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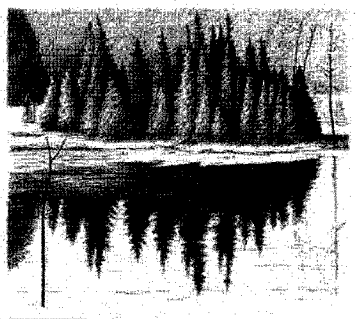


Joyce Koskenmaki

U.P. Environment

UPPER PENINSULA ENVIRONMENTAL COALITION

What's It Worth? Valuing Natural Resources

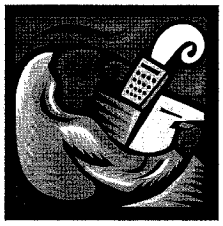
By Karin Steffens

Ed. Note: In our Spring 2003 newsletter, Karin Steffens described the problems associated with land protection status, specifically the difficulty of deciding which areas to protect and how much land to set aside under protected status. This article explores the methods that environmental economists and others use to assign a monetary value to natural resources.

Introduction

Everyone will likely agree that nature and natural areas are valuable. Natural resource extraction is what allows us to fuel our cars with gasoline, to eat a whitefish dinner, and to build a timber-framed home. Many of us also value the natural environment for outdoor recreation activities such as hiking, camping, and birdwatching.

Some members of the environmentalist community hold the view that we humans are destroying nature for purely economic reasons, i.e. greed.[1] Some go further and suggest that nature should be protected and natural areas preserved at all costs.[2] While a dichotomy between economic and ecologic interests exists, ecologists and economists are beginning to realize that there is a middle ground. For example, Lester Brown in his book, *Eco-Economy: Building an Economy for the Earth*, suggests that economics and ecology need to be integrated for sustainable economic development.



Thus, while some people claim that valuation of nature is impossible

(Continued on page 7)

UPEC Donates $1,000 for Wildlife Sanctuary

UPEC has generously donated $1,000 in memory of Dr. Robert T. Brown towards the purchase of 80 acres in the Keweenaw to be added to the existing Michigan Audubon Society Lake Bailey Wildlife Sanctuary. The property is near the southeast corner of Lake Bailey, near Eagle Harbor, almost directly below Lookout Mountain. It expands the sanctuary to 405 contiguous acres.

The property is stewarded by Copper Country Audubon (CCA). Dr. Brown was a founding and long-time member of both UPEC and CCA. Dana Richter, President of CCA, gave a slide presentation to the UPEC Annual Meeting in May to appeal for the funds.

The sanctuary is home to the beautiful, state-endangered, yellow-flowered heart-leaved

(Continued on page 3)

Inside this issue:

UPEC Action...

- *UPEC Donates to Wildlife Sanctuary in Honor of Bob Brown*
- *UPEC Sponsors Middle School Students at Lake Superior Youth Symposium*
- *UPEC Recruits Volunteers to Maintain Section of North Country Trail*

Newsletter Editor: Suzanne Van Dam

About UPEC...

The Upper Peninsula Environmental Coalition has a 27-year track record of protecting and seeking to maintain the unique environmental qualities of the U.P. through public education and watchful monitoring of industry and government. UPEC seeks common ground with diverse individuals and organizations, in order to promote sound planning and management decisions for all the region's natural resources. The *Upper Peninsula Environment* is published four times per year. Contributions and correspondence should be sent to: P.O. Box 673, Houghton, MI 49931 or e-mailed to: svandam@chartermi.net.

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UPEC Says Goodbye to Former Board Members

Two outstanding board members have recently left the U.P. and the UPEC Board to pursue careers in Montana. Long-time board member Greg Kudray left the area this spring for a job as staff ecologist for the Montana Natural Features Inventory Program. Greg was a regular contributor to the UPEC newsletter and provided expertise in forestry and forest ecology, lending much-appreciated energy to our Board. We will miss his frank and lively dialogue.

Sandra Harting will be leaving the area to pursue a teaching/researching opportunity in her field at Montana State University. Sandra was active in many local peace groups and environmental organizations. As a UPEC Board member, Sandra offered expertise on Great Lakes ecosystems and water quality as well as the reclamation of the White Pine Mine. We wish them both well in their new endeavors in Montana!

UPEC Board Election Results

Thanks to all the members who voted in our annual elections. With overwhelming support, the following board members have been elected for the 2003-2005 term:

President: Jon Saari
Vice President: Bill Malmsten
Treasurer/Secretary: Friederike Greuer

Board Members At Large:
Dave Allen
Karen Bacula
Connie Julien
Karin Steffens
Doug Welker
Marcel Potvin

(Sandra Harting was elected but has resigned; see above article)

Send a Letter to Your Legislators

Senator Carl Levin
U. S. Senate 269 Russell Senate Bldg.
Washington, DC 20510
Phone: (202) 224-6221
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senator@levin.senate.gov

Senator Debbie Stabenow
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Washington, DC 20510
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2348 Rayburn Office Bldg.
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Phone: (202) 225-4735
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Stupak@mail.house.gov

Gov. Jenifer Granholm
Northern Michigan Office
1504 West Washington, Suite B
Marquette, MI 49855
(906) 228-2850

State Senator Mike Prusi
State Capitol, P.O. Box 30036
Lansing, MI 48909
(866) 305-2038

State Senator Jason Allen
State Capitol, P.O. Box 30036
Lansing, MI 48909
(517) 373-2413

