

AN ABSTRACT OF THE INTERNSHIP REPORT OF

Kristin Feindel for the degree of Master of Science in Marine Resource Management presented on June 9, 2005.

Title: A Plan for Implementing a Clean Marina Program in Oregon.

Nonpoint source pollution is currently the major source of water pollution in Oregon as well as the United States as a whole. The Environmental Protection Agency designated marinas as one of the sources of nonpoint pollution to coastal waters. In an effort to reduce nonpoint pollution from marinas and to fulfill the requirement of the Coastal Zone Act Reauthorization Amendments of 1990 Section 6217, Clean Marina programs have been developed in several states. In January 2005, the Oregon State Marine Board began developing an Oregon Clean Marina program.

The Clean Marina program is a voluntary ecolabel program which encourages marina operators and recreational boaters to protect water quality by engaging in environmentally sound operating and maintenance procedures. The Clean Marina program recognizes marinas that go above and beyond the environmental regulations and laws. Incentives for marina participation in the program include authority to use the Clean Marina logo, free technical assistance, free advertising, and possible monetary benefits.

This report outlines the process of developing the Oregon Clean Marina program – including the review of other state programs, holding of stakeholder meetings, creation of program guidebooks, and development of recommendations for the program structure. Program implementation is slated to begin in July 2005.

This document contains numerous blank pages.

-OSU Digital Production Unit

©Copyright by Kristin Beth Feindel
June 9, 2005
All Rights Reserved

**A Plan for Implementing a
Clean Marina Program in Oregon**

by

Kristin Beth Feindel

AN INTERNSHIP REPORT

submitted to

Marine Resource Management Program
College of Oceanic and Atmospheric Sciences
Oregon State University
Corvallis, Oregon 97331

2005

in partial fulfillment of
the requirements for the
degree of

Master of Science

Presented June 9, 2005
Commencement June 2005

This internship was supported by the Oregon State Marine Board.

ACKNOWLEDGEMENTS

I would like to express sincere appreciation to the many people who made my time at Oregon State University so enjoyable and rewarding. I would especially like to thank Dr. Jim Good for all his guidance and support, as well as his assistance in gaining invaluable internship experiences. I would like to thank Martin Law for his guidance in creating the Clean Marina program plan. I would also like to thank my committee members Dr. Robert Collier and Geoff Huntington, J.D. Finally, I would like to thank the students and Anthony for all the support during this time and for helping me make this accomplishment happen. My genuine gratitude goes to you all.

TABLE OF CONTENTS

	<u>Page</u>
PREFACE	1
INTRODUCTION	1
NONPOINT SOURCE POLLUTION IN OREGON.....	2
REGULATORY AND LEGAL REGIME.....	3
MARINAS AND POLLUTION.....	4
MARINA LEGAL REGIME.....	5
BACKGROUND	7
VOLUNTARY PROGRAMS.....	7
VOLUNTARY PROGRAM EFFECTIVENESS	7
VOLUNTARY PROGRAMS AND NONPOINT SOURCE POLLUTION.....	8
THE CLEAN MARINA PROGRAM.....	9
BEST MANAGEMENT PRACTICES FOR MARINAS.....	10
FACTORS INCREASING CLEAN MARINA PROGRAM EFFECTIVENESS	12
DETERMINING CLEAN MARINA PROGRAM EFFECTIVENESS	13
METHODOLOGY	15
REVIEW OF OTHER STATE CLEAN MARINA PROGRAMS.....	15
STEERING AND STAKEHOLDERS COMMITTEES.....	16
BOATER AND PROGRAM GUIDEBOOKS.....	17
PROGRAM RECOMMENDATIONS.....	17
RESULTS AND DISCUSSION	18
REVIEW OF OTHER STATE CLEAN MARINA PROGRAMS.....	18
ADVICE FROM INTERVIEWEES.....	21
STEERING AND STAKEHOLDERS COMMITTEES.....	23
BOATER AND PROGRAM GUIDEBOOKS.....	24
PROGRAM RECOMMENDATIONS.....	24
CONCLUSIONS	25
LITERATURE CITED	28
APPENDICES	30
Appendix A: Environmental Impacts of Boating Pollutants	30
Appendix B: Phone Interview Questionnaire	33
Appendix C: Steering Committee Meeting PowerPoint Presentation	34
Appendix D: Stakeholder Committee Meetings Agendas.....	37
Appendix E: Stakeholders Committee Meeting PowerPoint Presentation.....	40
Appendix F: Outline of Other State Clean Marina Programs.....	45
Appendix G: Committee Meeting Notes.....	49
Appendix H: Boater Booklet Draft.....	59
Appendix I: Program Guidebook Draft.....	73

LIST OF TABLES AND FIGURES

FIGURE 1: EFFECTS OF POLLUTANTS IN AQUATIC SYSTEMS. 3

TABLE 1. FEDERAL LAWS AND REGULATIONS PERTAINING TO MARINAS AND
RECREATIONAL BOATING POLLUTANTS 6

TABLE 2. PROGRAM ELIGIBILITY/CERTIFICATION OPTIONS FOR CLEAN MARINA
PROGRAM. 18

TABLE 3. CERTIFICATION PROCESS OPTIONS FOR CLEAN MARINA PROGRAM. 19

TABLE 4. INCENTIVE OPTIONS FOR PARTICIPATION IN CLEAN MARINA PROGRAM. 19

TABLE 5. OPTIONS FOR CLEAN MARINA PROGRAM OUTREACH. 20

PREFACE

With a desire to provide outreach about and incentives for the implementation of environmentally sensitive practices for marinas, the Oregon State Marine Board decided to establish an Oregon Clean Marina program. The Oregon Department of Land Conservation and Development (DLCD) and the Oregon Department of Environmental Quality had already fulfilled Oregon's marina component of the Coastal Zone Act Reauthorization Amendments of 1990 Section 6217 coastal nonpoint pollution control requirements with the creation of the document "Best Management Practices for Oregon Marinas" in May, 2002. As the agency promoting safe and sustainable recreational boating, the Oregon State Marine Board wanted to do more. With funding from DLCD, the Marine Board hired the author as an intern to develop recommendations for the program structure, implementation, and program documents for an Oregon Clean Marina program.

After discussing nonpoint source pollution, the role of marinas in this pollution, the effectiveness of voluntary programs, and the basics of the Clean Marina program, this paper will address the author's creation of a plan for implementing a Clean Marina program in Oregon.

INTRODUCTION

Although over a quarter of a century has passed since the Clean Water Act and other legislation called for the restoration and maintenance of the integrity of our waterbodies, the United States continues to grapple with achieving this goal. Of the waterbodies assessed in 2000, 40 percent of river and stream miles and 45 percent of lake acres were too polluted to support uses such as swimming and fishing (EPA 2002). Thirty-five percent of assessed estuarine resources (determined by assessing water quality, sediment quality, benthic community quality, coastal habitat, and fish tissue contaminants) were found to be impaired and 44 percent were threatened for aquatic life use or human use (EPA 2005). Currently, nonpoint source pollution is the major factor of 90% of the

waterbodies which do not meet the water quality standards for the designated use (USCOP 2004).

Nonpoint Source Pollution in Oregon

While point source pollution that comes from a pipe or other discrete points of discharge remain a source of water quality degradation, nonpoint sources have become the leading cause of water quality impairment in the United States (EPA 2002). In general, nonpoint source pollution results from snow or rain runoff transporting pollution from farming, urban areas, silviculture, construction, mining, and other activities and areas to waterbodies.

In Oregon, 74 percent of rivers and 51 percent of lakes surveyed in 2000 had good water quality that fully supported aquatic life uses while 56 percent of rivers and 96 percent of lakes had water quality which fully supported swimming (EPA 2002). For degraded waters, the most commonly reported problems were due to nonpoint sources such as agriculture, silviculture, and urban runoff/storm sewers. Only six percent of surveyed estuarine waters in Oregon fully supported shellfishing (EPA 2002). The periodic violations of bacteria standards were suspected to have resulted from point sources, agriculture, collection system failures, and urban runoff/storm sewers.

Oregon estuaries and coastal waters are categorized as having “good to fair health” by the US EPA (2005). Although this is generally better than other sections of the west coast and the United States as a whole (EPA 2005), nonpoint source pollution is a threat to the water quality of Oregon’s waterbodies. Nonpoint sources pollute marine environments by adding excess nutrients, sediments, and toxicants (EPA 2001). Figure 1 depicts the general effects of these pollutants in aquatic systems. Excess nutrients can cause weedy plant growth and algal blooms, which can lead to low dissolved oxygen, poor water clarity, and inhibition of aquatic plant growth. Toxicants can cause negative human and aquatic organism health effects. Excess sediments can lead to poor water clarity. Each of these effects results in a negative impact on aquatic organisms and the ecosystem in which they live.

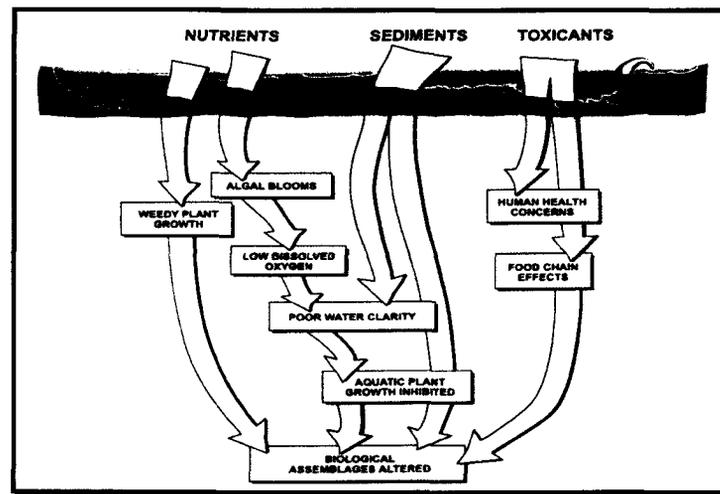


Figure 1: Effects of pollutants in aquatic systems.

Source: EPA 2001

Regulatory and Legal Regime

In an effort to reduce nonpoint source pollution, the Federal Water Pollution Control Act (also known as the Clean Water Act) was amended in 1987. The Clean Water Act Section 303(d) requires the states to list waterbodies which do not meet the water quality standards for their designated use and to determine what the total maximum daily load is for that waterbody to achieve its water quality standard. The division of pollutant sources to these “303(d)” listed waterbodies must include point and nonpoint pollution sources, as well as future growth. Section 319 of the Clean Water Act requires states to identify and create management plans for water bodies which could not meet water quality standards without the control of nonpoint source pollution.

Section 6217 of the Coastal Zone Act Reauthorization Amendments of 1990 (CZARA) requires states which have approved coastal zone management programs, per the Coastal Zone Management Act, to develop Coastal Nonpoint Pollution Control Programs. The states must put management measures in place for each of the five designated sources of nonpoint source pollution: (1) agricultural runoff; (2) urban, construction, highway, and airport/bridges runoff and septic systems; (3) silviculture runoff; (4) marinas and recreational boating; and (5) hydromodification and wetlands (EPA 1993).

Despite this legislation, nonpoint source pollution continues to be a major threat to water quality (POC 2003). The various legislation and regulations “have been largely ineffective in limiting or reversing nutrient pollution of coastal waters. Their implementation has been long on planning and short on actions needed to control diffuse sources. In addition to the difficulties in determining management goals, acceptable nutrient loads, and efficient and equitable allocations among sources, substantial reliance on voluntary rather than mandatory reductions of diffuse sources has constrained the effectiveness of source-reduction efforts” (Boesch et al 2001, 35).

The Pew Oceans Commission (2003) and the U.S. Commission on Ocean Policy (2004) recognized the need for further measures to address nonpoint source pollution. The U.S. Ocean Commission recommended the reduction of nonpoint source pollution in coastal watersheds be created as a national goal and the setting of measurable objectives to achieve water quality standards (Recommendation 14-8). Along with this general recommendation, the Commission recommended the nonpoint source pollution control programs of CZARA Section 6217 and the Clean Water Act Section 319 be evaluated for improvement (Recommendations 14-9 and 14-10). Included in the recommended possible improvements are the consolidation of the programs, the requirement of enforceable best management practices, an increase in federal support, and the imposition of financial disincentives for states which continually perform poorly. Though these recommendations are a few of the many recommendations of the U.S. Ocean Commission, they are a good indication that nonpoint source pollution is an issue which will undergo further regulatory scrutiny in the future.

Marinas and Pollution

More than half of the U.S. population lives in coastal counties (POC 2003). Though of course not all these people own a boat, the number of people involved in recreational boating and the resulting economic impact is substantial. In 2003, 17.5 million recreational boats were in use and the retail expenditures directly related to recreational boating was \$30 billion (NMMA 2004). Although not the major source of nonpoint pollution, marinas have been designated as sites where nonpoint source pollution can be

reduced. This designation is due to the congregation of recreational boats at marinas, the activities which often occur at marinas, and the physical location of marinas.

Because pollutants from upstream in the watershed often flow through the land and water of the marina, “water quality in a marina, therefore, is often a reflection of not only nonpoint source pollutants generated at the marina but also a cumulative load of pollutants from several watershed sources” (EPA 2001). While this “offsite” pollution production is something to be acknowledged, the pollution generated from marina activities, marina facilities, and the boats themselves must also be addressed.

Pollutants which are often generated at a marina and which could enter a marina basin include:

- petroleum hydrocarbons from fuel and oil drippings and from solvents
- nutrients and pathogens from overboard sewage discharge and animal waste
- toxic metal from antifoulants and hull and boat maintenance debris
- liquid and solid wastes from engine and hull maintenance and general marina activities
- sediments from parking lot runoff and shoreline erosion
- fish waste from dockside fish cleaning (EPA 2001)

These pollutants are known to have various negative impacts on the local environment and organisms, as listed in Appendix A.

The impact of pollutants from both marinas and from upstream in the watershed is exacerbated since “most marinas and boatyards are either situated in the quiet backwaters of estuaries, or they are well protected from wind and waves by substantial breakwaters. Such poorly flushed areas are easily damaged by pollution” (South Slough NERR 2002).

Marina Legal Regime

While the generation and concentration of pollutants at marinas has been addressed through the nonpoint source pollution laws of CZARA section 6217 and the Clean Water Act sections 319 and 303(d), other laws and regulations also pertain to polluting activities at marinas and boat operation. Per Goldstein (2003), the laws and regulations in Table 1 also pertain to the control of marina and recreational boating pollutants.

Table 1. Federal Laws and Regulations Pertaining to Marinas and Recreational Boating
Pollutants

Law or Regulation	Pollutant or Activity
✧ Clean Air Act (Section 213)	✧ Air pollution
✧ Clean Vessel Act of 1992	✧ Boat sewage
✧ Clean Water Act (Section 311)	✧ Oil storage and pollution
✧ Clean Water Act (Section 312)	✧ Marine sanitation devices
✧ Clean Water Act (Section 402)	✧ Stormwater runoff permits
✧ Clean Water Act (Section 404)	✧ Marina siting and development
✧ Emergency Planning and Community Right-to-Know Act of 1986	✧ Oil and hazardous waste storage
✧ MARPOL/Act to Prevent Pollution from Ships of 1980/Marine Plastic Pollution Research and Control Act	✧ Debris and litter from boats
✧ Occupational Safety and Health Act	✧ Marina workplace safety
✧ Oil Pollution Act	✧ Oil pollution
✧ Organotin Antifoulant Paint Control Act of 1988	✧ Antifouling paints
✧ Refuse Act of 1899	✧ Debris and litter from boats
✧ Resource Conservation and Recovery Act	✧ Hazardous materials and underground storage tanks
✧ Rivers and Harbors Act of 1899	✧ Marina siting and development
✧ Sportfishing and Boating Safety Act of 1998 (BIG)	✧ Marina siting and development

Despite this legal and regulatory regime, marinas “generally fall ‘under the radar scope’ of enforcement officials unless there is a complaint or a spill that draws attention to problems” (May 2003). Because of this situation, along with the pressure of Section 6217 of CZARA, the concept of the voluntary Clean Marina initiative was born.

BACKGROUND

Voluntary Programs

The Clean Marina Initiative is an example of a voluntary program where the government initiates the program and invites firms to voluntarily participate. "Under the voluntary approach, government calls attention to a potential harm and facilitates actions that are voluntarily undertaken by relevant entities to remedy that potential within the context of broader laws" (May 2003, 297). Due to the decline of agency budgets relative to regulatory mandates, the expense of regulation enforcement, the resulting laxness of enforcement, and complaints by business about the high cost of compliance to rigid regulations, voluntary programs have been on the rise (Potoski and Prakash 2002).

In the United States, the Environmental Protection Agency (EPA) is the major sponsor of voluntary programs, administering 33 out of 42 voluntary federal initiatives in 1998 (Mazurek 2002). Participation in EPA voluntary programs rose from 400 in 1991 to a projected 13,055 in 2000 (Mazurek 2002). This immense growth of voluntary approaches, combined with an even greater increase of voluntary programs in the world, has led to a growing amount of literature about what factors make some voluntary programs more effective than others.

Voluntary Program Effectiveness

There are several factors believed to make a voluntary program more effective. The most important factor is to have a credible threat of regulation in addition to the voluntary approach (OECD 1999; Lyon and Maxwell 1999; de Bruijin and Norberg-Bohm 2001; Alberini and Sergerson 2002; Randall 2002; May 2003). The involvement of third parties, particularly of trade associations, and implementation of the program through existing networks improved effectiveness (OECD 1999; de Bruijin and Norberg-Bohm 2001; Dietz 2002; May 2003). Dietz (2002) explains why networks matter: firms often compare themselves with other firms and modify their behavior to fit the norm; trade associations can play a role by sharing information about future regulations and sharing information across firms; and firms which reap the benefits of the program without doing

their part (a.k.a. “free-riding”) may bring informal sanctions from trade associations and other firms.

The transfer of information and technology to firms was seen as a vital incentive for the participating firms and a major component of the voluntary approach (OECD 1999; Videras and Alberini 2000; Delmas and Keller 2001; Potoski and Prakash 2002). Publicity and public recognition were also seen as important (Videras and Alberini 2000; de Bruijin and Norberg-Bohm 2001; Potoski and Prakash 2002; May 2003). The general need for incentives, particularly for financial benefits or cost-sharing of projects was another important factor (de Bruijin and Norberg-Bohm 2001; Alberini and Sergerson 2002; Potoski and Prakash 2002).

Clarity of rules at the beginning of the program (de Bruijin and Norberg-Bohm 2001; Delmas and Keller 2001; Potoski and Prakash 2002) and reliable monitoring during the program (OECD 1999; Alberini and Sergerson 2002; Randall 2002) were also found to improve program effectiveness. Having penalties for non-compliance was suggested to decrease “free-riding” (OECD 1999; Potoski and Prakash 2002; Randall 2002). The enforcement of rules from the beginning and the involvement of upper management (Delmas and Keller 2001) were also suggested to ensure compliance and program success. A few other suggestions were offering regulatory benefits (Potoski and Prakash 2002), making sure the program fit with the national policy style (de Bruijin and Norberg-Bohm 2001), and structuring the participation requirements so they entail enough of a pollution abatement commitment to make a difference (Alberini and Sergerson 2002). To aid in assessment of program success, the clear definition of targets and characterization of the baseline scenario (i.e., predicted “business-as-usual” environmental health) were also recommended (OECD 1999).

Voluntary Programs and Nonpoint Source Pollution

The use of voluntary approaches for nonpoint source pollution is not surprising given that “in general, the EPA and industry use voluntary agreements to (1) address risks that U.S. laws and regulations fail to adequately target, and (2) integrate individual air, water, waste, and toxics laws” (Mazurek 2002, 220). While the command-and-control

regulation of point source pollution seems to have worked reasonably well, nonpoint source pollution has not been addressed with such direct regulation. “Addressing [nonpoint sources] within the ‘command-and-control’ framework seemed too difficult – technically difficult because their diffuse nature impeded monitoring nonpoint effluents from particular sources and enforcing controls, and politically difficult because the longstanding public propensity to subsidize rather than regulate farming militates against regulatory controls and ‘polluter pays’ for agriculture, a major source of nonpoint pollution” (Randall 2002, 312).

Nonpoint source pollution has therefore fallen through the cracks of direct regulation. Voluntary programs may be the only realistic alternative “when the sources of harms are widely dispersed and the cost of inspection, relative to the potential harm, is high” (May 2003, 298). An example of such a situation is nonpoint source pollution from marinas.

The Clean Marina Program

Funded by the US EPA and the National Oceanic and Atmospheric Association (NOAA), the Clean Marina program is aimed at reducing the nonpoint source pollution from marinas by improving the practices of marina owners and users. The Clean Marina program provides volunteer marinas with implementable best management practices while bestowing the facility with official recognition for helping to establish and promote a cleaner marine environment. If a facility is in compliance with environmental regulations and uses a high percentage of environmentally sensitive practices, it can be designated as a Clean Marina. Such certified marinas are authorized to fly the Clean Marina flag, use the logo in their advertising, and receive other benefits.

Clean Marina programs function both as a public/private partnership between the lead agency and marina operators and as an ecolabel program (Goldstein 2003). The Clean Marina program falls into the ecolabelling category because it follows the main steps of the ecolabelling process: (1) setting of environmental standards for the ecolabel; (2) assessment of the applicant facility in accordance with the designated standards; (3) certification of applicants who comply with standards; and (4) recognition and acceptance of certified facilities as green businesses (Goldstein 2003). Using the

voluntary and ecolabel approach, the Clean Marina initiative is an effort to have best management practices implemented at marinas.

Best Management Practices for Marinas

In 1993, the EPA provided specific guidance for the reduction of nonpoint source pollution from marinas by outlining management measures and best management practices (BMPs). The guidance was clarified in 2001 with the “National Management Measures Guidance to Control Nonpoint Source Pollution from Marinas and Recreational Boating”. The EPA described the management measures as “the best available, economically achievable practices or combinations of practices that can be used to address nonpoint source pollution from marinas and recreational boating” (EPA 2001).

The EPA divided the management measures as follows (NOAA 2003):

- marina siting and design:
 - marina flushing
 - water quality assessment
 - habitat assessment
 - shoreline stabilization
 - stormwater runoff management
 - fueling station design
 - petroleum control
 - liquid material management
 - solid waste management
 - fish waste management
 - sewage facility installation
- marina and boating operation and maintenance:
 - solid waste management
 - fish waste management
 - liquid material management
 - petroleum control
 - boat cleaning
 - public education
 - sewage facility maintenance
 - boat operation

BMPs are techniques used to achieve the management measures. There are two basic forms of BMPs – those which prevent the creation or release of pollutants into the environment and those which collect pollutants before they enter the water (EPA 2001). The EPA (2001) stated “marina managers should make informed decisions, based on the

circumstances at their particular marina, as to whether the BMPs in this guidance or others would be most effective for controlling nonpoint source pollution. Which BMP or combination of BMPs issued is not the critical point. Preventing water pollution is.” This advice is taken to heart with the outreach of the BMPs and the implementation of Clean Marina programs occurring at the state level and through the use of the BMPs as guidance rather than requirements.

The need for particular management measures was highlighted by the USCOP report (2004). The Commission noted that “the amount of bacterial pollution in the discharge of untreated sewage from just one recreational boat is equivalent to the amount in the treated sewage of 10,000 people during a similar time period” (USCOP 2004, 200). This fact, along with the lack of updated marine sanitation device (MSD) performance and design standards and current shortfall of adequate MSD pumpout facilities, led the Commission to recommend the requirement of new MSDs to meet more stringent pathogen standards and an increase in the availability of adequate, accessible, and operational pumpout facilities (Recommendations 16-6 and 16-7).

The U.S. Ocean Commission also discusses the release of between 0.6 and 2.5 million gallons of oil and gasoline into U.S. coastal waters every year and the contribution of 10 percent of the total hydrocarbon emissions in some areas of the U.S. by the two-stroke engines of small recreational boats. They recommend the reduction of “the release of air and oil pollutants from small vessel operations through a combination of outreach and education, development of incentives to encourage early replacement of older two-stroke engines, and support for innovative pilot programs at the federal, state, and local levels” (Recommendation 16-12).

Finally, the Commission also notes the need for coordinated research on the fates and impacts of vessel pollution, development of new control technologies, determination of best management practices, and the creation of more effective regulatory regimes (Recommendation 16-13). Clearly, the reduction of pollution from marinas and recreational boats is an area that needs work and will be included in future programs and regulations.

Though further research is needed on what the best management practice for some marina activities should be, an important aspect of reducing the nonpoint source pollution

from marinas is simply providing instructive outreach on current BMPs and incentives for their implementation. The Clean Marina program attempts to provide this service.

Factors Increasing Clean Marina Program Effectiveness

Through the analysis of self-reports of marine facility actions, May (2003) researched voluntary programs in marinas in Washington and California and found the following issues important to program effectiveness: fear of regulation; belief action is needed due to poor water quality; sense of civic duty; belief others are doing their part; the involvement of third parties such as trade organizations; and availability of resources. "Nearly one-quarter [of marinas] report that a fear of future regulation and a fear of legal liability are strong motivations for taking action to address water quality" (May 2003, 302).

May (2003) also found the willingness of facility operators to address water quality was constrained by several factors: the complexity of rules governing water quality; the cost of water quality protection devices; the belief there is too much uncertainty about the effects of marine facilities on water quality to justify action; and skepticism about government regulation. Some governmental actions that can help overcome these constraints to action include education about water quality problems, providing funding for devices, and "building commitment and capacity to take action" (May 2003, 313).

According to May (2003), public versus private ownership of a facility may make a difference as to its capacity and willingness to participate in voluntary measures. Since public facilities have public subsidies, they may have greater capacity to act. The concept that public facilities should act as good examples to the public may also lead to a greater willingness to participate.

Goldstein (2003) outlines recommendations to developing effective clean marina programs: (1) involve industry in both the planning and implementation phase; (2) ensure the program criteria meet the overall goals of the program, including nonpoint source pollution reduction and education/outreach; (3) communicate as much as possible with marina operators; (4) when communicating with marina operators, use plain English and a cooperative demeanor to garner the most participation; (5) allow the program to evolve

organically with input from the program advisory committee; and (6) use the program to codify the law into a user-friendly, centralized source.

Determining Clean Marina Program Effectiveness

Alberini and Segerson (2002) explain that the true effectiveness of a voluntary program depends on the level of environmental protection attained. This is based on the number of polluters who participate, the amount of pollution abated by each polluter, and “the impact that the approach has on the number of polluting firms, which in turn depends on its impacts on competition in the output market” (Alberini and Segerson 2002, 159). The Organisation for the Economic Co-Operation and Development (OECD) studied the effectiveness of voluntary approaches in Canada, Denmark, Japan, and the U.S. They found that “while the targets of most – but not all – voluntary approaches seem to have been met, there are only a few cases where such approaches have been found to contribute to environmental improvements significantly different from what would have happened anyway. Hence, the environmental effectiveness of voluntary approaches is still questionable” (OECD 2003, 14).

The determination of program effectiveness is often difficult given the likely absence of a reliable baseline of environmental health that would have occurred without the program and the lack of general monitoring before or after the program. To determine the “success” of the voluntary actions in marinas in Washington and California, Peter May examined “actions taken to address potential harms. These are measured as the percentage of best management practices that are undertaken by each facility” (2003, 301). Activities included “installation of physical devices, use of appropriate equipment, restrictions on activities at the facility, and management practices that encourage appropriate actions by facility operators and boat owners” (May 2003, 301).

