Annotated Bibliography


Ashton, A., Walkden, M., and Dickson, M., 2011, Equilibrium responses of cliffed coasts to changes in the rate of sea level rise, Marine Geology 284.1-4: 217-229. An application of the SCape model. With mathematical simplifications and some supportive assumptions an argument is made that cliff retreat rates can be approximated by a square-root relationship to the rate of sea level rise over large timescales.


DeJong, B.J. et al., 2015, Pleistocene relative sea levels in the Chesapeake Bay region and their implications for the next century, GSA Today, v. 25, no. 8, doi: 10.1130/GSATG223A.1. Abstract Excerpt: “These results suggest that glacio-isostasy controlled relative sea level in the mid-
Atlantic region for tens of thousands of years following retreat of the Laurentide Ice Sheet and continues to influence relative sea level in the region.”

Demaria, E.M.C., Palmer, R.N., and Roundy, J.K., 2015, Regional climate change projections of streamflow characteristics in the Northeast and Midwest U.S., Jour. Hydrology: Regional Studies, 15 p. Winter precipitation increases; warmer temperatures reducing snow coverage; maximum precipitation more intense along the coast; longer seasonal low flow.


Feng Guangcai, Li Zhiweia, Shan Xinjianb, Xu Binga, and Du Yanana, 2015, Source parameters of the 2014 Mw 6.1 South Napa earthquake estimated from the Sentinel 1A, COSMO-SkyMed and GPS data, Tectonophysics, 655: 139-146. Study uses newly-available Sentinel-1A SAR data.


Furukawa, Y. and Ponce, J., 2010, Accurate, dense, and robust multiview stereopsis, IEEE Transactions on Pattern Analysis and Machine Intelligence, 32 (8): 1362-1376. Detailing the algorithm and "match, expand & filter" processing that is fundamental to the SfM technique. The content is technical, demonstrating how a computer interprets the images and constructs a 3D model, but at the very least visually interesting and worth a glance. This paper was referenced by the James & Robson (2012).

Gabriel, A., and Terich, T, 2005, Cumulative Patterns and Controls of Seawall Construction, Thurston County, Washington, Journal of Coastal Research 21(3): 430-440. Examines varying usage of coastal property and works to rank the impact on shore erosion patterns between neighboring armored and unprotected sites. Concludes unable to “support the assumption that seawall construction is strongly linked to geomorphic controls.”


James, M.R., & Robson, S., 2012, *Straightforward reconstruction of 3D surfaces* and topography with a camera: Accuracy and geoscience application, *Journal of Geophysical Research: Earth Surface*, 117(F3). Covers one of the most practical discussions of the procedure encountered so far. As an added bonus, in evaluating the methods at a variety of scales the authors present a survey of coastal cliff erosion in the UK akin to what we'd like to pursue in Maine.


Keblinsky, C.C., 2003, The characteristics that control the stability of eroding coastal bluffs in Maine: M.S. thesis, University of Maine, Orono, Maine, 98 p. Thesis provided for background information because of its parallel topics and explorations of similar areas relevant to this project.


Lim, M., Rosser, N., Petley, D., et al., 2011, Quantifying the Controls and Influence of Tide and Wave impacts on Coastal Rock Cliff Erosion, *Journal of Coastal Research* 27(1): 46-56. The erosion processes effect both hard and soft cliffs in a similar fashion with the exception of the rate at which erosion occurs. Tide and wave attack is a high-priority factor to be considered for understanding bluff retreat.

10.1109/TGRS.2013.2256428. Variation on PSInSAR that uses ultrashort spatial baselines and the German satellite TSX data to avoid the use of a DEM.


Morgan, P. A., Dionne, M., MacKenzie, R., and Miller, J., 2015, Exploring the effects of shoreline development on fringing salt marshes using nekton, benthic invertebrate, and vegetation metrics, *Estuaries and Coasts*, DOI: 10.1007/s12237-015-9947-1. “...there are substantial differences in biota between marshes adjacent to developed and undeveloped upland areas, and these differences are worth noting and monitoring. While further work would be helpful in refining these metrics, they comprise a good starting list of appropriate components of a fringing marsh monitoring program.” [ERF.ORG](#)


Ozdemir, A., 2011, Landslide Susceptibility Mapping Using Bayesian Approach in the Sultan Mountains (Aksehir, Turkey), *Natural Hazards* 59(3): 1573-607. Thorough study of factors in landslide susceptibility and another Bayesian modeling approach. Landslides studied were in mountainous region and not coastal, but much of the approach remains significant.


Annotated Bibliography


Salmun, H., and Molod, A., 2015, The Use of a Statistical Model of Storm Surge as a Bias Correction for Dynamical Surge Models and its Applicability along the U.S. East Coast.” *Journal of Marine Science and Engineering* 3(1): 73-86. Production of surge forecasts where applicable to the east coast region of the U.S. and a discussion of an alternative bias correct for NOAA forecasts. It is useful to understand extreme water level events and to examine another statistical model.


U.S. Geological Survey, 2015, *National Assessment of Storm-Induced Coastal Change Hazards*, St. Petersburg Coastal and Marine Science Center, Web. USGS Webpage details research case on shoreline response to storm events. Provided base on which to imitate the concept sketches and coastal modeling factors.


