



D 2.3 Report/scientific articles on leisure boat organization, location and practice in Finland, Sweden and Germany  
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**Project acronym: BONUS CHANGE**

**Project title: Changing antifouling practices for leisure boats in the Baltic Sea**

**Work package: 2 Consumer practices**

**Deliverable 2.3 Report/scientific articles on leisure boat cultures in Finland, Sweden and Germany**

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## **1. Background**

The attachment and subsequent growth of sessile marine organisms to manmade structures in the sea is called biofouling. Biofouling causes several severe problems for ships and leisure boats encompassing loss of speed, dramatic increases in fuel consumption, impaired maneuverability with major implications for maritime safety and for the environment in the form of increased greenhouse gas emissions (Wahl 1989; Clare et al. 1992). Classic ways to combat fouling have been the use of toxic heavy metals such as tributyltin (TBT) and copper, but several reports have shown their severe effects on shallow marine ecosystems (Alzieu et al. 1986; Gibbs et al. 1991). Copper negatively affects behavior, growth and molecular processes in marine organisms with long-term consequences for ecosystem functioning (Baldwin et al; MacIntyre et al; Beyers et al., Shi et al. 2016). The use of TBT has been banned globally (IMO 2001) but copper is still widely used as a biocide in marine AF paints. Current research efforts focus on new efficient and sustainable ways to combat fouling (Callow & Callow 2011). Marine biofouling is a severe problem both for commercial vessels as well as for leisure boats. The Bonus CHANGE project focuses on leisure boats and to understand underlying barriers and drivers for leisure boat owners to use more environmentally-friendly solutions to combat marine biofouling because today, this problem is solved by most boaters by using toxic antifouling (AF) paints. These toxic AF biocides enter the marine environment by leaching from the paint when the boat is in the sea but also, during maintenance work performed by the boat owner. Maintenance work encompasses



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practices such as when the paint surface is scraped or sanded before new paint is applied in the spring before launching and also, when the boat is taken up in the fall and being washed by high-pressure hosing. This report studies the leisure boat owners' antifouling practices in the context of sustainable consumption.

Most sustainable consumption research has focused the ways consumers make decisions about what products to buy. Additional consumer research has studied the attitude-behavior gap, showing that even when consumers are concerned with the environment, that is they report having a positive attitude toward sustainability, they are actually no more likely to make a sustainable product choice than other consumers (Vermeir and Verbeke 2006; Gupta and Ogden 2009). Still others have studied the impact of sharing and anti-consumption as means of restricting the negative effects of overconsumption (Prothero and McDonagh, 2014). Researchers have also focused on the other end of a product's life-cycle, studying consumer activity with respect to product recycling and up-cycling, burning disposed products for power production, or disposal of used products in a landfill (Lastovicka and Fernandez 2005; Brosius et al. 2013). However, little research has been done to understand the ways consumers use products and how that use may lead to more or less toxicity in the environment. The multicultural analysis presented herein uncovers the similarities and differences among leisure boat owners in different cultural contexts when using toxic antifouling paints to protect their hull from being fouled by marine organisms during the time spent in sea. The variety of practices related to use of antifouling products in each cultural context, engage more or less with sustainability, is in large part to do the presence of supporting infrastructure and compliance with rules and regulations surrounding the use of these products. Leisure boat owners in Germany are expected to follow quite strict rules of use and disposal of their toxic antifouling products. Separate bins are provided to encourage proper disposal and fines are levied on boaters who are caught breaking the rules of failing to put tarps under lifted boats to catch old paint chips during hull scraping prior to the application of fresh paint. Sailing in Sweden is deeply embedded in the culture and some boaters are interested in the practicalities of getting the best results while using less paint than recommended by manufacturers. Yet other Swedish boaters purchase and use more toxic paint formulas than necessary for the area where they sail, i.e., fouling pressure varies between location but is generally lower in the low-saline waters of the Baltic Sea than in for example the true saline waters of the North Sea (Dahlström et al., 2014). In Finland there is very little awareness of the negative environmental effects of toxic antifouling paint use and also very little in the way of infrastructure to support more sustainable practices surrounding leisure boat maintenance work. Fouling of the sea in Finland is regarded to be visible litter and industrial effluence; antifouling paint is not recognized as a source of environmental degradation.



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Our analysis and findings offer implications for public policy programs, in particular social marketing efforts to increase awareness of the often unseen toxicity of antifouling paint use and suggest new ways to effectively maintain leisure boats resulting in less environmental damage to the sea and sea life. For example, more focus should be paid to intervention possibilities in the sustainable use of products and services, at the level of consumer behavior. Social marketing campaigns educating harbor masters, yacht club members and individual boat owners about the best and proper use of the least toxic paint would go some ways improving boat maintenance and the health of the sea. Market resource innovation development can be encouraged through the use of incentives. Additional policy intervention could be directed to regulating the maintenance of the boat hull by imposing fines or other sanctions on boaters who fail to contain paint scrapings.

## **2. The purpose**

This study is part of WP2 of Bonus CHANGE, namely task 2.2 Study of pleasure boat cultures. One important element crucial for the success of sustainable non-toxic antifouling products is the connection to existing boat cultures. Boat cultures, which are assumed to be different in Sweden, Finland and Germany, prescribe accepted ways of dealing with antifouling. These boat cultures include normalized boating practices. Within this task the sociocultural dimension of boating and anti-fouling practices in the Baltic will be described in regards to: the social importance and meaning of leisure boating and connected anti-fouling practices, and the cultural difference in social importance and meaning of leisure boating and connected anti-fouling practices. This study closely couples with tasks 2.2, 2.3, 3.1 3.2, 3.3 and 4.1 in Bonus CHANGE, i.e., studies of leisure boat cultures; studies of leisure boat organizations, location and antifouling practice; mapping the market of AF techniques; mapping the legal situation of AF techniques; and recommendations for alternative governance structures.

## **3. Method**

Practice theory methodology is appropriate for the purposes of this research for a number of reasons. It illustrates that sustainable patterns of consumption can only emerge within social practices in which they are embedded (Warde 2005; Røpke 2009) and also offers a community level, non-individual concept to explain sustainable consumption. Previous research demonstrates how practices change and evolve (e.g., Shove 2005; Nye & Hargreaves 2010). Vargo et al. (2013) emphasized that new practices need to become institutionalized, meaning that existing institutions need to be changed, adapted or divided or even new ones created so



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practices can develop in a different way. The bulk of sustainable consumption research arose from the individualistic (micro) approach, yet contemporary scholars acknowledged the importance of examining the social (macro) structures behind consumption (Spaargaaren, 2003). The study here aims to add to the recent shift toward a practice theory perspective in sustainability research (e.g. Røpke 2009; Magaudda, 2011; Shove et al 2012) with respect to consumers' cultural context.

#### **4. Outline of report**

This report is made up of a scientific manuscript aimed to be submitted to the journal *Marcomarketing*.

#### **Maintenance Practices: Perspectives for Product Life-cycle Sustainability**

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#### **Abstract**

This paper examines how consumer practices during maintenance and use result in wide variance in overall consumption sustainability. This paper employs a practice theory approach (Shove, Pantzar, and Watson 2012) to leisure boat consumption, focusing on boat maintenance practices, in three European countries in the Baltic Sea region. Analysis of findings show cultural variance in material conditions (such as marina infrastructure and regulatory conditions) but also at the level of knowledge and understandings of both maintenance practices and sustainability, illustrating how developing material parameters is likely to lead to increased sustainability by shaping existing practices. The findings offer implications for public policy efforts and further consumption theorizing, revisiting both moralist and rationale perspectives as processes for increased responsibility for product sustainability at the hands of consumers.



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### **Introduction**

Sustainable consumption research has mainly focused on product choice, the attitude-behavior gap, moralizing for green consumption behavior, or sharing and anti-consumption as means of restricting the negative effects of overconsumption (see McDonagh and Prothero 2014 for an overview). Likewise, researchers have investigated product disposal schemes such as reduce and recycle campaigns and practices (e.g. Lastovicka and Fernandez 2005; Brosius, Fernandez, and Cherrier 2013). While these two ends of product life-cycle have been widely examined under the lens of environmental sustainability, practices of product use remain under-theorized (Prothero et al. 2011). Practice theory allows an expansive perspective for analysis of consumer behavior, and have been increasingly employed to examine sustainable consumption (Hand, Shove and Southerton 2005 ; Röpke 2009; Hargreaves 2011; Sahakian and Wilhite 2013).

### **Theoretical Foundations**

#### **Sustainable Consumption**

Marketing has a well-earned reputation for driving over-consumption and the consequential environmental degradation, income inequity and human illness. Yet consumption's role as a key driver of environmental degradation has also increased interest in sustainable consumption research (Cohen 2006). The missive at the core of this work is sustainable development, commonly defined as meeting "the needs of the present without compromising the ability of future generations to meet their own needs" (World Commission on Environment and Development 1987, 8). Marketing scholars adapted this definition with a focus on consumption (Heiskanen and Pantzar 1997; Dolan 2002; Shrivastava 1995), taking into account environmental, economical and social sustainability as applied to marketing writ large (Heiskanen and Pantzar 1997; Kilbourne, McDonagh, and Prothero 1997). This increasing interest in sustainability in the field of consumer studies is evident in advent of several recent special issues (see e.g., McDonagh and Prothero 2014 for a review) including the *Journal of Marketing Management* (1998, 2012, 2015) and the *Journal of Macromarketing* (2010).

Theories of sustainable consumption initially focused on consumer behavior. Typologies linking sustainability and consumers began when Fisk (1974) admonished consumers to consider the environmental costs of consumption. Webster (1975) defined a "socially conscious consumer" as one who considers public consequences of individual consumption and uses their purchasing power to effect social change. Later, the conceptualizing the "critical consumer," as one endowed with the capacity for and interest in social and political change in the form of purchasing power (Sassatelli, 2006, 2008) and informed decisions was added to the list. Beyond



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consumer typologies, scholars also examined consumer behavior change efforts, i.e., overconsumption, decision-making process and the consumer-led anti-consumption movement (e.g., Kozinets and Handelman 2004; Cherrier 2010; Vermeir and Verbeke 2006). Yet, initiating changes among consumers cannot solely make for a sustainable future (Thøgersen 2005), so theorists also examined market initiatives such as the third party labeling schemes (Thøgersen 2005) and competitive sustainability efforts. At the macro level, researchers investigated structural and institutional perspectives, including changes in the dominant social paradigm and market level ideologies (Prothero et al. 2011; Holt 2012).

