

From: Ken.Dickey [Ken.Dickey@whidbey.com]  
Sent: Friday, December 23, 2011 8:17 PM  
To: actionagenda@psp.wa.gov  
Subject: Sea Level Estimate Update

I have been reading your Action Agenda draft of 9 December 2011 and was happy to see the guideline "Use best available science" (pg 17).

I was less than happy to see an unexpectedly low estimate of sea level rise.

From your Action Agenda, pg 16: "Global sea level is rising due to ocean thermal expansion and melting of land ice. Sea level in the Puget Sound region is expected to increase 6 inches (range of 3 to 22 inches) by 2050 and by 13 inches (range of 6 to 50 inches) by 2100."

The climate system is a NON-linear system. Greenland ice core data indicates that changes in atmospheric and ocean circulation can cause dramatic, sudden change in the world's climate and sudden change is the norm rather than the exception. In particular, it appears that sea levels have risen in a number of periods by a foot and a half a decade.

Quoting from a Scientific American Article (<http://www.scientificamerican.com/article.cfm?id=ice-core-reveals-how-quickly-climate-can-change>) "... changes took place from one year to the next more or less", "Following this abrupt shift, as much as 20 degrees Fahrenheit (10 degrees Celsius) of warming occurred over the subsequent decades—a change that ultimately resulted in at least 33 feet (10 meters) of sea-level rise as the ice melted on Greenland." This sea level rise is thought to have taken place over roughly 50 years.

The last time the earth was even 3 degrees F warmer, the sea level was about 82 feet (25 meters) higher than today. [e.g. <http://www.sciencedaily.com/releases/2008/01/080115102706.htm>, references in Dianne Dumanoski's book *The End of the Long Summer*]

Even given the tenuous assumption that the climate system stays within a linear range, NASA asserts "Global sea level rose about 17 centimeters (6.7 inches) in the last century. The rate in the last decade, however, is nearly double that of the last century." [<http://climate.nasa.gov/evidence/>]

A refereed report commissioned by the World Wildlife Fund expects "Sea level will rise more than 1 metre by 2100" [[http://assets.panda.org/downloads/wwf\\_arctic\\_feedbacks\\_report.pdf](http://assets.panda.org/downloads/wwf_arctic_feedbacks_report.pdf), ARCTIC CLIMATE FEEDBACKS: GLOBAL IMPLICATIONS, pg 13].

In general, most "climate models underestimate the rate of ice thinning, which is actually about four times faster than calculations." [<http://www.sciencedaily.com/releases/2011/10/111006084040.htm> Why Climate Models Underestimated Arctic Sea Ice Retreat: No Arctic Sea Ice in Summer by End of Century? ScienceDaily (Oct. 6, 2011)].

In the absence of predictive climate models, one should be guided by what can be gleaned from the convergent evidence of ice cores, tree rings, pollen,

diatoms, et cetera. The preponderance of evidence from unfiltered, uncensored science would indicate assumptions of linear behavior to be highly suspect. Linear behavior certainly cannot be guaranteed. But even the conservative, linear models seem to indicate at least triple the "expected" estimate given in the Action Agenda draft.

Given the toxicity of many 'modern' building materials, I would prefer to see some mention of timely building removal and septic system evacuation as and when sea level rise becomes a problem. I would prefer to see specific, actionable trigger conditions. Given the uncertainties of the climate system, a scalable action plan in this area would be comforting.

All the best,  
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