In terms of the Clean Marina program’s effectiveness as an ecolabel, “only limited evaluation has been conducted... into the effectiveness of ecolabelling and environmental certification programs, both in terms of ecolabels’ ability to protect the environment and ecolabels’ capacity to reward environmentally-conscious producers with increased returns for their efforts” (Goldstein 2003, 23). Goldstein also notes that due to

the low level of knowledge about the Clean Marina program by boaters, “the ecolabel appears to function without a high degree of consumer (i.e. recreational boater) knowledge” and therefore is more of “a tool of ‘producer differentiation’ rather than consumer choice”. This refers to the fact that the first marina operators to join the program are often the most environmentally advanced and are being “differentiated” from the other marinas and receiving rewards for their participation (Goldstein 2003). Goldstein suggests that as Clean Marina programs grow in number and magnitude, perhaps they will become more a tool of consumer choice and boaters will look for clean marinas to patronize, as has begun in some areas.

As demonstrated by anecdotal evidence from program managers and marina operators interviewed by Kevin Goldstein (2003), there seems to be an environmental benefit from the Clean Marina program. This evidence consists mostly of what is being kept out of the water through the use of best management practices, as well as reported increases of sewage being pumped, the issuance of new stormwater runoff permits, and the maintenance of fuel storage tanks in accordance with regulations. Goldstein (2003) notes that scientific evidence of water quality improvement has not been collected to back up this anecdotal evidence.

The EPA study “Clear Marinas, Clear Value” investigated the economic benefits realized by 25 marinas and boatyards which implemented management measures. The study found that, “on average, owner investments have more than paid for themselves” (EPA 1996, 7). They noted that the public and private operations involved in the study “realized that the upgrades are good for both the environment and their bottom line” (EPA 1996, 7).

The positive reaction to participation in the program resulted in increased use of best management practices. “Once facility owners and managers take the first few steps to protect the environment, they quickly take many other steps toward facility improvement. And the process continues as they strive to become even better after seeing the positive reaction of their customers following environmental progress” (EPA 1996, 4).

All the environmental improvements and changes do not necessarily result in measurable economic benefits, but according to the marina operators involved in the EPA

study, “environmental protection is just part of the cost of doing business today along the waterfront. We’ve got to do what we can to have good water quality for the sake of our business” (EPA 1996, 4). Cleaning up their operations was not always easy. But, all the marinas noted their operations were much cleaner after “banging a few heads” (EPA 1996, 5).

All but one of the marina managers stated their rates and occupancy were higher than those of other facilities nearby in their boating market area (EPA 1996). “They generally believed that their visible efforts to operate clean marinas translated into customer confidence that management would also give extra care to the boats. Plus, an increasing percentage of the public today wants to use only nice, clean, service-oriented facilities. And it seems that a growing percentage of the boating public, according to these managers, is willing to pay a higher slip cost for a better and cleaner facility” (EPA 1996).

While the findings of the EPA (1996) study seem to support the concept and success of the Clean Marina program through customer choice, economic benefit, and improved environment and the anecdotal stories of Goldstein’s study seem to support the positive environmental benefits of the program, overall there is a general lack of such studies or scientific studies of the success of the Clean Marina program.

METHODOLOGY

During the six month period of January 2005 to June 2005, the author’s goal was to create a plan for the implementation of the Clean Marina program in Oregon. The objectives to reach this goal included formation of a stakeholder committee, compilation of recommendations for the program structure, implementation, and outreach, and creation of a program guidebook and outreach materials.

Review of Other State Clean Marina Programs

In order to achieve these objectives, the author first became familiar with the Clean Marina program in other states through online research, examination of other states’

Clean Marina guidebooks, review of pertinent literature, interviews of several Clean Marina program coordinators, an interview with a boating representative, and discussion with various state agency staff. The interviews with the program coordinators in other states and the boating representative were performed on the phone with a standardized questionnaire form (see Appendix B) to ensure certain pertinent questions were asked. To get a handle on the various program structures, implementation, and outreach that other states used, the information obtained from this investigative work was summarized in a spreadsheet.

Steering and Stakeholders Committees

A Clean Marina steering committee was assembled and met in the end of January 2005 to act as a sounding board for the general concept of a Clean Marina program in Oregon and to be available to answer any inquiries by the State legislature about the program. The Steering Committee was comprised of four marina representatives, one representative from DLCD, and two members of the Marine Board. The members were suggested by Marine Board employees. The author led this meeting and presented some basic aspects of the Clean Marina program (the PowerPoint presentation is in Appendix C).

A larger committee of stakeholders was first convened in mid-March 2005. The Clean Marina Stakeholder Committee was comprised of 16 individuals, including marina owners and operators, port managers, boatyard managers, a boating representative, marine dealers representatives, a member of the US Coast Guard Auxiliary, a floating home representative, representatives of natural resource governmental agencies, and Marine Board employees. The members were suggested by Marine Board employees and the Steering Committee and were asked to participate based on their representation of a stakeholder community. The Stakeholders Committee has given feedback on each of the program development objectives. At the time of writing, the Clean Marina Stakeholders Committee has met twice and is scheduled for a final meeting mid-June 2005. The author led each of these meetings. The meeting agendas are in Appendix D and the presentation for the first meeting is in Appendix E.

Boater and Program Guidebooks

To create the draft boater's booklet, the author revised boater tip sheets from other states and organizations. The draft version was given to the Stakeholders Committee for comments. The feedback was discussed at the second Stakeholders meeting and then the author incorporated the suggested changes to the document. The document will be given to a graphic artist and the draft final version will be presented at the Stakeholders Committee meeting mid-June 2005.

The draft guidebook was created by first discussing what the Stakeholders Committee liked or disliked about the "Best Management Practices (BMPs) for Oregon Marinas" document, since this would provide some of the basis for the program guidebook. Several sample sections from guidebooks with different setups were emailed to the Stakeholders Committee for feedback on what structure would be preferred for the Oregon guidebook. After the feedback was compiled, a structure which tried to incorporate the majority of the comments was created. The Connecticut Clean Marina guidebook was downloaded, converted to a Microsoft Word document, reformatted, and edited to apply to Oregon. The BMPs for Oregon Marinas document was then sifted through to incorporate its information into the new guidebook. As of this writing, the draft Oregon guidebook is out for review by the Stakeholders Committee. When the feedback is received, a summary of the feedback will be emailed to the Committee for any further comments before the changes are incorporated. The author will integrate the changes, continue updating some regulatory and formatting issues, and present the draft final version of the guidebook to the Committee at the meeting mid-June 2005.

Program Recommendations

The preliminary recommendations for the Clean Marina program structure, implementation, and outreach plan were developed from the feedback from the Stakeholders Committee meetings. At the first Stakeholders meeting, the various structures, implementation plans, and outreach techniques used by other state programs were presented and decisions on the form of the Oregon program were made. More detailed recommendations will be discussed at the Stakeholders meeting mid-June 2005.

The final recommendations will be complied by the author and approved by the Stakeholders Committee by June 30, 2005.

RESULTS AND DISCUSSION

Review of Other State Clean Marina Programs

The results of the online research, examination of other states' Clean Marina guidebooks, review of pertinent literature, interviews of several Clean Marina program coordinators, an interview with a national boating organization representative, and discussion with various state agency staff were summarized into a spreadsheet (see Appendix F).

The following tables summarize the most common and other less common attributes of other states' Clean Marina programs. Program components outlined in the tables are the entities which are eligible to apply for certification (Table 2), the process for certification as a Clean Marina (Table 3), the material incentives and justifications for participation in the program (Table 4), and the techniques used for program outreach (Table 5). The abbreviations of the states which use that option are placed in parentheses.

Table 2. Program Eligibility/Certification Options for Clean Marina Program.

Most Common	Other Options
✧ Marinas, boatyards, yacht clubs (CT, FL, MD, TX)	✧ Marinas, boatyards, yacht clubs, and Marine Retailers (FL)
	✧ Marinas, boatyards, yacht clubs, and Marina Partners [public boat ramps, private community piers, charter boat liveries, maritime museums] (MD, VA)
	✧ Marinas, boatyards, yacht clubs, and Boaters (CT, Ontario)

	✧ Marinas, boatyards, yacht clubs, and Houseboats
	✧ Just marinas and yacht clubs (NC)

Table 3. Certification Process Options for Clean Marina Program.

Most Common	Other Options
✧ Workshop	✧ Marina operators can go to other marinas when they are inspected to learn about the process (San Diego)
✧ Pledge	✧ No pledge (NC)
✧ Self-assessment of property using checklist	✧ Hold certification awards ceremony (FL, VA)
✧ Contact mentor with any questions	✧ Compliance classes after round of workshops [Marina Trade Assoc hired consultant to teach compliance classes (CT)]
✧ Confirmation visit	
✧ Maintain Clean Marina status	
✧ Reconfirmation visit	

Table 4. Incentive Options for Participation in Clean Marina Program.

Most Common Objects/Actions/Reasons	Other Options
✧ Logo usage	✧ Grants- must be Clean Marina to get certain grant items (CT, MD)
✧ Certificate	✧ Framed certificate (CT)

◇ Flag/burgee	◇ Various items - oil drum house; sign with environmental regulations; templates for signs; bilge socks; vent guards; monofilament recycling bins (FL)
◇ Press release	◇ List of purveyors of goods that help achieve BMP - hard copy given at workshop then online version updated annually (FL)
◇ Recognized at public events	◇ Insurance discount
◇ Listed in publications	◇ All coastal marinas receive a free oil spill kit (TX)
◇ Free listing and links on Clean Marina website	◇ CD of boater education artwork, lists of resources and funding sources (CA)
◇ Technical assistance	◇ Cleaner marinas through marina-led program, not state-led (San Diego)
◇ Improved water and air quality, attraction of responsible boaters, and less costs for waste cleanup	
◇ Increased demand for slips	
◇ Comply with regulations	

Table 5. Options for Clean Marina Program Outreach.

Most Common	Other Options
◇ Send notice of program implementation marinas	◇ Auxiliary does courtesy inspections and hands out small stuff to boaters (FL, MD)

✧ Visit some marinas to discuss program	✧ Create Dockwalkers program or marina stewardship program [Dockwalkers program (CA)]
✧ Hold workshops	✧ Clean Boaters get decal, 10% discount on insurance, handbook, membership ID card, environmental boat inspection, newsletter (Ontario)
✧ Provide technical assistance/mentoring as requested	✧ Give pledged boaters a discount at Clean Retailers, Clean Marina Shops
✧ Outreach to boaters via newsletter and website	✧ Clean Boating Habits booklet given out with slip agreements (FL)
✧ On website, post guidebook and list of certified Clean Marinas	✧ Hold compliance classes after round of workshops (CT)
✧ Outreach at boat shows	✧ Produce newsletter (MD)
✧ Outreach in agency publications	✧ Marinas that have pledged will be recognized by the program at events and in publications (VA)
✧ Contact marinas who have pledged but have not become certified	

Advice from Interviewees

Along with the description of other state program structures and techniques, the interviews with Clean Marina program coordinators and the boating organization representative provided some recommendations for the development of a program.

The involvement of industry representatives, especially the state marine trade association, as partners in the planning process and implementation of the program were deemed very important by all the interviewed states. The industry involvement provides “buy-in” by some stakeholders, ensures the program is developed in a manner consistent

with the stakeholders' needs and concerns, and provides future industry advocates for the program. Since there is no state marine trade association in Oregon, the effort was placed instead in creating a representative stakeholders committee which provided guidance on the program development. Ensuring the stakeholders committee was not overloaded with government agency workers was another common piece of advice. The mix of stakeholders also tried to ensure a large majority of industry representatives rather than agency representatives. Within the industry representatives, there was an effort to have representatives of different communities, such as public and private facilities, marinas, boatyards, small and large facilities, coastal and inland facilities, boaters, houseboaters, and yacht clubs.

One state which did not have a certification-type program due to lack of resources and the need to address "hot topics" suggested a needs assessment be completed prior to starting the program. Due to the time constraint of needing to complete program recommendations and materials before the end of the fiscal year (June 30, 2005), a needs assessment was not completed.

A few other states suggested that in the creation of performance measures, the number of slips, rather than the number of marinas, be used as a measurement of participant success. At the present time, the program does not have a participation goal number, but if such a goal becomes necessary, the number of slips will be offered as a better measure of participation success than marinas. This recommendation is a result of the low participation rates. Maryland has the highest participation rate, and is one of the oldest programs, yet only has 17% of marinas certified as Clean Marinas. The recruitment of large numbers of marinas was cited by many states as the greatest challenge of the program.

The agency or organization within which the Clean Marina program is "located" was deemed by many interviewees as another important factor to the success of the program. Many states which housed the Clean Marina program in a regulatory agency had difficulty convincing marinas they were acting in the capacity of a voluntary outreach program. Though the placement of the program in a regulatory agency was said to make the program outreach more difficult, the placement of the program in an agency which had some authority of the state was deemed to be important for the certification to

hold weight. The placement of the program in the Oregon State Marine Board should be a good fit because it is a state agency and therefore has credibility, but it is not an environmental regulatory agency. Because most marinas interact with the Marine Board when they are receiving grants for facility improvements, the agency is seen in a favorable, “white-hat” manner by many marinas.

One final issue brought up by many interviewees was the need to ensure some sort of funding commitment for the program implementation and maintenance. To ensure participation in and success of the program, there must be confidence that the program will not be cut due to lack of funding after a year or so. According to the Marine Board, there is a commitment to continually fund the program. Funding for the program, including a full-time program coordinator, for the next two years was included in the Marine Board budget passed by the 2005 legislature.

Steering and Stakeholders Committees

Each of the Clean Marina Steering and Stakeholders Committee meetings were quite positive and productive. The meeting notes, which were emailed to the respective committees a couple days after each meeting, are in Appendix G. The Steering Committee decided the program should be a certification-type program rather than simply just outreach.

The Stakeholders Committee decided marinas, boatyards, yacht clubs, and floating home marinas would be eligible to apply for certification. Marinas will be defined as having ten or more slips. The Committee noted that this list of eligible entities could grow in future once the program is more developed. The Stakeholders Committee decided to go with the most common certification process, incentives, and outreach plans (see program recommendation section below for more details).

The second Stakeholders Committee meeting discussed the boater and program guidebooks (see boater and program guidebook section below) and chose the logo for the program. This logo will be used on flags for certified marinas, may be used by certified marinas on letterhead and advertising, and will be used in promotion of the Oregon Clean Marina program.

The Committee also discussed how success of the program might be measured. The number of marinas and the number of slips that become certified will be one measurement. The possibility of conducting some water quality testing for specific items such as bottom paint and acetone at a few voluntary marinas to try to determine if the program has a positive environmental effect was also mentioned. Another option considered was the recording of any increase in items hauled away from the marina (such as oil for recycling, sewage) and an increase in BMPs used as a result of the program.

Boater and Program Guidebooks

The boater booklet has undergone review by the Stakeholders Committee via committee meetings and email and will be given to a graphic artist by the end of May 2005. The current draft version, pre-graphic artist work, is in Appendix H. This booklet will be distributed to boaters at boat shows and at participating marinas.

The program guidebook is still under review and is in draft form (see Appendix I). This guidebook will be the basis of the Clean Marina program and includes information about the program and the best management practices. The best management practices follow the EPA guidance management measures, other states' guidebook BMPs, and the BMPs of Oregon Marinas document. The checklist for certification will also be included in the guidebook. The guidebook will be a three-ring binder publication distributed to interested marinas and electronically posted on the Marine Board website.

Program Recommendations

The program structure will follow the advice of the interviewees and the decisions of the Stakeholders Committee. The most common certification process will be used. A participant will attend a workshop, sign a pledge to become certified in one year, conduct a self-assessment of his or her property using the checklist, contact a mentor with any questions, schedule and hold a confirmation visit, become certified, maintain the certification status, and schedule and hold a reconfirmation visit. Some of the details of

this process, such as who will attend the certification visit and how often a reconfirmation visit will occur, will be decided at the Stakeholders meeting mid-June 2005.

The incentives for obtaining certification will include the authorization to use the logo, the receipt of a certification certificate and a flag/burgee which can be displayed, free technical assistance, free publicity of the marina through a press release by the Marine Board, recognition by the Marine Board at public events, and listing in Marine Board publications and website. Other possible incentives, which are still being investigated, include points on a Marine Board facility grant application, grants for materials such as spill response kits, and tax credits.

The basic outreach plan will include sending an announcement notice to all marinas about the program launch, visiting marinas to discuss the program, holding regional workshops, providing technical assistance/mentoring, posting the guidebook and list of certified marinas on the Marine Board website, and providing outreach to boaters and marinas via the Marine Board newsletter, website, and publications and at boat shows. Some of the details of this process, such as the program launch date and likely regional locations for workshops, will be decided at the Stakeholders meeting mid-June 2005.

CONCLUSIONS

Throughout the process of developing a plan for the Oregon Clean Marina program, the various recommendations of the other state program coordinators and the literature were considered carefully. An analysis of the Oregon Clean Marina program's incorporation results in a positive outlook. The Pew Oceans Commission and U.S. Ocean Commission recommendations to reduce nonpoint source pollution and to address the pollution of marine sanitation device discharges and two-stroke engines are a good, though somewhat distant, threat of future regulation. The program's voluntary, eco-label nature fits with the national policy emphasis on voluntary as opposed to direct regulatory measures to achieve water quality goals. Hopefully, the eco-certification, education, and incentives of

the Clean Marina program will not only promote participation, but also avoid the political backlash of regulation.

The Stakeholders Committee was heavily weighted with industry representatives and has had an active role in the development of the program. The program is being implemented through the existing "white-hat" networks of the Oregon State Marine Board and upper management of the Marine Board has been directly involved. The commitment of continuing funding by the Marine Board provides a stable resource base for the program.

The program incentives for participation include the transfer of information and technology, publicity and public recognition, and some financial benefits. The financial benefits should help to cover the cost of some more expensive water quality protection devices. The guidebook is structured in a manner which tries to clarify, simplify, and consolidate environmental regulations pertaining to marinas. This provides the incentive of reducing legal liability through knowledge of and compliance with the applicable environmental laws and regulations.

As the program continues to be developed and implementation begins, other recommendations not initially included will be added as feasible. The program will continue to evolve organically with input from the Stakeholders Committee and a future stakeholders advisory committee. There will be clarity of rules at the beginning of the program and an effort to ensure the program criteria entail enough pollution abatement to make a difference. The desire of the Stakeholders Committee to create a "why participate" statement which focused on the "do the right thing" response indicates the desire to promote the sense of civic duty and a belief that other marinas are doing their part. Education and outreach about the effects of nonpoint source pollution will help dispel the uncertainty about the effects of marine facilities on water quality and to increase the level of boaters' knowledge about BMPs and the Clean Marina program.

A few recommendations have not been followed. The lack of an Oregon marine trades association has prevented the involvement of a marine trades association in the program. The use of penalties for non-compliance has not been discussed other than through the use of recertification to ensure standards continue to be met. The reduction

of skepticism about government regulation is a difficult goal to attain, so the voluntary nature of the program will be stressed.

The issue of measuring the effectiveness, or success, of the program has not been settled. The desire and funds to attain baseline information and to perform reliable monitoring will be investigated. The possibility of incorporating volunteer water quality monitoring will also be researched. The recording of actions taken to address potential harms, the issuance of new environmental permits, and other manners of recording what is being kept out of the water will also be considered.

The efforts to follow the recommendations for program effectiveness will hopefully result in an improved environment as well as the attainment of higher certification rates than other state Clean Marina programs have attained thus far. While following the recommendations of the other state programs and the literature was attempted, some activities simply occurred as they often do in a management situation – the easiest and quickest way to get something accomplished. This very issue of lack of time to consider the best way to do things, whether due to the many tasks of a marina operator or to the constraints of the governmental fiscal year, is the crux of the issue of using best management practices. Whether they are best management practices for marinas or for the development of a program like the Clean Marina program, following them may not always be the easiest, quickest, or least expensive method. Hopefully the right incentives, the education and support, and the will to “do the right thing” will result in the use of best management practices, and therefore result in a healthier, sustainable environment and Clean Marina program.

LITERATURE CITED

- Alberini, A. and K. Segerson. 2002. Assessing voluntary programs to improve environmental quality. *Environmental and Resource Economics* 22:157-184.
- Boesch, D. F., R. H. Burroughs, J. E. Baker, R. P. Mason, C. L. Rowe, and R. L. Siefert. 2001. *Marine Pollution in the United States: Significant Accomplishments, Future Challenges*. Arlington, VA: Pew Oceans Commission.
- de Bruijin, T. and V. Norberg-Bohm. 2001. *Voluntary, Collaborative, and Information-Based Policies: Lessons and Next Steps for Environmental and Energy Policy in the United States and Europe*. Energy Technology Innovation Project, Belfer Center for Science and International Affairs, and Regulatory Policy Program, Center for Business and Government, Kennedy School of Government, Harvard University.
- Delmas, M. and A. Keller. 2001. Strategic free riding in voluntary programs: the case of WasteWise. Viewed 11/14/04 at: <http://fiesta.bren.ucsb.edu/~delmas/webpage/Wastewise12-01-01.pdf>
- Dietz, T. 2002. Understanding voluntary measures. In *New tools for environmental protection: Education, information, and voluntary measures*, ed. T. Dietz and P. C. Stern, 319-333. Washington, DC: National Academy Press.
- Environmental Protection Agency (EPA). 1993. *Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters*. Viewed 3/17/05 at: <http://www.epa.gov/owow/nps/mmgil/>.
- Environmental Protection Agency (EPA). 1996. *Clean Marinas, Clear Value*. Viewed 3/6/05 at: <http://www.epa.gov/owow/nps/marinas/>.
- Environmental Protection Agency (EPA). 2001. *National Management Measures Guidance to Control Nonpoint Source Pollution from Marinas and Recreational Boating*. Washington, DC: Office of Wetlands, Ocean and Watersheds, Office of Water, U.S. Environmental Protection Agency.
- Environmental Protection Agency (EPA). 2002. *National Water Quality Inventory: 2000 Report*. Viewed 5/8/05 at: <http://www.epa.gov/305b/2000report/>.
- Environmental Protection Agency (EPA). 2005. *The National Coastal Condition Report II*. Viewed 5/8/05 at: <http://www.epa.gov/owow/oceans/nccr/2005/downloads.html>.
- Goldstein, K. A. 2003. *Evaluating the Effectiveness of Eco-certification Programs in North America: Clean Marina Programs*. University of Delaware Thesis Publication.
- Kretzschmar, R. 2002. *Best Management Practices for Oregon Marinas*. Oregon: Oregon Department of Environmental Quality.
- Lyon, T. P. and J. W. Maxwell. 1999. 'Voluntary' approaches to environmental regulation: A survey. Viewed 11/20/04 at: <http://ssrn.com/abstract=147888>.
- May, P. J. 2003. Marine facilities and water quality: Regulatory versus voluntary approaches. *Coastal Management* 31:297-317.

- Mazurek, J. 2002. Government-sponsored voluntary programs for firms: An initial survey. In *New tools for environmental protection: Education, information, and voluntary measures*, ed. T. Dietz and P. C. Stern, 219-233. Washington, DC: National Academy Press.
- National Marine Manufacturers Association (NMMA). 2004. *Recreational Boating Statistical Abstract*. Viewed 5/7/05 at: <http://www.nmma.org/facts/boatingstats/2003/files/abstract.pdf>.
- National Oceanic and Atmospheric Administration (NOAA). 2003. *Clean Marina Initiative*. Viewed 5/21/05 at: <http://cleanmarinas.noaa.gov>.
- Organisation for Economic Co-Operation and Development (OECD). 1999. *Voluntary Approaches for Environmental Policy: An Assessment*. Paris.
- Organisation for Economic Co-Operation and Development (OECD). 2003. *Voluntary Approaches for Environmental Policy: Effectiveness, Efficiency, and Usage in Policy Mixes*. Paris.
- Pew Oceans Commission (POC). 2003. *America's Living Oceans: Charting a Course for Sea Change*. Arlington, VA: Pew Oceans Commission.
- Potoski, M. and A. Prakash. 2002. Protecting the environment: Voluntary regulations in environmental governance. *Policy Currents* 11(4):9-14.
- Randall, A. 2002. The policy context for flexible, negotiated, and voluntary measures. In *New tools for environmental protection: Education, information, and voluntary measures*, ed. T. Dietz and P. C. Stern, 311-318. Washington, DC: National Academy Press.
- South Slough National Estuarine Research Reserve (NERR). 2002. *Nonpoint Source Pollution and Pacific Northwest Estuaries*. Charleston, OR: South Slough National Estuarine Research Reserve.
- U.S. Commission on Ocean Policy (USCOP). 2004. *An Ocean Blueprint for the 21st Century: Final Report of the U.S. Commission on Ocean Policy*. Washington, D.C.: USCOP.
- Videras, J. and A. Alberini. 2000. The appeal of voluntary environmental programs: Which firms participate and why? *Contemporary Economic Policy* 18(4): 449-461.

