

NOAA Administrator Reviews Agency Progress and Challenges

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The approach of the new year is a traditional time to tally up successes, failures, and the path ahead. Jane Lubchenco, administrator of the U.S. National Oceanic and Atmospheric Administration (NOAA), examined some agency advances and significant challenges during the 7 December Union Agency Lecture at the AGU Fall Meeting, during a press briefing, and in an interview with *Eos*.

Lubchenco focused on several key areas including the concern about monitoring, mitigating, and managing extreme events; budgetary pressures the agency faces in current fiscal year (FY) 2012 and in FY 2013, with President Barack Obama on 18 November having signed into law a bill, HR 2112, following congressional agreement on a budget legislation conference report; and NOAA's newly released scientific integrity policy (see "[NOAA issues scientific integrity policy](#)," *Eos Trans. AGU*, 92(50), 467, doi:10.1029/2011EO500004, 2011).

The year 2011 "is already in the record books as a year of historic extreme events," she said during her Fall Meeting talk entitled "Predicting and Managing Extreme Weather and Climate Events." Twelve extreme weather events—including a hurricane, tornadoes, flooding, a drought and heat wave, and wildfires—have each totaled at least \$1 billion in damages; Lubchenco said the aggregate damage from the 12 events is \$52 billion, and she cautioned that the year is not over yet.

The previous record for extreme events (each of which caused at least \$1 billion in damages) was nine, set in 2008. The reason for the new record, Lubchenco said, is fourfold: There are more such extreme events; there are more people who also have more possessions that can be damaged; more people and more things are located in harm's way, such as in coastal areas; and more people now have insurance for some extreme weather events.

Lubchenco said the Intergovernmental Panel on Climate Change's 18 November special report, *Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation*, "suggests that what we are seeing this year is not just an anomalous year but a harbinger of things to come, at least for a subset of those extreme events that we are tallying, specifically the heat waves, droughts, and extreme precipitation events."

Stating that "pressure to reduce federal spending is fierce," Lubchenco said, "the irony is that the demand for services provided by agencies like NOAA is at an all-time high and growing." She explained that "NOAA has been busy predicting the weather-related extreme events we've seen this year. However, our capacity to continue to do so is seriously threatened by downward pressure on our budgets."

"Our experiences with budgets last year and this year are likely a harbinger

of challenging times ahead for sustaining and improving our ability to predict and therefore manage extreme events. The road ahead has great uncertainty. Observing systems, research, and high-performance computing are all absolute prerequisites to producing weather and climate forecasts, and all are at risk. We need to make sure that the current economic and political landscapes don't erode our ability to provide accurate, reliable forecasts," she added.

NOAA Budget Concerns

NOAA's overall \$4.9 billion final budget for FY 2012 is less than the administration's request for \$5.5 billion, although it is 7% above the FY 2011 enacted level for NOAA, according to statements from congressional appropriators. Within the overall budget, funding for the National Environmental Satellite, Data, and Information Service increased by 31% to \$1.9 billion and National Weather Service funding rose 2% to \$998 million, according to a budget analysis by the Friends of NOAA (FoNOAA) organization. Funding for other NOAA line offices dropped, including for the Office of Oceanic and Atmospheric Research (down 9%), National Marine Fisheries Service (down 6%), and National Ocean Service (down 3%), according to FoNOAA. The group's analysis combines individual line office figures for each office's two major accounts: Operations, Research, and Facilities (ORF) and Procurement, Acquisition, and Construction (PAC). In addition, the budget provides NOAA with some discretion to move money between and within line offices. The budget also includes notes regarding "undistributed reductions," where the agency has discretion as to how to further reduce funding in different line offices.

In an interview with *Eos*, Lubchenco explained that the agency received strong bipartisan support for its satellite programs in the FY 2012 budget, though she said that support has come at the expense of some of NOAA's research and ocean programs. Lubchenco added, "For an agency like NOAA, we really have three key elements: One is our research, one is our service provision, and the other is our stewardship responsibility. And if we undermine one of them, we undermine all of them. So one of our challenges is to really maintain the balance across the science, services, and stewardship parts of the agency. And that's going to be increasingly difficult as we see budgets for which there is very intense downward pressure."

Jay Berman, director of government relations with the National Marine Sanctuary Foundation, expressed concern about some budget reductions affecting NOAA ocean and water programs. "While understanding the importance of funding NOAA's satellite and weather programs, and mindful of the current economic climate, [they] must not be at the

expense of the agency's effective ocean, coastal, and fisheries programs; and the bottom line is that from FY 2011 to FY 2012, overall funding for satellites and weather will go up by 19% while oceans, coasts, and fisheries will see 5–10% cuts," he told *Eos*.

Satellite Systems

The Geostationary Operational Environmental Satellite-R Series (GOES-R) program received \$617 million for FY 2012. Congress also provided NOAA with what Lubchenco said is sufficient FY 2012 funding (\$924 million in PAC funding) for the Joint Polar Satellite System (JPSS), a program to collect weather and climate data, so the agency can work with NASA to ramp up contractual efforts to support a launch of JPSS in 2017. This represents a change from FY 2011, when insufficient funding caused the initial JPSS launch to be delayed.