All State Representatives at:
State Capitol, P.O. Box 30014
Lansing, MI 48909

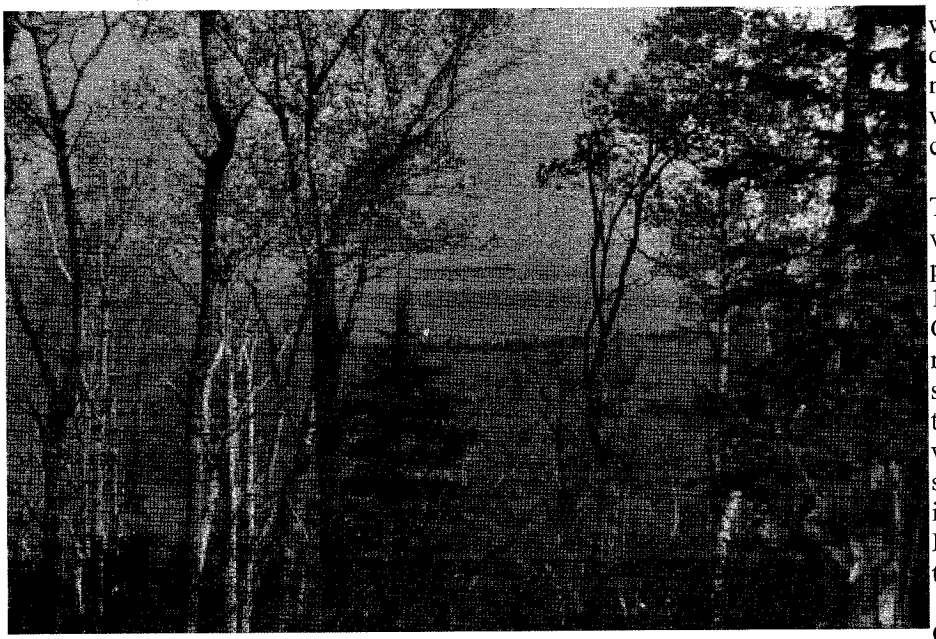
Rep. Scott Shackleton :(517) 373-2629

Rep. Tom Casperson: (517) 373-0156

Rep. Stephen Adamini: (517) 373-0498

Rep. Richard Brown: (888) 663-4031

UPEC Donates to Wildlife Sanctuary



View to the north of Lake Superior from about half-way up the slope of the Lake Bailey Wildlife Sanctuary.

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arnica, found only in Keweenaw County in Michigan. Over 250 species of plants have been catalogued in the sanctuary, including several species of orchids and several other rare and threatened plants. In the spring, the forest floor is literally covered by beautiful and delicate twinflowers and fringed polygalas, while in the woods one can hear warblers, thrushes, vireos, and sometimes the elusive winter-wren. In some places the forest is so impenetrable that only a bird can get in! The land is ideally suited for protection of bird habitat, wildlife and natural plant communities. This is the type of habitat that plant ecologist Dr. Brown loved and knew well.

The total cost of the 80-acre addition was nearly $55,000, and a total of $4,000 was donated in memory of Dr. Brown. Individual UPEC members also made significant donations, for which Copper Country and Michigan Audubon are so grateful. The seller of the property, the Keweenaw Land Association, was very accommodating, agreeing from the beginning that the best use for the property was for a nature sanctuary. The deal was closed in early June.

The sanctuary is entirely unroaded and will be kept that way. The additional property touches corners with the big 1,550 acre purchase that The Nature Conservancy just made in the area surrounding Lookout Mountain. Last year a sign was placed on Hwy M-26 just past the Lake Bailey public access, and a walking trail constructed back to the south ridge, a mile from the highway. It is a nice hike, with beautiful views of Lake Superior to the north as you climb the ridge.

Copper Country Audubon invites all UPEC members to enjoy this trail and sanctuary when you are in the area.

For more information about Dr. Brown, in whose memory this donation was made, please see UPEC's tribute to him in the article, "UPEC Remembers Bob Brown: Educator, Activist, Visionary" in the Aug-October 2002 newsletter.

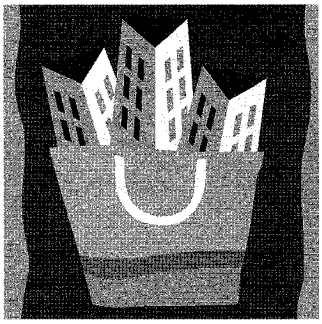
Dana Richter is a forest pathologist and research scientist at Michigan Tech. He is also the President of the Copper Country Audubon, a former UPEC board member, and an organic gardener extraordinaire!

Help Preserve the Wildlife Sanctuary! Send Donations To:
Copper Country Audubon
P.O. Box 124
Houghton, MI 49931.

Copper Country Audubon is a non-profit 501c3 tax exempt organization. Questions maybe directed to:
Dana Richter, C. C. Audubon President
(906-487-2149, dlrichte@mtu.edu

More Wal-Mart Wet-Land Tales

By Alex Mayer



Don't it always seem to go that you don't know what you've got till it's gone...

In the last issue of the UPEC newsletter, Jim Mihelcic reported on the destruction of wetlands and failure of Michigan's wetland mitigation policy in connection with the construction of a Wal-Mart in Houghton in the early 90's. Now, flash forward to the present: Wal-Mart plans to build a Supercenter in the Houghton area. Wal-Mart's latest plan would involve constructing the Supercenter on the site of the existing Wal-Mart. This plan, which would increase the store size from 98,000 to 190,000 square feet, would result in the destruction of a further 5.5 acres of forested wetland and the re-routing of almost a thousand feet of a creek connected to the wetlands. Most of the destroyed wetlands would be paved and used for a parking lot (echoes of a well-known Joni Mitchell song...).

Wal-Mart and the City of Houghton propose to mitigate the wetlands destruction by creating 11 acres of wetlands in a site owned by the City. These plans were submitted as part of a wetland permit application to the Michigan Department of Environmental Quality (DEQ). The permit was submitted by the City of Houghton's City Manager, Scott MacInnes, on March 20 and a public hearing associated with the wetlands application was held July 8.

A first reaction, considering the wetlands mitigation debacle associated with the construction of the original Houghton Wal-Mart, would be to emphatically demand "No More!" However, the situation is not so simple.

Wal-Mart had originally planned to abandon the original building and construct the new Supercenter in an undeveloped area south of the Houghton city limits, in Portage Township. Difficulties associated with this plan led Wal-Mart to reconsider building on the old site; hence the application to destroy more wetlands at the old site. But, now that Wal-Mart has encountered resistance to the plan to expand at the old site, they are framing the situation as a choice between two super-sized evils: build a brand new Supercenter in an undisturbed area and abandon the old building versus expand the existing Wal-Mart and destroy more wetlands.

At the July 8 public hearing, many views were heard, including those from citizens living in the township encompassing the potential new site. These good folks were against destroying wetlands primarily on the grounds that building in new site would be better economically for their township.

> ***A first reaction [to the expansion and wetlands permit] would be to emphatically demand 'No More!' However, the situation is not so simple.***

On the other side, City of Houghton citizens suggested alternatives for Wal-Mart's expansion plans on the existing site: re-orient the new building and build the new parking facilities on adjacent land that has been previously cleared of vegetation by one of Houghton's ubiquitous developers. Further, citizens asked Wal-Mart to consider reducing the size of the parking lot and the building itself. The upshot of these alternatives would be to save 5 out of the 5.5 acres of wetlands.

