2015-2016 Group Project Proposal:
An Economic Valuation of Southern California’s Coastal Wetlands

Proposers:
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Client: Southern California Wetlands Recovery Project (SCWRP) (see above contact info)

Proposed Project

Objectives
MESM students will defensibly value, either as a total estimated value or a range of values, the ecosystem services provided by southern California’s coastal estuarine and riverine wetlands. Though much work on ecosystem services has been done across the country, the economic value of southern California wetlands and estuarine habitats has not been thoroughly analyzed. Better understanding of both market and nonmarket values of all the ecosystem services will improve management and policy decisions regarding southern California wetlands and their representative habitats. Management of these limited and arguably valuable landscapes will become more critical as increasing coastal populations, changing climate and rising sea levels further stress wetland habitats.

As southern California’s remaining wetlands face development threats, the Southern California Wetlands Recovery Project will be able to utilize this value(s) and the developed methodology to better inform decision-makers about the true value of wetland conservation and restoration projects, as well as remaining wetland habitat.

During this group project, MESM students will

- Identify ecosystem services provided by different wetland habitats. The group will develop a methodology, using literature and datasets, to value each service using both market and nonmarket valuation methods.
- Extrapolate values for the entirety of the SCWRP focus area (coastal California from Point Conception to Tijuana), of both the individual services and the wetlands as a whole, using the developed methodology.
- Create a report detailing methods and results that SCWRP and state agencies can incorporate into their decision-making and economic modelling efforts.

Significance
Wetlands are aquatic areas with attributes of terrestrial land, such as ponds, streams, wet meadows, estuaries, and intertidal beaches. Coastal wetlands provide a multitude of ecosystem services, including flood prevention by storing excess water, pollution control by filtering and breaking down toxins, and shoreline protection by increasing their resistance to erosion from waves, tides and floods. In addition, as wetlands combine aspects of terrestrial and aquatic systems, their unique combination of vegetation types supports incredible biodiversity of flora and fauna, especially birds, making them important sites for outdoor recreation.

Despite these important values of wetlands, a high percentage of southern California’s wetlands have been lost due to human development pressures. Though there are a number of protection measures in place for southern California’s remaining wetlands, their protection status is susceptible to development pressures and human degradation. For example, Buena Vista Lagoon is one of six lagoons in the San Diego area that
serves as an important ecological and aesthetic jewel in the middle of an urban area. It is California’s first Ecological Reserve and is owned and operated by the California Department of Fish and Game. A plan to widen Interstate 5, which crosses the lagoon, is currently being negotiated and the conservation community is concerned about how construction will impact the wetland. Similarly, though there are currently protection plans in place for what remains of Ballona wetlands adjacent to Los Angeles International Airport, the wetland periodically comes under threat as new development projects arise.

It is especially important to secure a future for southern California’s remaining wetlands given that they are threatened not only by development, but also by sea level rise caused by climate change. As sea level rises, wetland ecosystems will require a buffer zone around them so their ecosystems can shift inland where they will not be permanently submerged.

As political battles arise over wetland areas like Buena Vista and Ballona, organizations across the state are attempting to identify key conservation areas and develop data for policy making. In 2015, California state agencies, including CNRA, CalEPA, CDFA, CDFW, CAL FIRE and ARB, will convene a working group to develop a National Working Lands Climate Investment Report. One of the key aspects that the CA Natural Resources Agency plans to include in this report is the estimation of overall economic value of our wetlands, encompassing both market and non-market values. This group project will be directly connected to this state-wide effort through SCWRP’s connections with the state agencies.

**Background**

The SCWRP is a 19 agency alliance, chaired by the California Natural Resources Agency and supported by the State Coastal Conservancy, which has public agencies, non-profits, scientists, and local communities working cooperatively to acquire and restore rivers, streams, and wetlands in coastal California. Formed in 1997 as a response to the rapidly diminishing coastal wetlands of southern California, SCWRP has been involved in wetland acquisition and restoration projects, pooling project funds and overseeing post-project maintenance & monitoring.

From 1998 to April 2008, close to $450 million of federal, state, local and private funding had been dedicated to SCWRP wetlands recovery projects. The SCWRP’s geographic scope is from Point Conception in Santa Barbara County to Tijuana, and comprised of five coastal counties - Santa Barbara, Ventura, Los Angeles, Orange and San Diego. The agency has successfully completed 25 projects and is currently involved in 79 conservation projects spanning its five counties. Ultimately, the SCWRP’s efforts will result in a long-term increase in the quantity and quality of the region’s wetlands.

The proposed project with Bren School’s MESM students will value the entire geographic scope of SCWRP, potentially including a case study site based on criteria such as accessibility, level of endangerment, and range of wetland ecosystem types. This case study may be extrapolated across the entire geographic scope of SCWRP. Data from SCWRP’s completed projects and studies can be used to help inform this process. A large scale, thorough economic evaluation of southern California’s wetlands has never been performed, mainly due to lack of consolidated data and well developed evaluation methods. We believe that the current level of progress in ecosystem services evaluation and development of specific valuation methods provides a solid background for Bren and SCWRP to work on materializing this project.

The findings of this project will be utilized by SCWRP and their partners, including the Natural and Working Lands Working Group.

