



Senate Committee on Global Warming and Climate Change
Regional Hearing
The State of Our Oceans
August 2, 2007
1:00-4:00 p.m.
Cape Cod Community College

Testimony of Jack Clarke, Director of Public Policy & Government Relations

Thank you first to the Senate Committee on Global Warming and Climate Change for providing this opportunity to speak on the effects of global warming on our ocean resources.

And thank you Senator Pacheco for your leadership on this issue and filing *The Massachusetts Global Warming Solutions Act of 2007*, and your continued support for Senator O'Leary's *Massachusetts Ocean Management Act*.

My name is Jack Clarke and I am the director of public policy and government relations for Mass Audubon.

As background, for ten years I worked for US Department of the Interior here on Cape Cod at the National Seashore. Following that, for eight years I coordinated the Commonwealth's Coastal Zone Management Program on the Cape before becoming the state assistant director.

As you may know, a United Nations panel on climate change recently predicted that the world could warm up by between 1.5 and 5.8 degrees by the end of the century - with clear proof that people are to blame. Scientists have predicted that above 2 degrees, the warming will push the planet into the unknown as ice caps melt, sea levels rise, and weather patterns change at accelerating rates.

While greenhouse gases are driving these changes, carbon dioxide (CO₂) is the primary culprit behind this trend. This gas traps heat in the lower atmosphere, resulting in a planet that is at its warmest in 1,000 years. With just 5 percent of the global population, America produces 25 percent of the CO₂.

This warming poses a profound threat to human and beast alike with marine life and seabirds being especially vulnerable.

Global warming may be driving 12 percent of the world's bird species to extinction. Baitfish for catching commercially important fish species are at risk. And the shoreline habitat of coastal-dependent wildlife is rapidly eroding, submerging or otherwise washing away. Here on Cape Cod, we lose 25 acres a year due to sea level rise caused primarily by melting glaciers.

As would be expected, a warmer climate produces warmer oceans. In turn, warmer oceans wreck havoc with the food chain beginning with krill at the bottom. Krill are free-floating, one-to-two inch shrimp-like crustaceans. They anchor this sea chain and are a key food source for marine life from seabirds to cod to whales. Heat the water, and cold water-dependent krill disappear.

When this happens the food chain starts its upward unraveling.

Last year a record number of dead seabirds washed up along British and northwestern United States shorelines alarming biologists that rising ocean temperatures are to blame. Seabirds are the canary-in-the-coal mine indicating the health of the planet's oceans.

Shorebirds are threatened not only by a loss of small baitfish but by rising seas that submerge feeding, foraging, and breeding grounds.

A global warming-induced increase in the ferocity and frequency of hurricanes and heavy rains flood, displace, and otherwise destroy areas upon which migrating waterfowl and fish nurseries depend.

Especially vulnerable are shallow wetlands that provide wintering habitat for diving ducks such as canvasbacks, redheads, ruddy ducks, and scaup. The loss of prime breeding grounds and coastal winter habitat for sea ducks as well as many goose species results in substantial population declines and disruptions in migration patterns.

Rapid climate change is also playing havoc with the timing of the seasons and is altering the breeding and migration patterns of birds. In addition to warmer summer temperatures, there is an earlier arrival of spring and earlier snowmelts that confuse avian migrants searching for familiar nesting sites.

A warmer fall and winter reduces seasonal northern ice covers, making it unnecessary for ducks and geese to fly as far south to find ice-free water and food as their habitat shifts. Ducks and geese have responded to the creeping heat by breeding earlier and expanding their ranges farther north.

But many populations may not be able to make the shift.

Draining of wetlands, pollution, and coastal development already narrow options for birds to live elsewhere. Many migratory corridors have been closed off by urban sprawl, cities, and agriculture.

We need to:

- Significantly cut energy use through conservation;
- Apply more renewable energy based solutions such as wind, wave and solar;
- Pass *The Massachusetts Oceans Act* to allow for small-scale off-shore renewable energy projects that are otherwise prohibited by existing law and are an option to industrial-scale projects in state waters;
- Initiate a CO2 tax on energy sources;
- Reduce CO2 emissions by twenty percent by 2020 and eighty-five percent by 2050. This needs to be accomplished across all energy production sectors;
- Implement the Regional Greenhouse Gas Initiative; and finally
- Transform Massachusetts into a center for research, development, manufacturing, and use of renewable energy technologies. This will harness our region's R&D capabilities, take advantage of our colleges and universities, and provide jobs.

At Mass Audubon:

- We have reduced our own CO2 emissions by 25% over the last four years;
- Here on Cape Cod, we purchase 100% green energy for our properties;
- At our Wellfleet Bay site on the Lower Cape, our Wildlife Sanctuary renovation and expansion followed the Leadership in Energy and Environmental Design green building rating system. We are now awaiting the highest Platinum-rating award from the US Green Building Council. To achieve these standards, we used the most advanced roof, window, and ventilation designs to minimize energy consumption in our buildings. To lessen impact on land and conserve water, we installed a rainwater re-use system, composting toilets, and a graywater bog garden. A 21 kW solar ground array panel system reduces the electricity drawn from the public electric provider, allowing us to take a dramatic step toward energy self-reliance. And we are presently measuring wind velocity in anticipation of employing a wind turbine in the near future

Mr. Chairman, as you know, nature has always had to adapt to changing climate conditions - indeed, it is one of the driving forces behind the process of evolution and the diversity of life. However, the changes we see now are far too rapid for species to evolve new survival strategies. What is most surprising to those of us at Mass Audubon is that the heating and changes are happening so fast.

When we mess with nature like this, we face the likelihood that the world of wildlife, as we know it, along with the places we've invested over a century of work in conserving as wildlife sanctuaries, will be forever destroyed.

Thank you.