

NEWS

Flood of oil, drought of research

Scientists frustrated as questions about the Gulf of Mexico oil spill go unanswered.

With oil still gushing from an offshore well in the Gulf of Mexico, some scientists and environmentalists worry that US federal agencies have not done enough to gather precious data on the spill, now into its second month. The information could help efforts to contain the effects of the disaster and, in the longer term, “ensure we have the best underlying science to guide our response to the next spill”, says Ira Leifer, a chemical engineer at the Marine Sciences Institute at the University of California, Santa Barbara. “And it is a foregone conclusion that there will be other significant oil spills.”

The US government and energy company BP — which owns the well and carries the liability for the spill — have already drawn criticism for the lack of a credible estimate of how much oil is spewing into waters less than 70 kilometres from the Louisiana coast. Now, researchers are expressing concerns over the limited science being done in and around affected areas.

The lead agency for spill-related scientific issues, the National Oceanic and Atmospheric Administration (NOAA), is responsible for advising BP and the US Coast Guard, which is directing the federal response, and for assessing the effects of the spill. Much of NOAA's work

has focused on gathering data about the floating oil slick to feed into models that predict how it will spread. That task is becoming increasingly urgent as oil enters the Loop Current, a forerunner of the Gulf Stream that could carry the oil to Florida and the Atlantic Ocean. Doug Helton, NOAA's incident operations coordinator in the Emergency Response Division, says that nearly all of his 110 employees are focused on spill work and retired staff members have even been called in to help.

Jeffrey Short, an environmental chemist with the advocacy group Oceana in Washington DC, says that in past disasters, a surface focus has been effective. But the 1.5-kilometre depth of the spill, and signs that substantial amounts of oil may be trapped far below the surface, make this a special case. “It's difficult for NOAA to marshal the resources to do a thorough job of charting what the impacts are,” says Short, who worked for NOAA for more than 30 years and was a leader in the effort to assess damages from the *Exxon Valdez* spill. “But it's especially difficult when weird things happen to catch the scientific community by surprise. That's clearly the case here.”

Researchers fear that opportunities to gather valuable data have already been lost. Thomas Shirley, a marine biologist at Texas A&M University in Corpus Christi, says that tissue samples from a wide range of animal groups are needed to act as a baseline against which future samples can be compared to gauge short-term effects and predict future damage. It may already be too late to get the most use-

ful data, says Shirley, because so many animals have been exposed to oil. Other researchers say that important physical and chemical data are needed, including changes in salinity, dissolved organic-matter con-

tent, oxygen and methane concentrations and the consumption rate of oil by microbes. These would all help to establish a profile of the transformation under way in waters near the spill. A deployment of current meters at depth would provide valuable information to modellers trying to predict how subsurface plumes of oil will spread (see *Nature* 465, 274–275; 2010).

Helton says that although NOAA recognizes many research needs, it has to give priority to research activities that can directly help to

“There are answers we need tomorrow and there are answers we need next month.”

Changes in Congress cloud prospects for funding

When Senator Arlen Specter (Democrat, Pennsylvania) stepped up to the microphone last week to concede the Senate seat he had held for three decades, many supporters of the National Institutes of Health (NIH) in Bethesda, Maryland, felt that they had lost their most effective advocate on Capitol Hill.

Specter, who served as a Republican senator before switching to the Democrats last year, provided a crucial vote in 2009 to deliver US\$10.4 billion in economic stimulus money to the biomedical agency. The achievement capped a career during which, as he weathered a brain tumour, lymphoma and open-heart surgery, he became an increasingly powerful backer of the NIH.

“The NIH was his number one priority,” says Jon Retzlaff,

managing director of science policy and government affairs at the American Association for Cancer Research in Washington DC. “You could always count on him to look for any possible opportunity to increase the NIH's budget.”

“I'm personally very grateful to him,” adds Harold Varmus, the former NIH director who is president of the Memorial Sloan-Kettering Cancer Center in New York City, and who is expected to take up the directorship of the NIH's National Cancer Institute in July.

Specter's loss in a Democratic primary election is only one of a constellation of changes coming to Congress that are significant for biomedicine and for science generally. In the Senate, Specter's exit comes just a year after the



C. KASTER/AP

Arlen Specter: the NIH has long been 'his number one priority'.

death of Senator Edward Kennedy (Democrat, Massachusetts), a powerful proponent of research and health care. In the House of Representatives, science and technology committee chair Bart Gordon (Democrat, Tennessee),

a persistent advocate for budget growth at the National Science Foundation (NSF), and Vern Ehlers (Republican, Michigan), a nuclear physicist and staunch science supporter, are both retiring this year. Bowing out, too, is Dave Obey



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reduce damage. "There are answers we need tomorrow and there are answers we need next month," he says.

Even those with close ties to NOAA say that it is hard to tell what science the agency has done so far. Short says the silence is a significant problem. "It's turning into a PR disaster, because people have legitimate fears and questions that aren't being addressed." David Valentine, a geochemist at the University of California, Santa Barbara, who is calling for methane measurements to establish the size of the spill (see page 421), agrees. "It seems to me that scientists from NOAA and other federal agencies are not being allowed to speak."

