California State University | INSTRUCTIONALLY RELATED ACTIVITIES CHANNEL ISLANDS

Proposal #1116

Instructionally Related Activities Report Form

SPONSOR: Linda O'Hirok
PROGRAM/DEPARTMENT: ESRM
ACTIVITY TITLE: ESRM Water Resources Owens valley Field Trip
DATE (S) OF ACTIVITY: March 8-10, 2019

Please submit via email to the IRA Coordinator along with any supporting documentation at david.daniels@csuci.edu within 30 days after the activity. Thank you for your commitment to engaging our students!

A. ADDRESS THE FOLLOWING QUESTIONS:

(1) PROVIDE A DESCRIPTION OF THE ACTIVITY;
(2) HOW DID THE ACTIVITY RELATE TO A COURSE(S) AND/OR LEARNING OBJECTIVES?
(3) WHAT DO YOU SEE AS THE STRENGTHS OF THE ACTIVITY?
(4) WHAT WOULD YOU SAY ARE/WERE THE ACTIVITY'S WEAKNESSES?
(5) HOW WOULD YOU IMPROVE THIS ACTIVITY FOR NEXT TIME?
(6) WHAT DID YOU LEARN FROM THE PROCESS?
(7) WHAT ARE STUDENT RESPONSES TO THE ACTIVITY? ATTACH STUDENT EVALUATIONS OR ASSESSMENTS (IN ACCORDANCE WITH FERPA RESTRICTIONS YOU MUST REMOVE ALL PERSONALLY IDENTIFIABLE STUDENT INFORMATION)
8) GIVE A SUMMARY OF EXPENSES FOR THE ACTIVITY.

B. ATTENDEE LIST- SUPPORTING DOCUMENT:

In addition to the report form, *in a separate document,* attach to your email a list of attendees complete with each student major and grade level. This for IRA Committee reference only and will not be published on the IRA website. Include your name and the title of your IRA activity on the document.

C.IMAGES FROM ACTIVITY:

Finally, attach to your email up to 6 images demonstrating student participation (under 2 MB total) with captions/titles. Please attach these photos in .JPEG format directly to email. Thank you!

(1) PROVIDE A DESCRIPTION OF THE ACTIVITY

ESRM 463 Water Resources Management

Owens Valley Field Trip, March 8-10, 2019

And 7th Annual Water Symposium, April 29, 2019

DESCRIPTION OF THE ACTIVITY;

The larger class of 39 students in ESRM 463 Water Resources Management this year participated in a three-day field trip (March 8-10, 2019) to the Owens Valley to explore the environmental and social impacts of the City of Los Angeles (LA DWP) extraction and transportation of water via the LA Aqueduct to that city. The trip included visiting Owens Lake, the Owens Valley Visitor Center, Lower Owens Restoration Project (LORP), LA DWP Owens River Diversion, Alabama Gates, Southern California Edison Rush Creek Power Plant, Mono Lake and Visitor Center, June Mountain, Rush Creek Restoration, and the Bishop Paiute Reservation Restoration Ponds and Visitor Center.

In preparation for the field trip, students received lectures, read their textbook, and watched the film Cadillac Desert about the history of the City of Los Angeles, its explosive population growth in the late 1800's, and need to secure reliable sources of water. The class also received a summary of the history of water exploitation in the Owens Valley and Field Guide. For example, in 1900, William Mulholland, Chief Engineer for the City of Los Angeles, identified the Owens River, which drains the Eastern Sierra Nevada Mountains, as a reliable source of water to support Los Angeles' growing population. To secure the water rights, Los Angeles secretly purchased much of the land in the Owens Valley. In 1913, the City of Los Angeles completed the construction of the 223 mile, gravity-flow, Los Angeles Aqueduct that delivered Owens River water to Los Angeles. As the population continued to grow, Los Angeles mined the groundwater in the Owens Valley and constructed a second aqueduct to siphon water from the Mono Basin. The catastrophic environmental consequences of dewatering the Owens Valley and Mono Basin resulted in devastation of the Owens Lake ecosystem and significant lowering of Mono Lake. The viable agricultural community in the Owens Valley was effectively eliminated. To protect the Mono Lake ecosystem, the Mono Lake Committee brought suit against the City of Los Angeles. In 1983, the California Supreme Court enforced the Public Trust Doctrine over water resources and ruled that the state has an obligation to protect Mono Lake, which required reconsideration of past water allocation decisions. The

