SCIENCESCOPE

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G.L. KOOYMAN/ANIMALS ANIMALS

Open season? Diplomats are discussing how to monitor commercial hunting of Minke whales.

Whaling Debate Shifts to Compliance

This week, officials from 40 countries met on a Norwegian island above the Arctic Circle to hammer out controversial procedures for monitoring whaling—a prelude to a decision this spring by the International Whaling Commission (IWC) about whether to lift a 12-year-old ban on commercial whaling.

For years two IWC members—Norway and Japan—have protested the ban, which allows whaling only by subsistence hunters and scientists. These dissenters got a boost in 1993, when an IWC scientific panel recommended the ban be lifted in favor of managed whaling of abundant species such as the Minke whale. Although most IWC countries accepted the panel's estimates on whale stocks, in May 1993 they voted to maintain the ban until the IWC had developed procedures for monitoring whaling (*Science*, 18 June 1993, p. 1711).

Meeting on Norway's Lofoten island this week, an IWC panel of diplomats was expected to discuss issues such as how to set a humane standard for slaughtering whales and how much control over whaling to grant international observers. One contentious issue is who will pay for observer activities: whaling countries, anti-whaling countries such as Australia, or all IWC nations. The panel is expected to present a report on a monitoring scheme at the IWC's annual meeting in Dublin, Ireland, in May.

By hosting the IWC panel in a harsh environment that's home to many potential whalers, "the Norwegian government is trying to get IWC officials to see firsthand why [Norway] has a legitimate reason for whaling," says a U.S. State Department official. Despite Norway's appeal for sympathy, the monitoring issues are complex enough that they may "spin out the discussion [over lifting the ban] for a considerable time"—perhaps beyond the May meeting—says an IWC official.

U.S. and China Renew Basic Research Ties

Next week, U.S. officials visiting China will sign a new agreement covering basic research between the two countries. The accord mends a break that occurred 4 years ago when the National Science Foundation (NSF) terminated a similar agreement after the Chinese government interfered with a joint research project to assess the political and social attitudes of ordinary citizens.

The agreement is expected to be the highlight of a 10-day Asian tour by U.S. government officials, the Administration's first high-level scientific delegation to China. This week the delegation visited Tokyo as part of an annual monitoring of a bilateral science agreement.

According to NSF's Alice Hogan, the agreement with China will provide "an umbrella of cooperation for scientists from all fields." Although the agreement provides no new money, it's expected to make it easier for researchers on both sides of the Pacific to work on joint projects in any area supported by NSF.

The agreement adds the Chinese National Science Foundation to a working relationship formed in 1980 between NSF and three agencies—the Chinese Academy of Sciences, the Chinese Academy of Social Sciences, and the State Education Commission. NSF severed those ties in 1990 after Chinese officials seized data from a joint project between researchers at the University of Michigan and Beijing University that involved training Chinese researchers (*Science*, 6 August 1993, p. 677). China later relented and allowed the researchers to complete the project, which "turned out well," says Michigan political scientist Ken Lieberthal, who's now in Beijing to continue that training.

Bioengineered Bug Hits Safety Snag

The first genetically engineered micro-organism slated for commercial release into the environment appears to have hit an unexpected roadblock. An Environmental Protection Agency (EPA) advisory panel is likely to recommend that the agency withhold approval of the release of a nitrogen-fixing bacterium pending further studies into the bug's ecological safety and persistence in the environment.

Last May, Research Seeds Inc. asked EPA to grant it permission to market a souped-up strain of *Rhizobium meliloti*, called PC-2, that fixes nitrogen in alfalfa plants and appears to boost yields under certain field conditions. Microbiologist Tom Wacek of Research Seeds, based in St. Joseph, Missouri, predicts that each year, PC-2 would be spread across 7 million acres of alfalfa and gross at least $12 million in sales.

According to a draft risk assessment released last month, EPA concluded that PC-2 "is a beneficial organism with no significant risks associated with the intended use." Last week, EPA's Biotechnology Science Advisory Committee (BSAC) agreed the bug posed no threat to human health. But the panel questioned whether it could pose an ecological risk by boosting nitrogen fixation in nontarget plants such as mesquite, making it more weedy. BSAC also wondered if PC-2 could be purged from the environment if it later posed a risk. Studies to address these questions could be completed in about a year and "should be done before approval," says BSAC member Michael Russelle, a soil scientist with the Agricultural Research Service.

Wacek told *Science* it's unlikely PC-2 could be removed from the environment once it's introduced commercially. However, he says, "our assumption has been that PC-2 is safe to start with." BSAC is expected to issue a report on EPA's assessment next month.

New Course for Forest Service Research

The U.S. Forest Service is planning an internal overhaul that would result in a new style of work for many of its scientists. In March, the agency is expected to deliver a report to Congress—part of Vice President Gore's reinventing government drive—that outlines a shift toward multidisciplinary team research.

The service's research division has an annual budget of $200 million and employs 700 scientists in 75 labs nationwide. Its studies cover everything from the biology of forest wildlife to tree farming.

A new thrust of the division will be to put its scientists on multidisciplinary teams that study ecosystems. The strategy grew out of a broad federal effort to protect the northern spotted owl and allow logging near the bird's habitats. Similar projects will require agency scientists to be more aware of the consequences of their research, says Forest Service Chief Jack Ward Thomas, an ecologist who led the owl effort. "As we move toward ecosystem management, scientists will have to dig out of their narrow trenches and think broadly about how their disciplines relate to management decisions," Thomas told *Science*.

But to make the teams work, says service research chief Jerry Sesco, the agency will have to develop new ways to reward and promote team players. Such plans are in the works: The agency's research evaluation guide is being rewritten to downplay publication count and put a premium on teamwork.