The consulting engineers representing Wal-Mart at the hearing agreed to consider these suggestions, but were not optimistic, saying that Wal-Mart does not want to make its customers walk lengthy car-to-front door distances. It remains to be seen whether these walking distances would be excessive (especially when compared to the distance a customer may have to walk from the lunchmeat- aisle to the plastic furnishings- aisle within a Supercenter) or whether these walking distances would be required only on the busiest purchasing days of the year.

Over the next month or so, these issues will play out, one way or the other. The period for public comment on the wetlands permit, has been extended until August 17, and continued dialogue with Wal-Mart and the City of Houghton may provide us an opportunity to make a difference. We must do our best to have Wal-Mart, the City of Houghton, and the Michigan DEQ consider the dismal performance of the "mitigated" wetlands involved in the construction of the original Wal-Mart and to recognize the ecologic uncertainty inherent in replacing high-quality wetlands with engineered wetlands.

And yet, we must also recognize the threat of Wal-Mart completely pulling out of the old site, leaving Houghton with an abandoned, 98,000 square foot building and accompanying parking lot, and erecting a new, 180,000 square foot box plus parking lot in an area that has heretofore escaped unsightly commercial sprawl. Fast food chains and other retail stores would likely relocate in this zone, ultimately destroying more habitat than the original proposal.

Alex Mayer is a resident of Houghton and a professor of geological and environmental engineering at Michigan Tech.

Ed. Note: Since the submission of this article, the City of Houghton has revised its permit application. Plans still include building into the wetlands, but the major change is to relocate the mitigated wetlands to a new area, the area surrounding the Huron Damn.

Volunteers Needed!
Help UPEC Maintain Our Section of the North Country Trail

A number of years ago, UPEC adopted a four-mile section of the North Country National Scenic Trail south of Alston, from the Sturgeon River west to the junction of South Laird Road and Ottawa National Forest Road 1360. Since then, UPEC has not done adequate maintenance on that section of trail.

This fall, let's change that by spending a day in the woods doing much-needed lopping, sawing, and other tasks. A date for this workday has not been set yet, but it will probably take place before our next issue of the UP Environment comes out in late fall. Please let me know if you are interested by e-mailing me at dwelker@up.net or calling: (906) 338-2680. I will let those who contact me know the date once it is set.

Let's show that UPEC can do real on-the-ground activities in support of environmentally-friendly projects such as this non-motorized hiking trail! If there is not sufficient interest in this workday, I will assume that UPEC no longer is interested in adopting this trail.

Doug Welker is active on the UPEC Board and the Peter Wolfe Chapter of the North Country Trail Association

Wild Game Farms: Topic of UPEC's Annual Meeting

By Suzanne Van Dam

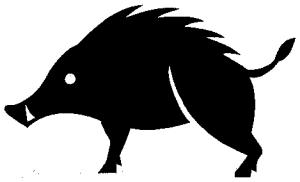
Rob Aho, a wildlife biologist from the DNR, was UPEC's guest speaker at our annual meeting this May. He gave an overview of wild game farms, (more formally known as captive cervid facilities), explaining government containment policies and the potential risks that these non-native animals may pose to native species when they escape or co-mingle. He outlined four major risks of escaped animals including: 1) potential to spread debilitating disease; 2) potential to modify the natural gene pool; 3) potential for ecological destruction; and 4) potential risk to humans.

According to Aho, non-native deer and elk species kept in penned "game farms" may carry various diseases ranging from Bovine Tuberculosis, paratuberculosis (a digestive tract problem), and liver parasites, to the well-known chronic wasting disease (CWD). Chronic wasting disease is caused by a renegade protein that causes animals to become excessively thin; they lose their sense of balance, suffer from extreme thirst, and eventually die from the disease. A disease like CWD naturally curbs itself in the wild, but with the rapid and widespread marketing and distribution of game animals (one facility alone sold deer to 24 states and 2 foreign countries), the disease can proliferate much more quickly, infecting wild herds of deer that otherwise would not naturally have been exposed to the disease.

Escaped exotics may alter the natural genetic code in several ways: a) the artificial selection practices breeders use may result in reduced genetic variation, inbreeding, and greater genetic drift; b) escaped animals may mate with wild animals and cause dilution of the genetic stock; c) the altered genes may reduce the (now) wild animal's fitness for naturally occurring challenges in the physical environment. For example, interbreeding between domestic and wild animals may alter the timing of the births—and when animals are born too late in the summer, they are not sufficiently mature enough to endure the harsh U.P. winter, as they would within their natural birthing cycle.

In addition to impacting the local fauna, escaped non-native species can impact the local flora as well. Boars seemed particularly destructive; as omnivores they have voracious appetites and uproot many plants as they dig trenches and forage in the woods. Wild hog also can decrease bird and turtle population through nest predation and direct predation of ground-nesting birds and small animals.

The threat to humans is relatively minimal, although as Aho said, a mature male Russian Boar can weigh over 400 lbs., and that can be intimidating. Additionally, escaped domesticated animals can become a nuisance or safety threat when they become overly habituated to humans. Finally, when an animal tests positive for an infectious disease such as chronic wasting or TB, all susceptible livestock in the area have to be eradicated by law, and society pays for the reimbursement.

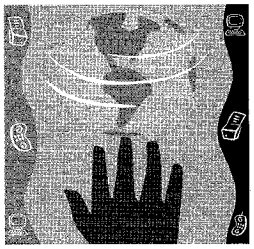


When asked specifically about the wild hogs on Pointe Abbaye, Aho explained that the Animal Industry Act defines boars as domestic swine, and owners do not need any special permit to have one—or seventy inside a fenced area. The problems on Pt. Abbaye seem to be under control, as the owner decided to shoot all boar inside his fence and in the surrounding area, and the Baraga Prosecuting Attorney advised that landowners could shoot the trespassing boars if they felt threatened or intimidated.

For more information, click on: Biological and Social Issues Related to Confinement of Wild Ungulates at www.wildlife.org.

U.P. Conservation Club Forms, Seeks UPEC Support

By Tod Poirier



The Upper Peninsula Conservation Club (UPCC) is a new non-profit organization that is being created to protect Michigan's Upper Peninsula.