The outcome of these efforts meant sustainable product research focused primarily on consumers' product acquisition, examining sustainability embedded in the product and consumer choice (Gupta and Ogden 2009; Assadourian 2010; Young et al. 2010; Moisander 2007; Vermeir and Verbeke 2006). Whereas marketers have traditionally been interested in how to get consumers buy more, sustainable consumption has directed attention towards encouraging consumers to consume less or better (Jackson 2009). However, researchers have long been unsuccessful in explaining the "behavior attitude gap" wherein consumers who propone to hold positive attitudes regarding sustainability, still fail to consume the more sustainable products on offer (see also Eckhardt, Belk, and Devinney 2010). Studies consistently found that even when consumers are concerned with the environment, and profess a sustainable attitude, they do not behave accordingly (Vermeir and Verbeke 2006; Gupta and Ogden 2009). Part of this disconnect may be with the attitude behavior studies themselves which only examine isolated behavioral items (Shove 2010) rather than comprehensive interrelated elements.

Yet, product acquisition is not the only behavior to garner researchers interest. Starting in 1977, Jacoby, Berning, and Dietvorst argued that more focus should be paid into product disposal. Scholars have indeed been increasingly interested in studies focusing on product disposal, reuse, and waste management (e.g., Brosius, Fernandez, and Cherrier 2013; Price, Arnould, and Curasi 2000; Lastovicka and Fernandez 2005; Närvänen, Mesiranta, and Hukkanen 2013).

Still, the majority of research conducted in sustainable consumption had focused largely on two ends of the product consumption cycle: the product choice and acquisition such as buying green products (e.g., Vermeir and Verbeke 2006; Moisander 2007; Gupta and Ogden 2009; Young et al. 2010) or on waste management such as recycling (Bulkeley and Gregson 2009; Ekström 2014). Between these two endpoints is the *use* of the product. Few studies examine product usage and product life extensions, in particular product maintenance, which plays an important role in enhancing sustainable consumption (Prothero et al. 2011), but as discussed in our study, maintenance can also decrease sustainability. This perspective emphasizes the circular nature of product lifecycle instead of previous focus on consumption as linear process (Brousius, Fernandez, and Cherrier 2013; Hargreaves 2011). As Prothero et al. (2011) note, product



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maintenance influences both product life and product replacement.

The overall sustainability of a product is usually measure some form of Life Cycle Analysis (LCA), “a tool to assess the environmental impacts of product systems and services, accounting for the emissions and resource uses during the production, distribution, use, and disposal of a product” (ISO, 1997). Consumption in LCA studies generally focuses on activities with little possibility for variance of consumer behavior, for example “energy and detergent consumption during the use of a washing machine, or the environmental load associated with the disposal of mobile phones” (Hertwich 2005, p. 4673). The traditional LCA input-output analysis provides limited information for understanding product use and variance of overall environmental impacts. Hertwich (2005, p. 4673) also notes that while “the LCA has proven useful in the context of sustainable production...it has been little used in the sustainable consumption.” Scholars have yet to theorize *the ways product use* relates to the overall sustainability of the product, in other words, the full consumption cycle. This study intends to partially fill that gap with a focus on product usage, the post-purchase, pre-disposal part of the cycle. Our work answers calls (e.g., Prothero et al. 2011; Brousius, Fernandez, and Cherrier 2013; Sahakian 2010) for policy makers and marketing researchers to view consumption as full consumption cycle of acquisition, consumption and disposal.

When considering how to change behavior to be more ecologically benign, focus should be on the wider perspective and not solely on a narrow resource or concern (Sahakian and Wilhite 2013; Welch, forthcoming). Scholars have called for more research beyond the individual consumer toward considering the wider social and cultural context particularly “the significance of cultural conditions of possibility in guiding and constraining consumers’ ways of being and acting in the world” (Moisander, Valtonen, and Hirsto 2009, 343) and for more socially oriented studies, aimed at understanding the social structure of sustainable consumption (Shove 2010, Spaargaren 2003). To do so, we employ the analytical power of practice theory.

### **Practice Theory**

Consumption, can be viewed as Warde (2005) suggests as a moment “that arises in the course of performing and participating in social practices, and meeting the shared requirements of normal and appropriate conduct [and thus it] follows that the importance of materials relate to their role in configuring the practices for which consumption occurs” (Evans 2017). Similarly, Halkier and Jensen (2011) point out how practice theory enables understanding consumption as “on-going accomplishments” at the intersection of multiple practices, thereby moving away from individual consumer choice and toward seeing how various ways of consuming are entangled with social change (see also Halkier, Katz-Gerro and Martens 2011). In a similar vein, Shove (2017, 165) conceptualizes consumption as something that occurs in the course of social practices, and therefore “the spatial organization and timing of such practices matters for the spatial



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organization and timing of consumption” as well as for the circulation of materials and for the storage and distribution of materials.

Warde (2014) also noted the usefulness of approaching consumption from the perspective of practice theory as it allows moving beyond individual choice and focuses on common social processes. Shifting the attention from consumption as a cultural perspective to consumption as practice enables the examination of the *use* of commodities and the different roles material elements play (Shove, 2017) in practice. Practice theory also offers a way out of the attitude behavior and value-action gap conundrum (Welch and Warde 2015) through analysis of sustainable consumption patterns within social practices in which they are embedded (Warde 2005; Røpke 2009). Furthermore, the concepts of social practice theory (e.g., Hargreaves 2011) enable researchers to achieve a non-individualistic perspective on consumption and therefore have a more significant explanatory power (Shove 2010). Because practices occur as arrangements, as bundles of different practices that span spatial and temporal domains (Shove, 2017), practice theory confounds the distinction between micro and macro as useful divisions (Nicolini, 2017a; Nicolini, 2017b). The aim of practice theory is to explain how different practices achieve doing what they do, how they are linked to each other, and how changing the constitutive elements of practice helps achieving changes in the said practice, for example, toward more sustainable outcomes.

Reckwitz (2002, 250) defines practice as “a routinized type of behavior which consists of several elements, interconnected to one and another.” He explains further that a practice exists as a “block” or a “pattern which can be filled out by a multitude of single and often unique actions” that then reproduce the practice (Reckwitz 2002, 250), referring to the repetitive character of a practice. Shove, Pantzar and Watson (2012) extended Reckwitz’s culturally-oriented explanation of practices, in particular by developing the material dimension of practice theory and they thereby add “a material dimension to what are otherwise conventionally ‘social’ theories” (Shove et al. 2012, 9). They thus construct a classification of practices consisting of the following elements: material, competence and meaning. The *material* aspect encompasses objects, infrastructures, technology, tools, hardware and the body itself (Shove et al. 2007). Schatzki (2002, 106) concurs, arguing that “practices are intrinsically connected to and interwoven with objects” and how understanding specific and situated practices requires consideration of the material conditions (Schatzki et al. 2001). The material agency emphasizes the importance of the objects, especially technologies in consumption practices. Material devices can shape or be shaped by practices. For example the invention of home cooling devices enabled cooling indoors (Wilhite 2008). This new technology also changed social practices where people are able enjoyed sitting inside on hot day, yet also spent less time outside in the fresh air. *Competence*, the second element of practice, can be described as a bundle of practical knowledge, skills, and forms of understanding. Furthermore, Shove et al. (2012) emphasize the circulation of practices,



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their reproduction but also transformation. The third element, *meaning*, refers to “the social and symbolic significance of participation at any one moment” (Shove, Pantzar and Watson 2012, 23).

The first generation of practice theories established by Giddens (1984) and Bourdieu (1977) studied only human actors (Spaargaren 2011), however other practice theories accentuate the significant role of material artifacts in practices and non-human entities are regarded to be essential for the production of social practices (Preda 1999; Orlikowski 2007; Gherardi 2017). Materials are important in every practice since performing practices requires different material artifacts (Røpke 2009; Shove et al. 2012). In our study of boat maintenance practices the relationship between the material (e.g. boat) and the practice of maintenance demand consideration of the boat. The link between environment and practices are the material components, such as products, infrastructure, and tools that people need to perform practices (Røpke 2009) but also the human body carrying out the practice. Thus, practice theory and sustainable consumption research are linked through the material component of practices (Sahakian and Wilhite 2013) while the elements of competence and meanings are equally important. The application of practice theory has convincingly shown that material elements including the human body, meanings and competences, configure consumption practice and that the dynamics between these elements have transformational properties in sustainable consumption studies (Magaudda 2011; Shove, Pantzar and Watson 2012). Practice theory has been increasingly used in the sustainable consumption studies due to its holistic focus on consumption (Røpke 2009) and relevance to a particular environmental problem (Sahakian and Wilhite 2013). It has been used to explain the ways every day routines such as showering and commuting result in big environmental impacts (Shove, Pantzar and Watson 2012; Hand, Shove and Southerton 2005).

Practice theory research also examines how practices change and evolve (e.g., Shove 2005; Nye and Hargreaves 2010; Halkier and Jensen 2011). Vargo, Wieland, and Akaka (2015) emphasized that new practices need to become institutionalized, meaning that existing institutions need to be changed, adapted or divided or even new ones created so practices can develop in a different way. The bulk of sustainable consumption research arose from the individualistic approach, yet contemporary scholars acknowledge the importance of examining the social (macro) structures behind consumption (Spaargaren 2003).

