

## INTERPRETING MARINE AND FRESH-WATER LIFE IN NATIONAL PARKS

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Scenic beauty found in National Parks is created by a combination of many natural features -- the forests, the eroded canyons or the towering peaks. The attractiveness of these scenes is enhanced by the gurgling, tumbling streams; the clear mountain lakes enclosed in cirques; the crashing of the sea upon a rock-bound coast, or the gentling surf rolling over sandy shores. The grandeur of the Great Smoky Mountains, the Virgin Islands, or Glacier National Park, to name a few, would be lessened if these aquatic features were missing.

These waters are significant also for the biological treasures they possess. The natural aquatic environments and their inhabitants found within National Parks and Monuments, even in the desert of Death Valley National Monument, are among the country's cherished possessions entrusted to the National Park Service to perpetuate for all time and to interpret for the enjoyment and appreciation of park visitors. Certainly National Parks are vast outdoor laboratories for the study of aquatic life under natural conditions.

Isolated and hidden beneath the water's surface film, plant and animal inhabitants of the seas, lakes, ponds, streams, swamps and marshes have been frequently overlooked in an out-of-sight and out-of-mind manner. Their significance has not been fully recognized nor represented in park interpretive programs.

The philosophy has developed that the value of a body of water is best measured by the number of fishes which an angler could catch and that other forms of aquatic life are of consequence primarily as they support sport species. Therefore, often in the past, interpretive attention was directed primarily toward aquatic resources as they related to the angler. Now we recognize that the story can not stop here!

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The National Park Service is taking a fresh look at many things. Among these is the role of the marine and fresh water life in the overall pattern of park interpretation and protection. A program to provide for adequate interpretation of these aquatic features is being developed and encouraged.

In these interpretive endeavors, some very definite principles are being applied.

The significance of aquatic life forms and habitats within a park are initially identified. The broad aspects of the term "aquatic life" is considered to include all plants and animals which are part of an aquatic environment as illustrated at Royal Palm in Everglades.

Their relationship to other park features of geological, historical, archeological, or biological interest are evaluated.

Marine and fresh water life interpretation is then incorporated into an individual park's program in proportion to the significance of these resources and as they relate to the other primary park features.

Wherever possible the aquatic story is molded into the interpretation of other principle park features.

In scenic-scientific parks, where the relationship is frequently more distinct, this integration is easier to achieve than in historical and archeological areas where the association is more remote. In the parks of great biological importance, emphasis is placed upon the ecological relationships of the whole environment rather than upon individual forms. In parks where geology is important, for example, the approach is directed toward telling how geologic processes created the aquatic habitats and influenced the distribution of aquatic life. In historical and archeological parks, attempts are made to illustrate the role which aquatic life forms played in the welfare of the earlier cultures.

The type of park visitation, also determines the treatment the subject can receive. In areas where a visitor's stay is brief, a general approach to a wider scope of natural history is employed; in other parks where a visitor's visit is more prolonged, a more specialized presentation may be enjoyed.

Aquatic interpretation is directed toward creating a fuller understanding and appreciation of the ecology of aquatic life. The observation of aquatic life through self-guiding devices and through participation in conducted trips is encouraged. Local field situations, climatic

considerations, available facilities and visitor-use patterns govern the application and effectiveness of each technique within a park.

A variety of interpretive methods are being utilized to do the job. To develop those most suited to fully utilize unique local conditions requires considerable experimentation. Let's take a look at some techniques which are currently being used.

The beach walk is among the unusual and fascinating interpretive methods employed as part of the regular program along the Atlantic shores of Cape Hatteras, beside the rock-bound coast of Acadia in Maine, next to the tropical blue seas of the Virgin Islands, upon the Pacific Ocean strip of Olympic in Washington, and among the tide pools at Cabrillo National Monument in California. Each walk affords a similar but still a vastly different type of experience. Tidal pools, common to Cabrillo and Acadia, present different ecological associations from those to be discovered along the sandy beaches of Olympic, Cape Hatteras or Virgin Islands.

