

## Tectonic land level changes and their contribution to sea-level rise, Humboldt Bay region, Northern California

### Spring 2015 Status Update

Jason R. Patton<sup>1</sup>, Todd B. Williams<sup>1</sup>, Jeff Anderson<sup>2</sup>, Reed Burgette<sup>3</sup>, Tom Leroy<sup>4</sup>

1. Cascadia GeoSciences [jayp@cascadiageo.org](mailto:jayp@cascadiageo.org) [toddw@cascadiageo.org](mailto:toddw@cascadiageo.org)
2. Northern Hydrology and Engineering
3. New Mexico State University
4. Pacific Watershed Associates

This document includes material to summarize the current status of this project. We will submit our next comprehensive report at the end of June, 2015.

#### Ongoing Work

##### Trinidad Tide Gage

We will be installing the tide gage in the next month or two. We have ordered materials that were unavailable locally and hope to have these delivered in the next few weeks. Once the materials have arrived, we will construct the stilling basin and schedule an installation date with HSU. After the gage is installed, we will obtain the high precision leveling equipment from Dr. Ray Weldon the University of Oregon, Department of Geological Sciences (UODOGS).

##### Mad River Slough Tide Gage

We will proceed with this work once we have the high precision leveling equipment on loan from UODOGS.

##### Data Compilation

We are currently compiling the singular data sets (tide gage, benchmark level, GPS) into a comprehensive data set. These data will be exported as a single GIS data set as a "point" feature class.

## Tectonic Modeling

We are currently constructing the fault models that we will use to fit to the singular observations across the landscape. The output of this model will be a predictive model that people can use to estimate the tectonic contribution to Sea-Level Rise between our observation points. We are working with others who are using the same software and data sets in this region so that our work is consistent with their methods and techniques.

## **Future Work**

### Peer Review Paper

We will be writing a paper this summer that will summarize our work to date. This paper will present and discuss the results and data products that are funded by these USFWS moneys. We hope to have a draft report written prior to our June 2015 report and submitted prior to our September 2015 status update.

### Site Visit

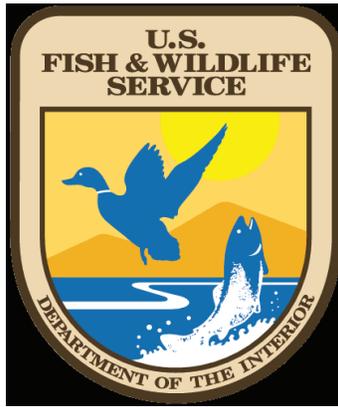
We will conduct a site visit to a tide gage with USFWS, PLCC, and stakeholder coordinators in the summer of 2015. Once Trinidad and Mad River Slough tide gages are installed, we will begin with the scheduling phase of this site visit.

### Webinar

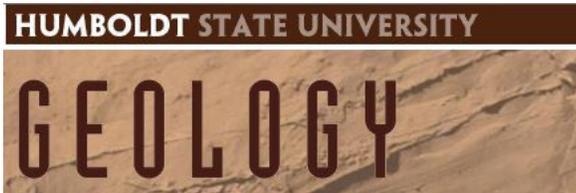
In conjunction with the site visit, we will prepare a live webinar to present our results to USFWS, PLCC, and stakeholder coordinators. The webinar will be available to the public as well and we plan to post an archive video of the webinar on our web site.

### Future Funding

We are seeking funding from UNAVCO (a non-profit university-governed consortium that facilitates geoscience research and education using geodesy) in order to place a continuous GPS receiver at the North Spit Tide Gage. Collocating a cGPS site with the tide gage will provide real time geodetic data that will allow us to better compare the tide gage, GPS, and benchmark survey data.



**Northern Hydrology & Engineering**



Cascadia GeoSciences

Apr-26-1992 M 6.6