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Understanding recreational landscapes

Developing a knowledge base on outdoor recreation monitoring in Swedish coastal and marine areas

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ABSTRACT

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This PhD thesis concerns the role and importance of outdoor recreation monitoring in the management of coastal and marine areas in Sweden – a topic that in spite its importance has eluded attention, both in research circles and in area management. To address this situation, the objective of the thesis is to develop a knowledge base on outdoor recreation monitoring in coastal and marine areas, with special attention given to current research knowledge on the topic as well as monitoring practices and needs on a management level. This requires both a theoretical and methodological anchoring of the work with outdoor recreation monitoring, which in the thesis is done by giving attention to central geographic landscape theory as well as an applied research approach.

The theoretical contribution in the thesis involves a broader perspective on outdoor recreation monitoring, which is needed in order to work professionally with outdoor recreation in the management of coastal and marine areas. Specifically, this means looking into the importance of monitoring not only environmental processes, but also human relations and experiences in coastal and marine areas. To better understand this, an integrated landscape understanding grounded within a combination of geographic landscape theory and a Nordic landscape perspective is introduced with a specific emphasis on the importance of actively monitoring not only material, but particularly also immaterial landscape qualities in recreational area contexts. The methodological contribution in the thesis involves exploration of important challenges, needs and improvements in the work with outdoor recreation monitoring in coastal and marine areas. Three quantitative methods (i.e. a questionnaire survey, an interview survey and a combination of on-site and roaming observations) and a qualitative method (i.e. a picture based study) are applied and evaluated in a coastal and marine area context. The thesis reveals important challenges in obtaining representativity of monitoring results in coastal and marine areas due their open landscape character, weather conditions as well as high levels of user dispersion. The thesis therefore suggests that more attention is given to the importance of data triangulation as well as knowledge about limitations of each applied monitoring method. In terms of important needs, the thesis emphasizes the importance of monitoring experience qualities in coastal and marine areas. The thesis therefore suggests the introduction of 'visitor produced pictures' as a method strategy to effectively obtain this knowledge. Finally, the thesis also discusses and suggests the development of new monitoring methods and strategies based on new technology in order to effectively acquire user information in coastal and marine areas (e.g. online media platforms, smartphone detection and drone technology). The introduction of new technology is interesting as it not only offers new options to address identified monitoring challenges and needs, but also presents new opportunities in terms of developing efficient methods for monitoring outdoor recreation in coastal and marine areas.

Keywords: outdoor recreation monitoring, outdoor recreation management, outdoor recreation, coastal and marine areas, quantitative/qualitative methods, landscapes, Sweden

Foreword

This PhD began in August 2012 as part of the interdisciplinary Marine Graduate School at the Centre for Sea and Society at the University of Gothenburg, Sweden. Specifically, it was undertaken at the Unit for Human Geography, where it has been under supervision of Marie Stenseke, professor in Human Geography, while Per Nilsson, associate professor in Marine Ecology, has been co-supervising the thesis. At the Unit, the thesis has been associated with the research group 'Nature - society relations in a landscape perspective' lead by Marie Stenseke. The thesis itself is structured as a compilation thesis; it includes an introductory chapter (i.e. 'Kappa' in Swedish) and four papers. The purpose of the Kappa is to partly synchronize the results and findings reported in the papers and partly to give a more coherent understanding of the thesis as a whole. Furthermore, some aspects not introduced or addressed much in the papers, such as the theoretical framework around the thesis or more central methodological reflections, are given particular attention in the Kappa. Opposite the Kappa, the main purpose of the papers is to present individual pieces of research conducted during the PhD process. The individual papers are all connected and overlap in important ways based upon an integrated focus.

From a personal side, I would like to give special gratitude to my supervisor, Marie Stenseke, who has supported the thesis greatly with her vast knowledge and critical comments and, not least, inexhaustible energy and unbreakable positive attitude. Special thanks also go to Per Nilsson, who has encouraged the thesis process with constructive comments and opinions. Special appreciation also goes to the management staff in Kosterhavet National Park for their openness and feedback on the thesis. Thomas Beery and Kristina Nilsson Lindström also need special thanks for their hard work on language checking and commenting on the thesis. I would also like to thank colleagues at the Unit for Human Geography for never being shy of encouraging another 'fika-session' and giving a good laugh when needed. Also, I could never have been without the great help from my friend and colleague, Mattias Sandberg, who has made my stay in Sweden a joyful one by introducing me to his family and invited me to experience what true Swedish idyll is like in his 'gröna huset'. Last, but not least, thanks also go out to family and friends, who supported me along the way. You know who you are!

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Gothenburg, 20 November 2016

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Paper II: Hansen, A.S. (2016). Outdoor recreation monitoring in coastal and marine areas – an overview of Nordic experiences and knowledge. Geografisk Tidsskrift, 116(2), 110–122.

Paper III: Hansen, A.S. (2016). Applying visitor monitoring methods in coastal and marine areas – some learnings and critical reflections from Sweden. Scandinavian Journal of Hospitality and Tourism (http://dx.doi.org/10.1080/15022250.2016.1155481).

Paper IV: Hansen, A.S. (2016). Testing visitor produced pictures as a management strategy to study visitor experience qualities – A Swedish marine case study. Journal of Outdoor Recreation and Tourism, 14, 52-64.

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Acronyms

CMPA	Coastal and Marine Protected Areas
GIS	Geographic Information System
GPS	Geographic Positioning System
ICZM	Integrated Coastal Zone Management
LAC	Limits of Acceptable Change
MSP	Maritime Spatial Planning
ROS	Recreative Opportunity Spectrum
SEPA	Swedish Environmental Protection Agency
SWAM	Swedish Agency for Marine and Water Management
VAMP	Visitor Activity Management Process
VEP	Visitor Employed Photography
VERP	Visitor Experience and Resource Protection
VIM	Visitor Impact Management

CHAPTER 1

Introduction

> *Why is there so little interest in monitoring recreation in parks when it receives so much management attention? Why is it common to spend more money on monitoring elk or grizzly bears than on visitors […]? Is this a problem?* (David N. Cole 2006, p. 12)

1.1 Understanding recreational landscapes

In Sweden, coastal and marine landscapes are considered attractive and popular settings for recreational purposes and activities. For this reason, it has become an explicit political goal that coastal and marine areas provide a wide range of recreational activities, opportunities and experiences (SWAM 2012). While this is undoubtedly for the benefit of the population as well as international visitors, the attractiveness and popularity of Swedish coastal and marine areas for recreational purposes also comes with a large responsibility in terms of how to best manage and plan these areas in order to ensure not only good environmental conditions, but also quality recreational activities and experiences. In this regard, an important requirement for good management is to understand the recreational use of the landscape that is managed, that is, acquire detailed knowledge about recreational users[1] and their activities and experiences. But what are the conditions and requirements for acquiring such knowledge? What management

1 This thesis will use the term 'recreational users' instead of the more commonly used term 'visitors'. The reason is that 'visitors' often leaves out the local population and their recreational activities, which is not ideal for the thesis' broad take on outdoor recreation.

tools and methods are available in this work? And how can it be done professionally? These questions are all part of today's management of coastal and marine areas in Sweden and yet, they have received very little focus, both among scholars and managers with an interest in understanding the recreational use of coastal and marine landscapes. This thesis will therefore pay attention to these questions.

1.2 Outdoor recreation in coastal and marine areas

All around the world today, coastal and marine areas are increasingly becoming popular settings for recreational activity (Eagles & Buteau-Duitschaever 2009; Brake et al. 2015). Main reasons for this trend include more diverse recreational interests and needs in coastal and marine areas, while new technology also has contributed to make the coast and the sea more accessible for recreational activity to take place (Orams & Lück 2014; Lück & Orams 2016; Orams & Lück 2016). According to Orams (1999) and Le Berre et al. (2013), coastal and marine areas are attractive destinations, partly due to their scenic appeal and partly due to their ability to frame often unique recreational activities and experiences. In turn, local businesses and services have responded to this development with an expansion in recreational content and opportunities (Rydell et al. 2012; SEPA 2012). A characteristic feature of many coastal and marine areas around the world has therefore been a process in which they are transforming from rural peripheries into recreational and touristic 'hot spot' areas (Hall 2001; Urry 2002; Hall 2013). This requires effective management of coastal and marine areas in order to protect the coastal and marine environment, while also provide quality recreational activities and experience opportunities (Le Berre at al. 2013). This situation emphasizes that managers not only have knowledge about coastal and marine ecosystems, but that they also understand the scale, content and meaning of coastal and marine based recreation in order to plan for and manage the social value of the coastal and marine environment (Ericson 2014).

In Sweden, the same development can also be seen, although the recreational use of coastal and marine environments in the country has long been recognized (Sandell & Sörlin 2008; Ericson 2014). In recent years, however, coastal and marine based recreation has received renewed political attention (SWAM 2012; SWAM 2015). This was made explicit by the presentation of the first governmental bill on

outdoor recreation from 2010, which among other things highlights the importance of securing quality recreational experiences in, and accessibility to, the Swedish 'nature', including coastal and marine areas (Swedish Government 2010). A second reason is that outdoor recreation has become explicitly connected to national goals on reaching sustainable environmental conditions in coastal and marine areas (SEPA 2015). This is particularly evident when scrutinizing Sweden's environmental objective for coastal and marine areas, called 'A Balanced Marine Environment, flourishing Coastal Areas and Archipelagos' (SEPA 2016). The objective concerns itself with future environmental planning of the Swedish coasts and seas, but with a distinct emphasis on how to achieve sustainable development and conditions in all coastal and marine areas (Swedish Government 2014a). This work includes establishing a sustainable frame around recreational opportunities and activities, which is highlighted as an important sub-goal alongside national goals on nature conservation and biodiversity (SEPA 2016).

The combined work with the bill on outdoor recreation and the environmental objective for coastal and marine areas is fundamental for current management work in Sweden's coastal and marine areas in general and coastal and marine protected areas (CMPAs) in particular. CMPAs are not a new phenomenon in Sweden, as the first marine protected area was established already in 1958. Currently, there are 43 marine protected areas and a much larger number of coastal protected areas (SWAM 2015). However, with the establishment of the first marine based national park in 2009 (Kosterhavet National Park) and almost half of the current coastal and marine protected areas being established since 2000, CMPAs have received increased attention in the last 15 years. The numbers will no doubt continue to grow in the future due to the national strategies on outdoor recreation and the environmental objective for coastal and marine areas in Sweden, which emphasize the important dual role of CMPAs as protectors of exceptional biological qualities and attractive destinations for recreational activity (SWAM 2015). This work requires documentation of both biological and recreational qualities in CMPAs in order to guide management efforts (efforts that generally apply to all coastal and marine areas throughout Sweden).

Another interesting development is that parallel with the environmental objective for coastal and marine areas and the management of coastal and marine areas in Sweden, outdoor recreation has also been introduced in a range of newly launched coastal and marine

planning processes in Sweden (SWAM 2012). In particular, Integrated Coastal Zone Management (ICZM) and Maritime Spatial Planning (MSP) have recently received attention as multi-level planning instruments with an aim to secure physical planning and sustainable management of the Swedish coasts and seas (SWAM 2015). ICZM has been recommended by the EU since 2002, while national work on MSP began in 2014 (Swedish Government 2014b). Although not yet fully implemented, both planning processes are suggested in Sweden. Coastal and marine based recreation in Sweden has received increased attention in both planning processes and in close relation to coastal and marine based tourism, which has also become a political topic in recent years due to its important role in regional and national 'Blue Growth' strategies (SWAM 2012; Lundberg 2015). Initiatives to examine coastal and marine recreation as a base for economic growth as well as sustainable development and stewardship of the Swedish sea and coastal communities have therefore been launched (SWAM 2012; Lundberg 2015). For this purpose, a more comprehensive understanding of the recreational use of coastal and marine areas in Sweden is required (Ericson 2014).

Together, the national strategies on outdoor recreation, the environmental objective for coastal and marine areas, the management of CMPAs and the newly launched coastal and marine planning processes in Sweden all point to the same need: more knowledge about coastal and marine based recreation in Sweden. In this regard, an important concern and challenge is that strategies to procure this knowledge currently are not given much attention, neither on a research nor on an administrative level. This situation has recently been discussed in a scientific report concerning the MSP process in Sweden. The report points out that while quite substantial knowledge and documentation exist on the status and well-being of coastal and marine ecological conditions, "knowledge and documentation is significantly more deficient in terms of how and to what extent [coastal and] marine areas are used for outdoor activities, with a focus on social aspects" (Ericson 2014, p. 6, author's translation). The same problem is emphasized by Stenseke (2010; 2012), who has expressed a concern that professional documentation of and knowledge about the recreational use of Sweden's only marine national park, Kosterhavet National Park, is not being prioritized in the management of the park. The issue has also been discussed in international contexts, e.g. in Australia (Hadwen

& Arthington 2008), North America (Eagles & Buteau-Duitschaever 2009) and the Mediterranean (Le Berre et al. 2013).

1.3 Focus on outdoor recreation monitoring

The described circumstances accentuate the role of *outdoor recreation monitoring*[2] to serve the dual purpose of supporting managers with knowledge in their decision-making and planning processes, while also providing important documentation of coastal and marine based recreation in Sweden. The attention on monitoring is connected to the fact that perceived changes in recreational numbers and interests in fragile nature areas in Sweden, including many coastal and marine areas, have given rise to the importance of monitoring humans and their activities in 'nature' contexts (Kajala et al. 2007). However, this work is currently challenged as monitoring efforts in today's area management are strongly influenced by a natural science perspective with an emphasis on monitoring the physical environment in order to keep sustainable conditions (Stenseke 2012). In this work, monitoring recreational uses of natural resources plays an important part, however, often with a one-sided focus on monitoring biophysical impacts of various recreational activities, and therefore not monitoring of recreational users themselves. Consequently, what is missing in today's area management is a wider perspective on monitoring that includes obtaining more qualified knowledge about the recreational users as a way to better understand, an thereby also manage, a central part of the human/social use and appreciation of coastal and marine areas.

To remedy this situation, the thesis both engages in as well as discusses a broader approach to outdoor recreation monitoring in coastal and marine areas. This choice runs parallel with a central argument that is kept throughout the thesis: namely that management of the physical environment cannot be solved by giving attention to monitoring and managing nature alone (i.e. ecological data), but needs to also include comprehensive knowledge about the recreational users themselves (i.e. social data) (Kajala et al. 2007; Blahna & Kruger 2007;

2 In the literature, outdoor recreation monitoring is also referred to as 'visitor monitoring' or 'social monitoring' (see Dawson et al. 2006; Kajala et al. 2007). To avoid confusion, a choice has been made to use outdoor recreation monitoring as the main term. A more detailed introduction will be given in Chapter 3.

Williams 2007). This includes acquiring "a fundamental understanding of visitor uses and experiences", which is a central part of working towards accommodating "good experiences and to find solutions for 'problematic' uses" (Gundersen et al. 2011, p. 3, author's translation). In other words, a qualified understanding of recreational users and their activities and experiences is a fundamental part of successful area management and thus also the work to sustain both environmental and recreational qualities (Lindhagen & Ahlström 2005). As emphasized above, this work is an important part of pursuing different national planning strategies on outdoor recreation in coastal and marine areas (and elsewhere).

In this regard, one central question arises: why has this work been given so little attention? To answer this question, attention must be directed at four issues that help to explain and guide the main purpose of the thesis. Looking at Sweden specifically, one fundamental issue is that while there is a strong tradition in area management in general for monitoring biophysical qualities and conditions, monitoring of social qualities and conditions related to the physical environment has received, and still receives, limited political consideration and therefore also prioritization by area managers (Ankre 2007; Gundersen et al. 2011; Stenseke 2012; Ericson 2014). Furthermore, current administrative policy on outdoor recreation in Sweden states that on-site monitoring of outdoor recreation conditions, including recreational users and their experiences, takes place on a voluntary basis. In other words, managers are not required, but at most encouraged, to do this work (SEPA 2009c; SEPA 2010b; SEPA 2011; SEPA 2014). This is paradoxical, especially when the Swedish Government and national agencies at the same time have expressed an urgent need to raise the knowledge level on performed activities in the Swedish outdoors (SEPA 2014; SEPA 2015). This problem is not unique to coastal and marine areas per say, but is a problem on a broader area management level (Gundersen et al. 2011; Stenseke 2012).

A second fundamental issue concerns the problem that managers in Sweden often lack social science skills and training to work professionally with outdoor recreation monitoring (Stenseke 2012). This is again not a problem restricted to coastal and marine areas only, but is a general problem in many area management contexts, where work that involves outdoor recreation monitoring seldom is carried out by managers with a social science education (Gundersen et al. 2011). Instead, outdoor recreation monitoring is done (if done at all) by

managers with a natural science education (i.e. ecologists/biologists), following natural science principles. In Sweden, this situation is particularly evident in the so far only recommended publication available on how to follow up outdoor recreation aspects and conditions on an area level, as the suggested methods are all based on natural science standards and methodology (see SEPA 2011).[3] As a result, managers are currently relying on their natural science knowledge and own practical experience with little base in professional recreation monitoring standards.

A third issue in Sweden is that there has never been any strong tradition for, let alone professional experience with, systematic outdoor recreation monitoring in coastal and marine areas (Stenseke 20101; 2012; Hansen 2015). This is particularly evident when scrutinizing the most comprehensive manual on outdoor recreation monitoring in the Nordic/Baltic countries to date, as the manual contains no monitoring examples or experiences from coastal and marine areas (see Kajala et al. 2007). Furthermore, the topic has not received much attention within academia either. Currently, only two studies from coastal and marine areas in Sweden can be identified (see Ankre 2007; Ankre 2009), while Fredman et al. (2013b) note that very limited attention has been given to retrieving data information on "outdoor recreation in marine environments, which is noticeable considering the importance of these [areas] for recreation" (p. 62, author's translation). As a result, the lack of knowledge on and experience with outdoor recreation monitoring in coastal and marine areas makes it difficult to initiate monitoring activities.

Finally, in connection to this, a fourth issue concerns the fact that the development of outdoor recreation monitoring practices in Sweden traditionally has been based on knowledge and experience from land based areas, i.e. mountain, forest and urban areas (see Ankre et al. 2013). This is problematic as coastal and marine areas per definition differ much from other area types in terms of area conditions (particularly their open-landscape character). These circumstances not only complicate a direct transfer of monitoring knowledge and experiences from other area types to coastal and marine areas, but also highlights what special requirements to monitoring methods and strategies that are important to consider in coastal and marine areas (Miljødirektoratet

3 There is one other social science based document available, but it has never been introduced, let alone implemented, on an area level. See SEPA (2009c).

2015). Consequently, the development of monitoring methods and strategies specifically adapted to coastal and marine area conditions much depends on more experiences with outdoor recreation monitoring in coastal and marine areas.

The four identified issues point to three interconnected knowledge gaps. First of all, there is a lack of research-based knowledge on outdoor recreation monitoring methods and procedures in coastal and marine areas. Secondly, there is also a lack of practical experience with outdoor recreation monitoring in coastal and marine areas, particularly among managers of coastal and marine areas. Third, and consequently, there is almost no knowledge available in terms of how to develop or improve outdoor recreation monitoring methods aimed for coastal and marine areas. In other words, the knowledge foundation on which to begin professional work on outdoor recreation monitoring in coastal and marine areas in Sweden currently is very weak. The outcome of this situation is that the knowledge base on outdoor recreation that is needed to achieve and accommodate the aforementioned national strategies on outdoor recreation, the environmental objective and the newly launched coastal and marine planning processes in Sweden currently is not available. As a result, managers cannot proceed with professional arrangement and facilitation of recreational activities, including providing quality recreational conditions and experiences to the public.

1.4 Research purpose and questions

In order to address the three knowledge gaps, the thesis will draw attention to the root of the problem, which also works as the thesis purpose: *a development of a knowledge base on outdoor recreation monitoring in the management of Swedish coastal and marine areas, with special attention given to management practices and needs*. 'Knowledge base' is first and foremost understood as a development of an academic knowledge base on the topic, which on a broader scale also will benefit the introduction of professional outdoor recreation monitoring standards on a management level. To accommodate the thesis purpose, the following three research questions are introduced:

1. What knowledge on outdoor recreation monitoring in coastal and marine areas is currently available and what knowledge gaps need attention?
2. What important monitoring challenges and needs can be identified in the work with outdoor recreation monitoring in coastal and marine areas?
3. How can outdoor recreation monitoring methods and strategies for coastal and marine areas be developed or improved?

A first step in developing a knowledge base on outdoor recreation monitoring in coastal and marine areas in Sweden is to uncover what is presently known about the topic. The first research question therefore involves identification of existing monitoring knowledge and experiences, and uses this knowledge base to point to important knowledge gaps (examined in Paper I and II). This work includes examination of both academic and practitioner knowledge and experiences, partly because the topic is still a small research field, and partly because research and management experiences often mix. Following this, the second research question seeks to expand the existing knowledge base by obtaining and adding practical experience with different applied monitoring activities in a chosen coastal and marine area. Specific attention is given to identification and discussion of monitoring challenges as well as monitoring needs in the work with outdoor recreation monitoring in coastal and marine areas (examined in Paper III and IV). Finally, the third research question emphasizes the need for better methods for outdoor recreation monitoring in coastal and marine areas.New monitoring methods and strategies are therefore discussed in terms of how they can improve current monitoring methods and practices (examined in Paper III and IV).

1.5 A Swedish case study

To be able to study and answer the three research questions, a Swedish case study area, *Kosterhavet National Park*, is introduced in the thesis. The national park is a first attempt to create a larger marine protected area in Sweden. At the same time, it is also recognized as a popular recreational coastal and marine area (SEPA 2009a). This dual role makes the national park a new and interesting area category to explore in terms of outdoor recreation monitoring practices, as there

is an explicit need to improve knowledge about the recreational use of the national park. Kosterhavet National Park also appears as an unusual case study as it represents but also differs from other coastal and marine areas, both in a national and international context. For example, in a national context, Kosterhavet can be said to represent a typical archipelago based landscape in Sweden. Furthermore, the national park contains important ecological and recreational qualities that are also found in other coastal and marine area contexts. However, Kosterhavet National Park differs from any other coastal and marine area in Sweden, primarily by having permanent, full time management in place. This situation is quite unique for coastal and marine areas in Sweden. In an international context, Kosterhavet has similarities with coastal and marine protected areas outside of Sweden due to the world-class ecological and recreational qualities found in Kosterhavet. In principle, this makes Kosterhavet comparable with international coastal and marine protected areas. Simultaneously, Kosterhavet also differs from international coastal and marine protected areas due to special Swedish legislation, such as shoreline protection (i.e. 'strandskydd') and the right of public access (i.e. 'allemansrätt'), which both apply in Kosterhavet National Park. This makes the area unique in an international context (with the exception of coastal and marine areas in Finland, Norway and partly Denmark).

Despite its typical/atypical character and conditions, Kosterhavet National Park is the best option in Sweden in terms of providing a case for the thesis focus. Not only is the park the only coastal and marine area in Sweden with ongoing management activities, but it is also an area with a development that has been studied and documented for years. In the thesis, Kosterhavet National Park is therefore used as an exemplary coastal and marine area, both in a Swedish and international context. A detailed introduction to the area is given in Chapter 4.

1.6 Disciplinary placement and researcher positioning

This thesis places itself within a lesser-known sub-discipline of geography, called *recreation geography* (or recreational geography). Recreation geography can rather loosely be defined as "the systematic study of recreational patterns and processes in the landscape" (Smith 1983, p. xiii). This definition is supported by Bristow (2006, p. 148), who further narrows it down to be the "study of humans participating in

some activity at some resource. Three parts: people, activity and resource". Research work on recreation geography can be traced back to the 1970s and 1980s where outdoor recreation was studied in relation to rural development and wilderness management (see Stillwell 1971; Lavery 1974; Stankey 1977). Important contributions include work by Smith (1983) and Mitchell and Smith (1985), who discuss how geography offers a unique lens to study outdoor recreation not only from social and cultural perspectives, but also as a spatially and temporal anchored phenomenon (see also Hall & Lew 1998; Hall & Page 2014). Recreation geography has also been criticized, for instance by Mitchell (1997) who has pointed out a lack of a methodological and theoretical base within the sub-discipline. In general though, research contributions to the sub-discipline have been scarce.[4] Nevertheless, as Janiskee & Mitchell (1989) emphasize, the raison d'etre of recreation geography might rather be in recreation planning and management, connected to an applied recreation geography approach, which they define as "the broad context of geographic expertise used as a tool for solving leisure-related problems" (p. 152). This is supported by Hall & Page (2014), who state that although recreation geography remains in the periphery of the geography discipline, it is growing as an applied research field.

This thesis not only places itself within, but also intends to contribute to, the further establishment of recreation geography as a geographic sub-discipline. Attention will therefore be given to meet the critique by Mitchell (1997), while the special applied research focus in recreation geography is also given attention. In terms of the latter, this involves linking disciplinary traditions and research findings with management practices in order to provide knowledge and experiences that also serve a purpose outside the academic realm. To accomplish this, the thesis has a problem-oriented focus built on empirical inquiry as well as important theoretical and methodological work. The theoretical work concerns a broader perspective on outdoor recreation monitoring, which is needed in order to work professionally with outdoor recreation in the management of coastal and marine areas. This involves an introduction to and discussion of a useful landscape

4 Some exceptions are geographic contributions from the Nordic countries which border recreation geography, e.g. in the work by Odd Inge Vistad and Margrete Skår (Norway) as well as Klas Sandell, Marie Stenseke, Linda Lundmark, Daniel Wolf-Watz, Dieter Müller, Rosemarie Ankre and Mattias Sandberg (Sweden).

understanding, called the 'recreational landscape' understanding, with a base in central geographic landscape theory and a Nordic landscape perspective (see Chapter 3). The methodological part will then use the theoretical framework to pursue new experiences with outdoor recreation monitoring methods in coastal and marine areas. This work involves application of and experiences with different monitoring methods in the chosen case study area with a focus on evaluating and learning from each of the monitoring procedures (see Chapter 5). The outcome of this combined theoretical and methodological work is an establishment of outdoor recreation monitoring not only as an important management tool, but also as a principal part of recreation geography.

In terms of researcher positioning, I acknowledge that my views and opinions as a researcher, including my research work, are influenced by the fact that I am part of Swedish/Nordic academic communities within human geography and outdoor recreation research. In particular, this entails an acceptance of the variety of different processes and conditions that have shaped both academic communities to what they are today (Simonsen & Hansen 2004; Emmelin et al. 2010). This includes the belief that science is never a single truth, nor can it be objective. On the contrary, it is always conditioned by subjective interpretations of the world that we live in (Bernard 2006). This ontological, and consequently also epistemological, way of thinking is inspired by phenomenology with its focus on how humans both influence, and are influenced by, interaction with the surrounding world (Ingold 2000). Additionally, inspiration has also come from thinking within critical realism which acknowledges that the world consists of both material and immaterial elements and qualities (Bhaskar 2011).

1.7 Important thesis considerations

The thesis contains a few important considerations that need attention.

A first consideration concerns the fact that the thesis originally was paired with a second PhD thesis written by Jenny Egardt, a marine ecologist from the Department of Biological and Environmental Sciences at the University of Gothenburg. The idea behind the two studies was to exchange interdisciplinary knowledge on the topic of outdoor recreation monitoring in coastal and marine areas. The two projects therefore met on a management level, where results and find-

ings were to be synchronized and communicated to the management of Kosterhavet National Park. However, during the four years of PhD time, the two projects saw shifting differences in focus and processes. A choice was therefore made to concentrate on each individual and disciplinary part, while the collaboration is set to a future time outside the frame of both theses. The consequence of this choice is that the ecological dimension of recreational activities in coastal and marine areas has been toned down in this thesis.

A second consideration concerns the monitoring work presented in the thesis and how this work should be seen as a first step in terms of developing professional monitoring methods and strategies for coastal and marine areas. In this regard, an important aspect involves the use of the term 'monitoring'. According to the monitoring literature, monitoring involves a commitment to measurements over time, i.e. longitudinal studies. However, the thesis' monitoring results and discussions are all drawn from one-time measurements in a unique study context. Consequently, the choice to use the word 'monitoring' can be problematic. Nonetheless, a choice has been made to still use the word 'monitoring' throughout the thesis in order to relate to the monitoring literature and research used in the thesis. A further clarification of this issue will be given in Chapter 5.

A third consideration concerns the relationship between outdoor recreation monitoring and various resource conflicts or conflicting recreational interests (Manning 2011). Outdoor recreation monitoring is often seen as an efficient tool to study and take action against the occurrence of conflicts related to recreational users and their activities. Although conflicts in this sense is an interesting study theme, it will not be the purpose of this thesis to explicitly study and discuss recreation related conflicts, neither conceptually, nor in practice. In other words, it is not the conflict itself, but rather the methods used for studying conflicts that is important, that is, outdoor recreation monitoring methods and practices. For studies with a specific focus on resource or recreational conflict management in coastal and marine areas, see Ankre 2007; 2009 and Morf 2006; Morf et al. 2011.

A fourth consideration is that the thesis work with outdoor recreation monitoring does not look into specific themes such at differences in ethnicity, gender, ages, etc. among recreational users. Again, the argument is the same as above; it is not the circumstances and profiles of the recreational users, but instead the monitoring methods and practices needed to acquire information on recreational users in the

first place that is in focus. That being said, it is acknowledged that these factors may require special attention when working actively with different monitoring strategies, such as being attentive of how different recreational users are approached based on their demographic profile.

Finally, a fifth consideration is that it is not the purpose of the thesis to contribute with a systematic monitoring program for the chosen case study area. Rather, the focus is to examine the present lack of it and what can be done to address this lack by suggesting how efforts on outdoor recreation monitoring in the study area can be improved. It is, however, emphasized that the results and findings presented in the thesis can be seen as a methodological introduction and toolbox that very well may assist managers to begin their own work on an effective and systematic outdoor recreation monitoring program in the future.

1.8 Key terms

Before moving on, it is important to first clarify a few key terms with importance for the thesis focus on and work with outdoor recreation monitoring.

Outdoor recreation

The thesis follows the official Swedish definition of 'friluftsliv', which comes closest to a definition of outdoor recreation in Swedish:

> *Stays in the outdoors in the natural and cultural landscape to gain well-being and nature experiences without an involvement of competition.*[5]

This definition includes an understanding of outdoor recreation as going or travelling to outdoor settings during leisure time for the purpose of engaging in various outdoor recreation activities and to obtain personal experiences (Emmelin et al. 2010; Wolf-Watz 2015). For coastal and marine areas, these activities and experiences involve everything from daily outdoor routines (e.g. walking or hiking at the beach) to more planned activities (e.g. camping, kayaking or fishing). This includes all types of motorized activities (e.g. motor boats and

5 Author's translation. Swedish Government 2010. For a good overview and discussion of the 'friluftsliv'/outdoor recreation definitions, see Beery (2011; 2013).

water scooters), which are considered important leisure activities in Swedish coastal and marine areas (see Fredman et al. 2013a). The large variety of activities and experiences means that outdoor recreation should be seen as a phenomenon that is rooted in strong outdoor traditions (Sandell & Sörlin 2008; Emmelin et al. 2010; Flemsætter et al. 2015), while also constantly changing and evolving according to ongoing social and cultural trends. In terms of the thesis focus on outdoor recreation monitoring, it is important to note that the definition requires that monitoring takes place on different levels. For instance, information about the first part (i.e. 'Stays in the outdoors in the natural and cultural landscape') often involves obtaining large sets of data, such as user numbers, activities and behavior. In contrast, the latter part of the definition (i.e. 'to gain well-being and nature experiences without an involvement of competition') often involves obtaining more qualified information about the recreational users, such as their perceptions and experiences. More attention on this will be given in Chapter 3 and Chapter 5.

Outdoor recreation monitoring

In its simplest way, outdoor recreation monitoring can be described as a tool to obtain information on various recreational matters and conditions (Manning 2011). Specifically, this involves systematic studies of recreational users engaging in recreational activities in a given setting over an extended period of time through different set indicators and parameters (Horneman et al. 2002; Kajala et al. 2007). The result is an improved understanding of and knowledge about important outdoor recreation aspects in the focal area. For a more detailed introduction to outdoor recreation monitoring, see Chapter 3.

Outdoor recreation management[6]

Outdoor recreation management concerns management of recreational users and their activities and experiences in specific 'nature' settings, e.g. a coastal and marine area (Manning 2011). Traditionally, this work includes practical planning and facilitation of different recreational activities and uses, such as providing area information and addressing potential user related problems. Furthermore, it also includes examin-

6 In the literature, outdoor recreation management is also referred to as 'visitor management' (see Kajala et al. 2007). In this PhD thesis, outdoor recreation management will cover the term visitor management.

ing recreational conditions, trends and developments of importance to management planning and decision-making processes (Marwijk 2009). Chapter 3 will provide a more detailed introduction.

Outdoor recreation and nature based tourism

For more information on the at times complex relationship between outdoor recreation and nature based tourism, see Lundmark 2009; Emmelin et al. 2010; Lundmark et al. 2013; Wolf-Watz 2015. In short, this thesis will not distinguish between outdoor recreation and nature tourism activities. The reason is that the actual content of recreational and nature based tourism activities basically is the same. For example, a kayak trip can be undertaken either as a tourism experience or as a recreational activity, but it does not change the activity itself. In terms of the thesis focus on outdoor recreation monitoring, this means that monitoring covers participation in both recreational and nature based tourism activities.

