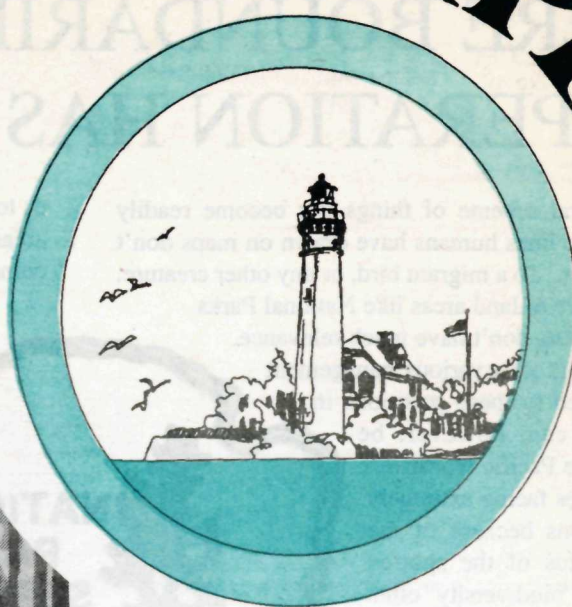
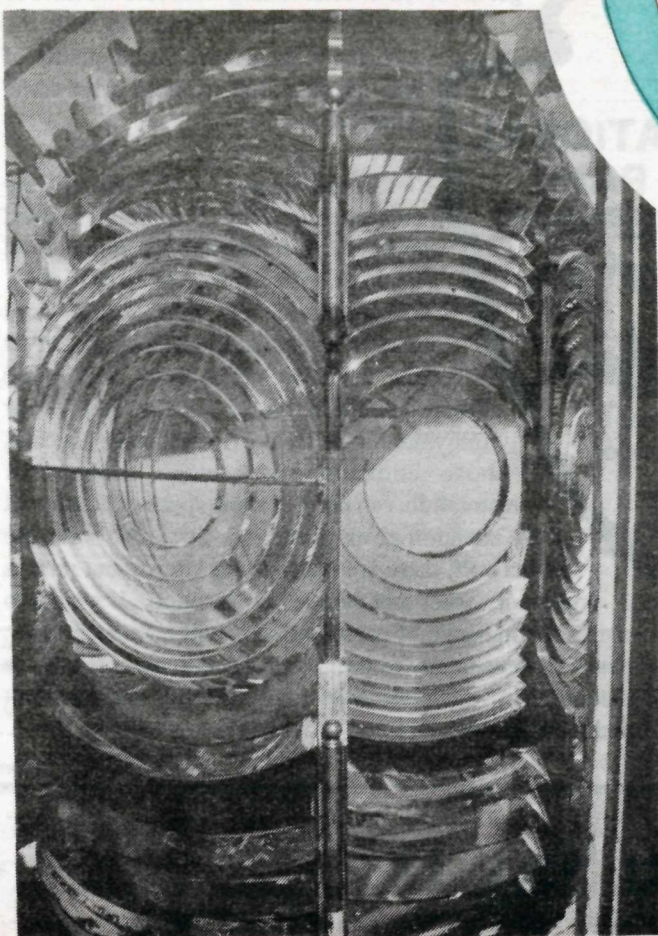


AROUND THE ARCHIPELAGO

Apostle Islands National Lakeshore

VOLUME 8, NUMBER 1 SUMMER 1993



National Park Service employees David Koons and Kayci Cook help reinstall the 3rd order Fresnel lens in the Devils Island lighthouse tower (far left). After three years in storage, the lens underwent extensive repair and stabilization before being returned to the tower where it was first installed in 1901. The return of the lens in September, 1992 made Devils Island the only one of six Apostle Islands light stations to have a Fresnel lens in the tower. Details of this project and the lens' history can be found in the article on page 7.

Visiting The National Lakeshore

Apostle Islands National Lakeshore can be enjoyed in many ways. Getting the most out of your visit will depend on your interests, how much time you have to spend, and how well you plan your stay. To help with your planning, a variety of trips are suggested.

If you have a half day:

Begin your visit at the Lakeshore by stopping at the Headquarters Visitor Center in Bayfield. A ranger will answer questions and help plan your visit. Be sure to watch the 10-minute introductory film on the Apostle Islands. Don't miss viewing the exhibits on the cultural and natural history of the area.

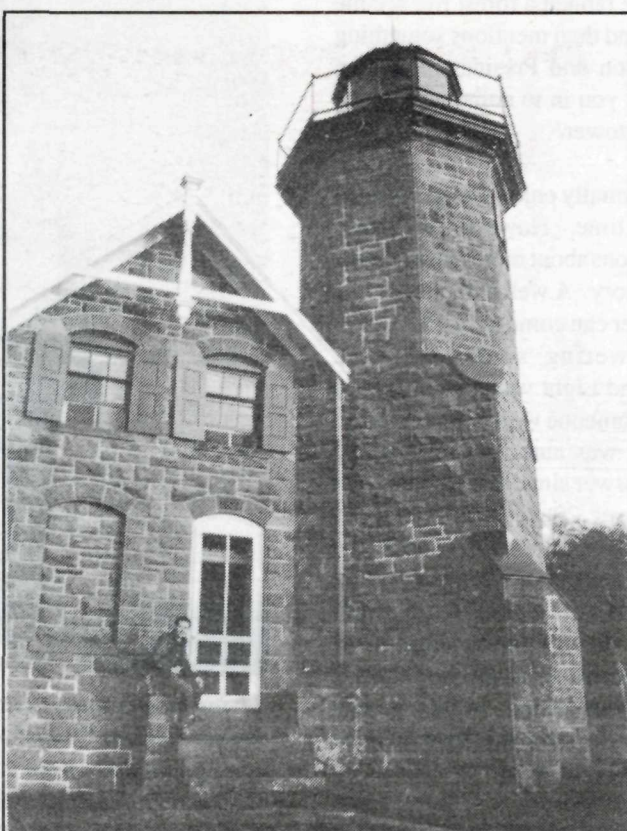
If you wish to see the islands, you will need at least three hours. The Apostle Islands Cruise Service offers two 3 to 3 and 1/2 hour cruises from Bayfield each day during July and August and one daily 3 hour trip in June and September. The tours cost \$19.95/adult.

If you would rather stay on the mainland, visit Little Sand Bay, just 13 miles north of Bayfield. There you can walk along a sandy beach, view several of the islands, and explore the Hokenson Brothers Fishery, a museum featuring equipment used in a family-run commercial fishing operation. Stop in the visitor center for area orientation and ask about the schedule of ranger guided fishery tours.

If you have an entire day:

Enjoy a half-day cruise around the islands, followed by a trip to Little Sand Bay.

Recreational boating is also a very popular pursuit in the Apostle Islands area. Captained day charters are available for visitors seeking to experience sailing in the Apostles. Outfitters in Bayfield also rent sea kayaks and guide day trips to the Squaw Bay sea caves along the mainland portion of the lakeshore. Lists of charter services and outfitters can be obtained from the Bayfield Chamber of Commerce.



Sand Island is one of the destinations for the Inner Island Shuttle leaving Little Sand Bay every Monday, Wednesday, and Friday from June 28 to August 20. Day hikers can walk 2 1/2 miles north from the East Bay dock to the Sand Island lighthouse for a guided tour with the volunteer lightkeeper.

If you have several days:

An extended trip is the best way to experience the peace, solitude, and natural rhythms of the islands. Hike the wooded trails, explore the historic sites, or just hunker down by a campfire and listen to loons calling on the lake.

Any camping trip should begin with a stop at the park's Bayfield visitor center. Here visitors can discuss their itinerary with a park ranger and pick up the required free camping permit. Campers in need of transportation can reach five of the islands on regularly scheduled excursion cruises from late June to late August. A water taxi is available to carry campers to the less visited islands.

Although camping is allowed on 18 of the islands, almost half of all camping in the park occurs on Stockton Island. A park ranger presents campfire programs near Stockton's Presque Isle Visitor Center on Monday, Tuesday, Friday and Saturday evenings throughout the summer. Ranger guided walks on Stockton also help reveal some of the island's wonders.

If you are touring the islands on your own boat, be sure to visit historic Manitou Fish Camp and Raspberry Island Light Station. Park rangers are available to help weave the stories of these sites into the cultural fabric of the islands.

Regardless of how long you stay, should your visit to the national lakeshore bring you to Bayfield on a Wednesday evening in the summer, be sure to attend our guest lecture series. Guest speakers present talks on a variety of Apostle Islands related issues free of charge at 7:30 p.m. in the Headquarters Visitor Center. See page five for a complete guest lecture series schedule and information about other National Park Service programs.

