2018

EXAMINING THE RELATIONSHIP BETWEEN TRADITIONAL ECOLOGICAL KNOWLEDGE AND CULTURAL RESOURCE MANAGEMENT

Erin Chiniewicz
University of Montana

Let us know how access to this document benefits you.

Follow this and additional works at: https://scholarworks.umt.edu/etd

Part of the Archaeological Anthropology Commons, and the Other Anthropology Commons

Recommended Citation
https://scholarworks.umt.edu/etd/11294

This Thesis is brought to you for free and open access by the Graduate School at ScholarWorks at University of Montana. It has been accepted for inclusion in Graduate Student Theses, Dissertations, & Professional Papers by an authorized administrator of ScholarWorks at University of Montana. For more information, please contact scholarworks@mso.umt.edu.
EXAMING THE RELATIONSHIP BETWEEN TRADITIONAL ECOLOGICAL KNOWLEDGE AND CULTURAL RESOURCE MANAGEMENT

By
Erin Cathleen Chiniewicz
Bachelor of Arts, Humboldt State University, Arcata, California 2012

Thesis
presented in partial fulfillment of the requirements
for the degree of

Master of Arts
in Anthropology, Cultural Heritage

The University of Montana
Missoula, MT

December 2018

Approved by:
Scott Whittenburg, Dean of The Graduate School
Graduate School

Dr. Anna Prentiss, Chair
Anthropology

Dr. Rosalyn La Pier
Environmental Studies

Dr. Gregory Campbell
Anthropology
Abstract

Chairperson or Co-Chairperson: Dr. Anna Prentiss

Co-Chairperson: Dr. Rosalyn La Pier; Dr. Gregory Campbell

Historically, Cultural Resource Management has been a project-focused operation, one which looks at the cultural resources at risk of being impacted by development. Large landscape level investigations have been difficult to integrate in those timelines. This project takes into consideration the previous attempts to include Traditional Ecological Knowledge alongside Cultural Resource Management and asks participants of California CRM how they view the previous relationship between CRM and TEK, how they view the relationship currently, and how they view the relationship moving forward. Many discussions focused on trust, budgets, and responsibility. While many respondents did not dismiss the added benefit of a strong TEK-CRM relationship, many did express concern over how to create a relationship that benefited the western-science approaches of CRM, with the indigenous-science approaches of TEK. The data presented provided a baseline understanding of how the field operates and provided a starting point by which future research could be conducted to better equip the CRM process to integrate indigenous perspective.
# Table of Contents

Abstract ................................................................................................................................. ii
List of Figures ...................................................................................................................... iv
List of Tables ....................................................................................................................... iv
Appendices ......................................................................................................................... iv
Note to the reader ................................................................................................................ v
1. Introduction ..................................................................................................................... 1
   Hypothesis ....................................................................................................................... 3
   What is TEK .................................................................................................................... 5
   What is CRM .................................................................................................................. 7
   Comparing CRM and TEK ............................................................................................. 8
2. Methods ............................................................................................................................. 9
   Sample Set and Distribution ......................................................................................... 10
   Survey Formatting ......................................................................................................... 12
      What is the IRB ........................................................................................................... 12
   Questions ....................................................................................................................... 14
   Interviews ....................................................................................................................... 16
3. Survey Results .................................................................................................................. 19
4. Follow-Up Interviews ...................................................................................................... 32
   Process ......................................................................................................................... 32
   Trust .............................................................................................................................. 34
   Access ........................................................................................................................... 35
   Budgets ......................................................................................................................... 37
5. Discussion and Future Work ........................................................................................... 38
Appendices ........................................................................................................................... 47
List of Figures

Figure 1: Question 6: If Traditional Ecological Knowledge has been discussed on a project, when is it most commonly discussed on the project YOU have worked on within California .............................................................. 22

Figure 2: Survey Preview; Link for Follow-Up Interview .............................................. 31

List of Tables

Table 1: Question 3: Currently, what do you consider to be your main role in California Cultural Resource Management? ................................................................. 18

Table 2: Question 4: How long have you cumulatively worked within California on Cultural Resource Management Projects? This includes, volunteer, consultant, and other capacities such as tribal council advising, field school, etc. ............................. 19

Table 3: Question 5: TEK in this instance stands for Traditional Ecological Knowledge; at what stage in the CRM process should TEK be first be discussed, if at all? ............... 22

Table 4: Question 8: Please respond to the following statement: Current methods for integrating Cultural Resource Management and Traditional Ecological Knowledge are sufficient ................................................................. 28

Appendices

Appendix A: Email Language for Survey Distribution

Appendix B: Online Survey

Appendix C: IRB Application and Approval

Appendix D: IRB Certificates

Appendix E: Consent Form to be Audio Taped
Note to the reader:

- During this research I came across many forms of indigenous identification: Native American, Indian, Indigenous, Traditional Communities. These terms come with their individual set of preconceived notions and images that could distort the larger message I am trying to discuss. Therefore, I will primarily be using the term “Indigenous” when discussing those people who inhabited California long before Europeans and Americans entered the scene. I declare this as to prevent stereotypes and identity politics from clouding the larger discussion at hand, though admittedly those are key components to collaborative work and should be integrated conversations in follow-up work to this research.

- Punctuation, spelling, grammar, and many other writing faux pauxs were not corrected nor were they conjoined to a [sic] when direct quotes were included from the online survey. I felt it best direct quotes were transcribed verbatim, which includes my errors in creating the survey. However, when too cumbersome [sic] was used for clarity. I declined to include a sic erat scriptum at every opportunity due to redundancy and possible confusion it would add to the research.

- The online survey component to this research was conducted anonymously. However, interview respondents needed to provide contact information and names. All names have been changed to a randomly generated three-digit number, and all associated career or project specific information has been removed to ensure the interview components discussed here, are anonymous.
1. Introduction

Working within the current framework of anthropological research, and its associated terms, acronyms, and detailed transcription requirements, it can be difficult to articulate Native American religious and cultural practices in a context respectful, and grounded in, indigenous identity. In turn, it can be difficult to address the concerns and research endeavors associated with archaeological inquiry.

It has been shown that by creating an approach which brings Indigenous voices alongside the archaeological inquiry has multiple benefits. Respecting the lived experiences of those communities, and in turn, learning more about the landscape level approaches to researching a region, has the potential to create a deeper understanding of Indigenous populations and lifeways as it pertains to a project undertaking. The trust that comes from this education and collaborative approach will create lasting relationships with the potential to build upon itself for the benefit of the project, the archaeological data, and the local communities. The sometimes-timid approach by both Indigenous-centered and Western-centered scientists has many origins, not least of which is the intimacy and specific circumstances which make discussing archaeological projects, specifically in relation to indigenous plants, so difficult. However, it is the intention of this research to delve into those difficulties to identify the concerns of interested parties.

For this research, Cultural Resource “should be understood as those aspects of the environment – both physical and intangible, both natural and built—that have cultural value to a group of people” (King 2013). Cultural Resource Management (CRM) is the land management approach to mitigating real or potential, loss and damage of cultural resources, during projects. This research will look at the relationship between CRM and Traditional Ecological Knowledge (TEK). TEK can be defined as understanding “the relationship of living beings (including
humans) with one another and with their environment” (Rossier and Lake 2014). It has been proposed that by incorporating TEK, which uses an indigenous-science approach, into CRM, which uses a western-science approach, researchers can illuminate further information on the ecological history of an area and the interconnected uses of the environment by humans. Typically, western science and indigenous science have been seen to run parallel to each other (Berkes 2017). While many western scientists understand that incorporating TEK is a valuable research tool, as noted by previous research, barriers between the two scientific communities prevent the two from working together. This begs the question, Should the two fields work together, separately, or in another fashion all together? How can understanding the current positions of those who work in CRM and TEK help create an understanding of the relationship and potential behind that relationship to help us all better understand human history?

This project uses two phases to work through potential barriers between those who work in CRM, a more western science approach, and those who are knowledgeable in the area of TEK, an Indigenous science approach. First, a survey was administered to California CRM researchers of all academic and professional levels, as well as administered to tribal archaeologists and advisors. A large cross-section provided a baseline assessment of how the integration of CRM and TEK is currently viewed and allowed participants to comment on the future of this relationship.

Based on the survey results, follow-up interviews were administered to those who volunteer their information and time. These interviews were intended to provide depth to the online survey results. The online survey component had an emphasis on providing recommendations to the community so that new researchers are better equipped to understand the CRM-TEK relationship.
This research included not only indigenous stories, but indigenous voices, as well as state, federal, and private CRM archaeologists and college educators; it was important to have many different voices in order to capture a holistic understanding of the current working relationship. This in no means is expected to be a quick and easy process; many years of mistrust and flawed systematic operational standards must be addressed before any changes can be proposed. Understanding how archaeologists view the physical landscape of their work, and therefore how they view their research, as compared to how indigenous communities view the same information, will provide an opportunity to discuss how future protections should be applied to cultural resources.

Hypothesis

The purpose and need for this research originated from reviewing previous projects which emphasized the role TEK played in understanding archaeological finds and trends. Researchers attempted to integrate TEK into their CRM research in order to provide depth to the archaeological record (Diver 2011; Harling and Tripp 2014; Lake n.d.; Long et al. 2014). This research demonstrated the difficulties surrounding that process. Therefore, two separate hypotheses were formed for this research to identify the views surrounding the relationship between CRM and TEK.

The first hypothesis assumes the research proposed here represents a progressive step for the community of California Archaeologists and California Tribal Archaeologists as well their respective communities. Anthropological research within California has a long and, at times torrid relationship with indigenous populations, not unlike the rest of the nation. There is strong evidence that modern humans lived in, what is now considered, California between 15,000 and 11,000 years ago (Erlandson et al); however, as the early 20th century approached, many believed
that the European, Russian, and Spanish explorations had essentially eradicated the indigenous populations, and anthropologists set out to save indigenous culture in perpetuity (Kroeber 1925, Lightfoot and Parrish 2009). The hasty approach assumed most indigenous peoples would soon be extinct. This led to rampant artifact collecting by non-indigenous researchers and quick development of indigenous lands. These formative years created centuries of disproportionate policy and community effects which marginalized indigenous communities, especially when compared to settler Euro-communities (Lewis 1995:423-450).

Since this time, California, and the Nation have drastically updated research methods and have, at times, attempted strong relationship building with indigenous communities (King 2013; James 2001; Nissley and Thomas 2016). One advancement within these approaches to CRM, specifically within California, involves integrating indigenous knowledge regarding the cultural landscape and cultural materials. It is undeniable now, that the original idea of what is wilderness, was in fact a human-modified landscape, with Indigenous populations having cultivated their surroundings for several reasons (Anderson 2005, Lightfoot and Parrish 2009).

As mentioned above, knowledge on how indigenous communities have modified their landscape when discussing CRM is referred to as Traditional Ecological Knowledge (TEK) (Hummel 2015:30-39; Rossier and Lake 2014; Polfus et al. 2013:112-121), and it can provide opportunities for a more holistic view of Indigenous lifeways. Archaeologists are trained in Western scientific methods, theories, and practice, but both the Western-grounded ecological science and TEK approaches have crossed paths in modern research. There have been challenges, highlighted with each attempt, to appropriately integrate the two fields.

- Hypothesis 1: Individuals working within California CRM find integrating TEK to be a useful endeavor for their CRM research moving forward. If a majority of the respondents
reply indicating TEK has been useful to their work, then it can be extrapolated that those working in CRM find TEK to be beneficial. Other indicators will present themselves in the themes pulled from open-ended questions and follow up interviews espousing the benefit of further strengthening the relationship between CRM and TEK.

- Hypothesis 2: Survey and interview results are expected to provide a range of responses. However, if the significant themes extrapolated from this research indicate TEK as a hindrance to CRM, then the evidence will be particularly highlighted in Questions 5 and 8. If a majority of respondents do not believe TEK and CRM should be integrated more in the future, then respondents will agree that TEK should not be discussed at length on CRM projects by CRM researchers.