Coastal and marine areas

In this thesis, coastal and marine areas are defined as the immediate coastal zone adjacent to larger marine bodies where both coastal and water-based recreational activities take place (see Orams 1999; McCrone 2001; Lundberg 2015). This definition includes the shore environment, such as beaches, rocks and cliffs, as well as coastal infrastructures, such as walkways and guest harbors. Near coastal waters as well as archipelagos, smaller islands and peninsulas along the coast are also included. Furthermore, both protected and non-protected as well as rural and urban coastal and marine area categories are considered. Finally, both administrative and legislative boundaries in and across coastal and marine areas are heeded (e.g. shoreline protection and the right of public access in Sweden).

1.9 Thesis outline

The thesis continues with Chapter 2, which is a background chapter directed at explaining outdoor recreation as a political and academic topic in Sweden as well as its strong presence in Swedish coastal and marine areas. Chapter 3 then presents the theoretical base for the the-

sis, which in addition to an introduction to relevant landscape theory also addresses central theory on outdoor recreation management and monitoring. Chapter 4 contains a more detailed presentation of the case study area, before moving on with Chapter 5, which introduces the research design, process and methods that have structured the thesis. Chapter 6 hereafter provides summaries of each of the four papers included in Appendix A. Finally, Chapter 7 briefly answers the three research questions put forward in the thesis before ending with a discussion of important academic contributions and management implications of the thesis results. This includes a brief look into future research work and needs on the topic of outdoor recreation monitoring in coastal and marine areas.

CHAPTER 2

Background

2.1 Focus on outdoor recreation in Sweden

The need to establish a knowledge base on outdoor recreation monitoring in Swedish coastal and marine areas is part of a development where outdoor recreation has become a more recognized political and academic topic in Sweden. Furthermore, it is also connected to the importance and large presence of coastal and marine recreation throughout Sweden. Thus, in order to put the focus on outdoor recreation monitoring into a broader context, this chapter will describe:

a. Outdoor recreation as a political topic in Sweden
b. Outdoor recreation as an academic topic in Sweden
c. Outdoor recreation in Swedish coastal and marine areas

2.2 Outdoor recreation as a political topic in Sweden

Outdoor recreation is a fully integrated part of contemporary daily life in Sweden (Emmelin et al. 2010; Fredman et al. 2013a). Ever since the growth of the urban population in the early 20th century, and the accompanying economic opportunities and more free time for ordinary people to engage in leisure activities, outdoor recreation has grown as a social phenomenon and become associated with stays and activities in 'nature' (Stenseke 2012; Ericson 2014). Many of these activities contribute to the maintenance of cultural traditions, such as berry and mushroom picking as well as hunting and fishing, which all have strong roots in the traditional Swedish outdoors (Lindhagen & Bladh 2013;

Kagervall 2014). At the same time, recent trends within the outdoor recreation and tourism industries have seen the introduction of more extreme and challenging recreational activities. For example, some researchers now talk about a 'sportification' of recreational activities (Sandell et al. 2011; Sandell & Boman 2013). This trend has recently been confirmed in a national survey on outdoor recreation activities in Sweden, where adrenalin driven activities are listed side-by-side with more traditional recreational activities (Sandell & Fredman 2013). Meanwhile, outdoor recreation has also come to include close links to important topics such as public health and well-being. Closer ties with environmental awareness and education have been re-enforced as well, particularly with the development of organized eco- and nature based recreation and tourism activities (Lundmark et al. 2013; Ericson 2014; SEPA 2015). These trends are closely related to a demand for quality recreational opportunities and experiences among the public, which have turned outdoor recreation into a growing industry and important part of the national economy (Fredman et al. 2013c).

The earliest roots of political work with outdoor recreation in Sweden can be traced as far back as the late 1800s and especially the 1930s, when the topic became a political focus and was discussed as a national interest[7] (Sandell & Sörlin 2008). However, as pointed out by Emmelin et al. (2010) and later by Ankre et al. (2013) and Ericson (2014), growing focus on nature tourism and sustainable resource management in recent years has resulted in increased political attention on outdoor recreation in Sweden since the 2000s. For example, in 2001 the Swedish government emphasized outdoor recreation as one of the corner stones in Swedish conservation policy (Swedish Government 2001). This work was later followed up in a program report published twice by the governmental agency that currently is responsible for outdoor recreation planning and management in Sweden, the Swedish Environmental Protection Agency (SEPA). The report is called 'Värna – Vårda – Visa'[8] and concerns an ambition to increase the attention on nature conservation in Sweden with a specific focus on reaching different environmental goals (SEPA 2004/2011). One such goal involves the sustainable use of the environment in

7 Translation: *riksintresse*. Areas of national interests have priority over other resource interests. The Swedish Environmental Code (*Miljöbalken*) from 1999 explicitly mentions outdoor recreation as a national interest.

8 Translation: *Uphold – Protect – Show.* The recommendations in *Värna – Vårda – Visa* apply to all protected areas in Sweden.

Sweden, which includes a focus on the role and importance of outdoor recreation as one of the main pillars towards reaching the goal. This focus was made explicit by the presentation of the first governmental bill on outdoor recreation from 2010, which highlights outdoor recreation as a political planning priority and its connection to other highly prioritized political goals, e.g. public health, local development, education, science, etc. (see Table 1).[9]

The bill sets the frame around the development of outdoor recreation in Sweden by being an important indicator of, and guideline to, present and future outdoor recreation conditions in Sweden. Furthermore, it goes hand in hand with an increased political focus on securing public access to and use of the 'Swedish nature', which includes a focus on professionalizing outdoor recreation management and planning practices throughout Sweden (SEPA 2014). This work, which has the bill as well as the environmental objectives as its base, is presently referred to as Sweden's outdoor recreation politics (SEPA 2012).

1. Accessible nature	*6. Sustainable regional growth*
2. Strong commitment and cooperation	*7. Protected areas as a resource for outdoor recreation*
3. Free public access forms the basis of outdoor recreation	*8. Valuable outdoor recreation at school*
4. Access to nature for outdoor recreation health	*9. Outdoor recreation for the good of the people*
5. Attractive natural areas close to urban centres	*10. Good knowledge about outdoor recreation*

Table 1 - The governmental bill on outdoor recreation. Source: Swedish Government 2010.

Both the bill and the outdoor recreation politics in Sweden is, however, not without problems. For instance, there is a long way to go from the bill and the outdoor recreation politics made by the national authorities to the enactment of the bill and policies in practice. In

9 For a more thorough description of how outdoor recreation has been given attention in various political documents and contexts since the early 2000s, see Stenseke 2012.

other words, the process of negotiating national strategies onto local management practices is a challenge. As a result, the success of the bill and the national outdoor recreation politics much depends on current political will and abilities to enact both, not only on a national scale, but also on regional and local scales. This work will require professional documentation of and knowledge about outdoor recreation conditions and developments in Sweden, which can ensure that political decisions are made on a foundation of best practice knowledge (Fredman et al. 2013a).

2.3 Outdoor recreation as an academic topic in Sweden

A central part of the outdoor recreation politics in Sweden is to establish an academic knowledge base to support the work with outdoor recreation throughout the country. So far, the most noticeable effort to establish such an academic knowledge base was the recently active research program 'Outdoor Recreation in Change' (Fredman et al. 2013a). The research program, which began in 2006 and ended in 2012, brought researchers together from all Swedish universities with units actively working with different outdoor recreation themes. Important work from the program includes experiences from different types of recreational settings in Sweden, such as mountain areas (Fredman et al. 2009), forest areas (Norman et al. 2011), urban green areas (Sandberg 2012), protected areas (Lundmark et al. 2010) and, not least, coastal and marine areas (Stenseke 2010). In total, the program produced 177 publications, of which a final rapport published in 2013 is the most notable one, as it introduces and summarizes most of the current academic work on outdoor recreation in Sweden, including a look into future research needs and opportunities (Fredman et al. 2013a).

In spite establishing a broad knowledge base on outdoor recreation in Sweden, the outcomes of the work done during the program and in other research literature on outdoor recreation in Sweden still need to be seen. Furthermore, there are uncertainties about how future research work on outdoor recreation will take shape, especially as there no longer is a formal research platform from which to continue the work with different outdoor recreation topics. However, one thing is certain: although the program is finished, new aspects within outdoor recreation conditions and development in Sweden necessitates a con-

tinued research focus on the topic. An important future task therefore involves updating and expanding the knowledge base on outdoor recreation that has now been established (Stenseke et al. 2013). This work will benefit not only researchers, but also managers working with outdoor recreation, who may use such a knowledge base to professionalize their own management practices. Another important task therefore is to improve researcher-management collaboration now and in the future. For more details on present outdoor recreation research in Sweden, see Fredman et al. (2013a).

2.4 Outdoor recreation in Swedish coastal and marine areas

Swedish coastal and marine areas is one area type in Sweden where both the political and academic focus on outdoor recreation is needed. As stated in Chapter 1, the coastal and marine environment in Sweden is considered a very attractive and popular setting for recreational purposes and activities (SWAM 2012; Ericson 2014). This is no wonder, considering that Sweden has one of the longest coastal lines in Europe, including more than 270,000 islands (SCB 2013; SCB 2014). In addition, almost half of the population (49%) lives within 10 km of the coast, while up to nearly three-quarters of the population (71%) lives within 50 km of the coast (SWAM 2015). A recent study by Fredman and Hedblom (2015) has also shown that coastal walks are one of the most frequently practiced recreational activities in Sweden. This is backed up by survey study from 2010 (BalticSurvey), which revealed that in Sweden alone around 5.92 million Swedes made at least one visit once a year to coastal and marine areas to spend their leisure time and recreate (SEPA 2010a). Adding to this more than one million second homes, a growing number of leisure boats and a multi-billion economy from coastal and marine based tourism, it is clear that the Swedish coasts and near coastal waters are fast becoming some of the most attractive, but also most exposed and crowded areas in Sweden (SWAM 2015; WSP 2015).

Aside from different recreational activities and interests in coastal and marine areas among the Swedish population, there are other circumstances that also influence the recreational use of the coastal and marine environment. For example, the coastal and marine areas characteristic to Sweden (and many of the Nordic countries) often

present unique landscape types, such as large archipelagos and bays. These areas not only offer different and often unique recreational opportunities, but they also require special considerations in terms of how to work efficiently and professionally with outdoor recreation management and monitoring activities (Ankre 2007; SEPA 2015). Furthermore, powerful legislations, most notably the Swedish right of public access and shoreline protection, are factors that also have to be taken into consideration. Aside from being two highly prioritized political goals, both legislations are important planning aspects that have a large influence on the recreational use of the coast and the sea, primarily by securing accessibility to coastal and marine areas (Ericson 2014; SEPA 2015; SWAM 2015). In terms of outdoor recreation management and monitoring, they both encourage management and monitoring of recreational activities in coastal and marine areas. However, they also present challenges, particularly by giving recreational users unrestricted and uncontrolled access to the coast and the sea, which in turn leads to a large degree of user dispersion. Special attention therefore needs to be given to how work with outdoor recreation management and monitoring can be developed in congruence with these unique area conditions and legislations.

CHAPTER 3

Theory

3.1 Introduction

The importance and large presence of coastal and marine based recreation in Sweden motivates the thesis focus on developing a knowledge base on outdoor recreation monitoring in coastal and marine areas. However, such a development not only implies significant methodological work, but also concerns why this work needs attention and how it can be argued for theoretically. To answer these central questions, this chapter will contribute with a theoretical anchoring of outdoor recreation monitoring as a central topic not only in recreation management, but also in recreation geography (see Chapter 1).

The chapter is divided into three connected parts. The first part works as a frame around the central thesis argument mentioned in Chapter 1: that a broader perspective on outdoor recreation monitoring is needed in order to work professionally with outdoor recreation in the management of coastal and marine areas. Specifically, this means looking into the importance of monitoring not only environmental processes, but also human relations and experiences in coastal and marine areas. To better understand this, an integrated landscape understanding grounded within geographic landscape theory and a Nordic landscape perspective is introduced with a specific emphasis on the importance of working actively not just with material, but particularly also immaterial landscape qualities in recreational area contexts. With a base in this landscape understanding, the second part continues with a more applied theory focus with an aim to present several conceptual frameworks that have influenced the development and current use of outdoor creation monitoring in the management of coastal and marine

areas today. Specifically, this involves introductions to key management procedures and concepts, such as recreation ecology, carrying capacity, adaptive management, as well as management theory. The outcome is a greater conceptual background to and understanding of outdoor recreation monitoring as an important and integrated part of outdoor recreation management processes and procedures. The third part closes the chapter by further describing and discussing outdoor recreation monitoring as a concept. Emphasis is put on providing a more detailed introduction to outdoor recreation monitoring, both as a basic management activity and as an active research field. This work includes important epistemological and methodological considerations on outdoor recreation monitoring as well as an overview of international literature on the topic in order to examine the breadth of the research field.

3.2 New landscape understanding needed

3.2.1 Landscapes of material and immaterial qualities

Looking at many cases of area management today, monitoring activities mostly concern or involve monitoring of the *material landscape*. In contrast to this, monitoring of the *immaterial landscape* is often given less priority or even wholly neglected (Cole 2006; McCool 2006a; Wynveen 2009). Notwithstanding the importance of monitoring aimed at protecting and conserving biophysical qualities in area management, the one-sided focus on monitoring of biophysical qualities can lead to an overlook of the fact that natural resource areas also include important human qualities (i.e. meanings and values) that require monitoring attention (Le Berre et al. 2013). Consequently, a shift in the way managers understand and work with monitoring is warranted. Specifically, what managers need is a broader approach to the monitoring task with a basis in a more nuanced understanding of the landscape that emphasizes the importance of monitoring not only material, but also immaterial landscape qualities (Widgren 2004; Antrop 2006; Strickland-Munro et al. 2015). Fundamentally, the basis of such a landscape understanding should include an acknowledgement of the fact that:

> *…landscapes […] are more than containers of natural resources and staging areas for enjoyable activities. They are locations filled with history, memories, and emotional and symbolic meanings.* (Williams & Vaske 2003, p. 838)

The first part of the quote is related to a landscape understanding wherein the physical (material) landscape is projected simply as a spatial frame around human living and daily activities (Stedman 2003). This view stems from an objectivist tradition within positivistic landscape research, and is typically a landscape understanding found within the natural sciences, such as in various landscape assessment studies (Lothian 1999; Gobster et al. 2007; Åsberg et al. 2011). The second part of the quote is more linked to landscape theory wherein the landscape also frames symbolic content and values, which surface when humans interact with their environments (Taylor et al. 1990; Kyle & Chick 2007). This view more resembles a phenomenological based landscape understanding, which emphasizes that the world is experienced through "relational contexts of people's practical engagement with their lived-in environments" (Ingold 2000, p. 168).

Such a landscape understanding is shared with a *Nordic landscape perspective*, which emphasizes that humans cannot be separated from the landscape with which they engage. Rather, humans are part of the landscape, indeed we belong to it. However, not only through different land uses, but also through different temporally and spatially anchored human meanings and values, which influence how landscapes are understood and thus also used (see Setten 2004; Olwig 2008; Jones & Olwig 2008). Olwig (2003, p. 226) calls this a typical Nordic landscape perspective, which "is characterized by a concern with history, custom/law, and language and culture as they work together in forming a landscape polity and its geographic place". The characteristics of the production landscape (e.g. farming, forestry) as well as the unique right of public access in most of the Nordic countries are examples of this landscape perspective, which emphasizes landscapes as 'common goods' (Widgren 2015, p. 203) in which "people's embodied expressions, memories and practices" manifest (Mels & Setten 2007, p. 199). This view is also articulated by Setten (2006), Sörlin (2008) and Emmelin et al. (2010), who emphasize that landscapes should be seen and understood in the light of both past and ongoing social and cultural processes. In turn, this not only makes humans an active part

of the landscape, but also producers of important landscape meanings and values, which must be studied and understood.

To better understand this process, inspiration can be found within symbolic interactionism theory (Greider & Garkovich 1994; Eisenhauer et al. 2000; Charon 2007). Symbolic interactionism theory emphasizes that by actively interacting with their material and immaterial surroundings, humans are able to create understanding and meaning of the world as they encounter and experience it (Steven 2008: Strickland-Munro et al. 2015). In this sense, a landscape not only represents a spatial and temporal scale for human activities, but also becomes the very symbol of human-nature encounters and interaction through the performance of various activities, e.g. various recreational activities (Van der See 1990; McIntyre-Tamwoy 2004). In turn, the meanings and values that humans ascribe to a given landscape setting (e.g. a coastal and marine area) not only determine what attitudes they have about that setting, but also how they choose to engage it and therefore use it (Figure 1).

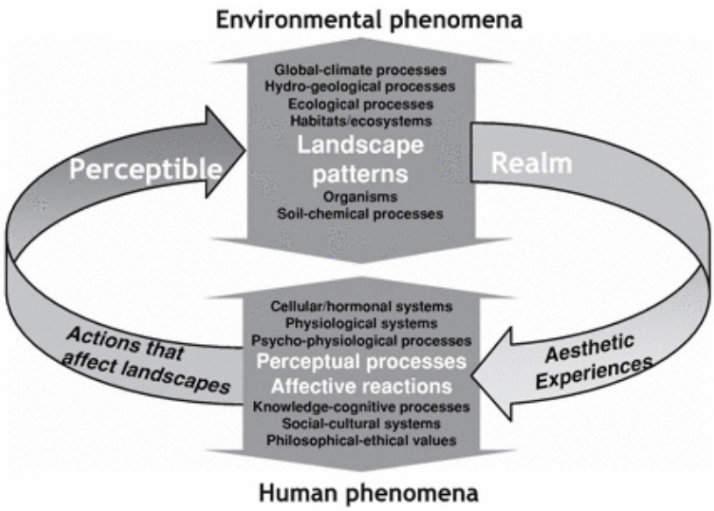

Figure 1 - Humans are both affected by and affects the landscape. Source: Gobster et al. 2007.

Specifically, Figure 1 shows that experiences of a given landscape setting (e.g. 'Aesthetic Experiences') cannot be detached from how the setting is used (i.e. 'Actions that affect landscapes'). Indeed, as the figure shows, it is an endless cycle, wherein human perceptions of and experiences in a given setting, and the symbolic meanings and values that are created as a result, always will lead to an understanding of

that setting, which in turn guides human actions and activities (Stedman 2003; Povilanskas et al. 2016). This process involves, and can even change, both the way physical and social settings affect humans and how humans in turn affect settings through active engagement. Consequently, when people devote time and efforts in a particular environment, they also "take something (positive or negative) from and give or do things to the environment" (Cross 2001, p. 13). This transaction can be positive or negative, short-term or long-term, but it will, one way or the other, influence how people perceive and engage with different settings (Steven 2008).

In sum, the landscape understanding emphasized here fundamentally differs from one that only pays attention to material landscape aspects and qualities. Indeed, it requires the landscape to be seen more as a lived world, wherein humans move from being spectators of a given landscape to become active parts of it through constant engagement and interaction (Ingold 2000). This landscape understanding thus acknowledges both the presence of a physical landscape and the humans that live in it, with a focus on their active encounters and exchanges with and within the landscape. In terms of the thesis focus on outdoor recreation monitoring, this landscape understanding is central, as it argues for the importance of understanding and working with the landscape as a frame not only for material, but also for immaterial landscape aspects and qualities.

3.2.2 Introducing a recreational landscape understanding

With the above landscape understanding as a foundation, I hereby introduce a useful landscape understanding that can form the basis for a broader geographic perspective on the work with outdoor recreation monitoring. This is called the *recreational landscape* understanding and is a conceptual construction brought on by the need to give attention to the importance of monitoring, and thus also better understand, material as well as immaterial landscape qualities in contemporary area management (McCool 2006a). This is exemplified next by discussing place meaning and -attachments as well as human-nature encounters as immaterial landscape qualities that require special monitoring attention.[10]

10 In addition to the place literature and literature on human-nature encounters, I also acknowledge the large literature that concerns nature based tourist experiences,

First, however, it is important to emphasize that the recreational landscape understanding is not a completely new construct. For instance, the term has been used by both Doxtater (2008) and Koppen et al. (2014) to investigate what recreational users do in recreational settings and accessibility issues in nature areas. Neither of the studies, however, defines what is meant by the term other than referring to landscapes wherein recreational activities take place. Furthermore, both Van der Zee (1990) and Sandell (2000; 2005) have used the term indirectly. Van der Zee, for example, talks about the complex relationship between landscape and recreation, while Sandell has introduced a conceptual framework of eco-strategies to explain different recreational landscape uses. Again, however, there is no special focus on describing what exactly is meant by a recreational landscape, let alone introducing it as an argument for the importance of working more actively with outdoor recreation monitoring.

Fundamentally, the recreational landscape understanding that is introduced in this thesis builds on the former mentioned quote by Williams & Vaske (2003), but breaks it down into three different parts: a recreational content (i.e. 'enjoyable activities') in a physical setting (i.e. 'natural landscape and natural resources') and the resulting experience (i.e. 'history, memories, and emotional and symbolic meanings'). This definition strongly resembles the definition of recreation geography, which emphasized the study of the relation between people, their activities and a given resource context (see Chapter 1; Williams 2007). In case of the 'recreational landscape' understanding, however, this definition is re-focused a bit to view the landscape as a frame around recreational activities in order to provide both tangible benefits (e.g. physical fitness) and intangible benefits (e.g. peace and rest) (Driver et al. 1991; Antrop 2006; Aminzadeh & Ghorashi 2007; Kocis 2007). The recreational landscape understanding thus keeps the thinking that landscapes are more than just the sum of their physical/material reality (Van der See 1990; Cheng et al. 2003). For instance, a recreational landscape can be a summer cabin by the sea, which has been a family property for generations, and which therefore carry certain affectionate value for family members. Or it can be an island in an archipelago, which contributes with an attractive setting for silence and seclusion. In either case, both sites have value to recreational users

which support the argument why immaterial landscape qualities require monitoring attention (for an overview, see Vespestad & Lindberg 2011).

because they are part of their perception and experience of a certain physical setting to which strong emotional bonds are bound (Kaltenborn 1998; Stedman 2003). The setting is then no longer just 'empty space', but instead a 'place' that is given meaning and importance through recreational activity.

This notion is picked up by Williams and Patterson (1996), who observe that what biologists and ecologists refer to as 'ecosystems' often coincides with what geographers and other social scientists call 'place'. In other words, recreational users not only perceive and experience material qualities of a psychical setting (such as their scenic features), but also often identify with immaterial qualities that a physical setting may contain or represent (such as personal feelings) (McIntyre-Tamwoy 2004; Schroeder 2007). This understanding of the landscape requires a move beyond the pure utilization of physical landscape components to a more situated understanding of the landscape as a place, or rather multiple places, to which important meanings and values are ascribed (Eisenhauer et al. 2000; Wolf-Watz 2015). The same is emphasized by Williams et al. (1992, p. 44) who argue for a greater understanding of the connection between recreational users, their experiences and choice of setting:

> *Natural resources are not only raw materials to be inventoried and moulded into a recreation opportunity, but also, and more important, places with histories, places that people care about, places that for many people embody a sense of belonging and purpose that give meaning to life.*

The connection between landscape and place is particularly relevant for the recreational landscape understanding, as "caring about places is important and different from caring about resources" (Kruger & Williams 2007, p. 86). This fact has received considerable attention in the literature on outdoor recreation, and there is even talk about 'placed-based recreation management' (Schroeder 2007), with a focus on understanding and managing the at times close relationship between recreational users and the physical landscape they engage with (Farnum et al. 2005; Kruger & Hall 2008). For example, studies by Kaltenborn et al. (2002), Kyle et al. (2003; 2005), Manzo (2008), Wynveen (2009) and Tonge et al. (2013) show how recreational users, in various ways and to different degrees, connect or bond with certain places or sites through the performance of recreational activities.

Consequently, they appreciate and treat the material and immaterial environment that those feelings refer to not only differently, but also according to the depth of that feeling (Schroeder 2007). Furthermore, according to Farnum et al. (2005), repeated experiences in and of the same place often lead to development of feelings for that place, which eventually may turn into a sense of care, or even ownership of that place. The place then becomes a way "to express a sense of identity" (Williams 2007, p. 38. See also McIntyre-Tamwoy 2004). For some users, these 'special places' cannot be substituted, which explains why some users are sensitive and may react strongly on changes to the place, regardless if these are caused by natural changes or human factors (Brandenburg & Caroll 1995; Cheng et al. 2003; Schroeder 2007). Galiano & Loeffler therefore suggest that more attention is given to what they call 'knowledge of places':

> *Knowledge of places having high value to humans as well as an understanding of the significant meanings and images that places have to individuals within a community should allow planners, managers, and decisionmakers to* [develop management guidelines] *that will maintain the salient characteristics of those places.* (Galiano & Loeffler 1999; cited in Kruger & Williams 2007, p. 85)

To acquire this knowledge, it becomes important to monitor, and thereby understand, not only what kinds of material and immaterial settings recreational users like or dislike, but also what factors that make these settings, or places, within the landscape special and why (Kruger & Williams 2007). This requires that attention is given to the study of how recreational users perceive and experience the setting they interact with, as this determines what meaning(s) they associate with the setting, and thus how they choose to value and use it. If this knowledge is acquired, it can be used as a parameter for how different places are best managed, with a specific focus on identifying and ensuring (Schroeder 2007, p.52):

- Specific locations of places that are special to particular people and groups
- Environmental features, qualities, and characteristics that make places special

- Experiences, meanings, and values that people associate with special places

According to Farnum et al. (2005), this work implies learning from the recreational users themselves what aspects of a given recreational setting that contribute to personal meaning and value. In other words, dialogues with the recreational users themselves become an essential management task, which emphasizes management based on citizen science principles and communicative planning approaches (Silvertown 2009; Ericson 2014). This work is particularly relevant in today's mobile world, where people's diverse ties to different places and how these constantly form and change, both affect, and are affected by, the way landscapes are perceived and used (Kruger & Williams 2007). Consequently, it is important to understand these formations and changes to continue with correct management actions.

A closely related and important feature of the recreational landscape understanding is that it also offers a good approach to study, and thus also to better understand, the encounter between humans and 'nature', and the resulting experiences of that encounter (Povilanskas et al. 2016). In this regard, an important part of the recreational landscape understanding is to recognize that any recreational landscape essentially constitutes, and is formed by, a multitude of different human-nature encounters. This fact has received considerable attention in the broader research literature with relevance to outdoor recreation, where the study of human-nature encounters ranks among the more popular outdoor recreation themes (see Wolf-Watz 2015). For example, as emphasized above, a large part of the place themed literature pays attention to the connections and relations between humans and the both natural and social environments they engage with (e.g. Eisenhauer et al. 2000; Cross 2001; Jorgensen & Stedman 2006; Kyle & Chick 2007; Hashemnezhad et al. 2013). Furthermore, Schultz & Tabanico (2007), Beery (2011) and Beery & Wolf-Watz (2014) address environmental connectedness, which concerns an understanding of how some humans are able to develop affective and/or cognitive connections or bonds with nature. Similar concepts and understandings, such as nature affinity (Kals et al. 1999), environmental identify (Stedman 2002) and nature relatedness (Nisbet et al. 2009), have also been introduced and used. In spite their difference in description, they all share a common focus on explaining and discussing the emotional and/or cognitive outcome of human-nature encounters and experiences.

The base for understanding human-nature encounters is to study recreational users and their activities in a recreational setting, including any acquired experiences that may develop because of human-nature engagement and interaction (Williams 2008). Understood this way, human-nature encounters closely resemble the definition of the recreational landscape understanding (as well as recreation geography), which emphasized a closer study of the relationship between the performance of recreational activities in a physical setting, and how this may result in obtaining important experiences. In this case, human-nature encounters is the key factor that can explain this relationship by connecting the content and activities in a recreational landscape setting with what is perceived and experienced from the point of view of the user (Stedman et al. 2004). One way to describe human-nature encounters is to describe what circumstances that affect these encounters. Inspiration can be taken from Farnum et al. (2005) and Hashemnezhad et al. (2013), who talk about five elements, or factors, that both influence and form human-nature encounters. These are:

1. The quality of the physical setting
2. Individual values, beliefs and interests
3. Social actions and behavior
4. Expectations and satisfaction
5. Engagement in recreational activities

Although each of the five factors is important on their own, they are also interconnected. For example, there is a clear line from the quality of the physical setting to what expectations that are associated with it and what activities that will be performed. At the same time, expectations and activities are also influenced by individual values, beliefs and interests as well as social actions and behavior, which in turn affect the degree of satisfaction that is derived from the overall recreational activity and the resulting experience (Williams 2000; 2007; 2008; Povilanskas et al. 2016). The basis for understanding these processes comes, however, from knowledge about each factor and how they influence one another. In practice, this means that efforts are needed in terms of acquiring detailed information about all of the above five elements as a way to better understand, and thus also manage for, human-nature encounters (Wolf-Watz 2015).

The significance and relevance of studying place meaning processes and human-nature encounters is relevant in terms of obtaining a more

qualified understanding of the recreational landscape that is managed. Additionally, the importance is also connected to the fact that it has become a challenge in recreational areas to accommodate and plan for a wide array of recreational activities and interests, while simultaneously meet growing expectations and demands from the public in terms of what recreational content that needs prioritization (Manning 2011; Ericson 2014). With these expectations and demands often follows an increase in competition for access to various recreational settings, as many recreational interests and activities often have to fit within the same limited space. For this very reason, recreational settings that are important and valued by many can potentially turn into areas of contest and conflicts (Cross 2001; Kaur et al. 2004; Williams 2007; 2008). The problem is that recreational users (groups as well as individuals) differ in perceptions of and values associated with a recreational landscape, either in the way they use the landscape (i.e. activities) or the way they give meaning to the landscape (i.e. place meaning), or both. Although a recreational landscape is usually big enough to include a variety of landscape uses and meanings, these differences can sometimes result in conflicts between different individuals or groups caused by a clash of different interests (Franchina & Meier 2007). Consequently, knowledge and information about such differences can help to anticipate and minimize problems before they occur or grow into an actual conflict (Manning 2011). In this work, a greater understanding of place meaning processes and human-nature encounters in recreational landscapes is essential as the knowledge can contribute with solutions to observed problems in areas characterized by contested uses, meanings and values.

In conclusion, working with recreational settings as important places and frames for human-nature encounters marks a shift away from managing and monitoring only material landscape conditions and qualities toward the management and monitoring of immaterial landscape qualities in coastal and marine areas (as well as in recreational area contexts in general) (Kocis 2007; Le Berre et al. 2013). Specifically, this entails obtaining information on everything from user numbers, profiles, activities and behavior to detailed knowledge about specific user interests, perceptions, experiences and values. Only with such a broad knowledge base is it possible for managers to truly understand all aspects around the recreational users and the circumstances and outcomes of their activities and experiences. Ultimately, the goal is to be better prepared for managing environmental and social complexi-

ties, and the interaction between these, in every recreational landscape context (Williams & Stewart 1998; Manning 2011; Stedman 2016).

3.2.3 Coastal and marine areas as recreational landscapes

Coastal and marine areas can (or should) be understood as recreational landscape settings wherein both material and immaterial conditions and qualities are present and thus require monitoring attention (Wynveen 2009; Tonge et al. 2013). Material conditions and qualities imply an understanding of coastal and marine areas primarily as a resource that provides functions and opportunities for engaging in various recreational activities or obtaining valuable experiences (Widgren 2004; Mitchell 2008). Examples include fish (for angling), water (for kayaking) or the beach (for sunbathing). Immaterial conditions and qualities differ from this by putting more emphasis on studying how recreational users ascribe value and meaning to the coastal and marine setting wherein their recreational activities and experiences take place (see also Stedman 2003; Kyle & Chick 2007). These symbolic values and meanings can be bound to a specific recreational activity (e.g. a kayak tour) or a specific physical setting (e.g. an island), or both at the same time. In either case, it involves a bonding process wherein often deeply rooted feelings are projected onto coastal and marine settings via experiences obtained through engagement and interaction with both physical and social environments in a given coastal and marine setting.

One of the first studies to point out that coastal and marine landscapes contain not only material, but also important immaterial conditions and qualities is a study by Cox et al. (2004). A key hypothesis is that coastal and marine areas are important, not only for the performance of various recreational activities, but also because the physical environment in coastal and marine areas provides recreational users with important meanings and values obtained through their experiences. The study examines environmental perceptions among recreational users and concludes by emphasizing the importance of maintaining positive environmental conditions in coastal and marine areas, as these highly influence the quality of the resulting recreational experience. The physical environment is, however, not the only important factor determining perceptions of and experiences in coastal and marine areas. In line with Farnum et al. (2005) and Hashemnezhad et al. (2013), Pike et al. (2010) point out the importance of coastal and marine areas for social interactions, values and practices. In this regard,

Pike et al. discuss the concern that managers of coastal and marine areas long have neglected the importance of including social factors in their management plans and actions. Consequently, management plans and actions are built on ecological and economic principles and priorities, without much thought for the social content embedded in coastal and marine areas. Via interviews with coastal and marine managers, Pike et al. (2010) thus reveal the importance of including social values associated with coastal and marine areas in management processes along with ecological and economic factors. Indeed, they conclude that all three parts are prerequisites for sustainable and best practice area management.

