2014

The Decision to Self-Regulate: A Comparative Study of Marinas in New England and the Netherlands

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Dissertation Title: "The Decision to Self-regulate: A Comparative Study of Marinas in New England and The Netherlands"

Student: Carry J. Oostveen-Buterbaugh

☐ Dissertation is approved as is.

☑ Dissertation is approved subject to minor editorial revisions.

Dissertation Committee Chair: _____ Date: 30 Mar 12

Other Members of the Dissertation Committee:

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Richard Barringer Date: 03.30.12

Received by the Ph.D. Program Chair, Initials and Date: BMF 3/30/12

Received by the Muskie Office of Student Affairs, Initials and Date: JoB 8.15.12

Received by the Office of Graduate Studies, Initials and Date: MMS 8/28/12

THE DECISION TO SELF-REGULATE: A COMPARATIVE STUDY OF MARINAS IN NEW ENGLAND AND THE NETHERLANDS

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Submitted in Partial Fulfillment of the

Requirements for the Degree of

Doctor of Philosophy

Edmund S. Muskie School of Public Service

University of Southern Maine

February, 2014

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DEDICATION

I dedicate this dissertation to my family: my parents, Ad and Gerda Oostveen for allowing me to pursue my dreams abroad; my husband Aron for his continued support; and our daughters Annemieke, Alexandra, and Angelieka, three happy little girls who remind me daily of the important things in life.

ACKNOWLEDGEMENTS

Pursuing a PhD is like running your first marathon in which you find yourself wondering several times how you will finish the course, but thanks to encouragement from supporters along the way, and trust in all your hard work, you find yourself crossing the finish line after all. I was only able to complete this academic run thanks to the support and advice from many people along the way.

First of all, I would like to give sincere thanks to my advisor Charles Colgan who offered me so much advice, and patiently supervised and guided me in the right direction. His help, critical comments, and continuous support made it possible for me to complete my dissertation successfully. Special thanks also go to my committee members Richard Barringer and Jack Kartez for their time, advice, and valuable feedback, which greatly improved the dissertation. I would also like to express my appreciation to Sharon Timberlake for her editing assistance during all the stages of my research. Her guidance enabled me to present my work more fluently and clearly.

My sincere thanks go to my friend and co-worker Ruthanne Spence for her help and support during the months I was balancing the demands of work with the completion of my doctoral research.

I would also like to express my appreciation to all those people who have offered me their time and insight during the data collection process. This research would not have been possible without the kindness of all those individuals responding to the survey, and those willing to be interviewed.

ABSTRACT

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Thesis Advisor: Dr. Charles S. Colgan

An Abstract of the Dissertation Presented
in Partial Fulfillment of the Requirements for the
Degree of Doctor in Philosophy
in Public Policy
February, 2014

This research investigates the participation of marinas in the New England region of the United States, and in the Netherlands in environmental self-regulation, while examining specific sources of influence on the decision to self-regulate. Environmental agencies in both countries have implemented industry specific self-regulatory programs, the Clean Marina Program, and the Blue Flag Program, to encourage marinas to implement best management practices, and reduce the environmental impacts of nonpoint source pollution. While traditional economic theory asserts that taking on environmental responsibilities beyond those required by law will jeopardize a business' economic performance, many small businesses have chosen to self-regulate.

This study employs a comparative framework involving two different national systems of environmental regulation, which permits investigation of the decision to self-regulate. More specifically, it aims to determine the influence of personal values, economic advantage and regulatory pressure, as well as the influence of broader factors such as institutional and legal

structures on the decision to self-regulate by applying multiple research methods including surveys, interviews, and in-depth case studies.

Survey results reveal that personal values have a strong influence on the decisions to self-regulate. Personal interviews and case-studies confirmed the positive influence of personal values. The analysis further suggests that the opportunity for economic advantage is not an influence on the decision to self-regulate. However, the qualitative interview and case-study data provide conflicting evidence. Qualitative data and the relative frequencies indicate that regulatory pressure may be of influence, but the statistical analysis does not confirm that association.

Findings suggest that the location of a marina influences the roles personal values and the opportunity of economic advantage play in the decision to self-regulate. New England marinas seem relative more likely than Dutch marinas to select personal values as a motive to self-regulate. Neither Dutch nor New England marinas consider economic advantage a motive to self-regulate, and the role of regulatory pressure appears, surprisingly, to be similar among marinas in both countries. In both locations, approximately 70 percent of marinas identify regulatory pressure as an influence on the decision to self-regulate.

Statistical tests for size effects show that the size of a marina does not appear important for the decision to self-regulate, but the number of years the marina has been in business does. Mature marinas, those which have been in business for more than 15 years, are more likely to self-regulate than marinas that have not been in business that long.

In sum, findings suggest that for both locations the decision to self-regulate is predominantly influenced by personal values. The influence of economic advantage, regulatory pressure, and self-regulation are not absolute, as different data sources revealed

different findings. Understanding the variation in these findings for the locations examined may assist policymakers, public agencies and other entities responsible for the design and implementation of environmental regulatory initiatives with further development of local self-regulatory initiatives. In addition, findings highlight the importance of marine trade associations and the influence of environmental regulatory regimes on the decision to self-regulate.

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LIST OF ACRONYMS

ANWB	Algemene Nederlandse Wegenbond Dutch National Agency for Tourism and Recreation
ANOVA	Analysis of Variance
BMP	Best Management Practices
CWA	Clean Water Act
CZMARA	Coastal Zone Management Act Reauthorization Amendments
CZMA	Coastal Zone Management Act
DEP	Maine Department of Environmental Protection
FEE	Foundation for Environmental Education
KvK	Kamer van Koophandel National Chamber of Commerce
MTA	Marine Trade Association
NEPI	National Environmental Policy Instrument
NEPP	National Environmental Policy Plan
NEPPS	National Environmental Performance Partnership System
NGO	Nongovernmental Organization
NPDES	National Pollutant Discharge Elimination System
NPS	Nonpoint Source
PS	Point Source
RIZA	Rijksinstituut voor Intergraal Zoetwaterbeheer en Afvalwaterbehandeling Institute for Inland Water Management and Waste Water Treatment
SPCC	Federal Spill Prevention, Control and Countermeasure Plan
TRI	Toxic Release Inventory
VPP	Voluntary Partnership Program

VROM	Volkshuisvestiging Ruimtelijke Ordening and Milieu Ministry of Housing, Spatial Planning and the Environment
USEPA	United States Environmental Protection Agency
USSBA	United States Small Business Administration
WVO	Wet Verontreiniging Oppervlaktewater Surface Water Pollution Act
WM	Wet Milieubeheer Environmental Management Act

I. RESEARCH BACKGROUND

Introduction

Traditionally, government has enacted environmental policies to respond to increased public concern for environmental quality using a combination of command and control and market-based policy approaches. The command and control strategy employs uniform standards and is considered a static one-model-fits-all approach; in the market-based model, government provides businesses with more flexibility by using economic incentives to reward good environmental performance and disincentives for firms continuing to contribute to environmental degradation. In the 1970s and 1980s many developed nations relied upon the command and control approach (Karamanos, 2001). It was not till the late 1980s that the first market-based policy instruments were introduced.

During the 1990s, businesses started to look for alternative strategies to protect the environment. As a result, over the last two decades businesses have voluntarily implemented an array of environmental measures beyond those required by law. Those voluntary environmental actions have been taken either independently or through participation in self-regulatory programs specifically designed for an industry. Voluntary programs have gained momentum among public agencies for a number of reasons, including their ability to supplement current environmental regulation without imposing additional financial burden on the agency by reducing monitoring and enforcement costs. They can also result in increased environmental performance, as well as new policy ideas (Shin and Chen, 2003).

Self-regulation is also believed to provide businesses the opportunity to save costs through savings associated with waste disposal and or technological improvements. In addition, self-regulation may minimize a business's external pressures, such as the risk of more stringent regulation in the future. Lenox (2006) describes self-regulation as a potent strategy for businesses seeking to forestall government regulation, while providing a positive image to customers and the community.

Traditional economic theory argues that the costs of reducing negative externalities, such as environmental harm, have a negative impact on business profits (Altman, 2001). In a perfectly competitive market with environmental externalities as the only departure from the assumption of perfect competition, economic theory would hold true, and businesses undeniably would not be able to survive after voluntarily assuming environmental responsibilities (Reinhardt, 1999). However, today's markets are characterized by multiple externalities, and businesses are therefore more likely to survive when internalizing environmental obligations such as those resulting from the decision to self-regulate.

With the rise of self-regulation since the mid to late 1990s, the motives underlying that business decision have become a popular research focus. Research studies show that the first self-regulatory efforts were initiated by business owners whose personal values motivated them to take responsibility for the environmental impact their business caused, e.g. minimizing the environmental impact of day-to-day activities through creative and innovative approaches designed to reduce the waste stream.

Few businesses realized there was a competitive advantage to be gained by differentiating their companies based upon environmental performance. In addition to the

personal competence of a business owner, the type and complexity of the business strongly influenced environmental awareness (Hannon and Atherton, 1998). It was not then generally understood that being environmentally proactive could attract new customers and/or permit a price increase for premium environmentally friendly services, especially given the growing tide of "green" consumers willing to pay extra for environmentally friendly products (Lyon and Maxwell, 2007). However, self-regulation has been shown to benefit both the environment and a business (Porter and Van der Linde, 1995, Elkington, 1994). Furthermore, the workings of a political system and a business's experiences with existing environmental regulations may also contribute to the decision to self-regulate as businesses seek to avoid potential environmental conflicts and reduce regulatory pressures resulting from on-site inspections and enforcement.

The environmental performance of small firms is worth investigating for multiple reasons. While most studies focus on large businesses and their environmental performance, it is estimated that the cumulative environmental contribution of the small business sector may be significant, and should not be underestimated (Tilley, 1999). In addition, small businesses are a vital and important part of the overall economy serving as a source of job creation and innovation and competition in the market (Simpson, Taylor and Barker, 2004). Stokes and Rutherfoord (2000) found that small businesses tend to assume that their environmental impact is minimal compared to that of large businesses, and consequently, environmental strategies of small businesses tend to be more reactive than proactive. Furthermore, solutions to environmental problems implemented by large firms are often not replicable by small firms due to size and resource limitations. Finally, Welch and White (1981) noted that small firms often lack

access to resources that larger firms may have to manage environmental issues. Therefore the impact of business size should be taken into consideration when examining self-regulation and participation in self-regulatory programs.

Recognizing the above challenges for small businesses, this study examines the motives of small businesses to self-regulate and addresses the question of whether businesses self-regulate for personal, economic or regulatory reasons or a combination thereof and whether these motives differ between Dutch and New England firms.

In this study, the concept of "self-regulation" will be defined as environmental initiatives within small firms not mandated by law. In the literature, that practice is variously referred to as "going green" (Miller, Francisco Szekely, 1995), "beyond compliance" (Fiorino, D. 2001, Canning, 1999), "environmental agreements" (Glasbergen, 1998a), "voluntary agreements" (Makuch, 2003, Hansen, 1996), "voluntary environmental agreements" (Lyon and Maxwell, 1999a, Karamanos, 2001), and "voluntary environmental initiatives" (Labatt and Maclaren, 1998, Christmann and Taylor, 2002).

Small sized marinas in New England and the Netherlands have been selected for this study as they are located at the water's edge, where there is often no buffering of pollutants coming from boats or the activities of the marina facility (e.g., boat washing, haul maintenance and repair). Pollutants may be transported into nearby waters by runoff from boat maintenance areas and/or surfaces such as parking lots (USEPA, 2005a). The United States Small Business Administration (USSBA) defines a small business as one that is independently owned and operated and not dominant in its field of operation. It also states that the definition of a small business varies by industry (USSBA, 2008).

Marinas are defined as facilities engaged in docking and/or storage of recreational watercraft, with or without one or more related activities, such as boat cleaning, retailing fuel and marine supplies, or repair and maintenance services (United States Census Bureau, 1997). Boats at marinas are predominantly recreational, although a few commercial boats such as charter boats and fishing vessels may be found.

The marina industries serving New England and the Netherlands are similar in many ways. Both operate in large coastal and freshwater areas with marina services for local residents and visitors. In addition, there are similar climate patterns in both countries resulting in an active boating season from late spring to early fall and storage and maintenance activities during the remainder of the year. In both areas, marina operators have the choice to participate in industry specific environmental self-regulatory programs: the Clean Marina Program in the United States and the Blue Flag Program in the Netherlands. The goal of those programs is to reduce pollution at its source by providing guidelines on how to implement best management practices (BMPs) (Dolgen, Alpaslan, Serifoglu, 2003). Both programs were developed through collaborative processes and exchange of resources between public entities (marina industries), private entities (regulators), and/or nongovernmental organizations (trade associations, environmental advisory groups).

The Clean Marina Program is designed to help reduce both point source (PS) and nonpoint source pollution (NPS) pollution by encouraging marinas to adopt BMP. The United States Environmental Protection Agency (USEPA) published a national guide to provide states with technical assistance on BMP and the reduction of NPS pollution from marina and boating activities (USEPA, 2001). While Clean Marina Programs activities

may vary slightly from state to state, all programs offer information, guidance, and technical assistance to marina operators on BMPs listed in the USEPA's national guide (NOAA, 2008).

The key focus of the Blue Flag Program is to improve water quality through better environmental management and implementation of BMPs targeting wastewater management and coastal planning and protection by marinas (Blue Flag, 2005). The concept of the Blue Flag was presented by the Foundation for Environmental Education (FEE), a nongovernmental organization located in Copenhagen, Denmark. Each country participating in the Blue Flag program has its own coordinator and administrative office. The local offices administer local programs and are responsible for Blue Flag applications, marina compliance inspections, and submission of local applications to the international Blue Flag office for final approval and Blue Flag certification.

This comparative study between small sized marinas in New England and the Netherlands explores the extent to which differing regulatory environmental regimes explain the empirical findings of this research study. The investigator's understanding of the different national cultures and ability to speak both languages fluently facilitated the research in both countries while ensuring that any discrepancies in the findings were examined in relation to their social and political setting.

Research Contribution

This study is designed to: (1) contribute to a better understanding of the decision to self-regulate among small businesses; (2) add to the existing literature regarding environmental self-regulation and small businesses; (3) increase awareness regarding the need for additional research on small businesses and environmental behavior and performance; and (4) provide valuable information to regulators and administrators

involved in the design and implementation of self-regulatory programs.

Research Overview

Marinas can self-regulate independently or through participation in an industry-wide initiative. This study examines marinas that self-regulate independently, marinas in the process of becoming certified by the Clean Marina or Blue Flag programs, and marinas certified by the Clean Marina or Blue Flag programs in an attempt to determine why some marinas decide to participate in the Clean Marina or Blue Flag program, and others decide to self-regulate independently or not at all.

Chapter Two provides an overview of existing environmental policy tools, as well as an introduction to self-regulation. An historical overview of the environmental regulatory regimes in the US and the Netherlands is provided in Chapter Three, along with an overview of the self-regulatory programs. Chapter Four presents the research methodology applied in this study, while the research analysis and findings are described in Chapter Five. Research conclusions are presented in Chapter Six as well as the policy implications of this research, study limitations, and directions for future research.

II. LITERATURE REVIEW

Introduction to Environmental Policy Instruments

During the industrial age, development sites were often chosen along major transportation routes due to the ease of access by railways, boats, and vehicles accompanied by the availability of water and opportunities for the discharge of wastewater. As industrial activities continued to expand and nearby urban areas grew, pollution generated by industrial operators increased, and citizens called for action. In the decades that followed, governments enacted environmental policies in response to increased public concern and the demand for action to slow further environmental degradation.

In recent years, policymakers have been presented with a wide range of options and policy tools designed to address environmental issues or improve environmental quality. Many factors affect the decision to adopt traditional environmental policy tools i.e. command and control approaches that involve enforcement of direct regulations or market-based regulations which use economic incentives (Harrington and Morgenstern, 2004). In his comparative study, Dunbar (2005) found that policy development and instrument adoption are largely determined by a country's institutional structures and practices. A national governmental makeup, regulatory infrastructure, complexity of the environmental problem, and societal features may all influence policymakers' choices for environmental regulation. Thus, some countries may benefit from a command and control approach, while others may need to apply economic incentives depending upon economic and societal factors and other unique circumstances within the nation.

Command and Control

In the 1970s a large number of environmental regulations were introduced, primarily structured as command and control, the regulatory approach that includes ambient standards, emission standards, or technology requirements. An ambient standard indicates the concentration of a pollutant that can be present within a specific environment. The maximum allowable contaminant levels are established to protect human health while offering a margin of safety. Difficulties most commonly arise when determining which standards should be applied, and whether there is to be uniformity in their application. Disagreement tends to occur between environmental and/or citizens groups and governmental agencies when determining the levels of allowable contaminants and the means by which they are to be achieved. The creation of standards is challenging. Due to differences in threshold levels and varying reactions to pollutants, established standards may be safe for some individuals and habitats but not for others. In addition, the achievement of optimal environmental standards may be hindered by variations in population densities, local economic conditions, and prevailing local values (Elazegui, 2002).

Emission standards, either performance-based or technology-based, establish the maximum level of permitted noxious emissions. Performance-based standards specify allowable emission limits for businesses, while technology-based standards require the selection and application of the "best available technology." Technology standards require businesses–regardless of size and performance–to use specific techniques or equipment to control pollution. While studies have shown that technology standards can be effective in limiting emissions, the relatively high costs to business often present an

obstacle to their implementation. Emission standards may work for some businesses, but not with others (Stavins and Whitehead, 1992). In addition, requiring businesses to invest and commit to one accepted method of compliance may limit the business's ability to make short-term changes or pursue the development of alternative technologies that could result in a greater level of pollution control.

Despite the aversion to emission standards and other command and control policy tools among businesses, they are popular tools for governments. They create a basic and generally uniform environmental regulatory framework, which in times of immediate environmental threat has been shown to bring about results quickly and effectively (Schmidheiny, 1992). Furthermore, command and control tools include specific emission standards and identifiable pollution levels, which, because standards are either met or not, are relatively easy to monitor. Elazegui (2002) concluded that the enforcement of standards is the responsibility of federal, state or local authorities although insufficient resources and funding for enforcement may lead to a weakening of controls and sanctions and the undermining of intent. In addition, policymakers must consider the cost of the fines for noncompliance. The amount cannot be so low that offenders are given the option to merely pay the fine and continue polluting. And while high fines may encourage businesses to comply with existing regulations, they may also create the risk of authorities becoming dependent on the fines as a source of revenue.

Market-based Incentives

As an alternative or, perhaps, a supplement to the command and control approach, market-based policy interventions were introduced in the late 1980s to increase the efficiency and cost-effectiveness of environmental policy by reducing administrative,

monitoring and enforcement costs. The market-based approach places emphasis on flexibility, simplicity, and the capabilities of the private sector by providing incentives for continued environmental improvements and, thus, moving from pollution control to pollution prevention (Schmidheiny, 1992). Market-based policy instruments include tradable pollution quotas, taxes, subsidies and marketable permits, which allow for the reallocation of emissions or production rights among firms. Tradable quotas enable producers that successfully reduce pollution levels to not only pay less in pollution taxes, but, in addition, the opportunity to sell their unused pollution quotas to producers in need of higher quotas.

Economic disincentives were also introduced, such as the imposition of taxes on firms that continue to pollute and contribute to environmental degradation. Pigou (1938) made the case for environmental taxation decades ago. He suggested that if pollution exposes society to external costs, those costs should be internalized through the imposition of a tax on the pollutants. Such a tax would result in the optimal allocation of resources as well as the optimal level of pollution. An environmental tax may encourage producers to internalize the cost of their pollution and stimulate innovation, as every new technology that resulted in reduced emissions would also result in reduced taxes. Pigou (1938) further theorized that a tax should be set at a level high enough to reduce pollution to a point where the marginal benefits of pollution reduction equaled the marginal costs of the abatement measures.

Wiedenbaum (1978) argued that market based environmental policy tools would provide an incentive for business to better control their waste stream, since they would have a choice to either pay additional tax for polluting or clean up their production

practices and save on the cost of pollution. Stavins (2003) concluded that the performance of market-based instruments for environmental protection provides compelling evidence that this approach has the ability to achieve major cost savings for government and businesses, while simultaneously accomplishing environmental objectives.

Other Incentives to Encourage Pollution Prevention

Policymakers seeking to promote responsible environmental behavior among businesses may opt to employ labeling and disclosure policies. Labels help consumers identify products and or services with reduced environmental impacts, and are effective in two ways. First, they provide information to consumers allowing them to change their behavior with respect to the selection of more environmental friendly products and or services and, secondly, they may encourage businesses to use more environmentally friendly products and materials in the production and delivery of goods and services (Weiss, 2002).

The disclosure of environmental information to the public, also referred to as "the right to know," originated in the United States with creation of the Toxic Release Inventory (TRI) in 1987 (Van den Burg, 2004) and was based upon the Freedom of Information Act, which secures citizens' rights to access public records (Karkkainen, 2001). Disclosure of environmental information provides the public with actual emission data, which can be used to assess potential immediate and long-term environmental and health risks. Environmental information is no longer restricted to politicians, scientists, and businesses (Van den Burg, 2004).

Environmental disclosure informs the media, communities, and the general public about environmental performance and may encourage businesses to voluntarily reduce hazardous emissions to avoid negative publicity and possible lawsuits and other actions by environmental or citizen groups (Lynn and Kartez, 1994).

In the United States, disclosure of environmental information is largely used to empower society by enabling individual citizens, citizen groups, and NGOs to put pressure on businesses and industry to improve environmental conditions. In the Netherlands, environmental concerns and citizens' opinions are generally represented through NGOs or citizen groups, which are typically invited to take part in the early discussion of a consensus-oriented policymaking process. The emphasis of disclosure is on improving industrial procedures and forecasting models and strengthening the environmental policymaking process to make better predictions regarding potential environmental impacts (Van den Burg, 2004).

In 2004 the Netherlands ratified The Aarhus Treaty drafted by the United Nations Economic Commission for Europe (UNECE) in 1998. The treaty seeks to promote greater transparency and accountability among governmental bodies by guaranteeing public rights of access to environmental information, encouraging public involvement in environmental decision-making, and requiring the establishment of procedures enabling the public to challenge environmental decisions (UNECE, 2009). As a result, access to information on the annual emissions of industrial facilities in the Netherlands may be found on a digitally accessible database called the European Pollutant Emission Register (EPER).

Howes (2001) concludes that disclosure of environmental information through publicly available records and databases can lead to an environmental self-evaluation by businesses and industries, which, in turn, may result in more proactive environmental strategies.

Introduction to Self-Regulation

The traditional environmental pollution control strategies of command and control and market-based incentives have been criticized primarily for their cost, and for their failure to achieve stated environmental goals (Stoeckl, 2004). During the 1990s, businesses voluntarily began to take part in finding solutions to environmental problems outside existing legal requirements and mandates. Those businesses started to explore self-regulation as a means to improve their environmental performance while maintaining or improving their economic performance. Self-regulation facilitates the union of technology and business know-how to create more efficient, long-term solutions to environmental problems while reducing regulatory and associated cost inefficiencies of the traditional environmental policy tools (Makuch, 2003).

With self-regulation, resources from government, business, and environmental advisory groups are combined. Government is no longer the only institution tackling environmental problems. Theorists have stated that self-regulation should be used to complement existing environmental policy tools, command and control models, and economic instruments but should never replace current law (Glasbergen, 1998b; Makuch, 2003, Prieur, 1998).

There is no universally agreed upon definition for environmental self-regulation, or consensus concerning what self-regulation should look like. Some self-regulatory

initiatives focus on implementing BMPs, while others include environmental performance goals or aim at specific regulatory compliance. While all of the terms have slightly different definitions, each is characterized by its exclusion from the legally required set of environmental policies. Such environmental action is defined as voluntary, and businesses have the option to act independently or, in some instances, in a semi-formal program specifically designed for an industry, which may provide credibility and exposure.

Self-regulatory programs may result from collaborative efforts between private and public entities, including environmental advocacy groups, designed to achieve feasible mutually agreed upon environmental improvements. Glasbergen (1998b) indicates that self-regulatory initiatives conform to a new philosophy of governance that can be viewed as a "gentlemen's agreement" in which business has the opportunity to customize solutions to minimize environmental impacts, and in which regulatory issues such as implementation procedures, performance monitoring, evaluation and sanctions of non-compliance are all to be negotiated.

The voluntary nature of self-regulatory initiatives is also identified as a weakness. For example, Karamanos (2001) notes that if participation in self-regulatory initiatives is not legally required or binding, businesses can decide to no longer participate and terminate a self-regulatory agreement without any further consequences or penalties. Glasbergen (1998b), however, stresses that voluntarism is a key element in self-regulatory programs where the emphasis is on the moral commitments businesses make rather than the law.

Supporters of self-regulatory programs have identified various benefits including improved operational efficiencies, which may result in lower production and process costs, increased innovation, positive publicity, and additional access to technical information and/ expertise (Arora and Carson, 1995, Lyon and Maxwell, 1999a, Nash, 2000, Darnall et. al, 2003). Critics challenge the benefits and impact of self-regulatory programs, suggesting that businesses participate in order to prevent future regulation or cover up poor environmental performance. Critics further argue that self-regulatory program rules and requirements are not strictly enforced, and no fines are applied for noncompliance (Welch, Mazur and Bretschneider, 2000, Arora and Carson, 1995).

In sum, self-regulation allows businesses to explore alternative measures to reduce their environmental impact and should not be viewed as a substitute policy tool but rather as complementary to the existing environmental policy instruments such as command and control and market-based initiatives. Motives for self-regulation stem from a variety of sources including the personal desire to do the "right thing," opportunities for economic advantage, and the reduction of future regulatory pressure (Maxwell, Lyon and Hackett, 1998; Segerson and Micelli, 1998, Videras and Alberini, 2000, Welch, et al., 2000).

Small Businesses and the Decision to Self-Regulate

The preponderance of the scholarly literature related to self-regulation over the past decade has focused on large, multinational corporations rather than small businesses (Fletcher, 2006). Nevertheless, small businesses are critical to the economic strength of the nation representing nearly half of all economic productivity (USSBA, 2008). When compared to larger firms, small businesses tend to assume that their environmental

impact is minimal and their access to resources is limited, i.e. the ability to hire environmental experts, and time to commit to implementing environmental changes. However, the cumulative potential environmental impact of small firms should not be underestimated.

