

Chipping away at potato blight



Lively speculation about Venus



Profile: The man behind the skull



through, “Are you OK?” But for Collins, such debates are not new. His sense was that, overall, the group was enthusiastic about NHGRI’s new directions. And as for the tough critique, he says, “This is how the genome community operates.”

—ELIZABETH PENNISI

MARINE ECOLOGY

Scientists Brace for Bad Tidings After Spill

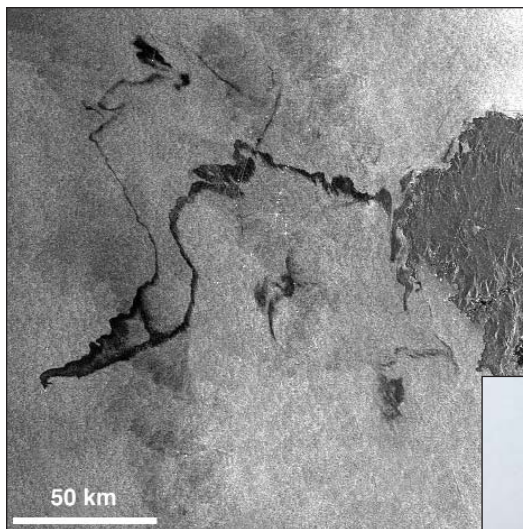
VIGO, SPAIN—From a distance, the rocky beaches of Galicia, Spain’s northwestern province, look as if they’re slathered with chocolate mousse. The illusion dissolves with the first whiff of petroleum, a reek stronger than that at any gas station. Fighting the stench, Peregrino Cambeiro, a technician with the Higher Research Council’s Institute of Marine Research in Vigo, shovels sludge (a mixture of seawater and petroleum solids that resembles molasses to the touch) into plastic buckets, then loads them onto a flatbed truck. These are the first samples of the spill that will be brought back to the institute for analysis so that researchers can figure out what sort of oil they are dealing with and assess what impact it will have on marine and other life.

It has been a week since the hull of the tanker *Prestige* first tore open and began disgoring a cargo of fuel oil off the Spanish coast. Every day, more sludge washes ashore, driven by gusts of wind that top 100 kilometers an hour. On 19 November, fearsome, wind-whipped waves overwhelmed the stricken tanker, which ripped in half and sank. So far, 10,000 tons of oil are known to have leaked. The challenge for scientists is to predict what will happen to another 67,000 tons that went down with the ship and how it might harm life on the seabed. “There’s still another shoe to drop here,” says David Kennedy, director of the U.S. National Oceanic and Atmospheric Administration’s oil-spill response program. “The size of that shoe is hard to determine, but history shows there’s more to come.”

Back in Vigo, Cambeiro unloads the sludge and wearily strips off his slime-covered overalls. Crown Resources, the oil trading firm based in Switzerland that chartered the *Prestige*, has stated that the ship was carrying

bunker oil, a viscous mix of different grades of petroleum used by ships and power plants. Ricardo Prego, an environmental chemist at the Vigo institute, will use Cambeiro’s samples to determine the oil’s precise composition. While Prego probes the sludge’s chemistry, institute director Antonio Figueras will test its lethality in a range of life forms, including bacteria, fish, and human cells. “This is a crude measure,” says Figueras, who will also look for sublethal effects, such as how the sludge affects the immune system and reproduction.

The Spanish government is waiting anxiously for the results of the analyses, which will come in over the next several weeks. On 18 November, it slapped a ban on fishing and



Disaster in the making. Satellite image of the slick on 17 November, before the *Prestige* sank; scooping out “chocolate mousse” for analysis in Vigo (right).

shellfish harvesting along 300 kilometers of spoiled coastline. Aquaculture of bivalves such as blue mussels is Galicia’s largest industry and is second only to China in annual harvest. It’s also the industry that’s most vulnerable to the sludge, which smothers filter feeders. The bulk of the bunker oil spilled so far has swung north of the key estuaries where mussels are cultured. But until it can be proven that the seafood is safe to eat, more than 5000 Galician fishers and aquaculturists will be out of work.