UPCC will publish a newsletter, *The Leshiye* (the Leshiye was a Russian wood spirit that was "the voice of the wind") that will act as a watchdog and educator for the people of Upper Michigan. The mission statement of UPCC is: *To preserve the land, heritage, ecology and way-of-life of Upper Michigan through education, restoration and preservation.*

The traditional Yooper has typically been raised to view our environment as a given, something that will always be around, and not a resource that needs to be protected. As a Yooper myself I have recently realized how fragile our way of life here is. We need to implement common-sense strategies to protect our environment, taking into account the population increase, the widespread use of recreational vehicles, and other environment-damaging variables. Government policy on all levels also needs to be watched. Silver Lake Basin north of Ishpeming was recently targeted for development by Champion Township in an attempt to increase their tax base. Their idea was to rezone the lake from 40-acre Timber Producing parcels to 2-acre Recreational parcels, meaning the lake could be developed. Anyone who's been to Silver Lake knows what a tragic move this would have been. UPCC will be follow Township, County, State and Federal policies to help let the public know what's being planned and how it impacts us.

UPCC will primarily be a source of information for people rather than an action based organization. It will act as a middle-man between environmental organizations and the average citizen, making the public aware of organizations, projects and other actions done for the environment and the U.P. The *Leshiye* will be free to the public throughout the area at stores and public places, subject to funding sources.

The Leshiye will also provide common sense articles on how environmental awareness can be applied in daily life, offering concrete suggestions to improve the environment and our relationship to it, and articles on the U.P.'s heritage and traditional way-of-life.

UPCC will also organize a U.P. Brook Trout Association which will consist of a dedicated group of fishermen working together to improve stream habitat to promote the natural reproduction and to restore streams that have been damaged by logging, roads, etc.

Legal paperwork is being filed with the State to make UPCC a non-profit organization and a sample newsletter is being developed. I am looking for people willing to help collect information from Township and County governments and also people willing to write articles or offer help in any other way.

For More Information visit the UPCC website at: http://www.geocities.com/yoopercc, e-mail us at: yoopercc@yahoo.com or contact Tod Poirier at 906-485-5703.

Ed Note: At UPEC's annual board meeting, Tod Poirier presented the goals of his new organization and asked UPEC to help get the word out about it. UPEC looks forward to working with him on this endeavor.

Open Pit Mines in the U.P.?
Residents Concerned About Drilling & Exploration

Local residents gathered in Big Bay to express concerns about the current drilling and exploration of nickel and copper in the Yellow Dog Plains.

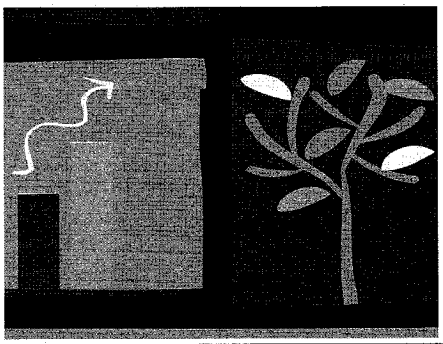
According to TV Channel 6, the Kennecot Exploration Company has been looking in the area since 1994 and now says it has discovered a deposit. The Michigan Department of Environmental Quality has stated that Kennecot is currently just taking rock samples and analyzing them.

Concerned resident Cynthia Pryor says, "That area in particular is a huge network of watershed sources. The Dead River starts there, the Huron River starts there, the Yellow Dog, the Salmon Trout, the Mulligan."

Several UPEC members have expressed concern about this issue as well, and are hoping that land owners of the Huron Mountain Club become involved in the debate. The entire Yellow Dog watershed could be adversely impacted by large open pit mines.

Mining and exploration will be a topic of the next UPEC board meeting. If you are interested in getting involved in this issue,

What's it Worth?



Economic valuation allows us to directly balance the costs of preserving the environment, (what we have to give up if the area is developed), against the benefits of protecting the environment.

(Continued from page 1)

because nature is invaluable, there are also those who lament the fact that nature often loses out when communities vote to attract businesses (rather than preserve open spaces) because businesses directly increase the tax base and create jobs. The development option immediately boosts a community's ability to provide services for their citizens. It would be nice to have a community park, but is it worth the X million dollars that would be lost in annual property taxes if condominiums were built instead? Unless we can say with some certainty that the park would be worth at least X million dollars to the citizens, more likely than not the condominiums will be built. While the development alternative can be quantified in monetary terms, the land-use alternative that would keep an area natural typically cannot.

Some skepticism about economic, i.e. monetary, valuation of such things as nature preservation, human health, and clean air, is justified. But more often than not, the trade-offs that underlie these measurements cannot be avoided. We as a society must decide how to allocate valuable resources and that involves trade-offs.

Information Gathering

For the most part, communities rely on citizen input to determine the value of alternative land-use options. Usually, only those citizens will speak out who feel strongly, either in favor of or against, a particular project that is being proposed. That means that the values of a large number of citizens may not be represented through these public hearings.

What economic valuation allows us to do is to directly balance the costs of preserving the environment, (what we have to give up if the area is developed), against the benefits of protecting the environment. In the last 20 to 30 years, valuation of natural resources has made great strides. Nevertheless, current valuation methods are not without their limitations. The more we understand about the different valuation options and their limitations, the better our decision-making ability will be.

We as a society must decide how to allocate valuable resources, and that involves trade-offs.

Valuation Methods Overview[3]

The basic problem involving valuation of natural resources is that while we can buy milk, which we value, we cannot go out and buy a hike in a pristine forest environment. A market for consumer products exists but there is no market for environmental goods such as clean air, clean water, and biodiversity. Therefore, consumer products have prices which reflect how much we value them given their availability, while environmental goods have no prices and we generally are able to use them free of charge.

Environmental goods differ from consumer goods in two respects, 1) they can usually be enjoyed by more than one person at once and 2) no one can (reasonably) keep us from enjoying them. For example, while you cannot eat the apple I am eating, you and I can both take a stroll in the national forest and no one can keep us from hiking in the forest. The apple gets used up in the process of consumption/use while the forest is available for an unlimited number of repeated hikes. Because there is no price as an indicator of value for environmental goods, different valuation methods were developed that allow us to observe people's behavior and derive a value indirectly or to ask people directly about their willingness to pay (WTP) and derive a value based on their answers.

Environmental economists distinguish between different types of values[4]: use values and non-use values. We may value a forest environment because we like to hike or bike through the forest. These are examples of use values.

On the other hand, even though we may never go there, we may give to a fund to save the rain forest because we value its existence. This is a non-use value. Non-use values are subdivided into existence value (the rainforest example), bequest value, option value, and quasi-option value. When we value a resource because we want future generations to be able to enjoy them, we are dealing with bequest value. Option value refers to the value of a national park, for example, that we may want to visit sometime in the future. Since we can only visit the park if it still exists, we may be willing to pay to make sure it will still be there when we want to visit it in the future. Quasi-option value refers to values we have for gathering information about the potential value of a natural resource. An example is the rainforest with its high degree of biodiversity which we may want to protect because it may contain plants that could potentially contain substances that in the future will turn out to be able to cure diseases.

