

National Parks & Conservation Magazine

The Environmental Journal August 1979



NPCA • National Parks & Conservation Association • NPCA

New Hope for the Oceans

SINCE WE COMMENTED a year ago on developments at the United Nations Conference on the Law of the Sea, there have been two sessions of the Conference, one in New York last summer and another this spring at Geneva. Events marked time in New York, and there were forebodings as to the future. But serious bargaining went forward at Geneva on issues which had seemed impassable, and new sessions have begun this summer in New York, marked by guarded optimism.

THE MAIN STUMBLING BLOCK has been the arrangements for dredging up the so-called manganese nodules from the deep seabed. Huge supplies of manganese, nickel, copper, and cobalt are at stake. The industrial countries, including the United States, see them as raw materials needed for economic and military security by the end of the century. The nonindustrial countries, looking forward to industrialization, would leave them in place until needed. Some countries are supplying these minerals from land, and would also prefer to postpone seabed mining.

As the preliminary drafts of the proposed treaty have emerged, a so-called parallel regime has been established, providing for licenses by a world Authority to corporations or states on the one hand, and to an international public agency, known as the Enterprise, on the other. Problems of assured access to minerals for corporations and states and of adequate financing and transfer of technology for the Enterprise have preoccupied the negotiations for several years. Genuine progress can be reported from the Geneva sessions, although many hard problems must still be solved.

OF MORE IMMEDIATE INTEREST to environmentalists are the articles dealing with marine mammals, oceanic fisheries, and oceanic pollution, and with the settlement of disputes on these questions. Because machinery established for the direct enforcement of global regulations will be limited, enforcement will be left mainly to adversary proceedings between nations. It was essential that settlement by such proceedings be compulsory and applicable to all significant obligations imposed by the Convention.

In respect to marine mammals, covered by Article 65, the present text still confers power on

coastal states to regulate catch and other management activities without reference to minimum protective standards established for the living resources by Article 61. This grave flaw must be remedied at the current sessions in New York; it probably will not be possible for environmentalists to support ratification of the Convention unless this happens. The United States Delegation is committed to the change; regrettably, it has been well-meaning enthusiasts from other delegations who have blocked a consensus; we hope to see cooperation at New York.

WHILE THE DRAFTS have contained minimal protective provisions for some time governing the exploitation of the oceanic fisheries all over the world, they established no machinery for the enforcement of such standards for any of the living resources. Informal agreements on enforcement were arrived at prior to the sessions in New York a year ago; now at long last they have been written into the text, and enforcement based on compulsory conciliation, in some ways superior to compulsory arbitration, has been established.

Much more than this must be done eventually if genuinely adequate protection is to be accorded to the food-fish resources. A score of bilateral or multilateral treaties are already in existence governing specific regions or species; for the most part they establish commissions with inadequate powers; participation by interested states is incomplete. We had hoped to see an office established by the Convention to press for improvements, but were disappointed. The work can and must now be undertaken independently of the Convention by nations concerned with survival of these segments of the planetary ecosystem.

FOR SEVERAL YEARS the drafts have contained excellent articles requiring states party to the Convention to enact and enforce domestic legislation, no less effective than international standards, to prevent the pollution of the oceans through the rivers and the atmosphere. States are responsible for the fulfillment of these obligations in accordance with international law. Workable procedures are established to ensure compliance. With modifications, these guarantees extend to ocean dumping and pollution from vessels and

Continued on page 31



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NPCA · National Parks & Conservation Association · NPCA

- 2 **New Hope for the Oceans**
by Anthony Wayne Smith
- 4 **River Running in the National Parks of the West**, by Verne Huser
- 10 **The Park Service as Curator**
by F. Ross Holland, Jr.
- 16 **Drilling Offshore: The Environmental Hazards**, by Sarah Chasis
- 22 **Glacier's Beleaguered Grizzlies**
by Christopher Cauble
- 26 **NPCA at Work**
- 28 **NPCA 25 Years Ago**
- 29 **Reader Comment**
- 30 **Conservation Docket**

FRONT COVER Granite Falls, Grand Canyon, by John Blaustein

BACK COVER Skagit River, North Cascades, by Verne Huser

A wide variety of river trips is available in our western national parks, ranging from brief runs ninety minutes long to extended trips lasting three weeks, and from placid float trips to runs down some of the best whitewater in the world. Vessels used vary, too, from beautiful wooden dories (front cover), to small rubber rafts (back cover), pontoon rafts, canoes, and kayaks. [See page 4.]

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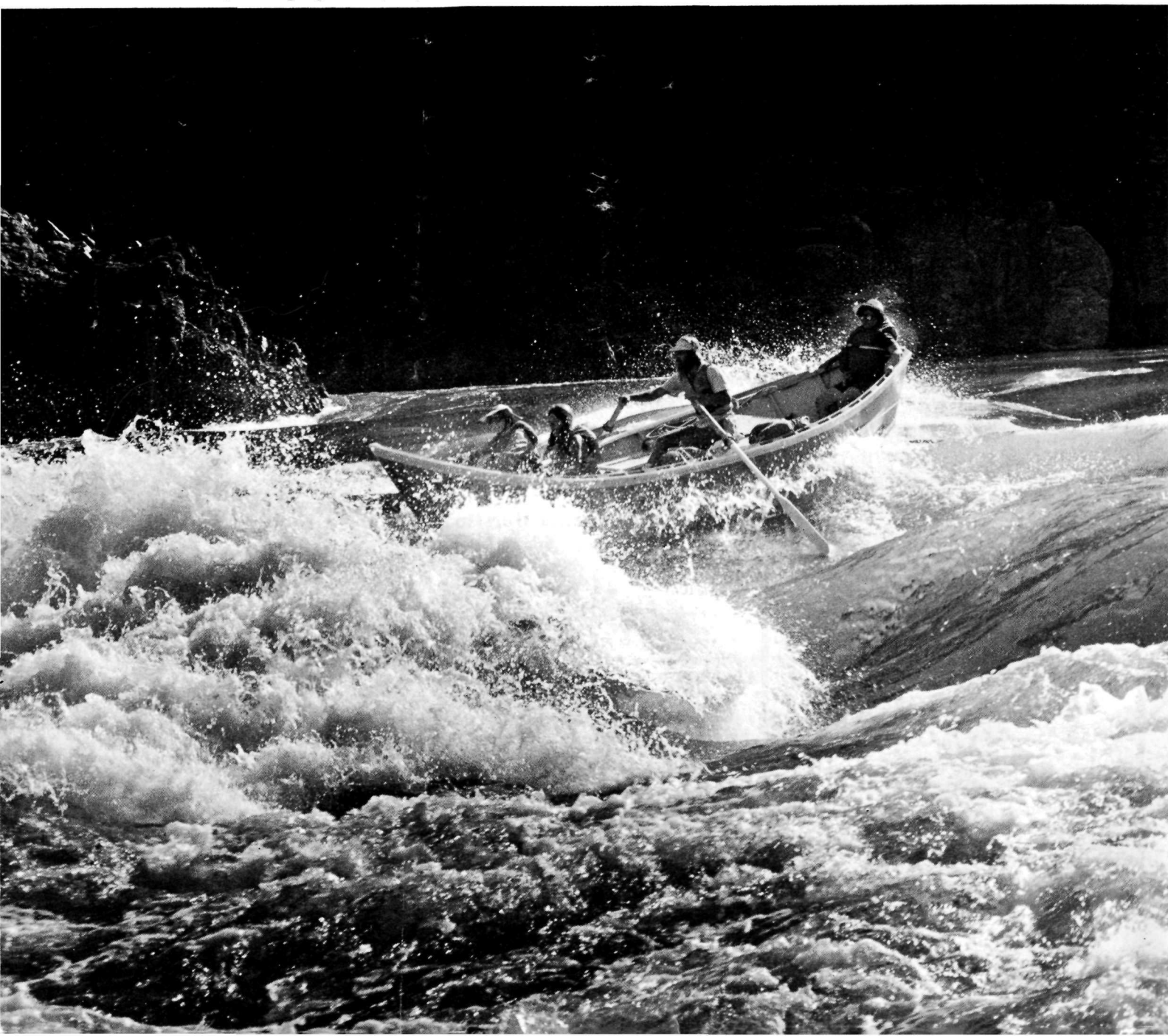
National Parks & Conservation Association, established in 1919 by Stephen Mather, the first Director of the National Park Service, is an independent, private, nonprofit, public service organization, educational and scientific in character. Its responsibilities relate primarily to protecting, promoting, and enlarging the National Park System, in which it endeavors to cooperate with the National Park Service while functioning as a constructive critic. In addition, the Association engages in domestic and international programs involving parks, forests, wildlife, wilderness, recreation, open space, rivers, oceans, pollution, pesticides, ecology, environment, population, transportation, historic and archeological preservation, natural resources, and related or comparable matters. Life memberships are \$750. Annual membership dues, which include a \$7 subscription to National Parks & Conservation Magazine, are \$150 Sustaining, \$75 Supporting, \$30 Contributing, \$22 Cooperating, and \$15 Associate. Student memberships are \$10. Single copies are \$2. Contributions and bequests are needed to carry on our work. Dues in excess of \$7 and contributions are deductible from federal taxable income, and gifts and bequests are deductible for federal gift and estate tax purposes. Mail membership dues, correspondence concerning subscriptions or changes of address, and postmaster notices or undeliverable copies to National Parks & Conservation Association, 1701 Eighteenth Street, NW, Washington, D.C. 20009. When changing address, allow six weeks' advance notice and send address label from latest issue along with new address. Advertising rates are available on request from headquarters in Washington.

River Running in the National Parks of the West

River trips are a unique way to experience the wild parts of several spectacular parks

by VERNE HUSER

Below, a wooden dory, the most beautiful commercial craft plying our wild rivers, enters Granite Falls in Grand Canyon National Park. Opposite, participants on a dory trip enjoy one of many calm stretches in the canyon. With one of the best interpretive programs of all, dory trips also allow ample time for visiting fascinating spots along the way.



PHOTOGRAPHS BY JOHN BLAUSTEIN, COURTESY OF GRAND CANYON DORIES

THE WATER IS GLASSY. The roar is deafening. Tension mounts as the raft drifts toward the brink of a fifteen-foot drop. The oarsman faces the rapids and deftly guides the raft down the smooth tongue of water sloping into the maelstrom. As the raft slips smoothly over the drop, it accelerates momentarily, and passengers glance into the depths of a watery hole beside them. But immediately a standing wave nearly stops the raft, and water crashes over the passengers' heads and obscures vision. The raft plunges and bucks; water drenches all; boulders flash by; people gasp for breath. Just as quickly, the raft slips again onto smooth water, and laughter replaces tension. In sharp contrast to this dramatic scene, at the same moment a small party of rafters may be gliding slowly down the upper Snake River in Jackson Hole or along the Hoh through the Olympic Peninsula rain forest. Eagles wheel overhead, and elk feed in the forest. An otter breaks the surface of the river to watch the raft slide by, and mergansers with broods of ducklings move cautiously upstream in the shadow of the bank.

ADVENTURE, wonder, and serenity await travelers who plan river trips through some of our most spectacular national parks in the West.

Although some river trips are exciting whitewater runs, others are quiet float trips. Whether careening through wild cataracts in the Grand Canyon or drifting quietly through moose and beaver habitat in Grand Teton National Park, river trips offer a unique means of experiencing those areas. Just as many early explorers followed river routes, so do these river trips provide access into wilder parts of national parks where nature, not traffic, dominates. Many trips allow time for swimming and for hikes into side canyons to waterfalls, caves, or abandoned mines. They offer opportunities for observing and photographing wildlife or for marveling at petroglyphs and stone dwellings left by prehistoric inhabitants.

Skillful crews maneuver the rafts and take care of camping, cooking, and first aid. Many of the guides are so knowledgeable about the parks that they augment the National Park Service's naturalist program.

Excursions range in duration from a few hours to more than two weeks, and vessels vary from kayak or canoe to rubber raft or wooden dory.

