

pressing societal problems such as world hunger and clean energy.

Agency heads were reluctant to go into more detail, however, because their implementation plans must first be approved by the White House Office of Management and Budget before going to Congress. The 2011 law gives agencies until 30 March to inform legislators. But a few were prepared to cite specific impacts:

- The U.S. Geological Survey plans to take offline more than 10% of its network of about 3100 stream gages. Data from the gages help in forecasting floods, studying changes in land use, and monitoring climate change as well as informing water managers in the public and private sectors.

- NSF says cuts to the agency's big facilities account "will result in the termination" of \$35 million in construction contracts for two large national networks of observatories being built to monitor ecological systems and the oceans (NEON and OOI). Managers for

both projects say they are on schedule, but NSF will likely ask them to generate a new timetable and scope of operations.

- Cuts to the Census Bureau will mean that proposed cost-saving measures won't be ready for the 2020 census. Robert Groves, who stepped down as director last summer to become provost at Georgetown University, says that now is the time to test planned alternatives to the hiring of 600,000 people to follow-up on gaps in replies to the initial census form, including the use of existing government records and the Internet. That can't happen if the bureau's budget is cut, he says.

- Budget cuts could also produce a 2- to 3-year delay in launching two satellites key to U.S. weather forecasting. The Geostationary Operational Environmental Satellite-R craft would replace current orbiters in 2015 and 2017. But meeting that schedule will require a major funding increase this year for the \$10.9 billion program, says the National Oceanic and Atmospheric Administration.

- NASA plans a 5% cut in the number of awards to scientists who want to analyze the massive stream of data from a slew of current missions. "People are already getting out of the business" because of the diminishing chances in recent years of obtaining NASA funding, says Mark Sykes, director of the Planetary Science Institute in Tucson, Arizona. The latest cuts, he says, mean that NASA is "thinking of now, not the future."

Whatever happens this week, policy-makers are already talking about the next showdown. The federal government could shut down if Congress doesn't act before the CR runs out on 27 March. And in May, the government's authority to borrow money to pay the national debt expires. So 1 March may well turn out to have been merely the latest installment in a never-ending spending crisis.

—JEFFREY MERVIS

With reporting by Adrian Cho, Jocelyn Kaiser, Richard Kerr, and David Malakoff.

SCIENTIFIC PUBLISHING

U.S. Agencies Directed to Make Research Papers Available

After deliberating for more than 3 years on ways to expand public access to taxpayer-funded research papers, the White House is finally taking action. In a memo last week, the Office of Science and Technology Policy (OSTP) asked agencies to make papers on research that they fund freely available online within 12 months after the results appear in a journal.

That policy is similar to a 2008 National Institutes of Health rule that requires investigators to deposit their peer-reviewed manuscripts in NIH's PubMed Central archive for posting within 12 months after publication. "The Obama Administration agrees that citizens deserve easy access to the results of research their tax dollars have paid for," OSTP Director John Holdren wrote last week in a response to a petition signed by 65,000 people that called for expanding the NIH policy. Agencies that spend more than \$100 million a year on research must submit a draft plan within 6 months, but OSTP is leaving it to agencies to figure out where the papers will be posted.

Traditionally, scientists have published their work in scholarly journals that charge readers a subscription fee. In recent years,



Opening up. OSTP Director John Holdren says U.S.-funded research papers should be free.

however, libraries and others concerned about high journal prices have pushed to make papers free—in some cases, immediately after publication; instead of billing readers, journals charge authors a fee to cover peer review and other costs. Many journals and scientific societies have resisted this model, however, arguing that it will destroy the revenue streams they need to survive.

The Association of American Publishers called the OSTP policy "reasonable" and praised the fact that the 12-month embargo is only a guideline that agencies can tailor

for particular scientific fields.

Some agencies have pilot projects under way to comply, says Fred Dylla, executive director for the American Institute of Physics in College Park, Maryland. Several publishers and agencies, including the National Science Foundation (NSF) and the Department of Energy (DOE), will soon launch FundRef, a system for including grant numbers in papers so they can be tracked. DOE is also working with Wiley and Elsevier to link journal abstracts to agency research reports, a potential link to full text after an embargo. "Neither DOE nor NSF needs to invest in a PubMed Central–like repository," Dylla says.

The U.S. plan contrasts with the United Kingdom's, which urges investigators to publish in open access journals. It also falls short of a bill in the U.S. Congress called the Fair Access to Science and Technology Research Act (FASTR) that would make U.S.-funded research papers available after just 6 months. "FASTR is better," says Heather Joseph, executive director of the Scholarly Publishing and Academic Resources Coalition, an open access lobbying group in Washington, D.C. But the OSTP directive "is an enormous step forward."

—JOCELYN KAISER

U.S. Agencies Directed to Make Research Papers Available

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