Environmental Impacts of Boating Pollutants

POLLUTANT	SOURCES AND CHARACTERISTICS	ENVIRONMENTAL ACTIVITY	ENVIRONMENTAL OR HUMAN HEALTH EFFECTS
Detergents	<ul style="list-style-type: none"> • Most cleaning agents, detergents and soaps • Oil spill dispersants²⁹ • Breaks down oils and greases on boats¹⁷ • Dissolves according to water conditions 	<ul style="list-style-type: none"> • Accumulates in sediments • Broken down by microorganisms 	<ul style="list-style-type: none"> • Toxic to marine plants and animals • Impairs breathing in fish¹⁷ • Reduces amounts of oxygen in affected waters • Produces unsightly foam on the water surface
Marine debris	<ul style="list-style-type: none"> • Commercial and recreational boating¹¹ • Plastics, food wastes, packaging, lines, nets, fish cleaning wastes³ • Some wastes become nutrients (see "Nutrients") 	<ul style="list-style-type: none"> • Persistent in the environment • Plastic photodegrades in the marine environment, but never fully degrades. Circulates in ocean currents.³² 	<ul style="list-style-type: none"> • Fish, turtles, birds, marine mammals die due to ingestion or entanglement.^{31, 3, 11} • Ghost nets and traps endanger divers³ • Can transport harmful non-native species¹¹ • Snagged by props and engines³ • Degrades recreational beaches¹¹ • Carcinogens and hormone-disrupting chemicals in plastics can bioaccumulate up the food chain.
Acidic & Alkaline Substances	<ul style="list-style-type: none"> • Battery acid, lye and other strong acids or bases in vessel cleaning products¹³ • Dissolves easily in water 	<ul style="list-style-type: none"> • Increases natural acidity or alkalinity of water by decreasing or increasing pH respectively. 	<ul style="list-style-type: none"> • Toxic to marine plants and animals • Increases the toxicity of other toxic substances, metals, other pollutants and chemicals • Can irritate or damage skin
Metals	<ul style="list-style-type: none"> • Paint particles from hydro washing, metal shavings from engine wear, and consumer products containing metals. Also in used engine oil, fuel-dissolving zinc anodes, and bottom paints. • Dissolves according to water conditions 	<ul style="list-style-type: none"> • Accumulates in sediments, marine plants, and animals • Persistent in the environment • Some metals broken down by microorganisms 	<ul style="list-style-type: none"> • Toxic to marine plants and animals • Changes the food web in the marine environment by eliminating certain species.
Copper (Cu)	<ul style="list-style-type: none"> • Used as a toxic agent in antifouling paints. • Dissolves according to water conditions • Traditional bottom paints (soft-sloughing) are designed to release dissolved copper to repel marine growth on boat hulls. 	<ul style="list-style-type: none"> • Accumulates in sediments, marine plants, and animals • Persistent in the environment • Abrasive underwater cleaning can double copper emissions compared to passive leaching.³³ • 95% of copper emitted from bottom paints is from passive leaching. In certain conditions.³³ 	<ul style="list-style-type: none"> • Very toxic to fish when combined with zinc sulfates¹⁵ • Long term toxicity to marine plants and animals.
Tributyltin (TBT) Dusts and sediments	<ul style="list-style-type: none"> • Still used as a toxic agent in antifouling paint on aluminum hulls, outboard motors & lower drive units.^{4, 15} • Complete phase-out of TBT-based paint sales in US expected in 2004, consistent with international treaty to ban its use on ships.³⁴ 	<ul style="list-style-type: none"> • Accumulates in sediments, marine plants, and animals.¹⁵ • Persistent in the environment 	<ul style="list-style-type: none"> • Toxic even in small amounts to marine plants and animals, especially bottom feeders.¹⁵ • TBT contaminated shellfish are dangerous to human health¹⁵
Zinc (Zn)	<ul style="list-style-type: none"> • Anticorrosive zincs and paint pigments • Dissolves according to water conditions, which can make Zn more available to marine organisms¹⁵ 	<ul style="list-style-type: none"> • Accumulates in sediments, marine plants & animals • Persistent in the environment 	<ul style="list-style-type: none"> • Toxic to marine plants and animals, even small amounts¹⁴

Environmental Impacts of Boating Pollutants (CONTINUED)

POLLUTANT	SOURCES AND CHARACTERISTICS	ENVIRONMENTAL ACTIVITY	ENVIRONMENTAL OR HUMAN HEALTH EFFECTS
OIL / Fuel	<ul style="list-style-type: none"> • Normal boat operation, fueling, engine maintenance, spills, runoff, and bilge discharge • Dissolves slowly in water, clings to particles and sediments in marine environments 	<ul style="list-style-type: none"> • Fuels evaporate in air. • Broken down by sediment microorganisms²¹ • Accumulates in sediments, marine plants, and animals • High accumulation in estuaries and intertidal areas 	<ul style="list-style-type: none"> • Some components toxic to marine plants and animals even at low concentrations²² • Some components cause cancer, mutations and / or birth defects. • Behavioral changes in shellfish and fish²³ • Discoloring and bad taste in flesh of fish^{19, 24, 25}
Dusts and sediments	<ul style="list-style-type: none"> • Vessel scraping and sanding, erosion during construction and urban runoff • Heavy metals, nutrients, hydrocarbons, etc. adhere to dusts and sediments 	<ul style="list-style-type: none"> • Accumulate in sediments near the discharge to water • Sediment bound contaminants released to water if disturbed 	<ul style="list-style-type: none"> • May reduce amounts of oxygen in affected waters • General lowering of water quality • Burial of habitat, food and/or organisms • Increased turbidity can dog gills of fish
Nutrients	<ul style="list-style-type: none"> • Runoff, sewage, erosion, garbage & detergents containing (Phosphorous or (N) Nitrogen • P binds easily to water particles 	<ul style="list-style-type: none"> • Used by marine plants and organisms for food (P,N) • Accumulates in sediment (P) 	<ul style="list-style-type: none"> • Increase in algae growth which decreases light and oxygen in the water (eutrophication) • N can be toxic in higher concentrations
Solvents	<ul style="list-style-type: none"> • Vessel maintenance & repair activities • Paints, varnishes, paint removers, and lacquers as well as degreasing agents • Does not dissolve in water¹³ 	<ul style="list-style-type: none"> • Sink in water until they reach an impervious surface • A solvent lingers in air and is transported to sediment & water 	<ul style="list-style-type: none"> • Many solvents can cause cancer. • Large amounts can cause dizziness, disorientation and unconsciousness in the user²
Anti-freeze	<ul style="list-style-type: none"> • Used as engine coolant and freeze prevention during winter storage. Improper use & storage creates leaks or spills¹³ 	<ul style="list-style-type: none"> • Fate similar to solvents¹³ 	<ul style="list-style-type: none"> • Ethylene glycol is deadly to humans, pets & marine organisms in low doses² • Propylene glycol (or orange/pink color) is less toxic than ethylene glycol (blue/green color) and is preferred for use in boats^{2, 7}
Pathogens/ Bacteria	<ul style="list-style-type: none"> • Overboard discharge of raw or poorly treated sewage. • Indicator bacteria for water pollution include total coliforms, fecal coliform, and enterococci. • Pathogens are disease-causing organisms such as viruses, bacteria and protozoans. 	<ul style="list-style-type: none"> • Bacteria decompose organic matter in sewage using oxygen, which can cause oxygen depletion. 	<ul style="list-style-type: none"> • Oxygen depletion deprives fish, other aquatic animals, and plants of oxygen necessary for survival. • Coliform and fecal coliform bacteria can cause human health problems such as diarrhea, cramps, nausea, and possibly jaundice and headaches.³⁰

THIS GUIDE WAS ORIGINALLY COMPILED BY THE UNIVERSITY OF CALIFORNIA COOPERATIVE EXTENSION, COUNTY OF SAN DIEGO AND UPDATED BY THE CALIFORNIA COASTAL COMMISSION IN 2004, WITH PERMISSION FROM ONE OF THE ORIGINAL AUTHORS, LEIGH T. JOHNSON.

(Unless otherwise stated, material is from Cornell and Miller 1984)

We wish to thank Clay Clifton for his editorial assistance. We also wish to thank Bill Lewis (Recreational Boaters of California), Steve Scheiblauber (Monterey Harbor District), Eileen Maher (San Diego Unified Port District), Dana Austin (Southwest Marine), Bob Reed (California Department of Fish & Game), Libby Lucas (Environmental Health Coalition) and the many others who provided data, advice and review.

This work is sponsored in part by NOAA, National Sea Grant College Program, Department of Commerce, under grant number NA36RG0226 project number A1-BK-4, through the California Sea Grant Program, in part by United States Environmental Protection Agency, under grant number HW000983-01-0, in part by the California State Resources Agency, in part by the University of California Division of Agriculture and Natural Resources and in part by the County of San Diego. The views expressed herein are those of the authors and do not necessarily reflect those of the sponsors or any of their sub-agencies. The U.S. government may reproduce and distribute for governmental purposes. The University of California, in accordance with applicable Federal and State Law and University policy, does not discriminate on the basis of race, color, national origin, religion, sex, disability, age, medical condition (cancer-related), ancestry, marital status, citizenship, sexual orientation, or status as a Vietnam-era veteran or special disabled veteran. The University also prohibits sexual harassment. Inquiries regarding the University's nondiscrimination policies may be directed to the Affirmative Action Director, University of California Agriculture and Natural Resources, 1111 Franklin Street, 6th Floor, Oakland, CA 94607-5200. (510) 987-0096. University of California, United States Department of Agriculture, United States Department of Commerce and County of San Diego cooperating.

ENVIRONMENTAL IMPACTS OF BOATING POLLUTANTS References

1. Austin, Dana (1995) Southwest Marine. Personal communication.
2. Andrews, Larry S. and Robert Snyder (1994) "Toxic effects of solvents and vapors" in Casarett and Doull's Toxicology: The Basic Science of Poisons 4th Edition, Amdur, Mary, Doull, John and Klaassen, Curtis eds.
3. Augerot, Xarthe pipe (1988) "Plastics in the ocean: What are we doing to clean it up?" Washington Sea Grant.
4. Barclays California Code of Regulations (1993). Register 93, Number 2, 1-8-93, Sections 6468, 6489 & 6614.
5. California Department of Fish & Game (1990). "Report of Fish Caught by the California Commercial Passenger Fishing Boat Fleet Annual, 1989." Bulletin Tables.
6. California Department of Fish & Game (1989). "Table 95: Poundage and Value of Landings of Commercial Fish into California by Area, 1988." Bulletin Tables.
7. CDE Pundateq. "Boat Mar has". Undated memorandum issued by Connecticut Department of Environmental Protection, Hartford, Connecticut.
8. Cornell, Des W. and Gregory J. Miller (1984) Chemistry and Ecotoxicology of Pollution, John Wiley & Sons, NY.
9. Dawe, Clyde J. (1990) "Implications of a aquatic animal health for human health". Environmental Health Perspectives 86: 245-255.
10. Environmental Health Services (1990). San Diego Bay Health Risk Study, San Diego County Department of Health Services, San Diego, CA.
11. Faris, Jeanne and Kathy Hart (undated) Sea of Debris: A Summary of the Third International Conference on Marine Debris 1994, N.C. Sea Grant College Program and National Oceanic and Atmospheric Administration.
12. Ford, Richard Ph.D. (1994) Marine Habitats of San Diego Bay: The Changes that have Produced their Present Condition & their Vulnerability to Effects of Pollution & Disturbance, San Diego State University.
13. Fugro McClelland (1992) Final Report Best management practices for coastal marinas, Connecticut Department of Environmental Protection Office of Long Island Sound Programs and Bureau of Water Management.
14. Goyer, Robert A. (1990) "Toxic effects of metals" in Casarett and Doull's Toxicology: The Basic Science of Poisons 4th Edition, Amdur, Mary, Doull, John and Klaassen, Curtis eds.
15. Jayne, Deborah (1993). Staff Report on Petitions to Downgrade Threat to Water Quality and Complexity Ratings for Cambell Industries, Southwest Marine and National Steel and Shipbuilding Company Shipyards, California Regional Water Quality Control Board, San Diego Region.
16. Kramer, Sharon H. (1990) "Distribution and Abundance of Juvenile California Halibut, Paralichthys californicus, in Shallow Waters of San Diego County." In: Haugen, Charles W. (1990) The California Halibut, Paralichthys californicus, Resource and Fisheries. California Department of Fish and Game, Fish Bulletin 174:99-126.
17. Lewis, Michael A. (1992) "The effects of mixtures and other environmental modifying factors on the toxicities of surfactants to freshwater and marine life." Water Resources 26: 1003-1023.
18. Maher, Eileen (1994) "Dredging Projects in San Diego Bay" abstract: Sea Grant Workshop, San Diego Port District.
19. Mann, H. (1984) "Effects on the flavor of fishes by oils and phenols." Symp. Pollut. Mar. Micro-org. Prod. Petrol. Monaco 1964: 371-374.
20. McCain, Bruce B. et al. (1993) "Chemical contamination and associated fish diseases in San Diego Bay". Environmental Science and Technology 27:725-733.
21. McMahon, P.J. (1989) "The impact of marinas on water quality." Water Science and Technology 21(2):39-43.
22. Murchelano, Robert A. (1990) "Fish health and environmental health". Environmental Health Perspectives, 86: 357-359.
23. Neff, J. M. (1993) Polycyclic Aromatic Hydrocarbons in the Aquatic Environment. Applied Science Publishers, London.
24. Nelson-Smith, A. (1993). Oil Pollution and Marine Ecology. Plenum Press, New York.
25. Nitta, T. et al. (1969) "Studies on the problems of offensive odors in fish caused by wastes from petroleum industries (in Japanese with English summary). Bull. Tokai Region Fish Res Lab., 4:2-23.
26. Santa Cruz Port District (1994). "Three ways you can save yourself money." Anchor Watch, Santa Cruz, CA.
27. Thomson, Cynthia J. and Stephen J. Croke (1990) Results of the Southern California Sportfish Economic Survey, National Marine Fisheries Service, NOAA Technical Memorandum NOAA-TM-NMFS-SWFS-52
28. Vanderveele, Dave and Richard F. Ford, Ph.D. (1994) The Effects of Copper on the Bivalve Mussel *Mytilus edulis* and the Amphipod *Crustacean Grandisraelia japonica* in Shelter Island Yacht Basin, San Diego Bay, California, prepared for the San Diego Regional Water Quality Control Board and Teledyne Research Assistance Program, Teledyne Ryan Aeronautical, San Diego, CA.
29. Waddell, Dave (1992). "Detergent and Soap Toxicity Assessment" Municipality of Metropolitan Seattle (Metro)
30. U.S. Environmental Protection Agency, Total Coliform Rule: A Quick Reference Guide." EPA 816-F-01-035 November 2001
31. Laist, D. W., 1997. "Impacts of marine debris: entanglement of marine life in marine debris including a comprehensive list of species with entanglement and ingestion records" In: Coe, J. M. and D. B. Rogers (Eds.), Marine Debris - Sources, Impacts and Solutions. Springer-Verlag, New York, pp. 99-139.
32. Moore, C. J. et al. "A Comparison of plastic and plankton in the North Pacific Central Gyre." Mar Pollut Bull 2000, 42: 241-245.
33. Schiff, Ken, et al. Copper Emissions from Antifouling Paint on Recreational Vessels. Southern California Coastal Water Research Project 2003.
34. Federal Register: December 5, 2003 (Vol. 68, No. 234). Notice of Receipt of Request to Cancel Certain Petrolide Registrations...: www.boating-industry.com, TBR antifoiling a step closer to being obsolete, December 12, 2003.

Authors:

Erika J. McCoy, Program Representative
 Leigh T. Johnson, Marine Advisor
 University of California Cooperative Extension
 5555 Overland Avenue, Building A
 San Diego, CA 92123 (619) 694-2845

UNIVERSITY OF CALIFORNIA
 COOPERATIVE EXTENSION
 COUNTY OF SAN DIEGO
 FARM & HOME ADVISOR DEPT
 SEA GRANT EXTENSION PROGRAM
 UCSD-SD 95-8
 August 1995

This information is provided for general educational purposes. Consult cited references for details. If you plan to dredge, consult government & contractors on permits, restrictions, prices, etc.

Appendix B: Phone Interview Questionnaire

State:

Individual:
Phone #:

Date:

- What was the process used to design the program?
 - Stakeholder input?
 - Look at what were worst problems?
- Are there administrative rules or statutes creating the program?
- Stakeholder group – composition, role, etc?
- Involve the US Coast Guard Auxiliary? Advantages and disadvantages?
- Marina size threshold?
- Deal with fresh water marinas also?
 - Any differences in approach?
 - Differences in involvement? Effectiveness?
- Incentives – what, how much, what worked or didn't?
 - Help with involvement or effectiveness?
- # Marinas involved?
 - # marinas in state; # certified; # pledged
- When did program start?
- What works or doesn't work?
 - Any feedback from marinas – from those that are or are not participating?
 - Would you do anything differently now?
 - Any suggestions to increase marina participation?
- Did you look at other states' programs?
 - Any comments on the programs you looked at?
 - Advantages or disadvantages?
- Any suggestions of other people I should talk to? General suggestions?

The Clean Marina Initiative



Steering Committee Meeting
January 27th, 2005

Oregon State Marine Board

Oregon State Marine Board

- Commitment to safe and sustainable boating
 - Cleaner engines
 - Protection from aquatic nuisance species
 - Best boating practices
 - Encouraging clean marinas
- Not a regulatory agency for Clean Marina Program goals
- Outreach is vital
- Can we do more to encourage clean marinas?

Presentation Outline

- The Clean Marina Initiative
- Why are you here?
- Marine Board's role
- Steering Committee's role
- Examples of other state programs
- Discussion



© 2004 Oregon State Marine Board

The Clean Marina Initiative

What is the Clean Marina Initiative?

- Outreach program
- Non-regulatory and voluntary
- Incentive-based
 - Promoted by NOAA and EPA
 - To encourage marina operators and boaters to protect local water quality through use of marina signs
- Two-pronged approach
 - Educate marina operators and boaters



© 2004 Oregon State Marine Board

The Clean Marina Initiative

Why Marinas?

- Not one of the leading sources of pollution
 - But can have significant impact on local water quality
- Boaters are concentrated in marinas and boatyards
- Provide direct avenue for pollution
 - Direct way to help reduce that pollution
- Part of effort to address nonpoint source pollution to waterbodies

The Clean Marina Initiative

What are the benefits?

- Improve local water quality and habitat
- Greatly reduce legal liabilities
- Attract responsible clientele
- Receive free publicity
- Obtain free technical assistance
- Lower disposal costs
- Generate new sources of revenue



© 2004 Oregon State Marine Board

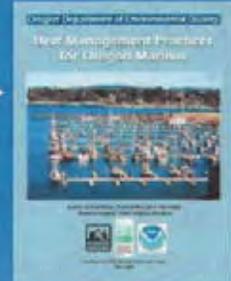
The Clean Marina Initiative

- What do you see as the benefits of the program?
- What would you like to be the benefits of participation?



Oregon's Efforts

- Oregon's Clean Marina effort thus far:
 - DEQ and DLCD
 - BMP Handbook
 - Completed May 2002
 - Distributed to marinas in Oregon
- Can we or should we do more?



Why Are You Here?

- Marine Board is interested in further developing the Clean Marina Program in Oregon
 - Agency budget item to implement Clean Marina Program
 - If passes, implementation of the Clean Marina Program could begin in July 2005
- What will the Oregon Clean Marina program look like?

Marine Board's Role

- **Develop recommendations**
 - BMP Handbook as basis
 - Review other states' programs
 - Form Steering Committee
 - Form Stakeholders Committee
 - By the end of June 2005:
 - Recommend program structure and implementation
 - Produce outreach information
- **Implement recommendations**
- **Continue to get and use feedback from Stakeholders Committee**



Steering Committee's Role

- Meet to develop general Clean Marina plan
- Be available for feedback to legislature
- Form nucleus of Stakeholders Committee
 - Mostly marinas and ports
 - Approx. 12-14 members
 - Meet a couple of times in next 6 months, then as necessary
- Review draft Clean Marina Recommendations and Guidebook

Other States' Programs: Examples of Possibilities

- Same basic certification structure
- Varying
 - Amount of outreach materials
 - Nuts and bolts
- Example states
 - Maryland – middle of the road
 - Florida – a bit more material
 - California – no state certification, just regional

Maryland's Clean Marina Program

www.dnr.maryland.gov/boating

- > Certification for Clean marinas, boatyards, yacht clubs, boating industry-related businesses
- > Process
 - Workshop
 - Pledge sheet
 - Self-assessment of property
 - Assistance if desired
 - Confirmation visit
 - Enjoy the benefits of certification



Maryland's Clean Marina Program

(cont.)

- > Annually confirm in writing
- > Clean Marina staff reaffirm status
 - At least every third year
- > Incentives
 - Clean Marina Certificate
 - Use Maryland Clean Marina logo
 - Clean Marina flag
 - Free publicity of marina
 - in letters
 - in publications
 - at public events



Florida's Clean Marina Program

<http://www.floridacleanmarina.com>

- > Certification for Clean marinas, boatyards, yacht clubs, and marine retailers
 - Also Clean Boaters program
 - Pledge will be clean boaters
- > Process similar to Maryland
- Public designation ceremony
- > Incentives similar to Maryland
 - List of purveyors of BMP items



California's Programs

- > Boating Clean & Green
 - www.boatingcleanandgreen.com
 - No certification process
 - Just outreach and education
- > San Diego Clean Marina Program
 - www.san-diego-clean-marina.com
 - Developed and run by marinas
 - Certification and incentives similar to Maryland



Discussion

- > What do you think?
- > Is there a direction that feels right to you?
- > Are you willing to take a look at the program as it is developed?
- > Thanks!

Contact Information

- > Kristin Feindel
 - Clean Marina Intern, Marine Board
 - Office #: (603) 373-1435 x249
 - Kristin.Feindel@state.nh.us
- > Marty Law
 - Education Information Manager, Marine Board
 - Office #: (603) 373-1435 x247
 - MartyLaw@state.nh.us
- > Paul Donheffner
 - Director, Marine Board
 - Office #: (603) 373-1435 x244
 - Paul.Donheffner@state.nh.us

Appendix D: Stakeholder Committee Meetings Agendas

First Stakeholder Meeting:

Clean Marina Program
Stakeholders Committee Meeting
Oregon State Marine Board
435 Commercial St, NE
March 10th, 2005

AGENDA

10:00am – 10:15am **Introductions**

Why are you interested in the Clean Marina program?

10:15am – 10:35am **Clean Marina Program Background and Plan**

Origins of Clean Marina program

Oregon Clean Marina program development structure:

Expectations of Stakeholders Committee – time commitment, role of stakeholders, composition of group

Expectations of Marine Board – commitment to program, role of Marine Board

Overall program calendar

10:35am – 11:00am **Best Management Practices for Oregon Marinas Guidebook**

Discussion of what needs to be changed, added, or left the same

11:00am – 11:10am **Break**

11:10am – 11:20pm **Model Program Structure and Discussion**

What do you want the program to be?
What are your concerns?

Other state programs as examples:
Program eligibility

11:20am – 11:40am **Logo Presentation**

Sharon McKee from In House Graphics will present various logo possibilities

11:40am – 12:00pm **Model Program Structure and Discussion, continued**

Other state programs as examples:
Certification process

12:00pm – 12:30pm **Lunch Provided**

12:30pm – 1:15pm **Model Program Structure and Discussion, continued**

Other state programs as examples:
Incentives
Documents and materials
Outreach plan

Review draft Clean Boater Guide (time permitting)

1:15pm – 1:30pm **Wrap-up**

What has been accomplished today
Next steps – who is doing what, schedule next meeting

Second Stakeholder Meeting:

Clean Marina Program
Stakeholders Committee Meeting
Oregon State Marine Board
435 Commercial St, NE
May 5th, 2005

AGENDA

- | | |
|-------------------|---|
| 10:00am – 10:20am | Overview and Program Update

Overview of meeting, status of budget, coordinator position |
| 10:20am – 10:40am | Boater's Guide Discussion

Review of feedback |
| 10:40am – 11:00am | "Why" Statement Discussion |
| 11:00am – 11:10am | Break |
| 11:10am – 12:00pm | Guidebook Discussion

Discussion of structure, content, etc. |
| 12:00pm – 12:30pm | Lunch Provided |
| 12:30pm – 1:00pm | Checklist Discussion |
| 1:00pm – 1:15pm | Logo Presentation

Sharon McKee from In House Graphics will present various new logo possibilities |
| 1:15pm – 1:30pm | Measuring Success

Discussion of how we might measure the success of the program |
| 1:30pm – 1:45pm | Upcoming Schedule

Plan for the next couple of months |
| 1:45pm – 2:00pm | Wrap-up

What has been accomplished today, next steps |

Clean Marina Stakeholders Committee Meeting

March 10, 2005
Oregon State Marine Board

Meeting Agenda

- Clean Marina Background and Plan
 - Origins of Clean Marina program
 - Oregon program development structure
- Discussion of BMPs for Oregon Marinas Handbook
- Break*
- Program structure model and discussion
- Logo presentation
- Lunch*
- Program structure model and discussion, cont'd
- Wrap-up

Origins of Clean Marina Program

- Clean Marina Program Purpose
 - Non-regulatory and voluntary outreach program
 - Encourages use of Best Management Practices by marinas and boaters
 - Incentive-based program
 - Recognizes marinas for their use of BMPs
 - To protect local water quality

Origins of Clean Marina Program

- Promoted by NOAA and EPA
 - Require coastal non-point source pollution programs (CZARA, 6217)
 - Marinas are one of the EPA non-point pollution sources
 - Management measures must be put in place
 - Not a new program
 - Maryland & Florida started in 1999
 - 56% of coastal states have certification programs
 - 62% have some sort of Clean Marina program
 - Several others are developing programs

Oregon Clean Marina Program Development Structure

- Met with Steering Committee
 - Agreed verification program is the way we want to go
 - Looked briefly at a few other states' programs
 - Suggestions were incorporated into this presentation

Expectations of Stakeholders Committee

- Role of Stakeholders
 - Advise on:
 - Pivotal questions of program design
 - Direction of program
 - Guidebook
 - Commit to upcoming process for next 3 1/2 months
 - Review draft Clean Marina Recommendations and Guidebook

Expectations of Stakeholders Committee

- Role of Stakeholders
 - Today - Advise on:
 - Current BMP handbook
 - Program eligibility
 - Certification process
 - Incentives
 - Materials
 - Outreach plan

Expectations of Stakeholders Committee

- Time commitment
 - Available to meet in Salem two more times?
 - Available to review drafts of guidebook and some other materials via email during next few months?
 - Possible advisory committee once program is implemented – do not have to be involved

Composition of Stakeholders Committee

- Are you the right person from your community to be involved in this process?
- Is this group diverse enough and representative of the communities that should be involved?

Expectations of Marine Board

- Commitment to program
 - Budgeted to fund position for next two years
 - Committed to continually funding position
 - Committed to running program

Expectations of Marine Board

- Role of Marine Board
 - Develop recommendations for program
 - Write and produce guidebook and materials
 - Implement Clean Marina Program
 - Continue to get and use feedback from Stakeholders Committee

Program Calendar

- January & February 2005
 - Steering Committee was first sounding board
 - Marine board researched other state programs
 - Marine board outlined program structure possibilities

Program Calendar

- Now through June 2005
 - Stakeholders Committee meetings
 - Marine board develops program recommendations
 - Stakeholders review draft guidebook and program recommendations
 - By June 30, 2005, Marine Board to complete:
 - Recommendations for program structure and implementation
 - Outreach materials

Program Calendar

- July 2005
 - Implementation begins if Clean Marina budget is passed
 - Full-time Clean Marina coordinator position begins
- After program is developed:
 - Expect 2 years for fully developed program
 - Expect challenge to get large numbers of certified marinas
 - Highest percentage - Maryland - 17% of marinas after 7yrs

BMPs for Oregon Marinas Guidebook

- Oregon's Clean Marina effort thus far:
 - DEQ and DLCD
 - BMP rulebook
 - Completed May 2003
 - Distributed to marinas in Oregon
- Will be used as basis for Clean Marina Guidebook
- What needs to be changed, added, or left the same?



Model Program Structure

- Keep in mind:
 - What do you want the program to be?
 - What are your concerns?
- Recommendations for Oregon program

Program Eligibility (Certification for):

Most Common

All-lease marinas, boatyards, yacht clubs (CT, FL, MD, TX)

Other Options

Marine Retailers (FL)

Marina Partners (MD, VA, Canada)

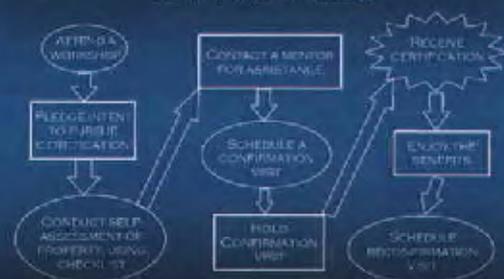
(public boat ramps, private community piers, charter boat services, floating businesses)

Houseboats

Boaters (CT, Canada)

Just marinas and yacht clubs (NC)

COMMON CLEAN MARINA CERTIFICATION PROCESS



Certification Process

Most Common	Other Options
Workshop	Marina operators can go to other marinas when they are inspected to learn about the process (San Diego)
Pledge	No pledge (NC)
Self-insurance of property using checks	Hold certification awards ceremony (FL, VA)
Contact member with any questions	
Confirmation visit	
Maintain Clean Marina status	
Reconfirmation visit	

Incentives - Reasons

Comply with regulations
Free technical assistance
Improved water and air quality
Attraction of responsible boaters
Increased demand for slips
Less costs for waste cleanup

Incentives – Objects/Actions

Most Common

Logo usage
Certificate
Flag/burgee
Press release
Recognized at public events
Listed in publications
Free listing & links on Clean Marina website

Incentives – Objects/Actions

Other Options

Framed certificate (CT)
Eligibility for certain grant items (CT, MD)
Eligibility for cost share monies (DC)
List of purveyors of BMP goods (FL)
All coastal marinas receive a free oil spill kit (TX)
Various items – oil drum house; environmental regulation sign; templates for signs; bilge socks; vent guards; non-flammable recycling bins (FL)
Boater education artwork CD; lists of resources and funding sources; environmental impacts of boating pollutants list (CA)
Insurance discount

Documents and Materials

Most Common	Other Options
Certification documents (Pledge sheet, Certificate, Guidelines)	Panic File (FL)
Certification materials (Flags/burges, Certificate, Logo)	Deal for boaters (Canada)
Website	Q&A pamphlet (FL)
Sample signs	Sample slip contracts (OH)
Clean Boaters Tip Cards/Guidebook	Newsletter (MD)

Outreach Plan

Most Common

Send announcement notice to all marinas
Visit marinas to discuss program
Hold workshops
Provide technical assistance/monitoring
Post guidebook and list of certified marinas on website
Outreach to boaters via newsletter and website
Outreach at boat shows
Outreach in agency publications

Outreach Plan

Other Options

Auxiliary does courtesy inspections and hands out small items to boaters (FL, MD)

Dockwalkers or marina stewardship programs (CA)

Produce newsletter (MD)

Clean Boaters – get doral, 10% discount on insurance, handbook, membership ID card, environmental boat inspection, newsletter (Canada)

Clean Boating Habits booklet given out with slip agreements (FL)

Hold compliance classes after round of workshops (CT)

Pledge of Monks recognized at events and in publications (VA)

Clean Boater Guide

Examples from South Carolina Boater's Guide

- Handout to boaters
- What do you think?
- Suggestions?



