LODGING AND FOOD ARTS BEST MANAGEMENT PRACTICES

A PRACTICAL GUIDE FOR PUGET SOUND

PEOPLE FOR PUGET SOUND

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November, 2005

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Many thanks for People For Puget Sound and Washington Sea Grant for supporting this project. Thanks to Autumn Luna of UW's Program on the Environment for her research.

I. What Are Environmental Best Management Practices (BMPs)?

Environmental Best Management Practices (BMPs) are those practices selected by a systematic process and judged as good, exemplary or successfully demonstrated to reduce negative impacts on the environment.

"Best" is a contextual term. Those practices adopted by your tourism business will depend on what stage of development you are in, as well as your executive commitment. This commitment presumes a willingness to strive for a level of performance that exceeds basic regulatory compliance requirements or common standards of practice *(Catalogue of Exemplary Practices in Adventure Travel and Ecotourism, http://www.canadatourism.com)*.

The lodging BMPs apply to the following types of properties:

1. Hotels
2. Motels
3. Inns
4. Bed and Breakfasts
5. Guest Houses
6. Hostels

There is also a special section in the Food and Beverage Section which pertains to **restaurants,** including buying local food and highlighting the bounty from our local environment.

II. Why Adopt BMPs?

The natural system of which humans are a part are indispensable to life. We need them to live, much less operate a business.

The Services of Nature: Puget Sound is a system contained within a system --called Earth. This system is the foundation of our entire economy. Our local habitats, similar to your home, provide "ecological services," to all of us, many of which cannot be replaced by technology. Even if they could be replaced by technology, it would involve economic costs society would be unwilling or unable to bear.

These ecological or ecosystem services include:

- Purification of air and water
- Mitigation of floods and drought (through wetlands and other vegetation and soils)
- Detoxification and decomposition of waste
- Generation and renewal of soil and soil fertility
- Pollination of crops and natural vegetation
- Control of potential agricultural pests

- Dispersal of seeds and translocation of nutrients
- Maintenance of biodiversity
- Protection from the Sun's ultraviolet rays
- Partial stabilization of climate
- Moderation of temperature extremes and the force of wind and waves
- Supports diverse human culture
- Provides aesthetic beauty

(Daily, G, ed. 1997. *Nature's services: Societal dependence on natural ecosystems.* Washington, D.C.: Island Press)

Poorly managed tourism activities can seriously degrade Puget Sound's near shore environment, which is the very resource that provides the tourism industry with revenue, aesthetic values and is the place we call home.

Efficiency and Community Integration

As a corollary, BMP adoption will reduce your operating expenses, provide meaningful public relations opportunities and signal your positive value system to staff, customers and the community which makes your business viable. You can think of your business as having an implicit partnership with the Puget Sound ecosystem, including the people whose survival depends on its healthy functioning.

III. The Case for Emerging Green Hotel Practice

The World Travel & Tourism Council forecasts that travel and tourism demand will achieve 4.6% real growth per annum between 2004 and 2013 (WTTC, "Executive Summary: Travel & Tourism A World of Opportunity. The 2003 Travel & Tourism Economic Research, p.3).

An average hotel purchases more products in a single *week*, than one hundred households do in one *year.* Environmental impacts from lodging operations are diffuse, extending from building design and operation (energy, water, wastewater), material purchasing and subsequent use and disposal.

Green hotels are part of an international trend gaining considerable momentum in the United States. The major drivers behind green hotels are the convention market, which increasingly uses bid specifications that require "green practices," and the infusion of European travelers who have a different expectation for hotels (e.g.; adoption of the well known towel-linen programs that give guests options to forgo daily laundering) (http://www.ceres.org/industryprograms/ghi.php).

As the overall business community develops closer ties with socially responsible practices, efficiencies and long term planning scenarios, their inexorable move towards more sustainable practices will drive supplier expectations, including business travel markets (*see* CSRwire and CERES).

The explosive increase in energy prices is also driving efficiency measures, in combination with the shifting appetites for businesses that do well by doing good.

The American Hotel and Lodging Association promotes green hotel practices in its Environmental and Engineering Committee (http://www.ahla.com/public_regulatory_engineering.asp) and there are a number of certification programs devoted to hotels and tourism. Among them are:

- Green Hotels Association (http://www.greenhotels.com) **Dutch Cup Motel, Inn at Ship Bay, Juan du Fuca Cottages, Lake Crescent Lodge, Moby Dick Hotel and Oyster Farm, Sleeping Lady and Turtleback Farm Inn in Washington are members**
- Green Leaf Eco-Rating Program (www.terrachoice.ca/hotelwebsite/main.htm)
- HVS International ECOTEL certification (www.hvsinternational.com)
- US EPA Energy Star Buildings (www.energystar.gov)
- US Green Building Council LEED (www.usgbc.org)
- Green Globe 21 Certification (http://www.greenglobe21.com)
- Coalition for Environmentally Responsible Economies (CERES) Green Hotel Initiative (www.ceres.org)
- Green Seal Certification and related programs (www.greenseal.org)

(*Green Hotel Certification Programs. Greening the Hospitality Industry.* Arthur Weissman, Green Seal).

The Context of Sustainable Tourism

Green hotel practices are often developed within the context of a comprehensive environmental management program. Agenda 21 for sustainable tourism was developed after the 1992 Rio Earth Summit and was occasioned in part by the growing realization that tourism had profound, and incontrovertible, effects on natural resources and economic growth.

Agenda 21 was designed and implemented by the World Travel & Tourism Council (WTTC), the World Travel Organization (WTO) and the Earth Council.[1]

Shortly after Agenda 21 became effective, Inter-Continental Hotels approached the Prince of Wales Business Leaders Forum in London to promote its recently adopted environmental initiative and urged the Forum to create a standing body to address environmental issues within the lodging industry.

It is now known as the International Hotels Environment Initiative (IHEI; www.ihei.org) and is supported by the largest hoteliers in the world, including Marriott Corporation, Hilton, Holiday Inn, Inter-Continental, ITT Sheraton, Starwood Lodging and American Express as its first corporate sponsor. IHEI fosters the development and practical implementation of sustainable tourism practices and enjoys a growing membership. [2]

Many of the domestic examples of environmental management or sustainable tourism practices, are the product of IHEI affiliation and/or the exploding market for ecotourism. The monikers "eco-tourism," "green tourism," "adventure tourism," "responsible tourism," "sustainable tourism" and "green travel" are frequently used interchangeably.

Most of the early models of sustainable tourism development were spurred by desires for foreign exchange as well as to capitalize on the ecotourist market. In many of these developing countries, natural capital is the primary economic base upon which earnings are predicated.

In the United States, economic considerations and federal and state programs motivate hotel environmental management programs. EPA's Office of Wastewater Management developed Water Alliances for Voluntary Efficiency, or WAVE, to engage hoteliers in water conservation measures. The Department of Energy sponsors the Hospitality Industry Forum on Energy Conservation (HIFEC), administered by Battelle and aimed at introducing energy efficient and effective lighting, equipment and other measures to the lodging industry. It was responsible for financing one-third of the microfiltration system for water re-use by Red Lion Central Laundry in Portland, Oregon (now owned by DoubleTree Inns).

More recent developments include EPA' Sustainable Travel and Tourism Program, [3] Resources for the Future's report on the environmental impacts of tourism, [4] The Conference Board's development of Business Enterprises for Sustainable Travel, [5] and the Seattle/King County Convention and Visitor Bureau program on tourism and the environment. [6]

State Programs

In several states, solid waste utilities have developed programs directed at lodgings for solid waste reduction and recycling. Domestic examples include:

- Green Key program in Portland, Oregon (Metro)
- Oakland's Green Business hotel checklist
- Waste prevention tips for hotels in New York City (NYC Bureau of Waste Prevention, Reuse and Recycling)
- Pollution prevention tips for inns, hotels and B & Bs in Vermont (Vermont Small Business Development Center)
- Resort Recycling project in Minnesota (MN. Office of Environmental Assistance)
- Eco-Lodgical Waste Reduction Program (NC Department of Environment and Natural Resources)
- Georgia Hospitality Environment Partnership which integrates cooperation from tourism associations, business, tour operators, recreation, arts and environmental groups

Environmental programs in hotels typically emerge from engineering strategies and simple solid waste efforts, such as recycling. However, solid waste reduction taken in isolation is not enough to ensure successful programs.

The more successful Asian, Canadian, Caribbean, and European models for sustainable tourism incorporate elements such as pollution prevention, supplier relationships, packaging reduction, energy efficiency, water conservation, materials use and reuse, composting and community relationships.

The demand for Green Hotels in Washington State

In Washington State, a significant number of hotel guests live in Washington and may therefore be more amenable to linking personal behavior and value-based purchasing with travel. "Value-based purchasing" is the purchase of goods and services by individuals or groups that reflects the personal value system, beliefs, and morals of the consumer.

For those people unable or unwilling to invest publicly in companies, it is often the only means by which to tie personal and business values with the manner in which capital is spent. This linkage helps to shape business behavior and outcomes. It is a very powerful tool that underscores the proliferation of socially responsible investing and green marketing. [7] Many businesses and people move to Washington to take advantage of the natural environment and general "quality of life." Accordingly, there is a preexisting receptive market for green hotels.