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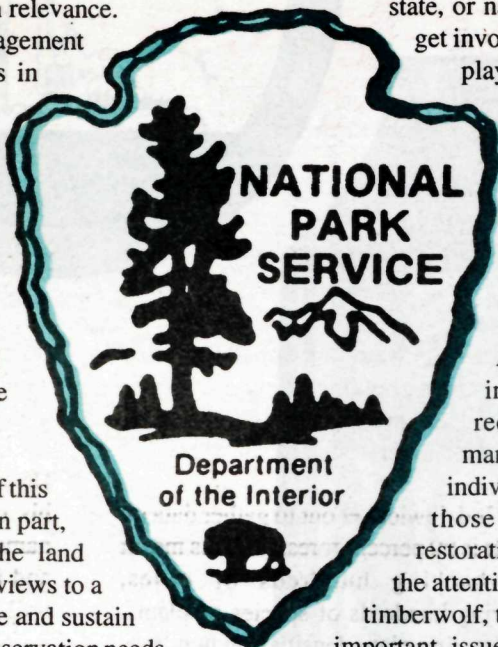
From the Superintendent:

WHERE BOUNDARIES END COOPERATION HAS TO BEGIN

In the natural scheme of things it's become readily apparent that the lines humans have drawn on maps don't mean a whole lot. To a migrant bird, or any other creature, the terms we give to land areas like National Parks and County Forests don't have much relevance. The general impact of the various management strategies applied to these partitions in the landscape can, however, be immense. In the Pacific Northwest we find ourselves facing extremely difficult decisions because of the endangered status of the spotted owl. Terms like "biodiversity" often surface as rather nebulous concepts for discussion, and by the time they have a real name, such as the spotted owl, it seems we usually have to choose between painful alternatives.

The dilemma we face in the case of this small owl was probably brought on, in part, by the failure of those of us in the land management business to expand our views to a broad enough region to accommodate and sustain our critical economic and resource preservation needs. It's difficult, after generations of focusing on the particular requirements of a section of segmented landscape, to bring ourselves to examine how we each fit into the larger, more significant picture. There are undoubtedly good reasons for

us to continue to assign primary uses and goals to specific areas. The time for a more all encompassing vision has come, however. Whether it be from backyard to backyard, farm to farm, national park to national forest, state to state, or nation to nation it's important that we all get involved in determining what role we have to play in assuring that we pass on both the essence of environment and quality of life we inherited to those who come after us.



In this region of the country the movement toward a more integrated approach to managing our rich natural resources seems at least to be underway. An abundance of interagency and interstate organizations have arisen in recent years to attempt to coordinate management activities on a geographic or individual issue basis. A few groups, such as those coordinating eastern timberwolf restoration, can point to some success. But for all the attention given to charismatic symbols like the timberwolf, there are many lesser known, but no less important, issues that escape our attention. If we are to meet the challenge of preservation it will take each of us, pausing occasionally to peer over our individual fences, to determine in which instances our boundaries are important and in which they are not.



Ongoing bald eagle research in the Apostle Islands is a good example of interagency cooperation. The study is a joint effort of the Wisconsin Department of Natural Resources, National Park Service, University of Wisconsin-Madison, and University of Minnesota. For an update on the project see the story on page 3.

What Year Did You Say It Is?

Have you ever wanted to take a trip back in time? Or just meet someone from another era? Well, such an opportunity awaits you at Raspberry Island Lighthouse in the form of a new living history program.

What is living history? In a living history program, a modern day person takes on the role, clothing, and knowledge of a character from another time. The modern day person strips away any identifying characteristics of present day, such as digital watches or knowledge of the planet Pluto. He/she also sees things from that time and is unable to perceive modern day things.

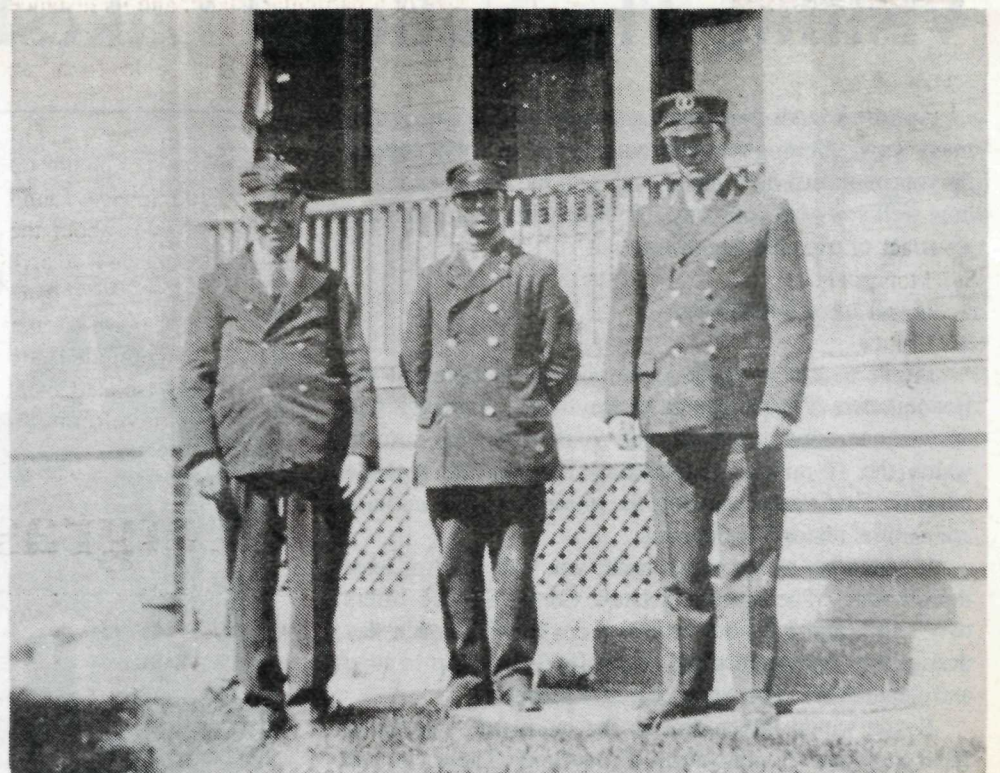
So as not to jolt potential time travellers with a quantum leap as soon as they arrive at the site, a living history character prepares them for the time travel exchange. Signs are posted to inform visitors before they get to the historic site. The costume worn by the character and the work that he/she is doing are also subtle transitions. Finally, within the first few minutes of meeting a living history character, he/she will drop a few hints about what year it is. Once the tour begins, you are on your way.

The living history program at Raspberry Island Lighthouse focuses on the time period 1914-24. This is a particularly well documented time when a gentleman named Lee Benton was keeper. If you stop at the Raspberry Island dock, you may find a sign at the base of the 76 stairs leading up to the lighthouse grounds indicating that today a living history program is being done. The year is 1923. As you walk up the stairs it is like going back in time. You hear someone singing, "Goodnight, Irene" and as you approach the lighthouse you see a man with suspenders and a lightkeeper's hat shucking peas. He introduces himself as first assistant, Herbert Winfield. He

says to the ladies that they can call him, "Toots", if they like, because he is a bachelor. He talks about the windy weather and how it once fanned a forest fire aflame back in 1918, and then mentions something about Prohibition and President Harding. He then invites you in to come look at the view from the tower.

Visitors normally enjoy this glimpse of life in another time. However, they may also have questions about more recent events in the site's history. A well seasoned living history character can come up with creative ways of answering such questions. Raspberry Island Light was not automated until 1947. If someone were to ask "Toots" when the light was automated, he would not know the answer since that was an event that occurred over 20 years after he was stationed on the island. To provide the requested information, the ranger playing the role of "Toots" might respond, "Automation? It will never come here! Thomas, the second assistant, he thinks it will make our jobs easier. In fact, he and I have a bet. He says the light will be automated by '47, at least."

A living history tour provides an added dimension to a visit to a historic site. Visitors quickly become more involved in the tour. They might play a friendly game of "Stump the Ranger" by trying to get him or her to slip out of character. Better yet, they might attempt the more challenging feat of putting themselves in the time frame of the living history character. Instead of asking, "When did the light sockets get installed?" ask, "Do you have electricity yet?" In this way a trip to the Apostle Islands becomes more than just a cruise across the lake. A tour to Raspberry Island Lighthouse becomes a journey back in time, and all you need to pack is a little imagination.



Living history tours at Raspberry Island Light Station help visitors relive the era of assistant keeper Herbert "Toots" Winfield (center). Ranger-guided tours of the Raspberry Island light are offered daily from 9 a.m. to 11 a.m. and from 1 p.m. to 4 p.m. beginning Memorial Day weekend and lasting through September. The Apostle Islands Cruise Service offers cruises from Bayfield or Little Sand Bay to Raspberry Island on Monday, Wednesday, and Friday from June 28 through August 20. Tickets are \$19.95/adult and \$8.95/child. Lighthouse tours are free for the asking. Contact the Raspberry Island ranger, or, if no one in a ranger uniform is available, ask for "Toots"!