Wrap-up

- What has been accomplished today
- Next steps
- Thanks!!

Appendix F: Outline of Other State Clean Marina Programs

Clean Marina State Programs Overview

State	Certification For	Workshop	Pledge	Checklist/Guidebook	Verifying Status	Maintaining Status	Incentives	Outreach	Number of Certified Marinas	Program Started	Website
Alabama-Mississippi	Currently being developed				A review team will visit the marina						
California	No certification, not use of logo - just outreach; Promote regional certification programs, per Stakeholders Committee directions; Part of Boating Clean and Green Campaign	Meetings every 30 to 60 days; Marina operators can go to other marinas when they are inspected to learn about the process		Guidebook as lots of detailed case studies - good examples, show actions can be simple	On site review by impartial industry review team comprised of professionals in the marina industry and related activities; Pay \$250 for certification designation (flag, certificate, administration)	Cleaner marina, greater demand for slips	Cleaner marina, greater demand for slips	Toolkit (Guidebook + checklist, boater factsheets, CD of boater education artwork, lists of resources and funding sources, environmental impacts of boating pollutants list)	N/A out of ~700	1997	www.coastal.ca.gov/can/can/cbndck.html
California - San Diego	Marinas and yacht clubs. Program is organized and led by marinas.			BMPs don't discern between regulatory BMPs and Clean Marina BMPs - checklist does though; BMPs split into those for marinas and those for boaters	Every three years marinas need to be reassessed	Comply with regulations; Cleaner marinas through marina-led program, not state-led; Use of logo, flag, certificate		Info on web	8 out of ~45 = ~15%	2004	http://www.cleanmarina.org/
Connecticut	Marinas, boatyards, and yacht clubs. Also, Clean Boaters. Marine-related businesses not mentioned on website.	CM informational workshops - short program materials, small grant applications, hear from operator of certified CM; held -6 each year in winter, basic info and materials about program	Take a pledge to become a CM - commitment to becoming certified CM within one year	Conduct self-assessment - both separate compliance checklist and award checklist; Guide organized by activity - per marina request; Each section has quick reference table to see if marina is legally required to conduct listed activities; Sections list legal requirements then BMP - marinas wanted more compliance info & compliance checklist	Annually confirm in writing that you continue to meet award standards; meet with program rep to reaffirm status annually	Marinas get framed certificate, flag, right to use logo; Small grants from Sec 319 nonpoint pollution; Publicity - Press release, listed on web page, recognized at public events	Marina Trade Assoc hired consultant to teach compliance classes - have been well attended	Marina Trade Assoc hired consultant to teach compliance classes	5 out of 250 = 2% [28 pledged]		http://dep.state.ct.us/osp/cleanmarina/index.html or www.ctmarinetrades.org
DC	Said to be the same as MD				Report annually	Report annually					
Delaware	Same as MD				Complete a self-assessment form every two years and schedule confirmation visit	Complete a self-assessment form every two years and schedule confirmation visit					

Appendix F: Outline of Other State Clean Marina Programs

Clean Marina State Programs Overview

State	Certification For	Workshop	Pledge	Checklist/Guidebook	Verifying Status	Maintaining Status	Incentives	Outreach	Number of Certified Marinas	Program Started	Website
Florida	Designations for Clean Marinas, Clean Boatyards, and Clean Marine Retailers; Boater pledge card	Hold workshop - 2-3 hours, explain process, for several marinas or from one marina.	Sign "intent to pursue" program	Do not receive until sign pledge; go over checklist; on own; Send 1 page notice of checklist completion & satisfaction to agency; In manual, have photos of each BMP; Also give out PANIC file.	Verification of checklist with owner; Public certification ceremony	Annual self-assessment form - kept on file at boatyard and may be requested by agency; Renewal confirmation card - sent to agency to confirm self-assessment has been done and designation criteria still in place; On a random basis, someone from DEP or Marine Industries Assoc of FL will visit marina to reaffirm status	List of purveyors of goods that helps CM get stuff to meet BMP - given hard copy at workshop and online version updated annually; CM listed on website, boater guides, @ boat shows; PANIC file free at workshop; Various items - \$400 oil drum house, \$200 sign with environ regs, templates for signs; \$65,000 blige socks, vent guards, monofilament recycling bins (need to have someone empty)	Web-based training and workshops and demo projects; Auxiliary does courtesy inspections and staff; Clean Boating Habits given out with slip agreements; Q&A pamphlet has flow chart of designation procedure	105 out of ~1500 = ~7% [150 pledged]	1996	http://www.dep.state.fl.us/law/Grants/CMP/d/default.htm
Georgia	Same as MD			Charge \$8 for BMP; download checklist	Clean Marina staff will visit site						
Hawaii	?										
Illinois	No certification program										
Indiana	Currently being developed										
Louisiana	Currently being developed										
Maine	Currently being developed; Clean boatyards and marinas; Some pilot marinas have been designated				CM representatives visit marinas for verification (person from industry, state agency, and someone from environ. Orgs)	Every year marinas must sign new pledge, go over checklist again to either upgrade certification or keep it. Every third year marinas have to schedule a verification visit			10 out of 100		
Maryland	Marinas, boatyards, Yacht clubs. Also, Clean Marina Partners (public boat ramps, private community piers, charter boat liveries, maritime museums)	Hold workshop	Marinas display pledge at marinas as soon as sign it - don't have to wait until self-assessment or confirmation; Marinas have one year to achieve CM status, if not, then can repledge	Conduct a self-assessment of your property - use checklist; Call upon a mentor if you have any questions; Mentors are Maine Trades Assoc and Clean Marina office	Schedule a confirmation visit; Confirmation visit by member of the CM staff and the operator of a CM	Annually confirm in writing that you continue to meet standards; At least every third year, CM staff will meet with CM to reaffirm status	Promotion of facility through publications, public displays, and media releases; Logo usage authorized; Certificate, burgee; Free page on the CM website; Grant programs - must be CM to get grant for items. Also, improved water and air quality, attraction of responsible boaters, and less costs for waste cleanup.	Boater outreach helped with by Power Squadsrons and Auxiliary; Small informational pamphlet; Clean Boating Trip Cards; -17% [87 new manual pledged, 15 manual partners]; 2002	102 out of ~600 = ~17% [87 new manual pledged, 15 manual partners]	1998;	http://www.dnr.maryland.gov/boating/cleanmarina/
Massachusetts	No certification	Hold workshop	None	Guidebook has local examples of BMP; There is a checklist	None	None	Technical assistance on "hot" issues (such as pressure-washing)		N/A	April 2001	http://www.mass.gov/czm/marinas/guide/macleanmarinaguide.htm
Michigan	Currently being developed				CM representative	Every three years CM staff will visit marina to reaffirm status					

Clean Marina State Programs
Overview

State	Certification For	Workshop	Pledge	Checklist/Guidebook	Verifying Status	Maintaining Status	Incentives	Outreach	Number of Certified Marinas	Program Started	Website
New Hampshire	Currently being developed			Have BMP & old BMP followup survey		Annually confirm in writing that status is kept. Once every three years, CM staff will visit marina to reaffirm status					
New Jersey	Said to be the same as MD				CM representative						
New York	Currently being developed										
		Workshop is a full day event - includes intro to program, state stormwater permit requirements and BMPs, networking lunch and "green" technology vendor fair, managing boat sewage, cleaning up power washing, alternatives to bottom paint, insight from CM operators, and informal group discussion.	Doesn't appear to be one - marinas just fill out application (like checklist) to begin process	Checklist is 5 pages of application with reduced version of BMPs. Also larger BMP guidebook	Agency rep visits site to verify	Recertification by rep required every 2 years	Flag and logo. Certified marinas listed on website	Clean Boater Guide	9 out of ~300 = ~3%	summer 2000	http://dcm2.emr.state.nj.us/Marinas/marinas.htm
North Carolina											
Ohio	Same as MD		There is a pledge sheet	Guidebook includes sample slip contract. Checklist goals are outlined in guidebook.	A team from the Clean Marinas Advisory Board makes a site visit and then recommends the marina to the Advisory Board	Annually confirm in writing that status is kept. Once every three years, CM representatives will visit marina to reaffirm status	Participants have access to a clean marina "mentor", one of the marina operators who helped develop the program	Clean Boater tip sheets	13 pledged	Sept 2004	http://www.sg.ohio-state.edu/cleanmarina/
Ontario, Canada					Marina audited by Terra Choice Environmental Services, a third party firm - provide marina with detailed report on their compliance with the Clean Marina program. Marinas given 1 to 5 rating, or "green anchors"	Marinas reassessed after three years	Advertising in Marina News Magazine and other publications, use of flag		Under 200 out of ? [12 pledged]	1997	http://www.omoa.com/clean_marinas.asp
Puerto Rico	Informal program running for five years by URI and Sea Grant. Will be partnering with state agency and marine trade orgs to create a more formal program										
Rhode Island	Seems they've had a program for a while, but documents are not accessible on web										
South Carolina						Routine and surprise checkups					

Appendix G: Committee Meeting Notes

Steering Committee Meeting Notes:

Clean Marina Steering Committee Meeting Notes
January 27, 2005, 3:00-4:30

Attendees:

- Paul Donheffner, Director, Oregon State Marine Board
- Kristin Feindel, Clean Marina Intern, Oregon State Marine Board
- Brad Howton, General Manager, Columbia Crossings
- Marty Law, Education Information Manager, Oregon State Marine Board
- Don Mann, General Manager, Port of Newport
- Linda Noel, Project Manager, Salmon Harbor Marina
- Amanda Punton, Department of Land Conservation and Development
- Rich Tonneson, Rocky Pointe Marina

Notes on Clean Marina Steering Committee Discussion:

- Verification Clean Marina Program is the preferred path
- Possible characteristics of the Oregon Clean Marina Program:
 - Boaters pledge (pledge to be Clean Boaters)
 - Boat dealers as partners
 - Include floating home moorages and boatyards
- Possible incentives for participation in program:
 - Recognition through newsletter and Marina Guide
 - Insurance benefit
 - Points on facility grant applications
- Issues to consider:
 - Possibly survey the interests of marinas
 - Hold stakeholders meetings/workshops inland as well
 - Need to reach individuals who discharge waste at marinas
 - Water quality testing - Seattle Power and Light funds water quality testing in Washington
- Marine trade organizations in Oregon:
 - Portland Marine Dealers Association
 - Columbia River Yacht Association
 - Waterfront Owners Organization (WOO)
- Suggested actions:
 - Get something to stakeholders ahead of meeting
 - Kristin Feindel to
 - Send out list of Steering Committee contacts by mid-February
 - Check The Trade Only (?) publication for insurance contacts/information
 - Steering Committee to get any Stakeholders Committee member suggestions to Kristin Feindel

- Invite Margaret Podlich from BoatUS to first Stakeholder meeting
- Possible stakeholder groups (not in any particular order):
 - Public ports (there are 23 public ports)
 - Private facilities
 - Floating homes (possibly member of WOO)
 - Inland/lake/reservoir marinas
 - Large marinas
 - Small marinas
 - Boatyards (Rich Tonneson; possibly Schooner Creek)
 - Forest service marinas
 - OSHA
 - Sea Grant
 - Department of Land Conservation and Development
 - Division of State Lands
 - Department of Environmental Quality
- Clean Marina Program could also possibly address:
 - Boat theft
 - Safety

Stakeholders Committee Meeting Notes:

Clean Marina Stakeholders Committee Meeting Notes

March 10, 2005 10:00am-1:30pm

Attendees:

- Paul Donheffner, Director, Oregon State Marine Board
- Dick Dyer, President, Columbia River Yachting Association
- Kristin Feindel, Clean Marina Intern, Oregon State Marine Board
- Deborah Horan, Sea Tow and Portland Marine Dealers Association
- Brad Howton, General Manager, Columbia Crossings
- Dave Kunz, NW Region Pollution Prevention Coordinator, Department of Environmental Quality
- Marty Law, Education Information Manager, Oregon State Marine Board
- Lyman Louis, Sea Tow Owner
- Callie Lunski, Owner, Detroit Lake Marina
- Don Mann, General Manager, Port of Newport
- Margaret Podlich, Director of Environmental Programs, BoatUS
- Amanda Punton, Department of Land Conservation and Development
- Paul Sharkey, Division Staff Officer, USCG Auxiliary
- Rich Tonneson, Rocky Pointe Marina
- Jeff Vander Kley, Harbor Manager, Salmon Harbor Marina
- Bob Wilson, President, Waterfront Organizations of Oregon
- Don Yost, Harbormaster, Port of Coos Bay

Meeting Notes:

Introductions

Introductions and background of each individual

Clean Marina Program Background and Plan Powerpoint Presentation

Origins of Clean Marina program

Oregon Clean Marina program development structure:

Expectations of Stakeholders Committee – role of stakeholders, time commitment, composition of group

Expectations of Marine Board – commitment to program, role of Marine Board

Overall program calendar

- Deborah asked how do we get the “little guy” involved? Incentives are the key.
- Don Mann suggested we don’t get bogged down on regulations.

Best Management Practices for Oregon Marinas Manual

Discussion of what needs to be changed, added, or left the same

- Paul Sharkey suggested including more of a “selling point”/“why care” aspect.
- Dave pointed out some topics missing from the guidebook – greywater, in water hull cleaning, and fish cleaning.

- Brad would like more of a guidebook like Maryland since it has less of a regulatory feel.
- Don noted the importance of boater outreach.
- Callie spoke of the need for public outreach.
- Paul Sharkey mentioned the idea of having a tiered certification program (platinum/silver/gold).
- Jeff said the manual is a good start, but maybe there isn't quite enough information.
- Paul Sharkey suggested having a simple checklist as well as the guidebook.
- Dick suggested separating out in the water and out of the water activities.
- Other ideas included separating out what is regulatory versus what is suggested – possibly by color coding.

Logo Presentation

Sharon McKee from In House Graphics presented six logo possibilities.

- Many liked the logos, but there was a concern that none of them had an obvious connection to boats or marinas. Several suggested adding a boat or dock to the logos.
- Sharon will have a boat, marina, or dock of some sort incorporated into the logos and will present the new logos at the next meeting.

Model Program Structure and Discussion

Other state programs were presented as examples and then options were discussed.

- Program eligibility:
 - Committee decided to begin with program eligibility for marinas, boatyards, yacht clubs, and floating home marinas.
 - Marinas will be defined as having ten or more slips.
 - Per Marty's conversation with Paul Donheffner, commercial boats at marinas will be included in the program.
 - In the future, other groups such as private fuel docks, marina partners, and public piers/marina users may be included.

Model Program Structure and Discussion, continued

Other state programs were presented as examples and then options were discussed.

- Certification process
 - Committee decided to start with the most common process:
 - Attend workshop
 - Sign pledge
 - Conduct self-assessment of property using checklist
 - Contact mentor with any questions
 - Schedule and hold confirmation visit
 - Become certified
 - Maintain status
 - Schedule and hold reconfirmation visit
- Incentives
 - Committee decided to start with the most common material incentives:

- Logo usage
 - Certificate
 - Flag/burgee
 - Press release by Marine Board
 - Recognized by Marine Board at public events
 - Listed in Marine Board publications
 - Free listing and links to marina on Marine Board website
- Other incentives that will be investigated:
 - *Dave will look into getting tax credits.*
 - *Kristin will talk to Margaret further and investigate insurance discounts.*
 - *Amanda and Dave will look into cost share money or programs.*
 - *Marty and Kristin will look into Marine Board grant application benefit.*
- Documents and materials
 - Committee decided to start with the most common documents and materials:
 - Certification documents (pledge sheet, checklist, guidebook)
 - Certification materials (flag/burgee, certificate, logo)
 - Website
 - Sample signs
 - Clean boaters guidebook
 - Margaret noted that marinas who wanted a Panic file could contact Florida Sea Grant to get a copy. Amanda suggested some changes could be made to the document to make it more Oregon specific.
 - Lyman suggested having a response plan could be part of criteria of becoming a Clean Marina. There could also be outreach material regarding a response plan for boaters.
 - A newsletter could be a good item in the future.
- Outreach plan
 - Committee decided to start with the most common outreach plan:
 - Send announcement notice to all marinas
 - Visit marinas to discuss program
 - Hold workshops
 - Provide technical assistance/mentoring
 - Post guidebook and list of certified marinas on Marine Board website
 - Outreach to boaters via Marine Board newsletter and website
 - Outreach at boat shows
 - Outreach in Marine Board publications
 - Committee also suggested working with:
 - Auxiliary
 - Power Squadron
 - Chamber of Commerce
 - STEP
 - *Committee to email Kristin with more ideas of partners for outreach.*

- Brad suggested putting together a “why” statement. *Margaret will send Kristin Delaware’s statement as an example.* There was a feeling that the statement should be from more of “it’s the right thing to do” than from a threatening perspective. *Kristin will work on this statement or some statement options and either distribute to committee via email or present at next meeting.*

There was not enough time to review the draft Clean Boater Guide. *Kristin will email this guide to the committee for review.*

Wrap-up and Other Items

- Amanda asked the committee if they had or had seen the “Spills aren’t Slick” signs. Most members had never seen them. There is a possibility of ordering some of these signs and Amanda was wondering what the interest level was. There was some interest, but also a comment that perhaps some of the wording on the sign should be changed to have people contact their harbormaster prior to contacting the Coast Guard. Amanda will look into this possibility.

Clean Marina Stakeholders Committee
Second Meeting: May 5, 2005 10:00am-2:00pm
Meeting Notes

Attendees:

- Anne Cox, Department of Environmental Quality
- Paul Donheffner, Director, Oregon State Marine Board
- Dick Dyer, President, Columbia River Yachting Association
- Kristin Feindel, Clean Marina Intern, Oregon State Marine Board
- Brad Howton, General Manager, Columbia Crossings
- Marty Law, Education Information Manager, Oregon State Marine Board
- Don Mann, General Manager, Port of Newport
- Amanda Punton, Department of Land Conservation and Development
- Paul Sharkey, Division Staff Officer, USCG Auxiliary
- Rich Tonneson, Rocky Pointe Marina
- Jeff Vander Kley, Harbor Manager, Salmon Harbor Marina
- Bob Wilson, President, Waterfront Organizations of Oregon
- Don Yost, Harbormaster, Port of Coos Bay

Overview and Program Update

- Review of last meeting:
 - Committee looked at some other state's programs and decided to go with the most common certification process, incentives, documents, and outreach plan
 - Decided marinas, boatyards, yacht clubs, and floating home marinas would be eligible for certification – though there could be more in future
- Update on action items from last meeting:
 - Dave Kunz from DEQ is looking into tax credits and grants and will have information by next meeting in June
 - Kristin will continue investigating insurance discounts
 - Marty and Kristin will have information about possible Marine Board grant application benefit by next meeting
 - Based on the response, this committee seems to have the right mix of representatives
 - Kristin got great feedback regarding the Boater guide and program guidebook sample structures
- The Clean Marina program and coordinator position portion of budget was approved by the legislature as a limited duration (2 year) program to start. The Clean Marina Coordinator position has been filled by Kristin Feindel and will begin July 1, 2005.

Boater's Guide Discussion

- General feedback (passed out summary of "Stakeholder General comments")
 - Went through feedback and decided:
 - To use organizational suggestion of the top ten threats, but with bullets rather than numbers

- To add the suggested parts, with some changes in the wording and some other additions:
 - Use hardening paint (rather than using ablative paint)
 - Make very prominent – do not discharge from boats
 - Common language definitions of MSDs I-III
 - Look into using a new filtered air tank (rather than the traditional holding tank)
- To take out the suggested sentences, as well as the section about grey water
- Kristin will:
 - look into the proper disposal of rags (individual versus marina use) and place simple sentence about the boater disposal of rags in boater guide
 - look into best way to clean boats of airplane fuel
 - investigate the answers to the BMP questions and change them appropriately
 - incorporate the above suggestions
- The document will be given to a graphic artist for design

“Why” Statement Discussion

Several possibilities (printed on back of agenda) were discussed. Generally the committee liked: “The Oregon Clean Marina program provides the opportunity to actively participate in maintaining clean water for the benefit of your facility and future generations.” This was just a preliminary discussion and further feedback is welcome – email Kristin with any comments. The other possibilities could be used as wording in the guidebook introduction and other publications.

Guidebook Discussion

Discussion of guidebook structure and content

1. Kristin will be working on:
 - a. Some formatting issues
 - b. Contacts for Oregon
 - c. Confirmation of some regulations
 - d. Clean boater fact sheets – like Clean boater guide, but formatted differently and perhaps more detailed
 - e. Introduction
 - f. Appendices – Kristin will email updated version of appendices in a week or two
2. Reviewed Table of Contents:
 - a. New Tab order was suggested and will be used:
 - i. Tab 1: Boater Education
 - ii. Tab 2: Facility Management
 - iii. Tab 3: Hauling and Storing Boats
 - iv. Tab 4: Fueling
 - v. Tab 5: Mechanical Activities
 - vi. Tab 6: Painting and Fiberglass Repair

- vii. Tab 7: Emergency Planning
- b. Some general comments:
 - i. Make sure boater fact sheet includes applicable boater owner repair information
 - ii. For the dredging, hazardous waste, fuel storage, fuel tank disposal, boat disposal, and spill response sections, simply put that the marina need to comply with the referenced laws
 - iii. Include a page of contacts and references for different activities
 - iv. Kristin to look into the legality, applicability, and correctness of the legal requirement and best management sections
 - v. Stormwater permits may not need to be mentioned in so many sections but just in the stormwater section
 - vi. A formatting suggestion was made: get rid of the circle bullets and have instead a "related sections" section
 - vii. Add that marinas should prohibit in-water boat hull cleaning that removes paint
- 3. Committee to take home guidebook and email Kristin with comments in the next two weeks

Checklist Discussion

1. Reviewed some checklist samples (MD, OH, FL, CT)
2. Decided that the Oregon checklist will also summarize individual BMPs into general checklist questions and will have some required (per laws and regulations and decided upon BMPs) and then a percentage of BMPs.
3. The formatting will not be like Florida's. It will be like Ohio's but with page references like in Maryland's. Just required and not required items will be distinguished with some symbol and possibly the use of italics.
4. There was discussion of the requirement of the program for marinas to be 100% in compliance with regulations. The distinction between marina compliance and marina user compliance was made. It was decided that marinas will have to be 100% in compliance with the regulations that are listed by the program in order to be certified.
5. The actual percentage needed for certification will be decided next meeting, after draft checklist completed

Logo Presentation

Sharon McKee from In House Graphics presented various new logo possibilities. It was decided by the majority of the committee that the blue/light blue logo with the dock and ecosystem (water, fish, and vegetation) would be the Oregon Clean Marina logo. There was a request to take the eyes and mouth off of the fish.

Measuring Success

There was discussion of how we might measure the success of the program. We will record the number of marinas and the number of slips that become certified. There was also discussion of doing some water quality testing for specific items such as bottom paint and acetone at a few voluntary marinas to try to determine if the program has a

positive environmental effect. There was also discussion of recording any increase in items hauled away from the marina (such as oil for recycling, sewage) and an increase in BMPs used as a result of the program. The committee should think about this topic and email Kristin with any thoughts on measuring success of the program.

Upcoming Schedule

The plan for next couple of months is:

1. Kristin will continue working on guidebooks, checklist, recommendations
2. The committee will review via email:
 - a. Clean Marina guidebook - provide Kristin with feedback via email in next two weeks. Then Kristin will send out an email outlining general guidebook feedback she received.
 - b. Checklist – Kristin will email draft in a couple weeks and then committee should email feedback to Kristin
3. The mid-June meeting will be the final meeting. At this meeting, the committee will do the final review of the boater's booklet, program guidebook, checklist, and program structure and implementation recommendations. The committee will also discuss the possibility of a Clean Marina advisory committee.
4. During the summer, the implementation plan will be fleshed out more, there will be more outreach materials developed, and advertising for the program will occur. Workshops may begin in the fall.

Wrap-up

The next (and final) meeting was tentatively scheduled for June 16th. Kristin will email the committee to confirm this meeting date.

Appendix H: Boater Booklet Draft

June 2005

A Clean Boater's Guide: Protecting Oregon's Marine Resources*Inside front cover:***Oregon Clean Marina Program:**

The Oregon Clean Marina program provides the opportunity for marinas to receive recognition for helping to establish and promote a cleaner marine environment for Oregon. If a marina, boatyard, yacht club, or floating home marina is in compliance with environmental regulations and uses a high percentage of environmentally sensitive practices, it can be designated as an Oregon Clean Marina. Such certified marinas are authorized to fly the Clean Marina flag and use the logo in their advertising. The flag is a signal to boaters that a marina cares about the cleanliness of area waterways.



- Look for the Clean Marina flag – Support Oregon Clean Marinas.

*First page:***Introduction:**

Every boater loves being on the water. A clean marine environment is a vital aspect of enjoying the boating experience. With 190,000 boats registered in Oregon today, the cumulative actions of boaters can have a dramatic impact on the health of the marine environment. This guide provides some tips on how to reduce that impact by becoming a cleaner boater and doing your part to keep our waterways clean and healthy.

Gas and Oil:

One quart of oil will create an oil slick over two acres in size – the equivalent of nearly three football fields. A single gallon of fuel can contaminate over a million gallons of water. Small drips and spills of gasoline, diesel, and other petroleum products add up and can have a serious effect on the marine environment, such as: death of fish, mammals, and birds; cancer, mutations, and/or birth defects; destruction of plant life; and reduction of food supply for marine organisms.

- Fuel Cautiously
 - Fuel your boat slowly and carefully – attend the fuel nozzle at all times.
 - Never “top off” or overfill your fuel tank. Only fill the tank to 90% since fuel expands as it warms up.
 - Use your hand to check for air escaping from the vent. When the tank is nearly full, you’ll feel an



Fuel Collar (courtesy of BoatUS)



Fuel Bib (courtesy of BoatUS)

increase in airflow. Also listen for a gurgling sound before the tank is full.

- Use fuel bib or collar to catch drips and backsplash from fuel intake and vent overflow.
- Fill portable gas tanks on shore – where spills are less likely to occur and easier to clean up.
- Outboards: close tank fuel vent when boat is not in use to save fuel from vapor loss.
- Built-in fuel tanks: install fuel/air separator in air vent line from tank to prevent vent spills.