Defining sustainable tourism and travel

- Planning, development and activities, including purchased products, that will ensure future generations they can meet their own needs
- Requires long term planning and defining a vision
- Involves every person in an organization
- Extends to every facet of the tourism industry, including hotels

Involving tourism and travel sectors in sustainability

- The sector is represented everywhere: lodging, food, recreation, national parks, culture, natural areas, interpreters, retail, transportation, banking and insurance
- It is universally connected to the physical and cultural environment
- Growth patterns are creating pressure on sensitive areas
- Balanced planning ensures long term economic stability and healthy communities
- Growing public demand for accountable, responsible business practices
- Can promote best practices and loyal customer base

Sustainability Drivers

- Enhanced public perception
- Customer appeal in that they can reward those businesses providing environmentally preferable services
- Avoids regulatory pressure if adopted voluntarily
- Individual control over local use of resources
- Economic incentives: green is lean and clean
- Diversifies tourism experience by meeting demand for greater educational experiences
- Public pressure and growing market demand, particularly in the NW
- Lack of interest in touring "devastated landscapes"

The **Fairmont Olympic Hotel** in Seattle is a property of Fairmont Hotels & Resorts. The Fairmont Olympic has a cross-departmental green team and has adopted Puget Sound as its signature project. They currently work with People For Puget Sound on volunteer and other learning opportunities and have adopted a wide range of environmental measures. Fairmont Hotels & Resorts (previously Canadian Pacific Hotels & Resorts) adopted a comprehensive, staff-supported environmental management program in 1990. See Fairmont.com or call (416) 874-2600 to order their *The Green Partnership Guide: A Practical Guide to Greening Your Hotel.*

Notes

1. *WTTC* is an international organization comprised or 115 of the world's leading tourism and travel CEOs. Its purpose is to raise the level of tourism as a strategic economic and employment priority, develop policy to ensure sustainable development, with dedication to the more accurate analysis of the economic impacts of tourism, barriers to tourism and promoting competition and open markets.

WTTC partners with a related organization known as Green Globe, the environmental management program for travel and tourism companies. It was developed in 1994 by WTTC and has the support of over 20 international industry associations, representing thousands of businesses worldwide, the WTO, the United Nations Environment Programme and the Earth Council.

World Travel Organization or WTO, an intergovernmental organization, promotes tourism as a significant means towards peace and understanding, fostering international economic development and international trade. Its environmental section works to ensure that new tourism development is properly planned and managed to protect natural and cultural environments. The Earth Council is a non-profit developed to advance the implementation of the Earth Summit agreements. It enjoys support from international members drawn from business, politics, the sciences and non-governmental organizations.

2. *The International Hotels Environment Initiative*: 15-16 Cornwall Terrace, Regent's Park, London NW1 4QP, United Kingdom. 44 (1) 20 7467 3620 and www.ihei.org and info@ihei.org. They publish an excellent magazine, *The Green Hotelier,* which can be ordered by writing: IHEI Order, MMC, PO Box 148, Aldershot, Hants, GU12 4GN, UK or by writing ihei@mmcltd.com.

3. *Environmental Protection Agency*, Office of Policy, Strategic Sector Program, *Sustainable Travel & Tourism Program*, 401 M Street SW, Washington, DC 20460; (202) 260-

4. *Resources for the Future*: http://www.rff.org; (202) 328-5121

5. *Business Enterprises for Sustainable Tourism:* BEST, Conference Board of NY, (212) 339-0335; best@conference-board.org and http://www.sustaianabletravel.org

6. *Tourism and Environment Program*: Seattle/King County Convention and Visitors Bureau; http://www.seeseattle.com or tourism@pugetsound.org

[Excerpted from *Water Conservation for the Hospitality Industry in Seattle.* O'Neill & Siegelbaum and The Rice Group, for Seattle Public Utilities. July 2002]

IV. How the BMPs are Organized

The BMPs are organized according to departments such as executive, food and beverage or housekeeping, as well as target subject areas such as energy, water and purchasing. For instance, in the Executive Office section, you will find BMPs for waste reduction, electronic purchases and recycling and green purchasing. In Food and Beverage, you will find those BMPs but additional ones for water conservation/equipment, local food purchasing, packaging and organic waste reduction and equipment energy management.

The BMPs fall into two major categories: (1) Operating procedures which cover design, maintenance and operation of a lodging; and (2) Purchasing, including how material purchases are handled (prevention, reuse, recycle, repaired, discarded).

(A) Operating Procedures include:

1. Green Building and Site Design, including Building Envelope Design, Stormwater and Hazardous Waste Management
2. Landscaping and Organics Management
3. Energy Use
4. Water Use
5. Integrated Environmental Planning, Education and Outreach

In this section, we outline green building and stormwater.

Green Building

Green building, or sustainable building, is defined by King County as:

> *"Designing, constructing and operating buildings and landscapes to incorporate energy efficiency, water conservation, waste minimization, pollution prevention, resource-efficient materials, and indoor environmental quality in all phases of a building's life"* (1999 Northwest Regional Sustainable Building Action Plan).

It is estimated that 2/3 of the world's energy is used in buildings. Costs over the course of a building's 30-year life span include 2 percent for construction, 6 percent for construction and operation and 92 percent for human resources. Green building is a way to protect the human resource element~ your associates and guests (Worldwatch Institute).

The anchor for green building policy and implementation is the U.S. Green Building Council (http://www.usgbc.org). Creating an environmentally sound and resource efficient building requires using an integrated approach to design and offers the following benefits:

- A healthy and comfortable environment
- Reduced operation and maintenance costs
- Consideration of environmental impacts of building construction and retrofits
- Waste minimization

LEED, or *Leadership in Energy and Environmental Design* certified buildings represent the most innovative, effective and green designs available. LEED is used to rate the performance of buildings and guide project design. Across the nation and notably in the Pacific NW, there are a burgeoning number of LEED certified buildings.

The demand for LEED certified buildings is partly driven by the government's desire to optimize building efficiency, comfort, asset enhancement and to reduce the use of natural resources used in buildings. 2005 led the way with the nation's first green building law for all new publicly funded buildings (Senate Bill 5509 was signed into law by Governor Gregoire in April 2005) as well as King County's Green Building ordinance 15118 (February 2005).

The US Green Building Council site contains a drop-down menu to find accredited professionals and offers an existing building program (LEED-EB). For further information contact leed-eb@usgbc.org or (202) 828-7422.

(http://www.yourhomeplanet.com/ecolodgical/index_design_toc.php).

The **Hilton Hotel in Vancouver, Washington** is planning to become LEED certified. They have already adopted a variety of measures such as carbon dioxide sensors that

adjust temperature in vacant meeting rooms and hallways (operating control), heat-reflecting roof, painting and carpet from low-emitting materials, construction recycling rate of 75 percent, water efficient landscaping and operable windows (http://www.metropolismag.com/cda/story.php?artid=1497. Posted July 2005).

Building or Retrofitting Green Hotels

Ecolodgical Solutions offers hotel specific building design resources, including environmental design management tools, green hotel economics, environmental design, operational design operation checklist, environmental management systems, audits and action checklists.

Local Green Building Resources

1. Seattle Public Utilities Sustainable Building Program: http://www.ci.seattle.wa.us/util/About_SPU/Management/SPU_&_The_Environment/Sustainable_Building/

Lucia Athens: (206) 684-4643. The City offers financial incentives, technical assistance and a range of related services.

2. King County Department of Natural Resources and Parks: http://dnr.metrokc.gov/dnrp/swd/greenbuilding/index.asp

Beth Humphries: (206) 296-4365

You can access a great list of local resource links at: http://www.metrokc.gov/dnrp/swd/greenbuilding/links.asp#local

Stormwater: Site Design or How You Design and Maintain Your Property

What is the Issue? Impervious surfaces such as concrete and asphalt interrupt the natural flow of rain and snow (part of the *hydrologic cycle)*, causing pollutants to flow directly, untreated, to Puget Sound.

Why do I care? The oils, heavy metals and chemicals that flow off the land impair aquatic ecosystems, can make swimmers sick, close shellfish and other fisheries and exacerbate flooding. Loss of sport and commercial fish stocks have tremendous economic and social ramifications. Stormwater infrastructure is also expensive to build and maintain.

The practices:

- Reduce the amount of impervious surfaces on your lot
- Wash vehicles at a commercial car wash
- Remove all or part of your lawn and replace with native plants

- Disconnect downspouts from your building from the storm drain system and direct runoff to landscaped areas ("disconnectivity")
- If you are on a septic system, maintain your system
- Reduce or eliminate chemical fertilizers, pesticides and herbicides
- Use Low Impact Development (LID) techniques, such as:

    1. Bioretention cells (surface runoff is directed into shallow landscaped Depressions)
    2. Amending soils with compost
    3. Pervious (porous) substrates
    4. Grass or gravel pavers or paving blocks for parking areas and alleyways
    5. Rainbarrels to collect roof runoff

See the Puget Sound Action Team's website and look for LID case studies, technical manuals and other related materials: http://www.psat.wa.gov/Programs/LID.htm and 800-54-SOUND.

B) Environmentally Preferable Purchasing (EPP) Strategies

Environmentally Preferable Purchasing (EPP) is a method for incorporating environmental specifications into your entire purchasing system. An EPP program means products or services that have a lesser effect on human health and the environment when compared with competing products, while meeting effectiveness and cost considerations.

Tourism businesses, as non-manufacturing businesses, can use EPP to:

- Reduce harmful impacts on the environment
- Reduce operating expenses
- Consolidate product purchases
- Reduce risk of injury to staff and guests
- Reduce liability

As you review these BMPs, think about how you can purchase (using bid specifications), products that:

- Are made with less energy
- Made with less materials (but deliver the same service, like cleaning)
- Are made with recycled materials
- Use renewable resources (not fossil fuels)
- Have extended durability and reuse potential
- Contains no toxics or less toxic chemicals

For examples of how to establish an environmentally preferable purchasing program, visit the Pacific Northwest Pollution Prevention Resource Center (PPRC) at http://www.

pprc.org or call them at (206) 352-2050. You can also join a listserve devoted to this topic at http://www.nerc.org/eppnet.html or (802) 254-3636.

V. Getting Started with an Environmental Management System

Ideally, hotel greening should take place in the context of a broader environmental management system (EMS). *Environmental Management Systems* are comprehensive organizational approaches designed to achieve environmental goals in all aspects of your operations. The most well known is the International Standards Organization (ISO) 14000. Green Globe, a program of the World Travel & Tourism Council, promotes an environmental management system for its certification program (http://www.greenglobe21.com).