**Available Data**

There is extensive research on ecosystem services of wetlands and estuarine habitats. Resources and background data available to the group include:

- Southern California Wetlands Inventory ([http://ceres.ca.gov/wetlands/geo_info/so_cal.html](http://ceres.ca.gov/wetlands/geo_info/so_cal.html))
- US Fish & Wildlife Wetlands Mapper ([http://www.fws.gov/wetlands/data/mapper.HTML](http://www.fws.gov/wetlands/data/mapper.HTML))
- Nature’s Value in Santa Clara County ([http://www.fws.gov/wetlands/data/mapper.HTML](http://www.fws.gov/wetlands/data/mapper.HTML)) (Methodology resource)
- Housing prices and land values from counties or from a commercial outlet.
Possible approaches

The project will likely begin with a Benefit Transfer Methodology for valuing ecosystem services. This will entail an extensive literature review to identify field-based studies on ecosystem services of wetlands throughout the U.S. and potentially the world that have hydrologic, ecological, and demographic attributes that are comparable to the wetlands of southern California. Students will draw on estimates from this existing literature (assessing both market and non-market values) to begin formulating values for different wetland types and sites in southern California. There is an extensive body of literature on the ecosystem services provided by wetlands and a large amount of information to draw on specifically on valuation of those resources (see Johnson et al.

Estimates from the literature will be considered in combination with property values surrounding southern California wetlands sites. Ashome sale values encompass risks such as susceptibility to flood, and aesthetic values, this one market-value will be core to the student's work. Non-market values, such as endangered species habitat, are less researched in literature and also more difficult ascertain from housing values, so students may do an adjusted state preference survey to estimate value.

Ultimately, the more developed approach should seek to answer the question: What costs would the city, county, state, individuals, and businesses incur if southern California's wetlands no longer existed?

Deliverables

Students will deliver an estimate for the dollar value for the market and non-market values of ecosystem services provided by southern California wetlands. In producing these dollar values, students will develop a valuation model to be used in appreciating the services provided by all of southern California's wetlands. The value of southern California's wetlands will be visually represented as a map.

The report will include recommendations on how the valuation will tie into passage of the California Water Bond and assist SCWRP and other wetlands conservation groups in acquiring land adjacent to wetlands for protection and improving restoration projects.

Internships

The Bay Foundation (TBF) will partner with the Wetlands Recovery Project to host an internship opportunity for 1-2 UCSB Bren students in 2015 to evaluate the ecosystem services and subsequent values provided by wetland systems in southern California. This essential project will contribute considerably to the current extent of knowledge and research of wetland habitats in southern California.

TBF is a 501 (c)3 non-profit organization whose mission is to restore and enhance the Santa Monica Bay through actions and partnerships that improve water quality, conserve and rehabilitate natural resources, and protect the Bay's benefits and values. To this extent, the Bren wetland valuation project fits directly in line with TBF’s guiding document, the Bay Restoration Plan, as the findings could be used to enhance coastal wetlands and connect with stakeholders about the importance of wetlands. TBF works with a broad group of stakeholders, including government agencies, environmental groups, local communities, industry and scientists, to create and put into action innovative policies and projects that clean up our waterways, create green spaces in urban areas, and restore natural habitats such as wetlands. TBF has offices in downtown Los Angeles and on the campus of Loyola Marymount University and is an equal opportunity employer. Paid internships will be dependent on funding availability, but mentorship will be provided throughout the project.

The Southern California Coastal Water Research Project has also offered to host 1 to 2 student interns working on this project. The Southern California Coastal Water Research Project (SCCWRP) is a research institute focusing on the coastal ecosystems of southern California from watersheds to the ocean. SCCWRP was formed in 1969 to enhance the scientific understanding of linkages among human activities, natural events, and the health of the southern California coastal environment; to communicate this understanding to decision makers and other stakeholders; and to suggest strategies for protecting the coastal environment for this and future generations.
References


Budget

The $1,300 provided by Bren is expected to be sufficient budget to complete the project.

Client Letter of Support

See Attached
Bren School of Environmental Science and Management  
2400 Bren Hall  
University of California, Santa Barbara  
Santa Barbara, California 93106-5131  

To Group Project Committee:

The Southern California Wetlands Recovery Project (SCWRP) (the "client") will provide unpaid internships via two of SCWRP's partners: The Bay Foundation and the Southern California Coastal Water Research Project, as outlined in the proposal.

Both the client and the students do not anticipate project costs beyond the funds provided by the Bren School. Currently no commitment for funding exists, although should the project be approved, SCWRP staff will work to obtain some level of funding to support student stipends or unmet costs as identified during the course of the project and/or internships. The client timeline and the Group Project timeline are one and the same.

The client will direct the students to available data as well as facilitate the acquisition of data as necessary. Students will have access to all available data immediately upon project commencement. Use of data is not constrained. Data sources include but are not limited to:

- Southern California Wetlands Mapping project  
- Southern California Wetlands Inventory  
- FWS Wetlands Mapper  
- EPA Surf Your Watershed  
- Department of Conservation Watershed Browser  
- USGS  
- EcoAtlas  
- U.S. Coast Survey Maps of California

Sincerely,

[Signature]

Shawn W. Kelly