What is TEK

Traditional Ecological Knowledge can be defined in multiple facets, “knowledge and beliefs transmitted through oral traditional and first-hand observation” (Tsuji and Ho 2002:327-360). It considers ecology and society in a dynamic understanding of the larger world around us (Tsuji and Ho 2002:327-360). California Indians have manipulated the environment around them every day for millennia (Anderson 2005). By interacting with, and carefully working through environmental patterns, California Native Americans have been practicing an array of – what western science would refer to as – horticultural practices long before Europeans arrived (Anderson 2005). An understanding of the environment, a large benefit to the Traditional Ecological Knowledge (TEK) is one of a few umbrella terms for this practice: Ethnobotany, Local Knowledge, Native Knowledge. For consistency, TEK will be used throughout this paper (Anderson 2005; Brown 2003; Nicholas 2018). A primary component to TEK is the longevity of the information. Local-level ecological knowledge is derived from an intimate, long-term
relationship with local ecosystems (Menzies 2006). While TEK is culturally unique and habitat-specific, it is not merely because of generalized information gathering, there is intention (Menzies, 2006a:87-104). Through ecological and industrial resource extraction, TEK is created through culturally-relevant information passing through generations.

In recent discourse, TEK has once again come to light as a “beacon of hope”; an approach to land management which has not faltered where modern technology and solutions have (Menzies 2006:87-104). The recent increase in sustained climatic anomalies leading to more catastrophic wildfires, more frequent and destructive hurricanes, and longer wet seasons while simultaneously creating hotter dryer seasons, has forced communities to explore other land management practices. It would be no surprise then to claim TEK as the new buzzword in CRM (Ianni et al. 2015:144-156; Nicholas 2018). Adding ecological considerations contributes a depth of understanding to a local community, one that demonstrates long-standing environmental trends in the area. Those trends can then be compared to current circumstances in hopes of projecting outcomes (Rossier and Lake 2014).

Archaeologically, incorporating TEK further into CRM could have many implications for inter-agency relationships, project development, and the idea of “site” could complicate the legalities and relationships between Tribes and archaeologists. Traditional Ecological Knowledge is more than controlled fire and a tool for better community management; TEK relates to health, diets, habitats, religion, and many more aspects of the human existence. Many of the articles in this research use language akin to antiquated explorers and harken back to the disparages Brown (2003) discusses: discovering, revitalizing, time to listen, and catching up to indigenous knowledge (Berkes et al. 2000:1251-1262; Ianni et al. 2015:144-156; Nicholas 2018; Menzies 2006b). Listening to Indigenous communities and considering their understanding of
the local land is not a new concept and has been through multiple trials. For example, Brown (2003) recounts the exploitive powers of knowing and sharing traditional plant knowledge. Ethnobotanists recognized that “no one knows more… than the indigenous peoples who depended on [plants] for centuries” (Brown 2003). However, the effects of publishing that research led to “bioprospecting” and eventually claims of “biopiracy” from indigenous rights groups who watched as large pharmaceutical companies tore into indigenous communities for new resources (Brown 2003). This is an example of why many, in both CRM and TEK, are concerned about how they can both operate successfully if CRM relies heavily on publishing and distributing research and project information.

What is CRM

Cultural Resource Management was born in the 1970s during a time in which environmental law was evolving quickly. After Silent Spring and the enactment of the National Environmental Policy Act in 1969, developers were required to consider the effects of their work on the environment and those cultural resource listed on the National Register of Historic Places (King 2013). After President Nixon issued Executive Order 11593, developers were required to consider the environment and those cultural resources that could be considered eligible for the National Register (King 2013). President Nixon’s decision to encourage agencies to inventory and assess their historic properties was, on the surface, a reasonable and non-controversial decision, however, the consequences are withstanding. All federal agencies then needed to designate a historic preservation liaison to coordinate the inventory of what properties were and were not eligible. Because this inventory could not be completed in time for the reporting deadline of 1973, agencies moved from simply exercising caution when developing, to considering the effects on listed or eligible for listing on the National Register. This was codified
in Section 106 of the National Historic Preservation Act (King 2013; Anonymous 2017). The survey and evaluation requirements of EO 11593 is considered the foundation of CRM in America, yet it allows for agencies to shortcut around spending the time and money to survey and evaluate resources, and instead, agencies could now just consider resources eligible and move on with assessing impacts and then development (Anonymous 2017).

Executive Order compliance meant hiring new preservation specialists, which was inadvertently equated with hiring archaeologists; archaeologists do not necessarily equate to preservation specialists. This then led to more and more focus on cultural resources in a broad sense, rather than just nominations (King 2013). As environmental laws helped to coin the phrase natural resource management, the name evolved into cultural resource management, as those in charge of compliance often likened their work to that of general resource management. King (2013) finds this comparison to be lacking, and the pivotal point in which America decided that CRM meant archaeology specifically, rather than the full range of cultural resource management and preservation.

For this project, the definition of CRM focused on the development requirements of protecting archaeology, but it is important to remember that CRM could be a much larger investigation. There is a span, rather than black and white options, between traditional archaeologists and CRM practitioners. Adding TEK is one option discussed here, and provides an opportunity to question the role TEK has in CRM moving forward.

Comparing CRM and TEK

The two endeavors, CRM and TEK, are not frequently at odds. All types of Knowing, all epistemologies, are based on four premises: logic, intuition, authority, and observation. Both TEK and CRM use their worldviews, their lens for Knowing, to articulate the world around
them. However different their communities may be, they both utilize the scientific method, which would distance TEK from lay-knowledge inadvertently gathered (Tsuji and Ho 2002:327-360). It would be fair to assess that TEK holds a subordinate position in the fields of Knowing because typically indigenous communities have held subordinate positions in society (Tsuji and Ho 2002:327-360). Western scientists are now increasingly coming to TEK to answer a variety of questions, from climate and drainage system concerns to wildlife management and restoration work (Polfus et al. 2017:1251-1262). Typically, TEK contributes to CRM in research questions formulated around habitat, diet, and religion.

Despite the concerns expressed earlier on exploiting TEK, it is often being integrated into western science for habitat models, but it is still undergoing tests to see if TEK can hold up to western science’s peer review rigor (Ianni et al. 2015:144-156; Polfus et al. 2017:1251-1262; Tsuji and Ho 2002:327-360; Wimberly and Liu 2014:270-279). Trying to justify TEK as a comparable approach to research is unnecessary, especially when the success of these tests seem to provide a new outlook on wildlife management and has encouraged collaborative efforts. It’s a pattern that underlies this research: does TEK need to be justified within the western science framework to be considered worthy of contributing to archaeological inquiry aimed at developing a better understanding of our collective history?

2. Methods

Collecting both broad sweeps of survey data, coupled with very specific one-on-one interview questions requires a dimensional and almost fluid, approach to determining personal and policy preferences within a discipline across many different actors. The research was broken into two main phases with analysis of the information from each step. The first step was to
conduct an online survey, which requires determining what questions to ask, getting the survey approved through the University of Montana’s Institutional Review Board (IRB), and then distributing the survey to the appropriate respondents. The second step was to conduct follow-up interviews with those who volunteered to contribute their perspective, adding depth to the 2-dimensional charts and graphs produced by the survey and elaborating upon the overall discussion.

Sample Set and Distribution

The online portion of this research needed to include a sample set broad enough to encompass those who might be an active participant within California Archaeology. As an active participant, Respondents should work within the field of Cultural Resource Management (CRM) in a capacity including, but not limited to, teaching, consulting, private or public organizations, and those who participate in state, federal, local, private, and tribal Cultural Resource Management. The survey was distributed via e-mail and the social media platform, Facebook, through a myriad of “Facebook Groups” which cater to California Archaeologists and California Tribal Members.

The e-mail distribution went directly to potential respondents through a large e-mail (Appendix A). Three primary listservs were consulted: the California Historical Resources Information System (CHRIS) Consultant List (www.chrisinfo.org), the Register of Practicing Archaeologists (RPA) (www.rpanet.org), and the California list of federally recognized Tribal Historic Preservation Officers (www.nathpo.org). These sites were chosen to connect the survey with three different demographics: CHRIS lists the approved consultants who work within California and have access to the CHRIS information, a necessary point of access to accurately and completely work on CRM projects within California. The CHRIS holds all the cultural
resource records for the state and is kept as up to date as possible. Consultants are broken down into five related disciplines (Archaeology, Architectural History, Architecture, Historic Architecture, and History). Consultants may be considered qualified in multiple areas; surveys were distributed to the Archaeology list in all California counties. To be certified as an RPA, one must have a higher education in the field of archaeology and agree to the standards and ethics set forth by the organization (www.rpanet.org). This designation has become a standard for archaeologists accross the country and provided respondents who meet those standards. The list of California Tribal Historic Preservation Officers is curated by the National Association of Tribal Historic Preservation Officers, established in 1998. The list provided an opportunity to offer a diversity of contributing voices during the survey phase. These three lists provide experienced, qualified archaeologists and tribal communities as potential respondents to the survey.

The Society of California Archaeology (www.scahome.org) has compiled a list of universities where students can gain California-focused degrees in archaeology and cultural resource management – related studies. Contacts listed for those departments were forwarded the survey information, in hopes they might further distribute the survey throughout their departments. The e-mail list is extensive, but for added measure, Facebook Groups were also considered. Social media was included to include respondents who might currently be in the field or away from work and school e-mails during the summer months.

Collecting a thorough and extensive sample group is a crucial step within this research to obtain the most accurate depiction of how those who participate in California CRM view the ideas and processes behind the TEK-CRM relationship. In total, the survey was sent to 16 universities, 40 THPO offices, 55 State Archaeologists, 24 on the CHRIS list, and 9 SCA
Committee members; it was also posted 4 times to Facebook. The most notable and difficult to contact included Federal Archaeologists who work in California and non-federally recognized tribal groups.

Survey Formatting

Survey questions for this project needed to be concise enough for respondents to want to complete the survey, and yet capture large views on how the TEK and CRM relationship has been previously viewed, how it is currently seen, and how the respondent feels the relationship should look in the future. The survey included 7 questions, as well as a Consent Agreement, a page defining TEK and CRM for the purposes of this research, and an option to volunteer for further interviews, totaling 10 pages (Appendix B). Questions were created and distributed through Qualtrics, an online survey platform with analytical tools enabling thorough investigation into the results. One beneficial attribute of this program is that it allowed for the consent question to be mandatory. This ensures that those who enter the survey have acknowledged their rights and that they have the correct information should any respondents have further questions regarding their role within this research.

The survey was reviewed by multiple parties before being sent out to the public. Finally, the Institutional Review Board (IRB) ensured the most appropriate use of the survey and of the respondent’s time.

What is the IRB

Before the survey can be offered to the public, the University of Montana’s Institutional Review Board must review the application, the consent option provided to the respondents, survey questions, and any accompanying documentation that might also be sent to the respondents, such the e-mail and Facebook verbiage. The United States government, through the
The National Research Act authorized in 1974, created local Institutional Review Boards aimed “to strengthen research ethics and prevent exploitation of research participants” (Shore 2006:5-26). The Board is required to have five members and it is with their authorization that research can be conducted with human subjects. The IRB has a deep foundation being born from the atrocities of World War II (Shore 2007:5-26). The Nuremberg Code was published in 1947 as the first attempt at creating ethical guidelines for how research on humans should be conducted and required voluntary participation. The Nuremberg Code, the Food and Drug Administration (1963), the Declaration of Helsinki, and the National Research Act all built upon themselves the need for informed consent and risk-benefit analysis (Miracle 2016:223-228).