Environmental management systems contain well recognized stages:

1. Assessment of current conditions and impacts (includes baseline measurement of water, energy, and solid waste generation)
2. Establish objectives and targets
3. Identify implementers for each set of objectives
4. Establish an action plan that includes training, awareness, staff procedures, incentive programs and community outreach)
5. Monitor and assess project
6. Feedback and corrective action

VI. THE BEST MANAGEMENT PRACTICES

A. EXECUTIVE, SALES, MARKETING AND RECEPTION

1. Reduce Paper Use

Why Reduce Paper Use?

Paper comes from the most valuable form of land — the forest. Forests are sinks, or sponges for carbon — a global warming gas — provide diversity for thousands of species, interrupt the flow of polluted runoff into streams and eventually Puget Sound, and provide oxygen and soil cleansing. Paper demand also drives conversion of forests to tree farms, the latter of which do not support the same level of biodiversity and functioning as forests.

Accordingly, paper should be respected. In addition, paper manufacturing uses significant water, energy and toxic chemicals. In 2003 *almost 8.5 million pounds* of 26 different chemicals associated with paper production were legally released to Washington's water, land and air (Standard Industrial Code, or *"SIC" 26-Paper.* http://www.epa.gov/tri/tridata/index.htm).

1. ***Reduce Images:*** Reduce from 100% to 70% to cut in half the area of an image. Print 2, 4 or more pages on each output paper, referred to as "2-up," "4-up printing."

2. ***Smart Printing: (Image Avoidance)****:* Stop using fax cover sheets, printer cover pages, and confirmation sheets. Incorporate document author, time/date and other identifiers in the document itself. Disable the printer to it stops printing a test page every time it is turned on.

3. ***Re-Use Paper****:* Use draft paper in your copying machines for internal use. Cut up paper that would be recycled for note paper in the office.

4. ***Paper Efficiency****:* Ask yourself how much paper is needed to perform a task. Always print double-sided (requires a duplexing unit for your copier). If you don't have a duplexing unit, print out one set and copy all subsequent copies double-sided. If you source out bigger printing projects, ask all copies to be double-sided. Copy **books** so that 2 pages appear on each sheet. If you copy double-sided, you will reduce paper use by 75%.

5. ***Buy and use 100% Post-Consumer Recycled Content Paper****:* Incorporate into your purchasing policy 30-100% *post-consumer* recycled content paper. When virgin paper is used to manufacture next generation post-consumer recycled content paper, energy, water and chemical inputs are dramatically reduced. In addition, reducing the demand for wood reduces the intensity of forest harvests.

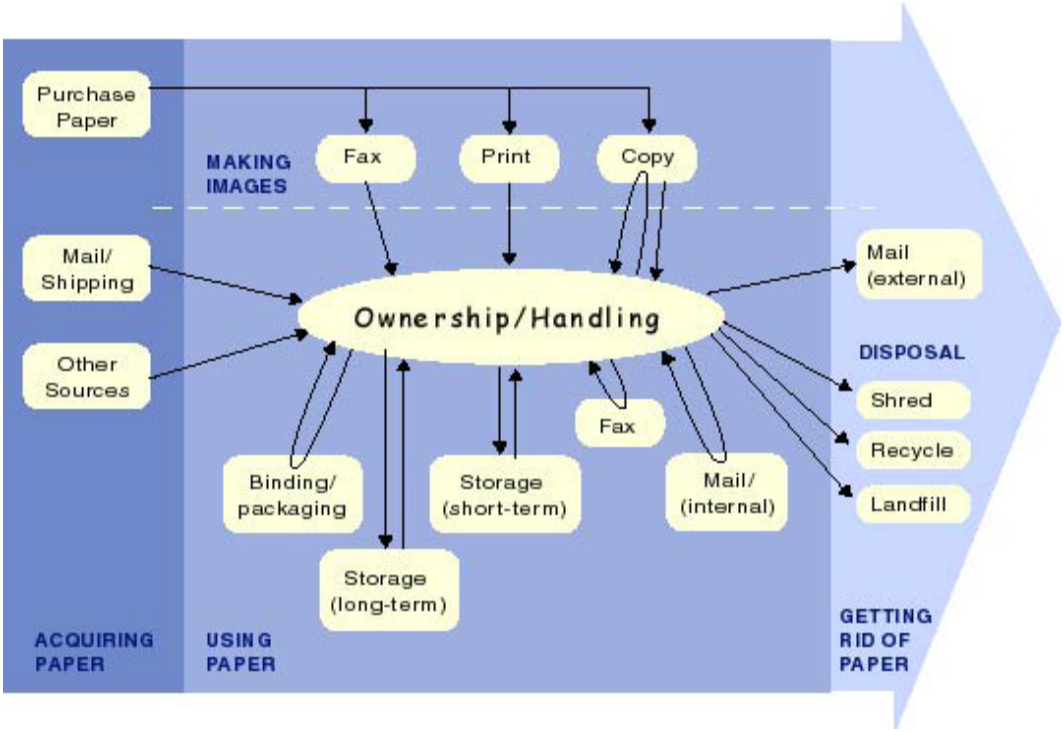
(Paper Use section based on the Lawrence Berkeley Laboratories' *Cutting Paper.* http://www.eeted.ebl.gov/Paper/).

6. ***Recycle:*** Purchase or use bifurcated baskets to separate garbage from paper recycling. Every county in Puget Sound has recycling help available through its Solid Waste Division. You can also call the Recycling Hotline at 1-800-RECYCLE (or http://1800recycle.wa.gov). If your lodging is in Seattle's City limits you can consult the Resource Venture at http://www.resourceventure.org/rv/issues/waste/rec-ord/ and get further information about recycling companies and recent restrictions.

New Seattle Law Bans Discarding Paper as Garbage

In 2005, the City of Seattle enacted Ordinance 121372 which prohibits businesses in Seattle from disposing paper, cardboard or yard debris as garbage. The city was forced to enact this law because of the undue amount of recyclable (and valuable) material being landfilled. These are the materials that would have been made into second generation products, saving water, energy and mitigating global warming gases which are created during manufacturing. See the administrative rule at http://www.resourceventure.org/rv/issues/waste/rec-ord/index.php or call (206) 389-7304 or help@resourceventure.org.

Fines will be assessed for failure to comply with the law effective January 1, 2006.



(Cutting Paper: http://eetd.lbl.gov/Paper/).

2. **Reduce Packaging**

You pay for packaging in three ways: it is incorporated into product price; you pay to manage, store and handle packaging in-house and you also pay to recycle or dispose of it (the latter of which is illegal in Seattle effective January 2005). Ensure that labels, seals, tapes and closures are recyclable where you operate your business.

- Are there toxic materials in the packaging?
- Can the toxic materials be eliminated?
- Can non-toxic materials be substituted?
- Can the package be eliminated?
- Can the packaging be reduced through product design changes, package design changes, elimination of secondary package or wrapping material, decreasing size of packaging-to-product ratio, or other volume reduction?
- Can the package be made returnable for reuse and redistribution?
- Can the package be made to be refilled by a customer or consumer either from bulk or larger containers?
- Is the package recyclable?

- Can the package be made easier to recycle, by redesigning it to be composed predominantly of a single material?
- If the packaging is made of more than one material, can the different materials be easily separated?
- Does the packaging contain inks, dyes, or tints which can be removed to enhance recyclability?
- Does the package contain the maximum feasible amount of postconsumer material?
- Do you currently receive more than one type of flexible film (stretch wrap)?

(Source *Preferred Packaging Procurement Guidelines*, Washington Retail Association, 1992. California Integrated Waste Management Board: http://www.ciwmb.ca.gov/BizWaste)

If you are working more specifically on Packaging Reduction, consult Hewlett-Packard's *Packaging Reduction and Re-Use guidelines* at http://www.packaging.hp.com/enviro/environm.htm and http://www.packaging.hp.com/enviro/evsec03.htm).

3. **Purchase Environmentally Preferable Office Supplies:** As part of your purchasing policy, identify and purchase environmentally preferable office supplies that contain less toxic chemicals, are made with recycled materials, or can be re-used or remanufactured. Ideally these purchases should be made in the context of an overall purchasing policy and specifications for the property.

See http://www.sustainablegroup.net and (206) 706-8854
Reused Toner Cartridges are 1/3 the cost of new ones: http://www.metrokc.gov/procure/green/tonecart.htm

For contract language see http://www.metrokc.gov/procure/green/standpar.htm.

Join EPA's Waste Wise Program (**Seattle Sheraton** is a member): http://www.epa.gov/wastewise

What is Toxic?

Toxics are substances that are harmful or poisonous. It also refers to the ability to kill or damage cells in humans, animals and plants. Some substances can cause damage immediately after exposure (acute) and others after long-term exposure (chronic).

4. **Purchase, Use and Dispose of Electronic Equipment Properly**

Electronic equipment such as faxes, computers and their peripherals, phones and Blackberries contain a wide range of toxic chemicals. Computers contain lead, cadmium and mercury all of which are known to cause brain and kidney damage.

"About 40% of the heavy metals in landfills, including lead, mercury and cadmium, come from electronic equipment discards. The health effects of lead on children are well known and just 1/70th of a teaspoon of mercury can contaminate 20 acres of a lake, making the fish unfit to eat" (Silicon Valley Toxics Coalition Clean Computer Campaign. http://www.svtc.org).

