

Making Sustainable Attainable at Pictured Rocks National Lakeshore

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Summary by Chris V. Case

Pictured Rocks National Lakeshore employees have progressively worked to develop and adopt sustainable practices. Many of these practices have simply been implemented by staff members adjusting operational procedures in day to day operations. Others have been developed through various initiatives and programs requiring outside funding sources. All however, rely on the commitment of park staff to look at what is done and try to make a difference.

Campground and Office Recycling

Since 1990 the park has worked to develop community recycling programs that include recycling opportunities in park campgrounds, visitor centers and offices.

Vehicle Fleet Downsizing

Selection of replacement vehicles are based on the smallest vehicle that will serve its primary purpose. 5 vehicles have been downsized in the last 8 years.

Paints and Coatings Standardization

The lakeshore developed a written parkwide Paints and Coatings Standard to (1) maximize cost effectiveness of Lakeshore painting activities, (2) reduce inventory of products and associated wastes, (3) assure uniformity between districts of facility colors and provide standard identification for visitors. The benefit and effectiveness of the program have been realized in the following activities:

- Quick determination of products/colors used for various painting activities.
- Allow for spot repair instead of whole item repainting.
- Assist procurement actions through the use of identified manufacturers.
- Reduce the number and variety of hazardous products in use.
- Reduce time and effort in Hazardous Materials inventory and MSDS Information updating.
- Minimize product waste and waste disposal.

NOTE: During the implementation phase of this program, employees were encouraged to use up the existing inventory of "non-standard" to reduce waste and disposal costs. Most of the materials left were donated to local social services agencies for community services projects.

Reduced Toxins Program

Employees are encouraged to find alternative "safe/green" products to replace the more toxic or harmful items they use. Supervisors were tasked with reducing toxins in their work places by 10% each year; a goal that was included in their annual performance standards. This project has been especially effective with cleaning products and auto shop solvents and has led to the park's almost exclusive use of biodegradable "green" cleaning products; reduction in petroleum based solvents and a continuing growing variety of "greener" products now used in the workplace.

Eliminating Use of Road Salt in Snow Removal Operations

In addition to parking lots and accesses, the lakeshore plows 3 miles of low speed roadway within 50 feet of the Lake Superior shoreline. In the past, salt was mixed with sand to clear

snow from the roadway to bare pavement, as well as preventing the loaded sand from freezing in the truck while being stored outside. In 1995, the park began keeping the spreader truck in a heated building, and determined that it was not necessary to maintain the roads at a “bare pavement” standard. These two actions eliminated the need for road salt use in the lakeshore. Several immediate benefits were realized: (1) Eliminated salt runoff into the adjacent streams and lake, (2) reduced corrosion of equipment from the salt, (3) reduced wear and tear on the equipment from frozen mechanical components.

Natural Vegetation/Mowing Reduction Program

Over the past several years, the lakeshore has undertaken a reduced mowing program to: (1) reduce the number of man-made fixtures adjacent to natural areas (2) return appropriate areas to their more natural appearance and (3) reduce manpower requirements to mow and trim outlying areas and maintain bollards and delineator posts.

An example of this is in the lakeshore’s primary day use area where three of the five developed acres have been allowed to grow back naturally. This action cuts mowing costs and allows wildflowers to develop.

Years ago, new parking areas were developed and delineator posts were installed to define vehicle traffic areas. To maintain their visibility, these delineators were regularly mowed and trimmed around. Over time, natural vegetation developed to define the confines of the parking lots. However either from habit or because we assume man made features need to be trimmed around, we continued to mow, trim, straighten and replace the posts. With the implementation of the plan, most of these posts were removed, saving time, money and providing a more natural appearance of these areas.

Green procurement:

In addition to the purchases involved in the activities described above, green procurement opportunities are continually explored which include examples of these recent purchases. 4-cycle snowmachines and boat engines, non-mercury containing fluorescent tubes, non-hazardous treated woods, re-refined motor oil, remanufactured toner cartridges, 100% recycled content toilet paper, and paper towels.

In addition to the in-house efforts, the park has taken advantage of various funding initiatives for larger projects that expanded the lakeshores sustainable practices program.

Solar Powered Well Pumps

In 1992 the park installed its first campground photovoltaic powered well pump system. The effectiveness of this pump system has led to the installation of five more systems in the park.

Au Sable Lightstation Photovoltaic Power System

The remote location of the site has historically required on site power generation. Now, with only an automated light and no longer a Coast Guard operated facility, provisions for providing electric power to the site has been a significant obstacle in our ability to realize planned visitor services and site development.

With the assistance of a Sandia National Laboratories "Renew the Parks" partnership grant, construction of a photovoltaic power system was undertaken in FY-1998. The system provides 5 kW of photovoltaic power for the following loads:

- (1) Basic seasonal residence amenities of lighting, kitchen appliances, and water heating.
- (2) Lighthouse and associated building room exhibit lighting and A/V equipment power.
- (3) Water well and fire suppression pumps.
- (4) Fans for the additional component of this project, which is a geothermal system to pre-heat air to circulate throughout the lighthouse structure to minimize, freeze thaw damage during over-wintering of the lighthouse building.