Another take on this is a study by Wynveen et al. (2010) with a focus on place values and meanings ascribed to coastal and marine settings. In this study, place values and meanings are seen as the product of interaction between humans and the setting of engagement. A combination of symbolic interactionism theory and in-depth interviews with recreational users is used to convey how recreational users develop place values and meanings for the coastal and marine areas they choose for their recreational activities, including the content of these values and meanings. Ten place values and meanings themes are identified and include aesthetic beauty, abundance and diversity of wildlife, facilitation of desired recreation activity, sense of connection to the natural world, experiences with family and friends, etc. The results are interesting as they illustrate the multitude of place values and meanings that can potentially exist in a coastal and marine area setting. A different study by Riper et al. (2011) shows managers' own place values and meanings in coastal and marine areas. The important reasoning in this approach is that managers themselves also display important place values and meanings when working with their areas. The study findings show that managers perceive places not very differently than recreational users and that they also develop strong place attachments similar to recreational users.

The idea of including area managers' own place values and meanings is interesting, as managers have a chance to see how their own place values and meanings affect their work efforts. Place values and meanings, including perception and experiences of places, is also the focus of a study by Tonge et al. (2013) with a main aim to identify and explore how recreational users develop different place attachments in coastal and marine areas. Via use of self-employed photography (SEP), Tonge et al. (2013) are able to identify and discuss different

place values and meanings in the resulting pictures, which in turn can explain feelings of attachment among recreational users. According to Tonge et al. (2013), these place values and meanings are core elements in explaining what landscape qualities people are attracted to and why. Interestingly, the results are used to discuss why recreational users return to the same destination (place) every year, which serves as an argument for why management need to pay more attention to place values, meanings and attachments.

Although more and similar studies can be identified[11], the five studies highlighted here suffice in terms of showing the current status of research that point to the importance of studying how recreational users experience, appreciate and consequently also use coastal and marine areas. Common to all the studies is that they emphasize the need for active work with human/social meanings and values associated with coastal and marine areas, as these show and influence "how people behave at a place and the concerns and aspirations they have about it now and in the future. [Furthermore, they] also influence how people respond to proposed changes in policy and management" (Strickland-Munro et al. 2015, p. 7). Knowledge about the latter is particularly relevant for area managers as it connects directly to their daily work tasks and priorities and indicates how these may influence the recreational experience. This work is, however, not without challenges, especially when it comes to how complicated human aspects, such as place meanings as well as human-nature encounters, can be studied and monitored. In this regard, Williams (2007, p. 33) reminds us that despite "increasing recognition that symbolic meanings of the environment are important, managers [still] lack available tools to represent them in resource assessments and decision-making." This was also one of the main problems described in Chapter 1, where the current lack of a professional knowledge base on outdoor recreation monitoring in coastal and marine areas in Sweden was identified as a concern. Nevertheless, given that such a professional knowledge base can be established, outdoor recreation monitoring can be developed to provide such a tool.

11 See for example Meyer 1996; Meyer 1999; Carter et al. 2007; Wynveen 2009; Tonge et al. 2010; Pike et al. 2011; Tonge et al. 2011; Wynveen et al. 2012; Wynveen et al. 2013; Hall & Page 2014; Tonge et al. 2015

3.3 Outdoor recreation management

3.3.1 Providing a background

That outdoor recreation monitoring is a principal part of area management practices has long been recognized within *outdoor recreation management*, whereto the conceptual roots of outdoor recreation monitoring can be traced. In fact, outdoor recreation monitoring is mostly associated with the establishment and development of recreation management theory, which forms the base of outdoor recreation monitoring (see Jubenville & Twight 1993; Manning 2011; Torkildsen 2012; Goodhead & Johnson 2013; Eagles et al. 2014). Fundamental for recreation management theory is the ever-present tension between protection and use of natural resources, which emphasizes the important management task of keeping high bio-ecological standards, while also supplying high quality recreational experiences and opportunities (Davis & Tisdell 1995; Manning 2004). This work is relevant for all areas with active management, especially protected areas, where careful considerations concerning how to simultaneously plan and manage for biological and recreational qualities is an explicit focus and priority. Traditionally, therefore, outdoor recreation management has always had, and still has, a large emphasis on the practical organization and facilitation of recreational activities and experiences in different area settings (Manning 2011). In a Swedish context, this work includes how to manage for the right of public access, which is a fundamental prerequisite for all outdoor recreation management activities.

On a more detailed level, outdoor recreation management puts emphasis on the close relationship between the performance and management of different recreational activities in a given setting. Manning (2011) has suggested a model to explain this three-part relationship (Figure 2). The model shows that the performance of outdoor recreation activities is influenced by three factors: resources, social life and management – all interlinked in a recreational setting, e.g. a coastal and marine area. The 'resource' refers to the physical resources that are used to perform different recreational activities and resembles what was called the material landscape in the recreational landscape understanding. The 'social life' refers to the people that one is with or the community one encounters when engaging in recreational activities. This social life will often lead to positive experiences and

attachments with places of high social value, which thus resembles the immaterial landscape in the recreational landscape understanding. Last, 'management' refers to management activities aimed to ensure the quality of physical and social conditions, such as decreasing negative human impacts on natural resources and minimizing conflicting recreational interests and activities (Manning 2011). This often means that management efforts need to be distributed equally between resource and social factors as a way to accommodate environmental and social goals and priorities.

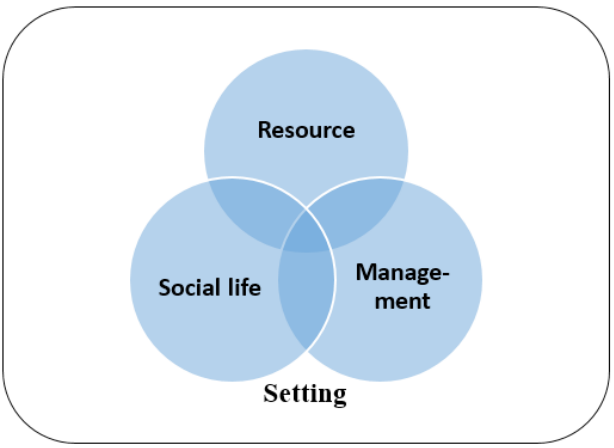

Figure 2 - The base of outdoor recreation activities. Source: Manning 2011

Looking at the vast literature on outdoor recreation management, several established management concepts and frameworks that concern these three aspects of outdoor recreation planning and management can be identified. The most influential of these give attention to the role and development of outdoor recreation monitoring as a central activity in outdoor recreation management and will be described next.

3.3.2 Recreation ecology

Systematic management of recreational activities goes back to the 1960s and 1970s, where recreation ecology was formally established as a research discipline (see Monz et al. 2010; Pröbstl et al 2010; Hammitt et al. 2015). According to Leung (2012), recreation ecology in its broadest sense can be described as "the scientific study of visitor impacts and their effective management" (p. 349). This definition puts an emphasis on the recreational use of natural resources and

often involves a closer examination of the impacts of recreational activity on the physical environment, such as erosion, wear, wildlife disturbances, littering and noise (Eagles & McCool 2002; Page 2003). These impacts are all considered negative consequences, albeit consequences that cannot be fully avoided (Cole 2004a). Studying, and thereby anticipating, these negative impacts in order to minimize their severity has therefore always been a fundamental management task (Leung & Marion 2000). Looking again at Figure 2, recreation ecology thus traditionally emphasizes the relation between 'Management' and 'Resource', with less attention given to 'Social life'.

An essential part of recreation ecology is to work with various monitoring activities, such as detection of user numbers, movement and behavior. This information can inform managers about user volumes and concentrations and therefore also potential user pressure on the physical environment (Leung 2012). These efforts will give managers an opportunity to not only study the nature and degree of various impacts, but to also identify potential larger threats that may require management attention. This is a particularly important task in areas where there is little or no knowledge about the recreational use of natural resources (Marion 2006; Monz et al. 2010). Today, monitoring of human impacts therefore has strong couplings to monitoring of the biophysical environment (Leung & Marion 2000). However, with new challenges from increasingly more complex and technologically demanding recreational activities, focus in recreation ecology has gradually shifted towards studying the nature of the recreational activity itself, and not just the impacts of the activity (Leung et al. 2008). In other words, recreation ecology has changed to include a more advanced understanding of the cause and extend of the impact, which requires more detailed user information.

In terms of the thesis focus, the part of recreation ecology that concerns monitoring related to human impacts on the physical environment will not receive further consideration in the thesis. Instead, this work is largely covered by my PhD colleague (see Chapter 1).

3.3.3 Carrying capacity and adaptive management

Related to the work with recreation ecology, carrying capacity (Hall & Page 2014) and adaptive management (Manning & Anderson 2012) are two important concepts that have also been introduced and established within outdoor recreation management. Carrying capacity is a

management concept with a long history and is originally borrowed from wildlife and range management (Manning 2011). In outdoor recreation management, it received particular attention during the 1960s and 1970s where it was strategically used to ask two important questions: how much use is too much use (environmental carrying capacity) and how many people are too many people (social carrying capacity) in a given recreational area context (see Schreyer 1984; Shelby & Heberlein 1984; Hammitt et al. 2015). This is also often referred to as an area's recreation carrying capacity, or simply RCC (Lawson et al. 2003; Lime et al. 2004; Blahna 2007). Lime et al. (2004, p. 3) summarize an area's RCC to be the study of "the amount and type of use that can be accommodated in a particular area over time while sustaining desired biophysical resource conditions and opportunities for quality visitor experiences". This definition is fundamental for sustainable management of outdoor recreation, which emphasizes the importance of protecting natural resources, while also supporting different recreational uses, interests and experiences (Lime et al. 2004). The role of monitoring is to supply managers with information about these circumstances through strategically chosen indicators, which can inform managers if environmental or social thresholds have been breached and therefore need attention (Lime et al. 2004).

Similar to the concept of carrying capacity, adaptive management is a commonly used management strategy with a long history in natural resource management (see Lawson et al. 2003; Stankey et al. 2005; Moore & Hockings 2013). Origins of the concept belong within the natural sciences, where it is often used to manage dynamic and complex settings characterized by a lack of complete knowledge or understanding about all system aspects and functions (Prato 2001; Moore & Hockings 2013). A pragmatic way to work with unknown factors therefore involves a strategy where experimentation with and feedback from different management strategies is used to establish a knowledge base that can inform and guide management decisions and actions, as shown in Figure 3.

The 'adaptive' part in adaptive management refers to adaptation of different management goals and decisions to conditions in a local context based on a combination between the accumulation of previous experiences and new knowledge about the context in question and experimentation with different dynamic processes and solutions (Rogers at al. 1997; Gundersen et al. 2011). Often a precautionary approach is also followed (Shelton & McKinlay 2007). The same principle as

shown in the model is used for management of recreational activities in natural resource settings, where recreational use levels and impacts are not fully understood (Lee 1999; Stankey et al. 2005: Moore & Hockings 2013).

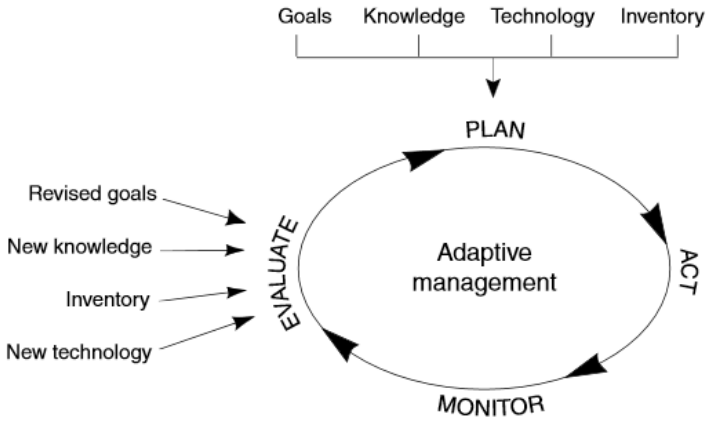

Figure 3 - Adaptive management model. Source: Stankey et al. 2005.

The model is, however, not without complications. For instance, the process in the model requires that goals for outdoor recreation are made both clear and measurable. In this case, a specific problem is that setting clear goals and measuring them presupposes availability of an existing knowledge base on outdoor recreation conditions that can be used to define and work with goals in the first place, including measurement strategies (Lawson et al. 2003). Emphasis is therefore automatically put on the availability of professional monitoring tools and methods to acquire this knowledge. If, however, these are not available, it means that a professional knowledge base cannot be established, which in turn means that it becomes very difficult, if not impossible, to set measurable goals. As a result, the circular process in the adaptive management model is likely to fail. This situation thus highlights why outdoor recreation monitoring is such a crucial part of the management process.

3.3.4 Management theory and management frameworks

Since their introduction into recreation management, the concepts of carrying capacity and adaptive management have been criticized, particularly for their lack of theoretical and conceptual basis as well as

practical use and outcomes (see McLain & Lee 1996; Borrie et al. 1998; McCool & Lime 2001; Prato 2001; Stankey et al. 2005; Doremus 2010; Emmelin et al. 2010). In spite of this, both concepts have inspired the development of what in the literature on outdoor recreation management has become known as Management-by-Objectives (see Manning 2004; McCool et al. 2007; Manning et al. 2011; Gundersen et al. 2011). According to Manning (2004), Management-by-Objectives is based on principles from rational planning theory with an emphasis on the importance of including rational planning procedures in management processes (Harper & Stein 1995; Williams & Blahna 2007). The 'rational' part in rational planning refers to planning efforts that are based on scientific principles and information, while the 'planning' part refers to planning activities that are carried out systematically and according to specified and measurable objectives (Ankre 2007; Ericson 2014). In short, rational planning is a scientific ideal that contains a demand for control and professionalization in every step of the planning procedure.

When 'Management-by-Objectives' is applied in outdoor recreation management, rational planning emphasizes that management decisions are made according to established rational and scientific procedures. Generally, these procedures consist of three steps. The first step concerns formulation of management objectives expressed by indicators and standards of quality. The second step focuses on monitoring of indicator variables in order to determine their condition relative to standards of quality. Finally, the last step works with application of management actions to ensure that standards of quality are maintained (taken from Manning 2004, p. 86). The importance of indictors as measurable categories that can inform managers if the standard of quality has been compromised highlights their importance. In this case, monitoring activities are used as the primary tool for measuring the selected indicators and thus work as the central link between connecting indicator values with set standards. The same basic steps have been discussed by Cole (2004b), who talks about general management theory involving four basic steps: planning, organization, motivation and control. Without going into detail with each of the four steps, it is notable that Cole includes 'control' as a last step in the management process. 'Control' can be interpreted as monitoring, which in its most simple form involves the same three basic principles as in the 'Management-by-Objectives' strategy. In short, monitoring activities are again

used as a control device to measure indicator values, which in turn can be used to set measurable goals based on set standards (Cole 2007).

The 'Management-by-Objectives' strategy has had a particular influence within outdoor recreation management, where it has become the base behind a range of international recognized management frameworks that have been applied to various recreational settings. Examples include the Limits of Acceptable Change (LAC), Visitor Experience and Resource Protection (VERP), Process for Visitor Impact Management (VIM), Management Process for Visitor Activities (VAMP) and Recreation Opportunity Spectrum (ROS) frameworks (see McCool & Cole 1997; McCool et al. 2007). Originally developed for natural area management processes in North America, these management frameworks not only integrate the principles behind carrying capacity and adaptive management, but also introduce monitoring activities as a central part of their feedback and report systems (Stankey et al. 1985). This can be demonstrated by taking a closer look at the LAC framework, which in the literature often is illustrated as a 'management circle' that includes nine steps (Figure 4).

Figure 4 - The LAC planning system. Source: NOAA, n.d.

Looking at the circle, the nine steps in the circle are designed as a planning system. The system develops from setting area goals to formulation of both ecological and recreational indicators, standards and opportunity classes to a final evaluation and monitoring stage (i.e. step 9). This final stage assesses the planning process in terms of its application success. The role of monitoring is to inform managers if more positive area conditions have been reached or if a re-assessment of all set indicators, standards and opportunity classes is required. If this is the case, new management actions may need to be taken, or perhaps a completely new LAC process will be initiated. This makes the framework a continuous activity, which also means that the process is never complete, but develops at the same pace of an area's ecological and recreational conditions.

Examining the other management frameworks, they often involve very similar step-by-step procedures as seen in the LAC planning system, albeit often with fewer steps involved or sometimes with a different structure of the different steps (see Nilsen & Taylor 1997; Manning 2004; McCool et al. 2007). Nevertheless, the role of monitoring is almost always identical in all the frameworks: "[it] allows managers to maintain a formal record of resource and social conditions over time [while it also] helps assess the effectiveness of management actions" (Borrie et al. 1998, p. 140). The quote contains two important notions. First of all, monitoring is emphasized as a way to obtain information upon which qualified management decisions can be made. This directly links both to general management theory and the 'Management-by-Objectives' strategy. Secondly, the quote also emphasizes a need to work with the monitoring of both resource and social conditions (see also Dawson et al. 2006). In other words, there is a direct link back to the recreational landscape concept, which also emphasized a focus on monitoring both physical and social conditions and qualities in recreational settings. The international management frameworks therefore establish outdoor recreation management, including the performance of outdoor recreation monitoring activities, as an important part of area management practices.

The use of the LAC framework, or any of the other management frameworks, presents similar complications as the ones identified in the adaptive management model. The LAC process, or any of the other framework processes, presupposes that each step, including the monitoring step, is based on the availability of professional knowledge and methods. In terms of the monitoring step, this means that not

only do managers need professional monitoring methods, but they also need professional knowledge about how to work with these methods. The problem then is if managers proceed with the monitoring step without addressing these two conditions. In such a case, the risk of incorrect monitoring procedures increases and may cause managers to make decisions and take actions that are faulty, and thus jeopardize the effectiveness of the LAC process.

3.4 Outdoor recreation monitoring

3.4.1 Why monitor?

Having elaborated on the importance of outdoor recreation monitoring in outdoor recreation management processes, this section will go a step further and give a more detailed introduction to outdoor recreation monitoring. To provide a context, Eagles et al. (2002) emphasize that while management observations and experience is an important part of decision-making processes, these are often biased or influenced by manager interests. In contrast to this, systematic and professionalized monitoring activities offer a more defensible way to proceed with different management strategies. Eagles et al. (2002, p. 151) continue:

> *Subjective impressions of conditions are not good enough: the public demands to see the data upon which decisions are taken, and to be assured that they were collected in a scientifically reliable matter.*

In other words, the performance of scientific and systematic monitoring activities is a requirement, not only in order to satisfy public demands, but also to avoid manager bias in decision-making (Cole 2006). In terms of outdoor recreation monitoring, this means that professional monitoring methods and strategies must be developed in order to provide managers with professional knowledge that can be used to manage for recreational conditions and qualities (Horneman et al. 2002; Lindhagen & Ahlström 2005; Kajala et al. 2007). This thinking thus resembles the aforementioned rational planning procedures under the Management-by-Objectives strategy as well as in the adaptive management and LAC frameworks, which in turn highlights

the relevance of the thesis focus on developing a professional knowledge base on outdoor recreation monitoring in coastal and marine areas.

Recalling the definition in Chapter 1, outdoor recreation monitoring is best described as a systematic collection of data on important aspects that concern the recreational use of natural resource areas (see also Hornback & Eagles 1999; Watson et al. 2000; Horneman et al. 2002). A more concrete way to put it is that monitoring "recreation use helps […] managers check assumptions, measures progress toward management goals, and can assist in management decisions" (Kocis 2007, p. 89). This work involves acquiring data on all aspects concerning recreational users and their stay, such as details about user profiles, volumes, activities and behavior as well as user perceptions and experiences (Manning 2011; see also table 2). In the research literature (e.g. Hornback & Eagles 1999; Watson et al. 2000; Horneman et al. 2002; Lindhagen & Ahlström 2005; Kajala et al. 2007; Le Berre et al. 2013) arguments for the performance of outdoor recreation monitoring include:

- managing visitor services
- justifying management decisions
- supporting social and ecological conditions
- ensuring visitor satisfaction
- minimizing user conflicts and impacts

To add to these arguments, more specific reasons include ensuring:

- quality recreation experiences
- sustainable area use
- promotion of public health and well-being
- tourism planning
- efficient protection of nature and cultural heritage
- sufficient financing

It is noticeable that many of the monitoring arguments and reasons show similarities to the ten aims in the earlier mentioned governmental bill on outdoor recreation in Sweden as well as the Swedish environmental objectives for coastal and marine areas (see Chapters 1 and 2). In other words, there is a strong link between the aim and benefits of outdoor recreation monitoring and the outdoor recreation politics in Sweden.

Interestingly, opinions among managers on why outdoor recreation monitoring is important has been examined in a recent study (see Ankre et al. 2013; Ankre et al. 2016). Overall, the answers show that managers agree with the above reasons in terms of the importance and usefulness of outdoor recreation monitoring. In particular, outdoor recreation monitoring is emphasized by the managers to be an important way to estimate user numbers. In turn, this allows them to assess developments in user volumes over time, which is useful when forecasting future user trends. Furthermore, documentation of user presence in the area, i.e. user activities and behavior, also give managers a better understanding of the recreational users and their stay. This often includes investigations of why people engage in recreational activities (what is their motivation?), user profiles (who are they?) and user activities (what are they doing?). With this information as base, outcomes of engaging in recreational activities can be analyzed, which according to the managers allows them to study user satisfaction and benefits.

3.4.2 Different monitoring methods and approaches

Professional outdoor recreation monitoring often implies working with different methods and approaches, most of which have been described in various available manuals and handbooks on outdoor recreation monitoring (e.g. Hornback & Eagles 1999; Watson et al. 2000; Horneman et al. 2002; Kajala et al. 2007; Le Berre et al. 2013). These monitoring methods and approaches are usually divided into two types of studies: counting studies and visitor studies respectively. While the former method refers to various ways of measuring user volumes, the latter ranges from population studies to miscellaneous on-site surveys and in-depth studies. Population studies will, however, not be given further attention in this thesis as the focus is upon on-site monitoring of recreational users and their activities. This choice leaves us with three different levels of outdoor recreation monitoring methods and approaches with relevance to on-site area management, which therefore will receive particular attention in the remainder of the thesis. Table 2 provides an overview.

Level 1 monitoring consists of monitoring activities that are commonly employed by area managers as they provide basic information needed for user overview purposes. Consequently, level 1 activities are often done continuously on an area level as constant updates are

required (see Eagles & Buteau-Duitschaever 2009). Level 2 monitoring consists mainly of monitoring activities that are used by managers to investigate the circumstances surrounding a recreational stay or activity or to gain an improved understanding of recreational users in a specific area context, such as variations or changes in user attitudes and profiles (e.g. TUI 2006). These monitoring activities can be considered basic or supportive management activities and can be done either continuously or more occasionally, depending on the aim of the monitoring activity and available resources. Finally, level 3 monitoring includes more supportive monitoring activities that are used to acquire in-depth information about recreational users. This work is often not done by managers, but by researchers with an interest in studying themes such as user perceptions, experiences or conflicts (e.g. Wynveen et al. 2012; Tonge et al. 2013). All three monitoring levels thus contribute in each their own way to a more qualified understanding of the recreational users and their activities.

Monitoring level	**Monitoring focus**	**Purpose and usage**	**Method Base**	**Method examples**
Level 1	*- Numbers* *- Distribution* *- Concentrations* *- Movement* *- Activities* *- Behavior*	*Used for both counting and survey purposes* *Done continuously*	*Quantitative (statistics)*	*- Elect/Mecha. counters* *- Video recording* *- Aerial photos* *- Remote sensing* *- Permits/tickets* *- Observations* *- Self-registration* *- GPS/mobile logging*
Level 2	*- Motivations* *- Expectations* *- Satisfaction* *- Opinions* *- Profiles*	*Used for survey purposes only* *Done continuously/ occasionally*	*Quantitative (statistics)*	*- Misc. on-site, web or mail based questionnaire or interview surveys*

Level 3	*- Experiences* *- Perceptions*	*Used for specific study purposes* *Done very rarely*	*Qualitative (narratives)*	*- In-depth interviews* *- User diaries* *- Focus groups* *- Pictures*

Table 2 - Overview of three different levels of on-site outdoor recreation monitoring activities (author table).

It is important to note that there are also internal variations between the methods placed under each monitoring level. For example, in Level 1 monitoring activities, there are large differences between how, when and for what reason electronic counting is used compared with aerial photos or observations. Furthermore, they are not done continuously in the same way, as some methods require more frequent repeats than others. The same can be said about the methods mentioned under the other two monitoring levels (Watson et al. 2000; Horneman et al. 2002; Lindhagen & Ahlström 2005 & Kajala et al. 2007). Furthermore, in terms of what monitoring methods to use in a specific area context or setting, the choice depends on: (a) the aim of the monitoring activity, (b) the level of required data, (c) management capacities and (d) area conditions (Hornback & Eagles 1999; Kajala et al. 2007). As a result, applied monitoring procedures and techniques are always unique from one application to another and from one setting to another. In turn, this can make it challenging to generalize and compare application procedures and obtained results between different area contexts (Cessford & Muhar 2003). In addition, each monitoring method contains certain advantages and disadvantages in the application process, depending again on a combination between the aim of the monitoring activity, the level of required data, management capacities and area conditions. If one of the four aspects is not taken into consideration, application procedures are likely to become prone to faults and mistakes and will therefore often fail (Kajala et al. 2007). The situation is further complicated by the fact that monitoring methods and standards differ between countries, while also being continuously updated with new and available tools and techniques (Hornback & Eagles 1999). This turns monitoring procedures into a rather dynamic activity, often with many uncertainties involved, both in terms of the actual application process and in reaching results of good quality (Cessford & Muhar

2003). This explains why there is a constant need to improve outdoor recreation monitoring methods and activities.

3.4.3 Mixing of different method traditions

National and international manuals on outdoor recreation monitoring methods often recommend mixing several monitoring activities involving both quantitative and qualitative based monitoring methods (see Hornback & Eagles 1999; Watson et al. 2000; Horneman et al. 2002; Lindhagen & Ahlström 2005; Kajala 2007). In this regard, it is important to emphasize that quantitative and qualitative based monitoring methods not only differ in terms of their focus, methods and results, but also in terms of their ontological and epistemological base (Bailey 2007; Cresswell 2009).

For instance, according to Tuli (2010), quantitative monitoring methods (i.e. monitoring levels 1 and 2) are grounded within objectivist ontology and epistemology and result in quantitative method traditions such as seen in both the natural- and social sciences. Here the foundation for knowledge is based on monitoring methodologies that seek to quantify large data sources based on numerical measures and that which can be tested and reported through analysis and common statistical laws (Henderson & Bedini 1995; Åsberg et al. 2011; Gray 2014). Quantitative based method traditions are particularly characteristic for North American outdoor recreation research, where a devotion to environmental planning and management has resulted in a prioritization of quantitative methods and techniques (Emmelin et al. 2010; Lindhagen & Bladh 2013). In contrast to this, qualitative monitoring methods (i.e. monitoring level 3) are based within interpretivist ontology and epistemology, often resulting in qualitative method traditions such as it is seen in many studies from the social sciences and humanities (Tuli 2010; Åsberg et al. 2011). Here the foundation for knowledge is based on an often exploratory or experimental monitoring methodology where small samples based on non-numerical measures, such as narratives or experiences, are studied in depth in order to allow for interpretation and discussion (Henderson & Bedini 1995; Bailey 2007; Gray 2014). Focus is not set on generalizing fixed facts or truths about the world, but instead on exploring and conveying the constant flow of human values and meanings. Qualitative based method traditions are often found within British outdoor recreation research, where a larger focus on including cultural perspectives in

planning and management contexts means that qualitative methods and techniques are given more attention (Rojek 1995).

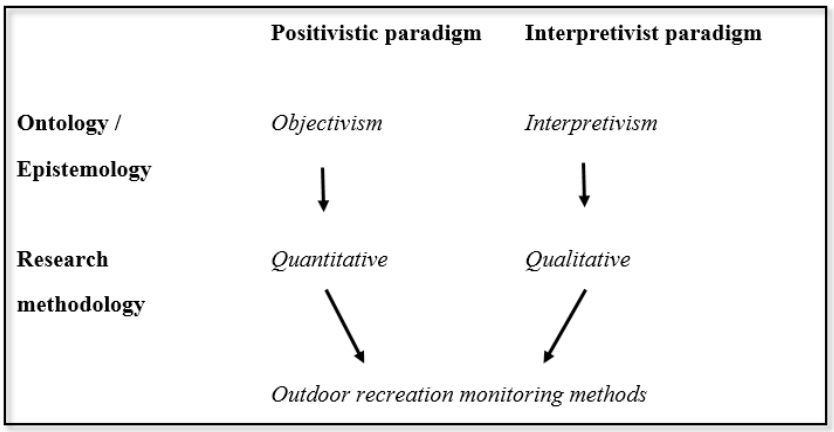

Figure 5 - Two research paradigms at work in outdoor recreation monitoring (author model).

In the literature on monitoring theory and methodology, the difference between quantitative and qualitative method traditions is often formulated as a clash between two paradigms: the positivistic paradigm versus the interpretivist paradigm (see Figure 5). Both research paradigms have had a large influence on how outdoor recreation monitoring has developed, both as a research field and as a management practice, due to the fact that each paradigm represents different ways of understanding the world and how to acquire knowledge about it (Mactavish & Schleien 2000; Cresswell 2009; Williams et al. 2015). Consider for instance again the Swedish definition of outdoor recreation in Chapter 1:

> *Stays in the outdoors in the natural and cultural landscape to gain well-being and nature experiences without an involvement of competition.*

The first part of the definition (i.e. 'Stays in the outdoors in the natural and cultural landscape') is usually investigated using level 1 and 2 monitoring activities, which follow quantitative method traditions, and thus aimed at acquiring quantitative based data and statistics that can disclose general or broad information, e.g. user volumes, movements, activities, etc. (Vuorio et al. 2003; Lindhagen & Bladh 2013). Data is often collected multiple times over a certain period

(i.e. longitudinal studies) in order to trace and study changes or developments in recreational use, activities and behavior (Gray 2014). In contrast, the second part of the definition (i.e. 'to gain well-being and nature experiences without an involvement of competition') is usually investigated using level 3 monitoring activities, which often follow qualitative method traditions, and thus more focused on acquiring detailed information about the outdoor stay, such as user perceptions or experiences (McCool 2006a). To study this, methods such as in-depth interviews or focus groups (i.e. narratives) are more suitable strategies to use, as they specialize in acquiring detailed information that managers can use to gain a more advanced understanding of the recreational users and their experiences (Henderson & Bedini 1995; Williams 2007). Data is often collected only once (i.e. cross-sectional studies) in order to gain a snapshot of a given situation, although the option for repeated studies is possible (Gray 2014).

Ideally, outdoor recreation monitoring activities should be based on a combination between quantitative and qualitative method traditions in order to provide both the breadth and in-depth knowledge required to study and manage for different recreational activities and experiences (Eagles & Buteau-Duitschaever 2009; Lindhagen & Bladh 2013; Fix et al. 2013; Williams et al. 2015). However, when taking a closer look at the literature on outdoor recreation monitoring, one will quickly find that although the two method traditions are not necessarily mutually exclusive, they are often described separately and often with more attention given to quantitative based monitoring methods (Mactavish & Schleien 2000; Vuorio et al. 2003). This is particularly evident when examining both national and international outdoor recreation monitoring manuals and handbooks, where quantitative based monitoring methods and techniques are given almost exclusive attention (e.g. Hornback & Eagles 1999; Watson et al. 2000; Horneman et al. 2002; Lindhagen & Ahlström 2005; Kajala et al. 2007). A reason for this situation is that outdoor recreation monitoring originally began as a quantitative based activity, such as it is seen in recreation ecology, where it is used to work with environmental carrying capacity levels (see Chapter 3.3.2 above). As a result, qualitative research traditions have been given much less attention, a view also shared by Williams (2007, p. 37), who describe the consequence of a 'positivistic paradigm' in contemporary natural resource management:

> *Until recently, the field has tended to avoid case-based, contextually tailored qualitative methods in a misguided belief that they did not reflect "sound science" and therefore were invalid and would not hold up under public scrutiny. But such attitudes are a lingering remnant of the discredited ideology of scientific management that still infuses the practice of natural resource management.*

The problem is further compounded by the fact that natural resource managers often have a natural science education, e.g. biologists, ecologists and resource managers. This makes quantitative based methods more familiar territory to them and they often lack the skills and training to work with alternative method traditions (Hemingway 1995; Priskin & McCool 2006; Elands & Marwijk 2008; Williams et al. 2015). Consequently, qualitative based monitoring methods are often not known, let alone implemented, on a management level (Ryan 2000; Lindhagen & Bladh 2013). In fact, experiences with qualitative based methods are usually secluded to research studies that lie outside the realm of area management, i.e. in academia, where they also remain a relatively isolated group of studies (e.g. Wynveen 2009; Tonge et al. 2013). As a result, there is not only a longstanding difference in terms of how quantitative and qualitative based monitoring methods have been prioritized used in area management, but also very little practical knowledge about how to mix both method traditions (Henderson & Bedini 1995).

