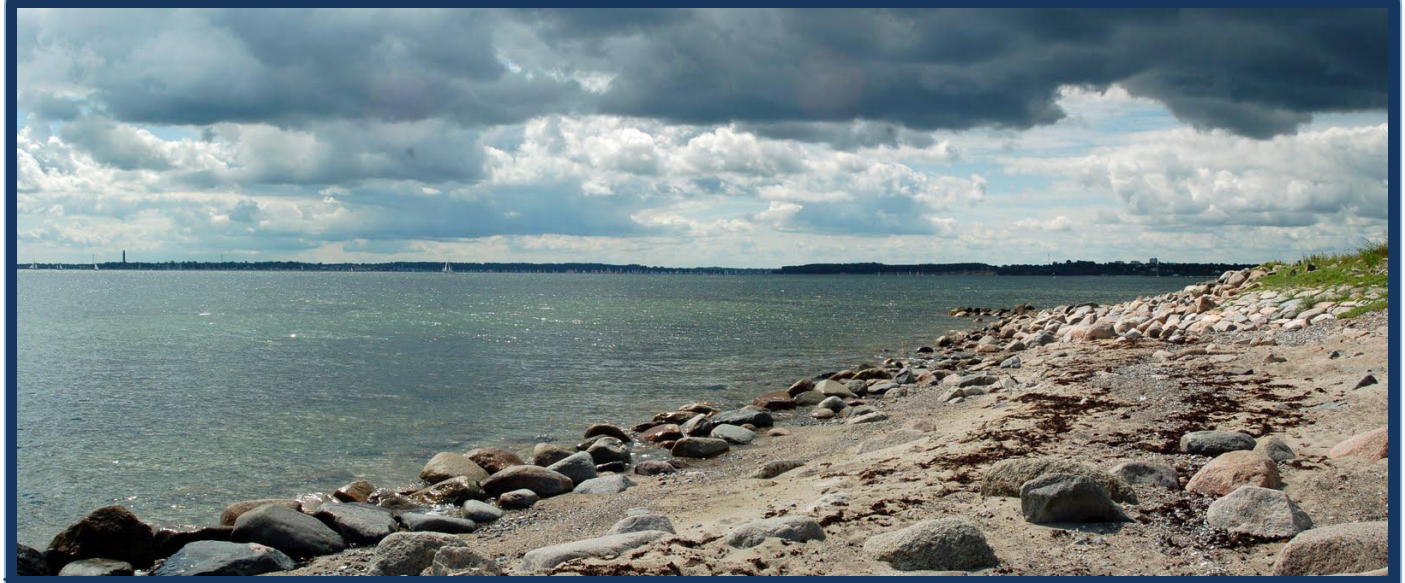

How does Integrative Nature Conservation Accommodate to Coastal Socio-Ecological Systems and their Governance?

Interactions, Synergies and Contested Uses in the Western Baltic Sea

Carla Kuhmann

November 2013

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Carla Kuhmann

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Abstract

Coastal zones receive increasing pressure due to anthropogenic influences as well as natural processes. To be able to manage those dynamic zones in a sustainable way, integration of different functions for reducing conflicts is regarded as an appropriate tool. However, nature conservation has difficulties with implementing an integrated approach, although its advantages have been discussed lively in the past. This study analyzes current institutional structures at the Baltic Sea coast of Schleswig-Holstein to define the potential to integrate nature conservation into existing functions in coastal waters. It argues that socio-ecological and functional integration is only possible when cooperation among relevant stakeholders exist. Additionally, the perception of human – nature relation influences the willingness of integrating nature conservation to a big extent.

Results show that the general potential to integrate nature conservation is currently limited, due to lacking cooperation between and willingness in most of the assessed sectors. However, local administrative nature conservation, tourism and diving indicate currently the highest possibilities of implementing integrative nature conservation. Nevertheless, limiting factors exist both exogenous and in the mindset of stakeholders. By introducing essential elements of adaptive co-management new governance structures are postulated, which may resolve current limitations towards higher integration. These elements include (a) introducing leadership in the governance process, (b) creating an arena of collaboration, (c) inducing policy change which supports integration and cooperation as well as (d) permanent monitoring and evaluation of the process and the outcomes. Recommendations are derived from these insights to help planners as well as policy makers and stakeholders to cause a change in nature conservation practices and better manage coastal waters in a multi-functional way showing how social-ecological systems can best adapt to new challenges.

Key words: Socio-ecological system, governance, co-management, nature conservation, cooperation, integration, coastal zone

Content

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List of abbreviations

BNatSchG	Federal Nature Conservation Act
EIA	Environmental Impact Assessment
ER	Ecological Restoration
ICZM	Integrated Coastal Zone Management
INC	Integrative nature conservation
IUCN	International Union for Conservation of Nature
LEP	State Development Plan (“Landesentwicklungsplan”)
LKN-SH	Government-owned Company of Coastal Protection, National Parks and Ocean Protection of Schleswig-Holstein
LLUR	State Agency for Agriculture, Environment and Rural Areas of Schleswig Holstein
LNatSchG	State Nature Conservation Act
MELUR	Ministry of Energy transition, Agriculture, Environment and Rural Areas of Schleswig-Holstein
MSFD	European Marine Strategy Framework Directive
ROB	Spatial Planning Report for Coast and Sea 2005 of Schleswig-Holstein (“Raumordnungsbericht Küste und Meer 2005”)
SES	Social-ecological system
UNEP	United Nation Environmental Programme
WasG SH	State Water Act Schleswig Holstein
WBGU	German Advisory Council on Global Change („Wissenschaftlicher Beirat der Bundesregierung Globale Umweltveränderung“)
WFD	European Water Framework Directive

1 Introduction

Biodiversity and nature play an eminent role for human well being and survival as well as for ecosystem processes and dynamics. Especially coastal ecosystems are unique in terms of their ecological, biological as well as geological features and have been shaping human cultures through the services they provide as well as its aesthetic value ever since (MANN, 2000; GIERLOFF-EMDEN, 1979). The loss of biodiversity and natural areas can throw entire ecosystems out of balance. Therefore, nature protection is vital in order to ensure the maintenance of ecosystems and bears responsibility for future generations. However, a debate arises about where to draw the line between developing nature to fulfill human needs and protecting it as the basis of human existence. This becomes not only visible in infrastructure projects which are delayed or even stopped by the presence of species, but also in discussions about compensating interferences in nature.

Although coastal ecosystems are rather resilient places as they are both dynamic and regenerative, they are changed by human activities massively. Nowadays almost 40 % of the world population lives within 100 km of the coast with a population density nearly three times as high as inland – for Europe similar numbers being valid (AGARDY & ALDER, 2010; EUROPEAN COMMISSION, 2011). Not only by erecting hard structures for protection and development, but also by exploiting resources to fulfill needs for food, water and energy, humans put pressure on coastal areas which leads to a disturbance of the system´s equilibrium (BEATLEY, ET AL., 2002). Stress expected to rise as migration, increased fertility and tourism will contribute to a growing world population in the future and thereby intensifying uses at the coast (AGARDY & ALDER, 2010). Additionally climate change reinforces natural as well as anthropogenic pressures (I.E.; TURNER, ET AL., N.D.; SCHUMACHER & STYBEL, 2009).

Resulting from such intense use of coastal zone and ecosystems, various activities and functions are concentrated on a small area. Only to name a few, tourism and recreation, waste disposal, nature conservation, coastal infrastructure, energy production, resource generation, coastal protection, navigation and communication, fishing and aquaculture compete for space. From this competition multidimensional conflicts emerge based on different motivations, historical uses and contrary values (CICIN-SAIN & KNECHT, 1998).

Highly influenced by these contrary values is nature conservation, as its approaches are grounded on a general understanding of the relation between humans and their natural environment. As those are often seen as opposing elements, zoning has been most popular nature conservation strategy. However, to call for “pure” nature conservation in areas of intense use and limited space might enhance conflicts and lead to reflectance of natural demands in planning and development as priority often lies in other functions.

Therefore, the question arises how nature conservation can be realized through and despite of conflicting types of use in an area. Here integrative nature conservation approaches are of increasing interest, as they lead to a combined development and conservation (HOLZNER & KRIECHBAUM, 2005; ULMER, ET AL., 2003).

However, for realizing such nature conservation strategies in coastal areas, a closer connection has to be made between natural systems on the one hand and societal processes, institutions and land use systems on the other, building socio-ecological systems (JENTOFT, 2007). Nevertheless, there is still a dualism between these two aspects not only in management of coastal zones, but also in research. Neither recommendations by the EU for sustainable management of coasts (EUROPEAN COUNCIL, 2002), nor evaluation reports or the German strategy for integrated coastal zone management consider socio-ecological aspects (I.E.; GEE, ET AL., 2004; PICKAVER, 2003). Despite the fact that integration is highlights as urgently needed, environmental aspects are often seen separated from economy and society, indicating that an approach for horizontal integration considering particularly natural demands is lacking. Such approach could enhance management of coastal systems, despite the complexity of problems stated above.

Combining the aspects of (a) increasing coastal pressures and conflicts of use, (b) the dualism in biodiversity management and nature conservation and (c) the demand for socio-ecological research in coastal management, defines the need to examine integrative nature conservation projects in the coastal zone. Embedding nature conservation in the coastal system – a socio-ecological system –, could lead to a more sustainable and integrated coastal management and provide new approaches to biodiversity management and spatial planning.

1.1 Research objective and questions

To elaborate on the problems stated above, the objective of this study is to identify ways of how nature conservation can be integrated in coastal socio-ecological systems with focus on the perspective of stakeholders from various levels and functions and general framework conditions. Additional objective is to examine which role adaptive co-management as a multi-level governance approach can play for better integrative nature conservation (INC) and coastal planning. Here, a shift in institutional arrangements is the result leading to closer collaboration[1] and power-sharing among stakeholders.

These objectives are tired to be fulfilled with the help of a case study which assesses the possibility of ecological restoration projects in coastal waters of Kiel Förde and Lübeck

[1] Although appreciating different meanings of "collaboration" and "cooperation", there are used synonymously in this study.

Bay in Northern Germany, which are highly developed areas at the Baltic Sea. The project has an experimental character due to the fact that future scenarios for ecological restoration are tested with consideration of different external conditions. Insights of this case study can therefore help to prepare for future developments in a proactive way.

This research pursues the goal to provide policy recommendations and a process diagram for successful integration of nature conservation. Hence, (institutional) limitations could be overcome which hinder the implementation of alternative conservation strategies going beyond zoning. Further on, this research contributes to the current scientific debate about how new approaches to nature conservation and their implementation can conduce to overcome sectoral planning. By including cooperation into the debate on integration practices, possibilities are revealed to enhance sustainable planning in coastal waters.

Resulting from these objectives the research question examined in this study is:

"To what extent can 'integrative nature conservation' be embedded in coastal (socio-ecological) systems, which factors influence its potential and how can limitations be overcome?"

The following sub questions guide this research and link its theoretical, empirical and combining contributions:

- How do nature conservation as well as socio-ecological systems and their governance link in coastal management?
- What is the potential of integrative nature conservation in Schleswig-Holstein based on the relationships and willingness among stakeholders, the framework conditions and common understanding? Which sectors are most suitable for such projects and why?
- To what extent can adaptive co-management lead to better integration of nature conservation and consideration of socio-ecological issues in coastal planning?

1.2 Case study project: "Bladder wrack and Climate"

The project "Bladder wrack and Climate", which functions as a practical case for testing the research questions defined above, is carried out by Coastal Research and Management (CRM)[2] in Kiel, Germany by order of the State Agency for Agriculture, Environment and Rural Areas (LLUR) from 2012 to 2015. Motivation for this project is the massive decline of the macro algae bladder wrack (*Fucus vesiculosus)* in the western

[2] The company was found in 1993 by marine researchers and economists. It deals with consulting and research in environmental management of coastal areas and marine resources for private as well as public clients (CRM, N.D.).

Baltic Sea. Its depth limit is defined as a key indicator of the European Water Framework Directive (WFD; and indirectly for Marine Strategy Framework Directive, MSFD) for the ecological status of the Baltic Sea. German coastal waters are not in a good state in this respect and therefore have problems fulfilling the Directive (SCHORIES, ET AL., 2008). This fact makes the deposition of hard substrate interesting for environmental politicians as well as a tool for compensating interference in natural systems.

First signs for a decline of *Fucus vesiculosus* were noticed in the 1960s/70s. Studies have shown that until 1988 the boundary of distribution shifted from 10 m water depth up to 2 m and therefore reduced dramatically the vegetated area. However, due to lacking hard substrate it is difficult to define the real boundary of distribution (KAREZ & SCHORIES, 2005). Additionally, biomass declined by 95 % from 45,000 to 4,400 t. First reason responsible for that is eutrophication which leads to an increase in phytoplankton and therewith reduction of light availability for growth. Additionally, an increase in mussels hinders the development of *Fucus* as they feed on macro algae (SCHRAMM, 1996). Second reason is the so called "Steinfischerei"[3] as it reduced the amount of substrate for the algae to settle on. Therefore it is estimated that *F. vesiculosus* will not return naturally, despite reduced eutrophication in recent years (KAREZ & SCHORIES, 2005).

The aim of the project by CRM is to estimate the potential of ecological restoration by reintroducing Fucus vesiculosus in coastal areas of Schleswig-Holstein. For this purpose the main aspects of consideration concern the possibility of and behavior F. vesiculosus after relocation, the effects of temperature on that and the identification of reasons for the algae's extinction. Therefore natural stones partly with Fucus growth were deposited along the coast (Figure 1) (SANDOW & KROST, NOT PUBLISHED).

Figure 1: Pictures of *Fucus vesiculosus* in the case study project and stones introduced to enhance population. Small *Fucus* plants (brown) are attached to those (left picture) (Source: SANDOW & KROST (NOT PUBLISHED))

[3] Stone fishery (the commercial extraction of stones) took place between 1800 and 1974 in Schleswig-Holstein, removing at least (depending on the estimation used) 1.5 million tons in the Kiel Bay (1930-1970). This resulted in a decrease of available surface area for settlement of species of 5.6 km^2 (KAREZ & SCHORIES, 2005).

The maps in Figure 2 show the exact locations of the six experimental stone fields for *Fucus* relocation (a map of the entire area is given in chapter 4). Change in growth, fitness and reproduction are monitored regularly over two years time.

Figure 2: Locations of stone placements for reintroduction of *f. vesiculosus* in Lübeck Bay (left) and in Kiel Förde (right) (Source: Own figure)

1.3 Thesis Structure

This thesis consists of eight chapters corresponding to the structure of the identified research questions. Having provided the problem statement, the research objective and research questions as well as the case study description in this first chapter, chapter 2 – the theoretical framework – discusses relevant theories and concepts relevant for this study to answer the first sub-question. Subsequently, the methods are described used to gather and analyze data and information in order to answer the research questions.

From chapter 4 onwards the structure of this thesis is closely linked to the six steps of the research approach to co-management according to CARLSSON & BERKES (2005) used to study the functional structure of a system aiming at power-sharing. It starts with describing the arena of research – including geographical setting and stakeholder structures of the case study area – is further described, presenting the social aspect of a socio-ecological system (chapter 4). This is important to *"[…] get a good picture of the action arena and how this is structured"* (CARLSSON & BERKES, 2005, P. 73).

Chapter 5, linking to the empirical part of this research, contains the analysis of the potential of integrated nature conservation projects at the case study sites on the basis of the data gathered. Subsequently, section 5.6 assesses the sectors most convenient for multifunctional ecological restoration projects in the study area.

To examine the way coastal institutions can best accommodate a new approach of combining human development and nature conservation, aspects of adaptive co-management are transferred to current stakeholder relations. The outcomes are presented in chapter 6 by synthesizing theoretical and empirical findings of the research.

Based on that, recommendations for management, policy and research are developed in chapter 7 to implement INC through improved multi-level governance. Finally, the eighth chapter of this research discusses the findings in relation to the research questions and critically reflects on the study. An overview of the structure of this research is presented in Figure 3.

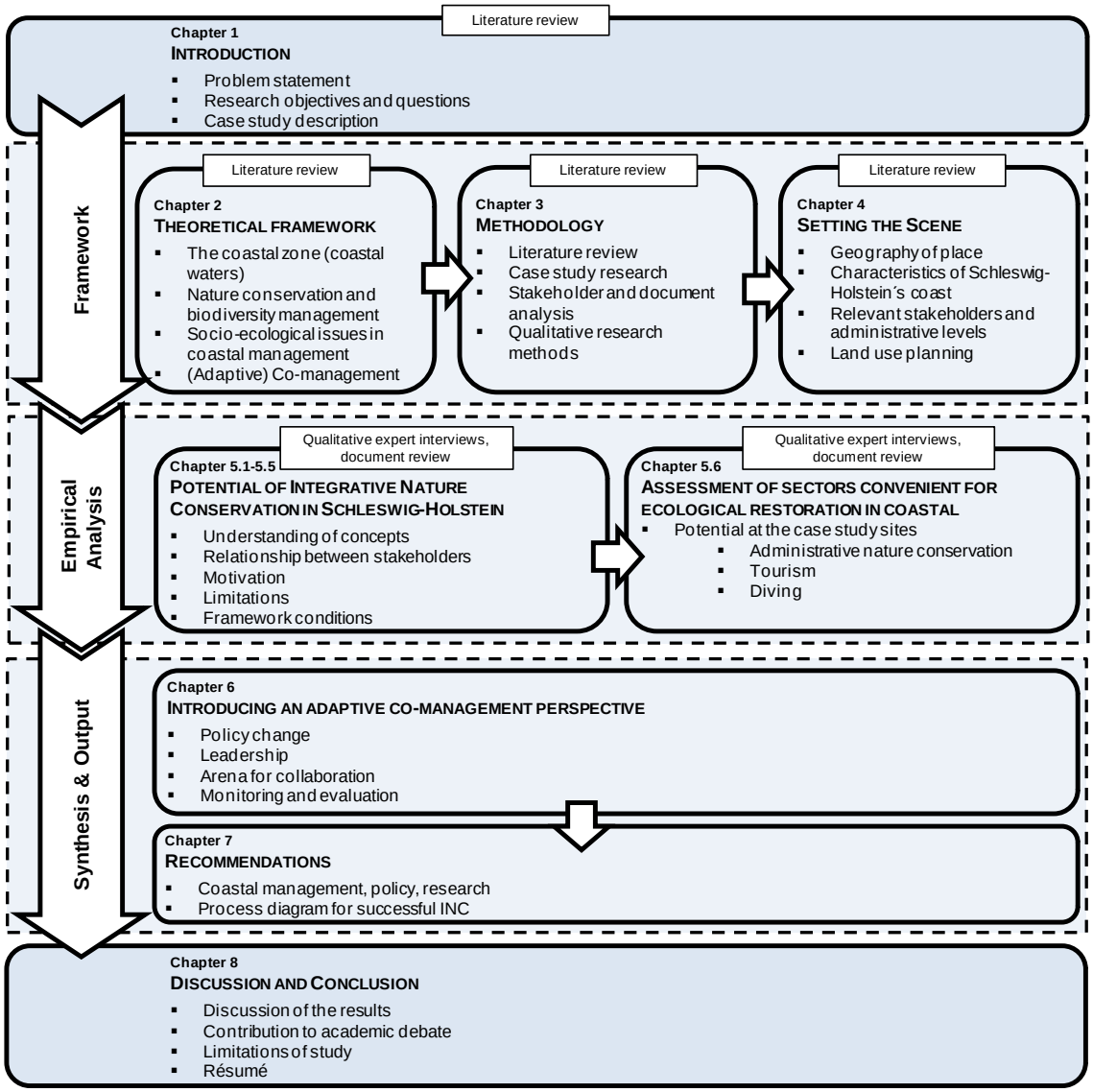

Figure 3: Overview of the structure of the thesis

2 Theoretical framework

To find possible solutions for limitations in coastal management as well as nature conservation, knowledge about the emergence, the main characteristics and the interconnections of these is necessary. Especially the last point becomes relevant when approaching coastal areas as a socio-ecological system, where different strategies of nature conservation call for different governance approaches to ensure a sustainable management. Classifying conditions from the insights of theory which help to assess current management structures in coastal Schleswig-Holstein and to present a governance approach most suitable for implementing an integrative nature conservation approach is the objective of this chapter.

2.1 The coastal zone and its management

To define the coastal zone is difficult as definition depends on the point of interest and view towards the system, all definitions having their strengths and limitations. From an ecological or geomorphologic view, the coastal zone is often named as an area with dynamic biogeochemical activities where processes of land and sea are influencing each other in a direct way. Moreover they are buffer and filter regions for coastal water before it flows into the open sea (SCHIEWER, 2008A). This area is limited landwards as far as coastal processes might have effects on land and seawards to the extent of state jurisdiction (VALLEGA, 1999). For planning purposes it sometimes becomes necessary to take a rather strict definition of coastal zone borders. Therefore the Spatial Planning Report for Coast and Sea of Schleswig-Holstein (ROB) limits the coastal area as far as 3 km inland and 12 km seawards from the basis coast line (INNENMINISTERIUM DES LANDES SCHLESWIG-HOLSTEIN, 2006).

However, when the aspect of management is related to the coastal zone, anthropogenic influence becomes an important factor, too, resulting in an even more indefinite definition. Under this premise DOODY (2001, P. 249) defines the coastal zone as *"[…] a combination of natural features and human activities which may interact across the whole zone or within individual components of the zone"*. Human interest of coastal areas is even more important to SCURA ET AL. 1992 (in (CICIN-SAIN & KNECHT, 1998, P. 17) stating that *"[…] concern and interest are concentrated on that area in which human activities are interlinked with both the land and the marine environment."* This indicates that especially human activities generate complexity in the coastal zone and therewith create necessity for clear management in order to avoid conflicts and to enhance sustainability.

2.1.1 Coastal management

The combination of human interests, natural processes and various other values often results in high potential for conflicts and high complexity of the system (DOODY, 2001). This complicates management of these areas and leads to several different approaches in policy and decision making. Among researchers and planners an integrated approach is nowadays seen as most suitable for managing coastal zones as complex systems. Integration can be applied in different ways, namely, vertical (between scales), horizontal (between sectors), spatial and temporal (LÜTKES, ET AL., 2006).

OLSEN & CHRISTIE (2000) contrast three different levels of horizontal, meaning sectoral integration in coastal management on the basis of common literature, showing that integration can take on multiple shapes and degrees. Those range from the separated management of sectors while addressing interdependencies with other sectors (enhanced sectoral management) to integrated coastal management, meaning cross-sectoral management with close consideration of ecological processes.

The idea of integration is also reflected by multiple international discussions and programs (Rio summit, United Nations Environmental Programme – UNEP, The European Union Demonstration Programme on Integrated Management of Coastal Zones) which arose in the last decades (DOODY, 2001). Following the long lasting need for more integration in coastal management[4] the strategy of Integrated Coastal Zone Management (ICZM) was developed and implemented officially as recommended by the EU Commission in 2002 (EUROPEAN COUNCIL, 2002). According to the German ICZM strategy, Integrated Coastal Zone Management is defined as the *"dynamic, continuous, interactive, balanced and sustainable informal process of systematic coordination of all developments in coastal areas defined by its boarders or natural dynamics and capacity"*[5] (LÜTKES, ET AL., 2006, P. 58). Just as with the definition for coastal zones, the exact meaning of ICZM and its effects on implementation vary between sectors, countries and programs. Nevertheless, CICIN-SAIN & KNECHT (1998) state the common goals of ICZM as (a) sustainable development and well-being of coastal areas, ecosystems and communities, (b) the reduction of vulnerability of coasts and its population to natural hazards, and (c) improvement of governance processes. According to EHLER (2003, P. 335) integrated coastal management has *"the ability to create a governance system capable to manage multiple uses in an integrated way […]"*. Nevertheless in this definition, only government agents of economic sectors are included, contradicting the idea of integration by OLSEN & CHRISTIE (2000). A review of recent literature conveys that ICZM

[4] Already in 1993 integration in coastal management was highly popular (SORENSEN, 1993).

[5] Authors translation

seems to be outdated to some degree, as it often does not include cultural and social aspects and provides shortcomings in implementation due to institutional and policy limitations (DÖRING, 2009; STOJANOVIC, ET AL., 2004).

2.1.2 Stakeholder involvement in coastal management

Stakeholders are a great component of integrated management of the coastal zone (Figure 4) as they link to multi-level as well as multi-sectoral integration, stated also in the European Commission´s principles of ICZM (EUROPEAN COUNCIL, 2002).

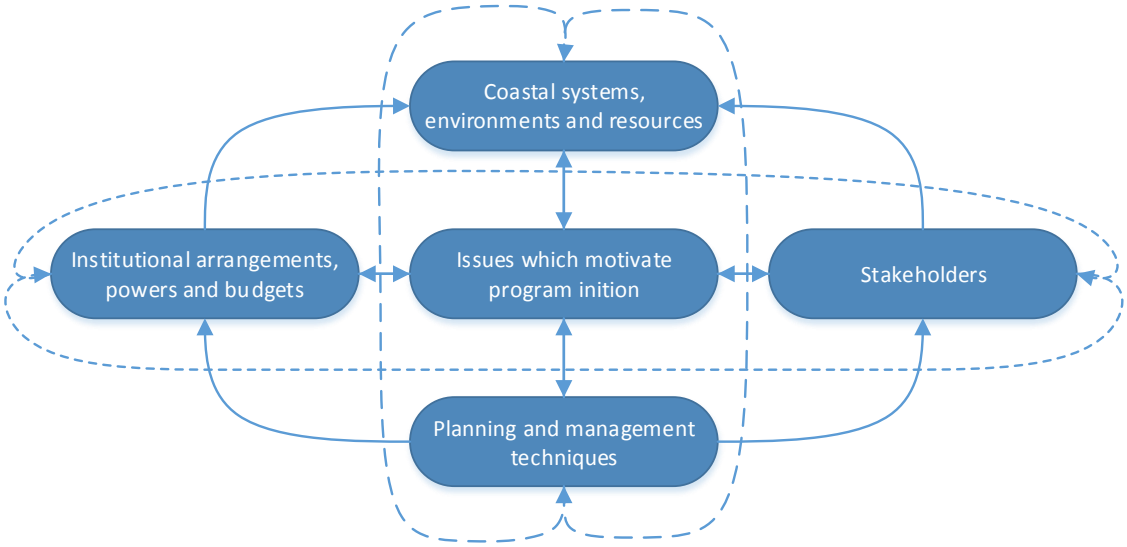

Figure 4: Elements of coastal management (Source: SORENSEN (1997))

Stakeholders are often defined as being in charge of the planning process. Hence, they may simply be a person or institution *"who has something to win or lose in a governing process"* and have a similar relationship to the resource so they share at least an interest or value of the coastal area (JENTOFT, 2007, P. 362). In connection to conflicts in coastal waters, KÖHN (2002, P. 344) defines them simply as all those *"who may have a stake in the conflict at hand"*. A combination of those aspects fits to the understanding of stakeholder in this research. Stakeholders are identified from the functions which they present in the coastal zone and thus might be actively included in governance processes and conflicts in the development of nature conservation projects.

Underlining the importance of stakeholders in coastal management, STOJANOVIC ET AL. (2004) identified factors for successful ICZM with participation, integration and co-ordination being ranked among the top four, all of them including stakeholders as an active element. The main advantage presented is, that acceptance of strategies and plans is higher if actors are involved in the design process at an early stage. Besides, stakeholders often profit from cooperating and networking in many ways, as long as gains exceed costs of cooperation. Especially for the aspect of horizontal integration, cooperation among stakeholders is essential for combining functions and power sharing in planning. This

determines the success of ICZM, on national and international level (SORENSEN, 1997; TOBEY & VOLK, 2002). However, not only for coastal management collaborative approaches become valuable for planning, as they are long since seen as a tool for mediating conflicts over the development and use of an area, efficient place-making and problem solution in a context of various stakeholders (HEALEY, 1998). Without an equal incorporation of all stakeholders, combining traditional knowledge on coastal management, experiences as well as science, the social components of ICZM and sustainable development will not be met. However, it might be difficult to identify the right stakeholder for a given problem or situation (KÖHN, 2002). The need for dynamic stakeholder analysis is emphasized, as relevant stakeholder vary between regions depending on the context (BUANES, ET AL., 2004). However, stakeholder involvement can also be seen critically, as MCKENNA ET AL. (2008) show. They go as far as to say that participatory processes in coastal management replace democratic structures of a region. Additionally they might function as alibi process for decisions being taken by most powerful actors.

As this section has shown, sectoral integration (by participation and cooperation of stakeholder) is essential for sustainability in coastal management and planning. However, to be able to include natural demands and biodiversity management to an adequate extent, the specific characteristics and foundations of nature conservation approaches have to be known to account for those. The following section provides insights on that.

2.2 Different approaches to nature conservation and their reasoning

The management of the natural environment is strongly influenced by the perception of nature and the relation between humans and the environment. In any discussion of human-nature relations it is important to consider, that this relation is not perceived the same across cultures and communities due to differences in education, experiences and religion. Moreover, next to economic interest, also symbolic and aesthetical values play an important role in the management of and dealing with nature (MCSHANE, ET AL., 2011; WBGU, 2000). But a common view is that nature is seen as an independent state threatened by invasion of humans, regardless of the role they take in an ecosystem (HINCHLIFFE, 2007)[6]. This is based on the understanding that the environment is 'what is surrounding humans' (HOLZNER & KRIECHBAUM, 2005). The separation of the two systems can be seen as a result of industrialization where controlling and managing nature was seen as a necessity for success of society (PILGRIM & PRETTY, 2010).

[6] One evidence for this is the use of the degree of hemeroby (level of utilization of nature by humans) in science. If "perfectness" of nature is defined as a function of civilization, dualism between the two is impossible to overcome (HOLZNER & KRIECHBAUM, 2005).

However, the opinion prevails that it is difficult to justify the separation of humans and nature, as it is obvious that these two systems are strongly interlinked. They converge on levels such as, but not limited to life systems, institutions, norms, stories, knowledge, behavior and language, therewith creating feedbacks between them (PILGRIM & PRETTY, 2010). The German Advisory Council on Global Change (WBGU (2000)) defined three ways in which humans are interlinked with the environment: a) humans as products of nature, b) humans rely on nature and its products, c) humans use nature and change it (sometimes in a disruptive way). Differently said: Nature as an imminent factor or as basis for fulfilling human needs.

In recent years many authors have even described nature as being a cultural construction and co-production, meaning that it only subsists through the existence of humans. However, the different versions of understanding human-nature relation are often mixed and therefore difficult to define (Figure 5) (COOPER, 2006; PILGRIM & PRETTY, 2010; HINCHLIFFE, 2007). Nevertheless, HAILA (2000) states that human-nature dualism cannot be totally overcome at all due to the fact that it reproduced itself continuously on the basis of ideological and philosophical levels. Therefore, *"we ought to view them [humanity and nature] as merging into situated, historically and contextually specified complexes"* (HAILA, 2000, P. 171), where the diversion of those varies between cases due to heterogeneity of social practices and constructions of that dualism.