In 1978 the 11-member National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research, created within the National Research Act, published the Belmont Report (Friesen et al. 2017:15; Miracle 2016:223-228). As a directive from the Health and Human Services, this report was to address four tasks: identify the boundary between research and practice, determine the role of risk-benefit analyses in human subject research, outline appropriate guidelines to subject selection, and provide criteria for what constitutes truly informed consent (Friesen et al. 2017:15). The Belmont Report was a tool to combat the concerns and possible risks to human subjects, however, it was created and updated primarily within the medical field (Friesen et al. 2017:15). The IRB’s foundational documents birth from the medical field has both benefits and hindrances when considering the methods and consent needed to research more qualitative data such as this survey. Those hindrances can be further explored when looking at TEK research during archaeological and CRM efforts. This relationship requires personal and fluid conversations; creating a review process for such efforts does seem most appropriate in the vein of protecting consultants.
The IRB exists to protect the respondents and the research field while creating a standard method under which research can be conducted. To proceed with the IRB and this research, researchers need to participate in training and receive certificates on professionalism, ethics in research, and Institutional Responsibility (Appendix D). IRBs are not only university-based, but they can also be controlled at multiple institutional levels such as by city, state, tribal groups, or other research organizations. In some instances, researchers must gather approval from multiple review boards in order to conduct their studies. While this research is California-wide and incorporates multiple organizations, agencies, and tribal affiliates, only the University of Montana’s IRB was necessary for this survey.

Questions

Questions for the survey were broken into demographics and experiences within the field of California Cultural Resource Management, and opinions on the relationship between TEK and CRM. Question types included Likert scales, close-ended, and open-ended to provide the respondents with variety. By including many types of questions, respondents will actively engage with each new question while still having the opportunity to provide a narrative and information for follow up. Qualtrics was selected based on the post-survey data output provided. It was important for the research that the results be easily quantifiable and comparable to each other based on demographics.

Per IRB compliance, the survey began with a mandatory consent question which provided the respondents with the ability to decline or discontinue the survey at any point. The consent also provided an agreement that, unless they otherwise specified, all survey results were to be confidential. Confidentiality was reaffirmed with the Qualtrics survey programming and guaranteed that identifying information such as IP addresses or respondent’s region would not be
recorded with the survey submission (Attachment E). Contact information was also provided to
the respondents should they wish to express follow-up concerns with myself or my academic
research advisor.

After the consent page, respondents were provided two definitions in order to create a
survey space where respondents understood the same acronyms within the same definitions. For
this project, TEK was defined as

“Traditional Ecological Knowledge is best defined for this project as the subset of
Indigenous Knowledge “used to describe the knowledge and beliefs that Indigenous
peoples hold of their environments that is handed down through generations.” (Menzies
and Butler 2006, 6). This information has a predominant focus on the interconnectedness
of humans and the environment.”

CRM was defined as,

“Cultural Resource Management is best defined for this project as the discipline
that employs researchers to review projects (construction, trails, shoreline work, etc) for
their potential effects to cultural resources and/or areas of cultural importance.”

After further research, it was determined these were not the most ideal definitions, however, this
decision was to ensure that all respondents were answering the survey from the same vantage
point. It is very likely that a college student, a THPO, and an agency archaeologist all define
TEK and CRM differently, and this was one way to aid in standardizing the answers. As well as
defining TEK and CRM, questions were framed in a language similar to that commonly utilized
in California CRM. Definitions and abbreviated were taken from popular reference materials
(King 2013; King et al. 1977). It should be noted that tribal archaeologists and western science
archaeologists do not always use the same language; in fact, many do not use the term “tribal
archaeologists”, and while this demonstrates a larger conversation on language inclusion and how language can affect the relationship of tribal members and archaeologists, that will not be extensively discussed here. There is more than one way to discuss the CRM and TEK, but a more western science archaeological framework was utilized in another attempt to standardize survey results. To combat any possible language or definition discrepancies, phrases were briefly defined, and a variety of question types were utilized – open-ended questions specifically allowed for an elaboration from respondents and provided an opportunity for respondent voices and experiences to be highlighted.

Each question was designed with a specific purpose aimed at understanding how respondents understood the relationship between TEK and CRM, and questions were presented in an order which flowed naturally within the discussion of past, present, and future.

Interviews

Interviews were conducted on a voluntary basis to add dimension and personal examples to the survey data. The last survey question was an acknowledgment of the respondent’s time and asked if they would like to participate in future phone interviews.

“Thank you for taking the time to fill out this survey for benefit of California cultural resources! Please forward to fellow colleagues as you see fit. If you would like to be considered for a potential follow-up phone interview of approximately 30 minutes, please click: Follow Up Interview Option to provide your name and e-mail address. All information will be kept confidential and destroyed at the end of this project.”
Due to the confidentiality concerns with conducting an online survey, the “Follow Up Interview Option” link directed respondents to a separate survey with less restrictive meta-data parameters as compared to the initial survey.

Nine individuals responded positively and included contact information for follow up discussions. While it would have been preferred to speak with all respondents and obtain their feedback, time constraints only allowed for 4 interviews. The interviews were coordinated through e-mail and recorded over speakerphone. In compliance with the IRB, respondents were provided an e-mail copy of the consent form prior to the interview. Before the interview could take place, two paragraphs from the consent form were read aloud, the *Statement of Your Consent* and *Statement of Consent to be Audio Taped* so that verbal acknowledgment and consent could be obtained. For anonymous identification purposes, each respondent was given a random 3-digit number from 111 to 999, obtained from a random number generator.

The interviews had three main components focusing on organization, review of the survey, and a time for elaborating on any comments which arose during the conversation. It began with a purpose statement, so respondents knew what they were contributing and the intention behind my questions (Spradley 1979). Because the language was such a recurring theme in the survey responses, in that many felt there was not enough clarity, this was also the time in which definitions were reviewed.

Questions were organized beforehand and attempted to bring out discussions on CRM finance, TEK, and CRM language barriers, and how social and political histories contribute to the effectiveness of the relationship between TEK and CRM in the eyes of the respondent.

Interviews lasted anywhere from 30 minutes to an hour as the discussion developed into new and interesting fields. Tangential conversations focused on the emotions and experiences
associated with this topic, but also highlighted the roadblocks to separating the researcher’s identity from the colleagues.

As regulated by the IRB, all recordings were destroyed after being transcribed and all personal identifying information was removed. Further themes were highlighted and compared to the results of the survey. The techniques and resources utilized for this research were selected because they provided the clearest opportunity for examining the hypothesis tested. Each question was focused on determining how respondents view the relationship between CRM and TEK as it was, is, and what they feel it should be moving forward. The results demonstrated clear answers and opportunities for further research and discussion.

<table>
<thead>
<tr>
<th>#</th>
<th>Answer</th>
<th>%</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Undergraduate student with limited field work</td>
<td>3.57%</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>Graduate student familiar with multiple aspects of completing a CRM project</td>
<td>4.76%</td>
<td>4</td>
</tr>
<tr>
<td>3</td>
<td>Federal temporary employee</td>
<td>9.52%</td>
<td>8</td>
</tr>
<tr>
<td>4</td>
<td>Federal permanent employee</td>
<td>11.90%</td>
<td>10</td>
</tr>
<tr>
<td>5</td>
<td>State Employee</td>
<td>7.14%</td>
<td>6</td>
</tr>
<tr>
<td>6</td>
<td>Private sector employee-- entry</td>
<td>2.38%</td>
<td>2</td>
</tr>
<tr>
<td>7</td>
<td>Private sector employee -- experienced</td>
<td>29.76%</td>
<td>25</td>
</tr>
<tr>
<td>8</td>
<td>Freelance or &quot;Shovel Bum&quot;</td>
<td>2.38%</td>
<td>2</td>
</tr>
<tr>
<td>9</td>
<td>Indigenous Project Monitor</td>
<td>0.00%</td>
<td>0</td>
</tr>
<tr>
<td>10</td>
<td>Academic, research assistant or professor</td>
<td>8.33%</td>
<td>7</td>
</tr>
<tr>
<td>11</td>
<td>Consultant - rare field work - Indigenous or non-indigenous</td>
<td>4.76%</td>
<td>4</td>
</tr>
<tr>
<td>12</td>
<td>Other</td>
<td>15.48%</td>
<td>13</td>
</tr>
</tbody>
</table>
3. Survey Results

The survey was distributed beginning on May 21st, 2018. Over the next weeks the survey was distributed through e-mail, and social media (Appendix A). Language within the distribution was a variance of IRB approved sentiments of support. The survey received 95 responses. Only 84 of the 95 replied to a background question; of those responses, roughly 30% identified as private sector archaeologists with experience, 12% identified as Federal Permanent Employees, and 15% identified as Other, which included THPO, those retired from the field, and consultants (Table 1). Notable lacking entries included a form of ‘Indigenous Project Monitor’ and students. The bulk of respondents have less than 1 to 5 years of experience in the field, 30%, but there was a significant response from those who have worked in the 5-20 years, 51% (Table 2).

<table>
<thead>
<tr>
<th>#</th>
<th>Answer</th>
<th>%</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>20-30 years</td>
<td>9.52%</td>
<td>8</td>
</tr>
<tr>
<td>4</td>
<td>15-20 years</td>
<td>13.10%</td>
<td>11</td>
</tr>
<tr>
<td>3</td>
<td>10-15 years</td>
<td>16.67%</td>
<td>14</td>
</tr>
<tr>
<td>2</td>
<td>5-10 years</td>
<td>21.43%</td>
<td>18</td>
</tr>
<tr>
<td>6</td>
<td>Over 30 years</td>
<td>9.52%</td>
<td>8</td>
</tr>
<tr>
<td>1</td>
<td>Less than 1 year, to 5 years</td>
<td>29.76%</td>
<td>25</td>
</tr>
</tbody>
</table>

Table 2: Question 4: How long have you cumulatively worked within California on Cultural Resource Management Projects? This includes volunteer, consultant, and other capacities such as tribal council advising, field school, etc...

Question 5 asked: “At what stage in the CRM process should TEK be first to be discussed, if at all?”; many replied During the Request for Proposal, within 43.94%. The second most selected response was a tie at 21.21% for each: Phase I/1.5 – Pre-field research and possible shovel tests;
Other. This is where many of the survey flaws were first highlighted. There were 13 responses for Other, which included:

3. “M”

11. “It depends I had a nice long answer here but the text field wont let me have an answer with punctuation”

9. “should be part of background research”

6. “Tribal consultation ethnographic background Biological survey Arch survey”

1. “I find it odd that the only option presented for it should not be discussed is presented as because it is not common knowledge As if the presumption is that if it is known about then it should be discussed [sic] A more proper question might be Should it be discussed And why What if any value does it add to the CRM process But your survey appears to leapfrog that”

These responses are not ideal and represent a lost opportunity. Number 3 appears to be a typo, while 11 and 6 demonstrate survey platform issues I wasn’t aware of when the survey was distributed. It is unclear what answer 6 was attempting to convey. A comment I received on a Facebook post also alerted me to this issue, but I was unable to change that component once the survey was distributed. I have interpreted Number 5 to say that there is a bias in my question. I am constantly flooded with information on TEK and that is a direct response to my career and interests, therefore I see TEK as a common idea that many agree with, and bias in my questions was an unfortunate result. When distributing my survey, I inadvertently made the same assumption as those who might respond, because they are also in my same field. Unfortunately, I wish I had asked the questions suggested because better aligns with my research goals.
Other responses included:

4. “Depending on the project TEK can be a small action or a large component and it is always important to ask what does TEK look like at the earliest stages and tribal involvement is critical”

7. “Tribal consultation should begin at the very earliest stages of project planning well before any archaeological consultants are brought on board to conduct archaeological inventories. If I had to pick one of these choices I would select the RFP. In that contract I would specify that tribal input must be included in identification and evaluation efforts which may or may not include archaeological testing”

8. “Anytime there is a prehistoric aspect to the project TEK could help us find evidence of human activity in places we would not normally look at in all Phases”

9. “should be part of background research”

12. “As soon in the project planning process as possible to ensure that avoidance is still an option. Discussion should be guided by project specific circumstance and availability of knowledgeable individuals”

The theme here is to ‘ask and begin early’, a general rule of consulting, except for when you can actually be too early. King reminds CRM archaeologists that “you need to be able to share enough information to let everyone understand the situation and come to a reasonable conclusion… Consultation should both benefit from and guide information gathering” (Nissley and Thomas 2016). Information needs to be distributed in a manner that respects time and interests but also answers questions. When considering an agency perspective, if consulting on TEK begins too early and then project parameters change, it could appear almost as if the TEK
information is no longer needed; no longer of value. It presents an opportunity to damage relationships.