Fletcher (2006) argues that for businesses to undertake self-regulation it must be perceived as an initiative with direct benefits and financial rewards in conformance with the traditional economic theory of the firm. Traditional economic theory argues that the costs of reducing negative externalities such as environmental harm have a negative impact on business profits (Altman, 2001). In a perfectly competitive market situation with environmental externalities as the only departure from the assumption of perfect competition, economic theory would hold true. However, today's markets are seldom perfect due to various externalities.

The first self-regulatory initiatives took place mostly among larger businesses that have access to more resources than smaller organizations (Fletcher 2006, Tilley 1999, Welch et al, 2000). While larger businesses often have the ability to hire an environmental manager or consultant to attend to environmental and self-regulatory issues, small businesses often have difficulty finding time and adequate resources to address and act upon environmental matters (Williamson and Lynch-wood, 2001).

Studies show that large businesses are motivated to engage in environmental self-regulation for multiple reasons including the opportunity to differentiate and gain competitive advantage by offering environmentally friendly products and services, the opportunity to save costs by applying improved technologies (Porter and van der Linde, 1995, Barrett, 1991, Gunningham and Rees, 1997 and Sinclair, 1997), and the chance of

minimizing the risk of future regulation (Welch et al., 2000, Videras, 2002). Research indicates that the environmental solutions and strategies of large businesses do not necessarily work for small businesses due to differences in management styles, organizational structure and the personal characteristics of owner-managers (Dandridge, 1979). As Tilley (1999) summarizes "small firms are not little big firms" which need their own unique solutions to the environmental challenge they face. The literature on small businesses and self-regulation indicates that the adoption of self-regulatory practices by small businesses is driven by a combination of the business owner's personal values, the opportunity for economic advantage, and avoidance of regulatory pressure. This study will discuss and analyze if and to what extent each of these sources influences the decision to self-regulate.

Personal Values

Business culture has gone through a period of change in which business ethics have become a high priority as businesses are expected "to do the right thing" for the environment (Vickers, 2005, p. 31). Environmental actions depend upon the personal values of management and employees, as well as the culture of the organization (Welch et al., 2000). The influence of personal values and beliefs of management are among the variables commonly explored when examining business ethics and environmental strategies (Singer, 2001, Kotey and Meredith, 1997, Nakamura, Tkahashi, and Vertinsky 2001).

In a study of the relationship between a business owner's personal characteristics and business strategies, Kotey and Meredith (1997) found that personal values and goals are indistinguishable from business strategies. The authors concluded that personal values

influence business decisions and behavior, and small business owners appear to have a greater influence on business decisions than their counterparts in large businesses. Furthermore, the higher level of flexibility and simplicity in the management structure of small businesses may enhance their ability to implement environmentally friendly practices (Drake, Purvis and Hunt, 2004). On the other hand, while small business owners often hold strong environmental values, their limited access to resources may hinder the integration of environmental solutions into their business practices.

Jenkins (1998) and Johnson (1998) examined the influence of moral issues, and business ethics on a firm's decision to self-regulate. Both researchers found that an ethical base is key to effective implementation of environmental self-regulation. However, Jenkins (1998) asserts that such an ethical base is dependent upon cultural heritage, while Johnson (1998) found it to be a reflection of consumerism, existing federal policies, and the market view of the firm.

Economic Sources

A business's environmental practice may become an integral part of its business strategy, with the ultimate goal of increasing financial results through environmental performance. In an in-depth look at the USEPA's 33/50 program designed to encourage companies to apply pollution prevention practices and reduce by 50 percent, the release and transfer of 17 priority chemicals over a period of seven years, Arora and Carson (1995) drew some conclusions regarding the economic motives behind voluntary environmental action (USEPA, 2011a). Their study revealed that businesses would participate in the 33/50 programs as long as there was some return for their effort. While many business owners value a clean environment, their environmental aspirations often

differ from their environmental behavior due to lack of time, staff, and access to environmental information and financial resources (Tilley 1999). For small business owners, the uncertainty regarding the costs and returns of their environmental commitment may also limit their actions.

Palmer, Oates and Portney (1995) discuss the cost-benefit component associated with environmental self-regulation, and emphasize the importance of a thorough assessment of the impact of environmental self-regulation on profitability. While many studies highlight the advantages of self-regulation, the authors indicate that those studies lack an analysis of direct and indirect costs associated with environmental self-regulation. Palmer et al. (1995) argue that it is irrational to assume that there are no tradeoffs and costs associated with environmental regulations. Furthermore, Joshi, Krishnan, & Lave, (2001) point to the separation between visible costs and hidden costs and conclude that inappropriate identification of costs affects the enthusiasm of businesses to engage in self-regulation. That is especially true for small businesses for which the availability of financial and technical assistance appears to be very important (Videras, 2002).

The impact of self-regulation on a business's bottom line is frequently explored in the self-regulation literature (Fiorino, 2006; Weinberg, 1998, Gallarotti, 1995, Bergmann, Borckmann, and Rennings, 1998). Porter and Van der Linde (1995) link self-regulation to increased economic performance attributing it to the ability of some business owners to see beyond the short-term costs of addressing pollution, and to recognize the potential of long-term economic gains through the implementation of environmental improvements. Innovative pollution prevention measures offer an opportunity for reduced costs in the form of reduced quantities of inputs and increased revenues through the capture of price

premiums for their outputs (Lyon and Maxwell, 1999b; Reinhardt, 1999).

Marketing based on environmental performance has become more important, as consumers' environmental awareness has increased over the last decade. Market research shows a demand for green products and environmentally friendly services, along with a willingness among consumers to pay a modest premium or environmental surcharge (Ottman, 1993, Salzman 1991). That may result in a win-win situation, in which businesses create strategies that benefit both the environment and a company (Porter and Van der Linde, 1995, Elkington, 1994).

Environmental self-regulation enables businesses to alert consumers about their day-to-day environmental challenges, while sharing their commitment to improve environmental performance. In markets where differences between services offered are narrow or easily replicated, a business's environmental performance may act as a tiebreaker for consumers. Businesses that show an increased environmental performance may be more likely to maintain and or expand their customer base.

A low percentage of small businesses engage in environmental self-regulation or explore the opportunity to create a competitive advantage through environmental self-regulation, which may be due to the fact that business leaders mostly look at the short-term cost instead of the potential long-term gains of self-regulation. Porter and Van der Linden (1995) concluded that businesses are not always aware of available technologies designed to increase their efficiency and profitability until the moment they are forced to explore other options due to more stringent environmental regulations. In their study of small business operators, Bessera and Miller (2001) note that environmental self-regulation is considered to be an opportunity to differentiate a business, and gain an

advantage over immediate competitors. Environmentally bold and proactive businesses that seek the opportunity to improve profitability by leading the environmental trend may gain market share over their competitors (Cook and Barclay, 2002).

Businesses that view their environmental approach as an important strategy in their overall performance are more likely to self-regulate. Additionally, improving an organization's environmental image within the community, and strengthening working relationships with public environmental agencies, may benefit the overall success of the business.

Regulatory Sources

Regulatory pressure and anticipated future regulations may motivate businesses to improve their environmental performance and engage in self-regulation (Welch et al., 2000). Businesses with poor environmental performance may be interested in environmental self-regulation as a means to relieve existing regulatory pressure, and to gain access to resources to assist them with compliance (Videras, 2002). Self-regulation encourages businesses to work with environmental agencies, learn about upcoming regulations, and obtain access to industry specific information essential for the formation of future environmental actions and policies.

Self-regulation is seen by some as likely to be most valuable in industries or locations subject to strict regulations (Delmas and Terlaak, 2001, Maxwell et al 1998, Segerson and Micelli, 1998). Businesses in such industries that demonstrate a willingness to voluntarily prevent pollution may be given permission to reach defined environmental goals at a specific point in time through their own means, resulting in regulatory flexibility while meeting environmental standards that exceed regulatory requirements.

Summary of the Literature Reviewed for this Study

An understanding of a business' motivations to self-regulate adds to the basic theory of the firm by revealing why some firms seek to achieve environmental goals that exceed existing regulatory requirements, and whether environmental self-regulation is a potential source of economic advantage. In addition, insight into motives may encourage policymakers to explore more creative regulatory initiatives that would allow businesses more flexibility in their efforts to maximize environmental performance.

This study focuses on small businesses as most of the research on self-regulation has focused on large businesses. While individual small business may have minimal impact on their immediate environment and the economy, their cumulative impact should not be underestimated (Fletcher, 2006).

This study seeks to answer the following three questions:

- Do small businesses self-regulate as a result of personal values?
- Do small businesses self-regulate to gain economic advantage?
- Do small businesses self-regulate to reduce future regulatory pressure?

In addition, the barriers a small business experiences when attempting self-regulation should not be ignored when examining its decision to self-regulate, and, therefore, the implications related to business size, and numbers of years in business are also taken into consideration in this research.

The self-regulatory movement follows decades of national and state regulations implemented to manage environmental quality. In both countries examined for this study, the traditional command and control tool dominates environmental policy while market-based incentives serve as supplementary tools. However, the adoption of environmental

standards beyond compliance has become more popular among businesses in both areas, and it is necessary to examine why. The presence of the self-regulatory movement among small businesses in both the United States and the Netherlands is unique and worth exploring. The following chapter provides a review of the legal frameworks in both countries relevant to environmental management, specifically water quality.

III. THE REGULATORY ENVIRONMENT

The regulatory environments in the United States and the Netherlands provide context for this research. In the United States, the Small Business Act defines a small business as one that is independently owned and operated and not dominant in its field of operation. The definition of a small business varies from industry to industry and is based on a table of "size standards" created by the United States Small Business Administration (USSBA). The size standard is stated either as the number of employees or the average annual receipts of a business. For a marina to qualify as a small business the size standard is an average annual receipt of seven million dollars or less (USSBA, 2008). In the Netherlands, a small business is defined as a business that is independently owned and operated, does not have more than four locations, and employs fewer than fifty people total (KvK, 2008).

The marina industry has been selected for this study for multiple reasons including: (1) in both the United States and the Netherlands, self-regulatory programs are available for marinas, and the programs are designed to address environmental issues associated with the various activities at marina facilities, specifically nonpoint source (NSP) pollution, which has been a challenge for small businesses to address; and (2) marinas are highly visible, located at the water's edge, and therefore, more likely to be held accountable for their negative environmental impact.

The comparison of marinas in the New England area of the United States with those of the Netherlands may prove both useful and interesting because American policy formation and implementation, and policy responses for businesses, differ from those of

the Dutch. Kelman (1981) and Downing and Hanf (1982) attribute the difference in policy formation, implementation, and pollution control outcomes to the values, traditions, and political institutions found in the two nations. Although both countries represent Western-style democracies, businesses in the Unites States and the Netherlands operate under different regulatory frameworks – a difference characterized by consultation and consensus building in Dutch political culture versus adversarial pluralism in the United States (Arentsen, Bressers, and O'Toole, 2000).

Historical Overview of Environmental Regulations in the United States

In the early 1900s, federal statutes were adopted to regulate the quality of food, drinking water, and sewage treatment. The United States Public Health Service managed most of the early work associated with both water quality and air quality in workplaces. Its standards for water and air formed the foundation for the first water and air programs of the 1950s and 1960s. Federal programs were implemented to better manage air and water pollution, and included standards that defined "safe" levels of various pollutants (Lewis, 1988). The Federal Water Quality Administration and National Air Pollution Control Administration were formed in the mid-960s as part of the service, which focused more on health issues than environmental problems, and intervened only by state invitation.

In 1970, the United States established the Environmental Protection Agency, which centralized several federal programs concerned with diverse elements of the environment (Ruckelshaus, 1988). During the 1970s and 1980s, the USEPA created national environmental standards. However, responsibility for implementation and

enforcement of those standards was passed on to individual states (Scheberle, 1997) to allow for the development of environmental programs that were appropriate for local circumstances. Currently, environmental issues are managed through a federal system, a multi-tiered governmental (federal, state and local) arrangement in which the power to manage the environment is shared between national and state governments (Watts, 1998). Within a multi-tiered government structure, i.e., federal, state, and local, each tier has its own level of authority over a defined geographic area, which may result in multiple sources of regulation.

Rabe (1997) expressed his concern with the federal system that has resulted in uneven environmental performances, regulatory rigor, monitoring, and reporting of environmental progress across the individual states, and observed that while some states consider federal regulations as strict minimum standards, others view them more as guidelines, which they may or may not choose to meet. Differences in the interpretation of federal regulation have resulted in considerable variations in environmental performance among states. Yandle (1989) concluded that the difference in environmental performance across states may also be due to differences in politics, values, and economic prosperity across regions, which often result in different responses to the issues of environmental quality.

With the implementation of traditional regulatory tools, government has been able to reduce the level of point source pollutants significantly. However, a challenge remains to reduce pollution levels even further. Nonpoint source pollution, which primarily consists of oil, chemicals, fertilizers, pesticides, sediment, road salt, bacteria and nutrients, is directly related to land-use, and occurs around agricultural land, urban and

industrial areas, highways and roads, boat docks and construction sites (Bowman, 2009). As the runoff moves, it picks up and carries away more natural, residential and industrial pollutants, finally depositing them into lakes, rivers, wetlands, coastal waters, and aquifers (EPA, 2008). NPS pollution can be better managed by applying best management practices, which are measures to control a pollutant at its source or intercept it before it is delivered to a receiving water body.

Water Quality Regulations in the United States

One of the first pieces of legislation enacted to manage water pollution, the Water Pollution Control Act (WPCA) of 1948, was introduced to assist local authorities with the construction of sewage treatment plants (Vig and Kraft, 1997). In 1972, amendments to the WPCA were made to include a technology-based discharge permitting process, in which permits were issued based on best practicable technology (BPT) and best available technology (BAT). The law became known as the Clean Water Act (CWA). In 1977, the CWA was further amended to include BAT-procedures designed to better control toxic pollutants and best conventional technology (BCT) to curb conventional pollutants (Field, 1997). The CWA also established minimum water-quality standards and regulations regarding wastewater directly discharged into waters, known as point source (PS) pollution.

Under section 402 of the CWA, the USEPA introduced the National Pollutant Discharge Elimination System (NPDES), a program designed to regulate PS pollution through a permitting system. The NPDES requires dischargers such as businesses and municipalities to apply for a permit if they discharge directly into surface waters. The permitting process in most states is the responsibility of the state's department of

environmental protection.

While the 1972 CWA focused mainly on managing PS pollution, it also required states to develop best management practices to control NPS pollution. However, not until the late 1980s did efforts to manage sources such as storm water, agricultural runoff and runoff from facilities like marinas begin. In 1987, amendments to the CWA encouraged states to identify and report non-agricultural sources of nonpoint pollution and design plans to reduce its impact. While the CWA was implemented at the national level to regulate the discharge of PS and NPS pollution, states were ultimately responsible for establishing water quality standards for their waters.

Water quality standards consist of three elements. The first is designation of the main use of the body of water, e.g., drinking water, swimming, fishing, or water supply for agriculture. The second is the establishment of criteria or thresholds – maximum allowable levels of pollutants determined in order to protect fish and humans from exposure to levels of pollution that may cause adverse effects. The third element is an anti-degradation policy – a policy put in place to protect waters currently in degraded condition from further degradation (USEPA, 2002a).

However, some environmental issues cannot be fully addressed through regulation alone and require a more flexible and complementary approach, such as the USEPA's Voluntary Partnerships Program (VPP). That program is designed to assist businesses interested in increasing their environmental performance and benchmarking themselves against others in the industry (EPA, 2008). VPPs are collaborative agreements among governments, businesses and or organizations, in which businesses commit to actions that will reduce their environmental impact (Delmaas and Terlaak,

2001) and governments agree to be more flexible while recognizing the individual needs and circumstances of program participants (Darnall et al, 2003).

In 1991, the USEPA launched its first Voluntary Partnership Program, the 33/50 Program, which identified 17 high priority toxic chemicals and targeted them for ambitious reductions. The hallmark of the 33/50 Program was flexibility in the achievement of environmental goals, which encouraged businesses to apply new technologies and innovation to conserve resources and manage waste (USEPA 2002b). The VPP comprises categories such as air quality, waste management, agriculture, transportation, and water. Under each category, voluntary partnership programs may be established to encourage businesses to voluntarily reduce their environmental impacts (Darnall et al., 2003). Participation in voluntary programs may appeal to businesses looking to "go green" or "go beyond compliance," or those seeking to become environmental leaders. Others may adopt a voluntary environmental approach hoping to gain a competitive advantage. In addition, participation in VPPs can provide businesses access to government services and resources that may assist in their efforts to reduce their environmental impact and improve their environmental image (USEPA, 2002b).

The USEPA identifies the following benefits for businesses to participate in VPP:

- National reach and collaboration: through VPPs many collaborations are created at local, state, and or federal level among, for example, public agencies, trade associations, community groups, business and professional associations, universities, and other research institutions,
- Services and resources: most VPPs offer participants technical assistance, professional networking, public recognition, training, seminars,

guidebooks, toolkits, and environmental performance benchmarking through financial and environmental analysis tools,

- Benchmarking and recognition: a business's environmental performance and commitment will be benchmarked against similar businesses, and results will be communicated to various audiences, and
- Early credit and regulatory developments: through participation in a VPP, businesses can proactively address environmental problems before regulatory requirements may be implemented to address the environmental issue at hand. Because of USEPA's regulatory powers at the federal level it is able to inform and assist businesses with potential upcoming regulations.

Most VPPs include collaborations between environmental agencies and specific industry sectors. Industrial trade associations and/or environmental advisory groups are likely to be involved in the development of the partnership. By sponsoring a voluntary partnership, trade associations seek to address critical environmental issues affecting the industry, promote consistency among environmental practices, assist members with environmental improvements (Nash 2000), and reduce public scrutiny (King & Lenox, 2000).

Although participation in VPPs has increased over the years, only a small percentage of businesses participate in such programs. Even within the same industry, participation in VPP varies widely (Arora & Carson, 1995; DeCanio & Watkins, 1998). An explanation may be that businesses prefer to address environmental issues

independently, rather than work through formal self-regulatory programs such as VPPs. Furthermore, businesses may resist participation in VPPs fearing that their environmental impacts may become more visible to outsiders including the surrounding community, law enforcement, and environmental organizations.

The Coastal Nonpoint Pollution Control Program was established by Congress in 1990 under the Coastal Zone Management Act Reauthorization Amendments (CZMARA) and is administered by NOAA and the USEPA (Castellan, 2008). As part of the Coastal Nonpoint Pollution Control Program, the USEPA published a guidebook, "National Management Measures to Control Nonpoint Source Pollution from Marinas and Recreational Boating," designed to provide states with technical assistance regarding the reduction of NPS pollution generated by marinas and boating activities (USEPA, 2001). The book contains guidelines to help marina managers identify pollution sources, as well as BMPs that may offer solutions to the environmental issues at hand. Various states have designed and implemented their own self-regulatory programs for marinas with the use of the guide, and with assistance from other states with similar programs already in place.

The marina industry has been selected for this study in part because of the NPS pollution generated through the various activities that take place at marina facilities, including hull repair, engine maintenance and fueling. The marina activities, in combination with their close proximity the shore, increase the likelihood that pollutants will reach the water (MACZM, 2001).

Most of the New England states included in this study have adopted a voluntary self-regulatory program known as the Clean Marina Program. Some states have

incorporated a certification programs to recognize and pay tribute to marinas that exceed basic regulatory requirements. The certification process requires marinas to comply with all legal and regulatory standards, to meet a certain percentage of the BMPs outlined in the state's guidebook, and to pass an on-site inspection from a state representative. Once certified, marinas must annually confirm that they remain in compliance with program requirements and pass another on-site inspection.

A few states that do not provide formal Clean Marina certification programs have opted to adopt technical assistance programs based on existing environmental laws and regulations and designed to provide education and support to marina owners regarding the reduction of NPS pollution. Technical assistance programs offer reference guides, workshops, and technical resources to help marina operators understand and implement BMPs.

Each New England state has adopted a unique program designed to reduce NPS pollution at marina facilities, while taking into account the state's environmental conditions and needs, as well as existing business conditions. The following is a summary of the Clean Marina Program in each New England state.

> **Connecticut:** The state Department of Environmental Protection administers Connecticut's Clean Marina Program. Through the program, Connecticut DEP recognizes marinas, boatyards, and yacht clubs that go above and beyond regulatory compliance and certifies them as "Certified Clean Marinas."
>
> **Maine:** The Maine Marine Trade Association and the Maine Department of Environmental Protection administer the Clean Marina Program and certify facilities each year that successfully complete the verification visit. "Brightwork: A Best Management Practices Manual for Maine's Boatyards and Marinas," published by Maine Department of Environmental Protection functions as a manual for marinas joining the Clean Marina Program.
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> **Rhode Island:** The Rhode Island Sea Grant Program, at the University of Rhode Island Coastal Resources Center, published the "Environmental Guide for

Marinas: Controlling Nonpoint Source and Storm Water Pollution in Rhode Island, Best Management Practices for Marinas." The guide serves as reference for marinas seeking to abate NPS Pollution, and is used in Rhode Island's Clean Marina program. The program only provides technical assistance to marinas in their attempt to improve their environmental performance. There is no certification program in Rhode Island.

New Hampshire: The New Hampshire Department of Environmental Services (NH DES), provides management guidance and technical support to marina operators in their efforts to minimize their environmental impacts. A guidebook, "Guidelines for Environmentally Proactive Marinas" is available to assist marinas with the implementation of BMP for common marina activities.

Massachusetts: The Coastal Zone Management Program (CZM) published a guide for marinas, the "Massachusetts Clean Marina Guide: Strategies to Reduce Coastal Zone Impact," which serves as a reference to reduce marina and boating impacts on the coastal environment. CZM provides marinas with assistance in the implementation of BMP. There is no certification program attached to the Massachusetts Clean Marina Guide.

Vermont: "Shipshape Shores and Waters: A Handbook for Marina Operators and Recreational Boaters" was published by the national office of the EPA in 2003. This manual functions as a reference for Vermont marinas and boaters to implement BMP throughout their marina facility. The state Department of Environmental Conservation does not have a formal program in place to assist marinas with the application of the EPA recommended BMP's.

Historical Overview of Environmental Regulations in the Netherlands

Legislation addressing environmental issues was first established in the 1875 Dutch law known as the Nuisance Act, enacted to prevent any "danger, harm or nuisance" from activities generated by businesses (RRI, 1995). After the Second World War, large parts of the Netherlands went through a period of rapid rebuilding and development in which limited attention was paid to land use or environmental concerns. The high economic growth rates resulted in increased pollution, but also increased environmental awareness among the public. As a result, various laws were introduced in the early 1970s to deal with the environmental crisis. For example, the Pollution of

Surface Waters Act (1969) focused on the quality of surface water and regulated effluents through a permitting system. In 1970, the Air Pollution Act prohibited pollution that could cause nuisance or damage to public health, animals, plants and goods. Environmental policy during the period was characterized by command and control regulation, with a separate set of regulations for each of the environmental media: air, water and soil. In the 1980s, market-based regulations were added to the regulatory mix, with the pollution-permit-system as the dominant policy instrument (Hofman, 1998).

The Netherlands is a constitutional monarchy, with a parliament chosen by proportional representation in national elections. That election system has always resulted in a coalition government characterized by consensus-oriented policymaking. In a coalition government, political power tends to be distributed among a few parties, and policies are formed through consensus building among all fractions, due to a strong tradition or including minority views as much as possible (Hoetjes, 2008).

Public issues are regulated and managed through a unitary system in which power is concentrated in a single level of government for the entire country. Provincial and municipal governments are responsible for the implementation and enforcement of national regulations and function independently although required to operate within the national regulatory framework. Unlike individual states and local governments in the United States, provincial and municipal governments in the Netherlands are not entitled to add another layer of regulation. Provincial and municipal authorities are responsible for national policy implementation but have limited autonomy when it comes to policy initiatives and decision making (Welch et al., 2000, Bressers and Plettenburg, 1997). Local and provincial legal power is limited, as is their taxation power. About 90 percent

of a municipality's income is derived from the central government and only about 10 percent from local taxation (Hoetjes, 2008).

In the mid-1980s, it became clear that traditional environmental policy tools did not result in the anticipated environmental outcomes. The environmental improvements were disappointing, and it appeared many businesses did not hold valid permits to operate, or did not operate according to the rules outlined in the environmental permits. In addition, local authorities responsible for monitoring and enforcement of environmental regulations fell short in their responsibilities. Often, businesses argued that the licensing process was time-consuming and the communication and coordination between the licensing authorities (provinces and municipalities) was insufficient (Hofman, 1998).

As a result, the Ministry of VROM (Volkshuisvesting Ruimtelijke Ordening en Milieu (the Ministry of Housing, Spatial Planning and the Environment) introduced the National Environmental Policy Plan (NEPP) in 1989 to create an integrated and holistic approach to address environmental issues. The plan was designed to replace traditional single-issue policies with a systematic and more holistic approach, and included:

- New Environmental Policy Instruments (NEPIs); Market-based incentives and eco-labels to encourage clean technologies and changes in production and consumption patterns. NEPIs play an important role in the Dutch environmental policy arena but remain supplementary to the traditional command and control system that is in place across all key policy areas outlined in the National Environmental Policy Plan (VROM, 2006).

- Covenants; Formal agreements between the government and industry and nongovernmental organizations to realize environmental policy objectives (RRI, 1994). With the use of covenants, government emphasizes joint responsibility for a clean environment by giving industry more control over the measures used to meet the government's specified environmental goals within a timely manner. Government and industry exchange

> information during the formation of the covenant, which allows industry to clarify, for example, the feasibility of proposed environmental goals, and available technology to reach these goals. Over the years, covenants have become more standardized, and matters such as disputes and performance evaluation are now included in the agreement. Initially it was unclear to what degree the parties were bound by the covenant. Therefore a code of conduct on environmental covenants was developed, which regulates both procedures and contents (RRI, 1994).

Through NEPP, the Dutch government tried to shift the environmental policy focus from implementing and enforcing corrective measures to pollution prevention and better management of the environment through collaborations with individual industries (RRI, 2001). The overriding aim of the NEPP was to create a comprehensive environmental policy that fully integrated all relevant parties and national environmental and social concerns (VROM, 2004). The principle was derived from the Brundtland Report, which identified the relationship between environmental concerns and social problems and the economy (World Commission Environment and Development (WCED), 1987). The Brundtland Report stated that it was possible to realize economic growth without compromising the environment.

