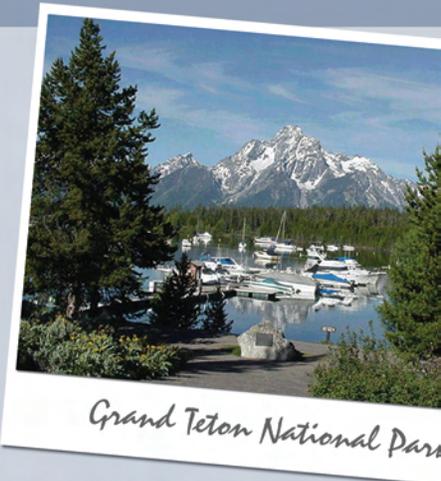




# NATIONAL Clean Marina INITIATIVE



A Voluntary Program for National Parks and their Concessioners  
October 2007



# **National Clean Marina Initiative**

A Voluntary Program for National Parks and their Concessioners

**Version 1.0**  
**October 2007**

**NATIONAL PARK SERVICE**  
Department of the Interior



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# List of Abbreviations and Acronyms

ACA	Ammoniacal Copper Arsenate
ACZA	Ammoniacal Copper Zinc Arsenate
BMP	Best Management Practice
BT	<i>Bacillus thuringiensis</i>
CAA	Clean Air Act
CCA	Chromated Copper Arsenate
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (Superfund)
CFR	Code of Federal Regulations
CM	Clean Marina
COE	United States Army Corp of Engineers
CVA	Clean Vessel Act
CWA	Clean Water Act (i.e., Federal Water Pollution Control Act)
DOI	Department of the Interior
EMP	Environmental Management Program
EMS	Environmental Management System
EPA	Environmental Protection Agency
EPCRA	Emergency Planning and Community Right-to-Know Act
FIFRA	Federal Insecticide, Fungicide and Rodenticide Act
HAP	Hazardous Air Pollutant
HELP	High Efficiency Low Pressure
HVLP	High Volume Low Pressure
LCA	Life Cycle Assessment
MARPOL	International Convention for the Prevention of Pollution from Ships
MPPRCA	Marine Plastic Pollution Research and Control Act
MSD	Marine Sanitation Device
MSDS	Material Safety Data Sheet
NCR	National Capital Region
NOAA	National Oceanic and Atmospheric Administration
NOx	Nitrous Oxides
NOV	Notice of Violation
NPDES	National Pollution Elimination Discharge System
NPS	National Park Service
NPS CP	National Park Service Concession Program
NRC	National Response Center
OAPC	Organotin Antifoulant Paint Control Act
OPA	Oil Pollution Act
OSHA	Occupational Safety and Health Administration

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PCB	Polychlorinated Biphenyls
PPE	Personal Protective Equipment
PV	Photovoltaic
PWC	Personal Water Craft
RCRA	Resource Conservation and Recovery Act
RHA	Rivers and Harbors Act
RP	Responsible Party
SARA	Superfund Amendments and Reauthorization Act
SAV	Submerged Aquatic Vegetation
SIC	Standard Industrial Classification
SOP	Standard Operating Procedure
SPCC	Spill Prevention Control and Countermeasure
SWPPP	Stormwater Pollution Prevention Plan
TBT	Tributyltin
TSCA	Toxic Substances Control Act
USC	United States Code
USCG	United States Coast Guard
UST	Underground Storage Tank
VOC	Volatile Organic Compounds

# Clean Marina Pledge

The National Park Service (NPS) National Clean Marina Initiative promotes and celebrates voluntary adoption of measures to reduce waste and prevent pollution by NPS park and concession marina and boating facilities. “Clean Marinas” are recognized as environmentally-responsible businesses.

As the first step toward achieving Clean Marina status and on behalf of

\_\_\_\_\_ (name of Park/concession marina),  
we pledge to do our part to keep

\_\_\_\_\_ (name of city or state)  
waterways free of harmful chemicals, excess nutrients, and debris.

We will comply with all applicable laws, regulations, and other requirements. In addition, we will go beyond compliance to identify opportunities and implement practices to control pollution associated with:

- Vessel maintenance and repair
- Petroleum storage and transfer
- Sewage disposal
- Hazardous and non-hazardous wastes
- Stormwater runoff
- Facilities management
- Other facilities and operations associated with our marina

We commit to actively pursuing full standing as a Clean Marina. Within one year of the date below, we will implement appropriate pollution prevention practices and will be ready to be recognized for our participation in the NPS National Clean Marina Initiative.

\_\_\_\_\_  
Name of Park Superintendent /Marina Owner  
(As applicable)

\_\_\_\_\_  
Date

\_\_\_\_\_  
Name of Marina Manager

\_\_\_\_\_  
Date



# Clean Marina Award Checklist

Marina Name: \_\_\_\_\_  
 Park Superintendent/Owner/Manager: \_\_\_\_\_  
 Address: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 Phone: \_\_\_\_\_  
 Park: \_\_\_\_\_

This form is for use by park/concession marina operators to conduct a self-assessment of their facilities and to verify that a marina has achieved the performance level necessary to be recognized through the National Park Service (NPS) National Clean Marina Initiative (Initiative). This Checklist is but one of many resources provided in the written Clean Marina Program (Program), designed to assist marina operators in their implementation of practices that are consistent with the Initiative.

**To be recognized as a Clean Marina it is necessary to have developed and implemented Clean Marina practices and to be in compliance with all applicable laws, regulations, policies and contract requirements.** This means that operators must score 100% in the Overall Compliance management area and must also have addressed those items in the other areas that are noted with an “\*” as compliance requirements. It is not necessary to have implemented all the best management practices (BMPs) to be recognized as a Clean Marina provided that enough are implemented to achieve the necessary score in each of the management areas. Some BMP items are repeated under different areas, because they serve multiple functions.

It should be noted that some BMPs which are not designated with an “\*” may instead be requirements for a concessioner, pursuant to their contract, operating and maintenance plan or requirements for parks pursuant to Executive Orders or policies. Others may be practices that are incorporated as requirements based on certain plans approved by a regulatory agency such as a Spill Prevention, Control and Countermeasure (SPCC) Plan or Stormwater Pollution Prevention Plan (SWPPP). The Park/concession manager should identify these requirements in advance and ensure that these best management practices are identified as compliance requirements that must be completed in order to achieve Clean Marina status.

The “not applicable” (N/A) option is offered so that items that are beyond your control or that simply do not apply to your operations will not be counted against you. For example, if you do not have a septic system, check N/A for Area 7 number 4. The N/A option should also be used by parks, if the item in question does not apply because it relates specifically to a concession operation. There is space at the end of this form to clarify any of your answers or to tell us about other items you would like the reviewers to take into consideration.

<b>Area 1: OVERALL COMPLIANCE</b>	<b>YES</b>	<b>NO</b>	<b>N/A</b>
<i>(100% compliance is required within this area)</i>			
1. Have you complied with all federal, state, regional, and local Applicable Laws (i.e., regulatory and other requirements) listed within the <i>Program</i> ?	_____	_____	_____
2. If applicant is a concessioner, has the facility implemented all environmental requirements identified in the concessioner’s Contract (e.g., Section 6), Operating and Maintenance Plans?	_____	_____	_____

3. If the facility has undergone an environmental audit (i.e. Concession Environmental Audit System (CEAS) audit, Park environmental audit), have all regulatory-based environmental findings been corrected? \_\_\_\_\_
4. Has the facility corrected concession evaluation deficiencies related to environmental management? \_\_\_\_\_
5. If the facility has previously received any NOV's, criminal or civil investigations, have these been resolved? \_\_\_\_\_

**AREA 1 SCORE:** [ \_\_\_\_\_ “Yes” responses ÷ \_\_\_\_\_ Number of applicable items ] x 100 = \_\_\_\_\_ %

**Area 2: MARINA MANAGEMENT**

**YES NO N/A**

*(80% compliance is required within this area)*

1. \* If required, has an Environmental Management System (EMS) been implemented for the facility (e.g., Concession documented Environmental Management Program, Park documented EMS)? \_\_\_\_\_
2. Does the facility provide awareness to and train staff on its Clean Marina Program? \_\_\_\_\_
3. Does the facility maintain good training records? \_\_\_\_\_
4. Does the facility train employees to watch for inappropriate discharges? \_\_\_\_\_
5. Does the facility have a predetermined procedure for approaching polluters? \_\_\_\_\_
6. Does the facility incorporate environmental requirements into slip holder agreements? \_\_\_\_\_
7. Does the facility address environmental practices in rental boat materials and check-out briefings? \_\_\_\_\_
8. Does the facility post signs (or use bulletin boards) detailing best management practices to educate patrons? \_\_\_\_\_
9. Does the facility distribute and/or post (on a bulletin board) environmental education materials for patrons? \_\_\_\_\_
10. Does the facility host workshops to highlight and demonstrate best management practices? \_\_\_\_\_
11. Does the facility recognize boaters who try to prevent pollution? \_\_\_\_\_
12. Does the facility publicize its environmentally responsible actions? \_\_\_\_\_
13. Does the facility provide environmentally preferable merchandise and provide environmental messaging in its retail boat stores (e.g., camping supplies, clothing, cards and gifts)? \_\_\_\_\_

**AREA 2 SCORE:** [ \_\_\_\_\_ “Yes” responses ÷ \_\_\_\_\_ Number of applicable items ] x 100 = \_\_\_\_\_ %

**Area 3: MARINA DESIGN AND MAINTENANCE**

**YES NO N/A**

*(70% compliance is required within this area)*

- 1. \* Does the facility have all the necessary environmental reviews (e.g., NEPA), permits, and agency approvals for marina construction or expansion? \_\_\_\_
- 2. \* Does the facility meet NPS Integrated Pest Management Program requirements (use of pre-approved pesticides, annual pesticide use reporting)? \_\_\_\_
- 3. Does the facility include language in contracts signed by outside contractors and businesses operating in the marina that contains the same environmental requirements used by the marina? \_\_\_\_
- 4. Does the facility minimize impervious areas and site buildings, workshops, and storage areas away from the shoreline? \_\_\_\_
- 5. Does the facility location minimize need for and impact of dredging? \_\_\_\_
- 6. Does the facility use environmentally preferable materials in its marina construction and maintenance? \_\_\_\_
- 7. Does the facility avoid the use of non-encapsulated foam floatation? \_\_\_\_
- 8. Does the facility employ nonstructural shore erosion control measures? \_\_\_\_
- 9. Does the facility implement energy conservation practices as described in this *Program*? \_\_\_\_
- 10. Does the facility implement water conservation practices as described in the *Program*? \_\_\_\_
- 11. Does the facility minimize pesticide and fertilizer use using measures described in the *Program*? \_\_\_\_
- 12. Does the facility maintain vegetated areas as described in the *Program*? \_\_\_\_

**AREA 3 SCORE:** [ \_\_\_\_ “Yes” responses ÷ \_\_\_\_ Number of applicable items ] x 100 = \_\_\_\_ %

**Area 4: STORMWATER MANAGEMENT**

**YES NO N/A**

*(75% compliance is required within this area)*

- 1. \* Has the facility obtained an individual storm water permit, been covered under a general permit or have an approved demonstration of “No Exposure”? \_\_\_\_
- 2. \* Does the facility have an up to date, accurate and fully implemented Stormwater Pollution Prevention Plan (SWPPP) (i.e., documented plan, best management practices in place, stormwater discharge monitoring, and training)? \_\_\_\_
- 3. Does the facility prevent discharge of wash or process water or oil laden bilge water using measures described in the *Program*? \_\_\_\_

- |    |  |     |     |     |
|----|--|-----|-----|-----|
| 4. | Does the facility capture and treat stormwater onsite using measures described in the <i>Program</i> ? | ___ | ___ | ___ |
| 5. | Does the facility cultivate vegetated areas?   | ___ | ___ | ___ |
| 6. | Does the facility minimize paved areas?  | ___ | ___ | ___ |
| 7. | Does the facility stencil warnings on storm drains?  | ___ | ___ | ___ |

**AREA 4 SCORE:** [ \_\_\_ “Yes” responses ÷ \_\_\_ Number of applicable items ] x 100 = \_\_\_ %

**Area 5: FACILITY MANAGEMENT: VESSEL MAINTENANCE AND REPAIR**

**YES NO N/A**

*(85% compliance is required within this area)*

- |     |  |     |     |     |
|-----|--|-----|-----|-----|
| 1.  | * Does the facility prevent air emissions from solvents by containing rags and covering solvent containers when not in use?                            | ___ | ___ | ___ |
| 2.  | Does the facility limit customer maintenance activities (e.g., allowable maintenance on vessels in the water)?   | ___ | ___ | ___ |
| 3.  | Does the facility prevent discharge of oil, gasoline, anti-freeze, acid, or other hazardous materials using measures described in the <i>Program</i> ? | ___ | ___ | ___ |
| 4.  | Does the facility prevent discharge of wash or process water or oil laden bilge to water using measures described in the <i>Program</i> ?              | ___ | ___ | ___ |
| 5.  | Does the facility restrict maintenance activities to designated work areas?  | ___ | ___ | ___ |
| 6.  | Does the facility contain dust from sanding using measures described in the <i>Program</i> ?   | ___ | ___ | ___ |
| 7.  | Does the facility contain debris from blasting using measures described in the <i>Program</i> ?  | ___ | ___ | ___ |
| 8.  | Does the facility minimize impacts for pressure washing using measures described in the <i>Program</i> ?   | ___ | ___ | ___ |
| 9.  | Does the facility recommend bottom coatings w/minimal environmental impacts to patrons?  | ___ | ___ | ___ |
| 10. | Does the facility minimize impacts of painting operations using measures described in the <i>Program</i> ?   | ___ | ___ | ___ |
| 11. | Does the facility handle solvents as described in the <i>Program</i> ?   | ___ | ___ | ___ |
| 12. | Does the facility repair and maintain engines using measures described in the <i>Program</i> ?   | ___ | ___ | ___ |
| 13. | Does the facility winterize using measures described in the <i>Program</i> ?   | ___ | ___ | ___ |
| 14. | Does the facility conduct in-water maintenance using measures described in the <i>Program</i> ?  | ___ | ___ | ___ |

15. Does the facility use environmentally preferable materials in vessel maintenance and repair activities? \_\_\_\_\_

**AREA 5 SCORE:** [ \_\_\_\_\_ “Yes” responses ÷ \_\_\_\_\_ Number of applicable items ] x 100 = \_\_\_\_\_ %

**Area 6: PETROLEUM CONTROL Both Commercial and non-public use**    **YES**    **NO**    **N/A**  
*(80% compliance is required within this area)*

- |     |  |       |       |       |
|-----|--|-------|-------|-------|
| 1.  | * Do all underground fuel storage tanks meet regulatory requirements (e.g., facility design, leak detection, corrosion protection, spill and overfill protection)? | _____ | _____ | _____ |
| 2.  | * Are fuel tanks properly registered with state and local authorities?   | _____ | _____ | _____ |
| 3.  | * Do petroleum storage and fueling facilities and operations comply with NFPA requirements (e.g., signage, procedures for fuel attendants)?                        | _____ | _____ | _____ |
| 4.  | Does the facility regularly inspect/repair fuel transfer equipment?  | _____ | _____ | _____ |
| 5.  | Does the facility have environmental controls such as secondary containment for tanks and piping?  | _____ | _____ | _____ |
| 6.  | Does the facility have environmental controls such as leak detection systems for aboveground and dock fuel lines?  | _____ | _____ | _____ |
| 7.  | Does the facility have environmental controls for fuel lines and pumps such as breakaway devices?  | _____ | _____ | _____ |
| 8.  | Does the facility train staff to promote environmental and safety precautions while fueling?   | _____ | _____ | _____ |
| 9.  | Does the facility use oil absorbent materials at the fuel dock (e.g., for vessel fuel vents, nozzles and to absorb incidental drips on the water)?                 | _____ | _____ | _____ |
| 10. | Does the facility take precautions to minimize oil spills and leaks from machinery?  | _____ | _____ | _____ |

**AREA 6 SCORE:** [ \_\_\_\_\_ “Yes” responses ÷ \_\_\_\_\_ Number of applicable items ] x 100 = \_\_\_\_\_ %

**Area 7: SEWAGE HANDLING**    **YES**    **NO**    **N/A**  
*(80% compliance is required within this area)*

- |    |   |       |       |       |
|----|---|-------|-------|-------|
| 1. | Does the facility have a well-maintained pumpout system that is easy and convenient to use; either have a pumpout that is connected to a municipal sewer line, a portable pumpout with direct discharge to a sewer line, a pumpout boat, and/or a portable pumpout with a holding tank of at least 100 gallons? | _____ | _____ | _____ |
| 2. | Does the facility conduct periodic inspection and dye testing of the sewage system to check for leaks?  | _____ | _____ | _____ |
| 3. | Does the facility have pumpout service available in slips for large boats?  | _____ | _____ | _____ |

- |     |   |       |       |       |
|-----|---|-------|-------|-------|
| 4.  | Does the facility have pumpout service available on fuel docks?   | _____ | _____ | _____ |
| 5.  | Does the facility offer pumpouts by marina staff to facilitate safe, sanitary and frequent use?   | _____ | _____ | _____ |
| 6.  | Does the facility have a convenient, well-marked disposal for portable boat toilets and a method to transfer waste directly to sewer system?  | _____ | _____ | _____ |
| 7.  | Does the facility have a pumpout service sign that is easily seen by passing boats?   | _____ | _____ | _____ |
| 8.  | Does the facility maintain a pumpout log to help quantify the volume collected and usage by each boat?  | _____ | _____ | _____ |
| 9.  | * Does the facility prohibit discharge from Type I and Type II MSDs?  | _____ | _____ | _____ |
| 10. | Does the facility annually conduct vessel MSD inspections to verify that each boat in the marina complies with applicable no-discharge regulations?                                 | _____ | _____ | _____ |
| 11. | Does the facility have clean, functional restrooms available 24 hours a day during the boating season or year-round if live-aboards are present or boats are used in winter months? | _____ | _____ | _____ |
| 12. | Does the facility regularly maintain connection to municipal sewer system to ensure it is in functioning order?   | _____ | _____ | _____ |
| 13. | Does the facility address the special sewage handling needs of live-aboards?  | _____ | _____ | _____ |

**AREA 7 SCORE:** [ \_\_\_\_\_ “Yes” responses ÷ \_\_\_\_\_ Number of applicable items ] x 100 = \_\_\_\_\_ %

**Area 8: EMERGENCY PLANNING**

**YES NO N/A**

*(90% compliance is required within this area)*

- |    |   | YES   | NO    | N/A   |
|----|---|-------|-------|-------|
| 1. | * Has the facility developed and implemented an Emergency Action Plan (EAP) and an Emergency Response Plan (ERP) if responding to larger, nonincidental spills (e.g., current documented plans, equipment, training and drills)?  | _____ | _____ | _____ |
| 2. | * Does the facility have an up-to-date, accurate and fully implemented Spill Prevention, Control and Countermeasure (SPCC) plan?  | _____ | _____ | _____ |
| 3. | Does the facility have documented and readily available, emergency response procedures that address particular requirements for petroleum handling facilities and dock fueling facilities? (Note: This may be part of SPCC, EAP or ERP training or specialized, stand-alone procedures that support these plans)? | _____ | _____ | _____ |
| 4. | Does the facility have regular emergency training and drills for staff? (Note: This may be part of SPCC ERP implementation if applicable.)  | _____ | _____ | _____ |
| 5. | Does the facility store spill response equipment in a convenient, readily accessible location?  | _____ | _____ | _____ |

**AREA 8 SCORE:** [ \_\_\_\_\_ “Yes” responses ÷ \_\_\_\_\_ Number of applicable items ] x 100 = \_\_\_\_\_ %

**Area 9: HAZARDOUS MATERIALS MANAGEMENT**

**YES NO N/A**

*(80% compliance is required within this area)*

- |    |  |       |       |       |
|----|--|-------|-------|-------|
| 1. | * Has the facility developed and fully implemented a Hazard Communication Program (i.e., developed documented Plan, maintains Material Safety Data Sheets, trains employees, labels containers)?     | _____ | _____ | _____ |
| 2. | * Does the facility properly handle and store hazardous materials (e.g., incompatibles stored separately, appropriate containers, storage facilities) in accordance with OSHA and NFPA requirements? | _____ | _____ | _____ |
| 3. | Does the facility provide secondary containment for the storage of hazardous materials and hazardous wastes where there is the potential for release to the environment?                             | _____ | _____ | _____ |
| 4. | Does the facility minimize the use of hazardous materials using measures described in the <i>Program</i> ?   | _____ | _____ | _____ |
| 5. | Does the facility use environmentally preferable alternatives to hazardous materials?  | _____ | _____ | _____ |
| 6. | * Does the facility show proof of generator status and/or EPA identification number if required for Hazardous Waste?   | _____ | _____ | _____ |
| 7. | * Does the facility properly collect, store and dispose hazardous waste in accordance with regulations?  | _____ | _____ | _____ |
| 8. | Does the facility reduce hazardous waste in daily operations using measures described in the <i>Program</i> ?  | _____ | _____ | _____ |

**AREA 9 SCORE:** [ \_\_\_\_\_ “Yes” responses ÷ \_\_\_\_\_ Number of applicable items ] x 100 = \_\_\_\_\_ %

**Area 10: WASTE MANAGEMENT**

**YES NO N/A**

*(85% compliance is required within this area)*

- |    |  |       |       |       |
|----|--|-------|-------|-------|
| 1. | * Are the facility’s trash cans emptied regularly in accordance with regulations to avoid overfilling and to control pests?                          | _____ | _____ | _____ |
| 2. | Does the facility provide a sufficient number of recycling bins and trash cans, dumpsters, etc. that are clean, covered, well-marked and convenient? | _____ | _____ | _____ |
| 3. | Does the facility reduce solid waste in daily operations using measures described in the <i>Program</i> ?  | _____ | _____ | _____ |
| 4. | Does the facility recycle whenever possible using measures described in the <i>Program</i> ?   | _____ | _____ | _____ |
| 5. | Does the facility avoid the use/sale of Styrofoam materials?   | _____ | _____ | _____ |

6. Does the facility sell environmentally preferable maintenance and repair and pollution prevention equipment in facility retail boat shops (e.g., cleaners, toilet chemicals, placards and signs bilge socks, etc.)? \_\_\_\_\_
7. Does the facility provide secondary containment for the storage of nonhazardous materials and nonhazardous wastes where there is the potential for release to the environment? \_\_\_\_\_

**AREA 10 SCORE:** [ \_\_\_\_\_ “Yes” responses ÷ \_\_\_\_\_ Number of applicable items ] x 100 = \_\_\_\_\_ %

**SCORING**

---

1. Enter your scores for each section on the lines below and compare your score to the minimum requirement scores.

Your scores		Minimum Required Scores
Area 1 Overall Compliance	_____ %	Area 1 <u>100</u> %
Area 2 Marina Management	_____ %	Area 2 <u>80</u> %
Area 3 Marina Design and Maintenance	_____ %	Area 3 <u>70</u> %
Area 4 Stormwater Management	_____ %	Area 4 <u>75</u> %
Area 5 Facility Management: Vessel Maintenance and Repair	_____ %	Area 5 <u>85</u> %
Area 6 Petroleum Control	_____ %	Area 6 <u>80</u> %
Area 7 Sewage Handling	_____ %	Area 7 <u>80</u> %
Area 8 Emergency Planning	_____ %	Area 8 <u>90</u> %
Area 9 Hazardous Materials Management	_____ %	Area 9 <u>80</u> %
Area 10 Waste Management	_____ %	Area 10 <u>85</u> %

2. If your score for each area is equal to or greater than the minimum required for each applicable section, make sure that you tell your NPS concessions representative about your accomplishment(s).

Please use this space for any additional comments or explanations you would like us to consider.

Verified by NPS:

\_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Signature)

on \_\_\_\_\_

(date)

on \_\_\_\_\_

(date)



# 1. Introduction

As every National Park Service (NPS) park unit manager and concessioner is well aware, the NPS has a great responsibility to the lands and people of America. The mission of the NPS was officially stated in the Organic Act signed by Woodrow Wilson in August 25, 1916: “. . .to promote and regulate the use of the...national parks...which purpose is to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations.”

Almost 90 years later, the NPS has launched the Clean Marina Initiative (Initiative) in its continuing effort to preserve NPS resources and encourage the enjoyment and responsible use of park facilities. The Initiative is voluntary for NPS marina operations. This Clean Marina Program (Program) will help marinas to develop Clean Marina practices that go beyond required regulatory and contractual compliance to the implementation of best management practices. The Program in your hands is a helpful reference tool with a great supply of resources.

Recognition as a *Clean Marina* has to be earned. To get on the *Clean Marina* ‘boat,’ a facility must take the pledge, found at the front of this document, and conduct a self-evaluation using the provided checklist. Once a facility is confident it has met the requirements set out by the checklist and the Initiative, and has implemented sustainable Clean Marina practices, it is ready to be recognized as a marina that is meeting the *Clean Marina* level of environmental performance

Although there is currently not a formal NPS process to designate marinas which have reached this level, there may be in the future. Marina managers should be ready to demonstrate on an ongoing basis how they are meeting these high standards through periodic inspections using the Clean Marina checklist, complete facility documentation, employee awareness and training, and visible operational practices which show the marina’s high level of Clean Marina performance.

Many States in which park units are located already have Clean Marina Programs or similar initiatives. The NPS encourages park unit marina operations and concessioners to seek Clean Marina certification through these state programs if they exist. However, parks and concessioners are subject to some unique requirements that many other marinas are not. It is recommended that Park unit managers and concessioners also look to the Initiative to obtain an additional understanding of some of the special obligations they have and the best management practices suggested by the NPS to ensure that marinas in NPS units are meeting the highest standards, consistent with the NPS mission to preserve, conserve and protect for the enjoyment of future generations.



## 1.1 What is a Clean Marina?

Clean Marinas adopt environmental practices and standards in their daily operations that go beyond required compliance with regulatory and contractual requirements, promote clean water and fresh air, and, through outreach, teach users to include similar practices in their daily lives. *Clean Marinas* exceed regulatory compliance and implement best management practices (BMPs) to reduce their environmental impacts. The number one priority of a *Clean Marina* is to keep coastal and inland waterways clean, attractive and healthy.

A variety of water and shore-based activities are conducted in the NPS. Facilities in parks that could benefit from using this *Clean Marina Program* (*Program*) include those listed below.

- Canoe and rafting facilities
- Marinas
- Boat yards
- Marine repair and maintenance facilities
- Docks
- Floating restrooms and fueling stations
- Boat rentals
- Ferries
- Tour boats

These facilities are located on lakeshores, rivers, oceans, lagoons, or any waterway in between.

All authorized NPS operations that involve these types of facilities and activities can implement Clean Marina practices. Authorized operations may include activities being conducted by the

park, by concessioners operating under a Concession Contract, those operating under a conditional use authorization, concession permittees, incidental business permittees, cooperating associations, and special use permittees.

While all these facilities and operations can benefit from Clean Marina practices and the associated BMPs, this *Program* is primarily oriented towards NPS concessioner marina operations. It should be noted that while this *Program* tends to put most discussion in terms of “marinas” and “concessioners”, other applicable operators of water and shore-based operations in park units, including the parks themselves, are eligible to participate in the Clean Marina Initiative and are encouraged to adopt the practices described in this *Program*.

It should also be noted, many NPS concessioner marinas are more like resorts than simple marinas. In addition to the marina, the concessioner complex may include hotels, landside restaurants and gas stations, employee housings, recreational vehicles and trailer parks, bus tours, horse rental services and more. While the Clean Marina Initiative is oriented towards the marina shore and water-based facilities themselves, many of the recommended Clean Marina practices can be integrated into other concessioner operations.



Photo Credit: US NOAA

## 1.2 What is in the Clean Marina Program?

This *Clean Marina Program*, written and produced by the NPS, is a resource full of ideas to implement Clean Marina practices to achieve and go beyond compliance and take actions that really safeguard and, in some cases, improve existing environmental conditions. It is intended to help operators make cost-effective and environmentally sound decisions, in the context of their existing responsibilities to the natural resources they rely upon for a living, and the contracts that govern their workplace.

As the marina operator, you know what works best at your facility. For that reason, this *Program* is not a rulebook. It is not bound as a permanent book, but is issued as a loose-leaf document since regulations change, as do BMPs. The NPS may be issuing additions and

modifications to the *Program* over time such that you can remove outdated pages, if needed, and replace them with updated ones. It is anticipated that the *Program* can be used as a springboard for new ideas from marina employees and customers.

This *Clean Marina Program* has grown out of the award-winning Clean Marina Initiative developed through a partnership between the District of Columbia and the NPS National Capitol Region (NCR), with the support of the Environmental Protection Agency (EPA) and the Secretary of Transportation. This *Program* has also pulled ideas and information from numerous state programs, including Maryland, Tennessee, Virginia, Texas, Connecticut, Florida, and California.



## 1.3 Why Do You Need This Program?

Increasing concern about the quality and safety of the water throughout the nation's waterways has led to a variety of regulations and initiatives to protect them. Marinas are in a unique position to lead the effort to improve national waterways.

In part because the maintenance, operation, and storage of recreational vessels can pollute adjacent waters and impair air quality, shore-based facilities have increasingly become the targets of governmental regulation. Contaminants

associated with recreational boating include dust from hull maintenance operations, solvents from engine repair shops, petroleum products from careless fueling practices, sewage discharges, and metals from anti-fouling paints. These pollutants may be deposited directly into the water or may be carried in from shore by stormwater runoff. Marina design and location may also contribute to environmental degradation by disturbance of sensitive habitat.

Marinas are not the only operations degrading waterways. Water quality is

# 1. Introduction

impacted by runoff of fertilizers and pesticides, by industrial discharges, and by careless use of home cleaning and maintenance products. Waterways are clouded by sediment washed from land and are degraded by vehicle-related oils and metals swept in with runoff from streets and highways. Careless pumping out of toilets in a waterway, overboard disposal of trash, and other, often thoughtless actions will contribute to pollution. Environmental degradation is not the result of any particular industry or user group, **but is caused by all of us!**

The NPS has established Environmental Management System (EMS) requirements for parks and for more complex concession operations that are operating under contracts issued under new regulations promulgated in 2000. For both park units and concessioners, this EMS is directed towards meeting two core objectives:

- Compliance with Applicable Laws;
- Implementation of BMPs.

The Clean Marina Initiative has the same objectives at its core, and this Program is designed to help park units and concessioners in developing their EMSs. Marina facilities can use their EMS as a framework to attain the goals set forth in the Initiative. Clean Marina philosophies and practices can be integrated into the EMS process and help marina operators achieve NPS objectives by ensuring they understand facility interactions and environmental impacts relative to marina operations. By implementing the Clean Marina practices, facility operators can establish compliance programs and best management practices to reduce

environmental impacts in an efficient manner.

In addition to simply helping to direct their EMS efforts, those that adopt Clean Marina practices will raise their visibility by demonstrating a commitment to good environmental stewardship. Marinas may receive public recognition in national and local newspapers, in Clean Marina publications, and at public events. Clean Marina participants are likely to save money by following *Program* recommendations, ultimately reducing cost of materials, waste cleanup and disposal. Opportunities for increased income may also become apparent—through rental of equipment, such as environmentally friendly vacuum sanders, or by selling recyclable materials such as batteries and scrap metal. A cleaner environment and the use of more efficient equipment can also increase staff productivity. If you are still not convinced, just read what these state program **Clean Marina-designated operators** have to say:



*“We are proud to be the first ‘Clean Marina’ in Nassau County. Our involvement shows that staff and management are environmentally sensitive, and we understand the benefits of our participation in the program.”*  
**Gregg Smith, manager of Amelia Island Yacht Basin, Florida.**



*“The usual marina joke in the spring was ‘Look at the blue Smurfs.’ The boat owners who enjoyed saving money and doing their own*

# 1. Introduction

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*bottom (usually blue) in the past came to the ship's store generally covered with blue bottom paint. They often would not wear masks or eye protection. Now they are eager to emulate the marina worker who is in a white paper suit and is using a dustless sanding rig with full face protection.”* **David Gohsman, general manager, Port Annapolis Marina, Maryland.**



*“The public respects you for not discharging overboard, and it shows our leadership in environmental consciousness.”* **Bob Koerber, dockmaster of Hall of Fame Marina, Florida.**



## 2. EMS and the Clean Marina Initiative

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As any Park Superintendent and successful NPS concessioner knows, a management system is necessary to effectively manage their facilities in relationship to the physical environment around them, particularly when it is a sensitive National Park. By contractual obligation with the NPS, many concessioners will be required to have an EMS. Park units are required to have an EMS under Director's Order 13. The question is, if a concessioner has an EMS, isn't engaging in the Clean Marina Initiative burdensome and redundant?

**ABSOLUTELY NOT!** This *Program* puts all the tools in your hands and encourages the use of existing management in place at your facility. The sections below briefly explain the EMS and how participation in the Clean Marina Initiative will complement this system.



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### 2.1 What is an Environmental Management System (EMS)?

An EMS is a managerial approach to mitigating environmental impacts. It emphasizes a continual systematic review of all appropriate business practices missions activities, from an environmental perspective, to provide management efficiencies and innovation. An EMS includes five core components:

- Setting environmental policy;
- Data collection and planning;
- Program implementation;
- Corrective action; and
- Management review.

The NPS is committed to developing and implementing EMSs at all of its park units as a tool to achieve NPS goals of environmental stewardship and leadership; also, to meet past requirements under Executive Order (EO) 13148 that all appropriate federal facilities have an EMS in place by the end of 2005. In May 2004, the NPS publicly announced Director's Order 13A which formalized this

commitment. EO 13423 rescinded EO 13148; however, EO 13423 includes a requirement that an EMS be implemented at all appropriate organizational levels.

It is recognized that NPS concessioners, as well as park units, could benefit from a systematic process to manage their environmental issues. As a result, the requirement to develop and implement an EMS was established as a requirement for larger and more complex Category I and Category II concessioners in the Standard Concession Contract. Requirements were published in the Federal Register on May 4, 2000 (65 FR 26051-26086). These EMS requirements describe a documented Environmental Management Program (EMP) and are contained in Section 6(b) of the Standard Contract. The Park and concessioner EMS requirements are closely aligned. It is expected that parks and concessioners will work together to

## 2. EMS and the Clean Marina Initiative

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seek coordination and consistency to minimize impacts on NPS resources.

Employing an EMS, NPS facilities and concessioners are expected to better be able to:

- Comply with applicable laws and EOs;
- Identify and reduce environmental impacts;
- Make operations more efficient and less wasteful; and
- Provide a framework to continually improve performance.

The NPS/NPS Concessioner model for the EMS has the following general components:

- *Environmental Commitment Statement/Policy.* The facility's statement presenting its commitment to protecting and conserving the environment.
- *Goals and Targets.* Goals provide broad ideas on what the facility wants to accomplish while targets identify specific actions or steps to be taken toward achieving goals.
- *Responsibility and Accountability.* defines roles and responsibilities for staff.
- *Documentation, Document Control and Information Management System.* This step entails ensuring that the EMS is understood and operating as designed by providing adequate information to facility staff. It provides a way for the facility to track and monitor all facility plans, records and other documents identified.
- *Reporting.* Identifies what data and/or reports must be submitted to Federal, state, regional, and /or

local environmental agencies, and to the Park, on a routine basis.

- *Communication.* This section identifies the different audiences, how and what the facility will communicate to them, and who is responsible for communicating to the audiences.
- *Training.* Addresses the requirement of Applicable Laws, education of employees about the EMS, and information regarding the environmental impacts associated with an employee's specific job.
- *Monitoring, Measurement, and Corrective Action.* This will evaluate how effective and successful the facility EMS is and determine whether the facility has reached its goals and targets or whether there is an opportunity to revise and improve the EMS.

The benefits of an EMS are numerous. An EMS can help a facility cut costs, acquaint a facility with where it stands regarding regulatory requirements, get a facility on track with environmental performance and indicate to the outside community the facility's current environmental efforts. As stated above, the purpose of this *Program* is not to take the place of the EMS.

Reliable EMS resources are available at the touch of a button. Online sources from NPS and EPA provide more detail about an EMS, why it is important for you, and how it can be implemented and enforced. Check out the links below to see how the EPA can help your facility.