Table 3: Question 5: TEK in this instance stands for Traditional Ecological Knowledge; at what stage in the CRM process should TEK be first be discussed, if at all?

<table>
<thead>
<tr>
<th>#</th>
<th>Answer</th>
<th>%</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>During the Request for Proposal</td>
<td>43.94%</td>
<td>29</td>
</tr>
<tr>
<td>2</td>
<td>Phase 1/1.5 - Pre-field research and possible shovel tests</td>
<td>21.21%</td>
<td>14</td>
</tr>
<tr>
<td>3</td>
<td>Phase 2 - Survey and testing, eligibility evaluations</td>
<td>1.52%</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>Phase 3 - Data Recovery and Mitigation, include final report within this phase</td>
<td>3.03%</td>
<td>2</td>
</tr>
<tr>
<td>5</td>
<td>Because TEK is not common knowledge by archaeologists, it should not be discussed at length</td>
<td>1.52%</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>Because TEK is not common knowledge by archaeologists, it should be exclusively contracted out to tribal members</td>
<td>7.58%</td>
<td>5</td>
</tr>
<tr>
<td>7</td>
<td>Other, Please describe:</td>
<td>21.21%</td>
<td>14</td>
</tr>
</tbody>
</table>

Figure 1: Question 6 results from online survey

Question 6: If Traditional Ecological Knowledge has been discussed on a project, when is it most commonly discussed on the projects YOU have worked on within California?

- Planning/Consultation, 25
- Never, 13
- Project/Agency Specific, 14
- In Field Conversations with Tribal Monitors, 7
- Reporting, 6

Question six asked the respondents about their lived experiences, and rather when *should* TEK be discussed, but *when* has TEK been discussed on CRM projects. This was an open-ended question and respondents were offered an opportunity to type a full response. Of the 66 answers
received, the answers varied from “It was not explicitly discussed” (Number 11), to, “All the time.” (Number 14). I have broken the responses down to 5 primary topics:

These answers represent the broad approaches to ecological consultation archaeologists and tribal monitors take when working on CRM projects. Unfortunately, this was only 69% of all participants and because it was an open-ended question, specifics were not attained. The topic, **Project/Agency Specific**, was created as a catch-all option for even more broad answers. This topic included comments such as:

44. “During extraction of NA human remains or during projects with prehistoric aspects. Usually if there is a NA monitor”

46. “Field School only”

49. “Regarding correlation between indigenous pottery traditions and European Mission floor construction”

In CRM, TEK is understood to be many different things and take on many different roles within projects. My next question addressed how the two are currently working together, based on personal perspectives. Question 7, How do you see traditional Ecological Knowledge and Cultural Resource Management working [*sic*] together in the future, as compared to how it operates currently?

Question 7 is the primary focus of the project and received 57 answers, 60% of all respondents, and was also open-ended. The intention behind a two-part question was to ask the respondent for more elaboration and contemplation of their experiences. Answers were much longer and detailed, but as with the previous question, some responses that did not answer the question and therefore the return dropped to only 50 respondents. These responses included:
13. No comment

14. this wont let me type numbers or punctuation very lame made me want to stop

19. TEK represents one, among many [*sic*] others, that connects indigenous people to landscapes experienced pre and post non-indigenous times.

22. working primarily as a historical ecologist, my experience working with archaeologists is limited. So I am not well informed about how it works now and how it could be different in the future.

28. The information gathered will help protect cultural resources which is the goal.

47. Tribal consultation and monitoring

51. I don’t have enough experience to respond

Again, answers varied drastically but were overall solution-based. Responses were broken into 3 themes: Positive current operations, solutions, and roadblocks. Many of the positive current operations included consultation and creating collaborative, working relationships.

2. I think I see it becoming increasingly important as tribal concerns are taken more seriously into consideration. typically these locations are also important contemporary too

7. With early, frequent, and [*sic*] sustained consultation, TEK can be incorporated into projects to preserve important sites and landscapes, and to preserve TEK.

17. Always together is the best way
While the question tried to ask how TEK and CRM may, or may not, work together in the future, respondents who presented roadblocks primarily indicated that there is potential for a working relationship. Many of the roadblocks were presented alongside a solution. Others, however, do not see the two disciplines working together, but I was unable to follow-up with why this was expressed.

10. Doesn't TEK already have a place in CRM under ethnography

24. not at all.

29. Involve the biologists more when it comes to purely ecological resources. I am not trained as an ecologist so why should I be looking for plants? Let me look for a site first and we'll deal with the plants later. I.e., more multidisciplinary approaches needed.

44. In my personal experience, tribes are not very willing to share this information for a variety of reasons. It may have to do with the fact that I am an agency archaeologist and there is a general distrust of a DOT government agency, it could just be an unwillingness to share this type of information to non-tribal members. It’s unclear to me how this hesitancy will change as there is simply a distrust for archaeologists - which I doubt any of us blame the tribes for. Perhaps one of the changes for the future is more Native Americans entering the field of archaeology and bringing that perspective to the field.

48. Due to the fact that it depends on the willingness of CRM managers and NA representatives to want to exchange knowledge, I don't see that any change will occur from where we are now.

52. Archaeology is about material culture of prehistoric peoples - not about what contemporary people think about managing the environment. I am skeptical that any
current California tribes have detailed knowledge about the environment because they don't currently live as hunter-gatherers.

57. The Tribal Specialists ought to, and will, be given a higher priority and status; this means the Tribe's will provide their own TEK and Cultural Resource experts and they will be given that higher level of respect and influence. Now, project archeologists and college grads are given a higher level of status as though a book or training from a non-Native person authorizes replacement of Indigenous authority. These types never will suffice the Native's goals of accuracy and preservation.

Solutions presented ranged from doing more through work with current standards, such as consulting and tribal Memorandums of Understanding. Larger suggestions included reexamining federal laws and looking to international examples.

6. Though it will take a long time, I foresee more indigenous archaeologists filling that gap rather than planners, since those are the folks preparing environmental documents, not usually archaeologists.

31. cooperative inclusive field schools by Native Americans and Archs with mutual goals to allow better understanding of TEK and to permit a larger participation in the process by Native Americans beyond cultural monitoring

43. On one hand it would be awesome to have something similar to CHRIS that you can search for any kind of knowledge; however that is knowledge that is important to the Tribes that most would most likely not want to hand out freely. Maybe it would be more suitable as a sub search within the SLF search with NAHC.
54. Contractors in the USA should adopt policies and procedures for TEK that are currently practiced by UN organizations, such as IPBES, IUCN, and UNESCO. At present, it is not utilized as extensively as it should be.

One underlying theme presented within the more solutions-oriented responses includes teaching tribal members about archaeology and training them to be more than tribal monitors on projects so that they may get “higher priority”, as suggested by response 57 listed above. This theme returns the discussion back to whether tribal knowledge is as valuable as western science. The inherent stigmas presented make the roadblocks to successful integration much more difficult. However, there have been cases where having both western archaeologists and tribal archaeologists working together on a site have produced benefits. During the 2003 bridge repair efforts in Washington, the village of Tse-whit-zen was discovered (Mapes 2009).

“‘The artifacts are important for the tribe because they provide them with some inspiration for future artistic endeavors…It also gives validation to their identity, which is always important for Indian people, because we have so many threats to our culture and our way of life from the disconnect that occurred during assimilation. It helps us get stronger [sic] in a cultural way”’ (Mapes 2009) p167)

There were, of course, contentious conversations on how the project should proceed, the local benefits, such as providing income and jobs to a financially depressed economy, were important to collaborating through the project.

This theme, that tribal members need to be taught as western archaeologists, collectively says the western way is the best way to approach science and anthropological or CRM research in indigenous community. There are many possible reasons for this
conclusion, not least of which is who responded and why the more indigenous voice was not culled. Less than 10% of respondents identified as “Consultant - rare field work - Indigenous or non-indigenous” or “Other”, which could include many positions.

Question 8 asked a summary question with a prompt and offered a Likert Scale response. The discussion on whether to use a mid-point was concluded positively due to the expected number of respondents who might not have worked much with TEK and CRM (Chyung et al. 2017:15-23). However, this option does have risks, and while many respondents are prone to using the midpoint as a “dumping ground”, the overall lack of respondents, 66% of all survey respondents, suggests that those who answered did not have an exact opinion on the prompt (Chyung et al. 2017:15-23). Question 8 asked:

Please respond to the following statement: Current methods for integrating Cultural Resource Management and Traditional Ecological Knowledge are sufficient. With only 63 of the 95 responses, overwhelmingly respondents replied: “Disagree”.

Both Strong Agree and Agree received 3 responses, totally 9.5%, while a majority Strongly Disagreed with the prompt. This question served many benefits. After the previous two

<table>
<thead>
<tr>
<th>#</th>
<th>Answer</th>
<th>%</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Strong Agree</td>
<td>4.76%</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>Agree</td>
<td>4.76%</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>Neutral</td>
<td>20.63%</td>
<td>13</td>
</tr>
<tr>
<td>4</td>
<td>Disagree</td>
<td>47.62%</td>
<td>30</td>
</tr>
<tr>
<td>5</td>
<td>Strongly Disagree</td>
<td>22.22%</td>
<td>14</td>
</tr>
</tbody>
</table>

Table 4: Question 8: Please respond to the following statement: Current methods for integrating Cultural Resource Management and Traditional Ecological Knowledge are sufficient.
questions, focusing on when should TEK and CRM be introduced, and how does the respondent see the two collaborating in the future, this was an opportunity for respondents to summaries their thoughts easily. In addition, this question broke-up the open-ended responses in hopes to keep the respondent engaged.

Question 9 asked for respondents to expand on any roadblocks they might have expressed during Question 7. What, if any, are some of the ‘roadblocks’ TEK and CRM face when trying to work together?

Predictably, budget, policy, and relationships were top themes within the responses.

1. Budget. CRM is strictly lowest bidder work. Any additional effort being required will change the prices charged and impact what companies get hired. It’s great to work towards more fine tuned analysis of projects and it would increase the value of our work. But convincing the client is not an easy task.

14. Ethnography has largely fallen into disuse and archaeologists are required to pick up the slack. Tribal/federal political interactions. TEK is not specifically regulated/required under law. And money is tight

17. Time and training mostly. Projects are always in a rush to be completed and people don’t get the training they need to identify things in the field.

20. Relationships and communication. Tribes are linked to the land in every way - historically, culturally, etc... CRM folks and agency personnel are 'just passing through" in the minds of many NA's - understandable. Tribal members are not wanting to share that much with folks they don't feel are invested themselves. It takes a long time to build
trust (and a very short time to break it) so there is something of a chasm to be bridged. This does not happen overnight.

28. Archaeologists are trained to look for archaeological sites and are not trained to identify plant species (obviously, it helps to know plant species when looking for arch sites). We are too busy managing archaeology sites to be trying to integrate TEK, which is not archaeology (though of course, it is very, very, important). Biologists need to be more involved with TEK, especially with TEK sites that involve no archaeology.

38. Personality conflicts, archaeologists not knowing where Native American communities are coming from and basically poor communication.

