Meeting of minds. Japan's Norio Kaifu (front row, second from right), Taiwan's K. Y. (Fred) Lo (front row, fourth from right), China's Chen Jian-Sheng (front row, at left), and Korea's Se-Hyung Cho (second row, second from right) lead an effort to foster Asian cooperation in astronomy.

CREDIT: (RIGHT) GEORGE NIKITIN/AP

Since 1990, astronomers from the region have gotten together every 3 years or so to present recent results from their own instruments. But on 11 to 16 November, during the fifth East Asia Meeting of Astronomy (EAMA), participants broadened the scope of their discussion to include concrete ways to foster collaborations. "There is a sense of excitement about future prospects for more collaboration and exchanges and access to each other's facilities," says K. Y. (Fred) Lo, director of Academia Sinica's Institute of Astronomy and Astrophysics in Taipei.

The first actual collaboration is likely to be an East Asian very long baseline interferometry network of radio antennas. Japan and Korea are near an agreement for joint observations beginning in 2005 on radio interferometry networks now under construction in each country (*Science*, 2 November, p. 977). Chinese astronomers are eager to add two more radio telescopes to the network, making a total of 12 antennas. Adding the two antennas, now used primarily for charting star positions, would allow Chinese astronomers to investigate star formation and other phenomena. "Radio astronomy is one area where collaboration among neighboring regions would be very natural," says Se-Hyung Cho, vice president of the Korean Astronomy Observatory in Taejon.

Japanese scientists are hoping to make an even bigger splash by bringing their regional neighbors into the fold on the $650 million Atacama Large Millimeter/Submillimeter Array (ALMA), a network of 64 dishes to be built and operated by European, Japanese, Canadian, and U.S. scientists at a site high in the Atacama Desert in northern Chile. Norio Kaifu, director general of Japan's National Astronomical Observatory in Mitaka, hopes to bring other Asian scientists into the project under Japan's umbrella. "That would make it a true world telescope," he says.

Lo says that talk of greater cooperation has been a staple at the EAMA meetings. But it wasn't until recently, he says, that each of the four neighbors achieved a critical mass of scientists, funding, and observational activities to make such joint efforts worthwhile. Yoshihisa Nemoto, senior specialist for space in the space policy division of Japan's Ministry of Education, Culture, Sports, Science, and Technology, calls the move "a natural and good thing" to do, adding that the ministry would be happy at some point to review any proposals for joint projects.

The scientists who met at Taipei (some of whom are pictured at left) have set up a coordination committee to plan exchanges and the sharing of observation and computing facilities as well as additional conferences. Because of the tenuous political relations between Taiwan and mainland China, the group plans to establish smooth working relationships among scientists before approaching any government for support.

–DENNIS NORMILE

ULTRAFAST LASERS

Photoelectrons Show How Quick a Flash Is

For more than a decade, scientists have captured the breaking of chemical bonds between atoms with the world's fastest strobe lights: flashes of laser light lasting a few femtoseconds. (A femtosecond is 1 millionth of a billionth of a second.) But bond breaking is a languid process compared with the lightning-fast activity of electrons inside atoms, which zip around the nucleus and hop between energy shells in less than a fifth of a femtosecond. To track such quicksilver movements, researchers have longed to generate and measure individual pulses of radiation as short as a few hundred attoseconds. (A femtosecond equals 1000 attoseconds.) Now they've got their wish.

In this week's issue of *Nature*, researchers from the Vienna University of Technology in Austria, the National Research Council Canada, and Bielefeld University in Germany report that they have produced isolated x-ray pulses 650 attoseconds long. Using these pulses like flashbulbs, the researchers have traced the energy-level transitions of electrons in an atomic gas with a resolution of 150 attoseconds. "This is an important experiment," says Anne L'Huillier, a physicist at the Lund Institute of Technology in Sweden. "It opens the door to the study of extremely fast electronic processes occurring inside atoms and molecules."