## 2. EMS and the Clean Marina Initiative

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### EMS Resources Online:

Concession Environmental Program Web Site

[www.concessions.nps.gov](http://www.concessions.nps.gov)

EPA, *Practical Guide to Environmental Management for Small Businesses*

<http://concessions.nps.gov/document/Practical%20Guide%2Epdf>

*Environmental Management Systems: An Implementation Guide for Small and Medium-sized Organizations,*

[http://www.nps.gov/cgi-](http://www.nps.gov/cgi-bin/intercept?http://www.epa.gov/owm/iso14001/ems2001final.pdf)

[bin/intercept?http://www.epa.gov/owm/iso14001/ems2001final.pdf](http://www.nps.gov/cgi-bin/intercept?http://www.epa.gov/owm/iso14001/ems2001final.pdf)

EPA, *Environmental Management Systems,*

[http://www.nps.gov/cgi-](http://www.nps.gov/cgi-bin/intercept?http://www.epa.gov/ems/index.htm)

[bin/intercept?http://www.epa.gov/ems/index.htm](http://www.nps.gov/cgi-bin/intercept?http://www.epa.gov/ems/index.htm)

Additionally, model NPS concessioner marina EMS guidance is attached in Appendix C for reference and review.



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### 2.2 How is the Clean Marina Initiative Different?

You are probably starting to think that the CM Program being promoted through the NPS National CM Initiative sounds a lot like a part of the EMS. In thinking that, you are onto something; however, a facility-level CM Program supports, but is not a replacement for the NPS and Concessioner Contract-mandated EMS. Implementing the practices promoted through the CM Initiative will help the marina to achieve the two EMS goals, environmental compliance and implementation of best management practices. CM philosophies may be adopted as part of

the concessioner policy, the achievement of CM designated practices and/or the achievement of CM designation itself may be adopted as EMS goals, and training, communication and monitoring programs to meet the objectives of the CM Initiative can be documented in the applicable sections of the EMS. The documentation of a stand-alone CM Program is discouraged as it has the potential to be duplicative of the EMS. Instead, it is suggested that CM concepts be integrated into the concessioner's EMS. Chapter 3 will explain how to

## 2. EMS and the Clean Marina Initiative

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integrate the CM Program into the concessioner EMS.

The *Program* in your hands gives you many tools to add the Clean Marina Initiative features to the facility EMS. The following pages will explain how a Clean Marina Program can add to the environmental management program in use at a facility, while providing valuable information regarding operational aspects and environmental impacts. Most importantly and of greatest practical use, BMPs are provided and broken down into easy-to-reference sections pertaining to operational aspects. In addition, there are numerous resources connecting you to state Clean Marina programs and state government information for specific compliance issues.

The *Program* is set up in an easy to use format. Section 4 introduces you to the environmental impacts that a marina will

likely face. Section 5 goes on to provide a list of Best Management Practices for solving and preventing the environmental impacts caused by a facility. The BMPs are alphabetical by subject (Education and Training, Emergency Planning, etc.). To find out if a facility has incorporated these BMPs, refer to Section 6 to help measure your performance.

Do not assume that the *Program* is complete! The *Program* is set up so that a facility may continue to build upon existing BMPs and develop new ones. When new ideas are developed, create a new BMP sheet using the existing ones as a template; insert the new sheet into this *Program*! Be sure to follow up with a corresponding sheet to measure the facility's performance.

Check out the Appendices for additional information including useful websites, addresses, etc.



## 3. Elements for a Clean Marina

As stated in Chapter 2, NPS park units were required to implement an EMS by the end of 2005 per Executive Order 13148 (now rescinded by Executive Order 13423, which still requires an EMS). Many concessioners are required to implement an EMS under their new concession contracts. This section reviews the ways in which Clean Marina practices can be integrated into an existing EMS.



Photo Credit: US NOAA

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### 3.1 Interdisciplinary Teams and Communication

It is of the utmost importance to incorporate the views and opinions of all interested parties into Clean Marina practices. The input of concerned parties provides a great source of ideas, material, and support. For example:

- Ask staff what changes they would make to improve the operational aspects of the marina.
- Discuss your vision with patrons and get their feedback.
- Find out what improvements subcontractors can make in their practices and materials.
- Marina concession managers should work with the Park unit to understand park-level natural resource management and recreation needs and how concession program activities could be directed to help.
- Who else is interested or affected by improvements at the marina? Who are the stakeholders?
  - Environmental advocacy groups

- Businesses involved with natural resources
- National professional organizations
- Private landowners

When the policy appeals to a variety of people, many groups will follow and even assist in the implementation of your policy. Just look at how state-certified Clean Marinas around the country involved the marina community:

At Lake Powell National Recreation Area, the marina concessioner worked cooperatively with the Park to help in the design and installation and then provided maintenance of floating restrooms along the lake. These restrooms provide necessary facilities for lake users and avoid water quality degradation from improper shore side and lake sanitary practices.

Check out the BMPs for Education and Training for more helpful ideas!

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## 3. Elements for a Clean Marina

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### 3.2 Policy

Rather than duplicate the effort of a Clean Marina policy in addition to the EMS policy, aspects of the facility's Clean Marina practices should be integrated into the facility EMS policy. In developing the EMS policy, you might have asked some of these questions:

- Where are we right now?
- Where do we want to go?
- How do we get there?
- What will it cost?
- How do we measure results?
- Who will help accomplish the plan?
- When will each goal be completed?
- What are the expected results?

To incorporate the Clean Marina practices into the EMS policy, indicate the facility's management commitment to Clean Marina philosophies and practices. Cite this commitment as a means to ensure that the facility will meet and exceed the EMS environmental management objectives. When

integrating Clean Marina philosophies into EMS policy, keep in mind that a good policy will include:

- Relevance to the facility's products and services.
- Using questions to keep the policy clear and simple.
- Integrating input from all the people involved at the facility.
- Employee understanding.
- Community outreach and communication.

**Remember!** The policy is goal- and target-oriented, and its purpose is to explain clearly and concisely how and what you will do in what time frame.



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### 3.3 Goals and Targets

Goals are specific statements that express what a facility wants to attain in a specific timeframe. Related to goals are targets, the specific actions or steps (in this case BMPs) that will achieve the

goals. To determine progress, you must be able to measure your goals (see Section 3.10). The table below shows examples of goals and targets that may already be established in a facility EMS:

### 3. Elements for a Clean Marina

Goal	Targets
Reduce use of hazardous chemical and materials to minimize potential spills and enhance worker safety.	<ol style="list-style-type: none"> <li>1. Convert 50% of the office cleaning chemicals used in operations to environmentally preferable cleaners (e.g., nontoxic, biodegradable) by December 2008.</li> <li>2. Research and use at least two environmentally preferable products (e.g., environmentally preferable solvent cleaner) in vessel operations by December 2009.</li> </ol>
Reduce generation of solid waste to minimize landfill disposal costs and protect water quality.	<ol style="list-style-type: none"> <li>1. Institute recycling program for all houseboats (cans and bottles) by June 2008.</li> <li>2. Replace current printer with new model that prints double-sided by June 2008.</li> <li>3. Acquire and sell at least five products with minimal packaging by October 2008.</li> <li>4. Recycle 100% of paper, plastic, glass, and cans in office. Ongoing.</li> <li>5. Work with Park to recycle all fluorescent lamps and alkaline batteries. Ongoing.</li> </ol>
Reduce water usage to achieve a 30% reduction in facility water use by 2015.	<ol style="list-style-type: none"> <li>1. Annually train all employees during EMS training to conserve water when washing vessels and report leaking faucets, etc. by March 2008.</li> <li>2. Install low-flow toilets and waterless urinals in restrooms as maintenance or replacement warrants by December 2008.</li> </ol>

To integrate the Clean Marina practices into the Goals and Targets portion of the EMS, establish a goal to operate in accordance with the Clean Marina

Initiative. A potential target may include incorporating Clean Marina-designated practices.



#### 3.4 Responsibility and Accountability

Environmental roles and responsibilities must be clearly defined for all staff for an EMS to be effective. The same holds for any new roles and responsibilities you are establishing with the integration of Clean Marina practices into the EMS.

For example, identify those responsible for overall Clean Marina practice management as well as specific activities and practices. Consider the following table on page 3-4 for roles and responsibilities.

## 3. Elements for a Clean Marina

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<b>Roles and Responsibilities</b>	
<b>Role</b>	<b>Responsibilities</b>
Marina Manager	Provides resources necessary to implement the facility environmental policy: directing development of CM plans and procedures, hiring employees, training employees, distributing literature to patrons, holding workshops that demonstrate BMPs
Marina Staff	Following facility environmental policy; participating in relevant training; implementing compliance requirements and BMPs; alerting designated party in case of spill/noncompliance; developing innovative measures to reduce environmental impact
Patron/Boater	Following park unit and facility policy; implementing boater-specific compliance requirements and BMPs; alerting park-unit/facility management in the case of a spill/noncompliance; developing their own innovative measures to reduce environmental impact.
Sub-contractor	Following facility policy; alerting management of spill/noncompliance; notifying management of innovative operational aspects in contracted area.

At all costs, remember the importance of **COMMUNICATION!** When individuals know their roles and the roles of others, the system runs more smoothly and goals are attained.

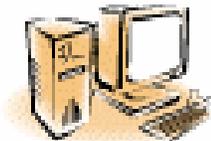



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### 3.5 Documentation, Documentation Control and Information Management

To ensure that Clean Marina practices at the facility are understood and operating as intended, staff must be provided with adequate information. This *Program* suggests the documentation of check sheets, plans, logs, standard operating procedures, etc. These documents are

just part of documentation maintained through the EMS.




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### 3.6 Reporting

Marinas may be confronted with a variety of compliance-driven reporting requirements for such things as Spill Prevention Control and Countermeasures (SPCC) Plans and storm water permit monitoring. The incorporation of Clean Marina practices

into the facility EMS may increase facility-reporting needs. These needs should be added to the Reporting element already in existence in the facility EMS to consolidate all reporting needs for the facility.

## 3. Elements for a Clean Marina

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### 3.7 Training

Environmental training ensures that all staff are aware of the facility's commitment to protecting, conserving, and preserving park resources, and procedures to follow while performing job duties. Clean Marina practices may

require specialized training to be added to the compliance based and general EMS training. Information regarding training is listed in Chapter 5, Education and Training.

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### 3.8 Understanding Compliance Requirements

The true purpose of this *Program* is to provide a toolbox to help a facility reduce environmental impacts and improve the area around the facility. A critical step in the EMS process is understanding any applicable federal, state and local laws and regulations, Federal Executive Orders, NPS and Park unit policy. After all, although many of these requirements often seem complicated and burdensome, at their heart, the basis for these requirements is to reduce environmental impact. Compliance with these requirements will not only meet legal obligations but also help the marina operate in a sound environmental manner. As the Checklist at the beginning of this Program demonstrates, compliance is a minimum requirement to become a *Clean Marina*.

The following table presents a summary of the pertinent statutes for marina

facilities. The following chapters outline Clean Marina management practices in various program areas and are grouped in terms of:

- Federal regulations;
- NPS policies and guidelines; and
- “Above and beyond.”

This grouping will help the user understand which management practices are required and which will demonstrate environmental leadership beyond the compliance minimum, which is the aim of the Initiative.

The materials provided in the *Program* do not represent a comprehensive coverage of all requirements applicable to marina operations. To further help in this complex process, the NPSCP environmental audit protocol for marina and watercraft operations is provided in Appendix C.

### 3. Elements for a Clean Marina

<b>Major Categories of Environmental Requirements or Statutes</b>		
<b>Type of Impact</b>	<b>Applicable Law(s)</b>	<b>Overview of Requirements</b>
Wastes containing chemicals.	Resource Conservation and Recovery Act (RCRA) of 1976 and subsequent amendments	Tells you what a hazardous waste is and sets requirements for taking care of it on-site, moving it from one place to another, and where and how it may be treated or disposed. Regulation includes special provisions to make recycling easier for universal wastes: mercury-containing lamps, batteries, mercury-containing equipment, and recalled pesticides.
Waste disposal and liability.	Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)	Maintains “Superfund” to pay for clean up of hazardous waste sites up front. Later, the EPA can recover costs from each “Responsible Party (RP).” Those who once owned the site, presently own the site, or sent waste to the site can be an RP.
	RCRA	Regulates solid waste management (garbage) and promotes ways to reduce the amount of waste generated, and to ensure that wastes are managed in an environmentally sound manner.
Air pollutants released from business operations.	Clean Air Act (CAA) and its amendments	Sets up a system of controls to be sure that pollutants coming from a business’ operations or heating plant do not hurt the overall air quality in the region. It regulates numerous pollutants. Of particular concern to small businesses are volatile organic compounds (VOCs), nitrous oxides (NOx), and hazardous air pollutants (HAPs), though additional ones may apply.
Contaminated water from business operations or property.	Clean Water Act (CWA) and its amendments	Sets up a system of controls to be sure that contaminated water coming from cities, businesses, and farms does not hurt waterways such as wetlands, ponds, streams, and lakes, or harm groundwater quality. Industrial wastewater cannot be discharged into a septic system. If you put anything but sanitary waste down the drain, you must abide by the local sanitary sewer ordinance.
Chemical spills to air, water, or land.	CERCLA	Makes possible a national emergency response program for certain spills and accidental releases. If your business releases certain chemicals, called “hazardous substances,” you must notify the National Response Center.
	Emergency Release Notification under the Emergency Planning and Community Right-to-Know Act (EPCRA)	Requires you to notify state and local emergency planning commissions immediately if your business has an unplanned release of certain chemicals. In addition to the CERCLA hazardous substances mentioned just above, it covers “extremely hazardous substances” that are listed in regulations put in place to carry out the Emergency Planning and Community Right-to-Know Act.
	Occupational Safety and Health Administration (OSHA)	Many safety and occupational health requirements also provide environmental protection such as hazard communication (HAZCOM) and hazardous material (HAZMAT) storage and handling requirements.
Emergency planning for chemicals stored and used at your business site.	Emergency Planning under EPCRA	Puts in place coordination and planning so that state and local government agencies can prepare for and respond to hazardous chemical spills. If your business is covered by these requirements, you must notify state and local planning commissions and assist these agencies with maintaining the local emergency plan, including providing pertinent information.

### 3. Elements for a Clean Marina

Major Categories of Environmental Requirements or Statutes		
Type of Impact	Applicable Law(s)	Overview of Requirements
Telling the community and local responders about chemicals stored and used at your business site.	Hazardous Chemical Reporting: Community Right-to-Know under EPCRA	Provides a way for the public to access information about hazardous chemicals that community businesses use, store, or release to the environment. Requires you to submit copies of Material Safety Data Sheets for certain hazardous chemicals you keep and use at your business, and to report how much of each you have.
Telling the community and regulators about chemicals released into the environment as part of your normal business operations.	Toxic Chemical Release Reporting: Community Right-to-Know under EPCRA	For certain hazardous chemicals used by certain industries (as determined by SIC code), requires you to measure or estimate the amount that came on your site during the year and what happened to it; such as, how much went into your waste stream. You are exempt if your business does not have 10 or more full-time employees. This information is made available to the public, such as on EPA's EnviroFacts web site.
Managing chemical risks.	Chemical Accident Prevention under the CAA	Requires you to evaluate certain processes of your business operations to determine if it could pose a danger to your neighbors through an accidental chemical release. If so, you must undertake planning to prevent malfunctions from occurring and to reduce the harm from a chemical release if it does occur.
Pesticides.	Federal Insecticide, Fungicide and Rodenticide Act (FIFRA)	Governs the use and disposal of all pesticides to prevent harm to people and the environment. Requires that you be sure that people using certain pesticides at your business are certified, and, if you are an agricultural business, that you put in place an extensive Worker Protection program for employees who work with pesticides. (There are many additional requirements if your business manufactures pesticides or creates plants that are genetically pest resistant.)
Polychlorinated Biphenyls (PCBs).	Polychlorinated Biphenyls (PCBs) under the Toxic Substances Control Act (TSCA)	Requires identification and extensive recordkeeping for PCB-containing items. Sets requirements for taking care of these items on-site, moving them from one place to another, and where and how they may be treated or disposed.
Storage, management, and disposal of petroleum products.	Underground storage tank and used oil regulations of RCRA. EPA's Oil Pollution Prevention Regulation, part of CWA.	Applies to petroleum products stored and used such as vehicle fuel, heating oil, and motor oil. Underground petroleum storage tanks must meet performance standards, the purpose of which is to prevent leaks into soil or groundwater. (Underground storage tank systems containing other hazardous chemicals may also be regulated.) Requires additional controls and management practices to detect, prevent, and respond to petroleum leaks or spills. If your property becomes contaminated by a petroleum spill, there are specific clean up requirements that apply.

Adapted from *Practical Guide to Environmental Management for Small Business*, EPA Small Business Division.



## 3. Elements for a Clean Marina

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### 3.9 Understanding Best Management Practices

Beyond the laws and regulations stated above, the object of this Program is to offer suggestions on how a facility may go beyond compliance to improve the environment. BMPs are policies and practices that apply the most current and advanced means and technologies available to the concessioner to undertake and maintain a superior level of environmental performance reasonable in light of the circumstances of the operations conducted under the NPS-concessioner contract. BMPs are expected to change from time to time as technology evolves with a goal of sustainability of the concessioner's operations. Sustainability of operations refers to operations that have a restorative or net positive impact on the environment.

The use of BMPs is voluntary, but by following BMPs, a facility is helping itself by preserving its number one resource, **the water!** As indicated above, the following chapters outline Clean Marina management practices in various program areas. Many of these management practices fall into the “above and beyond” category. As you will see through the Success Story sections to follow, using BMPs and encouraging others to do the same impresses patrons and develops awareness.

As time passes, the Initiative will evolve, and so will BMPs. By staying on top of new developments, your facility might have the opportunity to continue to decrease its environmental impacts while saving money.



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### 3.10 Monitoring, Measurement and Corrective Action

Your facility's measures towards achieving compliance and implementing BMPs are only as good as the progress that can be monitored. Chapter 6 of the Clean Marina Program provides tools for marina operators to conduct simple assessments of their performance against the Clean Marina principles.

Equally important is correcting noncompliance when it arises and striving for continual improvement, while capturing changes through documentation, and benefiting from it through reporting.



## 4. Understanding Impacts to the Environment

All activities, both human and natural, have consequences for the immediate physical environment. The implications for water, air, soil, flora and fauna can be more or less severe depending on the type of intervention and the duration of the activity. The building of a new facility, a sudden severe storm, or the arrival of a large number of people for a festival can each have serious implications for the environment in terms of damage to flora, compacting of soil, increased pollution loads in the water, or release of dust clouds into the air. However, many of these can be prevented, even when caused by natural phenomena, if adequate mitigation is proposed or included in planning for, and as part of the activity.



Photo credit: US NOAA

### 4.1 Identifying Operational Aspects

The following table (Table 4-1) is included as a quick reference guide to some of the fundamental activities undertaken at marinas and related shore-based facilities. Each one is defined, then followed by the operational aspects of the activity, and completed with a listing of the general environmental impacts associated with the activity. A note at the end of each row pinpoints the section where the BMPs are located within the remainder of the *Program*.

Ten categories are covered in this table:

- Stormwater management;
- Vessel management;

- Petroleum management;
- Waste disposal and recycling;
- Energy use;
- Facility construction;
- Procurement;
- Dredging;
- Landscaping; and
- Erosion control measures.

Additionally, environmental aspects and impacts include legal considerations. The table in Section 3.8 “Understanding Compliance Requirements” provides a list of major categories of environmental regulations.

## 4. Understanding Impacts to the Environment

**Table 4-1: Summary of Marina Activities and Their Impacts to the Environment**

Category	Description	Operational Aspects	Environmental Impacts	Section Containing BMPs
<b>Stormwater Management</b>	Runoff (such as rainwater or snowmelt) flowing over ground surfaces will carry debris and pollutants into local water sources if not controlled or treated beforehand. Pollutants are dissolved and transported by the runoff or attach themselves to soil carried in the runoff.	Parking lots, construction, repairs and maintenance areas that produce sanding dust, paint dust and chips, copper and other heavy metals, other solids, oils, grease, solvents, paint drippings, and spilled fuel.	Surface water quality; groundwater quality; soil quality; impacts to fish and wildlife; non-point source pollution.	Stormwater Management
<b>Vessel Management</b>	Includes vessel maintenance, repair, cleaning, and winterizing.	Engine and hull maintenance use hazardous substances (oil, grease, batteries, antifreeze, antifouling paints, chemical cleaning products, paint chips, wood). Chemicals (e.g., chlorine, ammonia, phosphates.) from boat cleaning, cleaning solvents, and antifouling paint.	Surface water quality; groundwater quality; air quality; soil quality; product life cycles; fish and wildlife; energy use.	Vessel Maintenance / Repair Activities
<b>Petroleum Management</b>	Fuel and oil can create fire hazards (due to flammability of gasoline) and oil slicks on surface waters. NOTE: one cup of oil can create a sheen over one acre of water.	Fueling boats or bilge pumping can release fuel and oil into surrounding waters. Underground or aboveground storage tanks and piping storing oil and gasoline can leak.	Surface water quality; groundwater quality; air quality; soil quality; fish and wildlife; product life cycles; non-point source pollution.	Emergency Planning Hazardous Materials and Wastes Spill Prevention

## 4. Understanding Impacts to the Environment

**Table 4-1 (cont.): Summary of Marina Activities and Their Impacts to the Environment**

Category	Description	Operational Aspects	Environmental Impacts	Section Containing BMPs
<b>Waste Disposal and Recycling</b>	Wastes (hazardous and nonhazardous, sanitary, solid and fish) in the Marina need to be disposed of after use. Often, waste products can be recycled.	Hazardous and nonhazardous wastes may include: contaminated gasoline, contaminated shop rags and sorbents, used oil, used antifreeze, dead batteries, burned out fluorescent lights, and cleaning chemicals no longer in use. Other wastes include sewage, cans and bottles (vending machines), trash, fish waste, reel lines, and pet waste.	Surface water quality; groundwater quality; soil quality; fish and wildlife; product life cycles; non-point source pollution.	Hazardous Materials and Wastes Recycling Waste Containment and Control
<b>Energy Use</b>	Includes energy products and practices.	Energy is used in conjunction with lighting, heating and cooling systems, power generation, office equipment, landscaping and building orientation, fuel, and motors.	Air quality; energy use; product life cycles; impacts to night sky.	Energy Use
<b>Facility Construction</b>	Land management decisions, operating procedures and structural improvements.	Additions to the land (parking lots, buildings, etc.) may decrease ability for land to absorb/treat nutrients and can add shading to the land and water. Removal of vegetation or alteration of land features (such as dredging) can contribute to erosion rates and increased runoff.	Surface water quality; groundwater quality; air quality; product life cycles; non-point source pollution; impacts to fish and wildlife; soil quality; energy use.	Sensitive Area Protection Sediment and Erosion Control

## 4. Understanding Impacts to the Environment

**Table 4-1 (cont.): Summary of Marina Activities and Their Impacts to the Environment**

Category	Description	Operational Aspects	Environmental Impacts	Section Containing BMPs
<b>Procurement</b>	Purchasing existing marina facilities or new land for creation of new marina facilities.	Recognizing all aspects of a marina and their environmental effects is essential before purchasing a new marina. The extent of development or redevelopment will vary based on extent of existing facilities or lack thereof.	Surface water quality; groundwater quality; air quality; soil quality; non-point source pollution; fish and wildlife; energy use; impacts to night sky.	Reviewing all sections is suggested for this category so as to help promote a complete understanding of potential environmental concerns prior to purchase.
<b>Environmental Purchasing</b>	Purchasing environmentally responsible products.	Cleaning products, corrosion protection, dustless sanders, dock components, antifreeze recovery systems, fuel nozzles, retail products/materials, food service products/materials, and recycling equipment are all available purchases for environmentally responsible marina product use.	Surface water quality; groundwater quality; air quality; soil quality; product life cycles; non-point source pollution; fish and wildlife; energy use.	Sediment and Erosion Control Sensitive Area Protection Water Conservation
<b>Dredging</b>	Deepening waterways.	Sediment is resuspended in the water, increasing turbidity, removing aquatic vegetation/habitats, and stirring nutrients that were previously settled.	Fish and wildlife; soil quality.	Sediment and Erosion Control Sensitive Area Protection

## 4. Understanding Impacts to the Environment

**Table 4-1 (cont.): Summary of Marina Activities and Their Impacts to the Environment**

Category	Description	Operational Aspects	Environmental Impacts	Section Containing BMPs
<b>Landscaping</b>	Altering, modifying, upkeep and/or maintenance of land and vegetation.	Removal of vegetation, introduction of invasive species, changes in natural habitats for local ecosystems, use of harmful chemicals (fertilizers, rodenticides, pesticides, etc.), water, and energy use.	Surface water quality; groundwater quality; air quality; product life cycles; non-point source pollution; fish and wildlife; soil quality.	Sediment and Erosion Control Sensitive Area Protection Water Conservation
<b>Erosion Control Measures</b>	Both streambank and shoreline erosion can result from natural causes. Marina activity can induce erosion where soil, streambanks or shorelines have been disturbed.	Storm events (waves and wind) can further perpetuate an erosion problem. Also, boat and personal watercraft traffic creates wakes which can increase turbidity, erode shorelines, uproot submerged aquatic vegetation, resuspend contaminated soils, and damage soil and vegetation in shallow areas.	Surface water quality; groundwater quality; non-point source pollution; fish and wildlife; soil quality.	Sediment and Erosion Control

4-5



## 4. Understanding Impacts to the Environment

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### 4.2 Understanding Environmental Impacts

#### Surface Water Quality Impacts

Surface water includes ponds, lakes, streams, rivers, estuaries, bays, and oceans. The effect of pollution in surface water is dependent upon the type of water body and how water behaves within it. Some factors to consider are:

#### **Sediment, nutrients, and toxic substances**

All of these can be carried into surface waters through runoff. Sediment causes turbidity issues and can carry attached pollutants (nutrients and toxic substances) which then, in turn, affect the aquatic life in the water body.

#### Watersheds

The watershed is the area of drainage for a water source such as a lake or stream. All activities within a watershed influence the health of the surface water and its water body.

#### Weather

Wind and precipitation contribute to the erosion factor in a watershed. This erosion can increase the amount of materials (sediments, pollutants, etc.) that are available for transport into the surface water.



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#### Groundwater Quality Impacts

Groundwater is the water captured within soils and in aquifers. A portion of precipitation that is not evaporated nor transported through runoff is instead absorbed into the ground where it contributes to the soil saturation level and recharges aquifers. Groundwater and surface water can mix or trade places; water in a lake (surface water) can be absorbed into the earth (groundwater) *OR* excess water in the earth can refill a lake. This is significant because of the potential for spreading pollutants.

Groundwater quality is important because it provides the water source for public drinking water and private wells. Contamination of this water can lead to health and environmental concerns.

Leaking drums or ASTs with gasoline or other materials may leak and pollute groundwater. Pesticides and fertilizers used in landscaped and open areas have the potential to be absorbed into the ground and become part of the groundwater. Landfills may leak, possibly causing groundwater contamination. Any hazardous material that is on the ground in excess has the likelihood to penetrate the soil and infiltrate the groundwater.

Cleanup of groundwater pollution is often difficult and expensive due to the depth and extent of the water. If the groundwater is used as a drinking source, alternate sources may be difficult to find, depending on the local environment and the number of people in demand of the drinking water.

## 4. Understanding Impacts to the Environment

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### **Air Quality Impacts**

Many activities in a marina affect air quality although some activities may produce more significant sources of pollution than others. Some possibilities are as follows:

#### **Dust, Dirt, and Smoke**

Dust producing equipment (buffing, cutting, drilling, etc.) releases particles into the air that may interfere or impede breathing abilities, especially those with asthma, or may produce other respiratory problems like chronic bronchitis or decreased lung function. Activities can stir up dirt from unpaved roads, while the burning of wood or trash adds smoke, soot, and particles to the air. All of these can contribute to haze. When particles settle, they may do so on the water or on land interfering with plant and aquatic life, soils, streams, lakes, and coastal waters.

#### **Cleaners, Solvents, Paints, and Pesticides**

Chemicals from cleaners, solvents, paints, and pesticides can be released into the air through their vapors. These emissions have harmful effects on the environment (smog) and are often considered carcinogenic (cancer-causing) when thresholds have been exceeded.

#### **Motor Operations**

Engine repairs, vehicle operations, and forklift usage are examples of motor operations that contribute emissions to the environment. Emissions, such as nitrogen dioxide, created from the burning of fuel at high temperatures, contribute to smog, acid rain, haze, and increased greenhouse gases. Effects are both witnessed (haze) and experienced

(acid rain causes plant and water damage and building degradation).

#### **Fuel, Gasoline, and Oil Storage**

Harmful fumes can escape when filling gasoline tanks from the tanker or filling vehicles from gasoline tanks. Production and transport of these can lead to an increase in greenhouse gases, which affect global temperature.

#### **Ozone Depleting Substance (ODS)**

Vessels and marina facilities often have air conditioning and refrigeration systems that must be properly serviced to control ODS emissions. Halon fire suppressant systems may also be an issue if not properly maintained.

#### **Mold**

Molds are found almost everywhere; they can grow on virtually any organic substance when moisture and oxygen are present. This makes boats and marinas a prime target for mold growth. When mold spores land in damp areas indoors, they may begin digesting whatever they are growing on in order to survive. Molds gradually destroy the materials they grow on; however, by controlling indoor humidity, you can generally control indoor mold growth.

Molds can produce allergens that may trigger allergic reactions or even asthma attacks in people allergic to mold. Others may produce potent toxins and/or irritants. Health problems result from inhalation of fungal spores, fragments or metabolites as well as physically touching or ingesting the mold. Potential health concerns are an important reason to prevent mold growth and to clean up any existing indoor mold growth.

## 4. Understanding Impacts to the Environment

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### Non-point Source Pollution Impacts

Non-point source pollution is an accumulation of pollution from diffuse sources. Because the source of pollution cannot be pinpointed to one specific activity or location, both prevention and reduction of contaminants are essential for a successful cleanup of the marina environment. Because of their nature, shore-based facilities are considered non-point pollution sources for a number of reasons.

Impacts from this type of pollution can interfere with and harm water sources (surface and groundwater as previously discussed), an essential component of marinas.

Some sources of non-point pollution associated with marina activity are:

- Fertilizers, herbicides, and insecticides;
- Oil, grease, and toxic chemicals from urban runoff;
- Sediments from construction sites, crop and forest lands, and eroding stream banks;
- Bacteria and nutrients from pet wastes and faulty septic systems;
- Storm water runoff, and;
- Retention ponds.



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### Impacts to Fish and Wildlife

Aquatic habitats and their components may be disrupted by marinas or boatyards. When these areas are altered, either directly or indirectly, the organisms living in and off of the land may or may not be able to survive these changes. Fish and shellfish numbers are threatened when spawning and harvesting beds are disturbed or eliminated. This can cause an immediate impact in the food chain for the area in which the marina resides.

Indirectly, fish and wildlife are affected by changes in their local environment when alterations occur to the wetlands, riparian zones and beds of submerged aquatic vegetation (SAV). Fish may lose their protective barrier against predators and are prone to an increase in pollutants (discussed below) and turbidity. Turbidity clouds the water, hindering photosynthesis or development of aquatic plants that are

food for fish. Also, if shoreline and aquatic flora and fauna are removed, the chances increase for invasive species to populate the area, disturbing the natural balance of the marina ecosystem. It is important to survey the area to identify both invasive and endangered species so appropriate actions to manage them may be established.

Invasive species (a species that is non-native and takes over a new environment) might be introduced by marina activities. For instance, boats being brought from one location to another could bring a non-native species that may take over (e.g., zebra snail).

Another area of concern is the pollutant level in aquatic organisms. Pollutants are often mixed in with or attach themselves to sediment or suspended particles in the water that are then ingested by small organisms. When the

## 4. Understanding Impacts to the Environment

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organism ingests these, the pollutants are not excreted and instead accumulate in the tissues of the organism. These pollutants are passed on to larger organisms when the smaller ones are eaten. This bioaccumulation causes pollutant levels to rise at an alarming rate in aquatic life including fish and

oysters. In turn, humans have the potential to eat the contaminated fish.



Photo credit: US NOAA

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### Soil Quality Impacts

Soil quality cannot be directly measured, but there are physical, chemical and biological indicators of its condition. Soil quality, or the capacity of a soil to function, impacts features such as plant productivity, environmental buffers, and water movement. Although some of soil's ability to function is based upon its own inherent properties, climate and human use or management are also influential.

Adverse land behavior that can affect soils includes excessive fertilizer use, pesticides, oil or grease drippings, gasoline or fuel leaks, and runoff from parking lots or other paved areas, just to name a few. These activities produce harmful chemicals that use soil as a means of storage from which they can cause damage to the surrounding wildlife. In addition, increased traffic may affect soil quality as well; use of walking paths or trails can cause soil to compact, creating infiltration problems with precipitation. If water is unable to pass through the soil, it runs over the

earth's surface instead which can increase erosion rates and create a messy problem with dirt, debris, and mudslides.

Contaminants more readily attach themselves to sediment as a result of their inability or difficulty to dissolve in water. Contaminants such as metals or petroleum hydrocarbons are likely candidates for this process. The heavier metals (such as copper or lead) sink to the bottom of the water column. Petroleum hydrocarbons have a tendency to remain attached to or a part of sediments for many years. As previously discussed fish and wildlife often ingest these sediment particles, causing health threats to the organisms themselves and at higher levels in the food chain, including humans.



Photo credit: US NOAA

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### Resource Use

Resources will be required for maintaining and updating any marina facility. Selection of products (environmentally preferable), use of

products (energy) and conservation of products (water) are a vital part of environmental stewardship. These items are discussed in detail below.

## 4. Understanding Impacts to the Environment

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### Environmentally Preferable Products

Environmentally preferable products are important to understand because of the implications they have in terms of:

- environmental impacts;
- management of purchasing decisions; and
- management of building decisions.

It is important to understand the product lifecycles, and the product lifespan. Often, especially in facilities that include a workroom or a repair shop, it is possible to find expired materials which have not been disposed of properly. These may pose an unexpected hazard for facility users when they are incorrectly stored with other materials that they could have a reaction with as they change with age. Another possibility is that with age, they lose their properties so that larger quantities are used to accomplish the same end with a greater cost to the environment.

A product life cycle begins with the raw materials and includes bulk material processing, engineered materials production, manufacture and assembly, use, retirement, and disposal of residuals produced in each stage. A life cycle assessment (LCA) evaluates all of the environmental impacts that a product causes during its life cycle, using a cradle-to-grave approach. LCAs can provide a practical numerical summary of a user's approach to products in terms of their life cycles in relation to their ecological effects. These assessments compile an inventory of relevant energy and material inputs and energy releases; evaluate the potential environmental impacts associated with identified inputs and releases; and, interpret the results to

help make a more informed decision regarding the product life cycle design. The LCA also identifies and evaluates opportunities for minimizing the overall environmental consequences of resource usage and environmental releases.

There are some common misconceptions regarding environmental preferable products:

- **Natural is not always better** – The production of 1 kg of wood causes fewer emissions than the production of 1 kg of plastic; however, working wood involves paint and sawing losses. For some products you need about ten times as much wood as plastic. Plastic can be recycled, wood cannot. Products must be considered as a whole.
- **Energy consumption is often underestimated** – Energy consumption is often much higher than material selection cost. For example, 10 kWh electricity uses 2 kg of oil; 1 kg of plastic uses 1.5 to 2.5 kg of oil; however, a coffee machine uses 300 kWh electricity during its lifetime, equal to 60 kg of oil. During production only 2 kg of plastic is used.

Some marina-specific examples of products where it is important to look at product life cycles include:

- **Natural durable timbers:** It is suggested that these be used for pilings and other structures, but used *conservatively*. Along these lines, exotic durable timbers are not suggested for use because their harvest is harmful to tropical forests. Synthetic timber may be a suitable alternative, and

## 4. Understanding Impacts to the Environment

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- is increasingly available, specifically for the marina industry.
- **Equipment selection:** Environmentally friendly equipment might cost more than older methods of performing the same job (painting, blasting, sanding), however energy use is generally lower and the whole process causes less waste.
  - **Solvents:** Although using more of a solvent might get a job done quicker, the harm caused by the volatiles released as well as the cost in using greater volumes of solvent is more detrimental than a slower, safer job, using less solvent, or an alternative product.
  - **Increasing product lifetime** – increase durability, or upgrade-ability.
  - **Using a minimum of material** – less weight means less fuel consumption.
  - **Using recycled materials and making a product recyclable** – If there is a demand for recycled products, supply will follow. Increase the chance for the product to be recycled by optimizing its design.
  - **Visit the NPS “Green Toolbox” for additional resources** – [www.nps.gov/renew/toolbox.htm](http://www.nps.gov/renew/toolbox.htm)

Other tips for selecting environmental preferable products include:

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### Energy Use

Although energy use is essential for the operation of a marina, certain practices can be employed to help reduce energy misuse or waste. Energy efficiency is both cost effective and environmentally responsible. Energy conservation opportunities exist for equipment usage and employee practices. Equipment may be old, inefficient, oversized, or improperly operated or maintained.

Opportunities for energy conservation involving lighting include installation of motion sensors, the use of high efficiency fluorescent bulbs, removal of excessive lamps or bulbs, and turning off lights when not in use. Utilizing renewable energy sources helps conserve energy as well.