Both oar-powered and motor-powered trips are available in several parks, although motors are banned in some parks and are being phased out in others. People who have experienced both kinds of

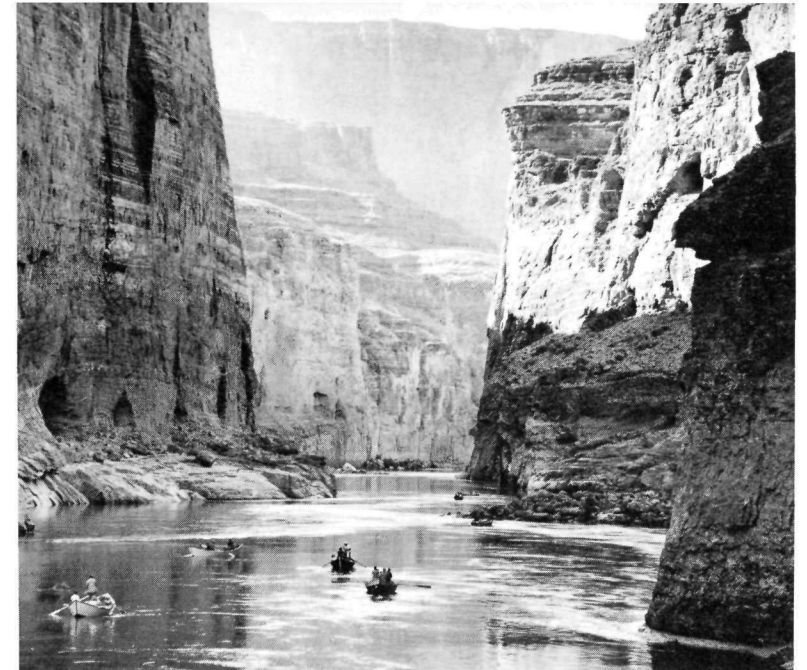
trips generally prefer the nonmotorized trip; the absence of motors enables more complete enjoyment of the wilderness setting.

River trips are available in eight national parks in the West—Big Bend, Canyonlands, Dinosaur, Glacier, Grand Canyon, Grand Teton, North Cascades, and Olympic parks.

BIG BEND NATIONAL PARK. Spectacular canyon scenery and an international border are prime attractions on the Rio Grande River as it winds between canyon walls fifteen hundred feet straight up. Big Bend park, Texas, is on one side of the river; Mexico is on the other.

Along the river grow such unusual species of plants as catclaw and eagle's claw as well as the more familiar prickly pear and yucca. Limestone cliffs reveal fossils of marine creatures turned to stone 60 million years ago, and fern-draped side canyons offer welcome green shade. Birds—swallows, canyon wrens, and the brilliant vermilion flycatchers the Mexicans call "little coal of fire"—dart everywhere.

Although several commercial river outfitters run trips through the area, many runs are made by private parties; but permits are required. In contrast to other national parks, where seasons usually run from April through October,

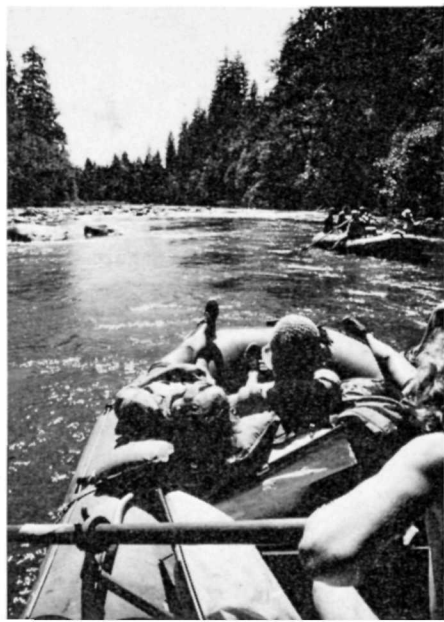


river running activity in Big Bend is basically from November through February, and river use is still minimal.

Several spectacular canyons in Big Bend offer runs: Santa Elena, Boquillas Canyon, and Colorado Canyon. The National Park Service recommends inflatable rafts for all these trips, but many Texans run in canoes and portage the rough spots.

CANYONLANDS NATIONAL PARK. In southeastern Utah the Colorado River slices through an area of wild labyrinthine canyons. In the heart of Canyonlands National Park the Colorado is joined by its major tributary, the Green River. Upstream both rivers are slow—ideal for travelers who want less challenging excursions; but once the Colorado enters Cataract Canyon, the river changes. Between the confluence and Lake Powell—the reservoir formed by Glen Canyon Dam—the fourteen-mile stretch of river once contained twenty-eight named rapids.

Tricky maneuvering is needed in The Notch (right) in Mariscal Canyon at Big Bend National Park. Below, a party enjoys a sunny day on the Queets in Olympic National Park. Opposite, a rafting party runs Big Drop Rapid in Cataract Canyon, Canyonlands National Park, where during spring runoff this canyon may have the biggest water in the West, at least rivaling water in Grand Canyon park.



KEITH GUNNAR

Now several of the lower rapids have been drowned by the reservoir, but at high water level during spring runoff some of the remaining rapids rival those of Grand Canyon.

Canyonlands National Park offers visitors much more, however, than its mighty rapids. Colorful canyon walls are adorned with prehistoric Indian art, and ancient ruins are tucked among the shadows. Historic "outlaw cabins," old ranches, and mines testify to more recent travelers and inhabitants.

Most Cataract Canyon trips run four or five days, with a long flatwater approach on either the Green or the Colorado and a long stretch of flatwater on Lake Powell at the end of the trip. The quiet stretches can be canoed. Some commercial parties use motors for the Lake Powell stretch, but oar-powered trips are available. The Park Service is considering a ban on motors on the river in the park.

If you want to run Cataract Canyon, you'll need a permit to do it

on your own, or you can go with one of eighteen commercial outfitters using the area.

Never plan a float trip in Canyonlands, though, during Memorial Day weekend. The whole river system is crowded with power boats for the annual "Friendship Cruise." Taking advantage of the quiet waters of both the Green and the Colorado above the confluence, all kinds of boaters in many kinds of crafts converge on the rivers—down one and up the other—to celebrate spring and the beginning of boating season. Roughly 25 percent of river use in Canyonlands occurs on that one mad weekend. I avoid it.

DINOSAUR NATIONAL MONUMENT. Early in its journey from Wyoming's Wind River Range to its confluence with the Colorado River in Utah, the Green River travels a spectacular route through Dinosaur National Monument on the Colorado/Utah border. The river enters the monument from the north through the stunning red

WILL THOMPSON



Canyon of Lodore. The lovely Yampa River joins it farther south in the park. Below the confluence the Green River flows through Whirlpool Canyon and then Split Mountain Gorge with a series of wild rapids.

Float trip activity in the monument has grown during the past twenty years to about 15,000 river runners a season, roughly 40 percent of whom make one-day trips through Split Mountain Gorge. A third of the overnight trips are run by private parties.

Private parties must have permits obtained in an annual lottery, with applications due months before the season. Motors and motorized vessels are not allowed on the rivers within the national monument.

The duration of trips varies, with most trips down the Green from the Gates of Lodore to Split Mountain taking only two days, and most trips on the Yampa to Split Mountain requiring three—but both runs often are done in a more leisurely fashion.

GLACIER NATIONAL PARK. The forks of the Flathead River form the boundaries of a large part of Glacier National Park, Montana. The North Fork flows out of Canada along the west side of the park, and the Middle Fork flows northward out of the Bob Marshall Wilderness to form the southwest boundary of the park.

Bordered on one side by the park and on the other by Flathead National Forest, both streams curve through magnificent scenery of rugged mountains snowcapped even in summer and dense forests of spruce, fir, and pine. Grizzly bears come to the rivers' gravel bars to fish; moose and elk amble down to browse and drink; bald and golden eagles soar overhead on the lookout for prey; and rainbow, brook, and cutthroat trout thrive in the swift-flowing water.

Several commercial rating companies offer float trips. Because both forks of the Flathead merely border Glacier park and access points to the river are for the most part on Forest Service lands, river-

running activities are governed largely by the U.S. Forest Service.

GRAND CANYON NATIONAL PARK. Floating down the mighty Colorado River through the Grand Canyon in Arizona provides an entirely different perspective of this spectacular geologic wonder, with vistas including towering canyon walls and variously colored pinnacles.

The thunderous voice of rapids in the canyon-bound world contrasts to the thin tinkling voice of the canyon wren and the steady drone of cicadas, which you hear as you slowly float the calm stretches between rapids (unless you make the mistake of taking a motor trip). The delicate flow of water at Vasey's Paradise or Elves Chasm or in any of many enchanting side canyons contrasts with the surging rapids.

Redwall Cavern, Cheyava Falls, Havasu Canyon, the Silver Grotto in Shinumo Wash—fabulous places await you all along the river or at the end of day hikes into side can-

KIM CRUMBO





TRIANGLE X RANCH

A raft trip on the Yampa River (below) in Dinosaur National Monument is an easy, pleasant way to see the park's stunning backcountry scenery. The most popular river trips in the national parks are the short, placid float trips in Grand Teton National Park (above). Trips range from ninety minutes to half a day in duration, although one overnight trip is available.



VERNE HUSER

yons. Occasionally you may spot wildlife along the way: beaver, rainbow trout, collared lizards, green heron, blue grosbeaks, or the scourge of the canyon, feral burros.

Man is no stranger to this wild place. Prehistoric Indians lived and traveled throughout the canyon. The daring exploratory expedition by John Wesley Powell links the Grand Canyon to Canyonlands and Dinosaur. Early prospectors and river runners followed Powell.

Lee's Ferry at Page, Arizona—just downriver from the Glen Canyon Dam—is the usual launching site for Grand Canyon river trips. You can ride the river for some 300 miles, running eighteen major rapids and dozens of minor ones, all the way to Lake Mead, although most parties end the trip at Diamond Creek on the Hualapai Reservation at mile 225. Motor trips take eight to ten days; oar-powered rafts take ten to twelve days; dories take eighteen days. Options are available for partial trips of three to eight days beginning or ending at Phantom Ranch.

Commercial passengers must book passage well ahead of the season, which begins in mid-April, as party size and number of trips allowed are limited by the Park Service. Motorized trips will be phased out beginning in 1980.

People who wish to run the Colorado on their own must apply months ahead of time. Even then, only a tenth of applicants can be accommodated, as the Park Service limits the number of private permits issued. The Park Service does plan, however, to increase the ratio of private to commercial permits and to distribute river trips more evenly throughout the year.

GRAND TETON NATIONAL PARK. The most popular national park for float trips is Grand Teton, where roughly 80,000 people floated various stretches of the upper Snake River during the summer of 1978. Some dozen commercial outfitters offer scenic float trips in the park.

Moose Village in the southern section of the park is a meeting

point for placid, leisurely excursions that, with a single exception, range from ninety minutes to half a day long. One outfitter offers an overnight float trip. With the jagged peaks of the Tetons rising dramatically to the west, these trips provide ideal opportunities for photographing wildlife. Floaters may see moose and mink, deer and ducks, beaver and buffalo, elk and eagles—even, perhaps, an occasional bear or antelope.

All you need to run your own river trip in Grand Teton National Park is a suitable craft—canoe, kayak, raft—a personal flotation device for each person, a bailing bucket, a waste receptacle, and a nonfee permit available at any ranger station. No motors are allowed on vessels on the Snake River within the park, and fishermen must have a valid Wyoming fishing license.

NORTH CASCADES NATIONAL PARK. Imagine floating down a shallow river reflecting autumn-colored foliage and spotting the flash of salmon in the clear water. Float trips on the upper Skagit River actually flow through Ross Lake National Recreation Area, part of the North Cascades National Park complex. Here a ten-mile stretch of the triple-dammed Skagit remains free-flowing with the reservoir release for power generation. Although the river flow fluctuates daily as it does in the Grand Canyon, the variation is minimal. This short segment of a beautiful river offers a pleasant mix of whitewater and scenic float trip, along with chances to observe wildlife—otter, deer, and a variety of ducks and other birds. Wintering bald eagles concentrate on a portion of the Skagit just outside the national recreation area to feed on spawned-out salmon. A few of the magnificent birds sometimes can be spotted in the recreation area between mid-November and mid-March.

Four commercial outfitters and one concessionaire offer float trips on this portion of the Skagit River. The Skagit is runnable year around

and offers anadromous fish runs at certain times of the year. Depending on the run, salmon fishing is permitted with a state license and subject to state laws.

OLYMPIC NATIONAL PARK. The Olympic Peninsula in Washington State is a world unto itself, especially since the Hood Canal Bridge collapsed during a severe storm in the winter of 1978–1979. You can still reach Olympic National Park, but it may take longer. The rivers of the park—the Hoh, the Queets, the Quinault, the Elwah, and others—flow quickly to the ocean largely through rain-forest vegetation.

