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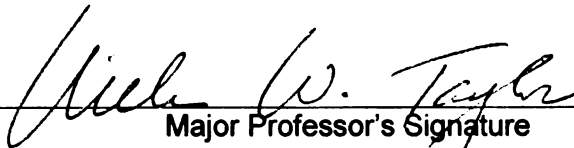
AN EVALUATION OF THE ACCEPTANCE OF MICHIGAN'S
CLEAN MARINA PROGRAM BY HARBORMASTERS
OF MICHIGAN'S STATE HARBORS

presented by

BRENDA S. CLARK

has been accepted towards fulfillment
of the requirements for the

M.S. degree in Fisheries and Wildlife


Major Professor's Signature


Date

**AN EVALUATION OF THE ACCEPTANCE OF MICHIGAN'S CLEAN MARINA
PROGRAM BY HARBORMASTERS OF MICHIGAN'S STATE HARBORS**

By

Brenda S. Clark

A THESIS

**Submitted to
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in partial fulfillment of the requirements
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ABSTRACT

AN EVALUATION OF THE ACCEPTANCE OF MICHIGAN'S CLEAN MARINA PROGRAM BY HARBORMASTERS OF MICHIGAN STATE HARBORS

By

Brenda S. Clark

The goal of this study was to understand the importance of the Clean Marina Program (CMP), a voluntary program designed to protect coastal water quality, to the harbormasters of Michigan's state harbors, as designated by the Michigan Department of Natural Resources (DNR). A self-administered mail survey was designed and administered to the 86 harbormasters of the DNR-designated harbors in September 2007. While approximately 70% of the harbormasters reported having some knowledge of the CMP, only 10 harbors had the CMP designation. Overall, harbormasters indicated a strong desire to have clean water at their harbors and demonstrated an interest in the CMP. To improve information dissemination to harbormasters, it is recommended that the DNR harbormaster mailing listed be updated on a regular basis and the Michigan Boating Industry Association conduct a CMP informational letter writing campaign to DNR harbormasters. It is further recommended that the certification process be available to harbormasters on-line and a CMP advisory committee be established to help with implementation of the CMP in Michigan.

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INTRODUCTION

The Clean Marina Program (CMP) is a voluntary-incentive based program that encourages marina operators and recreational boaters to protect coastal water quality by engaging in environmentally sound operating and maintenance procedures (Cleaning Up Marinas: The Clean Marina Program 2007). According to Townsend (2008), CMPs can vary from state to state in order to develop criteria specific to various bodies of water. However, all CMPs must identify environmentally proactive practices that prevent or reduce pollution created by marina activities (Clean Marina: Coming to a Harbor Near You 2004), such as those depicted in Table 1.

Each CMP develops marina best management practices (BMPs) that need to be implemented by the marina wanting to achieve CMP certification. The BMPs are intended to control pollution from nonpoint source runoff at marinas (Shipshape Shores and Waters 2003). Typically, a marina will be required to implement at least 70-85%, depending on issues identified at the marina, of the BMPs to receive designation as a clean marina (Clean Marinas: Coming to a Harbor Near You 2004).

According to a 1996 study by the United States Environmental Protection Agency, marinas participating in CMPs realized economic benefits by utilizing business practices such as recycling and full pumpout services (Clean Marina Clear Value 1996). As an example, Cap Sante Boat Haven in Washington (publicly owned and operated) initiated a free waste recycling center at the

Table 1. CMP-identified environmentally proactive practices that prevent or reduce pollution created by marina activities and an example of each practice.

Practice	Example
Marina siting, design and maintenance	Obtain necessary dredging permits
Sewage handling	Provide a pumpout for boaters to empty boat holding tanks and dispose of the waste in an acceptable manner
Fuel control	Installation of back pressure shutoff nozzles on fuel pump discharge hoses
Solid waste management	Proper disposal of solid waste produced by marina operations
Vessel cleaning and repair	Restriction of boat power washing to designated areas at the marina
Stormwater management and erosion control	Obtain erosion permits for future marina construction
Marina management	Training of employees with maintenance of training records

marina for boaters and the community at a cost to the marina of \$1,200. The recycling center eliminated \$12,000 in waste disposal costs at the marina in the first year of operation, for a net savings of \$10,800 (Clean Marina Clear Value 1996). Also, Kean's Detroit Yacht Harbor (Detroit, Michigan) realized an additional annual gross income of \$8,400 after the installation of a full-service pumpout station at its fuel docks (Clean Marina Clear Value 1996). The availability of a pumpout station attracted new customers who also bought fuel, thereby increasing revenue (Clean Marina Clear Value 1996). At the same time, marinas with the CMP designation were able to demand higher dock fees (Clean Marina Clear Value 1996). Marinas with the CMP designation let boaters know that the marina adheres to, or exceeds, CMP criteria (Swett, Fann, DeLaney 2005). Many marina owners and managers believed that visible efforts to operate clean marinas translated into customer confidence and these owners and managers believe the public is willing to pay a higher slip cost for a better and cleaner facility (Clean Marina Clear Value 1996), likely due to more conveniences and services.

The primary reason the CMP was developed was to address needs associated with the Coastal Nonpoint Control Program (CNCP), administered jointly at the federal level by the National Oceanic and Atmospheric Administration (NOAA) and the Environmental Protection Agency (EPA). The CNCP was established in 1990 by Congress to reduce polluted runoff in coastal zones through coordinated efforts by state coastal zone managers and water quality managers. "Because marinas are located right at the water's edge, there

is a strong potential for marina waters to become recipients of pollutants, generated not only by boats and the marina itself but also from upland areas in the watershed” (Shipshape Shores and Waters 2003). The CNCP focuses on pollution prevention and NOAA promotes CMP as a means for states to voluntarily comply with marina management measures that are required under the CNCP (Cleaning Up Marinas: The Clean Marina Program 2007). NOAA provides federal funds for states interested in starting clean marina programs or expanding (Mendez 2006). The funds are available to states with approved coastal zone management programs and can be used for CMP implementation and/or staff support and other NOAA-approved CMP-related initiatives (NOAA Funding Opportunities n.d.).

According to NOAA, the CNCP was the driving force behind CMP development in Michigan as well as 11 other states (Cleaning up Marinas: The Clean Marina Program 2007). Maryland and Florida had the first certified clean marinas in the country during the late 1990s (Mendez 2006). Subsequently, approximately three states began CMPs each year from 2000 to 2005 (Mendez 2006).

The CMP provides states a means to voluntarily comply with CNCP requirements (Cleaning up Marinas: The Clean Marina Program 2007). Furthermore, Mendez (2006) stated that one of the greatest assets of the CMP is that it provides a way for marinas to avoid large fines from the EPA. Table 2 describes other benefits to marina operators and owners (Cleaning up Marinas: The Clean Marina Program 2007).

Table 2. CMP benefits to marina operators and owners and an example of each.

Benefit	Example
Reduce waste disposal costs	BMPs will reduce the amount of wastes produced so disposal costs will be less
Receive free technical assistance	BMP guidebooks, training workshops, on-site visits by CMP representatives
Reduce legal liabilities	By participating in the CMP, marinas can ensure they are meeting all regulatory requirements and avoid fines
Receive free publicity	States recognize clean marinas through press releases, newsletters, etc.
Attract knowledgeable customers	Clean marinas are aesthetically pleasing facilities that can attract responsible clientele that will follow good boating practices
Improve water quality in and around the marina	The marina and boating industry depends on clean waters and a healthy coastal environment for their continued success
Demonstrate marina is a good steward of the environment by following BMPs	Display special burgees and signs for clean marinas

Similar to the CMP, the Blue Flag program, developed and operated by the Foundation for Environmental Education (a non-government, non-profit organization) in Europe in the late-1980s, is an exclusive eco-label program for marinas and beaches (Blue Flag Programme n.d.). Some of the Blue Flag focus areas include environmental education and information, environmental management, safety and service of facilities, and water quality (Blue Flag Marina Criteria and Explanatory Notes 2008-2009 n.d.) as described in Table 3.

Table 3. Blue Flag program focus areas designed to reduce pollution created by marina and beach activities.