Other possibilities for limiting excess energy use include:

- Energy efficient power generators replacing existing transformers;
  - Heating and cooling systems that can be regulated with programmable thermostats;
  - Fuel efficient, low emissions engines;
  - Landscaping that provides shading or wind breaks;
  - Creating covered parking and docks, and including solar panels in the roofing as an additional energy resource;
  - Considering building orientation and site selection and their impact on energy requirements when planning new facilities, and;
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## 4. Understanding Impacts to the Environment

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- Using Energy Star office equipment, including computers and monitors.

### Water Conservation

Water is often considered a cheap utility when compared to energy. The cost of using water can be measured in many ways, including the monetary value for activities associated with use of the resource. For instance, costs can be incurred in many ways:

- Water requires energy for pumping, heating, and cooling;
- Water requires chemicals for treatment; and
- Water requires staff to operate treatment and wastewater treatment systems.

Conservation of water is important because over-use can deplete aquifers. Also, water generates point and non-point source wastewater which must be disposed. Water conservation measures can “add up” in cost savings, and can keep resources stocked.

Visit the American Water Works Association (AWWA) Web Site at <http://www.awwa.org/>. AWWA provides information about water, including technology, resources, and public health.



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### Impacts to Night Sky

Night lighting is important for marinas both for safety and security issues and for enabling nighttime activities. However, light pollution is of concern for a number of reasons. For example, unnatural light patterns may have an impact on migratory birds or affect the habits of local, nocturnal creatures. Additionally, light may interfere with the aesthetic aspects of the nighttime sky, prohibit star-gazing, or contribute unnecessary lighting to surrounding neighborhoods, possibly disturbing neighbors. Due to the natural location of shoreline facilities, glare reflected from the water surface may also intensify the

effects of lighting. Glare can interfere with navigation, hindering the ability to see other boaters, hazards, and navigational aids.

This is an increasingly important consideration in more remote areas where the NPS is especially active in protecting the night skies from light impacts. In such areas it is the responsibility of the NPS to ensure that visitors benefit from the full experience of the natural environment with clear views of the night skies, complete with stars, meteor showers and northern lights.

## 5. Management Practices

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**Some aspects of marina activities must be addressed (compliance) and some will help a marina or park go above and beyond the federal and state requirements (BMPs). Breaking down the tasks can make accomplishing these goals more achievable and will ultimately help the Park, the marina, the patrons and most importantly the environment.**

The following section is broken into several types of activities or tasks that may be a part of the management practices at a marina. Each activity or task has its own sheet. These sheets are generally titled “Management Practices” with the specific activity or task included in the title.

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### 5.1 Organization of “Management Practices” Sheets

Reviewing these sheets will help support existing compliance requirements and documents to enable your marina’s goal of achieving compliance. Read further into each sheet to learn how your facility can go above and beyond compliance (BMPs). Each sheet for the respective activity or task includes specific information about:

- Federal authorities;
- State/Local authorities;
- NPS Policy/Guidelines; and
- Above and Beyond (includes BMPs).

These divisions help to address both compliance issues and BMPs. Please

note that NPS Concession contracts may apply specific requirements upon concessioners that are above and beyond federal, state or local requirements. Be sure to review the concessioner’s contract to become familiar with any such requirements.

Also included at the end of many management practice sheets are some success stories from concessioners at NPS parks around the US. These facilities have not only come into compliance but have put into place a number of the BMPs or other innovative and park approved projects to help their facility go above and beyond.

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### 5.2 Additional Resources

The NPS 2006 Management Policies establish broad management guidelines which are applicable to many of the BMPs listed on the following pages. Policies are a vital tool to help NPS employees and concessioners manage parks and concessions responsibly and make rational, well-informed decisions.

A complete list of these policies is available online at:

<http://www.nps.gov/policy/MP2006.pdf>.

Additional support and information can be found on the NPS Concessions website, under “Environmental Management.” The Concession Environmental Audit Tools and

## 5. Management Practices

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Resources have an extensive list of NPS EnviroCheck Sheets:

<http://concessions.nps.gov/program31.cfm>

These EnviroCheck Sheets are a tool used by NPS during auditing of its facilities. While auditing may or may not be applicable to your facility, these EnviroCheck Sheets can still provide helpful information regarding regulations, common violations, and additional support or resources. The following EnviroCheck Sheets are available from the NPS Concessions website, available at the link provided above.

NPS EnviroCheck Sheets:

- Air Quality
- CFC and Halon Management
- Emergency Planning and Reporting
- Environmental Purchasing
- Fuel Storage Tank
- Hazard Communication
- Hazardous Materials Management
- Hazardous Waste
- Laboratory Chemical and Waste Management
- Pesticide Management
- Respiratory Protection
- Solid Waste Management
- SPCC Planning
- Storm Water Management
- Universal Waste Management
- Wastewater Management

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**Read on to find out how you can “Help Your Marina!”**

## 5. Management Practices

# Education and Training

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No one can do it alone. To fully implement Clean Marina practices at your marina, it is imperative to educate and train your boaters and employees. As the participants become more knowledgeable and prepared, it will be easier to implement and enforce laws, regulations, and BMPs. When more people are involved and understand the possible consequences, it is more likely that someone will pick up on practices that still have room for improvement. In addition, a better understanding by all participants may lead to the discovery of new BMPs.

As for the alternative, the lack of education or training may increase the potential for environmental hazards, safety hazards, pollution and waste accumulation, and general degradation of your marina. This is why knowing how to train or educate others involved in your marina is so important.

Your marina will see the positive results from appropriate education and training. More help will lead to a cleaner, healthier, more attractive marina, which will benefit everyone.

### Help Your Marina!

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#### Federal Authorities

#### Requirements

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**Training for specific operations may be required.**

- ★ Specific training requirements may be needed for different operational aspects, and will be required for marinas with hazardous wastes and operations, including oil response. This is discussed in applicable sections of Chapter 5.
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#### State/Local Authorities

#### Requirements

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**Training for specific operations may be required.**

- ★ Specific state/local training requirements may apply. Check with your state/local government office for more information.
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#### NPS Policy/Guideline

#### Requirements

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**No specific guidelines; however, check with your Park for updates.**

- ★ No specific requirements. However, an extensive list of NPS training materials and training programs is available at <http://www.nps.gov/renew/training.htm>
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## 5. Management Practices

# Education and Training

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<b>Concessions Contract / Operating and Maintenance Plan</b>	★ NPS concessioners may be subject to additional requirements related to this topic. These requirements may be specified in the Concession Contract and associated Operating and Maintenance Plan.
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<b>Above and Beyond</b>	<b>Best Management Practices</b>
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<b>Educate and provide training.</b>	<ul style="list-style-type: none"> <li>★ Managers and staff</li> <li>★ Boaters</li> <li>★ Contractors</li> </ul>
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<b>Inform employees, boaters and contractors.</b>	<ul style="list-style-type: none"> <li>★ BMPs for environmental education and training are above and beyond those required by Applicable Law which also must be comprehensively addressed in order to achieve Clean Marina status.</li> <li>★ Distribute BMPs or develop Fact Sheets.</li> <li>★ Hold training sessions for managers, staff, and boaters. (See “What should the training include?” listed below for more information)</li> <li>★ Provide a Clean Marina supplies &amp; equipment section in the marina boat store that sells bilge socks, absorbent materials, etc.</li> <li>★ Customers can be updated through newsletters, inserts in billing statements, pamphlets, and flyers.</li> <li>★ Contractual language for contractors can include provisions requiring contractors to meet your marina’s environmental policies and procedures, for example:               <ul style="list-style-type: none"> <li>Removing and disposing of all incurred waste properly;</li> <li>Keeping work areas clean;</li> <li>Using ‘green’ alternatives depending on contractor’s work; and,</li> <li>Signing in and out when working on any boats in the marina.</li> </ul> </li> </ul>
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## 5. Management Practices

# Education and Training

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<b>Assist rental boat customers who may not be familiar with your marina or its practices.</b>	<ul style="list-style-type: none"><li>★ Provide signs and information for customers who rent boats to help them become familiar with your facility.</li><li>★ Post signs on rental boats (such as “Do not dump” on direct discharge drains).</li><li>★ Provide environmental sections in boat instruction manuals.</li><li>★ Concessioners should provide a safety/shake-down briefing for rental customers that covers environmental procedures. Do this early in the visit, before rental customers go out on the water.</li></ul>
<b>Post signs to help increase awareness.</b>	<ul style="list-style-type: none"><li>★ Make sure signs are clear and visible. Letting boaters know where to recycle, distribute trash, etc. will make it easier to comply with BMPs.</li><li>★ Include signs at the fuel dock to help employees go beyond NFPA requirements. (For example: “Absorbent materials can control drippage.” or “Use secondary containments for gas can filling.”)</li><li>★ Provide signs at dock waste facilities so that boaters can properly sort materials into the correct receptacles.</li><li>★ Use signs to offer advice on environmentally preferable products in gift shops and grocery stores.</li></ul>
<b>Assist boaters so that they are in compliance and go above and beyond with BMPs.</b>	<ul style="list-style-type: none"><li>★ Walk around the docks and ask boaters what questions they may have.</li><li>★ Consider conducting inspections. Check with your local Coast Guard Auxiliary to see if they will conduct any free boating safety inspections.</li></ul>
<b>Make certain that everyone know the rules.</b>	<ul style="list-style-type: none"><li>★ Do not assume that boaters are aware of all the laws, regulations, or BMPs that your marina uses.</li><li>★ Include language in the boaters’ contracts explaining the environmental policies of your marina.</li></ul>

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## 5. Management Practices

# Education and Training

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- Design a training matrix.**
- ★ Develop a training matrix for employees as part of the concessioners EMP. This will improve understanding of applicable compliance and beyond compliance training needs, and will provide a method for tracking such needs.
  - ★ Discuss existing BMPs and emphasize those that are of specific concern to your marina. Distribute the list of BMPs.
  - ★ Discuss the operational aspects of your marina where improved BMP usage can assist. Bring up or develop new BMPs for your marina.
  - ★ Give certificates of training.
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### Success Stories!

**Boater Education.** A concessioner in Lake Mead National Recreation Area posted a large sign on a wall of the floating marina store in its dockside picnic area that highlighted a variety of clean marina practices from trash and waste management to proper use of marine sanitation devices.

A Lake Mead concessioner has also set up a Clean Marina display at its boating supplies store where green products such as environmentally preferable boat cleaners and pollution prevention equipment such as bilge socks and vent air-fuel separators are sold. Interpretive displays are provided to help customers understand why the green products are important.

### Check Out Other Clean Marina Management Practices

A good understanding of all management practices applicable to your marina will be helpful for education and training. A review of all BMPs is recommended.

- ✓ All Management Practices sheets should be reviewed

## 5. Management Practices

# Emergency Planning

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While it's impossible to predict *when* an emergency might occur, it's entirely possible to predict *what type* of emergencies might occur. There are a number of emergency situations that require an immediate response, and simply dialing 9-1-1 is not always the quickest or most effective way to deal with them. The best way to ensure an immediate and effective response to emergency situations is to plan and train for them. Without both of these components, important steps can be missed, and good intentions can produce bad results.

### Help Your Marina!

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#### Federal Authorities

#### Requirements

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**Occupational Safety and Health Administration (OSHA) Emergency Action and Fire Prevention Plans**  
[29 CFR 1910.38]

**OSHA Emergency Response Planning**  
[29 CFR 1910.120]

- ★ This requires development and implementation (including training) of a written Emergency Action Plan (EAP), which outlines procedures for various types of emergencies including how the facility handles “other emergencies” such as responding to incidental hazardous substance spills. Such emergencies for marinas may include a fuel spill; holding tank or water tank filled with gas; spill at the storage area: used oil, antifreeze, solvents, cleaning supplies, paint products, etc.; sewage leaks from sewage pumps; health emergency; propane releases; natural events (such as hurricanes); and vandalism. The OSHA Standard also requires a Fire Prevention Plan (FPP) to be in place on site, available to employees. If there are 10 or less employees, a verbal EAP and FPP can be fulfill the obligation.
  
- ★ This requires development and implementation of a written Emergency Response Plan (ERP) if facility personnel will be responding to releases of hazardous materials which are not incidental. The standard also requires Hazardous Waste Operations and Response (HAZWOPER) training for facility personnel dependent upon the level of response in which the facility staff will be involved.
  
- ★ Reference the regulation for a list of requirements for the EAP, FPP, and ERP.

Concessioner specific EAP and ERP guidance are available from the NPS Concession Program web site at <http://concessions.nps.gov/program31.cfm>

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## 5. Management Practices

# Emergency Planning

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<b>Emergency Planning and Community-Right-to-Know Act (EPCRA) [40 CFR 355 and 370]</b>	<ul style="list-style-type: none"><li>★ EPCRA has the following reporting requirements:<ul style="list-style-type: none"><li>✓ Emergency Planning;</li><li>✓ Emergency release notification;</li><li>✓ Hazardous chemical storage reporting requirements; and</li><li>✓ Toxic chemical release inventory</li></ul></li> <li>★ An overview of EPCRA is available from the Environmental Protection Agency (EPA) site: <a href="http://yosemite.epa.gov/oswer/ceppoweb.nsf/content/epcraoverview.htm">http://yosemite.epa.gov/oswer/ceppoweb.nsf/content/epcraoverview.htm</a><ul style="list-style-type: none"><li>✓ Many EPCRA requirements are applicable at the state or local level. Refer to the state/local authorities section for more information.</li></ul></li></ul>
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<b>State/Local Authorities</b>	<b>Requirements</b>
<b>EPCRA</b>	<ul style="list-style-type: none"><li>★ Emergency and Hazardous Chemical Inventory requires an annual inventory report for the same MSDS chemicals. In most states, this is called a Tier II form. This must be submitted by March 1 of each year to the State Emergency Response Commission (SERC), Local Emergency Planning Committee (LEPC), the Park, and local fire department. Consult the EPA state list for details specific to your state:<ul style="list-style-type: none"><li>✓ <a href="http://yosemite.epa.gov/oswer/ceppoweb.nsf/content/tier2.htm">http://yosemite.epa.gov/oswer/ceppoweb.nsf/content/tier2.htm</a></li></ul></li> <li>★ Other state or local-specific emergency planning requirements may apply. Check with your state and local government office for more information.</li></ul>
<b>Required Safety Programs</b>	<ul style="list-style-type: none"><li>★ Specific state/local requirements may apply. Check with your state or local government office for state and local regulations.</li></ul>

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## 5. Management Practices

# Emergency Planning

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<b>NPS Policy/Guideline</b>	<b>Requirements</b>
<b>Required Park and Concessioner Safety Programs</b> [NPS 50B; 2006 Management Policies, section 10.2.4.8; Standard Concession Contract]	<ul style="list-style-type: none"> <li>★ Parks are required to develop and maintain a Risk Management Program that addresses all applicable OSHA standards.</li> <li>★ Category I and Category II Concession Contracts require that applicable emergency planning programs are integrated into documented safety programs.</li> <li>★ Parks and concessioners must meet NFPA requirements pursuant to NPS 50B.</li> </ul>
<b>Coordinate Emergency Plans between the Park and applicable concessioners/contractors.</b>	<ul style="list-style-type: none"> <li>★ Ensure coordination between the Park/concessioners and contractors that may have responsibilities for spill response to ensure roles are clearly understood and response procedures are adequate. Considerations should be given to:               <ul style="list-style-type: none"> <li>✓ Concession Contract requirements;</li> <li>✓ Concessioner/Park resources; and</li> <li>✓ Environmental impacts.</li> </ul> </li> </ul>
<b>Integrate into facility EMS</b>	<ul style="list-style-type: none"> <li>★ Address applicable emergency response policies, plans, and procedures into the Park/concessioner EMS (e.g., documentation and documentation control, roles and responsibilities, training, etc.)</li> </ul>
<b>NPS follows Director’s Order (DO) 50B – Occupational Safety and Health Program</b>	<ul style="list-style-type: none"> <li>★ NPS Parks and concessioners must meet National Fire Protection Association (NFPA) requirements pursuant to this DO.</li> </ul>
<b>Concessions Contract / Operating and Maintenance Plan</b>	<ul style="list-style-type: none"> <li>★ NPS concessioners may be subject to additional requirements related to this topic. These requirements may be specified in the Concession Contract and associated Operating and Maintenance Plan.</li> </ul>
<hr/>	
<b>Above and Beyond</b>	<b>Best Management Practices</b>
<b>Use demonstrations when training employees to be prepared in case of an</b>	<ul style="list-style-type: none"> <li>★ Invite the U.S. Coast Guard (USCG) and local fire department to demonstrate emergency response procedures at your facility.</li> </ul>

## 5. Management Practices

# Emergency Planning

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### emergency.

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#### **Make oil response equipment available at your facility if it is not already required.**

- ★ Maintain enough oil-spill response equipment to contain the greatest potential spill at your facility.
- ★ Store enough booms to encircle the largest vessel in your facility. Vessel length x 3 = required length of boom.
- ★ Store appropriate emergency response personal protective equipment (PPE) at the facility.

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#### **Store oil response equipment where it is safe but most needed.**

- ★ Store the equipment where the greatest threat of an oil spill exists, namely, in fuel receiving and dispensing areas.
  - ★ Store materials in an enclosed container or bin that is accessible to all staff—especially those who handle fueling operations.
  - ★ Mark the storage site with a sign reading “Oil Spill Response Kit.” Include instructions for deploying pads and booms, a copy of the facility’s Spill Response Plan, and the notification that all spills in and around the marina must be reported to the Director (or their designee), as outlined in the Standard Concession Contact. Contact local and state agencies to find out to whom spills should also be reported.
  - ★ Consider leaving the storage container unlocked so that it is available to patrons as well as staff. If you prefer not leaving the bin unlocked all the time, leave it unlocked on weekends and holidays, when both activity and risk are greatest.
  - ★ If the bin is left unlocked, check the inventory regularly.
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### **Success Stories!**

**Planning** - At Glen Canyon National Recreation Area (GLCA), one concessioner developed a complete SPCC Plan for its land-based fuel storage and also a Vessel Response Plan for its barge transport of fuel from Stateline Marina up-lake to a remote marina at Dangling Rope. The concessioner transports over 1,000,000 gallons of fuel on the lake per year using a triple-walled fuel barge.

**Fueling Procedures Education** – A concessioner at Lake Powell, AZ, in addition to annual training and documented standard operating procedures, handed out to fuel attendants wallet cards that outlined fueling procedures to help educate and ensure proper fueling procedures.

### **Check Out Other Clean Marina BMPs**

- ✓ Spill Prevention
- ✓ Hazardous Materials and Wastes



Facility operations, like most activities, require energy. Saving energy is far from a new idea; our resources are finite and our energy use seems infinite. Reducing energy use in the shore-based facility setting is sometimes difficult because it seems that facilities do not use enough overall energy to accomplish large-scale energy recovery. However, many innovative changes can be implemented to reduce energy use.

Although energy use is essential for the operation of a marina, certain practices can be employed to help reduce energy misuse or waste. Energy efficiency is both cost effective and environmentally responsible. Energy conservation opportunities exist for equipment usage and employee practices. Equipment may be old, inefficient, oversized, or improperly operated or maintained.

## Help Your Marina!

Federal Authorities	Requirements
<b>Energy Policy Act of 2005 (EPACT)</b> <b>[Public Law 109-58]</b>	★ EPACT increases conservation and energy-efficiency requirements for government, energy, and consumers; reference the law to determine if a specific reduction in energy is required.
<b>Executive Order (EO) 13423 – Strengthening Federal Environmental, Energy, and Transportation Management</b>	★ EO requires federal agencies to reduce energy intensity by 3% annually through the end of FY 2015 or 30% by 2015 compared to the FY 2003 energy use baseline; and acquire at least 50% of required renewable energy purchases from new renewable sources.  ★ The Department of the Interior (DOI) and the National Park Service (NPS) will issue guidance on how this EO applies to concessioners (per Section 3f of the EO).
State/Local Authorities	Requirements
<b>Specific state/local regulations may apply.</b>	★ Check with your state and local government office for state-specific and local requirements.

NPS Policy/Guideline	Requirements
<b>2006 Management Policies, Section 9.1.1, 9.1.3.1, 9.1.4, 9.1.7, 9.2</b>	<ul style="list-style-type: none"> <li>★ The NPS Management Policies promote energy efficient facility design and purchase of energy efficient equipment, energy efficient operation and maintenance and less polluting energy sources.</li> <li>★ Concession operations should incorporate sustainable practices (e.g., energy efficiency).</li> <li>★ Concession contracts may include specific energy management requirements.</li> </ul>
<b>Concessions Contract / Operating and Maintenance Plan</b>	<ul style="list-style-type: none"> <li>★ NPS concessioners may be subject to additional requirements related to this topic. These requirements may be specified in the Concession Contract and associated Operating and Maintenance Plan.</li> </ul>
Above and Beyond	Best Management Practices
<b>Adjust lighting in your marina to improve energy use.</b>	<ul style="list-style-type: none"> <li>★ Replace all light bulbs – those found on docks, in maintenance buildings, etc. – with high-efficiency compact fluorescent bulbs. Other substitutes are metal halide or high-pressure sodium bulbs, but fluorescent is best.</li> <li>★ If possible, cut down on security lights, or employ motion detector lights, to turn off lights when they are not needed.</li> <li>★ Avoid light pollution by using full cutoff luminaires, low-reflectance surfaces and low-angle spotlights.</li> <li>★ Install skylights in storage buildings or elsewhere, and paint walls lighter colors, to maximize use of natural light, thus reducing dependence on electric light.</li> </ul>

## 5. Management Practices

# Energy Use

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<b>Modify equipment used at the marina to improve energy use.</b>	<ul style="list-style-type: none"> <li>★ Keep fewer vending machines and require vendors to refill them more often.</li> <li>★ Install energy control devices for vending machines.</li> <li>★ Use fewer ice machines.</li> </ul>
<b>Improve heating / cooling operations in the marina.</b>	<ul style="list-style-type: none"> <li>★ Apply localized heating when needed using propane heaters (infrared or forced air) rather than heating a whole building.</li> <li>★ Use solar air heaters to enable building use with little or no electric heat (depending on locale).</li> <li>★ If possible, do not air-condition maintenance buildings.</li> </ul>
<b>Boats and their power connections affect energy use.</b>	<ul style="list-style-type: none"> <li>★ Encourage slip holders to practice conservation on their boats by turning off large load appliances (air conditioning and resistance heat) while they are not in use.</li> <li>★ Only allow slip holders to have one 30-amp connection; charge for additional connections.</li> <li>★ Require that patrons turn off all large power consuming appliances when they leave the facility.</li> <li>★ Require boaters to unplug from their connection when they will be gone from the dock for more than 24 hours.</li> </ul>
<b>Different forms of energy production can be implemented in the marina.</b>	<ul style="list-style-type: none"> <li>★ Generate energy on-site with solar panels or wind turbines.</li> <li>★ Look into a specially designed, EPA-approved furnace allowing the use of used motor oil and old diesel fuel to heat service buildings.</li> <li>★ Consider the use of a photovoltaic (PV) hybrid power system. These systems require less fuel, produce fewer emissions, and require less regular maintenance.</li> </ul>

## Energy Use

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**Put the energy goals in writing.**

- ★ Consider setting energy management goals and objectives and measuring performance as part of the concessioner's Environmental Management Program (EMP).
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### Success Stories!

**Energy Conservation.** At Lake Powell, a concessioner used photovoltaic systems to power the fuel barge running lights and breakwater navigational lights.

### Check Out Other Clean Marina Management Practices

- ✓ Water Conservation

5. Management Practices

# Environmentally Preferred Materials and Products

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Purchasing environmentally preferred materials and products for marinas should provide fewer negative impacts on human health and the environment. Purchases of this type may include recycled materials or be more recyclable, be less toxic or more biodegradable, have less packaging or cost less to transport, be more durable or use less energy or natural resources over their useful life. These aspects should be considered during purchasing opportunities for the facilities and operations at the Parks.

Purchasing environmentally preferred materials and products is particularly important for many marinas, which are often located on or near sensitive areas that serve important environmental functions. The parks include some of the nation’s most valued public lands and it is important that they not be diminished.

## Help Your Marina!

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### Federal Authorities Requirements

<b>EO 13423 – Strengthening Federal Environmental, Energy, and Transportation Management</b>	<ul style="list-style-type: none"> <li>★ EO requires federal agencies to use sustainable practices to purchase goods and services, including biobased, environmentally preferable, energy-efficient, water-efficient, and recycled content products.</li> <li>★ The DOI and NPS will issue guidance on how this EO applies to concessioners (per Section 3f of the EO).</li> </ul>
<b>Resource Conservation and Recovery Act (RCRA), Section 6002 [40 CFR 247]</b>	<ul style="list-style-type: none"> <li>★ The EPA requires federal agencies to purchase green products according to product categories outlined in the Comprehensive Procurement Guidelines (CPG). ✓ <a href="http://www.epa.gov/cpg/">www.epa.gov/cpg/</a></li> </ul>
<b>Farm Security and Rural Investment Act of 2002, Section 9002 [7 USC 8102] as amended by the Energy Policy Act of 2005 (EPACT) [Public Law 109-58]</b>	<ul style="list-style-type: none"> <li>★ Federal agencies are required to establish a preferred procurement program for biobased products by January 11, 2006. For more information visit: ✓ <a href="http://www.usda.gov/procurement/business/biopreferred.htm">www.usda.gov/procurement/business/biopreferred.htm</a></li> </ul>

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5. Management Practices

# Environmentally Preferred Materials and Products

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State/Local Authorities	Requirements
Specific state/local regulations may apply.	★ Check with your state and local government office for state-specific and local requirements.

NPS Policy/Guideline	Requirements
2006 Management Policies, Section 9.1.4.2, 10.2.2, and 10.2.4.5; Standard Concession Contract	<ul style="list-style-type: none"> <li>★ Addresses the implementation of sustainable design and use of environmentally preferable materials and products when practical.</li> <li>★ Encourages sustainable practices in concessioner operations.</li> </ul>
Concessions Contract / Operating and Maintenance Plan	★ NPS concessioners may be subject to additional requirements related to this topic. These requirements may be specified in the Concession Contract and associated Operating and Maintenance Plan.

Above and Beyond	Best Management Practices
Determine if your marina can use environmentally preferred materials or products.	<ul style="list-style-type: none"> <li>★ Environmentally preferred cleaners, fuels and other products can have less impact on the sensitive environment. Visit the EPA Environmentally Preferable Purchasing website: <a href="http://www.epa.gov/opptintr/epp">http://www.epa.gov/opptintr/epp</a></li> <li>★ Before purchasing, learn how to define an environmentally preferred material by considering:               <ul style="list-style-type: none"> <li>✓ Multiple attributes of the product that may be offset by other aspects of the product;</li> <li>✓ The product's life cycle from manufacturing to disposal;</li> <li>✓ Magnitude of the product's environmental impact;</li> <li>✓ Local conditions that may help or hinder the products usefulness; and</li> <li>✓ Product and service claims.</li> </ul> </li> </ul>

## 5. Management Practices

# Environmentally Preferred Materials and Products

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### **Know what to look for before you buy.**

- ★ Determine what is needed at the facility.
- ★ Determine how much of the product is needed.
- ★ Determine if a more sustainable item could be reused.
- ★ Find support on environmentally friendly purchasing options at the “Green Toolbox” provided by the NPS: <http://www.nps.gov/renew/toolbox.htm>

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### **Implement a strategy for procuring environmentally preferred materials and products.**

- ★ Create a task force to research and inform staff that may be purchasing products for the marina.
- ★ Develop a procurement baseline based on current practices and product purchases.
- ★ Develop a mission statement with goals and schedules for achieving these goals.
- ★ Calculate life cycle costs associated with potential products. Sometimes a product or technology may cost more up front, but will save more in the long run.
- ★ Encourage the task force to obtain feedback from users on how the products work.

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### **Develop program awareness with staff and visitors.**

- ★ Promote use of environmentally preferred materials internally with flyers, training, and staff meetings.
  - ★ Educate visitors and renters to promote public awareness through interpretive displays, brochures, and during tours.
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## 5. Management Practices

# Environmentally Preferred Materials and Products

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**Marina structures may be built using environmentally preferred materials, reducing impacts to sensitive areas and species.**

- ★ For new pilings and other structures that are in or above the water, use materials that will not leach hazardous chemicals into the water and that will not degrade in less than ten years (e.g., reinforced concrete, coated steel, recycled plastic, fiberglass-reinforced plastic).
  - ★ Be sure to contain shavings when field-cutting plastic pilings and timbers.
  - ★ When other options are available and cost-effective, avoid using wood treated with creosote for pilings or similar structures that are in or above the water. Better options include wood that is pressure-treated with chromated copper arsenate (CCA), ammoniacal copper zinc arsenate (ACZA), or ammoniacal copper arsenate (ACA).
  - ★ Use naturally durable timbers when possible, but use them conservatively. Black locust, cedar, chestnut, and white oak are naturally durable. Use certified wood.
  - ★ Avoid exotic timbers. Some tropical trees, such as greenheart and bongossi, are also naturally durable, but their harvest is harmful to tropical forests.
  - ★ Use flotation foams that are coated or encapsulated in plastic or wood. As these floats age, the covering contains the degraded foam.
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## 5. Management Practices

# Environmentally Preferred Materials and Products

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### Success Stories!

**Environmentally Sensitive Marina Materials.** At Columbia Island Marina on the George Washington Memorial Parkway near Washington DC, a concessioner has replaced its entire dock with a new system consisting of 100% encapsulated floatation and recycled content lumber decking which is designed to last longer and require less maintenance.

**Marina Environmentally Sensitive Design/Practices.** At the Belle Haven Marina in the DC area, the Park worked with the concessioner to institute strict no-wake controls to limit the potential impact from boaters to Dike Marsh located immediately adjacent to the small marina.

**Materials Reuse for Marina Design and Operation.** At Lake Mead National Recreation Area, several concessioners reuse large truck tires to create breakwaters for the marina. The tires are washed before entering the park to prevent the introduction of exotic plant seeds that might have been picked up on the tires outside the park and to ensure there is no residual oil or other contaminants. The tires are filled with blown or cut Styrofoam for floatation. Concessioners are currently researching cost-effective means to ensure all the foam is encapsulated.

### Check Out Other Clean Marina Management Practices

- ✓ Vessel Maintenance and Repair
- ✓ Sensitive Areas



## 5. Management Practices

# Fish Waste

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When large amounts of fish guts are deposited in an enclosed area, the resulting unsightly mess can produce foul odors, decreased dissolved-oxygen levels, and fish kills.

### Help Your Marina!

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Federal Authorities	Requirements
N/A	★ Check standard solid waste management issues for information that could pertain to fish waste.

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State/Local Authorities	Requirements
State/local regulations may apply	★ State/local regulations may limit fish waste disposal in waterways.

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NPS Policy/Guideline	Requirements
Park regulations may apply (e.g., Superintendent's Compendium)	<ul style="list-style-type: none"> <li>★ Park regulations may limit fish waste disposal in waterways.</li> <li>★ Concessioners and contractors may also be subject to specific fish waste management requirements in their contract.</li> </ul>
Concessions Contract / Operating and Maintenance Plan	★ NPS concessioners may be subject to additional requirements related to this topic. These requirements may be specified in the Concession Contract and associated Operating and Maintenance Plan.

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Above and Beyond	Best Management Practices
Control the disposal of fish waste.	<ul style="list-style-type: none"> <li>★ Establish fish-cleaning areas. Adopt one of the following methods to dispose of the waste:               <ul style="list-style-type: none"> <li>✓ Prohibit fish cleaning outside of designated areas.</li> <li>✓ Post signs directing people to clean their fish at a fish-cleaning station, at home, or off shore.</li> </ul> </li> </ul>

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## 5. Management Practices

# Fish Waste

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### **Different methods are available for the disposal of fish waste.**

- ★ Provide a stainless-steel sink equipped with a garbage disposal that is connected to a sanitary sewer.
- ★ Alternatively, compost fish waste. Proper composting will control the odor and, over time, will produce an excellent soil conditioner that can be used for your landscaping needs.
- ★ Instruct boaters to place fish scraps in plastic bags and dispose in dumpster or at home.

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### **Protect the environment by incorporating methods for removing stray fishing line. Recycle it!**

- ★ Remove stray, broken, or old fishing wires from the environment. Make sure lines are placed in the proper receptacles so that they do not litter the ground or water where they can cause harm / injury to boat motors, people, birds, or wildlife.
  - ★ Recover fishing line when out on the water, especially when miscasts get caught in weeds or trees. Pick up stray floating fishing lines.
  - ★ When throwing away used line, cut into pieces less than 12 inches long and place in a container.
  - ★ Make a recycling container that can be brought on the boat. Cut an X into the lid of a potato chip tube or tennis ball canister. These types of containers can easily be brought onto boats for use, then taken to the proper disposal / recycling location after use.
  - ★ Remove leader and hooks before recycling.
  - ★ Find a recycling service near you. Some locations make recycled products from the old fishing lines. Sell these items in your marina stores to show support for the cause. Place a sign above these products to bring attention to them.
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## 5. Management Practices

# Fish Waste

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- Use lead free sinkers.**
- ★ Avoid using lead sinkers. Lead, a toxic metal, can cause harm to animals' nervous and reproductive systems when ingested in sufficient amounts.
  - ★ Alternatively, use or provide sinkers made from non-poisonous materials such as tin, bismuth, steel, and tungsten-nickel alloy.
  - ★ Educate your boaters and explain the harmful effects of lead.
  - ★ Many states are starting to ban use of lead sinkers. Consult with your state to find determine any restrictions.
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### Success Stories!

Be the **1<sup>st</sup>**! Tell us how you are innovative with fish waste at your marina!

### Check Out Other Clean Marina Management Practices

- ✓ Solid Waste and Recycling



# Hazardous Materials and Wastes

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By minimizing your use of hazardous materials, you can reduce health and safety risks to your staff, tenants, and contractors; lower disposal costs; decrease liability; and limit chances that you will be responsible for a costly cleanup of materials inappropriately disposed of.

Hazardous materials include, but are not limited to, fuels, paints, cleaners, solvents, antifreeze, and detergents.

## Help Your Marina!

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### Federal Authorities

### Requirements

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#### RCRA Hazardous and Solid Waste Amendments of 1984

★ This rule requires hazardous waste generators to follow stringent requirements for storage, recordkeeping, pre-transportation, and emergency response and preparedness. The following needs to be determined:

✓ Hazardous waste determination: To qualify, a material must be a “solid waste” (which includes solid, liquid, semisolid, or contained gaseous materials) and must either be listed as a hazardous material under 40 CFR 261.4; or be a “characteristic” hazardous waste, meaning it is ignitable, corrosive, reactive and/or toxic. If a material is combined with another listed hazardous waste, the *entire mixture* is considered a hazardous waste.

✓ Hazardous waste generator status: This status is determined based on the amount of actual hazardous waste generated in one calendar month. The categories are:

(1) *Conditionally Exempt Small Quantity Generators (CESQGs)* – CESQGs produce 100kg or less of hazardous waste per calendar month and/or less than 1 kg of acutely hazardous waste, or accumulate less than 1,000 kg of hazardous waste at any one time.

(2) *Small Quantity Generators (SQGs)* – SQGs produce between 100-1,000 kg of hazardous

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## 5. Management Practices

# Hazardous Materials and Wastes

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waste per calendar month, or accumulate between 1,000 kg and 6,000 kg of hazardous waste at any one time.

(3) *Large Quantity Generators (LQGs)* – LQGs produce 1,000 kg or more of hazardous waste per calendar month, or over 1 kg of acutely hazardous waste per month, or accumulate more than 6,000 kg of hazardous waste at any one time.

- ✓ Waste collection, handling, and storage: Requirements will vary, depending upon the facility's generator status. SQGs may store hazardous waste in containers or tanks. LQGs may store their hazardous waste in containers or tanks as well as drip pads and containment buildings. CESQGs are exempt from these requirements. Most Parks and marina concessioners are CESQGs. A summary of requirements for SQGs and LQGs can be found under the Hazard Waste Management EnviroCheck Sheet at: <http://concessions.nps.gov/program31.cfm>
- ✓ Contingency Planning: SQGs and LQGs are required to prepare contingency plans and emergency procedures, as well as preparedness and prevention procedures.
- ✓ Waste transportation and disposal: Hazardous waste must be properly labeled and shipped by a permitted transporter of hazardous waste and sent to a permitted treatment, storage, and disposal facility (TSDF). Staff working in this field should be properly trained in Department of Transportation (DOT) HAZMAT procedures.

Review requirements for preparing and maintaining hazardous waste manifests, which must accompany any hazardous waste that is transported off site.