The methods that are currently avail-

(Continued on page 8)

What's It Worth?

(Continued from page 7)
able to value environmental benefits are either direct methods (market prices, simulated markets, and contingent valuation method) or indirect methods(travel cost model, hedonic price studies, contingent ranking, and avoidance expenditures). Some of these methods are based on observation of human behavior and others are based on hypothetical scenarios presented to people for evaluation.

Market Prices

An example of direct evaluation of a natural resource using market prices would be if we calculated the decline in fish catch (measured in pounds by species) due to the oil spill of the Exxon Valdez and multiplied it by the price of the fish. This would give us the use value of the fish resources lost by the accident. It does not provide us with the total value of the entire natural resource, however, because it does not measure non-use values of the fish and it only measures the value of one type of the environmental resources that were lost. This approach is of limited usefulness because it requires that the evaluated goods are available in the market.

To determine the market value of a protected area in the UP, we could look at what a similar parcel of land is selling for in the market. We may argue that the market price does not capture the full value of the protected area because it does not capture all or the most important characteristics of the protected area. For example, when land is purchased by private individuals, it is not usually available to the public for recreational opportunities and therefore the recreational value to the public is not incorporated into the market price.

Simulated Markets

In a simulated market setting, the researcher sets up a market situation in an experimental setting and participants are able to buy and sell in this "artificial" market. This approach works well for consumer goods, but because environmental goods are often characterized by their ability to be shared among several people at once and access to them cannot be restricted, simulated markets are more difficult to set up in these cases. People do not have experience with markets for environmental goods because typically none exist. Therefore, simulated markets for environmental goods must be set up carefully for participants in these experiments to be able to make reasonable trade-offs.

Contingent Valuation Method

The contingent valuation method determines values for natural resources directly. The method is survey-based and describes a scenario to be evaluated by survey respondents. In the fishing example, the relevant fishing area would be described including geographic information on the fishing territory, the types and numbers of fish that are present, and information on fish catch. Respondents would then be asked how much they would be willing to pay (maximum) to keep the fish population, and hence the fish catch, from declining to a certain, specified level. Let's suppose the hypothetical scenario suggests that fish catch goes down to 0 as a result of some policy change (or accident). If a commercial fishing operation expected, under current circumstances, to have net revenue of $150,000, then they would at most be willing to pay $150,000 to keep the fish catch from going down to 0. Of course, they would rather not have to spend that money and in the case of an oil spill, they would expect to be compensated at least that amount if they are unable to catch fish. The contingent valuation method, if carefully designed, can estimate resource values when market prices are not available. This will be the case when non-use values are to be estimated.

The basic problem involving valuation of natural resources is that while we can buy milk, which we value, we cannot buy a hike in a pristine forest environment.

A problem with the contingent valuation method is that the willingness-to-pay measure is based on hypothetical scenarios. If people had to make a real payment, would they truly pay what they said they would pay? Studies have shown that stated willingness to pay diverges from actual payments people are willing to make but these differences are not always significant. Respondents are often asked to come up with values for things they never had to pay for in the past. Since there is no prior history of having to make monetary trade-offs, how reliable are willingness-to-pay responses? Since respondents will not actually be asked to pay what they reveal as their willingness to pay, the possibility of survey respondents misstating their willingness-to-pay has also been identified as a source of error.

Biased results may also come about because of respondents' lack of information about an issue they are asked to evaluate. In surveys where the researcher already provides a value to accept or reject or a range of values to choose from, respondents may be unduly influenced by the value(s) given. Careful survey design can substantially reduce many of these sources of error.

Contingent valuation studies have been used to determine values of resources lost as a result of the Exxon Valdez oil spill, benefits of preserving old-growth forests that provide habitat for the spotted owl, willingness to pay for increased visibility in urban areas and in the Grand Canyon, and benefits of outdoor recreation opportunities.

A contingent valuation study of a protected area in the UP would involve pre-survey work to determine the types of values associated with the protected area. Based on the pre-survey results, a

(Continued on page 9)

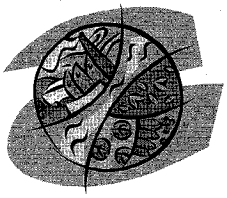
What's It Worth?

(Continued from page 8)
scenario would be developed to ask respondents how much they would be willing to pay, for example to keep the protected area rather than lose it. Statistical analysis would reveal mean (average) willingness to pay. The total value of the protected area can be derived by multiplying the result by the total population. It is also possible to evaluate changes in the degree or type of protection using this method.

A somewhat different model, the random-utility model (RUM), is able to elicit values for individual characteristics (or changes in characteristics) of a protected area rather than for the whole area or for a program or policy change in the area.

Hedonic studies

Hedonic studies have been used for the valuation of such issues as air quality in urban environments, morbidity and mortality, urban-suburban parks, and occupational risk. To illustrate how this method works in the context of protected areas, suppose there is a natural area in a suburban setting with private properties adjoining the natural area. People who are looking to buy a new home and who value natural areas would be willing to pay more for a property that is located near a natural area than for a property that is not. Part of the price people pay for property adjoining the natural area would reflect the value they attach to being near the natural area. Someone who values the natural area more than someone else would be willing to pay more for having property near it than someone else. Of course, there are many other factors that determine how much a person is willing to pay for property: proximity to shopping , attributes of the home itself, quality of the school district, etc. As long as we take all of the factors that matter into account, we can isolate the value people attribute to the proximity of the property to the natural area. This requires, however, a relatively large and diverse data set.

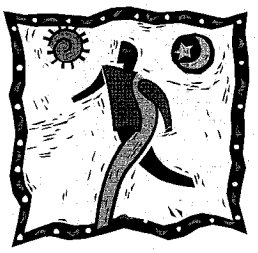


Hedonic studies have been conducted to estimate values for air quality, for example. Hedonic wage studies have been used extensively to determine values associated with occupational risks.