Focus Area	Example
Environmental education and information	Information relating to the coastal zone ecosystem and nearby natural sensitive land and marine areas must be available to marina users
Environmental management	A marina environmental policy and plan that includes reference to water, waste and energy consumption, health and safety issues, and the use of environmentally sound products must be developed
Safety and service facilities	Adequate and well signposted lifesaving, first-aid equipment and fire-fighting equipment must be present
Water quality	Visually clean water and marina (no oil, litter, sewage or other evidence of pollution)

One significant difference between the CMP and the Blue Flag program is the Blue Flag program's mandatory requirement that marinas hold at least three environmental education activities for users and marina staff per year (i.e., increasing the awareness of and care for the aquatic environment by recreational users and inhabitants of the marina and coastal zone region) (Blue Flag Marina Criteria and Explanatory Notes 2008-2009 n.d.). Whereas, Michigan's CMP recommends that marinas provide some form of environmental education opportunities for boaters, staff, and contractors; it is not a mandatory requirement (Clean Marina Site Visit Checklist n.d.). Another difference is the Blue Flag designation is awarded on an annual basis (Blue Flag Marina Criteria 2008) while CMP marinas in Michigan are recertified every three years (Clean Marina Michigan n.d.). Currently, 36 countries are participating in the Blue Flag program and over 3,300 beaches and marinas have been awarded the Blue Flag; to date, the United States is not participating in the program (Blue Flag Programme n.d.).

Michigan's Coastal Nonpoint Control Program was reviewed by NOAA and the EPA in 1997 to evaluate the extent to which Michigan's program conformed with CNCP requirements. The review findings revealed that Michigan had numerous laws and programs designed to assure that marinas and boat operators implemented required operations and maintenance measures (i.e., Marine Safety Act, Used Oil Recycling Act, etc.) but did not have rules that adequately addressed management measures for stormwater runoff, as related to marinas and recreational boating (Findings for the Michigan Coastal Nonpoint Program 1997). At the time of the review, a committee identified a number of

problem areas in implementing programs for marina operation and maintenance and encouraged the State of Michigan to improve outreach efforts and other programs to better implement management measures for Michigan marinas (Findings for the Michigan Coastal Nonpoint Program 1997).

As a result, Michigan's CMP was collaboratively developed by Michigan Sea Grant College Program (MSG), Michigan Boating Industry Association (MBIA), and the Michigan Department of Environmental Quality (MDEQ) to provide a viable voluntary certification process to assist marinas and harbors with protecting water resources by promoting environmentally sound marina and boating practices, while providing a vehicle for Michigan to meet federal CNCP requirements.

As defined by the Michigan CMP, some of these practices include permitting for construction and dredging, use of non-toxic antifreeze, installation of automatic back pressure shutoff nozzles on fuel pump discharge hoses, and posting of emergency numbers to report fuel spills. Other practices meant to directly benefit boaters, while reducing and eliminating pollution, include pumpout stations to empty boat sewage holding tanks, access to restrooms to encourage people not to use their heads while in port, access to dog walking areas, and outreach activities that include workshops to promote and explain the marina's BMPs, facility walking tours, and public relations to demonstrate and promote the benefits of Michigan CMP compliance to boaters.

In Michigan, self-regulation is the goal for the CMP (Haynes 2006). Both in Europe and the United States there is growing advocacy for increased 'self-

regulation' of businesses for environmental protection and pollution reduction (Andrews 1998). According to Harrison (1999), mandatory compliance with regulations is still the norm but regulators in many jurisdictions are increasingly willing to assist regulated interest by clarifying requirements and providing technical advice on how to achieve compliance. Andrews (1998) adds that environmental regulations are increasingly unenforceable, governments increasingly lack the resources, the political will, and the effective authority to enforce environmental regulations. Khanna and Damon (1999) suggested that "voluntary programs for pollution control offer an innovative approach to environmental regulations." They went on to explain that participation in voluntary programs depends to a considerable extent on the existence of a regulatory framework that would impose penalties on firms (marinas) that do not undertake proactive measures for self-regulation (Khanna and Damon 1999). An example of one such program that claimed success was the EPA's voluntary 33/50 program (created in 1991); a voluntary pollution reduction program that provided incentives to firms that would implement pollution reduction practices that would reduce direct environmental releases and off-site transfers of 17 priority toxic chemicals by 33% by 1992, with the ultimate goal of a 50% reduction by 1995 (Zatz and Harbour 1999). Although the program was generally considered a success, critics claimed many of the projects implemented would have occurred without the 33/50 program (Zatz and Harbour 1999).

Similar to the 33/50 program, the CMP falls under the category of environmental “public voluntary programs” (PVPs). According to Lyon and Maxwell (2007), PVPs involve government offers of positive publicity and technical assistance to firms that reach certain environmental goals. These programs can vary greatly in their form and substance but the two most common elements of PVPs are: (1) information dissemination regarding abatement techniques, and (2) providing public recognition to participants that go beyond compliance with existing regulations (Lyon and Maxwell 2007). Numerous issues related to energy and the environment have been addressed through the use of PVPs, including agriculture, air quality, pollution prevention, and water (Lyon and Maxwell 2007).

To receive the Clean Marina designation in Michigan, a marina must complete an 11-step program (Appendix A) which includes attendance at a CMP training workshop, performing a marina self-evaluation, site visit and evaluation by a Michigan Clean Marina representative, incorporation of recommendations, and receiving the Clean Marina designation. Following the third year anniversary of a marina receiving the CMP designation, the marina is required to begin a process to recertify as a Clean Marina.

The Michigan Department of Natural Resources (DNR) identifies 90 harbors on its Website that are either state-owned harbors, Michigan State Waterway Commission-sponsored harbors, or recreational harbors/harbors of refuge (Appendix B). All of these harbors are under the management of some form of government, including local municipalities, and are considered public

harbors. The harbors are located throughout the Michigan waters of the Great Lakes region and serve transient and seasonal boaters. The census of these public harbors is the focus of this study; these harbors are not faced with some of the environmental issues common to commercial harbors, i.e., hull cleaning and maintenance; therefore, the CMP designation should be more easily attainable and less costly. The study does not include commercial private marinas and it should be noted that the findings of this study are not transferable to private marinas.

In 2007, the DEQ and Travel Michigan joined forces to promote Clean Marinas and encourage Michigan travelers to “think green” by labeling Michigan Clean Marinas on Michigan travel information Websites. According to Michigan Sea Grant College Program Clean Marina Website, 12 DNR-identified public harbors have the CMP designation, as of February 2009. Table 4 identifies those CMP-certified harbors and their respective locations.

The goal of this study was to understand the importance of the CMP to the harbormasters listed on the DNR-designated harbors Website. The objectives of this research were to (1) identify real barriers and harbormasters’ perceived barriers to participation, (2) identify harbormasters’ perceived value and interest in the CPM, and (3) provide recommendations to assist in the implementation of the CMP in Michigan.

Table 4. Michigan CMP-certified harbors as identified on the Michigan Sea Grant College Program Clean Marina Website and their respective locations, as of February 2009.

Harbor	Location
Grant Moore Municipal Marina	Boyne City, Lake Michigan
Charlevoix City Marina	Charlevoix, Lake Michigan
DeTour State Dock	DeTour, Lake Huron
Hammond Bay State Harbor	Hammond Bay, Lake Huron
Harbor Springs Municipal Marina	Harbor Springs, Lake Michigan
Lexington State Dock	Lexington, Lake Huron
Mackinaw Island State Harbor	Mackinaw Island, Lake Huron
Manistee Municipal Marina	Manistee, Lake Michigan
Port Austin State Dock	Port Austin, Lake Huron
Presque Isle State Harbor	Presque Isle, Lake Huron
Petoskey City Marina	Petoskey, Lake Michigan
South Haven Municipal Marina	South Haven, Lake Michigan

METHODS

A survey instrument (Appendix C) was developed through interviews conducted in July 2007 with three individuals responsible for the development and administration of Michigan's CMP and analysis of available background information on the CMP, including information on other states' CMP programs, which was primarily available on the Internet and through state's Sea Grant College Program offices. The interviewees worked for the Michigan Sea Grant College Program, Michigan DEQ, and MBIA. Telephone and in-person interviews were conducted following the approval of Michigan State University's Social Science, Behavioral, Education Institution Review Board in the summer of 2007 (IRB#X07 526). The interviewees were mailed a two-page letter inviting them to participate in the study (Appendix D). Participants were asked to sign and return the letter to indicate their consent to participate in the study. Following receipt of their letters of consent, interviews were conducted using the questions in Appendix E; each interview took approximately 30 minutes. The questions were designed to better understand Michigan's CMP; (i.e., is there a CMP advisory committee; who conducts CMP workshops, etc.); and to also learn what the interviewees thought were potential barriers to participation.