Glacier-fed, the rivers are cold, sometimes milky with glacial flour, and full of log jams. The weather frequently is rainy; but when the skies are clear, the scenery is fantastic, with spectacular views of the Olympic Mountains. Even in the rain—perhaps especially in the rain—a river trip is worthwhile for the experience of floating through a rain forest and observing the abundant wildlife in a natural setting.

Several commercial rafting operations provide park visitors with a chance to float the rivers of the park if they have left their own boats at home; but rain forest conditions do prevail, and it pays to dress for the weather. Sunny days are glorious, but they are rare.

WITHOUT A DOUBT, river running is a wonderful way to experience a national park. It offers you an opportunity to see backcountry you might never otherwise see. Start planning now for next year! ■

Verne Huser, author of *River Running* and conservation director for the Western River Guides Association has guided trips in Grand Teton National Park and Dinosaur National Monument and now runs river trips in Olympic National Park. Verne wrote *Snake River Guide*, covering the upper Snake, and *Canyon Country Paddles*, which covers the Green and Colorado rivers in Canyonlands National Park.

HOW TO RUN A RIVER

Hundreds of outfitters offer trips for varying amounts of time and money and degrees of adventuresomeness. More than a hundred outfitters belong to the Western River Guides Association; write for information at 994 Denver Street, Salt Lake City, UT 84111.

The 1979 *Worldwide Adventure Travel Guide* tells about hundreds of river trips and lists dozens of guides. Pat Dickerman's *Adventure Travel* also offers numerous suggestions for river trips in the national parks and monuments. Both are available in most bookstores.

A series of guides published by Westwater Books (Box 365, Boulder City, NV 89005) provides excellent maps of four of the areas described here: *Grand Canyon River Guide*, *Snake River Guide*, *Canyonlands River Guide*, and *Dinosaur River Guide*.

Plan your float trip well in advance, especially if it is to be an extended trip. Write the National Park Service for information, collect a number of brochures, and make personal contact with outfitters, either by mail or by phone. It pays to shop around; prices may be similar, but the quality of trips varies greatly.

Usually the literature sent out by outfitters gives some indication of their level of knowledge and attitude toward fauna and flora, history, geology, myth, and legend. Some outfitters have impressive interpretive programs; others do not. Word of mouth is helpful, but personal contact with outfitters and their guides is best.

For information on river trips, either private or commercial, write the "Superintendent" at the following addresses. Inasmuch as NPCA opposes motor-powered river trips in national parks, members are urged to patronize oar-powered trips. They are safe and much more enjoyable.

Big Bend National Park, TX 79834

Canyonlands National Park
446 South Main Street
Moab, UT 84532

Dinosaur National Monument
Dinosaur, CO 81610

(Glacier)
Supervisor
Flathead National Forest
Box 147
Kalispell, MT 59901

Grand Canyon National Park
P.O. Box 129
Grand Canyon, AZ 86023

Grand Teton National Park
Moose, WY 83012

North Cascades National Park
Sedro Woolley, WA 98284

Olympic National Park
Port Angeles, WA 98362



by F. ROSS HOLLAND, JR.

The National Park Service needs both ingenuity
and public support to preserve and interpret
the vast and varied array
of cultural resources
in its charge

The Park Service as Curator

MENTION the national parks to most Americans and into their minds pop Yellowstone, Yosemite, the Grand Canyon, or the Great Smoky Mountains.

It would come as a surprise—if not a shock—to the average American, therefore, to learn that well over half of our national parks preserve not natural and scenic areas but sites of historical or archeological significance.

Parks whose primary values are historical or archeological have been part of the National Park System a long time—indeed, since its establishment. When the Park Service came into being in 1916, it assumed responsibility for a number of archeological parks already in existence such as Mesa Verde National Park, Colorado, and Chaco Canyon National Monument, New Mexico, and such historical areas as the old Spanish mission at Tumacacori National Monument, Arizona, and Sitka National Monument in Alaska.

Stephen Mather, the Park Service's first director, and Horace Albright, his assistant director who later became director himself, had a strong interest in our nation's cultural heritage; both of them be-

lieved that historical and archeological parks had a logical place in the National Park System.

In those early days of the Park Service, however, many historical and archeological sites were controlled by other federal agencies, such as the War Department. It took years of struggle on Horace Albright's part to bring these areas into the Park System. At last he convinced newly elected President Franklin D. Roosevelt that this was indeed where they belonged, and in 1933 the battlefield parks and historic monuments were placed under the Park Service's administration, increasing the size of the System by sixty-three parks.

Since then, Congress has steadily added to the number of historical and archeological parks in the care of the National Park Service, until today more than 200 of the 320 units in the Park System fall into this category.

THE CULTURAL resources in the National Park System are not limited to parks specifically designated as historic, however. Natural and recreational parks also contain cultural resources, often of national significance. A striking

example is Yosemite Valley. Long renowned for its spectacular natural beauty, Yosemite Valley is listed on the National Register of Historic Places because the entire valley is liberally dotted with archeological sites important in the history of American Indian culture.

In the same way, urban recreation areas like Gateway in New York and Golden Gate in San Francisco contain sites important in the history of the nation's military development that, judged by the criteria of national significance, would stand on their own as historical parks.

The astonishing fact is that the inventory now in progress of all the sites of cultural significance in the Park System—scenes of historic events, battlefields, archeological sites, and locations of cultural interest in the natural parks—will probably outnumber even the Park Service's recent count of the historic man-made structures in its care, which totaled more than 70,000.

The archeological parks range from the pueblos of Chaco Canyon in New Mexico to the ceremonial mound at Ocmulgee in Georgia; from the ruins of earth lodges at

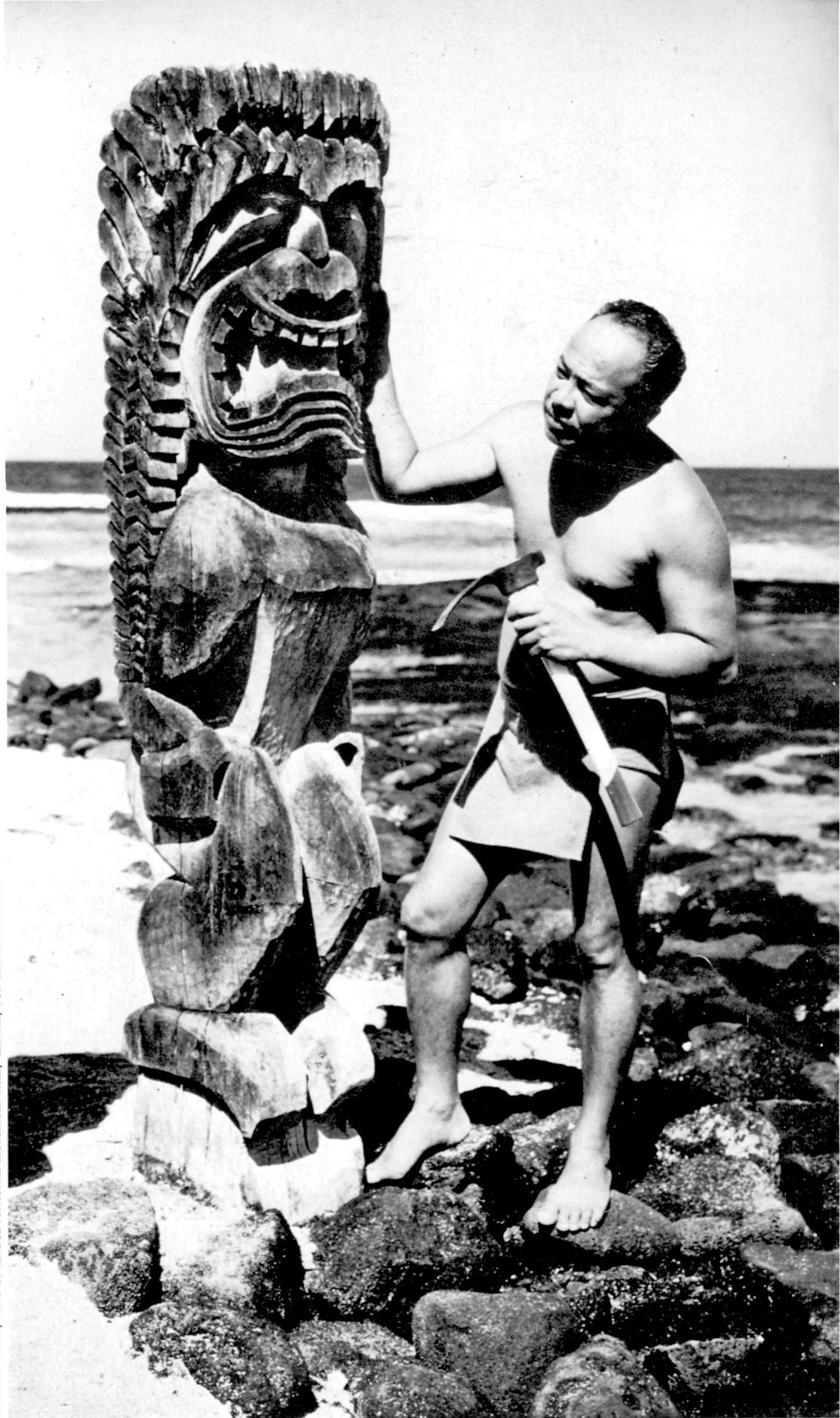
Knife River Villages in North Dakota to the quarries at Pipestone; and from the cliff dwellings at Walnut Canyon to the City of Refuge in Hawaii. One of our newest proposed parks—Cape Krusenstern in Alaska—will preserve a site important in Eskimo history and pre-history for more than four thousand years.

The historical parks in the National Park System commemorate practically all the major themes of American history from the Spanish conquistadors of the sixteenth century to the wagon trains of the nineteenth century to the invention of the airplane.

In addition to these resources, which also include just about every kind of man-made structure human ingenuity can devise, the Park Service is responsible for a museum collection second only in size to that of the Smithsonian. A conservative estimate of the Service's holdings of museum objects is in the range of ten million items, embracing the gun collection at Springfield Armory; President Franklin Roosevelt's furnishings in his home at Hyde Park; paintings by such well-known American artists as Gilbert Stuart, Rembrandt Peale, and Thomas Moran; the tent Washington used at Valley Forge and Yorktown; the machinery and equipment of Thomas Edison's Laboratory; the furnishings of Hubbell Trading Post; and artifacts from numerous archeological digs.

THE PROBLEMS of managing this huge inventory of cultural resources are enormous. Though the Park Service's tendency has been to manage all parks in much the same way, there is nevertheless a fundamental difference between a natural park, which is dynamic, and a historical one, which is static. Forests are constantly growing and changing;

GUARDIAN GODS, CITY OF REFUGE NATIONAL HISTORICAL PARK, HAWAII; BOB CLEMENZ PHOTOS





MESA VERDE NATIONAL PARK, DENVER & RIO GRANDE WESTERN RAILROAD PHOTO

historic scenes normally must be frozen in time. If a tree is destroyed, it is possible to grow another one; if a historic structure or object is lost, it is gone forever and cannot be replaced. So the question is, how do you provide for use of a structure without using it up? How do you arrange for the handicapped to visit a historic house without damaging the integrity of the structure? How can the park manager give the visitor a sense of the historical environment when present-day surroundings intrude so heavily upon the scene? How does the park manager defend the integrity of the battlefield of Gettysburg, for example, from the commercial interests crowding in upon it?

Interpreting a historical or archeological park for the visitor can be far more difficult than interpreting a natural area. Telling the story of an erupting volcano or the history of the carving of the Grand Canyon seems simple compared to portraying the colony of artists who worked with St. Gaudens in

Vermont or explaining the complex interaction between the pueblo Indians and the Spanish priests at Pecos, New Mexico.

FOR MANY YEARS our historical and archeological parks simply commemorated sites associated with important people or events. Shiloh, for instance, preserves the scene of an important Civil War battle. Fort McHenry commemorates the writing of the *Star Spangled Banner*. The Adams mansion chronicles the life of John and Abigail Adams and their famous descendants just as the Frederick Douglass Home preserves the memory of one of our most important black leaders.