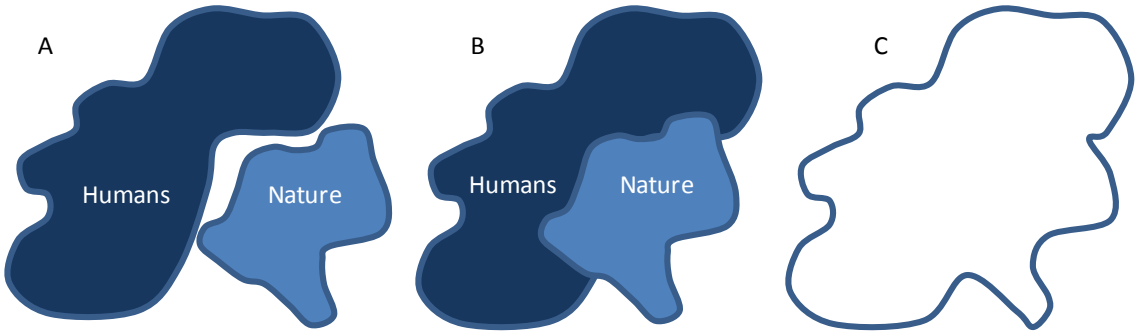

Figure 5: The three dimensions of human-nature relations. A: Nature as independent (and threatened by) humans, B: Humans and nature are strongly interlinked, C: Division of humans and nature varies (Source: Own figure)

The understanding of the relationship between humans and nature and the recognizable shift of it has strongly shaped approaches for protecting nature[7] and managing the environment. Different methods were developed over time, ranging from exclusive zoning in protected areas and restoration of habitats, to strategies for biodiversity management in urban areas. The selection of which method is implemented is dependent on the way nature is perceived. The new understanding that cultural and natural systems are hard if not impossible to separate, leads to integrative strategies combining nature conservation

[7] Again matter of perception: Protect it from what and for whom, and why at all?

and human development. The following sections will provide an overview of nature protection practices in the "traditional" sense as well as discovering new approaches.

2.2.1 Nature conservation practices

With the increasing interest for the environment and nature conservation in addition to the establishment of environmental organizations such as International Union for Conservation of Nature and Natural Resources (IUCN, in 1948), WWF (in 1961) and UNEP (in 1972) the conservation of nature and resources has been increasingly introduced in policy and decision making (ERDMANN, 2008). Although multiple measures were taken in the last decades to counteract the loss of biodiversity, it is still declining in coastal areas. Protected areas on land and sea have been the core element of those approaches but habitat creation and restoration become increasingly important, too (RANDS, ET AL., 2010).

In Germany nature conservation was influenced by many notions and sciences since the idea of protecting natural values first appeared in 18th century. Since then natural sciences (ecology, habitat connectivity, and landscape preservation), social and economic sciences, cultural heritage preservation, notions of sustainability (e.g. from the Rio Summit in 1992) and political changes (such as the German reunification) have influenced development of nature conservation. This has led to an opening of conservation issues towards society, resulting in new guiding principles and more integration (KONOLD, 2004). Main approaches in German conservation practice are species and territorial protection (although both are depending on each other). However, this rather conservative element which puts focus on areas and their connection is seen as rather static from many researchers point of view (DOYLE & RISTOW, 2006).

Besides "traditional" preservation, ecological restoration (ER)[8] is an additional and controversially discussed tool for nature conservation in urbanized areas (MCKINNEY, 2002) as well as on political level for compensation measures on basis of Nature Conservation Act. It can be defined in many ways depending on the function experts have in society. Therefore restoration from a conservation point of view, for instance, has a different goal – recovering biodiversity – than of a cultural perspective – strengthening communities. It is a long lasting process because *"we manipulate biophysical properties of an impaired ecosystem to facilitate resumption of processes that can only be performed by living organisms"* (CLEWELL & ARONSON, 2013, P. 3). The importance of living organisms in the process results in the circumstance that it is never possible to recreate a historical state of nature at the same or a different location – despite the fact that there are definitions of ER stating exactly that (BRADSHAW, 2002). It is only possible to *assist* in shaping

[8] Although other terms exist for this such as rehabilitation, remediation or re-creation, which provide slight differences in their meaning, 'ecological restoration' is used synonymously throughout this work.

ecological continuity towards a better state than the degraded system provides. This can be done by different measures such as removing the source of disturbance, reintroduction of species and habitat creation in a long term process (CLEWELL & ARONSON, 2013). This idea of ER often underlies principles of WFD, MSFD and other programs whose goals are to improve environmental status of marine ecosystems by active measures. If too much influence is taken, however, it is not restoration but rather a re-creation according to the perception of 'perfect' nature – again highly anthropogenic shaped.

It is exactly this last argument which gives one reason for many nature conservationists to dissociate from ecological restoration as a nature conservation practice. A possibly the most prominent critic, Eric Katz states that *"nature restoration projects are the creation of human technologies, and as such, are artefacts. But artefacts are essentially the constructs of an anthropogenic worldview"* (in OTT (2008, P. 433)). Thereby he underlines the ethical problem of ecological restoration, which comes along with the understanding of nature being something which is not affected by humans. Restored nature therefore has little value as it is not natural but rather influenced by human beliefs and values, political motivation, cultural perceptions and preferences and thus leads to human induced systems (HARRIS & VAN DIGGELEN, 2006; MACDONALD, ET AL., 2002; ELLIOTT, ET AL., 2007).

From that point of view, ecological restoration can never be more than a compromise and could, in its most negative sense, cause even more environmental degradation and help businesses to 'green wash' there activities (CAIRNS JR., 2002; OTT, 2008). Additionally, once intervention in natural systems has started[9] follow-up actions are necessary, further increasing negative effects on ecosystems. Particularly in times of climate change in dynamic coastal systems, outcomes of ecological restoration cannot be foreseen, making the extent of further interventions unpredictable (CAIRNS JR., 2002).

Nevertheless, ER is gaining momentum in actual nature conservation practice and increasingly enters the coastal and marine context (ELLIOTT, ET AL., 2007). This is mainly due to the ability to link anthropogenically fragmented patches of intact nature to establish a coherent ecosystem and create greater contact and cooperation between nature and the public, which supports awareness and environmental education. As it is often cheaper to restore than to wait for alternatives, restoration of ecosystem services can provide financial and socio-economical benefits. Additionally natural capital improves livelihood and creates jobs (GILBERT & ANDERSON, 1998; CAIRNS JR., 2002; ARONSON, ET AL., 2006; MILLER & HOBBS, 2002).

[9] One could argue that by that existing habitat is destroyed on the site where ER takes place. For instance, that benthic communities and sea weed areas are destroyed if artificial reefs are placed in coastal waters (KÖRNER, 2010).

These benefits often add to the motives to carry out restoration projects, as those are linked to the expectations people have and to how they value the relation between humans and nature. CLEWELL & ARONSON (2006) provide an extensive typology of motivations and call for a combination of several of these - therefore a combination of different sectors of society - for successful restoration. Next, successful restoration projects in dynamic systems such as coastal areas need an adaptive management plan, resulting from a clear and realistic predefined goal statement, the willingness of involved parties and monitoring (THOM, 2000; EHRENFELD, 2000). Although experiences made in terrestrial and freshwater systems can be referred to, experimental projects are needed to determine indicators for dynamic marine systems as not all knowledge can be transferred (ELLIOTT, ET AL., 2007).

It becomes obvious that successful nature conservation management and ecosystem restoration can support sustainable development and reintegration of human with nature[10]. Therefore it is not surprising, that sustainability has grown to become a leading principle in conservation policy and is now included in many strategies (e.g. "Man and the Biosphere") (ERDMANN, 2008).

For many years, isolation and a lack of acceptance among society and fields of research and practice were determining the work of conservationists in Germany resulting from (a) conflicting conceptions of nature, (b) different conceptions of objectives for action referring to the view that either nature conservation is limited by economic interests or vice versa, and (c) humans as "disturbing" factor in the desire for pure nature (KARGER, 2000; HERZOG, 2000). Those reasons are linked to the dualism seen in the relationship between humans and nature as described in the beginning of this chapter. This has led to a small nature conservation sector, which has limited possibilities of enforcement through cooperation with other societal interests (SCHWEPPE-KRAFT, 2000). However, nowadays nature conservation is regarded as a pressing issue for German society, 35 % considering environmental problems as the second highest problem in Germany in 2012 (RÜCKERT-JOHN, ET AL., 2013).

This fact provides potential to shift from a narrower conservation strategy towards a more integrated approach, also in highly populated coastal areas under pressure. Additionally, the approach of protected areas as an instrument for nature conservation (both on water and on land), where zoning of an area is the underlying idea, is not always possible or does not bring the desired result alone (see among others MILLER & HOBBS (2002)). These two reasons provide demand for new strategies in addition to a zone-

[10] Some positive examples are Geltinger Birk in Schleswig-Holstein, where a formally diked region was opened towards natural influences from the Baltic Sea to create a dynamic wetland area (www.geltinger-birk.de) and an artificial reef in Mecklenburg-Vorpommern to increase population of fish (www.riff-nienhagen.de).

based approach, both in research and practice. Ecological restoration might provide an indispensable tool for nature conservation, especially as it provides chances for natural development in cultural areas under increasing pressure of human development.

2.2.2 Combining development and conservation

When discussing the topic of new strategies in nature conservation, it is important to notice, that an integrative approach is not to replace areal protection such as nature parks and protected areas, but adds a new dimension to management and governance (OLSEN & CHRISTIE, 2000). Especially in populated areas natural development towards higher biodiversity is achievable. All space can develop in a more natural way meaning that conservation and restoration is possible everywhere, even in areas of use. Thereby it becomes possible to simultaneously act according to human activities as well as ecosystem processes (ULMER, ET AL., 2003; MILLER & HOBBS, 2002).

Combining development and conservation to integrated nature conservation (INC) has been the central concept for many researchers in the past years. The so called "new conservation" approach tries to find a way to identify complementarities and trade-offs – or synergies[11] – between the protection of an area and benefits for (local) people (MCSHANE, ET AL., 2011). As described above nature conservation has had problems with being socially accepted as a full-valued actor. By regarding all interest of use of space as equal, ecological consideration is attained among parties of society which usually are acting in contrast to nature conservation and might regard it as a threat to economic development (BARNABE & BARNABE-QUET, 2000). But those two aspects cannot and do not have to be considered separately, as seen above. Resulting in a communicative attitude, stronger professionalization and an open behavior towards new problems and questions of society and environment, nature conservation has the potential to work with socially accepted visions and to become more integrated into society (ERDMANN, 2000).

According to BROWN (2002) main aspects of such a new approach are the shift from state to local level in management of conservation issues, incorporating insights of understanding ecosystem dynamics and a manifestation of neo-liberal ideology. It softens borders between pure protection and extensive use and therefore provides basis for conservation outside protected areas (BROWN, 2002; SCHWEPPE-KRAFT, 2000; WBGU, 2000).

What is special about an integrative approach in line with "new conservation" is that all functions are seen as equal in a long lasting process of management – nature conservation, economic, and social/cultural interest – linking to the concept of sustainability.

[11] In contrast MCSHANE ET AL. (2011) define trade-offs instead of win-win-situation the desired outcome. Thereby the acceptance of losses is included, which are not avoidable if consensus is tried to be reached.

DOODY (2001, P. 271) states that under current state of coastlines and future developments *"[…] restoration of natural processes and recognition on nature conservation as an equal partner in developing strategies for the protection of land and property will be essential if we are also to protect wildlife"*. This indicates the need for considering the entire system in its complexity and the importance of ER in it. Strongly related to the idea that nature and culture are interlinked, all parts of the system are important for successful conservation and sustainable development. This means that (loss of) biodiversity is closely linked to the (loss of) cultural and economic system of an area (HOLZNER & KRIECHBAUM, 2005).

In practice, this idea can also be found for instance in Biosphere Reserves, Agenda 21, nature parks and Contract Nature Protection Scheme, underpinning that integrated approaches become increasingly important (SPLETT, 2000), since PLACHTER (1991) introduced such first 20 years ago. Especially touristic activities in sensitive natural areas, such as eco- or sustainable tourism, are common nowadays (HILL & GALE, 2009). Despite these examples, implementation or at least evaluation of integrative strategies was for long time of limited interest, which resulted in little knowledge about conditions actually needed for INC and their long-term effectiveness (SPLETT, 2000).

As this section has shown so far, combining development and protection – therefore presenting nature conservation integrated instead of separated to use - can add new dimensions to the work of nature conservation and hence play an important role in sustainable development of regions. At that, integration of protection and development can take different forms:

- Socio-economical / ecological integration combining objectives of nature conservation and other sectors by participation and collaboration of stakeholders,
- temporal integration leading to long term solutions for sustainable development,
- functional integration including abiotic and biotic resource protection,
- spatial integration for sustainable development in an entire area,
- horizontal and vertical policy integration for greater coherence within and among sectors and levels (HOLZNER & KRIECHBAUM, 2005; SPLETT, 2000; BROWN, 2009).

But when looking at these types of integration it becomes obvious that they do not necessarily include multifunctional development of one area or location. This could be a useful addition to further enhance sustainable development.

In order to gain mutual benefits and synergies, a sensible selection of functions to be integrated as well as instruments (and their possible combination) is necessary. This is due to high context dependency, meaning that environmental and institutional circumstances at the particular location influence relevant actors and therefore the required

instruments and governance (WBGU, 2000). Additional factors for success of INC next to reaching the objective itself are acceptance among society, permanence of effect and economic efficiency of the project (SPLETT, 2000). Requirement for being able to accept equality is an early and direct involvement of all stakeholders. HOLZNER & KRIECHBAUM (2005) argue that trial and error is the only way of realizing new local nature conservation approaches, as it is not possible to gain all data needed, being far too much and too complex. This results in the need for adaptive approaches and instruments where learning from experiences ensures successful implementation. In contrast, Figure 6 lists some limitations and challenges for reaching successful integration of nature conservation objectives.

Challenges for integrative nature conservation

- Borders between an integrative and "traditional" approach are rather smooth, as some aspects can be found in both concepts.
- Not all problems can be solved with an integrated approach and might call for a combination.
- Implementation of voluntary, integrative approaches is sometimes not possible, when this is against the understanding of nature being a common good.
- *"[…] biodiversity in its entirety can be conserved only in areas of limited human use"* (REDFORD & RICHTER, 1999, P. 1254), as human interference always alters ecosystem functions and structure.
- Over-simplifying assumptions concerning the structures of community relating to stakeholder identification, participation process, empowerment of local people and expectations to sustainability.
- Approach requires time (long term investment and sometimes it takes long until results are visible) and other resources which could limit willingness and patience of stakeholder.
- It always includes compromises in objectives of conservation and the willingness to share power.

Figure 6: Challenges for integrative nature conservation (Source: Own figure based on Brown (2003), SCHWEPPE-KRAFT (2000), SPLETT (2000), TORKAR & MCGREGOR (2012) AND REDFORD & RICHTER (1999))

As shown throughout this section, integrative nature conservation incorporates the fact that human and natural systems are interlinked. Issues such as equity of all functions and stakeholders, acceptance among society and economic efficiency enrich "traditional" nature conservation practices. Additionally, adaptive management of resources and understanding of ecosystem processes support INC planning. Development towards more integration of ecological and social aspects is not only observed in terms of nature conservation but also becomes strong in other fields as the following section examines.

2.3 Governance of coastal socio-ecological systems

The need to overcome dualism between humans and nature, as described above, is reflected in the emergence of socio-ecology, developed first in research and now slowly moving into practice. Treating human systems without the incorporation of ecological processes is regarded as not sufficient to cope with complexity and uncertainty in man-

agement (BERKES & FOLKE, 1998). Socio-ecological systems (SESs) emerge, which are seen as a pool of subsystems and multiple variables which affect and are affected by actions and outcomes of governance processes on different levels (JENTOFT, 2007). OSTROM (2009) therefore defines SESs as decomposable systems of resource units, resource systems, governance systems and users in a nested framework stretching across various scales both temporal and spatial. These are interlinked by feed-back and feed-forward loops in a co-evolutionary and dynamic way (Figure 7) to meet the requirement for interconnecting ecosystems as well as social, economic and political settings.

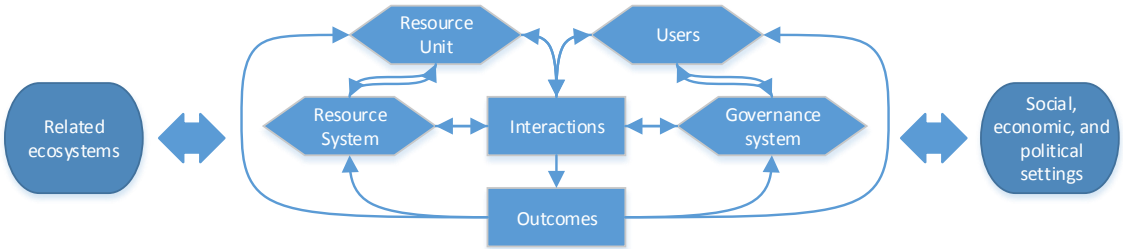

Figure 7: Central sub-systems of socio-ecological systems (Source: Own figure based on OSTROM (2009))

Grounded on that, socio-ecological research addresses the need for studying these linkages and the effects resulting from the systems interaction. By studying the environment to its full extent, it is possible to gain knowledge and new insights which would not be possible when studying each system in isolation (LIU, ET AL., 2007). For the management of ecosystems and biodiversity, the inclusion of anthropogenic issues provides the possibility for better understanding of the system and governance. ULMER ET AL. (2003) define three main components of socio-ecological research for sustainable biodiversity management:

- Actor and stakeholder analysis for nature conservation (interests of use, conflicts over space, management strategies) by
- integrating natural and social sciences and knowledge in trans-disciplinary planning and management and
- testing opportunities of biodiversity management on the basis of participatory and co-management approaches.

Out of the characteristics of SESs it becomes clear that they are closely linked to sustainable development. This comes with no surprise as sustainable development includes social, economic and environmental aspects and tries to combine these for good management. In recent years, this interconnection, in combination with evaluation and the development of frameworks for defining better sustainable management strategies, has been introduced by various scholars such as FOLKE ET AL. (2005), LIU ET AL. (2007), OSTROM (2009) and LUKS & SIEBENHÜNER (2007).

However putting socio-ecological research into practice needs new approaches and tools to overcome the discrepancy between the society and the environment. To achieve this, multi-level governance is considered to be the right tool to broaden possibilities of actions and to support the inclusion of multiple levels and scales (ULMER, ET AL., 2003). According to HOOGHE & MARKS (2001) multi-level governance is defined by the shift of authority away from the central government, upwards, downwards and / or sideways, including different ways to institutionalize this shift. Decision-making on different levels and the participation of non-state actors increases the quality of decisions and makes systems more robust and adaptive towards changes (PAHL-WOSTL, 2009; NEWING & FRITSCH, 2009). Dealing with the complexity of the systems, interconnections are only possible when an adaptive type of governance is applied which equally includes the ecosystem and its users and processes involved in society. However, such approach should be flexible in coping with external drivers and should be adjusted to the context of the place. Private, state and market parties combined are able to efficiently address the entire socio-ecological system. Finding a balance between the levels in management as well as efficiency and effectiveness of participatory processes is a challenge in multi-level governance (JENTOFT, 2007; FOLKE, ET AL., 2005).

Governance of coastal areas is part of a fully integrated system, as it consists of a "governing system" and a "system-to-be-governed", both interconnected (Figure 8). While the governing system presents the social and man-made arrangement of society (institutions, instruments and mechanisms as matter of institutional choice and planning), the system-to-be-governed consists of the ecosystem and resources as well as their users and stakeholders – thereby being both social and natural (JENTOFT, 2007).

It is important to note that there is no single "best way" in managing socio-ecological systems as little as there are universal problems. A good understanding of the involved indicators and variables is required in addition to an assessment of whether given governance arrangements match the context and the problems considering the aspect of time. Often, a mixture of governance approaches is best for increasing success in coastal management and conservation. Institutions therefore have to be context-related in social, cultural and political terms to work efficiently and overcome barriers in coastal management (OSTROM, 2007; JENTOFT, 2007). However, multi-level governance and cross scale interaction can create problems of responsibilities between the agents on different levels. Here governance which bridges actors within different scales and levels of organization are needed, linking to the multiscalarity of socio-ecological systems. The concept of co-management in adaptive governance, as fulfilling this requirement, is described in more detail in the following section.

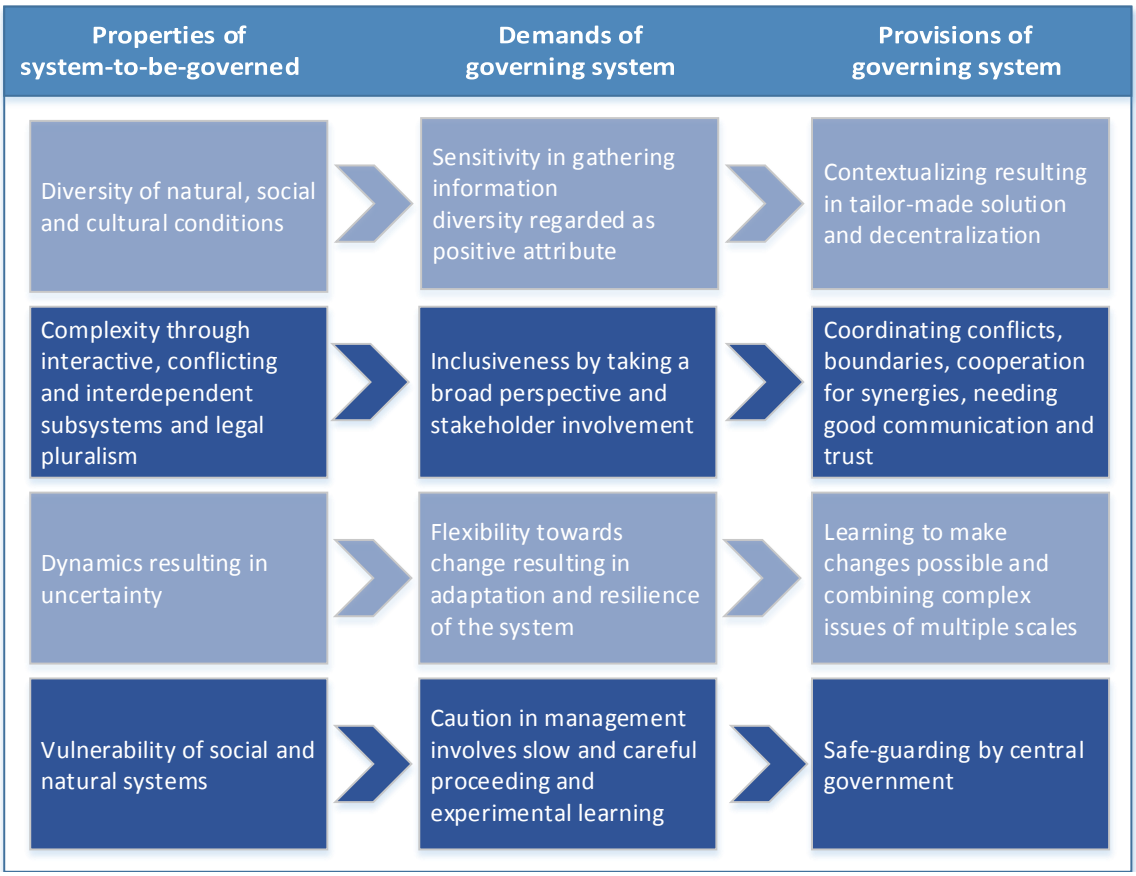

Figure 8: Governance model based on relations between system to be governed and the governing system within one socio-ecological system (Source: Own figure based on JENTOFT (2007))

2.4 (Adaptive) Co-management

Co-management emerged in the late 1970s and has since then been most common is the management of fisheries (I.E.; JENTOFT, ET AL., 1998; WILSON, ET AL., 2003) and forests (I.E.; CASTRO & NIELSEN, 2001; WOLLENBERG, ET AL., 2000), but also wildlife and watersheds. Lately, (marine) protected areas have also become more interesting in this context (NURSEY-BRAY & RIST, 2009). As with many concepts there are multiple approaches to co-management, delivering different definitions as well as characteristics. What they all have in common is the basic idea of a collaborative process, where power-sharing and responsibilities between actors of the state (such as government agencies) and the community or user groups and research institutions are the result (JENTOFT, 2000; CARLSSON & BERKES, 2005). Therefore, generally co-management is focusing more on the process of governance itself than on the legal aspects of cooperation and joined management. The purpose is the management of natural resources where environmental conservation, sustainable use of resources, social justice in resource management and equitable sharing of resource-related benefits are of great concern (BORRINI-FEYERABEND, ET AL., 2007).

The degree of power-sharing and responsibility can range from simple information sharing to formal networks and communication (CARLSSON & BERKES, 2005). In any case it

should lead to shared decision making, where multiple actors are influencing the process through their knowledge (BERKES, 2009). In recent years, though, many researchers have come to the conclusion that co-management does not just include actors of state and community (or user groups) but also market based instruments, thus including a third dimension (YANDLE, 2003). This seems to be a reasonable assumption, as by including all affected stakeholders into the process of shared management, market interests and instruments might have an effect on communication, decision making and power-sharing, too.

Despite the difference in defining actors of stakeholder groups it is commonly understood that those actors are strongly connected both vertically and horizontally in networks as shown in Figure 9. This might seem to be more appropriate in some cases as in reality there are *"rich webs of relations and agreements linking different parts of the public sector to a similarly heterogeneous set of private actors, all within the same area or in the same resource system"* (CARLSSON & BERKES, 2005, P. 69). At least one state actor and one non-state actor are involved. In building those working relations, trust is seen as a very important precondition, although scholars are discordant which level of importance is ascribable to trust (ANSELL & GASH, 2007; BERKES, 2009). Because of the focus on stakeholders and their cooperation towards a common goal, NATCHER ET AL., (2005) state that co-management is not only about managing resources but also about managing the relationship of actors which are affected by decision making and those making those decisions.

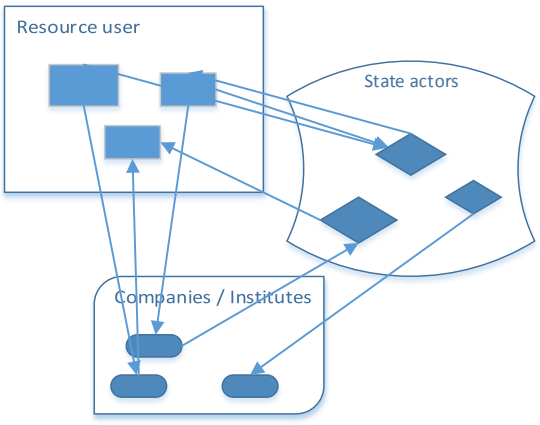

Figure 9: Co-management as a network of institutions (Source: Own figure)

Based on the characteristics of the concept described and the purpose of this research the following definition of co-management seems most suitable: Co-management is the process of cooperation of representatives from different coastal user-groups – state, private sector and research – in a socio-ecological system for integrating nature conservation in used space by shared management, power and responsibilities.

In the management of coastal areas focus on contextual factors for co-management is crucial as the coastal zone is determined by heterogeneity of ecosystems and the values and interests of stakeholders. Hence collaborative governance approaches – where co-management is also counted among, although focusing on informal rather than on formal processes – cannot be successful as long as they are static and fixed. They should

be able to adapt in a process of iterative learning-by-doing, experimentation and "playfulness"[12] of stakeholder to face future development and uncertainty. By experimentation on small scale, actors can learn what is best for the respective context and related problems. JENTOFT (2000, P. 534) states that *"[…] contextual analysis is important because the external world forms an integrated part of the everyday reality of resource users and significantly influences their decision to cooperate in or frustrate the co-management process"*.

The role of knowledge and learning in the process of co-management has been recognized by other scholars as well. It often is considered to be crucial in co-management, not only for understanding feedbacks in socio-ecological systems, but also for including all values and visions available in a society (ARMITAGE, ET AL., 2009). Through the inclusion of learning aspects in the process of co-management, an adaptive type of this governance approach derives, combining adaptive management and co-management to one concept – adaptive co-management (BERKES, 2009; BORRINI-FEYERABEND, ET AL., 2007).

BORRINI-FEYERABEND ET AL. (2007) describe three main phases of adaptive co-management:

- preparing for partnership (organizing),
- negotiating plans and agreements,
- implementing and revising the plans and agreements (learning-by-doing).

Although adaptive co-management is seen as a self-organizational process by OLSSON ET AL. (2004), they also state that guidance is crucial for the emergence of good collaborative structures. Leadership of individuals as well as the nation state can help in the resolution of conflicts as well as initiate key processes which are necessary for co-management to develop[13]. Even if power is distributed to the local level by rescaling and decentralization, the governmental role as regulator in governance processes often remains important (PARRA, 2010).

ARMITAGE ET AL. (2009) argue in this context that multi-level learning has to be supported by policy arrangements which bring attention to assessment, additional funding and rewards, flexible institutions and bureaucracies, knowledge sources and the role of power of different stakeholders. Only this can lead to effective governance of complex social-ecological systems and support a sustainable ecosystem management. Table 1

[12] This term is introduced by JENTOFT (2007) as he argues that making governance more playful is a way to become more innovative to be able to better govern complex, diverse, dynamic and vulnerable systems. In this context he refers to MARCH (1976): "*play is sensible approach under conditions of uncertainty and complexity where flexibility and learning are crucial"* (in JENTOFT (2000, p. 534)).

[13] GAUTHIER (2006) provides a sophisticated overview of developing collective leadership in multi-stakeholder context.

provides an overview of conditions needed for the emergence and the success of co-management on the basis of the previous passages and additional literature.

Table 1: Conditions for emergence and success of co-management (Source: Own table based on OLSSON ET AL. (2004), ARMITAGE ET AL. (2009), BORRINI-FEYERABEND ET AL. (2007) and BERKES (2009)).

Supportive policy	Policy (national and regional) that creates space and resources for collaborative ecosystem management
	Decentralization for a fairer distribution of power
	Financial support for responding to environmental change and for remedial action to trigger self-organization
Leadership	Key leaders or individuals willing to guide and steer the process
Arena of collaboration	Full access to information and combining various sources for ecosystem management in local context. Information should be complete, fair and truthful.
	Common sense-making and understanding of values and visions for ecosystem management and fundamental beliefs
	Create platforms for involving user-groups for collaborative learning where all stakeholder can express their needs, concerns and goals
	Social networks as functional links between different levels for flow of information
	Trust between stakeholders
	Commitment and will of partners to support a long term institution building process, to negotiate and accept agreements in a non-discriminatory environment
	Openness of stakeholder to accept different levels and sources of knowledge which are accepted by stakeholders
Monitoring	Collaborative monitoring by local resource users to respond to changes and feedbacks
Others	A small scale context, as it reduces number of competing interests and institutional complexy
	Scenarios with multiple perspectives

While challenging a sectoral procedure, co-management can be a useful approach in coastal management and INC (JENTOFT, 2000). CARLSSON & BERKES (2005) define several benefits of co-management such as allocation of tasks, exchange of resources between stakeholders, linking different types and levels of organization, reduction of transaction costs, risk sharing and conflict resolution.

Despite the advantages co-management provides in governance, several researchers have identified deficits, particularly relating to implementation issues. One example is the clash between paradigms of co-management theory and of nature conservation which is still influencing the implementation process in protected areas. It is therefore of great importance to find the right balance between different objectives and goals (NURSEY-BRAY & RIST, 2009). Additional challenges are that (a) actors might not be willing to take part in the co-management process compromising (conservation) goals to the minimum common denominator despite possible win-win situations, (b) the process is time and cost intensive and can (c) be politically and ideologically charged leading to a biased outcome (BORRINI-FEYERABEND, ET AL., 2007). Moreover, distrust and resistance of existing management agencies as well as lack of broad political support in an area can hamper implementation, as existing structures are not easy to change (PINKERTON,

1999). PLUMMER & ARMITAGE (2007) analyze and discuss deficits in data and information availability and come to the conclusion that outcomes are rarely evaluated leading to lack of information about the reasons for success or failure of co-management ambitions. Finally, power imbalances, the exclusion of general public, narrow interests and circumventing regulations are seen as skeptic aspects of co-management.

Central to this study are nature conservation projects in combination with other sectors of Schleswig-Holstein´s coastal zone which could create multiple-use of a small area. Communication and cooperation between vertical levels and horizontal institutions could create better sustainable management in a surrounding of complexity, although future developments of climate change and anthropogenic action put more pressure on ecosystems. Adaptive co-management provides the methodological backbone for this as it combines social and ecological systems by adaptive stakeholder involvement, multi-scalar cooperation and power sharing.