Interview results provided information on how the CMP was implemented in Michigan and what the interviewees viewed as perceived strengths and weaknesses of the program. Following the interviews, a survey instrument was developed to (1) describe harbor demographics, both harbors with the CMP

designation and harbors without the CMP designation, (2) identify real and perceived barriers to participation in the CMP, and (3) identify harbormasters' perceived value and interest in the CMP (Table 5).

Table 5. Research objectives for determining barriers, perceived value, and interest and relevant survey instrument question numbers designed to gather data to meet the objectives of the study.

Research Objective – Real and Perceived Barriers to Participation in the CMP	Survey Question #	Question Type
Have you heard of the CMP	1	Single-response
Workshop attendance	4	Likert-scale
How do harbormasters hear about CMP?	2	Multiple-response
Satisfaction with certification process	5	Likert-scale
Supervisor support	8	Likert-scale
Facility may not pass criteria	8	Likert-scale
Budget	8	Likert-scale
Staff	8	Likert-scale
Research Objective – Perceived Value in the CMP	Survey Question #	Question Type
Increased boater use at harbor	9	Forced ranking scale
Increased income	9	Forced ranking scale
Social recognition	9	Forced ranking scale
Regulatory compliance advantages	9	Forced ranking scale
Improved water quality at harbor	9	Forced ranking scale
Being a good steward	11	Likert-scale
Research Objective – Is there Interest in the CMP	Survey Question #	Question Type
Is the harbor a clean marina	3	Single-response
What was the motivation to participate	7	Single-response
Boaters should practice clean boating practices	11	Likert-scale
Marinas should conserve natural resources	11	Likert-scale
Do you seek out information on CMP and other stewardship programs	12	Likert-scale

A draft of the survey instrument was pre-tested by two reviewers (a Michigan State University Extension professional and one harbormaster) to determine the strengths and weaknesses of the survey instrument regarding question formatting, wording, and order. A final revision of the survey instrument was then done, based on the reviewers' input.

The DNR maintains a list of harbors that are identified as being state harbors or harbors of refuge, including Michigan State Waterways Commission sponsored harbors. The census of the harbormasters at these harbors was the focus of this research project. The names, addresses, and telephone numbers of harbormasters overseeing the DNR-identified harbors was provided in an Excel spreadsheet directly from DNR staff. After the study was approved (IRB# X07 774) by Michigan State University's Social Science, Behavioral, Education Institutional Review Board in the summer of 2007, all of the harbormasters on the DNR list were mailed a one-page letter inviting them to participate in the research project (Appendix F).

The letter described the project's goal and objectives, explained the contents of the enclosed survey instrument, and the approximate time (20 minutes) it would take to complete the survey instrument. The letter also informed harbormasters that their participation was strictly voluntary and that by completing and returning the survey instrument, they were giving their consent to participate. The survey instrument was mailed to the harbormasters in September 2007; they were asked to return the survey instrument in the self-addressed, stamped envelope included with the survey instrument. In all cases,

harbormasters that had not completed and returned their survey instrument within 30 days were contacted by telephone to request that they complete their survey instruments. At that time, an offer was made to mail them another copy, should they need one.

Harbormasters are widely dispersed throughout the state, making personal interviews both cost- and time-prohibitive (on-line data collection was not an option since there were no assurances that each harbormaster would have access to computers and the Internet). Therefore, the self-administered mail data collection method was selected for this research project (Alreck and Settle 2004). When using mail surveys, the day, time, and location where respondents complete the survey instruments may differ from one respondent to the next but the survey instruments are identical to one another. As such, each respondent is presented with *exactly* the same instructions and tasks, eliminating the chance of interviewer bias (Alreck and Settle 2004).

To assess harbormasters' perceived barriers to participation in the CMP, they were asked if they had heard about the CMP (yes or no) and, if so, how they had heard about the CMP (multiple-choice questions with an open-ended response). Next, harbormasters that had knowledge of the CMP were asked, using Likert-scale (Alreck and Settle 2004) questions whether attendance at a workshop had any influence on their attitude toward participation in the CMP and to what level they agreed or disagreed with several statements relevant to participating in the CMP and the CMP certification process. Harbormasters that

had no knowledge of the CMP were asked to proceed to the next section of the survey instrument.

In order to determine whether harbormasters believed there was value in participating in the CMP, a series of Likert-scale questions were asked to learn at what level harbormasters agreed or disagreed with the importance of environmental stewardship and who should be responsible for ensuring that future generations have access to clean recreational waters. A forced ranking scale (Alreck and Settle 2004) question was used to ask harbormasters to rank the benefits of participating in the CMP, using a 1-5 scale (1 = First choice, 5 = Fifth choice).

Harbormasters were asked if the harbor they supervised was certified under the CMP to help determine if they had an interest in the CMP. To further assess interest, harbormasters with certified harbors were asked what motivated them to participate, using a multiple-choice question with one open-ended response. Using a Likert-scale question, harbormasters were also asked how likely they would participate or continue to participate in the CMP in the next three years.

Finally, harbormasters were asked questions that related directly to the demographics (designation, size, seasonal and transient boater use, number of employees) of their harbor and the years each harbormaster had overseen their respective harbor. Harbor demographics could explain why some harbormasters were more likely to have heard about the CMP and felt the program had value. As an example, staff at a harbor with heavy transient boat traffic may be more

likely to interact with boaters who have knowledge of the CMP. Harbormasters were asked to identify the geographic location of their harbor by the lake and location of their respective harbors. In order to learn more about the harbor location, M-46 was chosen as a dividing point for both Lake Michigan and Lake Huron. It was the assumption that the harbor's water quality and concentration and types of recreational boaters using the harbors could vary, based on harbor location; hence, M-46 was used as a dividing line to better delineate harbor location.

The survey data was analyzed using an Independent Samples t-Test to compare the mean values between harbormasters with CMP-certified harbors and harbormasters with knowledge of the CMP to test for statistical significance. Frequency and descriptive analyses were also conducted.

RESULTS AND DISCUSSION

The survey instrument was mailed to 86 harbormasters based on an Excel spreadsheet mailing list provided by the Michigan Department of Natural Resources (DNR). Although the DNR Website identified 90 harbors, the mailing list provided by the DNR identified 86. It was determined that five survey instruments had been mailed to duplicate harbors; two harbormasters reported they did not have a harbor; and one harbormaster refused to complete the survey instrument. The number of useable survey instruments was thus 79. Of those 79 survey instruments, 52 survey instruments were completed for a return rate of nearly 66%.

Survey instrument results were divided into three sections: demographic background on the harbors; barriers and harbormasters' perceived barriers to participation in the CMP; and harbormasters' perceived value and interest in the CMP.

A demographic profile of respondents' harbors revealed that 9 harbors were located on Lake Superior, 19 on Lake Huron, 20 on Lake Michigan, and 2 on Lake Erie (Table 6). Two harbormasters did not report harbor locations. Of the 52 survey instruments returned, less than 20% ($n=10$) of the harbormasters indicated their harbor had the CMP designation (Table 7).

Table 6. Number of harbors per geographic location per designation (Designated State Harbor, Municipal Harbor, Other).

Harbor Location	Number of Designated State Harbors	Number of Municipal Harbors	Number of Other
Lake Superior	3	3	3
Lake Michigan – Upper Peninsula	2	3	0
Lake Huron – Upper Peninsula	2	1	0
Lake Michigan – Lower Peninsula – North of M-46	2	9	1
Lake Huron – Lower Peninsula – North of M-46	4	9	0
Lake Michigan – Lower Peninsula – South of M-46	0	3	0
Lake Huron – Lower Peninsula – South of M-46	1	2	0
Lake Erie	2	0	0

Table 7. Number of reported CMP-certified harbors per geographic location.