But today there is a greater variety of historical parks. Theme parks like Cumberland Gap National Historical Park in Kentucky's Appalachian Mountains and Jefferson National Expansion Memorial in St. Louis tell the story of the nation's westward expansion. The C & O Canal National Historical Park, established for

historical reasons, will probably be used mostly for recreational and natural history purposes. The hundreds of historic structures along it not only will interest the canal buff, however, but will add meaning to the park experiences of fishermen, hikers, bicyclists, and canoeists as well.

In terms of management, the most exciting new park area is Lowell National Historical Park in Massachusetts, which commemorates the period of the industrial revolution in America. At Lowell historic preservation involving collaboration among federal, state, and local agencies, with the Park Service playing a key role, is being used to revitalize a city. The cotton mills of Lowell flourished for more than a century from the late 1820s until their decline in the 1920s. Although today only one mill is in partial operation, a large number of mills and associated buildings as well as business establishments and churches of the period remain. Virtually the whole town of Lowell is within the park, but the Na-

Cultural resources can be presented and interpreted in a wide variety of ways. At Mesa Verde, Arizona (left), the Park Service preserves intact the remains of seven centuries of pre-Columbian Indian civilization—a rich repository for archeological study that includes tools, pottery, clothing, and structures such as this 200-room cliff palace. In contrast, the authentic-looking kitchen at right is not original at all but part of a careful reconstruction of the living quarters Wilbur and Orville Wright used at Kitty Hawk during the years before their momentous flight in 1903. Hubbell Trading Post (below, right), on the other hand, is an active trading center still housed in the original building and remarkably unchanged since it opened in 1878. Navajo weavers and silversmiths still bring their finest products to Hubbell, a historic site that commemorates the life of “Don Lorenzo” Hubbell, a remarkable trader who respected the Navajo, appreciated the beauty and excellence of their craftsmanship, and served them as a crucial connecting link to the white man’s world.



WRIGHT BROTHERS NATIONAL MEMORIAL, BY REX SCHMIDT, NPS

tional Park Service will own and operate six key sites in the center of town. The Commonwealth of Massachusetts is considering purchasing the power canal system in order to develop its recreational potential and that of the adjacent Merrimack River. The Park Service will work with the state to interpret the canals. A federal commission will oversee and foster adaptive uses of historic structures in the city and provide guidelines to ensure that new development will be compatible with the city’s nineteenth century architecture.

Traditionally the Service has felt that a park should have clearly defined boundaries and that every attempt should be made to acquire all the property within those boundaries. This concept worked well as long as there was little competition for land and the preservation of cultural resources was limited.

With the increasing interest in historic preservation and the growth of urban areas, however, traditional thinking has had to be

revised, and—as at Lowell—new methods developed to achieve our goals. Boston National Historical Park exemplifies one of these new approaches to historic preservation. The park is composed of six sites in Boston plus a portion of the old Charlestown Navy Yard. The Park Service owns only the navy yard area but is entering into cooperative agreements with the owners of the other sites. The Service will render varied levels of assistance, ranging from complete operation of some sites to professional and technical assistance at others. At the navy yard the Park Service and the Boston Redevelopment Authority are developing plans for the reuse of the former naval facility.

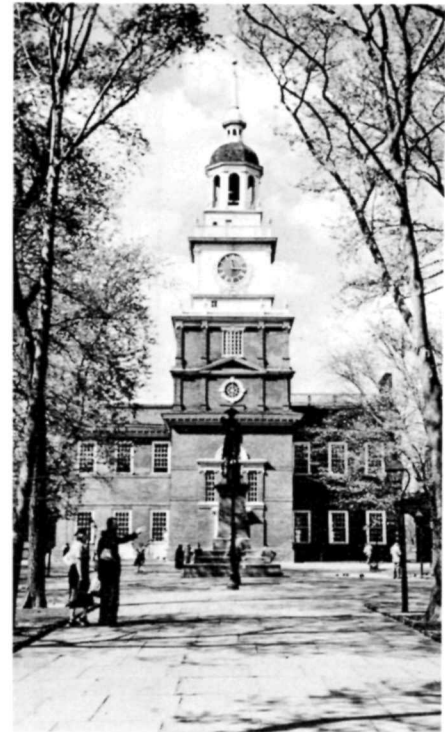
Some of the new urban historical areas Congress added to the Park System in its omnibus parks legislation of 1978, such as Maggie L. Walker in Virginia and Jean Lafitte in Louisiana, will follow many of the innovative new management patterns pioneered at Boston and Lowell.

HUBBELL TRADING POST NATIONAL HISTORIC SITE, BY FRED MANG, JR., NPS



Even natural parks contain objects of historical interest. The lighthouse at Cape Hatteras National Seashore (below) has been warning seafarers away from the cape's treacherous Outer Banks for more than a century. At the opposite extreme, Philadelphia's Independence Hall (near right) stands in the midst of the city's urban bustle, one of the twenty-four eighteenth century halls, houses, and churches associated with the birth of American independence that constitute Independence National Historical Park. The elements of the historical and the natural are perhaps most gracefully combined along the towpath of the Chesapeake and Ohio Canal National Historical Park (far right), where eighteenth century buildings and original canal locks gently remind hikers and birders enjoying its sylvan peace that this historic waterway was once one of our busiest arteries of trade, linking the city of Washington with the western frontier.

LIGHTHOUSE, CAPE HATTERAS NATIONAL SEASHORE, NPS PHOTO



INDEPENDENCE NATIONAL HISTORICAL PARK, NPS PHOTO

THE CONTRIBUTIONS the National Park Service has made to the preservation of cultural resources in the nation are enormous. For decades the preservation of these resources was centered in this organization. With the help of Park Service archeologists, the Secretary of the Interior administered the Antiquities Act, and from the Historic Sites Act of 1935 the Park Service created the Historic American Buildings Survey and the National Historic Landmarks program. By publishing accounts of the work of its archeologists, historians, and historical architects the Service kept the American public informed about the nation's cultural resources.

After the passage of the Historic Preservation Act of 1966, the Service developed and nurtured the National Register of Historic Places and the attendant grants program, as well as the President's Advisory Council on Historic Preservation.

In time all these programs grew too large and began to compete with the primary mission of the Service. Wisdom dictated that these activities should be separated from their parent. Today the Advi-



TOWPATH, C & O CANAL NATIONAL HISTORICAL PARK, BY JACK BOUCHER, NPS

sory Council on Historic Preservation is an independent agency and in 1978 the Carter administration removed the Historic American Buildings Survey, the Historic American Engineering Record, the Historic and Natural History Landmarks programs, and the National Register and grants programs from the Park Service to form a reconstituted Bureau of Outdoor Recreation. The new agency is called the Heritage Conservation and Recreation Service.

In the process of managing its many cultural resources, the National Park Service continues to move ahead on new fronts in preservation. Park Service archeologists are leading advocates and practitioners of the "new archeology" that focuses on the conservation rather than the excavation of archeological sites. For the past seven years the Park Service, which is the recognized leader in this field, has been developing remote sensing techniques to identify and study archeological sites by means other than excavation.

The Service is now exploring the possibilities of adaptive use of the historic structures in its care. Because it is responsible for more

structures than it can maintain properly at a time when the Park System is expanding but appropriations are shrinking, new means and sources of revenue must be found to keep these buildings from crumbling and becoming eyesores. Buildings that are used are less likely to deteriorate; therefore, the Service is developing a program whereby it will rent its unused buildings—where appropriate—to private and commercial interests and use the income thus generated for their upkeep.

THE NATURE of a bureaucracy is to carry the oil can to the spot where the machinery is squeaking the loudest. For years the loudest squeaks have come from the "big" parks, generated by such problems as inholdings, land acquisition, concessions, wilderness designations, and snowmobiles. Unfortunately, although equally beset with problems, the historical parks have not enjoyed the vociferous and dedicated constituency that the great natural parks have had. There are pressures on our smaller parks—almost all of which are historical and archeological—pressures to open them up

to greater recreational use and to permit various kinds of commercial exploitation of their resources. Often, too, the special character of these parks is threatened by such inappropriate adjacent construction as sewerage plants and housing developments.

In the past it has seemed that the only one guarding the bridge—like Horatius—has been the National Park Service; therefore, we welcome the rising interest in our cultural parks now being manifested by some of the military history organizations as well as the support so strongly demonstrated by the National Parks & Conservation Association. We will need this support if we are to do justice to the cultural heritage the nation has entrusted to us. ■

As the National Park Service's Assistant Director for Cultural Resources, Ross Holland is principally concerned with the vast and varied array of historical areas and artifacts he has described in this article. Among his assignments in twenty-six years with the Park Service have been four historical parks—Cabrillo, C & O Canal, Morristown, and Shiloh.



CALIFORNIA DEPARTMENT OF FISH & GAME

Threats to marine and coastal environments
posed by OCS leasing
can be prevented or reduced
only by vigorous implementation of laws

by SARAH CHASIS

DRILLING OFFSHORE:

EVER SINCE 1954 the federal government has been leasing Outer Continental Shelf land beyond the three-mile state limit for oil and gas development. Until 1973 an average of only 500,000 acres per year were leased. After the Arab oil embargo of 1973, however, President Nixon announced the goal of leasing ten million acres per year of the OCS—as much acreage as had been leased over the entire previous twenty years. Although this original goal has been scaled down, the leasing program is presently proceeding at a greatly accelerated rate, with an average of 1,300,000 acres leased per year for a total of more than six million acres since 1974.

This leasing is occurring and will continue to occur, not only in the Gulf of Mexico, but also in frontier areas off the Alaska, California, and Atlantic coasts. In the frontier areas there has been no previous experience with oil drilling, the conditions are far different from

those in the Gulf of Mexico, and many of the effects that the drilling will have on valuable marine and coastal resources are unknown. Many of the frontier areas being leased are adjacent to resort areas such as the Golden Isles of Georgia, the Jersey Shore, Cape Cod, and the northern California coast.

THE LEASING program poses significant threats to the coastal and marine environment. To some extent, the magnitude of these threats is unknown. At the time of leasing, little information often exists about the biological resources on the Outer Continental Shelf and about the effects on them of hydrocarbon extraction. Although certain safeguards do exist in the event some catastrophic threat to the environment is discovered *after* leasing (for example, the Secretary of Interior may cancel a lease for environmental reasons), it is far preferable to know the risks in advance *before* the commitment of resources is

made and before the momentum for exploitation becomes unstoppable. Yet the Department of the Interior has been slow to develop such information prior to leasing.

Although lack of knowledge is one major source of concern to environmentalists and to affected states and localities, many of the risks associated with offshore development *are* known. Oil spills associated with drilling operations and the transport of oil ashore for processing and refining—whether by tanker or pipeline—pose major threats to offshore fisheries, coastal salt marshes, and beaches.

The spills that occurred at Santa Barbara and at the Ecofisk platform in the North Sea are examples of the major spills we face off our coasts. On January 28, 1969, a runaway gusher erupted on a platform five miles out to sea off Santa Barbara, California, spilling what has been variably estimated at one million to thirty million gallons of oil into the ocean and covering the beaches for twenty miles up and

down the coast. (There is great uncertainty about the precise amount actually spilled.) More recently, an eight-day blowout spewed at least eight million gallons of oil into the North Sea from an offshore production rig.

These types of massive spills represent risks inherent in offshore drilling. For example, the Interior Department predicts that at least one large oil spill is likely to occur on Georges Bank, the rich fishing grounds off New England, if drilling proceeds there. Paul "Red" Adair, the person credited with stopping the North Sea blowout, testified before Congress that such spills will always occur wherever drilling exists, no matter how sophisticated the equipment used, simply because of the potential for human error. The damage caused by these spills will vary depending on whether the oil reaches shore (where the impacts can be most severe), affects valuable fishery resources, or simply washes out to the open sea.

Oil must also be brought to shore by either tankers, barges, or pipeline; and discharges of oil into the environment are associated with each of these forms of transport. In the past, for example, pipeline accidents released more oil to the marine environment than any other source directly related to OCS operations.