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Research Updates



Bald Eagles

A research project to study effects of toxic chemicals on bald eagle reproduction and behavior will continue this year at Apostle Islands National Lakeshore. Eagles living along Wisconsin's Lake Superior shore and at inland "control" sites are being studied to determine possible causes of lowered productivity in the lakeshore. Researchers are obtaining information on eagle behavior by directly observing the eagles or by placing video cameras in or near nest trees. To determine levels of toxic chemicals in the birds, a small amount of blood is drawn from young eagles when they were banded. Preliminary results of the study indicate that eagles nesting in the lakeshore have elevated levels of PCB's and receive less food than their counterparts on the mainland. In 1992, there were four active nests (York, North Twin, Devils and Michigan Islands) in the national lakeshore. Only two of those nests successfully produced young eagles. Two eaglets fledged from the nest at Devils Island and one fledged from the Michigan Island nest.



Black Bears

Black bears have been studied on Stockton Island since 1984. The most recent bear research project began in 1992 and is designed to determine the density at which black bears are most productive and if there is a "surplus" above a healthy density that can be removed through regulated hunting. Hunting is permitted by the legislation that established Apostle Islands National Lakeshore. To facilitate research, however, bear hunting has not been allowed since 1987. This study and a companion project at the Hanson Experimental Forest near Mellen, Wisconsin is being conducted through the University of Wisconsin, Stevens Point. Stockton Island currently has a bear density of approximately 1.5 bears/square mile. The densest mainland population is 1.0 bear/square mile. From 1985-1990, the black bear population on Stockton Island increased rapidly. Research conducted since 1990 indicates that the bear population may be leveling off. Scientists estimated Stockton Island's bear population to be 23 animals at the end of the 1992 season. During the spring of 1993, researchers visited bear dens in the park. Nine cubs from four litters and three yearlings were found in the dens on Stockton Island. In addition, individual male bears wintered on Hermit, Oak, and Bear Islands. The bears on Hermit and Oak were born on Stockton Island; the origin of the bear on Bear Island is unknown. The current study will continue through 1993.

Apostle Islands Plant Survey Completed

Dr. Judziewicz's response was polite when I asked him if I could tag along with him to learn about the plants of the Apostle Islands. "I'm not sure you'd be able to keep up with me." Dr. Judziewicz is a whiz at botanical identification who practically flies through the bush identifying plants. With those words, my hopes of botanizing with the Apostle Islands' preeminent plant scientist were temporarily squelched.

Dr. Emmet Judziewicz is a Research Associate at the University of Wisconsin-Madison, where he earned his doctorate in botany. A native of Milwaukee, he worked for three years at the Smithsonian Institution in Washington D.C. where he wrote a book on the grasses of the Guianas. In 1991 and 1992, he turned his discerning eyes on the Apostle Islands.

Apostle Islands National Lakeshore contracted with Dr. Judziewicz to inventory rare plants on the 21 islands and the mainland portion of the national lakeshore. That wasn't enough for this non-stop botanist. He took on an "extra" project as well. He decided to inventory all plants on each island, the mainland portion, and Madeline Island (not a part of the national lakeshore). Thus he undertook a project that would take him on a thousand mile trek in search of plant life.

I asked Dr. Judziewicz why he found this area botanically titillating. His reasons include the fact that the Apostle Islands make up the only archipelago in Wisconsin. This makes them an excellent place to study island biogeography. The islands vary in size, distance from the mainland, and in their land-use histories. There is an "island effect", Dr. Judziewicz explained. The size of a particular island, and its distance from the mainland, will affect the number and composition of plant species found on that island. Islands can be compared to each other and to mainland areas. For example, on the 14,000 acres making up Madeline Island, Dr. Judziewicz found 525 species of plants. This is about the same number he located on his own 40 acre parcel of land in northeastern Wisconsin. Much of Wisconsin is made up of similar "islands" of vegetation. Natural areas are usually limited in size and isolated from other natural areas by development,



Scientists photograph plants for Apostle Islands plant survey

farmland, highways and other land-use forms. Understanding the flora of the Apostle Islands may help us understand the character of other "islands".

Dr. Judziewicz set out to gather data on land that is 90 percent forested. This meant bush-whacking hundreds of miles, identifying hundreds of species of plants, and estimating plant densities on hundreds of survey plots. In the end, he made at least three visits to each island and the mainland. Along the way he collected samples of every type of plant found on each island.

For Dr. Judziewicz, some of the most exciting searches took place on what he calls "arctic Wisconsin". Bare rock cliffs on the edges of Devils, North Twin and Outer Islands support species of arctic plants which are extremely rare in the state. Unusual sedges, arctic primrose and the insect-eating butterwort represent a few of these cold climate refugees. For Dr. Judziewicz, discovering two subarctic species of willow, normally not found south of Northern Minnesota and Ontario, was a personal highlight.

One August afternoon, I finally got to tag along with the botanizing whiz on brief visits to two of the Apostle Islands. On Manitou Island he wanted to show another researcher a small patch of sweetgrass he had located (see next article). I poised myself to bound off the boat and stick close behind the two scientists in order to learn as

much as possible. The next 15 minutes were a blur as I scrambled up the trail in pursuit. Dr. Judziewicz's arms seemed to fly in all directions, pointing out species. He called out interesting facts as well, all of his comments punctuated with scientific names. His pace was, indeed, very fast, and it didn't slow when he turned off the trail and led us through the forest. We found the tiny plot of grass on a generic stretch of narrow beach. How this tireless man unerringly found the spot was beyond me.

Later that day on Michigan Island, I crawled into the bush to find a place to sit where I figured no one had been before. I sat quietly, taking in the wilderness around me, and enjoying the silence. Just as I thought I had found the perfect solitude, I heard movement. Forty yards away, Dr. Judziewicz went bustling by. Under his arm he carried a stack of newspapers tied together with cardboard and string. Later he would show me that between the papers he was placing plant specimens previously not collected on this particular island. This was how he went about identifying the 800 species of vascular plants which he has found within the lakeshore. The results of future surveys can be compared to Dr. Judziewicz's to determine changes in the Apostle Islands' flora. As I watched this man cruise easily through the tangle, I realized that he had been right. I probably wouldn't be able to keep up with him.

Sweetgrass Found in Apostle Islands

It grows throughout northern North America, Europe, and Asia, but is relatively uncommon in Wisconsin. Its scientific name, *Hierochloa odorata*, literally means "fragrant holy grass". It has been used on European religious holidays as well as in the sacred ceremonies of many Native American groups. What is it? Sweetgrass...a species whose recent rediscovery at Apostle Islands National Lakeshore is meaningful for both the Ojibwa (Chippewa) culture and for botanists.

The burning of sweetgrass has been an essential component of Ojibwa ceremonies for centuries. When the Ojibwa first arrived in this area over 500 years ago, sweetgrass was probably abundant in many locations throughout the Apostle Islands and adjacent mainland. Sweetgrass grows best in moist, sandy areas kept open by natural disturbances. In the past, these areas were relatively common, but as land was developed, fires controlled, and water levels stabilized, much of the previously available

habitat was lost. Today, finding sweetgrass of the quality and purity necessary for use in ceremonies has become difficult.

The need for more quality sweetgrass led the Great Lakes Indian Fish and Wildlife Commission (GLIFWC) to begin a program with the long-term goal of reintroducing it into areas where it might once have grown. GLIFWC was created in 1984 by bands of Ojibwa to assist in "the implementation of treaty rights" and "to represent tribal interests in natural resource management" in the territory ceded to the United States in the treaties of 1837 and 1842.

During the summer of 1992, GLIFWC experimented with sweetgrass cultivation. Volunteers from various tribes throughout the region were fairly successful in cultivating a variety of sweetgrass from central Wisconsin. At the same time, researchers looked for native populations of sweetgrass in the north. These would be best adapted to the local environment.

Within Apostle Islands National Lakeshore, previously unknown populations of sweetgrass were found on Devils, Manitou, and Sand Islands; and at Little Sand Bay. While most of these populations were found growing on recently disturbed soil, the population on Manitou Island appears to be much older. Sweetgrass may have been purposely introduced centuries ago by Native Americans who traditionally used Manitou Island as a seasonal fish camp. Seeds from these wild populations may enable GLIFWC to cultivate a local variety of sweetgrass.