- ★ The EPA Office of Solid Waste, Hazardous Waste Page has more detailed information at: <http://www.epa.gov/epaoswer/osw/hazwaste.htm>
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# Hazardous Materials and Wastes

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<b>OSHA Hazard Communication (HAZCOM) Program [29 CFR 1910.1200]</b>	<ul style="list-style-type: none"> <li>★ HAZCOM is the Worker Right-to-Know Act and requires reporting of the following:               <ul style="list-style-type: none"> <li>✓ Ensure that employers and employees are aware of physical hazards and health hazards of chemicals;</li> <li>✓ Communicate how employers and employees should protect themselves from physical hazards and chemical hazards in the workplace and make sure appropriate personnel are properly trained for waste collection, handling and storage;</li> <li>✓ Keep Material Safety Data Sheets (MSDSs) for any hazardous chemicals stored or used in the workplace. Make sure MSDSs are readily available at the facility, near where the products are stored and/or used; and</li> <li>✓ As mentioned above, Emergency and Hazardous Chemical Inventory require an annual inventory report for the same MSDS chemicals.</li> </ul> </li>   <li>★ Become familiar with the requirements under the HAZCOM program.</li> </ul>
<b>Universal Waste Rule [40 CFR 273]</b>	<ul style="list-style-type: none"> <li>★ Review the less stringent management requirements under this regulation. This applies to certain hazardous wastes including batteries, fluorescent tubes, mercury-containing equipment, and pesticides.</li> </ul>
<b>Spent Lead Acid Batteries Being Reclaimed [40 CFR 266, Subpart G]</b>	<ul style="list-style-type: none"> <li>★ Become familiar with this ruling to determine management requirements for lead acid batteries. Lead acid batteries are exempted from RCRA hazardous waste regulations if they are recycled or reconditioned for reuse.</li> </ul>
<b>Mercury and Rechargeable Battery Act (Battery Act)</b>	<ul style="list-style-type: none"> <li>★ The Battery Act makes the Universal Waste Rule effective in all 50 states for specified rechargeable batteries such as nickel-cadmium (Ni-Cad) and small sealed lead acid (SSLA) units. Non-rechargeable alkaline batteries are not included.</li> </ul>
<b>EO 13423 – Strengthening Federal Environmental, Energy, and Transportation Management</b>	<ul style="list-style-type: none"> <li>★ EO requires federal agencies to reduce the use of chemicals and toxic materials.</li>   <li>★ The DOI and NPS will issue guidance on how this EO applies to concessioners (per Section 3f of the EO).</li> </ul>

# Hazardous Materials and Wastes

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<b>State/Local Authorities</b>	<b>Requirements</b>
<b>State/Local regulations may apply</b>	<ul style="list-style-type: none"> <li>★ Every U.S. state and territory except Iowa is authorized by EPA to administer its own hazardous waste program.</li> <li>★ Some states have OSHA-approved State Plans that can be found at: <a href="http://www.osha.gov/fso/osp/index.html">http://www.osha.gov/fso/osp/index.html</a></li> </ul>
<b>NPS Policy/Guideline</b>	<b>Requirements</b>
<b>NPS follows the National Fire Protection Association (NFPA) Code, Director's Order 50B.</b>	<ul style="list-style-type: none"> <li>★ Parks and their concessioners and contractors are required to follow NFPA guidelines for managing hazardous materials including NFPA 101, the Life Safety Code, NFPA 30, Flammable and Combustible Liquids Code, NFPA 30A, Motor Fuel Dispensing facilities and Repair Garages, and NFPA 303, Fire Protection Standards for Marinas and Boatyards. While some of these standards relate specifically to fire safety, many have environmental management aspects that must be considered in marina operations.</li> </ul>
<b>2006 Management Policies, Section 9.1.6 encourages environmental leadership in hazardous materials and waste management</b>	<ul style="list-style-type: none"> <li>★ Parks and its concessioners and contractors are encouraged to prevent pollution, minimize waste, and recycle.</li> <li>★ Adopt an inventory control plan to minimize the amount of hazardous material you purchase, store, and dispose of.</li> <li>★ Concessioners and contractors may be subject to specific hazardous materials and waste management requirements in their contract.</li> </ul>
<b>Concessions Contract / Operating and Maintenance Plan</b>	<ul style="list-style-type: none"> <li>★ NPS concessioners may be subject to additional requirements related to this topic. These requirements may be specified in the Concession Contract and associated Operating and Maintenance Plan.</li> </ul>

# Hazardous Materials and Wastes

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## Above and Beyond

## Best Management Practices

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### Minimize use of hazardous materials.

- ★ Avoid, to the greatest extent possible, using products that are corrosive, reactive, toxic, or ignitable.
- ★ Adopt an inventory control plan to minimize the amount of hazardous materials you purchase, store, and dispose of.
- ★ Do not store large amounts of hazardous materials. Purchase hazardous materials in quantities that you will use up quickly.
- ★ Establish a “first-in first-out” policy to reduce storage time. Dispose of excess material every 6 months.

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### Store hazardous materials such that they don't become hazardous wastes.

- ★ Assign control over hazardous supplies to a limited number of people who have been trained to handle hazardous materials and who understand the first-in first-out policy.
  - ★ Routinely check the date of materials to prevent them from outlasting their shelf life.
  - ★ Containers should be stored on durable, impervious surfaces. Provide secondary containment for hazardous materials and wastes particularly in vulnerable areas such as over or near water locations or inside near doorways or floor drains. Secondary containment should have a capacity equal to 110% of the volume of the largest storage tank or container.
  - ★ Design an adequate waste storage facility based on the needs and size of your marina.
-

# Hazardous Materials and Wastes

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**Manage hazardous materials such that they don't become hazardous wastes.**

- ★ Complete an inventory of the hazardous materials used by the marina. Include location of hazardous materials, where they are used, and how to manage them.
- ★ Put your list into broad categories (e.g., petroleum products, detergents, solvents, paints, lubricants). Check with your state agency's list of regulated wastes to see how your list compares.
- ★ Use your list to know which materials need containers for storage. Know what volumes of material to expect.
- ★ Make sure the containers are clearly marked and easily accessible.
- ★ Know which containers should be segregated, based on the chemicals being stored, in order to prevent a potentially harmful or explosive mix in case of spill or accident.

**Manage to Small Quantity Generator Standards if you are a Conditionally Exempt Small Quantity Generator.**

- ★ Manage your hazardous waste as if you were a small quantity generator, even if you are not. This helps ensure sound environmental management onsite and proper waste disposal to prevent releases to the environment. This means hazardous waste container labeling, management of satellite accumulation and accumulation areas, disposing waste within designated time frames to an authorized RCRA-permitted facility or legitimate recycler, manifesting waste shipments, and maintaining some contingency planning.

**Learn how to recycle liquid waste.**

- ★ Provide containers to collect oil and antifreeze. Also, collect solvents from your boatyard according to hazardous waste regulations.
  - ★ Provide separate containers for oil, antifreeze, and solvents.
  - ★ Surround containers with impervious, secondary containment capable of holding 110% of the volume of each container.
-

# Hazardous Materials and Wastes

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- ★ Shelter containers from the elements.
  - ★ Attach funnels to containers to reduce chances of spills. Funnels should be large enough to drain portable containers and oil filters.
  - ★ Check with your recycler to learn what materials may be mixed. Generally speaking, engine oil, transmission fluid, hydraulic fluid, and gear oil may all be placed in a used oil container. Some haulers will also take diesel and kerosene.
  - ★ Post signs indicating what may and may not be placed in each container.
  - ★ Properly label waste containers in accordance with hazardous and nonhazardous waste regulations
  - ★ Do not allow patrons to pour gasoline, solvents, paint, varnishes, or pesticides into the oil or antifreeze recycling containers. The introduction of these materials creates a “hazardous waste.” The whole container must then be disposed of as hazardous waste: a very expensive undertaking.
  - ★ Consider locking the intake to oil and antifreeze recycling containers to prevent contamination. If you do lock the containers, instruct your patrons to get the key from the appropriate staff person or to leave their oil or antifreeze next to the collection container. If you select the second option, assign a member of your staff to inspect the collection site daily for any material that may have been dropped off.
  - ★ Be aware that recycling liquid materials is a long-term obligation. Investigate waste haulers to ensure that they do actually recycle the collected material. Maintain shipping manifests for solvents and other hazardous wastes for a minimum of 3 years.
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# Hazardous Materials and Wastes

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## Success Stories!

Be the 1<sup>st</sup>! Tell us how your innovative measures for hazardous waste management!

## Check Out Other Clean Marina Management Practices:

- ✓ Spill Prevention
- ✓ Vessel Maintenance / Repair Activities
- ✓ Solid Waste Management and Recycling

## 5. Management Practices

# Mold Management

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Molds are found almost everywhere; they can grow on virtually any organic substance when moisture and oxygen are present. This makes boats and marinas a prime target for mold growth. When mold spores land in damp areas indoors, they may begin digesting whatever they are growing on in order to survive. Molds gradually destroy the materials they grow on; however, by controlling indoor humidity, you can generally control indoor mold growth.

Molds can produce allergens that may trigger allergic reactions or even asthma attacks in people allergic to mold. Others are known to produce potent toxins and/or irritants. Health problems result from inhalation of fungal spores, fragments, or metabolites as well as physically touching or ingesting the mold. Potential health concerns are an important reason to prevent mold growth and to clean up any existing indoor mold growth.

### Help Your Marina!

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Federal Authorities	Requirements
N/A	★ According to the EPA, “Standards or Threshold Limit Values (TLVs) for airborne concentrations of mold, or mold spores, have not been set. Currently, there are no EPA regulations or standards for airborne mold contaminants”.
State/Local Authorities	Requirements
Specific state/local regulations may apply	★ Check with your state and local government office for state-specific and local requirements.
NPS Policy/Guideline	Requirements
NPS 50B establishes requirements for NPS employee safety	★ All Operating Unit Managers must provide employees and volunteers adequate protection from adverse work or environmental conditions and/or substances that may cause injury or illness in accordance with all applicable laws, regulations, and general standards.

## 5. Management Practices

# Mold Management

<b>NPS 2006 Management Policies, 8.2.5.1 and 10.2.4.8</b>	★ The NPS Management Policies establish requirements for visitor safety and development of risk management programs for concessioners to manage their operations in a manner that “minimizes risk and controls loss due to accident, illness, or injury.”
<b>Concessions Contract / Operating and Maintenance Plan</b>	★ NPS concessioners may be subject to additional requirements related to this topic. These requirements may be specified in the Concession Contract and associated Operating and Maintenance Plan.

### Above and Beyond

### Best Management Practices

<b>Ways to prevent and remediate mold.</b>	<ul style="list-style-type: none"> <li>★ When possible, prevent mold growth through proper building and heating, ventilation, and air conditioning (HVAC) system maintenance and prompt repair of water damage.</li> <li>★ Perform frequent visual surveys to determine if water damage is present.</li> <li>★ Be aware of hidden mold (e.g., on the back of wallpaper). Consult a professional so as not to inadvertently release spores by trying to clean it up personally.</li> <li>★ Refrain from using biocides (e.g. chlorine bleach). Its effectiveness has not been proven and dead molds can still cause health problems.</li> </ul>
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<b>Some ways to respond to water damage within 24-48 hours.</b>	<b>Water-Damaged Material</b>	<b>Actions</b>
	<b>Books and papers</b>	<ul style="list-style-type: none"> <li>• For non-valuable items, discard books and papers.</li> <li>• Photocopy valuable/important items, discard originals.</li> <li>• Freeze (in frost-free freezer or meat locker) or freeze-dry.</li> </ul>
	<b>Carpet and backing - dry within 24-48 hours</b>	<ul style="list-style-type: none"> <li>• Remove water with water extraction vacuum.</li> <li>• Reduce ambient humidity levels with dehumidifier.</li> <li>• Accelerate drying process with fans.</li> </ul>
	<b>Ceiling tiles</b>	<ul style="list-style-type: none"> <li>• Discard and replace.</li> </ul>
	<b>Cellulose insulation</b>	<ul style="list-style-type: none"> <li>• Discard and replace.</li> </ul>

## 5. Management Practices

# Mold Management

<b>Concrete or cinder block surfaces</b>	<ul style="list-style-type: none"> <li>Remove water with water extraction vacuum.</li> <li>Accelerate drying process with dehumidifiers, fans, and/or heaters.</li> </ul>
<b>Fiberglass insulation</b>	<ul style="list-style-type: none"> <li>Discard and replace.</li> </ul>
<b>Hard surface, porous flooring</b> (Linoleum, ceramic tile, vinyl)	<ul style="list-style-type: none"> <li>Vacuum or damp wipe with water and mild detergent and allow to dry; scrub if necessary.</li> <li>Check to make sure underflooring is dry; dry underflooring if necessary.</li> </ul>
<b>Non-porous, hard surfaces</b> (Plastics, metals)	<ul style="list-style-type: none"> <li>Vacuum or damp wipe with water and mild detergent and allow to dry; scrub if necessary.</li> </ul>
<b>Upholstered furniture</b>	<ul style="list-style-type: none"> <li>Remove water with water extraction vacuum.</li> <li>Accelerate drying process with dehumidifiers, fans, and/or heaters.</li> <li>May be difficult to completely dry within 48 hours. If the piece is valuable, you may wish to consult a restoration/water damage professional who specializes in furniture.</li> </ul>
<b>Wallboard</b> (Drywall and gypsum board)	<ul style="list-style-type: none"> <li>May be dried in place if there is no obvious swelling and the seams are intact. If not, remove, discard, and replace.</li> <li>Ventilate the wall cavity, if possible.</li> </ul>
<b>Window drapes</b>	<ul style="list-style-type: none"> <li>Follow laundering or cleaning instructions recommended by the manufacturer.</li> </ul>
<b>Wood surfaces</b>	<ul style="list-style-type: none"> <li>Remove moisture immediately and use dehumidifiers, gentle heat, and fans for drying. (Use caution when applying heat to hardwood floors.)</li> <li>Treated or finished wood surfaces may be cleaned with mild detergent and clean water and allowed to dry.</li> <li>Wet paneling should be pried away from wall for drying.</li> </ul>

### Success Stories!

Be the **1<sup>st</sup>**! Tell us how you combat mold problems at your marina!

### Check Out Other Clean Marina Management Practices

- ✓ Education and Training



The painting of boat hulls and other surfaces must be carefully controlled to avoid concentrated releases of harmful vapors and liquids. Paint containing heavy metals or solvents, and even water-based paint, can be hazardous to the environment. Vessel painting should be carried out in a manner that is as compatible to the environment as possible.

## Help Your Marina!

Federal Authorities	Requirements
<p><b>OSHA Flammable and Combustible Liquids</b>  <b>[29 CFR 1910.106]</b></p> <p><b>Hazardous Waste</b>  <b>[40 CFR 261]</b></p>	<ul style="list-style-type: none"> <li>★ Management of paints and paint related wastes must be conducted in accordance with applicable federal regulations. Waste antifouling paint, chips, and dust may be <i>hazardous waste</i> due to the presence of cuprous oxide and other heavy metals. “Hazardous Waste and Materials” are discussed on a separate sheet in the CM guidebook.</li>   <li>★ Other topics to review under these regulation include:               <ul style="list-style-type: none"> <li>✓ Handling;</li> <li>✓ Labeling;</li> <li>✓ Container Management; and</li> <li>✓ Storage.</li> </ul> </li>   <li>★ Boat paints are typically oil-based; these paints can not be disposed in these sanitary sewer.</li>   <li>★ Commercial application of restricted use antifouling paints (e.g., paints that contain tributyltin (TBT)) by marina personnel must be conducted by a state certified pesticide applicator.</li> </ul>
<p><b>Clean Air Act (CAA)</b></p> <p><b>RCRA</b></p>	<ul style="list-style-type: none"> <li>★ Review the CAA for information regarding proper management of air emissions from paints and solvents. Also, RCRA contains information about proper waste handling from painting.</li> </ul>
State/Local Authorities	Requirements
<p><b>Specific state/local regulations may apply</b></p>	<ul style="list-style-type: none"> <li>★ Check with your state and local government office for state-specific and local requirements.</li> </ul>

<b>NPS Policy/Guideline</b>	<b>Requirements</b>
<b>NPS hazardous materials, pesticide management and waste requirements apply.</b>	★ Review NPS requirements related to paint-related materials management.
<b>NPS follows DO 50B – Occupational Safety and Health Program</b>	★ This DO provides detailed guidance on how to provide for the safety and health of NPS employees and the public.  ★ NPS Parks and concessioners must meet NFPA requirements pursuant to this DO.
<b>Concessions Contract / Operating and Maintenance Plan</b>	★ NPS concessioners may be subject to additional requirements related to this topic. These requirements may be specified in the Concession Contract and associated Operating and Maintenance Plan.

<b>Above and Beyond</b>	<b>Best Management Practices</b>
<b>Minimize the impacts of paints.</b>	★ Consider not painting boats or the bottoms of boats. Determine if paint is actually necessary or if it is being done for aesthetic reasons.  ★ Recommend to your customers anti-fouling paints that contain the minimum amount of toxin necessary for the expected conditions.  ★ Use water-based paints whenever practical.  ★ Stay informed about anti-fouling products, like Teflon, silicone, polyurethane, and wax, all of which have limited negative impacts. Pass such information along to your customers.  ★ Store boats out of the water, where feasible, to eliminate the need for anti-fouling paints.

## 5. Management Practices

# Painting

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<b>Address painting operations at your marina.</b>	<ul style="list-style-type: none"><li>★ Use brushes and rollers whenever possible.</li><li>★ Reduce paint overspray and solvent emissions by minimizing the use of spray equipment.</li><li>★ Use low-volatile organic compounds (VOC) paints.</li><li>★ Limit in-water painting to small jobs. Any substantial painting should be done on land, in the vessel maintenance area, or over a ground cloth.</li><li>★ If painting with a brush or roller on the water, transfer the paint to the vessel in a small (less than one gallon), tightly covered container. Small containers mean small spills.</li><li>★ Mix only as much paint as is needed for a given job.</li><li>★ Mix paints, solvents, and reducers in a designated area. This area should be indoors or under a shed roof, relatively far from the water.</li><li>★ Keep records of paint use to show where too much paint was mixed for a job. Use this information to prevent overmixing in the future.</li><li>★ Use drip pans or other protective devices for all paint mixing, solvent transfer, or equipment clean up operations.</li><li>★ Ensure containers, including aerosol cans, are completely empty to conserve paint. Properly dispose of these items.</li></ul>
<b>If spray painting is necessary, reduce overspray.</b>	<ul style="list-style-type: none"><li>★ Conduct all spray painting on land, in a spray booth or under a tarp.</li><li>★ Use equipment with high transfer efficiency. Tools such as High Volume Low Pressure (HVLP) or High Efficiency Low Pressure (HELP) spray guns direct more paint onto the work surface than conventional spray guns. As a result, less paint is in the air, fewer volatile organic compounds are released, less paint is used, and cleanup costs are reduced. Other types of highly efficient spray equipment include air-atomizer</li></ul>

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spray guns and gravity-feed guns.

- ★ In some locations HVLP spray guns and/or other controls may be required by regulation. Consult with regulatory agencies to confirm management and permit requirements.
- ★ Train staff to use spray-painting equipment properly, to reduce overspray, and to minimize the amount of paint per job.

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**Learn ways to handle solvents.**

- ★ Direct solvent used to clean spray equipment into containers to prevent evaporation of volatile organic compounds - a closed gun-cleaning system will save you money on cleaning materials.
  - ★ Use only one cleaning solvent to simplify reuse and disposal.
  - ★ Use the smallest amount of solvent (e.g., stripper, thinner) adequate for a given job.
  - ★ For small jobs, pour the needed solvent into a small container in order not to contaminate a large amount of solvent.
  - ★ Use soy-based solvents and other similar products with low volatility or none at all.
  - ★ Order your spray-painting jobs to minimize coating changes - fewer changes mean less frequent purging of the spray system – so arrange the jobs in order, from light to dark.
  - ★ Allow solids to settle out of used strippers and thinners so that you can reuse solvents.
  - ★ Keep records of solvent and paint usage so that you know the amount of hazardous waste generated on site. (You are required to maintain these types of records if you have a permanent, regulatory-approved spray booth.)
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## **Success Stories!**

Be the **1<sup>st</sup>**! Tell us how about your painting success stories at your marina!

## **Check Out Other Clean Marina Management Practices**

- ✓ Solid Waste Management and Recycling
- ✓ Hazardous Materials and Waste
- ✓ Vessel Maintenance and Repair



# Sediment and Erosion Control

Erosion is a slow process that usually goes unnoticed until it is too late. Erosion has a cumulative effect that, over a number of years, can have a significant environmental impact. Erosion, causing sediments to accumulate, can result in the loss of water depth or the loss of aquatic habitats. It's difficult to fix these problems after years of neglect, but there are many preventative measures you can take to address erosion before it becomes a problem.

## Help Your Marina!

Federal Authorities	Requirements
<b>Clean Water Act (CWA)</b>  <b>National Pollutant Discharge Elimination System (NPDES) Program</b>	★ The CWA established national programs for the prevention, reduction, and elimination of pollution in navigable waters and groundwater. The NPDES program is under the CWA and requires permits for discharge and treatment of wastewater and storm water from construction activities. Reference the NPDES program details to determine if your facility requires permitting for point-source pollution. The EPA provides information on their website: <a href="http://cfpub.epa.gov/npdes/">http://cfpub.epa.gov/npdes/</a>
State/Local Authorities	Requirements
<b>Specific state/local regulations may apply</b>	★ Check with your state and local government office for state-specific and local requirements. Many states are authorized to run the NPDES program in their states under the CWA.
NPS Policy/Guideline	Requirements
<b>Natural Resource Management, NPS-77</b>	★ This manual addresses land management requirements applicable to Parks and includes proper management of sediment controls. Additional information is available online: <a href="http://www.nature.nps.gov/rm77/">http://www.nature.nps.gov/rm77/</a>

# Sediment and Erosion Control

<p><b>Concessions Contract / Operating and Maintenance Plan</b></p>	<ul style="list-style-type: none"> <li>★ NPS concessioners may be subject to additional requirements related to this topic, including requirements related to capital improvements. These requirements may be specified in the Concession Contract and associated Operating and Maintenance Plan.</li> </ul>
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## Above and Beyond

## Best Management Practices

<p><b>Limit erosion factors when planning or developing a site, even if not required by regulation.</b></p>	<ul style="list-style-type: none"> <li>★ Confine construction activities to areas with the least amount of impact.</li> <li>★ Mark soil disturbance limits on your site.</li> <li>★ Limit the amount of soil disturbance at any one time.</li> <li>★ Provide vegetated buffers between construction sites and environmentally vulnerable areas such as watercourses and wetlands.</li> <li>★ Capture water from the construction area, preventing silt collection as much as possible. Divert water into a holding pond where:             <ul style="list-style-type: none"> <li>⇒ Sedimentation can occur. Make sure the holding pond is large enough to account for stormwater flow.</li> <li>⇒ Resident time allows soil's natural infiltration capacities and pollutant removal to take place.</li> </ul> </li> <li>★ Immediately seed and mulch areas ready for revegetation.</li> <li>★ Protect steep slopes quickly.</li> <li>★ Protect ditches quickly.</li> <li>★ Remove temporary erosion controls when soils on the site are permanently stabilized.</li> <li>★ Use vegetation cover to help prevent surface erosion:             <ul style="list-style-type: none"> <li>⇒ Vegetation should be sufficient for slopes with a 2:1 ratio or flatter. If the area has been recently seeded, anchoring is suggested.</li> </ul> </li> </ul>
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# Sediment and Erosion Control

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⇒ Steeper slopes require structural aids such as riprap, gabions, revetments or retaining walls.

- ★ Install additional erosion control measures as needed, including silt fences or hay bales.

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**Minimize impervious areas to help limit erosion.**

The less impervious or hard surface there is on site, the less runoff you will have to manage.

- ★ Minimize paved areas.
- ★ Minimize the length of new roadway required to serve newly opened areas of your facility.
- ★ Consider alternatives to asphalt for parking lots and vessel storage areas, e.g., gravel, crushed seashells, engineered porous pavement.
- ★ Investigate a non-toxic, organic soil binder derived from the Plantagenaceae (plantain family). When this binder is combined with crushed aggregate (e.g., gravel, shells) and soil, it creates a somewhat permeable surface that will not erode. Costing the same as or less than asphalt, it is a resilient material that will not crack during winter freeze/thaw cycles, can be repaired by adding more material and tilling the surface, and can be dug up with a shovel to plant trees and shrubs.

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**Establish special measures during storms or winter seasons.**

- ★ Inspect and repair erosion controls and sediment trapping measures before and after every storm.
  - ★ Stabilize all disturbed soils before winter.
  - ★ Do not do earthwork in the winter.
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# Sediment and Erosion Control

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**Planting vegetation can help minimize erosion.**

- ★ Use vegetation cover to help prevent surface erosion:
  - ⇒ Vegetation should be sufficient for slopes with a 2:1 ratio or flatter. If the area has been recently seeded, anchoring is suggested.
  
  - ⇒ Steeper slopes require structural aids such as riprap, gabions, revetments or retaining walls.
  
- ★ Apply permanent mulch (wood chips or crushed stones) to landscaped areas that receive high traffic, or have difficulties growing and stabilizing vegetation.
  - ⇒ DO NOT apply to areas with a slope greater than 33%. (3 ft horizontal to 1 foot vertical).
  - ⇒ Apply at least three inches deep to adequately control weeds.

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**Employ methods to stabilize shorelines and streambanks.**

- ★ Use vegetation, wetlands, grass buffers, beaches, and natural shorelines. Natural features such as these limit wave impact, provide habitat for wildlife and are aesthetically pleasing.
  
  - ★ Establish a “no wake zone” in nearshore, shallow aquatic areas.
  
  - ★ Limit structural stabilization to riprap or gabions when slopes become too steep for vegetation shorelines to be effective.
  
  - ★ Restrict use of vertical bulkheads to areas where reflected waves will not endanger shorelines or habitats, and where space is limited.
  
  - ★ Preserve as much of the natural shoreline feature as possible especially when constructing additional facilities or boat ramps.
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# Sediment and Erosion Control

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## Success Stories!

Be the **1<sup>st</sup>**! Tell us how you use innovative measures to prevent sediment and erosion control at your marina!

## Check Out Other Clean Marina Management Practices

- ✓ Sensitive Area Protection
- ✓ Stormwater Management



## 5. Management Practices

# Sensitive Area Protection

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Land management decisions, operating procedures, and structural improvements may improve or detract from the quality of the land and water surrounding a marina. Many marinas are located on or near sensitive areas that serve important environmental functions. Riparian (i.e., shoreline) wetlands, for example, provide habitat for fish and waterfowl, and nursery space for the young of many aquatic species. They form a natural buffer against the effects of storms and act as a filter to purify runoff from the land. Wetlands also minimize erosion and support tourism and fishing. Because of the ecological, economic, recreational, and aesthetic values inherent in riparian resources, it is important that they not be diminished by development.

The Park environment is particularly subject to management concerns because of the desire to preserve the unique environment for which they may have been established. Concessioners should work with Park management to establish means for minimizing impacts to the natural environment.

### Help Your Marina!

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#### Federal Authorities

#### Requirements

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**EO 13423 –  
Strengthening Federal  
Environmental, Energy,  
and Transportation  
Management**

- ★ Review the EO to determine how it may be relevant to sensitive area protection and associated requirements.
  - ★ The DOI and NPS will issue guidance on how this EO applies to concessioners (per Section 3f of the EO).
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#### State/Local Authorities

#### Requirements

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**Specific state/local  
regulations may apply.**

- ★ Check with your state and local government office for state-specific and local requirements.
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## 5. Management Practices

# Sensitive Area Protection

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### NPS Policy/Guideline Requirements

<p><b>DO 77 – Natural Resource Management</b>  <b>DO 77-1 – Wetland Protection</b>  <b>DO 77-2 – Floodplain Management</b>  <b>DO 77-4 – Use of Pharmaceuticals for Wildlife</b>  <b>DO 77-5 – Animal Capture / Eradication</b>  <b>DO 77-8 – Endangered Species</b>  <b>DO 77-9 – In-park Borrow Material)</b></p>	<p>★ These DOs address wetland and floodplain management, pest management, wildlife, endangered species, and other areas.</p>
<p><b>DO 12 – Environmental Impact Analysis</b></p>	<p>★ Review this DO to ensure the Park / concessioner is meeting the legal requirements of National Environmental Policy Act (NEPA) and practicing excellent impact assessment and resource conservation.</p>
<p><b>DO 25 – Land Protection</b></p>	<p>★ This DO articulates the framework for land protection, and the process for the acquisition of land and interests in land, within the authorized boundaries of units of the NPS.</p>
<p><b>DO 47 – Sound Preservation and Noise Management</b></p>	<p>★ This DO provides details on how to protect, maintain and restore the natural soundscape resource in a condition unimpaired by inappropriate or excessive noise sources.</p>
<p><b>Report pesticide usage [DO 77-7 – Integrated Pest Management]</b></p>	<p>★ Park concessioners must report annual pesticide usage to the Park Integrated Pest Management (IPM) Coordinator. The Park must submit usage information to the region.</p> <p>★ Park staff and concessioners are only allowed to use NPS approved pesticides.</p> <p>★ The NPS Concession Program has an IPM Guidance document which should be used as an additional resource to these Management Practices.</p>

5. Management Practices

# Sensitive Area Protection

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<b>Concessions Contract / Operating and Maintenance Plan</b>	<ul style="list-style-type: none"> <li>★ NPS concessioners may be subject to additional requirements related to this topic. These requirements may be specified in the Concession Contract and associated Operating and Maintenance Plan.</li> </ul>
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<b>Above and Beyond</b>	<b>Best Management Practices</b>
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<b>Marina structures may be built using environmentally preferred materials, reducing impacts to sensitive areas and species.</b>	<ul style="list-style-type: none"> <li>★ Environmentally preferred cleaners, fuels and other products can have less impact on the sensitive environment. Visit the EPA Environmentally Preferable Purchasing website: <a href="http://www.epa.gov/opptintr/epp">http://www.epa.gov/opptintr/epp</a></li> <li>★ Before purchasing, learn how to define an environmentally preferred material by considering:               <ul style="list-style-type: none"> <li>✓ Multiple attributes of the product that may be offset by other aspects of the product;</li> <li>✓ The product’s life cycle from manufacturing to disposal;</li> <li>✓ Magnitude of the product’s environmental impact;</li> <li>✓ Local conditions that may help or hinder the products usefulness; and</li> <li>✓ Product and service claims.</li> </ul> </li> <li>★ View the “Environmentally Preferred Materials and Products” sheet for additional information.</li> </ul>
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<b>Maintain Structures Using Clean Marina Practices.</b>	<ul style="list-style-type: none"> <li>★ Scrape, sand, and paint in-water and landside structures according to the same management principles as for vessels.</li> <li>★ If feasible, move floating structures to shore for scraping, painting, and major repairs.</li> </ul>
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<b>Consider All Integrated Pest Management Practices In All Areas of Operation.</b>	<ul style="list-style-type: none"> <li>★ Because of your proximity to the water, it is important to avoid toxic lawn and garden chemicals to the greatest extent possible. Instead, deter unwanted plants or animals with IPM practices.</li> <li>★ Select plants that are disease- and insect-resistant, that will out-compete common weeds, and that can thrive on your property. When selecting beneficial plants, consider sun exposure, slope, drainage, amount of shade, wind, volume of foot traffic, soil type,</li> </ul>
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## 5. Management Practices

# Sensitive Area Protection

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temperature variations, and other environmental factors.

- ★ Mow lawns properly to suppress weeds. Varieties of grass that grow better in cooler weather should be mowed to no less than 2.5 inches in height. Grasses that grow better in warm weather should be mowed to no less than 1.5 inches.
- ★ Pull weeds by hand to reduce reliance on herbicides.
- ★ Become more tolerant of weeds and pests. If it is not actually harming anything, leave it alone.
- ★ Leave natural predators alone. This might include spiders, praying mantises, dragonflies, lacewings, soldier beetles, birds, bats, frogs, lizards, and certain snakes and toads.
- ★ Use natural agents – if approved by the NPS – such as milky spore disease to get rid of grubs and Japanese beetles, *Bacillus thuringiensis* (BT) to control mosquito and small moth larvae.
- ★ Use pesticides only after all other options have been exhausted. Prefer organic alternatives to chemical pesticides. If you must apply pesticides, apply them directly to problem areas rather than broadcasting them. Note that if your property is on NPS land, you must have NPS approval prior to pesticide application.
- ★ Purchase the least toxic chemical.
- ★ Do not use pesticides just before a rainfall or on a windy day.
- ★ Apply insecticides during the evening when honeybees and other beneficial insects are less active.
- ★ Do not apply pesticides near water, e.g., along the shore, near wells, streams, or ponds, or around birdbaths or swimming pools.

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### **Reduce Use in Any Fish or Wildlife Feeding or Reproduction Areas;**

- ★ Before building a new facility or expanding an old one, conduct habitat assessments to identify and characterize the facility site and any critical and unique habitats, as
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## 5. Management Practices

# Sensitive Area Protection

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### Coordinate All Such Activities with the NPS.

well as exotic and invasive species. This will enable identification of areas used for spawning and feeding.

- ★ Identify habitat functions to know when these areas will be used for spawning, or feeding.
  - ★ Minimize disturbances of riparian zones which provide shelter, nesting facilities and feeding ground for many fish and wildlife. Riparian zones also work to filter nutrients before they enter the water, thus helping to preserve healthy conditions for organisms.
  - ★ Restore disturbances that have occurred at facility site. If you are unable to restore specific areas, protect natural areas elsewhere to offset disturbed section.
  - ★ Redevelop or expand upon already existing facilities to limit additional loss of habitats that serve as feeding or reproductive areas. This also will help improve existing water quality conditions.
  - ★ Establish “no-wake” zones in sensitive areas
  - ★ Use dry stack storage to keep boats on land in a minimized space and out of sensitive areas.
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## Success Stories!

**Biodiesel.** The tour boat operator at Glacier National Park used biodiesel as an environmentally friendly alternative to petroleum-based diesel for its inboard engines and had optimized the boat engines to significantly reduce their boat weekly fuel use through both engine sizing and maintenance. In doing so they had reduced fuel consumption to close to 18 gallons per week fleet-wide, with three vessels running up to three trips per day.

**Environmentally Preferable Boat Cleaning.** On Lake Mead, a concessioner used simple, environmentally preferable chemicals including vinegar and baking soda mix to wash boats and lemon juice and molasses mix to control weeds.

## 5. Management Practices

# Sensitive Area Protection

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### **Check Out Other Clean Marina Management Practices**

- ✓ Environmentally Preferred Materials and Products
- ✓ Vessel Maintenance and Repair

## 5. Management Practices

# Sewage Control

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Raw or poorly treated sewage is harmful to human health and water quality. Typhoid, hepatitis, cholera, gastroenteritis, *E. coli* and other waterborne diseases or disease organisms may be passed directly to people who contact contaminated waters. People may also become infected by eating shellfish contaminated with viruses or other microorganisms found in sewage discharge.

Sewage is also harmful to water quality. Because the decomposing microorganisms within sewage need oxygen to break down organic material, any effluent discharged to waterways reduces the amount of oxygen available to fish and other forms of aquatic life. Furthermore, the heavy nutrient load in sewage promotes excessive algal growth. As algae multiply, they prevent sunlight from reaching subsurface vegetation. When they die, their decomposition further reduces levels of dissolved oxygen.

### **Install a Pumpout System!**

Help boaters to meet the requirements of the law by providing a convenient, reliable marine sewage disposal facility, i.e., a pumpout station. You, as a marina operator, may benefit in several ways. The presence of the pumpout facility promotes a public perception that you are environmentally responsible. More tangibly, the need for holding tanks to be pumped out regularly will draw a steady stream of customers to your dock. Each arriving vessel represents an opportunity to sell fuel, hardware, repair services, etc.

Note: A provision of sewage pumpout may be a Concession Contract requirement. If it is not, check with the NPS in your region for approval to provide this service at your marina.