2.5 Conceptualization of the theoretical framework

The theoretical concepts of the coastal zone and its management, different nature conservation practices with focus on ecological restoration and INC, governance in socio-ecological systems and co-management built up to a sound argument (Figure 10). These concepts help to understand the context of this research and synthesize to possible solutions to the problems, indicating the need for this study.

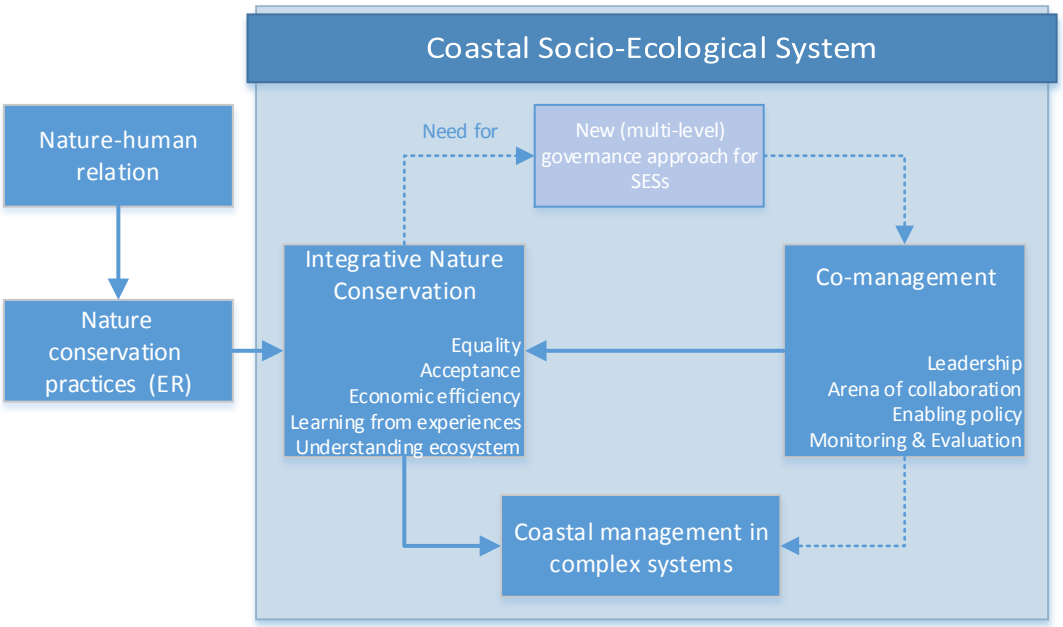

Figure 10: Conceptual model of the theoretical background (Source: Own figure)

The relationship between humans and nature - whether they are seen separated or closely related - influences practices in nature conservation by determining opinions on zon-

ing, ecological restoration and integrative strategies. Ecological restoration here is of particular interest, as the case study of reintroducing bladder wrack in coastal waters of Schleswig-Holstein can be regarded as such.

As shown in the introduction of this study, there are multiple indicators calling for a connection of ecological issues and human development which is reflected in the emergence of SESs. The separation of natural and social sciences and practices is not regarded as sufficient for nature conservation in a surrounding of complexity. By combining nature conservation and other coastal functions, an integrated approach emerges (INC).

A shift in nature conservation practices towards higher integration comes hand in hand with the need for a new governance approach. As a suitable approach, adaptive co-management is linking state, resource user and market instruments and is thereby creating an interdisciplinary and cooperative management framework for natural resources. To establish functional and socio-ecological integration in coastal waters, cooperation between actors on various levels should be strengthened and better organized. By focusing on leadership, supportive policy, arenas of collaboration and monitoring and evaluation to ensure an effective learning process, adaptive co-management encourages such. Thus it can be stated that this governance approach is most appropriate for combining development and nature conservation, thereby encouraging implementation of INC projects. This can reduce conflicts and strengthen institutional structures which evoke more sustainable integrated coastal management for what cooperation is needed. Additionally, it takes account of the fact that all developments described above are embedded in a socio-ecological system.

From the theoretical concepts five indicators are derived which build up to the analysis of the study. How those indicators are leading to the potential of integrative nature conservation and how data is gathered for analysis is described in the next chapters.

3 Methodology

Since the last chapter provided an overview of the theoretical concepts building the backbone of this study, this chapter deals with the methods used to answer the research questions. Literature review, case study approach and document and stakeholder analysis along with in-depth interviews build up to the theoretical framework as well as the empirical analysis of this research. This leads to the identification of the potential of integrative nature conservation projects and the role adaptive co-management can play in its implementation. These methods seem to be feasible as case studies allow for an in-depth analysis of a local socio-ecological system and interviews with stakeholder and document analysis yield information on the willingness and limitations perceived.

As stated above, in this context five indicators help which are derived from the concepts described in the previous chapter. Figure 11 shows those and the structure of explanation which underlies the proceeding of this research. Integrated nature conservation embedded in coastal socio-ecological systems – explanandum – is explained by the potentials based on the relationship among stakeholders, willingness for INC, limitations perceived, framework conditions and a joint understanding, combined with an adaptive co-management perspective – explanans[14]. This supports the ascertainment of data and its structured analysis throughout the research process.

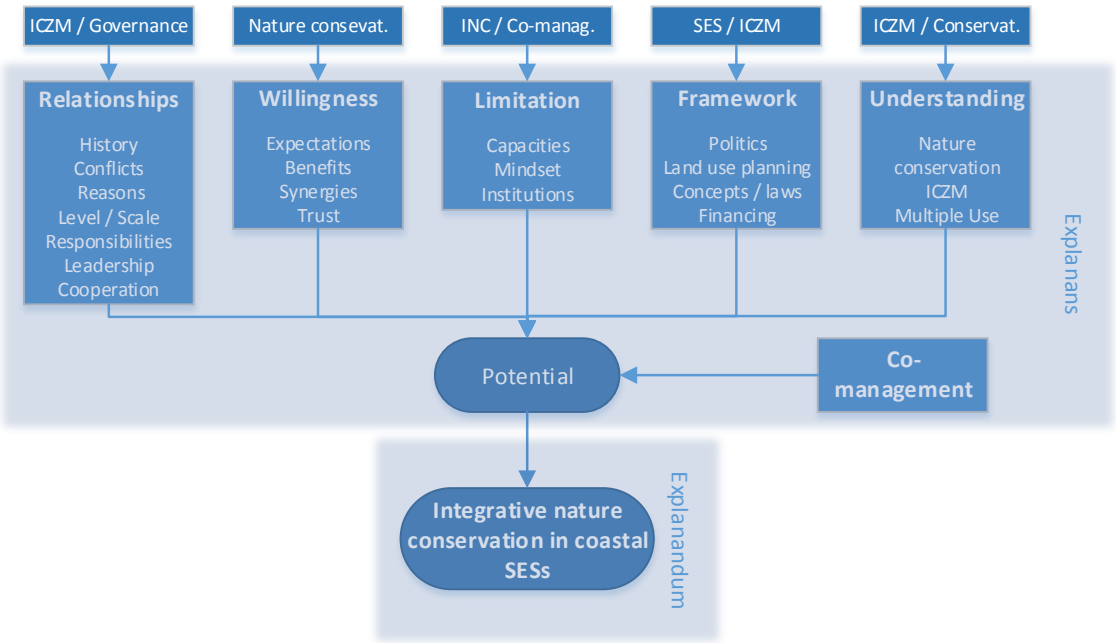

Figure 11: Formal structure of explanation of causality within the research process (Source: Own figure)

[14] The approach using explanans and explanandum, where the former is the explaining variable and the latter is the explained variable, is based on the deductive-nomological model by HEMPEL & OPPENHEIM (1948).

3.1 Literature review

In order to understand the notions and theoretical concepts which this research is based on, literature about those theories is examined to form the theoretical framework of this study. This includes a review of literature about different concepts of nature conservation where integrated approaches as well as marine nature conservation concepts are of particular interest. Additionally, a description of socio-ecological research explains the wider picture of combining environmental and societal aspects of research and management. To reflect on a governance approach suitable for managing socio-ecological systems, co-management and its multiple types are examined. Moreover, in general the literature review focuses on the relationship of the mentioned theories with coastal management and research. Therefore, a description of (integrated) coastal management and the coastal zone is given.

Secondary data represents the basis for this literature review in order to get a better understanding of research carried out in this field of study. Hence it is possible to identify the demand for further research. Besides, aspects relevant for (collaborative) nature conservation projects can be defined to be considered during the analysis of data. Further, regional land use plans provide information for stakeholder analysis as well as the description of legal setting in the case study area. Thus, the detection of how those plans deal with nature conservation and the separation of functions is supported.

3.2 Case study research

In order to get insights of the potentials of INC according to relationships, willingness and limitations perceived by stakeholders, the approach outlined above is transferred to a real context by the help of a case study. There are different definitions of case study and how and when it should be conducted. GERRING (2007, P. 20) states exemplarily that *"a case study may be understood as the intensive study of a single case where the purpose of that study is – at least in part – to shed light on a larger class of cases (a population). […] An additional implication of the term 'case study' is that the unit(s) under special focus is not perfectly representative of the population, or is at least questionable"*. While this definition focuses on the intensive study of a single case for representing a population, YIN (2009) argues that case studies are only generalizable to a theoretical proposition and to populations, thus neglecting their function as representatives. He defines a case study as *"an empirical inquiry that investigates a contemporary phenomenon in depth and within its real-life setting, especially when the boundaries between phenomenon and context are not clearly evident"* (YIN, 2009, P. 18).

Not only the definitions of case study but also their design and types are aspects discussed in literature. There are many different types, changing almost with every study designed and carried out as they depend strongly on the context they are set in. In this research the case study approach has the function to test if a theoretical approach – co-management in coastal nature conservation – would work in practice.

Two cases are examined in this study, differing in focus but not in context. At both locations described in section 1.2 natural features as well as stakeholders partly differ, forming a unique socio-ecological system of analysis. The end result of the analysis is transferred to each location, therefore outlining specific characteristics in a cross case assessment. More stakeholders can be addressed by using this design, than would have been available at one location only. This provides a holistic picture of stakeholder analysis and potential cooperation among those to answer the research question of this study. It is important to note that the presented case study is used as an umbrella under which a possible future practice is analyzed. This fits to the embedded single case study design (YIN, 2009). Therefore the cases examined serve as an example for other possible sites in Schleswig-Holstein.

Multiple factors influenced the decision for using the presented project as a case for analyzing the possibility of combining functions in nature conservation:

- It provides a practical basis for the evaluation of the thesis. The scenario tested is not theoretical. As the project is currently implemented, a realistic situation can function as a basis for analysis.
- The project has started one year ago and is still being implemented. Therefore first information about its feasibility is available.
- Because the same project is implemented at different sites it is possible to examine a multiple number of functions and the related stakeholders, which could otherwise only be accounted for. By combining the results of both locations it is possible to gain a holistic picture of possibilities and limitations of the approach.
- By working with a company at the case study sites and running the project it is possible to gain better access to information about the project and its stakeholders.

3.3 Stakeholder and document analysis

A qualitative research method with semi-structured interviews provides the basis for gathering data to answer the research questions. This allows giving meaning to an event or the environment of the researcher which seems reasonable when analyzing opinions, interests and limitations stakeholders face. By doing so it is possible to see the world

under study through the eyes of the people interviewed and therefore interpret the data from these persons` point of view (BRYMAN, 2008).

3.3.1 Identification of stakeholders and interview partner

Knowledge about stakeholders is necessary to improve governance systems (How does it work in practice? How can we improve it?) and has to be defined on a case-by-case basis. To identify relevant stakeholders, functions in the case study area are identified. The leading map as well as the sectoral map for water tourism of the Spatial Planning Report for Coast and Sea of Schleswig-Holstein (Figure 12) give an overview of the uses present in the project areas (INNENMINISTERIUM DES LANDES SCHLESWIG-HOLSTEIN, 2006). Those are defined as being of relevance for analysis.

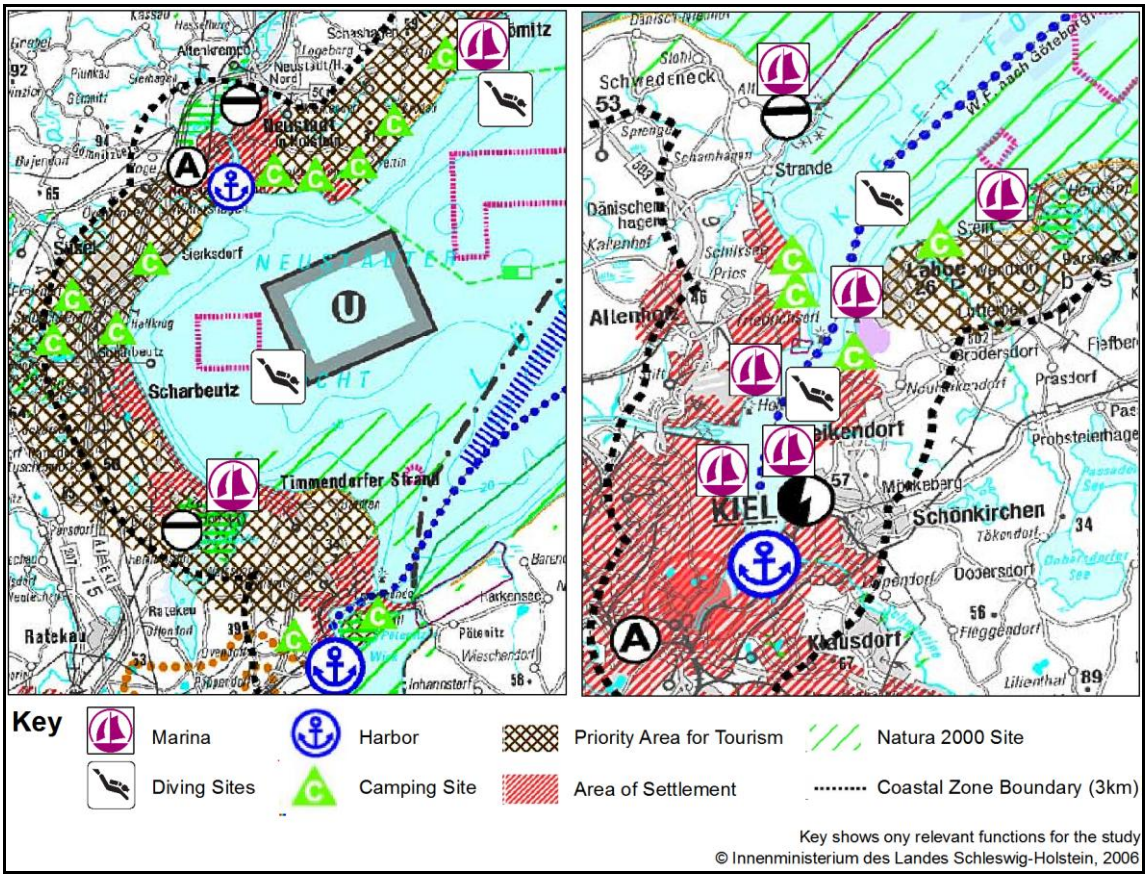

Figure 12: Sections of the leading map of the Spatial Planning Report for Coast and Sea showing functions in the Lübeck Bay (left) and the Kiel Förde (right). (Source: Own figure based on INNENMINISTERIUM DES LANDES SCHLESWIG-HOLSTEIN (2006))

The selected functions are sailing, diving, harbor activities, tourism and coastal protection, which are described to a deeper extent in chapter 4. From these stakeholders of interest were identified in order to find synergies with initiators of nature conservation projects. It is important that representatives are related to natural issues within their sectors or are chair persons to provide an overview of activities and the consideration of environmental aspects. Those representatives belong to three groups identified by CICIN-SAIN & KNECHT (1998) as being relevant for stakeholder analysis in coastal management:

(a) people concerned with the coastal environment or related to it by any sort; (b) policy makers and managers and; (c) members of the scientific community. This separation allows a grouping of stakeholders in state and non-state actors respectively, forming a reasonable basis for analyzing co-management processes in a real setting. The stakeholders from the scientific community, researcher from a university and private research institute, strengthen the analysis by providing knowledge from the outside about the case studies and concepts under study. In addition to stakeholders identified by functions, there was a need to include a person dealing with coastal waters, to get insights about the case study project as well as ecological aspects.

It is important to state that *"people who are interviewed in qualitative research are not meant to be representative of a population, […]"* (BRYMAN, 2008, P. 391). They give insights in what they regard as important and relevant. From this, inferences can be drawn to other stakeholders or parties their field of study. The procedure of interviewing is described in the subsequent section.

3.3.2 In-depth interviews

Semi-structured interviews were chosen because they provide the right combination between flexibility of responses and cross-case comparability of results. Flexibility stems from the possibility to ask follow-up questions which emerge during the interview depending on the answers of the interviewee. This can make significant contributions to the final results of the research. As the interviews followed a guideline covering the most important topics and questions, cross-scale comparability is ensured (Table 2 provides an overview of topics presented in the guideline, the complete set of guidelines can be found in annex 1). Open questions were used as they allow new and unexpected answers from the interviewee and are thus better able to explore insights form the interviewed expert (BRYMAN, 2008).

Eleven interviews were carried out in German and most of them face-to-face. Due to practical reasons, it was necessary to conduct four interviews by phone. Telephone interviews are considered to be as effective and appropriate for in-depth interviews as face-to-face interviews (STURGES & HANRAHAN, 2004). Nevertheless, there are some limitations to it, the strongest one being the fact that body language cannot be observed during the interview. Hence it is not possible to see how interviewees respond in terms of physical behavior (BRYMAN, 2008). Annex 2 provides a list of interviewees.

Table 2: Overview of topics and questions used for the interviews (Source: Own table)

Multiple use in coastal areas
In how far do multiple uses contribute to sustainable development and ease of conflict in coastal zones?
Concepts of nature conservation
Do you consider integrative nature conservation projects as useful and feasible and why? Should nature conservation be regarded as solitary function? Do you consider valorization of nature as a useful tool for nature conservation and why?
Willingness of actors for integrative nature conservation
Do you include environmental and nature conservation aspects in your daily work and how? How could you benefit from cooperation with nature conservation actors? Do you consider win-win-solutions as possible and how?
Process of involvement of stakeholders
How do you assess vertical and horizontal possibilities for cooperation between you and other stakeholder?
Which role should state actors play in cooperation process?
Problems and obstacles
Can you name (possible or expected) difficulties of cooperation with actors from nature conservation? Which framework conditions can support and hinder cooperation? Which conflicts do you see between you and other actors in coastal management?
Legal aspects
Which provisions of law support or hinder strong cooperation? Could decentralization help?
Definitions
What do you understand by socio-ecological systems, integrative nature conservation, integrated coastal zone management and co-management?

3.3.3 Document selection

Legal documents may support findings from the interviews as they can state framework conditions stakeholders have to act in. Therefore land use plans as well as relevant laws were chosen to be included in the analysis. These are the LEP, regional plans of the planning areas for Kiel and Lübeck and national and Federal Nature Conservation Acts (LNatSchG and BNatSchG). Additionally information of the tourism strategy of Schleswig-Holstein was added to the analysis (N.I.T, 2008; MWAVT, 2007).

3.3.4 Data analysis

All interviews were tape recorded and transcribed as a first step of editing. Doing so made it possible to analyze them in a structured way without missing any important elements (BRYMAN, 2008). The interviews were transcribed completely, although some parts were left out (the introduction or parts of the conversation after the interview was done) and in few cases grammar was corrected. Further, verbal errors were ignored. But still, the transcript provides a mixture of full grammar and incomplete sentences (annex 6). This is feasible, as – with much qualitative research – the content of interviews is more important with respect to the research questions than the exact linguistical expres-

sion of the interviewee. Therefore the characteristics of the spoken words are kept, but it is easier to read and analyze (REUBER & PFAFFENBACH, 2005).

After transcribing, a short description of each interview was made presenting a general overview of the interviewee and his or her opinion in relation to the research questions and topics discussed. General impressions and atmosphere of the interview and first insights build up to a broader picture helpful to class the responses with the overall analysis.

In a third step, the transcripts and additionally selected documents were coded using the software MAXQDA 11. This was done with the purpose to categorize parts of the transcripts and documents thematically and find connections between them. Codes are systematic annotations which help to organize qualitative data. Often hierarchical structures for defining such codes are used, resulting in top-level codes and attached subcodes (NEWING, 2010). Those were defined with the help of literature and developed during the process of collection, coding and analysis ('thematic coding'). Thereby broad codes (and partly detailed sub-codes) were defined in line with the aims and objectives of the study, representing the explanans of the research process (Figure 11, p.27). Codes were added or removed during the process if new themes arose or others proved to be confusing, double or not suitable. Thereby coding is kept flexible and open which is seen as an important factor of this method (SEIDMAN, 2006). Annex 3 provides a list of codes used during the analysis. By going through the transcripts and documents, passages dealing with different themes are marked, in each case using the same list of codes. As a result a single section can be marked multiple times or not at all depending on its importance for the process of analysis (NEWING, 2010). Passages which were difficult to categorize or contained important information not relevant for coding were attached to memos to be able to use these information for analysis as well. The codings and memos emerging from this method are used further in the process to analyze the potential of integrative nature conservation projects, with results presented in chapter 5.

This way of analysis allows a detailed assessment of responses of stakeholders for getting insights about their relationship to other sectors and their willingness for INC. However, to start the process of analysis it is necessary to investigate the practical context of the research. This leads to a description of the relevant sectors the stakeholders come from. This is presented in the subsequent chapter of this research.

4 Setting the scene

As indicated by the title of this study, this research focuses on the Western Baltic Sea, more precisely the coastal waters of Schleswig-Holstein. This chapter gives a short introduction to Schleswig-Holstein and its physical characteristics to explain the structures of the SES. In relation to the presented case study and the stakeholders identified in section 3.3.1, the organizational structure of sectors in this area provides a basis for understanding processes and actors present in the area under study.

4.1 Geography

Schleswig-Holstein is the most northern state of the Federal Republic of Germany with a size of 16,000 km^2 and has coastlines to the North Sea in the West and the Baltic Sea in the East (Figure 13).

Figure 13: Study area of Kiel Förde and Lübeck Bay (Source: Own figure)

Due to its location at two seas, Schleswig-Holstein has a coastline of 1.190 km of which more than half is along the coast of the Baltic Sea. The area of coastal lowlands is rela-

tively small (318 km^2), nevertheless gross value added (billion €/year), number of jobs and hotel beds are comparable to lowland areas at the North Sea coast (HOFSTEDE, 2008).

In 2011 almost three million people (2,802,266) lived in Schleswig-Holstein, mid-positioned of the states in Germany in terms of numbers and density (177 residents per km^2). In 2012 just about 50 % were residents of coastal regions at the Baltic coast (STATISTISCHES AMT FÜR HAMBURG UND SCHLESWIG-HOLSTEIN, 2013), namely Ostholstein, Plön, Rendsburg-Eckernförde, Schleswig-Flensburg, Flensburg, Lübeck and Kiel. According to residents Kiel, also the capital city of the state is the largest city with almost 250,000 residents (2012) (STATISTISCHES BUNDESAMT, 2013).

In 2011 the gross value added of Schleswig-Holstein and the number of employees indicated a service oriented economy, as presented in Figure 14. Hence, it becomes clear that the most important economic sectors, both in gross value added and employees, are public services, education and health, and private households, whereas agriculture, fishery and forestry are of least importance.

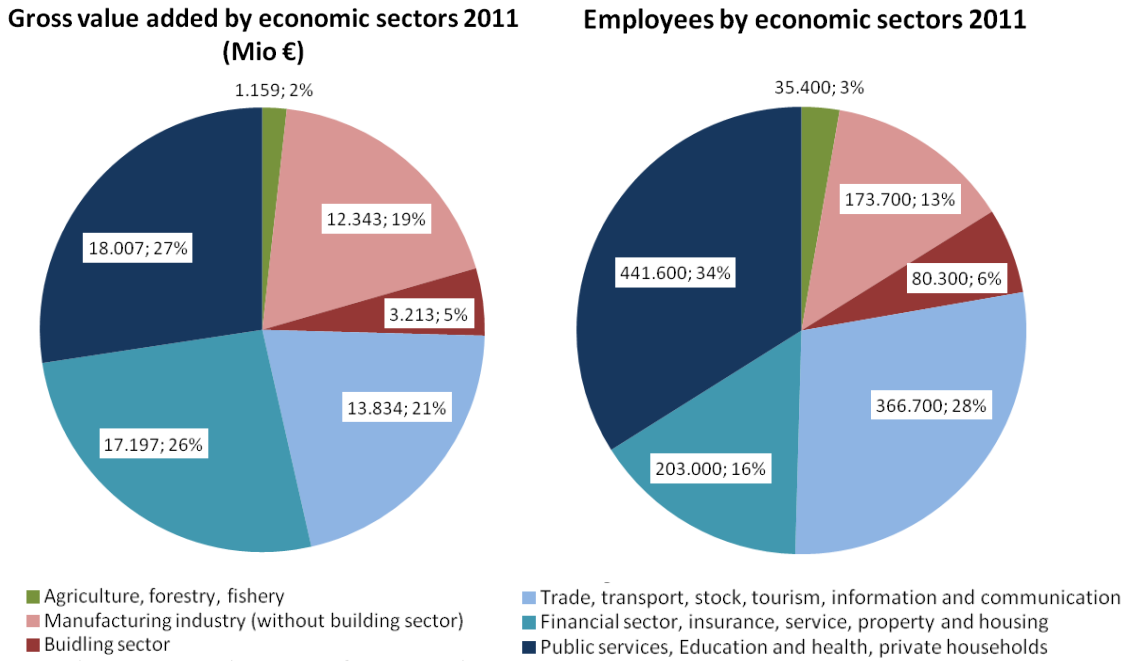

Figure 14: Economic structure by sectors of Schleswig-Holstein (Source: Own figure based on LANDESREGIERUNG SCHLESWIG-HOLSTEIN (2012))

4.2 Characteristics of Schleswig-Holstein´s coast

From a geologic perspective, the Baltic Sea is rather young as it just formed during the last ice age 12,000 years ago. It is a semi-enclosed sea with connection to the North Sea only by the Skagerrak and Kattegat in Denmark. Germany only holds 1.8 % (31,600 km^2) of the basin discharging into the Baltic Sea, but has a coastline of almost 650 km in Schleswig-Holstein. The main characteristics of the Baltic Sea are its low salinity (almost brackish waters) (DUPHORN, ET AL., 1995) and its micro-tidal feature,

meaning that there is only an average tidal move of 15 cm. Hence, there are diverse structures of coastline in the absence of strong leveling processes from tidal forces (SCHIEWER, 2008A). As all parameters determine the hydrology of the Baltic Sea – salinity, temperature, oxygen and nutrients - the connection to and water inflow from the North Sea are vital (DUPHORN, ET AL., 1995).

Biodiversity in the Baltic Sea is limited due to two main reasons. First, the young age of the Baltic Sea left little time for species development and second, the low salinity only favors few species, which certainly are often of high abundance if present (SCHIEWER, 2008). Especially in shallow coastal areas parameters such as light and temperature are highly volatile where only a few highly adapted species are capable of dealing with such conditions (SCHIEWER, 2008A).

The coastline of Schleswig-Holstein consists of inner and outer coastal waters, where inner waters are "Förden"[15], lagoons and other river mouth areas. In general, there is a high variety of coastal types; some researchers even talk about 10 or 12 different ones along the German coast, which are mainly due to the different resistance levels of soil and subsoil towards erosion[16] (LAMPE, 1996). Five reasons responsible for characteristics of coastal landscape at the Baltic Sea are defined by LAMPE (1996):

- Topographic, hydrographic and meteorological factors influencing strength of marine forces
- Pre-Pleistocene subsoil and relief
- Type and thickness of glacial deposit
- Holocene sea level rise
- Isostatic leveling processes

Along the coastline there is a leveling process going on consisting of parts of erosion, sediment transport and accumulation (leveled coast). In some areas, these processes are stronger than in others, determining coastal types. Schleswig-Holstein´s coastal processes in large are determined by erosion, leading to a retreat of the coastline on average by 34-40 cm per year (SCHIEWER, 2008A). This coastal retreat in combination with rearrangement of material, sea level rise due to climate change as well as isostatic developments, and an increasing frequency of storm surges puts pressure on protection and management measures of the coastal states of Germany, often leading to problems in their management (LAMPE, 1996).

[15] "Förden" (Fjords) are valley gaps of glacial origin which were flooded by rising water after the glaciers retreated. They are stretching far into the main land and are separated from the open sea by sills (SCHIEWER, 2008A).

[16] For detailed information about types of coastlines and their processes see DUPHORN ET AL. (1995).

4.3 Organizational structures of relevant sectors

In the following section, the focus is put on the description of organizational structures of relevant functions taking place in the project area and which are selected by using the method provided in section 3.3. This is essential for the research as it is necessary to indicate who might play a role in integrative approaches and on what juridical basis and therefore to understand the institutional environment.

4.3.1 (Coastal) Nature conservation

Nature protection in coastal zones in Schleswig-Holstein has always been difficult due to the long lasting tradition of tourism, leading to high pressure of development along the Baltic Sea. This results in the fact that nature protection was only possible in small areas which could be kept free from other uses (LAMP, 1996). Several instruments and actors try to ensure nature conservation despite these developments, as more than half of species and biotopes can be regarded as threatened in Schleswig-Holstein (MELUR, N.D.). This results in a network of areas protecting natural values and species. Those areas have different levels of protection, ranging from nature reserves to protected landscape (Figure 15). Additionally Natura 2000 and HELCOM sites are of importance, which are explained later in this section.

Nature conservation – also for coast and marine areas – is regulated mainly by a combination of the Federal Nature Conservation Act [BNatSchG], the Nature Conservation Act of Schleswig-Holstein [LNatSchG] and the Act for Responsibilities of Nature Conservation. For instance, a protection zone of 100 m from the coastal line is defined to protect ecological characteristics. However, many exceptions to this rule are stated where for example touristic and industrial activities and construction works are allowed (§35 (2) LNatSchG) (MELUR, 2010). Additionally, with reference to the above introduction of nature conservation practices (section 2.2) legal basis for intervention on nature and compensation measures shall be explained at this point. The impact regulation under Nature Conservation Law is a tool to reduce, prevent and to compensate negative interventions in nature on the basis of BNatSchG §§ 13-19 and LNatSchG §§ 8-11. Thereby the functionality of the natural environment outside protected areas is ensured. During approval procedure for plans and projects impacts on the environment (especially within Natura 2000 sites) have to be assessed, judged and solutions presented. This may be mitigation strategies or compensating measures[17] which have to be financed by the perpetrator of impact (MELUR, N.D. A).

[17] Compensation measures remedy of impacts caused by intervention in nature by an approximate equivalent compensation, with close connection to spatial, functional and temporal scale of affected function of nature. Sometimes financial compensation is possible (KÖPPEL, ET AL., 1998).