51. Many Native Americans in California have decided that archaeologists are the enemy. Rather than recognizing that developers and most non-anthropologist Americans don't really care about archaeology or Native Americans, they have continued to pursue a destructive anti-scientific campaign against archaeologists. The small amount of money available to do archaeological work should not be diluted by TEK or other forms of "alternative mitigation"

55. There is a lack of education on the part of some of those who work in CRM. There is an epistemological problem with respecting and accepting TEK as valid, legitimate, practical, and practicable ways of knowing about the world and ways of stewarding the landscape.

56. TEK and CRM work fine together when applied by a Tribal specialist; it is when non-Native personnel act in the stead of a Tribal Rep and implement their college taught knowledge on TEK and CRM; that is when things break down and we hit roadblocks
Once the survey was distributed, it was determined this question was a lost opportunity and had bias undertones implying the two do need to work together. There were thoughtful and elaborate responses, which were later discussed in the interview portion, but much of the content has been discussed before (King, Thomas F. 2009; Menzies 2006). The goal was not to ask why aren’t archaeologists better? rather, what are the experiences and how do those benefit or hinder the world of CRM and TEK, individually and together. Response 10, in particular, summarized the ineffectiveness of the question: “Knowledge isn’t a thing that works or doesn’t work”.

The Survey phase of this project provided a baseline understanding of how those who participate in CRM view the relationship between CRM and TEK, as it has been, currently is, and how it should be in the future. The themes pulled from the survey aided in creating interview questions; budgets, time, experience, and interagency relationships. While some of the responses did not further the discussion, many provided a larger picture of the difficulties presented by what has happened in the past, and how budgets truly determine the ability of CRM researchers to fully integrate TEK, regardless of whether the researcher does or does not believe it to be their responsibility. In the next chapter interviews will be reviewed, followed by a discussion on what this means for the field of CRM.
4. **Follow-Up Interviews**

Interviews were included in this research as a tool to elaborate upon the information collected through the online survey. Respondents were able to offer contact information via an additional survey linked on the final page of the survey (Figure 2). This additional survey asked respondents for contact information, should they want to contribute to an additional phone interview, lasting approximately 30 minutes.

Of the 95 total respondents, 9 respondents offered their time. However, through a random number generator, only 4 were selected to participate. It would be ideal to interview all possible respondents, with multiple follow-up interviews, but time constraints relegated the research to 4 interviews. The original IRB application included 3-10 half-hour interviews would take place. Each of the 4 interviews went beyond 30 minutes and therefore extended the processing time necessary for analysis.

**Process**

The interview process began with follow up e-mails to those who volunteered for further discussion, inquiring as to whether they were still interested in contributing to the project. After receiving a positive reply, interviews were set up. On the day of each interview, an e-mail was sent with an additional consent form for the participant, per IRB. This second consent form
provided the participant information regarding the interview, the research, and asked for their consent to be audio taped (Appendix F). Participants were not required to sign and return the form but keep it as a reference per IRB policy. Once the phone call had been placed, IRB regulated that the researcher read aloud, while being recorded, the *Statement of Your Consent* and the *Statement of Consent to be Audio Taped*. The participant needed to positively reply before the interview could be started, and it was at that time participants were encouraged to ask any additional questions.

Each participant was assigned a random 3-digit number and all notes were kept under that identity as to ensure anonymity within the record: 274; 190; 862; 326. The participant demographics included: 3 male, 1 female; 2 currently working in the state, one with minimal experience in CA, one working on the border with CA. One of the respondents operated in an adjacent field but overlaps frequently. The diversity in respondents allowed for a variety of perspectives.

Phone interviews were conducted and recorded then transcribed through both www.Trint.com and google docs; all documentation was deleted upon completion. For an effective interview, attention was paid to the organization and flow of questioning, much like the surveys. After introductions and the IRB Consent declarations, interviewees were provided objectives and expectations for the interview (Spradley 1979). Spradley (1979) lays out three general steps: Explicit Purpose, Ethnographic Explanations, and Ethnographic Questions. While the language varied slightly on each interview, the primary theme is captured best with this Explicit Purpose introduction:

“[The] purpose today is to ask individuals about their experiences with CRM and TEK and have a brief discussion about my survey results. In order to do that I would kind
of like to first hear what you consider to be CRM an TEK; I’m finding that everyone has a slightly different definition. …So I was just wondering if you could [sic], kind of give your idea of what CRM is and what TEK is.”

Outlining the goals and objectives of each interview gave a starting point for the discussion to grow from and gave the interviewee an outline of their expected contributions.

Each interview highlights a particular theme, or themes, and presented their own difficulties. For example, Interview 274 highlighted concerns ethnographers have when interviewing those within similar disciplines. Ethnographic interviews operate, typically, in two languages: the ethnographers and the one spoken by the informant (Spradley 1979). “In general, the beginning ethnographer will do well to locate informants who do not analyze their own culture from an outsider’s perspective” (Spradley 1979). This was hard to avoid, as all interviewees were those who opted to analyze their discipline. This type of meta-ethnography made interviews particularly hard when trying to focus on direct questions related to this research.

The themes pulled out to discuss here include trust, access, and budgets because these topics were discussed throughout the four interviews, as well as within the open ended questions in the online survey. These topics address the relationship between TEK and CRM by identifying the practical and day-to-day concerns CRM researchers face when they discuss that relationship.

Trust

The kind of access CRM researchers have to indigenous worldviews needs to first be addressed through the levels of trust. Interviewee 190 works for a tribe and saw often the lack of trust between their group and agencies. They noted that it was hard to trust agencies to not only
share project information appropriately with them, but also trust in how the information the tribe provided would be distributed by the agency (190 2018).

Interviewee 274 said they witnessed an interview during the Dakota Access Pipeline protests that stood out as a very impactful moment for them, “I saw an interview with [sic] and in a way it was one of those like watershed moments where it really pissed me off. Yeah I mean it's like ‘these like white people can't survey this land because white people don't know what to look for. You know white people can’t see what we see…’ Yes I understand you're [sic] perspective. But. If. If we don't know then we don't know. You know if you're telling them how we know and then you get into this weird circular logic…” (274 2018). The point asked how can those with TEK background and input expect CRM researchers to include TEK if those researchers feel left in the dark. However, how can CRM researchers expect indigenous peoples to provide that information if it’s sacred, or might be provided to a fleeting CRM technician?

Access

Access was a broad topic that encompassed many types of access to local ecological knowledge. First, there was concern over access to knowledge for CRM researchers. Then, there was access to the reporting documents by the public, and what kind of implications that would mean for safely protecting cultural resources. Finally, there was access to TEK consultants in the field during survey and excavation work, the latter being understood to mean that TEK consultants could either take on the role completely of including TEK into the research or fulfill that by merely monitoring CRM researchers and developers.

One solution discussed to help with access included a database, similar to CHRIS, full of ethnobotany information. CHRIS has an application process for access and it can be built upon over the years as more information is collected. This very western-science and sterile approach
to cataloging indigenous knowledge, however many tribes have their own databases full of this information with access controlled by money, as in paying for access, much like CHRIS, or personal relationships. Because of the sensitivity of the information, should a database not be embraced by all involved, a cultural monitor with a larger role than presently expected was also discussed. Interview 326 discussed their experience with cultural monitors wanting to become a sub-consultant.

“There’s a big push for tribes to be more, well, from the tribal side they want to become more inclusive in their own way about how they present their knowledge and how they’re being treated, almost like a sub-consultant, like a contractor, like anyone else would when it comes to approaching them for consultation purposes”

(326 2018)

A final comment on access, and in conjunction with the idea of sub-consultant, was suggested by interview 190. During a large project they re-did the formal site recording form, typically a 524P in California, to include a Traditional Cultural Values Assessment (TCVA) (Appendix K). In their experience the DPR524P form allows for some TEK comments in either the Cultural Constituents or interpretations sections, but many would(?) rather add TEK to a Continuation Sheet attached to the DPR524P. With this project in particular, and only that project, they were allowed to have local indigenous communities comment and formally record their TEK information for the project area. They believed it to be a successful collaborative effort which worked within the legal and financial bounds of CRM, but allowed for the TEK information.
Finances contribute significantly to the relationship between CRM and TEK. If, as Interview 326 mentioned, an archaeologists suggests incorporating additional opinions, there can be pushback.

“You know there's a lot of people out there who, when you try to explain exactly what [we are] trying to explain go: ‘well, so, that's all fine and well but you're going to spend thirty thousand dollars extra just to get that perspective, I don't know if that's worth it.’ It's kind of disheartening. It's there, you know, it's borderline racist. I've talked to many project managers and they're a little rough around the edges, a little old school and you try to tell them what you're out there doing and they look at you're crazy. And with the tribe stuff they have this big sigh and this eye roll. That's not helping anything” (326 2018).

The legal requirements for consulting with tribes has been known to fluctuate from region to region and person to person and budgets can play a role in that decision. When incorporating indigenous voice, the interview with 274 provided perspectives discussed in percentages (274 2018) “I'm probably more of a 50/50 kind of person where some other academics might be in the camp of giving maybe more percentage to the native purse based on colonization and those kinds of principles I would just be more skeptical I guess” (274 2018).

This is to say, 274 believes the voice on a project, the voice providing input on project outline and cultural concerns, should be made up of developers and CRM researchers, but also of Indigenous voice; TEK concerns.

**Budgets**

At times, CRM is a quick and tightly run operation working against budgets and time constraints. All three of these topics relate heavily and depend on each other. For instance,
Interviewee 274 brings up technician costs. “…any tech worth their salt, i.e. work ethic, knowledge base, what have you, is going to be expensive… if you want to maximize your profits you’re normally hiring those first job techs, second job techs… how do you relate [TEK] to these people” Trust and access then come into play: if technicians do not have access or the trust of local communities, it comes to the budget to cover the costs of extended consultation and possibly hire additional people for TEK contributions.

5. Discussion and Future Work

California archaeology, specifically Cultural Resource Management, is a crucial gatekeeper to developer (project development) success, both with infrastructure and local relations. While the background of CRM has been criticized, there are those who continuously try to make the field the best it can be. This research criticized the process by which Indigenous voice is considered when discussing the environmental and non-tangible components to the cultural landscape. Through the online survey and the follow-up interviews, themes were pulled to identify how participants have viewed, currently view the TEK/CRM relationship, and where they feel that relationship is headed. Many of the themes overlapped, but primary focus was on budgets, how data are shared and stored, and relationships. Much of the discussion to come from the interviews and open-ended questions was not necessarily groundbreaking news. It’s no surprise that CRM budgets dictate much of how projects operate, but the research provided a base by which CRM and TEK can look their relationship expectations from those actors which participate in the fields daily.

This research did not severely criticize the existing laws and regulations that require consultation. There has been extensive discussion on the pros and cons of those laws, and this
research focused on the individual. The relationship between TEK and CRM is very localized and particular to the region. Focusing on how the legal framework could or should be altered takes away that regional lens. At its heart, TEK and CRM are disciplines of people and their experiences.

It is important to remember that CRM is different than archaeology in this context. At times, CRM can feel like a quantity over quality process, and that need to walk more miles and dig more shovel tests, can cloud the finer details. These results show the respondents find TEK useful to the larger context of their work. However while they are ill equipped to appropriately integrate the information should they have access to it.

The survey and interviews tested the viewpoints of those who work in California CRM and critically analyzed the relationship between TEK and CRM.

- Individuals working within California CRM find integrating TEK to be a useful endeavor for their CRM research moving forward. If a majority of the respondents reply indicating TEK has been useful to their work, then it can be extrapolated that those working in CRM find TEK to be beneficial. Other indicators will present themselves in the themes pulled from open ended questions and follow up interviews espousing the benefit of further strengthening the relationship between CRM and TEK.