As a result, the NEPP did not focus solely on pollution sources, but also considered the relationships and impacts on ecological, social, and economic systems. Since the traditional "top down" system had not been found to be successful in solving environmental problems, the NEPP was designed to include the participation of target groups to achieve environmental goals. Target group participation is critical because those groups best know their production process, and can identify where and how environmentally friendly changes can be made most effectively. To increase support for the new environmental goals, government sought consultation with representatives of the

target groups including industry, agriculture, traffic and transport, construction, gas and electricity sector, water companies, refineries, waste treatment/disposal companies and consumers (RRI, 1995).

The NEPP was designed to be a dynamic process featuring major policy updates every four years and continuous monitoring and tracking of environmental conditions. The NEPPs first phase from 1989 to 1993 focused on formulating clear and measurable objectives for the nine identified environmental problem areas: climate change, acidification, eutrophication, toxic and hazardous pollutants, soil contamination, waste disposal, nuisance, groundwater depletion, and resource dissipation. Each of the environmental problems was traced back to its source or target group.

In the second phase from 1993 to 1998, the emphasis was on strengthening implementation by trying to achieve greater compliance among the target groups. At that time, government was trying to promote sustainable production and consumption through further clarification and simplification of regulations for emissions, and the introduction of financial provisions such as subsidies, tax reforms and environmental educational programs to encourage self-regulation.

In the third phase from 1998 to 2001 the knowledge gained in the previous phases was used to define environmental objectives. The new objectives focused on sustaining an absolute delinking of economic growth and environmental degradation by reducing environmental pressure caused by agriculture and traffic, reducing the emissions associated with the use of fossil fuels through international energy conservation, abating noise, remediating contaminated land, greater use of renewable energy, and, finally, tackling the problem of falling water tables.

The fourth phase, adopted in 2001, aimed to further enhance environmental protection by seeking comprehensive solutions from both within the Netherlands and outside its borders. It spans more than thirty years, and provides a future-oriented perspective to address the more challenging environmental issues. In phase four, the Dutch government aims for true progress, which is identified as minimizing the transfer of environmental problems across borders. For example, high-polluting businesses and industries are required to minimize their "dumping" or "transfer" of waste to less-developed poorer nations.

An addendum to the NEPP, "A Future Environmental Policy Agenda," was released in 2006 to meet NEPP and EU goals and regulations, and to address two critical environmental issues: climate change and biodiversity (VROM, 2006). The complexity of those environmental challenges called for a new international approach.

The Netherlands is a member of the European Union (EU) and, therefore subject to European environmental legislation, which functions as minimum set of environmental laws for all member states. Much of the Dutch environmental strategy is derived from the EU, the origins of which can be traced to the Treaty of Rome (1957), an agreement signed by Belgium, France, Italy, Luxembourg, the Netherlands and West Germany to free the transportation of goods, services, people, capital, and financial transactions within the signatory countries. Under the original treaty, environmental protection was not addressed. It was not until 1972, that the Environmental Action Plan was published for the European Community outlining specific measures designed to minimize pollution, improve environmental quality in urban and rural areas, prevent the depletion of natural

resources, and increase environmental awareness through education. In 1987, the European Act enacted changes to the Treaty of Rome, providing the EU environmental policies an explicit legal framework.

Water Quality Regulations in the Netherlands

In 1920, the minister of Agriculture and Trade established Rijksinstituut voor Integraal Zoetwaterbeheer en Afvalwaterbehandeling(RIZA), an institute responsible for inland water management and wastewater treatment. Post-war reconstruction in the Netherlands was characterized by a fast growing industrial sector, which led to a tremendous increase in water pollution. Although sewer lines were put in place in many locations, the lines often discharged into open waters until the early 1960s when the first sewer treatment plants were built. In 1969, the first law pertaining to surface water pollution was introduced,Wet Verontreiniging Oppervlaktewater(WVO). The law was administered through RIZA.

In 1985, the concept of "complete water management" was introduced. Under that initiative, various agencies responsible for one of the many aspects of water management such as drinking water, wastewater, or water for recreational purposes were required to implement a coherent policy to improve overall water quality. As a result, water quality in the Netherlands is now managed under a system comprising a number of different regulations.

In 1987, the Foundation for Environmental Education (FEE) presented the concept of the Blue Flag to the European Commission as part of the "European Year of the Environment." The FEE is a not-for-profit, nongovernmental organization that focuses on environmental issues and sustainable development through environmental

education. FEE owns and administers the international Blue Flag Program, a program designed to improve water quality through better environmental management (especially wastewater management) as well as coastal planning and protection activities carried out by marinas (Blue Flag, 2005). The Blue Flag Program focuses on environmental education and information, environmental management practices applied at marinas, and the quality of nearby surface water.

In each participating country, a national organization coordinates and administers the Blue Flag Program locally according to guidelines established by the FEE. The FEE sets minimal environmental criteria, but local programs may choose to adopt stricter standards. The primary responsibilities of the local Blue Flag organizations are to interact with local marina businesses, conduct annual inspections, review new applications for the Blue Flag Program, and submit nominations to the international Blue Flag jury for final approval. The Blue Flag Program is found in many European countries as well as Morocco, Tunisia, Canada, and, more recently, in New Zealand and South Africa (FEE, 2009). In the Netherlands, the program is administered through the ANWB – the national tourism organization, which is responsible for carrying out all the duties of a local Blue Flag organization.

Summary

Traditional environmental policies manage pollution levels through the application of standards and/or market incentives or disincentives. Self-regulation has become a popular supplement to the command and control and the market-based approaches. However, while self-regulation may be used to complement existing environmental policy, it should never replace the minimum and enforceable performance

standards (Glasbergen, 1998b; Makuch, 2003, Prieur, 1998).

The first environmental regulations were designed to address environmental problems caused by PS pollution, such as pollution by large industrial facilities, toxic waste, wastewater discharged by plants and/or sewage treatment plants. As a result, water pollution caused by smaller nonpoint sources was left unaddressed for many years. Still, NPS pollution is one of the leading sources of water quality degradation in many western countries. Although progress has been made in reducing NPS pollution, self-regulatory programs with clearly defined environmental goals and targeting specific matters have become popular tools for governments seeking to better control NPS pollution. While government may prefer the use of traditional regulatory tools to improve environmental quality, self-regulatory programs may be appropriate as a "stop-gap" measure (RRI, 1994). With the use of self-regulatory programs, environmental issues may be addressed more quickly than when regulations have to be drafted, approved, and enforced. Also, if there are too many uncertainties for legislation to be drafted or if regulations are needed only temporarily, self-regulatory programs may be appropriate (RRI, 1994).

The Clean Marina Program is a voluntary self-regulatory program promoted by public agencies, trade associations and or environmental advisory groups to encourage marina operators to adopt environmentally sound operating and maintenance procedures (NOAA, 2008). Many states have their own program guidelines and handbooks outlining BMPs to encourage improved environmental performance in the marina industry. In some states the program is administered by an environmental agency while in others by local trade associations.

In the Netherlands, marinas have the opportunity to participate in the Blue Flag

Program, an environmental initiative put forward by the FEE. Blue Flag Programs may be found in many countries throughout Europe with local organizations administering the program following Blue Flag criteria and guidelines established by the FEE. A comparative summary of key components of the Clean Marina and Blue Flag program is shown in Figure 1.

Figure 1: Comparison Clean Marina (CM) and Blue Flag (BF) Programs.

Program Focus:
CM: Education and outreach to encourage environmental compliance and the implementation of BMP among marina facilities.
BF: Improve water quality through environmental education and outreach, environmental management, and coastal planning and protection.

Program Goal:
CM: To reduce nonpoint source pollution associated with recreational boating facilities, and to promote clean water and a clean environment.
BF: To have marina owners and boaters share in the responsibility and care of clean and safe water, and a clean environment.

Best Management Practices:
CM: BMP supported include: mechanical activities, painting and fiberglass repair, hauling and storing boats, fueling, facility maintenance, emergency planning, boater education.
BF: BMP supported include: usage and storage of toxic materials, fueling, energy usage, facility maintenance, boater education and boater safety

Annual Program Fee:
CM: None
BF: 400 Euros

Program Administration:
CM: State environmental agency and/or marine trade association
BF: "Algemene Nederlandse Wegen Bond" (ANWB)

While the programs in the two nations are administered differently, both are a product of negotiations among public and private agencies, trade associations, and environmental advisory groups and both provide information on BMPs and cost-effective strategies aimed at reducing the environmental impact of marinas on nearby waters. Although voluntarism is a key element in the Clean Marina and Blue Flag programs, the primary emphasis of the programs is on the moral commitment of businesses (Glasbergen, 1998b).

While the criteria of both programs focus on the implementation of BMPs to minimize the marina's environmental impact, there are few differences between the recommended BMPs within each program, see Table 2. (For a detailed comparison of the program criteria see Appendix C.)

Table 1. Summary Best Management Practices of Clean Marina and Blue Flag Programs

Best Management Practice	Clean Marina	Blue Flag
Waste Management		
Proper disposal practices for waste	✓	✓
Employees training and education	✓	✓
Appropriate waste management facilities	✓	✓
Easy accessible bilge water pumping facilities	✓	✓
Emergency and Safety Planning		
Spill contingency plan	✓	✓
Emergency plans in case of pollution, fire or accidents	✓	✓
Employee training on emergency response	✓	✓
Lifesaving, first-aid, and fire-fighting equipment		✓
Fueling Activities/Petroleum Control		
Petroleum/oil spill prevention practices	✓	
Compliant with petroleum storage requirements	✓	
Compliant with fuel storing and handling standards	✓	
Recycling of used oil	✓	
Boat Pump outs and Sewage facilities and Maintenance		
Install pump outs and other adequate sanitary facilities	✓	✓
Regular maintenance of pump outs and other sanitary facilities	✓	✓
Boater Education		
Availability of environmental information for marina users	✓	✓
Environmental education activities for marina users and staff	✓	✓
Post signage to promote environmental practices	✓	✓
Facility Management		
Proper design of marina expansions or new marina site	✓	✓
Promote sustainable transportation to and from the marina		✓
Minimize parking and driving on marina property		✓
Post instructional signage through marina	✓	✓
Management of Erosion, Sedimentation, and Shoreline Stabilization		
Manage boating activities to protect habitat and shorelines	✓	

Best Management Practice – Continued	Clean Marina	Blue Flag
Stormwater Runoff Management		
Promote practices to lessen pollutants entering storm water runoff	✓	
Measures to divert and/or filter runoff water	✓	
Boat Maintenance, Cleaning, and Repair		
Designate indoor repair and maintenance area	✓	✓
Measures to collect pollutants from boat maintenance at the source	✓	✓
Reduce pollutants from boat maintenance, cleaning and repair	✓	✓
Encourage outside contractors to use BMPs	✓	✓
Minimize noise pollution from boat repair and washing		✓

Source: Massachusetts Clean Marina Guide, 2001. Maine Clean Marina Guide 2007, Connecticut Clean Marina Guide, 2007. EPA National Management Measures to Control Nonpoint Source Pollution from Marinas and Recreational Boating. The Blue Flag Marina Criteria, Coordination Blue Flag, The Netherlands, 2004.

IV. METHODOLOGY

Description of the Population

Marinas are defined as facilities engaged in repair and maintenance services or docking and/or storage of recreational and commercial watercraft, with or without one or more related activities such as boat cleaning, fuel retailing, and marine supplies (United States Census Bureau, 1997). The marina industry was selected as the subject of this study for the following reasons;

- In both, New England, and the Netherlands, self-regulatory programs are available to marinas to tackle environmental issues associated with the many activities that take place at marina facilities. While significant improvements have been made in addressing NPS pollution, it remains the largest source of water quality problems for the marina industry.
- Marinas fit the category of small business in both the United States and the Netherlands. Most of the research on environmental self-regulation concentrates on large corporations, because of their large environmental impact. However, the potential environmental impact of small firms should not be underestimated; the cumulative environmental contribution of small businesses can be considerable (Tilley, 1999). Also, small businesses often lack resources that larger firms may have, e.g., the ability to hire environmental experts and time to commit to implementing environmental changes.

- Marinas show a clear connection to their natural environment and are highly visible to the public. As a result, their environmental performance is often closely scrutinized. Marinas are located at the water's edge where there is a strong potential for nearby waters to become contaminated with pollutants from storm water runoff, hull maintenance and repair areas, boat cleaning, fueling operations, and waste water disposal (EPA, 2008).
- Marinas provide a recreational link for people to their environment (Fletcher, 2006) and provide an economic boost to coastal areas and inland lake regions. The economic impact coupled with the existing and potential environmental impact of marinas make the industry an appropriate subject for this study.

New England and the Netherlands have similar characteristics, making the marinas in both locations suitable for inclusion in this comparative study: both have large coastal and freshwater areas, with marina services for local residents and visitors; both locations have similar climate patterns, which result in an active boating season from late spring to early fall, and storage and maintenance activities during the remainder of the year.

Data Collection and Methodology

This study seeks to assess the extent to which self-regulation is motivated by personal, economic or regulatory motives – or a combination thereof. Multiple research methods were used to collect data, including mail surveys, interviews, and site visits with

selected marinas. In order to investigate the problem the following research questions were formed:

- Do marinas engage in environmental self-regulation as a result of personal values the owner-manager holds?
- Do marinas self-regulate to gain an economic advantage?
- Do marinas self-regulate to reduce the risk of future regulation?

An exploration of those questions will help determine whether or not marinas in New England are driven by the same or different motives than Dutch marinas. (Having lived in both countries, and speaking both languages fluently, the investigator is uniquely suited to this task.)

Mail Survey

The first of the methods employed was a mail survey conducted among marina owners to gather data on a number of factors such as the current environmental behavior, strategies, and the various activities that take place at their facilities. In addition, information was sought regarding the general characteristics of marinas such as size, years in operation, number of employees, activities and services offered, memberships and affiliations, and environmental procedures at the marina facility.

The survey included an informed consent form and a cover letter with contact information for the researcher and the university. The cover letter also addressed confidentiality, the risk of participation, and the voluntary nature of participation. A survey was mailed to marinas in both countries over a period of six weeks: from early November to mid-December 2007. To encourage a higher response rate, the survey was

as brief and succinct as possible, and prepaid return envelopes were provided. As Fink (2003) notes, unsolicited surveys tend to receive the lowest response rates. Additional efforts such as follow-up mailings, phone calls, or small gifts to respondents have been shown to improve low response rates on surveys. A follow-up mailing was not carried out; neither were incentives provided to respondents to increase the response rate. Those decisions were made solely to keep the costs of the survey manageable. A contact list for marinas in New England was compiled based on membership in marine trade associations. A similar list of Dutch marinas was compiled from the trade register of Kamer van Koophandel, the national Chamber of Commerce, an institution where each business in the Netherlands must register. Once both lists were received, they were combined into one database used to generate the mailing list.

The final marina population surveyed consisted of 311 marinas in New England and 375 in the Netherlands. Missing values were identified for each survey returned, and surveys in which 75 percent or fewer of the questions were answered were omitted from the results and not included in the database. A total of 99 surveys were successfully completed and returned by marina owners in the United States: a response rate of 32 percent. From the Netherlands, 142 surveys were returned for a 38 percent response rate for the Dutch sample. (A copy of the mail survey is in Appendix A.)

Telephone Interviews

Telephone interviews were conducted with twenty marina owners, ten in the US and 10 in the Netherlands. The interviews were designed to gain better insight into the underlying motives of the marinas environmental actions, especially participation in the

Clean Marina and Blue Flag program. Marinas selected for the telephone interviews were identified based on the contact information provided on the mail survey, including approval to be contacted for further participation in this study. Marinas participating in the Clean Marina or Blue Flag program, as well as marinas found to have voluntarily chosen to self-regulate were selected for the interview process. In addition, officials of environmental agencies were interviewed to learn about existing environmental policies and the manner in which self-regulation complements the existing regulatory system.

A semi-structured interview approach was applied using the same set of questions with each group of respondents. The semi-structured approach was adopted to increase the comparability of the data and facilitate data management and analysis (Patton, 2002). Moreover, the approach provides respondents with an opportunity to present issues they consider essential to environmental self-regulation, which may have been overlooked by the investigator. Interviewees were encouraged to discuss environmental strategies and other environmental issues not covered in the survey and or interview, but which they considered pertinent to environmental self-regulation. The semi-structured interview approach provided insight into the environmental practices adopted by marinas, their environmental challenges, and the way by which they came to their decisions to self-regulate. Additional topics included environmental commitment, resources required for environmental improvements, costs associated with environmental improvements, use of outside resources, and experience with and perceived strengths and weaknesses of the Clean Marina or Blue Flag programs.

Trade magazines, newsletters, handbooks of the Clean Marina and Blue Flag programs, and research on small businesses and environmental management were used to

define the interview questions, with particular attention paid to the motives identified in the existing literature on self-regulation such as the environmental commitment of business owners, perceived economic benefits, and existing environmental policies.

At the beginning of each interview a brief overview of the research project was provided, as well as background information on the researcher herself. Then the interviewees were informed about the confidentiality of their participation and the information provided, and the handling of the collected data. Also prior to the interview participants were given the opportunity to address their concerns or ask any questions regarding the study.

A total of 30 interviews were conducted including ten conducted with marina operators who self-regulate either independently or through participation in the Clean Marina or Blue Flag program, and ten with marinas that do not self-regulate. Another ten interviews were conducted with officials within relevant environmental agencies in New England and within the Netherlands. Interviewees were selected based on availability, their willingness to cooperate in the study, and the initial assessment of available relevant information. Marinas contacted and those agreeing to participate in the surveys were asked to identify the most appropriate person within the business to talk about environmental issues. (See Appendix B for a copy of the interview questions.)

In-depth Case-histories

The third level of investigation involved development of in-depth case histories to explore in greater detail than the interviews or surveys the processes through which marinas become engaged in self-regulation and to gain insight into the decisionmaking behind the self-regulatory initiatives, as well as the consequences of those decisions.

Including in-depth case histories as a tool allows the researcher to better compare and validates interview findings. Although critics argue that a small number of case studies offers few grounds for the generalizability of the findings, others recommend the use of case studies as an explanatory tool (Soy, 2006). In-depth case studies offer an effective means for achieving a complete review of the subject matter from several perspectives. Case histories expand to include review of relevant documentation and the experiences and impressions of individuals outside of the marina business who were or are familiar with the marina operation and its self-regulatory efforts. Overall, case studies are more likely to capture the full range of factors associated with the decision to self-regulate within the marina industry.

Two marinas in New England and two in the Netherlands were selected for an in-depth-study after the interview process. The selected marinas were chosen based on their willingness to continue participation in the study, to share their stories, to discuss their environmental strategies and their experiences with the Clean Marina or Blue Flag Program. Visits were made to all four locations and multiple conversations took place between the researcher and the owners. Additionally, company literature was reviewed as well as marketing materials.

That type of non-probability sampling, also referred to as convenience sampling, allows the researcher to obtain in-depth data about self-regulation and determine if commonalities and or differences exist between the marinas and why. Although convenience sampling is criticized for resulting in skewed results-as the findings may differ from that of the entire population–that type of sampling is common for studies interested in exploring a phenomenon (Walonick, 2010).

Research Quality

As in any research, this study was concerned with issues of reliability and validity. The goal of qualitative and quantitative research is to collect data that will lead to valid conclusions to the research questions. In quantitative research, four types of validity are used to evaluate the inferences that are made from the results of the study: statistical conclusion; internal validity; construct validity; and external validity (Johnson and Christensen, 2008).

Statistical conclusion relates to the extent to which it is possible to infer that variables are associated, and the strength of that association. In this study the potential relationship between environmental self-regulation and personal values, economic and regulatory sources are explored. While statistical analysis revealed associations, it is the strength of the associations that tell the importance of the independent variable in the overall examination of the dependent variable.

Internal validity is of concern for causal or explanatory case studies (Yin 1994) in which the researcher attempts to determine if the study's outcome, in this case, the decision to self-regulate, is caused by one of the independent variables that is measured, controlled or manipulated (Trochim, 2002). Three types of evidence are needed to reach a causal conclusion (Johnson and Christensen, 2008);

- Evidence of association in which the independent and dependent variables must be related. In this study, a thorough literature review focusing on small businesses, environmental regulation, and regulatory systems

revealed an association between participation in environmental self-regulation and a business owner's personal values, economic performance, and regulatory issues.

- Evidence of temporal ordering requires that the cause precede the effect. Here it seems plausible that heightened environmental values will increase the likelihood of self-regulation. Similarly, with economic and regulatory issues, the more it appears that economic performance will be enhanced through self-regulation, the more likely it is that businesses will decide to do so. Last, as regulatory issues increase for businesses, more owners may decide to self-regulate.
- Evidence that there is no plausible alternative explanation for the relationship between the independent and dependent variable. To minimize the possibility that an extraneous variable is causing the observed relationship between the dependent and independent variables, two groups are included in this comparative study.

Construct validity refers to the establishment of correct operational measures for the concepts being studied (Yin 1994). Weisberg, Krosnick, and Bowen (1996) note that when operationalizing theoretical concepts, there is always concern regarding the validity of the measures. Construct validity is addressed in this research by: (1) using multiple sources of evidence such as surveys, interviews, and in-depth case-histories, and a chain of evidence that provides insight on how and when the data are collected and analyzed; and, (2) having representatives of the marina industry and experts in the field of environmental regulation review the findings of this study.

External validity refers to the ability of a study's findings to be generalized. Yin (1994) emphasized that survey research relies on statistical generalization. Survey data from a study is derived and analyzed in a clearly defined manner and results can easily be regenerated. Case-studies, however, rely on analytical generalization, in which the researcher attempts to generalize the findings to a broader theory (Altman, 2001). In this study the researcher generalizes the findings to the traditional economic theory, which argues that the costs of reducing negative externalities such as environmental harm have a negative impact on business profits.

The reliability of the findings focuses on whether or not similar study findings and/or conclusions will be drawn among constructs by other researchers (Patton, 2002). Exact reconstruction of a research project is nearly impossible due to the ever-changing nature of society, the organization or culture under investigation (Zingale, 2004). Furthermore, the research subjects may not provide the exact information as initially recorded. Nonetheless, detailed information about the applied research methodology should help create a similar research setting, and generate comparable research findings.

The use of multiple sources of information in this research generated different types and levels of information, minimizes intrinsic bias that may result from the use of a single method or a single observer (Denzin, 1989), and strengthens the reliability of the data (Yin, 1994). In addition, the use of multiple resources allows for triangulation, a research strategy that allows for a more thorough examination of the research issue from several angles (Yin, 1994; Stake, 1995; Gillham, 2000). Triangulation is particularly beneficial during the data-analysis phase as it increases the validation of the research findings drawn from the multiple data sources (Patton, 2002).

V. RESEARCH ANALYSIS AND FINDINGS

Introduction

This chapter summarizes the research findings from the analysis conducted with data collected through surveys, interviews conducted with marina operators and officials of environmental agencies, and in-depth case studies conducted with selected marinas. Findings from the statistical analysis are in some ways contradictory to the findings from the personal interviews and in-depth case studies. While the importance of personal values is prominent in each of the analyses, data collected on the influence of economic advantage and regulatory pressures on the decision to self-regulate appear to conflict across the different methodologies.

Mail Survey

The survey of marinas in New England and in the Netherlands gathered general business information such as business size and the number of years in business, as well as specific information concerning environmental activities currently taking place at the marina facilities. The survey revealed information regarding the environmental behavior of marinas in New England and the Netherlands, and provided insight into the underlying motives of the marina's environmental actions, as well as the influence of marina size on the decision to self-regulate. The interviews and in-depth case histories that followed provided deeper insight into survey findings and highlighted further matters relevant to a marina's decision to self-regulate.

Description of Marinas in Study

The marinas included in this study are primarily privately owned and operated. In the United States, 95 percent of marinas are privately owned and operated, and 5 percent are government-owned and operated. In the Netherlands, 89 percent of marinas are privately owned and operated, only one percent is government-owned and operated, and 10 percent are owned and operated by a nonprofit organization.

To examine the size of marinas, the number of slips and moorings are evaluated, as well as the number of employees. An overview of the number of slips and moorings available at New England and Dutch marinas is presented in Table 2 and 3.

Table 2. Slips Available per Marina

Slips Available per Marina	New England %	Netherlands %
	n=96	n=124
< 25	30%	3%
25 - < 50	14%	15%
50 - < 100	22%	17%
100 - < 250	26%	35%
250 - < 500	7%	20%
500 and more	1%	10%
Total	100%	100%

Table 3. Moorings Available per Marina

Moorings Available per Marina	New England %	Netherlands %
	n=44	n=15
< 25	59%	53%
25 - < 50	14%	47%
50 - < 100	14%	-
100 - < 250	14%	-
Total	100%	100%

Table 2 shows that Dutch marinas have on average more slips available per facility than marinas in New England. A few Dutch marinas offer 500 or more slips: those are often newer marinas which are part of a hotel or vacation resort located in popular tourist destinations. Table 3 presents the percentage of marinas with moorings available to its customers. The number of marinas with moorings available is almost three times higher among respondents in New England (44) than in the Netherlands (14), but on average, the majority of respondents in both locations have 25 or fewer moorings available.

In both locations, a small portion of the total combined number of moorings and slips is rented out to commercial customers (charter boats and fishing vessels): 6 percent in New England and 7 percent in the Netherlands. Thus, the marinas in the survey overwhelmingly serve the recreational boating market.

Data on the number of employees, full and part-time, as well as seasonal workers, were also collected to assess the size of the marinas participating in this study. Table 4 shows that marinas in New England on average have more full-time employees than

marinas in the Netherlands. In both countries, most often two or fewer part-time employees may be found on the payroll year around. The number of seasonal workers is rather small for Dutch marinas: 89 percent of the marinas employ two or fewer seasonal workers.