**Online Resources**

**RAE Living Shorelines**, intro video

https://www.estuaries.org/living-shorelines

“Living shorelines” is a term used to define a number of shoreline protection options that allow for natural coastal processes to remain through the strategic placement of plants, stone, sand fill, and other structural and organic materials. Living shorelines often rely on native plants, sometimes supplemented with stone sills, on-shore or off-shore breakwaters, groins or biologs to reduce wave energy, trap sediment, and filter runoff, while maintaining (or increasing) beach or wetland habitat (National Research Council, 2007). Several of these techniques are hybrids of traditional shoreline armouring and the softer approaches to shore protection. The goal is to retain much of the wind, tide, and storm-related wave protection of a hard structure, while maintaining some of the features of natural shorelines.

**RAE Report**

*Living Shorelines: From Barriers to Opportunities*


Abstract Excerpt: “Coastal areas are especially vulnerable to hazards, now and in the future, posed by waves and surges associated with sea level change and coastal storms. Coastal risk reduction can be achieved through a variety of approaches, including natural or nature-based features (e.g., wetlands and dunes).”


**Wetland Restoration and Carbon Market**

https://vimeo.com/158238082?from=outro-embed

**Massachusetts Coastal Bank Plant List**


http://www.livingshorelinesacademy.org/index.php (still under construction)

Resources from the NROC Living Shorelines Working Group:

- Gulf of Maine Council Climate Network and [Living Shorelines](#)
- NOAA’s Living Shorelines brochure: [Natural and Structural Measures for Shoreline Stabilization](#)
- The Nature Conservancy’s [Connecticut Coastal Design Project](#)
- from Restore America’s Estuaries: [Living Shorelines from Barriers to Opportunities](#)
Sentinel-1

Training course: http://seom.esa.int/landtraining2015/page_programme.php

ESA publication:
http://www.esa.int/About_Us/ESA_Publications/InSAR_Principles_Guidelines_for_SAR_Interferometry_Processing_and_Interpretation_br_ESA_TM-19


Sentinel-1 toolbox tutorials: https://sentinel.esa.int/web/sentinel/toolboxes/sentinel-1/tutorials


Study using InSAR techniques for monitoring. The full report is apparently available from Victoria via email request.

Landslides and Tree Cutting

Washington State – Tree Removal on Bluffs


Shoreline Management and Stabilization Using Vegetation

“Special mention is warranted for stumps that sprout, thus keeping the stump alive and its roots functioning. Species such as maple, willow, and madrone usually sprout and, after several years, may provide the same slope stabilizing benefits as the standing tree. It is not unusual to see cut-over slopes slide except for the area at and below a single sprouted maple stump. Also, removing a stump on a bluff via hand labor is slow and expensive and creates a bare patch subject to erosion and increased infiltration. Except in isolated instances where a stump is an obvious hazard, they should be left.”
“Mitigation of damage to the slope from tree cutting and removal of debris should be a routine condition of permitting tree removals. Mitigation specifications should reduce both short- and long-term stability and erosion impacts which are likely to occur as a result of tree removal. Measures such as revegetation with suitable native species are often effective if an agency requires adequate monitoring and project maintenance during the establishment period (3-5 years). Vegetative buffers at the crest of the slope, as well as drainage controls of upland and slope surface-water run-off are also valuable mitigation tools.”

http://www.greenbeltconsulting.com/ctp/treeremoval.html
Accessed 9/12/06 – Puget Sound, WA bluffs

Tree Cutting Permits
Tree cutting permits are required prior to the removal of trees in areas designated in Tree Cutting Permit Bylaw No. 350. The permit will be based on the recommendation in reports from a certified Arborist and a Geotechnical Engineer. These reports include an assessment of the health of the trees and the potential for erosion on the property, and certifies that cutting will not cause erosion, landslide or other hazard. The permit will require an application fee and bond based on an amount provided in the Arborist's report for any necessary replanting. Please contact the Planning & Development Division for more information before submitting a Tree Cutting Permit application.” (emphasis added)

http://www.scrd.bc.ca/planning_dev.html
Accessed 9/12/06 - British Columbia requirement for cutting trees

CLEAR CUTTING FOR LOGGING
Going Downhill Fast
Logging steep, landslide-prone slopes greatly increases the number and frequency of landslides. Ministry of Forest studies have documented that logging these precipitous slopes increases the risk of landslides to “15 to 20 times the natural rate.”

http://www.sierralegal.org/reports/landslide1.html
Accessed 9/12/06 – 15 to 20 times the risk of a landslide if clear cut steep slopes

A Tale of Two Rivers
“One U.S. Forest Service study concluded that landslides were up to five times more frequent in clear-cuts and roaded areas. An Oregon State University study found landslide frequency ranging from
24 to 253 times bigger in logged areas. In the mid-1980s, a federal judge used a similar study of the Coast Range to bait all logging in the Siuslaw National Forest's Mapleton Ranger District.”

http://www.4j.lane.edu/partners/eweb/ttr/landslide/landslides.html
Accessed 9/12/06 - Clear cuts lead to higher probability of a landslide.

OTHER REFERENCES

Great Cascadia Earthquake and Landslide dated from trees

Humbolt Co., CA lawsuit for bad logging practices
http://www.sfgate.com/cgi-bin/article.cgi?file=/c/a/2003/04/03/MN299335.DTL

Oregon – Hubbard Creek Landslide and Clearcutting
http://www.umpqua-watersheds.org/local/landslides/slides_kill.html

Washington State – Tree Removal on Bluffs