Harbor Location	Number of Harbors Certified as CMP
Lake Superior	0
Lake Michigan – Upper Peninsula	0
Lake Huron – Upper Peninsula	1
Lake Michigan – Lower Peninsula – North of M-46	4
Lake Huron – Lower Peninsula – North of M-46	3
Lake Michigan – Lower Peninsula – South of M-46	0
Lake Huron – Lower Peninsula – South of M-46	1
Lake Erie	1

The greatest concentration of CMP-certified harbors was in Lake Michigan (Lower Peninsula – North of M-46) and Lake Huron (Lower Peninsula – North of M-46). Three of the 10 harbors with the CMP designation were under the supervision of the same harbormaster, which indicated the number of harbormasters that have accepted the program may not be as great as it appeared. It could also be indicative that there was a major proponent of the CMP, i.e., Sea Grant College Program agent or MBIA member, in those areas where harbormasters have chosen to be CMP-certified. Interestingly, none of the Lake Superior harbors have the CMP designation. This could suggest that Lake Superior waters appeared or are believed to be less polluted to harbormasters, as such, the CMP designation was not viewed as being necessary by harbormasters in Lake Superior or that they were not familiar with the CMP. One Lake Superior harbormaster reported having limited services and no staff on-site, other than to clean restrooms once a day and maintain grounds, which could further suggest why some Lake Superior harbormasters do not view CMP certification as a priority.

To assess harbormasters' perceived barriers to participation in the CMP and identify real barriers to participation, harbormasters were first asked if they were familiar with the CMP. Approximately 70% (n=34) of the respondents reported some knowledge of the CMP (Table 8). Of the 15 harbormasters that reported they had no knowledge of the CMP, 6 of those harbormasters supervised Lake Superior harbors (the greatest concentration of harbormasters not familiar with the CMP), which adds to the explanation of why none of the

Lake Superior harbors have the CMP designation. When evaluating harbormasters' knowledge of the CMP with types of harbors, it was determined that over 66% of those harbormasters were connected to municipal harbors.

Table 8. Geographic location of harbors and number of harbormasters that had some knowledge of the CMP and number of harbormasters that had no knowledge of the CMP.

Harbor Location	Number of Harbormasters Familiar with CMP	Number of Harbormasters not Familiar with CMP
Lake Superior	2	6
Lake Michigan – Upper Peninsula	2	3
Lake Huron – Upper Peninsula	2	1
Lake Michigan – Lower Peninsula; North of M-46	8	4
Lake Huron – Lower Peninsula; North of M-46	13	0
Lake Michigan – Lower Peninsula; South of M-46	2	1
Lake Huron – Lower Peninsula; South of M-46	3	0
Lake Erie	2	0

Harbormasters whose harbors were CMP-certified and those with knowledge of the CMP were then asked how much influence did or does the CMP's requirement to attend a workshop have on their participation or plans to participate in the CMP (Table 9). The influence levels were ranked 1 through 5, respectively (No influence whatsoever = 1; A lot of influence = 5). Twenty-one percent of the respondents agreed that workshop attendance had no influence whatsoever on their decision to participate in the CMP, while 17% agreed that workshop attendance had some influence on their decision to participate. Only 7% of the respondents said workshop attendance had a lot of influence on their decision to participate. One harbormaster that had attended the workshop (harbor has CMP designation) indicated workshop attendance had a lot of influence on the decision to participate and also stated that the workshop should be conducted more professionally.

Table 9. Influence on harbormasters with CMP-certified harbors and harbormasters with knowledge of CMP of workshop attendance on CMP participation (No influence whatsoever = 1; A lot of influence = 5).

Question	Score Certified as CMP	Score Knowledge of CMP but not certified
Attendance at a workshop is currently required to begin the certification process. How much influence did/does the requirement to attend a workshop have on your participation or plans to participate in the CMP?	3.00	2.20

When responses of the influence of workshop attendance on CMP participation of harbormasters with CMP-certified harbors were compared to the responses of harbormasters that were familiar with the CMP; an Independent Samples t-Test indicated there was significant difference between the two groups at the 95% confidence level. A score of less than 3 indicated that attendance at a workshop had little influence on a harbormasters decision to participate in the CMP, while a score of more than 3 indicated the requirement to attend a workshop could influence a harbormasters decision to participate. It is possible that harbormasters with CMP-certified harbors would have had a different opinion relevant to workshop attendance resulting from attendance at the workshop, i.e., lack of professionalism. Overall, the requirement to attend a workshop in order to begin the CMP certification process did not appear to be a barrier to future participation.

To further assess barriers to participation, harbormasters with CMP-certified harbors and harbormasters that confirmed they had knowledge of the CMP were asked to identify how they had received information on the CMP—workshop attendance, word of mouth, Internet, publication, other. The highest response was through attendance at a workshop (n=13), followed by other (n=9). The remaining methods were word of mouth (n=7), publications (n=5), and Internet (n=1). Table 10 identifies how harbormasters gained knowledge of the CMP by geographic location.

Table 10. Ways in which harbormasters have access to information on the CMP by geographic location.

Harbor Location	Workshop Attendance	Word of Mouth	Internet	Publication	Other
Lake Superior	1	0	0	1	0
Lake Michigan – Upper Peninsula	0	1	0	0	1
Lake Huron – Upper Peninsula	1	0	0	0	1
Lake Michigan – Lower Peninsula; North of M-46	4	1	0	1	2
Lake Huron – Lower Peninsula; North of M-46	5	3	1	1	2
Lake Michigan – Lower Peninsula; South of M-46	1	1	0	0	2
Lake Huron – Lower Peninsula; South of M-46	1	0	0	1	1
Lake Erie	0	1	0	1	0
Total	13	7	1	5	9

To learn if the CMP certification process could present a barrier to participation, harbormasters with CMP-certified harbors were asked to rank their level of satisfaction with the certification process from extremely dissatisfied to extremely satisfied with respect to various areas related to the certification process (Table 11). The satisfaction levels were ranked 1 through 7, respectively (Extremely dissatisfied = 1; Extremely satisfied = 7). A total score of 4 indicated that harbormasters were neutral regarding satisfaction, a score of less than 4 denoted an overall tendency to disagree with the satisfaction of the certification process, while a score of more than 4 indicated an overall tendency to be satisfied with the certification process.

Table 11. Harbormasters with CMP-certified harbors, level of satisfaction with the CMP certification process
(Extremely dissatisfied = 1; Extremely satisfied = 7).

Question	Extremely Dissatisfied	Very Dissatisfied	Dissatisfied	Neutral	Satisfied	Very Satisfied	Extremely Satisfied	Score
Workshop location	0%	0%	0%	11%	44%	44%	0%	5.33
Cost of workshop	0%	0%	11%	22%	57%	11%	0%	4.67
Presenter's knowledge of CMP	0%	0%	0%	0%	22%	67%	11%	5.89
Ease of completing checklist	0%	0%	0%	22%	11%	67%	0%	5.44
Technical assistance available	0%	0%	0%	33%	0%	11%	57%	5.89
Site visit	0%	0%	0%	0%	22%	11%	67%	6.44

Overall, harbormasters with CMP-certified harbors were neutral to satisfied with the CMP certification process. Approximately 11% of the respondents indicated their dissatisfaction with the cost of the workshop.

To determine if harbor management and budgets could pose a barrier to participation in the CMP, harbormasters with CMP-certified harbors and harbormasters that had knowledge of the CMP were asked to rank their level of agreement—totally disagree, moderately disagree, somewhat disagree, neutral, somewhat agree, moderately agree, totally agree—with the following statements: my supervisor is supportive of participation, my facility may not pass the CMP criteria, my budget can support participation, and I have enough staff to participate. The satisfaction levels were ranked 1 through 7, respectively (Totally disagree = 1; Totally agree = 7). A score of less than 4 denoted an overall tendency to disagree with the statement. The overall score (ranking) for harbormasters with a CMP-certified harbor and harbormasters with knowledge of the CMP is shown in Table 12. Approximately 54% of the respondents totally disagreed their facility may not pass the CMP criteria and 31% totally agreed that participation should be voluntary; while 37% of the respondents indicated total agreement that their facility had the budget to participate; 31% indicated they were neutral. Nearly 43% of the respondents totally agreed they had enough staff to participate in the CMP, with less than 3% totally disagreeing. An Independent Samples t-Test revealed there was significant difference between the two groups relevant to the statements: supervisor is supportive of participation, budget can support participation, and facility has enough staff to

participate. There was no significant difference between the two groups regarding the statements: facility may not pass the criteria and participation should be voluntary.

Table 12. Harbormasters (with CMP-certified harbors and knowledge of CMP) level of agreement with statements related to harbor management and budget (Totally disagree = 1; Totally agree = 7).