The circumstances make it relevant to introduce and examine the advantages of qualitative based monitoring as a valid strategy in area management. In this regard, it is interesting to observe that qualitative based method approaches slowly, yet steadily have received more attention in recent years, particularly in connection to what is often referred to as experience-based management (Manfredo et al. 1983; Henderson & Bedini 1995; Floyd & Gramann 1997; Manfredo et al. 2002; Fix et al. 2013). In contrast to normal resource based management, experience based management has a larger focus on catering for user wants and needs, such as well-being and quality user experiences. It is therefore related to the fact that managers today need to manage for specific experience outcomes in order to accommodate increasingly diverse recreational interests and demands from the public, such as it was discussed earlier in this chapter. Furthermore, managers are often confronted with the challenge that they never know for certain if recreational users obtain the experiences that are prepared for them.

Thus, detailed knowledge of what users actually experience must be acquired (Bushell & Griffin 2006; Cole 2007). In short, it has become increasingly important that managers not only obtain a more qualified understanding of the recreational users, but also of the nature of and content in the recreational experience itself:

> *In a world of growing competitiveness, and of increasing and diversifying demands and expectations for these areas, understanding the character of visitor experiences […] is as essential to good management as is understanding the biodiversity and biophysical processes occurring within the area.*(McCool 2006a, p. 3)

To understand 'the character of visitor experiences' is, however, not an easy process, as they often form from deeply subjective feelings and impressions. Per default, this makes them difficult to measure, indeed 'messy', although it does not make them any less important to give attention (Ryan 2000; Ericson 2014). In terms of outdoor recreation monitoring efforts, the work with recreational experiences requires detailed information about the experiential content in and psychological outcome of engaging in various recreational activities (Williams 2007; Driver 2008; Fix et al. 2013). Essentially, this means that managers no longer can rely on monitoring methods that only provide general and numeric data and statistics about the recreational users and their stay, as these results simply do not provide enough detailed information. In other words, quantitative methods have limitations when it comes to the examination and understanding of user experiences (Ryan 2000). Instead, the literature suggests that a much better strategy is to pay attention to interpretive methodologies (i.e. level 3 monitoring methods), as these are designed to collect the in-depth data that managers need in order to better understand and thereby also ensure various recreational experiences (Henderson & Bedini 1995; Patterson & Williams 2002; Kruger & Williams 2007; Cole 2007; Fix et al. 2013; Lindhagen & Bladh 2013; Kannen et al. 2016).[12] This thesis acknowledges this methodology development and explains why the thesis gives attention to and discusses both quanti-

12 Interestingly, the same change from quantitative to qualitative consumer research can be detected within different academic branches, such as marketing, hospitality and tourism (Lindberg 2009; Williams et al. 2015).

tative and qualitative based monitoring methods (see Chapter 5 on the specific method choices).

3.5 International research overview

Along with being an important tool in the management of coastal and marine areas, outdoor recreation monitoring in coastal and marine areas is also an important and active research field (see Hornback & Eagles 1999; Watson et al. 2000; Muhar et al. 2002; Horneman et al. 2002; Kajala et al. 2007). This section will provide an overview of selected international literature where outdoor recreation monitoring methods have been used to study different themes and topics in various coastal and marine area contexts. This section thus provides a complement to the Nordic literature study provided in Paper II by putting the study into an international context.

A significant amount of effort has gone into research studies with a focus on mapping user patterns, movement and activities, preferably via a combination between different survey methods, such as questionnaire or interview surveys, aerial photos and GPS/GIS technology. For example, in a series of studies, Sidman et al. (2000; 2004; 2009) have worked with a recreational boating characterization model with a main objective to characterize the preferences, activities and water-use patterns of boaters based on a questionnaire survey combined with GIS analysis. A central finding is that a combination between these two monitoring methods works ideally to characterize the use patterns of boaters in marine environments. Another study by Ban & Alder (2008) shows the intensity of anthropogenic marine activities through a spatial analysis in GIS, including recreational activities. Their monitoring results show that recreational activities are on the rise and that monitoring activities therefore are crucial in detecting conflicting interests between recreational activities and other marine activities. In a third series of studies, Smallwood et al. (2011; 2012) use both a combination of aerial photos with GPS logging along with site-based interviews to trace user movement patterns. With these two strategies, they are able to accurately locate and describe high density areas.

Other important work concerns profiling the recreational use of coastal and marine areas. For instance, Gätje et al. (2002) has reported on the recreational use and management of the Wadden Sea National Park, Germany, with a focus on socio-economic monitoring activities,

using results from both quantitative and qualitative based monitoring methods to profile the recreational users in the park area. These methods include user counts, surveys of user structure and user polls using face-to-face interviews as well as telephone interviews. Similarly, Moscardo et al. (2003) have done research on profiling visitors to Australia's Great Barrier Reef with an aim to detect differences in terms of user demographics, motivations for visiting, the quality of the user experience at the reef, etc. The data is based on several larger questionnaires surveys, both among domestic and international users as well as non-users. This study has later been followed up by Coghlan & Prideaux (2009) with a main purpose to examine the importance of user surveys for tourism industry activities. The study makes use of a questionnaire survey with an aim to collect data that allow for comparisons of results over time. This way, emerging issues and challenges in the sustainable use of the reef can be identified. Finally, there is an Estonian study by Tamme & Rivis (2011) with a focus on acquiring knowledge about the recreational use of a small island community close to the capital of Tallinn. The study compares two studies from 2002 and 2010, both using a combination of a new questionnaire survey and on-site interviews. Results show socio-demographical details of visitors as well as differences in terms of recreational activities and user expectations and satisfaction levels.

A different type of literature concerns qualitative based monitoring methods. For instance, Inglis et al. (1999) have looked at crowding norms among recreational snorkelers at selected sites in the Great Barrier Reef region. As their main methods, the authors use a combination of individual interviews with snorkelers and visual imaging technology. The same approach and technique has been used by Szuster et al. (2011) in a study of scuba diver perceptions and evaluations of crowding levels underwater. Their research shows problems and challenges in terms of reaching acceptable social carrying capacity levels among scuba divers, especially due to varying expectations and requirements to the actual diving experience. Szuster et al. (2009), Bell et al. (2011) and Needham et al. (2011) have reported similar studies using a questionnaire survey approach. In another series of qualitative based monitoring studies, the theme is exploration of place attachments and place meanings. For example, Wynveen (2009), Wynveen et al. (2010) and Wynveen et al. (2012) uses Visitor Employed Photography (VEP) to study place meaning and attitudes among recreational users towards impacts on marine environments. In particular, the

method is well suited for capturing recreational experiences, which can be analyzed for various themes. Similarly, in several studies Tonge et al. (2010), Tonge et al. (2011), Tonge et al. (2013) and Tonge et al. (2015) have tried to identify and explore how recreational users develop different place attachments in coastal and marine environments. Tonge et al. use a combination of self-employed photography (SEP), in-depth interviews and on-site surveys to discuss important recreational experiences.

Finally, monitoring manuals or guidelines for coastal and marine areas also exist with a purpose to present applied monitoring methodology for coastal and marine areas. For example, Vrana (1999) discusses the importance of collecting information about user profiles and activities in coastal and marine areas. To gain this information, Vrana introduces and evaluates a range of different monitoring methods in coastal and marine areas, including a few words about the difficulties and challenges involved in applying monitoring methods in open landscapes. A detailed manual by Eagles & Buteau-Duitschaever (2009) on user counting activities in protected coastal and marine areas also deserves mention. The manual has an explicit aim to advise on the application of different counting methods and tools, such as for instance electronic/mechanical counters, sonar/radar as well as remote sensing, etc. This includes a few brief and very general comments on the importance of considering area conditions before commencing work with counting activities in coastal and marine areas. The newest and most comprehensive monitoring manual for coastal and marine areas is written by Le Berre et al. (2013). The manual has a focus on protected marine areas in the Mediterranean, but is aimed broader to also include non-protected coastal and marine areas. The manual is interesting as the presentations of the different monitoring approaches and activities described in the manual are based on the four authors' own experiences with outdoor recreation monitoring in coastal and marine areas, which therefore also makes the manual highly useful and relevant. A concern with the manual is that it is very descriptive in its presentation of the reviewed monitoring methods. It does, however, come with suggestions to new monitoring strategies and opportunities that can be applied and tested in coastal and marine areas. Unfortunately, these suggestions are only described briefly.

3.5.1 Shortcomings in the literature

Several knowledge shortcomings can be identified in the literature. For example, there are very few studies that actively present and critically evaluate applied outdoor recreation monitoring methods in coastal and marine areas. Instead, most of the examined research literature reveals that outdoor recreation monitoring has mostly been used as a simple tool to obtain necessary data results on specific recreational themes or topics. Secondly, it is concerning that there is very little direct focus upon or mention of method challenges and opportunities involved in the work with monitoring in coastal and marine areas. This is an important issue to address, particularly because more qualified knowledge about various outdoor recreation monitoring methods is a prerequisite for successful application. Finally, and perhaps most importantly, there are almost no studies describing management implications of the work involved in outdoor recreation monitoring in coastal and marine areas. Looking at the literature, only Vrana (1999), Eagles & Buteau-Duitschaever (2009), Smallwood et al. (2012) and Le Berre et al. (2013) make critical reflections on this central question, although only briefly. These concerns thus correspond with many of the same issues expressed in Paper II, which also emphasized the need for more qualified knowledge about outdoor recreation monitoring in coastal and marine areas.

3.6 Summary

The purpose of this chapter has been to provide a theoretical rationale and anchoring of the thesis focus on developing a knowledge base on outdoor recreation monitoring in coastal and marine areas in Sweden. Specifically, what I take with me from the chapter is a broader perspective on outdoor recreation monitoring, which is needed in terms of understanding how it is possible to work professionally with outdoor recreation in the management of coastal and marine areas. To support this broader monitoring perspective, attention is given to the introduction of a more nuanced landscape understanding; the recreational landscape understanding, which argues that because coastal and marine areas consist of not only material, but also immaterial landscape qualities, it is important to give monitoring attention to both types of landscape qualities. As a result, specific attention has been given to

discuss how outdoor recreation monitoring can be understood as an important management task in and of itself. This includes a greater understanding of the placement of outdoor recreation monitoring within outdoor recreation management processes. Moreover, it also includes reflections on the importance and usefulness of working with both quantitative and qualitative monitoring methods and strategies as a way to reach the full potential and benefit of working actively with outdoor recreation monitoring in the management of coastal and marine areas.

CHAPTER 4

The case study area: Kosterhavet National Park

4.1 Area description

As mentioned in Chapter 1, Kosterhavet National Park in Sweden is the recreational setting in focus in the thesis. Kosterhavet National Park is located on the Swedish west coast and borders the Norwegian national park, Ytre Hvaler. The national park was established in 2009 as Sweden's first national park with a distinct marine profile. 98% of the 389 km^2 park area is sea, while the remaining 2% covers parts of the main coast, the two Koster islands and the Koster Archipelago (see Figure 6). The largest nearby town is Strömstad, which is a popular summer destination, especially for Norwegian visitors. Several smaller settlements and guest harbors are also located either within the national park or close to its borders. These settlements and guest harbors are also popular summer destinations, especially for visiting boaters cruising up or down the west coast.

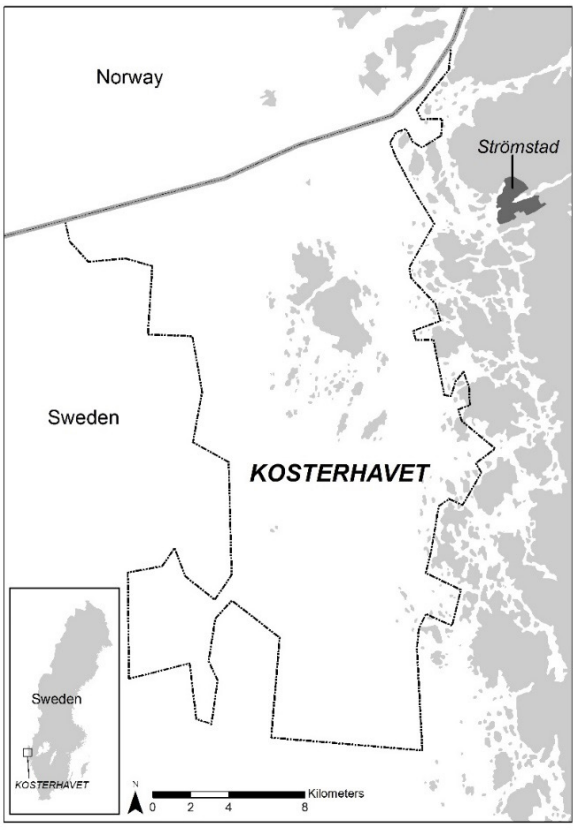

Figure 6 - Kosterhavet National Park. Author produced map. Data source: © Lantmäteriet (2013)

Aside from being a popular tourist destination, Kosterhavet boasts of a unique marine environment not only in a Swedish, but also in a Nordic context. For example, marine experts have concluded that Kosterhavet is likely to be the most species rich marine area in Sweden with around 6000 marine species, of which 200 are endemic to the area (SEPA 2009a). Indeed, the national park has been recognized both nationally and internationally for its unique marine scenery and biophysical qualities, both above and under the surface, and was the primary reason why the national park was established (SEPA 2009a). An additional reason for the establishment of the park was to preserve the long and rich cultural history in Kosterhavet, which is known for its small scale fishing communities where living with and at the sea sets the frame for the local population (Morf 2006). The local population is, however, dwindling in numbers, particularly

on the two Koster islands where most of the traditional fishing and agricultural occupations are either gone or replaced by part-time activities that still try to maintain the old traditions. According to Cosgrove (2006) and Mitchell (2008), this transformation process is characteristic for modernity, where landscapes of production fast are changing into landscapes of aesthetic scenery (Olwig 1996) and consumption (Chronis & Hampton 2008). The same development is also detectable in Kosterhavet, which has managed to secure itself as a popular tourist destination in Sweden. Case in point, Kosterhavet presently attracts more than 300.000 visitors annually according to the current management plan (SEPA 2009a), although this number is uncertain due to lack of systematic counting efforts in the area.

Recreational users and their activities in the national park are found both on land and at sea, especially in and between the Koster archipelago and the mainland coast. To provide an overview of these users, Eagles & Buteau-Duitschaever (2009) have identified four categories of coastal and marine based recreational users, which are present in Kosterhavet:

1. Recreational users that only stay at the land-based portion of coastal and marine areas, often with the purpose to sunbathe, hike, cycle, picnic, fish or go sightseeing;
2. Recreational users that recreate on the waters immediately adjacent to the land-based portion of coastal and marine areas, typically swimmers, snorkelers, surfers and kayakers;
3. Recreational users that use own transportation to recreate away from the land-based portion of coastal and marine areas, such as long distance boaters;
4. Recreational users that purchase a tour to recreate out at sea, such as for instance angling, diving or wildlife tours.

In addition, the Kosterhavet area has a large number of second homes, which leads to a dramatic increase in the coastal population during the summer months. As a result, the main land part of the national park is as much a popular area for recreational activity as the Koster archipelago, which is promoted as the main attraction in the park (SEPA 2009a).

From a local point-of-view, the touristic and recreational development in the national park is a positive sign, as it contributes significantly to the local economy (Morf 2006; 2011). Consequently,

there is a large focus on using the national park as a way to drive the economy and attract people to the region. On the other hand, the increasing touristic and recreational development in the area has also brought with it several challenges, such as growing user numbers and demands for new and more specialized recreational activities. As a result, touristic and recreational interests at times clash with the also important aspects of protecting the unique coastal and marine environment in and around the national park (Rolandsson et al. 2012). An increasingly important task therefore is to find a way to create a synergy between goals for environmental conservation/protection and tourism/recreational activities and development in the national park. This focus has recently been highlighted in the national park, as Kosterhavet together with national authorities and NGOs has initiated a project with a goal to develop a model for improved collaboration between management and eco-tourism development in protected areas in Sweden. The management team in Kosterhavet is involved in the overall process, both in the environmental planning part and in the tourism development part (Ekoturismföreningen 2014).

4.2 Management of Kosterhavet National Park

Currently, the management of goals for environmental conservation and protection as well as tourism and recreational activities and development is the responsibility of the national park management team. To guide their planning and management efforts, the management team relies on a so-called management plan (SEPA 2009a). In the management plan, the overall purpose of the national park is defined as the conservation of "the distinctive and species rich marine and archipelago area as well as adjacent land in an essentially unchanged condition" (SEPA 2009b, p. 2). As part of this purpose, four additional aims are described and read as follows (SEPA 2009b, p. 2):

1. To protect and conserve in the long term, the naturally occurring marine ecosystems, habitats and species in the area as well as ensuring that sustainable use of the areas biological resources can take place;
2. Protect and care for the habitats, both natural and influenced by human activities, in the area along with their associated valuable plant and animal life;

3. Make it easier for visitors to experience and gain knowledge regarding the natural and cultural values as well as how they can be used in a sustainable way;
4. Promote research and education around the conservation and sustainable use of the marine and terrestrial ecosystems.

While the two first goals concern the management of biophysical qualities in the national park, the last two goals focus more on the recreational and sustainable use of the park's physical environment. Biophysical qualities in this case encompass the unique ecological and biological features that are found along the west coast of Sweden, such as large sea grass meadows, growing stocks of fish and shellfish, a rich wildlife (e.g. seals and birds), endangered or rare plants and insects and even cold-water corals (SEPA 2009a). The unique environment has turned the national park into a scientific hot spot area for biological and ecological research, most notably marked by the local marine research station, Tjärnö, a marine unit under the University of Gothenburg.

While the biophysical qualities are detailed and well described in the management plan, there are significant fewer descriptions of the recreational qualities to be found in the national park (SEPA 2009a). In most cases, they are described very superficially, such as the opportunity to experience the unique marine landscape and scenery in Kosterhavet, access to untouched areas and the opportunity to spot wildlife (SEPA 2009a). The cultural features in the park are also considered a special recreational quality, such as experiencing the historical atmosphere that is still present in many of the coastal settlements in and around the national park. The management plan also mentions and describes opportunities to engage in various recreational activities, such as recreational boating, angling, kayaking, diving, swimming and hunting. To these activities could also be added other popular activities that are only shortly or not at all described in the management plan, such as sunbathing, hiking, rock climbing, snorkeling, geocaching, bird watching and wildlife safaris.

Most of the recreational qualities and activities described in the management plan depend to some degree on the marine environment in Kosterhavet and all of them take place in areas where ecological and biological qualities also exist. The task of planning and managing for biophysical and recreational qualities simultaneously is not easy and conflicts between the two goals have surfaced, especially after the area became a national park. For instance, increasing numbers and sizes

of leisure boats over the years have raised concerns about emissions of pollutants, such as boat paint, oils and other chemicals, while problems such as disturbances of marine wildlife, marine littering and anchoring damage also have resulted in important management concerns (Rolandsson et al. 2012). In addition, conflicts have risen between different recreational activities and interests, such as motorized activities on the water versus more quiet activities (e.g. kayaking or stand up paddle boarding). Issues around other sources of noise and crowding are also commonly reported and have become growing concerns that require management attention.

To control the problems, regulations and rules have been implemented. These primarily concern different directions on user behavior, including a few zoning initiatives (e.g. silence and habitat zones) and actions to lower speed levels in the national park (see SEPA 2009b). Respect for and acceptance of different recreational interests and activities in the national park is also encouraged in an effort to avoid conflicting situations between different recreational users and their interests/activities. A central part of this work is to encourage people to learn about, and thereby also care for, the marine environment. This is mainly done by providing extensive information about the national park both in the park's visitor center as well as in strategic locations throughout the national park. Although these efforts can be considered fundamental management activities, questions can be raised about how effective they are in practice. For instance, one returning problem is that there are very few, or no, means to ensure that rules and regulations are complied with. Current efforts made by the management team in collaboration with the local police and the coastal guard have had some success in monitoring user behavior and activities. However, these efforts are not nearly enough, especially given the large size of the national park as well as the number and dispersed movements of recreational users in the park area. As a result, important knowledge about the recreational use of the national park, such as what people do in the national park and what experience qualities they seek, is very limited, in spite the fact that an explicit aim for the national park is to provide quality recreational experiences.

4.3 Current efforts on outdoor recreation monitoring

The management team in Kosterhavet National Park mainly consists of professionals with a natural science education. Consequently, there has been, and still is, a large focus on the management and monitoring of the biophysical environment in and around the national park area (Stenseke 2012). Notwithstanding the importance of this work, the large focus on managing and monitoring the biological and ecological qualities in the national park is contrasted by very little attention given to outdoor recreation monitoring activities (Stenseke 2012). Presently, sporadic monitoring of user activities has been done, such as user counting and occasional user observations (Tullrot, personal communication). These efforts are not coordinated in any systematic way, for instance via a setup of a professional outdoor recreation monitoring program. Instead, staff members themselves do monitoring activities based on their own judgments and at their own time and convenience (Stenseke 2012). So far, one comprehensive user survey has been done in Kosterhavet conducted by an external organization with no relation to the daily management of the national park (see TUI 2006). These survey results from 2006 are outdated and do not have a basis in scientific standards.

The low attention given to outdoor recreation monitoring can be traced to the national park management plan. For example, upon further examination of the management plan, it is notable that of the 234-page document only 15-18 pages concern outdoor recreation aspects (SEPA 2009a). Information about outdoor recreation in the management plan is narrowed down to general descriptions of various recreational activities or the practical arrangement of recreational facilities, services and infrastructure in the national park, including communication and information strategies. Often when recreational activities are described, they are done so mainly in terms of how they are, or can be, regulated. While this information is undoubtedly important for the practical and daily management of the national park, there is no mention of outdoor recreation monitoring in any of the descriptions, not even strategies for monitoring of rules and regulations. Consequently, there is no basis for working more actively and professionally with outdoor recreation monitoring in the national park.

Establishing a professional outdoor recreation monitoring system in Kosterhavet is, however, no easy task. As a marine and archipelago based national park, Kosterhavet is an open landscape with multiple

ways to enter the area aside from the five official national park entrances. Some recreational users enter the park area through points on the land-based part of the national park, such as from parking lots or nearby summerhouses. Others enter the area from the seaside (e.g. boaters), often without any fixed land-access points other than occasional short-term stays in guest or natural harbors. The area is therefore characterized by a high degree of user movement and dispersion without any means of canalization and thereby control. In turn, this complicates the task of tracking and monitoring recreational users and their activities, let alone setting up any advanced and all-encompassing monitoring program. These circumstances thus point towards the central question of how effective outdoor recreation monitoring efforts in the area can be developed.

CHAPTER 5

Research design, process and methods

5.1 Introduction

In order to address how the task of developing a knowledge base on outdoor recreation monitoring in coastal and marine areas has been addressed and undertaken in the thesis, this chapter will provide a presentation of and rationale behind the research design, process and methods that have structured the thesis. This includes a more comprehensive understanding of the link between the thesis purpose and the empirical work and discussions highlighted in the thesis as well as a discussion of important methodological limitations of the thesis work with outdoor recreation monitoring.

5.2 Monitoring methods vs. research methods

A first important aspect concerns a clarification of the difference between the thesis use of *research methods* and *monitoring methods* respectively. The best way to describe this relationship is to say that the thesis uses established research methods to examine different monitoring methods. Put differently, the study object of the thesis is monitoring methods and activities in coastal and marine areas and for that purpose research methods are used as the main examination and evaluation tool. In this sense, the thesis operates with research methods in two ways. The first way is seen in Paper III and IV, where established research methods based within the social sciences are used to evaluate both existing and potential monitoring methods and strategies. The latter is particularly the case in Paper IV, where a

research method is turned into a potential new monitoring method and strategy (see Chapter 5.6 below for more details). The second way that the thesis operates with research methods concerns the broader research strategy/approach used in this thesis to accommodate the purpose to develop a knowledge base on outdoor recreation monitoring in coastal and marine areas. In other words, it concerns what in this chapter is referred to as the thesis research design, process and methods, which basically is the same as the work frame around the thesis. The rationale behind, as well as the different parts within, this work frame will be described next.

5.3 Methodological rationale

The process towards developing a knowledge base on outdoor recreation monitoring activities in coastal and marine areas involves several procedural steps. This is illustrated in Figure 8, which shows that an important requirement for professional management and documentation of outdoor recreation in coastal and marine areas is the availability of professional knowledge on the recreational use of coastal and marine areas (*Prerequisite c*).

However, obtaining this professional knowledge base is not easily accomplished as it in turn depends on the performance of professional outdoor recreation monitoring activities in coastal and marine areas (*Prerequisite b*), which itself depends on a professional knowledge base on outdoor recreation monitoring in coastal and marine areas (*Prerequisite a*). Essentially, this means that professional management and documentation of outdoor recreation in coastal and marine areas cannot be achieved until attention has been given to all three prerequisites. It is for this reason that a choice is made in this thesis to work with the most crucial prerequisite in the process, *Prerequisite a*, as this part decides the outcome of the other parts in the process.

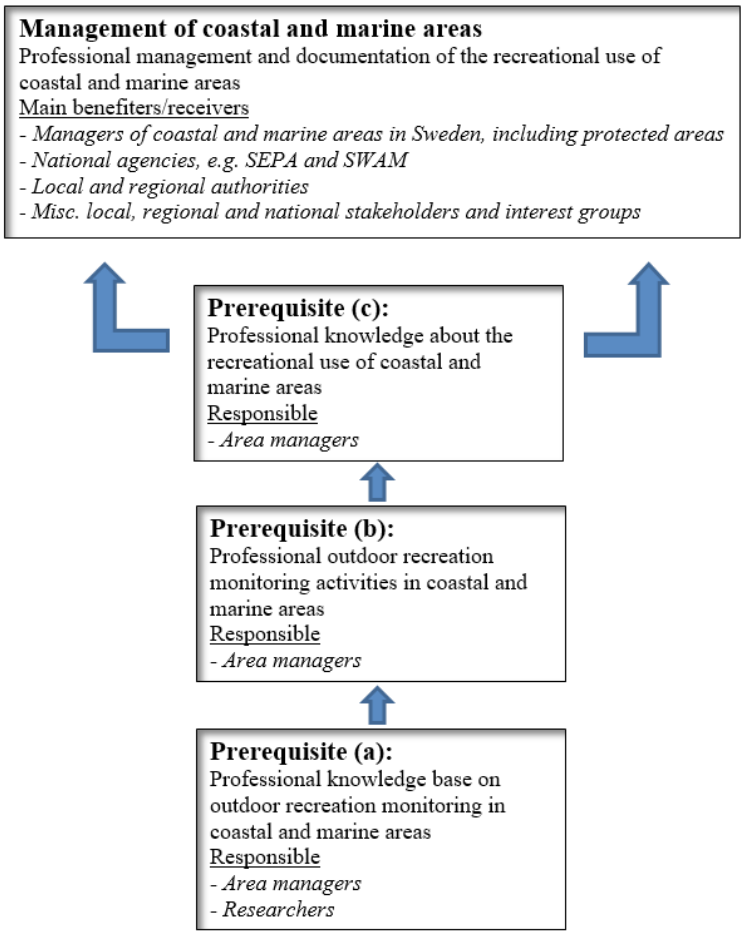

Figure 7 - Methodological rationale in the thesis (author model).

In short, Figure 7 not only supports the thesis purpose, but also the work on examining and evaluating both existing and potential monitoring methods and strategies in coastal and marine areas.

5.4 A pragmatic method approach

The methodological rationale in the thesis is supported by a pragmatic method approach (see Gray 2014). There are two reasons for this choice. The first reason is that a pragmatic method approach encourages the mixing of different method traditions (Pansiri 2005; Onwuegbuzie et al. 2009). Indeed, according to Mactavish & Schleien (2000, p. 155), a pragmatic approach often includes what can be called

'paradigm relativism', which concerns the "belief that methodological decisions are driven by the purpose of the research and the questions of interest, not by strict adherence to tenets of any particular worldview". As a result, a choice is made to test and discuss both quantitative and qualitative monitoring methods as a way to minimize the growing distance between quantitative and qualitative method traditions in the work with outdoor recreation monitoring (as discussed in Chapter 3). The second reason is that with a pragmatic approach, the aim is "not to find truth or reality […] but to facilitate human problem-solving" (Powell 2001, p. 884). In other words, the chosen methods are used to solve 'real life' problems rather than to facilitate deeper philosophical discussions with no connection to reality. This approach thus fits well with the applied research focus addressed in Chapter 1, which emphasized using the thesis results and learnings to not only create an academic knowledge base on the topic of outdoor recreation monitoring in coastal and marine areas, but to also use this knowledge base to improve outdoor recreation monitoring practices on a management level.

Concerning the applied focus specifically, this may result in both advantages and disadvantages in terms of the work process itself. The advantage is an adjustment of the thesis results to real world challenges and problems, in this case the work that is involved in working professionally with outdoor recreation monitoring in coastal and marine areas, which gives the thesis a degree of high relevance outside academia. However, an applied research focus also bears the risk of coming too 'close' to the area that is studied, which can be a disadvantage. For instance, by actively working in and with the study area, it cannot be avoided that the area has 'colored' the thesis work. In other words, the empirical work may not only have helped my understanding of the area, but may in fact also have influenced it to a degree that staying objective in terms of the study area is impossible. I acknowledge this fact, but will at the same time emphasize that these circumstances are characteristic for applied research and therefore do not compromise the validity of the thesis results as long as the unique circumstances of the study are recognized.

5.5 A research design with four work tasks

To structure the thesis focus and process, a research design was formed early in the project with efforts directed at different ways of acquiring scientific knowledge as well as practical experience with outdoor recreation monitoring in coastal and marine areas. First, the development of a knowledge base on outdoor recreation monitoring in coastal and marine areas was addressed. This task mainly involved collecting available academic and management knowledge and experiences on the topic, including identification of important knowledge gaps and needs. From the establishment of this knowledge base, the remaining thesis work concentrated on an expansion of the knowledge base with new monitoring knowledge and experiences. This work involved the active application of several outdoor recreation monitoring methods in the case study area with the purpose to identify both challenges and opportunities in the work with outdoor recreation monitoring methods in coastal and marine areas. To structure this work, four inter-dependent work tasks were initiated, each with a purpose to obtain different levels of monitoring knowledge and experiences, and relate findings to management practices. The four work tasks were:

Work task 1: Reviewing research and non-research literature contributions on outdoor recreation monitoring in coastal and marine areas

Work task 2: Interviewing managers and experts working actively with outdoor recreation monitoring in coastal and marine areas

Work task 3: Testing and evaluating the application of different quantitative and qualitative based monitoring methods in the case study area

Work task 4: Discussing results and findings with managers, including a look towards future management needs and research opportunities

In terms of the overall thesis process, there was a focus on establishing a knowledge base (i.e. work tasks 1 and 2) in the beginning of the thesis, while the task of expanding the knowledge base, including relating thesis findings to management practices (i.e. work tasks 3 and 4), was a focus towards the end of the thesis process. Nonetheless, each work task ran parallel with each other during the actual thesis

time. This way, the work tasks supported one another, both in terms of data findings and in their individual thesis contributions.

5.5.1 Work task 1: Reviewing literature

The first work task involved an exploratory/descriptive procedure with a focus on reviewing current literature on outdoor recreation monitoring in order to identify currently available knowledge about and experience with applied outdoor recreation monitoring methods in Swedish coastal and marine areas. This process was broken into four steps. The first step involved reviewing the current management plan in Kosterhavet National Park for any mention of outdoor recreation monitoring activities (SEPA 2009). This was primarily done in order to know the level and priority of outdoor recreation monitoring in the management of the national park. The second step involved consulting both national and international outdoor recreation monitoring manuals and handbooks in order to acquire knowledge about various outdoor recreation monitoring procedures (see Hornback & Eagles 1999; Watson et al. 2000; Horneman et al. 2002; Lindhagen & Ahlström 2005; Kajala et al. 2007; Cessford & Burns 2008; Eagles & Buteau-Duitschaever 2009; LCTA 2012; Le Berre et al. 2013; Scottish Natural Heritage (n.d.)). This task was mainly done in order to study the broader research field on outdoor recreation monitoring as experts on the topic have presented it. A special focus was to find monitoring experiences from coastal and marine areas in Sweden and the Nordic countries. This work had the added benefit that it resulted in the identification of and, not least, references to other outdoor recreation monitoring research and literature.

The third step involved identifying and reviewing international research studies that contain information on outdoor recreation monitoring in coastal and marine areas (see Chapter 3.5, which contains a short overview of some of these studies). This work provided a more detailed understanding of how outdoor recreation monitoring methods have been used internationally, not only on a management level, but also on a research level. The result of this effort was an overview of current international knowledge on the topic. Finally, with a base in these findings, step four was initiated. This involved narrowing down the scope of the literature review process with a specific focus on identifying and reviewing Nordic outdoor recreation monitoring literature. An important task was to find literature discussing outdoor

recreation monitoring in relation to the unique landscape and legislative conditions characteristic for the Nordic countries (i.e. archipelagos, free public access and shoreline protection). Both research studies and other expert reports that disclose information on different applied outdoor recreation monitoring approaches and procedures in Nordic coastal and marine areas were examined and discussed. This work was the base of research question 1 and eventually became Paper II.