Traditional ways of doing things are embedded in culture. These practices stem from long held traditions and rarely invoke consumers’ imagination or reflection, yet may be inherently unsustainable and inadvertently cause harm to the natural environment. While similar in purpose and goal, practices in different cultural contexts may vary widely in sustainability outcomes. As practices are both cultural and material (Gherardi 2017), we need to examine practices from a perspective that allows us to consider the influence of both dimensions, but also that of



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meanings, knowledge and skills, all culturally variant as well as intertwined with materiality. Reckwitz (2016, 114, italics in original) argues that it is “because the *social* practices depend on implicit schemes of knowledge [that] they are always *cultural* practices.” The study here aims to add to the recent shift toward a practice theory perspective in sustainability research (e.g. Røpke 2009; Magaudda 2011; Shove, Pantzar and Watson 2012; Shove 2017; Casey, Lichrou, and O’Malley 2017) with respect to consumers’ cultural context. Therefore we pose the following question: What are the different practices evident among the Finnish, Swedish and German cultural contexts with respect to product use, and in what ways are those practices more or less sustainable?

## **Methods**

### **Context**

The context for this study is boat maintenance practices among Finnish, Swedish, German leisure boaters in the Baltic Sea. Maintenance of the boat hull is particularly implicated in sustainable consumption studies as the hull interacts with the marine environment while in use and the land environment during maintenance and storage. Most leisure boat owners use toxic antifouling paint to keep barnacles from attaching to the hull, thereby improving boat maneuverability and decreasing drag with in turn lessens fuel costs. Antifouling paint used to combat barnacles, causes particular problems as the use of these products continuously adds to the distribution of biocides in the coastal ecosystem (Thomas and Brooks 2010) and leads to the death of marine organisms.

Boat maintenance happens in the spring when the boat is prepared for the season. Springtime maintenance includes scraping old paint from the hull and applying new paint to the scraped surface. In the fall the boat is lifted from the sea and the hull is usually pressure washed (although some use only a sponge) in preparation for wintertime storage on land. Unfortunately during the scraping and washing process loose paint fragments are removed and pollute either the water or soil (Eklund and Eklund, 2014; Eklund, Johansson and Ytreberg 2014). These practices are particularly harmful in the semi-enclosed Baltic Sea (see Ytreberg, Karlsson and Eklund, 2010), an area where the exchange of water is limited and water pollution is among the highest on Earth. In short, leisure boat maintenance practices of 3.5 million boaters add significantly to the poor health of the Baltic Sea.

### **Data Collection**

We combined various qualitative data collection methods, including ethnographic interviews, photographic and video data collection and participant observation of boat maintenance. Ethnography has been increasingly used in studying everyday cultural consumption (Arnould



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and Wallendorf 1994; Arnould and Thompson 2005), but also to study consumer practices in the context of environmental behavioral change (Hargreaves 2011) and sustainable consumption (Casey, Lichrou, and O'Malley 2017). It enables researchers to go beneath superficial or socially desirable meanings (Goulding 2005) and helps in understanding the culturally shaped actions and everyday social interactions (Arnould and Wallendorf 1994). It is especially useful for the present study because of ethnography's focus of observing consumers in their everyday life while they are carrying out their practices (Reckwitz 2002).

We collected extensive field notes describing the boat maintenance practices concentrating on pre-painting preparation of hulls including the scraping the old layers of antifouling paints, noting for example, whether or not the participants covered the ground to catch bits of the toxic paint. Participant observation was done both in the spring when the boats were painted and then launched for the coming season and in the fall when they were washed and prepared for winter storage. Through participant observation it was possible to study the relationships among people, organization of their doings, different patterns as well as the immediate sociocultural context (Jorgensen 1989).

Data was collected in five different boatyards around Baltic Sea. This multi-site approach allowed us to compare the extent to which maintenance at boatyards differed from each other. Since the environmental problem is not constrained within one nation's boundaries, a multi-national, multi-sited strategy for data collection proved to be useful. We concentrated on boatyards in Germany (Kiel), Sweden (Gothenburg) and Finland (Helsinki). These sites were carefully chosen to represent multiple distinctive features found in marinas in the Baltic Sea. The marina in Kiel is privately owned. The marina in Gothenburg is semi-privately owned, that is, in part by a private company called Grefab (Göteborgsregionens Fritidshamnar AB/ Gothenburg Region Leisure Harbors) and in part by the municipality. The marina in Helsinki is publicly owned. The second Finnish site is a marina managed by a boat club, operating on land rented from the city of Helsinki.

Our data also includes boating blogs, boat magazines, policy documents as well as ethnographic notes collected during participation in boat maintenance activities. We conducted interviews with over 60 boat owners and harbormasters. Interviews lasted from 30 minutes to 1.5 hours and took place either in the boatyards where the informants were working or had their boat or in nearby cafés. We engaged with boat owners informally while visiting boatyards as well as at the annual boat fairs in Helsinki and Stockholm.

### **Findings**

Following the tenets of practice theory, we analyzed the data as materiality, meanings, and competencies. Together they make up a practice and are thus interrelated and mutually shaping.



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However, the elements may be linked in different ways, each influencing the others (Shove, 2017): this makes changing practices possible, and also illustrates how practices travel as they are interlinked with other practices, also historically (e.g. Nicolini, 2017a) and potentially future practices. Our findings suggest there are differences within all three constitutive elements of the boat maintenance practice of painting. We detail the country-level differences below. For example the material dimension of practice includes the degree to which infrastructure supports or doesn't support more sustainable practices, and includes consideration of the paints used, the boat, as well as the marine organisms and whether these are seen and problematic or unseen and endangered. Meanings, on the other hand, can be exemplified as notions such as "being a good sailor" and one's success at keeping the boat clear of barnacles as evidence of the same. Meanings also covers symbolic significance of membership to boating community, of historicity (familial belonging), identity as a boater (also rooted in historical meanings of belonging), the personal significance of nature as well as respect for nature, to mention but a few. It also includes things such as how harm, or environmental pollution and unsustainable consumption, are conceived and understood. Competence includes skills and the ability to care for one's boat, a do-it-yourself (DIY) ethos, combining practical knowledge and experience. Competence also extends beyond maintenance to being able to handle the boat during a storm or other unseen or unexpected natural scenarios. The elements of practice are mutually shaping (Shove et al., 2012), and the empirical material show how competence is shaped by the material dimension and materiality is shaped by competence. For example, changes in marina infrastructure have a direct effect of the practical skills and sustainability outcome, and eventually also on forms of understanding of what good practice means or the concept sustainability. In this way, meaning is also shaped and practices undergo gradual shift in how they are composed.

We find the biggest difference between the countries to be within the material conditions relating to boat maintenance. However, both material and meaning feed into the dimension of competence and how the practice is carried out: skills required to look after one's boat in alternative ways include subverting commonplace assumptions, and hence, consumer tactics on painting less stem from trust in one's own ability to "know better", or to know one's boat and the sea as an environment. Our findings suggest there are some differences in boat maintenance practices and the use of toxic paints among boat owners from the three different nations. These differences are detailed in the sections following our findings of general practices.

### **General Practices**

While antifouling practices are not undertaken every day, the adverse effect of harming the environment occurs every day as anti-fouling toxins are released whenever the boat is in the water (see e.g. Karlsson and Eklund 2004). Tests on boatyards throughout the Baltic Sea have proven that loose paint flakes removed through scraping and washing boat hulls are responsible



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for the high pollution of the soil in boat yards and that it is necessary to change maintenance behavior (Eklund and Eklund, 2014). We found boat owners had very little understanding of this unintended harm to sea life, although the majority of boat owners are aware of the toxicity AF paints and the required level of care, including covering the soil when scraping the hull and recycling of paint tins, that should be taken during the maintenance procedure. Among the boat owners who were aware of the harmful effects of paint dissolving into the seawater, paint was still considered “lesser of the two (environmental) evils” as increased fuel consumption and the resulting CO<sub>2</sub> emissions are deemed more harmful, and harm from fuel consumption can be mitigated by maintenance (i.e. reduce fuel consumption), in particular by a regular painting of the boat hull. In general, boating communities are environmentally oriented and some consider themselves to be environmentally conscious; however, the scope of the understanding of sustainability issues, of what is or is not environmentally friendly, is somewhat lacking. Partly this is due to lack of a combination of little information of the detrimental effects of AF paints on benign marine life and coupled with a general understanding of the harm of CO<sub>2</sub> related to fuel consumption and one’s carbon footprint.

Boat owners cite includes visible litter or otherwise leaving waste in the nature as unsustainable behavior. Both litter and producing excessive CO<sub>2</sub> emissions are visible, easily understood forms of environmental harm. However, this is not the case with the AF paints where one cannot see the harm being done. Shaping the meaning of both what it means to be eco-friendly and what sustainable consumption entails as well as shaping the boaters’ understandings of harm would most likely result in desired changes in competence, in practical knowledge at the level of carrying out the maintenance practice.

The “good boat owner” cares for the vessel and by extension the sea, following a tradition of semi-annual maintenance practices, including washing, scraping and polishing the hull before applying fresh paint. Proper regulation and supervised use of paints affects the likelihood of sustainable or unsustainable maintenance outcomes. The variety of practices in each cultural context engage more or less with sustainability, and this is in large part due to compliance with local rules and regulations and related sanctions.

### *Material*

Along with the boat and the human bodies, material elements of maintenance include the paint, brushes and tarps used to carry out antifouling practices. High-pressure washing is offered at some boat yards while some boaters use only a sponge. Depending on how the wash water area is constructed and what services are offered it can either contribute to harming the environment or facilitate a more sustainable practice. In some boat yards the wash water goes without any filtering back into the sea, yet other boat yards have a filtering system to mitigate the likelihood of toxins reaching the sea. Similarly, some marinas provide appropriate waste and recycling



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facilities for discarding toxic paint tins, while yet others neglect this aspect of painting practice related waste altogether. This illustrates how, as crucial component of practice, material elements like infrastructure and regulations as well as adequate supervision of these with sanctions can support sustainable consumption by enabling change in normalized maintenance practices. Although change in normalized practices can also be approached via the dimension of meaning, for example, in the form of increased awareness and new symbolic meanings attached to sustainable practices or what it means to be a caring boat owner, material elements are more accessible and concrete and have a direct consequence on practice.

*Meaning*

Social meanings, such as the symbolic significance of participation, historicity (belonging to family, familial traditions and meanings around boating), emotion, and the inter-connectedness of meanings and identities (Schatzki, 2001) are evident in the maintenance practices. Meaning is derived from expertise of the boat owner and connection to the boat itself, the country-level cultural context, and the meaning of being a good sailor. The interrelation of practices places boat maintenance relative to boating practice, the act of boating or sailing, which is the end goal of maintenance as well. Thus, the supporting practice of maintenance (Shove, Pantzar and Watson 2012) and the related competence enables pursuing the desired emotional ends in the dominating practice of sailing.

