Golden Gate Climate Update Transcript

Interview with Dr. Noah Knowles
Research Hydrologist, U.S. Geological Survey
Interviewed on November 3, 2009

James Osborne interviewer

Part 2

Music begins and fades slightly

James - Hi, I'm Ranger James Osborne, and welcome to Golden Gate Climate Update, your source for information on climate change and sustainability.

This episode is a continuation of our interview at Crissy Field with Dr. Noah Knowles, a Research Hydrologist with the U.S. Geological Survey who studies climate change and how it may affect the San Francisco Bay ecosystems. But before we get back to the interview, here is the answer to our climate update challenge. In 2006, 75 percent more Antarctic ice melted than in 1992.

Now back to Noah. So I have to ask you, could you see parks actually mechanically depositing sediment or fill to maintain wetlands?

Noah - It is certainly been something that has been talked about. In the San Francisco Bay, for example, usually the proposed deposits are proposed to come from dredged material, which is often contaminated in the bay with mercury. So you have problems like that. What's in the material you're using to create those higher grounds? But certainly, that's one possible avenue. Sediment is in short supply around here. The sediment supply coming from the upstream watershed, from the Sierra and from the Central Valley appears to be declining. So it's unclear if there is enough sediment for that kind of mitigation effort. There are wetlands in South Bay, towards San Jose, where we sort of had an unintended experiment. They pumped groundwater, for freshwater use, out of the underground aquifers and what that led to around the periphery of the bay down there was some subsidence of the land surface of up to a meter over just a few decades. And the wetlands down there showed a remarkable capacity to accumulate sediment and accumulate organic matter quickly enough to keep up with that, and that is actually a faster rate of sea level rise than we are talking about here, at least in the near future. So, you know, there are possibilities, and they're sometimes fairly surprising.

James - So the question then is where can they go upland? For example here at the Presidio, the development extends down to the bay.

Noah - It's a highly urbanized estuary, so there is not a lot of places for new wetlands to go, but that makes the places where it is possible all the more precious.

James - How much will reducing greenhouse gas emissions slow sea level rise in the next century?

Noah - Well, the range of projections right now runs from about half a meter to 1 and a half or 1.4 m, so the low end, the sort of optimistic emissions scenario projection corresponds to about a half of meter of rise. So this is something we're going to have to deal with.

James - And how might our listening audience help to slow that rise?

Noah - From my point of view, one of the most important things is to educate people, and for people to educate themselves on the types of impacts we're likely to see in coastal communities and one way to really communicate this is just to make maps of areas that are vulnerable to inundations. That's the kind of thing I have been working on, and what you are showing here at your display at Crissy Field, showing what kind of vulnerability a place like this is subject to, and just communicating that, really has an impact on people.

James - Well thank you Noah for talking with us today. For our listening audience, please join our next podcast, when we will be interviewing Dr. David Ackerly, Professor of integrative biology at UC Berkeley, who studies climate change and botanical response in California. Until our next podcast this is James Osborne. Thanks for listening.

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Male voice - Golden Gate Climate Update is produced by Will Elder and is a product of the Earth to Sky Program, an innovative partnership between the National Park Service and NASA.

Music from *A Walk in the Desert* by Electronic Symphonic