

# Applying Risk Management Concepts from CRM and the Outdoor Recreation Industry to Academic Archaeology Projects

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## ABSTRACT

Field safety is being taken more seriously across the cultural resource management (CRM) industry as CRM companies seek to be in compliance with their clients' health and safety programs and to keep employees safe. Many universities also have organizational health and safety programs designed to protect students and employees, but academic archaeology is routinely conducted without adequate risk management planning. Risk management will be a workplace concern for aspiring archaeologists after graduating from college, which is why it is important for academic archaeology to meet industry standards. Archaeology can learn a great deal about fieldwork risk management from the outdoor recreation industry, which emphasizes building leadership skills rather than following proscribed rules and regulations to mitigate the myriad hazards in the field. This article provides some suggestions that academic archaeologists can use to apply risk management concepts from CRM and the outdoor recreation industry to academic projects in order to comply with university requirements and the Occupational Safety and Health Administration (OSHA), as well as to teach students how to be safe in the field.

**Keywords:** health and safety, field school, risk management, fieldwork planning, CRM, outdoor recreation industry

La seguridad en el campo está tomando mayor importancia dentro de la industria de gestión de recursos culturales (CRM), esto se debe a que las empresas de CRM buscan cumplir con los programas de salud y seguridad de sus clientes. Muchas universidades además cuentan con programas organizacionales de salud y seguridad diseñados para proteger a los estudiantes y empleados. Sin embargo, la arqueología académica generalmente se realiza de manera rutinaria y sin una planificación adecuada de la gestión de riesgos. La gestión de riesgos será una preocupación laboral para los aspirantes a arqueólogos después de graduarse de la universidad, por lo que es importante que la arqueología académica cumpla con los estándares de la industria. Tanto la industria de CRM como la academia pueden aprender mucho de la industria de recreación al aire libre en lo referente a la gestión de riesgos del trabajo de campo, pues posee gran cantidad de datos sobre peligros, lesiones al aire libre y una vasta experiencia en el manejo de estudiantes en el campo. Este artículo proporciona algunas sugerencias que los arqueólogos académicos pueden utilizar para aplicar conceptos de la industria de recreación al aire libre y de gestión de riesgos de CRM en proyectos académicos, a fin de cumplir con los requisitos de la universidad y requisitos *Occupational Safety and Health Administration* (OSHA) y enseñar a los estudiantes cómo mantenerse seguros en el campo.

**Palabras clave:** salud y seguridad, escuelas de campo arqueológico, gestión de riesgos, planificación del trabajo de campo, CRM, industria de recreación al aire libre

The bulk of archaeology in the United States is conducted by cultural resource management (CRM) companies. Initial training for all archaeologists, however, begins at universities. Most archaeologists get their first field experiences in archaeological field schools that are conceived, administered, and run by academic archaeologists. Yet, few students complete their field school with an understanding of the importance of fieldwork risk management. This is happening despite the fact that risk management is increasingly a central element to fieldwork planning and execution for CRM companies where training, near-miss reporting, and pre-fieldwork briefings are regular parts of the work day. Emphasizing risk management in archaeological fieldwork has become paramount given the current COVID-19 pandemic, which has forced field researchers to entirely

rethink the way fieldwork is practiced (ACRA 2020; OSHA 2020a; Scerri et al. 2020; Webster et al. 2020a, 2020b).

This article proposes that academic archaeology can learn a great deal about creating project-specific fieldwork risk management programs from the outdoor recreation industry—specifically, the National Outdoor Leadership School (NOLS). All archaeological fieldwork entails physical and financial risk. It is the responsibility of field school instructors to teach risk management to their students, ideally in a field school setting. Although this article focuses on academic training, outdoor recreation risk management strategies are also relevant for fieldwork conducted in remote locations by the safety-conscious CRM companies.

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Although there are other sources that one could focus on—such as OSHA, state guidelines, and industrial hygiene literature—this article recommends using outdoor recreation industry risk management strategies to develop and address health and safety concerns for archaeological fieldwork. Archaeologists who engage in activities funded or permitted by state and federal agencies already need to consider safety concerns in order to meet the legal standard of ensuring a safe working environment. The recommendations in this article are most appropriate for what is commonly conducted in archaeological field schools, during academic archaeological research, and fieldwork in remote locations. It is important to note that archaeologists should look to the construction industry for guidance on other aspects of archaeological work, such as deep excavations, archaeological monitoring in rural or urban settings, or working in close proximity to construction vehicles. The construction industry has established guidelines for these kinds of activities (e.g., OSHA 2020b).