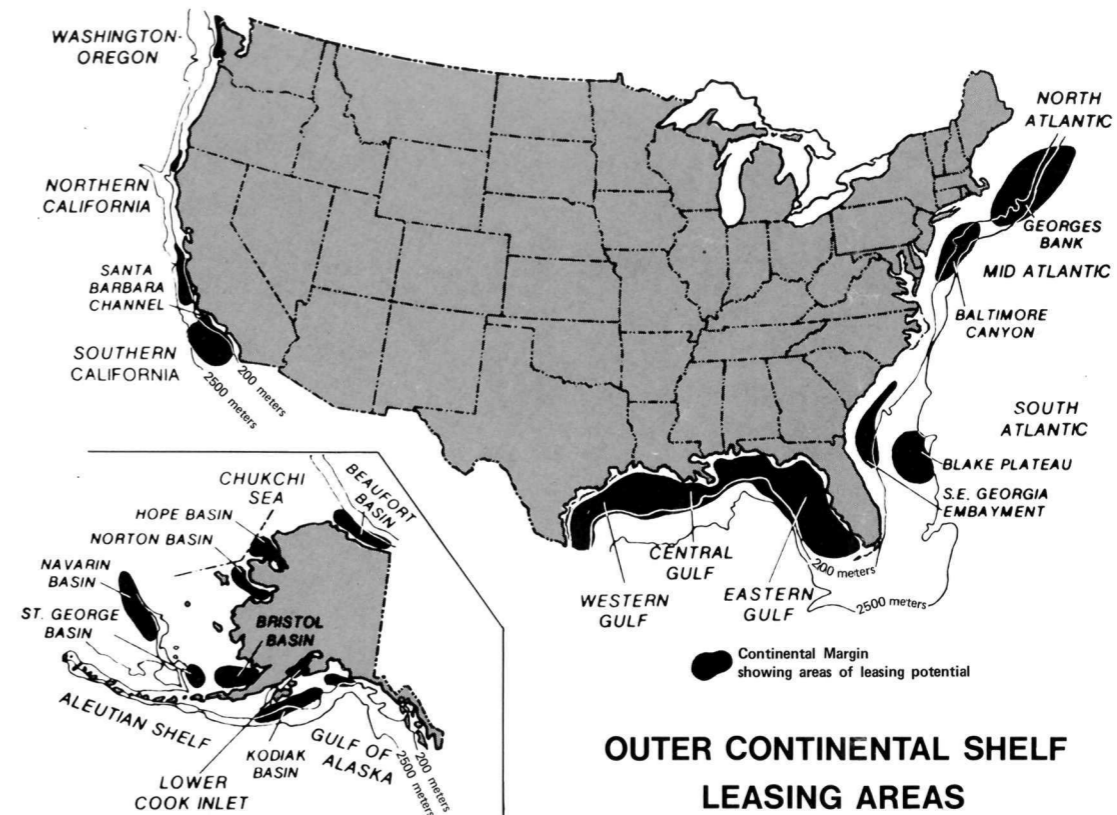
Oil spills can have serious effects on both the offshore and nearshore environment. The reproductive potential of adult fish may be impaired. Eggs and larvae of marine species, particularly lobsters, are highly sensitive to oil. A summer oil spill, affecting the breeding or young of many species, would cause the greatest harm and could seriously affect the long-term productivity of a fishery-rich area such as the Georges Bank.

Environmental impacts of oil spills are particularly profound on onshore or nearshore areas. Contamination of a salt marsh by oil can disrupt the food chain that depends on the marsh for produc-

tivity. Coastal bays and estuaries are also vulnerable. Petroleum may destroy eggs, larvae, and juveniles of many species that inhabit the estuary. Oil accumulated by filter-feeding shellfish may impair their ability to reproduce and may alter their physiology. Oil that enters bottom sediments may affect an ecosystem for years.

ADVERSE ECONOMIC effects as well as ecological damage can result from oil spills. Devastating effects on the economy of resort and recreational communities may be felt if oil washes onto the beaches. One need only look to the French experience with the seventy-million-gallon spill from the tanker *Amoco Cadiz* in the spring of 1978 to realize the tremendous economic costs resulting from such a spill.

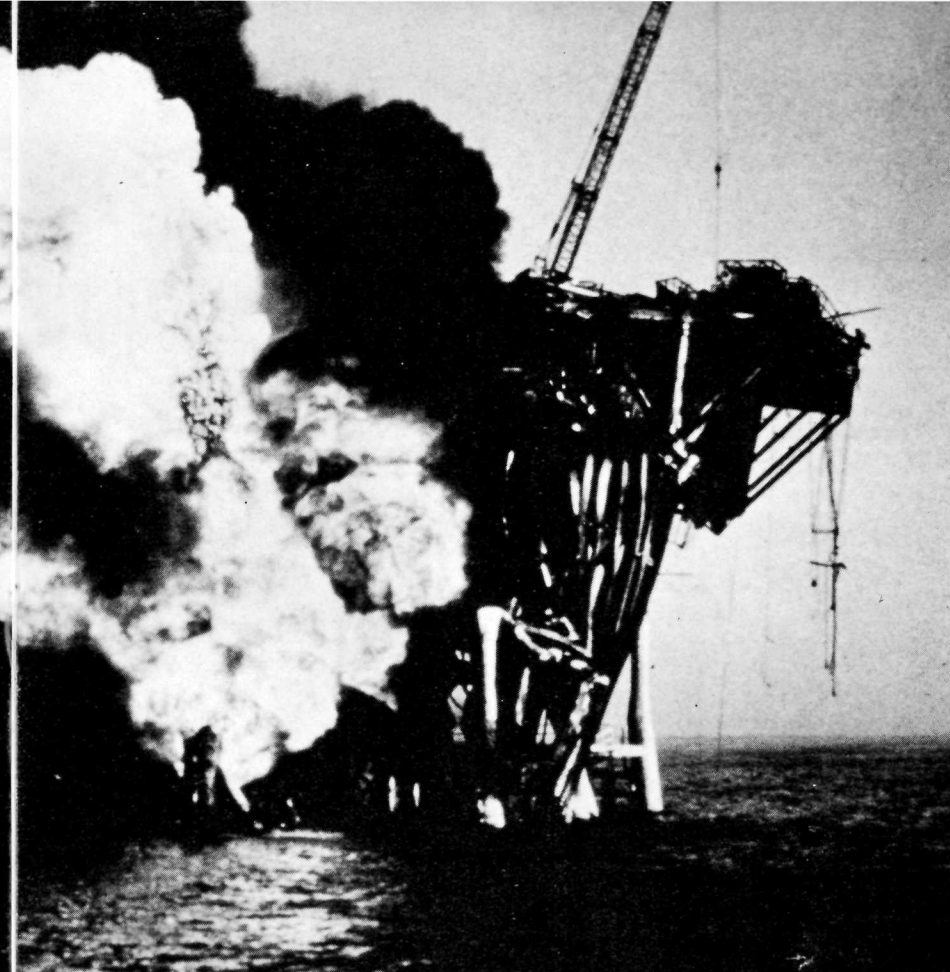
Other major threats to the coast besides oil spills arise as a result of onshore development related to the offshore activities. Environmental, land use, and socioecono-



OUTER CONTINENTAL SHELF
LEASING AREAS

JAMES F. O'BRIEN, © NPCC

The Environmental Hazards



AMERICAN PETROLEUM INSTITUTE

mic disruptions may be consequences of the magnitude and compressed timing of this development. Experience in Louisiana, where offshore development has existed for a long time, is instructive. Eighty percent of all investment in Louisiana's new manufacturing facilities between 1938 and 1971 took place in coastal parishes, reflecting support activity for offshore development. A total of \$5 billion was invested in petrochemical industrial facilities in Louisiana's coastal zone during these years, with more than a hundred major petroleum and petrochemical plants placed in coastal parishes. More than 40 percent of the loss of wetlands in Louisiana during the past twenty years has been attributed to damage from oil and gas development.

In northeastern Scotland, where offshore development has recently exploded, direct employment in oil-support activities grew from 2,665 to 11,275 during the short period between December 1973

and March 1974. Local efforts to cope with this burst of growth were not successful. As a result, shortages of housing, skilled labor, berths in harbors, and equipment developed and adversely affected established industries. Prices of land in Aberdeen, Scotland, skyrocketed dramatically from \$7,200 to \$96,000 per acre in a few months.

The most noticeable impacts on onshore development may be the result of support industries rather than the oil industry's own operations. Construction activities involving offshore platforms, pipelines, tanker terminals, and refineries—plus schools, houses, roads, and other public facilities—bring people and development into an area. When this boom is over, an early "bust" may follow.

If onshore facilities could be channeled into already industrialized areas with existing infrastructure to support this development, the onshore threats posed by offshore drilling could be substan-

tially decreased. But with leasing occurring off parts of Alaska, Cape Cod, the Jersey Shore, and Southern California—all regions with especially sensitive and productive coastlines—offshore drilling poses significant threats to the nearshore and offshore environment.

IN LIGHT OF the relentless pressure for increased OCS exploration and development and because of the substantial concerns this development poses, concerned environmentalists, fishermen, and affected state and local governments have been pressing through litigation and lobbying of Congress and federal agencies for adherence to the following policies:

- OCS leasing should not be permitted to proceed in areas that contain important renewable resources if the OCS development threatens to destroy or irreparably harm such resources.

- Maximum environmental safeguards should be imposed on leasing operations, particularly in

Oil spills from blowouts (left) are just one of the risks of offshore drilling. Oil spills also may result from drilling operations themselves and from transport of the oil by pipeline or ship. The extent of ecological damage from oil spills depends on whether the oil washes out to sea; affects fisheries; or reaches coastal marshes, beaches, bays, or estuaries. The Department of the Interior predicts that at least one oil spill will occur in the rich fishing grounds of Georges Bank (opposite) if drilling proceeds there.

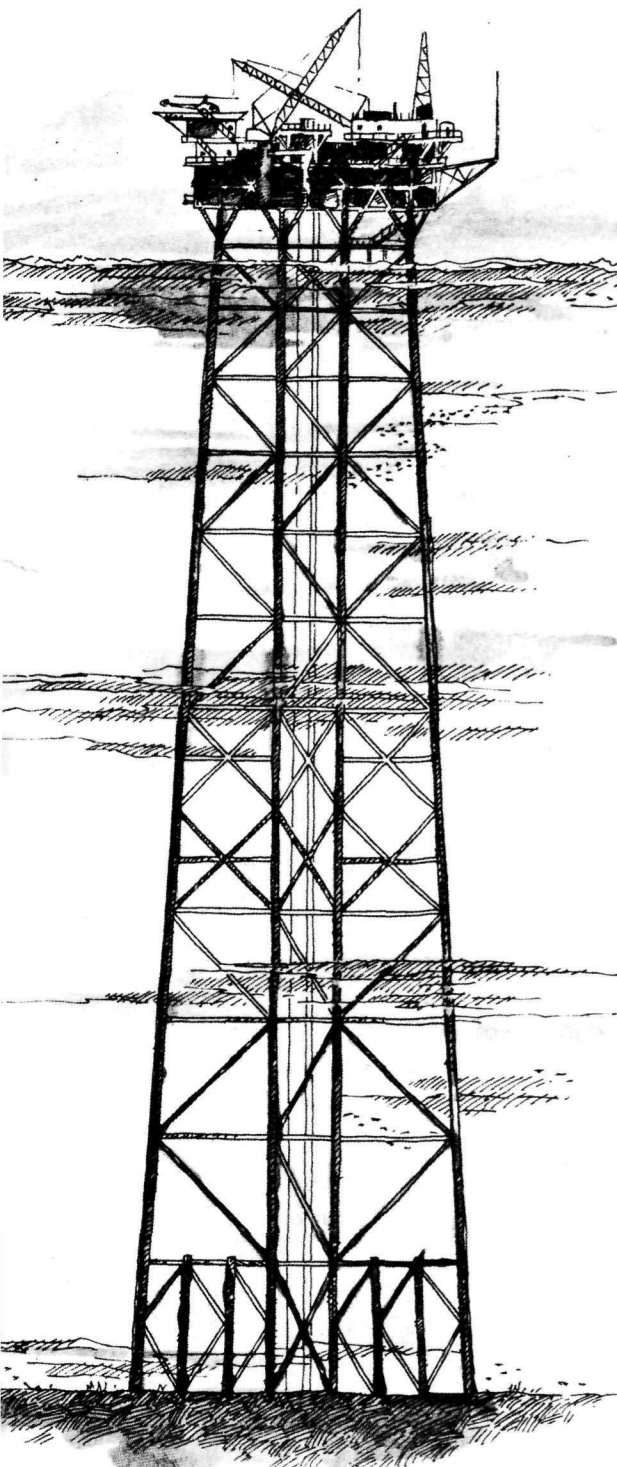
frontier areas. These safeguards should include required use of "best available" and "safest" technologies and required use of the most environmentally preferable means of transporting oil and gas ashore. (In many cases the latter requirement will mean via pipeline; in some cases, via tanker.)