Different document analysis strategies were used to proceed with each of the four steps in Work task 1 (Prior 2003; Rapley 2007; Bowen 2009). For example, the two first literature review processes (i.e. step 1 and 2) did not involve any specific selection or analysis strategy. Instead, the procedure was eclectic: the publications were chosen due to their relevance for the thesis purpose and analyzed specifically for their content on outdoor recreation monitoring in coastal and marine areas. The results from the two first literature reviews primarily made it possible to write much of Chapter 3.4 and Chapter 4 in the thesis. In terms of the last two literature review processes (i.e. step 3 and 4), document analyses were performed based on more structured search-, selection-, and analysis strategies such as it is suggested in systematic review processes (Councell 1997; Booth et al. 2012). In both cases, the selection strategy involved the use of a broad sampling strategy to collect both international and Nordic literature on outdoor recreation monitoring in coastal and marine areas. For this purpose, several research databases and journals were combed for relevant literature and thus worked as the main search strategy.[13] A set analysis strategy was thereafter carried out, using specific criteria to group the found literature into different literature categories. The produced results from these procedures can be seen in Chapter 3.5 and Paper II respectively. Finally, document analysis was also used in Paper I. In this case, the examined literature was selected specifically according to their relevance for the paper focus and the two investigated case study areas included

13 Several Nordic databases and journals are mentioned in Paper II. In terms of step 3, additional international databases and journals were searched for research papers and rapports from the past 20 years on outdoor recreation monitoring in coastal and marine areas. Important journals include: Journal of Outdoor Recreation and Tourism, Visitor Studies, Leisure Sciences, Annals of Leisure Research, Management Studies, Tourism Management, Journal of Leisure Research, Journal of Park and Recreation Administration, Parks and Recreation, Ocean & Coastal Management, Tourism in Marine Environments, Environmental Management, Journal of Environmental Psychology and Journal of Coastal Research.

in the paper (see Paper I). For overview purposes, a list of literature that has been examined in the thesis is provided in *Appendix B*.

The result of the literature review processes was an accumulation of current knowledge about and experiences with outdoor recreation monitoring in coastal and marine areas based on research as well as non-research contributions across the Nordic countries and internationally. From this basic knowledge base, important knowledge gaps were identified, such as studies with a more critical angle concerning applied outdoor recreation monitoring methods in coastal and marine areas. These knowledge gaps were primarily used to structure and focus the efforts done in work task 3 (see below).

5.5.2 Work task 2: Interviewing managers and experts

The second work task also involved an exploratory/descriptive approach and ran parallel with the literature reviewing process. More specifically, the task concerned contacting and interviewing managers and experts currently working with outdoor recreation monitoring in Sweden, preferably in coastal marine areas. This was deemed an important task as much knowledge about outdoor recreation monitoring comes from personal experiences from managers and other experts working with the topic. Through this process, new information on different outdoor recreation monitoring experiences and practices was collected and added to the basic knowledge base established in work task 1. In addition, the interview process resulted in the creation of a network of both Swedish and Nordic managers and experts on the topic of outdoor recreation monitoring in coastal and marine areas. This network was used several times in the later part of the thesis process, as contact was kept with the interviewed managers and experts throughout the thesis in order to provide feedback on the thesis results and learnings and to participate in two arranged management workshops (see work task 4 below). This created an interesting feedback loop, where the acquired manager and expert knowledge helped to reflect on the research work in the thesis, while the thesis results and discussions also became of interest to managers and experts in the network.

Interviews have been made with Anita Tullrot, Stefan Husár and Anders Tysklind, all managers in Kosterhavet National Park. Their knowledge and experiences was considered particularly important in order to identify their current practices and experiences with outdoor recreation management and monitoring, including information on

challenges and needs in this regard. Interviews have also been made with Lars Strandberg and Bengt Larsson at Västkuststiftelsen, which is an organization that works to promote outdoor recreation on the west coast of Sweden, while also being responsible for maintaining recreational facilities along the west coast. The contact was mainly established in order to know their strategies on outdoor recreation management in general and their experiences with outdoor recreation monitoring in particular. Finally, an interview was also made with Svante Hultengren at Naturcentrum, which was the external consultant office in charge of planning the recreational content in Kosterhavet in the initial national park pilot project. This interview was deemed important because it contributed with an understanding of the recreational layout of the national park as it appears in the management plan with implications for current management and monitoring efforts in the park. In addition to the six interviews, more informal contact was also made with managers and experts in Sweden and internationally, who either work with or have knowledge about outdoor recreation monitoring or coastal and marine based tourism/recreation. In the end, a total of 24 managers and experts were contacted as part of work task 2. A complete list can be found in *Appendix C*.

Semi-structured interviews (Berg 2000) was the main interview strategy used both in the six interviews as well as in the interviews done in Paper 1. The goal was to acquire useful information, primarily on the interviewees' experiences with outdoor recreation management and monitoring in the areas they are responsible for. Information on educational backgrounds of the interviewees was also noted, as this often can be a decisive factor for how outdoor recreation management and monitoring activities are understood and/or carried out. The interviews lasted up to two hours each and were transcribed after each interview. In terms of the other contacted mangers and experts, these were approached via more informal or occasional conversations, either face-to-face or via mail/phone. This resulted in additional information on outdoor recreation monitoring in coastal and marine areas that had not already been identified by the interviewed managers and experts. All contacts helped identify and establish contact with other relevant experts (i.e. snowball effect).

The results from the formal and informal interviews primarily added an extra and different layer of information that did not appear in the literature on outdoor recreation monitoring in coastal and marine areas. Furthermore, as this new knowledge was often based

on personal experiences or opinions, a more nuanced approach to the work with outdoor recreation monitoring in coastal and marine areas was obtained. The result was the establishment of a new and more detailed knowledge base from which it became possible to further identify important knowledge gaps in the work with outdoor recreation monitoring in coastal and marine areas. The sum of the collected knowledge from work task 2 has primarily been used to support the description and discussion of various parts in the thesis. For example, the knowledge and experience from the contacted managers and experts has been used in the identification of the four problems mentioned in Chapter 1.3 as well as in the description of the case area in Chapter 4. Furthermore, the manager experiences and expert knowledge have also been incorporated into the four thesis papers, where they primarily provide important backgrounds and contexts for the work presented in the papers.

5.5.3 Work task 3: Testing and discussing monitoring methods

While the aim of the first two work tasks was to provide a knowledge base on outdoor recreation monitoring in coastal and marine areas, the third work task aimed to expand the knowledge base with new work on outdoor recreation monitoring in coastal and marine areas. This task was considered a particular important task as a central part of developing a knowledge base on outdoor recreation monitoring methods in coastal and marine areas is to actively engage in, and thereby gain firsthand experience with, monitoring activities. A decision was therefore made to perform two monitoring studies in the thesis as a way to acquire practical knowledge about and familiarity with different applied outdoor recreation monitoring methods in a coastal and marine area context. Focus for this work was to address the most important knowledge gaps identified in the established knowledge base from the examined literature and the contacted managers and experts.

The application and testing of different monitoring methods and procedures in the case area proved to be the largest and most time-consuming work task. The main reason was that the case study area currently has no professional system or strategy in place for monitoring outdoor recreation, a situation common not only in coastal and marine areas, but in all types of areas, both in Sweden and internationally. Consequently, new monitoring activities and procedures had to be planned and involved all phases from preparing and performing mon-

itoring activities to analyzing, discussing and evaluating the obtained monitoring experiences and results. In this regard, it was important to identify which monitoring methods to apply, as it was not possible to involve all known monitoring methods (see Kajala et al. 2007; Le Berre et al. 2013). The decision to work with both quantitative and qualitative monitoring methods as emphasized earlier further influenced the choice of monitoring methods. The solution was to pursue a mixed method strategy, based on an integration of both quantitative and qualitative monitoring methods. Such a strategy is particularly advantageous in applied research where the aim is to (Mactavish & Schleien 2000, p. 155):

a. seek convergent results (triangulation)
b. explore interconnected and/or distinct aspects of a phenomenon (complementarity)
c. examine similarities, contradictions, and new perspectives (initiation)
d. use methods in a ways [sic] that complement one another
e. add breadth and scope to a project

A choice was therefore made to do two field studies. The first was an explorative themed study with a focus on applying and discussing three quantitative based monitoring methods. This was followed by a second interpretive themed study with a focus on applying and discussing a qualitative based monitoring method (see Chapter 5.6. for more details on each chosen monitoring method).

The work performed in work task 3 provided a strong complement to the knowledge base obtained from the first two work tasks. Each applied monitoring method produced interesting and often unique findings and experiences. The result was the establishment of an enhanced knowledge base on outdoor recreation monitoring in coastal and marine areas built on the combined knowledge and experiences from all three work tasks. This knowledge base made it possible to engage in more qualified discussions of how current and future work with outdoor recreation monitoring in coastal and marine areas can be advanced. Work task 3 results have primarily been used in Paper III, IV and Chapter 7.

5.5.4 Work task 4: Relating results to management practices

Finally, work task 4 involved the arrangement of two management workshops with a focus on building a bridge between research results in this thesis and the work done by managers of coastal and marine areas in Sweden. This work thus directly connects to the applied research approach emphasized both in the beginning of this chapter and in Chapter 1. The purpose of the workshops was not to generate more empirical data, but was included more as a strategy to discuss and validate the thesis results and findings with managers and other key persons who either work with, or have an interest in, outdoor recreation monitoring and management in coastal and marine areas. The outcome of the two workshops therefore was valuable input that can be useful for a future paper.

The first workshop was arranged half way through the thesis, in December 2014, while the second workshop was arranged towards the end of the thesis in April 2016. Along with the management staff in Kosterhavet National Park, management staff from two Norwegian coastal and marine national parks, Ytre Hvaler and Færder National Park, also participated as did also national agencies (i.e. SEPA and SWAM), regional authorities (i.e. Västra Götaland), local managers (i.e. Västkuststiftelsen) as well as several outdoor recreation researchers. Both workshops had the same two aims. The first aim was to communicate monitoring results and experiences from the two field studies to the workshop participants, with a special emphasis on how the thesis findings can assist in or be coupled to existing management practices on outdoor recreation monitoring in coastal and marine areas. The second aim was to use the workshops to discuss future management needs and research opportunities with the managers. This included another central discussion, namely how to establish continued collaboration and knowledge exchange between researchers and managers.

By opening for a dialogue with the workshop participants, the results and learnings obtained throughout the thesis were given a better anchoring in terms of their practical and realistic usage, particularly on a management level. Furthermore, the results and learnings gave managers better insight into what active work with outdoor recreation monitoring in coastal and marine areas involves, with a special focus on challenges and opportunities in this regard. In turn, this process led to identification and discussion of new knowledge gaps and monitoring needs, both among managers and researchers. Last, but not least, the

two workshops also confirmed the need for improved social science research-management collaboration as well as both disciplinary and interdisciplinary requirements for outdoor recreation monitoring efforts in coastal and marine areas. The outcomes from the workshops have mainly been used in Chapter 7, where they provide a background to the discussion on management implications of the thesis results as well as the discussion of the importance of continued research-management collaboration.

Thus, with the completion of work task 4, the four work tasks come full circle in the sense that some of the originally emphasized knowledge gaps that were identified in work tasks 1 and 2 were addressed through the work performed in work task 3 and reported at the two management workshops in work task 4. Table 3 provides an overview of the four work tasks and their relation to the four papers included in the thesis as well as to the thesis purpose, the three research questions, and main source of data.

Table 3 - Overview of the four work tasks in the thesis.

	Paper I	Paper II	Paper III	Paper IV
Relation to the thesis purpose	**Establishing knowledge base**		**Expanding knowledge base**	
Aim	*To identify the present conditions and challenges for outdoor recreation management in Sweden, focusing on outdoor recreation as a land and water use interest*	*To identify and list literature with knowledge on outdoor recreation monitoring in Nordic coastal and marine areas, including thoughts on how this knowledge can be developed*	*To gain experience with outdoor recreation monitoring in Swedish coastal and marine areas, including identification of monitoring challenges and how these can be addressed*	*To introduce and explore a new monitoring method in the work with outdoor recreation monitoring in Swedish coastal and marine areas, including thoughts for its relevance and application*
Addresses research question(s)	1	1	2 + 3	2 + 3
Involved work task(s)	1 + 2	1 + 2	3	3
Source of data	Literature reviews + manager/expert interviews	Literature reviews + manager/expert interviews	Fieldwork 2013 (The quantitative study)	Fieldwork 2014 (The qualitative study)

5.6 Application of four monitoring methods

As mentioned above, the mixed method strategy in work task 3 involved the application and discussion of four monitoring methods of which three were quantitative based and one was qualitative based. To expand a bit more on this, a detailed introduction to as well as more critical reflections on each of the four monitoring methods will be given here. It is important to emphasize that it is not the purpose to recap or reproduce the individual method procedures as they are described in each paper (for this purpose, please consult Paper III and IV respectively). Instead, the focus in this section is to provide a more general introduction to and reasoning behind the inclusion of the four chosen monitoring methods. This also includes a discussion of the empirical results obtained from the two field studies described in Paper III and IV with a purpose to argue for the relevance and importance of actively working with outdoor recreation monitoring in coastal and marine areas.

5.6.1 Three quantitative based monitoring methods

The first field study in the thesis was conducted in 2013 and was an exploratory themed study that involved the application, examination and evaluation of three quantitative based outdoor recreation monitoring methods: an on-site questionnaire survey, an on-site interview survey and a combination of on-site and roaming observations. The reasoning behind the choice of working with these methods was threefold. First, all three monitoring methods were chosen because they are often highlighted as some of the most conventional and frequently used monitoring strategies in current outdoor recreation monitoring literature (see Hornback & Eagles 1999; Watson et al. 2000; Horneman et al. 2002; Kajala et al. 2007; Le Berre et al. 2013). Secondly, all three monitoring methods are fairly well known and used in contemporary outdoor recreation management, which therefore makes them relevant to discuss from a management experience perspective. Third, the three monitoring activities support and complement each other well, not only in terms of data results, but also in terms of method comparison due to their quantitative nature (Vuorio et al. 2003; Lindhagen & Ahlström 2005; Vorkinn 2013). All three monitoring methods are based on quantitative research methods and emphasize a need to obtain important numerical and statistical data in order to

understand the scale of the recreational use of the study area (Le Berre at al. 2013). Specifically, this includes acquiring information on user numbers and concentrations, user movement and behavior as well as user activities and profiles.

In a Swedish context, all three monitoring methods have been employed in different area contexts and with different experiences as a result. For instance, on-site observations have been used in a case study from Södra Jämtlandsfjällen, which reported mixed outcomes and usefulness in terms of the monitoring method and results (Vuorio et al. 2003). Similarly, on-site interviews have been employed in the Laponian World Heritage Site in the Swedish mountains, where they were used to support an ongoing questionnaire survey (see Wall-Reinius 2006). Again, the reported use of this monitoring strategy and the results it produced gave a mixed impression in terms of value and usefulness. Finally, on-site questionnaires have not been employed in Sweden yet. Instead, a more common and often used strategy has been to use a combination of registration cards and a mail-back questionnaire, such as employed in studies from Fulufjället National Park (Fredman et al. 2005), Luleå archipelago (Ankre 2007), Blekinge archipelago (Ankre 2009) and Norrbotten mountains (Ankre & Reinius 2010). Results from these studies have generally been positive and helped the respective areas to profile and categorize recreational users and their activities in each area. Apart from the two studies by Ankre (2007; 2009), experiences with the three applied methods are mostly found in studies from non-coastal and marine areas. Hence, an important task in this thesis has been to add new experiences and learnings from a coastal and marine area context.

5.6.2 One qualitative based monitoring method

The second field study in the thesis was conducted in 2014 and was an interpretive study that involved the application, examination and evaluation of a qualitative based outdoor recreation monitoring method: visitor produced pictures in combination with in-depth interviews. The choice to use this method approach was inspired by findings from previous studies by Wynveen (2009), Wynveen at al. (2012) and Tonge et al. (2013), who have used a similar method called Visitor Employed Photography (VEP) to explore place meanings and attachments among recreational users in coastal and marine areas in Australia. VEP is used as a tool to capture different experience qualities

among recreational users, which are then discussed in relation to the creation of place meanings and attachments in remote settings. The usefulness of this approach makes it relevant for the thesis, where VEP basic principles lay the foundation for the visitor produced pictures strategy with a purpose to explore experience qualities in Kosterhavet National Park. Similar to VEP, the visitor produced pictures strategy is based within qualitative research traditions and emphasizes a need to obtain in-depth knowledge about user perceptions, experiences and meanings in order to gain a better and more detailed understanding of the recreational users and their stay in the area.

While 'visitor produced pictures' is a method construction that is developed only in the context of this thesis, the use of visitor pictures to investigate different recreational themes has been internationally recognized as a valid research method. For example, looking internationally, studies that involve visitor pictures concern such varied themes as impact assessments (Shelby & Harris 1985; Dorwart et al. 2010), destination images (MacKay & Couldwell 2004), landscape assessments (Haywood 1990; Heyman 2012), place meaning and attachment (Wynveen 2009; Tonge et al. 2013) and landscape perceptions (Hull & Stewart 1995; Taylor et al. 1995; Garrod 2008). In a Swedish context, academic work involving visitor pictures is relatively limited, although VEP recently have been used in a couple of studies from urban areas. For example, Heyman & Gunnarsson (2011) and Heyman (2012) have used VEP to analyze recreational values and management effects in an urban forest context, while Qui et al. (2013) uses VEP to examine on-site perceptions of recreational and biodiversity values in urban green spaces. Both studies use visitor pictures as the principal methodological approach, but they do not discuss the opportunity to turn the method into a monitoring strategy, nor do they discuss management implications of the method in terms of what requirements the method entails. Hence, an interesting task has been to apply, examine and discuss the usefulness and potential of using visitor produced pictures for monitoring strategies in the management of coastal and marine areas.

Figure 8 shows the methodological root of each of the four applied monitoring methods, i.e. their placement within quantitative and qualitative method traditions (as discussed in Chapter 3). Furthermore, the figure also shows their connection to the pragmatic method approach emphasized in the beginning of this chapter.

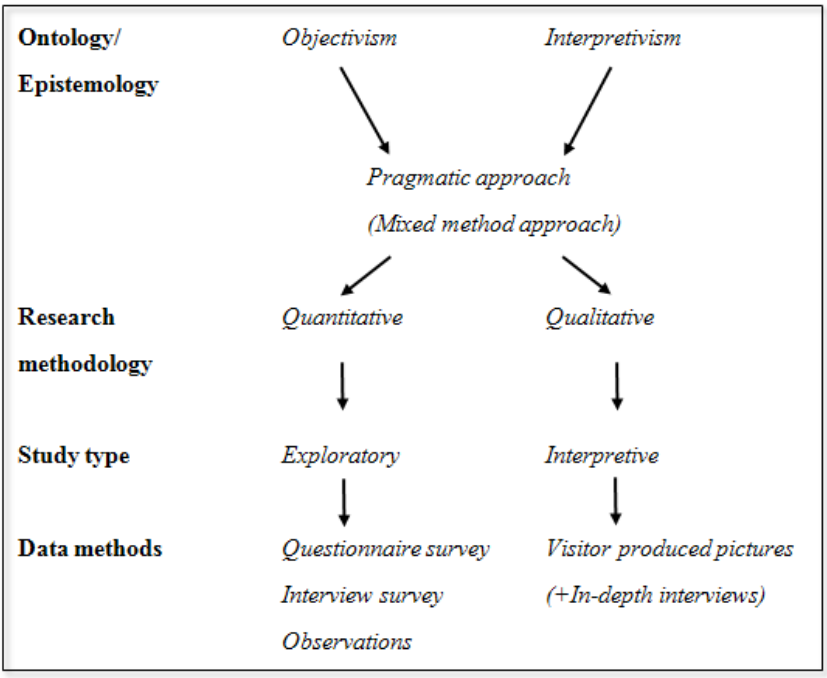

Figure 8 – The methodological roots of the four applied monitoring methods (author model).

5.6.3 Empirical results from the four applied methods

Reading the thesis and the papers, one will quickly notice that not much attention has been given to the empirical results (i.e. the obtained data outcomes) from the four applied methods in the two field studies. The reason for this is the strong methodological focus in the thesis, which basically means that more effort has been made to discuss and evaluate the usefulness of the chosen monitoring methods themselves rather than the presentation and discussion of the data produced by the four applied methods. This is particularly evident in Paper III, where the empirical data results from the first field study are not very visible, but primarily have been used as a foundation on which to explore and reflect on important method challenges and experiences regarding the application of the three quantitative monitoring methods in the case study area. In contrast to this, the empirical data results from the second field study in Paper IV are more visible in the paper, as the data (i.e. the pictures) are included and described in order to

examine recreational experience values and qualities. While this helps to demonstrate the idea behind the method approach (i.e. the 'visitor produced pictures' strategy) in the paper, still, the primary focus is on the success and usefulness of the method itself, and therefore not specifically on the obtained data. In both studies, therefore, one could say that the empirical data and results have been treated more as a means to discuss and evaluate the four applied monitoring methods than an end in itself.

The choice to focus more on the applied methods themselves does, however, not mean that the produced data results are irrelevant, as they primarily form an important knowledge base from which to discuss and evaluate the applied monitoring methods in terms of their success and usefulness. Secondly, the empirical results also have merits on their own, for example by showing the value of doing systematic data collection instead of relying upon personal based judgments and guesses in planning and management activities. More to the point, the empirical results demonstrate how qualified knowledge on outdoor recreation aspects can be obtained and how the produced knowledge (i.e. the empirical data) can be used by managers to improve their understanding of the recreational users and their activities and experiences. For instance, data retrieved in the first field study show behavioral and demographic details on the recreational users in Kosterhavet National Park, including knowledge about their movements in the park area, motivations for their visit, their activities and well as opinions on disturbing factors, etc. Furthermore, as demonstrated by the data retrieved in the second field study, Kosterhavet National Park is a frame around different experience qualities that require management and monitoring attention. This is all important information that managers need to know and which cannot (and should not) be left to management experience and judgment only. Instead, a better strategy is to collect the information systematically and according to scientific principles such as described in Paper III and IV.

This reinforces the previously used quote by Eagles et al. (2002, p. 151) in Chapter 3 on the importance of working actively with outdoor recreation monitoring in area management: "Subjective impressions of conditions are not good enough: the public demands to see the data upon which decisions are taken, and to be assured that they were collected in a scientifically reliable matter". In other words, professionally obtained data is needed in order to give validation to management decisions. This argument is supported in this thesis by

demonstrating how empirical data can be collected systematically through more organized outdoor recreation monitoring activities, which in turn lead to more qualified management measures. This has particular relevance for the adaptive management model and the LAC management framework previously mentioned in Chapter 3 and the role that outdoor recreation monitoring plays in both processes. As explained there, the success of the monitoring step in each of the models presupposes the performance of professional monitoring methods in order to obtain qualified data and therefore also knowledge. Hence, by demonstrating the value of this work, it is easy to understand the importance of monitoring in management processes.

To better illustrate this, a selection of empirical results from the two field studies have been included in *Appendix D*. A central argument behind the chosen empirical results is that if the goal is to successfully manage a recreational landscape, say a coastal and marine area, engagement in this level of data collection is needed. Not only are the empirical results a better alternative to personal judgments and guesses, but they also show the potential of the knowledge monitoring activities can contribute with when organized and done systematically.

5.6.4 Critique and reflections

In Chapter 1, the problem concerning the use of the term 'monitoring' in the thesis was mentioned to be a problem given that monitoring activities by definition are of a longitudinal nature (Horneman et al. 2002; Kajala et al. 2007). This thesis, however, introduces two single studies of one point in time each, thus providing two 'snapshots' of the case study area, one in 2013 and one in 2014. For this reason, although the purpose is to apply and discuss monitoring methods, the fieldwork activities cannot actually be called 'monitoring', as this requires data from more than one study in order to compare or to confirm trends or differences over time (i.e. longitudinal studies vs. cross-sectional studies, see Rindfleisch et al. 2007). Thus, from a monitoring perspective, the data and results presented in Paper III and IV can be criticized as both studies have not been repeated and therefore do not represent actual monitoring activities. Nonetheless, first-hand experience with applied monitoring methods is a necessary step towards achieving the thesis purpose concerning the development of a knowledge base on outdoor recreation monitoring in coastal and marine areas. In other words, even though the studies are not technically monitoring studies, they

do provide important methodological experiences and results. In this regard, it is emphasized that the monitoring experiences presented in this thesis have been primarily used to investigate the pre-conditions for working more professionally with different monitoring methods and activities. It is, so to speak, one step back in the process, with a focus on investigating and describing various factors that influence monitoring activities in coastal and marine areas.

In terms of management practices, the choice to work with four applied monitoring methods and a mixed method strategy can also be criticized. For example, concerning the three quantitative based monitoring methods (see Chapter 5.6.1), it is important to note that they cover both Level 1 monitoring activities (i.e. the observations) and Level 2 monitoring activities (i.e. the questionnaire survey and the interviews). From a management point of view, it may be difficult to work with all three monitoring methods at once, especially as Level 1 monitoring activities are required to be done continuously, while Level 2 monitoring activities are often done more occasionally. The value of data triangulation, as advocated strongly in Paper III, may therefore not be obtainable. This situation is further complicated by the fact that while most managers have experience with performing observations of recreational users and their activities (even if they are not based on professional approaches), they rarely have experience with performing professional questionnaire and interview surveys. In many cases, such studies are done either by academics (e.g. Meyer 1999; Ankre 2007; 2009) or by external consultants (e.g. TUI 2006; Nyman 2006) with little or no management involvement. It can therefore be questioned whether it is likely or realistic that managers will show interest in working with the three quantitative monitoring methods, at least to the degree it is described in Paper III. Nevertheless, I have chosen to focus on and actively work with all three monitoring methods. Not only in order to discuss challenges involved with three of the most conventional monitoring methods that currently exist, but also to illustrate that in spite challenging monitoring conditions, the advantages of simply performing monitoring activities far outdo any identified challenges.

This methodological concern can also be said about the fourth, qualitative based monitoring method that is suggested in Paper IV (see Chapter 5.6.2). For instance, the critique that managers rarely (if at all) have experience with qualitative monitoring methodology can be raised. Instead, this work is almost exclusively done by researchers,

again with little or no management involvement (e.g. Wynveen 2009; Tonge et al. 2013). It may also be criticized that even if managers can see the advantage of using qualitative based methods, they lack basic professional skills and training to engage in this work, both in terms of how to carry out and use the obtained results. Furthermore, as indicated above, another important critique is that qualitative studies often have a tendency to be unique, one-time studies, which therefore makes them difficult to use for monitoring purposes, as monitoring entails commitment to repeated, long-term investigations using the same method standards. These requirements are often difficult to apply to qualitative based studies, which therefore complicates their status and value as a monitoring method. Some thoughts about all these issues have been given in Paper IV, particularly with the suggestion to introduce new technology, e.g. a monitoring app. Such an approach would help solve both the issue with how to develop the described method into an easily accessible monitoring tool and the problem of how to ensure repeatability of qualitative based monitoring activities.

Finally, the choice to use a mixed method approach may also be criticized. For example, while the literature often emphasizes the advantage of using mixed method strategies, it is important not to forget that there are limits to the integration of quantitative and qualitative methods due to the fact that they belong to different theoretical frameworks and therefore involve different method uses:

> *It is like trying to see what there is inside a building: different windows provide different insights into what lies within it, but the quantitative and qualitative windows may be looking into different rooms, without telling us how these are connected.*
> (Williams et al. 2015, p. 4)

In spite of what essentially is a challenge between different theoretical and methodological traditions, it is nonetheless important to include both traditions if the goal is to truly integrate outdoor recreation monitoring into management practices. In this case, working only with one method tradition does not suffice, as that simply does not cover the actual monitoring options that managers have available. Thus, to lean on the above words by Williams et al. (2015), even though different windows provide different insights and understandings, it is nonetheless important to combine the knowledge they provide, including how that knowledge is established. In other words, a mixed

method strategy is not just important, but in fact a requirement in terms of successful outdoor recreation monitoring.

5.7 Words on limitations

The thesis contains a few important methodological limitations. While many of these have already been described in the papers, some general ones still remain and will therefore be addressed here. For example, a first limitation concerns the fact that not all outdoor recreation monitoring methods reported in national and international monitoring manuals and handbooks have been included and evaluated upon in this PhD study (see Table 2 in Chapter 3). A decision was made not to add more monitoring methods in the thesis mainly due to time and cost issues. Nonetheless, it is recognized that the inclusion of other monitoring methods might result in the identification of new challenges and opportunities in the work with applied outdoor recreation monitoring methods in coastal and marine areas. A future task therefore is to explore more monitoring methods and their applications in coastal and marine areas in order to increase the chances of improving monitoring methods, experiences and results.

A second limitation is a temporal issue and concerns the choice of selecting the summer season as a research period in both field studies. Kosterhavet National Park is a popular destination beyond the main (summer) season, such as it is seen in October, when the lobster season starts, and during Easter, when the first recreational boaters arrive. As a result, seasonal changes in the recreational use of the area may result in different requirements in terms of outdoor recreation monitoring. Results and learnings reported in the thesis may therefore not be representative either, as only the recreational use during the summer season has been studied in terms of monitoring conditions and needs. The choice of using the summer season for both research studies is, however, justified by the fact that the summer season is the high season in Kosterhavet, and thus also considered the most relevant season in terms of working with outdoor recreation monitoring activities. An interesting future aspect would be to focus more on seasonal changes or variations in recreational uses, and what such changes and variations mean in terms of new requirements for outdoor recreation monitoring activities.

A related third limitation is the fact that the two field studies took place during two summers with unusual warm, and therefore also optimal weather conditions for outdoor recreation activities in Kosterhavet. These circumstances affected the numbers of recreational users, activities and behavior, as the optimal summer conditions resulted in high levels of user numbers and activities, particularly at sea and in the natural harbors in the archipelago. In contrast, the summer of 2015 was very wet in terms of weather. As a result, outdoor activities were fewer, while the visitor center broke their visitor record as recreational users that year mainly prioritized indoor activities. Although monitoring activities were not performed in 2015 for the thesis, the scenario still shows that there can be significant differences and variation between summer seasons, mainly due to weather conditions. In terms of the thesis, this also means that the presented results and learnings reflect a study scenario with almost perfect weather conditions for outdoor recreation activities. It is therefore recognized that summers with less optimal outdoor recreation weather conditions may result in new situations in the area, for example more indoor activities and busy guest harbors, which will cause user issues and problems that require different monitoring strategies.

A fourth limitation concerns the fact that although the purpose of the thesis relates to coastal and marine areas in general, it cannot be denied that the methodological results and findings reported in the thesis only cover the study area in Kosterhavet National Park. In other words, there is no guarantee that the same methodological results and findings will be applicable in other coastal and marine areas (let alone other areas in general). For example, some coastal and marine areas, both inside and outside of the Nordic countries, are confronted with different area conditions and management challenges than the ones characteristic for Kosterhavet National Park. This may hinder transferability of the results and findings reported in this thesis to these areas. Nevertheless, it is emphasized that most of the methodological findings in the thesis are of universal nature and should be considered regardless of what coastal and marine area (or area type in general) wherein they are applied. In particular, this concerns the advice to integrate local area conditions and management capacities into the work with outdoor recreation monitoring. In other words, even though the thesis results and findings for practical reasons are area specific, their relevance and usefulness is designed to be transferrable to other coastal and marine area contexts.

Finally, a fifth limitation concerns the fact that Kosterhavet National Park is a protected area with full time management in place. These circumstances may be interesting in terms of making international comparisons between protected areas, but can be a problem in terms of transferring the thesis experiences and results to areas without similar management capacities. For example, most coastal and marine areas in Sweden today, including many protected coastal and marine areas, rely on part time management from local authorities or interest groups who often have fewer or no resources to work with outdoor recreation monitoring (let alone management). As a result, it may be difficult in these areas to begin work on outdoor recreation monitoring at the scale or level that is emphasized in this thesis. Special considerations have therefore been taken in terms of how to make the thesis results and findings relevant to other coastal and marine area contexts, including those with minimal management resources, both within Sweden and internationally. The thesis suggestion of introducing new technology for monitoring is an example of this. New technology can be designed to be relative cost-effective and applicable to all area types, while also having the advantage that it does not rely on full time management.

CHAPTER 6

Paper overview and summaries

This section introduces the four papers that have been included in the thesis. Paper I was initiated early in 2013, shortly after the beginning of the thesis, and was aimed at providing a broad, yet important background on the need to focus more on outdoor recreation in the management of coastal and marine areas in Sweden. The paper is co-written with Professor Marie Stenseke. Shortly after, Paper II was initiated in early 2014 with an aim to provide another background paper, but this time with a more specific focus on the need to build a foundation of current Nordic knowledge and experiences with outdoor recreation monitoring in coastal and marine areas. The paper is single authored. The writing of Paper III and IV was begun in 2014 and 2015 respectively, both with an aim to present new empirical work and learnings on outdoor recreation monitoring in coastal and marine areas. Both papers are single authored.

The four papers are briefly presented and described below. All four papers in their full length can be found in *Appendix A*.