As Shove, Pantzar and Watson (2012) point out, community is integral in the sharing and spreading of practices, and thus, meanings and competencies travel. Indeed, community, both cultural boating community and familial boating community, emerge as significant factors in learning common maintenance practices of becoming a sailor. Normalized practices also play a role in becoming part of the community. Yet, if practice changes, community is also a key actor in spreading the new and rearticulated practice, for example regarding sustainability. Boaters also exhibit creativity regarding historically persistent practices, such as painting, and engage in practices of painting less in several different ways, a subversive act that ultimately draws on knowing one's boat. It is also within the community that the appropriate and good performance of practice is defined and the understanding of good maintenance practice distributed. On the other hand, linkages between practices can also be broken, giving way to new ways of doing things. In this way, new practices of painting less and other sustainable maintenance methods could also gain momentum within a community.

One of the essential symbolic meanings of being a boater is that is being a "good sailor." This is a complex notion as being a good sailor is not simply a matter of mechanical skills that can be acquired in a class/course on sailing or even over a couple of years of boating, but rather it encompasses a range of values from respect for the nature and keenness to protect it; the ability to read the weather, being able to be "one with nature" and linked to this; the capacity to act in



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sudden and unpredictable situations, a certain tenacity and endurance, of not giving up. In addition, taking care of the one thing that spans all these meanings and related activities, the boat itself, is essential to one's identity. This in turn contributes to the DIY culture.

*Competence*

Competence with respect to operating the vessel, preparing the boat for the season and limiting the environmental damage of toxic paint use is in the hands of the boat owner. However, there are two things to consider: first, knowledge is acquired within the community of practice, including cultural intelligibility which occurs in the given cultural context, founded in traditional practices; second, the performance of painting is also guided by instructions from the manufacturers who no doubt are motivated by financial gain as well as by regulations. However, paint manufacturers don't include the most sustainable use practices on their packaging (i.e., providing a tarp under the boat while applying paint and to catch paint chips while scraping the hull) nor do they suggest applying *less* paint, such as painting on an "as needed" basis, or only every other year when this is found sufficient. Thus, extra effort practices for maximal product sustainability become the personal responsibility of the each boat owner and naturally this varies greatly. The product lifecycle sustainability/toxicity total of any given anti-fouling effort is in part determined by consumer use of the product in practice, but also determined by infrastructural, regulatory, and other material relations.

Boat maintenance is a traditional DIY activity that is passed down generations. As practices are historical (Schatzki, 2002; Nicolini, 2017b) they persist through time and in the context of boating, maintenance practices are generally acquired via immersion in community. Community, here, spans the local and global boating community and cultural context to include family and the past generations. Also, in case the boat owner is new to boating, the boating community will help and support in the learning process, passing on the same normalized practices. It is fair to say that painting the boat has long historical roots and changing any practice with historical and symbolic significance needs to consider these aspects.

While being knowledgeable about one's boat is linked to meanings such as identity as a sailor, it is also linked to skills which may take decades to master. The alternatives to AF paints employ different embodied practices and require a different set of skills, for example covering the hull with a cover, or manually scraping the bio-fouling from boat hulls. Any effort to render the alternatives attractive would have to address this issue of embodied practice, and one way may be addressing the meanings attached to boat maintenance.

**Germany**

The German data demonstrates the most profound efforts to limit environmental toxicity due to



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anti-fouling maintenance practices. Culturally prevalent ethos, reverence for “following the rules,” supported by available infrastructure and financial sanctions, together form the basis for more sustainable practices among German boat owners. The German empirical material and ethnographic observation show more sustainable material infrastructure, such as hazardous waste bins, enforcing of rules through policing, peer and self-monitoring as well as financial sanctions when regulations are violated.

*Material:*

In Germany the leisure boat culture the material conditions, in particular infrastructural relations, rules and regulations, and waste management, are significantly more developed than in the cultural and national contexts of Finland or Sweden. Maintenance practices are highly regulated with significant financial consequences for those who ignore the rules. Local regulations and associated fines mean boat owners take great care not to drip paint or leave paint scrapings to be washed into the catchment. Waste management plans are quite strict and consistently enforced. Marinas provide separate bins for hazardous waste on site. Fines of up to 100€ are imposed for rules violations. As the dimensions of practice are interrelated, the material conditions influence both competence and meaning. In terms of competence, a more sustainable marina infrastructure directly influences boat maintenance practices of painting, prevention of toxins leaking into the ground or the sea and the disposal of paint tins. Material conditions combine with the general societal adherence to rules and regulations as beneficial, which in turn favorably influence sustainable use of paints. In these ways, material conditions affect meaning as meanings affect materiality.

Responsibility and oversight of maintaining regulations are distributed. Policing and oversight of regulatory obedience is undertaken by the “water police” along with harbormasters, and fellow boaters. Karl (45) notes “we control each other, but there are black sheep everywhere...the water police also comes by and controls boat owners, also fines are possible.” Fines are readily imposed on those breaching regulations, and thus act as a deterrent to irresponsible maintenance. While German boaters follow the local regulation to avoid financial loss, they don’t however demonstrate a greater understanding of the reasons behind the efforts to keep old paint scraping from washing into the sea. However, in Germany the rules are in place, and these are followed despite necessarily understanding the rules or why they are in place. The rules themselves govern the behavior, not necessarily a positive attitude toward sustainability or a deep understanding of the negative environmental consequences of poor maintenance practices.

Other material aspects general maintenance work include time, distance from the marina, and costs. Many Germans live further away from their marinas than do Finns or Swedes. Therefore, any alternative sustainable anti bio-fouling option should be affordable, quick and relative easy to carry out and apply. Availability of hull covers at the marinas could improve



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likelihood of use; it is unlikely people would invest in one on their own, because despite of the costs there are issues of storage and transfer to and from the marina that would require investing in transport. Providing effective material alternatives to anti-fouling paint could encourage boat owners to try more sustainable options.

*Meaning:*

In Germany, there is a general understanding (Shatzki 2002; see also Welch and Warde 2017) that rules are a good idea: people generally obey the rules even if and when they do not have specific knowledge for the reasons behind the rule. One German boater says he always covers the ground for painting, but he does not know or understand why. Still he does it, because everyone else does it, too. Another boater explains that he does not know who oversees the rules and hands out fines, but he has heard that some boater did get a fine, and therefore they obey the rules so as to avoid being fined. The general understanding of a correct way of doing things, the tacit knowledge with respect to rules and proper maintenance practices, is thus reinforced through the German boating culture. This general ethos of obedience has its roots in the wider social and cultural framework of accepting state regulations and also condoning the existence of rules. Thus, the local understandings in the context of boating culture are interlinked with the wider frame of cultural understandings. Some participants report that they do not know what the exact rules are, even, but they have knowledge of rules, i.e. that there *are* rules. Therefore boaters do what others do, thereby re-producing the more sustainable practice of boat maintenance.

Do-It-Yourself (DIY) maintenance is significant in terms of continuing and re-working of meanings attached to both the boat and membership of a collective. A traditional way of doing things in boating culture, maintenance is partially a source of pride and partially an economic decision. For instance, 70 year-old Jörg still repairs and maintains both the boat facilities (a toilet) and the boat hull himself. Marcus (age 55) prides himself on the work he does to restore an older vessel, noting how “the boat rusts from within.” Along with the pride of competence, these two men, as well a many others mentioned the high costs of outsourcing maintenance they could clearly do themselves. DIY maintenance is often both more time-consuming and labor intensive than some boaters thought. Some boat owners mention how little time they have for boating in relation to their job, having a long drive to the harbor, and necessary boat maintenance.

Yet the linkage between sailing and identity is less evident among German boaters than those in Finland and Sweden. Perhaps this is to do a smaller coastline and fewer ties through familial history to sailing and the sea. Younger boaters like Christian would rather just be on the boat as opposed to working on the boat. Time on the water means freedom and relaxation, connectedness to family, nature, and to some extent to community.



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*Competence:*

Anti-fouling paints hold different meanings among German boat owners. Hans (age 40) recalled his youth, when he was learning maintenance practices, “Back in the days, paints were very toxic. You'd have to wear masks.” By comparison, the contemporary anti-fouling paints are seen as less harmful. Yet, the purpose of the paints is not clear to everyone: Calvin (age 45) expressed doubt that “anti-fouling paint makes your boat faster.” We found no evidence of specific consumer knowledge of the dire effects of anti-fouling paint in the marine environment.

Competence includes practical knowledge and skills, and this includes skills and attitudes needed to paint less. While the marina infrastructure coupled with other regulations and sanctioning in Germany result in less paint ending up in the nature, less paint in the nature can also be achieved by reduced use, which is linked to variation in levels of competence as sustainable boat owners. This means the boaters either use less paint by applying only one coat instead of two, or only paint only the patches needing repair, or only paint every other year instead of the recommended two layers every year. Practical knowledge is needed in order to be able to engage in painting less as one has to know how the boat and paint behaves, i.e. how much, or little, paint will serve to keep off the barnacles. Often this knowledge is acquired over the years from experience.

Sometimes owners continue the practice inherited from previous boat owner: most boats have had multiple owners, and boat is one material object that traverses time and space. In this sense, knowledge is historical. Another factor influencing consumer tactics vis-à-vis painting less is the willingness to object to manufacturers’ recommendations and trust one’s own skills. Yet, even in this regard, boaters seem to assume their own habitual way of maintaining the boat: they may “always paint just one layer” (Johann), or “always paint every other year” (Peter), instead of the recommended two layers every year. The German data shows that financial as well as labor-economic motivations are major driving forces behind painting less.

Information in the form of practical guides is a material component that overlaps with competence: perhaps surprisingly, it seems based on the German data that the understanding of harm that can be enhanced by way of increased information has little effect on following the rules. Despite not necessarily understanding why there are rules, rules are regularly followed. Thus, it seems that knowledge is not necessarily a factor in obedience in a culture where rules generally are not contested. This leads to attitudinal factors: if there is a general attitude that following rules and regulations is what people do, regulations and sanctioning will work, regardless of understanding of harm or sustainability issues.

