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Cover: Telesurgery — operating on faraway patients via computer — may someday free surgeons from having to hover over a patient. Here, Ian Hunter of MIT demonstrates a telesurgical device he and his colleagues invented. He holds the scalpel that directs the tool doing the cutting. The black cameras over the mannequin's head send Hunter images of the eye, although he can also see an enhanced computer-generated picture. The large, glowing globe behind the eye diagram is a laser image of the geometry of the eyeball. (Photo: Serge Lafontaine and Tilmachos Doukoglou, PRESENCE: TELEOPERATORS AND VIRTUAL ENVIRONMENTS)



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Science Service, which publishes SCIENCE NEWS, is a nonprofit corporation founded in 1921. It gratefully accepts tax-deductible contributions and bequests to assist its efforts to increase the public understanding of science, with special emphasis on young people. More recently, it has included in its mission increasing scientific literacy among members of underrepresented groups. Through its Youth Programs it administers the International Science and Engineering Fair, the Science Talent Search for the Westinghouse Science Scholarships, and publishes and distributes the Directory of Student Science Training Programs for Precollege Students.

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## Letters

### Offshore concerns off base?

Your summary of a GAO report on abandonment of offshore oil wells ("When offshore wells shut down," SN: 7/16/94, p.47) demonstrated an unfamiliarity with both the physics of oil production and the mechanics of regulation.

Offshore wells are steel-cased, drilled holes through which oil and gas are produced from deep reservoir rock. When depleted, offshore wells are sealed with a column of cement and mechanically cut below the seafloor. To suggest any serious risk of oil "seeping into the water" is a deliberate overstatement.

Offshore platforms are the large structures that support the wells against wind, wave, and current and carry drilling and production equipment. Explosives are often used to sever a platform's steel pile foundations, but these do not "kill nearby fish and marine mammals." Minerals Management Service (MMM) regulations require before-and-after marine surveys

conducted by the Marine Fisheries Service at the owner's expense and other precautions to avoid injury to marine mammals and turtles. A single turtle within 1,000 yards of a site can put a project on hold, costing up to \$75,000 per day for equipment on standby. The cost of these regulations has encouraged development of the benign cutting technologies now coming into use.

Paul R. Johnson  
Houston, Texas

We cited GAO's concern that not all abandoned wells may be plugged properly. Because many plugged wells may never be inspected, GAO says, "[MMS] has little assurance that wells will not leak after a lease site has been abandoned."

That explosives used to remove offshore oil and gas structures kill nearby marine life — from fish to endangered turtles and protected dolphins — "has been well documented," the GAO says. Indeed, it notes that a federal study quantifying the damage that explosives pose to Gulf

fisheries is under way. And while regulations require that rig removers take elaborate precautions to scout for and protect marine mammals, the American Petroleum Institute has requested an exception to the Marine Mammal Protection Act for the incidental killing of dolphins during the removal of offshore oil and gas rigs.

Last year, the National Marine Fisheries Service proposed just such an exemption. Last year, too, MMS' Gulf office asked NMFS to relax explosion limits. This proposal would triple the explosives allowed per detonation and eliminate the now required sea turtle observers in some portion of the Gulf. NMFS has not yet decided whether to adopt either proposal. — J.A. Raloff

## CORRECTION

The National Oceanic and Atmospheric Administration's ozone data in "The seasonal ozone decline continues" (SN: 10/8/94, p.230) were incorrect. The lowest measurement for Sept. 26 was 118 Dobson units. The lowest reading between Sept. 2 and Oct. 2 was 109 Dobson units.