Paper I: From rhetoric to knowledge based actions – challenges for outdoor recreation management in Sweden
Paper I concerns how outdoor recreation aspects are considered in a context of strong biodiversity preservation ambitions, and aims at identifying the challenges for developing outdoor recreation management. The study departs from two Swedish cases: Kosterhavet and Kinnekulle. Data has been collected through interviews with key actors and examinations of documents. The results show that while there has been a sincere engagement, and efforts spent on outdoor recreation management, there are no overall strategies for, or systematic treatment

of, outdoor recreation. Furthermore, knowledge and competency gaps are revealed, particularly concerning monitoring of recreational users. One critical point is that outdoor recreation aspects have generally been planned by biologists, while no one with professional training in human behavior has been involved. The paper therefore concludes that a basic condition for improvement is that outdoor recreation is recognized as a land and water use interest on its own rights. In order to qualify the management and planning, outdoor recreation issues need to be institutionalized, and made explicit in management guidelines and formal process agendas. Moreover, the view of what professional skills and knowledge base are required in nature conservation has to be reconsidered. In this regard, the management of biodiversity can be fruitful for benchmarking what is needed in the work with outdoor recreation planning and management, for example by setting standards for minimum management and monitoring activities.

Status: Published
Journal: Journal of Outdoor Recreation and Tourism

Author(s): Marie Stenseke & Andreas Skriver Hansen

Main contributions in the paper: the latter two sections in part 2 ('The issues of framing and knowledge'), miscellaneous parts in section 3 ('A renewed interest for outdoor recreation in Sweden'), miscellaneous parts in section 5.1 ('Kosterhavet') and all of section 6.3 ('A quest for more knowledge in recreation in coastal areas').

Paper II: Outdoor recreation monitoring in coastal and marine areas – an overview of Nordic experiences and knowledge

Paper II involves a review and communication of important knowledge about and experiences with outdoor recreation monitoring in Nordic coastal and marine areas. This is a topic that so far has received little attention, especially among researchers and practitioners working with outdoor recreation monitoring in Nordic coastal and marine areas, who are in need of knowledge on the topic in order to proceed with own monitoring activities and procedures. To remedy this situation, the purpose of this paper is to provide a knowledge base by listing and describing central literature contributions with important insight into outdoor recreation monitoring in Nordic coastal and marine areas. The paper finds that important knowledge about outdoor recreation

monitoring in Nordic coastal and marine areas generally has been sparse and far in between, with a majority of publications published within the past 15 years. So far, only Finland has made any attempt to develop and systematize outdoor recreation monitoring in coastal and marine areas. The paper also shows that it is mainly researchers as well as various authorities or interest groups with an interest in recreation statistics that have contributed with knowledge on the topic. Most of this knowledge is, however, descriptive in nature without much focus on critical approaches to or evaluations of outdoor recreation monitoring methods used in coastal and marine areas. The paper therefore suggests that more efforts need to be taken in terms of improving knowledge about and experiences with outdoor recreation monitoring in coastal and marine areas. This includes better communication and collaboration strategies between researchers, managers and interest groups working with monitoring activities. The paper is a central contribution and addition to manuals on outdoor recreation monitoring that are currently available in the Nordic countries.

Status: Published
Journal: Danish Journal of Geography

Author: Andreas Skriver Hansen

Paper III: Applying visitor monitoring methods in coastal and marine areas – some learnings and critical reflections from Sweden
Paper III addresses the lack of attention that so far has been given towards the challenges involved in applying visitor monitoring methods in open coastal and marine landscape settings. To investigate this, a monitoring case study from Kosterhavet National Park, Sweden, is introduced with a purpose to apply and evaluate on three different visitor monitoring methods in a typical coastal and marine setting and with a special focus on reporting important challenges and experiences in this regard. The three chosen monitoring methods are all quantitative based and often considered conventional monitoring methods: a questionnaire survey, an interviews survey and a combination between on-site and roaming observations. Results from the study are presented as three lessons that are discussed critically. These include: 1) issues around sampling strategies and representativeness of monitoring results in areas characterized by high levels of visitor dispersion, 2) weather conditions in coastal and marine areas, and 3)

the need for a mixed-method strategy to increase the usefulness of the acquired data. Methodological contributions in the paper mainly concern how these challenges can be addressed and improved. This involves a discussion of the potential in including new monitoring strategies based on different technological opportunities, such as drone technology and the involvement of online media platforms and mobile technology. Thoughts on management implications, such as re-assessment of current monitoring strategies as well as the need for management education, are also included. The paper serves as a central contribution to research discussions on applied visitor monitoring methods in coastal and marine areas. The study is also an important addition to existing outdoor recreation monitoring manuals and handbooks that are currently available.

Status: Published
Journal: Scandinavian Journal of Hospitality and Tourism

Author: Andreas Skriver Hansen

Paper IV: Testing visitor produced pictures as a management strategy to study visitor experiences qualities - a Swedish marine case study

Paper IV tests how visitor produced pictures can be applied in recreation management in order study, and potentially also monitor, different visitor experience qualities. The argument in this is that knowledge about visitor experiences is a central part of experience-based management and therefore requires monitoring attention. The paper presents a case study from Sweden wherein visitor produced pictures are used as the main methodological approach. The case study took place during summer 2014 and involved 41 participants who via smartphones took pictures of important recreational experiences. The results revealed six different categories of experience qualities in the visitor produced pictures: natural elements, social situations, cultural environments, recreational activities, emotional reactions and disturbing factors. These categories are described with special attention given to better understanding of visitor experience qualities and possible management implications of this. Furthermore, to make the method easier to use for managers, the paper suggests that new technology, such as social media platforms or mobile technology, may hold new opportunities in terms of providing managers with both accessible and cost-effective tools

for monitoring. The paper concludes that visitor produced pictures have considerable potential as an informative and efficient strategy to study visitor experience qualities. The development of visual methods as a monitoring approach should therefore receive more attention in recreation management.

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Author: Andreas Skriver Hansen

CHAPTER 7

Discussion

7.1 Introduction

This thesis provides a development of a knowledge base on outdoor recreation monitoring in coastal and marine areas, with special thoughts on how the topic can be supported theoretically and developed methodologically. To put the thesis into a larger perspective, however, more advanced lines must be drawn between the thesis contributions and the relevance of these in a wider context. Consequently, the purpose of this final chapter is to synchronize, elaborate on and critically discuss the thesis results and findings. First, each of the three research questions posed in Chapter 1 will be answered briefly. Following this, the thesis findings will be the target of a more detailed discussion of important academic contributions and management implications of the thesis findings, including reflections on the importance of establishing continued research-management collaboration. Finally, a short outlook is also given on future research tasks.

7.2 Answering the three research questions

The four papers included in the thesis each uniquely answer the three research questions, which aimed to a) uncover current scientific and management knowledge about outdoor recreation monitoring in Swedish coastal and marine areas, and b) expand the current knowledge base on outdoor recreation monitoring with new research knowledge as well as practical experiences. To emphasize the work in the papers, the three research questions will therefore briefly be answered here.

What knowledge on outdoor recreation monitoring in coastal and marine areas is currently available and what knowledge gaps need attention?
The results from Paper I and II reveal that there principally is no professional knowledge base in Sweden on outdoor recreation monitoring in coastal and marine areas. For instance, Paper I discloses that in many cases of area management in Sweden today, outdoor recreation monitoring rarely receives professional attention and prioritization. Instead, outdoor recreation monitoring activities are often performed on an unplanned or ad-hoc basis. Consequently, it is difficult to ascertain the current level of professional knowledge on outdoor recreation monitoring among area managers. Furthermore, Paper II reveals that in spite identification of some Nordic literature that contain use of outdoor recreation monitoring methods in coastal and marine areas, these experiences are both isolated and not well communicated between researchers and managers. Moreover, even in studies that include monitoring considerations (e.g. Ankre 2007; 2009), these are not engaged with critically, nor have they been brought together to form a professional knowledge base on the topic. Important knowledge gaps therefore include both academic and practical familiarity with outdoor recreation monitoring in coastal and marine areas. This includes identifying and addressing monitoring wants and needs among researchers and managers alike.

The result of the current academic and managerial lack of knowledge of and experiences with outdoor recreation monitoring in coastal and marine areas effectively means that both researchers and managers have little professional knowledge on which to proceed with this work. In case of the managers, this problem is compounded by the fact that they often build their decisions and activities on personal experiences and judgments from their daily management work and routines. Notwithstanding the value of these experiences (Hummel 1991), the thesis shows that these often have no base in professional (read: academically based) monitoring activities. To solve the issue, the thesis suggests that the problem first must be acknowledged among managers and researchers working with outdoor recreation monitoring in coastal and marine areas. Secondly, it is important that a knowledge base consisting on joined knowledge from both researchers and managers is built, which implies a focus on closer management-research collaboration. Third, it is also important that collection and communication strategies on monitoring experiences, both within Sweden and internationally, are given attention in order to provide both managers and researchers

with updated professional knowledge on the topic. Only by fulfilling these basic requirements will it be possible to proceed towards a better integration of outdoor recreation monitoring into the management of coastal and marine area in Sweden (and elsewhere).

What important monitoring challenges and needs can be identified in the work with outdoor recreation monitoring in coastal and marine areas?
The thesis shows that one particular knowledge aspect that deserves attention concerns awareness of important challenges when working actively with monitoring in coastal and marine area settings. Particularly, the thesis directs attention to the problem that managers and researchers working with outdoor recreation monitoring in coastal and marine areas seldom are aware of the challenges involved in this work, which in turn hinders the performance of professional monitoring activities. The results in Paper III reveal challenges in obtaining representativeness of monitoring results in coastal and marine areas due to their open landscape character as well as high levels of user dispersion and movements. Furthermore, results also show challenges around abrupt weather changes, which often result in a cancellation of monitoring activities as well as influencing user behavior and movement. Following fixed sampling schedules therefore becomes impossible. To solve these issues, the thesis therefore suggests that managers give more attention to the importance of working with mixed-methods strategies, including knowledge of method limitations.

In terms of monitoring needs, the thesis shows that monitoring of recreational experiences in coastal and marine areas has not received much focus until now, neither among researchers, nor among managers. Consequently, Paper IV suggests introducing 'visitor produced pictures' as a method strategy to effectively obtain knowledge about important experience qualities in coastal and marine areas, such as the nature of various recreational experiences, under what conditions they occur and what factors that influence the experiences. The relevance of this work reaches beyond academia and into management practices, where it demonstrates the value of working more actively with qualitative based monitoring strategies in coastal and marine areas. The proposed method strategy is, however, still explorative and remains an academic exercise in its present version. Nevertheless, the opportunity for managers to learn more about important experience qualities as they are experienced by the recreational users themselves is something that should not be ignored as this knowledge can lead to

better options for managers to meet political and public demands for quality recreational experiences. The thesis therefore suggests further examination of the introduced picture-based method approach.

How can outdoor recreation monitoring methods and strategies for coastal and marine areas be developed or improved?

In terms of addressing the identified monitoring challenges in Paper III, the thesis suggests that attention should be given to the development of new method strategies in order to effectively acquire user information in coastal and marine areas. Paper III suggests examining the potential for introducing new technologies, such as online media platforms, smartphone detection and drone technology, as a way to improve current monitoring methods and standards. The introduction and importance of using new technology is also recommended in Paper IV, where the use of smartphones as a possible strategy to capture and document user experiences is given attention. This approach has a strong development potential, especially if it can be coupled to more advanced mobile technology, such as a monitoring app. The introduction of monitoring methods built on new technology is interesting as it not only offers a more critical and experimental approaches needed to advance current monitoring practices, but also presents new opportunities for developing efficient and cost-effective monitoring methods. In addition, it also involves aspects of citizen science, as the public easily can be involved through their habits of using 'smart technology'. Both Paper III and IV show how to develop this method dimension by discussing how new technology can be used as a strategy to have participants deliver time and space specific information that can be studied.

While the introduction and use of new method strategies build on new technology has a large potential in terms of advancing current efforts on outdoor recreation monitoring, it does not mean that conventional methods are no longer needed. On the contrary, they certainly have their merits and eligibility, as demonstrated in Paper III. However, it is more to say that technology holds many new opportunities, not only in terms of how they may improve current monitoring methods or create new ones, but also in terms of how they can support or complement conventional monitoring methods. In other words, future monitoring methods need to cover both conventional monitoring methods and new technology. In fact, this thesis suggests that the more methods that are available and can be

mixed, the better chances are that monitoring efforts will improve overall. At the moment, the suggested technologies are all on a very experimental level and will require thinking outside the traditional monitoring toolbox. Furthermore, they all require important ethical considerations, especially in terms of privacy issues (i.e. sharing personal information) and as possible disturbances (i.e. noise and surveillance). More investigation into the potential of introducing new monitoring methods and technology, including thoughts on pros and cons in this regard, therefore needs attention.

7.3 Thesis contributions and implications

The three research questions and their answers are the core of the thesis focus on developing a knowledge base on outdoor recreation monitoring coastal and marine areas. In order to put this work into a larger perspective, attention will now shift to the wider academic contributions and management implications of the thesis findings.

7.3.1 Academic contributions

Academic contributions can be divided into a) theoretical, b) methodological and c) interdisciplinary contributions. The latter contains a mix of both the theoretical and methodological findings in the thesis. In terms of the theoretical and methodological contributions specifically, these are connected to the effort to further establish recreation geography as a sub-discipline within the geography discipline, as mentioned in Chapter 1. It was here described that in order to accomplish this, recreation geography must be developed both theoretically and methodologically. The thesis contributes towards this objective by giving attention to one central aspect of recreation geography, namely outdoor recreation monitoring, which has been given both a theoretical and methodological base in the thesis. The outcome of this work is the establishment of outdoor recreation monitoring not only as a practical management tool, but also as a way to work with, and thus also understand, coastal and marine areas as important settings for recreational activity.

The main theoretical contribution in this thesis involves the introduction and theorization of the 'recreational landscape' understanding described in Chapter 3. Specifically, the recreational landscape under-

standing offers a broader perspective on outdoor recreation monitoring by arguing for the importance of giving attention to the complexity and variations related to the recreational use of any given setting. More accurately put, the recreational landscape understanding works as a central argument for why recreational users and their activities need specific monitoring attention. This work includes a specific focus on the importance of studying how recreational users perceive and experience recreational settings (such as coastal and marine areas) in order to understand how these settings encompass important social values that reflect the uniqueness and variation among recreational users and their interests. Furthermore, it also includes an understanding of the fact that recreational users and their activities are part of ongoing and ever changing social processes that form and shape both physical and social landscape components. The recreational landscape understanding is best used to study and monitor, and thus also understand, these processes by giving attention to how recreational users connect with and give meaning to the landscape they choose for their recreational activities, for instance as 'special places' or through more direct human-nature encounters.

To be fully integrated into management practices, the 'recreational landscape' understanding must be further explored as well as receive a better anchoring among research scholars. An ideal strategy would be to place the 'recreational landscape' understanding as the theoretical pillar within recreation geography, where it primarily can serve as a theoretical strategy to study outdoor recreation as a broader geographically anchored phenomenon that has both environmental and social consequences. Academic work on outdoor recreation, including outdoor recreation monitoring, will thereby be given new light, including a move away from studying outdoor recreation based solely on natural science interests and principles. Indeed, academic attention will instead be given to the study of human conditions and interests as the very core of outdoor recreation. To serve this work, inspiration is already available in the form of established management frameworks, such as the aforementioned LAC framework (see Chapter 3), which gives attention to the importance of monitoring both environmental and social qualities and conditions in recreational area contexts. If this work can be accomplished, it will be a first step towards achieving an academic knowledge base on the topic of outdoor recreation monitoring from which the integration of outdoor recreation monitoring standards on a management level can begin.

If the recreational landscape understanding is the key towards working more actively with human aspects in recreation management processes, then the monitoring methods discussed in this thesis are the tools to carry out this work. In this regard, the most important methodological contribution in the thesis is the creation of an academic knowledge base on outdoor recreation monitoring, the foundation of which are the method results and experiences with outdoor recreation monitoring that are emphasized in Paper III and IV. It is important to emphasize that the application of several monitoring methods in coastal and marine areas is not new. However, what is new is the strategy to step back and reflect more critically about various monitoring methods and their applications one by one in a coastal and marine area context. By doing this work, the thesis has made the important point that successful outdoor recreation monitoring is as much about the actual monitoring methods themselves as it is about the produced monitoring results (as discussed in Chapter 5). Based on experiences reported in the thesis, failure to acknowledge this fact will influence not only how to work efficiently with outdoor recreation monitoring methods, but ultimately also the quality, and therefore also usefulness, of obtained monitoring results. The contribution of an academic knowledge base on outdoor recreation monitoring for coastal and marine areas is therefore both timely and a much needed effort.

The next step involves establishing outdoor recreation monitoring methodology as a research topic, preferably again within recreation geography, where it may serve the purpose of providing a methodological foundation from which new aspects on outdoor recreation in coastal and marine areas can be studied. An important part of this work is to continue with, as well as build on, the applied research approach formed in this thesis with a focus on bridging academic knowledge with management practices. The introduction of new monitoring methods and technology, and the opportunities that this will bring about, is a particularly interesting example and discussion in this regard, as this work not only will result in new methodological themed studies on outdoor recreation monitoring, but also will contribute with solutions to known monitoring challenges. In addition, a continued focus on the importance of including different methods traditions in the work with outdoor recreation monitoring in coastal and marine areas (and elsewhere) is also imperative. This thesis has shown the importance of giving attention to and working actively with both quantitative and qualitative based monitoring methods. This is not an easy task,

especially considering that this work requires inclusion of different research traditions and backgrounds (as discussed in Chapter 3 and 5). Nevertheless, this thesis shows good results in terms of working with a mixed-method strategy based on both quantitative and qualitative based monitoring methods. This bodes well in terms of achieving a more balanced use of the two method traditions, not only among researchers, but also for managers working with outdoor recreation monitoring.

Aside from theoretical and methodological contributions, the thesis results and experiences also have interdisciplinary merits. For example, knowledge about recreational users and their activities is equally important for natural scientists, particularly in the part of their work that relates to a larger understanding of environmental conditions for and around recreational activities (Le Berre at al. 2013). Consider, for instance, the case of anchoring damage from leisure boats where monitoring of recreational conditions is needed to understand the factors that lead to the damage. In this case, joint monitoring considerations become a requirement in order to not only understand the impact itself, but also the circumstances around the impact. The data results provided in Paper III as well as in *Appendix D* provide examples of how this type of information can be procured using a combination of monitoring methods (i.e. on-site interviews, on-site questionnaire and on-site/roaming observations). Important social science data includes detailed information on recreational behavior and spatial movements as well as information on type, intensity and location of different recreational activities. In addition, social data may also be needed to better understand why some recreational users prefer or do not prefer certain types of coastal and marine environments. In this case, the data results in Paper IV and *Appendix D* provide valuable information on user preferences via visitor produced pictures, which can be used to identify areas that are likely to see increases or decreases in recreational activities. In turn, this information can be used to study recreational user patterns and thus reveal if further studies are required or if actions need to be taken.

Interdisciplinary efforts will serve both conservation purposes as well as ensure quality recreational activities and experiences (Monz & Leung 2006). In fact, legitimacy for work with environmental protection and conservation in coastal and marine areas is directly connected to recreational use and behavior: if it can be shown that recreational users want, need, use and appreciate a certain level of en-

vironmental quality, this information can be used to defend measures of environmental protection and conservation (Blahna 2007; Eagles & Buteau-Duitschaever 2009; Le Berre at al. 2013). This emphasizes the importance of sharing knowledge between social and natural scientists, which in turn requires interdisciplinary collaboration as a prerequisite for more and better integration between environmental and recreational interests and activities in the management of coastal and marine areas (Ingle et al. 2004; Monz & Leung 2006). The foundation for interdisciplinary efforts to succeed is, however, the provision of quality data from both social and natural scientists, which emphasizes the availability of professional monitoring methods to provide this data (Hadwen et al. 2007; Hadwen et al. 2008). The potentially most important interdisciplinary contribution of this thesis therefore is the creation of a foundation for how professional outdoor recreation monitoring methods can be advanced for coastal and marine areas in order to provide quality data outcomes that can be used by both social and natural scientists for their study purposes. This work includes improving the dialogue between social and natural scientists in order to improve understanding of data needs from both disciplines.

7.3.2 Management implications

The thesis also has important implications for management work with outdoor recreation monitoring in coastal and marine areas. In this regard, several management implications were discussed at the two management workshops that were arranged as part of work task 4 (see Chapter 5). As quite a few managers attended, their shared views and opinions were of central importance to acquire. The most important implications that were discussed are:

1. Outdoor recreation monitoring as a central management focus
2. A more critical approach to outdoor recreation monitoring
3. Practical experiences with outdoor recreation monitoring
4. The importance of documentation
5. Management requirements and considerations

First, and most fundamentally, the thesis work on developing a knowledge base on outdoor recreation monitoring in coastal and marine areas works to establish the importance of working actively with outdoor recreation monitoring as part of management practices in

coastal and marine areas. As described earlier, managers have so far given little attention to this part of their responsibility with the risk that they have become unaware of important recreational conditions and qualities that need monitoring and management attention. By emphasizing this problem, the thesis has opened a debate of not only why, but also how monitoring of recreational conditions and qualities can become a central part of the management of coastal and marine areas in Sweden (and elsewhere). This includes a wider understanding of how efforts on monitoring of recreational conditions and qualities are linked to good management practices, and more importantly, to quality recreational experiences. This work has been based on a broad introduction to what outdoor recreation monitoring is about and, especially from a management point of view, an understanding of what priorities and strategies managers need to emphasize in order to accomplish a professional level in outdoor recreation monitoring. These efforts may in turn lead to better options for managers to work with coastal and marine areas as recreational landscapes, with an emphasis on acquiring a more qualified understanding of both material and immaterial landscape qualities (as discussed in Chapter 3).

Following this, the thesis also offers managers a more nuanced understanding of outdoor recreation monitoring in coastal and marine areas. For example, a common and critical misunderstanding is that outdoor recreation monitoring only has value as a control or follow-up activity (Eagles & Buteau-Duitschaever 2009; Ankre et al. 2016). Take for instance the case of monitoring numbers of recreational users. While indeed user numbers can say a lot about user volumes and concentrations, they are often used by managers with a "biocentric bias", wherein high-use areas "are defined as 'problems' rather than 'opportunities' to provide preferred experiences, constrain impacts, and protect surrounding landscapes from shifting use" (Blahna 2007, p. 105). In other words, outdoor recreation monitoring holds many more opportunities to guide management actions than to just be a control or follow-up activity, such as it is shown in Paper III and VI as well as in *Appendix D*. The thesis therefore encourages that managers re-assess their current outdoor recreation monitoring activities. Based on the results in this thesis, such an assessment may well find that time has come to upgrade or even replace current/planned monitoring activities with new monitoring ideas and procedures. The thesis offers support in this process, particularly by highlighting not only where current knowledge gaps on outdoor recreation monitoring in coastal

and marine areas exist, but also how they can be addressed. This includes a more encompassing view on the role of outdoor recreation monitoring in the management of coastal and marine areas as well as approaching the work with outdoor recreation monitoring "with the same conviction […] employed to monitor natural heritage" (Le Berre et al. 2013, p. 8).

To begin this work, the thesis offers a set of important practical experiences with outdoor recreation monitoring in coastal and marine areas. These practical experiences are part of the applied focus in the thesis, which underlined the importance of joining academic knowledge with management practices and needs. The basis for this work are the findings and discussions that are communicated in Paper III and IV, which provide an important knowledge toolbox that can be used by managers to approach the monitoring task with considerations for what outdoor recreation monitoring work entails in terms of knowledge and resource requirements as well as opportunities for development. Some of the most important practical experiences and considerations that have been discussed in the two papers include:

a. Identification of monitoring needs, purpose and relevance
b. Awareness of monitoring challenges
c. The need to work with mixed method strategies
d. The importance of both quantitative and qualitative based monitoring
e. Opportunities in introducing new technology

These practical experiences may be particularly useful when it comes to first time application of outdoor recreation monitoring methods in coastal and marine areas, where monitoring experiences or efforts are minimal or non-existing. In this case, the knowledge toolbox provided in the thesis can work either as a base or a supplement of practical experiences, depending on available knowledge and opportunities to begin work with outdoor recreation monitoring. In this regard, it does not matter if the coastal and marine areas have full-time, part-time or no management in place, or whether an area has protected or non-protected area status. As long as outdoor recreation monitoring activities are carried out, it is important that the above five practical experiences and considerations are given attention. Ideally, this knowledge should be used by managers in conjunction with current manuals and handbooks on outdoor recreation monitoring with advice

on how to set up a professional monitoring program. This, however, requires that the recommendations offered in this thesis along with the manuals/handbooks are synchronized and adapted to coastal and marine area contexts specifically.

The thesis also emphasizes the importance of documenting outdoor recreation in coastal and marine areas, particularly in order to meet political goals on better integration of outdoor recreation into current environmental and planning policies (see Chapter 1). The importance of this work can be connected to an important statement by Eagles (2007, p. 6):

> [any] *phenomenon that is not measured and reported does not exist politically. Governments, societies, communities and individuals place more value on that which is documented.*

In other words, without documentation of and knowledge about a given topic, political, and thereby also administrative, attention and support will not be achieved. Transferred to the environmental objectives for coastal and marine areas as well as current coastal and marine planning process in Sweden, this means that without proper professional documentation, outdoor recreation is likely to receive less attention and priority in these planning processes. Consequently, an important management task is to prioritize and establish strategies for professional documentation of outdoor recreation in coastal and marine areas, not only in order to support management decision-making, but also because industries, officials and administrative agencies will benefit from documentation of coastal and marine based recreation (Eagles & Buteau-Duitschaever 2009; Ericson 2014). This thesis contributes to this work by demonstrating how professional documentation can be undertaken and what it may look like. The best illustration of this are the empirical results from the four applied monitoring methods that are shown in *Appendix D*, which gives insight into the recreational use of as well as recreational conditions and trends in Kosterhavet National Park.

The emphasis in this thesis to work more actively with outdoor recreation monitoring among managers of coastal and marine areas also implies two critical requirements and one important consideration. A first requirement is that a social science capacity must be secured in order to actively and professionally work with outdoor recreation monitoring in the management of coastal and marine areas. In line

with the beginning quote by Cole in Chapter 1, Blahna and Kruger (2007, p. 5) put the problem to the forefront:

> *Here is the real question: Since recreation problems have both ecological and social dimensions, why are there not more ecologists working on recreation issues? And since all management oriented research by its very nature has a human dimension, why are not half of the scientists in all research programs social scientists?*

The described situation primarily concerns research traditions within outdoor recreation research. However, the very same problem could also be said to be the challenge on a management level: why are there not more managers with a social science education? The bottom line is that without the right social science capacity, the inevitable result will be that managers are not prepared to work professionally with outdoor recreation monitoring (Stenseke 2012). Consequently, it is important to employ staffs who have the necessary education (i.e. social science professionals) or, at the very least, make sure that managers receive equivalent education in outdoor recreation monitoring (Fish & Denny 2006).

A second requirement is that more resources and funding must to be secured in order to work with outdoor recreation monitoring in coastal and marine areas (SEPA 2012). Currently, however, this situation is challenged by a disconnect between administrative attention to and support of outdoor recreation on a national level, and the prioritization of outdoor recreation monitoring on a local level (Stenseke 2012). In addition, managers are already pressured by political and administrative demands that emphasize national goals on conservation and biodiversity above goals on outdoor recreation (Franchina & Meier 2007; Stenseke 2012). To change this situation, it is important that political and administrative action is taken towards making outdoor recreation monitoring a prioritized management task (Blahna and Kruger 2007). In Sweden, a first step in that direction would be to have SEPA, as the responsible national agency in Sweden, secure necessary resources and funding. This, however, requires that SEPA at the same time takes the lead in terms of making outdoor recreation monitoring a mandatory management procedure. A key argument should be that outdoor recreation monitoring is not just an option, but in fact a requirement, in the process towards achieving

sustainably managed coastal and marine areas in Sweden. The results in this thesis can be used to advocate for such an argument.

Finally, an important consideration concerns the feasibility of the thesis suggestions and recommendations for area managers. In other words, is it realistic that the thesis results and findings will be used? Answering this question may still be too early, but is worth asking considering the applied research focus in the thesis. For example, it may be argued that the thesis results and findings are still too 'academic' to be transferred into management practices. Even if this is the case, it is important to emphasize that managers cannot avoid paying attention to the considerations that the thesis offers, regardless of their academic nature. Moreover, indications at the two management workshops were that the thesis results and findings sparked an interest to work more actively with outdoor recreation monitoring among the attending managers. Particularly the idea of introducing new technology has received attention and may present the 'hook' that is needed to have managers work more actively with outdoor recreation monitoring. Despite these positive indicators, it may also be argued that the thesis overlooks basic management challenges, such as lack of resources and education to proceed with work on outdoor recreation monitoring. However, as discussed above, although these factors are indeed important in terms of working more actively and professionally with outdoor recreation monitoring, they are matters that primarily depend on political and administrative priorities. In this regard, it is interesting to note that work on making guidelines for monitoring of outdoor recreation in all protected areas in Sweden has recently commenced on a national level. Consequently, the thesis results and findings are both relevant and timely as they can provide managers of coastal and marine areas with a valuable knowledge toolbox on outdoor recreation monitoring that will be needed in the near future.

7.4 Research-management considerations

Finally, allow me to address one central aspect of the thesis focus on applied research as well as any future work on outdoor recreation monitoring in coastal and marine areas: the need to develop and strengthen a professional collaboration between (social science) research and area management (Blahna 2007). As emphasized both by Farnum & Kruger (2007) and Franchina & Meier (2007), the importance of

this emphasis is related to the fact that managers are facing increasing demands to base their planning and decisions on professional (read: scientific) principles. In terms of outdoor recreation monitoring, this means that both research and practice must be combined in order to proceed with professional monitoring. This thesis not only argues for this, but it can also be considered a testimony to this approach by demonstrating how research and management practices can be combined to optimize work on outdoor recreation monitoring. This process is, however, not always easy and often requires a fundamental understanding of the preconditions for establishing research-management collaboration (Hall 2004). To reflect on this, three points will shortly be addressed:

a. The role of research in recreation management
b. Research-management complications
c. Improvement of research-management relations

According to Blahna & Kruger (2007, p. 2), the role of research in recreation management should primarily be to "address management concerns like decisionmaking in situations of uncertainty, issue identification, and generation of 'case-based' knowledge". In other words, science is best in a supporting role with a focus on providing central knowledge aspects that managers need (Hall 2004; Williams 2007). Research suggestions and recommendations are often valued because they are based on a critical approach and confirmed experiences, which managers often do not possess or have available (Cole 2006; Hadwen et al. 2007). Researchers thus have the opportunity to primarily become informed collaborators that can offer managers not only knowledge, but also necessary critical skills to engage their work more professionally. The role of the managers then is to use this collaboration to take responsibility in terms of "putting reality together and producing a synthesis of knowledge relevant to the situation at hand" (Williams 2007, p. 37). Ideally, the basis for this collaboration is a better coupling between management needs and research priorities.

Achieving this scenario is, however, often difficult due to complications and differences between researchers and managers. For example, researchers are often blamed for not considering the implications of their research, at least not to the extent that is often wished for by managers. In response to this critique, researchers often complain that their advice and suggestions often are not followed up by managers

(Franchina & Meier 2007; Blahna 2007). Secondly, it is often a misunderstanding that what managers look for in research is a key to solve all their problems (Williams 2007). Sometimes they are merely looking for information that can provide them with practical solutions or tools that may assist them in their work (Blahna 2007). Third, managers often argue that while research may be valuable in terms identifying and clarifying management challenges and problems, to work with, let alone implement, research can be very complex, labor-intensive and time consuming (Franchina & Meier 2007; Hall 2004). As a result, research is often not prioritized by managers and may even be seen as a disturbance more than a help (Blahna 2007).

The situation is important to address, as it accentuates the dual problem that research does not always "address critical management problems", while at the same time "existing [research] data are not always used by managers" (Blahna 2007, p. 102). The result is what Williams (2007, p. 36) calls a "disconnect between what […] science can do for management and what managers hope to get from research". To avoid this disconnect and instead improve research-management relations, the responsibility for better use of research in management ultimately has to be placed equally between researchers and managers (Pouwels et al. 2008). In terms of researchers, an important task is to demonstrate not only how research can support problem solving, but also to communicate research in a manner that is understandable for managers (Cole 2006). This emphasizes the production and communication of research results that are not 'science heavy' (Hadwen et al. 2008), indicating a need for approachable and relevant research, including "better systems […] to transfer research-based information to recreation managers" (Farnum & Kruger 2007, p. 13).

At the same time, it is also important that managers welcome research in their management practices. Not only in terms anchoring their work professionally, but also in terms of broadening their own perspectives on topics that they have very little knowledge about (such as outdoor recreation monitoring). Consequently, an important requirement for managers is to see research not as a potential disturbance, but as an opportunity to improve the understanding and the importance of their work (Hall 2004). This does not mean that managers should expect researchers to come up with all the right answers, just as researchers cannot expect that managers follow research advices completely (Franchina & Meier 2007). It is instead an inter-dependent relationship between researchers and managers, based

on the acknowledgement that "[s]cientists need the managers to give their research more focus as much as managers need the empirical data of scientists to help them develop standards" (Pouwels et al. 2008, p. 254). In other words, the solving process is a collaboration based on continuous dialogue and learning, and with a goal to find solutions to common problems and challenges.