Travel Cost Method

The travel cost method has been used for recreation demand analysis. It is based on the fact that people would not travel to a site they do not value and the more they value a site the farther they would travel to get there. People that live farther away from sites must spend more time and money to get to the site. For example, many more people travel from far away to visit Yosemite National Park than Seney National Wildlife Refuge. This would indicate that the U.S. population values Yosemite more highly for recreational activities than Seney. Researchers estimate the value of the recreational experience at Yosemite National Park by treating the travel costs visitors incur as if they were a price for the recreational experience. Since park visitation is influenced by many other factors, such as what alternative sites are available, what other recreational experiences would visitors consider, income, and visitor characteristics, a large amount of data needs to be collected to isolate the value of the recreational experience.

There are several drawbacks associated with this method. Unlike the contingent valuation method, the travel-cost method can only capture use values. If the costs of travel to a site are used as an indicator, then not only direct expenditures for traveling, such as gas, should be included but the time necessary for travel must be valued as well. If somebody takes a week off from work to travel to Yosemite National Park, then wages are lost and this constitutes part of the cost of visiting the park. Attributing a value to the actual travel time is a major issue in travel cost modeling.



This problem becomes particularly difficult when on the way to visiting Yosemite the visitor stops to enjoy other American landmarks on the way. Not the entire travel time, or travel expenditure, for that matter, can be attributed to the visit of Yosemite National Park. Another practical problem is to specify alternative sites the visitor could have chosen. The set of alternative sites could be potentially very large, making analysis more difficult.

The travel cost method has been used to estimate such values as those for improvements in water quality at a site, changes in fishing quality, and beaches.

Avoidance Expenditures

Avoidance expenditures are also sometimes called averting costs or defensive expenditures. When homeowners along the freeway install protective walls along their property boundary or triple-pane windows to block out the traffic noise, the expenditures on soundproofing are an indirect measure of the value of a quiet home environment. Avoidance expenditures have been used, for example, to determine willingness to pay for avoidance of respiratory diseases and exposure to water contaminants. This method is not practical for measuring values associated with protected areas.

Contingent Ranking

This method asks respondents to rank scenarios characterized by different amounts of an environmental good. If the scenarios include monetary tradeoffs, this approach can be used to statistically derive willingness-to-pay esti-

(Continued on page 10)

What's It Worth?

(Continued from page 9)

mates for the environmental characteristic that is of interest. This method is similar to the contingent valuation method in that it is survey-based and shares many of the same drawbacks. Contingent ranking has been applied to studies of rural visibility, water quality, vehicle design, including electric cars, and others.

Contingent ranking could also be used to evaluate protected areas. A contingent ranking survey on UP protected areas would then describe scenarios that include, for example, different amounts of protected area in the UP to be ranked by respondents and a payment vehicle that requires different amounts of payment for the different amounts of protected area. Pre-survey work would be important to determine the type of payment vehicle, e.g. property taxes, entrance fee, donations to a fund, reasonable payment amounts, alternative amounts of protected area.

Conclusion

It must be borne in mind that each method introduced here has some drawbacks. When evaluating study results, careful attention must be paid to what values were intended to be captured. There is no method that can reliably capture all of the values associated with a particular issue. The measures derived from the application of any of the methods will not reflect the total value of a resource or policy change when it was only designed to capture a particular type of value, e.g. use value, and it is clear that other values, e.g. non-use values, are also relevant. For example, suppose a study is conducted to derive the value of a city park and homeowners are surveyed to state their willingness to pay an additional amount in property taxes to be able to use the park. The resulting value measure would only address use value because homeowners were asked their willingness to pay for the use of the park. If the question were worded differently and homeowners are asked their willingness to pay property taxes to fund the park, then respondents would be able to indicate willingness to pay for use and non-use of the park.

This example illustrates another issue. If only homeowners are surveyed, the measure of value that will be estimated in the study does not reveal the value of the park to the entire community because only a portion of the community was surveyed; non-homeowners' views would not be taken into consideration.

The contingent valuation method or contingent ranking (as well as the random utility model) are methods with wide applicability insofar as they are able to capture both use values and non-use values. As long as hypothetical scenarios can reasonably be developed to address a particular research question, value estimates for a policy or a resource characteristic can be derived. This is the reason why these methods are very popular in the valuation field. In cases where use values predominate, problems associated with the hypothetical nature of the contingent valuation method and contingent ranking can be avoided by using either the travel cost method or hedonic studies.

"Implementation of any of the valuation methods is not cheap...the question is whether gaining information about the value of natural resources is worth its cost."

A variety of valuation methods are relevant for UP protected areas. Whether or not the travel cost method is among them will depend on which population is the relevant one for the evaluation process and whether or not non-use values are important. We know that people from outside the UP value UP protected areas because of the large number of visitors who come here for recreational activities. If their values should count and if the values are mostly use values, the travel cost method is appropriate. If non-use values are also considered significant, the travel cost method must be rejected and a contingent valuation study, contingent ranking, or the random utility model considered. When individual characteristics of protected areas are to be evaluated separately, the random utility model must be chosen. If policy changes are to be derived, contingent valuation or contingent ranking are appropriate. In the case of total value estimation when non-use values are significant, the contingent valuation method is preferred.

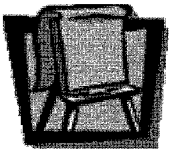
Finally, it must be pointed out that implementation of any of the valuation methods is not cheap. Surveys and other data-gathering efforts are expensive and time consuming. Again, a trade-off must be made about how scarce resources should be allocated. In this case, the question is whether gaining information about the value of natural resources is worth its cost.

Endnotes:

1. Chris Maser , for example suggests that "self-indulgent elements in the capitalistic system" are responsible for much of the global destruction of natural resources.
2. This issue was addressed in the last newsletter: something always has to be given up in order to get something else. If we want to preserve the natural environment, we must give up goods that could have been produced using these resources. People differ in their opinion of whether that trade-off is worth it or not.
3. The following exposition is based on: T. Tietenberg 2003. *Environmental and Natural Resource Economics*. Addison Wesley; B. Field. 1997. Environmental Economics. Irwin McGraw Hill; A.M. Freeman III. 1993. *The Measurement of Environmental and Resource Values. Theory and Methods*. Resources for the Future.
4. K.J. Arrow and A. Fisher. 1974. Environmental Preservation, Uncertainty and Irreversibility. *Quarterly Journal of Economics*, 89, 312-319. T. Tietenberg. 2003. *Environmental and Natural Resource Economics*. Addison Wesley.

Karin Steffins is a UPEC board member & professor of Economics at Northern Michigan University.

Artist-in-Residence At Isle Royale : A Call For Entries



Applications are being accepted for Isle Royale National Park's 2004 Artist-in-Residence Program.