Options for Computer Purchasing:

1. Enter a lease and take-back program whereby you lease your computers (you want the services of the computer, not the computer *per se*).
2. Choose operating systems and software readily upgradable
3. Check to see that memory is easily expandable
4. Ask for several computer units to be packaged together for shipping (multi-paks)
5. Require recycled content materials and recyclable packaging
6. Have computer seller take back associated packaging
7. Ask for on-line manuals and pre-installed programs
8. Ask for computer parts to avoid CFCs, HCFCs, chlorinated solvents, cadmium, mercury and chlorinated and brominated flame retardants
9. Ask for computers with lead-free solder (Matsushita and Sony)
10. Use only low-mercury and long life lamps in panel displays
11. Ask for metal, versus plastic, housing (increases recyclability and avoids the use of flame retardants)
12. Require recycled content materials (IBM has a PC with 100% recycled plastic in all plastic parts)
13. Require ***Energy Star*** compliance for energy use and sleep modes, active upon delivery and functional within LAN environment (www.energystar.gov)

(From *A Guide to Environmentally Preferable Computer Purchasing.* Northwest Product Stewardship Council Computer Subcommittee. http://www.govlink.org/nwpsc).

Responsible Disposal

Use companies to responsibly recycle your electronic equipment. See http://www.metrokc.gov/dnrp/swd/electronics/index.asp to identify recycling companies that belong to the *Take It Back Network*. Otherwise, recycling companies export our electronic trash to Asia where it is disaggregated in extremely dangerous conditions by children and other vulnerable populations. The US refuses to become a signatory to the Basel Convention which prohibits such practices. See *Exporting Harm: The High-Tech Trashing of Asia* at http://www.svtc.org and the Basel Action Network at http://www.ban.org.

6. **Be Energy Smart**

Ensure all office equipment is ***Energy Star*** rated. This federal program has been very successful in helping businesses and residents save energy. Shop from the office equipment list at http://www.energystar.gov/index.cfm?c=ofc_equip.pr_office_equipment or call 1-888-STAR-YES.

Replace incandescent lights (the familiar light bulb) with compact fluorescent bulbs, or *CFLs*. Color rendition in CFLs has vastly improved the quality of light output. In addition, the energy savings are profound:

CFLs last between 6,000 and 10,000 hours compared to an incandescent bulb which lasts 750 to 1,000 hours. CFLs use 70 to 80% less energy than incandescent bulbs (http://www.doe.gov).

For more information about lighting and lighting controls see http://www.eere.energy.gov/EE/buildings_lighting.html and the Whole Building Design Guide at http://www.wbdg.org/design/efficientlighting.php.

If you are in Seattle, you can arrange for a lighting consultation with the Lighting Design Lab (http://www.lightingdesignlab.com; (206) 325-9711 michael@lightingdesignlab.com).

B. ENGINEERING AND MAINTENANCE

Engineering and maintenance operations are at the heart of hotel greening and are typically the first department to adopt these strategies and controls.

Engineering measures are categorized as follows:

1. Systems, or Heating, Ventilation and Air Conditioning (HVAC)
2. Lighting and Lighting Controls
3. Water efficiency measures (including irrigation and xeriscaping)
4. Behavioral (audits, measures/targets, benchmarking, maintenance, incentives and staff buy-in and participation)

A. *Overall system performance* is enhanced by improving these air conditioning systems:

- Chiller replacement
- Optimizing cooler tower performance
- Utilizing variable air volume systems
- Utilizing electric variable speed air conditioning
- Utilizing electronic adjustable-speed drives

HVAC systems should be designed to reflect the building's use, occupancy patterns, density, passive solar opportunities, office equipment, lighting levels, comfort ranges and space specific needs (http:// ecolodgical.yourhomeplanet.com/index_design_toc.php).

1. ***Chiller Replacement***

Replace older reciprocating chillers with either new models (with average efficiency of 0.78-0.85 kW/ton or centrifugal chillers (efficiency rate of 0.56-0.70 kW/ton). Tailor your chiller to the cooling load~ centrifugal is better for large constant loads while reciprocating chillers are better for variable loads (http://tristate.apogee.net/cool/cfsc.htm). Ensure the chiller is not oversized and consult the *Cooling and Heating Load Calculation Manual* (http://www.ashrae.org).

2. ***Optimize Cooling Tower Performance***

Maintaining cooling towers can reduce energy expenditure for chillers. Improperly maintained cooling towers produce warmer cooling water resulting in condenser temperatures 5˚ to 10˚ F higher than required. For each degree increase in condenser temperature, the chiller will consume 2.5 to 3.5 percent more energy (*Development of Criteria and Benchmarks for Green Hotels in Thailand- Phase I.* Oregon Economic and Community Development Department. September 2002. Hereafter this document is referred to as *Thailand Green Hotels*).

Routine Checks:

- Test water sample for proper concentration of dissolved solids- adjust bleed water flow as needed
- Measure water treatment chemical residue in the circulating water
- Check strainer on bottom of collection basin
- Operate the make-up water float switch manually
- Inspect all moving parts
- Check for excessive vibration in motors, fans and pumps
- Manually test the vibration limit switch by jarring it
- Look for oil leaks in gearboxes
- Check for structural deterioration, loose connectors, water leaks and openings in the casing

(*Thailand Green Hotels* at page 56).

3. ***Variable Air Volume Systems***

This system is ideal for larger buildings with air conditioned spaces with different requirements. In variable air volume systems, the quantity of air supplied to each zone can be varied.

4. ***Electric Variable Speed Conditioning***

These central air conditioners use electronically commutated motors (ECM). ECM speeds can be varied to make the cooling system's capacity match a hotel's load. When load conditions constantly change, cycling losses occur. ECM systems reduce these cycling losses.

(James McMahon, Gregory Rosenquist, J.D. Lutz, Stanley Boghosian and Leslie Shown, "Energy Efficient Technologies: Appliances, Heat Pumps, and Air Conditioning", in *CRC Handbook of Energy Efficiency.* Eds. Frank Kreith and Ronald West, Massachusetts: CRC Press, Inc., 1997, p 437).

5. ***Electronic Adjustable-Speed Drives***

Electronic adjustable-speed drives (ASDs) have no moving parts, are reliable and efficient and have low maintenance requirements. ASDs tailor motor speed to load and able to change the speed of AC motors continuously (*Thailand Green Hotels* at page 58).

B. Lighting

Adjustments to lighting, a major source of building internal heat, is an easy way for a hotel to reduce energy costs. Energy effective lighting generally falls into these categories:

1. Behavioral, such as system maintenance, turning lights off and powering down, as well as staff and guest outreach
2. Controls, such as occupancy sensors
3. Structural building-wide strategies, such as daylighting
4. Efficient lamps and ballasts
5. Efficient fixtures, such as reflectors, shielding and housing

In the United States, approximately one-quarter of the electricity budget is spent on lighting at the tune of $37 billion annually (http://www.wbdg.org/design/efficientlighting.php).

1. ***Getting Buy-In***

As part of the hotel's environmental management system, lighting and energy measures need support from all levels of the organization. Most effective strategies include incentives, progress as part of performance reviews and promoting a team spirit.

- Post signs in the back of the house
- Establish department "green teams" that can engage in friendly competition
- Make sure managers are involved, set clearly defined goals and communicate with sales and marketing so they are both engaged and informed about progress

- Goals should be specific, measurable and achievable
- Provide incentives to inspire cooperation. These incentives may vary from person to person and could include compensation time, time off, flex time, cash bonuses, gifts, public recognition, or increased control over work
- Communicate about your progress through staff newsletters, bulletin boards, through paycheck inserts, special events and staff meetings. Work with SPU, Seattle City Light, Puget Sound Energy and County Public Utility Districts and related agencies to help your associates conserve water and energy at home, as well as work
- Communicate with guests using reminder cards or a part of a more comprehensive brochure or statement regarding your environmental policy (see http://www.greenhotels.com).

Implement the Energy Management Plan: Ensure that everyone knows what their role is with respect to the energy management plan so responsibility is not shifted to other associates and managers. Everyone in the hotel must have some role in the plan's implementation and success. Display the plan's progress in areas where associates and managers can chart reductions in water use and associated costs.

Monitor the Energy Management Plan: Once the plan has been initiated, monitor reduction in energy use by: (a) equipment; (b) process; (c) time of day; (d) function and (e) department. Make adjustments to your plan if required and develop internal procedures or implementation, evaluation and revision. These procedures should be shared with associates and managers outside the Engineering Department, and if it creates new work for them, should be developed with their input.

Hotels can also join the **Environmental Protection Agency's *ENERGY STAR* Program for hotels** in which hotels can benchmark their energy performance of their buildings, set goals and track progress using an interactive Portfolio Manager. Find equipment for your entire hotel's operations (http://www.energystar.gov/index.cfm?c=hospitality.bus_hospitality).

(Excerpted from Water Conservation for the Hospitality Industry in Seattle, Seattle Public Utilities. O'Neill & Siegelbaum and The Rice Group. 2002, hereafter *Seattle Pilot; Facility Manager's Guide to Water Management,* Arizona Municipal Water Users Association Regional Water Conservation Committee and Black and Veatch, August 2000. http://www.amwua.org/fmgtwn.pdf and (602) 248-8482. *The Green Partnership Guide: A Practical Guide to Greening Your Hotel,* Fairmont Hotels and Resorts, 2001. http://www.fairmont.com and (416) 874-2600).

2. ***Daylighting***

"*Daylighting is the controlled admission of natural light into a space through windows to reduce or eliminate electric lighting. By providing a direct link to the dynamic and perpetually evolving patterns of outdoor illumination, daylighting helps*

create a visually stimulating and productive environment for building occupants, while reducing as much as one-third of total building energy costs." (National Institute of Building Sciences, Whole Building Design Guide).

Daylighting can save 0.05-0.20 per square foot annually in increased user productivity, reduced emissions and reduced operating costs. However, daylighting may be best suited for new construction or major renovations.

Check the local green building resources above to see if daylighting can be incorporated into existing buildings (http://www.daylighting.org). To read about work productivity studies associated with daylighting see http://www.innovativedesign.net/paper.htm. For information about daylighting with windows see http://eande.lbl.gov/btp/pub/designguide.