Such a beach experience frequently starts after a brief "get-acquainted" chat in the shelter of a building or overhanging rock. This is the opportunity for the naturalist to identify and to explain various creatures which may be encountered along the shore. Then after a short walk, the group pauses briefly within sight and sound of the ocean to orient themselves with the expanse of sea and sand before them. As they move out onto the beach or scramble over the rocky pools, the visitors observe the things identified earlier, discover new features and all of the forms of life begin to fall into the pattern of the overall picture. Occasionally, the naturalist may dash out into the water and bring forth various objects of interest which are explained to the group. One can never tell what the sea may cast up upon the shore; therefore, every beach walk is different.

And now a word about the size of beach parties. The experience can be a most rewarding adventure when the number of those participating is small. Everyone is able to participate, to ask questions, to see what has been discovered and to hear what is being discussed. When larger groups show up, the method of presentation must be altered. As it takes more time to "compact" a larger group, fewer stops can be made and each must be longer in duration. With a sizable group, the naturalist loses the opportunity to chat as casually about individual features as are found.

Guided walks are made beside fresh water lakes and streams in several parks including Crater Lake and Rocky Mountain. In Everglades, an

elevated trail, called the Anhinga Trail, has been constructed over Taylor Slough. Naturalists regularly lead visitors over this exciting wildlife trail.

Another type of conducted trip is the guided boat cruise. The main theme of a boat trip may not be aquatic interpretation but aquatic life will be incorporated as it relates to other important park features. On Crater Lake, geology and origin of the lake is the basic story and the interpretation of aquatic life is subordinate to the main topic. Although the mule-drawn barge trip along the C. & O. Canal in National Capital Parks is principally a historic experience, aquatic life is woven in. Naturalist guided boat trips are programmed, also, at Acadia, Glacier, and Lake Mead. The interpreter presents the message either with or without an amplifying system. Boat trips conducted underground on Echo River, deep within Mammoth Cave, are of unique interest.

Some of the trips at Lake Mead, Glacier and Everglades, and upon the Green River at Mammoth Cave are unaccompanied by naturalists. The interpretive messages are presented by the concessioners' boatmen or guides who have been briefed on the correct story by the park naturalists.

In the Everglades another form of boat tour, known as a "boat-a-cade" may be experienced. After a brief orientation talk, the park ranger in the lead boat guides the visitors following in their boats through some of the waterways. After the tour starts he is able to communicate with the participants only at designated stops, and continuous interpretive contact is impossible.

Audubon bird observation boat tours are conducted within Everglades in addition to the other trips.

During the cruise of the Ranger III across Lake Superior, to Isle Royale, passengers learn the aquatic story, through an illustrated program, which is presented in the lounge.

Direct observation of aquatic life is encouraged. An old gun emplacement at Cabrillo has been glassed-in to serve as a lookout station from which park visitors assist in counting the gray whales as they migrate southward to their mid-winter breeding grounds. Here the visitors hear the story of this gigantic marine mammal and display panels provide additional interpretive information.

Several lakes, such as Emerald Lake in Lassen Volcanic National Park, and Shadow Lake in Mount Rainier National Park, are closed to angling and are reserved for the observation of trout. Out-of-doors living

fishes are displayed in ponds at Happy Isles Nature Center in Yosemite and in several other parks. Aquariums are occasionally used, such as the small one at Marmoth Cave, in which blind fishes are exhibited. However, their use is restricted to the display of specially unique forms.

The most elaborate indoor living exhibit is located within the Happy Isles Nature Center where the life history of the trout is demonstrated through the use of display troughs containing trout in various stages of development. Panels which form a backdrop combine to make the exhibit very effective.

The Pa-hay-okee or "river of grass" self-guiding nature trail in Everglades presents the aquatic story of the sawgrass and the creatures which dwell here. This elevated trail terminates at an observation platform where visitors look over the "river of grass" and where an exhibit panel explains this unusual habitat.