Statement	Score Certified as CMP	Score Knowledge of CMP but not certified
Supervisor is supportive of participation	6.70	5.87
Facility may not pass the criteria	2.00	2.67
Participation should be voluntary	5.00	4.79
Budget can support participation	6.10	4.75
Facility has enough staff to participate	6.40	5.00

Finally, all harbormasters were asked to indicate their level of agreement or disagreement—strongly disagree, somewhat disagree, neutral, somewhat agree, strongly agree—with a series of questions related to clean recreational waters and who should be responsible for stewardship of these waters (Table 13). The agreement levels were ranked 1-5 respectively, (Strongly disagree = 1; Strongly agree = 5). A score of 3 indicated harbormasters were neutral to the statement, a score of less than 3 denoted an overall tendency to disagree with

the statement, and a score greater than 3 denoted an overall tendency to agree with the statement.

Table 13. Harbormasters' level of agreement to statements regarding stewardship of recreational waters (Strongly disagree = 1; Strongly agree = 5).

Statement	Strongly Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Strongly Agree	Score
Recreational boaters should practice clean boating habits	2%	0%	0%	4%	94%	4.88
Marinas should demonstrate practices to conserve natural resources	2%	0%	0%	12%	86%	4.81
It should be the responsibility of state governments to provide clean water	8%	8%	33%	35%	17%	3.46
It is important to ensure that future generations have access to clean recreational waters	2%	0%	0%	4%	94%	4.88

Overall, harbormasters agreed that boaters should practice clean boating habits and it is important to ensure that future generations have access to clean recreational waters (score = 4.88); 94% of the harbormasters strongly agreed with this statement. They also supported the statement that marinas should demonstrate practices to conserve natural resources (score = 4.81); 86% of the harbormasters strongly agreed with this statement. Finally, 33% of the

harbormasters were neutral and 35% somewhat agreed (score = 3.46) that state governments should be responsible in providing clean recreational waters.

The survey results indicated that real barriers to participation in the CMP were observed. Currently, approximately 14% of the DNR-identified harbors participate in the CMP. Evaluating a voluntary program on the basis of participation alone is inappropriate (Alberini and Segerson 2002) but, in the absence of any evaluative baseline, participation should be a consideration.

Approximately 30% of the harbormasters that responded to this survey stated they had no knowledge of the CMP, with the greatest concentration of those respondents located in Lake Superior. In fact, one harbormaster was unsure whether the harbor under his supervision was certified or not. Many of the harbormasters with no knowledge of the CMP managed municipal harbors. Some of the municipal harbors are actually under the supervision of a city manager or parks supervisor who are not on-site at the harbor.

Dissemination of information to harbormasters and supervisors regarding the CMP should be improved. Survey results indicated that two of the most effective modes of the transfer of information were through representatives of the MBIA and the DNR Parks and Recreation Division. The harbormaster mailing list obtained from the DNR was not up-to-date. Many survey instruments were returned and several hours were spent making phone calls to update the mailing and contact information. It should also be noted that some harbormasters indicated that the involvement of state government in the CMP should be minimal. Townsend (2008) acknowledged that the Oregon Clean Marina

program is not viewed as an environmental regulatory agency, which helps with the program's credibility and acceptance among harbormasters. Van Snider, president of MBIA, recently commented that it is important for the industry to perceive the Michigan CMP as an industry program, not a governmental agency run program; it is important that the program not be viewed as a mandatory or regulatory program (Mendez 2006).

In general, harbormasters with CMP-certified harbors indicated they were satisfied with the CMP certification process. Harbormasters stated they were most satisfied with the technical assistance provided during the certification process, the presenter's knowledge of the CMP during the workshops, and the ease of filling out the checklist. Approximately 11% of the harbormasters expressed dissatisfaction with the cost of the workshop. The current cost is \$199 or \$149 if the marina is a member of MBIA. Overall, the CMP administrators should be more concerned with funding at the administrative level. For example, in 2008, the governor of Georgia made budget cuts that eliminated the state's CMP coordinator position (Townsend 2008). To help address administrative funding issues and advance the CMP, MBIA has recently established the Michigan Clean Marina Foundation to ensure the program's continuation by increasing funding opportunities for the program in the form of grants and contributions (Townsend 2008).

Survey instrument responses indicated that harbormasters believed that both recreational boaters and marinas should utilize BMPs in order to preserve recreational water resources. The value harbormasters place on the resource

does not appear to present a barrier to participation. According to Videras and Alberini (2000), the success of voluntary environmental programs depends crucially on the program appeal to the firms, or in this case, the harbormasters. The worse the environmental track record of the firm, the more likely the firm is to participate (Videras and Alberini 2000). If harbormasters do not perceive their harbors as polluted or activities at the harbors to be damaging to the environment, the need to participate in the CMP may not be seen as a priority. The CMP needs to be more widely promoted to all harbormasters with the message that their participation is proactive behavior and may preempt future environmental issues and fines at the harbor, even if none are seen to currently exist.

To assess harbormasters' perceived value in participation in the CMP, harbormasters with certified harbors and harbormasters with knowledge of the CMP were asked to rank the benefits to participating in the CMP in order of importance to the harbormaster (Table 14). Choices were increased boater use at the facility, increased income, social recognition, regulatory compliance advantages, and improved water quality at the facility. The ranking levels were 1 through 5, respectively (First choice = 1; Fifth choice = 5).

Table 14. Harbormasters' perceived benefits to participating in the CMP in order of importance (First choice = 1; Fifth choice = 5).

Statement	Score Certified as CMP	Score Knowledge of CMP but not certified
Improved water quality at harbor	1.50	2.09
Regulatory compliance advantages	2.00	2.58
Social recognition	2.67	3.00
Increased income	4.83	3.96
Increased boater use at the harbor	4.00	3.26

The top three benefits common to both groups of harbormasters were improved water quality at the harbor, regulatory compliance advantages, and social recognition. Both groups ranked increased income and increased boater use at the harbor as their fourth and fifth choices.

When all harbormasters were asked if marinas should demonstrate practices to conserve natural resources, nearly 87% strongly agreed with this statement. Clearly, improved harbor water quality was seen as a priority to the respondents. According to Alberini and Segerson (2002), participation in voluntary programs may be motivated by environmental stewardship, i.e., personal satisfaction or utility gained from undertaking activities that protect the environment. The effectiveness hinges on the existence of a sufficiently strong

environmental stewardship motivation within the target population (Alberini and Segerson 2002). Harbormasters appear to be motivated to participate in the CMP, based on their desire to have improved or sustained water quality at their harbors.

Increased use at the harbor should generate increased income. These benefit choices were ranked fourth and fifth by both groups of harbormasters. This could suggest that harbors have sufficient budgets or are subsidized at a level that increased income is not a sufficient motivator to participate in the CMP. Alberini and Segerson (2002) suggested that polluters must perceive that there is some net benefit or gain that they will realize from participation. In many cases, firms are motivated to participate in voluntary environmental programs because consumers demand “green” products and are willing to pay more for them (Arora and Gangopadhyay 1995). Boaters have suggested that Michigan’s designated harbors are viewed as second to none in the Great Lakes region (Wisconsin, Michigan, Minnesota, and Ohio). The Michigan harbors have a reputation of providing quality service and, in general, users know they are going to a harbor with clean, adequate facilities. According to Videras and Alberini (2000), participants in voluntary environmental programs are motivated to participate in order to gain a competitive advantage over competitors. Survey results did not support this statement. In fact, in many cases, Michigan’s designated harbors have very little competition from commercial marinas. In the absence of strong market incentives to participate, a firm (harbor) may still voluntarily abate if by doing so it can directly reduce costs and increase profits (Alberini and Segerson

2002). Given the current economic climate in the State of Michigan, this message should be included in a CMP communication piece to harbormasters.

To determine if harbormasters had an interest in the CMP, they were first asked if the harbor they oversaw was certified. In response, 10 harbormasters indicated their harbor was certified as a clean marina.

Next, all harbormasters were asked to select how often—always, often, sometimes, rarely, or never—they communicated or participated in several practices related to stewardship and clean boating. The levels of activity were ranked 1-5, respectively (Always = 1; Never = 5); with a score of 3 indicating they sometimes participated in the statement activity; a score of less than 3 denoted an overall tendency to participate in the statement activity; and a score of more than 3 denoted an overall tendency to not participate in the statement activity.

Harbormasters agreed they seek out ways to be a better steward at the harbor with a score of 1.96 (Table 15). The word steward was not defined in the survey instrument; harbormasters responded based on their own understanding of the definition of steward. They also acknowledged they talked to boaters about clean boating practices with a score of 2.72 (Often = 22%; Sometimes = 44%). Harbormasters were least likely to discuss best boating practices with Sea Grant College Program agents with a score of 4.20 (Rarely = 26%; Never = 48%). It is unknown whether harbormasters talked to anyone regarding best boating practices.