The reintroduction of sweetgrass into appropriate natural sites would be a major accomplishment. It would also serve as a powerful symbol of how both the environment and Ojibwa culture, even after being subjected to intense pressures over many years, have survived and are making a comeback. With a little luck and a lot of hard work, "fragrant holy grass" may once again grow abundantly in northern Wisconsin.

IMPORTANT INFORMATION

BOATING

Boating in the Apostle Islands can be a marvelous or a hazardous experience. Lake Superior is notorious for its cold temperatures, rough seas, fog, and sudden squalls. The following precautions and regulations will help assure a safe trip among the islands:

- Do not overload your boat.
- Use personal flotation devices (PFDs). Law requires that one be provided for each person aboard any boat.
- Consult marine weather forecasts before leaving on a trip and be alert to changing conditions.
- Seek shelter on the lee side of an island in high winds.
- Do not use canoes or small open boats for inter-island travel.
- Exhibit anchor lights from sunset to sunrise.
- Stay 100 feet away from commercial fishing nets.
- Do not use portable stoves or grills on docks or on vessels tied to a dock (outside of galley areas).
- Be wary of shoal areas and when beaching a boat. NPS and U.S. Coast Guard vessels provide towing only in emergency situations.

-Make sure your boat is properly equipped with PFDs, paddles or oars, fire extinguisher, spare propeller and shear pin, compass and nautical charts, running lights, flashlight, whistle or horn, first-aid kit, radio (for weather reports), and an anchor with sufficient line.

CAMPING

Camping permits are required for all camping in Apostle Islands National Lakeshore. Permits are free and

are available at the Headquarters Visitor Center in Bayfield, and from June to September at the Little Sand Bay Visitor Center. Designated campsites are limited to a maximum of six campers and three tents. Permits for these sites are issued in person on a first-come, first-served basis.

Group campsites are available on Basswood, Oak, Sand, and Stockton Islands to serve parties of seven to thirty people. These sites must be reserved in advance. Reservations can be made by calling (715)779-3397.

Backcountry camping in undesignated sites is allowed on most islands in the park. The following areas are closed to camping:

- Private leaseholdings.
- All of Eagle, Gull, and North Twin Islands.
- Devils Island, except at the designated site.
- Within 100 feet of Lake Superior or any flowing stream, except at designated campsites.
- In view of any trails or buildings.
- Within 1/4 mile of any designated campsite.
- Areas closed to protect archeological sites, bird nesting areas, and sensitive vegetation or wildlife species.

BEARS

Black bears occur on several of the Apostle Islands, but are most common on Oak, Sand, and Stockton Islands. To avoid an unpleasant encounter:

- Never feed wild animals.
- Store food in bear-resistant food storage lockers where provided.
- Hang food cache well away from your tent, at least 10 feet from the ground, and 5 feet away from the tree trunk.

-Do not eat or keep food, garbage, or unwashed dishes in your tent.

SCUBA DIVING

Divers regularly visit a variety of historic shipwrecks and natural features at Apostle Islands National Lakeshore. A free dive permit is required to scuba dive within national lakeshore boundaries. Permits are available from Park Headquarters or Little Sand Bay visitor centers.

FISHING

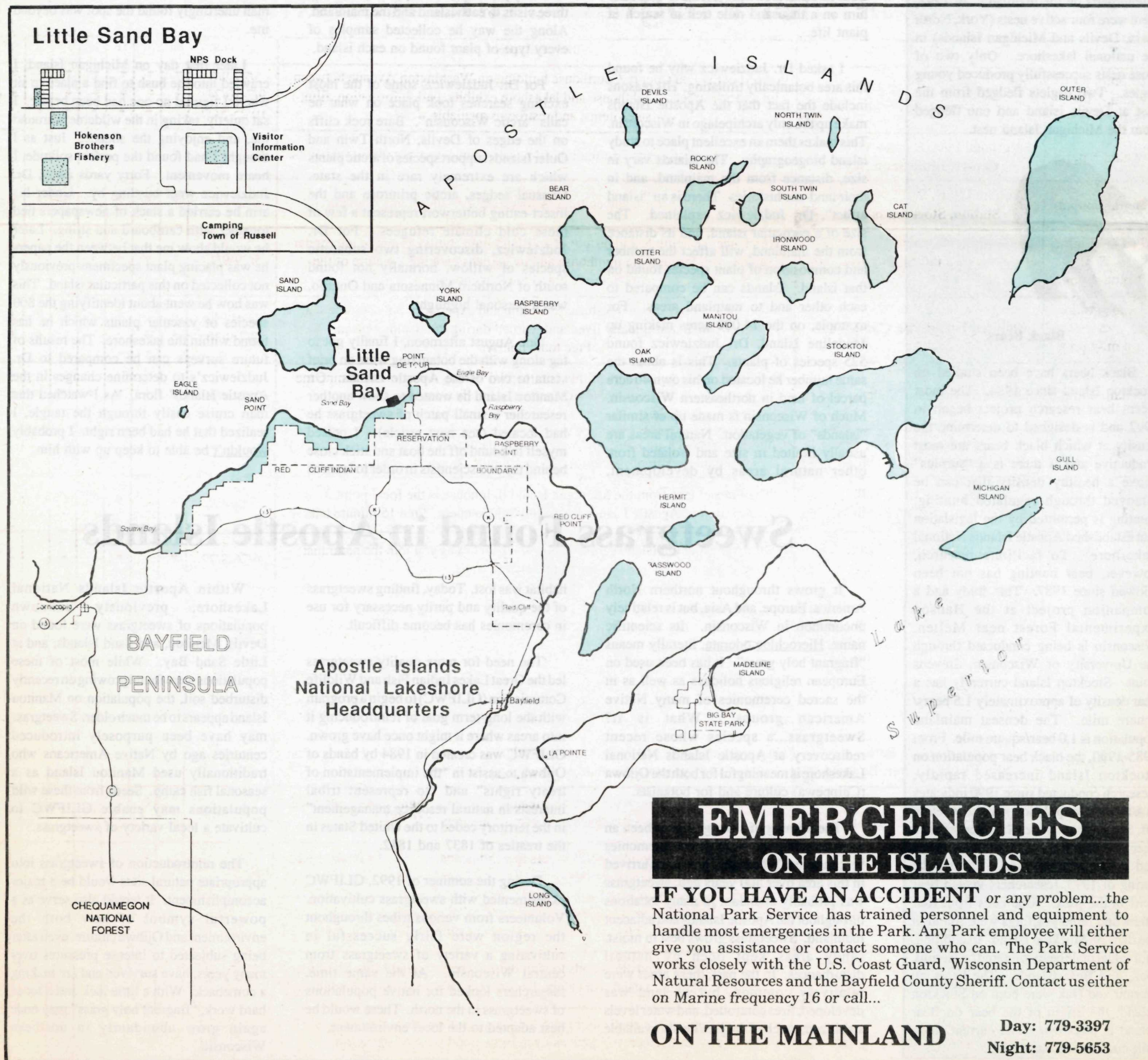
Lake Superior offers good sport fishing opportunities for lake, brown, and rainbow trout and coho salmon. A Wisconsin fishing license with a Great Lakes trout and salmon stamp is required for anyone 16 or older who intends to fish in the park. Fish refuge areas are closed to fishing.

WEATHER

Typical summer conditions feature high temperatures in the mid-70s, lows in the mid-50s, winds of 5-20 knots, and waves of 1 to 4 feet. Thunderstorms occur throughout the summer. Winds of 30 to 40 knots with 6 to 12 foot seas are possible.

Spring and fall conditions are unsettled. Indian summer weather alternates with fog, cold rain or even snow. Winds tend to be stronger and storms are more common.

Sub-zero temperatures with bitter wind-chill factors are common in winter. Average annual snowfall is about 50 inches. Ice usually begins forming between the mainland and islands in early January, lasting until early April.



Around the Archipelago

1993 Summer Guest Lecture Series

National Park Service Visitor Center, Bayfield - Wednesday Evenings at 7:30 p.m.

June 9 - **Open Spaces**

Jim dale Vickery - Author, Essayist, and Park Ranger at Apostle Islands National Lakeshore. Share Mr. Vickery's readings from his 1992 Sigurd F. Olson Nature Writing Award winning book and thoughts on his career of working in and writing about America's wild places.

June 16 - **Living on Willey's and Rice's Islands**

Martha Newman - Outreach Project Assistant, U.W.-Madison. Investigate the history of life in the fishing communities and resorts on Rocky and South Twin Islands between 1890 and 1960.

June 23 - **Natural Areas in the Apostle Islands**

Eric Epstein - Ecologist, Wisconsin Department of Natural Resources. The Apostle Islands support a number of diverse habitats that are unique in Wisconsin. Discover some of the places on Outer, Raspberry, Devils, Sand, Rocky, Stockton, Otter, and Bear Islands that have recently been designated as State Natural Areas.

