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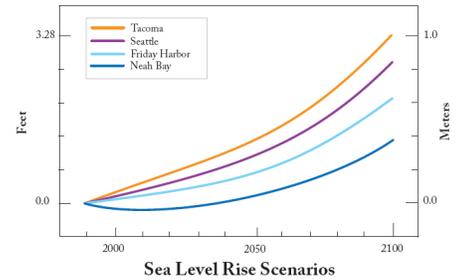
A Sea Change In Sea Level Projections: 2005 Puget Sound Estimates Cut by Two-Thirds

by Todd Myers

Claim

“The degree of sea level rise projected at Tacoma for 2050 (about 1.3 feet or 0.4 m) would not occur at Seattle until around 2060 and at Friday Harbor until around 2080. Depending on the various climate sensitivity factors and response option assumptions, the sea level rise scenarios could be 20 percent to nearly 200 percent of the mid-range scenario depicted. ... This is one of the best understood and predictable components of future climate.”

Puget Sound Action Team, “Uncertain Future: Climate Change and Its Effects on Puget Sound,” October 2005, p. 21



“The atmospheric contribution [to sea level] in all areas is 15 cm (6”) by 2100 and 7 cm (3”) for 2050.”
University of Washington Climate Impacts Group, “Sea Level Rise in the Coastal Waters of Washington State,” January 2008, p. 9 <http://cses.washington.edu/db/pdf/moteetalslr579.pdf> (Accessed 1/31/008)

Facts

Second only to the demise of polar bears, the potential change in sea level is perhaps the most commonly cited potential impact of climate change. In October 2005, the Puget Sound Action Team, with the help of the UW’s Climate Impacts Group, produced an estimate of climate-change related rise in sea level by the year 2100. The estimates vary for the region due to tectonic shifts, but the estimate for Tacoma and Seattle was about 1 meter, approximately 39 inches. These estimates were called “mid-range” but could be up to 200 percent higher, about 6½ feet, they said.

A few weeks ago, the Climate Impacts Group updated those estimates. They revised them down dramatically, estimating increases of 13 inches in Puget Sound, slightly less than half of that due to climate change. Their new high water mark estimate is 4 feet.

These numbers should play a central role in our discussion about climate change. Policies are geared to address the level of the threat of an issue. The greater the potential impact, the greater the willingness of the public to pay to address it. As we refine the science of climate change, we need to refine the policies we offer to address it.

Uncertain Future and Uncertain Data

The Puget Sound Action Team’s 2005 report was the first major, public effort to calculate the potential impacts from climate change on the Puget Sound Region. We’ve taken issue with exaggerations and misleading statements included in the report in the past. It is likely, however, that the data on sea level were simply incomplete at the time they made the report.¹

¹ Todd Myers, “Northwest Global Warming Data Isn’t As Clear As Some Claim,” *Environmental Watch*, February 2006, <http://www.washingtonpolicy.org/EnvironmentalWatch/February%202006%20Environmental%20Watch.pdf> (January 31, 2008)



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That wasn't what they said at the time, however.

In the report, they cited the graph above, saying that sea level rise is one of the “best understood and predictable components of future climate.” Their projections from such a dramatic increase in sea level were dire. The Seattle P-I wrote at the time that, “Water managers in the region need to take the changes seriously, [Head of the UW Climate Impacts Group Phil] Mote warned. ‘There will be a day of reckoning.’”²

The Washington State Department of Ecology used these estimates in its 2006 report outlining the potential economic impact on the state from climate change. To be conservative, they cut the potential increase to 2 feet, but also ran models using catastrophic estimates of 10 feet and 20 feet. They wrote that “At least 44,429 people – more than the current population of Olympia – live in areas that would be affected by this inundation.”³ This was of great concern, because, they wrote “Like other aspects of climate change, sea levels appear to be rising faster than earlier models had projected.”⁴

Using these costs, many argued that even expensive policies to address climate change made economic sense due to the significant potential impacts.

A Downward Revision in 2008

This month the Climate Impacts Group at the UW updated their estimates in a report that combined the impact from climate change and changes in the land level from tectonic shifts. Their numbers offer a significant change from the previous estimates.

The data is generated by applying the projections of the UN’s Intergovernmental Panel on Climate Change (IPCC) to Washington state.

In the new report they indicate that the “medium” estimate for sea level rise in the Puget Sound by 2100 is 13 inches. The high end estimate is 50 inches, just

over four feet. This, however, was described by Phil Mote, one of the authors, as “very unlikely” in the *Seattle Times*.⁵ Of that 13 inches, six inches are associated with climate change.