3. ***Lighting and Lighting Controls***

High Efficiency Fluorescent Lights*:* Replace T12 lamps with T8 lamps which offer greater lumens per watt. These are ideal for continuous, long hours of use. Do not use T12 lamps on T8 electronic ballasts as this seriously shortens lamp life (http://www.lightingdesignlab.com). Newer T5 models are also now available but are considerably more expensive than a T8 lamp.

Ballasts for Fluorescent Lamps

Over time, replace conventional ballasts with electronic ballasted T8 or T5 systems (*Thailand Green Hotels* at page 62). Electronic ballasts produce more light for each watt, run cooler and last longer. They also reduce lamp flickering, hum, improved lamp life, reduced heat losses and easy control of light output and power consumption for use with external sensors and controls (*Ibid.).*

Compact Fluorescent Lamps (CFLs)

CFLs work with magnetic or electronic ballasts and can be attached to the tube or removable (modular), the latter of which is more economical. Integral ballasts have screw-in bases and replace incandescent lamps.

Tips for extending CFL life:

- Use rapid-start electronic ballasts (versus instant-start)
- Lower lamp ambient temperature
- Use longer operating cycles

(Conan O'Rourke and Marianna Figueiro, *Long-Term Performance of Screwbase Compact Fluorescent Lamps.* Illuminating Engineering Society of North America 2000 Annual Conference: Proceedings. IESNA: New York, NY. 369-381).

Exit Signs and Light Emitting Diodes (LEDs)

Exit signs, using incandescent bulbs, use 350 kWh/annually and cost $28 each. Light

emitting diodes or LEDs, are an excellent replacement lamp as they use only 44 kWh/ annually, cost $4 each year and have a life span of 10 years. In addition, the carbon dioxide (global warming gas) emission comparison is notable: 574 lbs/year for a standard incandescent bulb versus 72 lbs/year for an LED (www.eere.**energy**.gov/femp/technologies/eeproducts.cfm) .

High Intensity Discharge Lamps (HID)

This family of metal halide, high pressure sodium and mercury vapour lamps are ideal for high ceiling applications. Metal halide lamps are good or lobbies, ballrooms and service areas. Replacing a 500-watt tungsten halogen incandescent lamp with a 150-watt metal halide lamp will take only 1. 3 years to pay back (*Thailand Green Hotels* at page 62).

Control Devices

Lighting controls permit variability and user-control over fixtures and include:

- Occupancy sensors
- Daylight controls (which adjust interior lighting based on incoming daylight using a photoelectric sensor).
- Dimming control retrofits for fluorescent, HID and incandescent lamps
- Energy Management and Control Systems, including centralized monitoring, switched time schedules, chiller optimization, load based reset, and demand control

Seattle City Light, Puget Sound Energy, Snohomish County Public Utility District (PUD), Clallam County PUD, and Whatcom County PUD #1 all offer technical assistance and rebates for energy projects.

- Seattle City Light: http://www.cityofseattle.net/light/conserve/business/ProgramManual/ and (206) 684-3254. They conduct free facility assessments.
- Puget Sound Energy: http://www.pse.com/yourbusiness/grants/grants.html and (800) 562-1482
- Snohomish Public Utility District: http://www.snopud.com and (877) 783-1000 or (4250) 783-1000
- Clallam County Public Utility District: http://www.clallampud.net/conservation/programs_commercial.html and (800) 542-7859 (press 6)
- Whatcom County Public Utility District #1: http://www.pudwhatcom.org and (360) 384-4288 x12

C. Water Efficiency Measures

Before installing water saving devices or systems, conduct a professional water assessment to determine your per-department water use. This requires metering

devices and metering tenants, including restaurants or retail shops. A routine leak detection and maintenance program can be invaluable in repairing costly water losses.

This section will address spa/pool and irrigation. Room/Laundry and Food and Beverage measures are found in those sections.

1. ***Pools and Spas***

- Keep pools and spas slightly below level to avoid splash-out and keep covered during non-use to maintain heat
- Seattle Public Utilities is examining using condensate water from heat exchangers to directly provide hot water to pools
- Drain only as needed. The circulation systems of swimming pools, spas and hot tubs are set forth in the National Sanitation Foundation's (NSF's) standard 50-2000, which was designated as an American National Standards Institute (ANSI) standard in January 2000 (http://www.ansi.org). In Seattle, the Department of Health regulates microbial testing and drainage frequency based on chlorine-pH balance (WAC 246-260)
- Consider replacing bromine and chlorine sanitation with silver/copper ionization

(*Seattle Pilot* at page 22 and http://ecolodgical.yourhomeplanet.com/create_html/issue/water_conservation.htm)

2. *Landscaping and Golf Course Management*

Some businesses have made innovation a model for success, such as *Natural Landscaping:*

- Base irrigation design on Xeriscape™ principles. These are planning and design, use of well-adapted plants, soil and climate analysis, practical, reduced turf areas, use of mulches, and efficient irrigation by grouping plants with similar needs
- Mow high and mulch
- Use natural, organic, slow-release fertilizer in the spring and fall
- Water deeply but less frequently (drip irrigation)
- Increase irrigation efficiency with controllers and sensors
- Aerate (with an aeration tool) your lawn area
- Build good soil through compost and compost teas
- Avoid weed-and-feed products and other pesticides/herbicides
- Reducing lawn cover or eliminate altogether
- Incorporate plants of different heights into existing gardens ("stacking"). This increases the number of plants on any given amount of land (***Habitat Suites Hotel*** Environmental Practices Handbook. http://www.habitatsuites.com)
- Where possible, use greywater in irrigation

(Based in part on Ecolodical's Green Hotel Environmental Design and Operation Checklist)

You can also cluster plants to reduce the amount of water you use and plant native vegetation and ground cover. There are an abundance of resources at your fingertips:

- *Landscaping for Wildlife*: http://wdfw.wa.gov/wlm/landscap.htm. You can buy this book at DFW Book Sales, 16018 Mill Creek Blvd, Mill Creek, WA. 98012- just $28 payable to WDFW and it includes shipment
- *How to choose a Landscape Company:* Call the Hazardous Waste Management Program in King County at (206) 263-3050 to get this brochure
- *Washington Native Plant Society*: (206) 723-8115 and http://www.wnps.org. The society has a listing of all the stores that carry native plants. Native plants use less water, are beautiful and help to restore local biodiversity which keeps Puget Sound true to its character
- King County Department of Natural Resources: http://www.dnr.metrokc.gov/wlr/pi/npnursry.htm
- Seattle Public Utilities bonanza of natural landscaping information: http://www.seattle.gov/util/Services/Yard/Natural_Lawn_&_Garden_Care/index.asp. Download the document *Ecologically Sound Lawn Care for the Pacific Northwest (*David McDonald).

(Excerpts from the Winter 2005 *Sound & Sustainable* newsletter. http://pugetsound.org/tourism)

Audubon Cooperative Sanctuary Program For Golf Courses

Since 1991, Audubon International has worked cooperatively with the United States Golf Association (USGA), with more than 2,300 courses in all 50 states, Canada, and increasingly, around the world.

"By their very nature, golf courses provide significant open spaces and opportunities to provide needed wildlife habitat in increasingly urbanized communities across North America…The ACSP for Golf Courses seeks to address golf's environmental concerns while maximizing golf course opportunities to provide open space benefits. This highly-regarded education and assistance program promotes participation in comprehensive environmental management, enhancement and protection of existing wildlife habitats, and recognition for those who are engaged in environmentally-responsible projects."

The Cooperative Sanctuary program seeks to protect biological diversity, water resources, and to reduce the use of toxic substances.

The environmental impacts of golf course development are well known and include excessive water use (up to 4,100 gallons/acre in summer), pesticide use (kills non-targeted species, poisonous and can cost up to $1,450/year. Bekah Rottenberg, *When the Green Becomes Unclean,* Brown University 2003 and the United Nations Environment Programme. http://www.uneptie.org/pc/tourism/sust-tourism/env-3main.htm)

Audubon International provides information to help golf courses with:

- Environmental Planning
- Wildlife and Habitat Management
- Chemical Use Reduction and Safety
- Water Conservation
- Water Quality Management
- Outreach and Education

There are a number of golf courses in Washington State that belong to the Audubon Cooperative Sanctuary program (see www.audubonintenational.org/programs/acss/golf.htm) including those in Spanaway, Everett, Bellevue, Port Orchard, Port Ludlow, and Blaine.

Benefits of joining:

- Promotes the course's positive, pro-active environmental achievements
- Educates golf course employees about habitat management, Best Management Practices, and public outreach strategies designed especially for golf courses
- Provides on-going technical information, support, and guidance for implementing environmental projects
- Results in financial savings on course maintenance
- Connects superintendents and course personnel with local resource people and organizations that can support the golf course's environmental management programs
- Improves job satisfaction

Pollinators are particularly important to seed and fruit production and biological diversity. The USGA's Wildlife Links Program and the Golf Course Superintendents Association of America strongly support pollinator conservation (http://www.gcsaa.org/gcm/2001/feb01/02bugs.html and http://www.xerces.org).

C. HOUSEKEEPING AND LAUNDRY

1. **Waste Reduction**

Guest Rooms

- Eliminate individual personal care products and replace with secure proof bulk dispenser with higher quality, organic products (many of these products contain disinfectants and phosphates that leach from landfills and enter streams)
- Provide shower caps and sewing kits on request only

- Provide in-room recycling
- Inquire whether the guest wants your morning newspaper
- Eliminate disposable plastic cups and replace with glass or durable plastic/ Turn the glass upside down to avoid use of plastic or paper wrappers
- Eliminate use of plastic liners in ice buckets
- Wait to replace half-used toilet paper roll and tissue boxes until they are almost gone. Leave new supplies for guests to replace if needed
- Leave half-used items for the duration of the guest's stay
- Leave gift amenities unless the seal is broken
- Eliminate use of doilies and paper tray covers (many are bleached using chlorine, which in turn releases dioxins and furans into water — toxic)
- Use refillable vacuum cleaner bags

Laundry

- Do not wrap guest dry cleaning in plastic. Use reusable cloth bags or baskets if necessary
- Eliminate cardboard backing for shirts
- Ensure recycling is available for staff, particularly for cold drinks

2. Water Efficiency

Key: *GPF* = gallons per flush
GPM = gallons per minute
GPD = gallons per day

Guest Rooms

1. Replace higher flow (3-7 gpf) ***toilets*** with low-flow 1.6 gpf models. During a Seattle hotel water conservation pilot, an estimated $28,000/year could have been saved by replacing toilets (*Seattle Pilot* at page 22).