June 30 - **Apostle Islands Shipwrecks**

Thom Holden - Canal Park Marine Museum. Though usually a haven for ships, the Apostle Islands have also been a graveyard. Delve into stories of the ships and crews that were lost in Apostle Islands waters.

July 7 - **National Parks of Lake Baikal**

Robert Mackreth - Park Ranger, Apostle Islands National Lakeshore. Journey to the world's largest lake in Siberia for a look at two Russian National Parks through the eyes of a U.S. National Park Service representative.

July 14 - **The Lake Superior Binational Program**

Jake Vander Wal - Manager of Environmental Programs for Lake Superior, Environment Canada. Explore the broad spectrum of international efforts to preserve Lake Superior's pristine quality.

July 21 - **Apostle Islands Fish Studies**

Charles Bronte - Fishery Biologist, U. S. Fish and Wildlife Service. Lake Superior's fish populations have experienced a history of human induced changes. Learn of the international efforts to rehabilitate lake trout, and the effects that exotic fishes have had on Lake Superior's native species.

July 28 - **Loons, Lakes, and People**

Terry Daulton - Project LoonWatch Coordinator, Sigurd Olson Environmental Institute. The Common Loon is a charismatic species often seen as a symbol of northern lakes. Discover the issues facing loons and their habitats, and learn how to participate in their protection.

August 4 - **Stories of the Ojibway**

Dee Bainbridge - Indian Cultural Coordinator and storyteller. The Ojibway used stories to explain their world, teach lessons, and communicate their history. Experience some these fascinating tales related by an Ojibway storyteller.

August 11 - **Madeline Island History**

Steve Cotherman - Director, Madeline Island Historical Museum. Observe the tricentennial of Madeline Island's involvement in the fur trade, the bicentennial of Michel Cadotte's arrival on the island, and the centennial of Madeline's establishment as a summer resort.

August 18 - **My Life as a Volunteer Lighthouse Keeper**

Darlene Wahl - Volunteer in Park, Apostle Islands National Lakeshore. Discover the daily duties, life style adjustments, and interesting experiences of a volunteer who cares for one of Apostle Islands' historic lighthouses.

August 25 - **Return of the Devils Island Lens**

Kayci Cook - Chief of Interpretation, Apostle Islands National Lakeshore. Retrace the three year saga of the Fresnel lens' removal, repair, and restoration to its position atop the Devils Island light tower.

Summer Programs and Activities											
TIME	ACTIVITY	DESCRIPTION	DATES	Su	M	Tu	W	Th	F	Sa	
8 a.m.-6 p.m. 8 a.m.-5 p.m. 8a.m.-4:30p.m	National Park Service Visitor Center, Bayfield	Located in the Old County Courthouse building on Washington Avenue between 4th and 5th streets. Lighthouse and lakeshore exhibits, park information, film, sales items, and restrooms available.	5/29-9/6 9/7-10/24 10/25-5/27	*	*	*	*	*	*	*	
9 a.m.-5 p.m.	National Park Service Visitor Center, Little Sand Bay	Lakeshore exhibits, park information, film, sales items, and restrooms available.	5/29-9/30	*	*	*	*	*	*	*	
8a.m.-4:30p.m	National Park Service Contact Station, Stockton Island	Self-guided, natural and cultural history exhibits, sales items available.	5/29-9/6	*	*	*	*	*	*	*	
9 a.m.-11 a.m. & 1 p.m.-4 p.m.	Raspberry Island Lighthouse Tour	Experience the solitude and beauty of an island light station as a park interpreter guides you through the lighthouse and its gardens evoking a picture of the lightkeeper's era. Free tours hourly.	5/29-9/30	*	*	*	*	*	*	*	
9 a.m.-11a.m. & 1 p.m.-4 p.m.	Manitou Island Fish Camp Tour	Visit the restored site of a historic fish camp and experience how commercial fishermen traditionally lived and worked during the fishing season. Free tours hourly.	5/29-9/6 9/7-9/30	*	*	*	*	*	*	*	
9 a.m.-4 p.m.	Hokenson Brothers Fishery Tour	Park interpreters guide tours of this commercial fishing museum explaining the buildings, tools, and techniques used in a family owned and operated commercial fishery. Free 45 minute tours. Ask about scheduled times.	5/29-9/30	*	*	*	*	*	*	*	
10 a.m.	Children's Hour, NPS Visitor Center, Bayfield	Children ages 6-11 are invited to participate in nature walks, stories, activities or games. Parents welcome. Thirty minutes to one hour. Free.	6/10-8/26					*			
11 a.m. & 1:30 p.m.	Lighthouse Lens Talk, NPS Visitor Center, Bayfield	The Fresnel lens from the Michigan Island lighthouse is the focal point for a description of Apostle Islands lights and light keepers. Free 15 minute talk.	5/29-9/6	*	*	*	*	*	*	*	
2:30 p.m.	Naturalist Choice Walk, Stockton Island	Discover Stockton Island's forests, bog and beaches as you join the naturalist on one of the island's trails.	6/26-8/22	*		*		*		*	
Twilight 7 p.m. - Twilight	Evening Program, Little Sand Bay Evening Program, Big Bay State Park, Madeline Island Evening Program, Stockton Island	Presentations by park interpreters on the natural or cultural heritage of the Apostle Islands. Topics posted at the Bayfield Visitor Center or at visitor contact stations. One hour. Free.	6/5-9/4		*	*			*	*	
Twilight	Nature's Diversity Tour, Stockton Island	One value of National Park areas is their role in preserving a diversity of life. Join the Stockton Island naturalist for an evening stroll to discover someof the Apostle Islands' biological diversity.	6/6-9/5	*							
7:30 p.m.	Guest Lecture Series, NPS Visitor Center, Bayfield	Guest speaker presentations on the area's cultural and natural history. See special program schedule at top of page. One hour. Free.	6/9-8/25				*				
10 a.m.-1 p.m.	The Grand Tour Apostle Islands Cruise Service	A non-stop cruise through the Apostles featuring views of lighthouses, sea caves and 20 of the islands. Leaves from Bayfield. \$19.95/adult.	5/22-10/9	*	*	*	*	*	*	*	
11 a.m.-3:30 p.m.	Inner Island Shuttle Apostle Islands Cruise Service	Shuttle service for day hikers or campers to Sand Island, Raspberry Island Light Station, and Oak Island. Leaves from Little Sand Bay. \$19.95/adult.	6/28-8/20		*		*		*		
1:30 p.m.- 5 p.m.	Stockton/Manitou Island Cruise Apostle Islands Cruise Service	Cruise through the Apostles to explore the trails and beaches of Stockton Island or to tour the Manitou Island fish camp. Leaves from Bayfield. \$19.95/adult.	6/26-8/22	*		*		*		*	
1:30 p.m.- 5 p.m.	Raspberry/Manitou Island Cruise Apostle Islands Cruise Service	Cruise through the Apostle Islands to visit the Raspberry Island Light Station or tour the Manitou Island fish camp. Leaves from Bayfield. \$19.95/adult.	6/28-8/20		*		*		*		
6:30 p.m.- 8:45 p.m.	Evening Cruise Apostle Islands Cruise Service	Enjoy cruising past the south shore of Sand Island en route to sunset views of the Squaw Bay sea caves. Leaves from Little Sand Bay. \$19.95/adult.	7/4-8/14							*	

LEAVING NO TRACE: The Art of Minimum Impact Camping

Travel Information

Camping at Apostle Islands National Lakeshore is an experience that will linger in your memory. To preserve the islands' pristine beauty, their "memory" of such visits must be short. Each camper can help in this preservation effort. By learning minimum impact camping techniques, you can contribute to the satisfaction of future campers and the integrity of this unique environment.

The necessity of minimum impact camping is obvious to anyone forced to clear a campsite of someone else's garbage. Most campers seek clean sites with few signs of human presence. As more visitors discover the Apostle Islands, it becomes increasingly important to treat the area gently so both humans and wildlife can enjoy a wilderness setting.

The techniques of minimum impact camping are easy to learn and soon become a habit. First you must choose a site. In the Apostle Islands there are many beautiful designated campsites. If you prefer an undesignated site, choose carefully. Such campsites should be located on level ground that is unvegetated or covered with forest duff. To prevent erosion and water contamination, never camp within 100 feet of any water body, including Lake Superior, except at designated sites. Modifying a

potential site by cutting trees, removing vegetation, or digging ditches is destructive to the environment and is not allowed. Remember, the perfect campsite is found, not constructed.