Fuel/Air Separator
(courtesy of BoatUS)

Inefficient two-stroke engines release up to 30 percent of their gas/oil mixture unburned directly into the water. For every 10 gallons of gas used, more than two gallons of gas and oil may go directly into the water in the form of the familiar rainbow sheen seen when the motor is idling.

- Reduce two-stroke engine use
 - Consider replacing a conventional two-stroke outboard with a quieter, cleaner, and more efficient engine.
 - If you have a large outboard you don't plan to replace, consider purchasing a small four-stroke "kicker" to use when trolling or moving short distances. You'll save money on fuel, save wear-and-tear on your larger motor and enjoy a cleaner environment, too.



Two-stroke engine exhaust (courtesy of EPA)

When detergents, soaps, and solvents, are put on fuel spills, fuel that might otherwise evaporate from the surface is scattered down into the water. This rainfall effect causes pollution of all levels of the water, rather than just the surface, and is very difficult to cleanup. Left alone the gasoline will evaporate and, while smelly, by comparison is relatively harmless. Along with causing this scattering effect, detergents harm marine life.

- Handle spills appropriately
 - If you have a spill, wipe it up with a rag – don't hose it off into the water. Give the soiled rags to your marina operator for proper disposal.
 - If fuel is spilled into the water:
 - Don't use soap or dish detergent - they worsen the problem and their use on spills in the water is against federal law.
 - Call 1-800-OILS-911 for both large and small spills.
 - If a spill occurs in a marina, notify the marina management immediately.



Bilges are also a major source of pollution since they tend to collect engine oil, fuel, antifreeze, and transmission fluid. When an automatic bilge pump is activated, these fluids are pumped overboard. Absorbent bilge pads absorb petroleum products but not water. When soaked with oil, they can be disposed of properly.

- **Control Oil in the Bilge**

- Place oil absorbent pads or a bioremediating bilge boom in the bilge to catch oil.
- Place an oil absorbent pad under the engine.
- Replace oil absorbent materials when heavily soiled or saturated, or at least once a year.
- Keep the engine well tuned: no leaking seals, gaskets, or hoses.
- Change oil filters often. Slip a plastic bag over filter before removal to catch drips.
- Secure fuel hoses to prevent chafing and leaks.
- Never discharge or pump any bilge water that appears oily or has a sheen into or near the water it is against the law.
- Use oil absorbents or water/oil separators before pumping the bilge.
- Trailer your boat to an area that provides containment before removing bilge or boat plugs.
- Do not use bilge cleaners - they simply spread out the oil and do not remove it from the water.



Bilge Socks (courtesy of BoatUS)

Put in side box:

- **Properly Dispose of Oil Absorbent Materials**
 - If a pad is saturated with gasoline, air dry and reuse.
 - If a pad is saturated with diesel or oil, place in one plastic bag sealed in another. Place next to marina oil collection container or discard in the regular trash.
 - Bioremediating bilge booms should not be sealed in plastic bags since the tiny organisms need oxygen to function. Simply discard in regular trash.
 - Remember that materials soaked with fuel, oil, or solvents are flammable - keep them away from high heat or flames.

Sewage:

When sewage is pumped or dumped directly into the water, there is a potential for disease-carrying microorganisms to be released into that water. These microorganisms can cause human diseases such as gastroenteritis, hepatitis, typhoid, cholera, and dysentery. In addition, as bacteria decay the sewage, they use up oxygen that fish and other marine life need to breathe.

- **Don't Dump Overboard!**

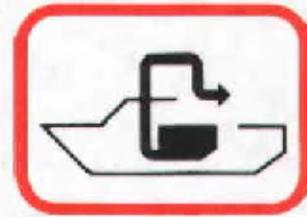
- Know your marine sanitation device (MSD) type and manage it appropriately.
- Type III MSDs are the most common MSDs on recreational vessels and include recirculating and incinerating MSDs and holding



Floating Restroom

tanks. It is illegal to discharge sewage from a Type III MSD overboard into coastal waters, lakes, or reservoirs. Use pumpout facilities for Type III MSDs.

- Type I and II MSDs treat the sewage and must not be discharged while in moorage or on lakes or reservoirs.
 - Empty portable toilets at dump stations or at home. Discharge of this untreated sewage overboard to coastal waters or into a lake or reservoir is illegal.
 - If boat has a holding tank with a y-valve and through-hull fitting, keep them locked closed when inside coastal waters or on lakes or reservoirs.
 - See the last pages of this publication for pumpout and dump station locations. These services are free of charge at all public facilities.
- **Handle Sewage Appropriately**
 - Use restrooms on shore whenever possible.
 - Establish a regular maintenance schedule for your MSD based on manufacturer's recommendations.
 - Avoid using additives like quaternary ammonium compounds (QAC), formaldehyde, or zinc sulphate in your holding tank. Use safer enzyme-based products to control odor and reduce solids.
 - Consider installing a filtered air holding tank.
 - Keep diapers, sanitary napkins, oils, solvents, and other harmful chemicals out of toilets.
 - If using pumpout equipment, wash your hands with antibacterial soap after use.
 - Dispose of your pet's waste properly.



Look for the International Pumpout Sign



Pumpout

Garbage:

Trash – plastic bags, Styrofoam, bottles, cans, discarded nets, fishing line, and other refuse – can injure or kill aquatic life and birds by trapping or suffocating them. Along with being unsightly, trash can also foul props, clog water intake fittings, and damage fishing nets.

- **Contain Trash: Nothing overboard!**
 - Bring a container aboard to collect your garbage and keep it from blowing overboard.
 - Minimize the use of plastic wrap and bags when packing for your trip.
 - Don't toss any garbage or cigarettes overboard; cigarette filters are plastic and deadly to birds and fish.
 - If trash blows overboard, retrieve it – consider it “crew-overboard” practice.
 - Teach everyone on board that tossing anything into the water is just not done.
 - Pick up other trash in the water or along the shore if you can reach it safely.
 - Recycle cans, glass, plastic, and newspapers.



Marine Debris (courtesy of EPA)



Seal with fishing line around neck (courtesy of EPA)

- Bring used fishing line to recycling bins at your marina or tackle shop.
- Encourage your marina to provide well marked trash cans and recycling bins.
- Adopt-a-River or participate in other SOLV cleanups like the annual Down by the Riverside event.



Gray Water:

Water from sinks, washers, and showers are discharged directly into the water without treatment. This gray water is often rich in phosphates that pollute the water and encourage the growth of unwanted algae.

- Use upland laundry facilities and showers whenever possible.
- Limit the amount of water you use in sinks and showers.
- Use non-phosphate soaps.

Boat Cleaning:

Many products used to clean boats contain toxic chemicals such as chlorine, phosphates, and ammonia. These products can enter the water during boat cleaning and can poison marine life. Degreasers dry the natural oils fish need for their gills to take in oxygen. The best way to keep toxic chemicals out of the water is to not use them at all. In many cases, "elbow grease" will go a long way.

- Clean Gently
 - When possible, wash the boat on land where the washwater can be contained or filtered.
 - Wash your boat frequently with a sponge and plain water.
 - Use detergents sparingly.
 - Avoid cleaners with bleach, ammonia, lye, or petroleum products.
 - Use phosphate-free, biodegradable and non-toxic cleaners, such as those in the table below. Though much less harmful, these cleaners can still cause damage to local marine life and should be used only on land when possible.
 - If your boat has a "hard" paint on it, wash over grass or soil with an environmentally friendly detergent.
 - If your boat has a "soft" paint coat, do not clean the boat bottom while in the water – this creates a discharge of toxic paint into the water.
 - Wait 90 days to clean a newly painted hull, as it will release more toxins when new.
 - Wax your boat – a good coat of wax prevents surface dirt from becoming ingrained.
 - Clean wood with a mild soap powder and a nylon brush – not harsh chemical cleaners.
 - Ask your ship's store to stock common alternative products like those listed in the table below and biodegradable spray-type cleaners that do not require rinsing.



(Courtesy of Surfrider)

Alternatives to Toxic Products	
<u>Toxic Product</u>	<u>Alternative</u>
Aluminum cleaner	2 Tablespoons cream of tartar in 1 qt. hot water.
Bleach	Borax or hydrogen peroxide
Brass cleaner	Worcestershire sauce. Or paste with equal parts of salt, vinegar, + water.
Chrome cleaner/polish	Apple cider vinegar to clean; baby oil to polish.
Copper cleaner	Lemon juice + water. Or paste of lemon juice, salt, + flour.
Fiberglass stain remover	Baking soda paste.
Floor cleaner	One cup white vinegar in 2 gallons water.
General cleaner	Baking soda + vinegar. Or lemon juice + borax paste.
Head cleaner	Put in baking soda and use a brush.
Mildew remover	Paste using equal parts of lemon juice + salt, or white vinegar + salt.
Scouring powders	Baking soda or salt. Or rub area with ½ a lemon dipped in borax, then rinse.
Stainless steel cleaner	Baking soda or mineral oil for polishing, vinegar to remove spots.
Varnish cleaner	Wipe with ½ cup vinegar + ½ cup water solution.
Window cleaner	One cup vinegar in 1 qt. warm water, rinse and squeegee.

Vessel Maintenance:

General upkeep of boats generates household hazardous wastes such as solvent paint waste, used antifreeze, used oil, old gasoline, used batteries, mercury containing bilge pump switches, and out-of-date flares. These wastes pose a threat to the environment if they are improperly disposed into the water, air, or ground.

- **Manage your Hazardous Waste:**

- Contain wastes – do not dump used oil, antifreeze, or other liquid wastes into the water or trash.
- Use less-toxic propylene glycol antifreeze (usually pink).
- Use premium two-cycle engine oil.
- Share any leftover chemicals, paint, or varnish.
- Recycle used motor oil, antifreeze, and other engine fluids. Prior to recycling, store in separate closed containers to prevent escape, mixing, or fire hazard. Oil mixed with other substances is not recyclable.
- Encourage your marina to offer oil recycling.
- Bring items to a local hazardous waste collection day - visit www.cleanup.org for information.
- Trade in a used battery for a possible credit toward a replacement battery.
- If out-of-date flares have not been exposed to water and are undamaged, keep them on the boat along with the number of required in-date flares. If they have been damaged by water, bring them to a local fire department or a household hazardous waste collection program.
- When possible, use paints that are not solvent based.

RECYCLE	
Oil	Mixed Paper
Antifreeze	Newspaper
Lead batteries	Solvents
Glass	Steel
Plastic	Scrap Metal
Aluminum	Tin
Corrugated cardboard	Tires
Metal fuel filter canisters	

- Buy bilge pump switches that do not contain mercury. Check with marina on mercury containing bilge switch disposal.

Antifoulant coatings on boat hulls are another toxic threat to marine life. These coatings contain compounds such as copper that kill marine organisms that grow on the underside of a boat. These coatings, especially soft (a.k.a. ablative, self-polishing, or sloughing) coatings, also release toxic compounds into the water. Hard antifouling coatings have extended antifouling properties, but limit the amount of toxic metals leached into the water. Hard coatings also release less material than soft coatings when they are cleaned.

- Maintain your Hull Wisely
 - Consider alternatives to toxic “soft” bottom paints. Some good alternatives are silicon, polyurethane, Teflon, and other hard antifouling coatings. These alternatives rely on a slick surface to discourage the growth of marine organisms rather than killing them.
 - Consider storing your boat out of the water to prevent fouling.
 - Do hull work inside or under cover where rain can’t wash dirt, dust, oil, or solvents into the water. Use a dust-less or vacuum sander, or a drop cloth to collect all paint chips, dust, and residue. Dispose in regular trash.



Vessel Bottom Work (courtesy of DEQ)

Fish Cleaning:

In small quantities, fish waste is scavenged by crabs and other marine animals. However, in an enclosed marina basin decomposition of excessive fish waste can produce foul odors and harm water quality through increased nutrient and bacteria levels and decreased dissolved oxygen. This can cause fish kills as well as an unsightly mess.

- Dispose of Fish Waste Properly
 - Do not throw fish waste, unwanted bait, or bait packaging into marina waters.
 - Discard fish waste over deep water or in the trash.
 - If available, use fish cleaning stations.
 - Recycle fish parts by composting with peat moss or burying in the garden as fertilizer. Or freeze fish waste and reuse as chum or bait.



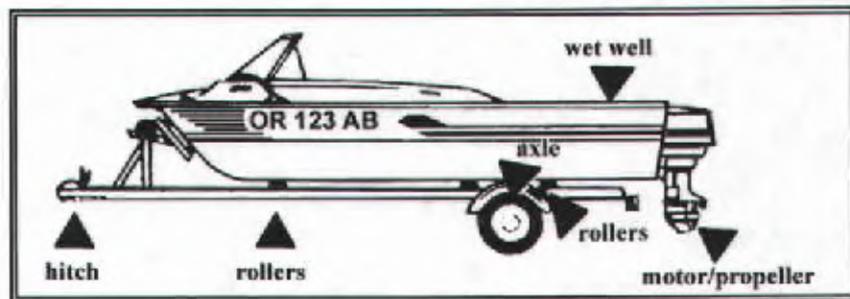
Fish Cleaning Station (courtesy of DEQ)

Aquatic Nuisance Species:

Exotic plants and animals such as the zebra mussel, hydrilla, and mitten crab can hitch a ride attached to your boat or trailer or as tiny young present in water taken in by your boat. Hitching from one waterbody to another, these aquatic nuisance species spread quickly and can become

established in another waterbody. They can harm water quality and fish and wildlife habitat by displacing native species and by blocking light needed by underwater plants. Once introduced, control of aquatic nuisance species is very expensive and extermination is extremely difficult.

- Stop the Spread of Aquatic Nuisance Species
 - Never release live or dead bait or bait packaging into a waterbody, or release aquatic animals from one waterbody into another.
 - Share live bait with other anglers or empty your bait bucket in the trash before leaving the area.
 - Inspect your boat and trailer, especially at the points in the diagram. Remove any plants and animals you see before leaving the waterbody.
 - Avoid chopping vegetation with outboard motor propellers.



- When hauling your boat, drain your motor, wet well, and bilge in a containment area on shore.
- Rinse your boat, trailer, and equipment. It is best to use high-pressure, hot water. A garden hose will work if no other option is available.
- Be especially careful if you've been boating in an infested lake, or if you're buying or using a boat that has come from out of state. Flush raw water-cooling systems and clean sea strainers.
- Air-dry your boat and equipment for as long as possible – at least five days is optimal.
- If you find one of the below species, or suspect there may be a new infestation, call 1-877-STOP-ANS (toll free).

Zebra mussel on stick
(courtesy of NOAA)



Mitten crab



Hydrilla

(photo courtesy of WI DNR)



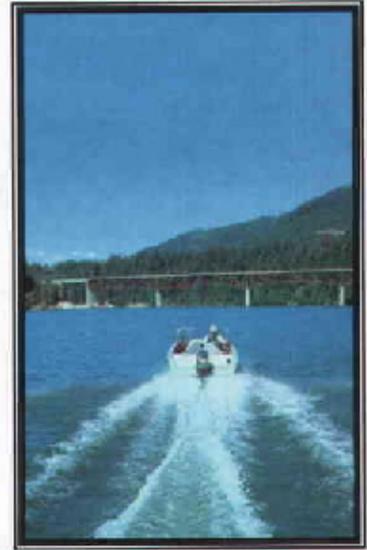
Zebra mussel

(photo courtesy of WI DNR)

Underway:

Boat traffic (including personal watercraft) through shallow-water areas and in the nearshore areas at wake-producing speeds can stir up bottom sediment, uproot underwater vegetation, erode shorelines, and harm some animals. Disturbed sediment can cause darker waters which harm aquatic plant life and bottom-dwelling organisms, reduce dissolved oxygen levels, and disrupt fish feeding. The loss of underwater plants reduces available habitat for fish, shellfish, and waterfowl, diminishes the recycling of nutrients, and decreases natural shoreline erosion protection.

- Protect Sensitive Habitat
 - Always be aware of your wake. Distribute your passengers equally. A heavy stern creates a larger wake.
 - Observe posted No-Wake Zones.
 - Operate away from shore as much as possible to avoid disturbing wildlife, chopping vegetation, and disturbing bottom sediments.
 - Proceed slowly in shallow areas.
 - If you run into a grass bed, stop and tilt your engine. Use a pole or walk your boat out of the area.
 - Read the water – a grass bed may appear as a large dark area underwater.
 - Do not disturb wildlife.



Safety Checklist:

- Life jackets – All recreational vessels must have one life jacket of a suitable size for each person aboard and each skier being towed. Children age 12 and under must wear a life jacket while the boat is underway.
- Throwable cushions – Required on boats 16 feet in length or greater.
- Sound devices – Some vessels are required to carry a whistle or power horn and a bell on board.
- Fire extinguishers – Coast Guard-approved fire extinguishers are required on certain boats.
- Other items you should have onboard:
 - Anchor and line
 - Compass and chart
 - Basic tools and spare parts
 - First aid kit
 - Flares or other visual distress signals
 - Paddle and bailer
 - Lights and flashlight
 - VHF radios
- Operators of boats over 10 horsepower will need to obtain a “Boater Education Card” – see chart for when you need your card.
- Check with your marina or with the Oregon State Marine Board at www.boatoregon.com for more information on boating safety and education card requirements.

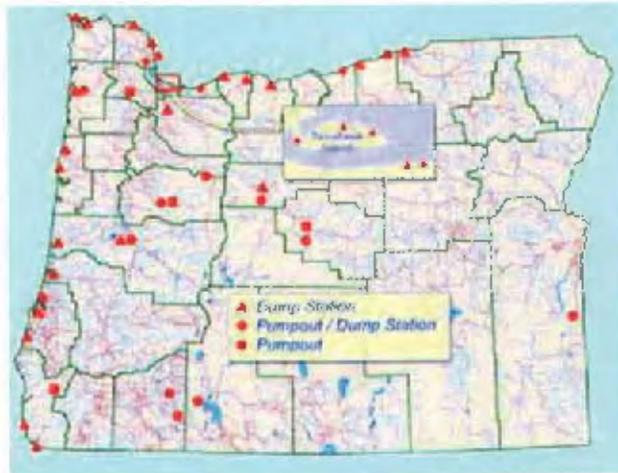


When Do I Need My Card?	
Year	Your Age
2003	30 and younger
2004	40 and younger
2005	45 and younger
2006	50 and younger
2007	60 and younger
2008	70 and younger
2009	All boaters

Last page and inside back cover:

Boat Waste Collection Facilities in Oregon *(plus the ones on the Washington map)*

There are several brands of pumpout and dump stations used in Oregon. The equipment ranges from single pumpout and/or dump station to combination units. Instructions are printed on each pumpout at each facility. They are fast, clean and easy to use. If the units are not operational, in disrepair or not functioning properly, please contact the facility operator immediately.



Columbia river pumpouts on Washington side:



Location	Facility Type [Pumpout Station (P), Dump Station (D), Pumpout and Dump station (P/D), or Floating Restroom (F)]	River Mile
<i>Baker Bay (Washington)</i>		
Port of Ilwaco	P	n/a
<i>Chetco River</i>		
Brookings Cmcl Basin Fuel Dock	P/D	0.25
Brookings Sport Basin Transient	P/D	0.25
<i>Columbia River</i>		
Astoria West Mooring Basin	P/D	13.5
Elochoman Slough Marina (Cathlamet Channel, Washington)	P/D	37

Rainier Marina Transient	P/D	62
Port of Kalama Marina (Washington)	P	75
St. Helens Courthouse Docks	P/D	86
Hayden Bay Moorage and Dock	P (2)	106
Hayden Bay Moorage W. Dock	D (2)	106
Steamboat Landing Marina (Washington)	P/D	106.4
McCuddy's Marina	P/D	107
Tomahawk Bay Marina E. Dock	P (2)	107.7
Tomahawk Bay Marina W. Dock	D (2)	107.7
Donaldson Marina	P/D	108.7
Chinook Landing	P	118.5
Port of Camas/Washougal (Washington)	P	121.5
Cascade Locks Marina	P/D	149.2
Hood River Marina	P/D	169.2
Port of The Dalles Marina	P/D	189.8
Arlington Marina	P/D	241.5
Boardman Park	P/D	269
Irrigon Marina	P/D	282
Port of Umatilla Marina	P/D	290.2
Coos Bay		
Charleston Marina and Dock	P/D	n/a
Charleston Marina and Dock	P/D	n/a
Coos Bay City Docks	P/D	n/a
Coquille River		
Bandon Sport Basin S. Transient	P/D	0.8
Depoe Bay		
Depoe Bay Marina Transient	P/D	n/a
Detroit Lake		
Kane's Hideaway Marina E. Transient	P/D	n/a
Detroit Lake - Blowout Arm	F	n/a
Detroit Lake - N. Piety Island	F	n/a
Fern Ridge Lake		
Richardson Park Transient	P/D	n/a
Fern Ridge Reservoir - Across from Orchard Point	F	n/a
Green Peter Reservoir		
Thistle Creek by restroom	D	n/a
Whitcomb Creek by restroom	D	n/a
Green Peter Reservoir Santiam River Arm	F	n/a
Hagg Lake		

Hagg Lake and Ramp by restroom	D	n/a
Hagg Lake and Ramp by restroom	D	n/a
Howard Prairie		
Howard Prairie Reservoir - South	F	n/a
Klamath Lake		
Klamath Lake - Bare Island Cove	F	n/a
Lake Billy Chinook		
Cove Palisades South Transient	P/D	n/a
Lake Billy Chinook - Big Cove	F	n/a
Lost Creek Reservoir		
Lost Creek Reservoir - Near Klum Landing	F	n/a
Lake Owyhee		
Lake Owyhee Near Dry Creek Arm	F	n/a
Multnomah Channel		
Rocky Pointe Marina	P/D (2)	14.5
N. Portland Harbor		
Jantzen Bay Moorage	P (2)	106.5
Prineville Reservoir		
Prineville Reservoir - Juniper Bay	F	n/a
Jasper Point	D	n/a
Rogue River		
Port of Gold Beach Fuel Dock	P/D	n/a
Scappoose Bay		
Scappoose Bay Marina	P/D	n/a
Siuslaw River		
Port of Siuslaw Transient	P/D	5
Skipanon River		
Warrenton Marina	P/D	1.7
Tillamook Bay		
Port of Garibaldi East Transient	P/D	n/a
Tillamook Bay - Kincheloe Point	F	n/a
Grays Harbor (Washington)		
Westport Marina	P	n/a
Willapa Bay (Washington)		
Port of Peninsula/Nahcotta Boat Basin	P	n/a
Willamette River		
Riverplace Marina	P	13.3
Boones Ferry Ramp	P/D	39
Winchester Bay		
Salmon Harbor West Basin	P/D	n/a
Yaquina Bay		
Port of Newport Fuel Dock	P/D	1.3
Embarcadero	P/D	1.3

Back cover:

Emergency numbers:

All emergencies	(Indicate if water related; know your location)	911
Boating problems (obstructions, accidents, etc.)	County Sheriff Offices	
	Baker	(541) 523-6415
	Benton	(541) 766-6858
	Clackamas	(503) 655-8218
	Clatsop	(503) 325-8635
	Columbia	(503) 366-4611
	Coos	(541) 396-3121
	Crook	(541) 447-6398
	Curry	(541) 247-3242
	Deschutes	(541) 388-6503
	Douglas	(541) 440-4450
	Harney	(541) 573-6156
	Hood River	(541) 386-2098
	Jackson	(541) 774-6818
	Jefferson	(541) 475-6520
	Josephine	(541) 474-5120
	Klamath	(541) 883-5130
	Lane	(541) 682-8599
	Lincoln	(541) 265-4277
	Linn	(541) 967-3911
	Malheur	(541) 473-5126
	Marion	(503) 588-5094
	Morrow	(541) 676-5317
	Multnomah	(503) 251-2400
	Polk	(503) 623-9251
	Sherman	(541) 565-3622
	Tillamook	(503) 842-2561
	Umatilla	(541) 966-3603
	Union	(541) 963-1017
	Wallowa	(541) 426-3131
	Wasco	(541) 298-4423
	Washington	(503) 846-2700
	Yamhill	(503) 472-9371
Boating safety	Coast Guard Safety Hotline	1-800-368-5647
	U.S. Coast Guard	
	Group Astoria	(503) 861-6220
	Group North Bend	(541) 756-9210
	Group Portland	(503) 240-9301
	Station Cape Disappointment – Ilwaco	(360) 642-2382

	Station Chetco – RiverHarbor	(541) 469-3885
	Station Coos Bay – Charleston	(541) 888-3266
	Station Siuslaw River – Florence	(541) 997-2486
	Station Tillamook Bay – Garibaldi	(503) 322-3531
	Station Umpqua River – Winchester Bay	(541) 271-2138
	Station Yaquina Bay - Newport	(541) 265-5382
	Oregon State Police	
	Headquarters – Salem	(503) 378-3720
	Afterhours	(503) 378-2575
	NW Region HQ - Wilsonville	(503) 682-0208
	SW Region HQ – Central Point	(541) 776-6114
	East Region HQ – Baker City	(541) 523-5848
	Service for Lake, Grant, Wheeler, and Gillam Counties available through – Bend Office	(541) 388-6213
	Afterhours	(541) 617-0617
	Service for Wasco County available through – The Dalles Office	(541) 296-9646
Emergency and pollution spill reporting	Oregon Emergency Response System (OERS) and National Response Center	1-800-OILS-911 (or 1-800-452-0311) and 1-800-424-8802
Poaching	Turn In Poachers Program	1-800-452-7888
Stranded marine mammal	Marine Mammal Stranding Network	(541) 265-5354
Suspicious activity	America’s Waterway Watch	1-800-424-8802

Contacts:

Adopt-A-River	Oregon Adopt-A-River	1-800-322-3326
Aquatic nuisance species siting	Oregon Dept of Fish and Wildlife or Oregon Dept of Agriculture	(503) 872-5260 or (503) 986-4621
Boating publications, registration, safety classes, and information	Oregon State Marine Board	(503) 373-1405 or www.boatoregon.com
Environmental information	Dept of Environmental Quality	(503) 229-5696
Fish and wildlife	Oregon Dept of Fish and Wildlife	1-800-720-ODFW
Underwater land ownership information	Dept of State Lands - Salem Bend	(503) 378-3805 (541) 388-6112

A scenic landscape photograph showing a body of water in the foreground, a forested shoreline with a few buildings, and snow-capped mountains in the background under a clear blue sky.

Oregon Clean Marina Guidebook

Prepared by
Oregon State Marine Board
Salem, Oregon

August 2005



Oregon Clean Marina
Guidebook

Prepared by
Oregon State Marine Board
Salem, Oregon

August 2005

The Oregon State Marine Board developed this guidebook with financial assistance awarded to the Oregon Department of Land Conservation and Development (DLCD) by Section 309 of the Coastal Zone Management Act Award No. NA04NOS4190053 administered by the Office of Ocean and Coastal Resource Management, National Oceanic and Atmospheric Administration (NOAA). Funding for this guide was also provided by a grant from the Clean Vessel Act, funded through the Sport Fish Restoration Program, administered by the U.S. Fish and Wildlife Service. The Oregon State Marine Board, using registration fees and marine fuel taxes paid by boaters, provided additional state matching funds. This project does not necessarily reflect the opinion or position of the funding organizations.

This manual is intended as an educational tool for marina operators and boaters. It does not constitute a complete reference to State, Federal, or local laws. Relying on the information in this book will not protect you legally. This book may not be relied upon to create a right or benefit substantive or procedural, enforceable at law or in equity by any person.

The Oregon State Marine Board, contributing agencies, organizations, and individuals cannot assume any liability for the accuracy or completeness of the information in this publication. Inclusion in this book is not an endorsement of the companies listed. Final determination of the proper handling and disposal of waste is the sole responsibility of the generator.