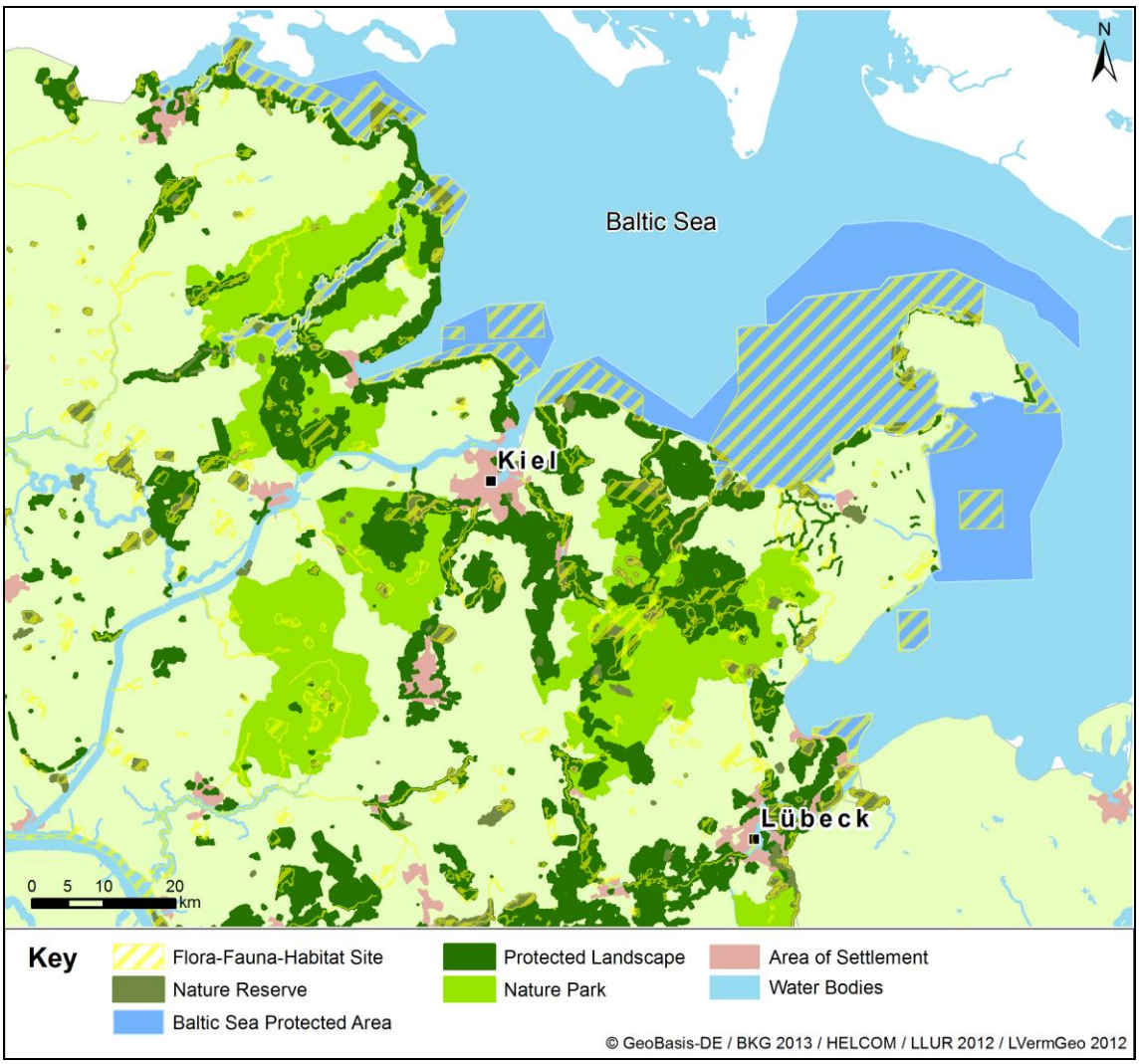

Figure 15: Important instruments for nature conservation at the Baltic Sea coast of Schleswig-Holstein (Source: Own figure)

Besides legal restrictions, regional development plans and planning instruments state explicit guidelines and objectives for nature conservation and the enjoyment of (marine) landscape in Schleswig-Holstein. Aim is to develop habitat connectivity to ensure areas of low or no disturbance and protection of functions of nature and cultural landscapes. This is designed to lead to sustainable use and development of coastal areas. Relevant habitats at the Baltic Sea coast include highly diverse morphological types of coastline such as cliffs, lagoons, barrier beaches and hilly countryside connecting to the hinterland (INNENMINISTERIUM DES LANDES SCHLESWIG-HOLSTEIN, 2006). To accomplish this goal different instruments on state, regional and local level are overlapping to form a hierarchical concept for protecting biodiversity and habitat (MELUR, N.D. B).

The Ministry of Energy Transition, Agriculture, Environment and Rural Areas of Schleswig-Holstein (MELUR) as supreme nature protection agency[18] tries to incorpo-

[18] Additionally: LLUR, functioning as upper nature conservation authority and the lower nature conservation authorities which are represented by the district administrator of counties or the mayors of urban districts.

rate three principles of action: provision (prevent damage and interference), perpetrator ('polluter-pays' and compensation) and cooperation (consensus and voluntary agreements). Next to agencies dealing with the environment and its protection, there are several associations in Schleswig-Holstein campaigning for these issues. Three of those have cause of action, thus being able to go to court to influence projects and to represent rights of nature conservation[19]. An Important role for nature protection in Schleswig-Holstein also lies within the "Stiftung Naturschutz Schleswig-Holstein" (Foundation for Nature Protection) which buys or leases land to develop it in favor of species and nature protection (STIFTUNG NATURSCHUTZ SCHLESWIG-HOLSTEIN, 2013).

Nature conservation in Schleswig-Holstein is also determined and influenced by European programs. There are three central directives which are relevant for the study area:

Natura 2000

On basis of the Habitat-Directive (92/43/EEC) and Bird Directive (79/409/EEC) member states of the EU commit to form a coherent network of protected areas on land and sea, called Natura 2000. Article 3(1) of the Habitats-Directive states: *"[…] This network […] shall enable the natural habitat types and the species' habitats concerned to be maintained or, where appropriate, restored at a favorable conservation status in their natural range"* (EUROPEAN COUNCIL, 1992).

Biotopes are connected in a spatial and functional network. This should be a core element of common nature conservation policies in Europe (GELLERMANN, 1998). Since 1996 Schleswig-Holstein named 311 sites (271 FFH- and 46 bird protection sites, with some being labeled both concurrently) including 156,000 ha of land and 765,000 ha of sea area (MELUR, N.D. D). Thereby Natura 2000 is the main tool for nature conservation as it covers 70.6 % of the two seas and 9.9 % of land area (34.6 % of total state territory)[20]. So far, however, implementation and creation of obligatory management plans, which shall be created by participatory processes and sharing of responsibilities (AUGST, 2007), in accordance to Article 6 (1) of the Habitats Directive is rather slow (European Council, 1992). Only a small portion of Natura 2000 sites had management plans implemented or in progress in Schleswig-Holstein in 2010 (26 out of 271 sites) (BFN, 2011).

HELCOM

The Helsinki-Convention was first signed in 1974 (ratified in 1980) and updated in 1992 (ratified in 2000) by all littoral states of the Baltic Sea and the European Commu-

[19] „Bund für Umwelt und Natur Deutschland Schleswig-Holstein" (BUND S-H), „Naturschutzbund Deutschland e.V. Schleswig-Holstein" (NABU S-H) and „Landesnaturschutzverband Schleswig-Holstein" (LNV-SH).

[20] Own calculation based on GEMPERLEIN (2004) and MELUR (N.D. D)

nity. Its objective is the protection of resources, species and habitat from any source of pollution and the creation and maintenance of ecological balance through intergovernmental cooperation[21] in coastal and marine waters of Baltic Sea under international law. The governing body of the Convention – Helsinki Commission, HELCOM – develops objectives and recommendations as a basis for development, provides information, monitors projects and coordinates action and programs (HELSINKI COMMISSION , N.D.).

HELCOM passed and developed the Baltic Sea Action Plan and Baltic Sea Protected Areas for reaching goals of the Convention. The system of marine and coastal protected areas in the Baltic Sea leads to a zoning of activities in a given area. Although the UN-objective to cover 10 % of the Baltic Sea with protected areas in 2010 was achieved, the success in Germany is limited. Reasons for this are the lack of concrete implementation according to guidelines defined by HELCOM, making it difficult to talk of a coherent network of protected areas (FELS, 2011). In Schleswig-Holstein seven BSPAs in coastal areas are named (partly also being Natura 2000 sites), but not yet officially managed[22], covering coastal areas with a total size of 253,462 ha (HELSINKI COMMISSION, N.D. A).

Marine Strategy Framework Directive / European Water Framework Directive

The Marine Strategy Framework Directive aims at establishing a good environmental status of the marine environment in Europe by 2020 through protection, prevention and restoration. Thus a legally binding framework is presented which ensures coherent, holistic and cross border environmental protection. Ten descriptors were defined with whom the present status is assessed in a first step with the help of existing directives (WFD, Natura 2000 and HELCOM). Based on this, a desired state and suitable indicators are defined (2012), catalogue of measures developed (2015) and implemented (2016). Additionally, monitoring of conditions of the environment as well as the process is introduced. It is supposed to make use of existing cooperation networks on regional institutional level (EUROPÄISCHES PARLAMENT, 2008).

The WFD provides similar aims and procedures but does not focus on marine environment, but on surface- (rivers and lakes) and ground waters. However, the WFD indirectly contributes to the improvement of marine environment as well, as a reduction of eutrophication discharge of nutrients improves water quality, diversity, habitats and ecosystem status in coastal waters. There are only few projects implemented in coastal waters, as there the MSFD is responsible for implementing measures (MELUR, 2012).

[21] Article 15 explicitly includes marine nature conservation as part of marine protection and is therewith the first international convention doing so. Besides, HELCOM defines lists of threatened species and habitats of Baltic Sea on which action programs for nature conservation are based (BOEDEKER, 2010).

[22] BSPA 173-178, and BSPA 180 as non coastal conservation (HELSINKI COMMISSION, N.D. A)

4.3.2 Tourism

Tourism is an important economic sector in Schleswig-Holstein. More than 170,000 people generate their income in tourism related sectors and in 2009 a gross revenue of 7.5 billion € was earned by day and overnight stay travels. This represents 6 % of the total income of Schleswig-Holstein. For the West coast of the state this figure is as high as 37.5 % (TVSH E.V., 2012). After the touristic boom in northern Germany in the 1980s and early 1990s a phase of stagnation followed with a slight decrease in overnight stays until 2005 due to various reasons[23]. Since then, the number of overnight stays has been nearly stagnant again (HOMP, ET AL., 2008).

Coastal areas in Northern Germany are highly attractive for tourists[24] mainly because of factors like beaches, sea and attractive landscape. In combination with typical maritime and historical attributes it is a popular destination, especially for coastal tourism and its related segments (SCHUMACHER, ET AL., 2010). To name but a few are water tourism related maritime events, water sports (e.g. sailing/motor boats, diving, fishing, surfing), shipping and water related tourism (e.g. bathing, beach tourism). Areas with highest focus are Kiel, especially for sailing events, as well as Lübeck Bay (sailing, fishing and diving) (DWIF - CONSULTING GMBH, 2012). Responsibility for tourism lies with many parties, ranging from ministries over agencies, associations and marketing organizations as well as information and administration associations on the local level (MWAVT, N.D.) This indicates the distribution of responsibilities for touristic development in Schleswig-Holstein actors through all vertical levels.

In nature parks, biosphere reserves and national parks sustainable tourism is supported and declared as a specific goal. Bringing environment closer to people and showing tourists the values and beauty of nature are seen as important features to support nature conservation and responsible use of natural resources (MELUR, N.D. C).

4.3.3 Diving

Diving becomes increasingly popular in the Baltic Sea among both inhabitants and tourists. It is therefore partly related to tourism sector. Against many expectations, there are many attractions and exciting flora and fauna to observe in the Baltic Sea. This biodiversity and the interest in fascinating nature under water is the main motivation for divers to come to the Baltic Sea (HILLER, 2006). Along the entire coastline of Schleswig-Holstein there are spots with more than 500 partly historical wrecks, sea grass beds and under water structures where fish and plants concentrate. In Schleswig Holstein there

[23] Shorter stays of tourists, competition with destinations abroad and economic developments (HOMP, ET AL., 2008).

[24] In 2006 43% of all inner German travel activities had coastal countries as their destination (HOMP, ET AL., 2008).

are several diving centers, schools (about 31) and associations (33 with about 3,000 members). However, often those schools are run as a second job which results in partly limited quality standards. Most interesting for divers are the Lübeck Bay due to high quantity of diving spots and some artificial reefs (DWIF - CONSULTING GMBH, 2012B).

Although the diving season is quite short in the Baltic Sea due to relatively low water temperature and light conditions in general, it can be said that diving facilities, natural conditions and quality can be considered very good (DWIF - CONSULTING GMBH, 2012B; HILLER, 2006). People mostly dive individually in Baltic Sea in small groups and without diving centers and shops nearby. But nevertheless there are centers offering excursions to diving spots by boat and diving equipment. Those diving centers could play a crucial role in establishing stronger diving tourism in Schleswig-Holstein (AHRENDT, 2012).

4.3.4 Sailing

The Baltic Sea is very popular for sailing and boating both for tourists and recreationists forming a part of the tourism sector as well. Reasons for this popularity are natural features (which are also very suitable for beginners) and very good infrastructural conditions along the coast. In total there are 136 marinas at Schleswig-Holstein´s Baltic coast with 20,953 berths, of which there are 24 (5,819) in Kiel Bay and 52 (8,920) in Lübeck Bay, underlining the importance of these two areas for boating activities. Additionally all together almost 30 sailing schools and more than 50 charter businesses exist in this area (DWIF - CONSULTING GMBH, 2012B).

Boating and sailing is always in close relationship to nature, as this activity is carried out depending on natural features of the area. Nevertheless conflicts between interests of sailors and nature conservationist are possible, too. In Schleswig-Holstein, sailing associations try to prevent these conflicts by introducing advisory boards for environmental protection (like Cruiser Association Schleswig-Holstein) (MVSH, 2013) or board members for environment as the sailing association of Schleswig-Holstein has done. Additionally, this association presents “10 Golden Rules” for environmentally friendly sailing and boating, information about Natura 2000 and voluntary agreements as well as an explanation of important terms about nature. This indicates that there is a serious attempt to make people aware of the importance of environmentally friendly behavior (SVSH, N.D.).

4.3.5 Coastal protection

Although responsibilities lie with agencies – MELUR as the upper coastal protection agency and the government-owned Company for Coastal Protection, National Parks and Ocean Protection (LKN-SH) as a lower coastal protection agency – coastal protection is

the task of those benefiting from it, if not stated differently (§62 (3) WasG SH). In many cases these are municipalities, regions or other parties. Juridical basis is the State Water Act of Schleswig-Holstein and a long-term strategy provided by the (not legally binding, but strongly self-committing) Master Plan for Coastal Defense, launched in 2012 after a participation process. It includes guiding principles, action and development goals for coastal protection up to 2025. One of the principles especially important for the Baltic Sea coast is safeguarding of the coast. The goal is to protect only settlements and important infrastructure form erosion and to leave other coastal areas free from interference to keep natural dynamic processes of coastal spits (MLR, 2012).

Nature conservation in particular as well as other functions are also stated and partly regulated in both the State Water Act and the Master Plan. Claims and interests are included in planning and development of coastal protection as early as possible. This may encourage socio-economic and ecologically sustainable development (HOFSTEDE, 2008). Additionally, an Environmental Impact Assessment (EIA) has to be carried out after testing necessity for constructions which heavily interfere in nature and landscape, followed by compensation measures. By doing so it is ensured that environmental issues are considered while protecting humans and values from coastal forces (MLR, 2012).

4.3.6 Harbor and industry

Harbors of Schleswig-Holstein at the Baltic Sea are of international importance as they have connections to the Eastern European states, Russia and Scandinavia. Especially for Roll-on / Roll-off (RoRo) and passenger shipping the harbors of Kiel and Lübeck are highly frequented. Therefore they greatly contribute indirectly and directly to the economy of Schleswig-Holstein by providing impulses for growth, jobs and tourism. In 2005 about 40,000 employees worked in harbor related industry and harbors directly. The fact that the harbor of Kiel it is located at the Kiel Canal which connects the North Sea and the Baltic Sea and therefore provides a shortcut between the Seas on the way to Eastern Europe, makes Kiel particularly attractive for freight traffic (INNENMINISTERIUM DES LANDES SCHLESWIG-HOLSTEIN, 2006).

The harbor of Kiel shows positive development in terms of turnover figures for goods and passengers. Turnover increased by 12.5 % in 2011 compared to 2010. There is a similar development in arrivals and departures of ships, increasing by 2.5 % in the same period, and passengers arriving and leaving Kiel (here the increase is 2.7 %) (STATISTISCHES AMT FÜR HAMBURG UND SCHLESWIG-HOLSTEIN, 2011). In total 71 ha of the waterfront of Kiel Förde are used as harbor area and 279 ha for including industrial and commercial functions (among others a power plant for electricity and thermal energy) (BÜRO PLUSFÜNF, 2011).

4.3.7 Land-use planning and programs

Land-use planning in Germany lies with the responsibility of the states. This means that the national state only provides a general framework and guidelines for spatial development, but plans are made on state level. In Schleswig-Holstein, the LEP and regional plans are conducted, and municipalities define plats and zoning plans adapted to federal state planning. The LEP therefore provides a strategic framework for regional planning, stating goals and objectives and defines priority areas for certain uses, such as nature conservation, tourism and recreation or wind power (MINISTERPRÄSIDENT S-H, 2012).

Most important for coastal development is the LEP as being the only document where spatial planning of coastal zones is steered. Although regional plans provide some statements for use of the sea, they do not offer a comprehensive consideration of marine and coastal issues (INNENMINISTERIUM DES LANDES SCHLESWIG-HOLSTEIN, 2006). Objectives and goals regarding an integrated development are the sustainable use of potentials, regional strategies, reducing land use conflicts, coordination of interests of use, ICZM and an integrative view of sectoral planning. Since 2001 spatial planning of coastal sea is integrated into land use planning, calling for an adaptation of goals and objectives. Therefore the ICZM-framework in 2003 and the ROB in 2005 were developed, building a strategic framework and stating problems, recommendations for actions and management processes (ICZM) of the sea and coastal zone respectively (INNENMINISTERIUM DES LANDES SCHLESWIG-HOLSTEIN, 2003; 2006). But due to the fact that those are only strategic and not legally binding, implementation (of ICZM) stays vague and project based.

Next to land use planning, several projects exist focusing on coastal management, regional development of the coast or adaptation to climate change. Examples are ‘Küstenklima’ (Figure 16), ‘Kieler Förde Rahmenplan’ (Figure 21, p.54) and ‘RAdOst’ (Figure 25, p.78). Those projects, partly supported by the nation or federal state, try to encourage cooperation and networks between different stakeholders of research, planning and politics to enhance sustainable development of the coast.

Example 1: Küstenklima

The development of recommendations of actions and solution possibilities through case studies is the goal of the project Küstenklima. By spatial planning and integrated coastal zone management conflicts of the coast should be minimized and resolved. There are four case study sites along the German coast, of which the Kiel Förde and Lübeck Bay is one.

Municipalities and the Ministry of Internal Affairs of Schleswig-Holstein are involved to develop ways to adapt to climate change. Of particular interest are activities which secure coastal protection (beach management), drain the hinterland in cases of heavy rain and climate protection. By considering the context of intensive touristic use of the area suitable ways and tools are identified. This is done by active participation of involved stakeholders in an experimental game.

Figure 16: Example of a project for coastal development in terms of climate change in Kiel Förde and Lübeck Bay (Source: Own figure based on RAUM & ENERGIE (n.d.))

4.4 Overview of relevant stakeholders

The previous sections have shown that various issues influence development in the coastal zone of Schleswig-Holstein. Not only its geological and economic structures and characteristics, but also multiple functions with related stakeholders exist (Table 3).

Table 3: Overview of the relevant sectors and their role in the study area (Source: Own figure)

	Main actors	Role in the study area	Important programs / directives / instruments
Nature conservation	MELUR, LLUR, lower nature conservation authority, nature conservation associations and foundation	long lasting tradition of opposing functions made nature conservation difficult; high area protection to some extent; good (legal) instruments provided	BNatSchG, LNatSchG, Natura 2000, HELCOM, MSFD / WFD, compensation measures, protected areas of differnet levels of strictness
Tourism	MWAVT, touristic agencies and associations of state and local level, marketing organisations, local operator	high economic importance; numbers are stagnating on high level; water tourism highly attractive; also efforts in sustainable tourism, using natural values for attraction	//
Diving	associations, diving schools and diving centers, divers	increasingly important as attractivity of Baltic Sea among divers is appreciated; standard and quality of infrastructure sometimes limited; provides potential for expansion	//
Sailing	associations of state and local level, marinas, sailing schools, charter businesses	very popular (not only for tourism sector), try to encourage environmenally friendly behavior	//
Coastal Protection	MELUR, LKN-SH, municipalities / individuals	less important for Baltic Sea coast (except for proection agains erosion)	WasG-SH, Master Plan for coastal defence (2012), compensation measures, EIA
Harbor and industry	harbor of Kiel, harbor of Lübeck, association of harbors	high economic importance for growth, jobs and tourism	//
Spatial planning / programs	responsibility of the state, influences regional planning	defines development in Schleswig-Holstein and ist coastal zones, sustainability	LEP, regional plans, plats, priority areas, Spatial Planning Report for Coast and Sea, regional programs

It becomes obvious that despite its importance for harbor and shipping industry, the main identity of the area lies in its touristic function which is highly dependent on a good natural status and touristic infrastructure. Next to the tourism industry and its actors, diving and sailing are indirectly linked to touristic activities, further indicating its importance for the region. However, nature conservation is gaining higher importance due to European as well as national and state instruments.

The sectors presented in this chapter and their role are essential for the analysis of the possibilities to introduce an integrated nature conservation approach in the coastal zone. Their relationship to other sectors – nature conservation in particular – and their willingness for INC, implementation of concrete projects under consideration of ecological restoration influence the result. Additionally, spatial planning can support but also hinder such approaches in practice, as it provides general framework for development in Schleswig-Holstein.

5 The Potential of integrative nature conservation in Schleswig-Holstein

Having identified and described the stakeholders who play a role in the management of the case study sites, the (institutional) structure of this coastal socio-ecological system is further explored. A special role is taken by administrative management of coastal waters, as this is not a clear stakeholder of using space in the coastal zone. Nevertheless, it is involved closely in coastal management, especially by the implementation of the case study project, MSFD and nature conservation.

Factors are analyzed which influence the implementation of INC while putting emphasis on the five indicators defined in chapter 3 in combination with success factors for INC stated in the theoretical background. Integrative nature conservation is a suitable approach to enrich nature conservation practices in scarce space and under human development. Nevertheless, for implementation multiple obstacles have to be overcome. This chapter defines such limitations, but also estimates possibilities and supporting factors to set up INC based on ecological restoration in the case study area. Annex 4 presents the data this analysis builds upon.

5.1 Relationship between stakeholders

The way in which sectors interact and cooperate at the Baltic Sea coast of Schleswig-Holstein is very heterogeneous. This is due to the fact that relationships between nature conservation actors and other sectors are attributed to different beliefs and historic experiences. Based on these structures, there are different conditions needed to improve the relationship between stakeholders.

Compared to the past, the general relationship between nature conservation sector and other actors has improved. This is mainly influenced by a higher sensitivity and awareness towards environmental and nature conservation issues in society (XX9, 2013; XX12, 2013). Besides, nature conservation became stronger on European level through directives such as Natura 2000 (XX1, 2013). But property rights and perceived constraints in planning caused by the inclusion of natural demands still reduces affinity towards approaching the nature conservation sector (XX3 & XX4, 2013).

Despite the generally positive development, relationships among stakeholders are still very complex as state actors, associations and researcher perceive different levels of conflict, experiences (often none, or even negative) and acceptance. This results in strong local differences of structures and domination of sectoral thinking (XX11, 2013; XX7, 2013). State actors, for instance, see most severe conflicts with tourism, as eco-

nomic interests of municipalities in addition to the priority of touristic use in most coastal areas negatively influence the relationship between stakeholders (XX12, 2013; XX2, 2013). Two reasons are responsible for that: First, touristic infrastructure and activities put pressure on natural areas, which often is too severe for nature conservationists to accept. And second, as tourism is too fragmented in its structures, nature conservation is not coherently approached which leads to high resistance between the two sectors. A factor amplifying this is the lack of trust, especially on the ministerial level (XX1, 2013; XX2, 2013). However, particularly tourism and coastal protection perceive the relationship as generally good and intense resulting in compromises and common projects. This is because nature (conservation) is used for better marketing of own interests and to make their work more effective. As nature conservationists have a different opinion on this issue, misunderstandings, prejudices and differences in cooperation can occur.

On the other hand, a strait relationship between associations (sporting and harbor industry) and the nature conservation sector results from the fact that there have hardly been rapport and concrete projects, either due to lacking reasons to do so, or the perception that nature conservationists are acting too pressing in their demands. This may result from the feeling of being an unequal partner in discussion as it is perceived that nature conservation is ignored and neglected in planning, mainly on local level (XX3 & XX4, 2013). Cooperation therefore only takes place if urgently needed because *"we don´t hate each other"*[25] (XX10, 2013, L.142) and to make virtue out of necessity (XX1, 2013). To conclude, the relationship between associations and the nature conservation sector can best be described by sectoral co-existence and *"calm vigilance"* (XX8, 2013, L.18).

One main reason for including nature conservation is regulation by law such as compensation measures, Environmental Impact Assessment, lawsuits or plan approval procedures. This is especially true for sectors which strongly depend on juridical regulations like coastal protection and the harbor industry. But also for nature conservation, pressure created by lawsuits sets a basis for being included. Although providing clear structures for cooperation they are not voluntary and of collaborative manner (although high in quality), resulting in *"cooperation of convenience"* (XX10, 2013, L.161).

It becomes obvious that based on the complex relationships between actors, different types of cooperation emerge. Most actors in the coastal zone show a strong cooperation within their own sectors, often across multiple-levels, but work less in cooperation with stakeholders from other sectors. In the tourism sector, for instance, operators on the local level, as well as regional institutions, municipalities, single service providers and

[25] The citations used are author's translations, as originating from interviews.

ministry work closely together to present and develop touristic products in Schleswig-Holstein (XX11, 2013).

When looking at the nature conservation sector itself, it becomes obvious that there are differences of types (multi-level and multi-sectoral) of cooperation on an institutional level. Whereas the Ministry (MELUR) shows mainly strong cross-sectoral cooperation on the same level and less cooperation with lower levels, the association of nature conservation has good sectoral cooperation, but other almost only occurs out of juridical reasons. The level which is most diverse in its horizontal and vertical structures of cooperation is the local level of administrative nature conservation. Its connection grounds on the fact that it is bound to the instructions of ministries and state agencies. At the same time, it works with local users and affected people as well as municipalities (politics), other state agencies and touristic associations. This generally provides good opportunities for integration of other sectors and levels in coastal management.

Based on the described relationships – and probably interviewees´ position, too – responsibilities of actions and leadership are seen differently throughout the sectors, a fact which negatively influences the possibility of cross-sectoral cooperation as it is hard to find common ground. What is alike (except for nature conservation association which is skeptical in this regard) is the fact that the state plays an eminent role in managing cooperation. Merely the degree of its influence varies between the sectors. Although supported by state agencies through funding, guidance and strategic advice, the local level plays most important role in tourism, sporting associations and nature conservation.

As opposed these, for sectors relying more on juridical decisions (coastal protection and harbor activities) or representing the state level themselves, the state takes bigger role in planning and management by funding and setting juridical certainty on various levels. In this context, even associations are public bodies under State Water Act (XX6, 2013), which indicates that cooperation between the coastal protection sector and associations of other sectors is actually influenced by state action as well. Additionally, little capacity and representatives are seen on the local level to take leadership (XX1, 2013). Connecting these two views, the local nature conservation agency is responsible for drawing attention to statutory regulations and requirements for approval of development, whereas the importance of local level is stressed as well. This diverse structure of responsibilities, where state and local level are opposing and combined respectively, might cause equally diverse opportunities for cooperation between multiple actors. Those can lead either to problems of implementation as responsibilities are not clearly defined, perplexing the process or they can create strong multi-level networks.

The structure of relationships between sectors in coastal Schleswig-Holstein is diverse and to some extent ambivalent as described above. Conditions can be identified which are considered to be necessary to better implement INC by cooperation. This provides an indicator of high validity to examine its potential as similar demands among stakeholders may enhance approaching of actors and successful communication.

First precondition seen by all stakeholders is the need for dedication and openness of involved individuals and parties. This is also influenced by patience, courage, trust and common agreement on (conservation) goals. However, to initiate closer relationships in the first place, interest and diligence is required as well as someone taking the lead. That cooperation *"[…] just emerges or is present per se, I cannot observe"* (XX11, 2013, L.498). Thus, active involvement of parties is needed, who can commonly develop strategies and plans to become part of the final result and feel benefits[26]. Ideally, local actors (associations) are involved and steer such processes, as they know the circumstances and the context of the area. This may lead to less mistrust, which is more likely to be achieved if projects are steered in top-down way (XX3 & XX4, 2013).

However, as a second condition, guidance and financial support by the state is seen as vital for long lasting cooperation. Thereby capacities are created leading to better situations concerning personnel, time and funding. Especially co-financing could be helpful, which has not been easily done so far. Thus, willingness, interest and active involvement are not only needed on local level, but also should exist on higher levels (agencies and ministry) for encouraging cooperative processes. And thirdly, learning among stakeholders is regarded as essential to identify ways in which it works best concerning the contextual factors. Therefore, concrete projects are needed where cooperation can be tested and trust grows slowly. According to XX1 (2013, L.465) one has to *"frequently talk to each other, take small steps and see if it works. I think it doesn´t work with heave-ho."* This indicates that integrative processes cannot be forced, as they are closely linked to ongoing discussions and adaptive learning which enhances common understanding as well as awareness towards other party's needs.

As this section has shown, the current relationship between actors from nature conservation and other sectors in the case study area is not intense, except for economic or juridical reasons. Little cooperation and rapport exist across sectors (tourism showing most contact, though). This limits the potential for integrative nature conservation as in literature cooperation has been defined as urgently needed for integration.

[26] Experiences of a dialogue process between tourism and nature conservation have shown that one can reach more in terms of appreciation and consideration of natural issues in operation of tourism if solutions are found together and not just presented by conservation sector (XX11, 2013).

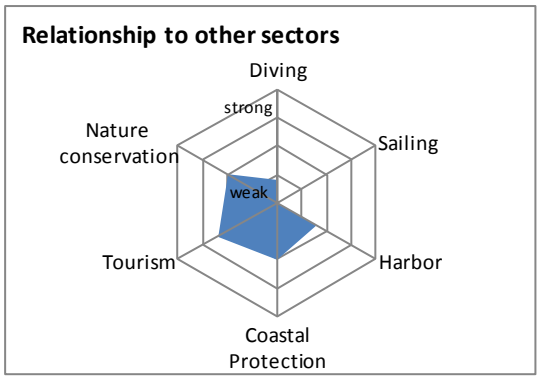

Figure 17: Summary of the relationship of resource user to stakeholders from nature conservation or vice versa (Source: Own figure)

Figure 17 provides a schematic overview of the level of relationship between nature conservation and other sectors. Nevertheless, common understanding about conditions needed to improve relationships between actors and thereby foster cooperation, provide a basis for positive development.

But questions remain as to how far realization seems to be possible. The subsequent section elaborates on that, as it analyses willingness of stakeholders to implement INC projects at the Baltic Sea coast.

5.2 Willingness to take part in integrative nature conservation projects

The possibility of accommodating nature conservation in existing functions in coastal waters strongly depends on the willingness of stakeholders to do so. This is influenced by perceived synergies, own benefits and expectations in joint processes. Synergies are particularly important, as they provide reasons to combine functions in the first place. Stakeholders have to feel that benefit from cooperation is higher than of working alone.

The descried synergies of a combination of nature conservation and other sectors are diverse and include resource efficient use of the environment, increasing acceptance of nature conservation while selling touristic products and improved marketing strategies, combining functions in one area by spatial and temporal allocation of uses as well as including environmental aspects or natural development in fulfilling juridical duties. It is obvious that some of the above support INC better than others. For instance it has to be kept in mind that identified synergies from respondents XX10 (2013) and XX6 (2013) result from regulations and forced juridical processes, not indicating a process where different parties enter into discussion on an equal. Nature conservation is rather used to get permits for actions which are not primarily aimed at supporting natural development. On the other hand, measures such as the separation of an area in sectors of intensive use and in sectors which are reserved for natural development, or temporal separation where only use are allowed in parts of the year (XX8, 2013; XX5, 2013; XX3 & XX4, 2013) certainly reduce reasons of conflict. Thus, although conservation and development rather coexist than are spatially integrated, clear management of an area is provided commonly. As different functions can be carried out without disputes after common negotiations it can be regarded as synergetic to some extent, too.

