ENVIRONMENTAL POLICY

EPA Gives Science a Bigger Voice

Although a new Bush Administration initiative to clean up U.S. power plants has its critics, even some environmentalists laud the plan for targeting several pollutants at once and using a market-based trading scheme that makes pollution control cheaper. The "clear skies" initiative also has something that past policies often lacked: a research program to collect data on how these pollutants move through the environment.

Sound science duo. Whitman and Gilman say they hope to boost EPA science.

Environmental Protection Agency (EPA) science officials say the program is proof that Administrator Christine Todd Whitman is injecting more science into the agency's activities. Last week, Whitman used EPA's first-ever agency-wide scientific forum, complete with plenary talks and poster sessions, to highlight several steps she's taking to better integrate science and policy. She noted that she's beefing up the science team that helps develop regulations. She also plans to name Paul Gilman, the new head of EPA's Office of Research and Development (ORD), as her science adviser. The latter step is in part a reaction to legislation passed last month by the House of Representatives to create a science czar to oversee EPA research, an idea Whitman views as an unnecessary layer of bureaucracy.

Creation of the new position was one of several recommendations made 2 years ago by a National Academy of Sciences panel that studied the agency's practices. Gilman says EPA has already responded to this and other critiques since 1990, organizing its priorities by risk, balancing basic and applied research, improving peer review, and creating new postdoc slots and an extramural grants program. To bolster these efforts, Whitman has requested authority to pay higher salaries to lure academic scientists.

Outside scientists agree that EPA science is moving in the right direction. "It's a whole lot better," says environmental engineer Raymond Loehr of the University of Texas, Austin. But Loehr and other observers are skeptical about whether Gilman's double duty as science adviser would be as effective as appointing a deputy administrator for science and technology. "It's not the same," says vice president for research Robert Huggett of Michigan State University in East Lansing, a former head of ORD under Clinton, who says it didn't mean much when EPA chief Carol Browner gave him the added title. It's tough for one person to "have time for both [jobs]," adds Loehr, a member of EPA's Science Advisory Board.

One chronic restraint is the budget, which Representative Sherwood Boehlert (R–NY), a keynote speaker at the forum, points out "has been stagnant at best" since 1990. And this year is no exception: Whitman reportedly fought hard against a planned shift of ORD's $110 million extramural grants program to another agency, eventually retaining all but $10 million for graduate fellowships (*Science*, 29 March, p. 2345). The proposal, say Loehr and others, suggests that Whitman still faces an uphill battle to convince the Administration that science is central to EPA's work.

–JOCELYN KAISER

GENOME SEQUENCING

Public Group Completes Draft of the Mouse

There was no military band or White House reception this time, but researchers celebrated the release of an important mammalian genome last week—that of a laboratory mouse called the "black 6." The Mouse Genome Sequencing Consortium announced 6 May that it has put together a draft of the C57BL/6J mouse genome that is 96% complete, and it is making the data available for free on the Internet. Last year, Celera Genomics of Rockville, Maryland, announced that it had completed a draft of the mouse genome, but its data are available only by subscription.

Two groups assembled the data independently: the Whitehead Institute Center for Genome Research in Cambridge, Massachusetts, and the Sanger Centre in Hinxton, U.K. Both teams used the "whole-genome shotgun" method—the technique Celera used to sequence both the mouse and human genome—which involves chopping up the genome into overlapping fragments, sequencing them, and putting them in the right order with the aid of powerful computers. Each base was sequenced seven times on average. The results suggest that this much-criticized technique works on mammalian genomes. The consortium adopted the Whitehead assembly for further analysis, according to a member, because it was "slightly better."

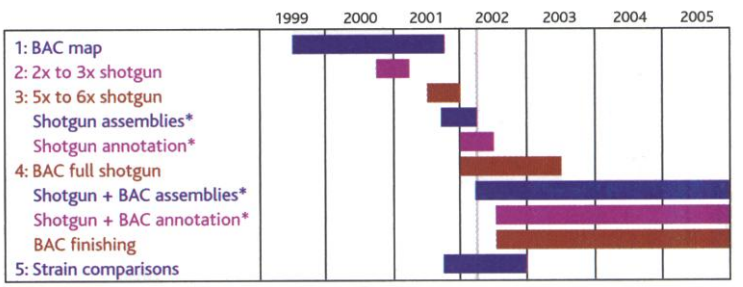
The mouse genome project began in 1999 with a series of pilot studies, then went into high gear at three big centers last year: the Whitehead Institute, the Sanger Centre, and the Genome Sequencing Center of Washington University in St. Louis, Missouri. Of the estimated $150 million spent so far, two-thirds came from the U.S. National Human Genome Research Institute (NHGRI). The Wellcome Trust, a British charity, provided the rest.

The draft genome turned out to be "of surprisingly better quality than anyone had expected," says NHGRI director Francis Collins. He attributes the good outcome to the quality of the raw data, the sophistication of the assembly algorithms, and the "fact that we were dealing with an inbred strain where you don't have to deal with polymorphisms." The results are "significantly better" than for the draft human genome a year ago, according to Collins.

The mouse consortium says it has identified 22,500 genes with high confidence, fewer than the 34,000 in the human genome. But Collins says the disparity arises mainly from differences in the way the genes are defined. He thinks the final count for both human and mouse will be "between 30,000 and 40,000 genes." Molecular geneticist Eric Lander of the Whitehead Institute predicts that it will take less than 3 years to fill the gaps and completely finish the mouse.

Mouse researchers have not yet studied the new genome closely, but a few have checked it out. Maja Bucan of the University of Pennsylvania in Philadelphia says the new draft "looks excellent." Last year, she was having so much trouble making use of preliminary government-funded mouse sequencing data that she turned to Celera's database. But now she praises as "even more user friendly" an annotated version of the consortium's data released by the European Molecular Biology Laboratory (www.ensembl.org/Mus_musculus). Geneticist Neal Copeland of the National Cancer Institute has also been using Celera's database, but he thinks now that the consortium has finally caught up, Celera has lost its advantage.

–ELIOT MARSHALL



Mouse timeline. The consortium plans to finish the sequence by 2006.

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