### **Help Your Marina!**

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<b>Federal Authorities</b>	<b>Requirements</b>
<b>OSHA Bloodborne Pathogen Standard [29 CFR 1910.1030]</b>	<ul style="list-style-type: none"><li>★ This applies to all occupational exposure to blood or other potentially infectious materials (i.e., materials found in sewage or as a result of handling sewage).</li><li>★ Reference the regulation for a list of requirements for the Bloodborne Pathogen Standard.</li></ul>
<b>CWA, Section 312 – Marine Sanitation Devices</b>	<ul style="list-style-type: none"><li>★ This act has requirements that control discharges of wastewaters to waterways. Some locations are specifically designated “No-Discharge Zones” under federal regulation.</li></ul>

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## 5. Management Practices

# Sewage Control

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State/Local Authorities	Requirements
Specific state/local regulations may apply.	<ul style="list-style-type: none"> <li>★ The local or state Environmental Health Administration generally determines holding-tank size and location (if sewers are not available).</li> <li>★ Check with your state and local government office for state-specific and local requirements</li> </ul>

NPS Policy/Guideline	Requirements
Public Health Program [Director's Order 83, Reference Manual 83B4]	<ul style="list-style-type: none"> <li>★ This reference manual provides information on Raw Sewage Spill Notification and Cleanup Guidance for NPS. Consult with the Park to determine and prioritize concessions and contractual obligations. <a href="http://www.nps.gov/public_health/inter/info/rms/rm83b4.pdf">http://www.nps.gov/public_health/inter/info/rms/rm83b4.pdf</a></li> </ul>
Park-specific Superintendent's Compendium or other policy documents	<ul style="list-style-type: none"> <li>★ Determine if the Park mandates establish specific requirements for sewage management (e.g., no discharge requirements, vessel through-hull inspection programs, prohibitions on greywater discharge)</li> </ul>
Concessions Contract / Operating and Maintenance Plan	<ul style="list-style-type: none"> <li>★ NPS concessioners may be subject to additional requirements related to this topic. These requirements may be specified in the Concession Contract and associated Operating and Maintenance Plan.</li> </ul>

**Above and Beyond**

**Best Management Practices**

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**Select the appropriate pumpout system for the marina.**

- ★ Select a system that best meets the needs of your clients and that can move the expected volume of sewage over the required distance. Ask the manufacturer for written assurance that their system will operate effectively given the specific conditions at your facility.
  
- ★ Several types of pumpout systems are available:
  - systems permanently fixed to a dock;
  - mobile systems mounted on a golf cart or hand truck;
  - direct slip-side connections, and;
  - pumpout boats.

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**Choose an accessible location for the pumpout station.**

- ★ Consider where the pumpout station will be placed (if you select a fixed system). It should easily accommodate the types of boats that frequent your marina. Fuel docks are often good locations. Try to locate the pumpout system in such a way that a vessel being pumped out does not interfere with fueling operations. Sewage pumpout boats may also be an option.

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**How to dispose of collected waste.**

- ★ The best option for disposing of collected waste is a direct connection to a municipal sewer line.
  
- ★ If sewers are not available in your area, you will need a holding tank. The contents of the tank must be pumped periodically and trucked to a treatment plant.

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**Concerns exist when handling collected waste.**

- ★ For health reasons, workers should take precautions to avoid coming into direct contact with sewage. Workers should wear rubber gloves and respirators when maintaining or repairing marine sanitation devices (MSDs).

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**The pumpout may need additional staff.**

- ★ It is a good idea to have an attendant operate the pumpout. Consider installing a buzzer or page system so that boaters at the pumpout station can easily locate the attendant. If the station is unattended, be sure that clear instructions for use are posted.
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## 5. Management Practices

# Sewage Control

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<b>Consider a fee to be associated with the pumpout.</b>	<ul style="list-style-type: none"><li>★ If a fee is charged, how much will it be? Will tenants and liveaboards be charged, or just transients?</li><li>★ Remember, the Clean Vessel Act Pumpout Grant Program requires a charge of no more than \$5 per pumpout.</li><li>★ If the pumpout system is not regularly staffed, you will have to make arrangements to collect the fee. Systems that employ tokens have been used with success in many locations.</li><li>★ The Park will need to review and approve any fees before they can be applied. This will be incorporated into the Concession Contract.</li></ul>
<b>Post information near the pumpout.</b>	<ul style="list-style-type: none"><li>★ Provide information about use and cost of the pumpout station, hours of operation, and where to call for service if the system is out of order.</li><li>★ Post signs that are visible from the channel so that passing boaters are aware of the facility. If you do not have a pumpout system, post directions to the closest public pumpout.</li></ul>
<b>How to maintain the pumpout system at the marina.</b>	<ul style="list-style-type: none"><li>★ You should inspect the system regularly and keep a log of your observations. Contact the pumpout manufacturer for specific maintenance and winterization recommendations.</li><li>★ During the boating season, test the efficiency of the pump weekly by measuring the length of time required for the system to empty a 5-gallon bucket of water.</li><li>★ In order to quickly address any malfunctions, establish a maintenance agreement with a contractor qualified to service and repair pumpout facilities.</li><li>★ Test the sewage lines by conducting a dye test. This can occur on a weekly or monthly basis.</li></ul>
<b>Maintain the health of the surrounding water.</b>	<ul style="list-style-type: none"><li>★ Do not allow rinse water or residual waste in the hoses to drain into the water body. Keep the pump running until it has been re-primed with clean water.</li></ul>

## 5. Management Practices

# Sewage Control

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**It is important to educate staff.** ★ If boaters are going to use the pumpout systems, the experience must be as pleasant and convenient as possible. Train your staff accordingly.

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### Success Stories!

**Greywater Collection** - At Lake Powell, the concessioner had zero discharge rental houseboats. Both blackwater and greywater were collected into holding tanks and pumped out to a sewage treatment plant. Required at Lake Powell, collection of greywater is generally considered a best management practice for all lakes.

**Signage** – In addition to the required Marine Pollution (MARPOL) dumping signage, at one NPS marina, sinks and drains on rental houseboats were provided with “No Dumping” signs warning renters that drains were piped to the lake and to avoid dumping improper materials.

### Check Out Other Clean Marina Management Practices

- ✓ Spill Prevention



## 5. Management Practices

# Solid Waste Management and Recycling

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Recycle whenever possible. Divert reusable materials out of the waste stream. A recycling program is an easy, highly visible means to demonstrate environmental stewardship. Recycling programs are also a good way to introduce patrons to pollution prevention practices. In fact, many of your patrons or tenants are likely to already be in the habit of recycling at home and may expect to see recycling bins. Also, you may realize cost savings due to less frequent tipping of your dumpster(s) because of the reduced volume of trash.

### Help Your Marina!

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Federal Authorities	Requirements
<b>EO 13423 – Strengthening Federal Environmental, Energy, and Transportation Management</b>	<ul style="list-style-type: none"> <li>★ The EO requires federal agencies to increase diversion of solid waste as appropriate, and maintain cost-effective waste prevention and recycling programs in its facilities.</li> <li>★ The DOI and NPS will issue guidance on how this EO applies to concessioners (per Section 3f of the EO).</li> </ul>
<b>RCRA [40 CFR 243]</b>	<ul style="list-style-type: none"> <li>★ This act establishes solid waste management requirements. Review this act for solid waste management details on solid waste containers, collection of bulky wastes and food wastes, etc.</li> </ul>
<b>Solid Waste Sites in Units of NPS [36 CFR 6]</b>	<ul style="list-style-type: none"> <li>★ These regulations set forth stringent criteria under which new landfills can be created, and define operating conditions and NPS permitting requirements of existing landfills in the NPS.</li> </ul>
State/Local Authorities	Requirements
<b>Specific state/local regulations may apply.</b>	<ul style="list-style-type: none"> <li>★ Many state/local jurisdictions have their own, oftentimes more stringent, requirements for recycling or waste reduction. Check with your state and local government office for state-specific and local requirements.</li> </ul>

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## 5. Management Practices

# Solid Waste Management and Recycling

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NPS Policy/Guideline	Requirements
<b>Special Directive 91-1, Integrated Solid Waste Management Planning</b>	<ul style="list-style-type: none"> <li>★ Review this Special Directive for required implementation of a Park-level Integrated Solid Waste Alternatives Plan (ISWAP).</li> <li>★ Concessioners may be part of a Park that may have waste diversion objectives established. Coordinate with the Park to determine the priorities and best methods for concessioners to contribute to these objectives.</li> <li>★ Discuss with the Park the potential to partner on solid waste management and recycling.</li> <li>★ Consider different locations for maintenance waste collection facilities: on-dock, at the head of the dock, or no customer facilities whatsoever. Discuss the potential for each location with the Park.</li> </ul>
<b>2006 Management Policies, Section 9.1.6.1</b>	<ul style="list-style-type: none"> <li>★ Addresses biodegradable materials, the reuse and recycling of materials, and other suggested/required measures to minimize solid waste.</li> </ul>
<b>DO 13B – Solid and Hazardous Waste Management</b>	<ul style="list-style-type: none"> <li>★ This DO is currently being developed.</li> </ul>
<b>NPS Solid Waste Management Handbook (1996)</b>	<ul style="list-style-type: none"> <li>★ This Handbook outlines five hierarchal program elements for solid waste management in parks to develop an ISWAP:               <ul style="list-style-type: none"> <li>✓ Source Reduction</li> <li>✓ Recycling</li> <li>✓ Waste Combustion</li> <li>✓ Landfilling</li> <li>✓ Outreach</li> </ul> </li> <li>★ Establish goals and targets and means to measure solid waste disposal and recycling performance as part of the concessioner’s EMP.</li> </ul>

## 5. Management Practices

# Solid Waste Management and Recycling

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<b>Concessions Contract / Operating and Maintenance Plan</b>	<ul style="list-style-type: none"> <li>★ NPS concessioners may be subject to additional requirements related to this topic. These requirements may be specified in the Concession Contract and associated Operating and Maintenance Plan.</li> </ul>
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<b>Above and Beyond</b>	<b>Best Management Practices</b>
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<b>Reduce waste at the marina.</b>	<ul style="list-style-type: none"> <li>★ Keep in mind that less waste means lower disposal costs.</li> <li>★ Avoid having leftover materials by sizing up a job, evaluating what your actual needs are, and buying just enough products for the job. Encourage boaters to do the same.</li> <li>★ Minimize office waste: make double-sided copies, use scrap paper for notes and messages, purchase recycled office paper, and reuse polystyrene peanuts or give them to others (e.g., small scale packing and shipping companies) who will reuse them.</li> <li>★ Request alternative packing material from vendors, e.g., paper, potato starch peanuts, popcorn.</li> <li>★ Do not use Styrofoam cups, food containers, utensils, and other non-biodegradable products.</li> <li>★ Encourage boaters to exchange excess paints, thinners, varnishes, and other products. To facilitate this type of activity, provide a bulletin board where boaters can post notices that they are seeking particular materials or have excess quantities.</li> <li>★ Post the names of local schools or theater groups that are willing to accept excess, non-toxic paints.</li> </ul>
<b>Use effective ways to manage trash.</b>	<ul style="list-style-type: none"> <li>★ Develop your waste management strategy based on the number of patrons, the types of waste generated, the layout of your facility, and the amount of staff time you can devote.</li> <li>★ Promote your image as a responsible business by providing adequate and reasonably attractive trash</li> </ul>

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## 5. Management Practices

# Solid Waste Management and Recycling

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receptacles, including cans, bins, and dumpsters.

- ★ Locate trash receptacles in convenient locations. Select high-traffic areas such as near restrooms and showers, alongside vending machines, adjacent to the facility office or on the path to the parking lot. Co-locate recycling bins with trash to provide patrons and staff with obvious opportunities to recycle. Ensure all bins are clearly identified (i.e., marked).
  - ★ If trash containers are placed on docks, be sure they are properly secured. Do not provide trash containers in an exposed location where they may be subject to being blown off the dock or blown/tipped over.
  - ★ Select containers large enough to hold the expected volume of trash. On average, 4 to 6 gallons of capacity is needed per person per vessel per day.
  - ★ Select enough containers for your facility.
  - ★ Provide lids or some other means of keeping the waste inside and preventing animals and rainwater from getting in.
  - ★ Post signs indicating what may not be placed in the receptacle: engine oil, antifreeze, paints, solvents, varnishes, pesticides, lead batteries, transmission fluid, distress flares, and polystyrene peanuts (loose peanuts tend to blow away).
  - ★ Post signs that are multilingual, universal or graphic so that everyone understands.
  - ★ Require all employees to be involved in policing the facility for trash and vessel maintenance wastes. Do not allow litter to mar your grounds or nearshore areas.
  - ★ Use a pool skimmer or crab net to collect floating debris that gathers along bulkheads or elsewhere within your facility.
  - ★ Post signs directing people to trash receptacles if they are
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## 5. Management Practices

# Solid Waste Management and Recycling

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not in plain view.

- ★ Provide lights around trash receptacles so that they are easy to find and safe to use.
- ★ Plant or construct a windscreen around dumpsters to make the area more attractive and to prevent trash from blowing away.
- ★ Recycle collected oil. Recycle the metal canister if your recycler permits. If not, dispose of it in your regular trash.

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### **Products and materials may be recycled.**

- ★ Discuss with the Park the options for contacting a waste hauler or local solid waste recycling coordinator.
- ★ Learn more about recycling options in the area by contacting “Earth 911” at 1-877-EARTH911 or via the web <http://www.earth911.org/master.asp>
- ★ The following materials are typically recyclable: antifreeze, oil, used oil filters, fluorescent tubes, lead-acid and NiCad batteries, office equipment, metal fuel filter canisters, solvents, glass, shrink-wrap, type 1 and 2 plastics, aluminum, steel, tin, lead batteries, newspaper, corrugated cardboard, mixed paper, scrap metal, tires, white goods (appliances), alkaline batteries, fishing line and tires.

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### **Your Marina may not support all sources of recycling but you can provide information for locations providing services.**

- ★ Post information about local recycling services if you are not able to provide all the desired services at your facility.
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## 5. Management Practices

# Solid Waste Management and Recycling

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### Promote recycling around your facility.

- ★ Place effective signage for recycling around your facility so that people may know where to go to recycle.
- ★ Make the recycling bins look different from the standard trashcans, e.g., use a different color or material.
- ★ Create a clear understanding of recycling facilities and sorting bins through use of graphics and multilingual signs where appropriate.
- ★ Recycling can also be encouraged on rental and tour boats by providing recycling containers on these vessels. Also provide recycling containers at the dock and land-based locations.
- ★ Educate visitors on the recycling program.

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### Track pollution incidents.

- ★ Use a *Pollution Report and Action Log* to track pollution incidents and record actions taken.
- ★ Post the *Log* on a clipboard in the maintenance area or in another easily accessible location.
- ★ Consult the *Pollution Report and Action Log* daily.

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### Encourage others to contribute to the clean up.

- ★ Organize a shoreline cleanup around your facility.
- ★ Provide recognition and incentives to those boaters who use proper waste management techniques.

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### Learn how to recycle solid waste.

- ★ Provide containers to collect, at a minimum, plastic, glass, aluminum, and newspaper. Clearly mark each container so that people know what may and may not be put into it.
  - ★ Provide lids or some type of restricted opening to prevent the collected material from being lifted out by the wind and to prevent rainwater from collecting inside.
  - ★ Place the collection bins for solid recyclables in convenient locations. High-traffic areas near trash receptacles are best.
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## 5. Management Practices

# Solid Waste Management and Recycling

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### Success Stories!

**Trash Pick-up Programs.** At both Lake Mead and Lake Powell, concessioners conducted lake trash collection programs. With titles like the Trash Tracker Program at Lake Powell, concessioners provide various equipment and services including boats, captains and volunteers, and trash disposal services for the programs.

**Clean Up Dives.** At various marinas at Lake Mead and Lake Powell, concessioners organize annual “clean-up” or “ecology dives” to collect materials that may have been disposed by boaters over the years. As lake levels drop, divers have been able to reach more lake bottom locations to collect materials ranging from old anchors to engine blocks.

**Trash Collection.** Concessioners at Lake Mead have joined with the Park to provide a Boat It In-Bag It Out Program. Each of the concessioners help fund and provide on their docks special blue bags for customers to use to collect their trash while on the lake and then properly dispose when they get back to shore.

### Check Out Other Clean Marina Management Practices

- ✓ Hazardous Materials and Wastes



## 5. Management Practices

# Spill Prevention

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Spill prevention encompasses a variety of marina activities. Fueling operations and engine maintenance and repair have the greatest potential to cause a spill. Even small amounts of oil, fuel, or other petroleum hydrocarbons can cause a serious problem when regularly introduced into the environment. Many minor spills are reported to the Coast Guard, as is required by law, but because the people responsible don't want to get in trouble, there are many more spills that go unreported. All marinas that handle fuel or oil should act to minimize the potential for spills to occur, and improve their response and recovery processes.

### Help Your Marina!

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Federal Authorities	Requirements
<p><b>Spill Prevention Control and Countermeasures (SPCC) [40 CFR 112]</b></p> <p><b>Clean Water Act (CWA)</b></p> <p><b>Oil Pollution Act of 1990 (OPA)</b></p>	<ul style="list-style-type: none"> <li>★ An SPCC plan is required if the Park or facility could potentially over any period of time discharge oil into, upon or to navigable waters of the U.S. or adjoining shorelines; <b>and</b> <ul style="list-style-type: none"> <li>✓ The total aboveground storage capacity for the park exceeds 1,320 gallons of oil in containers of 55-gallons or greater; <i>or</i></li> <li>✓ The total underground oil storage capacity for the park exceeds 42,000 gallons.</li> </ul> </li>   <li>★ If an SPCC plan is needed at your facility, reference the regulation for details on plan requirements. In general the plan should address:           <ul style="list-style-type: none"> <li>✓ Operating procedures in place that prevent oil spills;</li> <li>✓ Control measures installed to prevent a spill from reaching navigable waters; and</li> <li>✓ Countermeasures to contain, clean up, and mitigate the effects of an oil spill that reaches navigable waters.</li> </ul> </li> </ul>
<p><b>Prepare Emergency Plans according to Federal Regulations</b></p>	<ul style="list-style-type: none"> <li>★ Refer to the Emergency Planning Management Sheet for more information on Federal Regulations</li> </ul>

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## 5. Management Practices

# Spill Prevention

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<b>State/Local Authorities</b>	<b>Requirements</b>
<b>Specific state/local regulations may apply.</b>	<ul style="list-style-type: none"> <li>★ Contact the local or State Underground Storage Tank (UST) Division for assistance with tank installation, emergency response, or spill prevention plan review. USTs may need to be registered with the relevant UST Division.</li>   <li>★ In some states aboveground storage tanks (ASTs), as well as USTs, have permit/registration requirements. Contact the local or State AST Division to determine potential AST requirements.</li>   <li>★ Check with your state and local government office for state-specific and local requirements.</li> </ul>

<b>NPS Policy/Guideline</b>	<b>Requirements</b>
<b>Consult the Park to determine responsibilities under NPS Special Directive 90-6</b>	<ul style="list-style-type: none"> <li>★ This directive can be used for guidance in determining SPCC responsibilities between the Park and concessioner-owned and/or –operated oil storage and handling facilities.</li>   <li>★ Consult the Concessions Contract to ensure that responsibilities are clearly outlined.</li> </ul>
<b>Prepare Emergency Plans according to NPS policy/guidance.</b>	<ul style="list-style-type: none"> <li>★ Refer to the Emergency Planning Management Sheet for more information on NPS policy/guidance.</li> </ul>
<b>Consult additional Park Resources for information outlining hazardous substance and fuel spill response guidelines.</b>	<ul style="list-style-type: none"> <li>★ Check with your park for training guidance:               <ul style="list-style-type: none"> <li>✓ NPS Handbook for Responding to Hazardous Substance Releases (1999);</li> <li>✓ NPS Fuel Management Technical Guidance (2005)</li> </ul> </li> </ul>
<b>DO 50B – Occupational Safety and Health Program</b>	<ul style="list-style-type: none"> <li>★ This DO provides detailed guidance on how to provide for the safety and health of NPS employees and the public, including adoption of NFPA codes and standards.</li> </ul>

## 5. Management Practices

# Spill Prevention

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	<ul style="list-style-type: none"><li>★ NPS Parks and concessioners must meet NFPA requirements pursuant to this DO.</li></ul>
<b>NFPA 30 A, Code for Motor Fuel Dispensing Facilities and Repair Garages</b>	<ul style="list-style-type: none"><li>★ Review code to determine requirements related to fuel dispensing and repairs, if applicable to the marina.</li><li>★ NFPA 30A requires that communication must be established between the fueling attendant and the person in control of the vessel or craft receiving the fuel so as to determine the vessel's fuel capacity, the amount of fuel on board and the amount of fuel to be taken on board.</li><li>★ Place signage on fueling procedures at the gas pumps to meet NFPA 30A and other facility specific spill prevention procedures. For example, use signage to show procedures for using absorbent for vent line discharge and to transfer nozzle.</li><li>★ Pumps should meet all applicable federal and state regulations, the facility SPCC Plan, NFPA 30 and 30A.</li><li>★ Fuel transfer lines should be provided with all applicable leak detection and spill and overfill prevention equipment specified in applicable federal and state regulations, the facility SPCC Plan, NFPA 30 and 30A.</li><li>★ Fuel tanks should be provided with all applicable leak detection and spill and overfill prevention equipment specified in applicable federal and state regulations, the facility SPCC Plan, NFPA 30 and 30A. Tanks should be double-walled.</li><li>★ Ensure holding clips are not installed.</li></ul>
<b>Concessions Contract / Operating and Maintenance Plan</b>	<ul style="list-style-type: none"><li>★ NPS concessioners may be subject to additional requirements related to this topic. These requirements may be specified in the Concession Contract and associated Operating and Maintenance Plan.</li></ul>

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## 5. Management Practices

# Spill Prevention

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### Above and Beyond

### Best Management Practices

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**Establish measures to protect petroleum and fuel storage tanks.**

- ★ Install a readily accessible shutoff valve on shore to halt, when necessary, the flow of fuel through a pipeline from the oil storage facility to the dock.

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**Determine where the fuel dock should be located.**

- ★ Avoid waves and wakes. Locate fuel docks in areas protected from wave action and boat wakes when constructing new or upgrading existing facilities.
- ★ Provide a stable platform for fueling personal watercraft (PWC). You may purchase prefabricated drive-on docks or modify an existing dock by cutting a V-shaped berth and covering the edges with outdoor carpeting. Consider placing the PWC fueling area at the end of the fuel pier to reduce conflict with larger boats.

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**Examine fuel transfer equipment.**

- ★ Double-walled piping systems should be installed where technically and economically feasible
- ★ Inspect transfer equipment regularly and fix all leaks immediately.
- ★ Maintain transfer equipment and hoses in good working order. Replace hoses, pipes, and tanks before they leak.
- ★ Hang nozzles delivery-end upward when not in use so that fuel remaining in hoses does not drain out.

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**Consider environmental controls at the pumps.**

- ★ Equip both diesel fuel dispensing hoses as well as gasoline hoses with break-away devices. This prevents the flow of diesel fuel or gasoline if an event occurs that would separate the hose from the tank or the handle from the hose.
  - ★ Consider installing fuel nozzles that redirect blow-back into vessels' fuel tanks, or vapor-control nozzles to capture fumes.
  - ★ Install hose reels for facilities with significant lengths of dispenser hose. This will help prevent trip hazards. Also, it will help prevent damage to hoses.
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## 5. Management Practices

# Spill Prevention

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- ★ Maintain a supply of oil-absorbent pads and pillows at the fuel dock to mop up spills on the dock or in the water.
- ★ Place plastic or nonferrous drip trays lined with oil-absorbent material beneath fuel connections at the dock to prevent fuel leakage from reaching the water.
- ★ Post instructions at the fuel dock directing staff and patrons to immediately remove spilled fuel from the dock and water with oil-absorbent material. Indicate the location of the absorbents.
- ★ Place small gas cans in oil-absorbent-lined drip pans when filling them.
- ★ Secure oil-absorbent material at the waterline of fuel docks to quickly capture small spills. Use oil-absorbent booms that are sturdy enough to stand up to regular contact with dock and boats.
- ★ Offer your services to install fuel/air separators on boats.

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### **Fueling should be supervised.**

- ★ Always have a trained employee at the fuel dock to oversee or assist with fueling.
  - ★ Remind boaters that gasoline vapors are heavier than air; gas vapors will settle in a boat's lower areas.
  - ★ Train employees to clarify what the boater is asking for. For example, as your employee passes the fuel nozzle to the boater, have him or her say, "This is gasoline. You asked for gasoline."
  - ★ Train employees to hand boaters oil-absorbent pads with the fuel nozzle. Request that the boaters use them to capture backsplash and vent-line overflow.
  - ★ Attach a container to the external vent fitting to collect overflow. A rubber seal fits over the fuel vent, allowing the overflow to enter the container, which may be attached to the hull by suction cups. Fuel captured in this manner can be added to the next boat to fuel.
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## 5. Management Practices

# Spill Prevention

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- ★ Verbally instruct boaters to:
  - ⇒ stop all engines and auxiliaries;
  - ⇒ shut off all electricity, open flames, and heat sources;
  - ⇒ extinguish all smoking materials;
  - ⇒ close all doors, hatches, and ports;
  - ⇒ maintain nozzle contact with the fill pipe to prevent static spark;
  - ⇒ inspect bilge after fueling for leakage or fuel odors, and;
  - ⇒ ventilate all compartments after fueling until fumes are gone.
- ★ Require boaters to stay with their craft during fueling.
- ★ Train dock staff to carefully observe fueling practices, making sure that fuel is not accidentally put into the holding or water tank.
- ★ Instruct boaters to slow down at the beginning and end of fueling. Also, instruct fuel dock personnel and boaters to listen to the sound of filling to anticipate when tanks are nearly full.
- ★ Encourage boaters to fill their fuel tanks just before leaving on a trip to reduce spillage due to thermal expansion and rocking. If the fuel is used before it expands, it is less likely to spill overboard.
- ★ If boaters prefer to refuel upon their return to port, encourage them to fill their tanks to no more than 90 percent of capacity.

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### **Turn Down the Pressure.**

- ★ Problems with backsplash and vent-line overflow are often due to the high pressure of fuel flow from the pump.
- ★ Ask your fuel company representative to reduce the pumping pressure.

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### **Encourage use of spill prevention materials.**

- ★ Distribute pads, pillows or booms to your tenants.
  - ★ Require tenants to use oil-absorbent materials as part of your lease agreement.
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## 5. Management Practices

# Spill Prevention

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- ★ Distribute flyers and offer other educational materials that provide information on spill prevention technologies and good management practices.
- ★ Arrange a spill prevention section in the marina store. Highlight the types of spill prevention materials for sale.

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### **Provide an oil / water separator.**

- ★ Invest in a portable or stationary oil/water separator to draw contaminated water from bilges, capture hydrocarbons in a filter, and discharge clean water.

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### **Create an environment that promotes spill-proof oil changes.**

- ★ Purchase a non-spill pump system to draw crankcase oils out through the dipstick tube. Use the system in the boat shop and rent it to boaters who perform their own oil changes.
- ★ Slip a plastic bag over used oil filters prior to their removal to capture any drips. Hot-drain the filter by punching a hole in the dome end and draining for 24 hours.
- ★ Encourage the use of spill-proof oil-change equipment as a condition of your slip rental agreement.

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### **Minimize spills and leaks from machinery.**

- ★ Use non-water-soluble grease on Travelifts, forklifts, cranes, and winches.
  - ★ Construct berms around fixed pieces of machinery that use oil and gas to create containment volumes equal to 1.1 times the capacity of the fuel tank. The machinery should be placed on an impervious pad. Design containment areas with spigots to drain collected materials. Dispose of all collected material appropriately.
  - ★ Place leak-proof drip pans beneath machinery. Empty the pans regularly, disposing of the material properly (uncontaminated oil and antifreeze may be recycled). Place oil-absorbent pads under machinery.
-

## 5. Management Practices

# Spill Prevention

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**Work with employees and patrons to control spills from tour, rental and work-boats.**

- ★ Controls spills from tour, rental and work-boats through:
    - ✓ bilge management;
    - ✓ in-vessel engine maintenance to prevent drips and spills;
    - ✓ provision of oil separating bilge pumps;
    - ✓ provision of in-line fuel/air separators for vent lines.
-

## Success Stories!

**Pollution Prevention for Portable Fuel Cans.** At Isle Royale National Park in northern Lake Michigan, a concessioner operates a fuel dock for rental boats and transients. The operator instituted a procedure to fill portable gas tanks on the dock using a tub that provided secondary containment to prevent possible spillage. First seen at this location in 2002, this best management spill prevention practice has spread to many marinas in the NPS.

**PWC Fueling.** Fueling personal watercraft can be a tricky proposition when wind and boat traffic cause even small waves in the marina fueling area. Concessioners at Lake Mead are making investments in “drive-on” floating PWC docks for fueling to ensure a stable platform for fueling.

**Pollution Prevention for Floating Fuel System.** At Lake Roosevelt National Recreation Area in Washington State, a state of the art, floating fuel storage system was installed. The system consists of an aboveground storage tank installed in a secondary containment barge. While over-water fuel storage systems are discouraged due to their intrinsic risk, the concessioner has installed an extensive array of pollution protection devices to help ensure environmental protection. System components included a secondary containment barge; overfill prevention devices, automatic tank gauging and secondary containment leak sensors.

**Fuel Dispensing Systems.** At Lake Powell and Lake Mead, Park concessioners have installed state of the art, double-walled fuel distribution systems consisting of triple wall hose and piping with alarmed secondary containment sumps for all hose and piping connections on the beach, dock gangways, under the dock and under fuel dispensers. Although lake levels at both locations have been exceptionally low, concessioners have spent the extra money to install new sections of double-walled protected hose and piping as the distance down the beach has grown to more than a half mile to ensure environmentally sound fueling systems.

## Check Out Other Clean Marina Management Practices

- ✓ Emergency Planning
- ✓ Solid Waste Management and Recycling
- ✓ Hazardous Materials and Wastes
- ✓ Vessel Maintenance and Repair
- ✓ Paints



## 5. Management Practices

# Stormwater Management

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Regularly occurring marina activities can be sources of pollution when rainfall flushes pollutants on the ground into the surface water. These discharges contribute to the degradation of water quality, and can lead to violations. The highest concentrations of surface pollutants in stormwater runoff occur during the first inch of rainfall. Older marinas, constructed prior to stormwater management regulations, may even discharge untreated stormwater directly into the surface water. Direct flows of runoff into the surface water should be avoided. It is important for marinas to employ preventative measures in order to reduce the discharge of pollutants in stormwater runoff.

Many capital improvements will require coordination with the Park. Work together to determine the best actions for the marina.

### Help Your Marina!

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Federal Authorities	Requirements
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<b>Clean Water Act (CWA)</b>	★ The CWA established national programs for the prevention, reduction, and elimination of pollution in navigable waters and groundwater. The NPDES program is under the CWA and requires permits for discharge and treatment of wastewater and stormwater. Reference the NPDES program details to determine if your facility requires permitting for point-source pollution. The EPA provides information on their website: <a href="http://cfpub.epa.gov/npdes/">http://cfpub.epa.gov/npdes/</a>
<b>National Pollutant Discharge Elimination System (NPDES) Program</b>	

★ A stormwater permit may be required, specifically if the marina is involved in maintenance and fueling operations. The Stormwater Pollution Prevention Plan (SWPPP) is a requirement for the marina if it must have a stormwater permit. The EPA provides an example SWPPP for Marinas: <http://www.epa.gov/reg3wapd/stormwater/pdfs/marina.pdf>

★ Primary goals of the SWPPP will be to:

- ✓ Identify potential sources of pollutants that affect stormwater discharges from the site;
- ✓ Describe the practices that will be implemented to prevent or control the release of pollutants in stormwater discharges; and
- ✓ Create an implementation schedule to implement the program and evaluate the plan's

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## 5. Management Practices

# Stormwater Management

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effectiveness.

- ★ The SWPPP specifies implementation of stormwater BMPs as well as certain stormwater monitoring requirements.

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### **CWA, Section 319**

- ★ Reference this section of the CWA to learn more about identifying and controlling non-point source water pollution. The EPA provides information on their website: <http://www.epa.gov/owow/nps/>
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### **State/Local Authorities**

### **Requirements**

**Specific state/local regulations may apply.**

- ★ Check with your state and local government office for state-specific and local requirements. Many states are authorized to run the NPDES program in their states under the CWA.
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### **NPS Policy/Guideline Requirements**

**Coordinate Pollution Prevention Plans between the Park and applicable concessioners/contractors.**

- ★ Ensure coordination between the Park/concessioners and contractors that may have responsibilities for pollution prevention plans to ensure roles are clearly understood and response procedures are adequate. Considerations should be given to:
  - ✓ Concession Contract requirements;
  - ✓ Concessioner/Park resources; and
  - ✓ Environmental impacts.

**Concessions Contract / Operating and Maintenance Plan**

- ★ NPS concessioners may be subject to additional requirements related to this topic. These requirements may be specified in the Concession Contract and associated Operating and Maintenance Plan.
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## 5. Management Practices

# Stormwater Management

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### Above and Beyond

### Best Management Practices

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#### Help the marina practice low impact development.

- ★ The goal of low-impact development is to develop a site without altering the hydrologic cycle, namely the natural water “budget” of the area, or the relationship between input (through precipitation) and output (through evaporation, transpiration from leaves, overland runoff, etc.). The approach takes advantage of a site’s natural features—including vegetation—to reduce the need for expensive stormwater control devices. Low-impact development runs counter to traditional development, which presumes the need for structures like curbs, gutters, and storm drains to move water off site. Such structures serve the purpose well, but they cause unnatural volumes of runoff to move into receiving waters, sometimes at high velocity. For low-impact development:
    - ✓ Capture and treat stormwater on site. For example, direct the runoff from your parking lot to a retention area, where it can soak into the ground or evaporate, rather than toward a storm receiver. It might be a *bio*-retention area, such as a “rain garden,” an area planted with native vegetation and sited so as to collect stormwater. Soil and plants take up nutrients, pollutants, and the water itself, 24 to 48 hours after a storm. Rain gardens have the added advantages of being attractive, providing shade and wildlife habitat, acting as windbreaks, and muffling street noise.
    - ✓ For parking or paved areas, use pervious paving material.
    - ✓ Capture rainwater for irrigation, toilet and urinal flushing, and boat washing (only for land maintenance).
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## 5. Management Practices

# Stormwater Management

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### **Use vegetated areas to help with stormwater management.**

Healthy soil and vegetation capture, treat, and slowly release stormwater. The water is treated through microbial action in the soil, vegetative uptake, evaporation, and transpiration.

- ★ Plant environmentally sensitive landscapes at the edge of parking lots and within parking-lot islands.
- ★ Plant living buffers between your upland property and the water's edge.
- ★ Position downspouts so that they drain to vegetated areas. Avoid directing roof runoff to concrete or asphalt.
- ★ Construct wetlands to remove pollutants, buffer the shoreline from erosive forces, and provide habitat for aquatic species and birds.
- ★ Use grassed swales instead of pipes to direct stormwater. Grassed swales are low-gradient shallow channels seeded with erosion-resistant grasses. They improve water quality by filtering out particulates, taking up nutrients, and promoting infiltration. Moreover, water generally moves more slowly over a grassed surface than through a pipe or concrete conduit.

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### **Minimize impervious areas.**

- ★ The less impervious, or hard, surfaces there are onsite, the less runoff you will have to manage. Minimize paved areas. Minimize the length of new roadway required to serve newly opened areas of your facility.
  - ★ Consider alternatives to asphalt for parking lots and vessel storage areas, e.g., gravel, crushed seashells, and engineered porous pavement.
  - ★ Investigate a non-toxic, organic soil binder derived from the Plantagenaceae (plantain family). When this binder is combined with crushed aggregate (e.g., gravel, shells) and soil, it creates a somewhat permeable surface that will not erode. Costing the same as or less than asphalt, it is a resilient material that will not crack during winter freeze/thaw cycles,
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## 5. Management Practices

# Stormwater Management

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can be repaired by adding more material and tilling the surface, and can be dug up with a shovel to plant trees and shrubs.

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### **Structural controls are beneficial.**

- ★ Because of space limitations or other constraints, it may be necessary to adopt more traditional practices such as pond, wetland, infiltration, or filter systems.
    - ⇒ Stormwater pond systems capture and slowly release storm flows. Ponds may be permanent (retention ponds) or may hold water only temporarily (detention ponds). A Dry Extended Detention pond is an example of a stormwater pond system. Dry Extended Detention ponds hold runoff for up to 24 hours after a storm. Water is slowly released through a fixed opening. The pond is normally dry between storms. This type of structure is effective for sites that are 10 acres or greater in size.
    - ⇒ Stormwater wetland systems are designed to mimic the ability of natural wetlands to cleanse and absorb storm flows. A Pocket Wetland is created by excavating to the high-water-table elevation.
    - ⇒ Infiltration systems are designed to take advantage of the soil's natural infiltration capacities and pollutant removal characteristics. A Dry Well is an infiltration system designed to treat rooftop runoff. Water is collected from downspouts and directed into a filter composed of crushed stone and fabric. Rain gardens and porous pavement are other examples of infiltration systems.
    - ⇒ Filter systems “strain” runoff to remove pollutants. Conventional sand filter systems are constructed of layers of sand, from coarse on top to fine below. The sand overlies either a gravel bed (for infiltration) or perforated under-drains (for discharge of treated water). Oil grit separators are another form of filter system. Water from parking lots and other areas likely to have hydrocarbons should be directed through oil grit separators (or oil-absorbent fabric) before entering any other management structure.
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## 5. Management Practices

# Stormwater Management

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- ★ If possible, cover machinery with a roof to prevent rainwater from filling the containment. Create a filter or structural device to properly divert or process the rainwater from the roof.