Table 4. Business Size by Number of Employees

Number of Employees	New England %	Netherlands %
Full-time year round	n=97	n=127
≤ 2	12%	69%
3 - 5	21%	23%
6 - 10	25%	5%
>10	42%	4%
Total	100%	100%
Part-time year round		
≤ 2	90%	87%
3 - 5	10%	11%
6 - 10	-	2%
>10	-	1%
Total	100%	100%
Seasonal workers		
≤ 2	46%	89%
3 - 5	23%	7%
6 - 10	10%	2%
>10	10%	2%
Total	100%	100%

As shown in Table 5, marinas in New England and the Netherlands show similar results for the number of years in business. A small percentage of respondents have been in business fewer than five years, while the majority has been in business for at least 20 years.

Table 5. Number of Years in Business

Number of Years in Business	New England %	Netherlands %
	n =82	n =127
< 5	4%	5%
5 - <15	13%	16%
≥ 15	83%	79%
Total	100%	100%

Of the marinas surveyed in New England, 67 percent belong to a marine trade association. Other common affiliations include: American Boat Builders and Repairers Association (ABBRA), American Boat and Yacht Council (ABYC), and a local Chamber of Commerce. In the Netherlands, 55 percent of the marina owners indicated they belong to the national marine trade association, called HISWA. Furthermore, Dutch marina owners hold memberships with local and regional tourism associations, such as VVV and ANWB, or the Kamer van Koophandel, the national Chamber of Commerce. All Dutch marinas qualify as small businesses according to the standards outlined in Chapter One.

Table 6 provides a summary of services most commonly provided among the marinas surveyed. In both New England and the Netherlands, the most popular services provided, other than dockage and mooring, include: winter storage, engine maintenance and repair services, boat cleaning and washing, and hull maintenance and repair services. Pump out and sewage services, and fuel services are less common in both locations. On average, marinas in New England appear to offer more services at their facilities than Dutch marinas. The case studies that follow explore whether the regulatory environments in which the marinas operate drive the difference.

Table 6. Services Offered at the Marina

Type of Service	New England %	Netherlands %
	n=96	n=116
Boat cleaning and washing	90%	72%
Pump out and sewage services	53%	49%
Fuel services	57%	27%
Hull maintenance & repair services	86%	66%
Engine maintenance & repair services	91%	56%
Painting services	74%	28%
Fiber glass repair	79%	44%
Winter storage	97%	87%

Marina Environmental Activities

The following survey questions addressed recycling efforts and spill prevention plans implemented at the marina. Table 7 shows that in both countries, the primary items collected for recycling are motor and oil filters and batteries. In the Netherlands, the

collection of metal cans is noticeably lower (13 percent) than in New England (53 percent). That may be due to a difference in waste collection programs. In the Netherlands, metal cans may be disposed of in the regular household waste stream as large magnets extract such metal objects from collected waste before processing. The higher rates of recycling for general waste in the Netherlands are likely the result of the stringent Dutch national waste policy implemented in the 1990s. Other items listed and collected for recycling at marina facilities in both countries include anti-freeze and toxic solvents. In addition, many New England marinas indicated that they collect and recycle shrink-wrap.

Table 7. Items Recycled at Marinas

Items Recycled	New England %	Netherlands %
	n=96	n=125
Glass	46%	62%
Metal cans	53%	13%
Paper	51%	66%
Leaves and grass clippings	8%	21%
Corrugated cardboard	58%	31%
Paint	41%	59%
Plastic	45%	56%
Scrap metal	70%	30%
Used batteries	86%	78%
Oil and oil filters	93%	78%
Other: - shrink wrap - bilge water - spray cans	20%	18%

Other strategies examined in the survey are oil-spill and stormwater pollution prevention plans. Such plans outline measures put in place to prevent water pollution through oil spills and or storm water run-off. In the Netherlands, almost all respondents indicated having an oil spill and a stormwater pollution prevention plan in place (98 percent and 98 percent respectively). The response rate was expected to be high since an oil-spill prevention plan and stormwater pollution plan are required documents for marinas in order to receive a business license. The plans are part of a calamiteiten, or emergency response plan, which every Dutch business must have in place. In New England, and throughout the United States, the requirements around oil-spill and stormwater pollution-prevention plans vary. Across all states marinas are expected to practice pollution-prevention measures while handling and storing petroleum products. However, marinas storing more than 1320 gallons of petroleum are required to have a Federal Spill Prevention, Control and Countermeasure (SPCC) Plan (EPA, 2011b). Marinas that store less than 1320 gallons are required to follow state or local regulations around handling and storing petroleum products. That may mean that regardless of a marina's size and actual petroleum storage capacity, an oil-spill prevention plan should be in place at the business. Survey results show 69 percent of New England marinas have an oil-spill prevention plan in place, and 73 percent have a stormwater pollution-prevention plan as shown in Table 8. However, the survey did not ask marina operators to specify if their oil- spill prevention plan is a function of size requirement or a voluntary environmental action. Therefore it is not possible within this study to separate out the percentage of marinas that implemented an oil-spill prevention plan as a self-regulatory measure.

Table 8. Oil-Spill Prevention and Stormwater Pollution-Prevention Plan

Plan in Place	New England %	Netherlands %
	n=96	n=127
Oil-Spill Prevention Plan		
Yes	69 %	98 %
No	31 %	2 %
Stormwater Pollution-Prevention Plan		
Yes	73 %	98 %
No	27 %	2%

Table 9 details the results to the survey question, "Does your business implement BMPs to minimize its environmental impacts?" The responses show a clear difference in the response rate between the two nations, with 94 percent of those in New England and 55 percent of Dutch marinas indicating voluntary implementing BMPs. The difference in the response rate is consistent with what would be expected given the difference in regulatory requirements between New England and the Netherlands. The environmental regulations imposed on Dutch businesses are much stricter than those in other countries (Brink et al. 2007), which seem to leave little competitive room for marinas wishing to distinguish themselves based on environmental performance. As a result, Dutch marinas are less likely to implement BMPs.

Folmer, Van der Veen, Withagen, (2005) add that the stringent regulations often result in increased business costs for Dutch businesses compared to business that operate in countries with less strict environmental regulations. Dutch businesses are used to

including environmental costs as part of the overall cost of doing business, however, taking on additional environmental responsibility, e.g., through participation in a self-regulatory program, may increase a business's financial burden and potentially affect its competitiveness. However, over half (55 percent) of the Dutch respondents indicated that they voluntarily implement BMP in addition to their nation's existing regulations (Table 9). Almost all marinas in New England (94 percent) take on additional environmental responsibility through the implementation of BMPs, which suggests that existing environmental regulations leave marinas in New England more room to implement BMPs. In sum, the higher implementation rate of voluntary BMP by marinas in New England is likely the result of differences in the countries' regulatory regimes, which will be further examined through personal interviews and in-depth case histories.

Table 9. Implementation of Best Management Practices (BMPs)

Implement BMP	New England %	Netherlands %
	n=96	n=127
Yes	94%	55%
No	6 %	45%

The survey also explored sources of information used by operators to keep abreast of new technologies, regulations, and other environmental developments in the marine industry. The utilization of various information sources shows the level of activity and interest among marina owners to explore and learn about new and upcoming environmental technologies and developments. Identifying the sources utilized by marina

operators for informed decisionmaking may assist policymakers with the development and implementation of future self-regulatory initiatives. As shown in Table 10, industry magazines and publications are reported to be the main source of environmental information for marina operators in both locations: 80 percent in New England and 92 percent in the Netherlands. New England marina operators also use workshops and seminars, as well as environmental organizations and consultants to stay informed, while Dutch marinas prefer the Internet and trade shows to gain access to environmental information.

Table 10. Sources of Environmental Information

Sources	New England %	Netherlands %
	n=96	n=128
1. Magazines / publications	80%	92%
2. Internet	57%	49%
3. Environmental organizations/consultants	68%	20%
4. Trade shows	52%	38%
5. Workshops / seminars	73%	16%
6. Other	21%	23%

The "other" option in the multiple-choice question revealed that marina operators in both countries view their marine trade association (MTA) as a valuable source for environmental information. MTAs are nonprofit organizations representing the marina industry, including the recreational boating and related marine industries. In New England nearly every state has its own MTA, while the Netherlands has only one national MTA. Eighty-three percent of New England and 86 percent of Dutch marinas in this

study belong to a marine trade association. MTAs function as advocates for the marine industry, and often work with state and local governments on legislative issues. MTAs assist members with environmental compliance by providing updates on changes in environmental regulation, as well as environmental information and education, and at times, technical assistance. Overall, MTAs are considered the voice for the marine industry, and are considered a trusted source by its members.

The survey also inquired about the marinas' efforts to educate customers on pollution prevention measures to keep their facility and surrounding waters clean. A high percentage of marinas (77 percent of marinas in New England and 92 percent of Dutch marinas) indicated that they provide environmental education and information to their customers on environmentally friendly, safe, and responsible boating practices. Table 11 details how the marinas distribute environmental information to customers. In both locations the favorite method is through the display of signs with clear instructions throughout the marina. The signs inform boaters where recyclables are collected and how to dispose of hazardous waste. Printed materials informing boaters about the marina's environmental practices and best boating practices are commonly available in marina offices across New England (54 percent). Only a small percentage of Dutch marinas (24 percent) shares environmental information through printed materials. Other distribution methods utilized include: direct mailing to customers, articles in the marina's newsletter, and announcements included in the annual rental contract. By sharing environmental information with boaters, marina operators are trying to engage boaters to gain their support for their environmental initiatives, which may strengthen the effort and ultimately the environmental impact.

Table 11. Distribution of Environmental Information of Customers

Type of Distribution	New England %	Netherlands %
	n=74	n=123
1. Brochures available in office	54%	24%
2. Signs throughout marina facility	69%	63%
3. Workshops	5%	2%
4. Other: - Direct mailing - Articles in newsletter - Include info with rental contract	53%	50%

Programs available in both countries, the Clean Marina Program in the New England and the Blue Flag Program in the Netherlands, are designed to assist marinas in voluntarily strengthening their environmental performance through the implementation of a defined set of best practices. Ninety four percent of New England and 86 percent of Dutch marinas are aware of these self-regulatory programs, and 77 percent of New England and 55 percent of Dutch marinas participate in their local self-regulatory program (Table 12). Marinas reporting to be in the process of becoming a Clean Marina (22 percent) or Blue Flag (9 percent) are considered "self-regulated marinas" in this study since at the time of the survey they indicated their commitment to the program and its environmental standards required for program certification.

Table 12. Awareness and Participation Clean Marina and Blue Flag Program

	Clean Marina %	Blue Flag %
	n=96	n=132
Awareness	94%	86%
Participation	70%	55%

In sum, the survey data demonstrates that extensive recycling efforts may be found at most marina facilities in New England and the Netherlands. Differences in recycling efforts are found for items such as metal cans, and scrap metal. For marinas in both locations, the key sources of information are trade magazines and publications while signs are primarily used to educate customers about environmental efforts at the facility.

Marinas in New England appear to offer a wider variety of services to customers, and those in both locations have similar measures in place to minimize a facility's environmental impact (e.g. recycling, educating customers). The survey indicated that New England marinas implement BMPs at a higher rate than Dutch marinas and also participate in self-regulatory programs at a higher rate.

The survey data shows differences between New England and Dutch marinas related to environmental management, measured by the level of recycling efforts at the facility, the implementation of BMPs, the availability of an oil-spill prevention plan, and environmental educational efforts. However, the survey provided less insight into the underlying causes of those differences. To better understand the identified differences between marinas in New England and the Netherlands, a quantitative analysis is

conducted with data collected in the second part of the survey, which inquires about the marina's motives to engage in environmental self-regulation.

Data Analysis: Testing of Research Statements

The literature review revealed three key sources of influence on the decision to self-regulate: personal values, economic advantage, and regulatory pressure. In this section an analysis of the survey data is conducted to learn how respondents value each of the sources and to determine if relationships exist between the sources. Statistical methods appropriate for a comparative design were used including frequencies, cross tabulations, analysis of variance, and logistic regression (Brink and Wood, 1998). The research questions presented earlier are converted into testable research statements in which the hypothesized relationships are:

- Personal values of the marina owner positively influence the decision to participate in the self-regulatory Clean Marina or Blue Flag program.
- The opportunity to gain economic advantage positively influences the decision to participate in the self-regulatory Clean Marina or Blue Flag Program.
- The opportunity to reduce regulatory pressure positively influences the decision to participate in the Clean Marina or Blue Flag program.

To test the above statements, the theoretical concepts of personal values, economic advantage, and regulatory pressure were operationalized and measured using the responses to corresponding survey questions. Table 13 shows the responses provided in the survey and the corresponding response rates.

Table 13. Motives for Improving Environmental Impact.

Motives	New England %	Netherlands %
	n=97	n=124
Better for the environment *(Personal Values)*	98%	73%
Improve financial results *(Economic Advantage)*	34%	7%
Avoid additional regulatory requirements *(Regulatory Pressure)*	67%	72%
Other • Marketing opportunity • Improve image marina • Improve land value • Improve working environment	41%	44%

Ninety-eight percent of New England and 73 percent of Dutch respondents selected the option "it is better for the environment" as their prime motive for improving environmental performance. Marinas in New England appear more optimistic than Dutch marinas about the possibility of economic advantage through better environmental performance, 34 percent and 7 percent respectively. Regulatory pressure drives the decision to improve environmental performance similarly in New England and the Netherlands, 67 percent and 72 percent respectively. Other motives respondents indicated include: new marketing opportunities and improved marina image, land values, and working environment for employees. The statistical analysis of the survey data, however,

focuses on the three key sources selected for this study: personal values, economic advantage, and regulatory pressure.

In the quantitative analysis, respondents were divided into two groups "self-regulated" and "non-self-regulated" marinas. Marinas that reported being in the process of becoming a Clean Marina or Blue Flag were included in the group of "self-regulated" marinas having indicated their commitment to the program. Other variables include, "location," which identifies if the marina operates under either the United States or Dutch regulatory environment, and "size" which refers to the marina's docking capacity or the number of slips and moorings, with "small" equal to 100 or fewer, "medium" between 101and 250, and "large" 251 or more. The variable "age" refers to the number of years since the marina was established and is defined by the following categories: "start-up" established less than five years ago, "established" between five and 15 years ago, and "mature." more than 15 years ago.

Section I of the quantitative analysis includes contingency tables (cross tabulations) to determine if the value of one variable is associated with (contingent upon) the values of other variables, and to assess the strength of the association between variables (Chi-square test of independence or Fisher's Exact Test for 2x2 tables). A significance level of .05 is applied to all statistical computations.

Quantitative Analysis - Section I

Section I includes cross tabulations between each of the three sources and self-regulation (participation in the Clean Marina or Blue Flag program). Table 14 is a composite of three 2x2 contingency tables, and their column percentages. The column percentages for each of the three sources were calculated using the frequencies in the

individual rows of the contingency table and dividing by the total frequency in the last "total" row.

Results indicate a statistically significant relationship between "personal values" and "self-regulation" and "economic advantage" and "self-regulation," see Table 14. Eighty-eight percent, of self-regulated, and 71 percent of the non-self-regulated marinas selected personal values as a motive to self-regulate. The Fisher's Exact test shows a statistical significance level of .007, which indicates that the association between the variables "personal values" and "self-regulation" is unlikely to have been by chance.

The cross tabulations between "economic advantage" and "self-regulation" show 76 percent of self-regulated marinas and 91 percent of non-self-regulated marinas rejected the idea of improving financial results as a motive to self-regulate. The observed negative association in the cross tabulations between the variables is statistically significant (Fisher Exact test, p=.027).

Table 14. Cross Tabulations: Personal Values, Economic Advantage, Regulatory Pressure and Self-Regulation

		Marina				
		Self-regulated Column %		Non-Self-regulated Column %		P-Value*
Personal Values						
	Yes	128	88%	41	71%	.007
	No	18	12%	17	29%	
Economic Advantage						
	Yes	34	24%	5	9%	.027
	No	109	76%	49	91%	
Regulatory Pressure						
	Yes	107	73%	35	60%	.091
	No	39	27%	23	40%	

* Fisher's Exact

The majority of New England and Dutch respondents acknowledge regulatory pressure as an influence on the decision to self-regulate. The cross tabulation between the variables "regulatory pressure and "self-regulation" indicates more self-regulated (73 percent) than non-self-regulated (60 percent) marinas indicate concern for regulatory requirements as a motive to self-regulate, however the relationship is not significant (Fisher's Exact p=.091)

In sum, preliminary results indicate only a positive finding between personal

values and self-regulation. That relationship is further examined to determine if the location of the marina affects the likelihood that personal values motivate marina owners to self-regulate. Cross tabulations show that marinas in New England seem relatively more likely than Dutch marinas (98 percent versus 73 percent) to select personal values as a motive for improving environmental performance. (See Table 15.) The association between "personal values" and "location" is confirmed with the Fisher's Exact test, $p \leq .000$.

Table 15. Cross Tabulations: Personal Values, Location, and Self-Regulation

	New England Column %	Netherlands Column %	P-value*
Personal Value			
Yes	98%	73%	≤.000
No	2%	27%	
Personal Value – Self-regulated			
Yes	99 %	76%	≤.000
No	1%	24%	
Personal Value - Not Self-Regulated			
Yes	90 %	67%	0.253
No	10%	33 %	

* Fisher's Exact

The association between "personal values" and "location" is further examined by controlling for self-regulation. Results show that both self-regulated and non-self-regulated marinas in New England (90 percent and 99 percent, respectively) are relatively more likely than Dutch marinas (67 percent and 76 percent, respectively) to identify

personal values as a motive for improving the marina's environmental performance. The difference between the proportion of marinas in New England and the Netherlands may be an indication that marina owners in New England are more motivated to take on additional environmental responsibility than required by law than are Dutch marina operators. Both self-regulated and non-self-regulated marinas in New England show that increased level of personal values compared to the Dutch. However, the Fisher's Exact test in Table 15 can confirm that association only for the self-regulated marinas (p-value $\leq$.000). A p-value of .253 for non-self-regulated marinas indicates that the observed association may have occurred by chance.

Both self-regulated and non-self-regulated marinas in New England indicate that they are more driven by personal values than their Dutch colleagues when it comes to the decision to self-regulate. The stronger association between personal values and self-regulation among New England marinas is worth exploring to determine if the regulatory environment in New England leaves marina owners with the desire to do more for the environment than required by law, and if Dutch marina owners feel that existing regulations meet or exceed their personal environmental values.

The findings in Table 14 show that the association between "regulatory pressure" and "self-regulation" is indistinguishable from chance. However, the relationship was further explored to find out if New England marinas or Dutch marinas are more likely to identify "regulatory pressure" as a motive to self-regulate. Table 16 shows the result of cross tabulations between "regulatory pressure" and "location." Relative frequencies show about the same portion of marinas in both nations identifies the role of "regulatory pressure" almost equally (67 percent and 72 percent respectively).

When controlling the association between "regulatory pressure" and "location" by "self-regulation," findings show mixed results for the two groups. Non-self-regulated marinas, in both locations, are relatively more likely than self-regulated marinas to identify "regulatory pressure" as an influence on self-regulation. Self-regulated marinas however show the opposite, "regulatory pressure" does not appear to be an influence for the majority of marinas within this group (67 percent of New England marinas and 80 percent of Dutch marinas). The personal interviews and case studies that follow offer additional insight on how regulatory pressure influences the decision to self-regulate.

Table 16. Cross Tabulations: Regulatory Pressure, Location, and Self-Regulation

	New England Column %	Netherlands Column %	P-value*
Regulatory Pressure			
Yes	67%	72%	≤ .464
No	33%	28%	
Regulatory Pressure – Self-regulated			
Yes	33 %	20%	≤ .496
No	67%	80%	
Regulatory Pressure – Non-Self-Regulated			
Yes	50 %	63%	≤ .093
No	50%	38 %	

* Fisher's Exact

The cross tabulations showed that the opportunity for "economic advantage" is not an influence on "self-regulation." That negative association is further examined by

location, and the relative frequencies in the cross tabulations reveal distinct differences between the two locations. Only a third of New England marinas (34 percent) are motivated to self-regulate by the opportunity for economic advantage and only 7 percent of Dutch marinas, see Table 17. The findings of the Fisher's Exact test show a statistical significance level of $p \leq .000$, meaning that the difference did not occur by chance.

When only testing the responses of Clean Marina and Blue Flag members, results continue to show statistical significance for the "no-answer," (self-regulated marinas ($p \leq .000$) and non-self-regulated marinas ($p=.039$)), emphasizing earlier findings of negative association between the variables "self-regulation" and "economic advantage." The negative responses to the role of "economic advantage" appear to be more determined by the marina's physical location rather than current participation in a self - regulatory program. That implies that the negative association between "economic advantage" and "self-regulation" is strongest in the Netherlands where marinas are subject to stricter environmental regulations than marinas in New England. For example, 91 percent of the self-regulated and 95 percent of the non-self-regulated Dutch marinas provided a negative response towards the role of "economic advantage" on "self-regulation," compared to 63 percent and 70 percent respectively for New England marinas.

Findings from personal interviews, discussed later in this chapter, provide additional insight into why "economic advantage" is not a strong influence on the decision to self-regulate for the majority of New England and Dutch marinas. The interviews clarify why those few marinas that are more optimistic about the opportunity to improve financial results through self-regulation are more likely to be in New England.

Table 17. Cross tabulations Economic Advantage, Location, and Self-Regulation

	New England Column %	Netherlands Column %	P-value*
Economic Advantage			
Yes	34%	7%	.000
No	66%	93%	
Self-Regulated			
Yes	37%	9%	.000
No	63%	91%	
Not Self-Regulated			
Yes	30%	5%	.039
No	70%	95%	

* Fisher's Exact

The variables "size" and "age" were also examined to determine their influence on the likelihood of marina owners to identify personal values or economic advantage as a motive to self-regulate. The cross tabulations indicate that large marinas (91 percent) are relatively more likely than small and medium-sized marinas (84 percent, and 83 percent respectively) to identify personal values as a motive for self-regulation, (Table 18). But the Chi-Square test indicates that the association between "personal values" and "marina size" is not statistically significant, $p = .454$. Cross tabulations for "personal values" and "age," indicate that start-up marinas (56 percent), are not as likely as established (81percent) and mature (86 percent) marinas to show personal values as a motive for self-regulation. The Chi-square confirms that relationship, although it is not quite significant $p = .056$.

Table 18. Cross Tabulations: Personal Values, Marina Size and Marina Age

	Personal Values		
	Row Yes	%	P-value**
Marina Size:			
Small	78	84 %	.454
Medium	54	83 %	
Large	48	91 %	
Marina Age:			
Start-Up (0 - < 5 years)	5	56%	.056
Established (5 - < 15 years)	25	81%	
Mature (≥ 15 years)	147	86%	

** Chi-Square

The above findings indicate that the decision to self-regulate for marinas in this study is one that is more driven by personal values among those that are more established or mature. Mature marinas may be in a better position than start-up and established marinas to make business decisions that conform to their personal values. Established marinas tend to have a fixed customer base, which guarantees a certain level of income of which part can be allocated to pursue environmental improvements. Younger marinas, however, may still be building a customer base and focusing on providing adequate marina services before implementing their personal environmental values.

Next, the relationship between the variables "economic advantage" and "size" is examined. Cross tabulations were computed to determine if small or large marinas are more likely to identify "economic advantage" as a motive to self-regulate. Results show

that marina size does not change the earlier survey findings which conclude that the opportunity for economic advantage does not appear of influence on the decision to self-regulate, see Table 19.

Table 19. Cross Tabulations Economic Advantage, Marina Size, and Marina Age

	Economic Advantage		
	Yes	Row %	P-value**
Marina Size			
Small	21	23 %	.513
Medium	10	15 %	
Large	9	20 %	
Marina Age			
Start-Up (0 - < 5 years)	1	17%	.911
Established (5 - < 15 years)	5	16%	
Mature (≥ 15years)	32	19%	

**Chi-Square

Finally, the relationship between the variables "economic advantage" and "age" was examined to determine if mature or start-up marinas are more likely to identify the opportunity of financial gains as a motive to self-regulate. So far, the data show that "economic advantage" is a weak motivator for self-regulation, and the cross tabulations between "economic advantage" and "age" do not alter those findings. The distribution of the responses shows that nineteen percent of mature marinas, 16 percent of the established marinas, and 17 percent of the start-ups identified the opportunity for "economic advantage" as a motive as shown in Table 19.

In sum, statistical analysis shows a significant association between the variables "personal values" and "self-regulation" indicating that a marina owner's personal values are more likely to positively influence the decision to participate in the self-regulatory programs. That appears to be more the case for New England marina owners in their decision to participate in the Clean Marina program than for Dutch owners to participate in the Blue Flag program. When controlling for self-regulation, the cross tabulations show that the relationship between "personal values" and "location" holds only for self-regulated marinas. Findings further indicate that while "age" is associated with "personal values," "size" is not. Thus, mature marinas seem more likely than start-up and established marinas to identify personal values as a motive to self-regulate.

The statistical analysis of the survey data further shows that "economic advantage" is not associated with "self-regulation." Neither New England nor Dutch marinas identify financial gain as a motive to self-regulate, and "size" and "age" do not appear to be of influence on "economic advantage."

The overall association between "regulatory pressure" and "self-regulation" appears was not significant, but relative frequencies showed that for marinas in both New England and The Netherlands, "regulatory pressure" is of some influence. However, when controlling for self-regulation, results show that for self-regulated marinas, in both locations, "regulatory pressure" is not an influence, while the results for non-self-regulated marinas remain unchanged. That indicates that regulatory pressure is an important issue meriting further exploration through interviews and case studies.

Quantitative Analysis - Section II

An analysis of variance (ANOVA) was carried out to test whether the means of the three variables – personal values and economic and regulatory sources – for self-regulated and non-self-regulated marinas are equal, and to look for possible interaction effects between the variables. In addition, a logistic regression model was applied to determine which of the three variables best predicted the probability of self-regulation.

The ANOVA tests if each of the variables has an effect on self-regulation, referred to as main effects, and whether the effects are independent of each other or if they interact. Interaction effects are included in the analysis due to their possible effects on the interpretation of the main effects, which may be incomplete or misleading (Pedhazer and Schnelkin, 1991). The results of the ANOVA are presented in Table 20, and the findings of the main and interaction effects in Table 21. (A complete overview of the SPSS Output of the ANOVA is in Appendix C.)