This program is open to professional artists whose work can be inspired by the park's unique character. The program offers writers, composers, and all visual and performing artists the opportunity to capture the moods and magic of Isle Royale through their particular art form. Each residency is scheduled for two-to-three weeks.

Applications for the program must be postmarked by February 15. For further information or to receive an application package, contact Greg Blust at 906 482-0984 or write to:

Artist-in-Residence Program,
Isle Royale National Park
800 E. Lakeshore Dr.
Houghton, MI 49931

UPEC Member Linda Rulison Receives Heart and Hands of the Keweenaw Award

By Suzanne Van Dam

Linda Rulison, a long-timeUPEC member, middle school teacher and grass-roots organizer, has earned this year's 5th Annual Heart and Hands of the Keweenaw Award. The award was presented by Terry Kinzel on July 4th, 2003.

This award recognizes individuals who have made a significant impact on the Keweenaw in the areas of peace, justice, human needs, or environmental stewardship. Rulison was selected on the basis of her long-term commitment to protecting the environment and encouraging local residents to take an active role in community planning and preservation. As Terry Kinzel, a member of the award selection committee phrased it, Rulison has repeatedly demonstrated courage and tenacity in the face of environmental challenges, "pushing the envelope where others would retreat or withdraw."

Rulison is one of the founding members of FOLK (Friends of the Land of the Keweenaw), serving as vice president, and for the last three years, as president. Through FOLK, Rulison helped prevent the building of a $1.2 billion chlorine bleach pulp/paper mill that was proposed for the shores of Keweenaw Bay in 1989. The mill would have discharged 41 million gallons of waste effluent daily into Lake Superior, and would have consumed vast amounts of timber from nearby forests. Through outspoken opposition, repeated meetings with government officials, and through concerted efforts to educate and involve local citizens, FOLK was able to mobilize community resistance to the mill.

Rulison and FOLK continue to successfully protect the Keweenaw by opposing a road permit on Bete Gris that would have opened the whole region up to development, and by working with the Nature Conservancy and other coalitions to preserve over 6,000 acres of land at the tip of the Keweenaw.

According to Rulison, becoming a grass-roots activist for FOLK was much different than her other volunteer activities over the years (such as volunteering for Little Brothers and Venture Scouts, serving on the board of the Keweenaw Co-op and the Guatemalan Accompaniment Project, and spearheading numerous literacy projects). Her experience as a grass-roots activist put her in contact with many local decision makers. She was able to use the information she gleaned at public hearings to spark her students' interest in the curriculum she recently co-developed and taught titled *Looks Count! Community Planning and the Visual Environment.* In *Looks Count!* Rulison taught other teachers how to effectively involve their students in local issues. Rulison explained the process, stating, "first students had to become informed citizens through research; secondly they had to articulate their argument in the form of a presentation; and lastly, they had to identify the appropriate government body to whom they could present the information." The *Looks Count!* curriculum can be viewed on-line at: http://wupcenter.mtu.edu/education/land_use/index.htm.

Her effectiveness can be partly attributed to her deep personal commitment to the environment. As her husband Dave explains, "Linda is keenly aware of the impact we have on our surroundings, including how our lifestyles affect even the tiniest creatures, and she has tried to maintain her lifestyle so that she can leave the part of this earth that she comes in contact with better off than she found it."

Leaving the Keweenaw a little better than we found it is at the heart of the Heart and Hands Award. Rulison was presented with a wood sculpture and $250 to be donated to the charity of her choice. She has asked that her donation be given to the Northwoods Conservancy in honor of Nicole Bloom, a Michigan Tech graduate who recently died in a tragic accident in the Tetons. Nicole, like Linda, was known for her compassion and steadfast commitment to preserving the environment.

For more information about the Heart & Hands Award, call: (906) 482-6827.

Student Report: Lake Superior Youth Symposium a Big Success!

By Laura Fosmire

Ed. Note: As discussed in our last issue, UPEC is piloting a new environmental education mini-grant program. In April, UPEC donated $500 for a group of middle school students to attend the 5th Biennial Lake Superior Youth Symposium in Ashland, Wisconsin. UPEC Board member/science teacher Karen Bacula accompanied her students.

Any normal citizen of Ashland, Wisconsin would drive by Northland College campus and never know if anything unusual was going on. They would never be aware if people were gathering to study a single habitat that affects thousands of people, or coming together with one goal—to preserve the world's largest freshwater lake. No, they would have never known.

However, that was exactly what was happening on Thursday through Sunday, April 24th to 27th, when the 5th Biennial Lake Superior Youth Symposium was taking place at Northland College. Two hundred students from several states - Canada too!- bordering the lake gathered together to study the lake and its influence on the lives of so many. The lake itself wasn't the entirety of the study, however. Other nature topics had their say amongst the many guest speakers that also attended.

When the kids weren't eating, sleeping, talking, or attending classes, they were listening as guest speakers talked with them about various topics such as the lake or other ways to save the gifts nature has given to us for generations that we have quickly disposed of.

The first speaker was an author, a writer, an explorer, and a naturalist. Jeff Rennicke, a writer for National Geographic, took time out of his schedule to talk to the students. His travels have included Alaska, China, Russia, Antarctica, Italy, the Amazon and throughout the U.S. The writer's favorite place to visit (and where he has chosen to live!), the one with the most beauty and splendor? Lake Superior, the one and only. During a slide show depicting the lake's treasures, Jeff explained to students why he loved the lake so much, and why we should save it.

Jeff Rennicke wasn't the only speaker. Many others shared the limelight to talk about various ways to help the environment. Chris Cold, a wildlife technician and educator with the Wisconsin DNR, brought in live animals to show the students. Chris Schneider, the president of Honda Motorworks, drove in with one of his new hybrid cars, a Honda Insight that ran on electricity and gasoline. Heather Tucker explained about a new way to build a home using straw bales for insulation. A group of students from the Conserve School in Wisconsin told us about their "Green Machine," a natural way to literally break down the school's wastewater to reduce pollution.

There was even time for fun and games.Heidi Howes, a singer and songwriter, came to perform for the group with only her guitar and her voice. She was a smash hit. The Puppet Farm Arts put on a GIANT puppet show with larger than life-size puppets. There was also a Native American cultural evening, where students heard legends of the local Native Americans and participated in a few dances.

So how will the citizens of Ashland, Wisconsin know if something like the symposium is going on within the college? Merely ask a few of the students seen throughout the campus during the weekend. They'll be glad to tell you lessons learned, stories heard and friends made, all in one weekend at the Lake Superior Youth Symposium.