City of Los Angeles had to provide water for the environment. After 100 years, the controversy is still unresolved and vigorously debated.

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orical and current water and environmental issues in the City of Los Angeles and the Owens Valley, and discussions on policies, politics, conflicts, conflict resolution, the Public Trust Doctrine and the environment, science and climate change. Students visited critical water supply facilities (aqueduct and reservoirs) for the City of Los Angeles and restoration sites, and discussed factors affecting reliability, safety, quality, quantity, and cost of water resources with respect to mitigate environmental impacts.

The guest presenters included Bill Deane, biologist and project manager from LA DWP, and Michael Prather, an Inyo County Water Commissioner, who showed us the Lower Owens River, diversion, and Alabama Gates, and spoke about the history of Owens Valley and the controversies of dewatering and restoration. Daniel Pritchette from White Mountains Research Center in Bishop gave a lecture on the early history-pre-Los Angeles water diversion in the Owens Valley. Larry Freilich from Inyo County Water Department and Jeremy Veenker from the Southern California Edison Rush Creek Power Plant discussed energy, climate change, and the restoration of the Owens River. Bartshe Miller from the Mono Lake Committee, gave us a tour of Mono Lake and Rush Creek restoration and talked about the lowering of Mono Lake and its fragile ecosystem, the Public Trust Doctrine, and the California Supreme Court decision to protect Mono Lake. Harry Williams, an Elder of the Bishop Paiute Tribe Reservation showed us the restoration pond to protect the endangered Owens Valley pup fish. He also provided a lecture about the impact of LADWP on the tribe. Lastly, we were fortunate to be able to take the June Mountain ski lift up the mountain to see all of Mono Lake and Rush Creek and gain perspective of the geography of the area, the grand scale of the LADWP Los Angeles Aqueduct diversion, and the significant snow pack this year.

The field trip addressed the goals and objectives of Water Resources Management. Students presented posters and provided demonstrations at the April 29th, 2019, 7th Annual Water Symposium for Madrona Elementary School and Redwood Middle School in Thousand Oaks, to formulate connections between theory taught in the classroom and things seen and concepts covered during the field trip. Students demonstrated that they understand the factors influencing water availability in Southern California and particularly Los Angeles, understand the concepts and principles of water and watershed management, can specify and quantify the important components of water management systems, can define water management problems, can predict external effects, can identify possible causes, and propose and evaluate solutions from both environmental science and resource management perspectives. They also articulated the process steps of environmental conflict resolution and how the conflicts span borders and understand of the role of language and dialogue in policy development. The Owens Valley field trip provided students an opportunity to understand the objectives of the City of Los Angeles, as well as the politics/negotiations required to accomplish these goals, and negotiate water quantity and quality for their constituents and protect the environment.

(2) HOW DID THE ACTIVITY RELATE TO A COURSE(S) AND/OR LEARNING OBJECTIVES?

I assessed their learning by evaluating their posters and process demonstrations at the Water Symposium, as well as giving a written exam and had them write reflections of both the Owens Valley Field Trip and Water Symposium. I have attached a few of these reflections from both CSU Channel Islands students and Madrona Elementary students and photographs. I have been quite impressed by the application of concepts they had learned as well as their creativity towards water conservation and water education.

(3) WHAT DO YOU SEE AS THE STRENGTHS OF THE ACTIVITY?