Table 15. Opportunities for harbormasters to seek out ways to be a better steward at the harbor they oversee.

Statement	Always	Often	Sometimes	Rarely	Never	Score
Seek out ways to be a better steward at the harbor	31%	45%	22%	0%	2%	1.96
Talk to boaters about clean boating practices	14%	22%	44%	18%	2%	2.72
Practice recycling at the harbor	21%	29%	20%	12%	18%	2.75
Display signage describing clean boating practices	24%	21%	21%	12%	22%	2.86
Discuss best boating practices with Sea Grant College Program agents	0%	2%	24%	26%	48%	4.20

Finally, to further assess harbormasters' interest in the CMP, harbormasters with knowledge of the CMP were asked how likely they were to pledge to become a clean marina in the next three years—extremely unlikely, very unlikely, somewhat unlikely, neutral, somewhat likely, very likely, extremely likely. The ranking levels were 1-7, respectively (Extremely unlikely = 1; Extremely likely = 7). An overall score of 4 suggested harbormasters were neutral, an overall score of 1 denoted a tendency to be extremely unlikely to participate, while an overall score of 7 denoted a tendency to participate.

Thirty-eight percent of the harbormasters that had knowledge of the CMP stated they were extremely likely to pledge to become a clean marina with another 34% indicating they were very likely to pledge. Nine percent of the harbormasters agreed they were very unlikely to pledge to become a clean marina and only 3% said they were extremely unlikely to participate. The overall percentages and scores are depicted in Table 16. Fifty percent of the harbormasters with CMP certified harbors indicated they were extremely likely to begin the recertification process within three years. The remainder of the respondents were either very likely or neutral with respect to beginning the recertification process.

Table 16. Likelihood that harbormasters that had knowledge of the CMP would pledge to become a clean marina in the next 3 years.

Pledge to Become a Clean Marina						
Extremely unlikely	Very unlikely	Somewhat unlikely	Neutral	Somewhat likely	Very likely	Extremely Likely
3%	9%	0%	13%	3%	34%	39%

Harbormasters' desire to have clean water at their harbor and be a good environmental steward was a common theme throughout this research project, which suggested there was ample interest in the CMP by the harbormasters that responded to the survey instrument; the harbormasters also indicated the CMP had value. One can only speculate regarding the harbormasters that did not respond to the survey instrument, i.e., no interest in the CMP, too busy to respond, felt threatened by survey instrument questions, etc.

RECOMMENDATIONS

It should be noted again that these recommendations only apply to the public harbors, as designated by the Michigan DNR. These recommendations do not apply to private commercial marinas in Michigan.

As previously stated, the greatest barrier to participation appears to be in informing the harbormasters about the CMP. Therefore, it is first recommended that the harbormaster/supervisor mailing list be updated on a regular basis and the MBIA undertake a communication campaign to market the CMP. This could be the most cost-effective approach and harbormasters indicated they were pleased with their interaction with representatives of the MBIA. The target audience has already been clearly defined and a similar approach could be taken to promote the CMP to commercial marinas. A letter writing campaign could promote the CMP with a tailored message to appeal to the State's harbormasters. Letter writing is one of the most persuasive and powerful forms of communication (Jurin, Denter, and Rousch Jr. 2000). There is some evidence consistent with the notion that firms (harbors) value the information and technology transfer aspect of joining a program (Videras and Alberini 2000). Harbormasters with CMP-certified harbors were satisfied with the technical assistance they received as part of the CMP certification process. This message could be an important component of a letter to harbormasters. An effective communications campaign with an effective message (tag line) to harbormasters is needed to further advance the CMP.

Next, it is recommended that administrators of the CMP make the certification process available on-line and eliminate the need for workshops. The Texas CMP has all certification materials available on-line (pledge form, checklist, CMP guidebook). Once a marina has completed its self-assessment, a CMP representative visits the marina for an on-site confirmation visit (Clean Texas Marina Program n.d.). Texas has approximately 350 marinas and in 2008, 71 (20%) had been certified. In comparison, Michigan has approximately 550 marinas with 24 (4%) having completed the certification process (Mendez 2006). Some harbormasters registered their dissatisfaction with the cost of the workshop; an on-line process would address those concerns. This would also address program budget cuts that could impact the travel status of individuals who conduct the CMP workshops. According to Mendez (2006), some CMPs are not having as much success signing up marinas to the program because they lack the manpower and resources to get the job done. Processes that can address this issue are important to the success of the CMP in Michigan.

Finally, it is recommended that the Michigan CMP establish an advisory committee to gain input from all elements associated with recreational boating. As an example, the Alabama-Mississippi CMP advisory committee consists of representatives from the CMP management team (industry, educational, and agency), department of marine resources, state's EPA office, Mobile National Estuary Program, marina operators, chamber of commerce representatives, the U.S. Coast Guard, U.S. Corps of Engineers in order to create and sustain a well-rounded program (Clean Marina: Coming to a Harbor Near You 2004).

CONCLUSION

Voluntary, incentive-based environmental programs have merit and have been proven to be effective for certain environmental issues but, according to Mendez (2006), “proponents of the environmental movement, some of whom have been described as having missionary-type zeal for clean marinas, still have a long way to go to make new converts to their cause.” A broader issue to consider in evaluating the effectiveness of the CMP is what is the baseline for measuring success? What would the level of environmental quality be in the absence of the voluntary approach (Alberini and Segerson 2002)? In the absence of a baseline measurement, the analysis of this study provides CMP administrators with suggested ways to improve communication with harbormasters of Michigan’s public harbors and a more streamlined approach to the certification process.

APPENDICES

APPENDIX A: 11-Step Program



Program Objectives

The Michigan Clean Marina program was developed through a public-private partnership involving the marine industry, academic institutions and state government. Objectives include the following:

1. Foster communication among the marina industry, state agencies, academic institutions and environmental groups.
2. Promote voluntary implementation of pollution prevention (P₂) strategies, environmental risk reduction and fish and wildlife habitat enhancement in the context of good business practice.
3. Promote industry compliance with environmental laws and regulations impacting the marina industry through education and outreach.
4. Develop recognition and economic incentives for environmentally proactive marina operations.