By accomplishing construction of the electric utility net, subsequent site restoration activities of the other structures can be accomplished to stay within the capacity of the new power system.

Sullivan's Cabin Photovoltaic Collector Shingles

The Sullivan's Cabin is a 20'X 25' 2-bedroom cabin with kitchen, bathroom and living room that houses up to 4 seasonal employees during the months of May - October. It is remotely located with no commercial power available. LP gas was used for cooking, comfort heating and to fuel a 5 KVA generator (larger than necessary).

The building has a 15'X 30'south facing roof section that was covered with UNI-SOLAR PV Shingles providing 2 KVA electric power system. These shingle collectors serve both as a roof shingle and the photovoltaic collector array. As an integral part of the building's roof, this type of collectors system helps maintain the rustic appearance of the building. The system now powers lights, a water pump (from a 120' deep well), and small electric appliances for occupants.

Bio Lubricants/Fluids Substitution - Green Energy Parks Program

In an effort to expand the Lakeshore's sustainable practices program, the park has embraced the President's Green Energy Parks program with special funded grants to use Bio-Soy fluids and lubricants in various park fleet operations. These lubricants/fluids meet government "greening" objectives, are safer for employees to handle and are biodegradable in case of spill or releases.

In the spring of 2000, park diesel equipment began using a B-20% soy diesel fuel blend. At the same time, all of the parks heavy equipment hydraulic and trans-hydraulic fluids were replaced with Soy-based fluids, as was the hydraulic oil in the maintenance shop vehicle lift. Additionally, Bio-based 2-cycle oils are now used in all two-cycle grounds equipment, pre-mix 2-cycle boat engines, and cross country ski trail snowmachine groomers. Soy based penetrating fluid, parts washing fluids and #2 chassis greases are also being used. In addition to the above, seven of our vehicles are successfully participating in a Soy Engine Oil test program.

Employees of Pictured Rocks National Lakeshore continue to evaluate existing operations, adjust procedures, find alternative products and explore new technologies in a never ending effort to make "Sustainable Attainable". For further information about the Lakeshore's sustainability program contact Facility Manager Chris V. Case at (906) 387-2607 or visit the Lakeshore website www.nps.gov/sustain/index.html

Bio-Fluid Conversion at Pictured Rocks National Lakeshore Green Energy Parks Program

In an effort to expand our sustainable practices program, Pictured Rocks National Lakeshore is participating in the President's Green Energy Parks program with a special funded grant to use Bio-Soy fluids and lubricants in selected park equipment. The following is quoted from the MOU between DOE and the NPS:

"Under the Green Energy Parks program, DOI and DOE will implement joint sustainable energy projects throughout the National Park System. The primary goals of the program are to:

- 1. Promote the use of energy efficient and renewable energy technologies and practices, and increase use of alternative fuels throughout National Park facilities and transportation systems; and*
- 2. Educate the visiting public about the impact of conventional energy use on natural and cultural resources, the capacity of current and emerging energy technologies to reduce that impact, and the things visitors can do at home to reduce their own energy use.*

Pictured Rocks National Lakeshore chose to use Bio-Soy products because they meet the above goals, are easily substituted, are safer for employees to handle and are biodegradable in case of a spill or release.

Since June 2000, all park diesel equipment has been fueled with B-20% blend of soy diesel. fuel blend. In addition to meeting the program goals, soy-diesel results in greater lubricity, cleaner burning engines and lower emissions. At the same time, hydraulic oil in the shop vehicle lift and fluids in the parks heavy equipment hydraulic and trans-hydraulic systems were replaced with Soy-Hydraulic fluids. All two-cycle grounds equipment, pre-mix outboard motor patrol boats and cross-country ski trail groomers have been using Soy two-cycle oil. Soy based penetrating fluid, parts washing fluids and chassis grease are also being used in shop operations. In addition, seven of the park's vehicles are now field testing a Soy/Synthetic blend of engine oil.

Bio-Soy lubricants/fluids have been put into service in the following equipment/vehicles:

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|------------------------------------------|------------------------------------|
| - 10 Ton International dump truck | - Soy Hydraulic |
| - 5 Ton International dump truck | - Soy Hydraulic |
| - Two Ford 555 backhoe loaders | - Soy Hydraulic, Soy Transmission |
| - John Deere crawler dozer | - Soy Hydraulic, Soy Transmission |
| - Gallion grader, | - Soy Hydraulic, Soy Transmission |
| - John Deere Utility tractors, | - Soy Hydraulic, Soy Transmission |
| - John Deere tractor mowers | - Soy Hydraulic, Soy Transmission |
| - Snowmachines | - Soy 2-cycle Oil |
| - Outboard boat motors | - Soy 2-cycle Oil |
| - Diesel/Gasoline engine vehicles (test) | - Soy Crankcase Oil |
| - Grounds equipment | - Soy 2-Cycle Oil |
| - Chainsaws | - Soy 2-Cycle Oil, Bar & Chain Oil |

As Pictured Rocks National Lakeshore continues to support the Green Energy Parks program, we will be testing other bio fluids and products in our day to day operations. Questions regarding the lakeshores Bio-Fluid or Sustainability programs can be directed to Facility Manager Chris V. Case at (906) 387-2607.