- More information must be obtained both about the likely effects of oil development on the environment of a particular region and about the hydrocarbon resources on the OCS before frontier areas are leased.

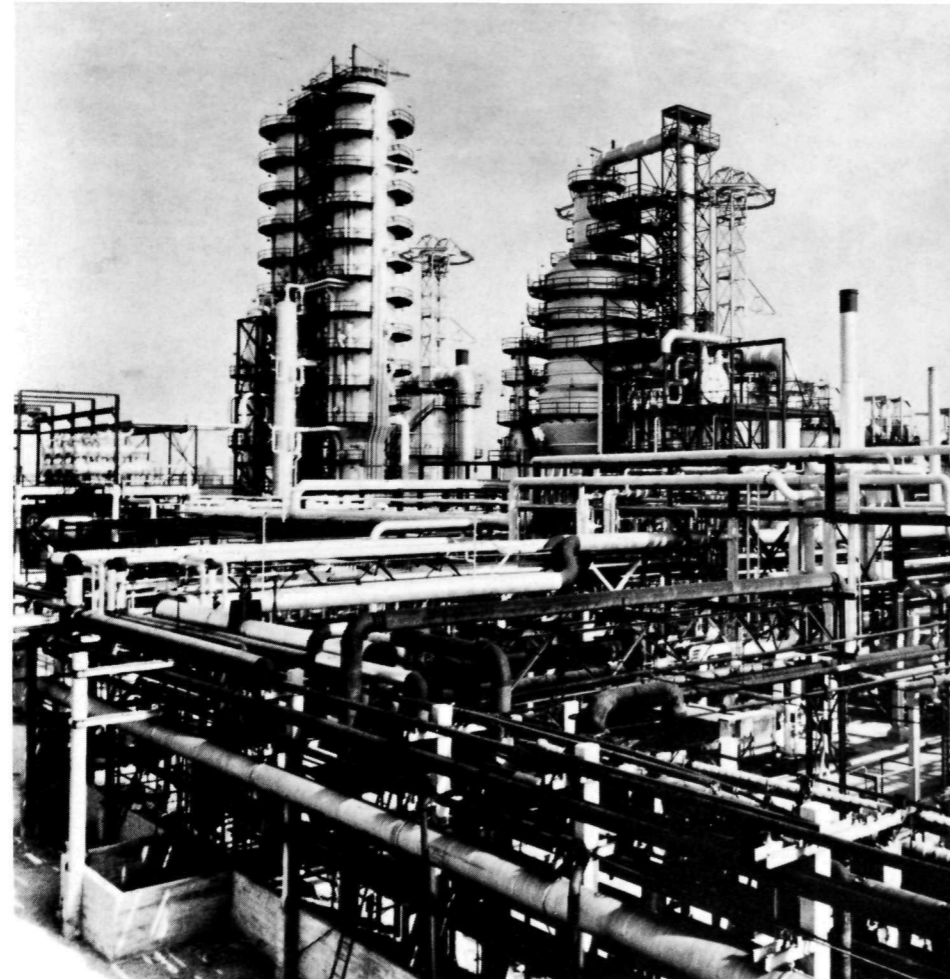
- Information on the nature, extent, and location of offshore oil and gas resources and the likely location of onshore facilities should be disclosed on a timely basis to states and to the public to permit proper planning for likely onshore development.

- States and localities should direct OCS-related onshore development away from fragile, productive coastal areas either to inland sites or, if coastal dependent, to already developed areas that can withstand further development.

Passage of the Outer Continental Shelf Lands Act Amendments in September 1978 has given a large boost to these objectives. The OCS amendments provide for cancellation of leases for environmental reasons, utilization of "best available" and "safest" technologies on offshore operations, submission of



ALLEN CARROLL, FOR CEQ



ARCO REFINERY



detailed plans disclosing offshore and onshore development to states, establishment of an offshore oil pollution fund to compensate for losses resulting from drilling operations, a fishermen's gear compensation fund, and a greater role for state governments in OCS decisions.

Other important authorities for promoting these objectives include the marine sanctuaries program (which provides for the designation of marine sanctuaries by the National Oceanic and Atmospheric Administration and the protection of such areas once designated); the Fishery Conservation and Management Act (which permits establishment of controls over pollution in fishery management plans); and the Coastal Zone Management Act (which gives states the incentive to plan for OCS-related development and to manage the onshore activities, and affords them some say over whether and how development occurs on the OCS off their coastlines).

MAJOR IMPEDIMENTS to attainment of these policy objectives presently exist. The Administration's fierce commitment to adhere to, even accelerate further, its OCS leasing schedule is one such impediment.

Another potential obstacle to attaining substantive policies is the Coastal Energy Impact Program (CEIP). This fund, established by an amendment to the Coastal Zone Management Act in 1976, may well have the detrimental effect of encouraging states to site OCS-related development in their coasts no matter what the environmental costs, so as to be eligible for federal money from the fund.

Finally, weak implementation of the marine sanctuaries program and the federal Coastal Zone Management Act also has meant that these important resource conservation programs have failed to provide necessary safeguards while the aggressive OCS development program goes forward.

Despite these obstacles, con-

cerned citizens can pursue many timely and important courses of action toward achieving substantive environmental goals in connection with the OCS leasing program, including

1. Pressing for rapid and effective implementation of the Outer Continental Shelf Lands Act Amendments of 1978, including review and comment upon proposed regulations that implement provisions of the amendments for cancellation of leases for environmental reasons, utilization of "best available" and "safest" technology, disclosure of information about onshore facilities, and the proposed five-year leasing schedule.

2. Reviewing and commenting upon specific upcoming lease sales and OCS exploration and development plans. (To get information on these sales and plans, write or call the Department of the Interior, Office of Public Affairs, Main Interior Building, Washington, D.C. 20240. 202-343-5717.)

3. Petitioning the Secretary of

the Interior to exclude from OCS leasing, under Section 18 of the Outer Continental Shelf Amendments, areas that are unsuitable for OCS development.

4. Pressing for effective implementation of the Department of the Interior's Environmental Studies Program, which is designed to provide information on the biological resources affected by drilling operations *before* leasing occurs or development proceeds.

5. Nominating particularly valuable offshore areas as marine sanctuaries under the Marine Sanctuaries Act and pressing the National Oceanic and Atmospheric Administration to implement the marine sanctuaries program.

6. Pressing coastal states to adopt coastal zone management programs that establish clear and specific policies governing OCS-related development and that direct this development away from critical coastal areas to already-developed areas suitable for additional development.

7. Reviewing state applications to the Office of Coastal Zone Management (which is within NOAA, U.S. Department of Commerce) for Coastal Energy Impact Program funds to ensure that proposed projects do not promote unsound coastal development.

In summary, the federal government's accelerated leasing program on the OCS poses significant threats to valuable coastal and marine resources. Several mechanisms can be used to control the impacts of development. Most important, vigilant citizen action and participation in the many phases of this leasing program are essential if these mechanisms are to prove effective. ■

Sarah Chasis, senior staff attorney with the Natural Resources Defense Council, is co-director of the Council's Atlantic Coast Project, which monitors implementation of the Coastal Zone Management Act and the Outer Continental Shelf Lands Act. She has served as counsel in two lawsuits challenging federal leasing of the OCS in the Atlantic, and she presently serves on the National Advisory Committee on Oceans and Atmosphere.

Ms. Chasis is also a member of the Board of Directors of the Coast Alliance (Box 2708, Washington, D.C. 20013), recently formed to increase public awareness of coastal resources and problems. A major undertaking of the Alliance, in addition to reviewing and formulating policies and legislation affecting coastal resources, will be sponsorship of the Year of the Coast in 1980, designed to focus attention on the coast as an invaluable natural resource that must be protected.

Message to Members

NPCA & COASTAL RESOURCES

Oil leasing on the Outer Continental Shelf is just one of many threats to the beaches, marshes, bays, estuaries, and other wetlands of our rich and productive shorelines. National Parks & Conservation Association is concerned in general with all issues affecting our coastal resources, but we are especially concerned about the national seashores and other National Park System units located along our shores. Thus NPCA has been working in conjunction with other conservation organizations to ensure that OCS leasing and development does not harm these irreplaceable coastal resources.

Glacier's Beleaguered Grizzlies

THREE PEOPLE have died and a dozen more have been injured in Glacier National Park, Montana, in recent years as serious confrontations between the park's grizzly bears and its steadily growing numbers of visitors dramatically increased.

Preventing reoccurrence of such incidents is receiving high-priority attention from the National Park Service. At stake is not only the safety of park visitors but protection of some of the few remaining populations of grizzly bears in the Lower 48 states. If more human injuries and deaths occur, the public may be so outraged that it demands reprisals.

The grizzly bear is protected as a "threatened" species, but problem bears that kill or injure people may be killed. Therefore, preventing violence is just as desirable for the bears' sake as it is for the sake of park visitors.

BEFORE World War II people and bears had little contact in Glacier National Park. Park visitors were few, and those who took backcountry trips usually went on horseback. Grizzly bears have vastly superior senses and generally avoid confrontations with people if they are aware of their presence. The noise, motion, and scent produced by pack strings of fifty or more horses gave bears ample warning of approaching parties. Consequently, few bears were seen. Only one person was injured by a grizzly bear during those

years; he was hiking alone when he surprised a female grizzly with cubs—a classic scenario for attack.

With the surge in park visitation in the 1950s and the concomitant improvement of backpacking equipment, however, more and more hikers began traveling Glacier's trails. In contrast to groups of horseback riders, hikers are quiet, travel alone or in small groups, and produce little scent. No wonder there was a spate of surprise encounters with grizzlies.

From 1956 through 1966 ten people were injured by grizzly bears in seven attacks. Significantly, five of these attacks involved female grizzlies with cubs. Female grizzlies are very protective mothers. When they feel their cubs are threatened, they will attack.

During the summer of 1967, though, things went awry. Two women were killed by grizzlies on the same August night in separate backcountry campgrounds. Out of the subsequent flood of explanations, excuses, and guesses about the causes of these first bear-inflicted deaths in Glacier, one fact was clear: in both incidents, the bears had been attracted to the areas by human food and garbage. In one case, a female with cubs had been feeding regularly at a garbage dump near a backcountry chalet; in the other, an old, scrawny female grizzly had been swiping food from backpackers for weeks before the attack.

Spurred by the fatalities, the National Park Service took action.

Remaining open garbage dumps were closed, and bear-proof garbage cans were provided in developed areas. The NPS also initiated a human management program—temporary restriction of trail and campsite use to prevent more encounters. Backpackers were instructed to have clean camps and to suspend food from trees. Educational brochures about bears were routinely distributed to all visitors, and the grizzly became a topic of campfire lectures.

In addition, the Park Service firmly dealt with problem bears. Four grizzlies were shot in 1967, and five were killed or removed from the park during the next two years.

In retrospect, the 1967 attacks marked the end of an era. Although one person was injured in 1968, no one was injured by grizzlies during the next five years. The park's new bear management policy seemed to be working.

DURING these quiet years, 1968 through 1973, park visitation increased 25 percent to more than one million annually; and overnight backcountry use jumped 400 percent from 8,000 to 32,000. No figures were kept on day hikers, but a similar increase was likely.

Ominously, growing numbers of hikers began meeting grizzly bears on backcountry trails, including some bears that showed little wariness of people.

In the five years from 1974

To protect a threatened species—as well as people—
parts of Glacier National Park may have to be
closed to visitation at times

by CHRISTOPHER CAUBLE



FRED E. MANG, JR., NATIONAL PARK SERVICE

through 1978, ten hikers were injured by grizzlies in seven attacks, and one woman was killed in 1976 when a young grizzly tore into her tent at a roadside campground during the night and dragged her away.

Never before had so many people been injured in so few years, but biologists were disturbed at more than the frequency of attacks. In startling contrast to earlier incidents, only two recent attacks definitely involved a female with cubs. Most attacks involved single and subadult bears, and the NPS classified many of the attacks as being "unprovoked."

Further evidence of a loss of wariness is indicated by the increase in sightings of grizzly bears. In 1975, 173 grizzly bear sightings were reported; in 1977 and 1978, more than 300 grizzly sightings were reported. It is believed that the park's population of grizzlies has remained constant at about 200 bears, so many of the sightings undoubtedly were of the same bears.