SLR Estimate	Components	2050			2100		
		NW Olympic Peninsula	Central & Southern Coast	Puget Sound	NW Olympic Peninsula	Central & Southern Coast	Puget Sound
Very Low	Global SLR	9 cm			18 cm		
	Atm. Dynamics	-1 cm			-2 cm		
	VLM	-20 cm	-5 cm	0 cm	-40 cm	-10 cm	0 cm
	Total	-12 cm (-5")	3 cm (1")	8 cm (3")	-24 cm (-9")	6 cm (2")	16 cm (6")
Medium	Global SLR	15 cm			34 cm		
	Atm. Dynamics	0 cm			0 cm		
	VLM	-15 cm	-2.5 cm	0 cm	-30 cm	-5 cm	0 cm
	Total	0 cm (0")	12.5 cm (5")	15 cm (6")	4 cm (2")	29 cm (11")	34 cm (13")
Very High	Global SLR	38 cm			93 cm		
	Atm. Dynamics	7 cm			15 cm		
	VLM	-10 cm	0 cm	10 cm	-20 cm	0 cm	20 cm
	Total	35 cm (14")	45 cm (18")	55 cm (22")	88 cm (35")	108 cm (43")	128 cm (50")

² Lisa Stiffler, “Sound Warning: Scientists say the region is already feeling climate change,” *Seattle Post-Intelligencer*, October 18, 2005 http://seattlepi.nwsource.com/local/244995_soundclimate18.html (Accessed January 31, 2008)

³ Washington State Department of Ecology, “Impacts of Climate Change on Washington’s Economy: A Preliminary Assessment of Risks and Opportunities,” November 2006, p. 66 <http://www.ecy.wa.gov/pubs/0701010.pdf> (Accessed January 31, 2008)

⁴ *Ibid.*

⁵ University of Washington Climate Impacts Group, “Sea Level Rise in the Coastal Waters of Washington State,” January 2008, p. 9 <http://ces.washington.edu/db/pdf/moteetalr579.pdf> (Accessed 1/31/008)

⁶ Lisa Stiffler, “Sea level rise of 6 inches by 2050 in Puget Sound,” *Seattle P-I Dateline Earth Blog*, <http://blog.seattlepi.nwsource.com/environment/archives/129696.asp> (Accessed January 31, 2008)

The data show that while the impact of climate change on sea level is not zero, it is significantly lower than was previously projected and modeled in the economic estimates. The change in the numbers was ignored by many who wrote about the previous estimates. The *Seattle P-I* even went so far to say on their blog that “The figures seem pretty similar to what’s been predicted in the past.”⁶

The Governor’s Climate Advisory Team did make note of the numbers, but did not indicate that they had been revised downward from past estimates.

Some may argue that these numbers are conservative, and time will tell. We do know, however, that when the much higher estimates were released in the past they were all called conservative, and the level of uncertainty in the science was dismissed.

Costs

There can be no question that misunderstanding the nature of the impacts from climate change will lead to expensive policy mistakes. Former President Bill Clinton highlighted the danger of reacting incorrectly to climate change when he told a group in Denver that, “We just have to slow down our economy and cut back our greenhouse gas emissions.”⁷

If these projections are correct, mitigation becomes an increasingly attractive approach to address the potential impacts from climate change. It is important to make sure we match the policies to the problems. As we move forward examining policies to address climate change and reduce CO2 emissions, we may find that we have spent a tremendous amount on climate change and have little left over for other priorities -- transportation, health care for the poor, education or tax cuts for working families.

Perhaps more important is that many of the proposals to address climate change are specifically designed to, in the words of the Governor’s Climate Advisory Team, “transform our economy and our lifestyles.”⁸ Efforts to make families change where they live, how they live and how they work should only be undertaken by government when there are no other good alternatives. As the science advances and potential impacts from climate change are pared down, politicians need to make sure that impacts on our economy and lifestyles are appropriate to the challenge.

⁷ Jake Tapper, “Bill: ‘We Just Have to Slow Down Our Economy’ to Fight Global Warming,” *ABC News Political Punch* blog, <http://blogs.abcnews.com/politicalpunch/2008/01/bill-we-just-ha.html> (Accessed January 31, 2008) ⁷ Jake Tapper,

⁸ Washington State Climate Advisory Team, “A Comprehensive Climate Approach for Washington: Draft Recommendations of the Washington Climate Advisory Team,” December 21, 2007 http://www.ecy.wa.gov/climatechange/CAT-docs/122107_1_recommendations.pdf (Accessed January 31, 2008)