After establishing camp, you will probably be thirsty. It is hard to escape the presence of water in the Apostle Islands. The National Park Service cannot guarantee that water from Lake Superior is safe to drink. Boil lake water for at least one minute to purify it. Drinking water is available from wells on eight of the islands. It is neither environmentally sound nor acceptable to use Lake Superior as a bath tub. All soaps should be biodegradable and used at least 100 feet from any body of water.

When preparing dinner, use a small portable cook stove. Stoves are efficient and do not leave scars or consume scarce wood like campfires do. If you need to build a campfire, use existing fire rings whenever they are provided. If a fire ring is not available, construct the fire on bare soil or sand away from vegetation or forest duff. Never take limbs from or cut down standing trees. Only use dead and downed wood for campfires. Plan meals carefully to eliminate leftovers. Burying food scraps attracts animals, so be prepared to pack out leftover food.

Campers must know the proper procedures to follow when "nature calls". Vault toilets are provided near most designated campsites. When vault toilets are not available, campers should take care to dispose of waste properly. Find a spot at least 100 feet from the nearest water source and dig a hole about six inches deep. Do not dig too deep or the waste will not readily decompose. Be sure to cover the "cathole" thoroughly when finished. Burning toilet paper can be a fire hazard. Pack out used toilet paper with the rest of your garbage.

When breaking camp, practice the art of leaving no trace. Apostle Islands National Lakeshore has a pack in, pack out policy. Do not leave any trash on the islands. If you have a backcountry campfire, remove all evidence of it. A minimum impact camper will leave a campsite cleaner than it was found.

Apostle Islands National Lakeshore has something to offer each camper. A little planning and thoughtfulness will allow campers to achieve the goal of "taking only pictures and leaving only footprints". Practicing the techniques of minimum impact camping will even help eliminate the footprints, thus erasing the islands' "memory" of your sojourn in this wilderness paradise.

For information on accommodations, restaurants and local services, contact the following organizations:

- * Bayfield Chamber of Commerce
P.O. Box 138
Bayfield, Wisconsin 54814
(715)779-3335
- * Madeline Island Chamber of Commerce
P.O. Box 274
LaPointe, Wisconsin 54850
(715)747-2801
- * Ashland Area Chamber of Commerce
P.O. Box 746
Ashland, Wisconsin 54806
(715)682-2500
- * Red Cliff Indian Reservation
P.O. Box 529
Bayfield, Wisconsin 54814
(715)779-3700
- * Washburn Chamber of Commerce
204 West Bayfield
Washburn, Wisconsin 54891
(715)373-5017
- * Cornucopia Business Association
Cornucopia, Wisconsin 54827
(715)742-3941
or 742-3994
- * Bayfield County Tourism and Recreation
Department
1-800-472-6338

CHILDREN'S CORNER

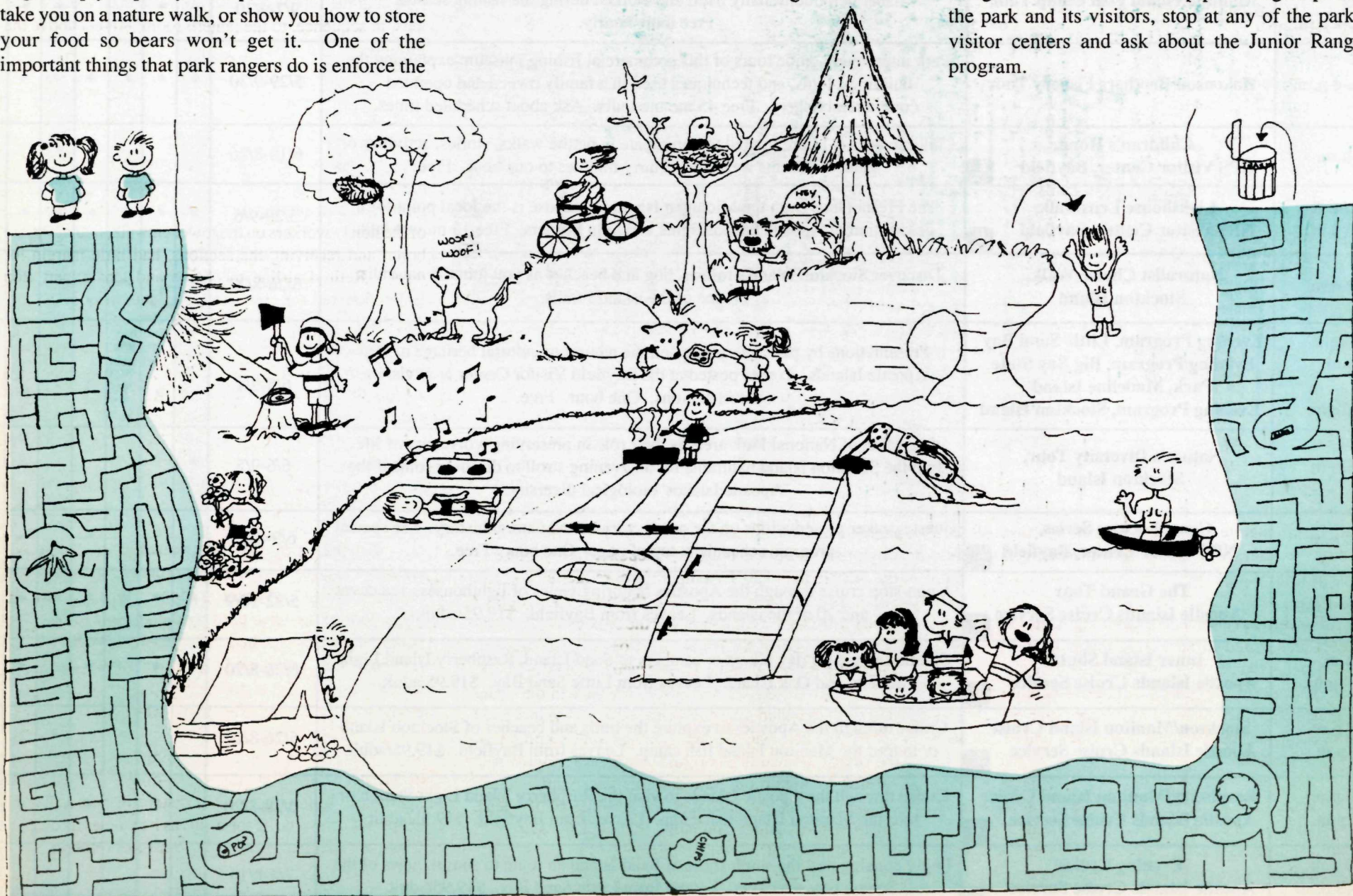
Park rangers at Apostle Islands National Lakeshore have a very important job. They help people have a safe, enjoyable visit to the park and protect the resources (plants, animals, and historic sites) that make the Apostle Islands a special place. There are many ways that rangers do this job. They might help you plan your trip, administer first aid, take you on a nature walk, or show you how to store your food so bears won't get it. One of the important things that park rangers do is enforce the

rules that visitors must follow to protect the park and themselves.

There are several things you can do to help the rangers do their job. First, learn about the rules at Apostle Islands National Lakeshore. Take a close look at all the activities in the drawing. Circle the

activities that are unsafe or damaging park resources. These are the ones that are not allowed. Then, help the little girl and boy find their way through the maze to pick up the litter and put it in the trash can.

If you would like to become an official "Junior Ranger" and do more to help park rangers protect the park and its visitors, stop at any of the park's visitor centers and ask about the Junior Ranger program.



A DEVILS ISLAND HOMECOMING

A homecoming occurred on Devils Island last fall when a marine jewel was returned to its protective watch tower overlooking the waters of western Lake Superior. The gem, a repaired lighthouse lens, was hoisted back up to the lantern atop the Devils Island lighthouse for viewing by future visitors.

The story of this lens' evolution began long ago. After centuries of navigating with the guidance of bonfires and unreliable lamps, mariners were still straining to see the flickering flames of 19th century lighthouses and pleading for brighter lights. Their pleas were answered in 1822 when French engineer Augustin Fresnel devised the now-famous Fresnel (pronounced fray-nell) lens.



Ranger Phil Mackie reglazes the prisms to help stabilize one section of the Devils Island lens. Mackie assisted National Park Service glass conservator Greg Byrne in efforts to repair the 91-year old lens.