Cover photograph: Jyll Smith, Oregon State Marine Board

For more information about Oregon's Clean Marina Program, please contact:

Kristin Feindel
Clean Marina Coordinator
Oregon State Marine Board
435 Commercial St NE
Salem, OR 97309
Phone: (503) 373-1405 x249
Fax: (503) 378-4597
Email: Kristin.Feindel@state.or.us
www.boatoregon.com



Acknowledgements

The Oregon Clean Marina program and guidebook was developed in close collaboration with the Clean Marina Stakeholders Committee. Sincere gratitude goes to the Committee for sharing their wealth of knowledge and expertise and for taking time out of their busy schedules.

- ✧ **Anne Cox**, Natural Resource Specialist, NW Region Water Quality Source Control, Department of Environmental Quality
- ✧ **Paul Donheffner**, Director, Oregon State Marine Board
- ✧ **Dick Dyer**, President, Columbia River Yachting Association
- ✧ **Deborah Horan**, Sea Tow Owner and member of the Portland Marine Dealers Association
- ✧ **Brad Howton**, General Manager, Columbia Crossings
- ✧ **David Kunz**, NW Region Pollution Prevention Coordinator, Department of Environmental Quality
- ✧ **Martin Law**, Education Information Manager, Oregon State Marine Board
- ✧ **Lyman Louis**, Sea Tow Owner and member of the Portland Marine Dealers Association
- ✧ **Callie Lunski**, Owner, Detroit Lake Marina
- ✧ **Don Mann**, General Manager, Port of Newport
- ✧ **Amanda Punton**, Department of Land Conservation and Development
- ✧ **Paul Sharkey**, Commissioner, Port of Alsea
- ✧ **Rich Tonneson**, Owner, Rocky Pointe Marina and Boatyard
- ✧ **Jeff Vander Kley**, Harbor Manager, Salmon Harbor Marina
- ✧ **Bob Wilson**, President, Waterfront Organizations of Oregon
- ✧ **Don Yost**, Harbormaster, Port of Coos Bay/Charleston Marina

Many thanks go to **Margaret Podlich**, BoatUS Director of Environmental Programs, for sharing her expertise on Clean Marina programs. Gratitude also goes to **Don Jackson** from Florida Sea Grant and the Clean Marina program coordinators of many other states for sharing their program experience.

The structure and content of this guidebook and the Clean Marina program relies heavily on the excellent past work of others, particularly the Oregon Department of Environmental Quality's Best Management Practices for Oregon Marinas and the Connecticut Clean Marina Guidebook.

We would also like to thank the Oregon Department of Land Conservation and Development for its financial assistance with the creation of the Oregon Clean Marina program and guidebook.

Table of Contents

INTRODUCTION	1
How to Use this Guidebook.....	3
How to Become a Certified Oregon Clean Marina.....	4
List of Acronyms	5
General Guidance: In or Out of the Water?	6
TAB 1: BOATER EDUCATION	7
Boater Education, Employee Training, & Signage.....	9
Sample Signs.....	11
Boater Tip Sheets	15
Gas and Oil.....	17
Bilges.....	18
Sewage.....	19
Garbage	20
Boat Cleaning.....	21
Non-toxic Cleaning Alternatives.....	22
Vessel Maintenance.....	23
Hull Paint.....	24
Fish Waste/Bait	25
Underway	25
Aquatic Nuisance Species	26
TAB 2: FACILITY MANAGEMENT	27
Fixed and Floating Structures	29
Stormwater Runoff Management Practices	31
Sewage Disposal	33
Spills	35
Litter and Recycling	37
Facility Cleaning	39
Alternatives to Toxic Products	40

Landscaping.....	41
Hazardous Waste	42
Floor Drains.....	44
Fish Waste.....	45
Pet Waste	46
Dredging.....	47
Compressor Blowdowns	49
TAB 3: HAULING AND STORING BOATS	51
Bilge Cleaning.....	53
Pressure Washing.....	55
Winterizing Vessels.....	57
Boat Disposal	58
TAB 4: FUELING.....	59
Fueling Station Operation	61
Fuel Storage.....	63
Fuel Tank Disposal	65
TAB 5: MECHANICAL ACTIVITIES.....	67
Oil	69
Antifreeze.....	71
Rags and Oil Absorbent Pads	73
Degreasing / Parts Washing	75
Battery Replacement	77
Upland Engine Operations.....	79
Commissioning Engines.....	80

Decommissioning Engines	81
Zinc Replacement.....	82
Refrigerants	83
TAB 6: PAINTING AND FIBERGLASS REPAIR	85
Scraping and Sanding.....	87
Paint Stripping	89
Prepping and Painting Boat Bottoms Antifouling Paint	90
Hull and Topside Painting	92
Abrasive Blasting	94
Paint Spraying.....	95
Compound Waxing	97
Varnishing	98
Teak Refinishing	99
Fiberglassing.....	100
TAB 7: EMERGENCY PLANNING.....	101
Emergency Planning.....	103
APPENDICES.....	107
Appendix A: Hazardous Substance Management	109
Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA).....	111
<i>Reporting Hazardous Chemicals</i>	112
<i>Reporting Storage of Extremely Hazardous Substances</i>	113
<i>Accidental Release Notification</i>	114
<i>Toxic Release Inventory</i>	115
Appendix B: Hazardous Waste Management	117
How to Determine if Your Waste is Hazardous.....	119
Preferred Disposal Options for Potential Hazardous Waste Streams.....	123
Appendix C: Used Oil And Antifreeze Management	127
Used Oil Management.....	129
Used Antifreeze Management	132

Appendix D: Boat Sewage Collection Devices.....	135
Marine Sewage and Wastewater Disposal	137
Determining the Type of Sewage Collection/Disposal Required for Vessels.....	139
Determining the Number of Boat Waste Collection Devices for your Marina.....	140
Appendix E: Spills.....	143
Spill Prevention, Control, and Countermeasure Plans	145
Your Role in Spill Response: What to Do if You Have a Spill	148
Appendix F: Stormwater General Permit	149
NPDES Storm Water Regulations.....	151
Appendix G: Ballast Water Management	155
Oregon Ballast Water Management	157
Appendix H: Sample Contract Language.....	159
Appendix I: Summary Of Environmental Laws And Regulations	165
Federal and State Agencies that Regulate Environmental Issues at Marinas.....	167
Federal Laws and Regulations	167
Environmental Permits and Licenses	169
Additional State Laws and Regulations	170
ADDITIONAL INFORMATION.....	173
Select References.....	175
Contacts For More Information	177
Glossary of Terms.....	179
INDEX.....	181

Introduction

This guidebook provides guidance to some environmentally friendly practices for marina facilities. As the framework of the Oregon Clean Marina program, this guidebook outlines a suite of best management practices for marina facilities and the process by which such a facility can become a certified Oregon Clean Marina.

Nonpoint source pollution

While point sources of pollution – those that come from a discrete point of discharge – remain a source of water quality degradation, it is nonpoint sources – pollution from diffuse sources – that have become the leading cause of water quality impairment in the United States (EPA, 2002). In general, nonpoint source pollution results from snow or rain runoff transporting pollution from farming, urban areas, forestry, construction, paved areas, mining sites, and other activities and areas to waterbodies.

In Oregon, 74 percent of rivers and 51 percent of lakes surveyed in 2000 had good water quality that fully supported aquatic life uses (EPA, 2002). Only six percent of the surveyed estuarine waters in Oregon fully supported shellfishing. The most commonly reported problems for each of these waterbody types were due to nonpoint sources.

Nonpoint sources pollute marine environments by adding excess nutrients, sediments, and toxicants. Excess nutrients can cause weedy plant growth and algal blooms, which can lead to low dissolved oxygen, poor water clarity, and inhibition of aquatic plant growth. Toxicants can cause negative human and aquatic organism health effects. Excess sediments can lead to poor water clarity. Each of these effects results in a negative impact on aquatic organisms and the ecosystem in which they live – and therefore disrupt the environment which humans enjoy and depend on.

Why marinas?

The congregation of recreational boats at marinas, the activities that often occur at marinas, and the physical location of marinas in and near the water can result in significant local impacts to water quality.

Because pollutants from upstream in the watershed often flow through the land and water of the marina, water quality at a marina is often a reflection of not only pollutants generated at the marina but also of pollutants resulting from several watershed sources. While this “offsite” pollution production is something to be acknowledged, the pollution generated from marina activities, marina facilities, and the boats themselves must also be addressed.

Pollutants which are often generated at a marina and which could enter a marina basin include:

- ◆ Petroleum hydrocarbons from fuel and oil drippings and from solvents
- ◆ Nutrients and pathogens from overboard sewage discharge and pet waste
- ◆ Toxic metal from antifoulants and hull and boat maintenance debris
- ◆ Liquid and solid wastes from engine and hull maintenance and general marina activities
- ◆ Sediments from parking lot runoff and shoreline erosion
- ◆ Fish waste from dockside fish cleaning (EPA, 2001)

The input of pollutants from both marinas and from upstream in the watershed is exacerbated since most marinas are situated in areas protected from the wind and waves and where the currents are slower. These protected basins are often poorly flushed and therefore more susceptible to damage by pollutants.

What is the Clean Marina program?

The goal of the Oregon Clean Marina program is to protect and improve local water quality of Oregon waters by reducing pollution from marinas.

The Oregon Clean Marina program provides the opportunity for marinas, boatyards, yacht clubs, and floating home marinas to receive recognition for helping to establish and promote a cleaner marine environment for Oregon.

If a facility (which will be referred to as a marina throughout this guidebook) is in compliance with environmental regulations and uses a high percentage of the recommended practices, it can be designated as an Oregon Clean Marina. Such certified marinas are authorized to fly the Clean Marina flag and use the logo in their advertising. The flag is a signal to boaters that a marina cares about the cleanliness of area waterways.

The Oregon Clean Marina program is part of a much larger effort to reduce nonpoint sources of pollution throughout the state in part to address the requirements of the Environmental Protection Agency and the National Oceanic and Atmospheric Administration under Section 319 of the 1987 amendments to the Clean Water Act and Section 6217 of the federal Coastal Zone Act Reauthorization Amendments of 1990.

Why participate in the Clean Marina program?

The Oregon Clean Marina program provides the opportunity to proactively maintain clean water for the benefit of your facility and future generations.

Ultimately we feel the Clean Marina program will be good for your business. How?
Having a Clean Marina certification:

- ◆ Recognizes you for doing your part to protect water quality.
- ◆ May ensure your facility is in compliance with environmental regulations.
- ◆ Could encourage responsible boaters to patronize your establishment.
- ◆ Provides guidelines with which to educate your staff and patrons on effective best management practices.
- ◆ May make your marina more aesthetically attractive by reducing odor and visual impairments.
- ◆ Adds you to a published list of Clean Marina facilities and provides a link to your facility's website on the Marine Board website (www.boatoregon.com).
- ◆ Could reduce pollution clean up costs.
- ◆ Makes you eligible for grant money and free technical assistance.
- ◆ Promotes your facility as eco-friendly.

How to Use this Guidebook

This guidebook is intended to be used as a reference manual. Refer to selected sections as needed for best management practice ideas and some pointers on legal requirements for various marina activities and facility management.

This guidebook is divided into the following sections:

- ◆ Boater Education
- ◆ Facility Management
- ◆ Hauling and Storing Boats
- ◆ Fueling
- ◆ Mechanical Activities
- ◆ Painting and Fiberglass Repair
- ◆ Emergency Planning

Each section first contains an explanation of the potential environmental impacts, then a basic outline of some of the environmental legal requirements, a description of best management practices, and lastly a list of other relevant sections in the guidebook.

The legal requirements described in this guidebook are only to help outline some of the major environmental laws and regulations that pertain to marinas and are not comprehensive. While the outlines can be used as guidance, compliance with laws and regulations can only be determined by the appropriate agency.

The best management practices in this guidebook may be used individually or in combination to reduce environmental impacts and to reduce the risk of illegal discharges of pollutants into the water.

The checklist used to determine Oregon Clean Marina certification status references the sections and best management practices contained in this guidebook.

The appendices summarize some of the environmental federal and state laws and regulations that apply to marinas and boatyards. The appendices also include fact sheets from the Oregon Department of Environmental Quality, a contract language sample, and a list of contacts for more information.

How to Become a Certified Oregon Clean Marina

A marina, boatyard, yacht club, or floating home marina must meet all the environmental legal and regulatory standards required by the state and federal government, and then employ a percentage of BMPs described in this document to become certified as an Oregon Clean Marina. The criteria for certification are outlined in the checklist "Oregon Clean Marina Award Checklist", which is included in the front flap of this guidebook.

To become a certified Oregon Clean Marina, use the "Oregon Clean Marina Award Checklist" and this *Oregon Clean Marina Guidebook* as references to assess your facility. If you meet the requirements for certification, contact the Oregon Clean Marina Program at (503) 378-8587 to schedule a confirmation visit. Representatives with the Oregon Clean Marina Program will meet with you to verify the items checked on the "Oregon Clean Marina Award Checklist."

If you do not yet meet the minimum percentage of criteria on the checklist, you can still join the program with a Clean Marina Pledge. By signing the "Oregon Clean Marina Pledge," located in the front flap of this guidebook, you commit to becoming certified within one year. Clean Marina staff and specialists are available to help answer questions as you work toward Clean Marina certification.

Once certified, you must confirm annually in writing that you continue to meet the award standards described on the "Oregon Clean Marina Award Checklist." Every three years, or if there is a change in facility ownership, the Clean Marina coordinator will contact you to set up a meeting at a mutually convenient time to reaffirm your Clean Marina status.

List of Acronyms

ACOE	Army Corps of Engineers
AST	Aboveground Storage Tank
BMP	Best Management Practice
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CESQG	Conditionally Exempt Small Quantity Generator of Hazardous Waste
CFR	Code of Federal Regulations
CVA	Clean Vessel Act
CWA	Clean Water Act
CZARA	Coastal Zone Act Reauthorization Amendments of 1990
DEQ	Oregon Department of Environmental Quality
EPA	United States Environmental Protection Agency
EPCRA	Emergency Planning and Community Right-to-Know Act of 1986
HAP	Hazardous Air Pollutant
LDR	Land Disposal Restrictions (Hazardous Waste)
LQG	Large Quantity Generator of Hazardous Waste
MPPRCA	Marine Plastic Pollution Research and Control Act
MSD	Marine Sanitation Device
MSDS	Material Safety Data Sheet
MSW	Municipal Solid Waste
NFPA	National Fire Protection Association
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
OAR	Oregon Administrative Rules
ODC	Ozone Depleting Chemical
ORS	Oregon Revised Statutes
OSMB	Oregon State Marine Board
RCRA	Resource Conservation and Recovery Act
SPCC	Spill Prevention, Control, and Countermeasure
SQG	Small Quantity Generator of Hazardous Waste
SWGPP	Stormwater General Permit
SWPPP	Stormwater Pollution Prevention Plan
TCLP	Toxicity Characteristic Leaching Procedure
USC	United States Code
USCG	United States Coast Guard
UST	Underground Storage Tank
VOC	Volatile Organic Compound

General Guidance: In or Out of the Water?

These lists can be used as a general guideline for whether a vessel should be taken out of the water or not for vessel repair and maintenance activities. Please see the sections in this guidebook for the regulations and best management practices for individual activities and substances.

May be conducted on board a vessel while it is in the water:

- ◆ Routine engine tune-ups, oil changes, and other minor servicing and repair.
- ◆ Routine care and cleaning of rigging and fittings, interior surfaces, and “brightwork,” providing these activities do not produce a wastewater.
- ◆ Painting/varnishing interior surfaces and brightwork.
- ◆ Routine sanitary pump-outs and maintenance of sanitary wastewater facilities.
- ◆ Bilge pump repair.
- ◆ Removal and replacement of an engine, when all discharges or spills of engine fluids are contained.
- ◆ Similar activities where an accidental spill can be contained on deck or within the vessel.

Should be conducted with the vessel out of the water:

(And within an area designed for that purpose, if likelihood exists that pollutants may be released into the environment.)

- ◆ Repairs requiring the disassembly of the outboard or lower drive units.
- ◆ Bilge repairs requiring opening or penetrating the hull.
- ◆ Scraping, sandblasting, or painting the hull exterior or drive units.
- ◆ Interior or on-deck painting or similar activity involving aerosol application with a risk of over-spray or drip beyond the confines of the vessel.
- ◆ Hull exterior cleaning with agents other than non-chlorinated fresh water or natural seawater. Wastewater from such cleaning should be collected and treated, or discharged into a community sewerage system (permission may be required). Discharge of wash water into waters of the state is prohibited.
- ◆ Any other activities involving the potential risk of an unconfined discharge of oil, chemical, nutrients, or other contaminants to waters of the state.

TAB 1: Boater Education

Boater Education, Employee Training, & Signage.....	9
Sample Signs.....	11
Boater Tip Sheets	15
Gas and Oil.....	17
Bilges.....	18
Sewage.....	19
Garbage	20
Boat Cleaning.....	21
Non-toxic Cleaning Alternatives.....	22
Vessel Maintenance.....	23
Hull Paint.....	24
Fish Waste/Bait	25
Underway	25
Aquatic Nuisance Species	26

Boater Education, Employee Training, & Signage

Potential Environmental Impacts:

The environmental choices that marina customers and employees make can improve the water quality in your marina basin, and the appearance of your facility.

Legal Requirements:

<input type="checkbox"/> None	<input type="checkbox"/> There are no legal requirements regarding boater education.
-------------------------------	--

Best Management Practices:

<p>Provide clear signage:</p> <p><i>Waste facilities</i></p> <p><i>Storm drains</i></p>	<ul style="list-style-type: none"> <input type="checkbox"/> Post clear advisory and warning signs in appropriate locations at your marina. Sample signs are shown on the next pages. Signs should be made of durable material suitable for withstanding the marine environment. <input type="checkbox"/> Ensure the following are clearly marked: <ol style="list-style-type: none"> 1. Solid waste disposal facilities 2. Recycling facilities 3. Used oil receptacles 4. Sanitary pumpout stations <input type="checkbox"/> Storm drain catch basins should be marked to advise marina users not to discharge waste oils or other pollutants into the storm drain system.
<p>Incorporate BMPs into marina rules and user contracts</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Write specific best management practices into user contracts and marina rules. Marina rules should be incorporated into user contracts, where approved methods and means of enforcement should be clearly described. Requiring observation of the rules as a term of tenancy should make them enforceable. See sample contract language in Appendix H. <input type="checkbox"/> Communicate that these rules are important for everyone, and important for the protection of boaters and the marine environment. <input type="checkbox"/> These rules should: <ol style="list-style-type: none"> 1. Identify all user responsibilities for each BMP adopted by the marina. 2. Designate activities prohibited at the marina. 3. Clearly designate areas for restricted activities (e.g., painting and scraping, or waste handling). 4. Designate activities restricted to performance by authorized personnel. 5. Outline procedures to address spills and provide emergency contact phone numbers. A specific contingency plan does not necessarily need to be detailed in a marina's rules, but the existence of the plan and where it can be accessed should be communicated.

Train employees	<input type="checkbox"/> Train employees about clean boating practices. <input type="checkbox"/> Employees should receive specialized training for environmentally sensitive activities, such as: <ol style="list-style-type: none"> 1. Fuel handling 2. Waste handling 3. Proper use of toxic material, including cleaning agents and paints <input type="checkbox"/> Only trained personnel should perform the environmentally sensitive activities listed above. <input type="checkbox"/> Let them know what information is available to distribute to customers.
Distribute Clean Boater Tip sheets	<input type="checkbox"/> Photocopy and distribute Clean Boater tip sheets to your customers. The Clean Boater Tip sheets can be found following this page. <input type="checkbox"/> Contact the Marine Board for additional boater education materials, such as "A Clean Boater's Guide", to distribute to marina customers.
Inform contractors	<input type="checkbox"/> Inform independent contractors of specific operational BMPs used at the facility through orientation and training. <input type="checkbox"/> Required BMP measures for contracted work should be incorporated into contracts and specifications.
Provide environmental information	<input type="checkbox"/> Post required BMP measures and emergency phone numbers in all applicable work areas. <input type="checkbox"/> Host an environmental workshop for customers. <input type="checkbox"/> Include environmental information in facility newsletters. <input type="checkbox"/> Include environmental boating practices in slip contracts. <input type="checkbox"/> Provide a list of "yard rules" to your customers who do their own boat maintenance.

Related Sections and Appendices:

- ⇒ Sample signs (on following pages).
- ⇒ Boater tip sheets.
- ⇒ Appendix H for Sample Contract Language.

Sample Signs

NOTICE

The Federal Water Pollution Control Act prohibits the discharge of oil or oily waste into or upon the navigable waters of the United States or the waters of the contiguous zone if such discharge causes a film or sheen upon, or discoloration of, the surface water. Violators are subject to a penalty of \$5,000.

The use of soaps to disperse oil is illegal. Violators may be fined up to \$25,000 per incident.

Report Oil Spills to
USCG at (800) 424-8802

OIL SPILL RESPONSE KIT

*[Name & Number of person
to contact in marina in
case of a spill]*

*[Include name and number
of person to contact at the
marina in case of a spill.]*

Pumpout Station

- *[Instructions for use]*
- *[Hours of operation]*
- *[Fee]*
- *[Name and number of person to call in case of malfunction.]*

Do Not Discharge Sewage

Please use our clean, comfortable restrooms while you are in port.

Nutrients and pathogens in sewage impair water quality.

Vessel Maintenance Area

- Perform all major repairs in this area.
- Do all blasting and spray painting within an enclosed booth or under tarps.
- Use tarps or filter fabric to collect paint chips and other debris.
- Use vacuum sander *[include rental information if appropriate]*.
- Use high-volume low-pressure spray guns *[include rental information if appropriate]*.
- Use drip pans with all liquids.
- Reuse solvents.
- Store waste solvents, rags, and paints in covered containers.

Sample Signs:

Recycle Antifreeze

THIS CONTAINER IS FOR:

- Ethylene glycol antifreeze
- Propylene glycol antifreeze

Tailor to fit your hauler's requirements.

Gasoline, diesel, kerosene, and all other materials are **STRICTLY PROHIBITED**

If container is kept locked, include information about where to find the key or leave the antifreeze.

Keep Fuel Out of the Water

Do Not Top Off Tank
Listen to Anticipate When Tank is Full
Wipe-up Spills Immediately

Recycle Oil

THIS CONTAINER IS FOR:

- Engine oil
- Transmission fluid
- Hydraulic fluid
- Gear oil
- #2 Diesel
- Kerosene

Gasoline is **STRICTLY PROHIBITED**

[Tailor to fit your hauler's requirements.]

[If container is kept locked, include information about where to find the key or leave the oil.]

RECYCLE

Oil	Mixed Paper
Antifreeze	Newspaper
Lead batteries	Solvents
Glass	Steel
Plastic	Scrap Metal
Aluminum	Tin
Corrugated cardboard	Tires
Metal fuel filter canisters	

[Indicate which items you recycle and where the collection sites are located.]

[Include information about local recycling services for materials that you do not collect.]

Think Before You Throw Away

The following items may not be placed in this dumpster:

- Oil
- Antifreeze
- Paint or varnish
- Solvents
- Pesticides
- Lead batteries
- Transmission fluid
- Distress flares
- Hazardous wastes

Ask marina staff about proper disposal of these items.

Sample Signs:

No Fish Scraps

Please do not discard fish scraps
within the marina basin.

- Use our fish cleaning station.
- Bag the scraps and dispose in dumpster or at home.
- Freeze and reuse as chum or bait.
- Save and dispose over deep water.

Keep it Clean!

This marina provides food and
shelter for young fish

- Prevent oil spills!
- Keep bilge clean!
- Use oil sorb pads!
- Help by recycling or properly disposing of used oil, antifreeze, solvents, cleaners, plastics, and other wastes.

**Thank you for
Keeping the
[Sound/Lake/River]
clean and safe!**

Environmental Policy

It is the policy of this marina to protect
the health of our patrons, staff and the
environment by minimizing the
discharge of pollutants to
the water and air.

Boater Tip Sheets

Gas and Oil

One quart of oil will create an oil slick over two acres in size – the equivalent of nearly three football fields. A single gallon of fuel can contaminate over a million gallons of water. Small drips and spills of gasoline, diesel, and other petroleum products add up and can have a serious effect on the marine environment, such as: death of fish, mammals, and birds; cancer, mutations, and/or birth defects; destruction of plant life; and reduction of food supply for marine organisms.

Fuel Cautiously

- Fuel your boat slowly and carefully – attend the fuel nozzle at all times.
- Never “top off” or overfill your fuel tank. Only fill the tank to 90% since fuel expands as it warms up.
- Use your hand to check for air escaping from the vent. When the tank is nearly full, you’ll feel an increase in airflow. Also listen for a gurgling sound before the tank is full.
- Use fuel bib or collar to catch drips and backsplash from fuel intake and vent overflow.
- Fill portable gas tanks on shore – where spills are less likely to occur and easier to clean up.
- Outboards: close tank fuel vent when boat is not in use to save fuel from vapor loss.
- Built-in fuel tanks: install fuel/air separator in air vent line from tank to prevent vent spills.



Fuel Bib
(courtesy of BoatUS)

Traditional two-stroke engines are inefficient and can release up to 30 percent of their gas/oil mixture unburned directly into the water. Direct injected new technology two-stroke engines consume all of their oil, resulting in no oil sheen or smoke and no dirty waste oil to change. All four-stroke and traditional two-stroke engines may emit carbon monoxide at levels 100 times higher than new technology two-stroke engines and higher than safe workplace standards. If these high carbon monoxide emissions are trapped, passengers may be exposed to dangerous levels.

Reduce engine pollution

- Consider replacing a conventional two-stroke outboard with a quieter, cleaner, and more efficient new technology two-stroke or a four-stroke engine.
- Use premium two-cycle engine oil and use the gas-to-oil ratio recommended by the engine manufacturer.
- If you have a large outboard you don't plan to replace, consider purchasing a small four-stroke "kicker" to use when trolling or moving short distances. You'll save money on fuel, save wear-and-tear on your larger motor and enjoy a cleaner environment, too.



Engine exhaust from old two-stroke engine

Properly Dispose of Oil Absorbent Materials

- Reuse pads that are contaminated with gasoline.
- If pad is contaminated with only diesel or oil, wring out over oil recycling bins and reuse. Or, place in one plastic bag sealed in another and discard in your regular trash.
- Bioremediating bilge booms may be discarded in your regular trash as long as they are not dripping. Because the microbes need oxygen to function, do not seal them in plastic bags.
- Remember that materials soaked with fuel, oil, or solvents are flammable – keep away from heat.

Bilges

Bilges are also a major source of pollution since they tend to collect engine oil, fuel, anti transmission fluid. When an automatic bilge pump is activated, these fluids are pumped overboard. Absorbent bilge pads absorb petroleum products but not water. When soaked with oil, they can be disposed of properly.

Control Oil in the Bilge

- Place oil absorbent pads or a bioremediating bilge boom in the bilge to catch oil.
- Place an oil absorbent pad under the engine.
- Replace oil absorbent materials when heavily soiled or saturated, or at least once a year.
- Keep the engine well tuned: no leaking seals, gaskets, or hoses.
- Change oil filters often. Slip a plastic bag over filter before removal to catch drips.
- Never discharge or pump any bilge water that appears oily into or near the water – it is against the law.
- Install a bilge pump switch that leaves an inch or two of water in the bilge. Or, connect a bilge water filter to your vessel's bilge pump. Filters will remove oil and fuel from the water.
- Trailer your boat to an area that provides containment before removing bilge or boat plugs.
- Do not use bilge cleaners when pumping to a waterbody - they simply spread out the oil and do not remove it from the bilge water.