**Sweden**



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Swedish boat owners demonstrate the widest variety of maintenance practices among the countries in this study. Swedish boat clubs do not need specific permits to designate a maintenance area. This leads to great variety in boat maintenance facilities at various boatyards. Different paints formulas with varying amounts of anti-fouling agents are sold for each the east and west coasts, yet retailers sell paints indiscriminately, providing an opportunity for unsustainable and illegal use of banned paints in coastal areas where only weaker paints are sanctioned. Among all informants in this study Swedish boat owners have the best general understanding of the many facets of the discussion around anti-fouling paints.

*Material:*

Authorities warn of the dangers of the TBT and copper-based paints and important material elements of rules, regulations and information. Lars notes how “authorities in Sweden regarding boating [provide] nice figures of how much copper is sold as a biocide that go into antifouling paint.” While this information is useful, he also contends too much of the responsibility is placed on the consumer. Boat owners are aware of legal challenges of former paint formulas: “They can’t sell the real, hard stuff anymore. So, it’s...more eco-friendly” (Per). Some boaters note information from the government is too focused on amounts of copper rather than practical information about product use and the harmful effects of AF paint. However, knowledge does not in and of itself lead to action and it is common knowledge that boaters circumvent the ban on certain paints. Lars explains “ [It’s] in the regulations from the authorities here, you should just use, approved paint, (chemical) inspectorate. Other paints are not allowed. But as long as you can find them on the market, and I don’t think that people, are using this paint because they are so very good. I think they (pay) less money for it, [so it’s] cheap. I think that’s the main reason.”

Boat owners are also concerned with the paint’s material characteristics, that the AF paint is “successful” measured directly by the effectiveness against barnacles, but also indirectly with reduced fuel consumption and improved sailing maneuverability. Boaters are mostly willing to try other methods given they are proven to yield the same result. Ideally, this would have to be achieved without accruing extra costs either in term of cost or time.

In contrast to the German context where people are likely to follow the rules, people in Sweden actually circumvent the rules and go buy the stronger paint from the coast where it is allowed and bring it back to where it is not allowed, some even go abroad to Denmark or Norway. Despite knowing that certain paints are officially forbidden in certain areas, some boaters still go buy the paint they perceive as more effective anti-fouling properties. Even if the harbor master finds out about the illegal paints procured elsewhere being used in the marina where they are banned, they is nothing they can do and nothing happens even if the boaters use banned products.



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*Meaning:*

Swedish culture is rife with connections to sailing, or as one informant put it, “everyone sails.” Sailing in Sweden is part of the national identity and lifestyle, and boat maintenance is a high on the list of conversational topics: “You must have a look [i.e. keep an eye on it] at your boat all the time. It’s way of living” (Björn). Youngsters grow up on boats and often participate in maintenance, as (Rafael) notes: “I have painted uh, boat(s) since I was nine years old.” Skills are passed down through the generations, but also learned from fellow-boaters: “You learn [anti-fouling practices] from your neighbors...” (Pelle). And these practices can be well ingrained in the consumption community: “I think it’s [maintenance practices are] rather traditional, boat people are rather traditional,” (Björn) and may be difficult to change.

Boaters juxtapose the “the real, hard stuff” with the “eco-friendly stuff,” implying the more ecological alternatives will never match the efficiency of traditional, toxic paint. However, Swedes are somewhat open-minded, with positive attitudes toward painting less. One harbormaster even started a “Paint Less.” Still the problem of a shared commons (Hardin 1968, Feeny et al. 1990), in this case the Baltic Sea, and responsibility for the same has some Swedes calling foul as other countries “just go ahead and use these paints anyway and it’s fine”, while others bring up the issue of big (commercial) boats still being allowed to use the “hard paints.”

There is some concern on placing the responsibility with the boaters, the individuals, and the more critical ones see the toxic paint and the Baltic Sea issue as a political issue and something that should involve the big organizations in terms of regulating. Furthermore, the information regarding the amount of copper, for example, required by the regulations to be printed on the paint cans, does not in itself mean anything necessarily to the consumer. For example, some confusion regarding harm occurs due to copper being a natural element, as Pelle notes: “Honestly, copper is of course material which is a natural material and I don’t know if it has an effect on the marine life. Uh... the softener on the other hand which goes into the water all the time, which is supposed to be non-toxic here, I have a huge question mark.”

The sea generates emotional attachment, evokes memories and symbolic significance of being one with the nature. As one respondent notes, the best part of sailing is “the whole experience...living on water. Just to rely on the weather, winds. That’s it. And all the pretty places and new experiences. New places” (Per). As with all boaters in the study, there is a great respect for the nature, and boaters generally do not want to harm the sea.

*Competence:*

Swedes engage in a public discussion about AF paints and thus most boaters are to a lesser or greater degree aware of the toxic effects of the paints. However, the exact harm caused is still unknown to many. While some distrust issues regarding paint manufacturers emerge from the interviews, generally boaters trust the manufacturers and the authorities, as Rafael says: “I think



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copper is not so uh, poisonous as other types [...]because the authorities had said, “you can use this uh, painting.” And I must trust to them” (Rafael). Still, a “good boat owner” keeps the vessel free from bio-fouling marine organisms.

Although Sweden is very similar to Finland in many areas of boating culture, one difference comes up in the area of understanding or appreciating rules: it is not uncommon for boaters in Sweden to go buy the AF paint banned in their area elsewhere, and the rationale for this is effectiveness. Because of the brackish water in the Baltic Sea, and the location of Sweden and its coastal areas, different paints are allowed on the East coast versus the West coast. This is because of the different salt levels in these areas, the Eastern coast being less salty. This has a significance regarding the paint: the more salty water requires “stronger” paint (i.e. more toxic) and thus these more toxic paints are sold on the West coast of Sweden, but banned on the East coast. However, boaters circumvent this ban by travelling further to purchase the desired stronger paint that then ends up used in the area where it is not allowed.

Rather than a wholesale view that more paint is best, some owners ignore manufacturer’s recommended paint use and instead use less paint: “If you can make a thin layer it, you can use it longer. So that is little cheaper. And it works... (I) paint just always some parts” (Sven). Here, what motivates boaters to defy clear regulations and go purchase the banned paint is their understanding of effectiveness of maintenance practice on the one hand, but also their inadequate understanding of AF paint’s harm. In these ways the dimensions of competence and meaning clearly intertwined with materiality combine to results in unsustainable outcomes.

## **Finland**

There is very little regulation and supporting infrastructure in Finland’s public marinas. The primary consideration when choosing and using toxic paint is care for the boat, and the toxic paints are considered “heroic actors” in the fight against barnacles Thus, the overall sustainability of products used in Finland is much less when compared to German marinas where stiff maintenance restrictions prevail, and in Sweden where AF paint is a matter of public discourse.

### *Material*

Marina infrastructure, as in waste disposal bins, recycling, washing stations, and boat maintenance guides and regulations are largely lacking in Finland. Waste recycling or adequate toxic waste bins are not provided and boaters tend to leave used paint tins lying around the marina. There is little oversight in city-owned marinas of who is specifically responsible for protection of the environment. There are few if any regulations specific to boat maintenance



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practices and use of toxic paints. No enforcement or policing of regulations, equally, no sanctions or fees in place so unsustainable painting practices can go on unhindered.

Some boat clubs have practical guides and information regarding more sustainable maintenance for their members, but the non-members do not have access to this information. Anne notes that, “because I am not a member [of boat club], I don’t get any information.” Boat maintenance is primarily a DIY practice and some owners report difficulty finding a service to do maintenance for them even if they wanted to.

Information of the actual, physical harm caused on the marine life by the paints as they dissolve into water during sailing or end up in nature during maintenance activities is not readily available in Finland. As one of the boaters noted there is no explicit knowledge being disseminated about “what your paint does to the marine life.”

*Meaning*

Our analysis shows that the meaning of boat maintenance among Finnish boat owners is to protect and preserve the boat and the meanings it carries. This is a highly emotional connection between owner and boat and this connection constructs the practice of maintenance. Boat ownership is created through personalizing of the boat and ownership rituals. Maintenance practices, particularly cleaning and painting the boat, are central to being and, importantly, to becoming a boat owner and being a part of the boating culture in many different ways; it adds to authenticity as a sailor as it shows investment and dedication.

In addition, maintenance practices are steeped with tradition, the continuity passed down to each subsequent generation in the community. Along with financial incentives, maintaining the boat facilitates “getting to know the boat,” and that is why many boat owners do it themselves. Often, it is a very personal relationship people have with their boats and a well-kept boat is deemed important. The boat is part of “who they are,” it’s “in their blood,” with most boaters hail from boating families, as Taina shared: “I was born into a sailing family, my mum has sailed and my granddad has always sailed so this is, for my granddad, his life’s work ...in our family sailing is, like, part of my identity.” The primary meaning of boat maintenance is to enable connectedness to nature, removal of self from daily city life, and family while enjoying safe and relaxing sailing underscores the emotionality of the practice.

Painting is inherent in boat maintenance, long ago with tar, and now with toxic paints (in Finnish commonly called “poison paint”, myrkkymaali). Toxic paints are used to protect the boat, to “fight the barnacles,” and to keep the boat in shape. A clean boat is a sign of a proper, serious ownership and skills, of knowing what it is to be a boat owner. Boat maintenance practices enhance owner’s bond with the boat, but also connects the boater to the wider boating community both historically and communally. DIY is very common among the boaters as a way of getting to know one’s boat. It also seems it is more the men do engage in the hands-on



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maintenance work, even if the whole family is part of the boating community and culture. Furthermore, different boats carry different meanings and varying layers of perceived authenticity, with wooden boats being appreciated more than motorboats. Wooden boats also demand more maintenance, but are seen somehow more one with nature than modern boats.