Test expectations were met for this hypothesis. The results demonstrated that a majority of the respondents felt TEK and CRM should be discussed on projects together, as verified by Survey Question 5, and a majority disagreed that current methods for integrating CRM and TEK are sufficient, as demonstrated by Survey Question 8. From this theme, interviews were able to extrapolate that information further to identify concerns regarding the relationship, primarily
implementation and responsibility. As noted above, access and budgets were a significant theme, while very few disputed the need to integrate. A claim by Interviewee 274 suggested that the responsibility of that relationship comes down to fault. Fault, in CRM, comes down to damages. This is to say that the TEK and CRM benefit from each other, but the responsibility falls on those funding the project and who are therefore responsible for developer damages. This is one of many additional research questions that could be extrapolated from this baseline research.

- Survey and interview results are expected to provide a range of responses. However, if the significant themes extrapolated from this research indicate TEK as a hinderance to CRM, then evidence will be particularly highlighted in Questions 5 and 8. If a majority of respondents do not believe TEK and CRM should be integrated more in the future, then respondents will agree that TEK should not be discussed at length on CRM projects by CRM researchers.

Test expectations were not met for this hypothesis. While some respondents did disagree with larger themes, results demonstrated that a majority of the respondents felt that while responsibility was not clear, the relationship between TEK and CRM is beneficial and could continue to be beneficial moving forward.

Major impediments to this research included sub-optimal questions and interview time constraints, and interview process concerns. In a much larger project, sending a proxy to conduct the interviews, or preemptively combating those meta-ethnography concerns in the proposed questions would be beneficial. The languages of the researcher, the participant, and the researcher’s background in the field made the process cumbersome. In addition, this highlights the lack of diversity in the voice represented through the interviews. As mentioned before, finding contacts for federal CRM researchers, and non-federally recognized tribes across
California was difficult. Non-federally recognized tribes are sometimes consulted, but the legal nexus for considering their input is not weighted the same as a sovereign nation, but rather a consulting party.

Other difficulties not extrapolated here include trying to understand how outside factors, such as climate change, effect the relationship between TEK and CRM. As TEK needs to adapt to changing environments, how do researchers identify TEK in terms of current cultural connections, and what has been adapted? Does the adaptation change the intent and cultural connection? One respondent to Question 7, *How do you see Traditional Ecological Knowledge and Cultural Resource Management working together in the future, as compared to how is operates currently?*, replied, “I do not see much of a place for TEK in CRM, as TEK knowledge has been largely lost for decades in California.” If this is true, then seeking ways to incorporate TEK is irrelevant, however current discourse would argue that there is a place for landscape level knowledge to expand current CRM research. In addition, this response highlights the static view many Respondents had towards TEK, when evidence suggests it is an evolving concept and community activity (Berkes 2017). How do we distinguish between TEK is a social hurdle to address during consultation with communities (Ianni et al. 2015:144-156) . Outside factors pose even more questions than answers on how traditional practices are adapting; but do they then become non-traditional? This paper discussed only the broadest sense of traditional ecological knowledge as it is commonplace in CRM today. This may, in fact, be the most obvious and first mistake anthropologists make when trying to integrate TEK: brushing off the nuances of *what is TEK?*

Moving forward, there is potential to expand on this research. This project did not extensively examine how TEK and CRM came to be in their present relationship. Understanding how students of CRM are taught, and how those experiences shape the idea of TEK as a partner in CRM is crucial to understanding how the two may or may not move forward in the future. Many
students are taught the same information regarding the history of anthropology and California Archaeology: Kroeber, Boas, Moratto, etc. It would be interesting to question the indigenous voice and perspective taught for a Bachelor of Arts in Anthropology. Do programs encourage including indigenous authors, or indigenous professors, who may discuss the more non-tangible aspects of CRM and anthropology? If CRM researchers are taught the same information throughout, then there is minimal expectation that a relationship will build stronger moving forward, and new solutions will need to be sought out by those wishing for TEK to be incorporated into TEK.
References

Facts for Feds. 2011 Facts for Feds.

190
   2018 Interview with 190.

274
   2018 Interview with 274.

326
   2018 Interview with 326.

Anderson, M. K.
   2005 Tending the Wild - Native American Knowledge and the Management of California's Natural Resources. BERKELEY; LOS ANGELES; LONDON: University of California Press.

Berkes, Fikret, Johan Colding, and Carl Folke

Brown, Michael

Chyung, Seung Youn, Katherine Roberts, Leva Swanson, and Andrea Hankinson

Diver, Sibyl, Herb Hammond, and Art Adolph
   Participatory Mapping for Eco-Cultural Restoration on Xaxli'I Survival Territory, British Columbia, Canada.

Frank K. Lake

Friesen, Phoebe, Lisa Kearns, Barbara Redman, and Arthur L. Caplan

Harling, Will, and Bill Tripp
   2014 Western Klamath Restoration Partnership
   A Plan for Restoring Fire Adapted Landscapes. Mid Klamath Watershed Council.
Hummel, S.  

Ianni, Elena, Davide Genelette, and Marco Cioli  

James, Keith  
2001 Science and Native American Communities : Legacies of Pain, Visions of Promise.

King, Thomas  

King, Thomas F.  

King, Thomas, Patricia Hickman, and Gary Berg  

Kroeber, A. L.  

Lewis, David Rich  

Lightfoot, Kent, and Dr Otis Parrish  

Long, Jonathan W., Lenya Quinn-Davidson, and Carl N. Skinner  

Mapes, Lynda  

Menzies, Charles  
Menzies, Charles  
2006b Traditional Ecological Knowledge and Natural Resource Management. Lincoln: University of Nebraska Press.

Menzies, Charles R.  
2006 Traditional Ecological Knowledge and Natural Resource Management.

Miracle, A., V.  

Nicholas, George  

Nissley, Claudia, and F. King Thomas  

Polfus, Jean, Kimberly Heinemeyer, Mark Hebblewhite, and Taku River Tlingit First Nation  

Polfus, Jean, Kimberly Heinemeyer, Mark Hebblewhite, and Tlingit First Nation, Taku River  

Rossier, Colleen, and Frank Lake  

Shore, Nancy  

Shore, Nancy  

Spradley, James  
1979 The Ethnographic Interview. USA: Wadsworth Group.

Tsuji, Leonard, and Elise Ho  
Wimberly, Michael C., and Zhihua Liu

Appendices

Appendix A: Email Language for Survey Distribution
Appendix B: Online Survey
Appendix C: IRB Application and Approval
Appendix D: IRB Certificates
Appendix E: Consent Form to be Audio Taped
Hello! I am a graduate student at the University of Montana, and I am conducting a survey of those who participate in California Cultural Resource Management. Please consider taking this brief survey, approximately 8-10 minutes, to contribute to the discipline of CRM. Feel free to pass this along to others who would like to contribute to the research. Requirements are only that you are over the age of 18 and that you have, or currently are, working in California on projects considered Cultural Resource Management projects.

On Facebook:

- Option 1: Do you (or did you) work in California CRM?! Are you age 18 or over? Please take this survey on CRM and Traditional Ecological Knowledge. There aren’t any prizes, but your input is helpful to my research and the betterment of the discipline, so that’s pretty cool. BD*

Thank you!
(Apologies for the Cross-Posting)

Option 2:

- Hello all! A big THANK YOU to all who have already completed my research survey. I’m doing a final push, in hopes you will consider taking the time to contribute to the field you work in. Your input is appreciated! BD*

Thank you! (Again, apologies for the cross-posting)
Online Survey

You are invited to participate in a research project exploring the relationship between Cultural Resource Management and Traditional Ecological Knowledge. This online survey should take about 8-10 minutes to complete. Participation is voluntary, and responses will be kept anonymous to the degree permitted by the technology being used.

You have the option to not respond to any questions that you choose. Submission of the survey will be interpreted as your informed consent to participate and that you affirm that you are at least 18 years of age.

If you have any questions about the research, please contact the Principal Investigator, Erin Chiniewicz via email at erin.chiniewicz@umontana.edu or the faculty advisor, Dr. Anna Prentiss at Anna.Prentiss@mso.umt.edu. If you have any questions regarding your rights as a research subject, contact the University of Montana’s Institutional Review Board (IRB) at (406) 243-6672.

6. *I have read the above information and agree to participate in this research project.
   • I do not consent, and will not take this survey.
   • I consent to the above information and would like to participate in this survey.

7. For this project, brief definitions are provided so that all participants are answering the survey with the same information.

   **TEK:** Traditional Ecological Knowledge is best defined for this project as the subset of Indigenous Knowledge “used to describe the knowledge and beliefs that Indigenous peoples hold of their environments that is handed down through generations.” (Menzies and Butler 2006, 6). This information has a predominant focus on the interconnectedness of humans and the environment.

   **CRM:** Cultural Resource Management is best defined for this project as the discipline that employs researchers to review projects (construction, trails, shoreline work, etc) for their potential effects to cultural resources and/or areas of cultural importance.

   • I understand.

8. Currently, what do you consider to be your main role in California Cultural Resource Management?
   • Undergraduate student with limited field work
   • Graduate student familiar with multiple aspects of completing a CRM project
   • Federal temporary employee
   • Federal permanent employee
   • State Employee
   • Private sector employee – entry
   • Private sector employee – experienced
   • Freelance or “Shovel bum”
   • Indigenous Project Monitor
   • Academic, research assistant or professor
   • Consultant - rare field work – Indigenous or Otherwise
   • Other – Please Describe
9. How long have you cumulatively worked within California on Cultural Resource Management Projects? This includes volunteer, consultant, and other capacities such as tribal council advising, field school, etc…
   - Less than 1 year, to 5 years
   - 5-10 years
   - 10-15 years
   - 15-20 years
   - 20-25 years
   - 25-30 years
   - Over 30 years

10. TEK in this instance stands for Traditional Ecological Knowledge; at what stage in the CRM process should TEK be first be discussed, if at all?
   - During the Request for Proposal
   - Phase 1/1.5—Pre-field Research and possible Shovel Tests
   - Phase 2—Survey and testing, Eligibility Evaluations
   - Phase 3—Data Recovery and Mitigation, Include final report within this phase
   - Because TEK is not common knowledge by archaeologists, it should not be discussed at length
   - Because TEK is not common knowledge by archaeologists, it should be exclusively contracted out to tribal members
   - Other, Please describe:

11. If Traditional Ecological Knowledge has been discussed on a project, when is it most commonly discussed on the projects YOU have worked on?
   - I have not been on a project that discusses TEK
   - Projects typically do a brief mention before survey, or briefly while at the site/survey
   - Projects typically mention TEK during pre-field research
   - Projects spend a large amount of time on TEK either in pre-field or in field research
   - Projects save TEK information for the final reporting
   - Other, Please describe:

12. How do you see Traditional Ecological Knowledge and Cultural Resource Management working together in the future, as compared to how it operates currently?
   a.

13. Please respond to the following statement: Current methods for integrating Cultural Resource Management and Traditional Ecological Knowledge are currently sufficient.
   - Strongly Agree
   - Agree
   - Neutral
   - Disagree
• Strongly disagree

14. What are some of the roadblocks that TEK and CRM face when trying to work together? a.

15. Thank you for taking the time to fill out this survey for the betterment of California cultural resources. If you are willing to be contacted for a follow up phone interview of approximately ~30 minutes, please click this link and fill out the contact information. Interviews are expected to take place in September. All information will be kept confidential and destroyed at the end of this project.
   • LINK
   • No, thank you.

If you would like to be updated sooner than the anticipated presentation date (SCA Annual Meeting 2019), you may contact me at erin.chiniewicz@umontana.edu. Thank you!

“Survey” for contact information from Question 10:

Follow up contact
   information: Name:
   Email:
   Phone:
I will first e-mail you that I have received your reply, then again if you have been selected as one of the 3-8 interviewees. We will be able to coordinate a time that works best for you. Your participation has been greatly appreciated.

