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BOB DOPPELT: Carbon emissions bring ecological debt we can't afford

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Economists claim the financial crisis, driven by a decadelong boom of housing and consumption-related indebtedness, is almost over. Maybe so. But our ecological debt continues to grow.

Just as it is a truism in business that a heavy dependence on borrowed money produces short-term gain and long-term pain, we have achieved economic growth by borrowing against the future. Big trouble will follow.

One of our largest ecological debts is global warming. Reducing this debt was the goal of the recent U.N. climate summit in Copenhagen. Despite repeated admonitions about the dire consequences of inaction, world leaders failed to produce a plan to cut fossil fuel emissions that are warming the planet and destabilizing the climate. Our atmospheric debt continues to grow.

At the summit, however, another major fossil-fuel related ecological liability was highlighted. That's ocean acidification, which scientists call the "evil twin of climate change."

To draw attention to the problem, the International Union for the Conservation of Nature released a guide to ocean acidification at the summit. It said that the ocean naturally stores carbon. The carbon dioxide dissolves in sea water to form carbonic acid.

Current emissions of CO₂ are far beyond historic levels, and the oceans are absorbing larger amounts at faster rates. Ocean acidity is today about 30 percent higher than it was before the industrial revolution began, and greater than any time in the past 500,000 years.

Oregon State University professor Jane Lubchenco, currently on leave as head of the National Oceanic and Atmospheric Administration, also made a presentation about ocean acidification at the summit. Global warming is heating up the oceans and causing sea levels to rise, she said. Scientists also believe acidification is related to the increasing number of low-oxygen marine "dead zones" found along the Oregon Coast and elsewhere worldwide.

Upwelling along the continental shelf of the Pacific coast brings low-oxygen, nutrient-rich

waters to the surface. This causes plankton production to increase. Their growth and die-off significantly depletes oxygen levels, which forces other marine life to flee the area or die — thus the term “dead zones.”

Studies show that the CO₂ in the upwelling water is increasing. In addition, stronger, persistent coastal winds from the north, which scientists expect with global warming, seem to contribute to increased plankton production by holding the low-oxygen, high-nutrient water on the continental shelf for longer periods.

Although rare in the past, dead zones occurred annually between 2002 and 2009 along the Northwest coast, according to Lubchenco, and 2006 broke all records.

Still another acidification presentation at the summit was made by the Convention on Biological Diversity, a consortium of 192 member states formed by an international treaty aimed at conserving biodiversity. This one focused on the implications for marine biodiversity.

The CBD concluded that if emissions continue on their current path, by 2050 ocean acidity is likely to increase by 150 percent. The rise will happen too quickly for many organisms to adapt. The result would be a dramatic loss of biodiversity.

By 2032, for example, the highly productive Arctic Ocean will no longer contain a sufficient amount of essential carbonate materials. Similar conditions will exist elsewhere by 2050. Major effects on species whose growth relies on calcium — such as oysters, shrimp, crab and lobsters — will follow.

By century's end about 70 percent of the world's coral reefs, which form key feeding grounds and habitat for commercial fish species, will also be exposed to high levels of acidification.

Serious consequences will follow. According to the CBD, shellfish and crustaceans in 2006 provided 50 percent of the \$4 billion U.S. commercial fishing industry. Processing, wholesaling and retail produced sales of \$69.5 billion, contributed \$35 billion in value added to the U.S. economy, and created about 70,000 jobs.

If CO₂ emissions remain unchecked, by mid-century ocean acidification will substantially decrease fish productivity, leaving millions of people without food and putting thousands out of work.

Although some analysts warned us about the risks of excessive financial debt, we were blinded by ideology, misinformation and claims that the good times would go on forever.

You'd think we'd learn from our mistakes. But ideology, misinformation and wishful thinking are again preventing us from seeing that disastrous results are certain if we fail to adopt policies to reduce our fossil-fuel emissions.

We've seen this movie before. Let's not make a sequel. Just as with the financial debt crisis, we have the knowledge, skills and technical capacity to reduce our ecological debt. Let's use them.

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