Bilge Socks
(courtesy of BoatUS)

When dispersants, such as detergents, soaps, and solvents, are put on fuel spills, fuel that might otherwise evaporate from the surface is dispersed down into the water. This rainfall effect causes contamination of all levels of the water, rather than just the surface, and is very difficult to cleanup. Left alone the gasoline will evaporate and, while smelly, by comparison is less harmful. Along with causing this dispersion effect, the detergent harms marine life.

Handle spills appropriately

- If you have a spill, wipe it up with a rag – don't hose it off into the water.
- If fuel is spilled into the water:
 - Don't use soap or dish detergent to disperse it. Using detergents to disperse fuel worsens the problem and is against federal law.
 - Call 1-800-OILS-911 for both large and small spills.
- If a spill occurs in a marina, notify the marina management immediately.



For more information, contact
the Clean Marina Coordinator
at 503-373-1405 x249

Sewage

When sewage is pumped or dumped directly into the water, there is a potential for disease-carrying microorganisms to be released into that water. These microorganisms can cause human diseases such as gastroenteritis, hepatitis, typhoid, cholera, and dysentery. In addition, as bacteria and other microorganisms decay the sewage, they use up oxygen that fish and other marine life need to breathe. Discharge of vessel sewage is especially harmful due to its high concentration of sewage and the presence of chemical additives such as formaldehyde, para-formaldehyde, quaternary ammonium chloride and zinc sulphate which are toxic to marine life.

Don't Dump Overboard!

- Know your marine sanitation device (MSD) type and manage it appropriately.
- Type III MSDs are the most common MSDs on recreational vessels and include recirculating and incinerating MSDs and holding tanks. It is illegal to discharge sewage from a Type III MSD overboard into coastal waters, lakes, or reservoirs. Use pumpout facilities for Type III MSDs.
- Type I and II MSDs treat the sewage and must not be discharged while in moorage or on lakes or reservoirs.



Look for the Pumpout Sign

- Empty portable toilets at dump stations or at home. Discharge of this untreated sewage overboard to coastal waters or into a lake or reservoir is illegal.
- If boat has a holding tank with a y-valve and through-hull fitting, keep them locked closed when inside coastal waters or on lakes or reservoirs.
- See the "Oregon Boating Facilities Guide" or the "Oregon Marina Guide" (available from the Marine Board) for pumpout and dump station locations. Both of these services are free of charge at all public facilities.

Handle Sewage Appropriately

- Use restrooms on shore whenever possible.
- Establish a regular maintenance schedule for your MSD based on manufacturer's recommendations.
- Avoid using additives like quaternary ammonium compounds (QAC) or formaldehyde in your holding tank. Use safer enzyme-based products to control odor and reduce solids.
- Consider installing a filtered air holding tank.
- Keep diapers, sanitary napkins, oils, solvents, and other harmful chemicals out of toilets.
- If using pumpout equipment, wash your hands with antibacterial soap after use.
- Dispose of your pet's waste properly.

Gray Water

Water from sinks, washers, and showers are discharged directly into the water without treatment. This gray water is often rich in phosphates that pollute the water and encourage the growth of unwanted algae.

- Use upland laundry facilities and showers whenever possible.
- Limit the amount of water you use in sinks and showers.
- Use non-phosphate soaps.



For more information, contact the Clean Marina Coordinator at 503-373-1405 x249

Garbage

Trash – plastic bags, Styrofoam, bottles, cans, discarded nets, fishing line, and other refuse – can injure or kill aquatic life and birds by trapping or suffocating them. Along with being unsightly, trash can also foul props, clog water intake fittings, and damage fishing nets.

Contain Trash: Nothing overboard!



Marine Debris

- Bring a container aboard to collect your garbage and keep it from blowing overboard.
 - Minimize the use of plastic wrap and bags when packing for your trip.
 - Don't toss any garbage or cigarettes overboard; cigarette filters are plastic and deadly to birds and fish.
 - If trash blows overboard, retrieve it – consider it “crew-overboard” practice.
 - Teach everyone on board that tossing anything into the water is just not done.
 - Pick up other trash in the water or along the shore if you can reach it safely.
 - Recycle cans, glass, plastic, and newspapers.
- Bring used monofilament fishing line to recycling bins at your marina or tackle shop.
 - Encourage your marina to provide well-marked trashcans and recycling bins.
 - Adopt-a-River or participate in other SOLV cleanups like the annual Down by the Riverside event.



Seal with fishing line around neck



For more information,
contact the Clean
Marina Coordinator at
503-373-1405 x249

C
L
E
A
N
B
O
A
T
E
R

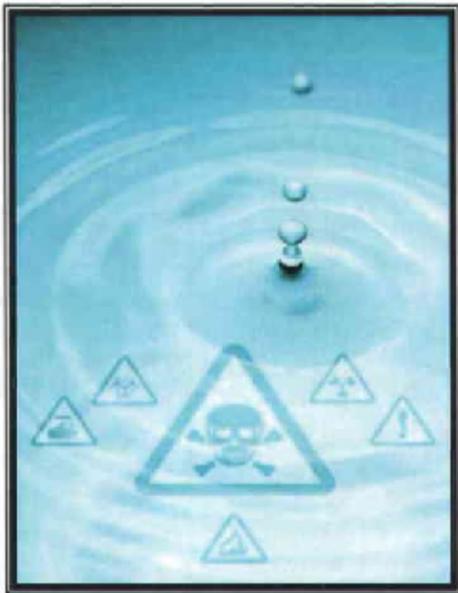
T
I
P
S
H
E
E
T

Boat Cleaning

Many products used to clean boats contain toxic chemicals such as chlorine, phosphates, and ammonia. These products can enter the water during boat cleaning and can poison marine life. Degreasers dry the natural oils fish need for their gills to take in oxygen. The best way to keep toxic chemicals out of the water is to not use them at all. In many cases, "elbow grease" will go a long way.

Clean Gently

- When possible, wash the boat on land where the washwater can be contained or filtered.
- Wash your boat frequently with a sponge and plain water.
- Use detergents sparingly.
- Avoid cleaners with bleach, ammonia, lye, or petroleum distillates.
- Use phosphate-free, biodegradable and non-toxic cleaners, such as those in table. Though much less harmful, these cleaners can still cause damage to local marine life and should be used only on land when possible.
- If your boat does not have sloughing paint on it, wash over grass or soil with an environmentally friendly detergent.



Toxic Water
(Courtesy of Surfrider)

- Wax your boat – a good coat of wax prevents surface dirt from becoming ingrained.
- Clean wood with a mild soap powder and a nylon brush – not harsh chemical cleaners.
- Ask your ship's store to stock common alternative products listed in the table and biodegradable spray-type cleaners that do not require rinsing.

**C
l
e
a
n
B
o
a
t
T
i
p
S
h
e
e
t**



*For more information,
contact the Clean
Marina Coordinator at
503-373-1405x249*

Non-toxic Cleaning Alternatives

Toxic Product	Alternative
All Purpose Cleaner	Mix one cup white vinegar with two gallons water.
Air Freshener	Leave out an open box of baking soda.
Aluminum Cleaner	2 Tablespoons cream of tartar in 1 quart hot water
Ammonia-Based Cleaners	Vinegar, salt, and water.
Bleach	Borax or hydrogen peroxide
Brass Cleaner	Worcestershire sauce. Or paste made of equal parts of salt, vinegar, and water.
Chrome Cleaner/Polish	Apple cider vinegar to clean; baby oil to polish.
Copper Cleaner	Lemon juice and water. Or paste of lemon juice, salt, and flour.
Drain Opener	Disassemble and replace or use plumber's snake. Or flush with boiling water + ¼ cup baking soda + ¼ cup vinegar.
Fiberglass Stain Remover	Baking soda paste.
Floor Cleaner	One cup white vinegar in 2 gallons water.
General Cleaner	Baking soda and vinegar. Or lemon juice combined with borax paste.
Hand Cleaner	Baby oil or margarine.
Head Cleaner	Put in baking soda and use a brush.
Mildew Remover	Paste using equal parts of lemon juice and salt or white vinegar and salt.
Rug/Upholstery Cleaner	Sprinkle on dry cornstarch and then vacuum.
Scouring Powders	Baking soda or salt. Or rub area with one-half of a lemon dipped in borax, then rinse.
Shower Cleaner	Wet surface, sprinkle with baking soda, rub with scouring cloth.
Stainless Steel Cleaner	Baking soda or mineral oil for polishing, vinegar to remove spots.
Toilet Bowl Cleaner	Use toilet brush and baking soda.
Varnish Cleaner	Wipe with ½ cup vinegar and ½ cup water solution
Window Cleaner	Mix two tablespoons vinegar in one quart of water or rub glass with newspaper.
Wood Polish	3 parts olive oil and 1 part white vinegar (for interior unvarnished wood only).

**C
L
E
A
N
B
O
A
T
T
I
P
S
H
E
E
T**

*For more information, contact
the Clean Marina Coordinator
at 503-373-1405 x249*



Vessel Maintenance

General upkeep of boats generates household hazardous wastes such as solvent paint waste, used antifreeze, used oil, old gasoline, used batteries, mercury containing bilge pump switches, and out-of-date flares. These wastes pose a threat to the environment if they are improperly disposed into the water, air, or ground.

Manage your Hazardous Waste

- Use less-toxic propylene glycol antifreeze (usually pink).
- Use premium two-cycle engine oil.
- Share any leftover chemicals, paint, or varnish.
- Recycle used motor oil, antifreeze, and other engine fluids. Prior to recycling, store in separate closed containers to prevent escape, mixing, or fire hazard.
- Bring items to a local hazardous waste collection day or facility - visit www.deq.state.or.us/wmc/solwaste/hhw/hhw.html or www.cleanup.org for location information.
- Encourage your marina to offer oil recycling.
- Trade in a used battery for a possible credit toward a replacement battery.
- If out-of-date flares have not been exposed to water and are undamaged, keep them on the boat along with the number of required in-date flares.
- When possible, use paints that are not solvent based.
- Buy bilge pump switches that do not contain mercury. Check with marina on mercury containing bilge switch disposal.



RECYCLE

Oil	Mixed Paper
Antifreeze	Newspaper
Lead batteries	Solvents
Glass	Steel
Plastic	Scrap Metal
Aluminum	Tin
Cardboard	Tires
Metal fuel filter canisters	

For more information,
contact the Clean
Marina Coordinator
at 503-373-1405x249



Hull Paint

Antifoulant coatings on boat hulls are another toxic threat to marine life. These coatings contain compounds such as copper that kill marine organisms that grow on the underside of a boat. These coatings, especially ablative (a.k.a. soft, self-polishing, or sloughing) coatings, also release toxic compounds into the water. Hard antifouling coatings have extended antifouling properties, but limit the amount of toxic metals leached into the water. Hard coatings also release less material into the water when they are cleaned.

Maintain your Hull Wisely

- Consider alternatives to toxic sloughing bottom paints.
 - Some good alternatives are silicon, polyurethane, Teflon, and other hard antifouling coatings.
 - These alternatives rely on a slick surface to discourage the growth of marine organisms rather than killing them.
- If boat has a sloughing paint coat, do not clean the boat bottom while in the water – this creates a discharge of toxic paint chips in the water. Only clean running gear and anodes.
- Clean boat bottoms ashore over hard surfaces or a tarp, where all debris can be contained.
- Wait 90 days to clean a newly painted hull, as it will release more toxins when new.
- Consider storing your boat out of the water to prevent fouling.
- Do hull work inside or under cover where rain can't wash dirt, dust, oil, or solvents into the water.
- Use a dust-less or vacuum sander, or a drop cloth to collect all paint chips, dust, and residue. Dispose in regular trash.



Vessel Bottom Work



For more information,
contact the Clean
Marina Coordinator at
503-373-1405 x249

Fish Waste/Bait

In small quantities, fish waste is scavenged by crabs and other marine animals. However, in an enclosed marina basin decomposition of excessive fish waste can produce foul odors and impair water quality through increased nutrient and bacteria levels and decreased dissolved oxygen. This can cause fish kills as well as an unsightly mess.



Fish Cleaning Station

Dispose of Fish Waste Properly

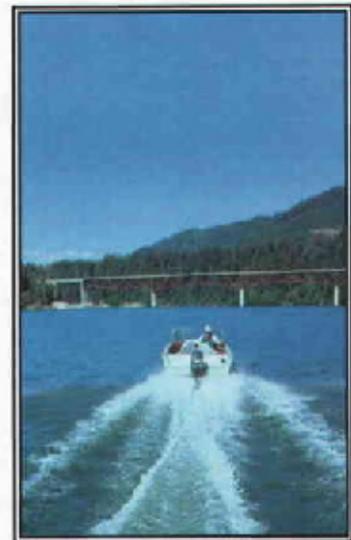
- Do not throw fish waste, unwanted bait, or bait packaging into marina waters.
- Discard fish waste over deep water or in the trash.
- If available, use fish cleaning stations.
- Recycle fish parts by composting with peat moss or burying in the garden as fertilizer. Or freeze fish waste and reuse as chum or bait.

Underway

Boat traffic (including personal watercraft) through shallow-water areas and in the nearshore areas at wake-producing speeds can stir up bottom sediment, uproot submerged aquatic vegetation, erode shorelines, and harm some animals. Disturbed sediment can cause darker waters which harm aquatic plant life and bottom-dwelling organisms, reduce dissolved oxygen levels, and disrupt fish feeding. The loss of underwater plants reduces available habitat for fish, shellfish, and waterfowl, diminishes the recycling of nutrients, and decreases natural shoreline erosion protection.

Protect Sensitive Habitat

- Always be aware of your wake. Distribute your passengers equally. A heavy stern creates a larger wake.
- Observe posted No-Wake Zones.
- Operate away from shore as much as possible to avoid disturbing wildlife, chopping vegetation, and disturbing bottom sediments.
- Proceed slowly in shallow areas.
- If you run into a grass bed, stop and tilt your engine. Use a pole or walk your boat out of the area.
- Do not disturb wildlife.



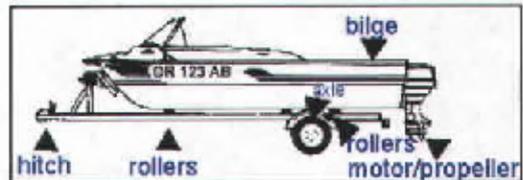
For more information,
contact the Clean
Marina Coordinator at
503-373-1405 x249

Aquatic Nuisance Species

Exotic plants and animals such as the zebra mussel, hydrilla, and mitten crab can hitch a ride attached to your boat or trailer or as tiny young present in water taken in by your boat. Hitching from one waterbody to another, these aquatic nuisance species spread quickly and can become established in another waterbody. They contribute to the degradation of water quality and fish and wildlife habitat by displacing native species and by blocking light needed by submerged aquatic plants. Once introduced, control of aquatic nuisance species is very expensive and extermination is extremely difficult.

Stop the Spread of Aquatic Nuisance Species

- Never release live or dead bait or bait packaging into a waterbody, or release aquatic animals from one waterbody into another.
- Share live bait with other anglers or empty your bait bucket in the trash before leaving the area.
- Inspect your boat and trailer, especially at the points in the diagram. Remove any plants and animals you see before leaving the waterbody.
- Avoid chopping vegetation with outboard motor propellers.
- When hauling your boat, drain your motor, wet well, and bilge in a containment area on shore.
- Rinse your boat, trailer, and equipment. It is best to use high-pressure, hot water. A garden hose will work if no other option is available.
- Be especially careful if you've been boating in an infested lake, or if you're buying or using a boat that has come from out of state. Flush raw water-cooling systems and clean sea strainers.
- Air-dry your boat and equipment for as long as possible – at least five days is optimal.
- If you find one of the below species, or suspect there may be a new infestation, call 1-877-STOP-ANS (toll free).



Zebra mussel
(photo courtesy of WI DNR)



Hydrilla
(photo courtesy of WI DNR)



Mitten crab



For more information,
contact the Clean
Marina Coordinator at
503-373-1405 x249

TAB 2: Facility Management

Fixed and Floating Structures	29
Stormwater Runoff Management Practices	31
Sewage Disposal	33
Spills	35
Litter and Recycling	37
Facility Cleaning	39
Alternatives to Toxic Products	40
Landscaping.....	41
Hazardous Waste	42
Floor Drains.....	44
Fish Waste.....	45
Pet Waste	46
Dredging.....	47
Compressor Blowdowns	49

Fixed and Floating Structures

Potential Environmental Impacts:

As materials degrade or leach contaminants, marina structures themselves may introduce pollutants to the marine environment. Maintenance of these structures can also be a source of pollution. Selection of suitable repair or replacement materials and thoughtful maintenance practices will help reduce this pollution.

Legal Requirements:

Encapsulate foam floats	<input type="checkbox"/> All polystyrene or whitebead foam placed in the water after January 1, 1992, must be encapsulated with concrete, wood, galvanized steel, plastic or fiberglass. A permit for installation is required from the Oregon State Marine Board [OAR 250-014-0030].
DSL dredge, fill, and construction permits	<input type="checkbox"/> Dredging, the erection of structures, and the placement of fill, and work incidental thereto, on submerged and submersible land are regulated by the Oregon Department of State Lands (DSL). It is necessary to obtain all required authorizations from DSL prior to conducting work such as dredging (including maintenance dredging), construction or placement of new docks, pilings, ramps, floats, piers, travel lift wells, seawalls, bulkheads, rip rap, stormwater outfall pipes, and/or mooring fields waterward of the high tide line in the tidal, coastal, or navigable waters of the state [OAR 340-048].
ACOE dredge, fill, and construction permits	<input type="checkbox"/> The U.S. Army Corps of Engineers (ACOE) has jurisdiction over the above-listed activities in tidal, coastal, or navigable waters as well, pursuant to Section 10 of the Rivers and Harbors Act of 1899 [33 USC §401 et seq.], and Section 404 of the Clean Water Act [33 USC §1344 et seq.]. Call the ACOE at (800) 343-4789 for more information.

Best Management Practices:

Routine maintenance	<input type="checkbox"/> Keep all docks, floats, and bulkheads in good working order by conducting routine maintenance.
Avoid creosote timber	<input type="checkbox"/> For construction and replacement of timber, use timber that has been pressure treated with a preservative such as chromated copper arsenate (CCA) instead of creosote-treated materials. Creosote contains PAHs, which can cause cancers in human and are harmful to fish and other aquatic life.
Use concrete or recycled pilings	<input type="checkbox"/> For use below the water, concrete pilings or other materials (e.g., plastic, recycled materials) with degradation times greater than 10 years are encouraged.

Shoreline stabilization: <i>Vegetation</i> <i>Riprap</i>	<input type="checkbox"/> Use natural vegetation for shoreline stabilization whenever feasible. Maintain this cover in good condition by prompt repair and reseeded of washouts and other losses of vegetation. <input type="checkbox"/> If natural vegetation is not a feasible option, riprap revetments are generally encouraged over vertical bulkheads, because sloping riprapped embankments provide greater habitat and reduce wave reflections.
Scrape, sand, and paint wisely	<input type="checkbox"/> Conduct scraping, sanding, painting, and sandblasting of in-water and landside structures using the same management principles recommended for vessels. <input type="checkbox"/> Where feasible, floating structures should be removed to shoreline facilities for scraping, painting, and major repairs.
Eliminate zinc discharges	<input type="checkbox"/> Galvanized structures release high levels of zinc. Consider using other materials or coat-galvanized areas with epoxy to reduce or eliminate highly concentrated zinc discharges.
Chose alternatives to whitebead foam	<input type="checkbox"/> Use closed cell foam or alternate flotation methods rather than expanded polystyrene or whitebead foam. Whitebead foam harms birds and fish that mistake it for food and degrades water quality.
Used whitebead foam disposal	<input type="checkbox"/> Reuse whitebead foam only if it is properly encapsulated. <input type="checkbox"/> Used whitebead foam should be recycled where facilities exist. <input type="checkbox"/> If neither option is appropriate, used foam must be disposed of at an appropriate upland disposal site.
Marina expansion	<input type="checkbox"/> Design all marina expansions to minimize adverse impacts on basin flushing, water quality, and adjacent coastal resources including shellfish beds, wetlands, and submerged aquatic vegetation.
Permit records	<input type="checkbox"/> Keep copies of all coastal permits in an easily accessible file. As management changes, pass on the information about coastal permits to the incoming marina manager.
Contact DSL	<input type="checkbox"/> Before doing ANY work that you think might be in the state's permitting jurisdiction, contact the Oregon Department of State Lands to discuss the work that you would like to do or to schedule a pre-application meeting. Some of the maintenance work you want to do may not require any prior authorization or may be eligible for a shortened permit process.

Relevant Sections and Appendices:

- ⇒ Abrasive Blasting section.
- ⇒ Paint Spraying section.
- ⇒ Paint Stripping section.
- ⇒ Scraping and Sanding section.

Stormwater Runoff Management Practices

Potential Environmental Impacts:

Stormwater runoff from parking lots and other developed surfaces represents a significant mode of pollutant transport from land-based activities to receiving waterbodies. The runoff from parking areas, buildings, repair yards, and access roads can carry nutrients, metals, suspended solids, hydrocarbons and other potential pollutants into marina basins. The highest concentration of these surface pollutants occurs in the runoff associated with the first half to one inch of rainfall depending on storm intensity. Stormwater that is treated in some way to remove pollutants before it reaches the marina basin reduces the impact to aquatic and marine life.

Legal Requirements:

Stormwater discharge permit	<input type="checkbox"/> Any marina or boatyard that performs boat construction or rebuilding and has a defined stormwater outfall needs a stormwater permit [40 CFR 122; OAR 340-45]. <input type="checkbox"/> Under the permit, marina operators must develop a stormwater pollution prevention plan and implement best management practices to ensure that stormwater leaving the marina property will not harm the quality of the surrounding waters. <input type="checkbox"/> For additional information, contact your local DEQ office.
Dredge and Fill Permits	<input type="checkbox"/> Wetland construction or enhancement may require ACOE and DSL permits [CWA §401; OAR 340-048].

“Good Housekeeping” Best Management Practices:

Enclose and designate work area	<input type="checkbox"/> Perform as much boat repair and maintenance as practicable inside work buildings. <input type="checkbox"/> Where an inside workspace is not available, perform abrasive blasting and sanding within spray booths or tarp enclosures. <input type="checkbox"/> Where buildings or enclosed areas are not available, provide clearly designated land areas as far from the water’s edge as possible for debris-producing maintenance. Collect maintenance debris on tarps, filter fabric, or paved surface.
Use vacuum sanders	<input type="checkbox"/> Use vacuum sanders to collect dust and chips while removing paint from hulls.
Establish “yard rules”	<input type="checkbox"/> Establish a list of “yard rules” which do-it-yourselfers and contractors must follow when performing debris-producing boat maintenance.
Clean and sweep areas immediately	<input type="checkbox"/> Clean hull maintenance areas immediately after any maintenance is done to remove debris, and dispose of collected material properly. <input type="checkbox"/> Sweep or vacuum around hull maintenance areas, parking lots, and driveways frequently, where appropriate.
Capture runoff	<input type="checkbox"/> Capture pollutants out of runoff water with permeable tarps, screens, and filter cloths.
Cover pollutants	<input type="checkbox"/> Store all potential pollutants such as pesticides, used oil containers, detergents, etc. under cover.

Structural Best Management Practices:

Vegetated buffer	<ul style="list-style-type: none"> <input type="checkbox"/> Plant a vegetated filter strip or buffer between impervious areas and the marina basin. A vegetated filter strip is a densely vegetated strip of land engineered to accept runoff from upstream development as overland sheet flow.
Wetlands	<ul style="list-style-type: none"> <input type="checkbox"/> Construct new or restore former wetlands where feasible and practical. Constructed stormwater wetlands are manmade shallow pools that create growing conditions suitable for wetland vegetation. Contact ACOE and DSL regarding permits for wetland construction or restoration
Minimize impervious surfaces	<ul style="list-style-type: none"> <input type="checkbox"/> Minimize impervious areas on marina site by paving only where absolutely necessary. Use porous pavement for parking lots and lightly traveled access roads, or other pervious materials such as gravel or crushed concrete.
Roof runoff	<ul style="list-style-type: none"> <input type="checkbox"/> Direct roof runoff to drywells or position downspouts so that they drain to vegetated areas. Avoid draining to concrete or asphalt. Contact DEQ about drywell construction and Underground Injection Control regulations.
Oil/grit separators	<ul style="list-style-type: none"> <input type="checkbox"/> Install oil/grit separators to capture pollutants in runoff. Water from parking lots and other areas likely to have hydrocarbons should be directed through oil/grit separators before entering any other management structure. (Note: this practice frequent maintenance.)
Sand filters	<ul style="list-style-type: none"> <input type="checkbox"/> Install sand filters. Intermittent sand filter facilities are underground vault-like facilities that capture, pre-treat, and filter the first flush of stormwater runoff. In some cases these facilities can include an aboveground storage facility to store the excess volume of runoff from larger storms. Contact DEQ about Underground Injection Control regulations.
Catch basins	<ul style="list-style-type: none"> <input type="checkbox"/> Use catch basins with deep sumps where stormwater flows to the marina basin in large pulses. <input type="checkbox"/> Maintain catch basins regularly. Typical maintenance of catch basins includes trash removal if a screen or other debris-capturing device is used, and removal of sediment by a hired contractor or on-site wet-vacuum system. At a minimum, catch basins should be cleaned at the beginning and end of each boating season.
Maintain sediment traps	<ul style="list-style-type: none"> <input type="checkbox"/> All sediment traps and oil/water separators in the stormwater drainage system should be: <ol style="list-style-type: none"> 1. Inspected on a monthly basis and after each storm event. 2. Cleaned as necessary to ensure the interception and retention of oils and solids entering the drainage system. 3. Cleaned immediately when the unit exceeds 50% stored sediment capacity. <input type="checkbox"/> Inspect sediment and grit traps associated with pressure washing after every use to insure that the unit is capturing the solids. <input type="checkbox"/> Remove oily sheen with a skimming device or absorbent pads. This oil may be managed as used oil.
Storm drain filters	<ul style="list-style-type: none"> <input type="checkbox"/> Add filters to storm drains that are located near work areas to screen solid materials out of runoff.
Drain inlets	<ul style="list-style-type: none"> <input type="checkbox"/> Place absorbent materials in drain inlets to capture oil and grease.

Relevant Sections and Appendices:

⇒ See Appendix F for stormwater general permit information.

Sewage Disposal

Potential Environmental Impacts:

Generally, marina basins are naturally sheltered and semi-enclosed, which usually means they are not flushed as well as more open waters. Bacteria, chemicals, and nutrients contained in untreated and minimally treated human waste from boats can overload small, poorly flushed waterways and may cause local water quality problems. Disease carrying bacteria, viruses and protozoa can enter waterways through the discharge of untreated or poorly treated boat waste. The nutrients in boat sewage can stimulate algae to grow in such large numbers that their decomposition uses up oxygen necessary for fish to live. Direct threats to human health can arise through consumption of contaminated water, fish, or shellfish. Boat sewage waste is much more concentrated than other domestic waste. Scientists have shown there are more bacteria in the untreated waste discharged by one boat than in the treated wastewater discharged by a city of 10,000 people.