Generating the attosecond pulse was fairly straightforward, says Ferenc Krausz

ScienceScope

Research Relief U.S. university scientists have complained in vain for 2 years that stricter arms-trafficking regulations force them to get time-consuming State Department approval for work on research satellites involving foreign graduate students and overseas partners (*Science*, 24 March 2000, p. 2138). But relief may be in sight. Condoleezza Rice (below), President George W. Bush's national security adviser and a former provost of Stanford University, has voiced her support for "open and collaborative basic research."

In a 1 November letter to Harold Brown, co-chair of the Center for Strategic and International Studies in Washington, D.C., Rice says that the Administration will review the impact of the regulations on researchers. In the meantime, she notes, a 1985 order by then-President Ronald Reagan exempting basic research from the arms regulations remains in effect—a critical point that until now has been unclear. The clarification could help "ease the universities' problems," says Eugene Skolnikoff, a political science professor at the Massachusetts Institute of Technology who has followed the issue.

Culture Clash at HHS A plan by the Department of Health and Human Services (HHS) to streamline its bureaucracy has raised concerns at the National Institutes of Health (NIH), where 27 centers and institutes now operate with relative independence.

The "workforce restructuring plan"—which carries the motto "One HHS"—has been under way for months, and NIH has already agreed to form a single personnel office. But two 8 and 9 November memos, one from Ed Sontag, HHS assistant secretary for administration and management, calling for management cuts appear to have hit some tender spots. For example, HHS wants to trim management layers and consolidate grants management and public affairs, now housed at each institute, into central offices. After seeing the memos, one NIH official, referring to the highway outside the Bethesda, Maryland, campus, joked: "Should we all go lie down in Rockville Pike [in protest]?"

NIH acting director Ruth Kirschstein led a delegation of institute directors who met with Sontag on 19 November to discuss the effort, but the group isn't commenting. NIH spokesperson Anne Thomas says only that her agency is "working collaboratively" with HHS, which wants an "action plan" by 30 November.

moving from the list 23 other endangered salmon and steelhead populations that share waters with hatchery fish.

The decision runs counter to salmon science, according to many biologists. "A whole sheaf of scientific studies" from the past 20 years suggests that hatcheries cause problems for wild fish, says Robin Waples of the NMFS Northwest Fisheries Science Center in Seattle. Hand-reared fish may be genetically similar to their wild cousins, for instance, but they often aren't as skilled at foraging or avoiding predators. As a result, interbreeding between hatchery and wild fish can produce less fit mongrels.

Waples and other NMFS scientists hope to hash out the biological significance of these differences by next September, when the agency plans to release a new policy on the role that hatcheries should play in salmon restoration and then decide whether to delist some of the imperiled populations. NMFS will ponder whether hatcheries could help save wild populations, for instance, by rearing only eggs taken directly from wild fish. Waples says the agency will also consider whether seemingly plentiful runs that are composed largely of hatchery fish would survive on their own, as the ESA requires.

–JOCELYN KAISER

MARINE CONSERVATION

Reserves Found to Aid Fisheries

When California officials began holding public meetings last year on a controversial state plan to ban fishing in some coastal waters, some anglers raised a stink. Their anger, which included flinging dead fish at one session, stemmed in part from what they said was insufficient evidence that closing some fishing grounds would actually help boost catches in nearby areas.

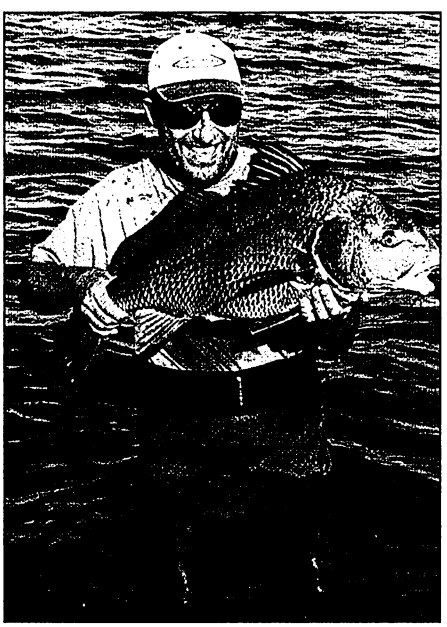
New findings presented on page 1920 could help clear the air. An international team of marine scientists reports marked increases in commercial catches and the number of trophy fish caught by sport anglers in and around small reserves in the Caribbean and off Florida. The authors say the results confirm the validity of their models and, more importantly, lend credence to global efforts to establish new reserves. The findings "will help remove a major logjam in the debate," says lead author Callum Roberts, a biologist at the University of York, U.K.