Outdoor recreation programs are similar to archaeological field schools in ways that CRM is not. Participants in outdoor recreation programs are paying for the opportunity to experience outdoor activities. Outdoor recreation programs take inexperienced participants to remote locations where they experience new environments, cultures, and hazards. Because both outdoor recreation programs and field schools include many inexperienced participants who are not paid employees, outdoor recreation employees and field school instructors must be capable of identifying and assessing risk in a variety of contexts under constantly changing conditions. This requires knowledge, skills, training, data collection, and analysis of that data. Outdoor recreation risk management programs emphasize leadership and center on human decision-making. It is this emphasis on the “human element” that differentiates outdoor recreation risk management training from university and CRM company risk management programs, which focus more on hazard identification and avoidance under very specific conditions. Rulemaking replaces leadership in NOLS programs in hopes of eliminating hazards, even though hazards cannot be completely eliminated from archaeological fieldwork.

Academic archaeologists should start the risk management process by connecting with their institution’s occupational health and safety office to see what risk management programs are already in place. Academic archaeologists can help their university keep students and employees safe while doing archaeological fieldwork by developing their own project-specific risk management programs that integrate the best practices from CRM and the outdoor recreation industry.

In this article, “risk” is defined as a situation that exposes an individual to hazards that may result in physical injury and that may cause an organization to suffer financial loss. “Risk management” is the skillful mitigation of risk, with the understanding that fieldwork frequently involves exposure to hazards. Fieldwork takes place in spaces that were not designed for hazard-free human conduct, which means that people are exposing themselves to risk. This article focuses on fieldwork conducted in locations without easy access to quality medical facilities—for example, in many foreign countries, the backcountry, or remote rural places—because these are the settings where incidents could result in permanent physical injury or death (see also Peixotto et al. 2021). Although CRM is primarily conducted in remote locations, a fair

amount also takes place in urban or suburban settings, where hospitals are in close proximity. Archaeological projects on university campuses enjoy ready access to medical facilities in the event of an unfortunate incident. These services are covered under university risk management programs designed for work in these more controlled environments. Conversely, risk management for remote locations must account for the hazards associated with working outdoors in rough terrain without convenient access to a hospital. This is why the outdoor recreation industry is an example—for both universities and CRM companies—of fieldwork risk management in remote locations.

## EXAMPLES FROM THE OUTDOOR RECREATION INDUSTRY

The University of California (UC) is composed of 10 campuses spread across the state. It has over 21,000 academic staff and supports over 285,000 students. Field research is an integral component to several departments in the UC system, and students can take courses in a broad array of topics, including wildlife photography, scuba diving, forestry, range management, biology, and archaeology. In addition to education and research, scholars in the UC system who lead field projects have two primary obligations: protecting all project participants from bodily harm and protecting the financial interests of the university. In the litigious society of the United States, both of these obligations are intertwined. At my home campus—UC Berkeley—risk management is administered under two departments: the Office of Environment, Health, and Safety (EH&S) and the Office of Risk Services. The EH&S office concentrates on providing services for activities that include biosafety, construction, lab work, diving, radiology, and field research. The Field Operations Safety Manual (University of California 2019), written by EH&S, is the most pertinent handbook for archaeological fieldwork because it is designed as a teaching tool and a reference for field research risk management.

The Office of Risk Services was created to complement EH&S. Risk Services has two central functions. The first is the management of insurable risks (e.g., violations of insurance policies, litigation, and indemnification of the university). Second is the mitigation of enterprise risks (e.g., scandals caused by workplace misconduct or the linking of the university to unethical business activities). Risk Services exists to make sure that researchers do not do anything in the name of the university that could cause financial harm. This matters for academic archaeologists because in addition to recognizing health hazards, we also need to be aware that our work could result in adverse financial impact to the university (e.g., conduct that could lead to litigation, breach a contract, or violate insurance conditions). Guidance from both EH&S and Risk Services needs to be part of a Berkeley archaeologist’s risk management program because, as is already known by CRM archaeologists and the outdoor recreation industry, our fieldwork activities have the potential to cause physical and financial harm to us, others, and our employers.

Despite the existence of these specific services from the management offices of the UC system, there continues to be a disconnect between the diverse, ever-changing nature of academic field research and the more structured, predictable nature of working on campus. University risk management services are

excellent in providing guidance on the ways researchers can maintain a safe work environment on campus. This is because it is easier to identify potential hazards in environments that remain consistent for individuals who are doing the same or similar tasks on a daily basis. Also, the large number of employees—over 144,000 people—provides a large database from which job hazards can be identified, assessed, and mitigated. The predictability of on-campus work and the large number of on-campus employees allows EH&S and Risk Services to manage risk in ways that are not possible for the field researchers and students who do fieldwork around the world—and in all seasons of the year.