Students take the concepts they have learned in class and apply them to a complicated real world problem in the Owens Valley and Mono Lake. The geography of the area, mountains on both sides of the valleys, is contained, and allows the students to not be too overwhelmed by thinking about all of California's water issues. This geography provides them the opportunity to focus.

(4) WHAT WOULD YOU SAY ARE/WERE THE ACTIVITY'S WEAKNESSES?

Not enough time to appreciate all of the complex issues in this valley.

(5) HOW WOULD YOU IMPROVE THIS ACTIVITY FOR NEXT TIME?

I would like to make this a four-day trip and perhaps go to Death Valley and evaluate an area with 4 inches a rain a year.

(6) WHAT DID YOU LEARN FROM THE PROCESS?

I have learned that students are passionate about and understand issues related to water. And they recognize that climate change and overpopulation need to be addressed to adequately conserve and equitably distribute this vital resource. In particular, the unprecedented drought we have experienced and one year of significant precipitation requires that students understand these complicated issues. One year of precipitation does not solve the drought problem.

(7) WHAT ARE STUDENT RESPONSES TO THE ACTIVITY? ATTACH STUDENT EVALUATIONS OR ASSESSMENTS (IN ACCORDANCE WITH FERPA RESTRICTIONS YOU MUST REMOVE ALL PERSONALLY IDENTIFIABLE STUDENT INFORMATION)

Christian Rivas
ESRM 463

Water Resource Management Field Trip to Owens Valley, CA

Our field trip to Owens Valley for my Water Resource Management class was an experience that went beyond my expectations. Going to Owens Valley to See the Los Angeles Aqueduct, Lower Owens River, Mono Lake, Rush Creek Hydro Plant, and visiting the Paiute Tribe community center gave me great insight in the many ways California manages its water.

e Paiute tribe roamed the Owens Valley to now as DWP manages the water resources there.

When visiting Owens and Mono Lake I learned about the negative consequences that occur when water management practices go unchecked and sustainability is not involved planning. When talking to DWP employees that manage the Lower Owens Lake and a resident of the Owens Valley who fought DWP to reverse the damages from the drying up of the lake I learned how two opposing sides could work together and compromise to fix a problem. The problem they are aiming to fix is the large dust storms that were caused by drying up the lake due to DWP diverting the water to the LA Aqueduct that eventually dried up the lake, these dust storms were affecting the health of the Owens Valley residents by causing them to breath in tiny particulates. DWP and the local environmental activist shared with is that court rulings forced DWP to reduce the dust storms and bring back crucial habitat that was lost. DWP as of now has fixed nearly 45 square miles of the over 110 square miles of the lake using different techniques such as tilling, planting salt grasses, gravel, and shallow flooding to bring back the wildlife. Since this area is an extremely important bird migratory stop it was inspiring to see that many birds have returned and that DWP is repairing the damages they have caused in the past which gave me hope that past mismanagement of our water systems can be fixed when sustainability is a key part of the overall goal.

When visiting Mono Lake, we learned how Los Angeles thirst for water that decimated Owens lake nearly destroyed Mono Lake as well. I enjoyed learning about the importance of this lake and how due to its age, nearly 1 million years old, has created a very unique ecosystem that thousands of migratory birds depend on every year. Its alkaline water due to its age breeds millions of brine shrimp which are key for the bird's survival. It's amazing how if it was not for the State Water Resource Board ordering DWP to restore the lake and implement a plan to higher the water levels of the lake Mono Lake would have been gone forever. I enjoyed our guides from Mono Lake, they were more than happy to answer any of our questions and even mentioned that they have many volunteer and internship opportunities that we could apply. I believe that is always a plus when going on these kinds of field trips because it gets us a foot in the door into these great organizations and potential employers.