Thank you!
At the University of Montana (UM), the Institutional Review Board (IRB) is the institutional review body responsible for oversight of all research activities involving human subjects as outlined in the U.S. Department of Health and Human Services’ Office of Human Research Protection and the National Institutes of Health, Inclusion of Children Policy Implementation.

**Instructions:** A separate application must be submitted for each project. IRB proposals are approved for no longer than one year and must be continued annually (unless Exempt). Faculty and students may email the completed form as a Word document to IRB@umontana.edu, or submit a hardcopy (no staples) to the IRB office in the Interdisciplinary Sciences Building, room 104. Student applications must be accompanied by email authorization by the supervising faculty member or a signed hard copy. All fields must be completed. If an item does not apply to this project, write in: N/A. Questions? Call the IRB office at 243-6672.

**1. Administrative Information**

<table>
<thead>
<tr>
<th>Project Title: Exploring the Relationship Between Cultural Resource Management and Traditional Ecological Knowledge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Principal Investigator: Erin Chiniewicz</td>
</tr>
<tr>
<td>UM Position: Graduate Student</td>
</tr>
<tr>
<td>Department: Anthropology</td>
</tr>
<tr>
<td>Office location: N/A</td>
</tr>
<tr>
<td>Work Phone: N/A</td>
</tr>
<tr>
<td>Cell Phone: 469-688-8065</td>
</tr>
</tbody>
</table>

**2. Human Subjects Protection Training** (All researchers, including faculty supervisors for student projects, must have completed a self-study course on protection of human research subjects within the last three years and be able to supply the "Certificate(s) of Completion" upon request. If you need to add rows for more people, use the Additional Researchers Addendum.

<table>
<thead>
<tr>
<th>All Research Team Members (list yourself first)</th>
<th>PI</th>
<th>CO-PI</th>
<th>Faculty Supervisor</th>
<th>Research Assistant</th>
<th>DATE COMPLETED IRB-approved Course mm/dd/yyyy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name: Erin Chiniewicz</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Email: <a href="mailto:Erin.Chiniewicz@umontana.edu">Erin.Chiniewicz@umontana.edu</a></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Name: Dr. Anna Prentiss</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Email: <a href="mailto:Anna.Prentiss@mso.umt.edu">Anna.Prentiss@mso.umt.edu</a></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Name:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Email:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Name:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Email:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Name:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Email:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**3. Project Funding** *(If federally funded, you must submit a copy of the abstract or Statement of Work.)*

<table>
<thead>
<tr>
<th>Agency</th>
<th>Grant No.</th>
<th>e-Prop #</th>
<th>Start Date</th>
<th>End Date</th>
<th>PI on grant</th>
</tr>
</thead>
</table>

**IRB Determination:**

____ Not Human Subjects Research
____ Approved by Exempt Review, Category #________ (see memo)
____ Approved by Expedited Review, Category #________ (see Note to PI)
____ Full IRB Determination
____ Approved (see Note to PI)
____ Conditional Approval (see memo) - IRB Chair Signature/Date: ____________
____ Conditions Met (see Note to PI)
____ Resubmit Proposal (see memo)  
____ Disapproved (see memo)

**Note to PI:** Non-exempt studies are approved for one year only. Use any attached IRB-approved forms (signed/dated) as "masters" when preparing copies. If continuing beyond the expiration date, a continuation report must be submitted. Notify the IRB if any significant changes or unanticipated events occur. When the study is completed, a closure report must be submitted. Failure to follow these directions constitutes non-compliance with UM policy.

For UM-IRB Use Only

**Final Approval by IRB Chair/Manager:** ____________________________ Date: ____________ Expires: ____________
4. Purpose of the Research Project: Briefly summarize the overall intent of the study. Your target audience is a non-researcher. Include in your description a statement of the objectives and the potential benefit to the study subjects and/or the advancement of your field. Generally included are literature related to the problem, hypotheses, and discussion of the problem’s importance. Expand box as needed.

| Currently, there is no extensive research analyzing the state-wide operating methods and viewpoints on incorporating Traditional Ecological Knowledge into California Cultural Resource Management practices. Cultural Resource Management (CRM) is a land management approach to mitigating potential or real loss and damage of cultural resources, in particular during construction or maintenance projects. This is a branch of archaeology and is a discipline of Anthropological research. Traditional Ecological Knowledge (TEK) can be defined as understanding “the relationship of living beings (including humans) with one another and with their environment” (Rossier and Lake 2014). Typically, the information is passed down through generations of indigenous families. Incorporating TEK into CRM can illuminate further information on the ecological history of an area and the interconnected uses of the environment by humans. Typically, TEK and CRM do not integrate well on projects if at all, but run parallel to each other within research. While many of those who work in CRM understand that incorporating TEK is a valuable research tool to better understanding the landscape, there appear to be language and cultural barriers between those who work in CRM and those who have learned TEK from the generations of family members before them, which prevent researchers from progressing in their methods. This research will capture the views on how TEK and CRM integration methods have been previously viewed, how they are currently seen, and how the respondent feels the protocols should look in the future. This project takes two steps in order to work through what might be preventing a higher level of integration between CRM and TEK. First, an online survey administered to California CRM researchers of all academic and professional levels, as well as administered to all tribal archaeologists and advisors. This research will include indigenous voices, as well as state, federal, and private CRM archaeologists and college educators; it is important to have many different voices in order to capture a holistic understanding of the situation. The survey includes 8 questions, as well as a Consent Agreement, a page defining TEK and CRM for the purposes of this research, and an option to volunteer for further interviews; 10-11 pages total. Questions are created and will be distributed through Qualtrics, an online survey platform with analytical tools enabling a more thorough investigation into survey results. One beneficial attribute of this program is that it allows for anonymity during the survey, with an option to opt-in to providing information, should respondents wish to be considered for further questioning. Based on the survey results, follow-up telephone interviews will be administered to 3-10 individuals from the list of those who volunteer their information and time. These interviews will take approximately 30 minutes and provide depth to the online survey results. Survey questions will be based upon an analysis of the online survey results. It is expected that if there is a consistent theme within the survey results, the interviews will further supplement that stance, and outliers will be elaborated upon. This two-phase project aims to understand how the two views on cultural resources should, or should not be, integrated so that a more complete understanding of the human-environmental background can be understood. By no means is understanding this question expected to be a quick and easy process; many years of mistrust and flawed systematic operational standards must be addressed before changes can be proposed, however by starting the conversation with a baseline understanding will help to build a dialogue focusing on how the field of CRM can always been improving its methods. |
4.1 What do you plan to do with the results? If not discussed above, include considerations such as whether this is a class project, a project to improve a program/school system, and/or if the results will be generalized to a larger population, contribute to the general field of knowledge, and/or be published/presented in any capacity.

The efforts of this research will contribute to the thesis by Erin Chiniewicz as a component to completing her Masters of Arts in Anthropology. The results of this research will be submitted for both a conference oral presentation and poster presentation, first at the Society for California Archaeology Conference in March of 2019 and then with the Society for American Archaeology Conference in April of 2019. The research intends to understand the viewpoints of a large group of people over a large region, but does not attempt to include all those who participate world-wide. By discussing these results first at a California-based conference, the information can be passed directly to those who participated in the research. From this discussion, the larger Society for American Archaeology conference will provide an opportunity to distribute results further and in turn share ideas and conversations around the subject. This information will contribute to the discourse around incorporating more voices within the Cultural Resource Management discipline.

5. IRB Oversight

Is oversight required by other IRB(s) [e.g., tribal, hospital, other university] for this project? ☐ Yes ☑ No
If yes, please identify IRB(s):
No other oversight is required.

6. Subject Information:

6.1 Human Subjects (identify, include age/gender):

The survey respondents are self-identifying and self-selecting. The identity of respondents is expected to range widely in age, gender, cultural identity, and economic background. All respondents are to be over the age of 18. These demographics are not collected for this research. During the follow-up interview phase more personal demographic information may be disclosed at the discretion of the respondent in accordance with their acknowledgement of the Consent Form.

6.2 How many subjects will be included in the study? This survey is a self-selecting process, and it is expected there will be 250 respondents with 5-10 follow up interviews.

6.3 Are minors included (under age 18, per Montana law)? ☐ Yes ☑ No
If yes, specify age range: to

6.4 Are members of a physically, psychologically, or socially vulnerable population being specifically targeted?

☐ Yes ☑ No
If yes, please explain why the subjects might be physically, psychologically or socially vulnerable:

6.5 Are there other special considerations regarding this population? ☐ Yes ☑ No
If yes, please explain:

6.6 Do subjects reside in a foreign country? ☐ Yes Specify country: ____ ☑ No
If yes, please fill out and attach Form RA-112, Foreign Site Study Appendix (http://www.umt.edu/research/compliance/IRB/Docs/foreign.doc).

6.7 How will the subjects be selected or recruited? Include a bulleted list of inclusion/exclusion criteria. (*Attach copies of all flyers, advertisements, etc., that will be used in the recruitment process as these require UM-IRB approval*)

The online survey will be distributed through e-mail and social media (Facebook) to potential respondents. Follow-up interviews will be selected from those online survey respondents who opted to provide contact information in regard to this research.

6.8 How will subjects be identified in your personal notes, work papers, or publications: (*may check more than one*)

☐ Identified by name and/or address or other
6.9 Describe the means by which the human subject’s personal privacy is to be protected, and the confidentiality of information maintained. If you are using a Confidentiality Plan (as checked above), include in your description a plan for the destruction of materials that could allow identification of individual subjects or the justification for preserving identifiers.

All online surveys will anonymously collect results from respondents via the Qualtrics survey platform. If a respondent wishes to participate in additional interviews, they will be directed to an additional survey in order to provide contact information without anonymous restrictions. Interviews will be conducted over the phone and recorded. They will be transcribed by the PI without the real names of respondents, and the original recordings will be destroyed. Once the MA Thesis project has been completed, all confidential information regarding this research will be destroyed. No real names will be included within the research materials, oral presentations, or subsequent publications.

6.9a Will subject(s) receive an explanation of the research – separate from the informed consent form (if applicable) – before and/or after the project?  ☑ Yes (attach copy and explain when given)  ☐ No

7. Information to be Compiled

7.1 Explain where the study will take place (physical location not geographic). If permission is required to conduct the research at the location or to use any of the facilities, indicate those arrangements and attach copies of written permission:

Online and phone interviews.

7.2 Will you be working with infectious materials, ionizing radiation, or hazardous materials? Please specify. (Do not include here standard biological samples, such as blood, buccal cells, or urine; specify those in #7.6.)

Not applicable

7.3 Subject matter or kind(s) of information to be compiled from/about subjects:

The online survey component will ask respondents to discuss their views of Traditional Ecological Knowledge and Cultural Resource Management within California. The follow-up interviews will ask respondents to elaborate upon those survey questions with examples and background for their positions.

7.4 Activities the subjects will perform and how the subjects will be used. Describe the instrumentation and procedures to be used and kinds of data or information to be gathered. Provide enough detail so the IRB will be able to evaluate the intrusion from the subject’s perspective (expand box as needed):

Respondents are asked to respond to an online survey of nine questions, one of which is the Consent Form page. Respondents who are selected for follow-up interviews will be asked to participate in a short 30 minute recorded telephone interview.

7.5 Is information on any of the following included? (check all that apply):

☑ Sexual behavior  ☐ Drug use/abuse

☐ Alcohol use/abuse  ☐ Illegal conduct

☐ Information about the subject that, if it became known outside the research, could reasonably place the subject at risk of criminal or civil liability or be damaging to the subject’s financial standing or employability.