The sea generates emotional attachment, evokes memories and symbolic significance of being one with the nature. This we find across all three countries. The boaters have great respect for the nature, and generally do not want to harm it or litter it. As Anne explains “In general everyone has respect [for nature]. And people who sail more automatically have respect for nature.” The more you engage in boating and the boating culture, the more you grow to respect nature. Authenticity, or hierarchical ordering of boats or sailor, is more evident in the Finnish and Swedish data than in the German data. This might have historical roots and with the Nordic countries being smaller, having lots of water and opportunity both the sea and numerous lakes, many people either owning or having access otherwise to summer houses which are mostly located by or near water. Sailing boats, wooden old boats, are considered more authentic than new motor boats: they are also attached meanings such as increased competence as a sailor, as more experience with navigating the sea, the winds, but also of knowing the boat.

### *Competence*

The boat as a loved object (Ahuvia 2005) and a competent practitioner, the sailor, knows his or her boat has modified the practice so that he or she can do the maintenance alone, getting to know the boat. The relations between the boat and the competences show that the ownership and the use of the material objects in the context of practices is not the end in itself. “I noticed already 40 years ago I find sailing relaxing. That I focus on it. It is also curious to notice how with age my attitude to sailing has become more philosophical” (Jari). Becoming more competent also allows you to relax more when boating requires less mechanical skills is becomes “second nature.”

The boaters in Finland often bring up the topic of the environment and consider themselves environmentally conscious, or eco friendly. Boaters’ consider litter or trash, seen floating in the water and septic tank contents emptied into the sea as evidence of human harm. One boater notes that “we could use not-so-toxic paint, but then again, I am not so aware of, like, how much does our boat hull pollute. That somehow it does not feel as concrete as, for example, emptying the septic tank, if I was to empty it by hand pump into the sea, that in a way it would be more concrete polluting” (Anne).

Paint and the harmful effects of dissolved paint on the environment, on marine life in particular, is not very well known. While boaters may consider themselves to be sustainable, their understanding of harm is limited and therefore the detrimental environmental effects of the pain fall outside the scope of their understanding of harm. Heikki, tells of some people using



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“any old house paint” on their boat, while his own father chose an environmentally friendlier paint when he fixed his boat hull, noting also how the “good old lead paint” is possible to make oneself. In general, boaters aim to protect the nature and call for individual responsibility “It is very important to me that everyone deals with their own left-over stuff garbage” (Iiris).

Occasionally a boater might actively seek information and decide to change to more eco-friendly options based on the knowledge they acquire, although in the empirical material this was rare and then it was a younger boater. This area of competence is largely reliant on individual differences and attitudes toward learning new practices and willingness to procure information. Changing more eco-friendly practices is laborious, and as one respondent says: “It was quite the chore to remove the old paint and we had a big group of people scraping off the old paint over several days...people would like to be more ecological, but they don’t necessarily do anything about it if the alternatives are more expensive or more laborious than the ones [maintenance methods] they are currently using” (Jonne). However, noteworthy here is that for Jonne, sustainability was an overriding consideration for changing the paint rather than time or money when choosing the environmentally more friendly silicone paint although silicone also caused some concerns.

### **Summary**

Our study finds that boaters already engage in some tactics (De Certeau 1984; see also Casey, Lichrou, and O’Malley 2017 on consumer tactics and sustainability) that allow them to paint less. We find three ways they do this: the manufacturers recommended use is to paint two layers every year, but some only paint one layer, some only paint the patches that need painting, while some only paint every other year. These three tactics overlap and some paint only one layer every other year, for example. This shows competence among the boaters to be both varied and creative. Knowing to paint less is in part knowing your boat and being confident as a boat owner, and in part it is communal knowledge, as in Sweden, where harbormasters encourage boaters to paint less. These are part of the overall competence and require knowledge of the boat as well as the sea, and how these two interact and what role the paint plays.

Within the dimension of meaning, we see an inter-relatedness of different types of symbolic meanings with sustainability: for example, the three main reasons for using toxic paints are: 1) to have or maintain a clean boat; 2) achieve fuel consumption reduction; 3) to gain optimal efficiency in the water.

These, in turn, are linked to:

- 1) ownership and pride signaled by a clean, well-maintained and kept boat;
- 2) concern for the environment and respect for nature in the form of reducing fuel consumption;



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- 3) relaxation as the main goal and purpose of sailing as a way life, more than just a hobby achieved by reaching optimal efficiency and reducing drag.

Painting less means circumventing the instructions and recommendations, and thus being creative and giving thought to the actual need versus the effects gained. Here is another policy intervention opportunity, regulating the manufacturers not only in terms of the paints' content and information about this, but also monitoring the recommendations made regarding use of the product.

Although we found some resistant practices like painting less, most people nevertheless carry on painting the way it has always been done, many using the same paints as the boat's old owners. Practices are historical, and maintenance by painting is a particularly historical practice, and thus targeting the paint itself in the form of controlling manufactures would result in a favorable change in the material conditions.

Taking the life cycle approach to sustainability, and focusing on the use phase, the infrastructural factors are crucial in lessening the detrimental environmental effects of toxic paints in use. Less paint ends up in the nature when appropriate protection is applied, but also if less paint is applied and less often. The consumer tactics of circumventing manufacturers' instructions and recommended use include these three painting practices painting less layer-wise, painting less area-wise, or painting less often.

### **Discussion**

This paper partially answers Prothero et al.'s (2011) call for additional research into sustainable consumption and demonstrates how normalized consumer use practices lead to more or less overall sustainable consequences. Overall sustainability occurs only partially in the formulation of the product; sustainable practices of product use are also important determinants toward achieving an environmentally benign product lifecycle.

Extant research examining market offerings and consumer choice has focused on incremental changes with an emphasis on product formulation, reduced or recycled packaging materials and product acquisition (Gupta and Ogden 2009; Assadourian 2010; Young et al. 2010; Moisander 2007; Vermeir and Verbeke 2006; Rokka and Uusitalo 2008). Employing both material and non-material constraints mitigates concern about whether consumers hold a positive attitude toward the environment and if they can be persuaded to purchase more sustainable products (Vermeir and Verbeke 2006; Gupta and Ogden 2009). Rather than focusing on moralistic appeals to move consumers toward sustainability, efforts can turn to deepening the understanding of impact. In short, the "good sailor" caring for the sea as well as the vessel can change practices to the benefit of both consumer and environmental outcomes. Desired consumption outcomes, in this case a barnacle-free boat, are achieved through maintenance



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practices embedded in cultural contexts. Environmental impacts resulting from the effects of variations in practices demonstrate the value of context comparative practice theory analysis to uncover the degree to which product use sustainability can be supported by enabling infrastructure and regulations. Rather than admonishing consumers to move toward more sustainable consumption, our findings demonstrate the possible value variations in practices for intervention and education at the market level.

Our findings support the rationale for interventions that go beyond efforts bound by sustainability logics. Holt (2012) in particular offers a path toward improved sustainability with his recommendation for a wholesale examination of “ideological lock-ins.” Holt (2012) decouples consumers’ (consumerist) values from (unsustainable) consumption behavior, rendering the attitude-behavior gap argument moot. The “responsible consumer” concept requires the construction of the consumer as a moral subject (Giesler and Veresiu 2014) with good moral values. Yet Holt (2012, 237) claims that thinking in terms of what he calls the “ethical values paradigm” will not result in achieving more sustainable consumption patterns. Instead Holt’s “market constructionist paradigm” (2012, 237) suggests that sustainability must be faced “market by market.” Using the bottled water market as an example, he describes how the current ideology that privileges water in bottles came to be and how make change at the market level through supporting infrastructure and regulatory efforts.

While it may be tempting to consign Holt’s suggestions the arena of utopian fictions, one example of market level change that did occur can be found in the automotive industry. The 1990 decision to outlaw leaded gas in the United States demonstrates a dramatic shift at the market level and a change in the ideology of how vehicles are fueled, replacing “normal” gas with unleaded gas, the use of which was made possible by the innovation of the catalytic converter, changed the market. Infrastructure, regulation and innovation together made profound changes in environmental impacts and to a lesser extent, changes in the motoring public’s consumer practices. Disposal of products and packaging, post-consumer use, also underwent a dramatic change when in 1971 the state of Oregon passed America’s first “bottle bill.” This legislation provided financial incentives for consumers to recycle beverage containers in exchange for cash. Infrastructure to facilitate return of used containers sprung up at retail outlets and other points of purchase. Within a very short time, the practice of recycling beverage containers normalized throughout the western US and created a market opportunity for consumers willing to collect and return bottles as a source of personal income.

**Implications for public policy**

We employed practice theory to uncover multiple practice elements and the advent of sustainable practices (Hand, Shove and Southerton, 2005; Shove, Pantzar and Watson 2012). The findings here demonstrate how culturally-bounded practices are linked to meaning, competence and materiality and also have effects well beyond intended or desired outcomes. Our findings



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suggest that local consumption practices, including regulations and cultural attitudes towards following these (meanings) and infrastructural conditions (materials) as well as culturally-bound ways of doing (competencies) prevail over generalized boating sub-cultural practices. While all Baltic Sea boaters make efforts to keep their vessels free from bio-fouling organisms, country level cultural values remain the stronger arbiter of practices. Programmatic incentives for change therefore need to be culturally sensitive.

Our study finds that intervention is possible at all three dimensions of material, competence and meaning. The three countries in this study differ as to their starting point, and due to this the policy interventions are likely to differ, too. For example, sufficient rules and regulations are already in place in Germany with adequate supervision and sanction systems, both of which are lacking in Finland and Sweden. Similarly in Germany, the marina infrastructure is more advanced and supportive of sustainable practices. The German case thus shows how implementing these two material conditions of marina infrastructure and a systems of regulations already encourages sustainable behavior regarding boat maintenance by painting. As it stands, there may not be full comprehension as to why some regulations are in place, but the German boaters abide by the rules anyway. This is because there is a general ethos of accepting rules as benefiting everyone and they are thus generally followed, even if the rationale for the rules is not understood. In Finland and Sweden, in contrast, as such rules are not in place yet, it is most likely that the motivation for introducing new rules and regulations would have to be spelled out in order for these to be accepted and adhered to.

Addressing the material parameters is the most accessible and most visible way of intervention. This includes improving marina infrastructure, from recycling bins to discarded paint tins to designated washing areas with paint catchment systems to offering alternative maintenance options, such as hull covers. Rules and regulations need to be in place, monitored and sanctions need to be imposed.