First, Table 20 confirms that "personal values" are the most important variable in the decision to self-regulate. The value of $p=0.004$ indicates that there is a statistically significant difference between the self-regulated and non-self-regulated groups, with the self-regulated group being more likely to identify "personal values" as a motive to self-regulate. That complements earlier statistical findings in which the Fisher's Exact value of $p\leq.000$ confirmed the influence of "personal value" for marinas participating in the Clean Marina and Blue Flag program and $p< .253$ for the non-self-regulated group. Second, the lack of statistical significance, $p=.105$, between the two groups of marinas, self-regulated and non-self-regulated, for the variable "economic advantage" confirms the negative association noted above between the variable and "regulatory pressure." Last,

the p-value of .070 between the two groups agrees with earlier findings "regulatory pressure" that there is a difference between the self-regulated and non-self-regulated group. The difference, however, is not statistically significant.

Table 20. ANOVA: Personal Values, Economic Advantage and Regulatory Pressure

		Df	F	Sig.
Personal Value	Between Self-Regulated and Non-Self-Regulated	1	8.698	.004
	Within Self-Regulated and Non-Self-Regulated		202	
Economic Advantage	Between Self-Regulated and Non-Self-Regulated	1	2.654	.105
	Within Self-Regulated and Non-Self-Regulated		202	
Regulatory Pressure	Between Self-Regulated and Non-Self-Regulated	1	3.308	.070
	Within Self-Regulated and Non-Self-Regulated		202	

Table 21 shows the main effects for New England and Dutch marinas combined, and again "personal values" appears to be the only variable of which the main effect is statistical significant p=.001. The interaction effects show significance for the interaction between "personal values" and "economic advantage," p=.050 indicating that these

variables are not independent, and that there is an interaction effect between these two variables. The interaction effect shows the combined effects of the two variables "personal values" and "economic advantage" on "self-regulation, " and the effect appears slightly stronger for New England marinas, p=.050, than Dutch marinas, p=.062.

To further explore the main and interaction effects, the ANOVA Test of Between-Subjects Effects is conducted with data from New England and Dutch marinas separately. The results reveal a significant main effect for "economic advantage" for New England marinas only, p=.049, which is an expected outcome given the low number of Dutch marinas who indicated that economic issues were important to them when considering the decision to self-regulate. That confirms earlier survey findings that New England marinas appear more optimistic than Dutch marinas about the economic opportunities that may result from self-regulation. However, caution should be used when interpreting the ANOVA results because the source "economic advantage" is based on relatively low counts for Dutch and New England marinas.

Of the main effects for Dutch marinas, "personal values" appears significant, p=.038, but none of the interactions effects are significant. That means that for Dutch marinas "personal values" is a strong independent motivator in the decision to self-regulate, and not strongly influenced by interactions effects with the two sources examined. Table 21 also shows a significant main effect for "economic advantage" among New England marinas, p=.049. While the finding complements earlier speculation that New England marinas are more likely to identify "economic advantage" as a source of influence on "self-regulation," the interaction effect computed between "personal values" and "economic advantage" indicates that the strength of the main effect of

"economic advantage" is influenced by the variable "personal values." (Appendix 2 includes a complete overview of the ANOVA tests conducted.)

Table 21. ANOVA Summary Table: Main and Interaction Effects, by Marina Location

	All Marinas		New England Marinas		Dutch Marinas	
	F	Sig	F	Sig	F	Sig
Main Effects						
Personal Value (PV)	11.557	.001	2.042	.157	4.432	.038
Economic Advantage (EA)	.425	.515	3.990	.049	.014	.906
Regulatory Pressure (RP)	1.076	.301	1.364	.246	1.039	.310
Interaction Effects						
PV - EA	3.897	.050	3.944	.050	3.550	.062
PV - RP	.032	.859	*	*	.165	.685
EA - RP	.011	.916	1.027	.314	.713	.400

Note: * missing data prevent calculations of the values.

To find which of the three variables best predicts the probability of self-regulation a binary logistic regression was conducted. In the regression, self-regulation is measured by the dependent variable "self-regulation" coded either "0" for not-self-regulated or "1" for self-regulated. "Personal values," "economic advantage'" and "regulatory pressure" are all treated as covariates. Multiple methods are available to compute a regression model to determine the best subset of variables to explain the dependent variable (Horber, 2013). In this study two commonly used methods, the "stepwise" and "enter" approach are utilized to find out which of the covariates best explain the dependent variable.

In the stepwise approach one independent variable at a time is included (forward method) or removed (backward method) based on the probability of F (p-value). Agresti (2002) states the forward method is the usual option for a stepwise regression as it utilizes the likelihood ratio test which is considered useful for exploratory purposes. In the "enter method" the covariates, or predictor variables, are all entered in one step, which allow the researcher to quickly compute a regression model to explain the dependent variable "self-regulation" through a few selected independent variables.

The "Hosmer-Lemeshow goodness-of-fit-test" was selected as the goodness of fit statistic to determine if the computed model adequately predicts the probability of self-regulation among marinas. The Hosmer-Lemeshow goodness-of-fit-test statistic is preferred for studies with small sample sizes. A Hosmer and Lemeshow test statistic greater than .05 implies that the computed model fits the data (Agresti, 2002).

Table 23 shows the regression results using the "enter-method," in which all covariates are entered at once in the logistic regression model. Results show that the covariates "personal values" and "regulatory pressure" are identified as significant predictors (p=.005 and p=.031, respectively). "Economic advantage" does not appear to be of significant influence on the probability that New England and Dutch marinas will decide to self-regulate. The initial findings result in the following logistic regression model for self-regulation:

The log of the probability of the decision to self-regulate =

-.563 + 1.095 PV + .793 EA + .740 RP

However, the goodness of fit statistic is not favorable, and the Hosmer-Lemeshow test statistic, p=.249, shows that the model used in this logistic regression is a weak fit. The value of the test-statistic, p=.249, is due to the inclusion of a statistically insignificant co-variate "economic advantage" in this model. When that variable is omitted and the model is rerun with only the two significant variables the findings, there is an improved Hosmer-Lemeshow-value of p=.90. Ninety percent of the variance in the independent variables "personal values," and "regulatory pressure" is associated with the variance in the dependent variable "self-regulation (see Table 23).

The log of the probability of the decision to self-regulate =

-.439 + 1.144 PV + .667 RP

Table 23. Binary Logistic Regression – Enter Method – Summary Table.

	Unstandardized Coefficient B	Standard Error	Significance
Constant	-.563	.434	.194
Personal Value(PV)	1.095	.390	.005
Economic Advantage (EA)	.793	.500	.113
Regulatory Pressure (RP)	.740	.342	.031
Hosmer and Lemeshow Test			.249
Constant	-.439	.389	.301
Personal Value(PV)	1.144	.337	.003
Regulatory Pressure (RP)	.667	.425	.048
Hosmer and Lemeshow Test			.900

Using the second approach – the "stepwise-forward" method – with solely "personal values" the computed models shows that the covariate "personal values" is significant predictor (p=.005). However, the Hosmer-Lemeshow test statistic shows as zero, which indicates that the model is not a good fit. When adding covariate "economic advantage" to the model computes an equation that only includes covariate "personal values" and omits "economic advantage," implying that the variable is not a significant predictor of self-regulation. That aligns with findings from the statistical analysis conducted under Section I in which "economic advantage" does not appear as an influence. Including the co-variate "regulatory pressure" in the "stepwise-forward" model along with "personal values" the results show that both covariates are significant predictors of self-regulation (p=.048 and p=.003, respectively). Similarly when using the "enter method" the Hosmer-Lemeshow test shows a significance of p=.90 meaning the model is a good fit.

Table 24. Binary Logistic Regression – Stepwise - Forward Method – Summary Table.

	Unstandardized Coefficient B	Standard Error	Significance
Constant	.057	.338	.866
Personal Value(PV)	1.081	.383	.005
Hosmer and Lemeshow Test			.
Constant	.057	.338	.866
Personal Value(PV)	1.144	.389	.003
Regulatory Pressure (RP	1.667	.337	.048
Hosmer and Lemeshow Test			.90

Both the "enter" and "step-wise" approach binary logistic regression analysis complements earlier statistical findings which strongly support the strong influence of "personal values" on "self-regulation," and adds a suggestion of a moderate influence of "regulatory pressure."

In sum, the statistical analysis in Section I examined the associations of each of the three sources with self-regulation, while the analysis in Section II studied the mean values, main and interaction effects, and the predictive power of the three sources on the probability of self-regulation. In both, Section I and Section II "personal values" was found to be of significant influence on the decision to self-regulate when looking at New England and Dutch marinas collectively. The results of the cross tabulations in Section I show that "economic advantage" is not an overall influence on the decision to self-regulate and while the relative frequencies show that "regulatory pressure" may be associated with "self-regulation" the Fisher's Exact test indicates that this association occurred by chance. In Section II, both the ANOVA and the Binary Logistic Regression indicate that when examining New England and Dutch marinas combined "economic advantage" is not of significant influence. However when examining the influence of this independent variables by location, the results of the ANOVA show "economic advantage" to be of some influence on "self-regulation" ($p=.049$) for New England marinas.

When applying the ANOVA, "regulatory pressure" appears not to influence "self-regulation." However, results of the Logistic Regression suggest that "regulatory pressure" is of influence on "self-regulation" ($p=.048$).

The above findings indicate that depending on the analytic method used "economic advantage" and "regulatory pressure" can be defined as a variable of influence on "self-regulation" ($p=.049$ and $p=.048$, respectively). The conflicting findings between the methods used to determine the factors of influence on "self-regulation" may be the result of the relatively small sample size used for the statistical analysis, therefore caution should be used when interpreting the results.

Telephone Interviews

Thirty interviews were conducted, ten with marina operators who self-regulate through participation in the Clean Marina or Blue Flag program, ten with marina operators who do not participate in self-regulatory programs, and ten with officials in relevant environmental agencies. In New England, interviews were conducted with officials from USEPA-Region 1, the Maine Department of Environmental Protection, and the Massachusetts Coastal Zone Management Program. In the Netherlands, interviews were conducted with officials from Rijksinstituut voor Integraal Zoetwaterbeheer and Afvalwaterbehandeling" (RIZA, the Institute for Inland Water Management and Waste Water Treatment), Volkshuisvestiging Ruimtelijk Ordening and Milieu (VROM, the Ministry of Housing, Spatial Planning and the Environment), and Rijkswaterstaat (Directorate General for Public Works and Water Management).

The interviews confirmed that there is widespread interest in doing more than merely meeting the minimum requirements of regulation. Officials from New England and the Netherlands confirmed the strong environmental commitment among marina owners. As one program officer from the Clean Marina program mentioned:

"There are many marinas currently doing the right thing environmentally and going beyond compliance. However, most do not document their environmental initiatives due to lack of time, staff, or money"

The interviews revealed that when possible marina operators attend training seminars to learn about "green" improvements. Many feel they are capable of addressing basic environmental issues themselves by implementing programs such as advanced recycling systems or replacing traditional products with greener alternatives. One New England owner educates himself by visiting other marinas, locally and abroad, to exchange ideas on environmental issues, and shares his experiences and new ideas with employees while looking for ways to integrate the newly obtained information in his facility. He noted,

"It was challenging to get all employees on-board the environmental initiative but once they realized that this was the future direction the marina was heading they slowly came around."

That marina now has a strong environmental reputation and is regularly invited to share its environmental story at local and national conferences. While many perceive the story as unique and a perfect example for "going green" in the marina industry, the owner refers to it all as "a matter of common sense."

Discussion of Personal Values

The interviews reinforced the survey findings that a marina's decision to self-regulate is heavily influenced by its owner's personal values. Marina owners in both nations indicated that their environmental actions are largely based on their personal beliefs and commitment to the environment. As one respondent from New England stated:

"Everybody brings personal values to work, marinas are no different. It is a lifestyle choice to care about the environment and want to show that to the outside world."

When New England marinas were asked about their motives for participation in the Clean Marina program, they answered, "it is the right thing to do." Blue Flag participants also indicated they participate in the self-regulatory program because of its environmental importance, but they also identified marketing benefits and the positive image participation can give the marina. Having a Blue Flag status shows boaters and the local community that a marina is an environmentally responsible business and is committed to taking care of their surrounding environment. Most New England and Dutch marina operators, self-regulated and not-self-regulated, cited the importance of BMPs as a means to improve environmental quality, but as one respondent stated:

"Businesses alone do not hold the answers to all environmental problems – a more societal approach is needed to address environmental concerns. Regulations are needed to emphasize that the environment is a responsibility for all, and therefore regulations should be targeted at the general public and businesses."

In both countries there is the desire to operate marina facilities in an environmentally conscious way, and all interviewees indicated that they make environmental improvements whenever they can. Both environmental officials and marina owners recognize the environmental impact of boating activities and the importance of the application of BMPs for themselves and their customers. As one owner explained, most customers need guidance when it comes to implementing best boating practices and expect the marina to take the first step in the "greening" process. The interviews indicate that personal values are strong motivating factors, which confirms the results suggested in the survey research. Marina operators want to do "the right thing" for the environment despite a lack of the resources (time, money, and staff) required for making the desired environmental improvements.

Discussion of Economic Advantage

According to those interviewed, owners participate in the Clean Marina or Blue Flag programs in part to demonstrate their environmental commitment to their customers, the surrounding community and local authorities, but also because "having the certification can be good for business." All self-regulated New England marina operators interviewed mentioned that one of the motives to participate in the program was the anticipated economic advantages, i.e. increased revenue stream from cost savings as a result of environmental improvements, and increased numbers of boaters.

While both Clean Marina and Blue Flag participants acknowledge that the self-regulatory programs may require large upfront expenses to meet program criteria and while those costs may limit participation, New England marina owners particularly remained positive about the long-term savings. To minimize upfront costs, some marinas choose to forego program participation and tackle small environmental issues, such as recycling, spill management, fueling, and the use of environmental friendly products on their own. As more resources become available, those marinas may decide to participate in the self-regulatory program or continue to independently take on more complex environmental problems.

Interviewees did indicate resources made available through the Clean Marina and the Blue Flag as a strength of these programs. Program resources, often free of charge, allow marina owners to learn about and explore environmental improvements at their facilities, assess their environmental performance, and address environmental challenges as they arise. Interviewees particularly commend the programs' consulting services..

In the Netherlands, marina owners defined the steep annual Blue Flag program

fee of 500 Euros (ANWB, 2008) as a program weakness. After passing the annual inspection, Blue Flag marinas are required to pay the annual program fee to maintain their Blue Flag certification. Two Blue Flag recipients mentioned that they were reconsidering their membership because of the steep fee for a program they consider only marginally stricter than existing regulatory requirements.

However, one Dutch marina owner justified the high program fee by looking at the environmental certification as another business decision that requires financial investment: "It is not about the money you save right now, it is about the costs of not doing it! Long term costs are going to be a lot higher if you do nothing now."

The above statement indicates that self-regulation among Dutch marinas is also motivated by the opportunity for economic advantage, albeit to a lesser degree than for New England marinas. Non-program participants have a different perspective on the upfront program expenses and potential long-term gains associated with self-regulation. While there may be a financial benefit through cost savings, there are no special metrics available to calculate such savings, which makes it difficult to determine the recovery time of financial investments required for environmental improvements.

In both countries, marinas not participating in the self-regulatory programs appear to be unconvinced about the economic advantage of self-regulation.

"If there were clear short-term benefits to the program I may be interested, right now I see it as a lot of extra work and money which I could use to make environmental changes myself that are more suitable for us."

One Clean Marina participant suggested that the costs of self-regulation might be easier to pass on to customers if the latter were included in the initiative. Including

customers in the environmental program by, for example, helping the marina prioritize its environmental improvements, may increase the likelihood that they will accept new environmental protocols and possible price increases associated with environmental upgrades needed to meet the criteria of the self-regulatory program.

Three marinas in New England that do not participate in the Clean Marina program recognize the benefits a Clean Marina certification can bring to their marina business, but they indicated that they are unable to participate because of the expense associated with making the environmental improvements necessary to meet program standards. As a result, those marinas make small environmental improvements independently over time.

While the survey analysis showed little association between "self-regulation" and "economic advantage," the interview findings provide evidence that some marinas in both locations view participation in the Clean Marina or Blue Flag program as a good marketing opportunity and another way to add value to the business. But the interviews also supported the survey findings that economic advantage is not a principal factor in self-regulation. Two interviewees identified the environmental certification as a potential deciding factor for boaters who are in the process of selecting a marina.

"When customers are shopping for a product or services they tend to compare prices and quality of services. If there is minimal difference between competing marinas, the marina's recently added or upgraded services and awards received, show customers the marina is progressive and evolving, which in turn may positively influence the customer's decision."

Another respondent from New England noted:

"I think you need every competitive advantage you can get these days, and I see this (Clean Marina certification) as a competitive advantage for this yard. When providing boating services to boaters, a marina has to keep up with all the environmental regulations and go beyond in order to attract new customers."

Discussion of Regulatory Pressure

Interview data shows that regulatory pressure appears to motivate some marinas to self-regulate, and discourages others. For marinas concerned about the perceptions of the outside community and environmental regulators regarding their environmental performance, regulatory pressure is a probable motivator for self-regulation. Then according to officials in New England, there are many marina operators hesitant to participate in a self-regulatory program due to anticipated regulatory pressure and concerns that participation may expose their past or current environmental performance, and perhaps result in fines or penalties.

Four marinas in New England expressed concerns about the involvement of state environmental agencies in local Clean Marina programs. According to the marina operators, the primary role of environmental agencies is to monitor and enforce existing regulations, which makes marina operators believe that once their environmental history is exposed they might still be fined. Also, those marina operators expressed their concern that regulatory agencies could be alerted if many marinas decide to participate in environmental initiatives programs like the Clean Marina or Blue Flag program. It is believed that increased program awareness and participation could trigger additional environmental regulations.

In New England the Clean Marina program is administered differently in each state. In Maine the program is administered through the Maine Marine Trade Association, in Massachusetts by the Coastal Zone Management (CZM) program, and in Connecticut by the Department of Environmental Protection. Although this study does not examine the influence of the administrative agencies on program participation rates, there is a

general concern among New England marina owners that program participation may trigger environmental investigations of participating marinas. Additionally, marina operators indicated that participation in the Clean Marina program would be greater if regulatory agencies were not part of the program's administration. Issues of trust surface when private entities collaborate with environmental agencies, which ultimately are responsible for monitoring and enforcing environmental regulations. Conflicts of interest between marina owners and public agencies are believed to hinder a trusting working relationship between the two parties, which is essential to building a mutually beneficial voluntary environmental program. Only a small portion of interviewees welcome the opportunity to work with public agencies to improve their environmental performance. One marina operator in New England emphasized that the main motive for their collaboration was the potential to reduce existing regulatory pressure:

"By showing our willingness to make environmental improvements the chance of getting fined for being in violation may be reduced."

Also, a USEPA official agreed that a fair number of marina operators are skeptical of the government's involvement in industry-wide voluntary environmental programs but stressed that:

"... the focus of such programs is on environmental training and education, not compliance and enforcement."

In Blue Flag Program is administered through the ANWB,– the national tourism organization, which reviews marina applications and conducts site visits to verify program compliance before submitting nominations to the international Blue Flag committee. For Dutch interviewees, the administrating agency does not appear to get in

the way of program participation.

While the logistic regression and other analysis of the survey data provided little evidence of the importance of "regulatory pressure" in the decision to self-regulate, the interview data shows that at least some New England marinas agree that participation in the program may ease future regulatory pressure. Nevertheless, despite their positive view on the potential to ease existing or future regulatory pressures, many of those marinas show no interest in joining the program. They prefer to maintain a low profile for various reasons: current noncompliance with environmental regulations; the fear of audits or fines; and dislike of current environmental policies. A few marina operators find existing regulations to be ineffective and merely a short-term fixes to problems that require a long-term solutions. One respondent referred to existing regulation as "a disconnect":

"It seems they (regulators) are so out of touch with reality they do not understand the industry. Regulations need to be made simple and efficient and regulators should work more closely with the industry. We all want the same thing – a cleaner environment. Regulators and marinas should work together and come up with better solutions."

Based on their experience with the existing comprehensive National Environmental Policy Plan (NEPP), Dutch interviewees do not believe participation in the Blue Flag program will ease current and future environmental regulations. Initially, the NEPP and its associated environmental policies were not welcomed with open arms. However, the time granted to marina businesses to comply with the new policies made compliance with the new policies possible.

It is noteworthy that many Blue Flag interviewees did not find the program criteria significantly different from existing federal regulations; thus, if a marina is compliant with federal regulations it meets nearly all Blue Flag criteria. Several marina

owners find the Blue Flag certification to be worthwhile, because it shows a marina's environmental commitment and willingness to go above and beyond the minimal requirements. Others, however, believe it is not worth the time and effort since the program provides little additional environmental recognition.

The evidence of this study suggests that for both marinas in New England and the Netherlands, regulatory pressure is not a strong deciding factor for participation in either the Clean Marina or Blue Flag program. Evidence from New England respondents suggests that the presence and distrust of regulatory agencies surpasses the potential for relief of regulatory pressure in the future. Evidence from Dutch marina operators suggests that the Blue Flag program is not considered a distinct environmental program when compared to existing environmental regulations.

Case Studies

Four in-depth case studies were conducted, two with New England marinas and two with Dutch marinas. Three of the marinas selected for the case studies self-regulate through participation in the Clean Marina and Blue Flag program, and one marina self-regulates independently. The marinas were selected based on its owner's willingness to share business information and to participate in the study. The case studies were conducted to obtain anecdotal evidence and general perceptions regarding the motives, benefits and activities involved in self-regulation and participation in the Clean Marina or Blue Flag Programs.

Case 1

The first New England case study is a privately owned, medium-sized, full-

service marina with a docking capacity of 235, of which 90 are rented to boaters who live aboard year around. The marina is located in coastal Massachusetts and employs five full-time employees and 10 part-time employees during the summer months. The marina has a large heated pool on the premises and offers a bed and breakfast program using sailboats, motor yachts and houseboats as accommodations.

The marina applies BMPs throughout the facility but does not participate in the Clean Marina program as the marina owner finds the program "too regulated," while limiting the marina's ability to be flexible and creative in finding the most suitable and economical environmental solutions for the facility. Many environmental improvements have been made independently at the facility over the past 10 years including small environmental measures such as recycling shrink-wrap and other regular waste, and using environmentally friendly cleaning supplies. Recently, the pump-out station was replaced with a new larger capacity pump-out station as the owner believes that the upgrade has attracted boat owners of larger and more luxurious yachts who have generated additional income by also purchasing fuel during their visit. The marina has also replaced many of the traditional cable moorings with a new environmental friendly mooring that is highly resistant to corrosion and does not touch the seabed. As a result the mooring system does not stir up deposits, sand and dirt from the ocean floor and \reduces the damage to sensitive ecosystems on the seabed. Soon, the owner intends to install solar panels on the roof of the office to generate electricity for the marina facility and hopefully reduce monthly energy costs. Most of the environmental improvements made at this marina meet or exceed the BMPs outlined by the Clean Marina program as shown in Tables 22 and 23.

Environmental training and education are ongoing at the marina, e.g., all

employees must take safety training and pass an exam on best practices and the environmental impacts of boating. In addition, a customer satisfaction survey regarding the marina's environmental performance is conducted annually to garner valuable feedback and suggestions from patrons for further environmental action, and the annual contract mailed to all customers includes a brochure on BMP's implemented by the marina plus information on how boaters can improve the environmental quality of the harbor by adopting best boating practices.

The marina has made many environmental improvements over the past six to seven years and has seen worthwhile results. Not only does the marina look better, but sea life has returned to the marina. The marina will continue to make environmental improvement, but the operator noted that:

"Boaters are not the sole polluters of the harbor area. Many other commercial activities take place along the shoreline that should be addressed. For example, power washing is considered a big environmental issue in the marina industry as it may release slivers of toxic bottom paint from hulls, and producers of these bottom paints are not looked at as the source of the environmental problem, but marinas offering boat-washing services are. As a result marinas are now installing advanced washing systems with water collection and filtering systems."

To find solutions to the more challenging environmental problems surrounding this coastal Massachusetts area, the marina owner meets and collaborates with other marinas and environmental agencies to explore solutions to environmental issues such as the use of toxic bottom paints and power washing. The owner believes it is in the marina's best interest to work with both environmental agencies and other marinas to address complex environmental issues as environmental agencies may not be fully informed on the implications for marinas when seeking and defining solutions to

environmental problems. The Massachusetts Coastal Zone Management specialist interviewed for this case study pointed out that managing profitability and the environment is a fine balancing act for many marinas, but, in the end, working together is less expensive for all parties.

"While some marinas fear that contacting the agency will put them on a watch lists, the agency is really more concerned about those marinas that have not contacted them."

Case 2

With a docking capacity of thirty-five, the second New England marina is located on Maine's mid-coast and offers primarily custom boat building and repair services. The company is privately owned, and employs approximately 100 individuals, most of whom work in custom boat building and repair. In the late 1990s, the marina made the decision to incorporate green practices where possible and to promote BMP throughout the facility.

In 2006 the company was awarded the Clean Marina status, a certification that was not difficult to obtain due to the numerous environmental improvements that had been made in prior years. "It was more a formality to obtain this certification, as we had already made so many upgrades at that point."

Many of the environmental improvements made exceeded the BMPs outlined in the Clean Marina program, (see Table 1, page 45). For example, in 2007 a "green" building was added with high-energy efficient walls, radiant floor heating, rooftop solar panels, thermal windows, and energy efficient lighting throughout. The marina uses biodiesel to run the travel lift and other pieces of machinery, bioheat for its buildings

during the winter, and waterless urinals saving 40,000 gallons of water a year. Many of the environmental upgrades were made with supplemental support from state and federal grants.

"Without the financial support received through grants some of our larger initiatives would have been harder to realize because of the substantial investment they require."

In 2007, the marine business was recognized as an "Environmental Leader" by Maine's Department of Environmental Protection for its rigorous environmental standards, which extend above and beyond compliance. Currently the marina participates in the USEPA's National Environmental Performance Track program, a partnership between the marina and the agency, which sets tough environmental performance goals for the coming years.

In the late 1990s the owner appointed an employee to serve as the environmental and safety manager, responsible for the coordination and communication of all environmental initiatives. While guiding the marina through an environmental transformation, the manager stated that self-regulation not only makes environmental sense, but, more importantly, financial sense. Although the business has made significant environmental improvements, the manager believes there are many opportunities to further improve environmental performances while reducing costs such as more advanced heating solutions. He adds that over the years it has become easier and certainly more popular to become an environmental friendly business.