Expectations and benefits of integrative nature conservation are still strongly dominated by economical aspects (added value, jobs, attracting more tourists), particularly for tourism. This is partly contrasting with demanded outcomes and beliefs of nature conservationists as here a separation of functions in planning as a benefit of cooperation between different stakeholders limits the willingness for integrative projects. That associative nature conservation does not see the need for raising awareness through educational work provides an indication of difficulties in reaching consensus over common projects and developments (XX3 & XX4, 2013). This discrepancy of benefits and expectations of common projects also becomes evident when considering other actors.

Trust between nature conservation parties and other users of the coastal zone is an essential factor for the willingness to join cooperation projects as it helps to solve problems more quickly and simple (HEINRICHS, 2013). But only respondents XX8 (2013) and XX6 (2013) mention trust positively in relation to nature conservation sector. This may indicate limited confidence between actors. The general willingness to implement integrative nature conservation projects is influenced by an open relationship towards other stakeholders. This includes the comprehension, provided by almost all stakeholders, that there are multiple functions in Schleswig-Holstein which are of great importance. They see the need to weight interests of society and natural values and assure that *"nature conservation is not antisocial"* (XX1, 2013, L.555). A second indicator for openness in management is practice with integrative projects. Positive experiences, joint understanding and the fact that actors know each other result in a higher affinity. Examples for projects delivering that are UNDINE (Figure 18) and RAdOst (Figure 25, p. 78). This shows that sectors may provide common experiences to learn from. Although it is not always clear which motives lead to such collaborative projects and if those were successful, the rationale of talking to actors outside own sectors is created.

Example 2: UNDINE

UNDINE (Underwater discovery and nature experience) is a German-Danish project launched in 2012 (running until 2015) which has the aim to make the underwater world of the Baltic Sea visible for public as well as users of coastal waters. This results in a touristic upgrading of the area and a sensitizing of the society for the need for protection of these local habitats. Focus area in Germany is the Lübeck Bay. Partners from environmental education, nature conservation, tourism and media design are included, where leading role lies with nature conservation.

Concrete outputs of the project are short underwater movies shown in touristic facilities, diving monitoring, guided snorkeling tours, information boards at the beach, marine environmental education and public relations.

Figure 18: Example of a project combining tourism, diving and nature conservation in Lübeck Bay (Source: Own figure based on BUND-SH (2012))

Despite high synergies and benefits of combining development and nature conservation (Figure 19), only few actors seem to be keen on this and pushing cooperation in practice (except for juridical reasons). Therefore, sectoral thinking and activities at the coast still

predominant and are further supported. Part of the reasons for limited activity towards higher integration is explained in the following section.

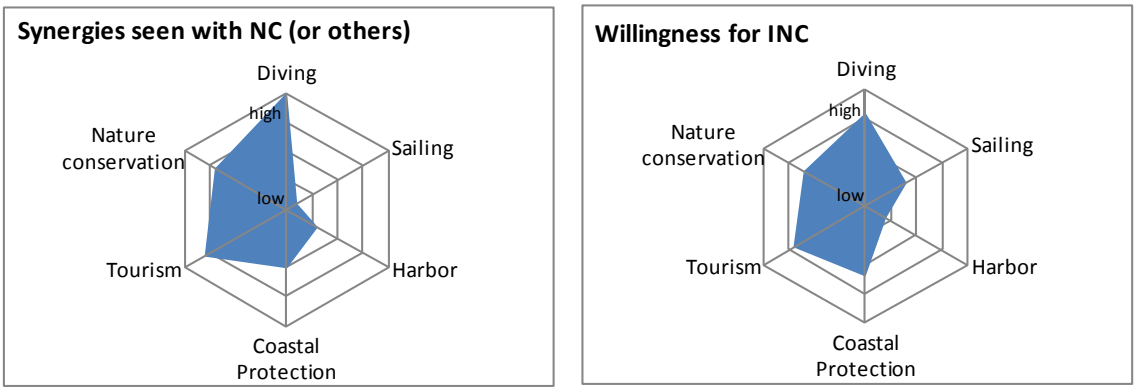

Figure 19: Summary of the synergies perceived between stakeholders of nature conservation and other sectors and vice versa (left) and the willingness for integrative nature conservation (right) (Source: Own figure)

5.3 Barriers to cooperation perceived by stakeholders

Whether there is potential for integrative nature conservation projects is also determined by factors perceived by stakeholders, which hinder them to take part in such. As a first factor, limitation is seen in lacking institutional capacity to initiate or carry out cooperation over long time periods. This includes funding because (co-) financing by different sectors and programs is often complicated, if possible at all (XX7, 2013; XX11, 2013) and funds for common projects is limited in most cases anyway (after project financing is finished). Additionally, even though willingness and good ideas for joint projects exist, they are not realized as personnel, time and knowledge of relations among stakeholder, politics and agencies are lacking. Much depends on whether individuals in certain – often higher – positions are in favor of a project or not. Respondents XX12 (2013) and XX5 (2013) for instance stress that cooperative projects are not designated in their state agencies, thus no time is left to implement such projects next to every day work. Jobs are carried out within a small frame according to responsibilities and better capacities for implementing cooperation are seen elsewhere, further hindering joint projects. Also, responsibilities for initiation are shuffled between stakeholders and levels.

The perception that sectors are too far apart in their way of thinking and their demands is adding another limiting aspect. Actually it is not surprising that all stakeholder set priority on their own goals, be it economic, legislative or of environmental purpose. If lobbying leads to reduced openness towards other interests and demands, constructive dialogue and communication might be blocked out, limiting willingness to enter a process in first place. Especially actors from nature conservation perceive negligence because *"[…] the problem is of cause that nature conservation is always lagging behind. Anthropogenic uses […] are already present and our problem is that nature conserva-*

tion simply attracts too little attention (XX4, 2013, L.26-28). Despite this perception of stakeholders, economic arguments in a rather structurally weak state such as Schleswig-Holstein are very strong. Discussions with equal roles of sectors which may contribute to jobs or added value on the one hand and lobbying for protection of natural values on the other hand, are difficult to lead.

Probably the biggest hindrance towards more integration perceived by all actors in one way or another, are problems of the mindset of stakeholders to integration. This is because habits are deeply rooted in understanding grown over long time periods, incorporating that *"cooperation can only be carried out by someone thinking in an integrated way. But to approach integrative thinking is still difficult for humans. They start doing so, but only if things got already in a mess. And then often just for short time*" (XX1, 2013, L.406-408). Further, conflicting beliefs and understanding of nature (conservation), mistrust and prejudices towards other sectors are identified which can be grounded on bad experiences or historical developments. The fact that many actors perceive strictness in the philosophy of *"hardliner"* in nature conservation (XX8, 2013, L.122) or *"orthodox ecologists"* (XX7, 2013, L.66) as limitation towards more cooperation, creates serious difficulties in practice. Adding up to that might be the fact that nature conservation is incoherent in its own goals and limiting progress as *"one wants to protect the butterfly and the other the bird and both don´t fit in the same landscape"* (XX12, 2013, L.291-292). This is complicating management and causing conflict even among nature conservationists. The ability of people to adapt to new situations and demands often takes long to strengthen as learning processes are very slow (XX1, 2013).

Often, simply the fact that no need is seen for (further) cooperation with nature conservation and other sectors prevents such processes. This causes situations where it is unlikely that someone is taking the lead in joint processes, as conflicts are not pressing enough and lawsuits strongly regulated anyway. This fact indicates limited interest and dedication throughout all sectors, although both are urgently needed to implement long term integration.

Figure 20 provides a schematic overview of the level of limitations seen by stakeholders to cooperate with actors from nature conservation, or vice versa influencing the potential of. First striking thing is the fact that there is a high number of limitations perceived, indicating an overall reduced potential for integrative projects as stakeholders can often find reasons not to campaign. Secondly, it becomes clear that most limiting aspects seem to be very pressing for stakeholders, as they are named by almost all of them.

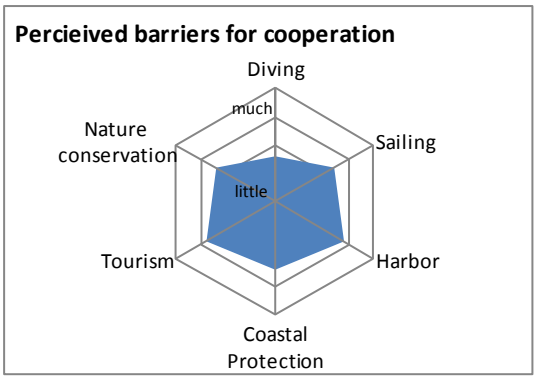

Figure 20: Level of the barriers perceived by stakeholders for cooperation with nature conservation (or vice versa) (Source: Own figure)

These are not only exogenous, but also include aspects of willingness or problems in the mindset of society and involved actors. However, a common understanding of problems and limitations towards cooperation and integrative projects sets the basis for equally lead discussions. To achieve this, it is urgent that stakeholder know impediments from each other. Only then, a joint problem solving towards synergetic INC is possible.

5.4 Framework conditions

Laws and regulation play a significant role in the management of coastal zones. These documents, next to financial regulations and political conditions, set the conditions in which integrative nature conservation has to take place and are seen as important for supporting cooperation by the stakeholders in Schleswig-Holstein. Instruments specifically named are the LEP, landscape/regional planning, Natura 2000, compensation/plan approval procedures, lawsuits, Nature Conservation Acts and Building Act.

Generally, it is stated in the LEP that regions are to be strengthened by transferring responsibilities and support away from the upper level in order to guide regional development and planning in a place-based and coherent way. Especially cooperation and partnerships between public and private institutions – and state and municipalities – can provide an integrated network of stakeholders enforcing sustainable development of coastal zones across all levels (Figure 21).

Example 3: Rahmenplan Kieler Förde

Rahmenplan Kieler Förde is a cooperation project between municipalities along the Kiel Förde and the city of Kiel to develop integrated planning of the area. Thereby inter-municipal synergies shall be recognized, developed and combined with development processes to better position the area in inter-regional competition. Therefore it functions as an initiator of further cooperation between municipalities. Goal is to develop a master plan for further actions and regional cooperation agreement.

The project covers multiple topics and focus areas such as quality of living / recreation (including keeping national resources, consideration of ecological demands and nature conservation), sports / leisure / health / infrastructure and businesses, industry and trade. Additionally cross-cutting issues such as demographic developments and climate change are considered.

The planning process is attended by the development of four "Fördeatlanten", documents stating the current situation of the area, guiding principle and key projects, participation and projects and target budgeting. The process started in 2010 and is still proceeding.

Figure 21: Example of a project for inter-municipal cooperation in the study area (Source: Own figure based on ARBEITSGEMEINSCHAFT REGION KIELER FÖRDE (N.D.))

Although specific sectors are not named, planning shows a rationale for general openness towards multi-level thinking in regional management, even though formulation is often vague. However, the fact that most mentioning of cooperation and partnership are sectoral (often inter-municipal) could be seen as limitation to the inclusion of other sectors. On the other hand, a positive culture of cooperation is created which could result in higher openness towards multi-sectoral collaboration. The LEP even recommends openness towards informal cooperation processes and encourages an ecosystem approach in planning (INNENMINISTERIUM DES LANDES SCHLESWIG-HOLSTEIN, 2010).

By following the approach of ICZM, there is a coordination requirement for spatial planning in coastal waters (INNENMINISTERIUM DES LANDES SCHLESWIG-HOLSTEIN, 2010), which aims at aligning claims of spatial uses and integration of relevant sectors as an objective of spatial planning. Generally, the main objective is "*using potentials of the coastal zone […] while keeping natural dynamics of coastal ecosystems and to enforce a sustainable and environmentally friendly development* (INNENMINISTERIUM DES LANDES SCHLESWIG-HOLSTEIN, 2010, P. 25). However, the fact that coastal concerns are only dealt with on the state level (and are not implemented in regional plans, see section 4.3.7) involves the danger of foregoing a more place-based planning and management and not overcoming the strategic level towards concrete implementation.

Next to tourism, which is often combined with considering natural values, only coastal protection is considerably mentioned in planning. At the same time, a focus on other administrative sectors in combination with natural issues seems not appropriate. The factors mentioned so far indicate that the legal framework in Schleswig-Holstein generally provides a sound basis for managing coastal socio-ecological systems.

What is interesting in the context of creating favorable situations for cooperation is the fact that due to limited available public money in Schleswig-Holstein, financing of projects with inter-municipal cooperation are particularly supported. Although this does not give any indication about combinations of different sectors, it generally provides a possibility to profit from strengthened networks. Despite that, practice may show a different picture. Although compatibility with nature conservation objectives has to be assured in planning, the idea of marine resources being a livelihood for humans and therefore (next to its own value) requiring protection, assumes an understanding of nature that prioritizing use (INNENMINISTERIUM DES LANDES SCHLESWIG-HOLSTEIN, 2004).

Further, two limitations to the integration of particularly tourism and nature conservation have to be mentioned. First, according to the LEP, touristic development follows the strategy of *„Maritime holiday country"* (INNENMINISTERIUM DES LANDES SCHLESWIG-HOLSTEIN, 2010, P. 86), which indeed draws attention to coastal areas, but does not in-

clude aspects of nature or sustainability as a leading image, providing guidance in planning development. Second, creating multi-functional projects on basis of compensation measures is hardly possible, as there is no financial support given by legal structures[27]. With regard to nature conservation goals and its preservation decree, inevitably, such projects are meant for conservation purposes only. In this context money is ring-fenced and co-financing is impossible (XX5, 2013; MELUR, 2010). Especially the latter aspect limits multi-sectoral ecological restoration projects, although they could provide chances to include different stakeholders from the beginning of a planning process.

Being part of the framework conditions, political goals and structures influence functional and socio-ecological integration negatively. Political structures are inconsistent for long-term planning due to short legislative periods. Additionally, high interest of municipalities in taxes and the economy to foster structurally weak regions reduces political and institutional support for the enforcement of consideration of natural demands. Besides, individual opinions of politicians can hamper progress towards more integration. Additionally, locally segregated strategies to "use" nature conservation for stronger (touristic) positioning are hindering. As institutions of tourism (according to XX1 (2013)), as well as nature conservation (according to XX2 (2013)), are not organized coherently along the coastline, there are multiple actors to quarrel with when trying to initiate cooperation. This discourages actors from starting such processes and makes communication more complicated and conflict-laden for INC.

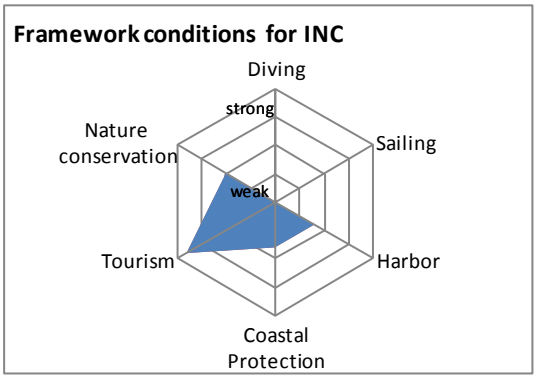

Figure 22: Summary of the level of framework conditions supporting integrative nature conservation (Source: Own figure)

On balance, potential for INC derives from the fact that spatial planning is generally favoring cooperative development and consideration of natural aspects, especially in setting up touristic products. However, political and financial structures are limiting factors due to difficulties for practical implementation. Figure 22 presents a schematic overview of the level of framework conditions to support INC.

[27] Compensation measures are regarded as a good tool for cooperation, especially for coastal protection or the harbor industry.

5.5 Understanding of concepts

To implement functional as well as socio-ecological integration, shared knowledge among the stakeholder is needed. Only if basic understanding of principles, objectives and conditions is common a basis is provided for actors from different functions to establish joint projects. This section presents the understanding of INC as well as multiple-use and ICZM of the stakeholders.

5.5.1 (Integrative) Nature conservation

Looking at the understanding of integrative nature conservation among different stakeholders, a differentiated picture emerges. Although not all of them know the term of INC, stakeholders had a good understanding of what is important about this concept with only the degree of combination of use and nature conservation differing. Nevertheless, in practice ICN is often equated with a sustainable or more responsible use of nature. However, this does not automatically lead to a combination of different functions which INC aims at. When looking at the understanding of nature and the degree of differentiation between pure protection and use, one gets an idea about the attitude towards the combination of other functions with nature conservation aspects.

First aspect to mention is the understanding that in natural areas the focus should lie on use. Using space (commonly) is necessary for implementing nature conservation successfully (XX6, 2013; XX9, 2013). However, the intensity of use is regarded as context dependant and should be considerable to respect natural features and to ensure sustainable development (XX7, 2013). In one case sustainability strategies (for tourism) are named as examples for INC (XX2, 2013), what makes obvious that this concept would probably not have been considered without pressure from the outside. Besides, using resources in a sustainable way does not necessarily imply INC as it does not include the active combination of functions.

However, opposing to that, there are also opinions about integrative nature conservation putting the main focus on nature. INC to the viewpoint of nature conservationists can only mean introducing natural aspects in other functions such as tourism and fishery for more sustainability. Protected areas or other areas of high natural value have to stay free of interference (XX3 & XX4, 2013). Although it depends on the type of integration, nature should generally not be regarded merely as a product of use (XX5, 2013). However, little was stated about the direct combination of nature conservation and development.

Even when looking at the rather contradicting views on integrative nature conservation stated above, the boarders between those are rather smooth. Therefore it comes by no surprise that a balanced approach is favored by most stakeholders, especially from

economy, research, but also administrative nature conservation. They take account for the fact *"that we cannot charm away humans from the Baltic Sea"* (XX12, 2013, L.309), but nevertheless see the need to find a wise combination of protection and use, indicating a general willingness towards integrative approaches. The principle of "nature conservation at all cost" or "economy at all cost" is seen as not practical any more. Next to the advantage of INC of increasing acceptance towards nature in society[28] (XX1, 2013), it has to be taken care of the fact that nature conservation goals are not lost out of sight what could result in bad compromises (XX11, 2013). In any case it is difficult to find a balance between use and protection in practice appropriate in the local context.

The opinion on valorization of nature[29] as a nature conservation tool also gives implications about the understanding of nature and therefore influences the perception of integrative strategies. To generate benefits from nature, one has to be willing to use it and to combine it with different functions. In general, it is seen as an interesting approach worth being concerned with. Especially the tourism sector benefits largely from this approach, as it generates gains for the economy by using and "selling" natural resources, thereby using natural potential. That may indicate that nature is only worth something (for tourism sector) if it generates profit. However, valorization is only useful – obviously – if it is ease on the environment and resource efficient (XX2, 2013; XX7, 2013). Some conservationists even say that there is no other chance than to care about valorization in nature conservation in future to might provide stronger argumentation for nature conservation in political and social debate than arguing on an ethical basis (XX1, 2013; XX11, 2013). Nevertheless, interviewees are still skeptical to how to implement this approach successfully. What is mainly criticized is the fact that implementation is difficult for two reasons. First, the controversial debate whether putting a monetary value on nature is ethically acceptable or not (XX1, 2013). The second, this approach has to be conveyed to the society which might be difficult (XX3 & XX4, 2013). For successful implementation valorization should be politically managed and funded. Otherwise it will remain a theoretical concept (XX6, 2013).

5.5.2 Multiple-Use

The perception of utility of multiple-use concepts is seen ambivalent among experts from different sectors. Although it is seen mostly as an *"urgently needed"* (XX10, 2013, L.40) approach for conflict resolution, there are also opposing views, especially from nature conservationists and tourism actors. Positively seen is the fact, that joint solu-

[28] Only respondent XX8 (2013) regards INC as not necessary for increasing acceptance, as nature conservation has become self-evident due to its pushing development in the past. Nature conservationists could rather come to rest.

[29] Generating monetary benefits from using nature, and therefore seeing the value of protection.

tions rather than forbidding certain functions in coastal zones are most appropriate for solving conflicts in areas where many users share same space. Otherwise lawsuits might be slowed down in administrative processes, especially when nature conservation has to be included on basis of law (XX1, 2013; XX10, 2013).

However, on the other hand, the combination of functions is identified as a reason for conflicts instead of a tool for solving those. Respondent XX5 (2013) states, that adding uses to nature always causes interference with habitats therefore counteracting nature conservation goals. Especially unstructured uses have negative effects on nature[30]. XX2 (2013) sees difficulties for multiple-use in tourism as well. Wind turbines in coastal areas, for instance, may reduce the attractiveness of those areas. As coastal tourism in Schleswig-Holstein is an important economic factor, a conflict-laden situation might emerge.

Nevertheless, there are examples for multiple-use in coastal areas with the possibility to include nature conservation aspects. Artificial reefs provide an improvement of benthic habitats as plants and animals cover new hard substrate, therefore increasing biodiversity. This could be beneficial for diving (tourism), too, as attractive diving spots are created (XX12, 2013; XX9, 2013). Additionally, artificial reefs could have an effect on coastal protection as well, reducing wave height and changing sedimentation patterns along the coast which may lead to a broadening of beaches (XX7, 2013). However, this aspect is seen rather controversially as its positive influence is questioned (XX12, 2013; XX6, 2013). The most appropriate way of combining uses including nature conservation is to allow activities which take place on paved ways without technical support such as bird watching and walking. Nature can cope with this and get used to it as intensity of use is rather low (XX5, 2013).

5.5.3 Integrated coastal zone management

Although it is a popular approach to manage coastal areas in a more integrated way, the term ICZM is rather vague, as seen in section 2.1, and in practice, there are limitations and difficulties to it. This is supported by almost all interviewees as most of them define it as a rather nebulous concept where benefits are not clearly visible (XX12, 2013). XX2 uses the term *"cloud-mover"* (2013, L.492) for people working with ICZM, meaning that a lot is done, without delivering concrete results. Nevertheless, its importance is seen in bringing structural thoughts into management of coastal zones, and the ability to combine disciplines to face climate change makes it interesting for experts (XX1, 2013).

[30] Respondent XX5 (2013) identifies (kite-) surfing as a big issue at the moment, as due to its popularity high pressure is put on small dune and beach areas, which is ecologically not compatible any more. Nature is not able to adjust as fast as intensity of surf-activities increases.

What is clear among the interviewees is the denotation of the term "integrated", meaning that all sectors which use the coastal area are included in its management and preservation (XX9, 2013; XX10, 2013). In the end in results in an ecological system combined with economic aspects. Besides, the combination of existing juridical rules of nature conservation, spatial planning and heritage towards multifunctional uses in the coastal zone is understood by ICZM (XX2, 2013).

A distinction has to be made between the perception of the theoretical concept of ICZM and the experiences stakeholders made. Whereas theoretically it is described as an open and beneficial communication, including early information sharing between levels and scales to reduce resistance and solve conflicts, in practice there are no positive experiences stressed by the interviewees. Implementation of ICZM at the coast of the Baltic Sea seems to be somewhat difficult. It is a lengthy process to start integrated management, as changing habits of stakeholders is difficult if not impossible, especially if property rights are touched (XX7, 2013). Additionally, heterogeneous structures are identified as an obstacle as well as unclear responsibilities (XX11, 2013; XX5, 2013). Respondent XX8 (2013) even sees no need at all for management processes at the coast, as no problems occur due to the fact that functions are too far apart anyway. This makes an incorporation of all stakeholders in a common management process redundant. Especially this paragraph shows how ambiguous the concept of integrated coastal zone management is, and that it is not entirely clear what it actually means. However, common understanding of the interviewees exists, about severe obstacles in implementation which should be overcome for more sustainable use of the coast.

Conditions for improvement of ICZM are named. First, concrete projects as a fundament of the concept are needed which generate profit (XX2, 2013). This is especially relevant for the tourism sector to overcome reservations (XX11, 2013). Additionally, long-term commitment by all involved stakeholder, monitoring, evaluation and updating of planning process could enhance ICZM. This is basically in line with the characteristics of ICZM, underpinning the theoretical comprehension of stakeholders.

Generally it can be said, that common knowledge about the combination of nature conservation and development is present among the stakeholder. Although there are small differences in the perception, the need is seen to position nature conservation between the extremes of use and pure protection (showing higher tendency towards using nature). This is in line with the understanding of multiple-use, which is related to that. However, limitations are provided, as the nature conservation sector is skeptical about multiple-use and INC. In terms of ICZM common understanding exists of theory and practice, although the latter is not perceived positively at all.

5.6 Assessment of sectors convenient for ecological restoration in coastal waters

According to the theoretical framework presented in this study some aspects have to be fulfilled in order to successfully implement INC (section 2.2.2). When considering these aspects in addition to the insights of the assessment of indicators presented in the previous sections, a coherent picture can be drawn of sectors which provide better synergies to implement joint projects in coastal waters in Lübeck Bay and Kiel Förde (Table 4).

Table 4: Assessment of potential for integrative nature conservation of stakeholders relevant in study area (Source: Own table)

Sector	Insights from indicators	Judgement of potential
Diving	▪ little experiences and (history of) conflicts ▪ synergies and benefits possible ▪ no initiative rather co-existance / independance ▪ nature: use / conserve it together	There is high potential in terms of possible synergies and willingness (artificial reefs, environmental education), but cooperation and capacity are limited.
Sailing	▪ little willingness / incentives for cooperation with NC ▪ little synergies / trust / capacities ▪ NC should be positioned between use and protection	No potential for close cooperation exists as stakeholder is indifferent about NC projects.
Harbor industry	▪ cooperation only on legal / administrative basis ▪ no interest in common projects (synergies, benefits) ▪ focus on economic incentives but balancing of nature and use necessary	There is hardly potential for common projects outside of a legal framework (plan approvval ...).
Tourism	▪ experiences with common projects ▪ partly conflicts, prejudices and heterogenouse structures ▪ large capacity, supportive legal framework ▪ high economic interests, impairment by nature (law) ▪ synergies with nature conservation ▪ limited need / willingness for including NC ▪ nature for being used (resource efficiently), valorization	Tourism provides good potential on local level in terms of synergies and general framework conditions, but it could develop into an unequal or unbalanced relationship with NC. Eventually willingness is limited but as there is interest from nature conservation site for cooperation room for development exists.
Coastal protection	▪ strongly based on regulation / law ▪ no clear synergies (artificial reefs?, funding?) ▪ sectoral, coastal protecion superior ▪ little experiences outside regulation (implementation lacking); initialting change in peoples mind difficult ▪ (administrative) coastal protection of limited relevance for Baltic Sea	There is limited potential for administrative coastal protetcion outside of the legal framework. However opportunity exists for projects outside administrative structures but for that much effort needed in terms of convincing parties and financing.
Coastal waters	▪ high interest in / knowledge of coastal ecological systems ▪ little capacity / responsibility ▪ difficult /restricted relationship to nature conservation ▪ no clear synergy (raise acceptance for ecosystems)	As this is no 'real' resource user there is little potential for joint projects. However, nature conservation can be supported in projects or planning by providing knowledge about coastal ecology and processes.
Associative nature conservation	▪ not active in cooperation outside lawsuits ▪ little capacity, experience and cooperation outside NC ▪ feeling of not being equally positioned in planning / cooperation ▪ no clear synergies and benefits	Associations provide little potential for INC as allocation is prefered to integration. Additionally high mistrust towards other sectors exist.
Administrative nature conservation	▪ diverse structure of cooperation (especially on local level) ▪ experiences with informal cooperation processes ▪ little capacity for action outside responsibility ▪ open towards learning / experiments / integration ▪ synergies seen (with tourism)	High potential for INC exists, especially on local level as there are many options for benefits. But it could be difficult to keep position within process and to weigh the allowed level of disturbance.

Generally, the potential varies strongly between different stakeholders. Although there are synergies between nature conservation and most other sectors, obstacles such as a missing culture of cooperation, institutional limitations as well as problems in the mind-set of stakeholders constraint successful the long term implementation of INC. The fact, that ER as a measure for nature conservation was not named by any of the stakeholders may indicate limited awareness or interest to it. It becomes obvious that governmental

nature conservation in combination with tourism and diving provide the best potential for integrative nature conservation, but to different extents, out of different reasons and tainted with different obstacles. Those three sectors are looked at more deeply in the subsequent sections.

5.6.1 Administrative nature conservation

Ecological restoration projects as presented in the case study are of high value for nature conservation, although this opinion might be varying among different nature conservationists (section 2.2.1). It can be assumed that this is also the case in Schleswig-Holstein, as respondent XX12 (2013) indicates that nature conservation is not always coherent within itself and might have a disinclining view about compensation measures. Besides, it has to be kept in mind, that the case study project is characterized by uncertainty with regard to whether this testing project works over a long period of time and whether it is worth turning it into an ecological restoration project. Only if it works it will provide benefits for stakeholders to invest in. Nevertheless such projects provide many synergies if implemented in a multifunctional way.

A strong argument for administrative nature conservation to join INC projects is the fact that there is a diverse structure of cooperation already present, especially on local level, offering formal as well as informal processes. As indicated above, a strong network exists between levels and sectors, which allow cooperation with local resource users while keeping support by the state level. Additionally, already existing cooperation provides experiences and set the basis for evaluation and learning. As a second argument in favor of INC, positive willingness can be stated. Benefits of artificial reefs for educational and awareness rising purposes as well as the creation of new habitat and diversity in coastal waters support the motivation to join combined projects. Rising awareness among society as well as policy makers on local level is regarded as particularly important, as still little is known about coastal waters, its ecological functions and potential emerging from those. This results in rejection of artificial reefs, as macro algae are rather seen as disturbance for people from municipalities, as it defiles beaches (XX12, 2013). Higher knowledge might reduce this image.

Tools to put these benefits in practice are seen in environmental education (information boards, school programs) marketing and pilot projects such as the case study provides. Due to being strong in promotion, tourism provides an appropriate partner for this pointing out the synergies resulting from integrating nature conservation and tourism. Therefore it is not surprising, that (ministerial) nature conservation is seeking for more intense contact, providing a basis for future cooperation. However, only as long as nature conservation goals are not lost out of sight, despite the fact that tourism is of high

status in Kiel Förde and particularly Lübeck Bay such cooperation is possible. To weigh the level of integration of touristic aspects in nature conservation projects has to be carefully done. In this context the project of UNDINE can provide insights and knowledge for learning how to deal with such measures in coastal waters, as it combines environmental education and tourism with partners of both sectors (XX11, 2013). Additionally, diving and to some extent coastal protection can profit as expectations of synergies are fulfilled (improvement of natural habitat and diving spots and artificial reefs for less erosion along the shore). A second project which has leading character is the provision of guided tours in protected areas and bird protection sites which are usually closed for public access providing a good example of synergetic cooperation of tourism and nature conservation (XX1, 2013).

Positive effects can emerge for general attitude towards natural demands, therefore benefiting other areas as well and also strengthening nature conservations positions politically. However, here lies a severe limitation for nature conservation to take part in integrative projects. Permanence of effects and long-term efficiency needed for successful INC are questionable and difficult to measure. Only if improvement of awareness leads to a change of habit among society and planners, willingness for INC projects is justified. Additional barriers exist, which hinder implementation in coastal waters by nature conservation agency. First, there is the lacking responsibility of to initiate ER projects on local level as *"the task of Nature Conservation Act as it is applied in Schleswig-Holstein indicates keeping stock"* (XX5, 2013, L.26), which is contrasting to the idea of reintroducing new habitats. And second, nature conservation sector is generally hardly active in coastal waters due to the fact that responsibility for Natura 2000 has been shifted to the agency responsible for coastal waters and the WFD does not considerer coasts as areas for active measures, although *Fucus* has been identified as key species[31] (XX12, 2013).

All in all, it becomes clear that for the nature conservation sector strong potential for integrative nature conservation is present. Reasons are a supportive culture of cooperation as well as benefits and synergies with tourism and diving. This supports ecological restoration projects for *Fucus* in Lübeck Bay and Kiel Förde and fulfills requirements stated in literature. Otherwise, there are also limitations which are not neglectable such as problems of capacity and responsibility as well as not measurable efficiency on the long term and skepticism on multiple-use of nature.