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### **Bring attention to storm drains.**

- ★ Stencil the words “Don’t Dump” on storm drains. Be sure to get permission from the local or State Department of Public Works or equivalent agency before stenciling warnings on storm drains.

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### **Install stormwater management controls.**

- ★ Install stormwater management controls such as oil/water and silt separators for dry storage and vessel maintenance yards.
  - ★ Properly address storage containers and storage areas to control stormwater contamination from materials and equipment.
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## **Success Stories!**

**Engineered Controls** - At Lake Mead National Recreation Area, the concessioner engineered a low-technology but effective stormwater protection system for its maintenance parking area consisting of small six inch by one foot drains along the low end of the area equipped with oil absorbent socks to pick up any oil contamination from the area. The socks are periodically checked and replaced as necessary as part of its preventive maintenance program.

## **Check Out Other Clean Marina Management Practices**

- ✓ Sediment and Erosion Control

## Vessel Maintenance / Repair Activities

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Maintenance activities and repairs may contribute petroleum-based hydrocarbons and heavy metals to the water. Blasting and sanding activities can release contaminants into the air or water; dust in the air can pose a respiratory hazard, and dust accumulation on the ground can be swept into the water by the wind or through runoff following rainfall. Maintenance and repair can also add noise or odor pollution.

One of the easiest ways to contain waste is to restrict the area where maintenance activities may be performed. Try to limit noise and odor pollution. Encourage boaters to minimize the use of odorous substances, and to maintain their engines in good condition, which can reduce noise pollution. The following are suggested good practices.

### Help Your Marina!

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Federal Authorities	Requirements
<b>Clean Air Act (CAA), Title I, II, III, V, and VI, Regional Haze Rule.</b>	★ The CAA addresses air emissions. Review this law to ensure that the facility and its operations are compliant with EPA established National Ambient Air Quality Standards (NAAQS) and National Emission Standards for Hazardous Air Pollutants (NESHAP).
<b>Clean Water Act (CWA)</b>	★ The CWA outlines various requirements for the management of wastewaters, including stormwater, which may be contaminated from vessel maintenance and repair activities. Also, the CWA addresses the protection of waterways in which vessels may be located.
<b>Respiratory Protection Standard [29 CFR 1910.134]</b>	★ Consult the regulation to see if facility activities (e.g., spray painting, welding and metal grinding) require respiratory protection.

State/Local Authorities	Requirements
<b>Specific state/local regulations may apply.</b>	★ Check with your state and local government office for state-specific and local requirements.

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## 5. Management Practices

# Vessel Maintenance / Repair Activities

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### NPS Policy/Guideline Requirements

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<b>DO 47 – Sound Preservation and Noise Management</b>	<ul style="list-style-type: none"> <li>★ This DO provides details on how to protect, maintain, and restore the natural soundscape resource in a condition unimpaired by inappropriate or excessive noise sources.</li> </ul>
<b>NPS follows DO 50B – Occupational Safety and Health Program</b>	<ul style="list-style-type: none"> <li>★ This DO provides detailed guidance on how to provide for the safety and health of NPS employees and the public.</li> <li>★ NPS Parks and concessioners must meet NFPA requirements pursuant to this DO.</li> </ul>
<b>Concessions Contract / Operating and Maintenance Plan</b>	<ul style="list-style-type: none"> <li>★ Address the need to define allowable boat and equipment maintenance in customer contracts/yard rules and regulations.</li> <li>★ NPS concessioners may be subject to additional requirements related to this topic. These requirements may be specified in the Concession Contract and associated Operating and Maintenance Plan.</li> </ul>

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### Above and Beyond Best Management Practices

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<b>Decide on a location for maintenance / repairs.</b>	<ul style="list-style-type: none"> <li>★ Avoid on-water maintenance areas.</li> <li>★ If on-water maintenance areas are necessary, provide secondary containment and other controls to prevent impacts to the environment.</li> <li>★ Perform all major repairs—such as stripping, fiberglassing, and spray painting—in designated areas.</li> <li>★ Establish the maintenance area as far from the water as possible.</li> <li>★ Prohibit extensive maintenance or repair work outside of designated maintenance areas.</li> <li>★ Develop procedures for managing requests to use the workspace, to move boats onto and off of the site, and to ensure the use of BMPs.</li> </ul>
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## Vessel Maintenance / Repair Activities

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<b>Considered the design of maintenance / repair areas.</b>	<ul style="list-style-type: none"> <li>★ Construct vessel maintenance areas with an impervious surface (e.g., asphalt or concrete) and, where practical, a roof. Sheltering the area from rain will prevent stormwater from carrying debris into surface waters.</li> <li>★ If asphalt or concrete is not practical, perform work over filter fabric or over canvas or plastic tarps. Filter fabric will retain paint chips and other debris but will allow water to pass through (unlike plastic or canvas). Tarps may potentially be reused many times.</li> <li>★ Surround the maintenance area with a berm or retaining wall.</li> <li>★ Collect all maintenance debris. Clean work areas after completing each operation or at the end of the day, whichever comes first. Remove sanding debris, paint chips, fiberglass, trash, etc.</li> <li>★ Use vegetation or the structural controls cited (<i>Clean Marina BMP, Stormwater Management</i>) to treat stormwater runoff.</li> </ul>
<b>Signs may be helpful.</b>	<ul style="list-style-type: none"> <li>★ Clearly mark the work area with signs, as, for example, “Maintenance Area for Stripping, Fiberglassing, and Spray Painting.”</li> <li>★ Post signs throughout the boatyard describing BMPs that boat owners and contractors must follow, such as, “Use Tarps to Collect Debris.”</li> </ul>
<b>Contain dust from sanding.</b>	<ul style="list-style-type: none"> <li>★ Do not let dust from sanding fall onto the ground or water or become airborne.</li> <li>★ Invest in vacuum sanders and grinders. These tools collect dust as soon as it is removed from the hull. Vacuum sanders allow workers to sand a hull more quickly than with conventional sanders. Additionally, because paint is collected as it is removed from the hull, health risks to workers are reduced.</li> <li>★ Require tenants and contractors to use vacuum sanders. Rent or loan the equipment to tenants and contractors.</li> <li>★ Post signs indicating the availability of vacuum sanders</li> </ul>

## 5. Management Practices

# Vessel Maintenance / Repair Activities

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and grinders.

- ★ Bring vacuum sanders to tenants if you see them working with non-vacuum equipment.
- ★ Conduct shore-side sanding in the hull maintenance area or over a drop cloth.
- ★ Restrict or prohibit sanding on the water.
- ★ When sanding on the water is unavoidable, use a vacuum sander and keep dust out of the water.
- ★ Use a damp cloth to wipe off small amounts of sanding dust.
- ★ Collect debris. Have your waste hauler characterize the waste and bring it to a facility authorized to manage municipal or industrial solid waste. Remember that some of the waste may be hazardous and will need to be taken to a hazardous waste disposal facility.

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### **Contain debris from blasting.**

- ★ Prohibit uncontained blasting.
  - ★ Perform abrasive blasting in the vessel maintenance area within a structure or under a plastic tarp enclosure. Do not allow debris to escape from the enclosure.
  - ★ Investigate alternatives to traditional-media blasting. Hydroblasting and mechanical peeling essentially eliminate air quality problems. Debris must, however, still be collected. Consider using a filter cloth ground cover.
  - ★ Avoid dust entirely by using a stripper that allows the paint to be peeled off. These products are applied like large bandages, allowed to set, and are then stripped off. When the strips are removed, the paint is lifted from the hull. Dust and toxic fumes are eliminated.
  - ★ Invest in a closed, plastic-medium blast (PMB) system. These systems employ small plastic bits as a blasting medium. Once the blasting is completed, the spent material and the paint chips are vacuumed into a machine that separates the plastic from the paint dust.
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## 5. Management Practices

# Vessel Maintenance / Repair Activities

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The plastic is cleaned and may be reused. The paint dust is collected for disposal. A 50-foot vessel will produce about a gallon of paint dust, substantially less than the many barrels of sand and paint that must be disposed of following blasting with traditional media.

- ★ Collect debris. Have your waste hauler characterize the waste and bring it to a facility authorized to manage municipal or industrial solid waste.

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### **Minimize the impact from pressure-washing.**

- ★ Reuse wash water: recycle it through the power-washing system (a closed water-recycling operation).
- ★ Pressure-washing can occur over a bermed, impermeable surface that allows the wastewater to be contained and sediment to be filtered out.
- ★ Using the least amount of pressure necessary to remove growth but leaving paint intact when pressure-washing ablative paint – where practical, use a regular garden-type hose and a soft cloth;
- ★ Collection of debris – have your waste hauler characterize the waste and bring it to a facility authorized to manage municipal or industrial solid waste.
- ★ Avoid use of cleaners and chemicals whenever possible.

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### **Take care when working on engines.**

- ★ Store engines and engine parts under cover on an impervious surface like asphalt or concrete.
  - ★ Avoid washing engine parts over bare ground or near water.
  - ★ Use dry pre-cleaning methods, such as wire brushing.
  - ★ Avoid unnecessary parts cleaning.
  - ★ Clean engine parts in a container or parts washer if you use a solvent. The container or parts washer should be equipped with a lid to prevent evaporation of volatile organic compounds. Reuse the solvent. Once the solvent is spent, recycle it.
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## 5. Management Practices

# Vessel Maintenance / Repair Activities

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- ★ Adopt alternatives to solvent-based parts washers, such as bioremediating systems that take advantage of microorganisms to digest petroleum. Bioremediating systems are self-contained, meaning that there is no effluent. The cleaning fluid is a mixture of detergent and water. Microorganisms are added periodically to “eat” the hydrocarbons.
- ★ Use drip pans when handling any type of liquid. Use separate drip pans for each fluid to avoid mixing of fluids. Recycle the collected fluid.
- ★ Use funnels to transfer fluids.
- ★ Drain fluids from parts prior to disposal.
- ★ Clean engine repair areas regularly using dry cleanup methods, e.g., capturing petroleum spills with oil-absorbent pads.
- ★ Prohibit the practice of hosing down the shop floor.

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**Consider respiratory protection and air quality impacts from maintenance activities.**

- ★ Fiberglass repair, sanding, and construction may create particulates and release volatile organic compounds.
  - ★ Even if respirators are not required at your facility, if one individual wears a respirator when working, then a Respiratory Protection Plan (RPP) must be written and implemented.
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## 5. Management Practices

# Vessel Maintenance / Repair Activities

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### Success Stories!

**Boat Maintenance Facilities.** While it is encouraged that boat maintenance activities occur away from the water as much as possible, at some of the NPS's largest marinas at Lake Mead National Recreation Area, this is just not practical. To minimize the risk of any kind of release at the full service, floating boat maintenance facility, the entire shop area is provided with metal, leak-proof decking designed with a lip along all the edges to prevent anything from entering the water.

**Limiting Boat Maintenance.** At Crater Lake National Park in Oregon, the concessioner discontinued the use of the unique Mosquito Island boat maintenance facility. Due to the steep crater walls, the island had offered one of the only available locations for such activities on the lake. However, the potential for impact to the clearest water in the world was enough to make it the most sensible thing to do.

### Check Out Other Clean Marina Management Practices

- ✓ Stormwater Runoff
- ✓ Hazardous Materials and Waste
- ✓ Solid Waste Management and Recycling



## 5. Management Practices

# Water Conservation

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Excess use of water, through high demand or overuse, can be detrimental to the quality of water in your area. Overwatering plants or landscapes can carry materials such as sediments, dirt, or debris into local waters. Excessive uses of water can also become costly for your marina.

Many NPS marina concessioners are situated in arid areas or locations that are experiencing significant drought. As a result, these areas are facing falling water levels which makes water conservation that much more critical.

As an added benefit to the marina and the environment, water conservation often leads to other forms of environmentally friendly practices, such as Energy Conservation. Less water usage means less pumping, less water to be heated and less energy used to pump or heat.

### Help Your Marina!

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Federal Authorities	Requirements
<b>EO 13423 – Strengthening Federal Environmental, Energy, and Transportation Management</b>	<ul style="list-style-type: none"> <li>★ This EO requires federal agencies to reduce water consumption intensity 16% by 2015, compared to a FY 2007 baseline.</li> <li>★ The DOI and NPS will issue guidance on how this EO applies to concessioners (per Section 3f of the EO).</li> </ul>
<b>Energy Policy Act of 2005 (EPACT) [Public Law 109-58]</b>	<ul style="list-style-type: none"> <li>★ EPACT includes provisions for federal agencies to retain savings achieved through energy and water savings. Reference the law to determine if a specific reduction in water usage is required.</li> </ul>
State/Local Authorities	Requirements
<b>Specific state/local regulations may apply.</b>	<ul style="list-style-type: none"> <li>★ Some localities may institute water-conserving requirements, especially during periods of drought. Check with your state and local government office for state-specific and local requirements.</li> </ul>

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## 5. Management Practices

# Water Conservation

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### NPS Policy/Guideline Requirements

<b>2006 Management Policies, Section 9.1.5.1, 10.2.2</b>	<ul style="list-style-type: none"> <li>★ NPS Management Policies promote water efficient system design.</li> <li>★ Concession operations should incorporate sustainable practices (e.g., water efficiency).</li> </ul>
<b>Improvements and Upgrades</b>	<ul style="list-style-type: none"> <li>★ Capital improvements and contract issues may arise with significant improvements and upgrades necessary for water conservation. Coordinate with the Park to prioritize and determine the best actions for the marina.</li> </ul>
<b>Concessions Contract / Operating and Maintenance Plan</b>	<ul style="list-style-type: none"> <li>★ NPS concessioners may be subject to additional requirements related to this topic. These requirements may be specified in the Concession Contract and associated Operating and Maintenance Plan.</li> </ul>

### Above and Beyond Best Management Practices

<b>Conserve water even if not required by law or regulation.</b>	<ul style="list-style-type: none"> <li>★ Equip all freshwater hoses with automatic shutoff nozzles.</li> <li>★ Fix leaks and drips immediately.</li> <li>★ Use graywater recycling systems for non-potable water applications.</li> <li>★ Install “low-flow” faucets, toilets, and showerheads or waterless urinals and composting toilets.</li> <li>★ Encourage maintenance personnel to broom sweep driveways and walkways rather than using a hose. If a hose must be used, use a high-pressure nozzle with a shut off valve.</li> </ul>
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## 5. Management Practices

# Water Conservation

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### **Practice Water-Wise Landscaping.**

- ★ Save on water bills, reduce your maintenance activities, and protect water quality by minimizing your water use.
  - ★ Water only when plants indicate that they are thirsty: shrubs will wilt and grass will lie flat and show footprints. Water in the early morning or early evening, when temperatures are lower. Plants will not be shocked, and water loss to evaporation will be minimized.
  - ★ Select plants that are suited to existing conditions of soil, moisture, and sunlight so that they will require little care in terms of water, fertilizer, and pesticides.
  - ★ Water deeply and infrequently rather than lightly and often. Deep watering promotes a stronger root system, which enables plants to draw on subsurface water during hot spells and droughts.
  - ★ Use graywater for irrigation.
  - ★ Select equipment that delivers water prudently. Sprinklers work well for lawns. Soaker hoses or drip irrigation systems deliver water directly to the roots of shrubs and flowers with minimal loss to evaporation.
  - ★ Place mulch (e.g., wood chips, bark, grass clippings, nut shells) to a depth of 3-4 inches around plants to reduce evaporation of water in soil, prevent weed growth, and reduce the amount of sediment picked up by stormwater. Planting ground cover at the base of trees serves the same function.
  - ★ Group plants with similar water needs together. This practice will ease your maintenance burden, conserve water, and benefit the plants.
  - ★ Replace some lawn areas with wildflowers, groundcover, shrubs, and trees.
-

## 5. Management Practices

# Water Conservation

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### Identify reduction opportunities and track water conservation.

- ★ Conduct a water usage audit with help from your NPS Regional Energy Coordinator.
  - ★ Use WATERGY, a computer spreadsheet program developed by the Federal Energy Management Program. It can be used to model water conservation and associated energy savings for a park. To download WATERGY, go to <http://www.eere.energy.gov/femp/information/download/watergy.cfm>
  - ★ Month-to-month tracking and recordkeeping provides the level of information necessary to identify performance levels based on seasonal variation and occupant loads.
  - ★ Create a list of water conservation goals and objectives for the marina. Incorporate this as part of the concessioner's EMP and use it to measure the marina's performance.
- 

### Success Stories!

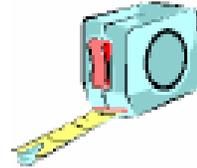
**Water Conservation.** At a marina on Lake Powell, lake water was pumped and used to wash down boats rather than using precious potable fresh water. Conservation of water is particularly important at such desert marinas.

### Check Out Other Clean Marina Management Practices

- ✓ Energy Use

## 6. Measuring Your Performance

**In order to determine the success of your Clean Marina practices, you must be able to track your progress. As explained in the Elements of a Clean Marina Program chapter, you have now established goals and targets that you can measure to determine how well you are accomplishing your policy. So how will you measure the success of BMP implementation at your facility? The following sections will give guidelines and suggestions on determining the success of your program.**



### 6.1 Defining Measurements

A start to successfully measuring the environmental performance results from operations of your facility is establishing a simple monitoring program. The key is to determine which operational factors at your facility have the most impact, and how can they best be measured. Another key to successful monitoring is the combination of process and outcome measures. Outcome measures look at results of an operation, e.g. the amount of waste generated or the number of fuel spills. Process measures look at ‘upstream’ factors, e.g. the amount of paint used per unit of product or the number of employees trained on a topic.

Most important, monitoring and measuring should be completed frequently, and the data and results should be recorded, maintained, compared to prior data, and communicated to top management.

The first step is data collection relevant to your facility’s policy and goals and an understanding of the needs of your facility. Many facilities already have an EMP in place, so some form of monitoring is most likely already

occurring. This is addressed in the Standard Concession Contract which reads (and has been broken down into parts for the purpose of this *Program*), “(ix) Monitoring, Measurement, and Corrective Action. The EMP shall:

- Describe how the Concessioner will comply with the EMP and how the Concessioner will self-assess its performance under the EMP, at least annually, in a manner consistent with NPS protocol regarding audit of NPS operations.
- The self-assessment should ensure the Concessioner's conformance with the Environmental Management Objectives and measure performance against environmental goals and targets.
- Describe procedures to be taken by the Concessioner to correct any deficiencies identified by the self-assessment.”

The measurement activities needed to determine the progress of the BMPs adopted to transform your facility into a Clean Marina are part of this

## 6. Measuring Your Performance

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Environmental Management Plan (EMP) monitoring and measurement process. Current auditing programs are already in place for NPS facilities. These programs include the NPS Environmental Audit Programs (EAP) for Parks, the NPSCP environmental audits for concessioners, and the concession evaluation process. Certain monitoring requirements are also required as part of park and concessioner Safety Programs. Additional information on these programs can be found at: <http://concessions.nps.gov/program31.cfm>

In addition to monitoring and measurement for the EMP, the NPSCP environmental audits and evaluations,

there are various monitoring requirements mandated by certain regulations that may be applicable. Such examples include SPCC fuel system inspections, storm water outfall inspections, hazardous waste storage area inspections, and others.

These programs—the EMP, the NPCP environmental audits, and this Program—are designed to help the marina or park facility become aware of management requirements and the appropriate compliance issues required for proper management of the facility.

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### 6.2 Measuring Participation of Stakeholders

In determining your policy, you solicited the opinions of stakeholders. By doing this, you involved them, encouraging them to follow your Clean Marina policy. In review, stakeholders are the people and groups directly or indirectly involved in your marina. Stakeholders might include:

- NPS (if you are a concessioner)
- Environmental advocacy groups
- Businesses directly or indirectly affected by natural resources
- National professional organizations
- Contractors
- Private landowners
- Visitors

Measuring the participation of stakeholders might not be as quantitative as some of the cost-benefit analysis performed to determine the success of other BMPs, such as waste reduction or the use of vacuum sanders; however, it is necessary to determine the involvement and satisfaction of your public because

satisfied stakeholders could potentially make or break the successful implementation of BMPs at your facility.

Some questions to consider when thinking about the participation of your stakeholders include:

- Do you communicate with your customers/visitors to assess their needs and satisfaction regarding the environmental impact of the products and services you provide? How? Questionnaires, suggestion boards/boxes, meetings?
- Do your customers understand the BMPs you are implementing and why?
- Do you and your suppliers, contractors, and vendors have open communication regarding their performance and compliance with BMPs at your facility? Do you involve them in the development and improvement of the products, services, and processes they bring to your facility?

## 6. Measuring Your Performance

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- How successfully do you work with oversight agencies to manage compliance? Do you work with objective auditors who help you attain continual improvement?
- Do you publicize your successes to gain the support of interested parties?

If you answer no to any of these, you may want to re-evaluate your efforts. In order to gain their understanding and

support, it is essential to involve all interested parties. By measuring their involvement in your facility, and interest in your policy and goals, you can make them allies in decreasing your facility's environmental impacts and improving your surroundings.



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### 6.3 Measuring Changes in Operation Activities

As explained in Chapter 4, operational activities can result in potentially detrimental environmental impacts. When you developed your Clean Marina Program, you probably identified the need to change certain operational activities and to institute specific BMPs to achieve a reduced impact to the surrounding environment. ***But how can the impact of changes in operational activities be measured?*** How you measure change will vary, and can be quite simple; however, it is important that the measurements are taken regularly, that the data are reliable and meaningful, and that appropriate changes are made when results come up short of expectations. The following pages will provide check sheets of questions to aid in measuring the BMPs suggested in Chapter 5.

Section 6.1 touches upon available tools for measuring performance, such as NPS EAP and NPSCP Envirocheck Sheets and the Concession Program Operational/ Contract Compliance Evaluation Criteria/ Standards. These can be used for measuring changes in operation activities. As recommended in Chapter 5, consult the concessions contract requirements to identify concession-specific requirements that might be in addition or even contrary to those suggestions included in the Program Checklist.

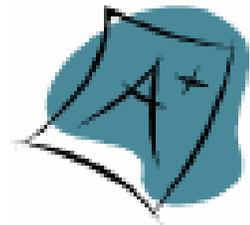
It is important to note that the measurement tools that follow are not comprehensive, but rather provide some key ideas for checking and tracking improvements in each area for the different activities at your marina. Other tools that could be used include the NPS EAP and NPSCP EnviroCheck sheets.





## Education and Training

- Do I have training sessions? How often? \_\_\_\_\_
  
- What is my attendance like? Employees \_\_\_\_\_  
Boaters \_\_\_\_\_  
Contractors \_\_\_\_\_
  
- Do I give out newsletters, fact sheets or updates concerning new compliance requirements used here at the marina? Do I do this with BMPs?  
\_\_\_\_\_
  
- Do I highlight and commend boaters, employees and contractors who follow policy with their 'clean' measures?  
\_\_\_\_\_
  
- Do I communicate with boaters, employees and contractors so that I can incorporate their ideas on improving the marina?  
\_\_\_\_\_
  
- Do employees, boaters, and contractors comply with our environmental policy and the BMPs we have in place?  
\_\_\_\_\_
  
- Do boaters use the 'cleaner' services you provide or have they learned 'cleaner' practices from you?  
\_\_\_\_\_





## Emergency Planning

- What emergency plans have been written? \_\_\_\_\_  
\_\_\_\_\_
  
- How many people are trained on these plans?  
Employees \_\_\_\_\_  
Boaters \_\_\_\_\_  
Contractors \_\_\_\_\_
  
- How much oil response equipment is at our facility? How many booms? What kind of PPE? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
  
- Can trained and authorized people reach oil response equipment in case of an emergency?  
\_\_\_\_\_  
\_\_\_\_\_
  
- Have there been fewer spill incidents?  
How many spills were there last year? \_\_\_\_\_  
How many spills were there this year? \_\_\_\_\_
  
- Do I have all the Material Safety Data Sheets necessary for the materials at my marina? \_\_\_\_\_  
\_\_\_\_\_
  
- Are people aware of fire safety precautions at your facility? \_\_\_\_\_
  
- Are all smoke detectors in working order? \_\_\_\_\_
  
- Does your facility have a sufficient number of fire extinguishers? Are they properly functioning? \_\_\_\_\_





## Energy Use

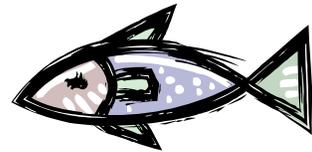
- What kind of light bulbs am I using? \_\_\_\_\_  
\_\_\_\_\_
- Have I been able to use more natural light? \_\_\_\_\_  
\_\_\_\_\_
- What was my electric bill last year? \_\_\_\_\_  
What is my electric bill this year? \_\_\_\_\_  
Has the electric bill decreased? \_\_\_\_\_
- How many vending machines are in use at my facility? \_\_\_\_  
Are lights used in the vending machines? \_\_\_\_\_
- Have I used more localized heating? \_\_\_\_\_  
What was my heating bill last year? \_\_\_\_\_  
What was my heating bill this year? \_\_\_\_\_  
Has the heating bill decreased? \_\_\_\_\_
- Are boaters more conscientious of their power connections? \_\_\_\_\_  
\_\_\_\_\_
- Have you been able to use alternate power systems – solar panels, wind turbines or a PV hybrid power system? \_\_\_\_\_  
\_\_\_\_\_
- What was your total energy cost this year? \_\_\_\_\_  
What was your total energy cost last year? \_\_\_\_\_  
Has your total energy cost decreased? \_\_\_\_\_





## Fish Waste

- Have you established fish cleaning areas? \_\_\_\_\_  
\_\_\_\_\_
- Do you compost fish waste or recycle it? \_\_\_\_\_  
\_\_\_\_\_
- Is your facility cleaner due to better fish cleaning processes? \_\_\_\_\_  
\_\_\_\_\_





## Hazardous Materials and Wastes

- Have you established an inventory system for the hazardous materials at your facility?  
\_\_\_\_\_  
\_\_\_\_\_
- Have you tried to reduce hazardous materials and waste storage?  
\_\_\_\_\_  
\_\_\_\_\_
- Do you have sufficient waste storage for the hazardous materials at your facility? \_\_\_\_\_  
\_\_\_\_\_
- Are hazardous materials kept in containers in an enclosed area with berms or impoundments? \_\_\_\_\_  
\_\_\_\_\_
- Has your facility experienced any hazardous waste accidents?  
\_\_\_\_\_  
\_\_\_\_\_
- Is your Hazard Communication Plan complete, up-to-date, and fully implemented?  
\_\_\_\_\_  
\_\_\_\_\_





## Mold Management

- Is water damage repaired quickly? \_\_\_\_\_
  - How often is your HVAC system checked to be in proper working condition? \_\_\_\_\_  
\_\_\_\_\_
- 
-



## Painting

- Have you used more water-based, non-toxic paint? \_\_\_\_\_  
\_\_\_\_\_
- Is boat maintenance done out of the water? \_\_\_\_\_  
\_\_\_\_\_
- Are drop cloths used during maintenance? \_\_\_\_\_  
\_\_\_\_\_
- Are boats stored out of the water in the off-season? \_\_\_\_\_  
\_\_\_\_\_
- Have you purchased HVLP or HELP spray guns to reduce overspray? \_\_\_\_\_  
\_\_\_\_\_
- Have solvent costs decreased as a result of using smaller amounts? \_\_\_\_\_  
\_\_\_\_\_
- Is less money spent on solvent storage and/or disposal? \_\_\_\_\_  
\_\_\_\_\_





## Recycling

What materials did you recycle last year? \_\_\_\_\_

What materials did you recycle this year? \_\_\_\_\_

Have you recycled more types of materials? \_\_\_\_\_

Have you recycled a greater amount of materials? \_\_\_\_\_

If you do not have recycling at your facility, have you located a recycling center for your materials? \_\_\_\_\_

Do you have well-maintained containers for the recyclables generated at your facility? How many containers do you have? \_\_\_\_\_

How much oil and antifreeze was recycled last year? \_\_\_\_\_

How much oil and antifreeze was recycled this year? \_\_\_\_\_

Have you experienced spill problems due to liquid recycling? If so, are boaters and employees properly educated concerning liquid recycling? \_\_\_\_\_





## Sediment and Erosion Control

- What kind of impervious surfaces are present at your facility? \_\_\_\_\_

What kind of vegetated areas are present at your facility?

\_\_\_\_\_

Have you considered alternates to impervious surfaces?

\_\_\_\_\_

Have you replaced any impervious surfaces with alternates or vegetation? \_\_\_\_\_

\_\_\_\_\_

- How often are the erosion and sedimentation trapping measures maintained? \_\_\_\_\_

\_\_\_\_\_

- How 'healthy' is your shoreline? \_\_\_\_\_

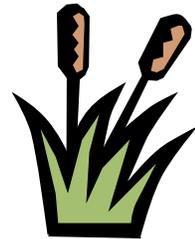
\_\_\_\_\_

Is it free of clutter? \_\_\_\_\_

\_\_\_\_\_

Is it vegetated for natural erosion control? \_\_\_\_\_

\_\_\_\_\_





## Sensitive Areas

- What are pilings and similar structures constructed from?

Are the materials non-degradable? \_\_\_\_\_

- Have you performed a lot of maintenance work to pilings?

Did you use BMPs similar to vessel BMPs to limit in-water work and the use of toxic paint? \_\_\_\_\_

- What kind of pest management measures have been used?

How much/what kinds of pesticides did you use last year? \_\_\_\_\_

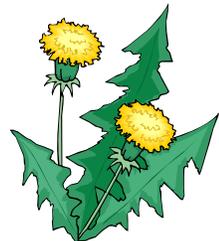
How much/what kinds of pesticides did you use this year? \_\_\_\_\_

Are you using fewer pesticides with less toxicity? \_\_\_\_\_

- What kinds of plants are at your facility? \_\_\_\_\_

- Do you have weed problems? \_\_\_\_\_

- Are plantings native and appropriate to the local environment?





## Sewage Control

- Does the facility have a pumpout system? \_\_\_\_\_
- How often is it used? \_\_\_\_\_
- Is it easily accessible to boaters? \_\_\_\_\_  
\_\_\_\_\_
- Do employees or boaters operate the pumpout system?  
\_\_\_\_\_
- Have there been any spill incidents? \_\_\_\_\_  
If so, is better training needed? \_\_\_\_\_  
\_\_\_\_\_
- What is the fee for the pumpout service? \_\_\_\_\_
- How much profit did the pumpout service yield once  
installed? \_\_\_\_\_  
How much has it cost the facility? \_\_\_\_\_
- How often is the pumpout facility inspected? \_\_\_\_\_
- Who is the contractor to call in case of malfunction? \_\_\_\_\_  
\_\_\_\_\_
- Are customers satisfied by the pumpout system? \_\_\_\_\_  
\_\_\_\_\_
- Does the water quality appear to have improved since the  
installation of your pumpout system? \_\_\_\_\_  
\_\_\_\_\_





## Spill Prevention

- Do all storage tanks have shutoff valves? \_\_\_\_\_  
\_\_\_\_\_
- Is the fuel dock located in a calm area with little wake activity? \_\_\_\_\_  
\_\_\_\_\_
- Is there a separate stable fuel dock for PWC? \_\_\_\_\_  
\_\_\_\_\_
- How often is fuel transfer equipment inspected? \_\_\_\_\_  
\_\_\_\_\_
- Are oil-absorbent materials maintained at the fuel dock?  
\_\_\_\_\_
- Do employees or boaters fuel the boats? \_\_\_\_\_  
How many spill incidents have occurred? \_\_\_\_\_  
Do employees or boaters need more education or training concerning fueling? \_\_\_\_\_  
\_\_\_\_\_
- Do boaters follow proper instructions during fueling? – Getting off their boat, stopping the engine, inspecting bilge after fueling, etc. \_\_\_\_\_  
\_\_\_\_\_
- Do boaters perform spill-proof oil changes? \_\_\_\_\_  
\_\_\_\_\_
- Are drip pans located at the fuel dock as well as beneath machinery? \_\_\_\_\_  
\_\_\_\_\_
- Does the water quality appear to have improved since the implementation of these BMPs? \_\_\_\_\_  
\_\_\_\_\_

- If the facility is subject to SPCC Planning, is the plan current and fully implemented?**

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## Vessel Maintenance / Repair Activities

- Where does boat repair and maintenance take place? \_\_\_\_\_  
\_\_\_\_\_
- Is maintenance and repair performed on impervious surfaces? \_\_\_\_\_  
\_\_\_\_\_
- Is the maintenance area subject to rainfall causing stormwater runoff?  
\_\_\_\_\_  
\_\_\_\_\_
- Does the repair area have good signage for visitors/boaters to indicate the work taking place? \_\_\_\_\_  
\_\_\_\_\_
- Does your facility use vacuum sanders and grinders? Are boaters required to use them? \_\_\_\_\_  
\_\_\_\_\_
- Can boats be serviced more quickly and efficiently so that marina productivity has increased? \_\_\_\_\_
- How is blasting debris contained? \_\_\_\_\_  
\_\_\_\_\_
- Is pressure-washing water reused? \_\_\_\_\_  
What was your water bill last year? \_\_\_\_\_  
What is your water bill this year? \_\_\_\_\_  
Has water recycling decreased your water bill? \_\_\_\_\_
- If applicable, is the Stormwater Pollution Prevention Plan up-to-date? Is it fully implemented including specified BMPs and stormwater monitoring? \_\_\_\_\_





## Waste Containment and Control

- What was your waste collection cost last year? \_\_\_\_\_  
What is your waste collection cost this year? \_\_\_\_\_
  
- Are boaters more conscientious about keep all trash in well-marked receptacles? \_\_\_\_\_  
\_\_\_\_\_
  
- How healthy is your shoreline? Is it free of trash and well maintained with plant life? \_\_\_\_\_  
\_\_\_\_\_





## Water Conservation

- Do all hoses have shutoff nozzles? \_\_\_\_\_
- How often are sinks, toilets and other plumbing facilities maintained? \_\_\_\_\_  
\_\_\_\_\_
- Are bathroom fixtures low-flow? \_\_\_\_\_  
\_\_\_\_\_
- Have you used more water-wise landscaping? – watering during cooler temperatures, using graywater for irrigation, etc. \_\_\_\_\_  
\_\_\_\_\_
- Has your water bill decreased since using conservation methods? \_\_\_\_\_  
\_\_\_\_\_





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- Swiss Agency for the Environment, Forests, and Landscapes. *Life Cycle Assessments*. <From the website: [www.umwelt-schweiz.ch/buwal.eng/fachgebiete/fg\\_produkte/umsetzung/oekobilanzen](http://www.umwelt-schweiz.ch/buwal.eng/fachgebiete/fg_produkte/umsetzung/oekobilanzen)>
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<http://www.epa.gov/rivers/98rivers/potomac.html> >
- United States Environmental Protection Agency. *Life Cycle Assessment – LCAccess*. <From the website: [www.epa.gov/ORD/NRMRL/lcaccess/index.htm](http://www.epa.gov/ORD/NRMRL/lcaccess/index.htm)>
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[www.epa.gov/iaq/molds/moldresources.html](http://www.epa.gov/iaq/molds/moldresources.html)>

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United States Fish and Wildlife Service. "*Creating Landscape Diversity*," *A Homeowner's Guide*. Annapolis, Maryland: US Fish and Wildlife Service Chesapeake Bay Field Office and Alliance for the Chesapeake Bay.

United States Fish and Wildlife Service. "*Integrated Pest Management*," *A Homeowner's Guide*. Annapolis, Maryland: US Fish and Wildlife Service Chesapeake Bay Field Office and Alliance for the Chesapeake Bay.

United States Fish and Wildlife Service. "*Using Beneficial Plants*," *A Homeowner's Guide*. Annapolis, Maryland: US Fish and Wildlife Service Chesapeake Bay Field Office and Alliance for the Chesapeake Bay.

United States Green Building Council. *Leadership in Energy and Environmental Design*. <From the website: [www.usgb.org/LEED/LEED\\_main.asp](http://www.usgb.org/LEED/LEED_main.asp)

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Wortley, C.A. 1998. Safety aspects for marina design. Proceedings of MARINAS 5 Marina Design and Management, Haven Marina Systems, P.O. Box 27, Gordon NSW 2072, Australia, 16 pp.

Wortley, C.A. 2002. Docks and Marinas 2002, University Education and Training for the Marine Industry, October 23-25,2002. University of Wisconsin-Madison.