Laura Fosmire is an 8th grade student at Bothwell Middle School in Marquette.

Other Students' Responses to "What I learned at the Symposium...."

Turn off the lights.

Solar power is cool.

What I do impacts others.

I'm going to use more eco-friendly products.

To be thinking of the bigger picture.

I'm going to use those spiral light bulbs.

How beautiful Lake Superior is, and I want to protect the lake.

I want to protect my "home."

I learned what we do to a river can impact the big lake.

The Puppets were cool!

Yes! I Want to Help UPEC Make a Difference!

Name:_____

E-mail: _____

Address: _____

City/State/Zip: _____

When available electronically, I would like to receive UPEC information via:
____regular mail ____e- mail

I would like to support the goals of UPEC by enclosing a contribution for:

(Please check one)
_____Regular Membership ($20)
_____Supporting Membership ($50)
_____Student/Low-Income ($15)
_____I'm already a Member! Here is an additional contribution .
_____Contribute to the UPEC Endowment Fund.*

* If you make your check out to the Marquette Community Foundation (MCF) and put UPEC FUND on the memo line, you can take a 50% tax credit on your Michigan state income tax (up to $200 for individuals, $400 for couples). OR, you can make a contribution directly to UPEC. As a 501 (c)3 nonprofit organization, dues and contributions are tax deductible.

Mail all contributions to:
UPEC
Box #673
Houghton MI 49931
E-mail us for more information at:
svandam@chartermi.net

Earth Share of Michigan

Earth Share
OF MICHIGAN

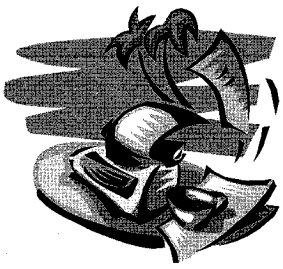
Earth Share of Michigan allows working people to donate to environmental organizations through workplace giving campaigns.

Each year Earth Share provides UPEC with critically-needed funding for environmental education, and program operation.

If you would like to help us earn more funding for UPEC, consider letting your employer know you want the Earth Share of Michigan giving option at your workplace and give to the annual payroll deduction plan.

***For more information**, please call: 1 (800) 386-3326 or view the website at: www.earthsharemichigan.org*

September Teacher Workshop on Grand Island



Educators will have the opportunity to meet with Loren Graham, the author of *A Face in the Rock,* a novel about the Grand Island Chippewa in the nineteenth century, at a workshop scheduled for September 19-20 on Grand Island near Munising, Michigan. Graham will share his reflections on the writing of the novel that tells the story of change, adaptation, and the loss of a culture.

On Friday, participants will learn about Native American History from Delores LeVeque, take an interpretive bus tour of Grand Island visiting ten historic sites, visit to an archaeological research site on the island with Janel Crooks of the Hiawatha National Forest, and participate in hands-on activities measuring forest and beach succession.

On Saturday, participants will visit with Loren Graham at Old North Lighthouse, visit some historical sites, and learn about several interdisciplinary elementary and secondary teaching units based on *A Face in the Rock.* The workshop will address Michigan Content Standards for Science, Social Studies, and Language Arts.

The workshop will take place on Grand Island from 9:30 am to 4 pm on both Friday and Saturday, September 19-20. Participants may choose to attend one or both days and can earn university credit.

Registration deadline is Friday, September 12. For more information, contact Joan Chadde at jchadde@mtu.edu or call (906) 487-3341, or visit the Centers website at: http://wupcenter.mtu.edu/

Correction!
This photo of Petasites sagittatus on p. 6 of our Spring newsletter was misidentified. It was actually taken by E. G. Voss, who has given permission for its use. It is a plant found in the Trap Hills, an area UPEC is seeking to protect.

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Email: svandam@chartermi.net
www.upenvironment.org

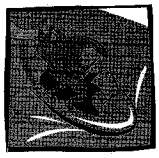
Protecting and maintaining the unique environmental qualities of the Upper Peninsula of Michigan by educating the public and acting as a watchdog to industry and government.

Connie Julien
37980 South Entry Rd.
Chassell, MI 49916

Mem Exp: Oct-03

Join Us for the Fall UPE Board Meeting!
Saturday, September 13th from 2:00 p.m.-5:00 p.m. Ford Forestry Center, Alberta

Update on Personal Watercraft Use at Pictured Rocks



The National Park Service has finished evaluating the Environmental Assessment on Personal Watercraft Use at Pictured Rocks National Lakeshore. The EA identified three alternatives for personal watercraft (PWC) use at Pictured Rocks:

Alternative A would continue PWC use as currently managed, allowing PWCs within the lakeshore's one-quarter mile jurisdictional boundary on Lake Superior. PWC are currently not permitted on inland lakes due to horsepower restrictions.

Under Alternative B, the NPS would write a special regulation that would allow PWC use except for the areas of the park designated as primitive. PWC use would be allowed from the western boundary (near Munising) to Spray Falls and from the eastern boundary (near Grand Marais) to 1.25 miles east of Sevenmile Creek.

The third alternative (no-action alternative) would discontinue PWC use at Pictured Rocks upon completion of the environmental assessment process.

Review of the EA considered several factors including impacts on cultural and natural resources, major user groups, and public opinion/response. After review of those factors, the NPS is proposing a modification of Alternative B, and will publish a draft rule in the Federal Register. **This process will incorporate another round of public comment.**

This modification would allow PWC to launch from a designated launch site near Sand Point and operate on Lake Superior within the national lakeshore boundary from the western boundary up to the east end of Miners Beach. Personal watercraft users would be allowed to land their craft on Miners Beach. Personal watercraft would not be allowed to launch or operate elsewhere within the national lakeshore. It is important to note that this modification is not final nor do any of the proposed rule provisions take effect until comments are received on this modified alternative and a final rule is published in the Federal Register.

Currently, Pictured Rocks is closed to PWC use due to a Service-wide regulation that required all national park units to close on April 22, 2002. This closure will remain in effect while the proposed rule goes through review and public comment. Thus, if Pictured Rocks reopens to PWC use, it would probably not be until the summer season of 2004 or 2005.

This article was condensed from an NPS press release. The Environmental Assessment and the complete press release on PWC use at Pictured Rocks is posted at www.nps.gov/piro. To Express Your Views, Contact:
Superintendent Karen Gustin
Pictured Rocks National Lakeshore,
P.O. Box 40
Munising, MI 49862