A cross section diagram of Taylor Slough which will be erected (soon) on the Anhinga Trail and a lift-lid exhibit here illustrate other devices.

Recently established on an experimental basis at Trunk Bay in the Virgin Islands is a most unique self-guiding device -- the world's first underwater self-guiding trail!

A panel on the beach identifies various marine features and invites the experienced swimmer to follow the underwater route. Equipped with a face plate and a snorkel, he then enters the water and views the scenic beauties beneath the sea. Submerged labels painted on glass describe the outstanding attractions along the trail. Eventually, it is hoped that we shall be able to program guided underwater trips at which time necessary safety precautions, such as having a lifeguard in a boat above, and adequate means of underwater communications will be developed. This certainly provides exciting possibilities.

Museum displays play an important part in interpreting marine and freshwater life. These consist of identification and interpretive panels, such as this one at Great Smoky Mountains, or this exhibit at Natchez Trace Parkway. Identification panels are limited in favor of exhibits which also interpret. A diorama of the life in Florida Bay, here still in the studio, add dimension to the scene.

Interest in aquatic life has been kindled in recent years through movies, television programs, featured magazine articles and some excellent books. This is reflected in the multitude of commercial attractions offered the traveler. Although our objectives are more than mere entertainment,

some of these devices offer possibilities which are being reviewed. At Silver Springs, Florida, as elsewhere, glass-bottomed boats afford a look under the sea -- a look which is similar to looking down into a forest from an airplane. At Rainbow Springs, in a different form of boat, the passengers descend into a submerged viewing cabin from which they look out through ports into the aquatic world. At Disneyland, submarines which run along a submerged railway, permits viewers to see beneath the surface. Visitors to the Nature's Fish Bowl at Homasassa Springs, Florida, observe fish life from elevated platforms or take a walk under the water in a viewing gallery incorporated into the boardwalk.

The underwater theater built into the side of Weekee Wachee Spring in Florida allows visitors to look into the water from a submerged room.

The possibility of utilizing underwater closed circuit television with stations on the comfort of the land is being investigated.

The main objective in underwater interpretive observation in National Parks is to provide a natural experience by means which will not alter, or damage the marine environments. The construction of some of the devices just shown probably will have to be ruled out because of these considerations. Although some forms of underwater viewing methods are desirable so that more visitors can participate in an underwater experience, they are but a supplement to actually going under and getting wet and observing first hand.

Booklets, self-guiding trail leaflets and other printed materials are being developed to further interpret aquatic life.

Aquatic interpretation is incorporated in scheduled talks in parks where these resources are important. These talks are frequently illustrated by slides and movies..

The discovery that grunion spawn in the sands of Cabrillo National Monument resulted in the establishment of a unique aquatic demonstration in which visitors were encouraged to participate. The naturalist collected some of the sand in which the grunion had spawned and by keeping it moist was able to permit the eggs to survive. While talking about the grunion, he handed out small paper drinking cups. Into each was placed a small quantity of sand and to this fresh sea water was added. Then the participants were instructed to gently agitate the water. After a few moments of such movements, tiny fish appeared suddenly from the apparently barren sand. Such an experience leaves an indelible impression upon the visitor!

To vitalize interpretive presentations, the recent findings of research are incorporated in the programs. The National Park Service encourages cooperative research which will provide just this type of information. Outstanding cooperative aquatic research projects are being conducted in Virgin Islands, Everglades, Yellowstone, Great Smoky Mountains, Olympic and Mammoth Cave National Parks, in Cape Hatteras National Seashore, and in other parks.

Marine and fresh-water interpretation in the National Parks is a challenging venture. It is one which requires an inquisitive spirit, imaginative thinking, creative planning and bold appreciation of new ideas and concepts. The opportunities to create greater understanding, appreciation and enjoyment of the aquatic environments make all of this worthwhile and rewarding.