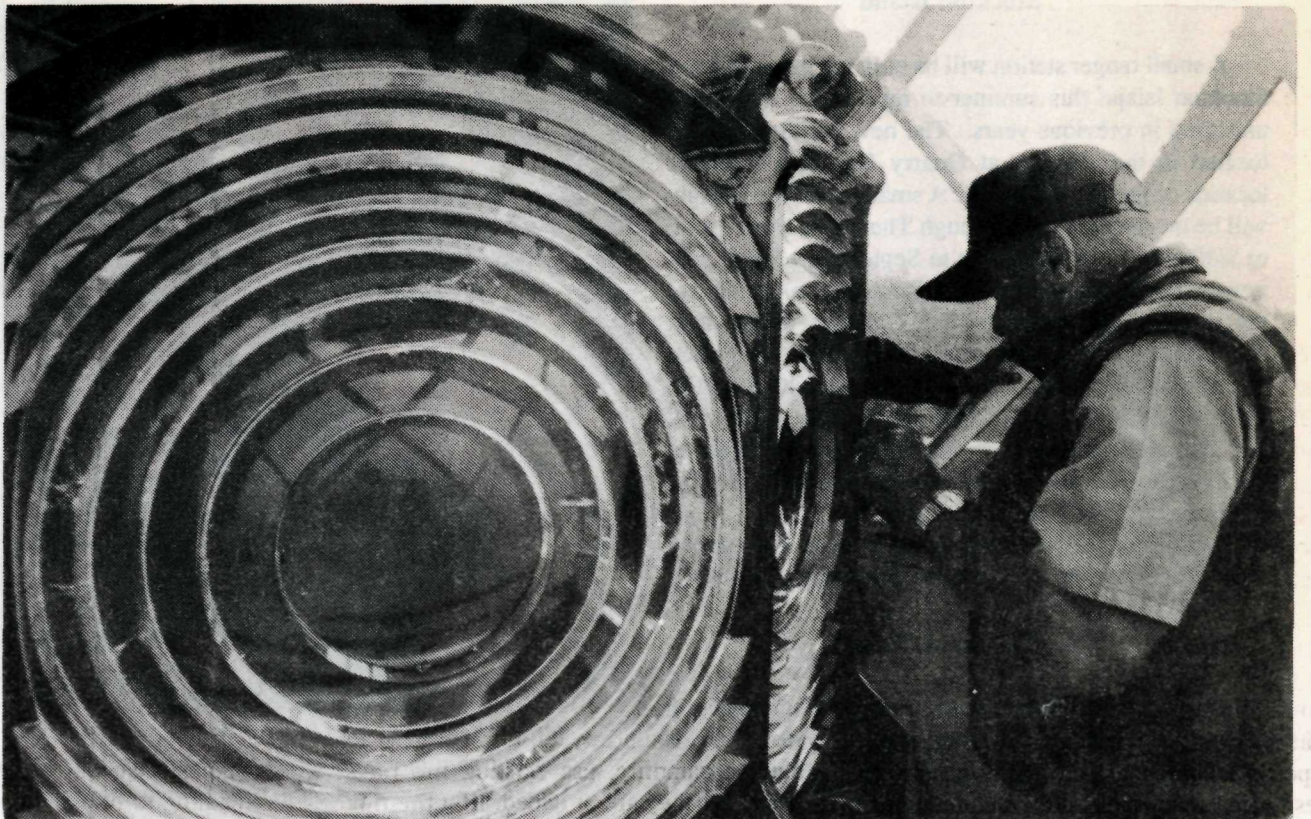
Resembling a giant glass and brass beehive, the Fresnel lens consisted of a series of glass "bull's-eyes" - round magnifying lenses encircled by concentric rings of prisms. The ingenious lens collected the light rays produced by whale-oil lamps, bent (refracted) them, and sent the concentrated beam across the water to waiting seamen. By 1860 the Fresnel lens, built by skilled craftsmen in and around Paris, was in use world-wide.

Such a device was first lit on Devils Island, the northernmost of Lake Superior's Apostle Islands, on the night of September 30, 1891. The light marked a critical turning point in the shipping lanes of Lake Superior. In 1901, a larger 3rd order lens, 40 inches in diameter and about 6 feet in height, was placed in service in the Devils Island tower. The lens was manufactured by the Paris firm of Henry LePaute. It flashed a red light and was visible for 22 miles.

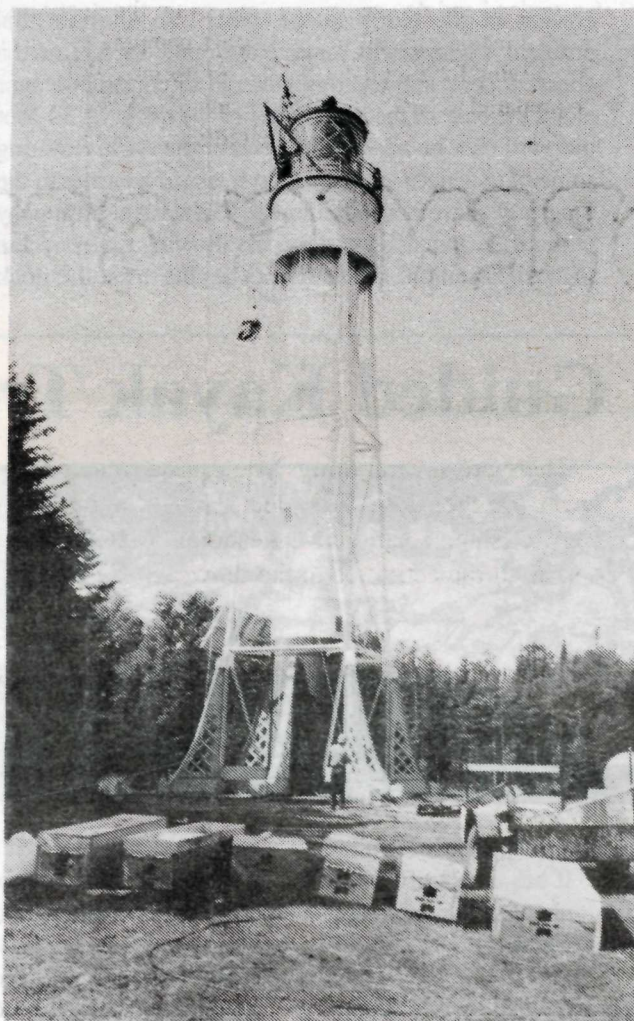
The Devils Island light flashed its red beam for nearly a century before surrendering to modernization in 1989. The venerable, but still functional, 3rd order lens was lowered from its tower and replaced by a small, modern solar-powered beacon. The beacon requires less energy and maintenance to perform its function of guiding the giant freighters and fast-increasing numbers of pleasure boats.

For three years the dismantled historic 3rd order Fresnel lens rested in protective crates in the Apostle Islands National Lakeshore's museum storage, awaiting repair. Two glass ring prisms had been shattered during the solarization move. A multitude of other chips and cracks in the lens bear witness to the wear and tear of 88 years of operation.

In July of 1992, physical stabilization and historic preservation of the lens began in Bayfield upon the arrival of Greg Byrne, an objects conservator with the National Park Service at Harpers Ferry, West Virginia.



Volunteer Bob Bolen came to Wisconsin from California to lend his expertise in reassembling the lens. He had previously worked with Fresnel lenses in several west coast lighthouses.



The crates housing sections of the Devils Island lens await their turn to be hoisted to the top of the tower.

An expert in glass, ceramics and stone, Mr. Byrne labored seven days a week for three weeks to repair the lens.

About a week was required to reassemble the jigsaw puzzle of glass fragments from the two broken ring prisms. Optical transparent epoxy, which tolerates the -40°F to +120°F temperature range of a Lake Superior lighthouse, was used in the tedious and critical process of mending and molding the broken lens. Where pieces fit together, the epoxy functioned as an adhesive. Fissures between glass fragments were filled by injecting the epoxy. Mr. Byrne enclosed larger gaps in the prism with a mold which was filled with epoxy. The hardened epoxy was then painstakingly shaved with a knife until the rings regained their original shape. Mr. Byrne was careful to repair only modern damage and historic damage that might endanger the stability of the lens. Much historic damage remains, as part of the story told by sparkling, but imperfect prisms.

Another stabilization procedure was the replacement of brittle and loose glaze between glass rings, and between glass prisms and their brass frames. The old putty, which was probably white lead and linseed oil, was replaced with vinyl spackle. After brass and glass were cleaned with alcohol and acetone, the repairs and preservation were complete. The eight sections comprising the lens, each about the size and weight of a person, were returned to their wood crates for the journey back to Devils Island.

On August 31, 1992, an Army National Guard Chinook helicopter gingerly set down in the patch of blueberry bushes near the Devils Island lighthouse tower. The helicopter's crew assisted National Park Service employees in carefully unloading the crates containing the lens and its heavy pedestal. A hoist system was rigged at the top of the tower to raise each piece of the lens, in sequence, to the lantern room, 80 feet above the ground.