Public policy supporting the implementation of infrastructure or introduction of regulation has the potential to effect change in how practices are performed, as practices are constantly changing and re-made (Shove 2003; Hand, Shove and Southerton 2005). They can be extremely influential in decreasing barriers to sustainable consumption. Since the mid 1990's, policy interventions have been developed within public policy to support sustainable consumption (Reisch and Thøgersen 2015). Welch (forthcoming 2017, 28) argues that a social practice approach "offers an understanding of human activity that challenges the implicit, individualistic model of behavior commonly built into the design of initiatives and policies." For instance, providing consumers with an appropriate infrastructure, such as extending and improving public transportation or introducing certain labeling schemes, can help support more sustainable consumption choices (Thøgersen 2005). Conversely, a lack of supporting public policy means people are less likely act in a sustainable way (Jackson 2009).



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The notion that education alone will create new behaviors and eventually new practices is misguided. Information is not enough to effect behavior change in consumers regarding sustainable consumption (McKenzie-Mohr 2000). A continual focus on micro-level education efforts, for example encouraging people to recycle to effect sustainable practice change, is ineffective (Carrigan and Attalla 2001). Rather than attempting to get “buy in” at the level of attitude, social marketing campaigns focusing on behavior change rather than ideologies can be useful “in transcending the gap between knowledge to action that has characterized many local environmental and sustainability projects...” (McKenzie-Mohr and Smith 1999, 7).

Policy initiatives could also be used to restrict the selling practices of retailers. For example, even as the Chemical Agency in Sweden has undertaken a classification of paint and approved the paint for one or the other of the two coasts of Sweden, retailers are still allowed to sell all products all over Sweden. Thus, restricting the sale of unapproved paint through financial restrictions including fines thus seems warranted.

In addition to addressing all three elements of the practice of boat maintenance, intervention is possible on the levels of the individual as well as the collective level of boating community and the society. Community level intervention is likely to reach individuals as new practices spread. Targeting the boating community can be done via material changes as suggested above. On an individual level, campaigns such the Paint Less campaign in Sweden can be successful and more information, common sense information about the actual harm caused on marine life instead of mere facts about chemical compounds, and better practical guides how to maintain the boat in a more sustainable way would support such efforts. These efforts need to be backed up by material conditions that make achieving increased sustainability possible. Societal changes include changes in regulation but also in overall policies that control not only individual consumer behavior but likewise restrict manufactures actions and the AF paint itself. A concerted effort to change maintenance practices, regulating and restricting the use of AF paints might be conducive to overall improvement of sustainability in use.

## **References**

- Ahuvia, Aaron C. (2005), “Beyond the Extended Self: Loved Objects and Consumers' Identity Narratives,” *Journal of Consumer Research* 32(1): 171-184.
- Arnould, Eric J., and Craig J. Thompson (2005), “Consumer Culture Theory (CCT): Twenty Years of Research,” *Journal of Consumer Research* 31(4): 868-882.
- Arnould, Eric J., and Melanie Wallendorf (1994), “Market-Oriented Ethnography: Interpretation Building and Marketing Strategy Formulation,” *Journal of Marketing Research* 31(4): 484-504.



D 2.3 Report/scientific articles on leisure boat organization, location and  
practice in Finland, Sweden and Germany  
*Aalto University and University of Gothenburg*

- Assadourian, Erik (2010), "Transforming Cultures: From Consumerism to Sustainability," *Journal of Macromarketing* 30(2): 186-191.
- Bourdieu, Pierre (1977), *Outline of a Theory of Practice*. Translated by Richard Nice. Cambridge: Cambridge University Press.
- Brosius, Nina, Karen V. Fernandez and H el ene Cherrier (2013) "Re-acquiring Consumer Waste: Treasure in Our Trash?," *Journal of Public Policy and Marketing* 32(2): 286-301.
- Bulkeley, Harriet and Nicky Gregson (2009), "Crossing the Threshold: Municipal Waste Policy and Household Waste Generation," *Environment and Planning A* 41:929-945.
- Carrigan, Marylyn and Ahmad Attalla (2001), "The Myth of the Ethical Consumer – Do Ethics Matter in Purchase Behaviour?," *Journal of Consumer Marketing* 18(7): 560-578.
- Casey, Katherine, Maria Lichrou, and Lisa O'Malley (2017), "Unveiling Everyday Reflexivity Tactics in a Sustainable Community" *Journal of Macromarketing*, 37(3): 227-239.
- Cherrier, H el ene (2010), "Custodian behavior: A Material Expression of Anti-consumerism," *Consumption Markets and Culture* 13(3): 259–272.
- Cohen, Maurie. J. (2006), "Sustainable Consumption Research as Democratic Expertise," *Journal of Consumer Policy*, 29(1): 67-77.
- De Certeau, Michel (1984), *The Practice of Everyday Life*. Berkeley: University of California Press.
- Dolan, Paddy (2002), "The Sustainability of 'Sustainable Consumption'," *Journal of Macromarketing* 22(2): 170-181.
- Eckhardt, Giana M., Russell W. Belk, and Timothy M. Devinney (2010), "Why Don't Consumers Consumer Ethically?," *Journal of Consumer Behaviour* 9: 426–436.
- Eklund, Britta, and David Eklund (2014), "Pleasure Boatyard Soils are Often Highly Contaminated," *Environmental Management* 53(5): 930-946.
- Eklund, Britta, Lisen Johansson, and Erik Ytreberg (2014), "Contamination of a Boatyard for Maintenance of Pleasure Boats," *Journal of Soils and Sediments* 14(5): 955–967.
- Ekstr om, Karin (2014), *Waste Management and Sustainable Consumption: Reflection on Consumer Waste*. Routledge: London.
- Evans, David M. (2017), "Rethinking Material Cultures of Sustainability: Commodity Consumption, Cultural Biographies and Following the Thing," *Transactions of the Institute of British Geographers* published by John Wiley & Sons Ltd on behalf of Royal Geographical Society (with the Institute of British Geographers).
- Feeny, David, Fikret Berkes, Bonnie J. McCay and James M. Acheson (1990) "The Tragedy of the Commons: Twenty-Two Years Later," *Human Ecology* 18 (1): 1–19.
- Fisk, George (1974) *Marketing and the Ecological Crisis*. New York: Harper & Row.

D 2.3 Report/scientific articles on leisure boat organization, location and  
practice in Finland, Sweden and Germany  
*Aalto University and University of Gothenburg*

- Giesler, Markus and Ela Veresiu (2014), “Creating the Responsible Consumer: Moralistic Governance Regimes and Consumer Subjectivity,” *Journal of Consumer Research* 41: 840-857.
- Gherardi, Silvia (2017), “Sociomateriality in Posthuman Practice Theory,” In Allison Hui, Theodore Schatzki & Elizabeth Shove (Eds.), *The Nexus of Practices*, pp. 38-51. London: Routledge.
- Giddens, Anthony (1984) *The Constitution of Society*, Polity Press: New York.
- Goulding, Christina (2005), “Grounded Theory, Ethnography And Phenomenology: A Comparative Analysis of Three Qualitative Strategies For Marketing Research,” *European Journal of Marketing*, 39(3/4): 294-308.
- Gupta, Shruit S. and Denise T. Ogden (2009), “To Buy or Not to Buy? A Social Dilemma Perspective on Green Buying,” *Journal of Consumer Marketing* 26(6): 376–391.
- Halkier, Bente, Tally Katz-Gerro and Lydia Martens (2011), “Applying Practice Theory to the Study of Consumption: Theoretical And Methodological Considerations,” *Journal of Consumer Culture* 11(1): 3-13.
- Halkier, Bente, and Iben Jensen (2011), “Methodological Challenges in Using Practice Theory in Consumption Research. Examples from a Study on Handling Nutritional Contestations of Food Consumption,” *Journal of Consumer Culture* 11(1): 101–123.
- Hand, Martin, Elizabeth Shove and Dale Southerton (2005), “Explaining Showering: A Discussion of the Material, Conventional, and Temporal Dimensions of Practice.” *Sociological Research Online* 10(2).
- Hardin, Garrett (1968) “The Tragedy of the Commons,” *Science* 162: 1243-1248.
- Hargreaves, Tom (2011), “Practice-ing Behaviour Change: Applying Social Practice Theory to Pro-Environmental Behaviour Change,” *Journal of Consumer Culture* 11(1): 79–99.
- Heiskanen, Eva and Mika Pantzar (1997), “Toward Sustainable Consumption: Two New Perspectives,” *Journal of Consumer Policy* 20(4): 409-442.
- Hertwich, Edgarg (2005), “Life Cycle Approaches to Sustainable Consumption: A Critical Review,” *Environmental Science & Technology* 39(13): 4673–4684.
- Holt, Douglas B. (2012), “Constructing Sustainable Consumption: From Ethical Values to the Cultural Transformation of Unsustainable Markets,” *The ANNALS of the American Academy of Political and Social Science* 644(1): 236-255.
- ISO.14040 (1997), *Environmental Managements Life Cycle Assessments Principles and Framework*; International Organization for Standardization: Geneva.
- Jackson, Tim (2009), *Prosperity Without Growth: Economics for a Finite Planet*. London: Earthscan.



