



frog's native habitat—show no response,” says Solomon. Results of the Carr study and the South African field studies are to be presented at the Society of Environmental Toxicology and Chemistry annual meeting in Salt Lake City, Utah, 16 to 20 November.

The EPA atrazine docket, a publicly available record of comments about atrazine reregistration, reveals that the Hayes and Carr teams have been swapping detailed and pointed critiques about each other's studies. But an amphibian toxicologist not involved in either effort suggests that the complexity of long-term amphibian studies might account for some of the discrepancies. “These three studies are from good labs,” he says, adding, “there's a lot that we don't understand about simple things.” The researcher says that it's not clear if any of the seemingly minor differences between the Hayes and Carr protocols matter, such as the different strains of frogs, densities of tadpoles, or materials used to build the tanks. Such is the witches' brew of ingredients that the EPA panel will ponder.

—REBECCA RENNER

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FISHERIES SCIENCE

Scientists Recommend Ban on North Sea Cod

CAMBRIDGE, U.K.—In what could prove to be a serious blow to Europe's ailing cod-fishing industry, fisheries scientists last week advised the European Union (E.U.) to ban cod fishing in the North Sea and several other historic regional trawling grounds. But economic pressures might lead politicians to tone down the advice.

The recommendation is based on surveys suggesting that major cod stocks in the northeast Atlantic are at historic lows. European

fishing quotas for 2003 are due next month, and scientists say that a ban is the only way to protect future stocks. “Populations will collapse if there are not drastic reductions in fishing,” says Robin Cook, director of the Fisheries Research Services Marine Laboratory in Aberdeen, United Kingdom.

But some researchers wonder whether politics will trump science, noting that a ban could cost 20,000 jobs in the United Kingdom alone. “I would be delighted but shocked if [the European Commission] agrees to all the needed restrictions,” says Andrew Rosenberg, a former chief fisheries regulator in the United States and now a dean at the University of New Hampshire, Durham. Other researchers predict that even quick action might not restore healthy stocks soon.

Europe's cod drama reprises one that gripped North America in the last decade, when groundfish stocks collapsed in the western North Atlantic and subsequent fishing bans devastated U.S. and Canadian fleets. European fishers are now following the same chart, says the Copenhagen-based International Council for the Exploration of the Sea (ICES), which advises the European Commission on fisheries.

According to scientific surveys and catch statistics, the North Sea's cod spawning schools have dropped to just 15% of what they were in the early 1970s. “The stock is half of the absolute minimum” needed to sustain healthy populations, says Hans Lassen, ICES's fisheries adviser.

Even with a ban, hard-hit stocks might not bounce back quickly. Some Canadian populations haven't recovered even after a decade of restrictions, notes fisheries scientist Jeffrey Hutchings of Dalhousie University in Halifax, Nova Scotia, Canada. U.S. stocks have fared better, as the fisheries were closed before populations plummeted

to unsustainable levels and the fish mature faster than their northern cousins.

The European stocks appear to share some of that robustness, says Hutchings, although dwindling numbers “raise major worries.” The U.K.'s Cook agrees: “We're right on the end of the graph,” he

says, predicting that it will take at least 4 years to rebuild fishable cod populations.

A cod ban could also harm other fleets. That's because ICES has recommended banning vessels that target other species—such as haddock or shrimp—but also net cod as so-called bycatch. “You cannot look at the cod in isolation,” says Lassen.

Rosenberg is skeptical that politicians will crack down on bycatch. The enormous economic implications of that move, he notes, have led policy-makers to ignore ICES recommendations in the past, “mak-



Off the menu? Atlantic cod was once a staple of European diets.

ing the hole they are in now even deeper.” Still, he hopes that E.U. officials will create some “closed areas that are big enough to provide the fish with a substantial refuge.”

Industry is pleading for less drastic steps. George MacRae of the Scottish white fish producers association told *The Guardian* last week that a sweeping ban “is the doomsday scenario.” Policy-makers now face the slippery task of balancing the future of the fish against that of the fishers.

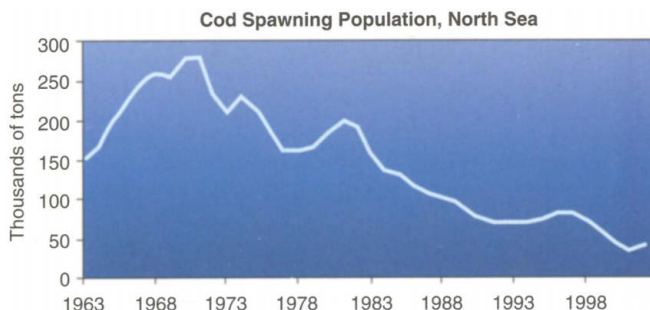
—DAVID MALAKOFF AND RICHARD STONE

ASTRONOMY

Iron Deficiency Reveals Nearly Pristine Star

Astronomers have found an ancient star that preserves a chemical record of the infant cosmos. The little star, just now facing the end of its long life, suggests that the first stars in the universe might not all have been the colossi that models predict. “It's astounding that we can glimpse such an early stage of the universe through the composition of this star,” says astronomer Catherine Pilachowski of Indiana University, Bloomington.

Stars are relentless element factories,



Smaller schools. The number of spawning cod in the North Sea has sunk to record lows, imperiling the fishery.

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