Throughout this field trip, I learned more than I could have ever just sitting in a classroom about how water is managed specifically here in California. Every location brought me more insight into how important water resource management is and how there are many different ways water is used from hydroelectricity, providing water to a metropolitan area hundreds of miles away, to protecting precious ecosystems and species that come from faraway lands. This field trip and all the speakers who informed us about water resource management has made this field trip by far my favorite that I have gone on here at CSUCI.

Jessy Shelton

Water Management Field Trip
Jessy Shelton

The field trip my classmates and I went on for the Water Resource Management class was not only educational and beneficial to the class but also a really cool real-world example of issues

:. Personally, I would much rather focus on the science of water and how it acts rather than the politics and injustices that surround this vital resource. This field trip opened that world for me and showed my class just how intricate and overlapping these issues can be. I think this field trip was the perfect place to visit and get first hand experience seeing, as it is one of the biggest water issues California, specially Los Angeles, has dealt with. It felt like we got the chance to walk alongside history and go to the places I've only read about but now had the honor of visiting. We got to visit a hydropower plant which was one of my favorite parts of the trip, the workers were so thorough with the tours and patient with all of our questions which I appreciated. Learning the story behind Mono lake before the trip only to build upon that and walk the grounds with tour guides showing us both the science of the lake and expanding on its history was something I know was special for our class and am grateful to have been apart of. This was the perfect trip for this class because it ties a major water related issue to our area specifically and it's something we could all be passionate about. Also listening to Dr. O'Hirok explaining why the landscape and mountains look the way they do, due to different processes and getting a better understand of just how powerful water can be was for sure a major highlight of the trip.

I think the class ended on a fun note with the Madrona Water Symposium at an elementary school. We each took a different water related topic to explain and make a demonstration out of to show the kids at school. It was so inspiring to see these kids learn something new about water and see their genuine curiosity flare up. On the other hand, there were some kids who already knew of these processes and wanted to tell us about them which was very entertaining and impressive! This event helped me in an area I am always looking to improve upon, effectively communicating science. I think breaking something down to a level where an elementary school kid will understand can be most difficult which made this event fun and challenging.

This class was by far one of the best classes I've taken ,if not the best. This class was so special thanks to Dr. O'Hirok for her brilliant insight and approach to this course as well as the contacts she's made who each gave something special to the trip and/or symposium. I think the ESRM department is lucky to have a well-rounded class that covers so many components and perspectives of a topic in a manageable and fun course.

Christian Rivas
ESRM 463

Madrona Water Symposium Reflection

For the water Symposium at Madrona Elementary school, my group and I were tasked to share with the kids what a watershed is and the importance of them. My group and I were lucky enough to borrow a watershed model from United Water Conservation District. This was a large watershed model of Ventura County and to show the kids how a watershed works and what it is we would have them pour water using a garden watering bucket to simulate rain. As they poured water down onto the model we pointed out where the water moves and how it eventually would lead to the ocean or percolate down into the aqueduct. The kids loved our station they especially liked pouring the water on the model and pumping up the water that was filling up the replica aqueduct.

We taught them how it's important to conserve water, so we don't use too much of the aqueducts water and how if you litter anywhere along the watershed that it will eventually lead to

work. Many of the kids at the school really liked how where their school is located was actually on the watershed model, so I believe that made them more interested in what we had to say to them. One moment that really stuck out to me and even made me second guess about teaching was talking to two little girls who did not know English and were very shy. They had a translator, but I know a bit of Spanish, so I was trying to explain to them what I was teaching the other kids. They eventually warmed up to me because I was speaking Spanish to them and decided to pour water on the watershed model which they really enjoyed.

I feel like this was a great experience for both the elementary school children and my fellow classmates. Everyone seemed to be enjoying themselves and sharing their knowledge of water resource management with the kids but I also feel just our presence there and telling them we are college students from CSUCI may motivate them to get a higher education as well.

Fossil Falls

White Mountains Research Station

Owens Lake

Rush Creek

Madrona Water Symposium

IRA Expenses

Roadrunner Shuttle	$3000
White Mountains Research Station	$3690