Steps to Become a Michigan Clean Marina



Step 1
Contact MBIA, Michigan Sea Grant or MDEQ



Step 2
Sign pledge card



Step 3
Enroll & Receive Training Materials or Attend Workshop



Step 4
Perform marina self-evaluation



Step 5
Schedule site visit



Step 6
Site visit and evaluation by Clean Marina representative



Step 7
Marina incorporates recommendations



Step 8
Final site visit



Step 9
Clean Marina designation



Step 10
Receive benefits as Michigan Clean Marina



Step 11
Re-designate at 3rd year anniversary



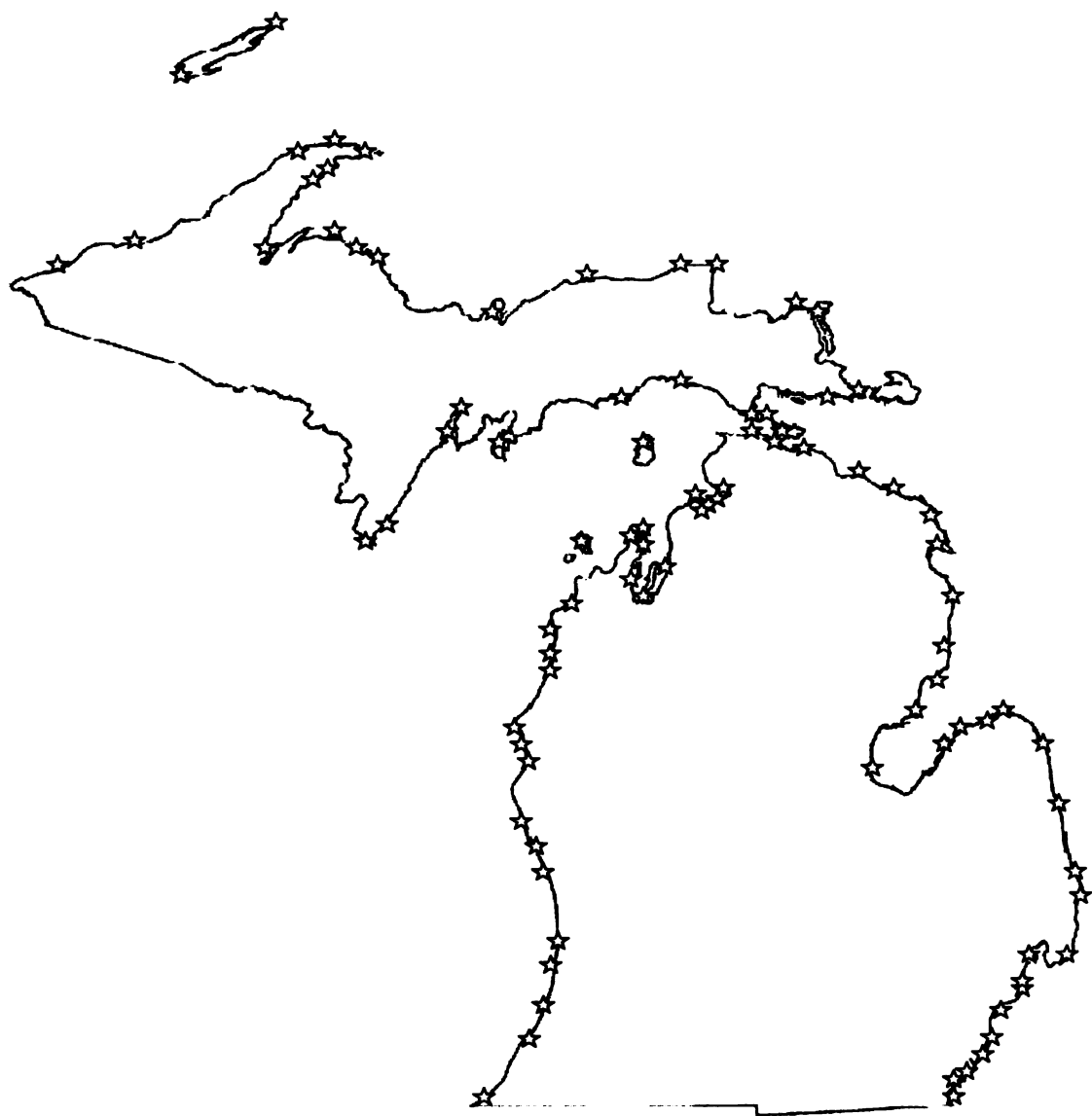
How It Works

The clean marina program encourages marinas to develop technically sound and economically achievable approaches to prevent the release of hazardous substances and reduce the generation of waste. A simple 11-step process helps marinas achieve a clean marina designation.

Benefits for Marinas

- Reduce pollution and improve water quality in the Great Lakes and Michigan waterways
- Protect fish and wildlife habitat
- Enhance your marina's image to the boating public by promoting environmentally sound practices
- Receive recognition by flying the Clean Marina flag and using the Clean Marina logo
- Save money by adopting cost-effective, best-management practices

APPENDIX B: Michigan Department of Natural Resources Harbors



☆ Locations of Michigan DNR Harbors

APPENDIX C: Survey Instrument

MICHIGAN'S CLEAN MARINA PROGRAM SURVEY

Sponsored by Michigan State University
Department of Fisheries and Wildlife

Thank you for agreeing to complete this survey about your Michigan Clean Marina Program experience. Please read each question carefully before responding. Answer to the best of your ability and save any additional comments for the end. Your responses will help us evaluate the importance of the Clean Marina Program to the State of Michigan

THIS FIRST SECTION ASKS ABOUT YOUR EXPERIENCE WITH THE CLEAN MARINA PROGRAM.

1. Have you heard of the Clean Marina Program? If no, proceed to Question 10. (Please check one)
 - ☐ Yes
 - ☐ No
2. How did you hear about the Clean Marina Program? (Please check all that apply)
 - ☐ Attended a workshop
 - ☐ Word of mouth
 - ☐ Internet
 - ☐ Publication
 - ☐ Other (Describe) _____
3. Is the facility you oversee certified as a Clean Marina? (Please check one)
 - ☐ Yes
 - ☐ No
4. Attendance at a workshop is currently required to begin the certification process. How much influence did/does the requirement to attend a workshop have on your participation or plans to participate in the Clean Marina Program? (Please check one)
 - ☐ No influence whatsoever
 - ☐ Not much influence
 - ☐ Some influence
 - ☐ Moderate influence
 - ☐ A lot of influence
5. If your facility is certified as a Clean Marina, how satisfied were you with the certification process? If your facility is not certified as a Clean Marina, please proceed to the next question. (Please pick a number from the scale for each item)

1. Extremely dissatisfied	2. Very dissatisfied	3. Dissatisfied	4. Neutral	5. Satisfied	6. Very satisfied	7. Extremely satisfied
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Workshop location

Cost of workshop

Presenter's knowledge on the Clean Marina Program

Ease of completing checklist

Technical assistance available

Site visit

Please go to page two on the back of this page.

6. In the next three years, how likely are you to? (Circle a response per line)

	Extremely unlikely	Very unlikely	Somewhat unlikely	Neutral	Somewhat likely	Very likely	Extremely likely
Pledge to become a Clean Marina	1	2	3	4	5	6	7
Complete the Clean Marina Program certification process	1	2	3	4	5	6	7
Begin the Clean Marina Program recertification process	1	2	3	4	5	6	7

7. What motivated you most to participate or consider participating in the Clean Marina Program? (Please check one)

- ☐ Boater demand
- ☐ Supervisor recommendation
- ☐ Other marinas are participating
- ☐ Desire to be a good steward
- ☐ Other _____

8. How much do you agree or disagree with the following statements about participation in the Clean Marina Program? (Please circle one answer on each line)

	Totally disagree	Moderately disagree	Somewhat disagree	Neutral	Somewhat agree	Moderately agree	Totally agree
My supervisor is supportive of participation	1	2	3	4	5	6	7
My facility may not pass the criteria	1	2	3	4	5	6	7
Participation should be voluntary	1	2	3	4	5	6	7
My budget can support participation	1	2	3	4	5	6	7
I have enough staff to participate	1	2	3	4	5	6	7

Please go to page three on the next page.

9. Please rank the benefits to participating in the Clean Marina Program listed below in their order of importance to you. (Write the number 1 next to the one you prefer most, number 2 by your second choice, and so on)

- _____ Increased boater use at the facility
- _____ Increased income
- _____ Social recognition
- _____ Regulatory compliance advantages
- _____ Improved water quality at facility

THIS SECOND SECTION INCLUDES QUESTIONS ABOUT WHO YOU INTERACT WITH AND YOUR PERCEPTION OF THE FACILITY YOU OVERSEE AND THE BOATERS WHO VISIT THE FACILITY.

10. How would you describe the water that your facility is located in? (Check the line for each set of OPPOSITE words that is closer to how you feel)

	Very	Quite	Slightly	Neither	Slightly	Quite	Very	
Clean	_____	_____	_____	_____	_____	_____	_____	Polluted
Ugly	_____	_____	_____	_____	_____	_____	_____	Beautiful
Active	_____	_____	_____	_____	_____	_____	_____	Inactive
Clear	_____	_____	_____	_____	_____	_____	_____	Murky

11. Please rate your level of agreement or disagreement with the statements below. (Please circle a response for each statement)

	Strongly disagree	Somewhat disagree	Neutral	Somewhat agree	Strongly agree
Recreational boaters should practice clean boating habits	1	2	3	4	5
Marinas should demonstrate practices to conserve natural resources	1	2	3	4	5
It should be the responsibility of state governments to provide clean waters	1	2	3	4	5
It is important to ensure that future generations have access to clean recreational waters	1	2	3	4	5

Please go to page four on the back of this page.

12. Please pick a number from the scale to show how often you do each of the things listed below. (Please pick a number for each item)

1. Always 2. Often 3. Sometimes 4. Rarely 5. Never

- _____ Seek out information about the Clean Marina Program
- _____ Discuss best boating practices with Sea Grant agents
- _____ Seek out ways to be a better steward at your facility
- _____ Talk to boaters about clean boating practices
- _____ Practice recycling at your facility
- _____ Display signage describing clean boating practices

THE FINAL SECTION ASKS QUESTIONS ABOUT GENERAL DEMOGRAPHICS RELATED TO THE FACILITY YOU OVERSEE. THIS INFORMATION WILL BE CONFIDENTIAL AND WILL ONLY BE USED FOR THE PURPOSES OF THIS SURVEY.

