

Instructionally Related Activities Report

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ESRM 463 Water Resources Management

Owens Valley Field Trip, March 4-6, 2016

And 5th Annual Water Symposium, April 25, 2016

DESCRIPTION OF THE ACTIVITY;

The students in ESRM 463 Water Resources Management participated in a three-day field trip (March 4-6, 2016) 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.

The trip included lectures on historical 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. Marty Purdy, an AmeriCorp intern at the Bishop Paiute Tribe Reservation showed us the restoration pond to protect the endangered Owens Valley pup fish. 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 limited 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 25th, 2016, 5th 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.

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 are currently experiencing requires that students understand these complicated issues

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.