Last year an alarming development took place in the popular Many Glacier Valley when one grizzly (possibly two) actually charged hikers and forced the hikers to drop packs containing food. In one case, six people were accosted by this bear on the first day the trail had been open in nearly a week. Cliff Martinka, Glacier's supervisory research biologist, calls this behavior an example of the "mugger bear syndrome." Although black bears have displayed similar behavior in the Great Smokies and Yosemite, it was unusual—and disturbing—behavior for the more powerful grizzly bear.

In addition to the "mugger bear" incidents, several hikers were approached by belligerent grizzlies last summer. A few hikers were forced to climb trees, and one woman locked herself in a backcountry outhouse while a grizzly clawed the walls. Fortunately, last summer's incidents were more frightening than harmful; only one person received a minor wound.

The resurgence of attacks in

Glacier since 1974 occurred even though overall park visitation and overnight backcountry use has remained about the same since that year. This fact, combined with the unprecedented number of single and subadult bears involved in the attacks, has led biologists to speculate about the causes for this aggressive behavior.

DR. CHARLES JONKEL, director of the Border Grizzly Project at the University of Montana, believes that a behavioral change is taking place. "Whenever bear-man contacts are constant and not harmful to the bear," he says, "the bears become accustomed to people and lose whatever fear they may have had for human beings. . . . This behavioral state is easily followed by aggressive or exploitive behavior . . . especially if they obtain food from the people or campgrounds and 'get away with' doing so."

Dr. Jonkel makes a distinction between defensive behavior, or what he calls "natural aggression," and unnatural aggression. "Natural aggression" includes females defending their young, a bear defending its food, and a bear defending itself when approached too closely. Unnatural aggression includes bears moving toward or pursuing people when the bears see people from a distance, bears chasing people when no "natural aggressive" explanation is available, and bears boldly approaching people or repeatedly visiting a campsite or cabin. Jonkel considers most of Glacier's recent incidents "unnatural aggression." Furthermore, he says, "Such learned, unnatural behavior is taught to the young by adult females. This process will increase the scope and distribution of the problem until such 'cultural deterioration' could in time spread through a population."

Cliff Martinka agrees. "There is growing evidence that huge numbers of people have affected grizzly bear behavior. In Glacier, the bears have come into contact with so many people that they have lost

some of their natural shyness or fear of man. As a result, they are accepting people at closer distances—adapting to live in closer proximity to humans than before—and this change is providing more opportunities for grizzlies to be aggressive toward people."

Others are not convinced that Glacier's grizzlies are undergoing a behavior change. John Craighead, well known for his research on grizzlies, says that the problem is not that the bears are changing their *basic behavior* but "is simply an increase in the number of man-conditioned bears—the result of too close a contact with human beings in campgrounds."

Superintendent Phillip Iversen thinks grizzlies always have been aggressive, citing reports 175 years ago in Lewis and Clark's journals of many belligerent incidents with bears and the fact that Indians always have held grizzlies in tremendous awe. Grizzlies simply have more opportunity to demonstrate this aggression now, with more and more people invading their wilderness home.

Whatever the reasons for the bears' belligerence, there seems to be a consensus that the solutions may require greater regulation of human use of the park.

GLACIER'S PLAN for keeping people and bears apart includes two approaches. One approach is to keep bears from becoming accustomed to people as sources of food. Campers are urged to maintain clean campsites free of food scraps, and regulations such as the storage of ice chests in cars are strictly enforced. The park's garbage collection and disposal facilities have also been further improved. Backpackers and hikers must abide by the park's "pack-in, pack-out" policy. No food or garbage may be left in the backcountry.

Glacier's other approach to people management is to temporarily close individual trails and campgrounds as a preventive measure—*before* belligerent encounters

occur. Frequent sightings of bears may constitute sufficient reason to close a trail. All sightings and encounters are recorded daily at park headquarters, where they are examined for dangerous developments or trends.

Permanent sanctuaries where human travel would not be allowed have been considered, but there are no plans for such areas at this time. Superintendent Iversen explains that grizzlies range over large areas and are well distributed throughout the park. Moreover, as various food supplies ripen, their habitat changes with the season. Thus sanctuaries that encompass anything less than the whole park would not be big enough to contain all the grizzlies. Because of the monitoring and closure program, Iversen thinks it unnecessary to make the whole park a sanctuary. About 95 percent of Glacier National Park is backcountry, Iversen says, and bears already are being given priority there by virtue of the closures.

The temporary closure policy began in 1968, and each year the number of closures has increased. Last year twenty trails were closed for a total of 267 days, and sixteen backcountry campgrounds were closed for 321 nights. Most of these closures occurred during the peak visitation period of July and August.

According to John Benjamin, a backcountry ranger, "When people are told that a trail is closed, they are initially disappointed. But once the reasons are explained, the hikers accept it and support it. They understand that bears need space and room. Besides, hikers can almost always go around closed areas on other trails."

Indeed, the sheer number of trails in Glacier may be one of the biggest problems. "The Many Glacier area," says Cliff Martinka, "is a good example where there are trails literally up every drainage. This creates a situation where a bear cannot react in a shy manner and leave one area without running into people somewhere else." Mar-

tinka believes the area could be visited by the same number of people, but on fewer trails.

Some trails may have to be relocated through nongrizzly habitat. Others may require seasonal closure; for instance, a trail through river-bottom habitat that is favored by grizzlies in the spring may require closure until later in the summer. Certain trails could be closed on an alternate-year basis, and trails through areas where females are rearing cubs may be temporarily closed.

Day hikers may also face limitations in the future because nearly all grizzly bear incidents occur in areas that receive high day-hiker use. In fact, these areas may be the most dangerous places in the park. Cliff Martinka explains: "Bears in areas that are subjected to high visitor contact rates are much less predictable, much more likely to accommodate you at close range, and statistically place you in a greater degree of jeopardy than bears in more remote areas."

All these measures would try to keep "wild bears wild." What can be done about problem bears—those that are already man-conditioned? "If we can determine that the bear has just started to act this way, we may be able to close the area; then, without positive reinforcement, the bear may revert to a normal, wild condition," says Martinka. But he adds that little can be done to "untrain" a habitually aggressive bear. Aversive conditioning (the use of lights, chemicals, noise, and even rubber bullets to teach a bear to avoid people) has been suggested; but biologists believe more research is needed before this technique can be used successfully.

Research is vitally important to future bear management. Currently studies are underway on behavior modification (including aversive conditioning), attractants, and repellents. In addition, a computer study is being conducted in Glacier on how human contacts modify bear behavior. This study promises to provide managers with

a means of determining acceptable levels of human use. Unfortunately, more research is needed to make the computer model fully operational.

But research alone will not solve the problem; park visitors themselves have an important responsibility. Wilderness visitors must be prepared to accept wilderness on its own terms—and bears are part of wilderness. "A well-informed individual," says Martinka, "will be able to make some crucial decisions when he goes hiking or camping. That person, in combination with the park itself providing up-to-date information about bear concentrations and movements, is the best form of management I know of." Information about bears can be obtained from the National Park Service and from magazine articles and books.

BY ALL ACCOUNTS, Glacier National Park has the most sophisticated bear management program in the National Park System. For this reason, many biologists and managers are watching Glacier to see whether bears and people can coexist in national parks. Officials at Yellowstone and Denali, which also have grizzly bear populations, are especially interested.

Dr. Jonkel points out that grizzlies and people do coexist safely under many circumstances both within and outside of parks.

Martinka says, "I think we do have convincing evidence that bears and people can live together if people can be managed and if they are manageable. In that context, I think there is a future for bears and people in Glacier National Park." ■

Christopher Cauble's experience with Glacier's grizzlies goes back many years to when he worked in the park as a college student. Currently he lives in Montana not far from the park and works as a free-lance writer. His wildlife articles, including several about grizzly bears, have appeared in many magazines.

NPCA at work

TRUSTEES

New Members Elected to NPCA's Board of Trustees

Six new trustees were elected to NPCA's Board at the Association's semiannual meeting in May. Information on these new trustees follows.

Michael F. Brewer is a member of the board of directors of the Student Conservation Association (founded under the auspices of the National Parks Association) and a consultant to the Agriculture Department. Shortly he will be working as a research director to the Agricultural Lands Study, which is sponsored by the Department of Agriculture and the Council on Environmental Quality. He was formerly president of the Population Reference Bureau; vice president of Resources for the Future, a nonprofit conservation organization; and on the staff of the President's Reorganization Project, in the Office of Management and Budget.

Stephen Mather McPherson—a grandson of Stephen T. Mather, founder of the National Park System—is a partner in the firm Ward Howell Associates, Inc., executive recruiting consultants, in New York City. Mr. McPherson has long been active in

conservation matters, particularly the National Park System. He is a member of the board of the National Park Foundation and a trustee of the Christian Ministry of the National Parks.

William E. Odum is associate professor of environmental science, University of Virginia. Professor Odum is consultant to the State of New Jersey, the Virginia Division of State Parks, the Conservation Foundation, the National Academy of Sciences, and others. He is a member of professional organizations in ecology, limnology, oceanography, and fisheries. He has done extensive research and teaching in a wide variety of ecological subjects and has written numerous publications in his fields of interest.

Henry C. Phibbs II is a lawyer with a general practice in Jackson, Wyoming, which has included county land use planning and zoning work. In 1975 Mr. Phibbs was appointed by Governor Herschler to the State Land Use Commission, responsible for administering the Wyoming State Land Use Planning Act. He has recently represented con-

servation groups in an administrative appeal challenging timber management practices in the Bridger-Teton National Forest and is active in many conservation issues in the Grand Teton area.

Douglas W. Schwartz is the president of the School of American Research, a center for advanced studies in anthropology, and was formerly professor of anthropology at the University of Kentucky. He is a past chairman of the National Park System Advisory Board and now serves on the National Park System Advisory Council. He is also a Trustee of the Jane Goodall African Wildlife Institute. He has done extensive work and publication in the prehistoric sites of the southwest.

Marvin M. Smith is a research associate on the staff of the Brookings Institution. Dr. Smith recently engaged in studies of the impact of illegal immigration on the labor market and is now working in the area of youth unemployment for Brookings Institution. He has a doctorate in economics from Cornell University. ■

ASSOCIATES

The New NPCA Associated Organizations

NPCA welcomes three organizations as new Associates: Historic Gettysburg-Adams County, Inc.; Scenic Hudson Preservation Conference; and Fire Island Wilderness Committee. Through this arrangement NPCA will be exchanging mutually helpful information with these Associates and will represent them in Washington on issues with which they are concerned. In return, Associates may be representing NPCA from time to time at local hearings or meetings convened on matters of concern to NPCA.

Historic Gettysburg, Adams County, Inc., is a volunteer organization of local citizens who are dedicated to the restoration and preservation of historic and architecturally significant buildings in the town of Gettysburg, Pennsylvania, and the surrounding land that borders the Gettysburg National Military Park, Gettysburg National Cemetery, and the Eisenhower National

Historic Site. In 1863, at the time of the Battle of Gettysburg, there were 366 structures in the Gettysburg area; today only 113 of these historic buildings remain. The immediate goals of Historic Gettysburg are to (1) conduct a professional architectural survey of all historic resources; (2) issue restoration guidelines for historic homes and buildings, commercial signs, and for harmonious new construction in historic areas; and (3) present a public education program to better acquaint the community with its historic resources. HG-AC Inc. is a nonprofit tax-exempt organization with national as well as local members. Address inquiries to 4 Baltimore Street, Gettysburg, PA 17325.

Scenic Hudson Preservation Conference was established in 1963 to preserve the natural and cultural resources of the Hudson River Valley. Protecting the majestic beauty of the

Hudson Highlands from the construction of a pumped-storage plant at Storm King Mountain was one of the Association's first battles. This case led to a landmark decision in federal court affirming the right of the public to participate in federal decisions affecting the environment. (The President of NPCA was one of the key witnesses in this case.) In search of solutions to the problems of power plant siting, Scenic Hudson was an early advocate of energy conservation and alternate sources of energy from the sun, wind, and fuel cells. The Association has also been active in water quality of the Hudson River and preservation of historic homes and farmland along its shores. For more information write Scenic Hudson Preservation Conference, 475 Park Ave. South, New York, NY 10016.