# **A Informational Sources**

## A. Informational Sources

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### **Alliance for the Chesapeake Bay**

6600 York Road, Suite 100

Baltimore, MD 21212

Tel (410) 377-6270

(800) 662-CRIS

Fax (410) 377-7144

< <http://www.acb-online.org/> >

### **American Boat and Yacht Council**

3069 Solomons Island Road

Edgewater, MD 21037

Tel (410) 956-1050

Fax (410) 956-2737

- Information about holding tank retrofits and vessel standards

< <http://www.abycinc.org/index.cfm> >

### **BayScapes information**

Tel (410) 573-4593

- Information including a list of beneficial plants

<<http://www.acb-online.org/project.cfm?vid=85>>

### **Boat/U.S. Clean Water Trust**

880 S. Picket Street

Alexandria, VA 22304

Tel (703) 823-9550

Fax (703) 461-2855

- Clean boating educational materials

< <http://www.boatus.com/> >

### **Center for Marine Conservation**

1725 DeSales Street, NW, Suite 600

Washington, DC 20036

Tel (202) 429-5609

Fax (202) 872-0619

- Marine debris educational material
- Storm drain stenciling information and materials
- Information about the annual international coastal cleanup

< <http://www.cmc-ocean.org/> >

### **Chesapeake Bay Foundation**

Philip Merrill Environmental Center

6 Herndon Avenue

Annapolis, MD 21403

Tel (301) 261-2350

< <http://www.cbf.org/> >

### **Clean Vessel Act Pumpout Program**

U.S. Fish and Wildlife Service

Division of Federal Aid

Arlington Square, Room 140

4401 N. Fairfax Drive

Arlington, VA 22203

Tel (703) 358-2156

Fax (703) 358-1837

- Clean Vessel Act Information
- Explanation of grant programs

< <http://federaid.fws.gov/cva/cva.html> >

### **NPS Concession Program – Contract Management Team**

12795 W. Alameda Parkway

Lakewood, CO 80228

*GreenLine* Tel 303/987-6913

*GreenLine* Email NPS\_GreenLine@nps.gov

<[www.concessions.nps.gov](http://www.concessions.nps.gov)>

### **Cooperative Extension Service**

University of Maryland

Home and Garden Information Center

12005 Homewood Road

Ellicott City, MD 21042

Tel (410) 531-1757

- Soil test kits
- Information and advice about environmentally responsible landscaping, composting, and Integrated Pest Management

< <http://www.hgic.umd.edu/> >

### **Emergency Management Systems**

Jim Horne, U.S. EPA

Tel (202) 260-5802

Faith Leavitt, Global Environment and Technology Foundation

Tel (703) 750-6401

< <http://www.epa.gov/ems/index.htm> >

## A. Informational Sources

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### U.S. Green Building Council

1015 18<sup>th</sup> Street, NW, Suite 805  
Washington, DC 20036  
Tel (202) 82-USGBC or 828-7422  
Fax (202) 828-5110  
Email [info@usgbc.org](mailto:info@usgbc.org)

- Products and materials, policy guidance, and educational and marketing tools for sustainable buildings

< <http://www.usgbc.org/default.asp> >

### Gray Water Irrigation Guide

- Definitions and links about Gray Water  
<<http://www.nmenv.state.nm.us/OOTS/GRAY%20WATER%20IRRIGATION%20GUIDE1.pdf>>

### Humane Society of the United States

2100 L Street, NW  
Washington, DC 20037  
Tel (202) 452-1100

- Animal Information Center provides information about wildlife and marine animals near your marina

< <http://www.hsus.org/ace/352> >

### International Marina Institute (IMI)

P.O. Box 1202  
Nokomis, FL 34274

- Copies of *Practices and Products for Clean Marinas*

< <http://www.imimarina.org/> >

### Interstate Commission on the Potomac River Basin

6110 Executive Boulevard, Suite 300  
Rockville, Maryland 20852-3903

- Information on water quality and living resources of the Potomac River

<<http://www.potomacriver.org/index.htm>>

### Marine Environmental Education Foundation

1819 L Street NW  
Washington, DC 20003  
Tel (877) 892-0011  
Fax (401) 247-0074

Email [meef@meef.org](mailto:meef@meef.org)  
< <http://www.meef.org> >

### National Clean Boating Campaign

Dave Staudt, 2002-03 Campaign Chairman  
22438 Woodward Avenue  
Ferndale, MI 48220  
Tel (877) 892-0011  
Fax (248) 474-6659

Email [david@davidstaudt.com](mailto:david@davidstaudt.com)  
< [www.cleanboating.org](http://www.cleanboating.org) >

### Minnesota Sea Grant College Program

University of Minnesota  
2305 East Fifth Street  
208 Washburn Hall  
Duluth, Minnesota 55812  
Tel (218) 726-8106  
Fax (218) 726-6556

Email [seagr@d.umn.edu](mailto:seagr@d.umn.edu)

- Copy of *Composting Fish Waste* by Thomas Halbach and Dale Baker (\$8)

< <http://www.seagrant.umn.edu/> >

### National Arboretum

Education Department  
3501 New York Ave., NE  
Washington, DC 20002  
Tel (202) 245-2726  
Fax (202) 245-4575

<<http://www.ars-grin.gov/ars/Beltsville/na/>>

### National Park Service

< <http://www.nps.gov/> >

### National Fire Protection Association

1 Batterymarch Park  
PO Box 9101  
Quincy, MA 02269-9101  
Toll-free (800) 344-3555

- Copies of NFPA standards

## A. Informational Sources

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- Copies may be available from your local fire marshal

< <http://www.nfpa.org/> >

### **Permanent International Association of Navigation Congresses (PIANC)**

Graaf de Ferraris Building, 11th Floor  
Boulevard du Roi Albert II, 20 - Box 3  
B-1000 Brussels, BELGIUM

< <http://www.pianc-aipcn.org/> >

### **Save Our Shores**

2222 East Cliff Drive, #5A  
Santa Cruz, CA 95062

Tel (831) 462-5660

Fax (831) 462-6070

Email [info@saveourshores.org](mailto:info@saveourshores.org)

- Marine conservation and activities

< <http://www.saveourshores.org/> >

### **Simple Ways to Save the Bay**

- Environmentally friendly products
- How to handle Hazardous Waste
- Techniques to limit Soil Erosion
- Oil Recycling

<[http://www.cbf.org/site/PageServer?pagename=action\\_simple\\_ways\\_index](http://www.cbf.org/site/PageServer?pagename=action_simple_ways_index)>

### **States Organization for Boating Access**

P.O. Box 25655

Washington, DC 20027

- *Design Handbook for Recreational Boating and Fishing Facilities*
- *Operations and Maintenance Program Guidelines for Recreational Boating Facilities*

< <http://www.sobaus.org/> >

### **United States Army Corps of Engineers**

Headquarters ATTN: CECG

20 Massachusetts Avenue, NW

Washington, DC 20314-1000

Tel (202) 761-0660

< <http://www.usace.army.mil/> >

### **United States Coast Guard Headquarters**

Commandant, U.S. Coast Guard

2100 Second Street, SW

Washington, DC 20593

General Information

Tel (202) 267-2229

Toll-free (800) 368-5647

- Copies of *Federal Requirements and Safety Tips for Recreational Boats*
- Copies of *Managing Waste at Recreational Boating Facilities*

< <http://www.uscg.mil/> >

### **United States Coast Guard**

#### **National Response Center**

Toll-free (800) 424-8802

- Oil spill response

< <http://www.nrc.uscg.mil/index.htm> >

### **United States Department of Agriculture**

- License for tributyl tin paints

< <http://www.usda.gov/> >

### **United States Department of the Interior**

< <http://www.doi.gov/> >

### **United States Department of Commerce**

#### **Technology Administration**

#### **National Technical Information Service**

Toll-free (800) 553-6847

- *Stormwater Management for Industrial Activities: Developing Pollution Prevention Plans and Best Management Practices*

- EPA-published summary document on the same subject

< <http://www.ntis.gov/> >

### **United States Environmental Protection Agency**

< [www.epa.gov](http://www.epa.gov) >

- Information about federal laws and regulations and EPA programs

### **Design for the Environment**

- Green Chemistry Building Program
- Green Engineering Program

## A. Informational Sources

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< <http://www.epa.gov/dfe/> >

### EPA Hotlines

- An extensive listing of all EPA hotlines  
<<http://www.epa.gov/epahome/hotline.htm>>

### EPA Regional Offices

- Determine your Region  
<<http://www.epa.gov/epahome/whereyoulive.htm#regiontext>>

### EPA RCRA, Superfund & EPCRA Hotline Toll-free (800) 424-9346

< <http://www.epa.gov/epaoswer/hotline/> >

### Green Procurement

- Environmentally Preferable Purchasing  
<[www.epa.gov/opptintr/epp/](http://www.epa.gov/opptintr/epp/)>

### National Environmental Justice Advisory Council

- Information about environmental justice and grants  
<<http://www.epa.gov/compliance/environmentaljustice/index.html>>

### WasteWise Helpline

- Waste reduction activities  
Toll-free (800) EPA-WISE (372-9473)  
Fax (703) 308-8686  
Email [ww@cais.net](mailto:ww@cais.net)  
< <http://www.epa.gov/wastewise/> >

### Mold Resources

<<http://www.epa.gov/iaq/molds/moldresources.html>>

### Office of Wastewater Management

- Multi-Sector General Permit for Discharges from Marinas  
< <http://www.epa.gov/owm/index.htm> >

### Oil Spill Program

- Oil control laws and regulations  
< <http://www.epa.gov/oilspill/> >
- When to report oil spills

<<http://www.epa.gov/oilspill/oilwhen.htm>>

### Office of Wetlands, Oceans, and Watersheds

<[www.epa.gov/owow](http://www.epa.gov/owow)>

### Product Life Cycles

<<http://www.epa.gov/ORD/NRMRL/lcaccess/index.htm>>

### United States Fish and Wildlife Service

#### Administrative Office

Washington, DC

Tel (202) 208-4131

Fax (202) 208-7407

- Endangered/Threatened Species
- Federal endangered/threatened species
- Submit a USGS topographic quad with the proposed project site marked and a brief project description

< <http://www.fws.gov/> >

### National Sea Grant Program

#### National Oceanic and Atmospheric Administration

Email [Amy.Painter@noaa.gov](mailto:Amy.Painter@noaa.gov)

- Marine topics  
< [www.nsgo.seagrant.org](http://www.nsgo.seagrant.org) >

### Non-Point Source Pollution

#### Shawnee Co. Conservation District

3231 SW Van Buren

Topeka, KS 66611

Tel (785) 267-5721

Fax (785) 266-8293

Email [sccdistrict@sccdistrict.com](mailto:sccdistrict@sccdistrict.com)

<<http://www.cjnetworks.com/~sccdistrict/nps.htm>>

### Pollution Prevention Roundtable

11 Dupont Circle, NW Suite 201

Washington, DC 20036

Tel (202) 299-9701

Fax (202) 299-9704

< <http://www.p2.org/> >

## A. Informational Sources

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### **Sea Grant Extension (San Diego) Boating Pollution Prevention Section**

- Boating Pollution Prevention Tips  
<<http://commserv.ucdavis.edu/CESanDiego/seagrant/boating.htm>>

### **Stormwater Manager's Resource Management**

- Stormwater and urban watershed management database  
< <http://www.stormwatercenter.net/> >

### **Vessel Management System**

- Marine database program  
< <http://www.nobeltec.com/vms/soft.htm> >

**B** State  
Programs

## B. State Programs

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### Alabama

*Department of Environmental Management*  
<http://www.adem.state.al.us>

*Alabama Clean Marina Program*  
Randy Shaneyfelt  
Tel (251) 432-6533  
Email [rca@adem.state.al.us](mailto:rca@adem.state.al.us)

*Air Division*  
Tel (334) 271-7861  
Email [airmail@adem.state.al.us](mailto:airmail@adem.state.al.us)

*Water Division*  
Tel (334) 271-7823  
[H2omail@adem.state.al.us](mailto:H2omail@adem.state.al.us)

*Nonpoint Source Program*  
Tel (334) 394-4360  
Email [oeomail@adem.state.al.us](mailto:oeomail@adem.state.al.us)

*Pollution Prevention*  
Tel (334) 394-4360  
Email [oeomail@adem.state.al.us](mailto:oeomail@adem.state.al.us)

### Alaska

*Department of Environmental Conservation*  
<http://www.state.ak.us/dec/>

*Division of Water*  
Tel (907) 465-5180

*Spill Prevention and Response Division*  
Larry Dietrick  
Tel (907) 465-5250  
Email [Larry\\_Dietrick@dec.state.ak.us](mailto:Larry_Dietrick@dec.state.ak.us)

### Arizona

*Department of Environmental Quality*  
<http://www.ev.state.az.us>

*Air Quality*  
Cathy O'Connell  
Tel (602) 771-2301  
Email [o'connell.cathy@ev.state.az.us](mailto:o'connell.cathy@ev.state.az.us)

*Water Quality*  
Mike Traubert  
Toll-free (800) 234-5677  
Email [traubert.mike@ev.state.az.us](mailto:traubert.mike@ev.state.az.us)

*Waste Program*  
Peggy Guichard-Watters  
Toll-free (800) 234-5677  
Email [guichard-watters.peggy@ev.state.az.us](mailto:guichard-watters.peggy@ev.state.az.us)

*Pollution Prevention*  
Dale Anderson  
Tel (602) 771-4538  
Email [anderson.dale@ev.state.az.us](mailto:anderson.dale@ev.state.az.us)

### Arkansas

*Department of Environmental Quality*  
<http://www.adeq.state.ar.us/>

*Air Division*  
Keith Michaels  
Tel (501) 682-0730

*Water Division (Clean Lakes Program)*  
Martin Maner  
Tel (501) 682-0654

*Solid Waste Management Division*  
Steve Martin  
Tel (501) 682-0600

## B. State Programs

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### California

*California Clean Boating Network*

Miriam Gordon

Tel (415) 904-5214

Email [mgordon@coastal.ca.gov](mailto:mgordon@coastal.ca.gov)

<http://www.coastal.ca.gov/ccbn/ccbndx.html>

*Office of Spill Prevention and Response*

*Marine Safety Branch*

<http://www.dfg.ca.gov/ospr/organization/msb/msb.htm>

*Air Resources Board*

Toll-free (800) 242-4450

Email [helpline@arb.ca.gov](mailto:helpline@arb.ca.gov)

<http://www.arb.ca.gov/>

*Department of Water Resources*

Tel (916) 653-5791

<http://www.water.ca.gov/>

*Department of Toxic Substances Control*

Tel (916) 324 1826

<http://www.dtsc.ca.gov/>

*California Department of Boating and*

*Waterways*

[www.dbw.ca.gov](http://www.dbw.ca.gov)

### Colorado

*Department of Public Health and the Environment*

<http://www.cdphe.state.co.us/cdphehom.asp>

*Air Pollution Control Division*

Tel (303) 692-3100

Email [comments.apcd@state.co.us](mailto:comments.apcd@state.co.us)

*Water Quality Control Division*

Mark Pifher

Tel (303) 692-3500

Email [comments.wqcd@state.co.us](mailto:comments.wqcd@state.co.us)

### Connecticut

*Department of Environmental Protection*

<http://dep.state.ct.us/>

*Connecticut Clean Marina Program*

Elke Sutt

Tel (860) 424-3034

Email [elke.sutt@po.state.ct.us](mailto:elke.sutt@po.state.ct.us)

*Bureau of Air Management*

Tel (860) 424-3026

*Bureau of Water Management*

Tel (860) 424-3704

*Bureau of Waste Management*

Tel (860) 424-3022

### District of Columbia

*Department of Health*

<http://dchealth.dc.gov/index.asp>

*Environmental Health Administration*

*Watershed Protection Division*

Joanne Goodwin

Tel (202) 724-5349

Email [joanne.goodwin@dc.gov](mailto:joanne.goodwin@dc.gov)

### Delaware

*Delaware Clean Marina Program*

Dave Chapman

Tel (302) 645-4268

Email [dchapman@udel.edu](mailto:dchapman@udel.edu)

<http://www.dnrec.state.de.us/dnrec2000/Divisions/Soil/dcmp/ipcleanmarina.htm>

*Air Quality Management*

Tel (302) 739-4791

Email [Susan.Baker@state.de.us](mailto:Susan.Baker@state.de.us)

*Coastal Zone Program*

Tel (302) 739-4411

*Nonpoint Source Program*

Tel (302) 739-8014

*Watershed Assessment*

Tel (302) 739-4590

## B. State Programs

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### Florida

*Department of Environmental Protection*

*Division of Law Enforcement -*

*Clean Marina Program*

Jan DeLaney

Tel (850) 245-2847

Email [Jan.DeLaney@dep.state.fl.us](mailto:Jan.DeLaney@dep.state.fl.us)

<http://www.dep.state.fl.us/law/Grants/CM/MP/default.htm>

*Division of Air Resource Management*

Central (407) 894-7555

Northeast (904) 807-3300

Northwest (850) 595-8300

South (239) 332-6975

Southeast (561) 681-6600

Southwest (813) 744-6100

*Waste Management*

Tel (850) 245-8705

*Water Resource Management*

Tel (850) 245-8335

### Georgia

*Department of Natural Resources*

Tel (404) 656-3500

<http://www.gadnr.org/>

*Georgia Clean Marina Program*

Paul Christian

Tel (912) 264-7268

Email [pchristi@uga.edu](mailto:pchristi@uga.edu)

<http://www.uga.edu/cleanmarina/>

### Hawaii

*Department of Land and Natural Resources*

<http://www.hawaii.gov/dlnr/>

*Division of Boating and Ocean Recreation*

Tel (808) 587-1966

*Division of Aquatic Resources*

Tel (808) 587-0100

Email [dlnr\\_aquatics@exec.state.hi.us](mailto:dlnr_aquatics@exec.state.hi.us)

### Idaho

*Department of Environmental Quality*

Tel (208) 373-0502

<http://www.deq.state.id.us/>

*Department of Water Resources*

Tel (208) 327-7900

<http://www.idwr.state.id.us/>

### Illinois

*Environmental Protection Agency*

<http://www.epa.state.il.us/>

### Indiana

*Department of Environmental Management*

<http://www.in.gov/idem/>

*Department of Natural Resources*

<http://www.in.gov/dnr/>

*Clean Marina Fact Sheet*

<http://www.in.gov/dnr/lakemich/pdf/factsheets/Clean%20Marinas.pdf>

### Iowa

*Department of Natural Resources*

<http://www.iowadnr.com/>

## B. State Programs

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### Louisiana

*Louisiana Clean Marina Program*  
Mike Liffmann  
Tel (225) 576-6290  
Email [mikelif@lsu.edu](mailto:mikelif@lsu.edu)  
[http://www.dnr.state.la.us/crm/coastmgmt/inter-agencyaff/nonpoint/pdf/Model\\_Marinas\\_Pub.pdf](http://www.dnr.state.la.us/crm/coastmgmt/inter-agencyaff/nonpoint/pdf/Model_Marinas_Pub.pdf)

### Maine

*Department of Environmental Protection*  
<http://www.maine.gov/dep/>

*Best Management Practices for Marinas and Boatyards*  
<http://www.state.me.us/dep/blwq/docwatershed/marina/bmp.htm>

### Maryland

*Department of Natural Resources*  
<http://www.dnr.state.md.us>

*Maryland Clean Marina Initiative*  
Donna Morrow  
Tel (410) 260-8773  
Fax (410) 260-8779  
Email <mailto:dmorrow@dnr.state.md.us>  
<http://www.dnr.state.md.us/boating/cleanmarina/>

### Massachusetts

*Massachusetts Marina Assistance Program*  
Robin Lacey  
Tel (617) 626-1220  
Email [robin.lacey@state.ma.us](mailto:robin.lacey@state.ma.us)  
<http://www.state.ma.us/czm/macleanmarineguide.htm>

### Michigan

*Department of Environmental Quality*  
Tel (517) 373-7660  
<http://www.michigan.gov/deq>

*Clean Marina Program*  
Jeff Spencer  
Tel (517) 241-5719

*Clean Marina Factsheet*  
<http://www.deq.state.mi.us/documents/deq-ead-p2-marina-marine.pdf>

*Michigan Sea Grant – Clean Marina Program Brochure*  
[http://www.miseagrant.org/pubs/up/dec03/clean\\_marinas.pdf](http://www.miseagrant.org/pubs/up/dec03/clean_marinas.pdf)

### Minnesota

*Department of Natural Resources*  
<http://www.dnr.state.mn.us/index.html>

### Mississippi

*Department of Environmental Quality*  
<http://www.deq.state.ms.us/MDEQ.nsf/>

### Missouri

*Department of Natural Resources*  
<http://www.dnr.state.mo.us/>

*Water Protection Division*  
Email [cleanwater@dnr.mo.gov](mailto:cleanwater@dnr.mo.gov)

### Nevada

*Department of Conservation and Natural Resources - Division of Environmental Protection*  
Tel (775) 687-4670  
<http://ndep.nv.gov/>

### New Hampshire

*Department of Environmental Services*  
Tel (603) 271-3503  
<http://www.des.state.nh.us/>

## B. State Programs

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### **New Jersey**

*New Jersey Clean Marina Program*  
Melissa Danko  
Tel (732) 206-1400  
Email [mdanko@mtanj.org](mailto:mdanko@mtanj.org)  
<http://www.visitmonmouth.com/area12/submanas-quan/reports/cleanmarina/cleanmarinabr-ochure.pdf>

### **New York**

*New York Clean Marina Program*  
Dave White  
Tel (315) 312-3042  
Email [dgw9@cornell.edu](mailto:dgw9@cornell.edu)

*Air Quality*  
Robert Warland  
Tel (518) 402-8452

*Water Quality*  
Sandra L. Allen  
Tel (518) 402-8233

### **North Carolina**

*North Carolina Clean Marina Program*  
Mike Lopazanski  
Tel (919) 733-2293  
Email [mike.lopezanski.ncmail.net](mailto:mike.lopezanski.ncmail.net)  
<http://dcm2.enr.state.nc.us/Marinas/clean.htm>

### **Ohio**

*Environmental Protection Agency*  
Tel (614) 644-3469  
<http://www.epa.state.oh.us/>

*Pollution Prevention for Marinas  
Factsheet*  
<http://www.epa.state.oh.us/opp/fact30.pdf>

### **Oregon**

*Department of Environmental Quality*  
<http://www.deq.state.or.us/>

*Water Quality Program*  
Chris Watson  
Tel (503) 229-6490  
Email [watson.christine.r@deq.state.or.us](mailto:watson.christine.r@deq.state.or.us)

### **Pennsylvania**

*Department of Conservation & Natural Resources*  
Tel (717) 787-2869  
<http://www.dcnr.state.pa.us/>

### **Rhode Island**

*Department of Environmental Management*  
Tel (401) 222-6800  
<http://www.state.ri.us/dem/>

### **South Carolina**

*Department of Natural Resources*  
<http://www.dnr.state.sc.us/>

*South Carolina Clean Marina Program*  
Sara Tuttle  
Tel (843) 953-9354  
Email [tuttle@mdr.dnr.state.sc.us](mailto:tuttle@mdr.dnr.state.sc.us)

### **Tennessee**

*Department of Environment & Conservation*  
Tel (888) 891-TDEC (8332)  
Email [ask.tdec@state.tn.us](mailto:ask.tdec@state.tn.us)  
<http://www.state.tn.us/environment/>

### **Texas**

*Commission of Environmental Quality*  
Email [ac@tceq.state.tx.us](mailto:ac@tceq.state.tx.us)  
<http://www.tceq.state.tx.us/>

*Clean Texas Marina Program*  
Dewayne Hollin  
Tel (979) 862-3854  
Email [dhollin@neo.tamu.edu](mailto:dhollin@neo.tamu.edu)  
<<http://www.cleanmarinas.org>>

## B. State Programs

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### Utah

Department of Environmental Quality  
<http://www.eq.state.ut.us/>

### Vermont

Agency of Natural Resources –  
Department of Environmental Conservation  
<http://www.anr.state.vt.us/dec/dec.htm>

*Division of Water Quality*  
Tel (802) 241-3770  
<http://www.vtwaterquality.org/>

### Virginia

Department of Environmental Quality  
<http://www.deq.state.va.us/>

*Virginia Clean Marina Program*  
Virginia Witmer  
Email [vgwitmer@deq.state.va.us](mailto:vgwitmer@deq.state.va.us)  
<http://www.deq.state.va.us/vacleanmaria>

*Air Quality*  
Anne G. Nelsen  
Tel (804) 698-4000

*Water Regulations*  
Martin Ferguson  
Email [mgferguson@deq.state.va.us](mailto:mgferguson@deq.state.va.us)

*Waste Regulations*  
Robert Wickline  
Email [rgwickline@deq.state.va.us](mailto:rgwickline@deq.state.va.us)

*Virginia Waste Management Act*  
Cindy Berndt  
Email [cumberndt@deq.state.va.us](mailto:cumberndt@deq.state.va.us)

### Washington

Department of Ecology  
<http://www.ecy.wa.gov/>

*Water Quality Program*  
Richard K. Wallace  
Tel (360) 407-6405  
Email [dwal461@ecy.wa.gov](mailto:dwal461@ecy.wa.gov)

### West Virginia

Department of Environmental Protection  
<http://www.wvdep.org/>

### Wisconsin

Department of Natural Resources  
Tel (608) 266-2621  
<http://www.dnr.state.wi.us/>

*Boating Regulations*  
<http://www.dnr.state.wi.us/org/caer/cs/re gs/BoatRegs02.pdf>

### Wyoming

Department of Environmental Quality  
Tel (307) 777-7937  
<http://deq.state.wy.us/>

Water Quality Division  
Tel (307) 777-7781



**C EMS Document**



National Park Service  
US Department of the Interior

Concession Program  
Denver, Colorado



## Developing a Written Environmental Management Program (EMP)



### Guidance for Marina Services

For more information, contact the *GreenLine* Number at 303/987-6913 or email [NPS\\_GreenLine@nps.gov](mailto:NPS_GreenLine@nps.gov).

Updated: September 2007

## Why You Should Read This Document

The National Park Service Concession Program (NPSCP) has prepared this document, *Developing a Written Environmental Management Program – Marina Services*, to assist marina service concessioners in developing a written Environmental Management Program (EMP). All NPS concessioners awarded Category I or II concession contracts that are based on the Standard Concession Contract provisions published in the Federal Register on May 4, 2000 (65 FR 26051-26086: Part III, Department of the Interior, National Park Service, Standard

Concession Contract; Revision; Notice) are required under Section 6 of the Standard Concession Contract to prepare and submit an initial written EMP to the park within 60 days of the effective date of their concession contracts for approval. The concessioner is required to implement the park-approved EMP at concessioner facilities and services in the park. Per Standard Concession Contract requirements, the EMP should be updated and submitted to the park for approval annually to ensure it is current and applicable to concessioner facilities and services.

## Definitions and Acronyms Used

**Applicable Laws:** The laws of Congress governing the area, including, but not limited to, the rules, regulations, requirements and policies promulgated under those laws (e.g., 36 CFR Part 51), whether now in force, or amended, enacted or promulgated in the future, including, without limitation, Federal, state and local laws, rules, regulations, requirements and policies governing nondiscrimination, protection of the environment and protection of public health and safety.

**Area:** Property within the boundaries of [*name of park unit*].

**Best Management Practices (BMPs):** Policies and practices that apply the most current and advanced means and technologies available to the concessioner to undertake and maintain a superior level of environmental performance reasonable in light of the circumstances of the operations conducted under this CONTRACT. BMPs are expected to change from time to time as technology evolves with a goal of sustainability of the concessioner's operations. Sustainability of operations refers to operations that have a restorative or net positive impact on the environment.

**Clean Marina:** Marina that has received "clean marina," "green marina," or other similar status through the NPS or Federal, state, industry, or other program by fulfilling the compliance

and best management practices necessary for such designation.

**Concession Contract:** A binding written agreement between the NPS Director and a concessioner entered into under 36 CFR 51. It authorizes concessioners to provide certain visitor services within a park under specified terms and conditions.

**Emergency Action Plan (EAP):** Covers designated actions employers and employees must take to ensure employee safety from fire and other emergencies. These "other emergencies" include hazardous substance spills or releases, especially if the park directs the concessioner **not to cleanup** large (i.e., nonincidental) hazardous substance spills or releases. Most concessioners probably already have an EAP for other potential emergency situations (e.g., for fires, floods); however, they may need to add a section for hazardous substance spills and releases.

**Environmental Management Program (EMP):** Program that achieves the Standard Concession Contract Environmental Management Objectives of (1) complying with all applicable laws pertaining to the protection of human health and the environment and (2) incorporating best management practices in a concessioner's operation, construction,

maintenance, acquisition, provision of visitor services, and other activities under a concession contract. The EMP should be developed, documented, implemented, and complied fully with by a concessioner to account for all activities with potential environmental impacts conducted by the concessioner or to which the concessioner contributes.

**Environmentally Preferable:** Products or services that have a lesser or reduced effect on human health and the environment when compared with competing products or services that serve the same purpose. This comparison may consider raw materials acquisition, production, manufacturing, packaging, distribution, reuse, operation, maintenance, or disposal of the product or service.

**Environmental Purchasing:** Purchase of products and services that are environmentally preferable. Also referred to as “green procurement” or “environmentally preferable purchasing.”

**NPSCP Environmental Audits:** Environmental audits developed to assist the NPS and concessioners in identifying environmental compliance issues and opportunities to improve environmental management. The NPSCP environmental audits are one element of the overall NPS Concession Program (NPSCP).

**NPSCP Environmental Management:** One element of the overall NPS Concession Program for NPS concessioners and NPS concession staff developed to further the understanding and implementation of environmental management in concession operations located in national parks.

**Occupational Safety and Health Administration (OSHA):** Federal agency whose mission is to prevent work-related injuries, illnesses, and deaths by ensuring safe and healthful workplaces.

**Pollution Prevention:** "Source reduction" as defined in the Pollution Prevention Act of 1990 (42 United States Code 13102) and other practices that reduce or eliminate the creation of pollutants through: (a) increased efficiency in the use of raw

materials, energy, water, or other resources; or (b) protection of natural resources by conservation.

**Source Reduction:** Any practice which (i) reduces the amount of any hazardous substance, pollutant, or contaminant entering any waste stream or otherwise released into the environment (including fugitive emissions) prior to recycling, treatment, or disposal; and (ii) reduces the hazards to public health and the environment associated with the release of such substances, pollutants, or contaminants. The term includes equipment or technology modifications, process or procedure modifications, reformulation or redesign of products, substitution of raw materials, and improvements in housekeeping, maintenance, training, or inventory control.

**Standard Operating Procedure (SOP):** Procedures used to carry out a specific activity or operation. SOPs are usually documented and filed or posted in a readily accessible location for employee review

**United States Environmental Protection Agency (EPA):** Federal agency responsible for developing and overseeing many environmental regulations at the Federal level.

**Waste Reduction:** Preventing or decreasing the amount of waste being generated through waste prevention, recycling, or purchasing recycled and environmentally preferable products.

**Waste Prevention:** Any change in the design, manufacturing, purchase, or use of materials or products (including packaging) to reduce their amount or toxicity before they are discarded. Waste prevention also refers to the reuse of products or materials.

## Why a Written EMP is Required

The NPS requires a written EMP for all Category I and II concession contracts that are based on the Standard Concession Contract provisions (65 FR 26051-26086). Developing a written EMP may seem unnecessary for smaller concessioners that may have few facilities and services with environmental impacts, or have few perceived opportunities to improve environmental management of their facilities and services. However, all concessioners, large or small, impact the environment in some way and are subject to local, state and Federal environmental regulations.

There are three primary reasons for preparing a single consolidated environmental document (i.e., the EMP):

1. The exercise of preparing the written EMP helps familiarize you with environmental regulations and policies applicable to your facilities and services. Chances are that you already know about many of these regulations and policies. However, a comprehensive review of your operations may help you identify new or additional regulations that are applicable to the types of facilities you operate and services you provide under your concession contract.
2. The written EMP helps you proactively plan for compliance with existing environmental regulations and

policies, and may help you identify opportunities for implementing cost-effective best management practices (BMPs). In developing an EMP, you will look at the types of services you provide at the facilities you operate, and identify how these activities affect or impact the environment. Through this exercise, you may identify activities and practices with environmental impacts and opportunities for improvement that you had not considered before.

3. Your EMP can serve as a pointer document that identifies where environmental documents (such as reports and procedures) are located and identifies who is responsible for maintaining these documents. With a written EMP, you are able to systematically organize and locate copies of all your environmental records, reports, and documents, even if an environmental manager is absent or leaves the organization. In the event that a regulatory agency visits your operations, your EMP information and documents are organized and may facilitate review, which will help to show that your organization is committed to environmental compliance and environmental management.

## The EMP and the National Clean Marina Initiative

The NPS has developed a National Clean Marina Initiative documented in the *NPS Clean Marina Program*. The National Clean Marina Initiative encourages NPS marina

operators to comply with applicable laws and go beyond compliance by implementing appropriate BMPs.

In addition, marina operators, including NPS concessioners, are encouraged to join clean marina programs and meet clean marina requirements of their state or region, or adopt those from another state or region (e.g., the *Maryland Clean Marina Guidebook*). **Note that obtaining clean marina certification and setting up a clean marina program (even a documented one) support but are not a replacement for an EMP.** However, a clean marina program can be incorporated into an EMP.

A clean marina program helps a marina comply with applicable laws and incorporate applicable BMPs into its operations by providing tools and resources such as checklists designed to identify regulatory requirements and BMPs. Other aspects of a clean marina program can be incorporated into required EMP elements (see below), such as the environmental policy (e.g., statement that the marina operator will meet clean marina program requirements), goals and

targets (e.g., attain and maintain clean marina certification), documentation and document control and information management systems (e.g., for marina standard operating procedures), communication (e.g., education programs for visitors and slipholders), and monitoring, measurement, and corrective action (e.g., monitoring programs to ensure clean marina designation is maintained over time).

Having a stand-alone documented clean marina program is discouraged, as it may be duplicative of the written EMP. Rather, concessioners are encouraged to include clean marina references and documents as part of the EMP documentation. In the event that a documented Clean Marina Program is specified by the certifying agency, the marina operator should provide a cross-reference between the required clean marina program elements and the required EMP elements under the concessioner's concession contract.

## A Quick Guide to the EMP

Table 1 presents the nine required EMP elements (A-I) as specified in Section 6 of the Standard Concession Contract. These are further described in the Appendix.

**Table 1:** EMP Elements

<b>A</b>	Policy
<b>B</b>	Goals and Targets
<b>C</b>	Responsibility and Accountability
<b>D</b>	Documentation
<b>E</b>	Document Control and Information Management
<b>F</b>	Reporting
<b>G</b>	Communication
<b>H</b>	Training
<b>I</b>	Monitoring, Measurement, and Corrective Action

The sample written EMP presented in the Appendix divides each of the nine EMP elements into required components (per the Standard Concession Contract) and BMP opportunities. Required components are marked with a checkmark (✓). Undertaking BMP opportunities is encouraged to support the EMP element, but is not required. The number of BMP opportunities that exist are unlimited; therefore, not all of them are included in this document. BMP opportunities are marked with a star (★). Most ★ are consistent with current management practices adopted by private industry sectors.

**Table 2: Symbols**

✓	Required component (per Section 6 of the Standard Concession Contract).
★	BMP opportunity.

The description for each EMP element included in the Appendix provides further detail and explanation for each element as required in the Standard Concession Contract. As a reference, there is a footnote in the Appendix for each EMP element that cites the language included in the Standard Concession Contract.

## **Additional Assistance Resources**

The sample EMP provided in the Appendix is not comprehensive. In developing an EMP, consider contacting your local, state, and Federal environmental agencies for assistance in identifying applicable laws for your concessioner facilities, services, and operations. In addition, consider reviewing the resources listed below to identify appropriate BMPs for your EMP. These resources are available through the NPS *GreenLine* Number (303/987-6919) or on the Internet.

- NPS National Capital Region Clean Marina Guidebook: Julia Hewitt, NCR Environmental Protection Specialist, 202/619-7083
- Maryland Clean Marina Guidebook: [www.dnr.state.md.us/boating/cleanmarina/cmprogram.html](http://www.dnr.state.md.us/boating/cleanmarina/cmprogram.html)
- National Clean Boating Campaign: [www.cleanboating.org](http://www.cleanboating.org)
- University of California Cooperative Extension - Sea Grant Extension Program – San Diego County: [seagrant.ucdavis.edu/boating.htm](http://seagrant.ucdavis.edu/boating.htm)
- Biodiesel – Official Site of the National Biodiesel Board: [www.biodiesel.org](http://www.biodiesel.org)
- Underground Storage Tanks – Environmental Protection Agency: [www.epa.gov/swerust1](http://www.epa.gov/swerust1)
- Oil Program - Environmental Protection Agency: [www.epa.gov/oilspill](http://www.epa.gov/oilspill)
- Understanding Spill Prevention Control and Countermeasure (SPCC) Plans – NPSCP.
- Guidance for Developing an Emergency Action Plan (EAP) – NPSCP.
- Guidance for Developing an Emergency Response Program (ERP) – NPSCP.
- Headwaters Institute: [www.headwatersinstitute.org](http://www.headwatersinstitute.org)
- Leave No Trace North America Edition: can be accessed from [www.lnt.org](http://www.lnt.org)
- Practical Guide to Environmental Management for Small Business: [www.smallbiz-enviroweb.org/html/pdf/EM\\_Guide0902.pdf](http://www.smallbiz-enviroweb.org/html/pdf/EM_Guide0902.pdf)
- *GreenLine* Newsletter – NPSCP.
- NPS Concession Program Website: [www.concessions.nps.gov](http://www.concessions.nps.gov)

## **Appendix: Sample Written Environmental Management Program**

A written EMP is composed of nine required elements as stated in Section 6 of the Standard Concession Contract. A description of these nine elements (identified as letters A through I) is provided on the left side of the following pages.