In terms of this thesis, the research-manager disconnect has primarily been accommodated by adapting an applied research focus, which is particularly advantageous due to its problem-oriented and problem-solving nature as well as explicit link between disciplinary traditions, research findings and management practices. Furthermore, in terms of improved researcher-management communication, the research results have been continuously presented to and discussed with the management staff, which has made it possible to clarify issues around wants and expectations from one another during the thesis process. An effort to begin this process was the arrangement of the two management workshops, which aimed to improve researcher-management collaboration and dialogue over the course of the thesis (see Chapter 5.5.4). Still, more extensive work is needed in terms of making sure that the research-management collaboration continues in the future. In the end, success depends on the willingness of both sides to collaborate, which requires both openness, dialogue and a common professional language. Ultimately, the goal is to build up what Williams (2007, p. 39) calls:

> *[…] a vibrant community of practice in which managers receive education, training, and the benefit of organizational learning through the shared practical experiences of their fellow managers. Research plays a critical role in this by developing a professional literature and a wealth of expertise that practitioners can turn to for education, training, and advice.*

The quote stands out as a reminder of an important goal, an ideal, for researchers and managers to reach and which this thesis strives towards.

7.5 Outlook

As mentioned in Chapter 3, there is a constant need to keep the knowledge base on outdoor recreation monitoring updated with new

monitoring knowledge and experiences. Indeed, it is an ongoing process that will never end. For the same reason, it is important to emphasize that this thesis only has focused on what is considered some of the most central or pressing tasks that lie ahead in terms of developing a knowledge base on outdoor recreation monitoring as well as integrating this knowledge into management practices in Swedish coastal and marine areas. Additional important and interesting aspects of in this process still need attention, but have been left for future studies outside the scope of the thesis. For example, there is a need for more comparative studies with a focus on introducing new findings and experiences from other area contexts, not only in Sweden, but also from other Nordic and international countries that are currently challenged with the same need to professionalize outdoor recreation monitoring activities in their coastal and marine areas. This will not only lead to a further expansion of the current knowledge base on the topic, but will also provide an opportunity to compare and learn from different monitoring experiences across administrative and national borders.

Furthermore, attention is also needed in terms of making a better alignment between monitoring of the biophysical environment and outdoor recreation monitoring, especially since both activities strive towards the same goal: sustaining healthy environments. This work not only entails better integration of environmental and recreational interests and activities in the management of coastal and marine areas, but also a larger focus on interdisciplinary collaboration between the natural- and social sciences. Last, but not least, an important task is the establishment of the topic of outdoor recreation monitoring not only as an important tool within area management, but also as a central research topic. This requires that the results and findings presented in this thesis are discussed not only with practitioners, but also with fellow researchers working with outdoor recreation monitoring. The result will not only be a further professionalization of outdoor recreation monitoring in coastal and marine areas, but may also transform the topic into a vibrant research field able to benefit the management of both Swedish and international coastal and marine areas.

Finally, more attention should also be given to further introduce and develop new technology into current and future monitoring practices in all outdoor recreation area contexts. In this regard, an interesting spin on the thesis is that the thesis discussion of and suggestions to the use of various technological solutions as part of the work with outdoor recreation monitoring has received widespread

acclaim among fellow researchers and managers, both in Sweden and internationally. In particular, one idea that has received attention and support at various conferences is the mobile app function mentioned in both Paper III (as a survey instrument) and Paper IV (as a tool for collecting visitor produced pictures). The idea has been developed so far that a project description has been formulated and case study areas identified in collaboration with the Centre For Learning And Teaching (CfLAT) at Auckland University of Technology[14] and the Department of Computer Science and Engineering at Chalmers University of Technology. If the project eventually will become successful, it will be a direct outcome of this thesis.

14 CfLAT was contacted during my time as a guest researcher at Auckland University of Technology in 2015.

Sammanfattning

Denna avhandling fokuserar på den roll och betydelse som besöksuppföljning har i förvaltningen av kust- och havsområden i Sverige. Detta är ett ämne som trots dess betydelse inte har ägnats någon större uppmärksamhet, varken i forskarkretsar eller bland förvaltare av kust- och havsområden. Syftet med avhandlingen är därför att utveckla en kunskapsbas gällande besöksuppföljning i kust- och havsområden, med särskilt fokus på aktuell forskning inom ämnet samt erfarenheter av besöksuppföljning och kunskapsbehov bland förvaltare. Arbetet tar sin teoretiska utgångspunkt i geografisk landskapsteori och en tillämpad forskningsansats.

Avhandlingen bidrar teoretiskt genom ett bredare perspektiv på besöksuppföljning. Konkret innebär detta att även betydelsen av friluftlivsaktiviteter och upplevelser i kust- och havsområden inkluderas och inte bara ekologiska och biologiska processer. En integrerad landskapsförståelse grundat i en kombination av geografisk landskapsteori och ett nordiskt landskapsperspektiv introduceras därför med betoning på vikten av att aktivt följa upp såväl materiella som immateriella landskapskvaliteter.

Det metodologiska bidraget i avhandlingen innebär utforskning av viktiga utmaningar, behov och möjligheter för förbättringar inom arbetet med besöksuppföljning i kust- och havsområden. För att utveckla en kunskapsbas för besöksuppföljning, tillämpas och utvärderas därför tre kvantitativa metoder (en enkätundersökning, en intervjuundersökning och en observationsundersökning) och en kvalitativ metod (en bildbaserad studie) i ett valt kust- och havsområde i Sverige: Kosterhavets nationalpark.

Resultatet visar på stora utmaningar i det praktiska arbetet med besöksuppföljning i kust- och havsområden. En central utmaning är

till exempel att uppnå representativitet i besöksuppföljningsstudier på grund av det öppna landskapet, väderförhållanden samt stor spridning av besökare som karakteriserar kust-och havsområden. Dessa resultat pekar på behovet av datatriangulering samt att det behövs mer kunskap om begränsningar av varje tillämpad uppföljningsmetod. Avhandlingen betonar också betydelsen av kunskap om upplevelseskvaliteter i kust- och havsområden; en så kallad ”upplevelse-baserad förvaltning”, som har blivit ett alltmer betydelsefullt verktyg inom förvaltning av rekreationsmiljöer. Avhandlingen föreslår därför införandet av ”visitor produced pictures” som en metodstrategi som effektivt kan ge sådan information och kunskap.

Slutligen diskuterar och föreslår avhandlingen också utveckling av nya uppföljningsmetoder och strategier baserat på ny teknologi för att effektivt ta fram besöksinformation i kust- och havsområden. Exempel på sådana metoder är online medieplattformar samt smartphone- och drönarteknologi. Införandet av ny teknologi är intressant eftersom det inte bara kan leda till nya möjligheter för att identifiera utmaningar och behov inom besöksuppföljning, utan också för att det skapar möjligheter för att utveckla effektiva uppföljningsmetoder i kust- och havsområden.

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PAPER I

PAPER II

PAPER III

PAPER IV

Appendix B – List of reviewed documents (Work Task 1)

(Complete details on the publications can be found either in the thesis reference list or in the reference lists in the papers.)

Document name (in English, my translation)	**Publisher/authors**	**Year**	**Used in**
Step 1 – Management plans			
Management plan for Kosterhavet National Park	SEPA	2009	Chapter 4
Step 2 – Monitoring manuals and handbooks			
Monitoring visitor numbers in New Zealand national parks and protected areas: a literature review and development summary	Cessford, G. & Burns, R.	2008	Chapter 1, 3 and 5 Paper II, III and IV
Options for Visitor Use Monitoring for National Marine Conservation Areas in Canada	Eagles, P.F.J. & Buteau-Duitschaever, W.	2009	Chapter 1, 3 and 5 Paper II, III and IV
Guidelines for public use measurement and reporting at parks and protected areas	Hornback, K.E. & Eagles, P.F.J.	1999	Chapter 1, 3 and 5 Paper II, III and IV
Monitoring Visitors to Natural Areas: A Manual with Standard Methodological Guidelines	Horneman, L.N., Beeton, R.J.S., & Hockings, M.	2002	Chapter 1, 3 and 5 Paper II, III and IV

Visitor monitoring in nature areas – a manual based on experiences from the Nordic and Baltic countries	Kajala, L., Almik, A., Dahl, R., Dikšaitė, L, Erkkonen, J., Fredman, P. & Wallsten, P.	2007	Chapter 1, 3 and 5 Paper II, III and IV
Visitor Monitoring Guidelines in Protected Nature Areas	(LCTA) Latvian Country Tourism Association	2012	Chapter 1, 3 and 5 Paper II, III and IV
Visitor use observation and monitoring in Mediterranean marine protected areas	Le Berre, S., Peuziat, I., Le Corre, N., & Brigand, L.	2013	Chapter 1, 3 and 5 Paper II, III and IV
Visitor studies in nature areas – a manual	Lindhagen, A. & Ahlström, I.	2005	Chapter 1, 3 and 5 Paper II, III and IV
Visitor monitoring manual	Scottish Natural Heritage	N.d.	Chapter 1, 3 and 5 Paper II, III and IV
Wilderness recreation use estimation: a handbook of methods and systems	Watson, A.E., Cole, D.N., Turner, D.L. & Reynolds, P.S.	2000	Chapter 1, 3 and 5 Paper II, III and IV
Step 3 - International research studies on outdoor recreation monitoring in coastal and marine areas			
How wild is the ocean? Assessing the intensity of anthropogenic marine activities in British Columbia, Canada	Ban, N. & Alder, J.	2008	Chapter 3.5
Congruence among encounters, norms, crowding, and management in a marine protected area	Bell, C. M., Needham, M. D., & Szuster, B. W.	2011	Chapter 3.5

Reef Tourism: An analysis of the competitiveness of the Great Barrier Reef tourism destination and a comparison with other reef tourism destinations	Coghlan, A. and Prideaux, B.	2009	Chapter 3.5
Options for Visitor Use Monitoring for National Marine Conservation Areas in Canada	Eagles, P.F.J. & Buteau-Duitschaever, W.	2009	Chapter 3.5
Visitor Management by Visitor Monitoring? Methodological Approach and Empirical Results from the Wadden Sea National Park in Schleswig-Holstein	Gätje, C., Möller, A. & Feige, M.	2002	Chapter 3.5
Crowding Norms in Marine Settings: A Case Study of Snorkeling on the Great Barrier Reef	Inglis, G.J., Johnson, V.I. & Ponte, F.	1999	Chapter 3.5
Visitor use observation and monitoring in Mediterranean marine protected areas	Le Berre, S., Peuziat, I., Le Corre, N., & Brigand, L.	2003	Chapter 3.5
Changing patterns of reef tourism	Moscardo, G., Saltzer, R., Galletly, A., Burke, A., & Hildebrandt, A.	2003	Chapter 3.5
Encounter norms, social carrying capacity indicators, and standards of quality at a marine protected area	Needham, M. D., Szuster, B. W., & Bell, C. M.	2011	Chapter 3.5
Evaluating Recreational Boating Patterns at Selected Sites in Southwest Florida for Regional Anchorage Management	Sidman. C., Antonini, G., Saures, S., Jones., G. & West, N.	2000	Chapter 3.5

A Recreational Boating Characterization for Tampa and Sarasota Bays	Sidman, C., Fik, T. & Sargent, B.	2004	Chapter 3.5
A Recreational Boating Characterization for Collier County, Florida	Sidman, C., Fik, T., Swett, R., Sargent, B., Fann, S., & Fann, D.	2009	Chapter 3.5
An analysis of visitor movement patterns in a large marine park, north-western Australia	Smallwood, C.B., Beckley, L.E. & Moore, S.A.	2012	Chapter 3.5
Assessing patterns of recreational use in large marine parks: A case study from Ningaloo Marine Park, Australia	Smallwood, C.B., Beckley, L.E., Moore, S.A. & Kobryn, H.T.	2011	Chapter 3.5
Dimensionality of scuba diver perceptions of crowding	Szuster, B. W., McClure, B., & Needham, M.	2009	Chapter 3.5
Monitoring and management of visitor flows in recreational and protected areas – a case study from Aegna Island Estonia	Tamme, T. & Rivis,	2011	Chapter 3.5
Visitor satisfaction analysis as a tool for park managers: a review and case study	Tonge, J., Moore, S.A. & Taplin, R	2011	Chapter 3.5
Everybody's happy" - Place attachment and visitors to the Ningaloo Reef, north-western Australia	Tonge, J., Moore, S.A., Beckley, L. and Ryan, M.	2010	Chapter 3.5

Using Photo-Elicitation to Explore Place Attachment in a Remote Setting	Tonge, J., Moore, S.A., Ryan, M. & Beckley, L.	2013	Chapter 3.5
The Effect of Place Attachment on Pro-environment Behavioral Intentions of Visitors to Coastal Natural Area Tourist Destinations	Tonge, J., Ryan, M., Moore, S. & Beckley, L.	2015	Chapter 3.5
Place Meaning and Attitudes Toward Impacts on Marine Environments	Wynveen, C. J.	2009	Chapter 3.5
Place meanings ascribed to marine settings: the case of the Great Barrier Reef Marine Par	Wynveen, C.J., Kyle, G.T. & Sutton, S.G.	2010	Chapter 3.5
Natural area visitors' place meaning and place attachment ascribed to a marine setting	Wynveen, C.J., Kyle, G.T. & Sutton, S.G.	2012	Chapter 3.5
Measurement of public use of marine protected areas	Vrana, K. J.	1999	Chapter 3.5

Step 4 – Nordic literature contributions on outdoor recreation monitoring in coastal and marine areas			
(see complete list of all literature contributions in the reference list in Paper 2)	-	-	Paper II
Official reports and documents examined in Paper 1			
Biosphere reserve candidate Lake Vänern Archipelago and Mount Kinnekulle	County Administrative Board of Västra Götaland	2008	Paper I
Areas of national interests – Västra Götalands län	County Administrative Board of Västra Götaland	2013	Paper I
Kinnekulle Plateau Mountain – Restoration & Conservation. An insight into the LIFE project 2002–2007	County Administrative Board of Västra Götaland	2008	Paper I
Kosterhavet National Park. Preliminary study – interim report	County Administrative Board of Västra Götaland	2005	Paper I
TOOLKIT – With recommended actions for creating a sustainable tourism destination	CREST	N.d.	Paper I

European Commission – ENVIRONMENT – LIFE program	European Union	2013	Paper I
Proposal for a Directive of the European Parliament and of the Council establishing a framework for maritime spatial planning and integrated coastal management	European Union	2013	Paper I
Natura 2000 Barometer	European Union	2014	Paper I
Kinnekulle – Kinnekulle plateau mountain – restoration and conservation	European Union	N.d	Paper I
Report from the preliminary project on 'biosphere area "Vänerskärgården with Kinnekulle"'	Götene, Lidköping, Mariestads municipalities et al.	2006	Paper I
IUCN protected areas categories system	IUCN	2013	Paper I
Sector goals for outdoor recreation and nature tourism	SEPA	1999	Paper I

Project plan for Kosterhavet National Park	SEPA	2005	Paper I
Outdoor recreation facilities – A guide for planning and management	SEPA	2007	Paper I
Management plan for Kosterhavet National Park	SEPA	2009	Paper I
Protect, preserve, present. A program to better manage and use nature protected areas 2005–2015	SEPA	2011	Paper I
Guide on monitoring of outdoor recreation in protected areas – Version 4	SEPA	2011	Paper I
Guideline for development of biosphere areas and the MAB program in Sweden	Svenska MAB-Kommittén	2005	Paper I
Marine spatial planning.	SWAM	2013	Paper I
A shared nature conservation policy	Swedish Government	2002	Paper I
Environmental quality objectives – A shared responsibility	Swedish Government	2005	Paper I

Strategic challenges - A further elaboration of the Swedish strategy for sustainable development	Swedish Government	2006	Paper I
Outdoor recreation in the future	Swedish Government	2010	Paper I
Kosterhavet – visitor study 2006	Turismens utredningsinstitut.	2006	Paper I
Biosphere reserves	UNESCO	2013	Paper I
Visions & strategies around the Baltic Sea	VASAB	2013	Paper I

Appendix C – List of contacted managers and experts

(Red = interviewed)

* = Participated in the first management workshop December 2014 (see work task 4)
** = Participated in the second management workshop April 2016 (see work task 4)

Name	Association	Country	Relation to outdoor recreation monitoring
Anita Tullrot *,**	Kosterhavet National Park	Sweden	Works with national park management
Stefan Husár *,**	Kosterhavet National Park	Sweden	Works with national park management
Anders Tysklind **	Kosterhavet National Park	Sweden	Works with national park management
Örjan Karlsson **	Kosterhavet National Park	Sweden	Works with national park management
Maria Bodin *	Kosterhavet National Park	Sweden	Works with national park management
Bertil Andersson	Kosterhavet National Park	Sweden	Works with national park management

Tomas Willdal **	Kosterhavet National Park	Sweden	Works with national park management
Lars Strandberg **	Västkuststiftelsen	Sweden	Works with outdoor recreation management
Bengt Larsson *,**	Västkuststiftelsen	Sweden	Works with outdoor recreation management
Svante Hultengren	Naturcentrum	Sweden	Works with outdoor recreation management and planning
Katrin Sjögren	Strömstad Tourist Office	Sweden	Works with coastal tourism management
Elsie Hellström	Tillväxt Norra Bohuslän	Sweden	Works with coastal tourism planning
Bengt Gustafsson	Sotenäs municipality	Sweden	Works with coastal tourism planning
Lena Tingström *	SWAM	Sweden	Works with outdoor recreation planning
Ulrika Siira **	SWAM	Sweden	Works with outdoor recreation planning
Fredrik Nordwall **	SWAM	Sweden	Works with outdoor recreation planning

Camilla Näsström **	SEPA	Sweden	Works with outdoor recreation management and monitoring
Robert Andersson **	Västra Götaland County	Sweden	Works with outdoor recreation planning
Li-Marit Hansen **	Oslo Fjord	Norway	Works with outdoor recreation management
Monika Olsen **	Ytre Hvaler	Norway	Works with outdoor recreation management
Ronny Meyer	Nøtterøy municipality	Norway	Works with outdoor recreation planning
Martti Aarnio *	Metsähallitus	Finland	Works with outdoor recreation planning
Marjo Neuvonen *	Finnish Forest Research Institute	Finland	Works with outdoor recreation planning

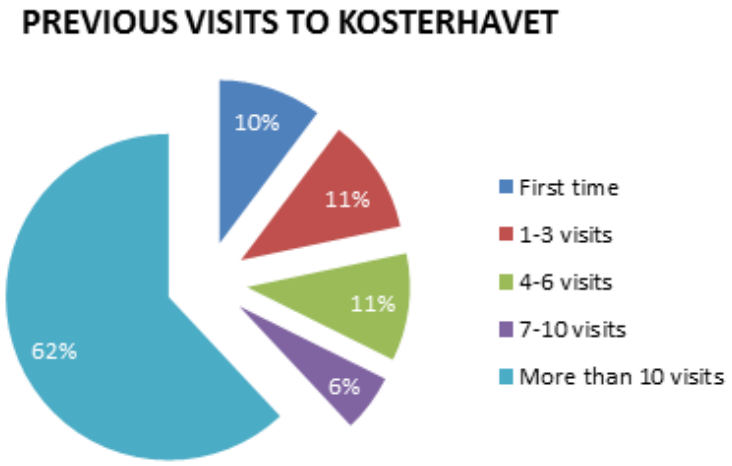
Appendix D –
Selected empirical results from the two field studies

As emphasized in Chapter 5, the empirical data outcomes from the two field studies in Kosterhavet National Park have not received much attention throughout the thesis, including the papers (particularly Paper III). Consequently, this appendix contains selected empirical results in the form of either descriptive statistics (from the on-site interview survey, the on-site questionnaire survey and the on-site and roaming observations) or picture narratives (from the visitor produced pictures strategy). The appendix will present short data descriptions as well as comments on the usefulness of the data in terms of management activities. As also stated in Chapter 5, the display of the empirical results from the two field studies illustrates the benefit of systematically collecting data on recreational users and their activities, and thereby shows how this work is a much better option compared with judgments and guesses based on casual efforts and personal experiences only. In this regard, it is important to emphasize that although the data outcomes have not received much attention in the thesis, they may very well receive more attention in a future paper.

Examples of descriptive statistics from the on-site interview survey (n = 101)

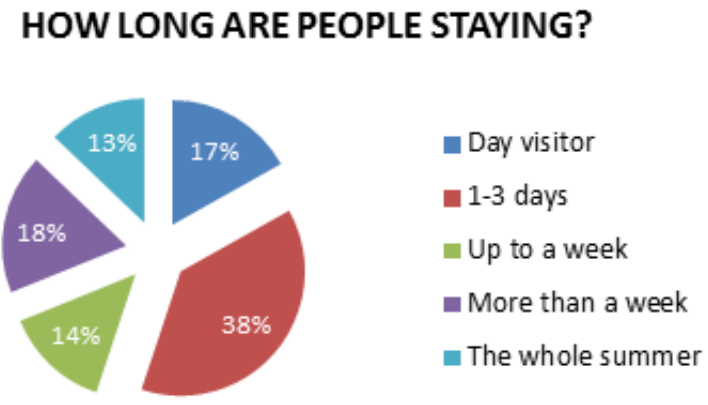
Previous visits to Kosterhavet

Most interviewees have visited Kosterhavet more than 10 times. This is especially the case for boaters and second home owners, as these two visitor groups are the ones to most frequently return to Kosterhavet (i.e. because of boating traditions or because many of the interviewees own a second home). Compared to the frequent visitors, there are relatively fewer first time visitors or visitors who have only been in Kosterhavet 1-3 times among the interviewees, as more than ¾ have been to Kosterhavet more than 4 times. Most first time or less frequent visitors are day visitors. From a management point of view, this is important information as frequent and less frequent visitors likely have different expectations to and opinions about the area. Hence, these differences need attention in terms of planning the area to live up to these different expectations and opinions.



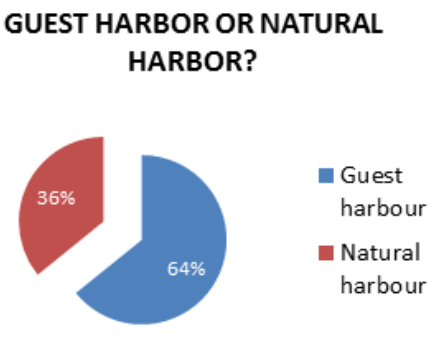
How long are people staying?

Most of the interviewees stay only 1-3 days or up to a week (~52%), which is not surprising, especially among the interviewed boaters who often stay for a few days only before moving on to new destinations along the Swedish and Norwegian coast. Little less than 1/3 (~31%) stay for more than a week or the whole summer, which is mainly characteristic for second home users (both owners and renters). Finally, there are quite a few day visitors also (17%), mainly visiting popular locations (beaches) along the main land coast or on the two Koster islands. With this knowledge, managers can plan and manage better for both short- and long term visitors respectively, i.e. who they are, where they go and what they do in Kosterhavet.



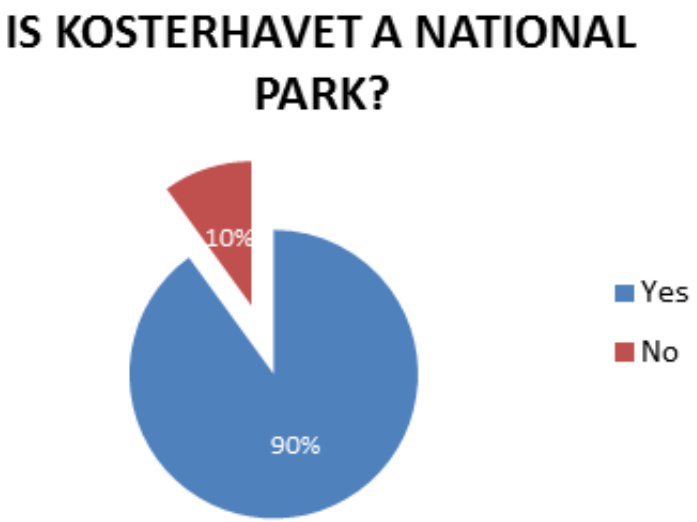
Guest harbor or natural harbor? (- among the interviewed boaters)

Most of the interviewed boaters prefer guest harbors above natural harbors. This can be explained by the fact that the majority of the interviewed boaters were parents with small children, who often need the available facilities in the guest harbors, or elder people, who often state that they prefer the comfort of the guest harbor. Finally, the choice also depends on the weather situation as guest harbors is needed for shelter or to do practical activities, such as shopping or fixing the boat. In contrast, natural harbors are preferred for reasons such as finding peace, quiet and even isolation. For managers, this is important information as it they can use it to acquire a better understanding of movement and preferences among boaters.



Is Kosterhavet a national park?

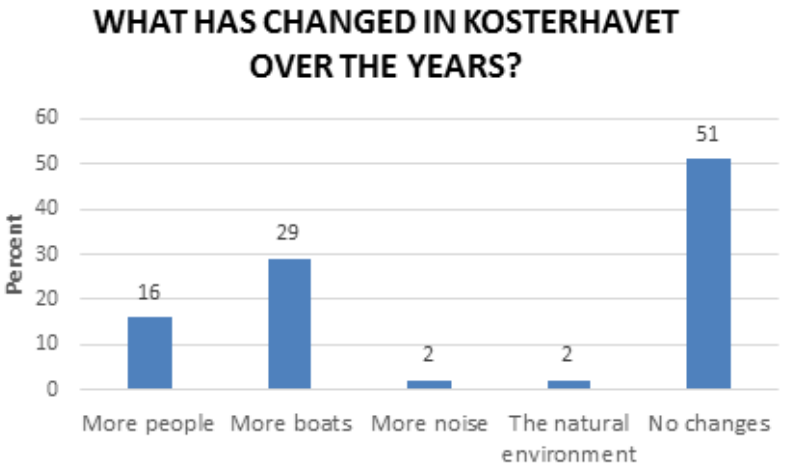
It was interesting to also ask people if they actually know that Kosterhavet has been designated as a national park and thereby test if information about the national park reaches people in the area, either in the form of online sources, tourist material, information boards in the area or through other means of information, such as on navigational charts on boats. To this question, most people answered that they know that the area is a national park. For managers, this is important information as they can then confirm that the promotion of the national park has been successful, especially considering that the national park is still relatively young. Furthermore, it also gives managers a foundation to communicate more specific awareness of the national park goals and purpose among visitors.



What has changed in Kosterhavet over the years?

As Kosterhavet has many returning visitors, it was interesting to ask if people had experienced any changes in Kosterhavet over the years, both in regards to general changes as well as experienced problems or disturbances. To this, most of the interviewees answered that Kosterhavet has not changed much throughout the years. But among the things that actually have changed, the interviewees pointed out that

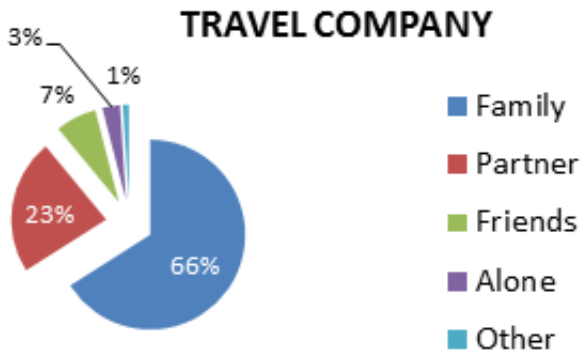
more people and more boats have arrived throughout the years, while problems such as noise have increased slightly. Some also mentioned that the condition of the natural environment has changed, e.g. lack of fish, overgrown beaches, etc. These observed changes are important for managers to be aware of as they can see what issues or challenges that may require special attention.



Examples of descriptive statistics from the on-site questionnaire survey (n = 513)

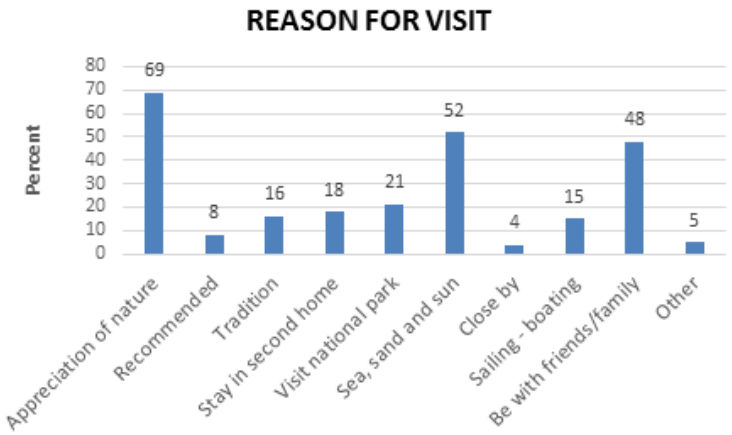
Travel company

Results from the questionnaire survey show that most people travel with family (66%), followed by partner (23%), friends (7%), alone (4%) and Other (1%). An interesting note from the interviews on travel groups is that people often travel with more than just one group (e.g. family AND partner, or family AND friends). From a management point of view, this information can be helpful to establish what social groups that visit Kosterhavet. For instance, the results clearly show that Kosterhavet is a popular family destination, which is also visible in the promotion of the national park.



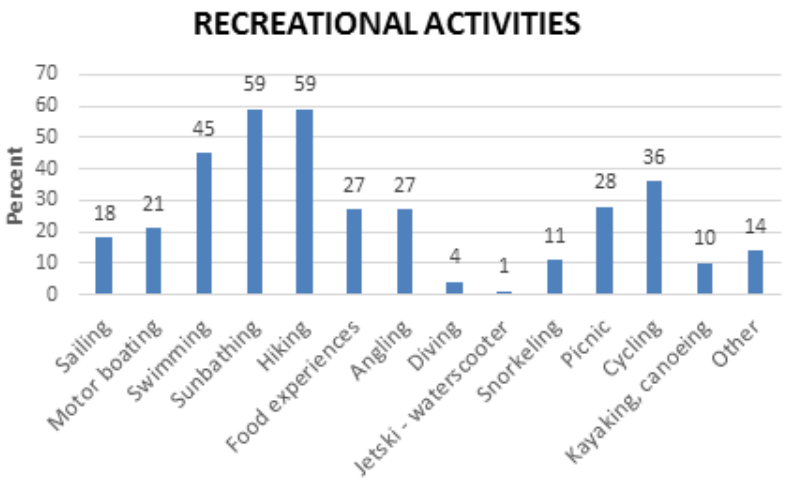
Reason for visit (multiple choice)

The most important reason for visiting Kosterhavet is appreciation of nature (69%), followed by sea, sand and sun (52%) and be with friends and family (48%). Hereafter comes reasons such as visit the national park (21%), stay in second home (18%), tradition (15%) and sailing/ boating (15%). Few state that their reason is because Kosterhavet was recommended to them (8%), or because Kosterhavet is close by (4%), while only 5% have Other reasons for visiting Kosterhavet (e.g. picking berries, camping, food experiences, work and attend festival). Managers need this information, as it feeds back to how the area can be planned and management to accommodate people's motivation for coming. For example, it is important to conclude that appreciation of nature is preferred by almost ¾ of the participants, which therefore supports the park goal to offer quality experiences of the natural environment.



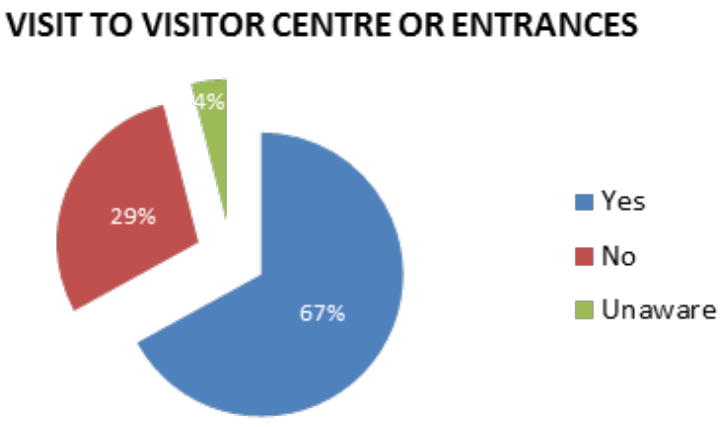
Recreational activities (multiple choice)

The three most popular activities are sunbathing (59%), hiking (59%) and swimming (45%) followed by cycling (36%), picnicking (28%), angling (27%), gastronomy (27%), motor boating (21%) and sailing (18%). Less popular activities are snorkelling (11%), kayaking (10%), diving (4%) and water scooter (1%). The category Other (14%) include enjoyment of landscape, fishing crabs, fix house, guided tours, seal safari, exercise, geocaching and stand-up-paddling. What people do in the national park is of course important information for managers. For example, it is interesting that cycling ranks so high, while motor boating and sailing ranks lower. Furthermore, it is clear that the first four activities are all 'active' activities and related to some kind of appreciation or use of the physical environment, while activity no. 5 (picnicking) is a more socializing activity.



