



# A Few Green Points



## Solar Panels to Reduce Energy, Costs



PV System at Gallagher Wells

This year we have expanded our efforts to harness energy from the sun and reduce our use of electricity generated in part by fossil fuels. Beginning in late July, seven additional photovoltaic (PV) systems funded by the American Recovery and Reinvestment Act (ARRA)

were constructed at various locations throughout the park to generate an additional 64,290 kWh annually. Design calculations indicate Point Reyes' thirteen photovoltaic systems altogether will generate about a third of the park's net electrical use. This will result in an annual savings of \$18,000 in utility charges and prevent 33 metric tons of greenhouse gas emissions from being released into the atmosphere. Additionally we have exceeded our goal of producing over 20% of park energy needs through green power by the end of 2010.



### What is a kWh?

kWh stands for "kilowatt-hours" and is the standard metric unit of measurement for electricity and used for billing purposes. Solar energy, for example, is measured in kilowatt-hours. "Kilo" means 1000 and 1 kilowatt = 1000 watts. 1 kilowatt-hour (or 1000 watt-hours) is the equivalent of using a 10-watt light bulb for 100 hours.



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Our trails crew hard at work.



A snapshot of the finished trail project.

## Muddy Hollow Reroute Complete, to Open in Spring

In a collaborative effort to improve native wildlife habitat in the lower Muddy Hollow Creek watershed, the Trails crew recently completed the Muddy Hollow Trail Improvement Project funded by the American Recovery and Reinvestment Act (ARRA). Previously existing trail was re-routed out of the Muddy Hollow Creek floodplain and onto the adjacent hillslope to mitigate potential impacts on the California red-legged frog, steelhead and coho salmon, and existing wetland resources. The majority of the trail foundation is composed of recycled wood and plastic materials. The new Muddy Hollow Trail is expected to open in Spring 2011.



California red-legged frog  
(*Rana draytonii*)



Coho salmon (*Oncorhynchus kisutch*)

### Ways to Conserve H<sub>2</sub>O and Energy at Home

- Install water-conserving devices, such as low-flow faucets, shower heads, and toilets- they can reduce water use by up to 50 percent.
- Check faucet, toilet, pipes for leaks
- Reduce the amount water for lawns and gardens. Water in the evenings and early mornings to reduce evaporation.
- Wash your clothes in warm or cold water only.
- Take shorter showers
- Insulate your water pipes

### Retrofit Lowers Water Consumption



In June 2010, Point Reyes requested the assistance of the North Marin Water District (NMWD) to reduce its water consumption. NMWD conducted a Water-Smart Survey at the park that resulted in recommendations to retrofit our older, high water using faucet aerators, showerheads, and toilets with new water efficient low-flow models, some of which were provided. This past year the park has reduced its water consumption by roughly 32% saving 1,505,581 gallons of water!



Reducing water usage also contributes to critical energy savings in other areas, as some eight percent of America's total annual energy consumption goes to heating, treating, and pumping water. Source: EPA



Cindi de Channes Photography © 2010

Volunteers remove invasive European beachgrass (*Ammophila arenaria*) at Abbotts Lagoon.

## Volunteers Join Global Work Party

The Seashore's Habitat Restoration Program, which meets the second and last Sunday of most months, joined 350.org's 10-10-10 Global Work Party, a global coalition working to make positive impacts in the environment. Thirteen volunteers (five of them new) opened the European beachgrass removal season (following Western Snowy Plover nesting season) with a highly successful visit to Abbotts Lagoon's North Dunes. The team removed 55 square meters of European beachgrass, opening the area up to both common and rare native dune species. Returning volunteers were heartened by the positive response of native species to last year's effort. The Seashore welcomes new volunteers who would like to join and work this site through the winter.

For more info visit: 

## Recycling Efforts Target Food Waste



According to West Marin Recycling, statistics indicate that nearly 30% of the residential waste stream is food scraps. To cut back on sending this waste to the landfill, the Seashore has set up a 180-gallon compost tumbler to recycle park green waste into compost that will later be used for landscaping and gardening.

In addition, the park has set up a recycling program through the national recycling brigade program, TerraCycle, to collect wrapper and packaging material for various snack food items that will later be recycled to create useful home, office, and school products.