The National Polar-orbiting Operational Environmental Satellite System Preparatory Project (NPP) spacecraft, which serves as a bridge mission to JPSS, successfully launched on 28 October, and the mission appears to be operating well. "Our fingers are crossed that [NPP] will last longer than expected, but we can't count on that," Lubchenco told *Eos*. The anticipated NPP mission life is 5 years. "We fully expect that there will be a gap in data between when the instruments on NPP fail and JPSS is launched and fully functional. Our best guess now is that that gap might be anywhere from 12 to 18 months. And it just underscores the importance of moving ahead with JPSS as quickly as possible and making sure that it's on track."

She added that although Congress has provided substantial funding for GOES-R and JPSS for FY 2012, money for Earth satellites is needed for more than just a single year. "We also need hefty money for satellites in FY 2013," Lubchenco told *Eos*.

Congress approved \$30 million to refurbish and launch the Deep Space Climate Observatory (DSCOVR), although the Obama administration had requested \$47.3 million. DSCOVR is a space weather mission meant to replace the Advanced Composition Explorer (ACE), which is already well past its "expiration date," and provide warnings of solar storms.

"If ACE failed today and we had significant solar radiation coming toward Earth, we would not have any advance warning and would be caught unprepared," Lubchenco told *Eos*. "If it is a minor coronal mass ejection, it might not do much damage. If it's a major burst of energy from the Sun, it could cause very, very extensive damage. So we are highly vulnerable without ACE or its successor, DSCOVR." (Former U.S. vice president Al Gore also talked about DSCOVR in another AGU Fall Meeting session; see the related news item on p. 479 of this issue.)

The solar maximum that will soon begin is "distinctly different" from earlier solar maxima because of "the increased vulnerability of our society to electromagnetic radiation coming from

the Sun,” Lubchenco said during the AGU lecture. “Our technologies are that much more vulnerable—from the electrical grid to our GPS systems to polar flights and communication at the poles—that there is increased concern that extreme solar events might in fact have significant devastating impacts on the U.S. This underscores the importance of having early warning systems.” Noting that DSCOVR did receive enough money to go forward with the project, she added, “I think Congress is appreciating how important solar weather might be. So we will begin to move ahead with that project. But I think this is an area where there is insufficient general public attention and a lot of very interesting science as well as plans that need to be in place for dealing with severe solar storms, should they in fact happen.”

Climate Services

Among significant FY 2012 budget disappointments, Lubchenco said, is the fate of NOAA’s proposed Climate Services. A sentence on page 218 of the congressional conference report accompanying HR 2112 states, “The conference agreement does not establish a NOAA Climate Service as proposed by the Senate.” In NOAA’s FY 2012 budget request, the agency had requested a reorganization to bring together the agency’s climate capabilities into a single climate service line office, analogous in some ways to the National Weather Service.

Without congressional approval, “the net result is we will not be reorganizing. We will continue operating within the budget management structure,” Lubchenco said at the press briefing. She said the agency’s climate efforts will not be as efficient or as

effective as they would have been in this area under a reorganization. The final budget provides \$185 million in ORF funding for climate research.

“I think we are seeing very different dialogues play out in Washington and other places around the country,” she said, responding to an *Eos* question about why the Climate Service reorganization had failed to gain congressional approval. “I would note that the Western Governors’ Association has signed a [memorandum of understanding] with NOAA in which they have asked us to provide climate services to them. And the western governors are pretty diverse politically, but all appreciate the need for good information, and I think that reflects a good appreciation for the importance of information so people can plan. The decision by Congress is more about politics than anything else, and highly unfortunate. It’s not really clear what else might have been done [to gain approval for Climate Services]. We will continue to believe that what we do is useful, and we would like it to be more so, which was the whole idea of the budget-neutral reorganization to begin with.”

Other Areas of Concern

Lubchenco also told *Eos* that the NOAA fleet of research vessels “is and has been under significant pressure, just because it’s aging and so much of what we do depends on the fleet. It’s our research platform for [collecting] data about all sorts of physical aspects: monitoring the [Tropical Atmosphere Ocean] array, for example, or our fishery stock surveys, hydrographic surveys. There are so many different parts of what we do for our services and stewardship parts of NOAA that rely on the fleet. And it’s just increasingly expensive to run ships: the

cost of fuel alone, the cost of labor, the need to do maintenance on ships that are aging. It’s a real challenge.”

On another ocean-related topic, Lubchenco told *Eos* that the Deepwater Horizon oil spill in the Gulf of Mexico is a strong argument for the need for solid research and that NOAA is still trying to understand the full impact of the spill. “The Deepwater Horizon disaster highlighted a number of things that we don’t know: about how oil behaves at depth, for example; [and] with dispersants used at depth,” she said, adding that it is not yet known, for instance, whether the spill had anything to do with a cetacean unusual mortality event in the Gulf and what impact the spill may have on other species. “There are a lot of things that we will continue to discover, a lot of surprises we will continue to see about the spill. It just highlights the need to have robust research to understand consequences but also how to do a better job of dealing with a spill when it happens, and obviously even more so, preventing it from happening.”

Lubchenco said that in addition to the funding challenges coming out of the recently approved FY 2012 budget, FY 2013 also presents a significant concern. “There is huge uncertainty with respect to the [FY 2013] budget simply because we don’t really know. The supercommittee [appointed by Congress] didn’t deliver, so we are not sure what’s going to happen,” she told *Eos*. “I think everybody is fully expecting really tough times, but we don’t know what the magnitude of that toughness is going to be.”

For more information about the NOAA FY 2012 budget, see <http://thomas.loc.gov/cgi-bin/query/z?c112:H.R.2112>.

—RANDY SHOWSTACK, Staff Writer