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Author: Carr, Julie Palakovich

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Will Congress Include Ecosystem Monitoring in Climate Legislation?

JULIE PALAKOVICH CARR

Coral bleaching, earlier leaf budding, pika range shifts—these are only a few of the documented effects of climate change on species and ecosystems. Congress is trying to pass legislation responding to climate change, yet some scientists are wondering whether policy-makers understand the importance of including ecosystem monitoring in the policy response to climate change.

The Intergovernmental Panel on Climate Change (IPCC) and many biologists have voiced support for an ecosystem observation system to monitor climate-related changes in species' distribution and abundance, ecosystem disturbance, phenology, nutrient cycling, and other ecological data. Such environmental observations, the IPCC says, are "vital to allow for adjustments in management strategies." The Climate Change Science Program (CCSP), the inter-agency organization responsible for federal climate research, has identified a need to expand existing monitoring networks and to develop new capabilities for ecosystem observations. A 2009 review of the CCSP by the National Academy of Sciences (NAS) reported that the establishment of a climate observation system to monitor physical, biological, and social systems was a top priority for the program. Progress has been slow despite the continuing need for data.

Congress has heard this message. In the last six years, at least 20 witnesses have testified before Congress about the importance of ecosystem monitoring as a core element in climate-change science. Appearing before the House Appropriations Subcommittee on Interior and Environment in April, conservationist Jeff Corwin, host of Animal Planet's *The Corwin Experience*, said: "As a biologist, I firmly believe that we should start by expanding our scientific understanding of global warming's impacts on the living world. We cannot develop and imple-

ment an effective strategy without this knowledge."

In the 110th Congress, Senator John Kerry (D-MA) introduced S. 2307, the "Global Change Research Improvement Act of 2007." Had it been enacted, S. 2307 would have required CCSP to inventory current observation systems relevant to climate change research, and to prioritize additional monitoring needs. Although the Senate Committee on Commerce, Science, and Transportation reported the legislation out, the congressional session ended before the Senate voted on the measure; the act was cleared from the books and did not become law.

Nonetheless, debate continues in the 111th Congress on how to respond to global climate change. Several pieces of legislation have been introduced in the House of Representatives and Senate. In late March 2009, Representative Henry Waxman (D-CA), chairman of the Energy and Commerce Committee, released a discussion draft of "The American Clean Energy and Security Act of 2009," the legislation viewed as the most likely to move through the legislative process. Indeed, on 15 May a revised version of the bill was introduced in the House (H.R. 2454). In addition to cutting greenhouse gas emissions and promoting renewable energy, the bill stipulates that the National Oceanic and Atmospheric Administration (NOAA) and the US Geological Survey (USGS) collaborate to establish a coordinated process for providing information on the impacts of climate change and ocean acidification on natural resources.

Many of the act's ecosystem monitoring requirements, however, would fall to the states. To receive federal funding, states would have to establish programs to monitor the impacts of climate change on fish, wildlife and

plant populations, ecosystems, and ecological processes. Each state's natural resources climate adaptation plan would be subject to approval by the secretaries of Interior and Commerce, although the bill does not specify the standards to which states would be held. A mosaic of state monitoring programs does raise some concerns. A 2009 NAS report cites reservations about the CCSP using climate-related data voluntarily provided by federal and state agencies, as the CCSP would not have the authority to ensure continued data collection from these agencies. Donald Boesch, a member of the Ocean Studies Board of the National Research Council, raised similar concerns during a 2007 Senate Commerce Committee hearing. "Many existing and planned observing systems have been cancelled, delayed, or degraded," he said.

Climate-related ecosystem monitoring efforts might also piggyback on existing ecosystem observation systems, such as the Integrated Ocean Observation System at NOAA, or the National Science Foundation's proposed National Ecological Observatory Network. Alternatively, a federal agency or program could take the lead on ecosystem monitoring. The new National Climate Change and Wildlife Service Center at the USGS may be a logical choice, although other programs in USGS or NOAA may also be appropriate.

No matter where the ecosystem monitoring efforts are eventually lodged, the need for environmental monitoring is widely accepted by the scientific community.

Julie Palakovich Carr (e-mail: jpalakovichcarr@aibs.org) is an AIBS public policy associate.

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