2. Replace 5 gpm guest room ***showers*** with 2.5 gpm showerheads. Both low flow toilets and shower heads save considerable money because heating and sewer charges are reduced. On average, each hotel guest takes a 10-minute shower per day resulting in 10,000 gpd use for a 200-room hotel. New models give the same "sense" of water pressure and many give the guest multiple options. Energy Technology Laboratories offers a 1.5 gpm showerhead (*Thailand Green Hotels* at page 71).

3. Use flow restrictors on sinks. Savings are estimated at 2.0 gpd and payback is rapid.

4. Do not run bath or sink water while physically cleaning. Do not flush empty toilet bowl before cleaning

5. Replace older guest floor ice machines with air cooled models

6. Institute a Towel-Linen Program

This issues deserves particular mention because of the enormous energy, water and chemical savings associated with these well known, voluntary programs.

The American Hotel & Lodging Association has partnered with the EPA as part of its Good Earthkeeping Alliance. Partners include American Standard Companies, General Electric, Project Planet, Servidyne and Whirlpool. One of its signature projects is a towel-linen program whereby guests are given the option of not having their linens and towels washed daily.

According to Project Planet, the savings from towel-linen programs are substantial:

100 rooms at 40% occupancy: $12,914 savings/annually
100 rooms at 70% occupancy: $22,934 savings/annually
300 rooms at 50% occupancy: $49,294 savings/annually
300 rooms at 70% occupancy: $69,334 savings/annually
800 rooms at 70% occupancy: $184,442 savings/annually

(www.projectplanet.com; Six Continents Hotels, AH&LA, NGI Marketing Corporation and Green Hotels Association).

Consider the following issues for Towel-Linen Program Adoption:

1. Develop question and answer fact sheet distributed to every department, including national sales and reservations offices, that sets forth the basis, benefits and other attributes of the program. This will ensure the entire staff and corporate offices are well informed and working from the same level of understanding;

2. Incorporate program discussion at new staff orientation, employee manuals, and retrain all housekeeping and laundry staff to ensure acceptance and understanding;

3. Translate towel-linen cards into languages that tend to be represented in the hotel, including staff and guests;

4. Identify a champion or leader within housekeeping to keep the program invigorated and participation high; and

5. Discuss and map out the process by which guest compliments and complaints will be handled with respect to the program.

Towel-linen program adoption is based on the following principles:

1. Reduce costs associated with water, sewer, heat, chemicals, staff time and life of linens;

2. Water conservation is an essential strategy, particularly during a drought. Rainfall does not = drinking water;

3. If water storage capacity is exceeded, new sources have to be built, if that is even possible, and water bills and sewer charges will rise precipitously;

4. Water is a shared resource, needed for our iconic salmon, industry, agriculture and recreation;

5. Guests support these programs and there is more than ample evidence of their acceptance (a Holiday Inn study indicates over 80% of their business and leisure travelers were more inclined to stay at a place where a towel-linen program was in place); and

6. These programs are a simple, voluntary way to save money and show your guests that you care about the community from which you derive your economic viability.

(Excerpted from *Seattle Pilot* at page 9).

Laundry

1. Use rinse water in subsequent rinse cycles

2. Consider installing an ozone laundry system (cleans using air to create ozone gas electrically. The gas then becomes the primary cleaner)

3. Avoid triple-sheeting

4. Seal laundry floors. The Seattle pilot indicated that laundered sheets inadvertently dragged on unsealed floors required re-washing. This would not be necessary with a clean, sealed floor

5. *Evaluate Microfiltration Units (MFU)* for larger laundry operations. In 1995, the Hospitality Industry Forum on Energy Conservation (helps the Technology Introduction Partnership) partnered with the Red Lion Central Laundry in Portland, Oregon. The MFU uses filters and a membrane to filter suspended solids and oils from laundry wastewater otherwise discharged to the sewer and

recycles water for reuse and heat recovery. After just five months, the MFU had saved 52% savings in water consumption and 44% in energy (T.F. Garlick, M.A. Halverson and M.R. Ledbetter, *Wastewater Recycling and Heat Reclamation Project, Red Lion Central Laundry, Portland, Oregon.* Pacific Northwest National Laboratory, Richland, WA. Also see http://www.h2oreuse.com/whathow.html).

Consult Seattle Public Utility's Water Smart Partnership and the Resource Venture for more information (http://www.ci.seattle.wa.us/util/Services/Water/For_Commercial_Customers/WATERCONS_200311261707523.asp and http://www.resourceventure.org).

Cleaning Chemicals

Background

Some of the chemical ingredients found in commercially available cleaning products predate the 1976 federal Toxic Substances Control Act (TSCA), meaning that thousands of industrial chemicals were grand fathered into the law and possibly never reviewed by federal agencies such as the Environmental Protection Agency ("EPA", or the "Agency"). EPA has jurisdiction over newly introduced, or post research and development commercial chemicals, but the current structure of the statute, which requires the Agency to balance the costs associated with toxicity testing with risk factors (cost-benefit), cannot ensure that these substances receive full toxicological review.

Exposure

Particular chemical substances found in cleaning products may cause a range of human health and environmental effects if exposure exceeds recommended levels. This can easily occur when cleaners are used in poorly ventilated areas and/or in the absence of personal protective equipment, such as gloves and dust masks. Many cleaning chemicals absorb readily through the skin within seconds of exposure.

Hormone Disrupting Chemicals

Of particular concern to both local and national environmental and health agencies are chemicals that act as hormone disruptors, including the larger class of alkylphenol ethoxylates, or APEs. APEs are found in many cleaning chemicals and have been banned in several European countries while the National Science Foundation, EPA, USDA, Centers for Disease Control, NOAA, FDA are working to evaluate the risks associated with APEs.

Sewer water containing these chemicals is sent to wastewater treatment but these systems cannot and do not remove APEs or heavy metals. Accordingly, they are discharged to Puget Sound.

Pollution Prevention Programs or Janitorial "P2"

Accordingly, janitorial P2 programs have been developed by non-profits such as the GreenSeal, Scientific Certification Systems, St. Paul Neighborhood Energy Consortium and the Washington Toxics Coalition; cities such as Santa Monica and Seattle and Massachusetts, Minnesota, and Vermont.

Applicable Law

The use of chemicals and the manner in which the associated risks are communicated to exposed staff is governed by the Washington Industrial Safety and Health Act (WISHA) and the WAC (Washington Administrative Code): 296-62, Chapter C.

This reference is to the Hazard Communication Standard and is intended to:

1. Evaluate risks from chemicals
2. Train and educate the people who are exposed to them about these risks
3. Reduce worker injury and illness; lower insurance; comply with law

Responsibilities of Chemical Manufacturers and Importers

Chemical manufacturers and importers are required under this law to evaluate the hazards of their chemicals. Some of the product formulations may not even contain toxic constituents but this body of law has developed in such a way that they produce information about the product formulations even if they are not considered hazardous. Manufacturers and importers must provide a material safety data sheet, or "MSDS", with each first and subsequent shipment of chemicals.

The Hotel's Responsibility under Washington State Law

The employer, the hotel, does not have to evaluate hazards from the chemicals it uses but it does have to:

1. Develop a Hazard Communication Program:

- Obtain and make available MSDSs 24 hours/day (since employees and contractor may be exposed at any time)
- Make sure the MSDSs are current and updated
- Prepare a written program that outlines: how the program will work at the specific place of work, meaning how the employees will be trained, including new employees, language translation and how staff will understand how to store, mix and use chemicals
- Containers must be clearly labeled, including Ready to Use (RTU) bottles
- Identify person or persons at work responsible for developing and implementing a workplace plan

- Procedures must specify how MSDSs will be updated
- How the hotel will respond when MSDSs are not provided by the manufacturer/importer
- Employee education and training must be provided for all new employees, and when the hazard changes. This means that each time a new chemical is introduced into the workplace, training must be conducted for that chemical (storage, handling and use).
- **Training elements include:** (1) How employees can detect the presence of release of chemicals (odor); (2) physical and health hazards of hazardous chemicals in the workplace; (3) how to protect themselves (gloves, face masks, ventilation); (4) details of the Hazard Communication Program you have developed
- **Information you must provide**: (1) the Hazard Communication Standard requirements; (2) operations that involve hazardous chemicals (F&B, laundry, engineering, housekeeping) and (3) location and availability of the written program including MSDSs.

MSDS Requirements

- All spaces must be filled in
- Do not accept chemicals where the chemical identity is proprietary. Legally the company can make trade secret claims but as a matter of policy, you should not purchase chemicals with these claims
- If you do purchase chemicals with such trade secret claims, there must be an 800 number to call 24 hours a day in case of exposure
- Labor and Industries can help provide MSDS translation for Cambodian, Chinese, Korean, Spanish and Vietnamese
- MSDSs must be maintained for 30 years

Contractors must provide MSDS to the hotel for chemicals they bring into the workplace and the hotel must do the same for the contractors.

Not unlike most businesses, both hotels use a wide range of cleaning chemicals including toilet bowl cleaners, all purpose cleaners, metal finishers, laundry and F&B chemicals and sanitizing agents. During the Seattle Hotel Water Conservation Pilot, the project team, in conjunction with the Washington Toxics Coalition, reviewed the MSDSs for most of the chemicals used in both hotels, and also conducted research at the Hazardous Waste Management Program in King County library databases. Scientists in King County, EPA headquarters and the Washington Toxic Coalition were consulted throughout the process.