## Climate Friendly Parks (CFP) Program

The Climate Friendly Parks Program is a National Park Service-EPA collaborative that provides national parks the management tools and resources to organize and calculate their greenhouse emissions inventory and develop a Climate Action Plan containing strategies and targets to mitigate those emissions. There are currently 34 National Parks participating in the program. Point Reyes National Seashore has been a member since 2008.

For more information please visit:

<http://www.nps.gov/climatefriendlyparks/index.html>

Every year, Californians generate 6.6 million tons of solid waste. One-third is packaging. "Precycling" means shopping for things that don't have a lot of disposable packaging. It takes energy to make that packaging, and it takes even more energy to cart away the extra garbage you're left with after you unwrap it. Source: The EarthWorks Group

## Local Bulb and Battery Collection Centers

Listed below are local collection centers where you can properly dispose household batteries and fluorescent light bulbs free of charge as part of Marin County's Bulb and Battery Take Back Program (more info <http://www.marinrecycles.org/BnB/index.html>).

### Ace Building Supply Center

11280 State Route 1, Pt. Reyes Station  
(415) 663-1737

### Bolinas Bay Lumber & Landscape

1 Olema-Bolinas Road, Bolinas  
(415) 868-2900

### General Hardware

401 Miller Ave, Mill Valley  
(415) 383-6611

### Goodman Building Supply

775 Redwood Hwy, Mill Valley  
(415) 388-6233

### Jackson's Hardware

435 Du Bois Street, San Rafael  
(415) 454-3740

### Jim Corbet's Ace Hardware

1155 Magnolia Ave, Larkspur  
(415) 461-5330

### Knight's Hardware

1650 Tiburon Blvd, Tiburon  
(415) 435-4603

### Novato Builders Supply

800 Sweetser Ave, Novato  
(415) 892-1651

### Waterstreet Hardware

318 Caledonia St, Sausalito  
(415) 332-4318



## Rechargeable vs. Disposable



If you are hauling a huge collection of dead disposable alkaline batteries to your waste facility (since it's against the law in CA to dispose them in the trash) you might consider the

alternative: the rechargeable battery. Although having higher initial costs, rechargeable batteries can be recharged very cheaply and used many times, saving you money, reducing waste, and saving you trips to the store and trips when disposing of them. The life and endurance of a battery, whether rechargeable or disposable is dependent on the device it will energize and the chemical agent involved in the makeup of the battery. For example, low wattage wall clocks, TV remotes, flashlights, and rarely used items, could be a better choice for disposable batteries while on the other hand, power draining devices such as digital cameras, iPods, and laptop computers work better with rechargeable batteries. Ultimately the question boils down to usage and cost. In the end, for both cases, consider the environment while using batteries. Many retail stores will accept used batteries and provide for proper and safe disposal, to keep our earth as safe and healthy as possible.

Source: West Marin Recycling

## Mercury and CFLs



Compact fluorescent light bulbs, or CFLs, can be a simple alternative from traditional incandescent bulbs, saving money, energy, and greenhouse gas emissions. While safe to use, CFLs however contain trace amounts of mercury, a chemical element considered hazardous. CFLs must be disposed of correctly at a local hazardous waste facility. Should a CFL break in your home, open a window, turn off central air or heat systems, pick up material with sticky tape or rags, vacuum the area, dispose of the contents in a sealed bag, and take to your local recycling center. Coal-fired power plants are the largest man-made source of mercury emissions because mercury naturally exists in coal and is released when coal is burned to make electricity. Since CFLs use less electricity, they help reduce the amount of mercury into the environment compared to traditional incandescent bulbs. Source: EnergyStar

### UNIVERSAL WASTE COLLECTION SITE

Located at the Buildings and Utilities garage.

For the following **work-related** items:

- Aerosol cans (for paints/solvents)
- Batteries
- CFLs and linear fluorescent bulbs
- E-waste (w/property tags see Aimee Davis)
- Mercury-containing objects