[31] Here MSFD might take over when implementation phase has started, although funding is still unclear.

5.6.2 Tourism

Stone placements in coastal waters of Lübeck Bay and Kiel Förde can be used by the tourism sector for generating a new touristic product, which increases attractiveness for tourists and improve marketing of the area. Although respondent XX2 (2013) draws high attention towards the economic use of natural resources for touristic purposes, the respondent also stresses the importance of this use being compatible with nature and resource efficient. This might still not be in line with all nature conservationists as it is questionable in how far such a pressing and dominating sector can really use nature sustainably[32]. However, in terms of combining protection and development in one area it may offer advantages for nature conservation as well. By providing access to natural areas or showing natural diversity and attractiveness to tourists in an organized and structured way, acceptance and appreciation of nature (conservation) can be increased. Additionally, environmental education provides a sellable touristic product and rationale of close cooperation of both sectors in common management of natural areas. Each stakeholder can contribute specific expert knowledge that both parties can profit and learn from. Additionally, experiences already exist with cooperation as the project of UNDINE (Figure 18, p.51) provides comparable ideas. The described synergies between nature conservation and tourism were presented by administrative institutions. As actors of ministerial tourism give strategic advice towards municipalities and associations, their attitude towards nature (conservation) is also reflected in planning on a lower level and can therefore enhance multi-functionality on local level.

A strong legal framework supports sustainable tourism practices and an inclusion of touristic functions in natural areas, as long as ecosystems are not hampered too much[33]. Spatial planning puts an emphasis on experiencing nature, livability and tourism under the rationale of preserving diversity and natural values, especially in priority areas of nature and environment or tourism and recreation. Although direct cooperation between stakeholders of those two sectors is not mentioned, there are some evidences for possible partnerships. Focus being set on environmental education, observation of nature, sustainable tourism and regional development in priority areas (MELUR, 2010). Other functions are explicitly not excluded, thus setting legal base for using those areas. Especially water tourism is of particular interest as its objective is to make coastal areas come more alive and improve touristic valorization of the water front.

In terms of the relationship between the two sectors potential for INC has to be seen more skeptically. Tourism is a very strong partner in Lübeck Bay as well as Kiel Förde,

[32] Using natural resources by adding economic value to prevent it from destruction (XX2, 2013) is contradictory.

[33] This might be a point of discussion. Defining "too much" is difficult, as perception probably differs strongly between nature conservationists and touristic actors.

as arguments for more economic growth – expectations from and goal of tourism – are often pressing. This may push nature conservationists in a defensive position, which results in mistrust between actors and an unbalanced relationship. It may be argued that this relationship results from the fact that the tourism sector uses nature for its purposes, which means that pressure and conflict is still high between both sectors. Indeed, the relationship between the two sectors is described as rather complicated at the Baltic Sea coast. Nevertheless, potential for improvement is seen by respondent XX11 (2013) and administrative nature conservation on various levels supporting closer cooperation. In combination with positive experiences from common projects especially on local scale, this provides a chance for stronger cooperation with synergetic outcomes.

The local level is ascribed relevant role for a more successful realization of integrative project, making development strongly area-based and context dependent. Small scale projects such as artificial reefs proposed in this study fulfill the need for providing insights from stakeholders operating on the local level. Acceptance of society for such projects might be generally positive. Firstly, not only tourists but also residents can profit from the proposed combination of functions, as it is suitable for (sustainable) recreation and environmental education alike. Secondly, joint projects with nature conservation and tourism functions strengthen the perception of natural values in society. On the other hand, however, the problem might also be that society and officials from municipality are disturbed by dead algae on the beaches, which probably occur more often if bladder wrack is increasingly introduced into coastal waters (XX12, 2013).

Actually, though, it is still questionable to what extend the tourism sector sees a need to implement such projects which would be sharply reducing the potential for realizing INC, despite the benefits and synergies it provides. Especially at Lübeck Bay, where such projects for touristic purposes would be suitable, development in other direction of marketing is not likely. *"One would not use 'nature' as a heading but one would rather use the sea and bathing and beach. For that there are too many interested parties that it would be stupid not to do so"* (XX11, 2013, L.230-232). For Kiel Förde, a similar problem occurs. The touristic concept of the city of Kiel does not include goals such as sustainability or protection of natural resources. The economic potential has priority in determining developments of the touristic sector (N.I.T, 2008). This situation is not assumed to change in the future, as long as neighboring countries do not increase competition among touristic destinations. Here economic potential could be an incentive for developing new strategies which include natural values to bigger extent. This attitude of tourism towards nature is supported by the current tourism concept of Schleswig-Holstein launched in 2006, as it does not include key projects about sustainability, ecology or nature (MWAVT, 2007).

Another factor, which may limit synergetic effects, lies in the understanding of nature of administrative tourism which is more extreme compared to that of the nature conservation sector described above. Although nature is regarded as habitat for humans, therefore interlinking culture and environment, one can argue that tourism as intensive as it is carried out at the Lübeck Bay can hardly be resource efficient. There will always be high pressure resulting from infrastructure and touristic activities. This fact can result in difficulties in implementing integrative nature conservation projects, as it carries the risk of neglecting nature conservation goals. Nevertheless, for artificial reefs, touristic pressures can be assumed to be less, as accessing those areas requires the ability to dive or snorkel. By showing video recordings in information centers or other touristic places, as it is done in UNDINE, nature is kept intact but can still be valorized by tourism.

Thus, although there are strong synergies between nature conservation and tourism in the study area and the legal framework as well as spatial planning support integrative projects, many obstacles have to be overcome in order to successfully implement integrative projects. A conflict-laden culture of cooperation and a limited need for projects with ecological background in areas of sea- and beach-tourism as practiced in Lübeck Bay represents major limitations. Nevertheless, as (administrative) nature conservation actors mainly on local level, have experiences with cooperation and still seek for a closer relationship, a basis for increasing the potential of INC is established.

5.6.3 Diving

It comes with no surprise that ecological restoration measures leading to improvements of habitat in coastal waters are of high interest to divers. The attractiveness of the rather sandy sea bed is increased, making diving more exciting. Therefore Lübeck Bay might be more suitable for implementing such projects, as on that location there is little hard substrate, where species can settle. In Kiel Förde, on the other hand, there are many small harbors and groins where high diversity is already in place. When projects like the case study are initiated by the nature conservation sector, synergies and willingness to support such structures are high within the sector of diving. In combination with the understanding of nature as something which can be used in responsible way and should be protected commonly, high potential emerges. This fits in with the opinions of nature conservationists. Besides, the fact that diving is an activity which is generally environmentally friendly is supportive as well. Additionally, openness towards multifunctional developments have supportive effects as it is recognized that space in coastal areas is limited for all functions present and the conflict-free relationship to nature conservation.

However, this potential is weakened by limited structures of active cooperation with nature conservation. The diving sector is working rather independently and co-exists

with other functions, as no need is seen for further cooperation, although both parties have same interest in intact nature. There are possibilities to include actors of nature conservation in projects such as TaMOS[34] – a monitoring project of divers in the Baltic Sea – which actually benefits nature conservation as well, as knowledge gained from monitoring underwater habitats can be of high interest for research. This could hamper any initiative to joint projects notwithstanding the fact that willingness is high. On the other hand, it can be argued that due to lacking relationship no conflicts exist, resulting in an unbiased relationship which can be supportive for initiating new cooperation. Nevertheless, it is not discernible to what extent capacities exist in terms of personnel or financing for diving actors to join cooperation processes with nature conservationists. Therefore, the relationship may be unequal over the long term, as diving associations have 'not much to contribute' compared to (administrative) nature conservation. On the other hand, if such capacity does exist, there is a chance to implement INC as often administrative bodies lack financial needs for collaborative projects.

In conclusion it can be stated that synergies are very high between nature conservation and diving which supports the implementation of ecological restoration projects for macro algae in coastal waters. Nevertheless, limited capacities, experiences from joint projects and little willingness to initiate cooperation between the two sectors might hamper integration. If these obstacles can be overcome, potential of collaborative projects in Lübeck Bay or Kiel Förde is very high. However, in order to use it, necessity rises of better merchandise diving e.g. by including quality standards and labels. This could strengthen its position as an important part of water tourism, especially as demand for such as indicated by tourists exists (DWIF - CONSULTING GMBH, 2012B; HILLER, 2006).

5.7 Overall potential of INC at the case study sites

When summarizing this chapter in terms of the ways integrative nature conservation fits into structures of stakeholders at the coastal zone of Schleswig-Holstein, a diverse picture of possibilities and limitations is drawn. Overall it can be said that potential in the context of the presented case study is low, where limitations in relationships / cooperation (as urgently need for integration), willingness (for providing the incentive in the first place) and the high number of barriers carry weight. In contrast, supporting framework conditions (at least for some sectors) and mostly common understanding of how to value nature are favoring INC exist. The importance of the local level, governmental support, adaptive learning and dedication of involved partners is among other aspects regarded as vital for further and more successful cooperation by almost all stakeholders.

[34] www.tauchmonitor.de

By including actors of coastal waters, knowledge about coastal dynamics and processes could be introduced, too, which benefits all actors.

When comparing Kiel Förde and Lübeck Bay, as providing different functions, it can be concluded that the potential for INC is higher at the latter. This is due to the fact that tourism and coastal protection are more relevant at this location. Besides, as less hard substrate from harbors, marinas or groins exist compared to Kiel Förde, ecological restoration in terms of stone placements at this place might be more interesting for nature conservation as well.

For the case study project this means that creating new habitat by placing stones in coastal waters of Lübeck Bay and Kiel Förde provides ecological restoration, which can most likely be used for diving (tourism), environmental education, habitat creation and sustainable tourism. Willingness of actors and the general framework are favoring a combination. Of particular importance is the fact that synergies are seen by actors of both tourism (XX2, 2013; XX11, 2013) and nature conservation (XX5, 2013; XX1, 2013) producing incentives to join cooperation process. This creates higher prospects of success and dedication than juridical forced cooperation, though eventually synergies can be reached here as well. However, implementation is difficult due to many barriers (Figure 23). One reason being, that the success of (initiating) implementation lies in the goal of nature conservation that is desired. Ecological restoration, however, is dependent on the willingness to interfere in natural processes, even with an aim which supports biodiversity. Therefore the understanding of the relation between humans and nature of the involved parties becomes essential. This, however, differs as local administrative and associative nature conservation partly rejects an integration of the two aspects in contrast to actors of tourism.

Limitations identified for INC

- little experience in cooperation
- co-existence
- no initiative for cooperation
- little willingness / interest / incentives
- limited capacities
- little trust
- focus only on one sector
- prejudices
- heterogeneous structures
- feeling neglected / inequality between sectors
- NC not coherent within own sector
- no responsibility
- different understanding or nature (conservation)
- limited dedication

Figure 23: Limitations identified in the process of multifunctional development in coastal waters of Schleswig-Holstein (Source: Own figure)

Initiation could be provided by all stakeholders (for nature conservation this should be done by the Ministry, as local agencies are bounded by instructions). However, when it comes to financing, structures become unclear and possibilities limited. Using project funding could be an option (which is only limited in duration) as well as BINGO-Lottery, a lottery which finances projects with focus on environment or nature conservation, or private investors. Each is providing obstacles in its own right, such as limited

duration which is not ensuring re-use or a shift in power relations, or exclusion of administrative stakeholders, which would result in an exclusion of almost all possible sectors. A tool to increase potential for ecological restoration with multiple-used aspects by strengthening cooperation – adaptive co-management – is applied to the case study context in the subsequent chapter.

6 Introducing an adaptive co-management perspective

The shift in nature conservation practices towards a combination of protection and development goals comes along with new institutional situations stakeholders have to adapt to. Relationship between stakeholders, willingness and institutions are not always feasible to support multifunctional development on a long term basis as proposed in the previous chapters. For a better process of integration, there is a need to change governance process towards higher adaptability and integration by overcoming current limitations to INC identified above. By introducing key aspects of adaptive co-management (section 2.4) into current governance practices, socio-institutional relations of higher quality can emerge. The key issues under consideration are: enabling supportive policy, strengthen leadership, creating arenas of collaboration and introduce ongoing monitoring and evaluation. Those aspects influence governance in different phases of the process and are identified from theory as being suitable to overcome limitations of current socio-institutional relations. In this chapter, the question shall be answered to what extent this can be transferred to the case study area and increases the potential of INC.

6.1 Policy change

Enabling legislation that creates better conditions for integration could support collaborative management as it becomes simpler and above all legally securer. By doing so, responsibilities can be distributed in a better way between local nature conservation agencies and resource users such as from tourism and diving. This distribution should occur before the governance process, creating a framework which provides assurance to the process and regulates responsibilities and (financial) capacities. Thereby incentives certainly for administration are provided to initiate and join cooperative processes and stakeholders, who put a focus mainly on one sector – often tourism or the harbor industry. Those can be motivated to take natural aspects more into account when developing coastal areas, thereby strengthening cross-sectoral planning.

The analysis of documents and interviews has shown that cooperation between different sectors and levels is only partly supported by the LEP. Including aspects not only for inter-municipal cooperation but also precisely for partnerships between different fields of interest could create a framework stakeholders are guided by. As agencies do not see themselves vested with responsibilities for initiating cooperation (XX6, 2013; XX5, 2013), the respective roles for every level of integrative projects is stated. Besides, the fact that each stakeholder regards a different level as being responsible distribution of power could be clearer distributed from the start. Especially combining tourism and nature conservation is supported if this is stated clearly to prevent an unequal process.

Next to stating clear responsibilities between the levels and sectors, a change in policy can also support cooperation by providing higher and better distributed capacities, namely funding, personnel and time especially for joint projects. Up to now, stakeholders do not know of any financial structures providing such support (XX1, 2013) or only complicated ways to use co-financing (XX7, 2013). An important point also stressed by the stakeholders deals with the problem of using project funding for personnel, which is hardly possible, leading to shortcomings in human capacity (XX3 & XX4, 2013; XX11, 2013; XX12, 2013). Thereby, changing policy for better financial support for cooperative projects and its implementation become more attractive. Here, the LEP already provides a basis, as inter-municipal projects are funded. However, this could be enlarged to also include inter-sectoral efforts. However, institutions have to stay flexible enough to leave room for change, adaptability and context-dependency while on the other hand setting a clear framework for cooperation.

6.2 Leadership

Leadership is of particular importance for the process of adaptive co-management as it ensures that a mediator keeps an eye on the relationship between participants and supports the process by guidance and coordination. Only by ensuring that collaboration takes place throughout all phases, multi-sectoral projects can be successful. Additionally, reflection of the process at the end of implementation and common learning is supported if someone is taking care of it and bringing all parties together.

This is also appreciated as an important condition for successful cooperation process by almost all respondents, supporting the governance process, as the willingness to be guided is present in the first place. Nevertheless, there is a discrepancy of who should be responsible for leading the process, whether individuals should come from agencies (seen by respondents XX11 (2013), XX6 (2013) and XX1 (2013)) or associations (according to respondents XX3 & XX4 (2013), XX12 (2013) and XX10 (2013)). Both levels have advantages such as ensuring legal security, but also disadvantages. However, government always remains important. A long-term connection of the leading party to the Baltic Sea coast can be helpful in any case as details are known and trust between the involved parties emerges more easily. *"Such individuals will be viewed as effective mediators in resolving conflict"* (ARMITAGE, ET AL., 2009, P. 101).

By introducing leadership, either by independent individuals or the government, many identified limitations of the communication processes at the Baltic Sea coast can be resolved or at least reduced. Co-existence of the sailing and the diving sector with nature conservation and limited initiative of parties of an integration process can be counteracted as a leading party brings stakeholder together and pushes them towards coopera-

tion. Besides, diverse structures of tourism and nature conservation can be organized in a better way. As someone is leading the process, heterogeneity does not have as much influence on the cooperation process as it is clear which stakeholders have to be dealt with. Leadership can help to arbitrate between parties and to cause a common understanding of concepts and a consensus about goals and negotiate problems from different mindsets (also within nature conservation sector itself). A mediator is especially important for balancing and securing the relationship between tourism and nature conservation sectors towards more equity by taking care of power relations and the collaborative character of the process. Besides, a highly motivated leader can increase dedication and confidence of all involved parties as well.

Obviously, leadership should be present from beginning to end for keeping long-term success of integrative nature conservation project and to monitor and evaluate the process. BORRINI-FEYERABEND ET AL. (2007) introduced the idea of a start-up team to set up the adaptive co-management process before leadership is taken over by stakeholders participating. The idea of respondent XX8 (2013) to have an institution for environmental education which acts inter-sectoral goes in the same direction of leading cooperative processes to combine nature conservation and development. It could be provoked by a policy change to support an inclusion of different interests in one coordinative position.

6.3 Arena of collaboration

By building up a platform or an arena where involved stakeholder have the opportunity to share and distribute knowledge, information and capacities, a room for common learning is created which is vital for better cooperation (XX8, 2013; XX11, 2013). This can improve the entire cooperation process as touching upon – not only – problems of mindset towards integration and cooperation and can therefore significantly influence cooperation structures. As a goal, cooperation should not take place on either multi-sectoral *or* multi-level, but in a combined way, forming strong networks and making stakeholders more equal and complementary in the cooperation process. The development of synergies and the initiation of a learning process can only occur if limitations and opportunities are seen and interests and demands are known by all stakeholders. In any case it takes long time until the aims of such arenas are fulfilled. This may strain involved parties as short term results are often not noticed and thereby might limit the ability of stakeholders to maintain confidence and dedication.

Although such platform should be created at the beginning of a collaboration process as serving many relevant functions for setting up a co-management process, some aspects are also relevant for later stages. Especially during negotiation phase, where visions and plans for INC are discussed, a functioning web of stakeholders can influence integration

positively, creating culturally embedded norms and institutions. Arenas of collaboration have the ability to support the entire process in various ways:

- *Openness:* In order to be able to accept other knowledge and perceptions (of nature conservation for instance), an open attitude towards opinions of participants has to exist. Sectoral thinking can be overcome and all agents will act towards successful transformation in nature conservation practice. It provides the possibility for a change of mindset towards higher integration and increases the feeling of being accepted by other stakeholders as well. This last point is most important for nature conservation actors as more openness can reduce the feeling of inequality between them and other users of coastal zone.
- *Trust building:* Adaptive co-management cannot emerge in the absence of trust between participants and leadership (OLSSON, ET AL., 2004). Problems can be solved in an uncomplicated manner as soon as actors feel that they can rely on other parties and are not outsmarted (XX6, 2013), and prejudices and scepticism between actors of tourism and nature conservation can be resolved. Although it takes long time for trust to emerge, it can also be long-lasting if good experiences create a trustful culture of communication.
- *Capacity building / training:* As an arena of collaboration can increase provision of resources at all levels, collaboration and shared decision making is supported (ARMITAGE, ET AL., 2009). Especially for tourism, nature conservation and the agency for coastal waters which are lacking personnel, time and financing, institutional capacity building by common strategies provides a tool to improve capability of implementing INC. This is also true for municipalities, where often knowledge about relations between the environmental system and functions at the coast as well as willingness for integration is lacking.
- *Knowledge, flow of information:* In order to manage coastal systems in a sustainable way, a combination of different sources of knowledge and information of various levels and actors is necessary as it strengthens socio-ecological understanding. Thereby, integrated projects are enhanced as each party can contribute but also gain from the knowledge of others. By exchanging experiences of integrative projects and stakeholders´ demands, it is possible to work out benefits and synergies for stakeholder from taking part in cooperation. Not only economic but also non-economic synergies, such as reputation, can be presented in addition to benefits of ecological functions (BORRINI-FEYERABEND, ET AL., 2007). Pressure should not be a reason for more cooperation with nature conservation actors, but rather the knowledge and acknowledgement of synergies and benefits such a combination provides.

By sharing information, stakeholders may realize advantages: (a) extended willingness and dedication for joining collaboration and contributing to it, (b) common understanding of terminology, understanding of nature, interests and positions, (c) increased trust and proximity in a process of governance. If an arena of collaboration is realized successfully, agreement among involved parties, complete information of relations, opportunities and implications within the network is possible. All of this is needed for cooperation between coastal actors to take place (XX12, 2013; XX6, 2013; XX3 & XX4, 2013; XX7, 2013).

- *Common visions and plans:* Based on common information and knowledge, it is possible to create plans and strategies for implementing integrative projects everyone agrees on. Those might be based on visions of the involved parties about the outcome of the process.

6.4 Monitoring and evaluation

In the last phase of the co-management process, iterative evaluation of the monitoring results of outcomes and the process itself is essential to ensure learning and adaptability in coastal management. Monitoring should take place throughout the process. It is important to internalize that a project does not end with its implementation or maintenance, but that only an assessment of successes and mistakes can create collaborative learning. Lessons-learned have to be drawn and plans modified and adapted to circumstances in the study area in terms of a feedback circle in order for actors to be prepared for further developments. This includes the maintenance of the stakeholder network created during the process to profit in future times and to be able to transfer results to other contexts and locations (BORRINI-FEYERABEND, ET AL., 2007).

Monitoring and evaluation do not seem to play an important part in common management as no stakeholder named it as a tool for adaptation and learning from experiences except for respondents XX11 (2013) and XX1 (2013). They identify a learning process in sectors of tourism as well as nature conservation as needed. Adaptive co-management provides the possibility for joint learning which can aid SESs and its governance to adapt to uncertainty and future changes. Spatial role take experimentation such as the case study project to create a basis for learning-by-doing to increase potential for INC.

6.5 Summary

By introducing adaptive co-management as a multi-level governance approach in current stakeholder relations at the Baltic coast of Schleswig-Holstein, two goals can be reached. Firstly, resources and responsibilities and power are exchanged and shared between different levels and sectors. Secondly, a better culture of cooperation can be

established in terms of strong stakeholder networks. The latter also influences directly and indirectly shared knowledge, willingness as well as capacities through more openness and the demonstration of synergies. Changes in policy result in higher potential for integration in coastal socio-ecological systems on a long term basis and an increasing sustainability of Schleswig-Holstein´s coasts (Figure 24).

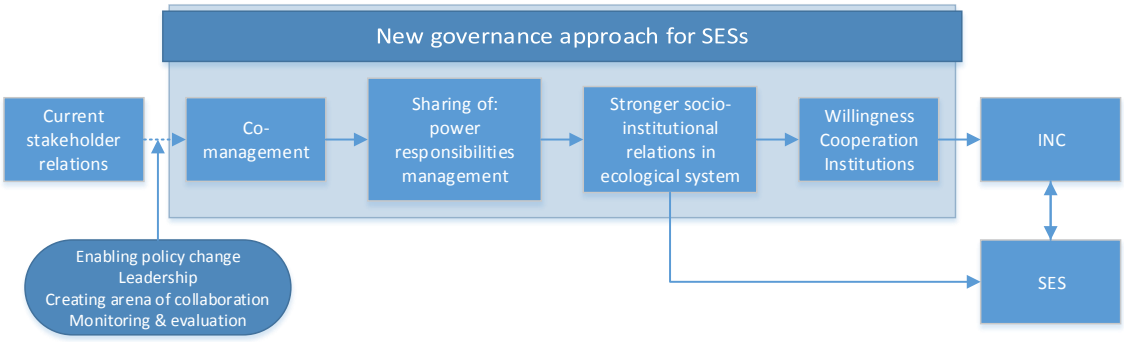

Figure 24: Change of current culture of cooperation by introducing key issues of adaptive co-management towards better potential of INC and stronger SESs (Source: Own figure)

Stakeholders can learn several aspects form an adaptive co-management perspective to better combine nature conservation and development by enabling them to cope with new institutional challenges:

- Policy change to create (legal) certainty of outcomes and responsibilities
- Capacity creation (for funding and personnel) to increase incentives
- Leadership and moderation for higher dedication and willingness
- Arena of collaboration for stronger knowledge, networks and openness
- Monitoring and evaluation for common learning to better adaptivity to changes.

The small scale of the case study project favors co-management, as the number of stakeholders and interest is limited to a clear geographical boundaries and the situation therefore less complex. Additionally, this allows for the inclusion of contextual factors which are essential in adaptive co-management and its assessment. The importance of including state agencies in the cooperation process, which is a key characteristic of co-management, is already seen by the stakeholders. In this case, the local nature conservation agency can take this part, although the ministerial level has to be present in any case as it is responsible for coastal waters. Additionally, the LEP already transfers responsibilities for cooperative processes from the state to local actors, providing a basis for better INC as all functions are more equal during the process. Apart from that, the perception of nature and the degree up to which it can be used cannot be changed by adaptive co-management. This stays special for all stakeholders. Albeit, coming together in a collaborative management can help to point out situations everyone can benefit from with regard to this understanding.

Adaptive co-management provides a new governance approach to deal with challenges of INC which is needed for stronger SESs as sectoral management is not appropriate any more (see chapter 1 and 2 of this study). This stresses the point that cooperation is an essential condition for successful horizontal and socio-ecological integration. A high level of cooperation therefore equals a high potential for implementation of integrative nature conservation. Finally, the connection between local users and state agencies is strengthened which enhances multi-level planning and decision-making.

7 Recommendations for management, policy and research

Although the extent and validity of this research allow no generalization of the outcomes, the study seems to underpin the need to define measures which help to successfully introduce new nature conservation practices to SESs. By implementing integrated planning at Schleswig-Holstein´s Baltic Sea coast, conflicts of the coastal zone can be at least reduced, leading to more sustainable coastal management. To near this, recommendations for management, policy and research help to transfer knowledge and make stakeholders learn about how to create, see and use synergies and long-lasting cooperation. This can also be seen as capacity-building to face future challenges in planning.

Recommendations – presented in a random order – and the following process diagram ground in the insights gained in the previous parts of this study, combining present situation of stakeholder relations and framework conditions with possible improvements drawn from an adaptive co-management perspective. An overview of those recommendations is presented in annex 5.

7.1 Recommendations for coastal management

(A)

Problem: Little experiences of cooperative projects with nature conservation are used.

Approach: Common learning and adaptation to a dynamic and complex environment by experimental projects and their evaluation.

Recommendation: Introduce monitoring and evaluation practices.

Learning from experiences is the basis for development and improvement. Therefore carrying out monitoring and evaluation not only of the outcome and output of an experimental project of ER or INC (if the goals are reached) but also of and during the process (how goals were reached) is essential. “Best practices” resulting from both successes and mistakes help to improve performance, efficiency and success of INC. This becomes particularly important in a highly dynamic system, which makes planners and stakeholders frequently face new situations. Self-evidently, it has to be ensured that monitoring and evaluation is carried out in every project to get a strong foundation of experiences. Appointing a person in charge of taking care of it can be advantageous.

(B)

Problem: Stakeholders rather co-exist instead of cooperating. Dedication and interest in INC is lost along the way, as building and keeping strong networks is time intensive.

Approach: Implementation of leadership, guiding and steering cooperative processes.

Recommendation: Introduce a leading institution in management of INC projects.

Creating multi-sectoral networks of stakeholders with various interests and experiences can be challenging. Leadership by regional developers, governmental agencies or local resource users can keep networks together from the beginning to the evaluation phase, ensuring ongoing collaboration which is vital for the success of a project. The first may provide the best solution, as he or she is independent, endued with local knowledge and experiences in leading stakeholders. Otherwise, mistrust and prejudices might bias the project because leaders have interests in the issue of their own.

(C)

Problem: Openness towards other approaches, sectors and stakeholders is limited.

Approach: Establishing and strengthening networks, transferring knowledge and developing synergies of cooperation.

Recommendation: Create a platform of collaboration.

In order to create and see synergies, it is important that the involved parties know of each other's expectations, benefits, experiences and challenges towards cooperation. Here a room for communication – possibly with leadership or guidance – can be helpful (Figure 25). This could be a virtual pool for exchanging documents, personal meetings in workshops or round table discussions and business games, or combinations of all. By doing so, personal relationships are created and strengthened which improves trust, open-mindedness towards integration, alternative strategies for nature conservation (integration or ecological restoration) and sectors not thought of before. Equal partnerships emerging from these platforms can also result in better distribution of capacities among stakeholder by sharing resources. At the beginning of each process, clear visions, goals and objectives should be defined commonly to ensure long-term development.

Example 4: RAdOst

RAdOst is the abbreviation for "Regional Adaptation Strategies for the German Baltic Sea Coast" and deals with the development of strategies which make coastal areas more adaptive towards climate change. This shall be reached by dialogue between academics, economists, policy-maker and the public. By initiating different modules, focus topics and concrete projects along the coast long term and sustainable networks on local level are created. Nevertheless the different modules imply little active cooperation between sectors, as they are divided into issues such as engineering, socio-economical analysis, political setting and international exchange (www.klimzug-radost.de).

One example of an implementation project is the 'Klimabündnis Kieler Bucht', a regional network of interests but limited to the tourism sector. However actors from municipalities, science and touristic institutions come together to exchange information, develop common marketing evaluating best practice projects to adapt to climate change (www.klimabündnis-kieler-bucht.de). Despite its partly still sectoral structure, RAdOst provides a good example of creating an platform of cooperation, where actors of different disciplines and institutional levels work together to reach a better management of the coastal zone. RAdOst will exceed in 2014, after a duration of five years. Funding is provided among others by the Ministry of Education and Research. Nevertheless it is difficult to judge in how far this leads to long term benefit after duration and therewith funding exceeds.

Figure 25: Example of a project to bringing stakeholders together for common management (Source: Own figure based on ECOLOGIC INSTITUTE (2009), STERR & ENDERWITZ (2013))

7.2 Recommendations for policy

(D)

Problem: Missing incentives to initiate or join INC projects.

Approach: Strengthening of knowledge with regard to benefits and synergies of combining multiple functions.

Recommendation: Stronger valorization of nature conservation and enhancement of communication between sectors.

By clarifying that nature (conservation) can provide benefits such as ecosystem services, incentives and appreciation towards INC can be enhanced. This is particularly true for sectors focusing on economic growth such as tourism and harbor industry. Valorization of nature (not to include highly sensitive areas) makes stakeholders realize advantages of cooperation with the nature conservation sector. This can support synergies between sectors, as biodiversity and natural values as well as economic interests are satisfied. However, communication between stakeholders is essential, for instance by regular inter-sectoral meetings within the region or political discussions dealing with valorization. Nevertheless, it has to be ensured that demands and concerns of all stakeholders are included equally.

(E)

Problem: Capacities are limited or are distributed unequally. Structures of responsibility within cooperation processes are often unclear or insufficient.

Approach: Enable policies which better distribute power and capacities and provide clear structures of responsibility.

Recommendation: (Partial) decentralization and financing of multi-sectoral projects.

Policies which define clear responsibilities for (initiating) cooperation – especially on governmental level where people work strictly according to regulations – can resolve confusion and make people consider collaborative processes in their daily work. Shifting some power and responsibilities to the local level can provide a tool for this while keeping the support of higher levels for organization, guidance and funding (Figure 26, p.80). Nevertheless, structures should be flexible to adapt to changing conditions in a local context and the (institutional) environment. Additionally, in order to successfully implement INC, combined financing, or a funding pool for joint projects only, is necessary to add up resources and reduce inequality between sectors. This could increase the willingness as implementation of joint projects becomes easier.

(F)

Problem: Incoherence within and between sectors limit INC.

Approach: Better organizing and structuring of responsibilities and frameworks.

Recommendation: Develop long term strategies which include collaborative aspects.

Almost every sector in Schleswig-Holstein provides its own development strategy for the next decades, influencing projects, guidelines and organization. By providing long term frameworks, planning is more detached from political influence which increases consistency independent of legislative periods. Stronger consideration of natural values or sustainability in the setup of such strategies (relevant particularly for the tourism sector) could enhance implementations of INC by supplying a framework for such. If tourism becomes more coherent within its own structures encouraging actors to join projects is simplified as it is clear who to approach and it allows stakeholders to act and appear united. Additionally, a stronger positioning of the tourism sector compared to neighboring states could be the result, increasing competiveness.