D 2.3 Report/scientific articles on leisure boat organization, location and  
practice in Finland, Sweden and Germany  
*Aalto University and University of Gothenburg*

- Jacoby, Jacob, Carol K. Berning, and Thomas F. Dietvorst (1977), "What about Disposition," *Journal of Marketing* 41: 22-28.
- Jorgensen, Danny L. (1989) *Participant Observation: A Methodology for Human Studies*. London: Sage.
- Karlsson, Jenny and Britta Eklund (2004), "New Biocide-Free Anti-Fouling Paints are Toxic," *Marine Pollution Bulletin* 49(5-6): 456-464.
- Kilbourne, William K., Pierre McDonagh, and Andrea Prothero (1997), "Sustainable Consumption and the Quality of Life: A Macromarketing Challenge to the Dominant Social Paradigm," *Journal of Macromarketing* 17(1): 4-24.
- Kozinets, Robert V. and Jay M. Handelman (2004), "Adversaries of Consumption: Consumer Movements, Activism, and Ideology," *Journal of Consumer Research* 31(3): 691-70
- Lastovicka, John. L., and Karen V. Fernandez (2005), "Three Paths to Disposition: The Movement of Meaningful Possessions to Strangers," *Journal of Consumer Research* 31(4), 813-823.
- Magaudda, Paolo (2011), "When Materiality 'Bites Back': Digital Music Consumption Practices in the Age of Dematerialization," *Journal of Consumer Culture* 11(1): 15-36.
- McDonagh, P. and Andrea Prothero. 2014. Sustainability marketing research: Past, present and future. *Journal of Marketing Management* 30(11-12): 1186-1219.
- McKenzie-Mohr, Doug, and William Smith (1999), "*Fostering Sustainable Behavior: An Introduction to Community-Based Social Marketing*," 2nd ed. Gabriola Island, British Columbia, Canada: New Society.
- McKenzie-Mohr, Doug (2000), "Promoting Sustainable Behavior: An Introduction to Community-Based Social Marketing," *Journal of Social Issues* 56(3): 543-554.
- Moisander, Johanna (2007), "Motivational Complexity of Green Consumerism," *International Journal of Consumer Studies* 31(4): 404-409.
- Moisander, Johanna, Anu Valtonen, and Heidi Hirsto (2009), "Personal Interviews in Cultural Consumer Research-Post-Structuralist Challenges," *Consumption, Markets and Culture* 12(4): 329-348.
- Nicolini, Davide (2017a), "Practice Theory as a Package of Theory, Method and Vocabulary: Affordances and Limitations," In Michael Jonas, Beate Littig & Angela Wroblewski (Eds.), *Methodological Reflections on Practice Oriented Theories*, pp. 19-34. Springer: New York.
- Nicolini, Davide (2017b), "Is Small the Only Beautiful? Making Sense of 'Large Phenomena' From a Practice-Based Perspective," In Allison Hui, Theodore Schatzki & Elizabeth Shove (Eds.), *The Nexus of Practices*, pp. 98-113. London: Routledge.
- Närvänen, Elina, Nina Mesiranta, and Annilotta Hukkanen (2013), "From Waste to Delicacy: Collective Innovation in Food Disposition Practices Through Bloggin,." In *NA -*



D 2.3 Report/scientific articles on leisure boat organization, location and  
practice in Finland, Sweden and Germany  
*Aalto University and University of Gothenburg*

- Advances in Consumer Research* 41, edited by Simona Botti and Aparna Labroo, 316-320. Duluth, MN : Association for Consumer Research.
- Nye, Michael, and Tom Hargreaves (2010), "Exploring the Social Dynamics of Pro-Environmental Behavior Change," *Journal of Industrial Ecology* 14(1): 137–149.
- Orlikowski, Wanda J (2007), "Sociomaterial Practices: Exploring Technology at Work," *Organization Studies* 28(09): 1435-1448.
- Preda, Alex (1999), "The Turn to Things: Arguments for a Sociological Theory of Things," *The Sociological Quarterly* 40(2): 347-366.
- Price, Linda L., Eric J. Arnould, and Carolyn Folkman Curasi (2000), "Older Consumers' Disposition of Special Possessions," *Journal of Consumer Research* 27(2): 179–201.
- Prothero, Andrea, Susan Dobscha, James Freund, William. E. Kilbourne, Michael G. Luchs, Lucie K. Ozanne, and John Thøgersen (2011) "Sustainable Consumption: Opportunities for Consumer Research and Public Policy," *Journal of Public Policy and Marketing* 30(1): 31–38.
- Reckwitz, Andreas (2002), "Toward a Theory of Social Practices A Development in Culturalist Theorizing," *European Journal of Social Theory* 5(2): 243–263.
- Reckwitz, Andreas (2016), "Practices and Their Affects," In Allison Hui, Theodore Schatzki & Elizabeth Shove (Eds.), *The Nexus of Practices*, pp. 114-125. London: Routledge.
- Reisch, Lucia A., and John Thøgersen, eds. (2015) *Handbook of Research on Sustainable Consumption*. Cheltenham: Edward Elgar Publishing, Incorporated.
- Røpke, Inge (2009), "Theories of practice — New inspiration for ecological economic studies on consumption," *Ecological Economics* 68(10): 2490–2497.
- Rokka, Joonas, and Liisa Uusitalo (2008), "Preference for Green Packaging in Consumer Product Choices - Do Consumers Care?," *International Journal of Consumer Studies* 32(5): 516–525.
- Sahakian, Marlyne (2010), "Combining Life Cycle Thinking With Social Theory: Case Study of Compact Fluorescent Lamps (CFL) In The Philippines," *Sustainability* 2(7): 2349–2364.
- Sahakian, Marlyne and Harold Wilhite (2013), "Making Practice Theory Practicable: Towards More Sustainable Forms of Consumption," *Journal of Consumer Culture* 14(1): 25–44.
- Sassatelli, Roberta (2006), "Virtue, Responsibility and Consumer Choice: Framing Critical Consumerism," In *Consuming Cultures, Global Perspectives: Historical Trajectories and Multicultural Conflicts*, edited by John Brewer and Frank Trentmann, 219–250. Oxford: Berg.
- Sassatelli, Roberta (2008), "Representing Consumers: Contesting Claims and Agendas," In *The politics and Pleasures of Consuming Differently: Better than Shopping*, edited by Kate Soper, and Martin Ryle, and Lyn Thomas, 25-42. Oxford: Berg.

D 2.3 Report/scientific articles on leisure boat organization, location and  
practice in Finland, Sweden and Germany  
*Aalto University and University of Gothenburg*

- Schatzki, Theodore R. (2001), "Practice Mind-ed Orders." In *The Practice Turn in Contemporary Theory*, edited by Theodore R. Schatzki, Karin Knorr Cetina and Eike E. Von Savigny, 50-63. London: Routledge.
- Schatzki, Theodore R. (2002), *The Site of The Social: A Philosophical Account of the Constitution of Social Life and Change*, University Park, PA: Pennsylvania State University Press.
- Shove, Elizabeth (2003), "Converging Conventions of Comfort, Cleanliness and Convenience," *Journal of Consumer Policy* 26(4): 395–418.
- Shove, Elizabeth (2005), "Changing Human Behaviour and Lifestyle: A Challenge for Sustainable Consumption?," In *Consumption - Perspectives from ecological economics*, edited by Inge Røpke and L. Reisch, 111-132. Cheltenham: Elgar.
- Shove, Elizabeth (2010), "Social Theory and Climate Change: Questions Often, Sometimes and Not Yet Asked," *Theory, Culture and Society* 27(2-3): 277-288.
- Shove, Elizabeth, Mika Pantzar, and Matt Watson (2012) *The Dynamics of Social Practice: Everyday Life and How it Changes*. London: Sage.
- Shove, Elizabeth (2017), "Matters of Practice," in Allison Hui, Theodore Schatzki & Elizabeth Shove (Eds.), *The Nexus of Practices*, pp. 155-168. London: Routledge.
- Shrivastava, Paul (1995), "The Role of Corporations in Achieving Ecological Sustainability," *Academy of Management Review*, 20(4): 936-960.
- Spaargaren, Gert (2003), "Sustainable Consumption: A Theoretical and Environmental Policy," *Society and Natural Resources* 16(8): 687-701.
- Spaargaren, Gert (2011), "Theories of Practices: Agency, Technology, and Culture. Exploring The Relevance of Practice Theories for the Governance of Sustainable Consumption Practices in the New World-Order," *Global Environmental Change* 21(3): 813-822.
- Thomas, Kevin V., and Steven Brooks (2010), "The Environmental Fate and Effects of Antifouling Paint Biocides," *Biofouling: The Journal of Bioadhesion and Biofilm Research* 26(1): 73-88.
- Thøgersen, John J. (2005), "How May Consumer Policy Empower Consumers for Sustainable Lifestyles?," *Journal of Consumer Policy* 28(2): 143-177.
- Vargo, Stephen L., Heiko Wieland, and Melissa Archpru Akaka (2015), "Innovation Through Institutionalization: A Service Ecosystems Perspective," *Industrial Marketing Management* 44: 63–72.
- Vermeir, Iris and Wim Verbeke (2006), "Sustainable Food Consumption: Exploring the Consumer 'Attitude – Behavioral Intention' Gap," *Journal of Agricultural and Environmental Ethics* 19(2): 169–194.



D 2.3 Report/scientific articles on leisure boat organization, location and  
practice in Finland, Sweden and Germany  
*Aalto University and University of Gothenburg*

- Welch, Dan, and Alan Warde (2015), “Theories of Practice and Sustainable Consumption,” In *Handbook of Research on Sustainable Consumption*, edited by Lucia A. Reisch and John Thøgersen, 84-100. Cheltenham: Edward Elgar.
- Warde, Alan. (2005), “Consumption and Theories of Practice,” *Journal of Consumer Culture* 5(2):131–153.
- Warde, Alan (2014), “After Taste: Culture, Consumption And Theories of Practice Introduction: Consumption and The Role of Theory,” *Journal of Consumer Culture* 14 (3): 279-303
- Webster, Frederick E. (1975)” Determining the Characteristics of the Socially Conscious Consumer,” *Journal of Consumer Research* 2(3): 188-196.
- Welch, Daniel (*forthcoming* 2017), “Behaviour Change and Theories of Practice: Contributions, Limitations and Developments,” In *Social Business*.
- Wilhite, Harold (2008) *Consumption and the Transformation of Everyday Life: A View from South India*. New York: Palgrave Macmillan.
- Young, William, Kumju Hwang, Seonaidh McDonald, and Caroline J. Oates (2010), “Sustainable Consumption: Green Consumer Behaviour When Purchasing Products,” *Sustainable Development* 18(1): 20–31.
- Ytreberg, Erik, Jenny Karlsson, and Britta Eklund (2010), “Comparison of Toxicity and Release Rates of Cu And Zn From Anti-Fouling Paints Leached in Natural And Artificial Brackish Seawater,” *Science of the Total Environment* 408(12): 2459-2466.
- World Commission on Environment and Development (1987): <http://www.un-documents.net/wced-ocf.htm>