"Normally marina owners only looked at the upfront cost of their investment i.e. how long it would take to earn back the actual costs of the investment. Few considered the long-term gains or savings that could result from investing in model 1 versus model 2. Now costs are so high people have started to explore options that may save them money in the long-term."

Moreover, federal and state level environmental initiatives have created communication lines between governmental agencies and marinas that did not exist years ago. During the first years, few resources were available for environmental improvement.

"It is definitely made easier for businesses to do the right thing these days with all the environmental programs in place at the state and federal level."

"Much time was spent finding the right people to talk to and learn what one can or cannot do."

Continuous environmental improvements have contributed to greater efficiency as well as employee comfort at the marina. In 2008, the company was recognized by the Maine Department of Labor for its efforts in providing employees a safe and healthy work environment. In the early stages of the company's environmental initiative, not all employees were enthused about the environmental initiative. The environmental and safety manager indicated that employees viewed the additional environmental measures as time consuming and cumbersome. However, the introduction of monthly environmental meetings, with an educational component, helped employees better understand the importance of the new direction.

"Now there almost seems to be a sense of pride among employees because of the fact that they work for such an environmentally responsible company."

Case 3

The third case, a full service marina with a docking capacity of 324, is located on the Oosterschelde, an estuary in the province of Zeeland, the Netherlands, that was designated a national park in 2002 because of its large variety of sea life, wetlands, and shoals. The marina is part of a vacation resort chain offering premium boating services and various recreational facilities including tennis courts, a pool, multiple playgrounds,

grocery store, and restaurant and cafe. The marina is also part of the "Seven Sisters," a network of seven large marinas, all Blue Flag certified, located in the southwest Netherlands.

In 1999, the marina was one of the first in the Netherlands to be awarded the Blue Flag certification, for which it received regional and national media attention. The marina manager mentioned that many customers, existing and new, were curious about what the certification entailed and appeared very excited about the marina's environmental commitment.

"Receiving the Blue Flag certification certainly had a positive influence in the early years of the marina's existence. Now the marina has been Blue Flag certified for multiple years customers take the environmental commitment for granted, while it actually has become harder to meet all criteria each year due to the marina's growth."

The manager discussed several challenges facing a large marina seeking to comply with Blue Flag program criteria primarily stemming from the increased complexity of operating a large, high-end marina where the multiple recreational facilities require additional resources such as time and staffing. As a solution, the marina manager suggested having the national marine trade association provide training, because it is better equipped to provide educational activities to those currently working at marinas and to those that have to desire to do so at some point in the future. The programs are designed to help employees better understand the importance of BMPs and sustainable marina practices.

Other concerns raised by the owner interviewed in Case 3 relate to the enforcement of Blue Flag criteria in nearby European countries, and to the belief that Blue Flags are flying at a few marinas where the environmental performances may be below those found in the Netherlands. The Blue Flag coordinator in the Netherlands

confirmed the manager's concerns, noting the unfair competitive advantage marinas in other countries gain as a result of inadequate enforcement of program criteria.

As an alternative, the marina recently joined the the Gold Anchor Association, a program designed by the Yacht Harbor Association in the United Kingdom, a group associated with the British Marine Federation. Members of the British Marine Federation who are located outside the United Kingdom, but on adjacent waters, may enter the program and apply for an initial assessment. Upon completion of the assessment, the marina can receive anywhere from one to five gold anchors with the number of anchors indicating the level of quality of the marina facilities and of the marina's operational practices. The program is voluntary and is focused on customer service and quality assured boating practices (The Yacht Harbor Association, 2011). The Golden Anchor Program is designed to help marinas improve their service and operate at higher standards achieved through benchmarking against measurable criteria that vary per "anchor-level." For example, the environmental standard for one Golden Anchor includes a waste management plan while annual environmental audits and environmental policy plans are required to receive five Golden Anchors.

The marina manager prefers the Golden Anchor Program to the Blue Flag Program, as there is a classification system attached to the anchors awarded so customers know what to expect when visiting a marina with two anchors compared to one with four. The manager believes the Golden Anchor Program is a fairer system for customers and marinas that work hard to make their facility stand out due to the services offered and their environmental performance.

Case 4

The fourth case study is of a marina located on the northern coast of the Netherlands, on the Wadden Island of Texel. The marina has a docking capacity of 250 with income primarily generated by transient boat traffic visiting the Wadden area. The marina received Blue Flag certification in 2002 and describes itself as a sustainable marina. The harbormaster feels the certification is viewed to be of more importance to the marina's customers than the marina itself. Obtaining the certification did not require extra environmental upgrades at the marina as many of the BMPs in place met or exceeded the BF criteria.

In 2000, the marina constructed a new facility using salvaged materials from the old building, the highest insulation values for the exterior walls, radiant floor heating, reflective thermal windows, time and motion sensors, and LED and energy saving light bulbs throughout. Hot water is generated through the use of solar collectors, and electricity is generated with solar panels and wind turbines. Even the playground at the marina is made of sustainable materials. The marina continues to make environmental upgrades and recently replaced its above ground waste and recycling system with an advanced in-ground trash and recycling system.

The marina is owned and operated by a nonprofit organization; its board of directors comprises volunteers who live on the island. The decision to build a sustainable marina was driven by the marina's board desire to minimize the environmental impact of its activities. The treasurer of the board did not believe there was a direct monetary gain from the environmental investments but added that was not the motive driving the decisions to build a new facility in 2000.

"It is about preserving our way of life here on the island by finding the right balance between our pristine natural environment and commercial activities needed to support life on the island. The marina has been part of the sustainable movement on the island for many years, and the decision to self-regulate and participate in the Blue Flag program only emphasized our long term environmental commitment to the island community."

The sustainability movement is evident all across the island and largely motivates the marina's desire to achieve Blue Flag certification. Receiving official recognition allows the marina to display its environmental commitment to the island community, as well as to boaters and visiting tourists. The Blue Flag is one of the many environmental programs in place to protect the island's natural environment. In December 2007, a collaborative agreement between governmental agencies, environment organizations and marine trade associations was reached for the Wadden area to encourage responsible and sustainable boating practices. As a result, safe passages into marinas were created to minimize the disturbance of seal populations, mussel flats, and sea grass beds. In addition, an information channel on the Internet and VHB radio was set up to allow boaters to check docking availability and make reservations before entering the marina.

Summary In-Depth Case Studies

The case studies were undertaken to gather detailed information on self-regulation from marina operators and to capture (1) their motives to self-regulate; (2) the environmental efforts undertaken; (3) the perceived benefits of self-regulation, and (4) their experiences with the Clean Marina or Blue Flag Program. The case studies indicate that marinas often implement BMPs that exceed the minimum Clean Marina or Blue Flag criteria, see Table 25.

The case studies provided insight regarding the decision to self-regulate in

addition to data collected through the mail surveys and personal interviews. The survey data examined the decision to self-regulate by looking at the influence of three sources, "personal values," "economic advantage," and "regulatory pressure." The interview data provided insight regarding self-regulatory activities at marinas not participating in either the Clean Marina or Blue Flag Programs revealing that participation in these programs should not be the sole indicator of self-regulation among marinas.

Table 25. Overview Best Management Practices Case Studies

Case Specific BMP	New England		The Netherlands	
	Case 1	Case 2	Case 3	Case 4
Advanced mooring solutions	✓			
Solar panels	✓	✓		✓
Wind turbines				✓
Use of biodiesel		✓		
Energy efficient building measures High insulated windows and walls Radiant floor heating Passive solar lighting techniques…etc.		✓		✓
Water savings solutions for marina facilities		✓	✓	✓
Environmental coordinator on staff		✓		✓
Healthy work environment for marina employees		✓		✓
Inground trash and recycling system				✓
Additional environmental certification		✓	✓	

As found in the interviews, the case studies reveal that personal values greatly influence the decision to self-regulate, and, in addition, for various reasons, including marinas not participating in the Clean Marina or Blue Flag Programs, to undertake self-regulatory actions. The case studies further highlight the discouraging effects that the high costs and overly structured guidelines and criteria of participating in the Blue Flag program have for some Dutch marinas. Case study data suggest that opportunities for economic advantage through self-regulation appear to be more of a motivator than the

survey and interview data reflect. Cost savings derived from environmental improvements were identified as a motive to self-regulate in the case studies.

According to the case study data, regulatory pressure did not appear to influence the decision to self-regulate. However, results of the interviews show that regulatory pressure functions as a motive for self-regulation, but may also serve as deterrent for some due to anticipated fines and penalties for past environmental performance. The case-study data did not directly link non-participation in the self-regulatory program to a marina owner's attempt to avoid regulatory consequences for its past environmental performance. On the contrary, the one marina that did not participate in a self-regulatory program worked closely with the local environmental agency when making environmental improvements at the marina facility.

For the marinas included in the case studies, pressure from the surrounding community appeared to be more influential than future regulatory threats. One Blue Flag Program participant perceived the program's criteria for certification comparable to national regulatory requirements, leaving them with the desire to seek alternate environmental certification through programs with stricter criteria.

The case studies further highlighted the importance of state and federal resources to support self-regulatory activities at marinas. As small businesses, limited resources often hamper their ability to implement self-regulatory activities. Access to resources including financial support through state or federal programs was identified as essential in the marina's attempt to self-regulate.

Finally, the case studies emphasized the importance of sharing the marina's environmental mission with all those working at the facility to ensure that best

environmental practices are applied throughout the business which may then improve perceptions of the facility among customers and the surrounding community.

Summary of Analysis

The analysis of the data collected through the mail survey, interviews and in-depth case studies provides evidence regarding the nature of self-regulation among marinas in New England and the Netherlands and the influence of each of the three sources – personal values, economic advantage, and regulatory pressure - on a marina's decision to self-regulate.

The analysis confirms the importance of a marina owner's personal values in the decision to self-regulate, with each methodology providing evidence that the decision to self-regulate is driven by the personal values of marina owners. When examining the role of personal values on self-regulation by country, New England marina operators (98 percent) appear to be more motivated by their personal values than the Dutch operators (76 percent). The interview and case study data indicate that the perceived stricter environmental regulations give Dutch marina operators less room to express their environmental values, or explore new possible environmental improvements within their facility, while the US environmental regulatory regime is seen as providing marinas in New England more room to express their environmental values and pursue additional environmental activities within their facility.

According to the survey data, possible economic advantage resulting from environmental self-regulation is only a weak influence on the decision to self-regulate. Seventy six percent of self-regulated, and 91 percent of not-self-regulated marinas, did

not consider economic advantage an important source of influence. The logistic regression analysis confirmed that finding. Only a small percentage of marina operators consider economic advantage to be of importance, and self-regulated marinas tend to do so more than not-self-regulated marinas (24 percent and nine percent, respectively). The interview and in-depth case studies, offered additional evidence that, for some marinas, the opportunity for economic advantage is clearly important in their decisionmaking process.

Surprisingly, even one of the Dutch marinas selected for the case studies shows a strong desire to draw customers by demonstrating its environmental commitment to customers and the surrounding community, by seeking out alternate programs to acquire additional environmental recognition and certification. While the majority of marinas do not see economic advantage in self-regulation, in both locations there are some marinas that do, and which embed environmental performance in their business strategy.

The statistical methods applied to examine the influence of regulatory pressure on self-regulation provided mixed evidence on the importance of this source. The statistical analysis showed a weak association ($p=.091$) between "regulatory pressure" and "self-regulation", and no association between regulatory pressure and the location of the marina facility. The interview and case studies did find that "regulatory pressure" can also negatively influence the decision to self-regulate, meaning that marinas decide *not* to self-regulate because of the concern for additional regulation. Participation in self-regulatory programs may draw attention to the marina industry, and consequently lead to additional or new regulations for the industry.

As noted, the results of the quantitative methods applied in this study conflict in a

few instances. The inconsistent findings of the cross tabulations, ANOVA, and Logistic Regression applied here may be caused by several factors including the study's relative small sample size or the operationalization of the theoretical concepts. Also, the findings from this study are based on two types of data, population level data (survey data) and individual level data (interviews and case studies). The two types of data generate similar findings when analyzing the influence of personal values on the decision to self-regulate. However, the analysis of the individual level data on economic advantage and regulatory pressure results in different findings than the analysis of the population level data on those two sources. The individual level data analysis does find some evidence to support economic advantage and regulatory pressure, while the statistical analysis conducted with the survey data does not. The differences between the findings of the quantitative population level data analysis (survey data) and the qualitative interview and case study data (individual level data) may be the result of cultural or linguistic differences in the interpretation of survey items (Priede, et al. 2010).

Despite the differences in findings for economic advantage and regulatory pressure, this study provides insight into marina owners' views on self-regulation and a comprehensive assessment of the influence of the three sources examined.

- Personal values are of influence on the marinas decision to self-regulate.
- The opportunity for economic advantage through self-regulation is of minor influence on the marina's decision to self-regulate.
- The opportunity to reduce regulatory pressure is both a positive and negative influence on the decision to self-regulate.

In summary, although completed with a relatively small sample of New England and

Dutch marinas and with marina operators providing most of the data, it is hoped that the analysis conducted here may be valuable in assessing the decision to self-regulate and the influence of the three sources on this decision. Caution must be used when generalizing the findings of this study beyond the industry and regions selected for this study. The data collection methods applied provide answers to the research questions posed in this study, but also offer information on important self-regulatory issues that were not initially included in this study, e.g., the role of trade associations and the variation in existing environmental regulations and standards of self-regulatory programs. The following chapter provides interpretation and discussion of the study findings while finalizing the assessment of the three sources and their influence on self-regulation.

VI. CONCLUSION

Discussion

This study examined the decision to self-regulate among marinas located in New England and the Netherlands to learn if marinas self-regulate for personal, economic or regulatory reasons or a combination thereof.

Self-regulation is employed in both countries as a complementary environmental policy tool to address the issue of non-point source pollution and to achieve sustainability goals. Fiorino (2006) refers to self-regulation as a part of the new environmental regulation that employs innovative solutions and flexibility to achieve environmental goals. Self-regulation is designed to complement traditional environmental regulation, which although bureaucratic and top-down, has been successful in reducing point-source air, water, and land pollution. Both, Fiorino (2006) and Altman (2001) find that traditional regulation is often viewed as a set of measures that negatively impact business profits, and as a result, many businesses continue to explore opportunities to strengthen their environmental performance through alternative approaches such as self-regulation.

A comparative framework is utilized in this study to examine the influence of the marinas' regulatory environments on the decision to self-regulate. Kelman (1981) conducted a comparative study between the United States and Sweden to study the prevention and control of work-related accidents and diseases. He found that the existing regulatory process in the United States is characterized by self-assertiveness and adversarial institutions, and does not encourage agreement and consensus building in the way that the Swedish regulatory process does. The regulatory process in Sweden, as in many other western European countries, can be lengthy due to the differing values and

opinions represented by the multiple political parties involved in the process. In sum, Kelman's study found that the differences in the policymaking process between the two countries had little impact on the content of the regulation. While Kelman's study focuses on regulation, and this study on self-regulation, findings of both studies show evidence that the existing regulatory regimes are of influence, i.e. statistical analysis of the survey data shows that marinas in both New England and the Netherlands self-regulate, with marinas in New England participating at a higher rate than Dutch marinas in their self-regulatory program (70 percent and 55 percent, respectively). Interview and case study data also provide evidence that the decision to self-regulate for marinas may be driven by the difference in regulatory regimes in the two areas.

This study examined the influence of the three sources – personal values, economic advantage, and regulatory pressure – on the decision to self-regulate. The data showed that for both New England and Dutch marinas, personal values have the greatest influence on the decision to self-regulate. The statistical analysis of the survey data shows that marinas in New England are more likely to be driven by personal values than Dutch marinas. The role of personal values in the decision to self-regulate does not appear to be influenced by the size of the marina; personal values are more likely to drive the more established marinas into self-regulatory behavior than the newly established marinas.

According to the survey analysis, the opportunity for economic advantage is not a widespread influence on the marinas the decision to self-regulate. However the survey data do show that marinas in New England are more likely than Dutch marinas to identify the opportunity for economic advantage as a driver to self-regulate. Data from the

interviews and in-depth case studies do provide some evidence that economic advantage may be a key factor for some marinas.

Survey data showed that the opportunity to reduce regulatory pressure has limited influence on the decision to self-regulate. More important is the interview and case-study data, which indicates that marinas believe that participation in self-regulatory programs may negatively influence the opportunity to reduce regulatory pressure. Marinas in this study believe that by creating and participating in a self-regulatory program their business and industry will be exposed to regulatory agencies, which may pay more attention to their current and past environmental performance, and consequently tighten existing regulations.

It is hoped that understanding of the influence of three sources and the impact of regulatory regimes on the decision to self-regulate provides environmental policymakers a deeper insight into the rationales for self-regulation. Increased knowledge regarding the motives behind participation in environmental initiatives such as the Clean Marina and Blue Flag Programs may help regulators shape future policies to address persistent environmental challenges.

Policy Implications

This study is the first to examine the decision to self-regulate among small businesses through a comparative study among marinas in New England and the Netherlands. Results suggest that participation in the self-regulatory Clean Marina and Blue Flag Programs is useful in encouraging marinas to assess their environmental performance and implement best management practices. Those self-regulatory programs,

however, do not necessarily bring about the anticipated behavioral change needed to achieve pollution reduction outcomes beyond the environmental aims established for the existing environmental regulations.

While many New England and Dutch marinas are aware of the industry-wide environmental initiatives, participation rates are only 70 percent in New England and 55 percent in the Netherlands. Those rates leave unanswered the question of whether sponsored self-regulatory initiatives are the correct policy tool to achieve environmental goals. This study showed that many marinas care about the environment and recognize the need for careful management, and, despite the voluntary nature of the Clean Marina and Blue Flag Programs, many marina owners view the programs as another environmental initiative with its own set of guidelines and criteria. The organized nature of self-regulatory initiatives has caused several marina operators to shy away from participation, leaving the facilities on their own in pursuing their desire to improve their environmental performance but, at the same time, allowing them to seek innovative solutions best suited to their particular business.

Coglianese (1999) suggests that when self-regulation, either through an industry specific program or independently, fosters technological or process innovations, those new approaches should be incorporated into policy. While regulatory agencies have the opportunity to transfer, individually or nationally, self-regulatory environmental initiatives or components into new regulation this study finds that what may work for some businesses may not work for others. Businesses within the same industry may find, due to unique characteristics, that environmental challenges are best addressed using an individualized approach instead of standardized criteria of a self-regulatory program.

Findings of this study show that government should be cautious when transforming successful self-regulatory behavior into industry-wide regulation since regulatory pressure is found to discourage some marinas to self-regulate. Regulatory agencies should take into account the differences among marina businesses as well as their preferred method for meeting or exceeding environmental regulations (Fiorino, 2006), otherwise transforming lessons learned from self-regulation into regulation may reverse the expected outcomes, resulting in marinas being discouraged rather than encouraged to self-regulate.

This study found that personal values are clearly a consistent motivator for self-regulation. The question arises of how values may be incorporated into environmental policies. Trzyna (1995) explored the effects of personal values on the decisionmaking process and identified factors such as the ethical implications of policy analysis, policy dialogues, the creation of committees within government bodies to represent ethics, and informal policy interventions to address clearly defined situations. Trzyna (1995) advocated for the inclusion of ethics and personal values in public policy dialogues and the decision making and policy formation process, while recognizing it would not be an easy sell. Almost all participants in this study acknowledge that taking on additional environmental responsibility above what is minimally required by law is "the right thing to do." However, a marina's ability to follow through on its personal values is a matter of available resources, and it seems that the more mature (86 percent) and established marinas (81percent) are in a better position to implement their personal values into their operational strategies than start-up marinas (56 percent).

Also, this study also raised two other important policy concerns concerning the

management of self-regulatory initiatives and the variation in existing environmental regulation and standards applied in self-regulatory programs.

Management of Self-regulatory Programs and the Role of Trade Associations

The personal interviews and in-depth case histories conducted here suggest that marina operators are not always excited about working directly with regulatory agencies to find innovative approaches to environmental challenges. In general, the primary responsibility of regulatory agencies is setting regulations, as well as monitoring environmental performance of businesses, checking regulatory compliance, and enforcing state and regulations. Based on an agency's primary responsibilities, there is a level of distrust among marina owners towards regulatory agencies and their involvement in the design, management and administration of self-regulatory programs. The interview and case histories confirm that this is an issue and should not be overlooked in the design of future self-regulatory programs.

Marine Trade Associations often have a coherent set of goals designed to benefit members and to move the industry forward (Blyth, 2004), and they also have been key in building a trusting relationship between regulatory entities and the marine industry. Trade associations are well organized and respected by their members and, thus, have the potential to bridge the communication gap between regulatory agencies and the marina industry.

MTAs bridge the gap between the marina industry and regulatory agencies, especially with regards to the creation and implementation of environmental regulatory requirements. Members view the MTAs as trusted resources whose involvement in the development and implementation of self-regulatory initiatives is believed to increase the

likelihood of the program participation and effectiveness. It is an MTAs reputation and understanding of the day-to-day marina operations that makes for a strong partnership with regulatory agencies. The knowledge embedded in that partnership forms a strong foundation, which may lead to the achievement of desired environmental goals.

The Clean Marina Program in the state of Maine is administered through the local marine trade association, and for marinas participating in this study the involvement of their local marine trade association was key to their enrollment in the self-regulatory program. Programs in other New England states are administered by state or local environmental agencies, which tend to create some initial resistance to participate in the program. In this study, most marinas in New England and the Netherlands were affiliated with industry trade associations. Data from the surveys, interviews, and case-studies indicated that in both location trade associations provide marina members with information on the latest market developments, new and innovative products, legal and regulatory advice, and educational and training programs on topics such as workplace safety, environmental compliance and technical training. In addition, trade associations represent and advocate for the industry when regulatory issues that may affect the marina industry are being discussed at state and or federal levels.

In New England, marine trade associations are part of Statewide Clean Marina initiatives. In some states the trade association provides technical support to the program, in others the trade association is the program administrator. Whatever the role of the association in the Clean Marina Program, its involvement in and endorsement of the program has strengthened the program and increased participation. One interviewee from New England noted:

"The fact that our trade association is involved in the organization of this program means that this is the way the marina industry is heading. We have to take care of our environment and start applying BMP in order to stay in business for the years to come."

Evidence from this study suggests that marina operators in both countries value the involvement of the marine trade association or that of an industry-related non-governmental organization (NGO) in the daily operations of the self-regulatory programs. Having the marine trade association or an NGO fulfill the role of program administrator may alleviate some of the existing tension between marinas and environmental agencies.

The case studies revealed that marina operators in New England prefer to have trade associations fulfill the administrative role in self-regulatory programs, since trade associations are identified as a reliable source for dissemination of industry-related information. Based on the supportive relationship between the marine trade associations and marina businesses, New England marinas support a more prominent role for MTAs in the formation, administration, and management of environmental programs. Their positive image makes the trade association a suitable communicator for BMP and environmental responsibilities within the marina industry. The involvement of governmental agencies in voluntary environmental initiatives in New England appears to discourage potential participants. Many believe the involvement of public agencies turns voluntary programs into "regulated initiatives." One Clean Marina participant noted in an interview that participation in the program no longer encourages creative and innovative solutions to environmental challenges:

"This program becomes too regulatory – it has its own set of guidelines, and a list of BMPs that have to be implemented before a marina can be recognized as a Clean Marina. Formerly one was allowed to be creative with recycling, and reducing waste, now you have to meet certain criteria, and you are slowly being

bound by another set of rules and have to pay to be able to participate in the program."

In the Netherlands the marine trade association supports the Blue Flag Program but is not actively involved in the program's operations and administration. However, the national marine trade association does endorse the Blue Flag program and encourages marinas to participate in the program. The Blue Flag program is administered by the national agency for tourism and recreation (ANWB) and the self-regulated marinas do appear pleased with having this "independent" and "trusted" agency as administrator. As a result, there seems little tension between the marinas and the national Blue Flag program administrator.

From the study findings it seems that the role of MTAs in the self-regulatory process is stronger in New England than in the Netherlands. Based on the interviews conducted for this study it appears that the marine trade associations are a trusted source and considered an advocate for the marine industry as a whole. Having an MTA involved in the administration of the Clean Marina has increased program participation and strengthened the credibility of the program over time.

Based on the findings of this study it is recommended that self-regulatory programs are administered by agencies, organizations and or institutions that have a positive relationship with the marina industry. Including a trusted partner of the marina industry in the implementation and administration of the self-regulatory initiatives is likely to increase participation and contribute to program sustainability.

Variation in Environmental Regulation and Program Standards

The Blue Flag is an international program in Europe intended to encourage environmental management and sustainable development among marinas through rigorous criteria.

The program has spread to many different countries, some of which have similar levels of environmental regulations as the Netherlands while others have a less strict environmental regime. Due to the international nature of the Blue Flag Program and variations in national regulatory regimes, some nations perceive the program criteria as challenging while in other nations, like the Netherlands, the criteria are comparable to existing national environmental regulations. In response, some Dutch marinas decide to participate because of the ease of obtaining the environmental certification, while others do not believe that participation in the program provides them an opportunity to increase economic advantage or reduce existing regulatory pressure.

The interview and in-depth case histories further highlight the differences in the regulatory environments for New England and Dutch marinas and suggest that participation in self-regulatory programs appears to be less popular in the Netherlands than in New England. Dutch marina owners shared their experiences and challenges with strict national environmental regulations noting that existing environmental regulations are very similar to the environmental standards contained in the Blue Flag Program. As a result, many marina owners find the time and costs involved in participation to be prohibitive, yet, for some owners, the fact that the difference between Blue Flag requirements and existing environmental regulations is so slight that it encourages them to pursue Blue Flag certification and capture the additional environmental recognition

that comes with the endorsement.

Those conflicting responses raise an important policy issue regarding self-regulation, which is the issue of how small or large the gap between existing environmental regulations and environmental standards should be. Although this study does not provide conclusive evidence, it does suggest that based on higher program participation rate among New England marinas (70 percent versus 55 percent in the Netherlands) and the perceived looser environmental regulations than in the Netherlands that a larger gap results in increased participation in self-regulatory programs.