A sample written EMP, including these nine elements, is presented on the right side of the following pages as an example. The sample written EMP is a reference to help jumpstart your efforts in developing an EMP for your facilities and services. **Remember that the EMP that you develop should be specific to, and adequately address, the type and size of services you provide under your concession contract with the NPS.** Your EMP can and should be simple and flexible to ensure it is fully embraced and implemented by you and your staff. However, more complex operations and services, or additional park requirements to protect specific resources, may warrant a more detailed document.

The sample written EMP provided is for a fictitious marina service concessioner named Bill's Marina and owned by Bill Brown. By way of background, Bill's Marina includes a vessel fueling service, sewage pumpout service, 10 houseboat rentals, wet slip rentals, minimal boat maintenance, dry land storage, and an administrative office in the park.

**Bill's Marina - Written EMP**  
**Beautiful National Park**  
**Date: February 2004**

Sample EMP

<p><b>EMP Element:</b> <b>A. Policy</b></p>	<p><b>SAMPLE FOR THIS EMP ELEMENT</b> <b>Bill's Marina – Written EMP – February 2004</b></p>
<p>The environmental policy declares your commitment to protecting and conserving the environment. The policy serves as the foundation for your EMP and provides a unifying vision to guide development and implementation of your environmental program.</p> <p><b>Required Components:</b></p> <ul style="list-style-type: none"> <li>✓ Develop and document your policy.</li> <li>✓ State your commitment to complying with applicable laws.</li> <li>✓ State your commitment to implementing best management practices (BMPs).</li> <li>✓ State your commitment to continual improvement (e.g., commit to reviewing your environmental program and updating or modifying it as appropriate).</li> </ul> <p><b>BMP Opportunities:</b></p> <ul style="list-style-type: none"> <li>★ State your commitment to dedicate resources (i.e., staff and budget) to implement your EMP.</li> <li>★ State your commitment to identify and hold staff responsible for potential environmental impacts.</li> <li>★ State your commitment to communicate your environmental program to employees, customers and the NPS.</li> <li>★ State your commitment to provide educational outreach to visitors and other stakeholders about environmental issues and educate them to reduce their own impact upon the environment.</li> <li>★ State your commitment to recognize your employees' exceptional environmental performance (e.g., through awards, bonuses).</li> </ul>	<p><b>A. Policy</b></p> <p>Bill's Marina is committed to providing Beautiful National Park (Park) visitors with high quality services, and to protecting, conserving, and preserving the Park environment in which we operate. We will work cooperatively, and in partnership with the Park, to ensure that all services and operations are conducted in a manner that fosters environmental stewardship amongst visitors and employees. To meet these objectives, Bill's Marina will:</p> <ul style="list-style-type: none"> <li>• Achieve and maintain compliance with applicable laws.</li> <li>• Identify and implement best management practices available for marina services, and continue to seek opportunities to improve. This will include following all applicable BMPs in the state clean marina program and National Clean Marina Initiative.</li> <li>• Utilize the most environmentally preferred materials and products in our operations.</li> <li>• Provide appropriate environmental training and educate employees about environmental stewardship and resource protection by implementing waste reduction and pollution prevention strategies.</li> <li>• Demonstrate and communicate information about our environmental program with our customers and stakeholders, and allow appropriate opportunities for input and feedback on our environmental program.</li> <li>• Annually review our environmental program and our EMP to identify opportunities to update, modify or amend our goals and targets.</li> </ul> <p>We will also identify and hold responsible staff involved in environmental management, and publicly recognize those who demonstrate exceptional environmental performance.</p> <p>This environmental policy is available to all employees and Park staff. We welcome suggestions for improving the EMP to ensure that it responds to the needs of our employees, visitors, and the environment in which we operate.</p> <p></p> <p>Bill Brown, President, <i>Bill's Marina</i></p>

<p><b>EMP Element:</b> <b>B. Goals and Targets</b></p>	<p><b>SAMPLE FOR THIS EMP ELEMENT</b> <b>Bill's Marina – Written EMP – February 2004</b></p>																
<p>It is important to establish goals and targets to measure your progress in implementing the EMP and to support your environmental policy. It also helps you continuously improve your EMP.</p> <p>Goals and targets are interrelated. Goals should provide broad ideas on what you want to accomplish and should be consistent with your environmental policy. They should help you answer the question, "will achieving this goal be consistent with our policy?" Targets identify specific actions or steps to be taken toward achieving goals. They should incorporate deadlines and be measurable.</p> <p><b>Required Components:</b></p> <ul style="list-style-type: none"> <li>✓ Set goals that are consistent with your environmental policy.</li> <li>✓ Set annual (i.e. short-term) targets.</li> <li>✓ Set long-term targets.</li> <li>✓ Set goals and targets that address known deficiencies in complying with applicable laws, including issues identified during self-assessments, Clean Marina Initiative inspections, or through environmental audits (such as the NPSCP environmental audits).</li> </ul> <p><b>BMP Opportunity:</b></p> <ul style="list-style-type: none"> <li>⊕ Identify goals and targets for implementing BMPs.</li> </ul> <p><b>Notes:</b> Establishing targets is an ongoing process. You may need to review the targets on a more frequent basis to determine if they are still appropriate or whether they need to be modified or updated. As targets are achieved, you should consider establishing new targets to continue to support existing goals or in support of new goals.</p> <p>Goals and targets can be established to <b>maintain</b> current levels of performance as well to <b>improve</b> performance. If your goal is to maintain current levels, you should address current practices to be maintained.</p> <p>Goals and targets should address <b>compliance</b> and may include <b>BMPs</b>.</p>	<p><b>B. Goals and Targets</b> Annually, <i>Bill's Marina</i> will review our facilities and services relative to applicable regulations, to Park environmental requirements and to the marina industry's best management practices. We will seek opportunities to improve our operations to demonstrate a commitment to environmental compliance and stewardship. To achieve this, we will identify and set realistic goals and targets that will improve our client satisfaction while minimizing our environmental impacts to help ensure the protection, conservation, and preservation of Park resources.</p> <table border="1" data-bbox="751 406 2016 1468"> <thead> <tr> <th data-bbox="751 406 1075 438">Goal</th> <th data-bbox="1081 406 2016 438">Target</th> </tr> </thead> <tbody> <tr> <td data-bbox="751 443 1075 557">Reduce use of hazardous chemicals and materials to minimize potential spills and enhance worker safety.</td> <td data-bbox="1081 443 2016 557">Convert 50% of the office cleaning chemicals used in operations to environmentally preferable cleaners (e.g., nontoxic, biodegradable) by <b>December 2004</b>. Research and use at least two environmentally preferable products (e.g., environmentally preferable solvent cleaner) in vessel operations by <b>December 2005</b>.</td> </tr> <tr> <td data-bbox="751 561 1075 703">Reduce generation of solid waste to minimize landfill disposal costs and protect water quality.</td> <td data-bbox="1081 561 2016 703">Institute recycling program for all houseboats (cans and bottles) by <b>June 2004</b>. Replace current printer with new model that prints double-sided by <b>June 2005</b>. Acquire and sell at least five products with minimal packaging by <b>October 2004</b>. Recycle 100% of paper, plastic, glass, and cans in office. <b>Ongoing</b>. Work with Park to recycle all fluorescent lamps and alkaline batteries. <b>Ongoing</b>.</td> </tr> <tr> <td data-bbox="751 708 1075 886">Reduce energy usage to achieve a 30% reduction in our energy use by 2010.</td> <td data-bbox="1081 708 2016 886">During annual EMP training, instruct all employees to conserve energy and shut off lighting by <b>March 2004</b>. Install solar powered lighting on all docks by <b>December 2007</b>. Install energy-saving compact fluorescents in all areas by <b>December 2004</b>. Install motion sensors for all appropriate outdoor security lights by <b>December 2005</b>. Install solar-powered battery charged outdoor lights in all areas by <b>December 2005</b>.</td> </tr> <tr> <td data-bbox="751 891 1075 1005">Reduce water usage to achieve a 50% reduction in water use by 2010.</td> <td data-bbox="1081 891 2016 1005">Annually train all employees during EMP training to conserve water when washing vessels and report leaking faucets, etc. by <b>March 2004</b>. Install low-flow toilets and waterless urinals in restrooms as maintenance or replacement warrants by <b>December 2006</b>.</td> </tr> <tr> <td data-bbox="751 1010 1075 1156">Increase use of environmentally preferable products to support our environmental purchasing policy.</td> <td data-bbox="1081 1010 2016 1156">Implement a policy to purchase and use the following products by <b>June 2004</b>: • Rerefined oil, recycled antifreeze, propylene glycol antifreeze; • Office paper with at least 30% post-consumer recycled content; and • Toilet paper and garbage bags with some post-consumer recycled content. Research feasibility of using biodiesel in vessels by <b>March 2007</b>.</td> </tr> <tr> <td data-bbox="751 1161 1075 1339">Increase and promote water quality protection.</td> <td data-bbox="1081 1161 2016 1339">Require the use of spill pads at all times when fueling boats by <b>March 2004</b>. 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<p>For an EMP to be effective, it is important to have clearly defined environmental roles and responsibilities for all staff. Involvement and commitment by all employees is essential to a successful environmental program.</p> <p><b>Required Components:</b></p> <ul style="list-style-type: none"> <li>✓ Designate an environmental program manager. (It is appropriate to assign this title and accompanying duties to an existing worker with knowledge of environmental issues if staffing is limited.)</li> <li>✓ Assign environmental responsibilities to appropriate staff and functions to ensure staff is aware of their environmental roles and responsibilities.</li> </ul> <p><b>BMP Opportunities:</b></p> <ul style="list-style-type: none"> <li>✦ Develop and implement evaluation procedures to assess environmental performance of staff.</li> </ul> <p><b>Notes:</b> You should try to include roles and responsibilities in your employees' job descriptions to help convey the idea that it is everyone's responsibility to implement the EMP.</p> <p>The environmental responsibilities listed here are quite detailed but may not cover all specific staff where duties should be described. Such key staff at marinas may include boat mechanics and fuel attendants. Your environmental responsibilities may be less detailed, but still cover the same operations and activities. Another option, although not as effective, is to develop a general requirement that applies to all employees that states that all staff will be involved in the development and implementation of an EMP and that employees are responsible for ensuring the EMP is effective and successful.</p>	<p><b>C. 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**Standard Concession Contract Language, Sec. 6 (b)(3)(iii), Responsibilities and Accountability:** “The EMP shall identify environmental responsibilities for concessioner employees and contractors. The EMP shall include the designation of an environmental program manager. The EMP shall include procedures for the Concessioner to implement the evaluation of employee and contractor performance against these environmental responsibilities.”

<p><b>EMP Element: D. Documentation</b></p>	<p><b>SAMPLE FOR THIS EMP ELEMENT Bill's Marina – Written EMP – February 2004</b></p>
<p>To ensure that your EMP is understood and operating as designed, you must provide adequate information to your staff. You should document what you (or your staff) do and how it is done for key activities that deal with environmental issues. A good starting point is to consider what you would tell a new employee about your environmental program; use this to develop a document that clearly states this information.</p> <p><b>Required Components:</b></p> <ul style="list-style-type: none"> <li>✓ Develop and maintain a written EMP that includes all nine required EMP elements as identified in the concession contract.</li> <li>✓ Identify and maintain all plans and standard operating procedures (SOPs) required by applicable laws, including the concession contract.</li> <li>✓ Identify and maintain all records required by applicable laws, including the concession contract.</li> </ul> <p><b>BMP Opportunities:</b></p> <ul style="list-style-type: none"> <li>✱ Identify and maintain all plans and SOPs not required by applicable laws or the concession contract, including those of the National Clean Marina Initiative.</li> <li>✱ Identify and maintain additional environmental records that support or advance the environmental program as appropriate.</li> </ul> <p><b>Notes:</b> Your EMP does <b>not</b> have to describe every detail of your environmental program. Instead, the EMP can provide references to other documents or procedures. For example, rather than including the inventory of hazardous wastes, you could simply state that the office manager maintains the inventory and that the file copy is located in the office.</p> <p>You may wonder why you need to develop a standard operating procedure (SOP) when a procedure is already described in your operating and maintenance plans (O&amp;M Plans). The SOPs identified in O&amp;M Plans often simply identify responsibilities (e.g., concessioner shall manage solid waste), but do not provide detail on how to carry out these responsibilities.</p>	<p><b>D. Documentation</b></p> <p>Listed below are all the environmental documents that we will maintain. Annually, the Environmental Program Manager will determine whether there are additional environmental documents required by applicable laws, the concession contract, and operating and maintenance plans, or those needed to support the environmental program, that should be added to this list. The location and people responsible for maintaining these documents are identified under Element E of this EMP.</p> <p><b>a. Written EMP.</b></p> <p><b>b. Environmental Plans.</b></p> <ul style="list-style-type: none"> <li>• Operating Manual (includes Bill's Marina-specific operating procedures)</li> <li>• Hazard Communication (HAZCOM) Plan</li> <li>• Respiratory Protection Plan</li> <li>• Emergency Action Plan (EAP)</li> <li>• Emergency Response Program (ERP)</li> </ul> <p><b>c. 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Environmental Records.</b> Procedures and responsibilities for updating these environmental records are found in our Operating Manual.</p> <ul style="list-style-type: none"> <li>• Material safety data sheets for all hazardous chemicals (MSDSs)</li> <li>• Vessel maintenance records</li> <li>• Underwater inspections and actions taken</li> <li>• Fuel storage tank inspection and maintenance</li> <li>• Commercial fuel delivery (e.g., date, time, location, amount)</li> <li>• Liquid petroleum gas (LPG) inspection and maintenance</li> <li>• Inventory of hazardous substances</li> <li>• Inventory of solid waste</li> <li>• Trash disposal (e.g., amount, how) and recycling (e.g., amount, type, how)</li> <li>• Inventory of hazardous wastes</li> <li>• Hazardous waste manifests</li> <li>• Hazardous waste determinations</li> <li>• Universal waste storage (i.e., amount on hand) and recycling (i.e., where, how)</li> </ul> <ul style="list-style-type: none"> <li>• Spill Prevention Control and Countermeasures (SPCC) Plan</li> <li>• Storm Water Pollution Prevention Plan (SWP3)</li> <li>• Underwater Inspection Program</li> <li>• Integrated Pest Management (IPM) Plan</li> <li>• Environmental Purchasing (i.e., green procurement) Plan</li> <li>• Hazardous and miscellaneous maintenance waste management SOP – includes universal waste, antifreeze, oil, batteries, etc.</li> <li>• Storm water management SOP</li> <li>• Water distribution system inspection and maintenance SOP</li> <li>• Sewage pumpout management and line system inspection and maintenance SOP</li> <li>• Hazardous materials purchasing (i.e., inventory control, material safety data sheets, environmental purchasing) SOP</li> <li>• Energy and water conservation SOP</li> <li>• Miscellaneous maintenance waste disposal and/or recycling (i.e., where, how)</li> <li>• Water distribution system inspections and maintenance</li> <li>• Sewage line system inspections and maintenance</li> <li>• Sewage pumpout volumes and disposal methods</li> <li>• Wastewater disposal (i.e., where, how)</li> <li>• Approval for pesticide use</li> <li>• Interior and exterior building inspection and maintenance</li> <li>• Environmental purchasing (e.g., receipts, purchased products and services)</li> <li>• Energy and water usage (e.g., energy and water bills)</li> <li>• Notices of Violations (NOVs)</li> <li>• Environmental audit report</li> <li>• Environmental Audit Corrective Action Report</li> <li>• Operational evaluation</li> <li>• Annual EMP performance summary</li> <li>• Clean Marina Program/Initiative cross-reference(s)</li> </ul>

<b>EMP Element: E. Document Control and Information Management System</b>	<b>SAMPLE FOR THIS EMP ELEMENT Bill's Marina – Written EMP – February 2004</b>																																																																																																			
<p>A documentation control and information management system provides a way for you to track and monitor all of your plans, SOPs, records, and other documents identified under the Documentation component of your EMP (Element D). Items that should be addressed in this element include identifying where plans, SOPs, records, and other documents can be located, how they are reviewed, and who is responsible for reviewing and maintaining these documents.</p> <p><b>Required Component:</b></p> <ul style="list-style-type: none"> <li>✓ Develop, document, and implement procedures to manage environmental documents. Indicate where the documents are physically located, and who is responsible for managing and/or maintaining the documents.</li> </ul> <p><b>BMP Opportunity:</b></p> <ul style="list-style-type: none"> <li>✳ Develop a document control training program and train staff on procedures and policies for managing environmental documents.</li> </ul> <p><b>Notes:</b></p> <p>If staff and others who need access to the documents are connected to a computer network or have access to your company's internal website, consider using a paperless document control and information management system. Such systems can facilitate control and revision of documents and ensure that the most current versions of all documents are readily accessible to all employees.</p> <p>The simplest way to keep this document control information may be in a table, such as the one presented here.</p>	<p><b>E. Document Control and Information Management System</b></p> <p>The Environmental Program Manager is responsible for identifying the all environmental documentation that will be maintained, listing it below, and assigning individuals to update the environmental documentation. S/he will review this list on at least an annual basis to determine whether any documents need to be updated, amended, or added. Individuals responsible for updates will apprise all relevant staff about any changes made to the documents by telling them about changes in person, circulating updated versions of the documents, and posting changes on the bulletin board in the main office.</p> <p>Most environmental documents will be kept in the Environmental Program Manager's office, including copies of key records. Certain documents are maintained at the point of use (e.g., inspection logs).</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">Document</th> <th style="text-align: center;">Version and Date</th> <th style="text-align: center;">Location</th> <th style="text-align: center;">Responsible for Updates</th> </tr> </thead> <tbody> <tr> <td><b>Written EMP</b></td> <td>1.0 (1/2004)</td> <td>Env Pgm Mgr Office</td> <td>Env Pgm Mgr</td> </tr> <tr> <td colspan="4"><b>Environmental Plans</b></td> </tr> <tr> <td>Operating Manual (includes Bill's Marina-specific operating procedures)</td> <td>1.0 (1/2004)</td> <td>General Mgr Office</td> <td>Env Pgm Mgr</td> </tr> <tr> <td>Hazard Communication Plan</td> <td>1.0 (1/2004)</td> <td>Safety Mgr's Office</td> <td>Safety Mgr</td> </tr> <tr> <td>Respiratory Protection Plan</td> <td></td> <td>Safety Mgr's Office</td> <td>Safety Mgr</td> </tr> <tr> <td>Emergency Action Plan</td> <td>2.0 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Document	Version and Date	Location	Responsible for Updates
Water distribution system inspection and maintenance SOP	1.0 (1/2004)	General Mgr's Office	General Mgr
Sewage pumpout management and line system inspection and maintenance SOP	1.0 (3/2000)	General Mgr's Office	General Mgr
Hazardous materials purchasing (i.e., inventory control, material safety data sheets, environmental purchasing) SOP	3.0 (1/2002)	Env Pgm Mgr Office	Env Pgm Mgr
Energy and water conservation SOP	2.0 (6/2001)	Env Pgm Mgr Office	Env Pgm Mgr
<b>Environmental Records</b>			
Material safety data sheets for all hazardous chemicals (MSDSs)	1.0 (1/2004)	Env Pgm Mgr Office	General Mgr
Vessel maintenance records	1.0 (3/2000)	General Mgr's Office	General Mgr
Underwater inspections and actions taken	1.0 (1/2004)	General Mgr's Office	General Mgr
Fuel storage tank inspection and maintenance	1.0 (3/2000)	General Mgr's Office	General Mgr
Commercial fuel delivery (e.g., date, time, location, amount)	2.0 (7/2002)	General Mgr's Office	General Mgr
Liquid petroleum gas (LPG) inspection and maintenance	2.0 (1/2004)	General Mgr's Office	General Mgr
Inventory of hazardous substances	1.0 (1/2004)	Env Pgm Mgr Office	General Mgr
Inventory of solid waste	1.0 (1/2004)	Env Pgm Mgr Office	General Mgr
Trash disposal (e.g., amount, how) and recycling (e.g., amount, type, how)	1.0 (3/2000)	Env Pgm Mgr Office	General Mgr
Inventory of hazardous wastes	1.0 (1/2004)	Env Pgm Mgr Office	General Mgr
Hazardous waste manifests	1.0 (1/2004)	Env Pgm Mgr Office	General Mgr
Hazardous waste determinations	1.0 (1/2004)	Env Pgm Mgr Office	General Mgr
Universal waste storage (i.e., amount on hand) and recycling (i.e., where, how)	1.0 (1/2004)	Env Pgm Mgr Office	General Mgr
Miscellaneous maintenance waste disposal and/or recycling (i.e., where, how)	1.0 (1/2004)	Env Pgm Mgr Office	General Mgr
Water distribution system inspections and maintenance	1.0 (1/2004)	Env Pgm Mgr Office	General Mgr
Sewage line system inspections and maintenance	1.0 (1/2004)	General Mgr's Office	General Mgr
Sewage pumpout volumes and disposal methods	1.0 (1/2004)	General Mgr's Office	General Mgr
Wastewater disposal (i.e., where, how)	1.0 (1/2004)	General Mgr's Office	General Mgr
Approval for pesticide use	1.0 (1/2004)	Env Pgm Mgr Office	Env Pgm Mgr
Interior and exterior building inspection and maintenance	2.1 (5/2001)	General Mgr's Office	General Mgr
Environmental purchasing (e.g., receipts, purchased products and services)	Refer to file	Env Pgm Mgr Office	Env Pgm Mgr
Energy and water usage (e.g., energy and water bills)	Refer to file	Env Pgm Mgr Office	Env Pgm Mgr
Notices of Violations (NOVs)		Env Pgm Mgr Office	Env Pgm Mgr
Environmental audit report	Date: 5/2003	Env Pgm Mgr Office	Env Pgm Mgr
Environmental Audit Corrective Action Report	Date: 5/2003	Env Pgm Mgr Office	Env Pgm Mgr
Operational evaluation	Date: 9/2003	Env Pgm Mgr Office	Env Pgm Mgr
Annual EMP performance summary	Date: 4/2003	Env Pgm Mgr Office	Env Pgm Mgr
Clean Marina Program/Initiative cross-reference(s)	1.2 (2/2004)	Env Pgm Mgr Office	Env Pgm Mgr

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<b>EMP Element: F. Reporting</b>	<b>SAMPLE FOR THIS EMP ELEMENT Bill's Marina – Written EMP – February 2004</b>																																																										
<p>Certain environmental data must be reported to Federal, state, regional, and/or local environmental agencies, and to the park, on a routine basis. The Reporting element should identify what data and/or reports must be submitted, and identify a timeline for when and to whom the information should be submitted.</p> <p><b>Required Components:</b></p> <ul style="list-style-type: none"> <li>✓ Identify your required reporting requirements under applicable laws, including the concession contract.</li> <li>✓ Update reporting requirements based on changes made to applicable laws, including the concession contract.</li> <li>✓ Submit all environmental reports to regulatory agencies and the park on time.</li> <li>✓ Ensure your reports are included in the documentation section of your EMP.</li> </ul> <p><b>BMP Opportunities:</b></p> <ul style="list-style-type: none"> <li>✱ Communicate the results of your internal environmental audits/evaluations to the park.</li> <li>✱ Communicate your performance against your annual goals and targets to the park and/or customers and stakeholders.</li> </ul> <p><b>Notes:</b> Listing reports required by applicable laws, including the concession contract, along with the date by which they need to be submitted/updated, will help you keep track of all your reporting requirements and ensure you do not miss a deadline. All of these reports should also be included in your documentation (Element D) and document control and information management system (Element E) sections of your EMP.</p>	<p><b>F. Reporting</b> The Environmental Program Manager will conduct an annual review to determine whether there are new environmental requirements and/or reports required under the applicable laws that govern activities of <i>Bill's Marina</i> or that are required by the concession contract, operating and maintenance plans. The Environmental Program Manager will ensure that all reporting is completed and submitted in a timely manner and consistent with regulatory timelines.</p> <table border="1" data-bbox="793 423 1984 1388"> <thead> <tr> <th>Report</th> <th>For</th> <th>Date Due</th> <th>Responsibility</th> <th>Submitted To/Date</th> </tr> </thead> <tbody> <tr> <td>Nonincidental Fuel Spills</td> <td>Internal, Park</td> <td>Within 24 hours</td> <td>General Manager</td> <td></td> </tr> <tr> <td>Nonincidental hazardous substance spills (not fuel)</td> <td>Internal, Park</td> <td>Within 24 hours</td> <td>General Manager</td> <td></td> </tr> <tr> <td>Inventory of Hazardous Substances</td> <td>Park</td> <td>Oct 1 Annually</td> <td>Environmental Program Manager</td> <td></td> </tr> <tr> <td>Inventory of Hazardous Wastes (by month)</td> <td>Park</td> <td>June 1 Annually</td> <td>General Manager</td> <td></td> </tr> <tr> <td>Inventory of Solid Wastes (including recycled materials)</td> <td>Park</td> <td>August 1 Annually</td> <td>General Manager</td> <td></td> </tr> <tr> <td>Environmental Audit Corrective Action Report</td> <td>Park</td> <td>As corrective actions are completed</td> <td>Environmental Program Manager</td> <td>                     Park Concession Specialist                     <ul style="list-style-type: none"> <li>• 08/2001</li> <li>• 11/2002</li> <li>• 05/2003</li> <li>• 01/2004. 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<b>EMP Element: G. Communication</b>	<b>SAMPLE FOR THIS EMP ELEMENT Bill's Marina – Written EMP – February 2004</b>
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Effective environmental management requires effective communication. Internally, you should communicate your EMP to help motivate your staff, gain acceptance for your plans and efforts, ensure understanding of roles and responsibilities, and monitor and evaluate performance. You should also communicate your EMP to external parties such as customers, the NPS, and other stakeholders. Under this element, you identify your different audiences, how and what you will communicate to them, and who is responsible for communicating to the audiences.

**Required Components:**

- ✓ Establish procedures to ensure that all environmental information is communicated as required by applicable laws and the concession contract (e.g., MSDSs for staff).
- ✓ Document your environmental communication strategies and procedures. These should describe who is responsible for communicating environmental information to different audiences (e.g., visitors, staff).
- ✓ Communicate the EMP to staff for their review and as new ideas are introduced.

**BMP Opportunities:**

- ★ Discuss environmental performance at staff meetings; add it as a standing agenda item.
- ★ Have staff participate in park environmental meetings as appropriate.
- ★ Establish an environmental committee (“green team”) as a means to communicate with staff and receive staff input on EMP issues.
- ★ Establish procedures to solicit and respond to input from external groups such as visitors, local communities, and the NPS.
- ★ Communicate and partner with the park on environmental projects where feasible and appropriate (e.g., energy and water conservation).
- ★ Participate in organizations that provide environmental support, information, or resources.

**Notes:**

Much of your communication may take place via informal meetings or bulletin board postings.

**G. Communication**

*Bill's Marina* will communicate with our staff, the Park, and our guests/visitors to apprise and educate our different audiences about our environmental management program, our environmental initiatives, our goals and achievements, and our commitment to protect the environment. *Bill's Marina* will also provide educational materials to our slipholders and boating customers on clean boating practices.

Audience	Communication	Content	Responsibility
All Staff	<ul style="list-style-type: none"> <li>• Annual training (See Section H)</li> <li>• Emails</li> <li>• Informal talks</li> <li>• Staff meetings</li> <li>• Bulletin board postings</li> </ul>	<ul style="list-style-type: none"> <li>• Operating Manual – including all SOPs</li> <li>• Hazard Communication (HAZCOM)</li> <li>• Respiratory Protection Plan</li> <li>• Emergency Action Plan (EAP)</li> <li>• Emergency Response Program (ERP)</li> <li>• SPCC Plan</li> <li>• Storm Water Pollution Prevention Plan</li> <li>• Underwater Inspection Program</li> <li>• Integrated Pest Management (IPM ) Plan</li> <li>• Environmental Purchasing Plan</li> <li>• Solid and Hazardous Waste Management</li> <li>• Clean Marina Program/Initiative</li> <li>• Night Sky Protection</li> <li>• Landscaping</li> <li>• Updates on Park policies, regulations</li> </ul>	Environmental Program Manager
Park	<ul style="list-style-type: none"> <li>• Annual reports</li> <li>• Informal communication with Park concession specialist</li> </ul>	<ul style="list-style-type: none"> <li>• Annual reporting (as listed in section F of this EMP)</li> <li>• Updates on Park policies, regulations</li> <li>• EMP summary and/or update</li> <li>• Clean Marina Program/Initiative status and requirements</li> </ul>	Environmental Program Manager
Guests	<ul style="list-style-type: none"> <li>• Slipholder agreements</li> <li>• Posters and signs</li> <li>• Interaction with employees</li> <li>• Brochures</li> <li>• Seminars</li> </ul>	<ul style="list-style-type: none"> <li>• Clean boating practices</li> <li>• Solid waste management (including recycling)</li> <li>• Park policies and regulations</li> <li>• EMP summary and/or update</li> <li>• Clean Marina Program/Initiative status and requirements</li> </ul>	All Staff
Regulators	<ul style="list-style-type: none"> <li>• Onsite formal inspections (i.e., face-to-face)</li> <li>• Phone conversations</li> <li>• Formal letter/memo correspondence</li> </ul>	<ul style="list-style-type: none"> <li>• Compliance documents and/or reports (as requested)</li> </ul>	Environmental Program Manager

<b>EMP Element: H. Training</b>	<b>SAMPLE FOR THIS EMP ELEMENT Bill's Marina – Written EMP – February 2004</b>
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Environmental training ensures that all staff are aware of the company's commitment to protecting, conserving, and preserving park resources, and procedures to follow while performing job duties. Your training program should address the requirements of applicable laws, educate employees about your EMP, and inform them of environmental impacts associated with their specific jobs. You may, in fact, already be conducting some environmental training, and may simply need to modify your current training program to address EMP elements.

**Required Components:**

- ✓ Ensure all staff receive adequate job-specific training as required by applicable laws, including the concession contract.
- ✓ Assess training needs periodically. Document the training format (e.g., videotape, trainer) and frequency of training (e.g., at the start of every season, once every 3 months during the season).
- ✓ Maintain training records for employees.
- ✓ Develop and implement a training plan (e.g., who needs training, type of training, how often it is required).

**BMP Opportunities:**

- ✱ Coordinate training with the park, where feasible (e.g., partner with the park on training, invite park staff to concessioner training).
- ✱ Conduct EMP training for all employees upon hiring, and whenever the EMP changes.

**Notes:**

There are few regulatory-mandated training requirements for small concessioners. However, if you deal with any hazardous chemicals (e.g., most cleaning chemicals), you usually need to comply with the OSHA Hazard Communication Standard. Also, if hazardous substances (e.g., cleaning chemicals) can spill, you most likely also need to talk with the park to determine your responsibilities if a spill occurs and train staff on these procedures (e.g., clean it up, call park).

Note that some types of training, but not all, can be informal (e.g., lunchtime discussion). Consider developing an EMP training package for new employees and provide it as part of their orientation.

**H. Training**

The Environmental Program Manager will periodically identify and review training requirements for all employees, and ensure that employees receive required training.

Employees will be formally trained about environmental issues related to applicable laws within two weeks of hiring; all training related to environmental issues will be completed within one month of hiring. The Environmental Program Manager will maintain records documenting dates and types of training taken by each employee.

Training will occur as identified in Table 1. The form used to record each employee's training record will be similar to Table 2.

**Table 1**

Training Topic	Type	Trainer	Employees Covered	Frequency
EMP Awareness	In-house (classroom)	Env Pgm Mgr	All	Initial hire; Annual refresher
EAP (General)	In-house (classroom and work area)	Env Pgm Mgr	All	Initial hire; Annual refresher
Vessel maintenance SOP	In-house	Env Pgm Mgr	Boat Mechanics	Initial Hire; Annual refresher
Vessel Fueling and Spill Response	In-house	Env Pgm Mgr	Fuel Attendants	Initial Hire; Annual refresher
Clean Marina	In-house	Env Pgm Mgr	All	Initial Hire; Annual refresher
<i>List all other SOPs</i>				
Others (list):				

**Table 2**

Employee Name: _____			
Training Topic	Trainer	Date	Date Next Training Required
EMP Awareness	Bill Brown		
HAZCOM	Bill Brown		
EAP	Bill Brown		
Vessel maintenance SOP	Bill Brown		
Underwater inspection SOP	Bill Brown		
Clean Marina	Bill Brown		
<i>List all other SOPs</i>			
Others (list):			

<p><b>EMP Element:</b> <b>I. Monitoring, Measurement, and Corrective Action</b></p>	<p><b>SAMPLE FOR THIS EMP ELEMENT</b> <b>Bill's Marina – Written EMP – February 2004</b></p>
<p>By implementing monitoring, measurement, and corrective action procedures, you can measure the performance of your operations against regulatory (i.e., compliance) and BMP standards. You can also evaluate how effective and successful your EMP is and determine whether you have reached your goals and targets (Element B) or whether there is an opportunity to revise and improve the EMP.</p> <p><b>Required Components:</b></p> <ul style="list-style-type: none"> <li>✓ Participate in the NPSCP environmental audits.</li> <li>✓ Correct NPSCP environmental audit findings according to the assigned schedule.</li> <li>✓ Review the EMP at least annually, and modify appropriate elements (e.g., goals and targets) based upon quantitative data, and feedback from staff, the park, and visitors.</li> </ul> <p><b>BMP Opportunities:</b></p> <ul style="list-style-type: none"> <li>✳ Conduct periodic internal environmental assessments of concession facilities and services.</li> <li>✳ Collect information to measure progress toward your environmental goals and targets.</li> </ul> <p><b>Notes:</b></p> <p>It is important to participate in the NPSCP environmental audits. However, it is also very useful to establish your own routine internal environmental self-assessment program to proactively improve environmental management of your facilities and services.</p> <p>Quantitative data (e.g., percent of energy saved, number of pounds of paper recycled) is often a more useful way to measure performance since it allows you to provide specific details about performance.</p>	<p><b>I. Monitoring, Measurement, and Corrective Action</b></p> <p>At the end of each calendar year, the Environmental Program Manager will determine whether <i>Bill's Marina</i> has achieved environmental goals and targets (as listed under Element B of this written EMP). If no progress has been made, the Environmental Program Manager will coordinate with staff to determine why goals and targets were not achieved, and will implement new operating policies or procedures that will assist <i>Bill's Marina</i> in achieving our stated environmental goals and targets. We will prepare an annual EMP Performance Summary to document our progress and maintain the summary on file in the Environmental Program Manager's office.</p> <p>The Environmental Program Manager will also routinely monitor progress in addressing audit findings identified during environmental audits, including audits we conduct internally as well as environmental audits conducted by the NPS and environmental agencies. The Environmental Program Manager will ensure that <i>Bill's Marina</i> adequately addresses identified audit findings in a timely manner (i.e., before the Deadline to Close Audit Finding date agreed upon by the audit team and <i>Bill's Marina</i> for NPSCP environmental audits). <i>Bill's Marina's</i> plans for implementing corrective action will be filed, along with the environmental audit report, in the Environmental Program Manager's office.</p> <p>At least annually, the Environmental Program Manager and appropriate staff will review this written EMP and identify opportunities for improvement. As appropriate, we will discuss all updates with our employees and provide additional training if appropriate. We will continuously solicit input and feedback from our employees on the EMP.</p> <p>We will share a copy of the original EMP and all subsequent updates with the Park concession specialist (Jill Jones).</p>

**Standard Concession Contract Language, Sec. 6 (b)(3)(ix), Monitoring, Measurement, and Corrective Action:** “The EMP shall describe how the Concessioner will comply with the EMP and how the Concessioner will self-assess its performance under the EMP, at least annually, in a manner consistent with NPS protocol regarding audit of NPS operations. The self-assessment should ensure the Concessioner’s conformance with the Environmental Management Objectives and measure performance against environmental goals and targets. The EMP shall also describe procedures to be taken by the Concessioner to correct any deficiencies identified by the self-assessment.”