Other forms of wildlife are, as expected, taking a huge hit. Jesús Domínguez, an ornithologist at the University of Santiago de Compostela, says the spill could have devastating effects on several species of endangered birds that winter along the Galician coast, in-

cluding the last 15 to 20 breeding pairs of the common murre in the region. “We can expect a substantial impact on birds,” says Malcolm Spaulding, a marine environment modeler at the University of Rhode Island, Narragansett. “They’re in for a sticky mess.”

Spain’s environment minister, Jaime Matas, predicts that 1.5 million square meters of beach will have to be cleaned by hand. The cleanup and direct economic losses will likely top \$145 million. (The European Union has pledged \$115 million in assistance.) Many scientists blame politicians for the disaster’s scale. The French, Spanish, and Portuguese governments all refused to allow the leaking tanker into their ports, and Spain even considered bombing it with F-18 fighters to incinerate the fuel. “The Spanish government has shown an evident incapacity to manage the crisis,” fumes Domínguez. “We think we can dump anything we want, and it will just go away,” says Figueras. “But it will come back to haunt us.”

Mariano Rajoy, Spain’s vice president, has asserted that the tanker’s disappearance beneath the waves averted a much larger disaster because the high pressure and low temperature (3°C) at 3600 meters, where the wreck is said to lie, will solidify any fuel oil left inside the



hull. But Richard Steiner, a marine conservation biologist at the University of Alaska, Fairbanks, who studied the 1989 *Exxon Valdez* oil spill, says that to believe the sunken oil will remain stable is “more wishful thinking than reasoned expectation.” If the oil containers break, much of it could still reach the surface.

Even if the oil stays near the bottom, experts are split about its potential impact. “We really don’t have much experience with this,” says marine chemist John Farrington of the Woods Hole Oceanographic Institution in Massachusetts. Steiner warns that toxic com-

CREDITS: (LEFT TO RIGHT) ESA; ANTONIO FIGUERAS/INSTITUTE OF MARINE RESEARCH, VIGO, SPAIN

ponents in the water-soluble fraction of the fuel oil could ultimately cause “an enormous ecological shock.” Delayed effects from the *Valdez* spill included brain lesions, reproductive failure, and genetic damage in wildlife, he says, adding that more than 13 years after that spill, only a quarter of the injured populations has fully recovered. Others argue that the bunker oil, with fewer aromatic toxicants, will prove less poisonous to sea life than the *Valdez* crude spilled in Prince William Sound. The impact offshore, offers Spaulding, “is not likely to be large.” The Vigo institute’s chemical analyses of the spill should help refine such predictions.

On 22 November, Spain dispatched a submarine to examine the *Prestige*’s condition and the extent of damage to the seabed. Scientists also would like to see an expedition with a remotely operated vehicle that uses sonar to create a bathymetric map of the ship and the surrounding area. “It’s not cheap,” says oceanographer Larry Mayer of the University of New Hampshire, Durham, “but there are important things at stake.” That’s a sentiment with which most Galicians would agree.

—JOHN BOHANNON, XAVIER BOSCH, AND JAY WITHGOTT

Freelance writers John Bohannon reported from Vigo, Xavier Bosch from Barcelona, and Jay Withgott from San Francisco.

ACADEMIC EARMARKS

Senators Take Aim At Texas Project

Texas A&M University found itself the villain of a political drama last week, as the U.S. Senate rushed to complete work on legislation creating the new Department of Homeland Security (DHS). It would have much preferred a backstage role.

The Senate, meeting in a lame-duck session after the 5 November election, was trying to pass a 450-page bill creating the new department. Some senators complained that the version passed by the House of Representatives was larded with favors to special interests. The worst, they said, was one shielding vaccinemakers from lawsuits. But included on their seven-item hit list was a clause setting out 15 criteria for selecting at least one university-based center to conduct security research and training.