A coalition of individual and local organizations in the New York City

ASSATEAGUE

Assateague is Saved—for Now

The Environmental Protection Agency has concluded that it lacks adequate information to make a decision on the proposed sewer system near Assateague Island National Seashore. The sewage outfall pipe for the system would have cut across Assateague Island, and the system would induce development that would pollute the waters around the national seashore.

NPCA had told EPA that alternatives to the proposed project had not been adequately examined and EPA finally agreed to NPCA's position and will do further analysis. NPS Director Whalen recently made it clear to EPA that his agency would not issue a permit for the outfall to cross the island unless it could be demonstrated that the system and subsequent growth would not harm Assateague.

After EPA finishes the additional study, it will issue an addendum to the environmental impact statement, which citizens will be able to comment on. EPA may still decide to fund the project or aspects of it that could harm the national seashore. ■

and Long Island area was formed several years ago when the National Park Service was beginning to develop a general management plan for Fire Island National Seashore. Originally called the Fire Island Natural Area Committee (after the "eight-mile natural zone" established by the seashore enabling legislation), the organization is principally responsible for the local effort that proved successful in getting the National Park Service to abandon draft plans to develop extensive facilities in the eight-mile zone. Since shepherding through a reasonably good final general management plan last year, the committee has changed its name to Fire Island Wilderness Committee and is now focusing on seeking wilderness designation for a major portion of the eight-mile zone. For more information, write Fire Island Wilderness Committee, Box 336, Bellport, NY 11713. ■

MAMMOTH CAVE

NPCA Sues to Protect Caves from Job Corps Center

NPCA has sued the Park Service to force the agency to remove a Job Corps Center from its present site in Kentucky's Mammoth Cave National Park. Sewage from the center is polluting streams in the park's limestone cave systems. Moreover, individuals in the Corps have vandalized and destroyed some of the oldest mineralized formations in North America.

The NPCA suit, filed on June 27, charges that the center poses "severe and irreparable damage to the resources of the park." Furthermore, no work remains for the Corps within the park. Nevertheless, the Park Service currently is refusing to relocate the facility outside park boundaries because of pressures from a local congressman and the Department of Labor, which runs the Job Corps.

Instead, NPS is pouring money into

rehabilitation at the present site. NPCA maintains that NPS failure to prepare an impact statement before undertaking reconstruction violates the National Environmental Policy Act. Even more seriously, the agency is violating its basic legal mandate to preserve the parks.

Current preparations to entrench the Job Corps Center in this park contradict previous agency action. As far back as 1971, when work projects in the park were exhausted for the Corps, NPS began developing plans to close the center. A 1976 NPS master plan acknowledged that the center should be closed because of sewage pollution. The situation reached a crisis during this past winter, when a sewage discharge pipeline froze, sewage overflowed, and polluted meltwater penetrated into the caves. ■

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NPCA 25 YEARS AGO



DEVEREUX BUTCHER DEFENDS THE PARKS

In 1954 the National Parks Association was fighting a threat to the national parks that NPCA still fights today: commercial exploitation by private interests. In 1954 the editor of National Parks Magazine was Devereux Butcher—artist, writer, photographer, and dedicated nature preservationist. A veritable one-man show, Butcher not only served as Editor (1942–1957), Executive Secretary (1942–1950), Field Representative (1950–1957), and Trustee (1953–1962), but he also supplied photographs for magazine covers and articles; wrote articles and editorials; traveled thousands of miles to visit and report on the national parks; and found time to produce a popular guide to the parks, Exploring Our National Parks and Monuments, now in its 7th edition, published by Gambit Publishers, Massachusetts. Noted for his leadership in battles such as the fight to block dams in Dinosaur National Monument in the 1950s, Butcher remains ever involved in park issues. He has visited virtually all the national parks and is currently working on a set of oil paintings of them. A characteristic sample of his energetic defense of the parks follows:

War and a change of administration in Washington are signals for self-seeking interests to begin attacking the national park and monument system and undermining the national policy governing it.

Commercial interests constitute the bulk of the attackers. During World War I, a number of stockmen with ranches close to national parks used "war necessity" as an excuse to run their cattle and sheep on the meadows of several national parks. . . .

Similar efforts by the stockmen to exploit the parks during World War II failed. . . . Olympic Peninsula lumbermen also met with failure when during the second World War, under the guise of "war necessity," they tried to obtain the right to log the rain forest of Olympic National Park. After the war, these same lumbermen made still another attempt to break into the park. . . . and again they were denied the right to destroy the rain forest. . . .

With a new administration in Washington, local interests are again hard at work plotting ways to make the national parks produce quick financial gain. . . .

Local groups at Rocky Mountain National Park have tried to gain permission to build a chair lift in that park, and have succeeded in having a T-bar lift authorized. . . .

Commercial interests near Mount Rainier National Park are trying to out-do the Rocky Mountain boys by demanding that a cable tramway be built on Mount Rainier. . . . Already the mere existence of the park . . . is bringing business to these men; but they want more, even if it means reducing the magnificent parks to the common level of commercial playgrounds.

In this Mount Rainier tramway struggle there is a new note: A foremost objective,

they admit, is to change the national policy, and they laid their cards on the table when they said "Although our only interest is to benefit the people of the Pacific Northwest by modernizing the mountain, there is little doubt that our first goal will be the revision of policies which govern all national parks."

It is convenient, sometimes, to quote the late Robert Sterling Yard, first executive secretary of our Association: "The enemy we fight is neither people, nor business, nor state, nor section, but ignorance." Indeed, the whole difficulty stems from the lack of public understanding that national parks and monuments are established as nature sanctuaries to preserve intact, as nature made them, our finest scenic areas, superb examples of plant and wildlife communities and geologic exhibits, and are not to be exploited by individuals, groups or communities for the material resources in them, or to be turned into resorts. It is enough that we build roads adequate to enable the public to see the areas. Some parks already have too many roads. But this is no reason for causing further disfigurement with tramways, chair lifts, swimming pools, golf courses and honky-tonk, which already are available all across our country for those who want them.

Present attempts to undermine the parks and the national policy will be held in check by a continuing campaign of public enlightenment. The Mount Rainier controversy, like most others, is probably a blessing in disguise, for it gives us an opportunity to tell more and more people what our national parks are for. Let us make the most of it.

—National Parks Magazine
October–December 1954

reader comment

"Diamond Jubilee" Issue

Both Mrs. Albright and I are delighted with the H.M.A. story. . . . The magazine [May 1979] is an outstanding anniversary issue. Of course, I'm particularly pleased that you have printed a painting of Bob Yard by his daughter, Margaret Tyler. It is a good likeness—really excellent—of him in his later years.

Horace Albright
Sherman Oaks, California

Your interview with Congressman Burton was very timely and informative. I particularly appreciated the insight into the thinking and objectives for the National Park Service that Congressman Burton imparted in this story. I hope that future editions of the magazine will carry other similar interviews.

John R. Earnst
Superintendent
Gettysburg National Military Park

How does it happen that articles in the May issue fail to include the name of Devereux Butcher, who has played a prominent role in the organization?

William S. Serat
Tucson, AZ

I wish that the article had worked in just a bit of recognition for my dad's "idealism and hard work," which was such a lively chapter in the Association's rich history. He fought long and hard during the forties and fifties for the very goals that NPCA strives for today.

Russ Butcher
Seal Harbor, Maine

Author Rushing says that early in her research she realized that so many had contributed to NPCA that she would have to limit mention of names to those quoted. Yet in retrospect we wish we had somehow singled out Devereux Butcher. As Rushing says, "The forties and fifties were a lonely time for conservationists; the public was too busy with postwar affluence to worry much about the environment. People like Devereux Butcher kept the issues alive during that time, and for that we owe him a special debt of gratitude." See page 28.



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conservation docket

Channel Islands—Reborn in the House

In May, the House of Representatives passed legislation (Title II of H.R. 3157) to expand the Channel Islands National Monument and redesignate it as a national park (see NPCA at Work, June 1979). After the legislation passed, an identical bill (H.R. 2975) was referred to the House Committee on Merchant Marine and Fisheries. In an almost unheard-of situation, Representative John Breaux (D-La.) held hearings on the legislation that had already passed.

In its proceedings, the committee weakened the legislation by reducing the Park Service's authority to regulate access to the park by individuals attempting to capture marine mammals. It also decreased the size of the park by reducing the boundaries so that they extend only one-quarter mile into the ocean. The bill passed by the House calls for a full mile extension.

Fortunately, the committee action will have no effect on the legislation already passed by the House. However, attempts undoubtedly will be made in the Senate to weaken the legislation.

Senator Alan Cranston (D-Calif.) has introduced legislation identical to the House-passed version. At press time the Senate Subcommittee on Parks, Recreation, and Renewable Resources had scheduled hearings for July 19 but action by the full Senate was not expected until after the August recess. ■

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Continued from page 2

from seabed mining; they can and should be used by environmentalists in all countries acting through their own governments.

The same articles provide that states shall cooperate to establish additional global rules and standards in these matters, working through international organizations or diplomatic conference. While in our judgment it would not be feasible to initiate such conferences before concluding the present Convention, these foundations can and should be built upon promptly thereafter to round out a world regime for the protection of the marine environment.

THE POLLUTION OF THE SEAS by shipping has engrossed much of the attention of the few environmentalists who have participated in the sessions from the beginning. While this source of marine pollution, including discharges from tankers during navigation or as a result of disaster, accounts for a relatively small part of marine pollution, it is not insignificant. A measure of progress has been made over the years, as to both standards and methods of enforcement, and the text on these subjects now seems to be settled. It can be built upon separately.

At the recent sessions at Geneva, environmentalists concentrated to a considerable extent on tightening up machinery to prevent the pollution of the marine environment in deep sea mining. It was essential to bring the Enterprise under the restraints applicable to national or corporation operations. It was essential to provide for the revision of regulations and contractual obligations as experience would reveal new environmental problems. No adequate environmental assessment of deep seabed mining has ever been completed; it seems unlikely that we will know enough about the impacts until pilot operations have advanced considerably; by that time the protective controls may have to be strengthened. The efforts of the environmentalists at Geneva, which must be confirmed in New York, with leadership from the United States Delegation, were reasonably successful.

THERE CAN BE LITTLE DOUBT that one reason negotiations have moved forward recently on mining is that legislation has been pending in Congress to authorize United States corporations to proceed without waiting for the Convention. Excessive demands from both sides,

the industrial and the nonindustrial countries alike, have impeded agreement at the Conference until recently.

Two schools of thought have emerged as to the present state of international law governing unilateral or consortium ventures before the establishment of planetary institutions. One school has it that recent declarations in the United Nations, such as those adopted, with participation by the United States, at the Stockholm Conference on the Human Environment in 1972, and moratoria adopted thereafter, preclude separate exploitation. The other, to which the United States adheres, is that the declarations establishing the resources of the seabeds as the common heritage of mankind require implementation by Convention, beginning with the Convention on the Law of the Sea now under negotiation.

A GAINST THIS BACKGROUND, it is now the position of the Executive Branch of the government of the United States that legislation should be enacted licensing American-based corporations and consortia to begin exploratory and later exploitative operations to mine the seabed, subject to conformity to the Convention when agreed upon and ratified by the United States. Licensing would be subject to environmental regulation and enforcement; environmentalists will concern themselves with provisions for the review and modification of environmental protective standards as experience shows changes and improvements to be necessary. Both the environmentalists and the Administration will oppose indemnities for the mining corporations or consortia to cover losses they may claim as a result of the establishment of a worldwide regime. After all, private enterprise is expected to assume some risks in a capitalist economy.

On the assumption that the Article on marine mammals can be revised in the current sessions to ensure the application of minimum protective standards for cetaceans, the Convention should have the wholehearted support of environmentalists for ratification by the Senate of the United States. While the text falls far short of the hopes we and others had for it some nine years ago when we first urged support for the project, it does, nonetheless, establish powerful protective safeguards for the marine environment around the planet. It provides a foundation for additional work which must be done in the years and decades ahead.

—Anthony Wayne Smith

For six decades NPCA has been working as a watchdog to the National Park Service, offering constructive criticism or support, as situations warrant. For example, believing that motors have no place in national park backcountry, we are supporting Park Service proposals to ban motorboats from the Grand Canyon. **YOU CAN HELP.** By giving freely to NPCA, you will be helping to preserve prime samples of wilderness for this and future generations to cherish.

