Real Climate has a very interesting if occasionally highly technical post on sea level rise. There's considerable disagreement about projections. Some projections rely on detailed modeling of the dynamics; others are based on fitting a model to past changes, more or less the way economists do modeling. The latter, "semi-empirical" projects are also in some disagreement, and the Real Climate posting tries to sort that out. The models can be translated into a simple equation — I think this will be the first time we've used an equation on Legal Planet so take a deep breath:

$S(t) = a \int \Delta T(t') \, dt' + b \, t$

This is simpler than it looks. It means that sea level change has two parts. One part is just an extension of on-going sea level change that began before the 20th Century with a slowly warming climate; the other part is some number times cumulative temperature increase since 1900. This is a linear equation (the graph would be a straight line), but you can make it fancier by adding some non-linearities — for instance, to take into account the fact that the more ice melts, the less is left to continue melting. The linearity is based on the assumption that sea level change is a slow process that takes place over centuries after the temperature reaches a new level, so the rate of change doesn't fluctuate much during relatively short (100 year) time periods. (But in fact there could be positive or negative feedbacks that operate on shorter time scales, so linearity is just a plausible assumption, not a fact).

All of this is very interesting and makes it clear why it's hard to fit these curves: the 20th Century temperature increase was small (most of the carbon and temperature increase was backloaded to the end of the century), so there's not really enough variabiity between the 19th century and the 20th century to get a precise fix on coefficients ***a*** and ***b***. However, the numbers used in a recent study that projected very low climate change in the next century appear to under-predict 20th century climate change by a factor of two due to a calculation error.

The other models, which seem more plausible, are said by the Copenhagen consensus report to predict an increase of around a meter or more by the end of this century. (A meter is about 39 inches, for those who conside the metric system unpatriotic.) Alas, there is a lot of uncertainty, which is going to make land use planning and flood control design that much harder. It will take more than a meter of sea level rise to make my house into beachfront property, but in a hundred years the Bay may be a walkable distance.