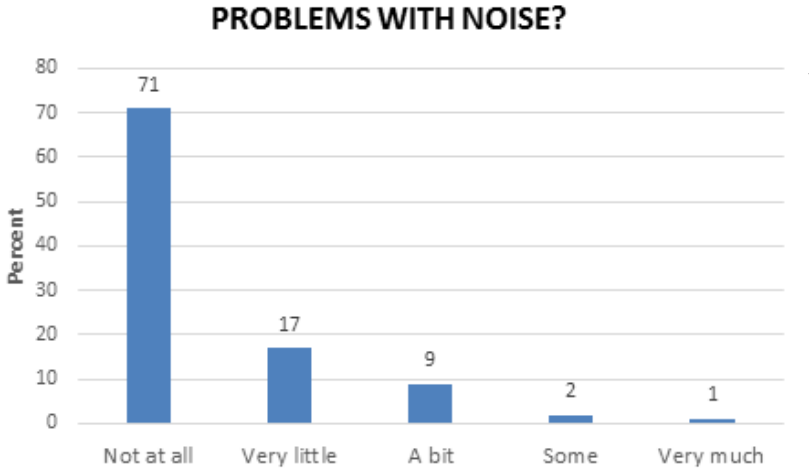
Visit to visitor centre or entrances

Nearly ¾ (67%) of the participants stated that they had visited the park's visitor centre or one of the national park entrances, while almost 1/3 (29%) did not visit any of them at all. 4% answered that they were unaware of the visitor centre and the entrances. It is interesting to note that while most participants in the survey (and in the interviews) know that the area is a national park, there are still quite a few that have not been to the visitor centre or any of the entrances. From these results, it can therefore be concluded that the national park management still needs to put efforts into promoting and informing about the visitor centre and the national park entrances as part of the overall park experience.



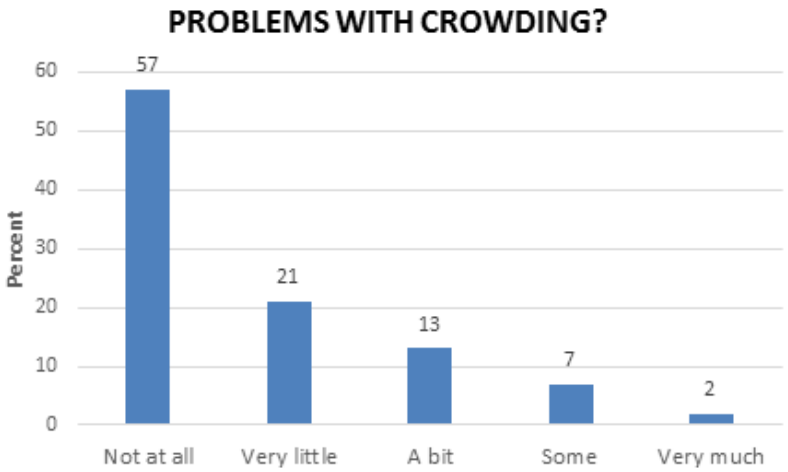
Problem with noise

Almost ¾ (71%) of the participants answered that they have not experienced problems with noise, while 17% answered very little only and 9% answered a bit. From these results, it seems that noise does not seem to be a large problem in Kosterhavet, which is also confirmed by participants in the interviews. However, noise was experienced quite a few times during observations, especially along the coast and busy guest harbors (i.e. Resö, Rossö and Strömstad), where it was noticed to be more of an issue. But in the archipelago and on Koster, noise was



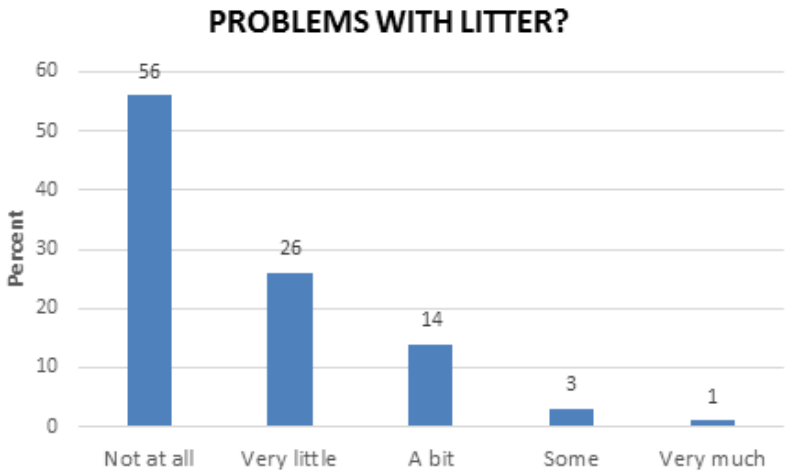
Problems with crowding

Little more than half of the participants (57%) answered that they did not experience crowding as an issue, while 21% experienced it very little to be a problem and 13 % experienced it a bit. Only 7% consider crowding to be somewhat a problem. Compared to noise, crowding therefore seems more of an issue, but still not on an alarming level. In the interviews, crowding was not mentioned directly to be of an issue either, although many of the interviewees had experienced more boats and people coming to Kosterhavet through the years, thus indicating that more people also increase the risk of crowding. For managers, this information is again important, as crowding alike to the problem of noise often can affect the quality of the user experience. Therefore, by again knowing the scale of crowding, and where it takes place, managers can take appropriate action.



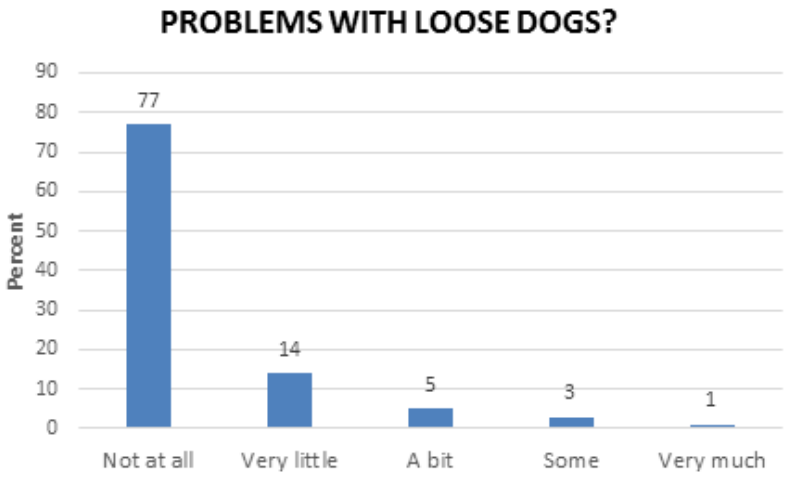
Problems with litter

Little more than half of the participants (56%) did not consider litter to be a problem, while 26% have experienced it very little to be a problem and around 14% experienced it a bit. Only 3% of the participants consider litter somewhat a problem. These results are thus much alike to the experience of crowding, except that less people are bothered by litter than crowding. As such, litter does not seem to be very much of a problem in Kosterhavet. The results are a bit different compared with the interviews, as many interviewees mentioned litter to be a particular problem in guest harbors and on popular beaches, where there are more people and more activities. Again, therefore, it is important for managers to know the scale and location of the problem, as litter alike to the problems with noise and crowding often has a negative effect on the user experience.



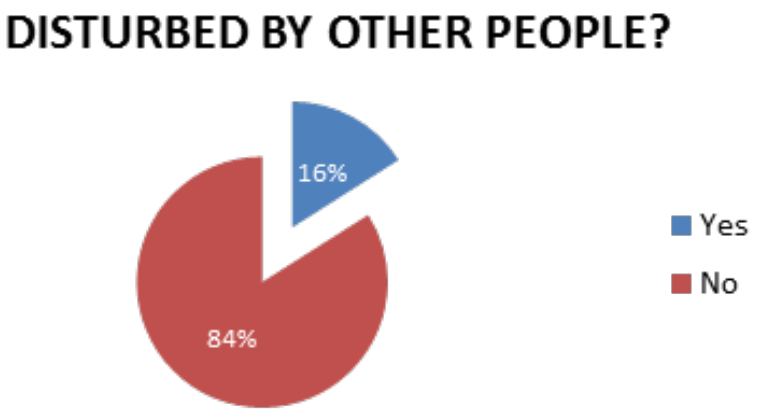
Problems with loose dogs

More than three-fourth of the participants (77%) did not find loose dogs to be a problem in Kosterhavet, while 14% considered it a very little problem. Only 6% stated it to be a bit of a problem and 3% somewhat a problem. Compared with the interviews, the result is the same, as participants in the interviews did not emphasize many issues with loose dogs. Loose dogs then do not seem to be a big issue in Kosterhavet, but it is important to confirm that the problem exists and that people have experienced it. From a management point of view, this means that more information is perhaps needed to inform people about the rule to have dogs on a leash, or at least be better to follow up on the rule, even if information signs have been placed throughout the national park. If the problem persists, it still requires attention and observant visitors can be a good parameter to measure this.



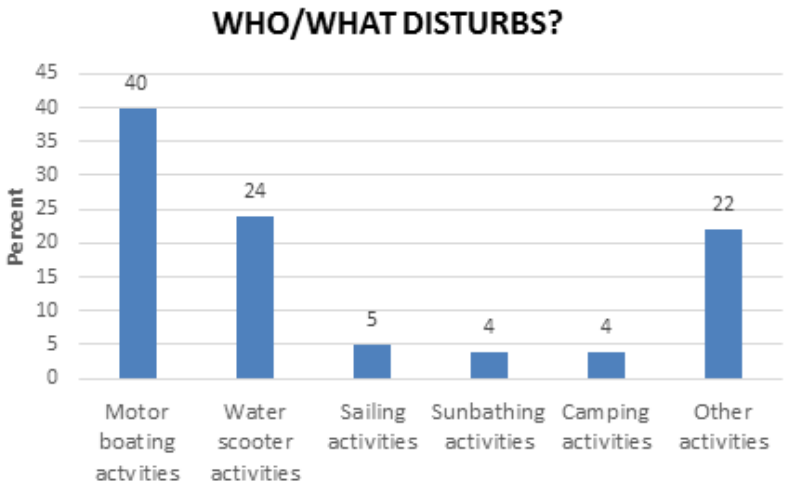
Disturbed by other people?

Most participants (84%) did not experience any problems or disturbances with other people or activities during their stay in Kosterhavet, while 16% did. The majority thus consider Kosterhavet a rather peaceful place, where people do not bother or disturb one another. This can perhaps be explained by the presence of high numbers of families and older people. Yet, the fact that 16% did experience problems or disturbances with other people or activities still requires management attention. Efforts must therefore be made to understand the nature and circumstances of these problems and disturbances in order to locate and minimize them.



Who/what disturbs? (multiple choice)

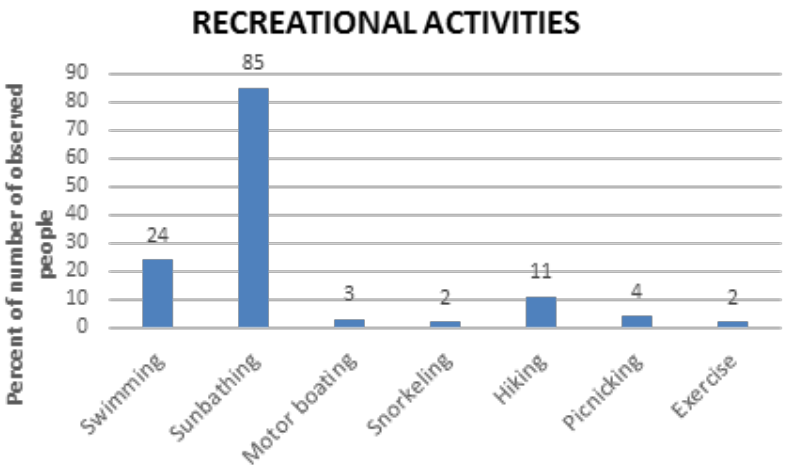
The two dominating disturbances reported by the participants were motor boating activities (e.g. noise and speeding) with (40%) and water scooter activities (e.g. noise, speeding and unsafe driving) with (24%). On a much lower scale are sailing activities (5%), sunbathing activities (4%) and camping activities (4%). Lastly, disturbances from Other activities (22%) were also mentioned, e.g. loud activities, low flying aircrafts, ATVs and mopeds, cyclists and drunk people. From these results, it can be concluded that motorized activities both at sea and on land is what causes the most disturbance to other visitors, primarily in the form of noise, speeding, and unsafe boating/driving, which were also confirmed in the observations. Again, this information is important for managers as they can proceed to take actions that minimize the disturbances, particular the ones caused by motorized activities.



Examples of results from the on-site and roaming observations (n = 18)

Recreational activities (on-site locations)

A top-7 of the most observed activities at all the visited on-site locations was made. Results show that the top activity was sunbathing followed by swimming and hiking, which somewhat match the results from the questionnaire survey. The difference in percentage can be explained by the location and time of the observations (e.g. popular beaches, usually during day time). Picnic and motor boat (smaller motorboats) activities were also observed, although less frequent than in the questionnaire. Notable is that exercise and snorkelling activities were observed more frequently in the observations. In the end, the on-site observations gave a more nuanced, and at times more precise, idea of the questionnaire results, such as when analysing activities at different popular locations. This way, the on-site observations were an important support tool.



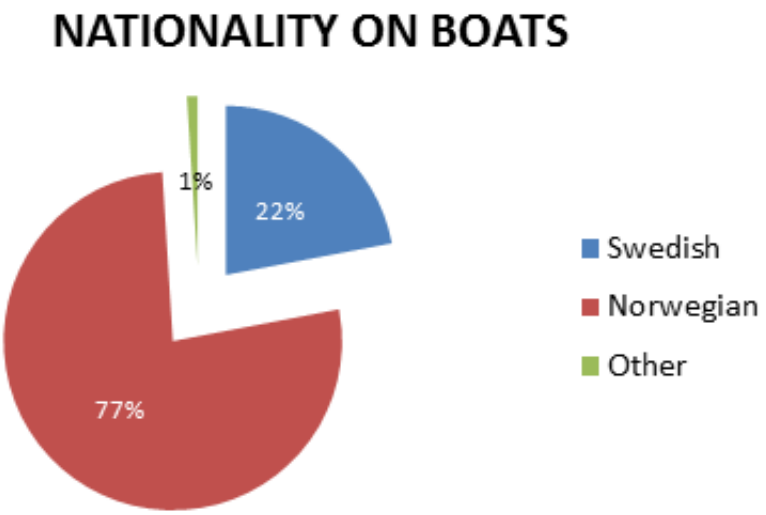
Observed disturbances (on-site locations)

The four main disturbances from the questionnaire survey were also given attention during the on-site observations. Noise was the most common disturbance, mostly caused by motorized activities as well as low flying planes and helicopters. Litter was also present at most observed locations, particularly at popular beaches and guest harbors. Crowding and loose dogs were not observed very often, except at the two most popular beaches in the park. In addition, the on-site observations also confirmed the presence of other disturbances mentioned only briefly in the questionnaire, for example conflicts between motorized activities and 'softer' beach activities such as swimming, kayaking or snorkelling (see picture below).

Potential conflicts: swimming, snorkelling, kayaking and motor boating in the same small beach

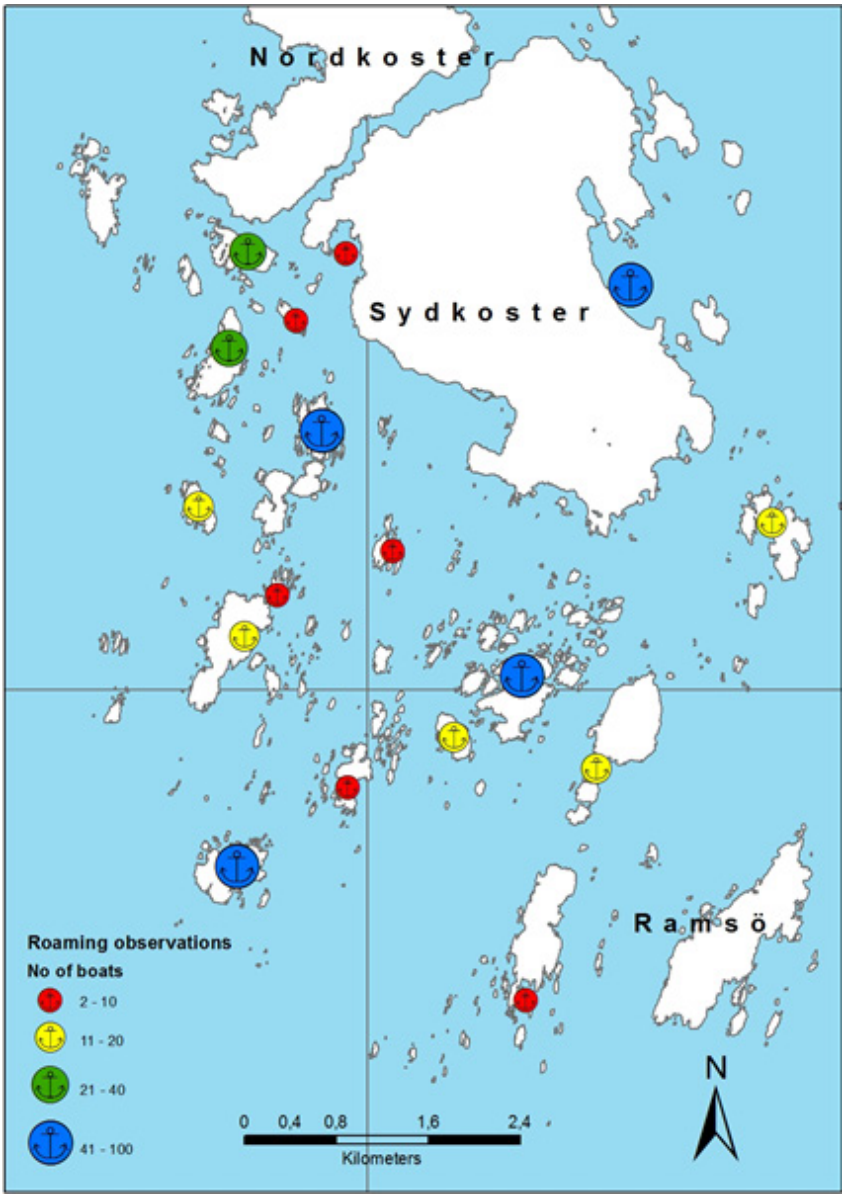
Most frequent nationality on boats (roaming observations)

Nationalities on boats were mainly observed during the roaming observations when visiting either guest harbor locations or moving around in the archipelago to observe natural harbors. From these observations, there is a clear trend that boats that sail under Norwegian flag are the majority (77%), while boats that sail under Swedish flag only number up to around 22%. Other observed nationalities mainly include boats sailing under German, Danish or Dutch flag, although these do not come close to the high numbers of Norwegian and Swedish boats. The results are interesting as they show the popularity of Kosterhavet for Norwegian boaters. In fact, in many places the combined number of Swedish boats and boats under other nationalities does not even add up to half as many as the Norwegian boats. Managers need to take this into account, especially when dealing with differences in boating mentality and behavior.



Concentrations of boats in natural harbors (roaming observations)

Larger motor boats and sailboats in natural harbors where counted during the roaming observations, which mostly took place around the smaller islands in the Koster archipelago. Counts were done throughout the summer on random days with different weather situations. The results show the total number and location of larger boats in the archipelago from seven roaming observation tours. Both popular and less popular natural harbors are thus easily identified, while it also gives a general impression of how actively the archipelago is used. This information is important to managers as they with this knowledge can begin to assess user intensity levels at each site, including forecasting future user numbers. In turn, this knowledge can be used to examine potential physical impacts from recreational activities as well as user related conflicts (e.g. noise and crowding). The results could be made even more accurate by looking at results from aerial photos, which could also pin point concentrations of boats in the archipelago. A combination of the two methods would therefore work ideally, although roaming observations is the most cost-effective solution of the two. Furthermore, compared with aerial photos, roaming observations can reveal more details about visitor activities and behavior at the actual location.


Nordkoster
Sydkoster
Ramsö
Roaming observations
No of boats
2 - 10
11 - 20
21 - 40
41 - 100
0 0,4 0,8 1,6 2,4
Kilometers
N

Examples of results from the visitor produced pictures strategy

Some of the empirical results from the visitor produced pictures strategy have already been presented and discussed in Paper 4 (i.e. the pictures that have been included in the paper). Consequently, this part of Appendix D will focus more on empirical results that were also important, but not included or emphasized much in Paper 4: namely the actual participant narratives that were given during the interviews. In the following, the six categories of experience qualities identified in Paper 4 will therefore be described again, but now with an even stronger anchoring in the participant narratives, including a few more pictures for each experience category. From a management point of view, the detailed and combined knowledge from the narratives and pictures is essential in terms of acquiring a qualified understanding of experience qualities in Kosterhavet.

<u>The natural environment</u>

The natural environment refers to the physical surroundings in Kosterhavet. This includes everything from the rocks, cliffs and sandy beaches, to the marine environment, the water and the waves. Often, it is the untouched, pristine landscape that is in focus in the participant narratives:

> *…you feel the changes in nature in a very special way when you are at the sea and the coast. You are here on nature's terms much more when you sit inland or in an urban environment… the untouched and the always changing landscape, with the light and the weather… that's a thing that I find special about the sea. It's a rest for body and spirit… (Permanent resident)*

For others, the coastal and marine landscape is simply fascinating, as it contains both scenery and wildlife not found elsewhere. In Kosterhavet, for example, the opportunity to spot seals or birds is often pointed out as a factor that draws people:

> *Suddenly a seal just came up and actually watched us in the kayak… and that's the idea. I think that here in the national park, here in Koster or other parks, nature is watching us. We are trying*

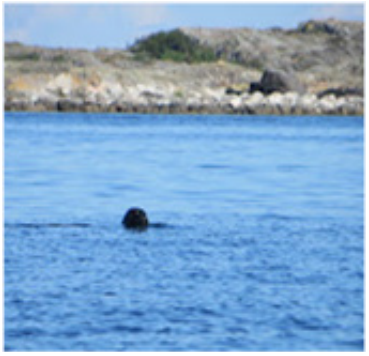
to watch nature, but nature is watching us. That is so cool! The seal was really observing everything… (Kayaker)

Contrasts found in coastal and marine landscapes are also often described, such as the meeting between the land and sea. For some, these contrasts can lead to deeper thoughts about contrasts as a fundamental phenomenon not only in nature, but for all living things, including human beings:

…you see the rocks and the meeting between the sea and the sky… the sun and the earth… the rocks and the water… […] powerful is the sea which can be a bit of both… it can be as a wild creature and it can be like a soft, laughing, velvet sunset… it contains both, sort of like competing powers. And the same with the land and people… (Permanent resident)

Bird life in Kosterhavet

Clear water



Spotting seals

Rocks like lava

Kosterhavet can even be an exotic place to experience. In fact, many participants describe how Kosterhavet seems like a different world, a different time, where nature has been left to fend for its own and works according to its own speed. For some participants, this is a place completely different from the urban environment they are used to, a place of wonder and natural grace:

> *Im always surprised at how exotic it is when I get here… no matter how many other exotic places Ive been to, when I cross the Koster strait, I experience how exotic it is… and being exotic it is also an fantastic experience… I feel privileged to be able to be here [at] the open sea and the floating islands… and the weather as it can be very markedly and exposed… when you come from the city you always have to respect the weather here, and which also greatly affects the experiences… in the city you are always protected from reality in a way… (Secondary home owner)*

Social situations

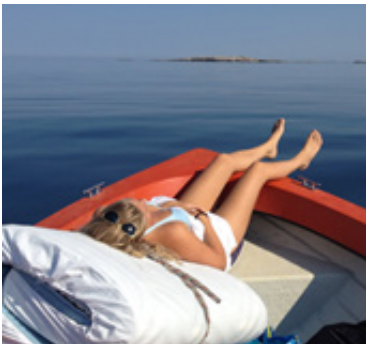
Social situations describe the time and situations spend with family and friends when visiting Kosterhavet and which often symbolizes feelings of closeness and intimacy and the opportunity to engage in activities together. Being a popular family destination, the family is often emphasized as the social core which frames and forms the experiences in Kosterhavet:

> *…that's the anchor somehow… it's the family, that's the core… everyone are happy and having a good time…it is important to be around each other when you are here. It is not important what you do, as long as you do it together. What is a good summer? To have time to be around each other and that you have the time to do so… (Permanent resident)*

For many participants, Kosterhavet is a tradition to return to with the family, particularly among second home owners where the house has been in the hands of the family for generations. The house becomes a symbol for social time with the family and which everyone returns to, old and young, throughout the year:

…this is a picture of generations… that's my mother and my grandchild… four generations… its fantastic that you have a chance to be together… its really great… and we all stay at the same summerhouse and enjoy it together for a while… everyone wants to come to Tjärnö during summer… […] it's a leisure house and can be used also in the winter… we build the house in 1967 and I have been here every summer since then and each X-mas and Easter… (Second home owner)

At the beach with the family



Relaxing time together

Packed and ready

Holiday friends

Kosterhavet also offers a place to meet and socialize with acquaintances from near and far and where new friends can be made. Many of the children have 'holiday friends', i.e. friends that are only met during the holiday time in Kosterhavet:

…we often meet people with the same age when we are out sailing and these two girls are good friends with our girls… and also a reason to get them to come along… they can meet and be social,

and not just us as a family. It is a vacation tradition and we often meet other places also… (Sail boater)

An important part of the participant's experiences in coastal and marine areas is to have a simple and pleasant time together with friends or family, including passing on the importance of valuing 'nature' to the next generation:

here is the family when we are on the way back… the family is really satisfied and happy and on the way home, all packed up… its about the kids learning about what is out there and that you have to value it… (Day visitor)

The cultural environment

The cultural environment mainly encompasses the island settlements in and around Kosterhavet. Participants often emphasize the opportunity to experience a place and a time that is long forgotten, but which is still present on and around the Koster islands. This includes everything from the local people and their 'old' way of living to the old harbors and the special atmosphere that is found there:

…the first picture I took I think symbolizes the archipelago… typical archipelago and the harbor shacks, fish nets and all the buoys […] the picture symbolizes what I think an archipelago is like with the harbor shacks and fishing gear…(Day visitor)

Another important cultural heritage often described in the narratives is the old fishing traditions that can still be seen and experienced. Many participants describe how it would not be the same if they were not there. Associated with this is also the experience of fresh seafood:

…it is very important that the sea is still left as part of the islands in the form of fishing activities and as a reminder that we eat the food. It is partly about the fish as food and the need to see where fish come from… it is very important that there are still fishing boats left here... it would be really sad if they disappeared… (Secondary home owner)

Evening atmosphere

Old boat house and pier

Fresh sea food

Local art and café

The cultural environment also provides a frame around unique experiences of how life on the islands changes depending on the location and time of day. For example, sometimes the harbor atmosphere is best experienced in the evening time when things quiet down after a busy day with many visitors:

> *… this is from Korshamn around 21-22 in the evening… it was totally quiet and even though it's a guest harbor, there are not many tourists but is more a place for local people and their boats. But very quiet and a very nice evening light… so I just wanted to capture this when there were no one around, no activity… the boats were quiet and water was quiet (Motor boater)*

Another important experience that many of the participants emphasize concerns 'special places', which indicates a sense of belonging or returning to a place of importance. For example, participants who have grown up by the sea, or have special memories and experiences

from coastal and marine areas, the experience of the coastal and marine landscape it is like walking into a childhood memory:

> *…it is also about how it was when you were a child yourself, because things were simpler then compared to life as it is now… so getting here is like coming back to a landscape you have seen before. (Motor boater)*

Recreational activities

Recreational activities are often emphasized in the narratives to be one of the main reasons why Kosterhavet is chosen as a destination. These include typical coastal and marine based recreational activities that make use of the coastal and marine environment to acquire often unique experiences. Many times, activities in Kosterhavet described by the participants are often contrasted with daily activities at home:

> *…we have two young people with us and we know a lot of young people who use an awful lot of time in front of the pc. But then you spend two weeks on vacation which more or less consists of diving, swimming and snorkeling, and go for walks and experience nature and the landscape, and read and play cards... (Sail boater)*

Sailing is always popular

Catching evening dinner

Navigating the islands

Snorkeling adventure

An often described activity is going out to fish, either by the shore or from a boat. The experience of 'catching your own dinner ' is often described as a unique activity and experience, especially for those not familiar with the procedure:

> *…on the second day, we tried to fish for the second time and then we got a fish and then we had to kill it, but we couldn't do that, so there came another person who killed it while I was holding it and therefore I got a lot of blood on the hand. And then I thought that I have to take a picture of this to document it. To show that we caught fish… (Camper)*

For some participants, the recreational activities they do can also lead to close encounters with nature. Kayaking is emphasized as an activity that particularly allows nature to be observed and experienced first-hand:

> *…it is very easy here because in the kayak we have the opportunity to be close to everything because we are just in the sea. We can see the birds, we can see the rocks, and we can see the fish and the seals and everything. It is as if we become part of nature. I think we are very privileged here… (Kayaker)*

Many participants also describe recreational activities in Kosterhavet as activities that will bring about excitement and joy and the feeling of challenging oneself. For some, the engagement in more thrilling activities and getting an 'adrenalin kick' is what it is all about:

…here we are out on wake board behind our boat and my brother tries to do a jump… its something we do quite often here at the sea and is one of the things that I like to do the most by the sea and its really great fun… and difficult also… and there are many people who do it, so the picture kind of show what you can do here. The feelings are that it is very fun and exciting… a bit of an adrenalin kick… (Permanent resident)

Emotional reactions

All participants describe the often powerful emotional reactions they have when arriving to or stay in Kosterhavet. These reactions can be anything from watching a perfect sunrise to being with friends and family. For some participants, it is the grandeur of the natural landscape itself that can result in an emotional reaction, almost bordering a religious feeling of closeness to nature:

I am not a religious person in any of the established religions, but here I become religious, nature religious… I almost cry when I get here, it is really fantastic… I'm very touched… it is really powerful... (Sail boater)

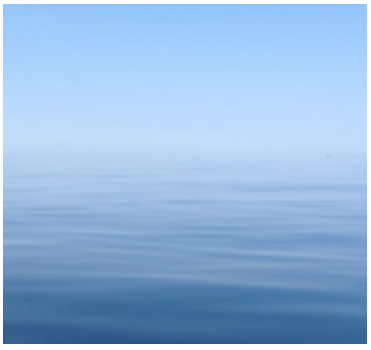
The coast and the sea is also described as a border between the 'here and now' and being in a place outside the world. For some people, this can be a very powerful motivation: to cross that border and escape from daily cares while looking forward to yet another summer:

...when its autumn or winter you think back to the time on Måskär or down at the beach and the time spend there… so its an important aspect of being able to go through the rest of the year also, especially when its dark and cold outside… then you know that its coming when summer approaches… (Permanent resident)

Other participants describe their emotional reactions more as a process or experience in the making, taking place in the moment when they are out and about in Kosterhavet. There are often no expectations involved, but the just the feeling of being present in unfamiliar surroundings:

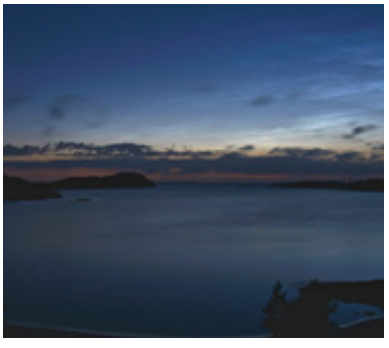
[…] this was the silence, the lovely, shadowy pine forest… the birds singing, it was a really nice way to walk, it was so beautiful [with]

a lot of contrasts from the lovely shadow to this low light… and then you come out [to the beach] and it just opens… its almost like you hurt your eyes when you get to the beach with the shining surface of the sea… (Day visitor)



The calm of the sea

Meeting the sea



Night sky

Together forever

A very common theme in all the narratives is the feeling of freedom that is often experienced when being at the coast or out at sea. Especially the boaters emphasize the freedom of movement and the joy of going from place to place, from experience to experience:

The feeling of freedom… I had a dream of getting a sailboat when I grew up… I had a hut by a lake, but that never changed, the lake and the bay was always the same… so I dreamed about the boat where you could feel that freedom and to be able to move on to different places… so the first time I was on the boat and saw the special landscape here, then it gave an enormous feeling of freedom… it is the 'hut' with the best view in the world, because it always changes according to what you want… (Sail boater)

Disturbing factors

Disturbing factors are negative experiences and problems such as noise, litter, crowding, and particularly for Kosterhavet; loose dogs. The most frequently reported disturbance among the participants, however, comes from motorized activities (e.g. motor boat and water scooter activities), which often result in problems with noise and speeding:

> *…but I cannot understand why you come here to do this. Its nature reserve, its something protected. So maybe if you just want to go speeding with your boat, then you should do it somewhere else. And I think that here in the region there must be other places to do this… (Kayaker)*

Another problem relates to disturbance of the natural environment. For example, it is forbidden to remove or otherwise interfere with the natural environment in the national park. However, not everybody respects this rule:

> *…the reason this picture was taken, was because last year we also had a group of kids out here, who carried up seaweed and moved stones around and such… it looked terrible afterwards… then we got them to stop because we explained to them that there are small fish living here, or that small fish are hatching here. So, at least they stopped it back then… (Camper)*

Disposable BBQ on the beach

Old sewage pipe

Dog shit everywhere

Noise from motorized activities

The problem with loose dogs is an issue that also needs closer attention in Kosterhavet. Many of the narratives concerning loose dogs often point to the fear of meeting these dogs and the negligence of the owners:

> *…there is a loose dog, actually two dogs… the lady does not care, so I went back and took a picture from behind… she always does it, she is very nice, but she is a complete idiot when it comes to animals. Her bulldogs always attack, so I usually use the small track down to Familieviken because I don't want to meet it. (Motor boater)*

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