Findings of this study show that self-regulation poses several challenges for policymakers. The main challenge is to find the right balance between regulation and self-regulation to achieve full participation from marina businesses in reducing environmental pollution, particularly NPS-pollutants. Is it best for environmental agencies to promote self-regulation and hold back on traditional environmental regulations or should there be stricter regulation to push compliance?

While this study does not provide concrete answers, survey findings provide evidence that for marinas in both New England and the Netherlands, personal values are key in the decision to self-regulate. However it appears that marinas in New England have an easier time going above and beyond legal requirements than those in the Netherlands. Thus, in the Netherlands self-regulatory programs tends to be more a "complementary" rather than a "primary" regulatory initiative.

Study Limitations

This study was designed to generate an overall understanding of the decision to self-regulate, particularly the decision to participate in the Clean Marina or Blue Flag Programs. While the findings shed light on the self-regulatory movement in New England and the Netherlands, there are several limitations that must be considered when interpreting the findings of this study. First, methodological limitations of the study need to be considered. This study did not select interviewees through a random sample; instead, a convenience-sampling method was applied among survey respondents who indicated an interest in and availability for interviews. Second, the contact list of marinas in New England was compiled based on membership in marine trade associations. A similar list of Dutch marinas was compiled from the trade register of "Kamer van Koophandel," the national Chamber of Commerce. Although if and how those memberships may have affected the study results is not clear, the study findings are most likely applicable to most United States and Dutch marinas, but it is questionable if they are generalizable to other small businesses. For example, industry-specific settings or environmental regulations may require that other sources be included in the assessment of the decision to self-regulate.

For the most part, those limitations are addressed by the multi-methods approach and the cross-national comparison employed in this study. Yet, despite the limitations, it is hoped that the findings will help policymakers gain a clearer understanding of the decision to self-regulate by marinas while assisting in the future development of industry specific self-regulatory programs.

Direction for Future Studies

This study focuses specifically on three sources of influence in the decision to self-regulate – personal values, economic incentives and regulatory pressure. The views and opinions of marina owners are the unit of measure, and their responses provide information regarding the similarities and differences between self-regulated and not-self-regulated marinas in New England and the Netherlands. Additional research is recommended to garner input from marina customers and employees to address the financial issues surrounding self-regulation, which are not fully addressed in this research. A better understanding of a customer's willingness to pay premium prices for environmentally improved marina services could benefit marina operators in the future. The influence of the surrounding community, both business and residential, on the decision to self-regulate is not taken into account in this study, but the case studies indicate that a local community may have an influence. It is recommended that future studies include variables that measure the influence of community to better understand how environmental and societal dynamics may influence environmental behavior. Finally, this study acknowledges that there are various levels of self-regulation. Some marinas participate in self-regulatory programs, while others implement measures independently. However, this study does not specifically measure the level of intensity of a marina's self-regulatory initiative and environmental commitment. Future studies that include a baseline before the engagement in self-regulation and repeat that measurement throughout the intervention to gather longitudinal information may provide a more comprehensive portrayal of the influence of the three sources analyzed in this study.

LIST OF REFERENCES

Agresti, A. (2002). *Categorical Data Analysis*. Hoboken, New Jersey: John Wiley and Sons.

Altman, M. (2001). When green isn't mean: Economic theory and the heuristics of the impact of environmental regulations on competitiveness and opportunity costs. *Ecological Economics*, 36, 31-44.

ANWB – Algemene Nederlands Wegen Bond (2008). Aanmeldingsformulier t.b.v. Blauwe Vlag Jachthavens. Den Haag, Nederland: Koninklijke Nederlandse Toeristenbond.

Arentsen, M.J., Bressers, H.T.A., & O'Toole, J. (2000). Institutional and policy responses to uncertainty in environmental policy: A comparison of Dutch and U.S. styles. *Policy Studies Journal*, 28(3), 597-612.

Arentsen, M.J. (2001). Negotiating environmental governance in the Netherlands: Logic and illustration. *Policy Studies Journal,* 29(3), 499.

Arora, S., & Carson, T. (1995). An experiment in voluntary regulation: Participation in EPA's 33/50 program. *Journal of Environmental Economics and Management.* 28(3), 271–86.

Barrett S. (1991). Environmental regulation for competitive advantage. *Business Strategy Review,* 2(1), 1-15.

Bergmann, H., Brockmann, K.L., & Rennings, K. (1998). An economic approach to environmental agreements. In P. Glasbergen (Ed.), *Cooperative Environmental Governance* (pp. 157-177). Dordrecht, The Netherlands: Kluwer Academic Publishers.

Bessera, T.L., & Miller, N. (2001). Is the Good Corporation Dead? *The Journal of Socio-Economics*, 33, 221-241.

Blue Flag (2005). *Marina Criteria.* Retrieved October 27, 2005, from http://www.blueflag.org/criteria/marinas

Bowman, B. (2009). Controlling the unobservable: Policy options for addressing nonpoint source surface water pollution - A Policy Analysis. Retrieved from http://www.associatedcontent.com/article/1890068/policy options_for_addressing_nonpoint.html on November 12th, 2010.

Bressers, H.T.A., & Plettenburg, L.A. (1997). The Netherlands. In: *National Environmental Policies: A Comparative Study of Capacity-Building.* (pp. 109-132). Springer, Berlin/New York.

Brink, P.J., & Wood, M.J. (1998). Advanced design in nursing research. Thousand Oaks, CA: Sage Publications.

Brink, C., Thomas, R., & Smeets, W.M.L. (2007). Environmental policy and competitiveness. Netherlands Environmental Assessment Agency – Plan Bureau for de Leefomgeving (PBL) The Hague, The Netherlands.

Canning, K. (1999). Beyond compliance: Encouraging top performance. *Pollution Engineering*. 31(8), 15-21.

Castellan, A. (2008). Personal phone conversation, February 2008. NOAA – Office of Coastal and Ocean Resource Management.

CT DEP - Connecticut Department of Environmental Protection (2002). *Connecticut Clean Marina Guidebook*. Hartford, Connecticut.

Christmann, P., & Taylor, G. (2002). *Globalization and the environmental: Strategies for international voluntary environmental initiatives*. Academy of Management Executives, 16(3), 121-135.

Coglianese, G. (1999). Policy implications of environmental management systems. Paper prepared for Research Summit on Environmental Management Systems, November 1999, Washington D.C. Retrieved from: http://www.epa.gov/environmentalinnovation/ems/policy_implications.pdf on January 4th, 2012.

Cook, E., & Barklay, E. (2002). Safe climate, sound business. *Corporate Environmental Strategy*, 9(4), 334-338.

Dandridge, T.C. (1979). Children are not "little grown-ups - Small business needs its own organizational theory. *Journal of Small Business Management*, April, 53-57.

Darnall, N., Carmin, J., Kreiser, N., & Mil-Homens, J. (2003). *The design and rigor of U.S. voluntary environmental programs: Results from the VEP survey*. Department of Political Science and Public Administration, North Carolina State University and Department of Urban Studies and Planning, Massachusetts Institute of Technology.

Decanio, S.J., & Watkins, W.E. (1998). Investment in energy efficiency: Do the characteristics of firms matter? *The Review of Economics and Statistics*. MIT Press, 80(1), 95-107.

Delmas, M. A., & Terlaak, A.K. (2001). A framework for analyzing environmental voluntary agreements. *California Management Review*. 43(3), 44-63.

Denzin, N.K. (1989). *The research act: A theoretical introduction to sociological*

methods. Englewood Cliffs, NJ: Prentice Hall.

Dolgen, D., Alpaslan, M.N., & Serifoglu, A.G. (2003). Best waste management programs (BWMPs) for marinas: A case study. *Journal of Coastal Conservation*, 9, 57-63.

Downing, P.B., and Hanf, K. (1982). Cross-national Comparison in Environmental Protection: A Symposium. *Policy Study Journal*. Vol. 11, Issue 1, Page 38.

Dunbar, L. K. (2005). Institutions and instruments: Environmental policy in the United States and Russia. Paper presented at the annual meeting of the International Studies Association, Honolulu, Hawaii. Retrieved on May 26th, 2009 from http://www.allacademic.com/meta/p69614_index.html

Elazegui, D. (2002). *A law of nature: The command and control approach.* Sustainable Agriculture and Resource Management Resource Program Cooperative Research Support Program, Policy Brief No. 2002-2. Athens, GA: University of Georgia.

Elkington, J. (1994). Toward the sustainable corporation: Win-Win-Win business strategies for sustainable development. *California Management Review*, 36(2), 90-100.

FEE - Foundation for Environmental Education (2009). Information Booklet

Field, B.C. (1997). *Environmental economics: An introduction.* Boston, MA: McGraw-Hill.

Fink, A. (2003). How to sample in surveys. 2nd edition. The Survey Kit

Fiorino, D.J. (2001). Adding value to green business. *Polluting Engineering*, October, 10-14.

Fiorino, D.J. (2006). The new environmental regulation. Cambridge, MA: MIT Press.

Fletcher, K.A. (2006). *Motivations, incentives, and barriers for environmental leadership by small-to-medium-sized enterprises: A resource-based view of "beyond compliance" voluntary environmental actions by golf courses, ski areas, and marinas.* Rensselaer Polytechnic Institute, Troy, New York.

Folmer, H., Van der Veen, H. & Withagen, C. (2005). Milieubeleid, Concurrentievermogen en Locatiegedrag van Bedrijven. *Economisch Statistische Berichten,* June, 6-7.

Gallarotti, G.M. (1995). It pays to be green: The managerial incentive structure and environmentally sound strategies. *The Columbia Journal of Business World*, 39-57.

Gilhamm, B. (2000). *Case study research methods*. London: Continuum.

Glasbergen, P. (1998a). Modern Environmental Agreements: A Policy instrument becomes a management strategy. *Journal of Environmental Planning & Management*. Vol. 41. Issues 6, pp. 692-709.

Glasbergen, P. (1998b). Partnership as a learning process: Environmental covenants in the Netherlands. In P. Glasbergen, ed., *Co-operative Environmental Governance*. Dordrecht: Kluwer Academic Publishers.

Gunningham, N., & Rees, J. (1997). Industry self regulation: An institutional perspective, *Law and Policy*, 19, 363-414.

Hannon, P., & Atherton, A. (1998). Small firm success and the art of orienteering: The value of plans, planning and strategic awareness in the competitive small firm. *Journal of Small Business and Enterprise Development*. 15(2), 102 -19.

Hansen, L.G. (1996). Environmental regulation through voluntary agreements. Paper for workshop on the Economics and Law of Voluntary Approaches in Environmental Policy.

Harrington, W., & Morgenstern, R.D. (2004). Economics incentives versus command and control: What's the best approach for solving environmental problems? *Resources*, Fall/Winter, 13-17.

Hoetjes, B.J.S. (2008). Trends and issues in municipal twinning from the Netherlands. *Habitat International,* 33(2), 157-164.

Hofman, P. S. (1998). Participation in Southeast Asian pollution control policies. Participation and the quality of environmental decision-making. F. H. J. M. Coenen, D. Huitema & L. J. O'Toole. Dordrecht, Kluwer Academic Publishers.

Horber, E. (2013). *SPSS Resources: Regression Methods.* University of Geneva. Retrieved from: http://www.unige.ch/ses/sococ/cl//spss/cmd/regression.methods.html, September 20th, 2013.

Howes, M. 2001. Digital disclosures: Environmental governance and the Internet. *International Sociological Association 2001 Conference*. July 5-7. Fitzwilliam College: Cambridge University.

Johnson, B., & Christensen, L.B. (2008). *Educational Research: Quantitative, Qualitative and Mixed Approaches*. Sage 2007.

Joshi, S, Krishnan, R., & Lave, L. (2001). Estimating the hidden costs of environmental regulation. *Accounting Review*, 76(2), 171.

Kamer van Koophandel - Dutch National Chamber of Commerce (2008). Woerden, The Netherlands. Newsletter.

Karamanos, P. (2001). Voluntary environmental agreements: Evolution and definition of a new environmental policy approach. *Journal of Environmental Planning and Management*, 44(1), 67-85.

Karkkainen, B.C. (2001). Information as environmental regulation: TRI and performance benchmarking, precursors to a new paradigm? *Georgetown Law Journal*, 89(2), 259-370.

Kelman, S. (1981). *Regulating America, regulating Sweden: A comparative study of occupational safety and health policy*. Cambridge, MA: MIT Press.

King, A., & Lenox, M. (2000). Industry self-regulation without sanctions: The chemical industry's responsible care program. *Academy of Management Journal*, 43(4), 698-716.

Kotey, B., & Meredith, G.G. (1997). Relationships among owner/manager personal values, business strategies, and enterprise performance. *Journal of Small Business Management,* 35(2), 37-64.

Labatt, S., & Maclaren, V.W. (1998). Voluntary corporate environmental initiatives: A typology and preliminary investigation. *Environment and Planning C: Government and Policy*, 16, 191-209.

Lenox, M. J. (2006). The perspective for industry self-regulation of environmental externalities. Working Paper. Duke University, NC.

Lewis, J. (1988). Looking backward: A historical perspective on environmental regulations. *EPA Journal*. March 1988.

Lyon, T.P., & Maxwell, J. W. (1999a). What caused US voluntary environmental agreements? Kelley School of Business, Indiana University. August 1999.

Lyon, T.P., & Maxwell, J.W. (1999b). Corporate environmental strategies as tools to influence regulation. *Business Strategy & the Environment*, 8(3), 189-196.

Lyon, T.P., & Maxwell, J.W. (2007). Corporate social responsibility and the environment: A theoretical perspective. Working paper. Kelley School of Business, Indiana University.

Lynn, M.L., & Kartez, J.D. (2004). Environmental democracy in action: The toxics release inventory. *Environmental Management*, 18(4), 511-521.

Massachusetts Coastal Zone Management. Massachusetts Clean Marina Guide: Strategies to Reduce Environmental Impacts. Epsilon Associates, INC. for the MA Office of Coastal Zone Management.

Makuch, Z., (2003). The Revised Batteries Directive and Voluntary Agreements. *European Environmental Law Review*, Vol. 12, Issue 8, pp. 233.

Maxwell, J., Lyon, T.P., & Hackett, S.C. (1998). Self-regulation and social welfare: The political economy of corporate environmentalism. Working Paper. Indiana University School of Business, Indiana University.

Miller, J., & Szekely, F. (1995). What is "green?" *Environmental Impact Assessment Review,* 159(5), 401.

Morse, J. M. (2006). Insight, inference, evidence, and verification: Creating a legitimate discipline. *International Journal of Qualitative Methods,* 5(1), 93-100.

Nakamura, M, Tkahashi, T., & Vertinsky, I. (2001). Why Japanese firms choose to certify: A study of managerial responses to environmental issues. *Journal of Environmental Economics and Management*, 42(1), 23-52.

Nash, J. (2000). Voluntary Codes of Practice: Non-Governmental Institutions of Promoting Environmental Management by Firms. Washington DC: National Academy of Sciences/National Research Council Workshop on Education, Information, and Voluntary Measures in Environmental Protection.

National Oceanic and Atmospheric Administration (2008). Cleaning up marinas: The Clean Marina Program. Retrieved from http://coastalmanagement.noaa.gov/marinas.html on January 7, 2008.

Neale, A. (1997). Organizing environmental self-regulation: Liberal governmentality and the pursuit of ecological modernisation in Europe. *Environmental Politics,* 6(4), 1-24

Ottman, J.A. (1993). *Green marketing: Challenges and opportunities*. Lincolnwood, IL: NTC Business Books.

Palmer, K., Oates, W., & Portney, P. (1995). Tightening environmental standards: The benefit-costs or the no-cost paradigm? *Journal of Economic Perspectives*. 9(4), 119-132.

Patton, M.Q. (2002). *Qualitative research and evaluation methods.* Thousand Oaks, CA: Sage Publications, Inc.

Pedhazur, E. J., & Pedhazur Schmelkin, L. (1991). *Measurement, design, and analysis: An integrated approach.* Hillsdale, NJ: Lawrence Erlbaum Associates.

Pigou, A.C. (1938). *The economics of welfare.* London: Weidenfield and Nicolson.

Porter, M.E., &Van der Linde (1995). Green and competitive: Ending the stalemate. *Harvard Business Review,* 75(5), 120-133.

Priede, C., Ruuskanen, E., Jokinen A., and Farrell, S. (2010). Analyzing Cognitive Interview Data to Improve Cross-National Survey Questions. *Social Research Update*, Issue 59: Spring.

Prieur, M. (1998). Environmental agreements: Legal aspects. *Environmental Agreements*, 7(3), 301-307.

Rabe. B. G. (1997). *Power to the states: The promise and pitfalls of decentralization.* In N. J.

Vig, N.J., & Kraft, M. E. (1997). *Environmental policy in the 1990s: Reform or reaction?* (3rd ed.), 31-52. Washington, DC: CQ Press.

Reinhardt, F. (1999). Market failure and the environmental policies of firms: Economic rationales for "beyond compliance" behavior. *Journal of Industrial Ecology*, 3, 9-21.

Ruckelshaus, W.D. (1988). Environmental regulation: The early days at EPA. Retrieved from http://www.epa.gov/history/topics/regulate/02.htm, retrieved from EPA Journal on 14th October 2007.

Resource Renewal Institute (1995) *The Netherlands Environmental Policy Profile: Policy Implementation*. Retrieved from http: //greenplans.rri.org/resources/greenplanningarchives/ netherlands/Netherlands_1995epp_implmn.html#economic, March 3rd, 2008.

_____ (2001). *Where there's a will there's a world: working on sustainability*. Retrieved from http://2002archives.rri.org/NEPP4_Final_Summary.pdf, September 16, 2002

_____(1994). *The covenant as an instrument of environmental policy in the Netherlands.* Retrieved from http://greenplans.rri.org/resources/ greenplanningarchives/netherlands/ netherlands_94_covenant.html, September 16, 2002.

Salzman, J. (1991). Green labels for consumers. *The OECD Observer*, 169, 28-30

Schmidheiny, S. (1992). *Changing course: A global perspective on development and the environment.* Cambridge, MA: The MIT Press.

Segerson, K., & Micelli, T.J. (1998). Voluntary agreements: Good or bad news for environmental protection? *Journal of Environmental Economics and Management*, 36(2), 109-130.

Scheberle, D. (1997). Federalism and environmental policy: Trust and the politics of implementation. Georgetown University Press: Washington, D.C.

Shin, R., & Chen, Y.C. (2000). Seizing global opportunities for accomplished agencies' missions: The case of ISO 14000. *Public Administration Quarterly*, Spring, 24(1), 69-94.

Silverman D. (1993). Beginning research. Interpreting qualitative data. Methods for analyzing talk, text and interaction. London: Sage Publications.

Simpson, M., Taylor, N., & Barker, K. (2004). Environmental responsibility in SMEs: does it deliver competitive advantage? *Business Strategy & the Environment*, 13(3), 156-171.

Sinclair, D. (1997). Self regulation versus command and control? Beyond false dichotomies, *Law & Policy,* 19(4).

Soy, S. (2006). *The Case Study as a Research Method.* Retrieved from http://www.gslis.utexas.edu/~ssoy/usesusers/l391d1b.htm, December 15, 2011.

Stavins, R., & Whitehead, B. (1992). Dealing with pollution: Market-based incentives for environmental protection. *Environment*, 34(7), 29-42.

Stavins, R. (2003). Market-based environmental policies: What can we learn from U.S. experience (and related research)? *Resource Renewal Institute*, Discussion Paper, 03–43.

Singer, T. (2001). Can businesses still save the world? *Inc.*, 23(5), 58-60.

Stake, R.E. (1995). *The art of case study research.* Sage Publications: Thousand Oaks, CA.

Stoeckl, N. (2004). The private costs and benefits of environmental self-regulation: Which firms have most to gain? *Business Strategy and the Environment*, 13, 135-155.

Stokes, A., & R. Rutherfoord , (2000). UK environmental policy and the small firm: Acomparative perspective. *Proceedings of the Business Strategy and the Environment Conference.* European Research Press: Shipley: 363-371.

The Yacht Harbor Association, (2011). *Golden anchor award scheme – quality assured berthing.* Retrieved from http://www.which-marina.com/GoldAnchors.asp, March 1, 2012.

Tilley, F., (1999). Small firm environmental strategy. *Greener Management International*, 25, 67-81.

Trzyna, T.C. (1995). *Linking values and policy for sustainable development: An international strategy to build the sustainability ethic into decision-making.* Sacramento, California: Commission on Environmental Strategy and Planning, IUCN. IUCN/CESP Working Paper No. 6.

United Nations Economic Commission for Europe (2005). *Aarhuis Expands to Size 32.* Retrieved from http://aarhusclearinghouse.unece.org/news.cfm?id=1000052&year=2005, January 11, 2008

United States Census Bureau (1997). *1997 Economic Census: Arts, Entertainment, and Recreation.* Retrieved from http://www.census.gov/epcd/ec97/def/71393.TXT, September 20, 2004.

United States Environmental Protection Agency (2002a). Water quality conditions in the United States: A profile from the 2000 National Water Quality Inventory. Office of Water. Washington D.C.

_____ (2002b). Achievement through partnership: A progress report through 2000. Office of Policy, Economics and Innovation. Washington D.C.

_____ (2005a). *Polluted Runoff (Nonpoint Source Pollution) Marina's chapter factsheet.* Retrieved January 6, 2008, from http://www.epa.gov/owow/nps/MMGI/marinas.html

_____(2005b). *Partners for the Environment.* Retrieved April 26, 2005, from http://www.epa.gov/partners/

_____(2008). A business guide to U.S. EPA Climate Partnership Program. National Center for Environmental Innovation. Washington DC.

_____(2011a). *33/50 Program: The final record.* Retrieved July 27, 2011, from http://www.epa.gov/opptintr/3350/33fin01.htm.

_____ Region 5 (2011b). *Great Lakes Oil Spill Prevention Project.* Retrieved November 25, 2011, from http://www.epa.gov/region5oil/marinas/spcc_02.html

_____(2011c). *Economic incentives.* Retrieved December 12, 2011 from http://yosemite.epa.gov/ee/epa/eed.nsf/pages/EconomicIncentives.html#1.

United States Small Business Administration (2008). *Table of Small Business Size Standards Matched to North American Industry Classification System Codes.* Retrieved from http://www.sba.gov/services/contractingopportunities/sizestandardstopics/size/index.html January 24th, 2008.

Van den Burg, S. (2004). Informing or Empowering? Disclosure in the United States and the Netherlands. *Local Environmental,* Vol. 9. Issue 4, 367-381.

Vickers, M.R. (2005). Business Ethics and the HR Role: Past, Present, Future. *Human Resource Planning.* Vol. 28, Issue1, pp. 26-32.

Videras, J., & Alberini, A. (2000). The appeal of voluntary environmental programs: Which firms participate and why? *Contemporary Economic Policy*, 18(4), 449-461.

Videras, J. R. (2002). *Voluntary approaches to environmental regulation*. University of Colorado at Boulder. Working Paper. 60 pages.

Vig N.J., & Kraft, M.E. (1997). *Environmental policy in the 1990s* Washington, D.C.: Congressional Quarterly Inc.

Volkshuisvesting Ruimtelijke Ordening en Milieu. Ministry of Housing, Spatial Planning, and the Environment (2006). *Future Environment Agenda: Clean, Clever, Competitive*. The Netherlands, The Hague: Ministerie van VROM.

Volkshuisvesting Ruimtelijke Ordening en Milieu - Ministry of Housing Spatial Planning and the Environment (2004). *Spatial Memorandum, Space for Development*. The Netherlands, The Hague: Ministerie van VROM.

WCED – World Commission on Environment and Development (1987). *Our Common Future, Report of the World Commission on Environment and Development*. Oxford: Oxford Press.

Walonick, D.S. (1993). *The research process.* Research paper for StatPac. Retrieved from http://www.statpac.com/research-papers/research-process.htm on November 19th, 2010.

Watts, R. L.(1998). Federalism, federal political systems, and federations, *Annual Review of Political Science*, 1(1), 17–37.

Wiedenbaum, M. L. (1978). *The costs of government regulation of business*. Joint Economic Committee Congress of the United States. Washington D.C.: U.S. Government Printing Office.

Weinberg, A.S. (1998). Distinguishing among green businesses: Growth, green and anomie. *Society and Natural Resources*, 11(3), 241-251.

Weiss, H. M. (2002). Deconstructing job satisfaction: Separating evaluations, beliefs and affective experiences. *Human Resource Management Review*, 12, 173-194.

Welch, E.W., Mazur, A., & Bretschneider, S. (2000). Voluntary behavior by electric utilities. *Journal of Policy Analysis and Management*, 19(3), 407-425.

Welch J.A., & White, J.F. (1981). A small business is not a big business. *Harvard Business Review*, 59(4), 1832.

Weisberg, H., Krosnick, J.A., & Bowen, B. (1996). Introduction to survey research,

polling, and data analysis. Thousand Oaks, CA: Sage Publications.

Williamson, D., & Lynch-Wood, G. (2001). *A new paradigm for sme environmental practice.* The TQM Magazine, 13(6), 424-432.

Yandle, B. (1989). *The political limits of environmental regulation: Tracking the unicorn.* Quorum Books: New York.

Yin, R.K. (1994). *Case study research: Design and methods,* Thousand Oaks: Sage Publications.

Zingale, N.C. (2004). Leadership self-regulation in environmental policy: Fact or chimera. Unpublished doctoral dissertation, University of Akron, Ohio.

