The sky is not falling in the sense that all is about to end. It IS falling in the sense that CO2 is leaving the sky and entering the ocean. As a result, the ocean is Warming Rising and Acidifying. Those physical changes, in turn, are changing the biology of the oceans.
CO2 is a trace gas, < 1% of our atmosphere. But that small percentage has tremendous impacts. CO2 is removed from the atmosphere by terrestrial plants during photosynthesis and some is returned during respiration. The net flux is 1.4 billion mt per year removed from the atmosphere. Marine plants take up another 1.7 billion mt / yr. Human activities, on the other hand, are causing a net movement of CO2 to the atmosphere. 1.6 billion mt /yr added from deforestation and other land use changes and over 6 billion mt /yr from burning fossil fuels.
If we look back, we see that the level of CO2 in the atmosphere has varied between 150 and 250 ppm for millenia. Since the onset of the industrial revolution, however, we have raised the concentration to 380 ppm and growing.

The absolute levels of CO2 and other GHGs are of concern and, I stress, the RATE of CHANGE is critical, especially in terms of biological responses.

All of the major global climate models agree that we are headed for substantial further warming. The magnitude of that warming does vary between models. A major unknown contributing to the variation is the level of our future GHG emissions.
Thanks to the Scenarios Network for AK Planning, the models that best fit Alaska have been downscaled to make predictions at 2 km resolution.

The predictions for coastal Alaska give some idea of the impacts on our seas. If we look at March air temperatures in 1980, we see it averaged -18 for our northern most coast and 32 for our southern most coast.

By the end of this century, however, the north coast will have warmed by almost 20 degrees, and southeastern Alaska will have warmed by something like 4 – 14 degrees in March.
Let’s take a look at some of the effects that warming is and will continue to have on:

Sea level
Ocean acidity
Ocean habitats

and let’s ask, *what are the time scales and spatial scales on which these effects are important?*
The warming is raising sea level by expanding the volume of the oceans, melting glaciers, and more significantly,
ice sheets like that of Greenland are melting. There are a lot of unknowns that make the rate of sea level rise difficult to predict – especially with regards to ice sheet dynamics - but we may well see a 3 – 6 ft rise in sea level in the next century. That may not sound like much, until you consider that 75% of the world’s human population lives in low-lying coastal areas. Furthermore, flooding of those regions will result not just from the gradual increase in sea level, but also from episodic storm surges.
Even if a rise in sea level is not sufficient to flood an area of interest immediately, the rise will decrease the time between flooding events caused by storm surges. Thus, flooding events that historically took place at intervals of 100 years, will take place every 50 years if the sea level rises 5 inches and every 10 years if sea level rises 15 inches.
Alaska’s many coastal communities will be increasingly impacted by storm-enhanced erosion.

Wall Street and the New York subway system can be expected to be inundated every decade with a foot or so of sea level rise.

We have only to think of the national and international reverberations from the damage of the 9/11 attacks to recognize that this kind of large-scale damage in our financial center would greatly impact us all.
Of course, we are being impacted by what happens at sea as well as at our shores. We depend economically, socially, and ecologically on the biology of the ocean.

We all know from basic biology that two key environmental variables setting limits on biological processes are TEMP and pH. CO2 increases in the ocean are increasing ocean acidity, as well as temp., with tremendous consequences for marine organisms.
As CO2 concentrations have risen in the atmosphere (red), they also have risen in the ocean with a parallel decrease in pH, i.e., the oceans have become more acidic.

Jeff Short is going to talk more about ocean acidification, but I do want to stress one point here. Acidification will increasingly have adverse impacts on the organisms that sustain our fisheries.
One example: Pteropods are molluscs related to snails. Pteropds, like snails, build shells from calcium. In acidic waters those shells dissolve or fail to form. Salmon, herring, cod, and many other fish depend heavily on pteropods as food. They make up almost half of the diet of some salmon species.
The Bering Sea, one of the most productive marine ecosystems in the world, produces more than 1 million metric tons of fish and shellfish each year. Many commercial species and their prey are limited in distribution by low temperatures of bottom water in areas dominated by seasonal sea ice. As the ice cover diminishes, however, the cold bottom water is moving northward, and
subarctic species are moving with it. Franz Mueter and Mike Litzow have documented the northward shift for several species.
These changes in distribution will have implications for fisheries locally, regionally, nationally, and internationally.
Habitat change is not limited to the Bering Sea. Throughout the Arctic Ocean, sea ice cover is diminishing rapidly. From 1979–2000, the Sep average ice extent was over 7 mill sq km. In 2007, it was 4.3 mill sq km. Last September, the 2008 minimum was 4.6 million sq km. We are witnessing the melt of a continental size habitat for a distinct community of organisms.
Algae growing in and on the ice supports grazers, consumers, and

http://www.arcodiv.org/seaice/amphipods/index.html
top level predators.

Whales, seals, and walruses exploit the sub ice ecosystem. The seals and walruses also depend on Arctic sea ice also as a platform on which to rest, give birth, nurse their young, and molt.

The impending loss of summer sea ice may force molting seals on to continental shorelines where they will face increased predation. In fact, we already are seeing this with Pac walruses.

Renewed gene flow within and between species will increase, as the barrier formed by ice in the Arctic Ocean diminishes. Hybridizations likely will contribute to extinctions.
The ocean is vital to the economy and well being of Alaskans. The loss of much of our ice over will open new ecological & economic opportunities, but in each case, a key question will be how rapidly will change take place?

Ecological change can come about gradually, allowing adaptive evolutionary response

  e.g., evolution of green plants

But ecological change can also come about rapidly, for example,
when meteors strike the surface. Such rapid climate changes are typified by mass extinctions.