In response to questions about what research is under way, NOAA's director of communications, Justin Kenney, says, "We have to be careful about what we are saying and how we are saying it because there's an ongoing investigation into this spill."

On 15 May, NOAA announced that the research vessel *Gordon Gunter* had been redeployed to spill response and was providing "information for oil spill related research". But more recent details from NOAA say that the vessel was conducting fish-larvae research in the western Gulf of Mexico that was planned before the spill but will provide information helpful in understanding the effects of the spill. It was back in port this week. Another NOAA ship, the *Thomas Jefferson*, is scheduled to



The Deepwater Horizon oil spill could be a double loss if data go unrecorded.

perform measurements related to currents.

Meanwhile, NOAA has funded work by private and university vessels and there are other non-NOAA platforms that could be used in the Gulf, including autonomous underwater gliders from the Applied Physics Laboratory (APL) of the University of Washington in Seattle that can gather data for months at a time. Craig Lee, an oceanographer with the group, says

that earlier this month BP requested that the APL bring two vehicles to the Gulf and made a verbal commitment to support the work, but the company later reneged. "BP appears to have lost all interest in the investigation," says Lee.

For its part, BP announced a US\$500-million pledge this week to support independent research into the effect of the oil spill on marine ecosystems. Among the topics listed for funding are studies that address how "accidental releases of oil compare to natural seepage from the seabed". But because the commitment is over 10 years, it might take some time before the funding works its way to the front lines of the spill. The National Science Foundation is also funding a number of academic research projects in the Gulf through its grants for rapid-response research. The foundation has already received more than 40 applications for funding, nearly half of which it has agreed to support. Although the foundation does not support monitoring per se, many of these projects will provide information helpful to tracking and understanding the spill.

A larger and more concerted research effort will be required though, says Helton. "But you're talking about running a multi-million-dollar research project and ramping up overnight," he says, "that's tough." ■

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See Editorial, page 397, Opinion, page 421, and online collection at www.nature.com/oilspill.

(Democrat, Wisconsin), an ardent NIH supporter who has two crucial roles: as chair of both the House appropriations committee, which doles out funding across government agencies, and the appropriations subcommittee that funds the NIH.

Specter's loss "is made even more important by Congressman Obey's retirement and the loss of Senator Kennedy", says Mary Woolley, president of Research!America, a medical-research advocacy group in Alexandria, Virginia. "We have a significant challenge ahead of us."

Nevertheless, strong backers of the NIH remain in Congress, from House speaker Nancy Pelosi (Democrat, California) to Senator Tom Harkin (Democrat, Iowa), who, as chair of the Senate appropriations subcommittee that funds the NIH, worked closely with Specter to push for higher NIH budgets.

If the Democrats retain control of the House in the November mid-term

elections, another fan of the NIH could replace Obey as House appropriations subcommittee chair. Representative Nita Lowey (New York) and, after her, Representative Rosa DeLauro (Connecticut) are in line, by seniority, to replace Obey. Both are strong supporters of the NIH and of health issues generally.

Specter himself may be replaced by an NIH advocate. In last week's primary, Pennsylvania Democrats chose Representative Jon Sestak over Specter as their candidate in the November elections. Sestak, whose 9-year-old daughter has survived brain cancer, says he ran for Congress so that he could work for better care and cures for Americans.

"Senator Specter's greatest legacy is probably the number of Americans alive today who would not be were it not for him. I intend to continue that effort," Sestak told *Nature* last week. In March, Sestak signed a letter to Obey urging a

\$4-billion boost in the agency's 2010 budget, to \$35 billion in 2011. But Sestak's Republican opponent will be former Pennsylvania congressman Pat Toomey, who targeted five NIH grants for funding withdrawal in 2003.

Yet even ardent science backers face a growing push to curb ballooning federal deficits. This makes the prognosis for continued increases "grim", says David Moore, a leading biomedical research lobbyist with the Association of American Medical Colleges in Washington.

"There's going to be increasing pressure to hold down spending. And the NIH is definitely not immune from that," says Moore.

The pressure for spending restraint became clear last week as Gordon, the retiring House science-committee chair, struggled to pass a bill, the America COMPETES Act, that would have authorized sizeable boosts to the budgets of the NSF, the

Department of Energy's Office of Science and the National Institute of Standards and Technology over the next five years. Opposition from Republicans demanding a freeze in the agencies' budgets led to a stalemate. As *Nature* went to press, the House was scheduled to debate the bill again this week.

In a lecture entitled 'The silent scientists', Ehlers two weeks ago told an audience at the spring policy forum of the American Association for the Advancement of Science, held in Washington, that scientists' lack of vocal advocacy is imperiling their cause on Capitol Hill. Woolley echoes that message. "The science community is hearing a warning from members of Congress who have been our champions and are retiring or were defeated — that it is not stepping up to the plate, it's not being heard at home in their districts or their states," she says. ■

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