

market," he said. Deregulation allowed generating stations to charge utility companies market value, but the utilities had to sell to customers at a fixed rate. By capping consumer rates, the state discouraged any financial incentive to conserve energy.

In Congress, Sen. Frank Murkowski (R-Alaska) introduced the National Energy Security Act of 2001 in February, which would limit the amount of U.S. energy supplies that come from foreign sources to 50 percent. It also targets the refuge as a place to begin domestic exploration. To counter Murkowski's proposal, 24 senators, led by Sen. Joseph Lieberman (D-Conn.), introduced legislation to permanently protect the area.

When the Arctic refuge was established in 1980 as part of the Alaska National Interest Lands Conservation Act, opposition from the oil industry led Congress to designate the refuge's coastal plain as a study area for oil and gas potential. The efforts to open it have been almost continuous since then.

A 1998 survey by the U.S. Geological Survey (USGS) estimated that between 4.3 billion and 11.8 billion barrels of technically recoverable oil lie within the refuge, with a 95 percent probability of the lower number. In the entire area, including state and native lands, the estimate is between 5.7 billion and 16 billion barrels, with a 95 percent probability of the lower estimate. Proponents of drilling believe that, at the very least, the refuge could supply all U.S. energy needs for nearly a year, and Murkowski has stated that 16 billion barrels "could replace all of our imports from Saudi Arabia for 30 years." Opponents assert that at best the coastal plain would offer a six-month supply that could take 50 years to retrieve.

The GAO reported that Americans used nearly 20 million barrels of oil a day in 1999, contributing to nearly 40 percent of the daily energy consumption in the country.

Not only are environmental groups concerned with the potentially devastating environmental effects on the re-

fuge's ecosystem, but they also fear the precedent it might set for other federally owned lands. In March, the House Resources Committee, chaired by Rep. James Hansen (R-Utah), announced a USGS report indicating that at least six of 21 national monuments established or expanded under the Clinton administration have oil, natural gas, coal, or geothermal reserves. Among the monuments cited in the report are several that NPCA supported.

TAKE ACTION: Write to your senators asking them to oppose Murkowski's energy bill and any legislation that would open the Arctic refuge to oil and gas exploration. See the contact box on page 16.

REPORT # 17781
PARK SCIENCE

Coral Nursery at Biscayne a First

Park attempts to grow coral in a natural setting.

BISCAYNE N.P., FLA.—As clear turquoise waters roll gently toward shore and birds float upon the gentle tropical breezes, Biscayne National Park doesn't appear to be under siege. But beneath the water, coral—a core ele-

ment of the marine ecosystem—has been disappearing at an alarming rate because of careless boaters, warming waters, and disease caused by pollution. To counter the trend, the Park Service has now created one of the first coral nurseries in a natural environment.

Researchers have been growing coral within laboratories for many years, but the Park Service expects the bay will accommodate a large-scale operation that cannot be created in an aquarium. The agency has set a goal of growing 2,000 colonies.

Worldwide, coral reefs are experiencing enormous losses. Ship groundings, destructive fishing practices, tropical storms, global climate change, and pollution are killing off creatures that create the reefs that provide habitat for many species of fish, mollusks, and crustaceans that feed, grow, and reproduce in them. The south Florida coral reef tract—the only system within continental U.S. waters—has declined 25 to 40 percent in the last 50 years.

"If this project is successful, it could serve as a model for other coral reef parks experiencing similar losses," said Mary Munson, NPCA South Florida program director.

"This is a positive example where the National Park Service is not only working to protect a resource but increase its abundance."

To initiate the project, researchers will collect spawn, small pieces of living



Biscayne records nearly 200 boat groundings each year that damage coral.

PARK RESOURCES

Park Allows Town to Take Water

USGS study to review long-term water needs of Cape Cod.

PROVINCETOWN, MASS.—At Cape Cod National Seashore, the Park Service has agreed to allow neighboring Provincetown to extract water from a well within the seashore's boundary during peak visitation.

The agency has essentially extended a long-standing agreement that Provincetown had with the North Truro Air Force Station, a World War II anti-aircraft artillery installation that became part of the seashore in 1994. The base contains one of three wells on the Cape, and the military once allowed the town to tap into it for emergency relief.

To accommodate the town without

jeopardizing vegetation and wildlife at the seashore, the park has required that the agreement be renewed each year for the next five years and that the town document its need and the conservation measures it is using. An environmental assessment done before the agreement did not indicate any impact to the seashore's vegetation, floodplains, wetlands, or wildlife. The rate of extraction—330,000 gallons per day—is the same as it has been for the previous 20 years. In 1999, the seashore recorded nearly 5 million visitors, and water demand for the town increases each summer with the influx. The number of permanent residents is also rising on Cape Cod; from 1990 to 2000, the population rose 19 percent from about 186,000 to 222,000.

Park Superintendent Maria Burks said that the agency is participating in a U.S. Geological Survey study that will address the long-term water capacity of the outer Cape. The study, scheduled to be complete in five years, will demonstrate the best locations to extract water



Brain coral damaged by bleaching.

coral from healthy structures, and fragments that have been torn from the reef. Coral less than three inches in diameter will be cultivated in one of the four nurseries inside the bay, and larger pieces will be reattached to the reef if possible.

An immediate challenge for the program is to find a natural substance to reattach the coral; the current glue does not allow natural erosion, a process that creates nooks and crevices to conceal small creatures.

Unfortunately, finding the small coral fragments has not been a problem, said Richard Curry, the project's manager. The park records about 200 ship groundings annually in the bay and estimates that number represents only 20 percent of the actual groundings. "Often the only ones we find out about are when the people are stuck and have to be rescued," he said.

Increasing water temperature, which stresses the coral and causes bleaching, is also taking a toll on the reef. In water above 88 degrees Fahrenheit, the coral loses its ability to exchange oxygen and nutrients and protect itself. To lessen environmental stresses, the agency has located the nurseries in four tidal channels that have a variety of hydrological flows and temperatures.

Curry believes that the nursery is a long-term project. But it may not be that costly. Much of the \$50,000 for this year's budget has gone to startup expenses, and already several volunteers have come forward to participate.

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