Some scientists, however, caution that closing off some areas won't be enough to restore healthy fisheries. And some influential fishing groups and politicians remain on the offensive, saying that reserves in U.S. waters threaten public access to the seas.

Studies have shown that closing swaths of the sea to human activity can produce sizable ecological benefits within the reserve, from more diverse sea life to bigger schools of fish. But "whether reserves have spillover benefits is one of the most hotly debated and least studied issues in marine reserve research," says Karen Garrison, a reserve advocate with the Natural Resources Defense Council in San Francisco, California. Such studies are difficult, she notes, because researchers must find areas where they can compare catches before and after a reserve was established, and monitor all the relevant variables, from how long fishers work to changing ocean conditions.

In their study, Roberts and colleagues from the U.S. National Marine Fisheries Service and the University of the West Indies, Barbados, focused on a 5-year-old network of reserves off the Caribbean island of St. Lucia and an area off NASA's Cape Canaveral rocket launching site in Florida that had been closed for nearly 40 years. In St. Lucia, the researchers concluded that the reserves, which cover about one-third of a long-used coral reef fishing ground, increased catches in nearby areas by up to 90%, compared to prereserve numbers. Off Florida, they found that sport anglers fishing around a 40-square-kilometer area closed in 1962 for security reasons have landed a disproportionate number of world- and state-record fish from three species. Since 1985, for instance, most Florida record red and black drum came from the area.

The study confirms that reserves can serve as sheltered nurseries for surrounding waters, say the researchers. And although the studied reserves were small, Roberts says the findings—when combined with



Drum roll. Researchers say that a Florida reserve helps produce trophy fish like this black drum.

CREDITS: (TOP TO BOTTOM) HST/NASA; CALLUM ROBERTS

ScienceScope

Rocky Missions Returning a Mars soil sample to Earth is an enticing prospect—and an expensive one, given its $2 billion price tag. NASA tentatively plans a 2011 launch with a 2014 return. Now a National Academy of Sciences panel argues that the agency should conduct not one, but 10, sample-return missions. In a Mars science report released 26 November, the panel, chaired by John Wood of the Harvard-Smithsonian Center for Astrophysics, concludes that one sample won't be enough to "unlock all of the planet's secrets." Instead, the first mission should be a "trailblazer" for a more extensive program. That expensive vision, however, is unlikely to win support from the Bush Administration.

Preemptive Strike? After years of resisting change, the Russian Academy of Sciences (RAS) earlier this month approved a new charter that trims the number of its divisions from 18 to 10. That will eliminate several plum positions in RAS's governing presidium. In true Soviet fashion, however, academy members reelected the only candidate on the ballot—President Yuri Osipov—to an unprecedented third term (*Science*, 2 November, p. 974).

More substantial changes may be afoot for the 325-odd RAS institutes. "We must find out which are effective and which are not," says former science minister Vladimir Fortov. That would enable the academy to funnel scarce resources to worthy institutes. Observers expect the academy to unveil other specific reforms by May.

New Chief Developmental biologist Peter Gruss has been elected president of Germany's Max Planck Society, the nation's major science group. Gruss, 52, is currently head of the department of molecular cell biology at the Max Planck Institute (MPI) for Biophysical Chemistry in Göttingen. He will take over next June from biologist Hubert Markl, who plans to return to research at the University of Konstanz after leading the society for 6 years. Although he lacks Markl's administrative experience, Gruss should bring "a fresh perspective," says Tobias Bonhoeffer, director of the MPI for Neurobiology in Martinsried. Like Markl, Gruss favors allowing research on human embryonic stem cells in Germany—an issue the government is still debating.

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