Next to sectoral strategies, joint strategies are helpful to define goals and means for relationships (Figure 26). These strategies should be developed jointly by the stakeholders as this increases acceptance and dedication for implementation because agents feel they are part of the same project.

Example 5: National Park and World Heritage Site Wadden Sea

Nomination of national park and later to World Heritage Site of the west coast of Schleswig-Holstein allowed for common development of the area with high focus on natural values and cooperation. Conflicts resulting from rejection of its implementation resulted in communication and later cooperation among stakeholders present in the coastal area (XX11, 2013). In many aspects this led to strong networks across multiple sectors (particularly nature conservation and tourism) and levels due to the institutional umbrella the national park offers. This provides capacities (funding and personnel) for planning, clear structures of responsibilities, long lasting experiences in cooperation, trust and common strategies of marketing, development and projects (XX2, 2013; XX6, 2013).

One example is the strategy for development of sustainable tourism (as part of the project PROWAD) which is to examine the potential for tourism in the Wadden Sea region under particular consideration of natural values. In close cooperation of stakeholders from nature conservation, tourism, regions and municipalities a common framework and platform is developed for future sustainable development with synergetic results. Examples are marketing of regional product, awareness rising and new potentials for tourism sector and local society. World Heritage is acting as an umbrella and initiator in this case, as such strategy is requested (MARENCIC & FREDERIKSEN, 2013).

Obviously such structures are not present at the Baltic coast, but this example shows what becomes possible when an umbrella provides clear structures, capacities and a network of stakeholder. Although being an example for area based development, it provides the basis for small scale projects as well.

Figure 26: Practical example of successful cooperation structure between tourism and nature conservation

(G)

Problem: Legal framework does not support multi-sectoral cooperation.

Approach: Establish legal framework which increases legal certainty of outcomes.

Recommendation: Integrate inter-sectoral planning in development and land use plans.

If partnerships between different sectors are not actively supported, a basis in coastal zone management is created that stakeholder can refer to. Additionally, by creating legal certainty of outcomes of informal management processes, there is a higher incentive to implement those instead of following sectoral approaches. Outcomes are legally

binding and the process becomes more accepted, especially among stakeholders who are acting in strong juridical frameworks.

7.3 Recommendation for research

(H)

Problem: Ecological issues are not considered in planning especially on municipal level.
Approach: Raising the awareness of decision makers and society for ecological functions, processes and alternative approaches to nature conservation.
Recommendation: Improve knowledge of ecosystem dynamics and nature conservation.
Better understanding of processes, dynamics and ecology of coastal waters in addition to practices of nature conservation (ER, INC) provides a solid basis for INC. If consequences of actions in coastal waters are known, uncertainty is reduced, securing planning and politics. Improving data and its availability to politics, research and planning institutions by information meetings or document sharing between interest groups, draws higher attention to multi-functionality including natural demands, species and biodiversity. This reveals possibilities of using and protecting nature simultaneously.
Here, universities and schools can play an important role. If INC projects are actively supported by professors or faculty members, students have higher possibility to generate and use insights from these projects for further analysis and distribution. Besides, environmental education in schools provides a basis to create sensitivity towards natural values early (Figure 27).

Example 6: Umwelthaus Neustädter Bucht

Environmental education is considered as an important tool for ensuring environmental friendly behavior and understanding. The "House for Environment" in Neustadt at the Lübeck Bay is an institution for environmental education especially for children. It informs about regional biodiversity of the sea, its worthiness of protection and offers outdoor activities to get to know the (marine) environment. Although this institution is led by BUND, an association for nature conservation, close cooperation exists to stakeholders of nature conservation and tourism (BUND, N.D.). Activities of this institutions provide reason for cooperation for lower nature conservation agency of the county (XX5, 2013). Additionally the project UNDINE is located in the "House of Environment".

Figure 27: Practical example of environmental education in coastal Schleswig-Holstein

7.4 "Best-practice" process diagram

Based on the recommendations given in the previous section, Figure 28 presents a process diagram for a governance approach in order to implement INC in Schleswig-Holstein´s coastal waters. It consists of three main sections based on the phases of co-management stated in section 2.4. The first is the general stakeholder framework organizing involved local stakeholder, external leadership and agencies. Second, the management process consists of an arena of collaboration providing room for negotiation and plan making. This is supported by the research sector who can deliver scientific

insights about coastal waters. The third section represents implementation of the plan, which is agreed upon earlier. Here aspects of financing and legal certainty are of biggest importance, as those determine the practicability of the project. Evaluation, monitoring and feedback by learning are framing the entire process.

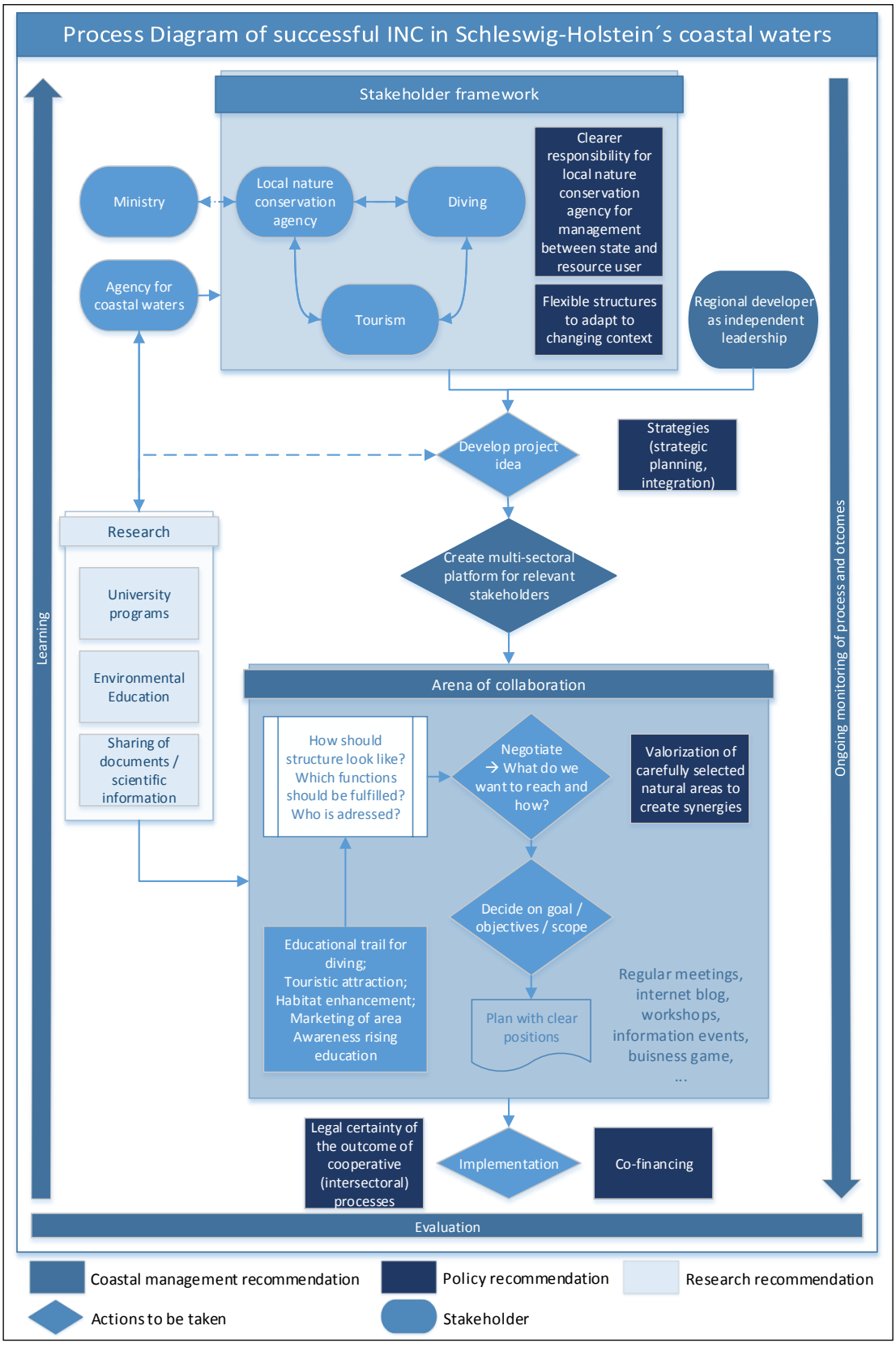

Figure 28: "Best practice" process diagram for governance of INC (Source: Own figure)

8 Discussion and conclusion

8.1 Discussion of the outcomes in the context of research questions

The background of this study lies in the multiple needs to study social and ecological aspects combined, rather than separated and based on that, projects which combine human development and nature conservation. This is due to the fact that pressure on coastal systems increased and is expected to intensify, as climate change influence ecological as well as institutional structures. This section discusses the results delivered by this study while following the structure of the sub-questions guiding this research.

During the study of relevant literature it becomes obvious how diverse topics such as SESs, integration in coastal management, nature conservation and especially governance approaches are discussed. Two actually interlinked aspects are most striking. First, the integration of functions – particularly in INC – is apparently not equal to the integration of stakeholders and their cooperation. In the new debate on integrative nature conservation the *active* role of stakeholders going beyond information, and participation is hardly considered. How is it then possible to combine functions and interests of coastal stakeholders if they do not communicate and design a solution together which presents synergies for them? Second, whatever approaches to the management of nature, biodiversity, coastal waters or systems is chosen, it strongly depends on how society, planners, or decision-maker value nature in relation to humans. **And if integration depends on stakeholders and their willingness to cooperate, their perception of human-nature relation directly influences the success of joint projects with the nature conservation sector involved.** This is particularly true for ecological restoration, which depends on the willingness of stakeholders to steer natural development by (technical) measures. But if it is perceived that nature can only exist if completely untouched, restoration will not occur. The same is true for INC, which can only be implemented successfully if resource users are willing to cooperate with nature conservationists and vice versa, and accept that nature is not kept in a pristine state. For many scholars, this is the only way of protecting natural values in coastal zones, where anthropogenic uses already put much pressure on natural areas. But to replace sectoral thinking in coastal management – which still predominates although theoretically ICZM tries to overcome it –, collaborative governance approaches are needed. By introducing such to integrative approaches, the connection between cooperation and integration is made.

A prerequisite is that coastal zones are considered as socio-ecological systems, where social and environmental aspects are interlinked, again based on the argument stated above. As OSTROM (2009, P. 419) puts it: *"all humanly used resources are embedded in*

complex socio-ecological systems". Only when SESs are considered in practice higher sustainability and long term management is possible. However, to include relevant institutions in the governance process, an approach linking both levels and sectors has to be found. Adaptive co-management provides this characteristic, as it is a collaborative process between state and resource users, providing the basis for joint outcomes in limited space. Integrating human development and nature conservation still carries the risk of not being successful, as finding synergies under the premise of different understandings about the degree to which nature can be used, can be limiting. Therefore, experimental projects such as the presented case study help to find the management approach which matches the context and the problem.

The study showed that ecological restoration in coastal waters provides many possibilities to function as an INC project in the future, but it also revealed limitations to its implementation. Generally, the potential for implementing INC at the case study sites is low. And this although administrative nature conservation, tourism and diving provide most synergies as artificial reefs support ecological restoration, habitat creation, increased attractiveness for divers, environmental education and a touristic product simultaneously. So it becomes obvious, that **synergies cannot lead to multifunctional development alone. But neither can solely a strong culture of cooperation, willingness, a framework which supports INC (particularly for tourism), nor sufficient capacity. All aspects have to be combined, at least to certain extent.** Hence, as these characteristics are very heterogeneous at the Baltic Sea coast, implementation of joint projects will require the overcoming of limitations in any case.

The analysis revealed that the present culture of cooperation both multi-sectoral and multi-scalar is not favoring integrative projects – the web of relations of the local nature conservation agency being an exception. This is mainly due to the reason that nature conservationists perceive negligence in planning and that (knowledge of) incentive for joining or initiating INC is missing in the first place. Reasons are the discrepancy between sectors´ expectations and the risk of not fulfilling nature conservation goal. Additionally, and probably the most crucial reason for weak cooperation, is still prevailing sectoral thinking among almost all analyzed stakeholders.

To successfully implement collaborative projects, stakeholders have to think in an integrated way. Thus, they have to have the willingness to open up towards accepting a certain degree of integrating usage in nature (which is particularly true for the nature conservation sector) and include other demands in their own work. However, generally it is not only solely willingness which determines the affinity towards integration. Stakeholders also have to *know* about the opportunities they have, that there are other ap-

proaches to planning and management, which bring synergies or benefits. If these advantages are actually seen and understood, it becomes easier to accept other sectors interests as own demands are not restricted but acknowledged or even supported. This means that implementing ecological restoration becomes very much dependent on individuals who have knowledge and are in favor of such projects. As the study has shown this is also related to political will, which is often led by economic arguments, therefore rejecting integration of nature conservation aspects in planning and development. To communicate benefits of investing into ecological restoration in coastal waters – which positive effects are not even visible without diving or technical tools – could be crucial to enhance synergetic projects.

Derived from this the conclusion can be drawn, that knowledge about possibilities, incentives, synergies and benefits as well as other stakeholders´ demands is crucial to integration. Therefore improving that knowledge among stakeholders can help to overcome most obstacles (not only resulting from the mindset of people) for INC. However, even if knowledge is present, there are still limitations which cannot be influenced by stakeholders directly, grounded in policy and uncertainty. The results of this study reveal mainly ambiguity of responsibilities in planning (particularly in nature conservation), unequal power relations and lacking financial support as main barriers. Incentives are not provided to start (informal) cooperation processes and as long as outcomes those are not legally binding, chances remain small for integrative processes to supplement formal planning in coastal zones. Additionally, spatial planning for coastal zones carries the risk of not overcoming the strategic level for more place-baseness. In terms of uncertainty, difficulties in measuring the success of restoration of *fucus* as well as the permanence of its effects, particularly limit nature conservation actors in INC.

As indicated above, an increase in knowledge of benefits, opportunities and incentives of integrative nature conservation among stakeholders from tourism, diving and nature conservation, in addition to supporting policy can enhance the potential of if INC in coastal waters of Schleswig-Holstein. To reach this, experimentation and particularly cooperation are essential, as only through this socio-ecological as well as functional integration is possible. Both aspects support active learning within institutional and governance structures to improve their performance and to adapt to future environmental and social changes in the SES. Experimentation provides a high level of experiences of ER and joint management processes which increase the affinity to further cooperation and learning-by-doing. As positions, representatives and alternative approaches are known uncertainties are reduced, making integration easier.

Adaptive co-management supports all these approaches, thereby providing an appropriate tool for overcoming limitations identified in the case study. It bridges stakeholders in SESs across levels and sectors, encourages cooperation for generating knowledge, introduces policy change for clearer responsibilities, legal security as well as funding and enhances adaptively of the system by monitoring and evaluation. Hence, **to implement transformation – perhaps even a paradigm shift – of nature conservation towards higher integration in the case study area, solid governance structure is needed** in order to build up social capital and supportive policy.

However, co-management is no panacea, particularly because changing beliefs is neither possible nor desired. Particularly the consideration of stakeholders of nature conservation carries difficulties, as not only different interests enter the scene, but also varying understandings of nature and its protection which are often related to ethics and beliefs. Functional integration is or can be – depending again on the perception of the humans - nature relation – against their rationale. This is partly supported by the findings of this study, although ministerial nature conservation is generally open towards multi-functionality. As INC just acts as an enrichment of zoning approaches it might be easier for all to be positive about INC, condition for a successful governance process.

Supportive for adaptive co-management in Schleswig-Holstein, however, is the fact that the local nature conservation agency already provides a good network to tourism as well as other direct users of the coast. Adaptive co-management can directly link into these multi-level structures to stronger connect administrative nature conservation to tourism and diving. One major challenge to implement adaptive co-management will be, however, to transform the entire system of institutions. This is necessary, as changing one part only will not be enough as stated above. Many small and big changes are needed so all aspects can come together for successful change in nature conservation habits and governance structures. This might be difficult, as most of the challenges to adaptive co-management defined in theory could also be found in the analysis of the case study.

The biggest contribution, adaptive co-management can make to integrative nature conservation presented in the case study, is the fact that it introduces learning as well as cooperation between nature conservation, tourism and diving. It is not enough to see the need for, or synergies of more integration on temporal, spatial or socio-ecological scale, it also has to be used for long lasting nature conservation. Stakeholders have to accept the fact that their respective counterpart perceives different benefits, expectations and limitations in managing the coast. To turn these into a common line creates a proactive way of challenging future developments.

The previous discussion helps to answer the main research question which is underlying this study:

"To what extent can 'integrative nature conservation' be embedded in coastal (socio-ecological) systems, which factors influence its potential and how can limitations be overcome?"

As this study has shown, accommodation of nature conservation into spatial uses of coastal waters in Kiel Förde and Lübeck Bay is limited, as current structures of the system provide fundamental obstacles to such projects. As the most influential factors, lacking cooperation can be identified, as well as persistent sectoral thinking, disparity between sectors and a policy framework which does not support multi-level and multi-sectoral planning. Additionally, the human-nature dualism results in different understandings of the degree natural values can be integrated in human development. However, often a combination of those barriers and their consequences or cause is responsible.

Pressing problems in coastal zones and a further decrease in biodiversity make it necessary to overcome barriers in implementation of INC. Therefore, certain parts of coastal institutions and governance structures have to be transformed, so that they prepared for changes brought by this new nature conservation approach. Adaptive co-management is suitable for that, as it introduces long-term cooperation between state actors and resource users to the process of integration. Thereby, socio-ecological systems learn to take on new challenges in the future. The recommendations provided in the previous chapter might support policy-makers, academics and resource users to successfully make this step towards sustainable coastal zone management.

8.2 Contribution to academic debate

The outcomes of this study can contribute to academic debate by

- providing new insights to institutional structures present at the Baltic Sea coast of Schleswig-Holstein. The case study analysis has revealed potentials and limitations in current stakeholder relations and has identified the main reasons for those. Therefore, it contributes to improve the understanding of necessary changes in future coastal management (focusing on coastal waters) towards higher integration. This makes prevention and resolution of conflicts between stakeholders easier and might help to a more successful implementation of ICZM.
- delivering recommendations for policy, coastal management and research for better inclusion of nature conservation in other coastal functions and overcome sectoral planning. Stakeholders can profit from this knowledge as they know how to identify and use synergies and to benefit from cooperation with other users. Fu-

ture, conflicts can be solved easier or even prevented. Particular focus is put on coastal waters which so far are hardly considered in nature conservation practices and scientific discussions. The presented case has shown the ability of horizontal and vertical integration between multiple actors in a real setting.

- joining aspects of socio-ecological systems, new nature conservation approaches and adaptive co-management which leads to an inclusion of cooperation into the debate about nature conservation practices. Literature about integrative nature conservation hardly includes the cooperation of stakeholders as a necessity to carry out vertical, horizontal, functional or socio-ecological integration. The case study has shown that cooperation and integration cannot be separated, as both are needed for a successful combination of different functions. This study contributes to theory by overcoming this gap and showing how governance approaches such as adaptive co-management can lead to more successful integration of nature conservation. Besides, this ultimately leads to a better inclusion of socio-ecological research in the debate about coastal zone management, a task which has rarely been subject to research before, particularly seawards.

8.3 Critical reflection and potential for further research

By means of the used research design and methods it was possible to answer the research questions in a comprehensive way. Applying theoretical concepts to a real-world setting provided valuable insights to the possibility of nature conservation in coastal waters. However, the case study project of introducing natural stones in coastal waters for assessing growth and distribution of *fucus vesiculosus* has an explorative character. Therefore, multifunctional development through cooperation is neither planned nor currently implemented. This limits the validity of the results of this study. Nevertheless, general findings and recommendations can be transferred to other contexts and projects, as cooperation among stakeholders presenting various interests is always valuable for integrative management not only in coastal waters.

It turned out that the analysis of interviews and of documents of spatial planning, legal regulations and programs supplemented each other well. Especially the fact that most planning processes are bound to instructions and responsibilities could be accounted for. However, the analysis of stakeholders also entails the risk of not being sufficient in order to dray a coherent picture of structures between and within users of the coastal zone, only representing personal opinions and not general information. Besides, the heterogeneity of structures in coastal Schleswig-Holstein would call for deeper analysis of levels as well as institutions. This was tried to overcome by selecting interviewees of higher positions who were able to deliver an overview about actions within their sector. How-

ever, this bias cannot be completely prevented. Especially between the associations in nature conservation, differences of tasks and responsibilities exist, which were not included in the analysis. A higher number of interviews or / and a survey among users of the coastal zone as well as an additional case study could have strengthened the result and cater for better generalization.

There is a strong link to cooperative processes throughout the entire study, which was not considered to large extent in the theoretical framework. It would have also been possible to cover the shift in nature conservation paradigms by concepts of collaborative planning and related theories or even transition theory. This was contemplated at the beginning of the research process, but abandoned due to the fact that focus should lie on socio-ecological systems and possibilities of integration. The chosen concepts seem to be more feasible to provide a stronger location-based assessment of the case study.

This study has not the aspiration of being comprehensive. During the research process, aspects came into view which had to be rejected again due to the limited scope of this study but provide motivation for further examination. Examples could be the practical implementation of ecological restoration, showing which aspects have to be fulfilled for artificial reefs in terms of material, size and depth to function for multiple-use. Additionally, a comparison between the results of this study and structures present at the North Sea coast of Schleswig-Holstein could be interesting. Despite a similar general framework, the Wadden Sea provides a completely different arena of stakeholders and possibilities for INC due to the presence of the national park and world heritage site.

8.4 Résumé

Coastal zones are already, and will further on be under high pressure from human development as well as natural forces. Conflicts in spatial planning have to be resolved or even better prevented to be able to ensure a sustainable management of resources. The results derived from this study are not only helpful for the local context of Schleswig-Holstein, as cooperation among stakeholders presenting various interests is always valuable for integrative management in coastal area. For nature conservation this is of particular importance, as it shows additional ways of how to protect biodiversity.

It is essential that abandoning nature conservation strategies which are based on zoning to protect large areas of highly diversified nature, is not intentional. Particularly as growth and development determine society and the economy to a large extent, it becomes vital to create areas which stay free from such impacts. With approaches which link human development to nature conservation, alternatives are being created for sensible supplementation. These can contribute to nature conservation outside of the areas

mentioned above, while being supported by society. So ultimately integration and combination in the context of nature conservation is not against but rather in favor of natural demands.

Integrative nature conservation is a young concept compared to other nature conservation practices, particularly in coastal waters. Therefore, there are only little experiences on the best way to implement it. If cooperation provides a tool for more successful functional and socio-ecological integration, a combination of human development and nature conservation can be implemented more frequently. This would not only result in enriched nature conservation approach, but also provide the chance of improving practical implementation of ICZM with higher focus on societies and the environment.

A prerequisite is that agents appreciate the fact that nature conservation practice is determined by the understanding of nature predominating society. If socio-ecological integration depends on stakeholders and their willingness to cooperate, their perception of the relation between humans and nature directly influences the success of integrative projects. However, eventually there are other contributing factors as well, which all have to come together, at least to certain degree. Synergies of integration for all involved stakeholders are one of these factors. But even though synergies are strong, an intense culture of cooperation, a framework which supports integrative nature conservation and eventually sufficient institutional capacities are needed, too. Thus, adaptive co-management provides a solid governance structure which can help to accommodate nature conservation in multi-level, coastal socio-ecological systems beyond the human-nature dualism.

Zoning in nature conservation is not always possible or effective in highly urbanized coastal areas. However, from a personal perspective, effective nature conservation can be – and also has to be – possible in areas where humans already have impinged on nature. To face developments and to ensure biodiversity conservation in the future, the issue of integration and ecological restoration should further enter the debate on nature conservation practices to enrich "traditional" approaches. For overcoming the theoretical discussion it has to be accelerated that adaptive governance approaches are *put into practice* by long lasting approaching, formation and negotiation. If as a result stakeholder learn how to work together, to share responsibilities and power, synergetic projects are possible which favor not only society but also the natural environment.

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Appendix

Annex 1: Interview guideline (exemplarily: tourism)

In advance: Approval for recording the interview and naming of interviewee

1. Introduction

Could you please give me a job description of what you are doing and explain the scope of your work?

2. Multiple uses in coastal areas

In your opinion: In how far can multiple uses of coastal space generally contribute to sustainable development? (A tool for solving conflicts?)

Do you have experiences with such concepts and their implementation respectively? (Do you know multi-sectoral projects at the Baltic Sea coast?)

3. Concepts to nature conservation

What do you understand by "integrative nature conservation"? (With increasing frequency approaches of nature conservation are claimed which integrate nature conservation in other spatial uses (i.e. biosphere reserves) or vice versa.)

Do you consider those useful? (Nature conservation as a stand-alone function? Or: Nature conservation between the extremes "protection" and "use"?)

Do you consider valorization of nature as a useful instrument in nature conservation? (Why? Why not?)

How would you classify the relationship / potential for conflict between tourism and nature conservation and why? (History of conflict)

4. Willingness of actors for integrative nature conservation

Do you include aspects of nature and environmental conservation in your field of work (of any kind)? (How exactly? Why not?)

Is there / has there been cooperation with actors of nature conservation / environmental protection? (Which kind of cooperation?)

What is the reason why cooperation emerged / did not emerge? Was / is there win-win-situation and which characteristics does it have? (if no: Do you consider synergies with nature conservation sector possible?)

Where do you see advantages and disadvantages for tourism in cooperating with nature conservation actors? (In what way could tourism profit? Which expectations would you have in such cooperation? What is your prior goal?)

5. Expected problems and limitations

Could you name general and specific difficulties of implementing combinations of tourism and nature conservation which are likely to occur (from experiences?) (institutional, financial, planning)

6. Participation of stakeholders

How do you consider possibilities of horizontal and vertical cooperation (between other tourism institutes and between institutional levels)?

Based on these possibilities, which combination of use do you consider feasible / useful at the coast?

Which role should governmental actors play in such cooperation process?

7. Framework conditions

Which legal regulations hinder / support cooperation? (Would decentralization help?)

Which mechanisms / framework conditions would support cooperation between you and nature conservation actors (funding …)?

Do you know any instrument for (financial) support of multi-sectoral cooperation?

8. Definitions (against the background of your work)

What do you understand / imagine by socio-ecological systems, integrated coastal zone management, collaborative management?

Finally: Are there additional aspects which you would like to stress?

Annex 2: List of Interviewees

Table 1: Overview of interview partner. Abbreviations: GA = Governmental agency; R = Related to coastal activity/environment; SC = scientific community; XX = name anonymized (Source: Own figure)

Sector	Group	Name	Organsiation	Date, Time	Type
Nature conservation	GA	XX1	MLUR	July 29th 2013	personal
Nature conservation	R	XX3, XX4	LNV-SH	July 29th 2013	personal
Nature conservation	GA	XX5	Fachdienst Naturschutz Kreis Ostholstein	September 3rd 2013	by phone
Coastal protection	GA	XX6	LKN-SH	July 29th 2013	personal
Coastal protection	SC	XX7	Büro für Umwelt und Küste	July 23rd 2013	personal
Sailing	R	XX8	SVSH Kiel	July 29th 2013	personal
Diving	R	XX9	DUC Kiel e.V.	July 23rd 2013	personal
Harbor	R	XX10	GSH	July 22nd 2013	personal
Tourism	SC	XX11	N.I.T.	August 5th 2013	by phone
Tourism	GA	XX2	MWAVT	August 15th 2013	by phone
Coastal waters	GA	XX12	LLUR	August 15th 2013	by phone

Annex 3: List of codes used for analysis (MAXQDA) in relation to documents / interviews

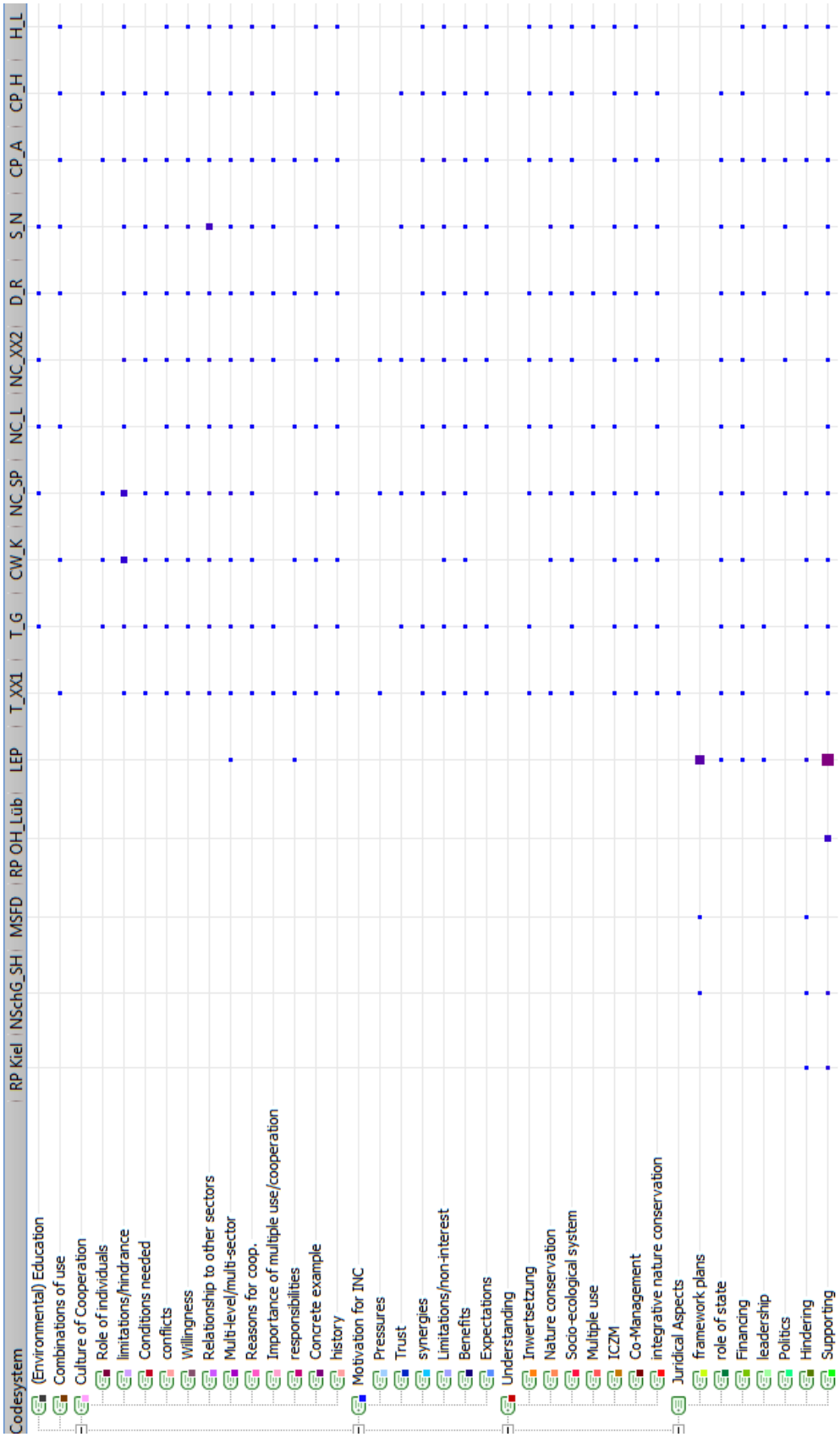

Figure 1: List of codes from MAXQDA in relation to documents / interviews used in analysis (the size of the squares represents the amount of codings per document / interview)