For smooth raising of the heavy and delicate lens sections, a tractor was used to apply tension to the hoisting rope, while guy lines held by crew members kept the pieces from swinging on the ride up. Some of the metal sections of the lens pedestal weighed nearly 600 pounds. Maneuvering room was at a premium at the top of the hoist - workers on the tower catwalk, managing the boom and receiving the sections, had little margin for error! Retired airline mechanic and lens expert Bob Bolen directed the crew from the lantern room.

One by one, the pedestal pieces were reassembled, and late on September 1, the crew was ready to lift the first glass section of the lens. To protect all the careful repairs, the lens sections were raised in their crates. At the top of the tower, the crew pulled each glass and brass section out of its crate and signaled the tractor to lower the empty crate. The lens section was placed upright and secured to the pedestal with the original brass bolts.

Numbered by the Paris manufacturer, each lens section was raised in the proper order and bolted to both the pedestal and adjacent sections. Finally, only the glass door to the lens, used by the keepers to light and maintain the lantern, had to be placed. As Bob Bolen tightened the last brass bolt, smiles broke out in the lantern room and a radio call announced to the crew below that the Devils Island lens was home.

This summer, the first of many future generations of visitors will climb the stairs of the Devils Island lighthouse, following in the footsteps of generations of keepers, to view the historic lens as it resumes its original position of vigilance over western Lake Superior.

Updates

Stockton Island

A small ranger station will be built at Quarry Bay on Stockton Island this summer to replace the temporary unit used in previous years. The new building will be located in the clearing at Quarry Bay at the former location of group campsite B. A small construction crew will be on site Mondays through Thursdays from 7 a.m. to 5:30 p.m. from early May to September. Small gas-powered motors and other equipment may be operated at the site during working hours. Campers and boaters should take this construction schedule into account when planning visits to Quarry Bay. Group campsite B will be relocated away from the ranger station. The project will not alter the number of group campsites available at Quarry Bay. The trail to the Quarry will also be redirected to avoid the construction site.

At Presque Isle, the vault toilets at the visitor contact area adjacent to the dock will be finished by mid-June.

Cat Island Cabin

The small cabin near the south end of Cat Island will no longer be available for general use. Apostle Islands National Lakeshore's General Management Plan identifies Cat Island as one of the islands where no facilities will be developed. The cabin was constructed as, and remains available for, emergency shelter in the winter. An increase in casual use of the site in recent years has created a sanitation problem and had significant impacts on the area around the cabin. Closure of the cabin is in keeping with the goal of keeping Cat Island a destination for visitors seeking a challenging and primitive experience.

Michigan Island

After a one year delay, the dock alteration and erosion control project at Michigan Island light station



Researchers from the Univ. of Wisconsin - Stevens Point will continue their study of Apostle Islands black bears this year. For details see article on page 3

will occur this summer. The existing dock has caused sand to accumulate on its east side and accelerated erosion of the bluffs to the west. To alleviate this problem workers will remove the outer 75 feet of the concrete dock and use this material to construct a spur along the base of the bluffs west of the dock. A 30-foot pier will then be added to the end of the dock, restoring some of its length while making it less of a barrier to the longshore movement of sediment. The stairs and tramway will also be extended to the dock allowing easier access to the light station. Boats will not be able to use this dock

for most of the summer. Visitors should beach their boats on the sandspit or on the beach east of the dock.

Hokenson Brothers Fishery

Repairs will be made this spring to the Hokenson Brothers Fishery dock at Little Sand Bay. Work is scheduled to begin as soon as the dock is free of ice. The main affect of this project on park visitors will be that the herring shed will be closed to people touring the fishery complex through the end of June. Guided tours of the Hokenson Brothers Fishery will still be available beginning May 29, 1993.

Recycling

In 1992, a solid waste management program was implemented at Apostle Islands National Lakeshore. Long-term goals include minimizing environmental impact of park operations, educating the public on waste reduction issues, providing information-sharing sessions with community businesses, and managing the program in a cost-efficient manner. Because of the lakeshore's remoteness and a lack of local recycling firms, waste products generated at the lakeshore were previously hauled to a landfill. A review was conducted by lakeshore personnel to determine the sources and types of park waste. Means of reducing waste were identified and a small-scale recycling program was implemented. Newspapers, cardboard, and flat, high-quality paper are now collected and hauled 26 miles to Ashland, Wisconsin. The solid waste management plan is being evaluated to see how the program can be improved and expanded to include recycling on the islands. For now, visitors must still plan to pack out what they pack into the park, but should recycle as much of their waste as possible.

Naturalist Guided Kayak Trips Offered

Editor's Note: Ranger guided half-day kayak trips will be offered in 1993. Contact a ranger or call (715)779-3397 to find out days, times, rates, and availability of trips

When I was first assigned to be the kayaking park interpreter at Apostle Islands National Lakeshore, the chief said, "I want you to look like a ranger from the waist up." I kept my uniform shirt on but traded my dress pants and cordovan office shoes for a pair of gym shorts and beat up tennies. Then I headed out to meet my small flock of sea kayakers. I was looking forward to the half-day trip not only because it would get me out on the lake, but because it was an exciting way for visitors to experience the national lakeshore's natural and historic features.

We rendezvoused at the old Booth Cooperage where Trek and Trail outfitters stores their kayaking equipment. Trek and Trail has provided professionally led kayak tours of the Apostles for several years. Inviting a park ranger along to interpret the tour is a new option being offered on an experimental basis. As I walked through Bayfield to the Cooperage I wondered what to expect. Would the kayakers be young or old? Outdoorsy types or city dwellers? Expert birders, botanists, geologists and kayakers or just regular people looking for a fun afternoon? The answer was.....Yes! This is a trip which attracts a wide variety of visitors.

When I introduced myself to my fellow kayakers, I noticed a mixture of quiet confidence and controlled panic in their eyes. I did my best to lighten the mood as we loaded up for the drive out to Little Sand Bay. Little Sand Bay is part of the mainland



unit of the national lakeshore just 13 miles north of Bayfield. It has a beautiful sand beach where we unloaded our gear and prepared for the adventure.

We could not have had a more perfect day to venture out onto Lake Superior. The waves were calm and the temperature was a balmy 80 degrees. We gathered around the guide from Trek and Trail for a short class on basic kayak safety. He covered topics such as paddling techniques, getting into and out of the kayak, and how to exit the kayak if it capsizes. Then I gave the visitors a short introduction to Apostle Islands National Lakeshore and explained we would be making a three hour round trip to the mouth of the Sand River. With that accomplished, we all slipped into our kayaks like seasoned pros and floated away from the beach.

We paddled slowly around the end of the dock complex, using the time to become familiar with paddling techniques and being in a kayak. We cruised past the historic Hokenson Brother's Fishery and looked at the old ice house, fish tug, and herring shed that Eskel, Roy and Leo Hokenson used from the 1920s to the 1960s in their commercial fishing operation. We paddled with increasing confidence west along the shoreline, watching beach turn to boulder,

and boulder to bluff. It almost seemed we were slowly being transported back in time. Someone remarked that now they knew why people loved to kayak.....it was as close to swimming as you could get without getting wet. Half in and half out of the water, yet we were bonded to both.

By human standards the shoreline we were passing was unchanging, but by geologic standards everything was in a state of flux. Massive boulders, some the size of elephants lay in the clear water at the base of the bluff. I could almost hear the trumpet-like roar from centuries before as they lost their grip on land and slammed into the lake. Huge white pines, birch and hemlocks stood watch on the top of the bluff like drunken sentinels unsuccessfully guarding the edge of the forest. An ongoing procession of change was visible as we paddled along. Smooth rock to lichen, lichen to mosses, mosses to shrubs, and shrubs to trees. I could feel myself changing because of it.

At the mouth of the Sand River lies an incredible juxtaposition of habitat types. Visitors have the opportunity to explore northern hardwood forest, bog, beach, and river habitats. Sand, stockpiled long ago by glaciers, is cut out of the surrounding

bluffs by the river and carried to the lake where it slowly fills the channel between the shore and Sand Island. It is easy to see how the river and island got their names.

It took us about an hour to paddle the 2 miles of shoreline leading to the Sand River. As we entered the river mouth, silence seemed to suddenly crush my ears. Until now I had not realized how noisy it had been on the lake. We began to see other differences as we progressed further up the braided channels of the river. Shoreline and dune vegetation abruptly ended, giving way to the plants more characteristic of wetlands such as sedges and willows.

Mosquitos celebrated our arrival by stopping for an unplanned early dinner. Flies buzzed lazily around our heads. Up ahead we spotted movement in the stunted trees lining the river bank. Upon closer investigation we discovered cedar waxwings zig-zagging from tree to tree, working hard to help reduce the insect populations.

We paddled as far up the river as time and mother nature would allow. When the river banks closed in, we reluctantly turned the kayaks around and paddled downstream, back to the lake and to Little Sand Bay where our present lives awaited.