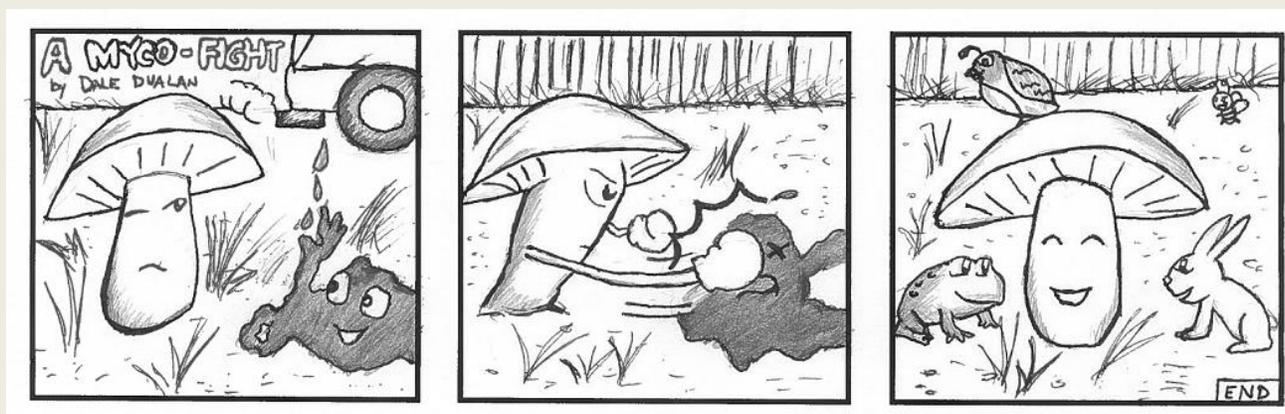
Questions? Contact Ken Taylor at x5114

## What is Mycoremediation?

Mycoremediation (“Myco” from the Greek word *mukes* meaning fungus) is a form of bioremediation using mushrooms and their decomposition abilities to combat environmental pollution and restore the natural environment to its original state. Mushroom mycelia are the “fungal roots” that permeate the soil forming underground threadlike network systems that absorb nutrients from its environment. The term “mycoremediation” was coined by mycologist Paul Stamets who explains that “mycelia are the Earth’s natural internet.” The primary role of fungi is to decompose organic material. Once the mushroom mycelia has taken root, it produces enzymes and acids that break down not only dead organic matter, but also hydrocarbons – the base structure of all oils, petroleum products, pesticides, and other pollutants. This natural technology, in time could offer many benefits and be a less expensive alternative to excavation, disposal, and incineration strategies for addressing pollution like oil spills.



Oyster mushrooms (*Pleurotus ostreatus*) have been used for mycoremediation purposes.



## How to Save Money and Afford Healthy Delicious Organics

**Eat less meat.** Eating a plant-based diet with abundance of vegetables, fruits, and whole grains typically costs 25 percent less than a diet that revolves around meat.

**Eat at home.** The average American spends one-third of his/her food budget eating out. Making meals at home save money and will most likely be healthier.

**Buy organics in bulk.** Stock up on items like grains, nuts, dried fruits with less packaging.

**Pass on bottled water.** Drinking tap water instead of bottled can save you \$1400 per year. Install a filter on your faucet or use a filtered pitcher if you’re concerned about water quality.

**Volunteer at a local food co-op.** Many organic food cooperatives allow members to volunteer a few times a month in exchange for a discount on their grocery bills.

**Grow your own.** Growing your own organic produce can be enjoyable and save you money. It can be done even if you live in the city.

**Focus on the dirtiest produce (see right).** Scientists from the Environmental Working Group found that U.S. shoppers can reduce their pesticide intake by 4/5ths by simply buying the 12 most contaminated fruits and vegetables organic. Buy the dirtiest types organic, and buy cleaner produce conventional.

Source: *Green American*



### WHAT TO BUY ORGANIC (most contaminated)

- |                         |                   |
|-------------------------|-------------------|
| 1. Almonds              | 15. Nectarines    |
| 2. Apples               | 16. Parsley       |
| 3. Basil                | 17. Peaches       |
| 4. Bell Peppers         | 18. Peanuts       |
| 5. Carrots              | 19. Pears         |
| 6. Celery               | 20. Pecans        |
| 7. Cherries             | 21. Plums         |
| 8. Cucumber             | 22. Potatoes      |
| 9. Dairy Products       | 23. Raspberries   |
| 10. Grapes (imported)   | 24. Rice          |
| 11. Green Beans         | 25. Salad         |
| 12. Hot Peppers         | 26. Spinach       |
| 13. Kale/Collard Greens | 27. Strawberries  |
| 14. Lettuce             | 28. Summer Squash |

Source: *Green American*

## QUARTERLY CHALLENGE

### Use a canvas bag at the grocery store.

In California, 20 billion single-use plastic bags are used yearly. Much of this plastic ends up in the ocean and landfill. Getting tired of plastic bags piling up around the house? The next time you're at the grocery store and considering paper or plastic, the choice is obvious: neither. Bring your own reusable bag. Help our sea turtles and friends!



