to eliminate the dissonance. In the case of a discrepancy between attitudes and behavior, it is most likely that the attitude will change to accommodate the behavior.*

Regulations are often used to force a change in safety when society decides that the risks of a group are too high. While many people in the outdoor industry tend to fight rules, especially if the rules go against our values, according to Festinger's theory, this type of forced change in behavior should ultimately have a correlative effect on attitudes. Although this theory, as it applies to the use of regulations, does have its naysayers, there are examples within the fishing industry of its viability and success.

In the 1980s, the U.S. Coast Guard began a program whereby they tried to convince fishermen to voluntarily purchase immersion suits, liferafts, and emergency beacons. The effort resulted in a negligible improvement in the overall safety of the fishing fleet. By contrast, ten years later the U.S. Coast Guard began requiring that vessels carry the equipment. In addition, crew members were expected to be trained in its use. Although other factors likely came into play around the same time, surprisingly few fishermen balked at the imposed rule. The regulations were accepted and fatality rates fell. In the 1980s, a few hundred fishermen became educated in survival equipment use and procedures. Under the required training of the 1990s, thousands were trained.

Although regulations may force behavior change, it may not change the actual values regarding risk perception and tolerance. That is, people might change their behaviors if there is a threat of "getting caught." But this strategy requires that enforcement take place, which can be difficult, at best, in most outdoor industries.

To address enforcement issues, the U.S. Coast Guard has begun conducting intensive vessel examinations at ports near the start of certain fisheries, such as crabbing on the Bering Sea. It is hoped that just by seeing so many U.S. Coast Guard personnel on the docks, fishermen might realize how serious the undertaking (crab fishing) is.

Going back to Festinger's theory, rule-makers might be interested to know that the size and type of reward or punishment can make a difference in the effectiveness of a behavior modification program. If a reward or punishment is small but effective, a person will be more likely to change his or her attitude about a behavior. But if a reward or punishment is significant, it can easily be used to justify a change in behavior (i.e., I have to do this, because if I don't I will get penalized.). In other words, a person may change his behavior if he thinks there is a chance he'll be punished, but the same person will actually be less likely to feel the need to modify his values.

On a slightly different note, rule makers should consider how risk perception, and the "likelihood of negative consequences" plays into things. As case in point, consider the F/V Lasseigne. The vessel sank in 1985 with the loss of all three crewmembers. There was only one immersion suit onboard for three crewmembers. Although the laws at the time did not require vessels to carry suits, the surviving family members filed a civil suit against the boat owner. In that case, the judge declared the vessel unseaworthy because not enough suits were carried and a large settlement was awarded.

Despite the finding, vessels in the area did not modify their behaviors. No one went out and purchased suits. Fishermen did not see the risk of being sued as likely. However, once the U.S. Coast Guard began requiring the suits and began conducting spot checks, the threat of penalty for non compliance became an effective motivator.

Well designed regulations can ultimately "raise the bar" in a safety culture. However, if the regulation's imposers have any hope that a new rule will be accepted, they must make sure that it is carefully considered. They should also make sure that the people who will be most affected are allowed to provide input on the rule as well as its implementation. They should have a realistic phase-in period. And above all, regulation-imposers should be certain that the rules will be seen as being a practical solution to the problem at hand.

If these steps are overlooked, regulations can have an opposite effect that can actually detract from the safety culture that the leaders hope to establish. A backlash can occur that will make enforcement difficult. It is very helpful for acceptance of

regulations, if the 'velvet glove' of education about the regulations, precedes the 'leather fist' of enforcement. For the most part, the U.S. Coast Guard followed this formula, and this helped moderate the angst among fishermen who had to make significant outlays of cash to comply with the new equipment and training requirements.

Making Safety Matter. Before any behavior change becomes permanent, the person who is asked to do the changing must believe that the changes matter. If mariners believe equipment can save their lives, they will be more likely to use it. If people believe there is a good chance they will be punished for not doing something, their behaviors might change as well. Other ways to convince people that safety matters is to show them how their behaviors affect the ones they love.

The role of families can make a difference in risky behaviors, and the fishing industry has tried to take advantage of the fact. By helping fishermen recognize how an injury or fatality would affect the whole family, wives and children can influence behavior. Further, by making safety a family issue, it is hoped that there will be improved motivation and greater buy in from all involved. Family nights have been used to get people the pool, to don immersion suits, and to introduce all family members to the equipment that is now available.

Besides targeting the present generation of fishermen, much effort has been placed in training the next generation as well. As a result, groups around the country are offering safety education in the classrooms. The hope is to teach youngsters good habits and influence the children's tolerance for risk while they are in a more open state of personality and behavior development.

There have been dramatic changes in the fishing industry over that past 20 years. It is no longer the nation's most dangerous profession. But these changes did not take place suddenly. The evolution took place over a generation. And although today's fishing industry can in no way be considered "safe," it has seen steady improvements and will continue to do so.

Changing a safety culture is a complicated enterprise that defies a simple formula. The factors that influence it deal with personality, societies, and perhaps even genetics. Some people argue that the key lies in education. Others advocate for regulation. Still others believe that people will always take chances. But the fact is, behaviors and values can be changed. And by recognizing what it takes to modify behaviors that are deemed "too risky," safety educators and risk managers can begin to create risk management systems that can move with, instead of against, the tide—that is, they can create an atmosphere that encourages safe behaviors and reinforces the fact that nothing stays the same.

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