7.6 Means of obtaining the information (check all that apply). Attach questionnaire or survey instrument, if used:

☐ Field/Laboratory observation  ☐ In-person interviews/survey

☐ Blood/Tissue/Urine/Feces/Semen/Saliva  ☑ Telephone interviews/survey
Informed Consent, Parental Permission, and Child’s Assent

Sampling (IBC Application must be submitted)
☐ Medical records (require HIPAA form)
☐ Measurement of motions/actions
☐ Use of standard educational tests, etc.
☐ Other means (specify):
☐ On-site survey
☐ Mail survey
☐ Online survey (attach Statement of Confidentiality)
☐ Examine public documents, records, data, etc.
☐ Examine private documents, records, data, etc.

7.7 Will subjects be (check all that apply):
☐ Videotaped ☒ Audio-taped ☐ Photographed ☐ N/A

(secure an additional signature is recommended on consent/assent/permission forms)

Explain how above media will be used, who will transcribe, and how/when destroyed:

| Respondents will be recorded during phone interviews and the PI will transcribe that information within 10 days of the interview. After transcribing the interview, all original recordings will be destroyed. Destruction of audio-recordings will happen before the completion of this project. |

7.8 Discuss the benefits (does not include payment for participation) of the research, if any, to the human subjects and to scientific knowledge (if the subjects will not benefit from their participation, so state):

There is no direct or immediate benefit to the respondents. This research is expected to contribute to the larger discourse around this topic, which may eventually lead to changes within the discipline in which respondents participate.

7.9 Cite any payment for participation (payment is not considered a benefit). Include incentives of monetary value. If grant funding is not indicated in item #2, please specify the source of the funding and in what form it is to be dispersed.

Not applicable

7.9a Outline, in detail, the risks and discomforts, if any, to which the human subjects will be exposed (Such deleterious effects may be physical, psychological, professional, financial, legal, spiritual, or cultural. As a result, one can never guarantee that there are no risks – use “minimal.” Some research involves violations of normal expectations, rather than risks or discomforts; such violations, if any, should be specified):

Potential risks include loss of or breach in data security, which may lead to linking interview results with real names. This is potentially damaging to a respondents reputation or career prospects. In addition, the online survey components may make respondents uncomfortable or emotional as they remember past events that have affected their lives, in particular around this topic.

7.9b Describe, in detail, the means taken to minimize each such deleterious effect or violation:

To minimize the risk of data breach, all information related to this project will be on a personal external hard-drive with password protected folders. Anonymity will be upheld during the online survey portion by way of Qualtrics survey settings. Respondents who wish to participate in further interviews will be directed to another Qualtrics survey that does collect only pertinent information for follow-up information; this information will be stored securely. All names will be coded and stored so that they are never alongside the interview audio-recording or transcriptions. Potential emotional risk is minimized by information within the Consent Form reminding respondents that they are volunteers and may choose to skip questions or leave the survey entirely.

8. Informed Consent

An informed consent form (ICF) is usually required, unless subjects remain anonymous or a waiver is otherwise justified below. (Templates and examples of Informed Consent, Parental Permission, and Child’s Assent Forms are available at http://www.umt.edu/research/compliance/IRB/forms.php).

- A signed copy of the consent/assent/permission form must be offered to all subjects, including parents/guardians of subjects less than 18 years of age (minors).
- Use of minors
  - All minor subjects (under the age of 18) must have written parental or custodial permission (45 CFR 46.116(b)).
  - All minors from 10 to 18 years of age are required to give written assent (45 CFR 46.408(a)).
  - Assent by minor subjects: All minor subjects are to be given a clear and complete picture of the research they are being asked to engage in, together with its attendant risks and benefits, as their developmental status and competence will allow them to understand.
  - Minors less than 10 years of age and all individuals, regardless of age, with delayed cognitive functioning (or with communication skills that make expressive responses unreliable) will be denied involvement in any research that does not provide a benefit/risk advantage.
• Good faith efforts must be made to assess the actual level of competence of minor subjects where there is doubt.
• The Minor Assent Form must be written at a level that can be understood by the minor, and/or read to them at an age-appropriate level in order to secure verbal assent.

- Is a written informed consent form being used?  □ Yes (attach copy)  □ No (justify below)
  ➔ Written consent means that physical, handwritten signatures will be obtained on the informed consent forms.

To waive the requirement for written informed consent (45 CFR 46.117), describe your justification:

While there will not be a handwritten, collected Consent Form, respondents are required to read agree to the Consent information before accessing the online survey. If respondents do not agree, they may not enter the survey. For the telephone interview portion, respondents will be provided, through e-mail, an ICF form for Subject Information and Informed Consent. Before beginning the formal interview, the respondents will have to verbally agree to the consent information and acknowledge that they have read and understand the ICF.

- Is a written parental permission form being used?  □ Yes (attach copy)  □ No (If yes, will likely require minor assent form)

- Is a written minor assent form being used?  □ Yes (attach copy)  □ No (If yes, will likely require parental permission form)

Principal Investigator’s Statement
By signing below, the Principal Investigator agrees to comply with all requirements of the University of Montana IRB, the U.S. Department of Health and Human Services Office of Human Research Protection Guidelines, and NIH Guidelines. The PI agrees to ensure all members of his/her team are familiar with the requirements and risks of this project, and has completed the Human Subject Protection Course available at http://www.umt.edu/research/compliance/IRB/hspcourse.php.

I certify that the statements made in this application are accurate and complete. I also agree to the following:

• I will not begin work on the procedures described in this protocol, including any subject recruitment or data collection, until I receive final notice of approval from the IRB.
• I agree to inform the IRB in writing of any adverse or unanticipated problems using the appropriate form. I further agree not to proceed with the project until the problems have been resolved.
• I will not make any changes to the protocol written herein without first submitting a written Amendment Request to the IRB using form RA-110, and I will not undertake such changes until the IRB has reviewed and approved them.
• It is my responsibility to ensure that every person working with the human subjects is appropriately trained.
• All consent forms and recruitment flyers must be approved and date-stamped by the IRB before they can be used. The forms will be provided back to the PI in PDF format with the IRB approval email. Copies must be made from the date-stamped version. All consent forms given to subjects must display the IRB approval date-stamp.
• I understand that it is my responsibility to file a Continuation Report before the project expiration date (does not apply to exempt projects). This is not the responsibility of the IRB office. Tip: Set a reminder on your calendar as soon as you receive the date. A project that has expired is no longer in compliance with UM or federal policy.
• I understand that I must file a Closure Report (RA-109) when the project is completed, abandoned, or otherwise qualifies for closure from continuing IRB review (does not apply to exempt projects).
• I will keep a copy of this protocol (including all consent forms, questionnaires, and recruitment flyers) and all subsequent correspondence with the IRB.
• I understand that failure to comply with UM and federal policy, including failure to promptly respond to IRB requests, constitutes non-compliance and may have serious consequences impacting my project and my standing at the University of Montana.

Signature of Principal Investigator:  Erin Chiniewicz  Date: April 29, 2018
(Type for electronic submission; sign for hard copy)

NOTE: Electronic submission of this form must be sent from your University of Montana email account.

Do not leave the above line blank. Unsigned applications will not be accepted.

6
Attention Students: If you are submitting your application by hard copy (paper), please have your faculty supervisor sign the statement below. If you are submitting your application electronically (by email), then you must have your faculty supervisor send a separate email to the IRB affirming the statements below.

As the student’s faculty supervisor on this project, I confirm that:
   1) I have read the IRB Application and attachments.
   2) I agree that it accurately represents the planned research.
   3) I will supervise this research project.

Faculty Supervisor: ________________________________
                   (Type or print name)

Faculty Supervisor Signature: __________________ Date: __________________
                   (Sign for hard copy)

Department: ______________________ Phone: ________________
CERTIFICATES OF COMPLETION FOR ERIN CHINIEWICZ
UNIVERSITY OF MONTANA INSTITUTIONAL REVIEW BOARD
MARCH 2, 2018

CONGRATULATIONS
Erin Chiniewicz
Has Successfully Completed
Section One: Ethical Issues in Research
of the
Online Research Ethics Course
On this Day:
03/02/2018
Have an Ethical Day

CONGRATULATIONS
Erin Chiniewicz
Has Successfully Completed
Section Two: Interpersonal Responsibility
of the
Online Research Ethics Course
On this Day
03/02/2018
Have an Ethical Day

CONGRATULATIONS
Erin Chiniewicz
Has Successfully Completed
Section Three: Institutional Responsibility
of the
Online Research Ethics Course
On this Day
03/02/2018
Have an Ethical Day

CONGRATULATIONS
Erin Chiniewicz
Has Successfully Completed
Section Four: Professional Responsibility
of the
Online Research Ethics Course
On this Day
03/02/2018
Have an Ethical Day

CONGRATULATIONS
Erin Chiniewicz
Has Successfully Completed
Section Five: Animals in Research
of the
Online Research Ethics Course
On this Day
03/02/2018
Have an Ethical Day

CONGRATULATIONS
Erin Chiniewicz
Has Successfully Completed
Section Six: Human Participation in Research
of the
Online Research Ethics Course
On this Day
03/02/2018
Have an Ethical Day
SUBJECT INFORMATION AND INFORMED CONSENT

Study Title: Exploring the Relationship between Cultural Resource Management and Traditional Ecological Knowledge

Investigator(s):
Erin Chiniewicz, University of Montana
College of Humanities and Sciences / Anthropology
Social Sciences 203
University of Montana
Missoula, MT 59812
Phone: (469) 688 8065

Dr. Anna Prentiss, University of Montana
College of Humanities and Sciences / Anthropology
Social Sciences 203
University of Montana
Missoula, MT 59812
Phone: (406) 243-2693

Special Instructions:
This consent form may contain words that are new to you. If you read any words that are not clear to you, please ask the person who gave you this form to explain them to you.

Inclusion or Exclusion Criteria:
- Please only participate in this interview if you are currently, or have previously participated in Cultural Resource Management within the State of California
- Please only participate in this interview if you have already taken the online survey component
- You must be over the age of 18 to participate

Purpose:
You have been asked to participate in a follow up interview to the online survey component of this project in order to elaborate on your answers as well as contribute any input you might find pertinent to the research.

Procedures:
If you participate in this interview, I will ask you a few questions regarding the themes I noted from the online survey component. You have the option to not respond to any questions that you choose. All information collected during this interview will be confidential and destroyed after the project has been completed; your name will not be used but your responses might be. This interview is expected to take 30 minutes.

Risks/Discomforts:
There is no anticipated discomfort for those contributing to this study, so risk to participants is minimal. Answering the questions may cause you to think about events, or have feelings that make you sad or upset.

Confidentiality:
Your records will be kept confidential and will not be released without your consent except as required by law. Your identity will be kept private and all volunteer follow-up interview information that is included in the final report will be published with pseudonyms.
Voluntary Participation/Withdrawal:
Your participation is voluntary and you may refuse to take part in or you may withdraw from the interview at any time without penalty or loss of benefits to which you are normally entitled.

Questions:
You may wish to discuss this with others before you agree to take part in this study.
If you have any questions about the research now or during the study, please contact: Erin Chiniewicz at (469) 688-8065
If you have any questions regarding your rights as a research subject, you may contact the UM Institutional Review Board (IRB) at (406) 243-6672.

Statement of Your Consent:
I have read the above description of this research study. I have been informed of the risks and benefits involved, and all my questions have been answered to my satisfaction. Furthermore, I have been assured that any future questions I may have will also be answered by a member of the research team. I voluntarily agree to take part in this study. I understand I will receive a copy of this consent form.

________________________
Printed Name of Subject

________________________
Subject’s Signature
Date

Statement of Consent to be Audio taped:
I understand that audio recordings may be taken during the interview. I consent to being audio recorded. I consent to use of my audio documents related to this study.
I understand that if audio recordings are used for presentations of any kind, names or other identifying information will not be associated with them.
I understand that audio recordings will be destroyed following transcription, and that no identifying information will be included in the transcription.

________________________
Subject’s Signature
Date