Legal Requirements:

Sewage dumping restrictions	<ul style="list-style-type: none"> <input type="checkbox"/> Discharge of any untreated black water from a boat or vessel in freshwater waterbodies, rivers, bays, and within three miles of the coast is prohibited [40 CFR 140; ORS 468B.080; 1996 Guidelines]. <input type="checkbox"/> Discharge of any sewage from marine toilets or of kitchen, bath, or laundry wastes is prohibited on all freshwater lakes, impoundments, reservoirs not accessible by boat to the ocean, and while moored [1996 Guidelines; ORS 468B.080].
Pumpout construction permits	<ul style="list-style-type: none"> <input type="checkbox"/> A Water Pollution Control Facility Permit is required before construction if you are building an on-site sewage disposal system which [OAR 340-071]: <ol style="list-style-type: none"> 1. Has a projected daily sewage flow > 2,500 gallons, or 2. Handles sewage with a greater strength than residential wastewater, or 3. Uses a technology identified by DEQ as warranting regulation.
Floating home sewage connection	<ul style="list-style-type: none"> <input type="checkbox"/> For floating buildings, floating homes, and combos, a continuous connection to a DEQ-approved sewage system is required for human sewage and gray water (water from sinks, showers, and other fixtures that may release detergents, soaps, oils, and other contaminants into the water) [ORS 468B.080].
Liveaboard and houseboats	<ul style="list-style-type: none"> <input type="checkbox"/> For liveaboards and houseboats moored and used as dwellings longer than 10 days in 30, a permanent and accessible means of disposal for human sewage is required at the marina or moorage [1996 Guidelines; ORS 468B.080].
New marinas	<ul style="list-style-type: none"> <input type="checkbox"/> New or proposed marinas must provide a dockside sewer connection at each slip for liveaboard tenants [1996 Guidelines]. <input type="checkbox"/> New or proposed marinas must install pumpouts for transient boats [1996 Guidelines].

Best Management Practices:

Arrange for disposal	<ul style="list-style-type: none"> <input type="checkbox"/> Marina operators should arrange for sewage disposal and specify to tenants how wastewater is to be handled at the marina.
----------------------	--

Sewage collection devices: <i>Pumpout</i> <i>Dump station</i>	<input type="checkbox"/> Provide a means to collect and properly dispose of all black water generated from boats. 1. If your marina services boats with holding tanks, install a pumpout. Select the type of pumpout system that meets the needs of your marina, your customers, and transients. Options include pumpouts: <ol style="list-style-type: none"> Permanently fixed to the dock, Mobile, hand truck, trailer mounted units, or Pumpout boat 2. If your marina services mostly smaller boats without holding tanks, install a portable toilet holding tank waste receptacle (dump station) in a convenient location near small slips and launch ramps.
Use CVA funds	<input type="checkbox"/> Use Clean Vessel Act (CVA) funds to greatly defray costs of installing and operating a pumpout. Contact the Marine Board for more information.
# of collection devices	<input type="checkbox"/> Determine the number of waste collection devices necessary for the number of boats at your marina and then install more devices if needed.
Pumpout locations	<input type="checkbox"/> If the pumpout is permanently fixed, choose an appropriate location that is convenient and accessible to the most number of boats throughout the tidal cycle. Consider whether a gas dock, T-head, or separate bulkhead is most appropriate.
Train staff	<input type="checkbox"/> Train staff to operate the pumpout. Boaters rely on functional pumpout facilities.
Upland holding tanks	<input type="checkbox"/> Upland waste holding tanks, if above ground, should be secured and have a secondary containment area, including a concrete pad. Inspect area regularly.
Bathrooms	<input type="checkbox"/> Provide clean and attractive bathrooms for marina customers. Encourage customers to use them rather than the toilets on their boats. <input type="checkbox"/> The number of restrooms, shower, and washing facilities should be determined according to state or local building code requirements. If these are not available, the State Building Code RV Park and Campground Rules can be used.
Prohibit discharge	<input type="checkbox"/> Prohibit discharge of treated or untreated human waste within the marina basin. Incorporate the prohibition into customers' slip contract. This would prohibit boaters from discharging any sewage into the marina basin. For this to work, there must be adequate pumpout services, customers must be educated about how to manage their boat waste, and there must be strict enforcement. <input type="checkbox"/> Support adoption of a federally designated No Discharge Area in your region.
Educate boaters	<input type="checkbox"/> Educate marina customers about the impacts of boat sewage and the proper way to manage it. <input type="checkbox"/> Post signs in the marina outlining the rules for proper sewage handling. <input type="checkbox"/> Encourage the boaters at your facility with marine heads to install holding tanks.
Alternative deodorants	<input type="checkbox"/> Provide and promote biodegradable and non-toxic holding tank deodorant. Sell it in the ships store.
Pumpout boats	<input type="checkbox"/> Allow pumpout boats to service customers in your facility.

Relevant Sections and Appendices:

⇒ See Appendix D for boat sewage collection device information.

Spills

Potential Environmental Impacts:

Careless engine maintenance, refueling habits, and improper disposal of oil and contaminated bilge water release more oil into marine water each year than did the Exxon Valdez spill. According to the EPA, the hydrocarbons in oil harm juvenile fish, upset fish reproduction, and interfere with the growth and reproduction of bottom-dwelling organisms. These little spills and larger spills at the marina should be curtailed before they happen by using best management practices. The impacts of spills that do occur can be minimized through preparation and efficient response.

Legal Requirements:

SPCC Plan	<input type="checkbox"/> If your facility stores a certain amount of gas or oil, it may require a Spill Prevention Control and Countermeasure (SPCC) Plan [40 CFR 112].
Report spills	<input type="checkbox"/> Any spill or release of petroleum that results in a sheen on the waters of the state must be reported immediately to the: <ol style="list-style-type: none"> 1. Oregon Emergency Response System (OERS) at 1-800-OILS-911 (or 1-800-452-0311) [OAR 340.142; ORS 466.652] and 2. National Response Center at 1-800-424-8802 [Section 311 of the Clean Water Act; 33 USC 1321].
Hazardous waste	<input type="checkbox"/> A hazardous waste determination must be conducted for any materials used to clean a spill to establish whether or not disposal of the materials is subject to hazardous waste regulations [RCRA; 40 CFR 262.11; OAR 340-102-0011].

Best Management Practices:

Spill materials	<input type="checkbox"/> Store spill containment and control materials in a clearly marked and easily accessible location. This locker or cabinet should contain: <ol style="list-style-type: none"> 1. absorbent pads 2. absorbent booms (for small and large releases) 3. empty sand bags 4. sewer pipe plugs 5. dry absorbent 6. square end shovels 7. pry bar 8. curtain boom (have enough to boom off a significant release) 9. drain covers 10. fire extinguishers 11. copy of spill contingency plan
Fuel dock	<input type="checkbox"/> Keep oil absorbent pads and pillows available at the fuel dock for staff and customers to mop up drips and small spills.
Respond immediately	<input type="checkbox"/> If a spill occurs, cleanup efforts should commence immediately, taking precedence over normal work.

If spilled on water	<input type="checkbox"/> If you have an oil, gas, or diesel spill on water: <ol style="list-style-type: none"> 1. Stop the flow. 2. Contain the spill. <ol style="list-style-type: none"> a. Deploy containment booms to minimize the threat of a release to water or to minimize spread if the spill has reached the water. 3. Call: <ol style="list-style-type: none"> a. Oregon Emergency Response System at 1-800-OILS-911 (or 1-800-452-0311) and b. The U.S. Coast Guard's National Response Center at 1-800-424-8802.
If spilled on land	<input type="checkbox"/> If a spill occurs on land, cover the spill with absorbent material such as kitty litter, sawdust, or oil absorbent pads. Do not use straw.
Waste disposal	<input type="checkbox"/> Properly characterize the cleanup waste and dispose of it to a facility authorized to handle that type of waste.
Sell devices in store	<input type="checkbox"/> Carry vent line whistles, oil absorbent fuel collars, air/fuel separators, and other fuel spill preventative devices in your ships store.

Relevant Sections and Appendices:

- ⇒ Appendix B and Hazardous Waste section for hazardous waste management information.
- ⇒ Appendix E for spill plan information and your role in spill response.
- ⇒ Emergency Planning section.
- ⇒ Rags and Oil Absorbent Pads section for disposal of cleanup materials.

Litter and Recycling

Potential Environmental Impacts:

Routine marina and boating activities produce a variety of non-hazardous solid wastes. These include bottles, plastic bags, aluminum cans, coffee cups, six-pack rings, disposable diapers, wrapping paper, cigarette filters, and fishing line. This type of debris harms living organisms and their habitats after it enters the water. A litter free facility is more attractive to present and potential customers. Diverting reusable materials out of the waste stream through recycling conserves natural resources, and reduces the amount of waste that must be disposed.

Legal Requirements:

Provide trash barrels	<input type="checkbox"/> Marina operators must provide areas to collect solid waste from their customers [33 USC 1905(a)(2), 33 CFR 151.05].
No littering	<input type="checkbox"/> Polluting wastes may not be discharged into the waters of the state or placed in a location where it is likely to end up in the waters of the state [ORS 468B.025]. <input type="checkbox"/> It is illegal to discharge plastic materials into ANY waterbody [MPPRCA]. <input type="checkbox"/> No one may dispose of garbage except at a permitted disposal site such as a dump station [OAR 340-093-0040].
No burning prohibited materials	<input type="checkbox"/> Open burning of petroleum-containing waste, plastics, garbage, and materials that generate black smoke or noxious fumes is prohibited [OAR 340-264].

Best Management Practices:

Trash receptacle location	<input type="checkbox"/> Place covered trash receptacles in convenient locations away from the water for use by marina patrons. <input type="checkbox"/> Do not put trash or recycling containers on docks, as waste can easily blow into the water. <input type="checkbox"/> If trash or recycling containers must be put near water, secure them so they do not topple.
Post signs	<input type="checkbox"/> Post signs directing patrons to trash receptacles and recycling areas. Signs should clearly spell out rules and note any prohibited wastes.
Lock receptacles at night	<input type="checkbox"/> If practical, lock trash receptacles at night to prevent "midnight dumping" since marina operators are responsible for the content of dumpsters.
Pick up trash regularly	<input type="checkbox"/> Train employees to pick up stray trash as a daily practice.
Encourage leftover exchange	<input type="checkbox"/> Encourage boaters to exchange excess paints, thinners, and varnishes rather than dispose. Provide a bulletin board where boaters can post notices if they have or need a particular substance, or establish a paint and maintenance chemical swap area for customers.

Recycle:	<input type="checkbox"/> Recycle: <ol style="list-style-type: none"> 1. Glass 2. Metal food containers 3. Aluminum cans 4. Plastics 5. Cardboard 6. Storage batteries 7. Newspaper 8. Scrap metal
<i>Clearly mark recycling containers</i>	<input type="checkbox"/> Provide clearly marked, conveniently located recycling containers for customers and staff to use, particularly for plastic, glass and metal food/beverage containers, cardboard, and other recyclables generated at your facility.
<i>Educate employees</i>	<input type="checkbox"/> Educate employees about separation requirements and your recycling program.
<i>Cooperate locally</i>	<input type="checkbox"/> Consider cooperating with other nearby businesses to simplify recycling and reduce costs. Your municipal recycling coordinator may be able to help you find or establish a cooperative business-recycling program.
Purchase recycled products	<input type="checkbox"/> Purchase products made with recycled contents to close the recycling loop (i.e., create a market for the materials you recycle). Buy recycled printing and writing paper, towels, tissue, re-refined motor oil and antifreeze.
Reuse empty drums	<input type="checkbox"/> Reuse or recycle empty drums and containers rather than disposing them. <input type="checkbox"/> If not recycled, drums should be emptied and flattened according to local landfill specs. Residues from the drum should be collected and managed properly.
Pet waste	<input type="checkbox"/> Require patrons to clean up after their pets.

Relevant Sections and Appendices:

- ⇒ Appendix B for preferred disposal options for potential hazardous waste streams.
- ⇒ Antifreeze section for disposal options.
- ⇒ Battery Replacement section for disposal options.
- ⇒ Boater Education sample signs section.
- ⇒ Pet Waste section.

Facility Cleaning

Potential Environmental Impacts:

Many common cleaning products contain hazardous chemicals that with repeated or excessive contact may lead to lung problems, brain and nerve damage, cancer and even death. Hazardous chemicals can often be found in drain cleaners, floor-care products, window sprays, and bathroom cleaners. These products can enter the water and poison marine life. For example, degreasers dry the natural oils fish need for their gills to take in oxygen. Phosphates can cause excessive algae growth and lead to the depletion of oxygen in the water. Other cleaning agents can cause death, cancer, and other harm to aquatic organisms.

Cleaning products labeled “DANGER” or “POISON” are typically most hazardous. Others may be labeled “CAUTION” or “WARNING” because they are skin or eye irritants. Less hazardous alternatives for common cleaning products are often labeled “non toxic.”

Legal Requirements:

Hazardous waste	<input type="checkbox"/> There are no legal requirements to use environmentally preferable products. Note that cleaning products must be disposed of in accordance with the solid waste and hazardous waste disposal requirements.
-----------------	--

Best Management Practices:

Avoid these ingredients	<input type="checkbox"/> Read product labels. Avoid cleaning products with:		
	<ul style="list-style-type: none"> × alcohol × ammonia × bleach × butyl cellosolve × cresol × dye × ethanol 	<ul style="list-style-type: none"> × formaldehyde × glycols × hydrochloric acid × hydrofluoric acid × lye × naphthalene × PDCBs (paradichlorobenzenes) 	<ul style="list-style-type: none"> × perchloroethylene × petroleum distillates × phenol × phosphoric acid × propellants × sulfuric acid × TCE (trichloroethylene)
Clean more often with less	<input type="checkbox"/> Depending on the cleaning job, always try cleaning with water and a coarse cloth first. Clean more often with fresh water only. If you must use a cleaner, use the product sparingly.		
Use alternative products	<input type="checkbox"/> Consider non-toxic alternatives for cleaning products. Even non-toxic substances can cause temporary harm to the environment and should therefore be used sparingly. <input type="checkbox"/> Some non-toxic alternatives to typical cleaning products are listed in the table on the next page.		

Relevant Sections and Appendices:

⇒ Appendix B and Hazardous Waste section for hazardous waste management.

Alternatives to Toxic Products

Toxic Product	Alternative
All Purpose Cleaner	Mix one cup white vinegar with two gallons water.
Air Freshener	Leave out an open box of baking soda.
Aluminum Cleaner	2 Tablespoons cream of tartar in 1 qt. hot water
Ammonia-Based Cleaners	Vinegar, salt, and water.
Bleach	Borax or hydrogen peroxide
Brass Cleaner	Worcestershire sauce. Or paste made of equal parts of salt, vinegar, and water.
Chrome Cleaner/Polish	Apple cider vinegar to clean; baby oil to polish.
Copper Cleaner	Lemon juice and water. Or paste of lemon juice, salt, and flour.
Drain Opener	Disassemble and replace or use plumber's snake. Or flush with boiling water + ¼ cup baking soda + ¼ cup vinegar.
Fiberglass Stain Remover	Baking soda paste.
Floor Cleaner	One cup white vinegar in 2 gallons water.
General Cleaner	Baking soda and vinegar. Or lemon juice combined with borax paste.
Hand Cleaner	Baby oil or margarine.
Head Cleaner	Put in baking soda and use a brush.
Mildew Remover	Paste using equal parts of lemon juice and salt or white vinegar and salt.
Rug/Upholstery Cleaner	Sprinkle on dry cornstarch and then vacuum.
Scouring Powders	Baking soda or salt. Or rub area with one-half lemon dipped in borax, then rinse.
Shower Cleaner	Wet surface, sprinkle with baking soda, rub with scouring cloth.
Stainless Steel Cleaner	Baking soda or mineral oil for polishing, vinegar to remove spots.
Toilet Bowl Cleaner	Use toilet brush and baking soda.
Varnish Cleaner	Wipe with ½ cup vinegar and ½ cup water solution
Window Cleaner	Mix two tablespoons vinegar in one quart of water or rub glass with newspaper.
Wood Polish	3 parts olive oil and 1 part white vinegar (for interior unvarnished wood only).

Landscaping

Potential Environmental Impacts:

Excess pesticides and fertilizer that you put on your lawn and plantings can eventually run off into the marina basin and harm marine and aquatic life. Landscaping techniques can be used to reduce environmental impacts on marina basins and can save money by requiring less water and maintenance, while creating an attractive location for customers.

Legal Requirements:

Hazardous waste determination	<input type="checkbox"/> Before disposing of old or unused lawn additives, particularly pesticides, conduct a hazardous waste determination to establish whether or not their disposal is subject to hazardous waste regulations [40 CFR 262.11; OAR 340-102-0011].
-------------------------------	---

Best Management Practices:

Avoid invasive plants	<input type="checkbox"/> Avoid planting invasive species. Invasive species multiply rapidly and take over areas very quickly.
Use native plants	<input type="checkbox"/> Use native plants for landscaping. Plants that are native to the region and climate compete well with weeds and other pests. They also require less fertilizer and pest control than non-native plants. Native plants can be purchased at your local nursery. <input type="checkbox"/> For listings of native plants good for landscaping, visit: www.wildflower2.org/NPIN/Clearinghouse/Factpacks/factpacks.html .
Plant vegetated buffer	<input type="checkbox"/> Plant a vegetated filter strip or buffer between impervious areas and the marina basin. A vegetated filter strip is a densely vegetated strip of land engineered to accept runoff from upstream development as overland sheet flow.
Save water	<input type="checkbox"/> Save water by watering in the early morning or late afternoon. Oscillating sprinklers can lose up to 50% of water to evaporation on hot days.
Minimize fertilizer use	<input type="checkbox"/> Minimize fertilizer use. When it comes to fertilizer, <i>more is not better!</i> The excess nutrients from unused fertilizer will run off into the marina basin and potentially cause an algal bloom. Plus, the more you fertilize, the more frequently you have to mow.
Aerate and leave clippings	<input type="checkbox"/> Aerate the lawn to greatly increase water and nutrient absorption. Leave grass clippings where they fall since they act as a natural organic fertilizer.
Use compost	<input type="checkbox"/> Use compost or composted fish waste as fertilizer for your plants.
Apply fertilizer smartly	<input type="checkbox"/> If you must use fertilizer, apply it in late April and again in September. If a third treatment is needed, apply in late May. Apply only a half-pound of nitrogen per 1,000 square feet of lawn at each application. To figure this out, divide 100 by twice the percentage of nitrogen (N) in the fertilizer. This will give you the application rate in pounds of fertilizer per 1,000 square feet of lawn.

Relevant Sections and Appendices:

- ⇒ Appendix B and Hazardous Waste section for hazardous waste management.
- ⇒ Fish Waste section.

Hazardous Waste

Potential Environmental Impacts:

Marina operators are responsible for determining which materials handled at their facilities are subject to regulation as hazardous materials and hazardous waste. They must also comply with regulations for handling, storage, transportation, and disposal of waste. This section discusses good housekeeping practices for hazardous materials storage to minimize the threat of release.

A listing of potentially hazardous waste streams and disposal recommendations, as well as a much more detailed description of hazardous waste management, is included in Appendix B. Also, check the other sections of this guidebook for description of handling, storage, and disposal of particular types of potential hazardous waste.

Legal Requirements:

Make a hazardous waste determination	<input type="checkbox"/> A hazardous waste determination must be conducted to establish whether or not disposal of waste solvents and parts washer solutions is subject to hazardous waste regulations [RCRA; 40 CFR 262.11; OAR 340-101].
Determine generator status	<input type="checkbox"/> Determine your hazardous waste generator category and comply with corresponding requirements [RCRA; 40 CFR 262; OAR 340-102].
Storage of quantities of hazardous materials	<input type="checkbox"/> If you store hazardous materials in quantities above certain threshold amounts, you must report storage of that substance under the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA) [42 USC 11001, and 42 CFR 355]. <input type="checkbox"/> Keep copies of Material Safety Data Sheets (MSDS) for all hazardous substances used at your facility [Occupational Safety and Health Act of 1970, 29 USC § 657].
Hazardous waste management	<input type="checkbox"/> Keep liquid wastes separate and do not dispose of them into the trash. <input type="checkbox"/> Label the contents of hazardous waste container(s), including the accumulation start dates. <input type="checkbox"/> Manage hazardous waste per regulations [OAR 340-102].
Employee spill training	<input type="checkbox"/> Personnel working in spill response or cleanup require training in accordance with applicable state and federal regulations [29 CFR 1910.120].
Employee hazardous waste training	<input type="checkbox"/> Employees and contractors who may be exposed to hazardous materials are subject to training and educational requirements under the Occupational Safety and Health Administration (OSHA) Employee Right to Know Program. <input type="checkbox"/> Employees handling used oil and hazardous waste may require training under state and federal hazardous waste regulation [40 CFR 262].

Best Management Practices:

Minimize use	<input type="checkbox"/> Where feasible, minimize the use and storage of hazardous materials onsite.
Storage practices: <i>Prevent release</i> <i>Secondary containment</i> <i>Closed containers</i> <i>Separate</i>	<input type="checkbox"/> Storage practices for solid chemicals, chemical solutions, paints, oils, solvents, acids, caustic solutions, and waste materials, including used batteries, should prevent releases to the environment and inadvertent public contact. Use practices that prevent overfilling, tipping, or rupture. <input type="checkbox"/> Observe the following practices: <ol style="list-style-type: none"> 1. Place any hazardous liquids that are stored outside on durable impervious surfaces, and within berms or impoundments with containment capacity equal to 110 percent volume of the largest tank or container. 2. Liquids should be stored under cover in closed containers. All tanks and drums should be kept closed. 3. Store incompatible or reactive materials securely and in separate areas.
Recycle	<input type="checkbox"/> Spent antifreeze, used oil, fluorescent light tubes, and batteries should be transported to a recycling facility.
Spent solvents	<input type="checkbox"/> Spent solvents, paints, and sandblast residues may be hazardous waste and face additional requirements for proper disposal.
Disposal methods	<input type="checkbox"/> Follow recommended disposal methods for potential hazardous waste streams (see Appendix B).
Ask for assistance	<input type="checkbox"/> Check with your regional DEQ office about hazardous waste identification and management. The DEQ Hazardous Waste Technical Assistance staff aim to help you comply with the regulations and reduce your costs for hazardous materials and hazardous waste disposal.
Consider fire and local codes	<input type="checkbox"/> Use storage practices that also conform to fire regulations and local codes.
Use BMPs	<input type="checkbox"/> Operate under the BMPs in this manual to prevent release of contaminants and generation of hazardous waste. For example: use drip pans, drop cloths or tarpaulins in painting operations to prevent releases, and work under cover when using hazardous materials or conducting shore side engine repair.
Spill plans	<input type="checkbox"/> Create a spill response plan.

Relevant Sections and Appendices:

- ⇒ Appendix A for hazardous substance management.
- ⇒ Appendix B for hazardous waste management.
- ⇒ Appendix C for used oil and antifreeze management.
- ⇒ Appendix E for spill reporting and response procedures.
- ⇒ Antifreeze section.

Floor Drains

Potential Environmental Impacts:

Repair shop wastewater typically contains chemicals such as oils, degreasers, gasoline, diesel, detergents, heavy metals and antifreeze. In some instances it may contain solvents. If discharged through a dry well or septic system to the ground, these chemicals may render drinking water supplies unfit for human consumption. If discharged directly or indirectly to surface water these chemicals can be toxic to fish and other aquatic life.

Legal Requirements:

Hazardous waste and used oil	<input type="checkbox"/> Any hazardous waste and used oil which may end up going down a floor drain must be managed in compliance with applicable regulations. See relevant sections.
------------------------------	---

Best Management Practices:

Avoid certain solvents	<input type="checkbox"/> Avoid or minimize the use of any ammoniated, petroleum or chlorinated solvent-based cleaning agents.
Sweep floors	<input type="checkbox"/> Sweep or vacuum floors often and immediately before floor washing.
Contain chemicals	<input type="checkbox"/> Insure that all chemicals used in areas with floor drains are contained.
Spills	<input type="checkbox"/> Clean up fluid spills quickly with absorbent material. <input type="checkbox"/> Cover floor drains if there is a spill. There are inexpensive covers available for this purpose.
Close floor drains	<input type="checkbox"/> Avoid installing floor drains and close any existing floor drains or connect them to the stationary sewer, if available, and never to drain fields. The drains can be permanently sealed with concrete if they do not connect to a sewer or holding tank.

Relevant Sections and Appendices:

- ⇒ Appendix B for hazardous waste management.
- ⇒ Appendix C for used oil management.
- ⇒ Hazardous Waste section.

Fish Waste

Potential Environmental Impacts:

Too much fish waste in a poorly circulated marina basin can lower oxygen levels in the water. As the waste decomposes, it can lead to foul odor and fish kills. Floating fish parts are also an unsightly addition to marina waters.

Legal Requirements:

Local ordinances	<input type="checkbox"/> Local harbor management ordinances might prohibit the discharge of fish waste within the jurisdiction of the harbor management plan. Check with local harbor management commission, if applicable.
------------------	---

Best Management Practices:

Prohibit dumping	<input type="checkbox"/> Prohibit disposal of fish wastes and shellfish carcasses in the marina basin. Post signs displaying the rules.
Prohibit fish cleaning on docks	<input type="checkbox"/> Do not permit fish cleaning on docks and floats. <input type="checkbox"/> Encourage boaters to clean fish offshore where the fish are caught and discard of the fish in unrestricted waters, unless there are length limits for the type of fish caught.
Fish cleaning station	<input type="checkbox"/> Install a fish cleaning station at your marina. <input type="checkbox"/> Clearly identify the fish cleaning stations with signs that list the rules and regulations for their use. <input type="checkbox"/> Direct rinsewater from fish cleaning areas to a sand filter or sanitary sewer. It should be free of solids. <input type="checkbox"/> On-site septic systems would be quickly overwhelmed and should not be used as a disposal option for fish waste. <input type="checkbox"/> Solids are often too rich in content for loading to small sanitary sewer systems. Fish waste solids should be stored in a holding tank designed for that purpose and managed off-site.
Disposal Alternatives	<input type="checkbox"/> Use one of the following disposal methods: <ol style="list-style-type: none"> 1. Compost fish waste where appropriate and use compost on landscaping. 2. Encourage boaters to freeze fish parts and reuse them as bait or chum on the next fishing trip. 3. Use grinder to make chum out of fish carcasses. Freeze and sell chum at marina store. 4. Contact local fish processing plant to see if they will accept fish wastes. 5. If composting or freezing is not an option, encourage boaters to double-bag their fish parts and throw out in their regular trash.

Relevant Sections and Appendices:

⇒ Landscaping section for use of fish compost on landscaping.

Pet Waste

Potential Environmental Impacts:

Pet waste can contain harmful bacteria. If left on marina grounds, it will eventually enter the marina basin and contaminate the water and shellfish beds. The nutrients in pet waste may also encourage weed or algae growth in the marina basin, which may eventually lead to lower oxygen levels in water. Pet waste is also unsightly and may be a source of customer complaints.

Legal Requirements:

Don't pollute	<input type="checkbox"/> Polluting wastes, such as pet waste, may not be discharged into the waters of the state or placed in a location where it is likely to end up in the waters of the state [ORS 468B.025].
Local ordinances	<input type="checkbox"/> Local ordinances may prohibit the leaving of pet waste on private property. Check with your municipality.

Best Management Practices:

Dog walking area	<input type="checkbox"/> Provide a dog walking area that is identifiable by signs.
Provide pick up bags	<input type="checkbox"/> Require customers to clean up after their pets. Provide bags for boaters to scoop up waste and dispose of in trash.
Pet waste rules	<input type="checkbox"/> Specify pet waste rules in marina slip contract.
Cats	<input type="checkbox"/> Encourage cat owners to maintain a litter box on their boat.