3rd Annual Cal Poly Pomona Student Research Conference
March 6, 2015

University Library, Oral Presentations from 1 to 4 pm
Bronco Student Center (Ursa Minor), Poster Session and Reception from 4 to 6 pm

Presenter: Lucas De Buren

Class Standing: Senior

Department: Civil Engineering

College: Engineering

Faculty Mentor: Dr. Ali Sharbat

Presentation Type: Oral presentation

Project Title: Inland Desalination and Brine Management: Salt Recovery and Beneficial Uses of Brine

Synopsis: Development of a protocol for addressing salt recovery in brackish water desalination.

Abstract: Concentrate stream control is of the most prevalent problems with brackish water desalination. Aside from a few communities located next to the ocean, the rest of country does not have direct access to the ocean for disposal of the concentrate stream. Thus conventional methods for concentrate management of inland water desalination are commonly designed to dispose of the concentrate. However recent research has shown that it is possible to precipitate and recover metals and nutrients (salts) from concentrate using chemical and biological processes. The recovery of salts could provide a substantial increase in revenue, offsetting the cost of inland desalination, ideal for small developing communities. For example, lime pellets produced from chemical precipitation processes could be used as construction materials, animal feed supplements, and soil stabilization. Furthermore precipitated metals could also reduce the need for invasive mining techniques, reducing the environmental footprint while creating revenue for local communities. Therefore it is vital to develop a protocol for addressing the issue of salt recovery from the concentrate stream of inland desalination and find appropriate uses through the use of emerging technologies. This presentation will focus on discussing the various salt recovery technologies, recoverable products and potential markets for these products. It is important to note that the goal is to extract salts; additional water may not be recovered during processes discussed in this presentation.