If you have any questions or stories and topics you'd like contribute, feel free to contact Dale Dualan at x5942 (email: [Dale\\_Dualan@partner.nps.gov](mailto:Dale_Dualan@partner.nps.gov)) or Sara Hammond x5165 (email: [Sara\\_Hammond@nps.gov](mailto:Sara_Hammond@nps.gov))



Photo by Robert Campbell

## Biodiesel Questions and Answers:



### What is biodiesel?

Biodiesel is an alternative fuel produced from renewable resources, such as soybeans or used restaurant grease. Biodiesel contains no petroleum, but it can be blended with petroleum diesel to create a biodiesel blend. It can be used in diesel engines with no major modifications. Biodiesel is simple to use, biodegradable, nontoxic, and essentially free of sulfur and aromatics.

### Is biodiesel used as a pure fuel or is it blended with petroleum diesel?

Biodiesel can be used as a pure fuel or blended with petroleum in any percentage. B20 (a blend of 20 percent by volume biodiesel with 80 percent by volume petroleum diesel), B2, and B5 are common fuel blends used today.

### Is it approved for use in the U.S.?

Biodiesel is registered as a fuel and fuel additive with the U.S. Environmental Protection Agency (EPA) and meets clean diesel standards established by the California Air Resources Board (ARB). Neat (100 percent) biodiesel has been designated as an alternative fuel by the U.S. Department of Energy (DOE) and the U.S. Department of Transportation (DOT).

### How do biodiesel emissions compare to petroleum diesel?

Biodiesel is the only alternative fuel to have fully completed the health effects testing requirements of the Clean Air Act. The use of biodiesel in a conventional diesel engine results in substantial reductions of unburned hydrocarbons, carbon monoxide, and particulate matter compared to emissions from diesel fuel.

### Can biodiesel help mitigate "global warming"?

A 1998 biodiesel lifecycle study, jointly sponsored by DOE and the U.S. Department of Agriculture, concluded biodiesel reduces net carbon dioxide emissions by 78 percent compared to petroleum diesel. This is due to biodiesel's closed carbon cycle. The CO<sub>2</sub> released into the atmosphere when biodiesel is burned is recycled by growing plants, which are later processed into fuel.

### Is biodiesel better for human health than petroleum diesel?

All outdoor air pollution is estimated to pose one percent of our cancer risk. Scientific research confirms that biodiesel exhaust has a less harmful impact on human health than petroleum diesel fuel. Biodiesel emissions have roughly 45-90 percent lower toxics emission compared to diesel.

### Does biodiesel cost more than other alternative fuels?

When evaluating the total costs associated with other alternative fuel systems, many fleet managers have determined biodiesel is their least-cost-strategy to comply with state and federal regulations. Use of biodiesel does not require major engine modifications. That means operators keep their fleets, their spare parts inventories, their refueling stations, and their skilled mechanics. The only thing that changes is air quality.

### Do I need special storage facilities?

In general, the standard storage and handling procedures used for petroleum diesel can be used for biodiesel. The fuel should be stored in a clean, dry, dark environment. Acceptable storage tank materials include aluminum, steel, fluorinated polyethylene, fluorinated polypropylene, and teflon. Copper, brass, lead, tin, and zinc should be avoided.

### Can I use biodiesel in my existing diesel engine?

Biodiesel works in any diesel engine with few or no modifications to the engine or the fuel system. Most major engine companies have stated formally that the use of blends up to B20 will not void their parts and workmanship warranties. This includes blends below 20 percent biodiesel, such as the two percent biodiesel blends that are becoming more common.

### Where can I purchase biodiesel?

Biodiesel is available anywhere in the U.S. The National Biodiesel Board (NBB) maintains a list of registered fuel suppliers. A current list is available on the biodiesel website at [www.biodiesel.org](http://www.biodiesel.org), or by calling NBB at (800) 841-5849.

### Is biodiesel being used in California?

Currently more than 4 million gallons of biodiesel per year is being used in California at such locations as the Channel Islands National Park, Yosemite National Park, the City of Berkeley, and at U.S. Military installations.

Source: [www.energy.ca.gov/](http://www.energy.ca.gov/)