Populations of high-value fish like these gray snapper have rebounded inside and outside marine reserves in St. Lucia.

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13 versus 6 spotted sea trout). The net ban is also a common explanation for record patterns, but it cannot account for our results, either, because it applied statewide and took effect in July 1995, years after world records from the Cape began increasing. Any records in response to the net ban would take years to become manifest and should occur throughout Florida. After the net ban, however, 18 of the 20 new world records from 1996 to 1999 were from the Cape. Wickstrom also mentions the addition of new line classes in 1981 by the International Game Fish Association, but this resulted in a spurt of new records adjacent to Cape reserves only for spotted sea trout. Steep increases in numbers of world-record red and black drum only came years later, after fish from the marine reserves had attained large enough sizes.

In the third letter, Hilborn says that our findings of rapid increases in biomass and catches after the creation of marine reserves in St. Lucia are weak because our study lacks controls. It is hard to find ideal controls for large-scale management experiments of this kind (which is one reason that fishery management measures almost never have controls; reserves could provide control areas to assess how well management is performing). We agree that it would have been preferable to track fish populations in comparable habitats elsewhere in St. Lucia, in addition to unprotected areas adjacent to reserves. But comparable habitats were unavailable, and if they were, they too might receive offspring of fish from reserves and so would not be ideal controls. However, as we noted in our report, a regional regime shift is an unlikely explanation for our results. Data we have collected in a parallel study from an island 460 kilometers to the north show no comparable increases in fish biomass over the same period (*3*), nor have we heard reports of increases from closer islands. We can also rule out the possibility that reserves in St. Lucia increased awareness of other management measures, because reserves were the only form of management.

Even though local experimental controls are often less than ideal, the veracity of results is greatly strengthened where they can be repeated. There are now many examples of marine reserves from different habitats and countries that show an equally rapid rebound of fish stocks to that we described for St. Lucia [reviewed in (*4*)]. The initial phases of such rebounds stem from the growth of fish already present, but enhanced recruitment will play an increasing role after several years of protection. The St. Lucia fishery depends mainly on small, short-lived, rapid-turnover species, and 5 years would certainly be sufficient for protected fish to reproduce and their offspring to grow to catchable size in adjacent fishing grounds. The close proximity of reserves and fishing grounds is also likely to have maximized opportunities for the fishery to benefit from spillover of adults and juvenile fish from reserves.

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Long Road Ahead for Hydrogen Fuel Cell Cars

IN EARLY JANUARY, U.S. SECRETARY OF Energy Spencer Abraham announced the new program Freedom CAR (Cooperative Automotive Research), a cooperative effort with industry to develop cars powered by hydrogen fuel cells. As David Malakoff and Robert F. Service report in their News of the Week article "Bush trades hybrid for hydrogen model" (18 Jan., p. 426), this program replaces the Partnership for a New Generation of Vehicles (PNGV) begun in 1993 by the Clinton Administration that focused on developing more fuel-efficient cars (such as gas or diesel-electric hybrids) and other measures to reduce our dependence on gasoline. But what Malakoff and Service do not make clear is that hydrogen as a fuel for vehicles will not be available in the foreseeable

future except from natural gas or other fossil fuels. Until hydrogen can be obtained economically from water by means of solar energy or nuclear power in huge quantities, there is no point in talking about hydrogen to replace fossil fuels in cars.

I strongly support research on solar energy–derived hydrogen and other solar programs. However, for Abraham to give up on the PNGV program is shortsighted. The goal of the Freedom CAR program—or as Abraham calls it, his "dream car" (*1*)—is truly just a dream.

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1. S. Abraham, "Dream car made real," *New York Times*, 20 January 2002, section 4, p. 12.

What Counts in Conservation?

A RECENT COURT DECISION COULD REQUIRE hatchery fish to be counted as part of the populations of wild, imperiled salmon when assessing conservation numbers (News of the Week, "When is a coho salmon not a coho salmon?" by J. Kaiser, 30 Nov., p. 1806). The decision imperils many efforts to protect ecosystems. Rather than merely blaming the courts, it might be wise for scientists to consider how their own behaviors contributed to this state of affairs.

Through institutional narrowness and reductionism in science itself, ecology has been effectively restricted to biology, which in turn confines the problem of ecosystem loss to matters of fish production. With the more complex and contentious problems (cumulative loss of ecosystems over time) reduced to more manageable measures (fish production), the stage was set for a series of technological fixes, including the production of fish through the use of hatcheries. Arguing over the skill of hatchery fish (to forage and avoid predators) merely sets the stage for more refined technological fixes, such as changing the design and operation of hatcheries.

In contrast, the purposes of the Endangered Species Act of 1973 are "to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved." Wild salmon are telling us that these ecosystems are not being conserved.

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CORRECTIONS AND CLARIFICATIONS

THIS WEEK IN *SCIENCE*: "Keeping blood pressure low" (18 Jan., p. 403). This summary of the report "Abnormal vascular function and hypertension in mice deficient in estrogen receptor β" by Y. Zhu *et al.* (p. 505) misrepresents the results of the research. An appropriate description is as follows. Zhu *et al.* examined vascular function in mice lacking the β form of the estrogen receptor (ERβ). In normal wild-type mice, estrogen attenuated the constriction of blood vessels by an ERβ-mediated increase in the expression of inducible nitric oxide synthase, with consequent increase in the production of the vasorelaxant agent, nitric oxide. In the animals lacking the ERβ, in contrast, estrogen augmented vasoconstriction. These animals also developed hypertension as they aged, which may yield new insights into the treatment of hypertension, particularly that associated with menopause.