Of the chemicals used in the Seattle Pilot, approximately sixty-seven chemicals, if analyzed critically, would fail the janitorial cleaning chemical criteria adopted by the City of Seattle. The basis for failure include:

1. corrosivity
2. hormone disruptors

3. flammable
4. phosphates
5. EDTA (chelating agent which attracts heavy metals)
6. carcinogens
7. reproductive toxicants
8. combination cleaner/disinfectant

Alternatives

Given the national purchasing contracts established by corporate offices, it may be difficult for the hotels to purchase alternative cleaning chemicals. Products that meet the City of Seattle's criteria will provide a list of sources for safer cleaning chemicals. Those sources may be found through the Office of Sustainability and Environment and can be found on-line at http://www.ci.seattle.wa.us/oem/greenpurchasing/envcritjanitorialservices.doc

Ingredients of Concern

Concern	Ingredients	Products	Mitigation
Skin/eye burns	Acids, bases, concentrates	Toilet, oven, drain Floor stripper Conc. laundry & dishwasher detergents Bleaches Rust removers	Product selection Avoid contact with concentrates Gloves & goggles
Resp. irritation and asthma aggravation	Bleach, ammonia, solvents	Laundry bleaches, some bath, toilet cleaners, glass cleaners	Product selection Ventilation Respirator
Cancer	Trichloroethylene Perchloroethylene Silica	Dry cleaning fluids Metal polish, spot remover, scouring powder	Process changes Product selection Dust mask
Reproductive effects	Some glycol ethers:* EGME, EGEE, EGDME DEGME, DEGDME	Many products	Product selection Gloves
CNS effects	Solvents: toluene, glycol ethers*		Product selection Ventilation Respirator
Blood, bone marrow damage	Glycol ethers*	Many products	Product selection Gloves
Water pollution	Phosphates	Laundry, auto dish	Product selection Use reduction
Aquatic toxicity	APE detergents (nonyl, octylphenol ethoxylates)	Many products	Product selection
Air pollution, smog	Volatile organic compounds (VOCs)		Product selection Use reduction

*Note: glycol ethers are readily absorbed through the skin. Skin contact increases exposures levels significantly and can be the major route of exposure.

Source: Washington Toxics Coalition. (Excerpted from *Seattle Pilot* at page 47)

Chemical Injuries in Washington State

Six out of every one hundred janitors in Washington State suffers an injury related to the act of cleaning. 40% involve eye irritation, 36% skin irritation and burns and 12% breathing chemical fumes (*Janitorial Products — Pollution Prevention Project.* Thomas Barron. Statistics from Washington State Department of Labor and Industries. http://www.lni.wa.gov). The average claim cost the employer $725 in lost time and medical bills.

Criteria for Product Purchasing

(blank cell means no specific criterion)

Criterion	City of Seattle Janitorial Products	Green Seal Standard for I&I Bath, GP, and Glass Cleaners
Hazardous chemicals	No SARA Title III Section 313 listed chemicals	
Toxicity		Must not be toxic
Corrosivity	Prohibited	May not be irritating or corrosive
Flammability	FP > 140	FP > 150
Reactivity	Prohibited	
Carcinogens	Prohibited	Prohibited
Teratogens	Prohibited	Prohibited
Phosphates	<.5%	<.5%
Prohibited ingredients	APEs paradichlorobenzene 1,4-dioxane sodium hypochlorite (except in disinfectants) nitrilotriacetic acid sodium EDTA phosphates >0.5%	APEs dyes fragrances (except if active ingredients) sodium EDTA phosphates >0.5%
Aquatic toxicity		May not be toxic
Biodegradability		>60% max CO2
VOCs	<10%	<5% g.p. and bath <8% glass
Ozone depleters	Prohibited	prohibited
Cleaner/disinfectant	Must be separate	

Washington Toxics Coalition 2001

A Word About Antibacterial Soaps…

Antibacterial soaps and gels are only effective against bacteria. *Antimicrobials* are effective against bacteria, viruses and molds. Colds and flus come from viruses. Antimicrobials use triclosan which may increase the resistance to bacteria and triclosan has not been shown effective against cold-flu producing viruses.

Use only soap which is just as effective as these products and more less expensive (http://www.watoxics.org).

Purchase From Existing Lists

Rather than evaluating your chemicals independently, consider using the following lists:

1. http://www.westp2net.org/janitorial/jp4.htm
2. City of Seattle, Janitorial Commodity Team: http://www.seattle.gov/environment/janitorial%20product%20list.pdf
3. Green Seal Standard GS-37: http://www.greenseal.org/certproducts.htm#cleaners

D. FOOD AND BEVERAGE and RESTAURANTS

One of the most comprehensive food service and environment analysis is the National Ski Areas Association ***Sustainable Slopes*** program. See http://nsaa.org/nsaa/environment/sustainable_slopes/ and look for *Greening Your Ski Area: A Pollution Prevention Handbook.* 2002).

1. **Waste Reduction** (please refer to Section A/Executive for comprehensive ideas)

- Buy in bulk and larger quantities whenever possible

- Eliminate individually packaged sugars, mustards and jams and use ceramic dispensers. Individually packaged items can double costs

- Stop using plastic straws (you will have to roll out a "why?" campaign)~ they are made with limited petroleum resources and are garbage within minutes

- Work with suppliers to restrict packaging or take it back with them after unloading. Packaging is time consuming to handle and takes storage space

- Eliminate use of polystyrene foam in all operations. Its production uses benzene, a known human carcinogen and reproductive toxin. It is very bulky to store and when landfilled, breaks down into tiny pieces which inevitably find their way to marine waters where it's mistaken for food. In many cases, marine animals ingest the resulting tiny plastic pellets like this and "feel" full and then starve to death. Plastic does not biodegrade (http://www.nsaa.org/nsaa/environment/sustainable_slopes, hereafter *NSAA report*)

- **Compost food scraps.** Up to 50 % of food operation waste is food scraps from preparation. Almost every Puget Sound County offers commercial recycling services. In 2005, the City of Seattle in conjunction with its haulers, now offers composting for ***all organic matter***, including table scraps, take out containers,

juice and milk cartons, paper napkins, and animal/fish bones. See http://www.cedar-grove.com or 877-SOILS-4U.

For properties that have acreage, you might consider on-site composting using Green Mountain Technologies composter units. **Sleeping Lady** in Leavenworth, Washington uses several Earth Tubs to dramatically reduce handling charges. The compost, rich in nutrients, is then used in landscaping (http://www.gmt-organic.com).

2. Energy Efficiency

A. ***Routine maintenance*** (daily or weekly) is essential to maintaining energy efficiency in the kitchen. Restaurants/food and beverage operations consume more electric energy than any other commercial sector in the US. They also have the distinction of having the highest per square foot energy costs (http://www.doe.gov and dinegreen.com).

- Hire a maintenance technician (based on size of the building, number of exhaust fans, service levels, deductibles)
- Sign long term energy contracts
- Check door gaskets
- Change fryer oil frequently
- Limit fryer preheat times (7-15 minutes)
- Clean fryer heating elements
- Implement a schedule for start-up and shut down of cooking equipment
- Maintain oven seals and clean out debris at stove bottom
- Use convection ovens where possible (up to 23% more efficient than a conventional oven. http:/www.doe.gov)
- Load broilers to capacity
- Keep stovetops, ovens, broilers and griddles clean
- Use the appropriate size of appliance for the task
- Keep refrigerators at least 4 inches from the walls for proper air circulation
- Clean condenser coils

(http://www.sdge.com; US Department of Energy's Energy Efficiency and Renewable Energy Network; and http://aps.com/aps_services?energysurvey/Default_BUSRES.html?type=b)

B. ***Equipment***

- When upgrading equipment, look for Energy Star labels (energystar.gov). You can purchase commercial gas fryers, steam cookers, hot food-holding cabinets and solid-door, reach-in refrigerators and freezers. Food Service Technology Center developed test methods to measure commercial equipment's energy usage. See http://www.fishnick.com

- Use pressure cookers if possible (takes only 60 watts/hour to bring 1. 5 liters of water to a boil)
- Use lids (increases efficiency by 8-14%)
- Use high efficiency evaporator and condenser fans
- Buy an exhaust system that automatically varies fan speeds (A National Restaurant Association article reports that one San Francisco restaurant saved $10,000 in fan power and $10,000 in heating/cooking expenses in the first year it purchased Intelli-Hood. *Regular Upkeep, efficient equipment can help restaurants control energy costs.* (www.restaurant.org/news/story.cfm?ID=349).

In 2000, the **Sheraton Seattle Hotel & Towers** replaced four kitchen Rotoclone exhaust fans with conventional kitchen exhausts with variable speed drives. Rotoclone fans use water to clean the exhausted air. This change alone saved 43,000 gallons/ water/day with estimated savings of over $80,000/year in water and sewer charges (www.resourceventure.org)

3. Water Efficiency

A. *Behavior*

- Plan ahead to avoid continuously running water over frozen food. Thaw in-refrigerator which, at least under the Seattle Food Code, is permitted in the bottom shelf of the walk-in refrigerator provided it is covered (*King County Food Code Title 5: chapter 5.16.020*). Assuming a kitchen runs water one hour/week, or 52 weeks a year, up to 15,600 gallons of water would be used to thaw, water which otherwise could be avoided

- Load only full dishwasher racks

- Only provide ice water to guests when requested and do not fill water glasses close to the time the guest is checking out of its tab. Over serving water can also be an annoying interference if it occurs frequently throughout a meal

- Consider using steam table water for initial floor rinsing (check with the local health department first)

B. Equipment

- Consult the North American Foodservice Equipment Manufacturers (www.nafem.org) for updates on energy and water saving kitchen equipment. NAFEM is working with the Consortium for Energy Efficiency (CEE) on water and energy life cycle costs for commercial kitchen equipment. In December 2005, CEE's Commercial Kitchen's Committee will release its formal initiative on energy and water efficient kitchen equipment (http://www.cee1.org/resrc/news/05-10nl/04_ck.html)

- Consult this resource list for organizations working on water and energy efficiency. http://www.fishnick.com/links/industry. This is Fisher-Nickel, Inc's Food Service Technology Center

- Use low-flow, pre-rinse spray valves. Spray valves to wash dishes by hand typically use 4 gallons/minute. A low-flow valve costing $40 only uses 1.6 gallons/minute (www.restaurant.org/news/story.cfm?ID=349).