13. The facility you oversee is . . . (Please check one)

- ☐ Designated state harbor
- ☐ Municipal harbor
- ☐ Other _____
- ☐ Unknown

14. Where is the facility you oversee located? (Please check one)

- ☐ Lake Superior
- ☐ Lake Michigan—Upper Peninsula
- ☐ Lake Huron—Upper Peninsula
- ☐ Lake Michigan—Lower Peninsula; North of M-46
- ☐ Lake Huron—Lower Peninsula; North of M-46
- ☐ Lake Michigan—Lower Peninsula; South of M-46
- ☐ Lake Huron—Lower Peninsula; South of M-46
- ☐ Lake Erie

15. How many transient slips does the facility you oversee have? (Please check one)

- ☐ 0-10 Transient slips
- ☐ 11-20 Transient slips
- ☐ More than 21 transient slips

16. How many seasonal slips does your facility have? (Please check one)

- ☐ 0-10 Seasonal slips
- ☐ 11-20 Seasonal slips
- ☐ More than 21 seasonal slips

17. How many seasonal boats used the facility you oversee in 2006? (Please check one)

- ☐ 0-10 Seasonal boats
- ☐ 11-20 Seasonal boats
- ☐ More than 21 seasonal boats

Please go to page five on the next page.

18. How many transient boats used the facility you oversee in 2006? (Please check one)

- ☐ 0-10 Transient boats
- ☐ 11-20 Transient boats
- ☐ 21-50 Transient boats
- ☐ 51-100 Transient boats
- ☐ More than 101 transient boats

19. On average, how many staff are employed at the facility you oversee during the boating season? (Please check one)

- ☐ 1-5 Staff
- ☐ 6-10 Staff
- ☐ 11-20 Staff
- ☐ More than 21 staff

20. How many years have you overseen your facility? (Please check one)

- ☐ 1-3 Years
- ☐ 4-10 Years
- ☐ More than 11 years
- ☐ Unknown

**THANK YOU FOR COMPLETING THIS SURVEY. PLEASE RETURN IT IN THE PROVIDED SELF
ADDRESSSED ENVELOPE TO BRENDA CLARK, MICHIGAN STATE UNIVERSITY, 109 AGRICULTURE
HALL, EAST LANSING, MI 48824. IF THERE IS ANYTHING ELSE YOU WOULD LIKE TO ADD, PLEASE
INCLUDE YOUR COMMENTS ON THE BACK OF THIS PAGE.**

APPENDIX D: Letter to Interviewees

Dear:

I am writing to ask for your participation in a study conducted by the Department of Fisheries and Wildlife at Michigan State University to learn more about the development of the Clean Marina Program (CMP), the procedures used to certify marinas, and the participant recruitment for Michigan's CMP. Because you are one of the program contact persons, we are asking that you participate in this study.

You will be contacted in the near future to arrange an interview time. The interview is expected to take about 30 minutes. Approximately 10 individuals will be interviewed who have been identified on the CMP web site as either contact persons or representatives of marinas that have been certified as a Clean Marina. Please understand it is your decision whether to participate or not. You may choose not to participate at all or you may choose to skip questions during the interview, if you wish.

Information gained from the interview is for research purposes but results from this study will hopefully identify barriers to marina participation in the Clean Marina Program and refine management needs associated with this program. The information you provide will contribute to existing knowledge and will help further develop a survey instrument to be used to gain additional knowledge of CMP from Michigan State Harbors of Refuge.

I am writing in advance because we know that people would like to be contacted in writing before a phone call. If you have any questions or concerns regarding your rights as a study participant, or are dissatisfied at any time with any aspect of this study, you may contact – anonymously, if you wish, Peter Vasilenko, Ph.D., Director of the Human Research Protection Programs (HRPP) at Michigan State University: (517) 355-2180, fax: (517) 432-4503, email: irb@msu.edu, or regular mail: 202 Olds Hall, East Lansing, MI 48824.

Other questions regarding this study can be directed to me at: (517) 355-3272, fax: (517) 353-5406, email: clarkbr@msu.edu, or regular mail: 109 Agriculture Hall, East Lansing, MI 48824 or William Taylor, Ph.D., Chairperson of the Department of Fisheries and Wildlife at Michigan State University: (517) 353-0647, fax: (517) 432-1699, email: taylorw@msu.edu, re regular mail: 13 Natural Resources Building, East Lansing, MI 48824.

Your generous assistance will help ensure the success of this research project. Thank you for your time and consideration. Please sign on the line below and return to me to indicate your consent to participate in this study.

Sincerely,

Brenda Clark

Graduate Research Associate

Signature of Consent

APPENDIX E: Interview Questions

- What is the goal of the Clean Marina Program?
- Explain how a marina in Michigan becomes certified as a Clean Marina
- How do marinas learn about the CMP? Workshops, tradeshows, trade publications? Which method generates the most interest?
- Do you think that the word is getting out?
- What do you see as benefits to participation?
- Do potential participants ask what the real benefits to participation are? Would they be willing to pay for the benefits?
- What do you see as barriers to participation?
- Does improved water quality seem to be a concern to potential participants?
- What do you think motivates a marina to participate?
- Are marinas offered any incentives to participate? Would more marinas participate if incentives were offered? What kind?
- What incentive is there for continued certification?
- Once a marina is certified, how is future compliance monitored?
- Do you think some marinas are more likely to participate than others? Why? What are the characteristics of marinas that participate?
- Has there been any evaluation done to indicate that participation improves water quality? Is there any measurable criteria or metrics?
- Do you see ways that the program could be refined or modified?
- What is being done to encourage recreational boaters to want clean marina certification? What outreach programs are currently being used to inform boaters? Do you think they are effective? What would make them more effective?
- Are there grant dollars available to marinas to help with certification? Who would be most valuable in assisting marinas in applying for grants?
- What kind of technical assistance is available to marina operators?
- Do operators from certified marinas assist in mentoring programs for marinas seeking certification?
- When a marina is certified, how is it publicized?
- Is there a Michigan advisory committee to offer guidance to the program?
- Should the program ever be mandatory?
- Would having the Clean Marina designation attract boaters than are good stewards? Would it help improve individual stewardship?
- Do you like the program?

APPENDIX F: Letter to Harbormasters

Dear Harbormaster or Supervisor:

I am inviting you to participate in a research project to evaluate the importance of Michigan's Clean Marina Program. This research project is funded by the Michigan State University Department of Fisheries and Wildlife. Along with this letter is a **short questionnaire that asks a variety of questions about your experience with the Clean Marina Program and your facility**. I would appreciate it if you would complete the enclosed questionnaire and return it to me in the self-addressed, stamped envelope. The questionnaire should take you about 20 minutes to complete.

The results of this project will be the completion of my Master's degree research at Michigan State University. I hope the results of the survey will be useful in identifying barriers and opportunities to marina participation in the Clean Marina Program and refine needs associated with this program. I plan to share the results with the survey respondents and the organizers and representatives of the Clean Marina Program.

Your participation in this survey is strictly voluntary and you can withdraw from participation or refuse to answer any question without penalty. I am not aware of any risks to you if you decide to participate in this survey and your responses will not be identified with you personally or your facility. Your responses will be strictly confidential. By completing this survey, you indicate your voluntary agreement to participate. The return envelope has an identification number for mailing purposes only.

If you have any questions or concerns regarding your rights as a study participant, or are dissatisfied at any time with any aspect of this study, you may contact – anonymously, if you wish, Peter Vasilenko, Ph.D., Director of the Human Research Protection Programs (HRPP) at Michigan State University: (517) 355-2180, fax: (517) 432-4503, e-mail: irb@msu.edu, or regular mail: 202 Olds Hall, East Lansing, MI 48824.

Other questions regarding this study can be directed to me at: (517) 355-3272, fax: (517) 353-5406, e-mail: clarkbr@msu.edu, or regular mail: 109 Agriculture Hall, East Lansing, MI 48824 or William Taylor, Ph.D., Chairperson of the Department of Fisheries and Wildlife at Michigan State University: (517) 353-0647, fax: (517) 432-1699, e-mail: taylorw@msu.edu, or regular mail: 13 Natural Resources Building, East Lansing, MI 48824.

Your generous assistance will help ensure the success of this research project. Thank you for your time and consideration.

Sincerely,

Brenda Clark
Graduate Research Associate

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