The lack of project-specific risk management programs has not gone unnoticed. Beginning in 2020, the UC system launched its Risk Management Training program in partnership with NOLS. Founded in 1965, NOLS has become the leading provider of training in wilderness skills and backcountry leadership. It draws on its extensive experience training outdoors instructors and leading students into remote locations to create a risk management training series for outdoors instructors at other organizations, including universities. Since 1984, it has recorded injuries and illnesses on its courses. Between 1984 and 2019, NOLS expeditions amassed over 4,572,693 program days, on which 6,640 injuries, 5,567 illnesses, and 3,140 near misses have been recorded. This the largest outdoor recreation incident database in the United States, and it is the main source that NOLS uses to teach risk management (Leemon et al. 2019:7).

Risk management training through NOLS dovetails with academic research fieldwork for the following reasons:

- (1) NOLS has financial and legal obligations to its employees and project participants.
- (2) Education is the organization's primary objective. Experiences and learning opportunities are what project participants are buying and what NOLS provides.
- (3) Its projects take place in a wide range of climates, landscapes, and seascapes with differing potential hazards.
- (4) Instructors and students work closely together in the field—even living in the same locations during fieldwork.

NOLS seeks to manage risk rather than assure a hazard-free environment, which is clear in the intentional vocabulary it uses when discussing mitigating potential harm to its employees and customers. This is because it realizes that there is no way every single hazard can be eliminated in the outdoors. Risks can be managed if outdoor work is approached intelligently by skilled, well-trained practitioners, but absolute protection from harm can never be guaranteed (Leemon et al. 2019). Approaching field research from this perspective means academic archaeologists need to build risk management plans that deliver a "good faith" effort to mitigate hazards. Archaeologists also need to communicate to their administrative offices how these plans fulfill the university's existing risk management programs. Two aims of an effective site-specific risk management plan are to help the university meet its liability commitments in the event of illness/injury and to minimize the risk of potential harm to project participants. A good site-specific, archaeological fieldwork risk management plan created in concert with the university's occupational health and safety office should help to ensure that it will be enough to both diminish the university's liability in the event of an accident and minimize the risk of physical harm to project participants.

## ACCOUNTING FOR THE "HUMAN FACTOR"

Currently, most archaeological fieldwork risk management programs focus on

- (1) Identifying and inventorying potential financial, physical, chemical, and biological field hazards.
- (2) Designing strategies to mitigate adverse effects to employees, students, property, and organizations.
- (3) Training field supervisors and project managers in hazard identification, medical skills, and organizational systems so that they can mitigate or eliminate adverse impacts.

Although hazards exist in the external environment, they can be avoided by knowledgeable, competent leadership. Cultivating leadership is the most commonly missed element in archaeological projects. All employees and students need to know potential field hazards. Some CRM companies go a step further and attempt to inculcate a culture of safety in their organization, but this is still rooted in risk management system design, strategy, and training, where rules are the centerpiece for employee conduct. For risk management programs to function properly, they should begin by accounting for the "human factor," which is the complicated way human beings make decisions in the face of environmental conditions, group chemistry, past experience, and training. NOLS has found that the human factor is the leading cause of injuries and incidents in its programs (Leemon et al. 2019). Academic fieldwork risk management training needs to emphasize leadership over rulemaking.

Fieldwork leadership training should focus on building self-aware, analytical leaders who are able to understand group chemistry, use good judgment, and communicate clearly with their project's participants (see Eifling [2021] and Emerson [2021] in this volume for more on communication in the field). One aspect of maintaining a positive learning environment is being the type of leader whom project participants trust to make good decisions in the face of adversity. Being aware of one's own knowledge, skills, and abilities—coupled with respectful, logical, clear communication—is a sign of leadership that helps build this trust. Fieldwork leaders are the ones who execute risk management programs, and their behavior in the field should reflect the kind of work environment they would like to have (Gookin and Leach 2009). How students behave will reflect what they see among project leadership. Skilled project leadership does as much to minimize hazards as it encourages participants to follow thoughtfully designed fieldwork risk management plans. In the event of an incident, good leadership can help the group work together to prevent harm to everyone.

## ARCHAEOLOGISTS AS PART OF A LARGER PROGRAM

In addition to being responsible for managing risk in the field, both CRM and academic archaeologists are part of an organization's overall risk management program. NOLS (2020) identifies five overlapping aspects to a functional organizational risk management program:

- (1) *Oversight*: This is managed by a group of administrators who maintain perspective on risk management goals, priorities, and policies. They are in charge of tracking injuries, near misses, and illness statistics with the goal of improving project safety. Oversight is a liaison between organizational administrators and experts outside an organization to understand industry standards so that they can be used to improve risk management programs.
- (2) *Curriculum and Program Activities*: Academic archaeology differs from CRM in that educational opportunities are the primary reason for fieldwork. Consequently, university archaeologists should seek to find a balance between research objectives, learning goals, field conditions, and risk. Potential hazards stem from the location and the nature of activities that take place in the field. Ideally, such hazards should be assessed in the curriculum planning stage of field research.
- (3) *Administrative Processes*: Administering a field project is a triad between the university, archaeologists, and student participants. The university and students need to know the location of the project, associated tasks, and potential risks. Participants must also clearly understand acceptable and unacceptable behavior, given that it takes both knowledgeable leadership and willing participants to reduce risk. The university and researchers should work together to limit potential risk and clearly communicate to students.
- (4) *Training and Project-Specific Risk Management*: Fieldwork leaders must be trained to manage crews in the field safely, and crew members should understand how to minimize risk, but this should be done for specific projects in conjunction with health and safety reporting, existing policies and practices, and field leadership training.
- (5) *Support Services and Contingency Planning*: In the event of an incident, project participants will have to rely on support services such as law enforcement, health services, and/or government or public entities. It is important that project administrators, oversight committees, and field leaders be prepared for emergencies and know the appropriate responses.

These five elements of a risk management program defined by NOLS function in concert with each other. For academic archaeologists, university occupational health and safety offices as well as other risk management services will undoubtedly be part of project oversight, and they may provide training, support, and administrative services. Researchers are responsible for administering their projects; having the necessary training in university policies, procedures, and practices; and developing suitable curriculum. Although universities are also collecting this data, it is aggregated with the overall health and safety statistics for the entire organization. Academic archaeologists need to build risk management programs to collect project-specific data that they can refine to improve their own research projects.

## RECOMMENDATIONS

Some recommendations for applying best practices from CRM and the outdoor recreation industry to academic archaeological fieldwork risk management include the following:

- (1) *Learn about existing programs*: Academic archaeologists, graduate students, and undergraduates are part of an

organization that already has a risk management program. Knowing what already exists will help you understand what support you already have and what is needed for your specific project. If possible, reach out to CRM companies to learn about their programs. Also, discover if your institution collaborates with an outdoor recreation organization that has a well-developed risk management program.

- (2) *Improve field leadership abilities*: Academic archaeologists need to be able to manage students, community volunteers, and peers—a task that is not easy. Additionally, not all of these project participants are paid employees, which changes what you can ask and expect of them. Field leadership requires—among other attributes—experience, competence, good judgment, and self-awareness (Emerson 2021; Gookin and Leach 2009). Becoming a good leader is important for managing the human factor when hazards or incidences arise in the field.
- (3) *Create a project-specific plan*: No two field sites are the same. No two field crews are the same. Managing risks in the field requires planning for the people you will have with you on each specific project (Eifling 2021). Your risk management program can cover general archaeological fieldwork, but it needs to have some modifications for specific field sites and crew compositions. The crew needs training prior to project implementation. For example, an eight-hour, project-specific safety training would ensure some understanding of the risks and controls for the job. Additionally, crew members need to understand the potential risks along with appropriate mitigation measures involved in the fieldwork. This can be accomplished through both initial and ongoing safety meetings. The number and duration of these meetings will vary depending on the project.
- (4) *Collect and analyze risk management data*: Analyze fieldwork-related occupational health and safety data available at your university. Once you have a risk management plan for your research project or department, you can start working with the risk management data from your projects. It is also good idea to connect with CRM companies to share and compare data.
- (5) *Review and refine*: Over time, the information you collect needs to be analyzed so that you can make modifications to your risk management program.

## CONCLUSION

Even aside from such an unusual event as the COVID-19 pandemic, it was uncommon for university risk management programs to be integrated into academic archaeological fieldwork. Academic archaeologists have not typically considered health and safety as a necessary component or a priority in designing research projects. This is important to note because archaeology professors routinely enter the field with students without properly preparing for risk—a reality that can easily be perpetuated by their students as they move through their professional careers (Davis et al. 2021). It is also rare for archaeology professors to communicate identified risks and management plans to universities because most professors are not skilled in creating health and safety plans that clearly describe potential hazards and how they will be mitigated.

Risk management is of increasing importance in CRM, but these programs remain modeled on those developed for the construction industry, in which tasks are more routine, hazards are better

defined, and activities are conducted by paid employees. CRM can learn from the outdoor recreation industry for fieldwork in unpredictable settings.

Risk management needs to become integral to university field-project planning in the same way that it is being adopted in CRM. It is incumbent upon university archaeologists to incorporate risk management best practices from appropriately sourced health and safety plans, including those developed by their universities, CRM companies, and the outdoor recreation industry. Such practices provide a firm basis for integrating health and safety concerns into the entire field project while fulfilling legal obligations and helping to ensure safe and productive fieldwork conditions.

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## Data Availability Statement

No original data were used for the article.

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