4. Organics Management

The primary waste component in a food operation is organic waste. Much of this can be recovered or used strategically.

A. *Food Donation*

Each year over 96 billion pounds of *edible* food is thrown out in the United States (US Department of Agriculture Economic Research Service). Washington State ranks 10th in the nation for food insecurity so it behooves us to become more compassionate community partners by donating food where possible.

Both a federal and state food donor liability act promote food donation by limiting liability for food donors to cases of intentional misconduct and reckless disregard. Read the *Bill Emerson Food Donation Act (*http://www.harvesters.org/bill_emerson.html) and contact Food Life Line in Shoreline, WA. to discuss how your business can be part of the solution to hunger and food insecurity. It will also dramatically lower your hauling charges (http://www.foodlifeline.org and (800)404-7543 and Volunteers of America: http://www.voaww.org).

B*. Composting* (please consult the Waste Reduction section above)

C. *Grease Management*

Grease, like other forms of oil, are injurious to water quality and local aquatic species such as salmon. It is also very expensive for municipalities to manage and can lead to fines for your business. An excellent local guide is *A Guide to Restaurant Grease Management.* http://govlink.org/hazwaste/publications/irac_grease.pdf.

- Use a local renderer for oils and fats from fryers (see www.resourceventure.org to search their database for commercial rendering services)
- Avoid using food grinders and food disposals. They allow grease and food to leave the system ground up and suspended in liquid which can adhere to pipe walls, creating backups
- Install grease traps and interceptors
- Use grease skimmers and clean regularly

- Place grease in water-resistant tubs that are secured tightly
- If you do have a spill outside, use dry oil absorbent pads
- See page 12 of the *Guide* referenced above for more good housekeeping tips
- Consult Biodiesel companies to see if your restaurant grease fits their needs (http://www.nwbiodiesel.org; http://www.pacificbiomass.org and http://www.energy.wsu.edu)

5. Food Sourcing

A. The Enticement of Local Food

Remember when you were a kid and summer rolled in with promise? Right along side with camp and the endless frolicking in water, was the temporary visit from dizzying, local peaches redolent with their perfume, the first corn, so sweet it barely required cooking, cherry pies, and if you were brave enough, the chanterelles your parents tried to convince you to eat. Memories of food anchor us in history, our first kiss, and the kitchen, which continues to be the most popular room in the house.

Some of us chose to transform that love for local food and, when donning chef whites as adults, incorporated local foods into menu planning, providing vivid, sensual and unique links to our communities.

We have traveled an important road in using local farm products in restaurant cuisine, the benefits almost unbounded, despite logistical quandaries. The French use a term to describe the unique flavor that hundreds of years of farming in a particular area impart to food, *gout de terroir.* Although our farming traditions are shorter, artisan, local food production does gift an intensity, vitality, and earthy quality that can only come from food that is picked at its height of ripeness and travels a short distance to your plate. (Excerpted from *The Romance Of Local Food,* Heidi Siegelbaum, *The Market News,* The Pike Place Market, 2003).

The fact is that most food travels, on average, 1,518 miles from where it is grown or raised to where it is purchased by the end-user. Compare that to the average 44.6 miles food would travel in a more localized, regional food distribution strategy (Rich Pirog, Timothy Van Pelt, Kamyar Enshayan and Ellen Cook, *Food, Fuel and Farming: An Iowa Perspective on how far food travels, fuel usage and greenhouse gas emissions.* Leopold Center for Sustainable Agriculture. 2001. rspirog@iastate.edu).

B. Why source more local food?

- Local foods taste better
- Buying local food helps keep local farms in farming. Farms are a vital part of our visual and environmental landscape and rural economies
- Local food will help keep your menus interesting, seasonal and a draw for local/regular customers

- They can help you distinguish your restaurant from others — marketing tool
- Local food is part of our regional food tourism strategy and culture… salmon, shellfish, crab, mushrooms, berries, lamb and foraged greens, among other delights. Some people travel to the Pacific NW just to taste wild seafood which has been nearly obliterated in other parts of the nation.

C. *Sustainable Seafood Purchasing and Puget Sound*

Hardly a day passes without an article or report about plummeting fish stocks. In our own region, overfishing rockfish and other species has led to dangerous declines which threaten ecosystem functions and seafood availability. The overall interest in ocean and estuarine health has spurred a nationwide, positive revolt, called ***sustainable seafood purchasing.*** Some fish are harvested before maturity, such as orange roughy which can live to 150 years and does not reach sexual maturity until 25 or 30 years (way beyond humans!). This and the Chilean Sea Bass, which can live to 40, are particularly vulnerable because they are slow growing.

The most well known sustainable seafood program is the Monterey Bay Aquarium's *Seafood Watch Program (*http://www.mbayaq.org/cr/cr_seafoodwatch/sfw_hd.asp). The program evaluates the ecological sustainability of wild-caught and farmed seafood commonly found in the US marketplace. ***Sustainable Seafood is defined*** as "*from sources, whether fished or farmed, that can maintain or increase production into the long-term without jeopardizing the structure or function of affected ecosystems.*" Major threats to fisheries include:

- Habitat damage from bottom trawling (dragging nets across the seafloor), changing the shoreline to remove eelgrass and kelp which are fish and crab nurseries, and using poisonous chemicals that runoff into the water
- Overfishing (catching fish faster than they can reproduce)
- Aquaculture (farming fish in water that uses antibiotics and excessive feed, and in Asia, shrimp farming which destroys mangrove swamps and the industries that rely on them)

What's Wrong with This Picture?

No one loves doom and gloom but the facts are indisputable: Over 70% of the world's commercially fished species are overfished. Here in Puget Sound, there are additional complicating factors in that our deep fjord (over 460 feet average), with very little tidal flushing, is contaminated with persistent organic chemicals which bind to fatty tissues and bottom sediment.

A word about Shrimp

There are really only two sustainable wild shrimp sources: Alaskan spot prawns and the northern pink shrimp (called Maine shrimp). You can also get on-land farmed

organic shrimp raised in Florida (http://www.oceanboyfarms.com). Shrimp farming in Asia is notorious for destroying mangrove forests, a valuable and productive ecosystem which prevents soil erosion by acting as a wind and water break. Mangroves maintain moisture and breeding grounds for many plants and animals both on land and in the sea. They also provide food, construction materials, fibers, and medicinal plants to dwellers in and near the coastal zones.

Shrimp farmers in Asia are not required to use turtle exclusion devices, or TEDs, so an estimated 150,000 endangered sea turtles are killed every year as by-catch.

What's in and What's Out?

Before you review a list of any kind please pick up *Seafood Solutions: A Chef's Guide to Ecologically Responsible Fish Procurement (Chefs Collaborative; http://www.chefscollaborative.org/media/seafood_solutions.pdf) and One Fish, two fish, crawfish, bluefish: The Smithsonian Sustainable Seafood Cookbook (the Smithsonian).*

There is some disagreement regarding which seafood choices make the green, yellow and red lists but all organizations seem to agree that the following list is a "go" for now:

Alaska Halibut
Farmed mussels and clams
US farmed trout, catfish, and crayfish
Squid
Alaska Wild Salmon
Spiny Lobster
Alaska and BC Sablefish (Black Cod)
Alaska Pollock
Stone Crabs
Mahi Mahi… among others.

In addition to the Monterey Bay Aquarium list (mbayaq.org/cr/cr_seafoodwatch/sfw_regional.aspx), is the Marine Stewardship Council (http://www.msc.org) which assesses entire fisheries and then ecolabels them. The Alaska Salmon fishery was the first US fishery certified as sustainable. To see a diagram of their fishery assessment process please see http://www.msc.org/assets/doc/fishery_certification. ***Ecofish*** also provides a means of purchasing sustainable seafood (http://www.ecofish.com).

Another excellent resource is the ***Seafood Choices Alliance***, an industry/chef/supplier alliance that supports sustainable seafood choices. It has an impressive array of partners, including the Alliance for Environmental Innovation (a business-environment non-profit), Coastal Alliance for Aquaculture Reform, Marine Stewardship Council, National Environmental Trust and Pew Institute for Ocean Science. Local members include Baci Catering, The Herbfarm, Lark, Petals Garden Café, Lark, Place Pigalle and Salty's Restaurant Group (http://www.seafoodchoices.com).

As the links between food purchasing and local environmental conditions and economic impacts becomes clearer, your customers will appreciate the fact that your business strategy addresses local community issues. Seasonal, local and sustainable food purchases will provide you with diversity, better tasting food and let you sleep well at night knowing you've done well by doing good (excerpted from the Summer 2005 issue of *Sound & Sustainable.* http://pugetsound.org/tourism).

C. *Resources*

- For Washington State agricultural statistics: http://www.mrsc.org/Subjects/Planning/economic.aspx
- Heart of Washington Campaign: http://www.heartofwashington.com
- Puget Sound Farm Fresh: http://dnr.metrokc.gov/wlr/farms/index.htm
- Washington State Department of Agriculture's Small Farms and Direct Marketing Program: http://www.agr.wa.gov/Marketing/SmallFarm/default.htm
- FORKS (Washington Chapter of the Chefs Collaborative. *Fields Oceans Ranches Kitchens Stewards*. http://www.forksproject.org)

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