Critics charged that the criteria, crafted last summer by Texas lawmakers allied with A&M, undermined the concept of basing government research awards on open, peer-reviewed competition (*Science*, 9 August, p. 912). For example, the clause required eli-

gible schools to be affiliated with a U.S. Department of Agriculture “training center” and to show “demonstrated expertise” in wastewater operations and port security. Texas A&M fit the bill, but most public and private research universities do not. “This is nothing short of ‘science pork,’” said Senator Joseph Lieberman (D-CT), who led efforts to delete the provision.

A&M advocates insist that the language was intended only to make sure that the center was based at a university with the proper breadth of experience in addressing security issues. They note that several potential competitors, including the University of California and the State University of New York systems, had no problem with the language. And the new department retains the right to use peer reviewers, they add. “There has been a great deal of misinformation,” says Larry Meyers, a Washington-based lobbyist for the university.

To strip out the language, Lieberman needed the support of three moderate Republicans who had expressed concerns: Senators Olympia Snowe (ME), Susan Collins (ME), and Lincoln Chafee (RI). However, the trio was under heavy White House pressure not to amend, and thus delay, the DHS bill. Republican leaders won their support by pledging to alter three provisions, including the university and vaccine language, when the new Congress convenes in January.

To seal the deal, Snowe and Collins stood in a cloakroom off the Senate floor with GOP chief Trent Lott (R-MS) as he telephoned House leaders (one of them en route to Turkey) to obtain their agreement to amend the bill next year. Snowe, Collins, and Chafee then voted against Lieberman’s amendment, ensuring its defeat and clearing the way for Senate approval of the entire bill.

“It was pretty amazing to see an academic earmark become a make-or-break issue on such high-profile legislation,” says one university lobbyist. The A&M language, observers say, became a lightning rod for Democrats out to embarrass House Republican leader Tom DeLay, a Texan closely associated with the proposal, and for Republicans who were angry



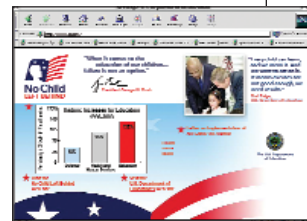
Let’s make a deal. Rep. DeLay (left) promised last week to alter homeland security bill next year to win the vote of Sen. Snowe.

Educational Overhaul? Social scientists are protesting what they say is a Bush Administration move to bury research reports that run counter to its policies. More than a dozen professional societies have written to Education Secretary Rod Paige, demanding that his department consult with researchers before deleting information from its Web site.

The department’s site (www.ed.gov) houses more than 50,000 files, including databases widely used by social scientists, such as the National Center for Educational Statistics. In September, the department said it planned to delete up to 13,000 pages as part of an overhaul. A leaked internal memo directed officials to delete pages not “consistent with the Administration’s philosophy,” unless they were needed for legal, historical, or non-political reasons.

“This is public information, and it shouldn’t be removed at the whim of political appointees,” says spokesperson Patrice McDermott of the

American Library Association in Washington, D.C., one of the protesting groups. But department spokesperson Dan Langan says not to worry: “At the end of the day, the information will still be available in a Web-based format.”



Space Thrust The U.S. government lacks “a space imperative” and needs an “audacious vision” for its space program, concludes a 12-member team led by former House Science Committee chair Robert Walker (R-PA). The blue-ribbon panel was formed last year at the request of the White House to look at the overall aerospace sector. But its actual findings, released last week (www.aerospacecommission.gov), are anything but audacious.

The report stops well short of proposing any dramatic new mission for NASA, such as a human visit to Mars or a base on the moon. Instead, the panel suggests a more mundane path, such as fixing up NASA’s deteriorating facilities, accomplishing full monitoring of Earth by 2010, and encouraging more cooperation between the space agency and the Department of Defense in developing new propulsion and power technologies. Mundane, perhaps, but more politically salable: The White House and Congress have so far received the report with praise.