APPENDICES

APPENDIX A: MAIL SURVEY

Your facility and operations

1. Please check which of the following services and activities are available at your facility, and then which of those activities customers are able to do by themselves at your facility:
(check all that apply)

	business provides	self-service	by customers
□ boat cleaning and washing	□	□	□
□ pumpout and sewage services	□	□	□
□ fuel services	□	□	□
□ hull maintenance and repair services	□	□	□
□ engine maintenance and repair services	□	□	□
□ painting services	□	□	□
□ fiberglassing and repair	□	□	□
□ winter storage	□	□	□

2. Which of the following items are collected at your facility for recycling?
(check all that apply)

□ glass	□ paint	□ oil
□ metal cans	□ plastic	□ others:.....
□ paper	□ scrap metal	.....
□ leaves and grass clippings	□ antifouling	
□ corrugated cardboard	□ used batteries	

3. Does your business have an oil-spill prevention control plan in place?
   - □ A plan is required by state or local laws and we have a plan
   - □ A plan is not required, but we have a plan
   - □ We do not have an oil spill plan

4. Does your business have a Stormwater Pollution Prevention Plan (SWPPP) in place?
   - □ A plan is required by state or local laws and we have a plan
   - □ A plan is not required, but we have a plan
   - □ We do not have a Stormwater Pollution Prevention Plan

5. Does your business implement Best Management Practices (BMP) to minimize its environmental impacts?
   - □ Yes, our business applies BMPs wherever possible.
   - □ Yes, our business applies some BMPs
   - □ No, we do not apply BMPs

6. Which of the following techniques does your business apply or may consider applying in the future to recover costs associated with applying best management practices (e.g. recycling, stormwater management, pumpout and sewage services? (check all that apply)

	currently apply	consider applying
- long-term savings	□	□
- increase fees for customers	□	□
- absorb costs in the overall operating costs	□	□
- other technique:.....	□	□

7. Are you familiar with the Clean Marina program in your state?
   - □ yes
   - □ no (continue to question 9)

8. What best describes your level of participation in the Clean Marina Program?
   - □ Our business does not participate in the Clean Marina Program
   - □ Clean Marina certified
   - □ Clean Marina certification in process
   - □ Not certified by the Clean Marina Program but our business applies some best management practices listed in the handbook
   - □ Not certified by the Clean Marina Program but our business has contacted the Clean Marina Program and is interested in participating.

9. Which sources of information do you use to stay informed about new technologies, regulations and other developments regarding the environment. (check all that apply)
   - □ magazines / publications
   - □ internet
   - □ environmental organizations / consultants
   - □ trade shows
   - □ workshops / seminars
   - □ other: .....

10. Does your business provide customers information on best environmental management practices?
    - □ Yes
    - □ No (continue to question 12)

11. How do you distribute this information? (check all that apply)
    - □ Through brochures available for pick up in the office
    - □ Post signs all throughout the marina
    - □ Through workshops
    - □ Other: .....

12. Why is your business concerned about improving its environmental impact? (check all that apply)
    - □ better for the environment
    - □ required by law
    - □ marketing opportunity
    - □ may improve financial results
    - □ other: .....

13. Does your business work with other marina's/boatyards to learn about environmental improvements your business can make to minimize its environmental impact?
    - □ yes
    - □ no

Business Description

14. Numbers of years the business exists;

15. Number of employees: (fill in all that apply)
    - year-round full-time employees: ___
    - year-round part-time employees:___
    - seasonal workers:___

16. Total Number of Slips at the marina: _____

17. Total Number of moorings at the marina: ___

18. Last year, approximately what proportion of your regular customers were;
    recreational customers: .....%
    commercial customers:.....%

19. What type of business is your marina
    - □ Sole proprietor
    - □ S-Corp
    - □ C-Corp
    - □ LLC
    - □ Non-Profit
    - □ Other:.....

20. Memberships in organizations (e.g. industry organizations, local organizations...etc)
    1..... 3.....
    2..... 4.....

THANK YOU for your time and completing this survey!!!!!!

Please provide your contact information if you would like a summary of the results of this study mailed to you.

Name:.....
Street Address:.....
Town, state, Zip.....
Email: .....

APPENDIX B: PERSONAL INTERVIEW QUESTIONS

Interview Questions

Group 1: Marinas engaging in environmental self-regulation
Group 2: Marinas not engaging in environmental self-regulation
Group 3: Officials of Environmental Agencies involved in self-regulatory initiatives

Open-ended questions used to guide the discussion in the personal interviews

Questions Group 1 and 2:

Environmental commitment
- What are the main motives for making (or not) environmental improvements?
- What was/were the most recent improvement(s) and why?

Cost and resources
- What are the biggest challenges for you when making (or not be able to make) the desired environmental improvements?

Use of outside resources
- Do you use outside expertise when seeking solutions to environmental problems?
- Do you collaborate with other marinas and or environmental agencies when faced with environmental problems?

Environmental regulations
- How do you view current environmental regulations (too loose/too strict)?
- What would you like to see changed in the current regulations?

Clean Marina/Blue Flag program
- Are you aware of the Clean Marina / Blue Flag program?
- Do you participate in the program and at what level?
- What do you consider the program's strengths and or weaknesses?
- What programmatic changes would you like to see in the future?

Questions Group 3

Environmental Commitment
- How would you describe the environmental commitment of marina operators?
- What do you see as the main driver for the environmental improvement marinas make?

Cost and resources
- Do you believe cost is the biggest barrier for marinas to aggressively make environmental improvements? If yes, how should this barrier be addressed?

Use of outside resources
- Do marinas contact you with environmental questions?

Environmental regulations?
- Do you view self-regulation as a viable policy tool?

Clean Marina/Blue Flag program
- What is your role (if any) in the local Clean Marin / Blue Flag program?
- What do you consider the program's strengths and or weaknesses?
- What programmatic changes would you like to see in the future?

APPENDIX C: SPSS OUTPUT STATISTICAL ANALYSIS

Quantitative Analysis – Section I

Crosstabulation Personal Value: Self-Regulation

			Marina		
			not self-regulated	self - regulated	Total
Personal Value	No	Count	17	18	35
		% within Personal Value	49%	51%	100%
		% within Marina	29%	12%	17%
		% of Total	8%	9%	17%
	Yes	Count	41	128	169
		% within Personal Value	24%	76%	100%
		% within Marina	71%	88%	83%
		% of Total	20%	63%	83%

Chi-Square Tests: Personal Value: Self-Regulation

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	8.422	1	.004		
Continuity Correction	7.270	1	.007		
Likelihood Ratio	7.804	1	.005		
Fisher's Exact Test				.007	.004
Linear-by-Linear Association	8.381	1	.004		
N of Valid Cases	204				

Crosstabulation Economic Advantage: Self-Regulation

			Marina		
			not self-regulated	self - regulated	Total
Economic Advantage	no	Count	49	109	158
		% within Economic Advantage	31%	69%	100%
		% within Marina	91%	76%	80%
		% of Total	25%	55%	80%
	yes	Count	5	34	39
		% within Economic Advantage	13%	87%	100%
		% within Marina	9%	24%	20%
		% of Total	3%	17%	20%

Chi-Square Tests: Economic Advantage: Self-Regulation

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	5.203	1	.023		
Continuity Correction	4.329	1	.037		
Likelihood Ratio	5.860	1	.015		
Fisher's Exact Test				.027	.015
Linear-by-Linear Association	5.176	1	.023		
N of Valid Cases	197				

Crosstabulation Regulatory Pressure: Self-Regulation

			Marina		
			not self-regulated	self - regulated	Total
Regulatory Pressure	no	Count	23	39	62
		% within Regulatory Pressure	37%	63%	100%
		% within Marina	40%	27%	30%
		% of Total	11%	19%	30%
	yes	Count	35	107	142
		% within Regulatory Pressure	25%	75%	100%
		% within Marina	60%	73%	70%
		% of Total	17%	52%	70%

Chi-Square Tests: Regulatory Pressure: Self-Regulation

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	3.287	1	.070		
Continuity Correction	2.704	1	.100		
Likelihood Ratio	3.199	1	.074		
Fisher's Exact Test				.091	.051
Linear-by-Linear Association	3.271	1	.071		
N of Valid Cases	204				

Crosstabulation: Personal Value, Self Regulation, and Location

Marina				LOCATION		Total
				United States	Netherlands	
not self-regulated	Personal Value	no	Count	1	16	17
			% within Personal Value	6%	94%	100%
			% within Location	10%	33%	29%
			% of Total	2%	28%	29%
		yes	Count	9	32	41
			% within Personal Value	22%	78%	100%
			% within Location	90%	67%	71%
			% of Total	16%	55%	71%
	Total		Count	10	48	58
			% within Personal Value	17%	83%	100%
			% within Location	100%	100%	100%
			% of Total	17%	83%	100%
self - regulated	Personal Value	no	Count	1	17	18
			% within Personal Value	6%	94%	100%
			% within Location	1%	24%	12%
			% of Total	1%	12%	12%
		yes	Count	75	53	128
			% within Personal Value	59%	41%	100%
			% within Location	99%	76%	88%
			% of Total	51%	36%	88%
	Total		Count	76	70	146
			% within Personal Value	52%	48%	100%
			% within Location	100%	100%	100%
			% of Total	52%	48%	100%
Total	Personal Value	no	Count	2	33	35
			% within Personal Value	6%	94%	100%
			% within Location	2%	28%	17%
			% of Total	1%	16%	17%
		yes	Count	84	85	169
			% within Personal Value	50%	50%	100%
			% within Location	98%	72%	83%
			% of Total	41%	42%	83%
	Total		Count	86	118	204
			% within Personal Value	42%	58%	100%
			% within Location	100%	100%	100%
			% of Total	42%	58%	100%

Chi-Square Tests: Personal Values, Location and Self-Regulation

Marina		Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
not self-regulated	Pearson Chi-Square	2.175	1	.140		
	Continuity Correction	1.194	1	.274		
	Likelihood Ratio	2.562	1	.109		
	Fisher's Exact Test				.253	.136
	Linear-by-Linear Association	2.137	1	.144		
	N of Valid Cases	58				
self - regulated	Pearson Chi-Square	17.787	1	.000		
	Continuity Correction	15.725	1	.000		
	Likelihood Ratio	20.783	1	.000		
	Fisher's Exact Test				.000	.000
	Linear-by-Linear Association	17.665	1	.000		
	N of Valid Cases	146				
Total	Pearson Chi-Square	23.010	1	.000		
	Continuity Correction	21.241	1	.000		
	Likelihood Ratio	28.154	1	.000		
	Fisher's Exact Test				.000	.000
	Linear-by-Linear Association	22.897	1	.000		
	N of Valid Cases	204				

Regulation * Location Crosstabulation

			US or NL		
			United States	Netherlands	Total
Regulation	no	Count	32	35	67
		% within Regulation	47.8%	52.2%	100.0%
		% within US or NL	33.0%	28.2%	30.3%
	yes	Count	65	89	154
		% within Regulation	42.2%	57.8%	100.0%
		% within US or NL	67.0%	71.8%	69.7%
Total		Count	97	124	221
		% within Regulation	43.9%	56.1%	100.0%
		% within US or NL	100.0%	100.0%	100.0%

Chi-Square Tests: Regulatory Pressure, and Location

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.585	1	.444		
Continuity Correction	.381	1	.537		
Likelihood Ratio	.583	1	.445		
Fisher's Exact Test				.464	.268
Linear-by-Linear Association	.582	1	.446		
N of Valid Cases	221				

Crosstabulation: Regulatory Pressure, Location, and Self-Regulation

Marina				US or NL		Total
				United States	Netherlands	
not self-regulated	Regulation	no	Count	5	18	23
			% within Regulation	21.7%	78.3%	100.0%
			% within US or NL	50.0%	37.5%	39.7%
		yes	Count	5	30	35
			% within Regulation	14.3%	85.7%	100.0%
			% within US or NL	50.0%	62.5%	60.3%
	Total		Count	10	48	58
			% within Regulation	17.2%	82.8%	100.0%
			% within US or NL	100.0%	100.0%	100.0%
self - regulated	Regulation	no	Count	25	14	39
			% within Regulation	64.1%	35.9%	100.0%
			% within US or NL	32.9%	20.0%	26.7%
		yes	Count	51	56	107
			% within Regulation	47.7%	52.3%	100.0%
			% within US or NL	67.1%	80.0%	73.3%
	Total		Count	76	70	146
			% within Regulation	52.1%	47.9%	100.0%
			% within US or NL	100.0%	100.0%	100.0%
Total	Regulation	no	Count	30	32	62
			% within Regulation	48.4%	51.6%	100.0%
			% within US or NL	34.9%	27.1%	30.4%
		yes	Count	56	86	142
			% within Regulation	39.4%	60.6%	100.0%
			% within US or NL	65.1%	72.9%	69.6%
	Total		Count	86	118	204
			% within Regulation	42.2%	57.8%	100.0%
			% within US or NL	100.0%	100.0%	100.0%

Chi-Square Tests: Regulatory Pressure, Location, and Self-Regulation

Marina		Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
not self-regulated	Pearson Chi-Square	.540	1	.462		
	Continuity Correction	.144	1	.704		
	Likelihood Ratio	.531	1	.466		
	Fisher's Exact Test				.496	.348
	Linear-by-Linear Association	.531	1	.466		
	N of Valid Cases	58				
self - regulated	Pearson Chi-Square	3.095	1	.079		
	Continuity Correction	2.471	1	.116		
	Likelihood Ratio	3.132	1	.077		
	Fisher's Exact Test				.093	.057
	Linear-by-Linear Association	3.074	1	.080		
	N of Valid Cases	146				
Total	Pearson Chi-Square	1.418	1	.234		
	Continuity Correction	1.075	1	.300		
	Likelihood Ratio	1.410	1	.235		
	Fisher's Exact Test				.281	.150
	Linear-by-Linear Association	1.411	1	.235		
	N of Valid Cases	204				

Crosstabulation: Economic Advantage and Location

			Location		
			United States	Netherlands	Total
Economic Advantage	no	Count	64	116	180
		% within Economic advantage	35.6%	64.4%	100.0%
		% within US or NL	66.0%	93.5%	81.4%
		% of Total	29.0%	52.5%	81.4%
	yes	Count	33	8	41
		% within Economic advantage	80.5%	19.5%	100.0%
		% within US or NL	34.0%	6.5%	18.6%
		% of Total	14.9%	3.6%	18.6%
Total		Count	97	124	221
		% within Economic advantage	43.9%	56.1%	100.0%
		% within US or NL	100.0%	100.0%	100.0%
		% of Total	43.9%	56.1%	100.0%

Chi-Square Tests: Economic Advantage and Location

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	27.376	1	.000		
Continuity Correction	25.582	1	.000		
Likelihood Ratio	28.297	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	27.252	1	.000		
N of Valid Cases	221				

Crosstabulations: Economic Advantage, Location and Self Regulation

Marina				Location		Total
				United States	Netherlands	
not self-regulated	Economic Advantage	no	Count	7	42	49
			% within Costs Savings	14.3%	85.7%	100.0%
			% within US or NL	70.0%	95.5%	90.7%
			% of Total	13.0%	77.8%	90.7%
		yes	Count	3	2	5
			% within Costs Savings	60.0%	40.0%	100.0%
			% within US or NL	30.0%	4.5%	9.3%
			% of Total	5.6%	3.7%	9.3%
	Total		Count	10	44	54
			% within Costs Savings	18.5%	81.5%	100.0%
			% within US or NL	100.0%	100.0%	100.0%
			% of Total	18.5%	81.5%	100.0%
self - regulated	Economic Advantage	no	Count	48	61	109
			% within Costs Savings	44.0%	56.0%	100.0%
			% within US or NL	63.2%	91.0%	76.2%
			% of Total	33.6%	42.7%	76.2%
		yes	Count	28	6	34
			% within Costs Savings	82.4%	17.6%	100.0%
			% within US or NL	36.8%	9.0%	23.8%
			% of Total	19.6%	4.2%	23.8%
	Total		Count	76	67	143
			% within Costs Savings	53.1%	46.9%	100.0%
			% within US or NL	100.0%	100.0%	100.0%
			% of Total	53.1%	46.9%	100.0%
Total	Economic Advantage	no	Count	55	103	158
			% within Costs Savings	34.8%	65.2%	100.0%
			% within US or NL	64.0%	92.8%	80.2%
			% of Total	27.9%	52.3%	80.2%
		yes	Count	31	8	39
			% within Costs Savings	79.5%	20.5%	100.0%
			% within US or NL	36.0%	7.2%	19.8%
			% of Total	15.7%	4.1%	19.8%
	Total		Count	86	111	197
			% within Costs Savings	43.7%	56.3%	100.0%
			% within US or NL	100.0%	100.0%	100.0%
			% of Total	43.7%	56.3%	100.0%

Chi-Square Test: Economic Advantage, Location and Self-Regulation

Marina		Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
not self-regulated	Pearson Chi-Square	6.284	1	.012		
	Continuity Correction	3.619	1	.057		
	Likelihood Ratio	4.828	1	.028		
	Fisher's Exact Test				.039	.039
	Linear-by-Linear Association	6.167	1	.013		
	N of Valid Cases	54				
self - regulated	Pearson Chi-Square	15.280	1	.000		
	Continuity Correction	13.780	1	.000		
	Likelihood Ratio	16.433	1	.000		
	Fisher's Exact Test				.000	.000
	Linear-by-Linear Association	15.173	1	.000		
	N of Valid Cases	143				
Total	Pearson Chi-Square	25.383	1	.000		
	Continuity Correction	23.599	1	.000		
	Likelihood Ratio	26.120	1	.000		
	Fisher's Exact Test				.000	.000
	Linear-by-Linear Association	25.254	1	.000		
	N of Valid Cases	197				

Crosstabulation: Marina Size and Personal Values

			Personal Value		
			no	yes	Total
Size	small	Count	15	78	93
		% within Size	16.1%	83.9%	100.0%
	medium	Count	11	54	65
		% within Size	16.9%	83.1%	100.0%
	large	Count	5	48	53
		% within Size	9.4%	90.6%	100.0%
Total		Count	31	180	211
		% within Size	14.7%	85.3%	100.0%

Chi-Square Tests: Marina Size and Personal Values

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1.580	2	.454
Likelihood Ratio	1.709	2	.425
Linear-by-Linear Association	.975	1	.323
N of Valid Cases	211		

Crosstabulation: Marina Age and Personal Values

			Personal Value		
			no	yes	Total
age	less than 5	Count	4	5	9
		% within age	44.4%	55.6%	100.0%
	greater/equal 5 - less than 15 yrs	Count	6	25	31
		% within age	19.4%	80.6%	100.0%
	equal/greater than 40 yrs	Count	25	147	172
		% within age	14.5%	85.5%	100.0%
Total		Count	35	177	212
		% within age	16.5%	83.5%	100.0%

Chi-Square Tests: Marina Age and Personal Values

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	5.764	2	.056
Likelihood Ratio	4.526	2	.104
Linear-by-Linear Association	4.531	1	.033
N of Valid Cases	212		

Crosstabulation: Marina Size and Economic Advantage

			Economic Advantage		
			no	yes	Total
Size	small	Count	71	21	92
		% within Size	77.2%	22.8%	100.0%
	medium	Count	55	10	65
		% within Size	84.6%	15.4%	100.0%
	large	Count	37	9	46
		% within Size	80.4%	19.6%	100.0%
Total		Count	163	40	203
		% within Size	80.3%	19.7%	100.0%

Chi-Square Tests: Marina Size and Economic Advantage

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1.334	2	.513
Likelihood Ratio	1.361	2	.506
Linear-by-Linear Association	.425	1	.514
N of Valid Cases	203		

Crosstabulation: Marina Age and Economic Advantage

			Economic Advantage		
			no	yes	Total
age	less than 5	Count	5	1	6
		% within age	83.3%	16.7%	100.0%
	greater/equal 5 - less than 15 yrs	Count	26	5	31
		% within age	83.9%	16.1%	100.0%
	equal/greater than 40 yrs	Count	134	32	166
		% within age	80.7%	19.3%	100.0%
Total		Count	165	38	203
		% within age	81.3%	18.7%	100.0%

Chi-Square Tests: Marina Age and Economic Advantage

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	.187	2	.911
Likelihood Ratio	.193	2	.908
Linear-by-Linear Association	.157	1	.692
N of Valid Cases	203		

Quantitative Analysis – Section II

ANOVA: Personal Values, Economic Advantage and Regulatory Pressure

		Sum of Squares	df	Mean Square	F	Sig.
Personal Values	Between Groups	1.197	1	1.197	8.698	.004
	Within Groups	27.798	202	.138		
	Total	28.995	203			
Regulatory Pressures	Between Groups	.695	1	.695	3.308	.070
	Within Groups	42.462	202	.210		
	Total	43.157	203			
Economic Advantage	Between Groups	.376	1	.376	2.654	.105
	Within Groups	28.619	202	.142		
	Total	28.995	203			

Tests of Between-Subjects Effects: All Marinas

Dependent Variable:Marina

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	4.000[a]	6	.667	3.502	.003
Intercept	18.605	1	18.605	97.714	.000
Pers_Val	2.201	1	2.201	11.557	.001
Econ_Price	.081	1	.081	.425	.515
Regulation	.205	1	.205	1.076	.301
Pers_Val * Econ_Price	.742	1	.742	3.897	.050
Pers_Val * Regulation	.006	1	.006	.032	.859
Econ_Price * Regulation	.002	1	.002	.011	.916
Pers_Val * Econ_Price * Regulation	.000	0	.	.	.
Error	37.509	197	.190		
Total	146.000	204			
Corrected Total	41.510	203			

a. R Squared = .096 (Adjusted R Squared = .069)

Tests of Between-Subjects Effects: US and Dutch Marinas

Dependent Variable:Marina

US or NL	Source	Type III Sum of Squares	df	Mean Square	F	Sig.
United States	Corrected Model	1.010[a]	5	.202	2.064	.078
	Intercept	6.398	1	6.398	65.396	.000
	Pers_Val	.200	1	.200	2.042	.157
	Econ_Adv	.390	1	.390	3.990	.049
	Regulation	.133	1	.133	1.364	.246
	Pers_Val * Econ_Adv	.386	1	.386	3.944	.050
	Pers_Val * Regulation	.000	0	.	.	.
	Econ_Adv * Regulation	.101	1	.101	1.027	.314
	Pers_Val * Econ_Adv * Regulation	.000	0	.	.	.
	Error	7.827	80	.098		
	Total	76.000	86			
	Corrected Total	8.837	85			
Netherlands	Corrected Model	3.030[b]	6	.505	2.203	.048
	Intercept	9.042	1	9.042	39.443	.000
	Pers_Val	1.016	1	1.016	4.432	.038
	Econ_Adv	.003	1	.003	.014	.906
	Regulation	.238	1	.238	1.039	.310
	Pers_Val * Econ_Adv	.814	1	.814	3.550	.062
	Pers_Val * Regulation	.038	1	.038	.165	.685
	Econ_Adv * Regulation	.163	1	.163	.713	.400
	Pers_Val * Econ_Adv * Regulation	.000	0	.	.	.
	Error	25.445	111	.229		
	Total	70.000	118			
	Corrected Total	28.475	117			

a. R Squared = .114 (Adjusted R Squared = .059)
b. R Squared = .106 (Adjusted R Squared = .058)

Logistic Regression: Variables Personal Values, Economic Advantage and Regulatory Pressure

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	Pers_Val	1.095	.390	7.865	1	.005	2.989
	Econ_Adv	.793	.500	2.515	1	.113	2.210
	Regulation	.740	.342	4.674	1	.031	2.097
	Constant	-.563	.434	1.685	1	.194	.570

a. Variable(s) entered on step 1: Pers_Val, Econ_Adv, Regulation.

Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	5.395	4	.249

Logistic Regression: Variables Personal Values and Regulatory Pressure

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	Pers_Val	1.144	.389	8.630	1	.003	3.140
	Regulation	.667	.337	3.920	1	.048	1.948
	Constant	-.439	.425	1.069	1	.301	.645

a. Variable(s) entered on step 1: Pers_Val, Regulation.

Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	.212	2	.900

APPENDIX D: OVERVIEW BEST MANAGEMENT PRACTICES CLEAN MARINA AND BLUE FLAG

Overview Best Management Practices Clean Marina and Blue Flag Program.	Clean Marina	Blue Flag
I. Waste Management (training, handling, storage, disposal, and recycling)		
Implement proper disposal practices for waste (liquid, solid, hazardous) produced by the operation, cleaning, maintenance, and repairs of boats to reduce entry of waste into surface waters.	x	x
Train Employees and educate marina users on proper handling, transfer and disposal practices for liquid, solid and hazardous waste.	x	x
Provide and maintain appropriate storage, transfer, containment, and disposal facilities	x	x
Provide easy accessible bilge water pumping facilities	x	x
II. Emergency and Safety Planning		
Implement spill contingency plan	x	x
Emergency plans in case of pollution, fire or other accidents	x	x
Train employees on emergency response	x	x
Presence of, and easily accessable nationally approved lifesaving, first-aid, and fire-fighting equipment		x
III. Fueling Activities/Petroleum Control		
Implementation of petroleum/oil spill prevention practices	x	
Compliant with petroleum storage requirements	x	
Compliant with fuel storing and handling standards	x	
Recylcing of used oil	x	
IV. Boat Pumpouts and Sewage facilities and Maintenance		
Install pumpout, dumpstation, and adequate sanitary facilities at marinas to eliminate the release of sewage to surface waters.	x	x
Regular maintenance of pumpout, sceptic system, and sanitary facilities	x	x
V. Boater Education		
Make environmental information available to marina users	x	x
Provide environmental education activities to marina users and staff to prevent improper disposal of polluting material	x	x
Post signage to promote environmental practices at the marina facility	x	x
VI. Facility Management		
Proper design of marina expansions or new marina site	x	x
Promote sustainable transportation to and from the marina		x
Minimize parking and driving on marina property		x
Visually clean marina and clean marina waters	x	x

Overview Best Management Practices Clean Marina and Blue Flag Program - Continued	Clean Marina	Blue Flag
VII. Management of Erosion, Sedimentation Control and Shoreline Stabilization		
Manage boating activities to decrease turbidity and physical destruction of shallow water habitat, and protect shorelines and stream banks from erosion	x	
VIII. Stormwater Runoff Management		
Implement techniques to keep potential polutants from entering stormwater runoff	x	
Measures to divert and/or filter runoff water	x	
IX. Boat Maintenance, Cleaning, and Repair		
Designated (indoors) repair and maintenance area	x	x
Precautions put in place to collect pollutants from boat maintenance at the source	x	x
Implement strategies to reduce the release of pollutants, solvents, and debris from bottom washing, painting, fiberglass repair, hull cleaning, engine maintenance into the sewage system and the marina land/waters.	x	x
Train employees, and inform customers and outside contractors to use environmentally responsible practices through agreement language and signage	x	x
Minimize noise pollution from boat repair and washing		x

Source: Massachusetts Clean Marina Guide, 2001. Maine Clean Marina Guide 2007, Connecticut Clean Marina Guide, 2007. EPA National Management Measures to Control Nonpoint Source Pollution from Marinas and Recreational Boating. The Blue Flag Marina Criteria, Coordination Blue Flag, The Netherlands, 2004.