Annex 4: Data extracted from interviews on which the analysis is based

Table 1: Structure of relationships of stakeholders I

	Tourism	Diving	Sailing	Coastal Protection	Harbor & Industry	Coastal Waters	Nature conservation
Conflicts	• of cause there is sometimes trouble (XX2) • expectations of tourists (sea, beach) causes conflicts as they have priority (XX2) • conflict of use between NC and economic interests of municipality (XX2) • no conflict in common projects (UNDINE) (G) • sensitivity of tourstic experts decreases due to economic interest (high possibility to earn money) (G) • conflicts due to history, prejudices, scepticism (G) • no conflict in Lübeck-Bay (only tourism anyway) (G)	• no conflicts with NC so far • in the past recreational time was used differently (less activities in one area), therefore potential always was low	• no conflicts at all between S and NC • arrangements between both sectors, able to sail around protected areas • "kuchen verteilt", no need for further action, conflicts only if things are changed, but than common solution is found • less conflict, more trust now	• conflicts and their solution are context dependant between concurring use • NC always conflicting with different uses (tourism, agriculture,...) • litte conflict with seawards portection • impelmentation of compensation measures: which material to use, which shape of structures creates conflict beween NC and CP due to different beliefs	• little conflict with NC at already existing harbors	• menatlity too different: marine scientist vs (dogmatic) NC	• land owner: self interest is always above NC (financial) (SP) • no change of habit towards more NC (SP) • NC not respected (land user no trust in NC, demonstration agains Natura 2000, society in favour) (SP) • uses in coastal zone cause interference: problem solved by guidance / enlightment (L) • tourism: fencing of beach not attractive (L), difficult to catch for information (L), doesn't "use" NC for their puropses --> resistance (XX1) • conflicts solved context-dependant (XX1) • CP: gentle structures of conflict (XX1) • situation of conflict not pressing enough to cause actions (XX1)
History	• no examples of common projects of NC and T (XX2) • relationship becomes better / more conflicts in past (XX2, G) • so far no cooperation between NC and tour operators (G) • structures at Baltic Sea coast still heterogenous, at the beginning of development (G)	• no concrete cooperation to NC so far • attitute towards nature conservation has changed as natural issues are considered in education of divers	• conflict between S and NC about banning sailing in certain areas, but these were not shippable anyway: big fuzz but actually no problem • in 70s: NC not present when developing/constructing new marinas • now everyone accepts NC (in natural country like SH)	• cooperation better than before: first implications of National Park and BNatSchG created scepticism and rejection • integrated projects rather new idea • sectoral thinking (and concerns) within CP and NC decrease a bit in last years, but still difficult to overcome	• NC becomes increasingly important in management	• sensitivity for climate, environment, ocean is increasing	• good relationship between NC and investor, after trial was lost (SP) • RAdOst: many talks (with municipalities), but own interest always came first (SP) • agencies become more careful in planning, now NC is included (SP) • no change of habit towards inclusion of NC (especially among planner / developer / owner, society accepts limitations due to bigger awareness) (SP) • change of thinking: in past, camping sites planned without regulation, now buffer zones,... (SP) • experiences with cooperation processes may cause disappointment, not taking part again (SP) • projects in 90s (sustainability, mediating processes...) not implemented (SP) • Tourism: relation always good (L) • change of thinking during last years because NC became stronger on European level (Natura 2000) --> more pressure leads to more cooperation
Multi-level / -sector	• within projects cooperation between sectors and levels (Fahrziel Natur, UNDINE) (G,XX2) • tourism operator on local level, regional institution, ministry, municipalities, single service provider (XX2, G) • NC associations / foundations for consulting, coordination, support (G) • cooperation mostly on local level, therefor depends on regions (G) • much cooperation with other sectors: tourism cross cutting issue anyway (G)	• cooperation with other diving, sailing and sports associations in Kiel	• annually meeting of associations (S) • mainly NC associations • cooperation between levels not problematic (but not much information)	• mainly with administrative NC, but also with associations (NABU, BUND): have to be included by law • State agency for road construction • generally more sectoral • working group within one ministry	• close cooperation with Ministry of Environment, Ministry of Economy (vertical) • Harbor (associations) in SH, Denmark, Germany (horizontal)	• cooperation between associations and agency (coastal waters) needed	• NC association: govenor, bottom up, interesting approach, WFD: local level, multiple secors, close cooperation to ministry, associations, user, agencies, other NC associations, NC by other agencies more included, good sectoral cooperation (SP) • no sector willing to cooperate (proactive) in RAdOst (SP) • local agency: society / affected persons and municipalities, politics (municipality), ministry, local user, touristic associations, other agencies, bound by instructions to ministry (L) • ministry: CP within advisory board (meeting twice a year), water management agency, other ministry (tourism), local level doesn't include integrated coastal protection, cooperation good, intensive cooperation with other sectors (XX1)
Leadership / responsibilities / state	• responsibility of municipalities / regions how to deal with natur l resourses (state is not interferengin that, only giving strategic advice) (XX2) • successful cooperation depends on individuals (open, meet right partner, passionate) (G) • change of personel can change entire situation (G) • state (ministry) companies projects by financial support by programs (funding program), acceleration, offering collaboration, coordinating (XX2) • state can be helpful, but regional actors have to be involved, too • shared leadership possible (NC and T in UNDINE)	• state responsible for waters (needed for implementation of reefs) • state has important role for hydrological / juridical issues	• Environmental agencies have to follow EU-guidlines, rather than doing single NC projects	• state is responsible for main dikes and developed areas, everything else municipalities: implication on financing • state (agencies) plays important role anyways in planning/management: set juridical basis on variouse levels and sectors --> responsibilities • even associations are public bodies by water law • guidance of state helpful, before juridical basis not clear later on on process • CP should take leading role in integrative projects as they have possibility for financing	• state/nation state by legislation and for funding	• LLUR (CW) has no responsibility for NC (public relations) --> NC better and in public more active • leadership by individual person needed • individuals can stop / hamper process by mentality / dogmatism towards NC • associations should be the one implementing cooperative projects (with expert knowlegde), administrative NC doesn't do it	• local people can expedite process (agencies don't always know local context) (SP) • personal relationships play important role (SP) • leadership by agencies difficult (mistrust) (SP) • governmental actor: call attention to statutory regulations / requirements for approval (local level knows best) (L) • leadership with state (leading dialouge) (XX1) • state agency has to lead cooperation projects: financing, no representative on local level --> decentralisation not helpful (XX1) • voluntary agreements (T-NC) (L) • cooperative projects should be lead by NC associations, more capacity (L) • LLUR responsible for management plans for protected areas (L)

Table 2: Structures of relationship of stakeholders II

		Tourism	Diving	Sailing	Coastal Protection	Harbor & Industry	Coastal Waters	Nature conservation
reasons		• change of generation: younger people in touristic companies are more open (G) • learning process (G) • umbrella of nature / national park (XX2, G) • develop touristic product commonly (XX2) • implement touristic masterplan of regions (landscape preservation plans, lower nature conservation agency for communication) (XX2) • pressure of touristic infrastructure on natural areas / environmental associations (XX2, G) • common projects (UNDINE) (G) • NC foundations ask for support / consulting (G) • juridical reasons (EIA) (G) • conflicts force cooperation (G) • marketing reasons: attract more people with environmental strategy (not so relevant for Baltic), synergies in marketing (G) • improve acceptance of NC with help of partner (G) • there has to be a reason (idea, common interest) (G)	• Natura 2000 (diver report pollution to local coordinator of Natura 2000) • common interest in nature of divers and sailors • limited space in coastal areas has to be protected commonly	• restrictions for one or the other group (fear or development of) • designation of protected areas • balancing interests in process "so no-one is hurt" • invitation of Ministry (at least 5 is invided)	• (Environmental) law provides clear structure and string regulation: compensation measures, plan approval procedures • Problems within Natura 2000 (difficultes in defining compensation measures) • NC contacts CP to "use "it for conservation / restoration projects (Geltinger Birk, Fehmarn) • exchange / combination of knowledge for reports (on administrative basis)	• marketing, as costumers expect company to work environmentally friendly • approval procedures (compulsory to include NC – > cooperation of convenience • benefits ("da kann es dann auch mit Umweltverbänden sein") • compensation measures	• agreement on upper level that monitoring for FFH is made by CW • presentations to associations • involvement of NC associations through WFD / MSFD	• lawsuits (investor lost, lead to cooperation, ministry / agencies invite for date of hearings…) (SP) • context dependant (SP) • conflict of use (L) • regulation of uses (forestry, agriculture, tourism) (L) • invitation of touristic associations: use of areas for T (L) • Environmental education (Umwelthaus Neustadt) (L) • compensation measures (XX1) • own initiative (XX1) • pressure (!): regulation / laws for including NC, lawsuits (XX1) • participation in interfering projects (XX1) • international treaties (HELCOM) (XX1) • lawsuits (XX1)
relationship to other sectors (NC)		• good, open, appreciative relationship (own interest of T to preserve habitats), but in practice some conflicts (G) • common projects (G) • in theory it's possible to enable environmental law (big, economical projects), but no example from SH (G) • cooperation is not as far as in Wadden Sea, but they are approaching (nature not priority in marketing) (G) • regional differences (very heterogenous) (G) • sometimes mistrust, prejudices from history limiting development / projects and debilitate (G) • T cross cutting issue --> cooperation and partnerships with multiple sectors (G) • "nice cooperation": bring natural resources into touristic use (XX2) • sectors not acting in concert as at Wadden Sea (but common products with NC and culture, future oriented) (XX2) • cooperation juridically steered (XX2) • find compromise for using resources / biotops (XX2) • seek for contact with NC (talks, quarrel) • no regularly contact • operators: NC is overacting (XX2) • tourism creates pressure on protected areas ("Panzer auf Naturschutzgebiet") (XX2) • maritime heritage used • balancing nature and economic interests works well (XX2)	• no need for communication seen: coexistance with sailor/angler and diver, diver care about natural environment, sensibility through education, Natura 2000 works • NC not included in TAMOS (developing database from monitoring) • hardly cooperation existing ("funnily enough"), more sectoral, no togetherness • sometimes communication with sailing association about accessibility of coastal area	• conflict -->compromise (everyone goes as far as possible in reaching own aims) --> • NC aspects included in association work but "luckily" ist getting less (problems solved, no occasion for new cooperation, "Kuchen verteilt") • Sailors per se for NC, doing a lot (appreciated by NC) • NC well prepared in discussions (too eager sometimes) -->unequal partner for discussions, as "sailors just want to sail" (-->association vs. quasi-agency) • listen to each other, S included • no regular communication • not really trustful: "wir haben schlimmeres verhindert" • co-existance with other functions (protected areas, military areas) • relationship generally good • motivation for NGists to protect nature: job, earn money	• CP understood that NC is needed for effective work: proactive communication, cooperation, exchange • mutual approaching creates trust • there are always points of contact with NC, good understanding • differences between East and West coast of SH	• there is cooperation if it is needed "we don't hate each other" • no regular contact • cooperation is good, but strongly depends on parties be willing to find compromise	• NC is neglected by other uses (flout NC, not taken seriously as equal partner in planning…) (SP), at least on local level (XX1) • mutual acceptance by now (NOK) (SP) • society: general awareness / acceptance of NC (SP) • difficulties with surfing (talks necessary) (L) • starting cooperation / efforts taken with other agencies (forestry) (L) • sometimes NC is used) to make a virtue (out) of necessity) (XX1) • water management: good relationship (compenstion measures) (XX1) • construction: difficult to regulate, has to be through spatial planning (ministry) (XX1) • tourism: try to find close relationship (more difficult at Baltic Sea, not coherent) (XX1) • harbor: only contact at lawsuit, jurisdiction: the more economic interest the more difficult; but than they make effort, to induce something is possible (XX1) • fishing: big conflict about by catch, but common project / dialogue to solve it (XX1) • CP: NC not included, not regarded as important; dikes are sacrosanct (but less problematic at Baltic Sea) (XX1) • inclusion of NC reluctant (XX1)
existing cooperation		• UNDINE • Wadden Sea • Fahrtziel Natur • Klimabündnis Kieler Bucht	//	//	//	• cooperation are increasing • mainly sectoral with other harbors: voluntary and contracted	• RaDOst	• RaDOst
conditions needed		• interested and motivated people taking initiative • common strategies / general frameworks --> have to be developed by partners (G, XX2) • openness, learning process of both sides (=change of generation) (G) • improve accessibility of coastal areas and cooperation to tourism sector (G) • personell (care about cooperation, time, financial means, initiative) for coordination / mediation (G) • turn idea into concrete projects for project finance (G) • people have to feel benefits, cooperation does not just happen (G) • intensive care of / for involved parties (demands, interests,…) (G) • support of state for financing, guiding, coordination (G) • include local actors (G) • patience (G) • rules have to be followed (legal constructions), respect between actors (XX2)	• conservation goals have to be clear • openess towards new projects	• inclusion of groups and listen to their demands/wishes • willingness to find constructive solutions / move position towards compromise • seek talks • mutual appreciation	• good understanding and trust important to solve problems in uncomplicated way if they emerge • agreement among people could solve many problems (A) • money helpful: if co-financing was possible integrated projects would be easier to implement • get people on board for common marketing of project • sometimes have to get to right person in charge who is in favour of project	//	• acceptance among society (through lobbyism, marketing) • knowledge about relations (brochure for municipalities…) • leadership / someone taking initiative • willingness / support of higher level (ministry) (by pressure of associations) workforce	• reliability of parties within cooperation process (know what they want and stand in for) (SP) • courage to make decisions (SP) • people have to quarrel more with possibilities of interacting --> more interest and diligence in approval / planning (SP) • tourism has to be better / more coherent / more professional structured, positioned (B) • little steps, talking, experiments, learning -->no forcing ("Hau ruck-Aktionen") (XX1)

Table 3: Willingness of stakeholder for INC I

	Tourism	Diving	Sailing	Coastal Protection	Harbor & Industry	Coastal Waters	Nature conservation
Synergies	▪ definitly possible (XX2) ▪ resource efficient use of natural resource (valorization) = synergy (XX2) ▪ significance of natural resource and added value for tourism (XX2) ▪ use compatible with nature (prevent nature from being destroyed) = synergy (XX2) ▪ ministry makes suggestions for regions of how to use synergies (XX2) ▪ each sector contributes knowledge both can profit from in management of area (XX2) ▪ increasing appreciation / acceptance of nature, environmental education and attraction for tourists (product to sell) (G) ▪ better marketing of area for tourists (nature as focus) and increasing acceptance of protected areas by using T (G) ▪ Operators learn how to include environmental issues in management policies and NC comes closer to operators, reach more than just presenting solutions (G) ▪ common marketing of natural area (G)	▪ habitat improvement by artificial reefs creates win-win-situation for divers and NC	▪ more co-existance than synergies: summer sailing possible, winter not, but then no-one wants to sail anyway ▪ artificial reefs nice to have…	▪ CP follows duty by compensating and brings improvement to environment: CP sets basis for natural development/NC projects (funding) ▪ Win-Win-situations = compromise where everyone can live with ▪ create acceptance of both sides for interests/work of other ▪ breakwater: CP / tourism (change of sediment, enlargement of beach), diving/ NC / tourism (improvement of habitat) (A)	▪ approval by Ministry of Environment for handling certain goods allows consideration of environment and economic activity of harbor ▪ context dependant, difficult to see without example	//	▪ allocation of area (compromise) after negotiation: you get this area for development, I use this for NC (SP,L) ▪ temporal separation: winter focus on NC, summer use of area (SP) ▪Environmental education in natural areas (information center / system) (L,XX1) ▪ Tourism highest potential for synergies: environemtnal education, voluntary management of protected areas / bird protetcion sites by tourists (Graswader) (XX1)
Benefits	▪ internationally attractive and sellable product (XX2,G)(world heritage site) ▪ economical aspects: create permanent jobs in structually weak regions (XX2) ▪ tourism has vested interest to keep nature as economic capital intact (G) ▪ use NC to draw attention to region for attracting more tourists (G)	▪ intact nature ▪ improvement of habitat	▪ results can be presented to members of association with good results ▪ good to be part of solution	▪ legal processes easier (more efficient if NC is integrated early in process to avoid complains, objections, statements later on in the process –> better planning and optimising ▪ higher acceptance of NC within society ▪ saving money with some projects as dikes don´t have to be maintained to highest standards any more	▪ marketing ▪ getting approval for handling certain goods ▪ faster approval procedure by including NC early in process approval procedures and compensation measures ▪ littel resistance against plans of NC or other parties in approval procedure	▪ raise acceptance for fucus / seagras ▪ show what actually is there in coastal waters (awareness)	▪ benefit of cooperation: clearly defined space for NC (doesn´t have to be included in planning any more) (SP) ▪ raising awareness / appreciation –> environmentally friendly use of nature, stronger political position, more acceptance (L,XX1) ▪ Environmental education (L,XX1) ▪ chance to implement voluntary agreements (L)
Expectations	▪ economic benefits (added value, additional hotels / jobs, earn money from ICZM projects) (XX2) ▪ mutual learning (NC and tour operators) (G)	▪ improvement of quality of natural space ▪ common understanding of NC goals and work together to reach those	▪ no concrete expectations ▪ possibility to continue sailing without restrictions	▪ fulfilling coastal protection task ▪ better acceptance of each other between sectors	▪ difficult to frame without example as they are context dependant ▪ middle course between interests has to be found	//	▪ bring general profit for nature (environmentally friendly use, more acceptance) (L,XX1) ▪ there should still be areas of no use (L) ▪ more sensitivity (in tourism sector as well) ▪ present landscapes / nature (XX1)

Table 4: Willingness of stakeholders for INC II

	Tourism	Diving	Sailing	Coastal Protection	Harbor & Industry	Coastal Waters	Nature conservation
Trust	• still suspicion in some areas of Baltic coast between sectors (Schlei) (G) • long process of coming closer; dialouge, openness depending on individuals (Wadden Sea) (G)	//	• more trust in / acceptance of NC in SH (discussions not that passionate any more): more possibilities • still sometimes fear of what to expect of NC (NC unequal partner for discussions)	• mutual approaching creates trust between parties • dependant on individuals involved in process • trustful relationship between NC agencies and CP • emerges over years from experiences • if there is trust, it is possible to solve problems easier, faster, communication better	//	//	• always mistrust towards plans of ministry (especially of users, not society) (SP) •trust gets lost by disapointing participation processes (SP) • not much trust towards associations in steering cooperation (disenchantments) (XX1)
Environmental Education	• environmental education through multiple use (increase acceptance of NC UNDINE (G) • financing of integrative projects by ministry (environmental education) (G)	• interest in supporting environmental education: important, especially for children, enlightment, information for more sensitation towards nature	• raise awareness of children early for natural concerns: concete project, youth work of associations • necessary to raise appreciation for more NC: nature trail, information board, observation of natural areas (Geltinger Birk) • take new knowledge and insights home --> possible to reach more for NC	//	//	//	• educational work not necessary (SP) •enlightment necessary, especially with children (naturerlebnisräume), the better educated, the less interference in nature (L) • often EE in school lacking, urgent to raise awareness / acceptance (how should they know?), NC has to present itself (information center, board, system,...) (XX1)
Willingness	• synergies definitly possible (XX2) • willingnes has to be present on local level for implementation / using of synergies (XX2) • rationale of T: environmently friendly in using resource --> prevention of devaluation of natural resource (XX2) • compromise necessary, which is beneficial for both: try togetherness / work more conceptual to combine interests, T seeks cooperation (XX2) • sustainability for world heritage site: useful, no chance to escape (--> willingness??) (XX2) • balanced combination of economy and natural space needed (XX2) • initiating projects to bring cooperation further (UNDINE) -->still potential for INC (G) • interest not that high to include "nature" as profile of tourism at Baltic Sea (T is already doing well); still potential for that but not at entire coast (Lübeck Bay not); nature affinity of tourists not that high (G) • Use of nature should be possible, but context-dependant and resource-protective (XX2) • nature is humans habitat, cannot exclude people therefore balanced relation needed (between strickly protected areas and economic benefits such as jobs) (XX2)	• artificial reefs important for diving and NC (stones or wrack)	• will to come to a solution that fits all (better than confrontation), but no motivation to do so • no need for cooperation / integration as there is no occation • need to balance nature and economic interest • care about other interest: different uses all belong together • only relevant sectors (according to interestgroups) should be integrated • NC between protection and use (indespensible)	• actions of state agency of CP still bound strictly to law, difficult for cooperation (A) • CP as "superior" function as it provides security and protection (H)	//	• try to see both sides (in decernat) --> allow uses in CW which are not too destructive • RAdOst • appreciate if BUND looks for cooperation with CW --> open doors	• stick to their claim (obstinate, positive?) (SP) •willingness of others little (own interest first, little compromise) (SP) • try to find compromise / win-win but not in protected areas, would be positive (SP) • show effort, join meetings to find togetherness: "how could other parties reach their goals differently?" --> actually little willingness for cooperation where both sides benefit (SP) • experiences with voluntary agreement (target of LNatSchG) (L) • informing public, people in charge (series of event) (L) • general interest in cooperation, but better possible on level of associations (L) • always acting proactivly to find cooperation (XX1) • have to show beauty of country to people (XX1) • "Naturschutz ist nicht unsozial" --> aware of the fact that there are other functions imprortant as well, which can be inluded in NC work (XX1)

Table 5: Limitations perceived by stakeholders

Tourism	Diving	Sailing	Coastal Protection	Harbor & Industry	Coastal Waters	Nature conservation
• strict philosophy of NC to exclude other functions from protected areas -->will not be proactive in cooperation (XX2, G) • no need for T to include N in marketing strategy of Baltic Sea (doesn't fit, as beach / sea works well) (G) • mistrust, prejudices, scepticism between actors in some areas (Schlei) (G) • conflicts of use (XX2) • no coherent management / marketing of natural areas (multiple actors responsible, no reason to quarrel) (G) • limited funding (although it actually works) (G) • limited institutional capacities, personnel, time (good ideas but no implementation possible) (G) • implementation difficult if planned from above (state, national level) (G) • environmental law can be ignored if economic interest is too high (G)	• problems of communication • need for cooperation only in case of conflict, and there are none • issues/actors are too far apart, no-one is acting proactively • Waterways and Shipping Office for placing buoies if wrack is used	• cooperation cost freedom • sectors are too different to have integration on all levels (with all other sectors) • economic interest are too strong • fear of what to expect of NC • compromises have to be made (have to accept that there are losses) • lacking knowledge of parties in process about other party and their demands • no real benefits of artificial reefs for S • no need seen for further cooperation / no active involvement • difficult to discuss with hardliner of NC, but that becomes less • difficult to weight interests between protection and use	• difficulties about responsibilities within projects / maintanance (difficulties for getting funding) • no experiences with common NC projects • often own interest is seen: CP has no NC-goal, only due to own interest in protection some points of contact; strict acting to responsibilites and availability of funding (limits common projects); NC see restoration as interference in natural system (if wrong materials are used, although it might be beneficial for habitat) • difficult to convince people as integration would mean change of structures/habits (mental problem, especially when it touches property) • limited knowledge of people in charge about (implications of) projects results in rejection and confusion • no implementation of projects • resistance within society and ("orthodox")	• willingness to find middle course is low sometimes of involved parties • set economy / jobs in focus (although NC important) • interests between different sectors too far apart, most difficult task is to find agreement • lengthy process (coordination between state agencies, ministry and harbor and NC associations) • high cost for company • cartell law	• implemetation and maintanance cost effective • high uncertainty if it is practicable on long term (CS) • not sure if NC supports such projects (CS) (now there is something on seabed as well) • idea for project from "wrong" person (CW not official y NC) --> little acceptance ?? • CW not responsible for participators, NC projects • Engagement not always equals expert knowledge (NC associations) • lacking interest / lobbyism for Fucus • not designated to have projects for WFD at coastal zone (CS) (source of eutrophication not at coast) • CS not suitable for coastal protection (no effective protection--> no interest of CP sector) • lacking funding	• compensation measures only for NC (preservation decree, compensate habitat) (L) • cooperation process in lower NC agency not seen useful, more for associations (L) • NC not seen as equal goal / interest / partner in development / plans (SP) • no use in protected areas, NC in other uses (SP) • landscape plans not used (organize uses in area) (SP) • integrated way of thinking and implementation is difficult for humans (especilly in connection to water, needs courage) --> mental problem (XX1) • no need for cooperation between NC and project developer exept pressure, lawsuit (developer just go ahead) (XX1) • lacking attention for NC economy (taxes, building areas) of higher interest (esecially in municipalities, own interest always first) (SP, XX1) • willingness of other sectors for compromise is lacking (SP) • NC only included when plans are already made (municip.) (SP) • disappointing experience with participation processes (only alibi) (SP) • contuity lacking (legislative periode) (SP)
• limitation of touristic development: NC in protected areas strong force; envronmental law (strict due to protetcive purpose), law for regional development, heritage preservation, reconcliment for spatial planning ("rules") limit touristic development (some kind of impairment) (XX2) • financing with European funding difficult (structure fund); high amount of co-payment needed, complex project administration (G) • no funding known for coorperation (involved ministries should finance it commonly) (G)			nature conservationists • complicated financing (co-financing with funding from EU not possible, have to split-up projects) • FFH-law is limitation for users / intereference • insufficient: almost all interference is regarded as damage, although proportion of habitat type relatively small; compensation hardly and vague regulated		• NC itself not coherent in way of thinking (conflicts within NC about what to protect, creating landscape for single species • NC only active on land (not responisble for marine FFH) • lacking knowledge among agencies / politics / NC about relations, CW • no-one is taking initiative (CW neiter: "not my job, its only maginal aspact") • lack of personell • lack of time for close cooperation (EU-directives already time intensive, voluntary cooperation hapens in evenings) • no measures in coastal area under WFD (source of pollution upstream) • funding from WFD only limited for research, little anyway (reduced because of MSFD)	• lacking interest / knowledge about possibilities (especially in local council, planning offices) (SP) • courage of owner lacking to take out claims (SP) • individual persons blocking decisions in dialouge (SP) • lower NC agency bound to instrutions of ministry: not their responsibility, no money for voluntary work (L) • tourism doesn't use NC (no coherent profile, internal problems of structuring) (XX1) • voluntary agreements not possible: not everyone is involved, no owner in water issues (XX1) • limited time, capacity (XX1, SP) • only initiative action by NC (no other sector is proactive) (XX1) • unilateral financing by one sector (XX1) • no common structure of municipalities in terms of ICZM (XX1) • integration difficult as every association (NC, tool) is lobbying --> own interest first (XX1) • people learn slowly to change thinking (XX1) • landscape planning as instrument ignored by municipalities (SP) • compensation money only for NC, not allowed to combine (L) • NC seen as hindering in development, cooperation (SP) • EU-funding policy difficult: municipalities try to get funding, although not sensible (SP) • funding policy (project financing) not sustainable, only for 2 years (SP)

Table 6: Framework conditions for cooperation named by stakeholders

	Tourism	Diving	Sailing	Coastal Protection	Harbor & Industry	Coastal Waters	Nature conservation
Supporting	▪ for more inclusion of nature: landscape preservation planning, laws provide framework for limiting touristic development, EIA (make T more environmentally friendly) (XX2, G) ▪ LEP as instrument for more cooperation ("mutual development" in areas of priority other than T) (XX2) ▪ Interreg / project financing for more personell (UNDINE) (G) ▪ LEP, regional planning steers toruistic development outside protected areas: priority areas for tourism and recreation (XX2)	▪ Natura 2000 provides legal basis for inclusion of NC	▪ additional funding could enhance multi-sectoral projects ▪ institution for environemtal education	▪ juridical framework: plan approval procedure (as vehicle for NC), compensation measures	▪ compensation measures provide very strong regulations for including NC and creates close cooperation	▪ compensation measures for implementing CS ("didn't think of that, but good idea")	▪ lawsuits very strong tool to reach compromise (SP) ▪ landscape planning (SP) ▪ NC associations have to participate (cause of action): NatSchG, BauGB (SP) ▪ LNatSchG (voluntary agreement) (L) ▪ sufficient legal instruments for NC already (XX1)
Politics	//	//	▪ economic interests stronger, politically influenced (harbor extension) ▪ much NC from European level ("irgendwen triffts")	▪ politics of municipality influence project approval (individual opinions of people in charge in municipality, majors,...)	▪ SH is structually weak region, therefore economy have to be considered	▪ little knowledge about CW and relations among politics / municipalities	▪ politics strongly influence cooperation / inclusion of NC: majors of municipalities, governor included in process, political will for decisions / development needed (SP) ▪ decisions influenced by legislative periode (SP, XX1) ▪ political interest often big (taxes,..) --> no integration (XX1) ▪ mental problem of integration in politics, too. --> little / no progress (XX1)
Financing	▪ different programs for funding: Zukunftsprogramm Wirtschaft (EFRE, Program Gemeinschaftsaufgabe of state and nation), for design, marketing,... (XX2) ▪ tourists planning according to funding period (next starts 2014) (XX2) ▪ common funding possible: Hansemuseum with Ministry of Enviroment, dialouge project with tour operators with BfN (G, XX2) ▪ higher possibility for cooperative projects with more funding (G) ▪ national parks with more financial capacity (possible at Baltic Sea as well) (G) ▪ perhaps more chance of funding of sustainable tourism from EU, as recently EU stopped funding of sectoral tourism projects (G)	▪ would work as soon as common goal of project is set (foundation or project funding)	▪ additional funding could enhance multi-sectoral projects	▪ NC needs more money for own projects, than there would be more possibilities to implement projects (without help of CP) ▪ projects expensive, funding only possible by CP (diving, NC, tourism have little money), CP has to be focus of project, other sectors linked in	▪ financing of projects with NC are justified, because NC common good	▪ projects (CS) on long-term expensive ▪ CW is doing NC with their own money, no support of NC expected (LLUR responsible for coastal waters, FFH)	▪ BINGO (environmental lottery) suitable tool for financing projects, but only limited in time of project and only project based (SP, XX1) ▪ project funding not suitable for financing personell (SP) ▪ financing of lower NC agency only for NC projects (L) ▪ no explicit funding of cooperation projects (XX1)

Table 7: Understanding of different concepts by stakeholders I

	Tourism	Diving	Sailing	Coastal Protection	Harbor & Industry	Coastal Waters	Nature conservation
Nature conservation	▪ valorization of natural resources as strong touristic products ▪ reseouce efficient = natural development / sustainability ▪ prevent nature from being destroyed by valorization ▪ nature / culture can be valorized ▪ valorization of interesting natural areas for tourism is useful ▪ UNDINE: underwater nature has to be protected but can also be of touristic use, just has to become visible ▪ valorization as good tool for NC -->better argument (not only ethical) for protecting nature and put it on the political / societal agenda; ecosystem services ▪ use of natural areas should be possible, but sensible / resource-efficient ▪ nature is also habitat for humans -->can not be excluded, reasonable compromise has to be found (exception: valuable nature such as heath or marsh) ▪ only nature = no jobs, only tourism = destruction of nature	▪ valorization not useful: could be provoked that only rich people get access to certain areas ▪ use of nature possible, but taking account of natural demands --> sustainable use of nature	▪ not that passionate any more -->people have more trust, can live with status quo ▪ not that many hardliner any more (developed well) ▪ nature conservation pressing: people don't know what to expect ▪ difficult to weigh between economy and nature ▪ sailors = nature conservationists ▪ protected areas should only be named, if useful in that area --> little left in SH anyway (Geltinger Birk doesn't harm anyone anyway) ▪ Environmental education important ▪ nature should be used: "see what humans created" --> environmental education, higher awareness	▪ valorization: products could be introduced in regional market(ing): algae for medicine / cosmetics; nature difficut to value (A) ▪ useful, but has to be supported politically to be put into practice (H) ▪ nature conservation should be inbetween use and protection (A) ▪ but: "orthodox ecologists": problem with ecological restoration, as it also destroyes habitat (artificial reefs destroy benthos and are not natural) -->but what is natural then? (A) ▪ higher acceptance for nature conservation if use is allowed (A) ▪ nature conservation without consideration of other sectors not possible -->always points of contact due to conflicts ▪ NC has to be included in coastal protection by law (H) ▪ no won legal instruments for NC: need coastal protection setcor for projects (H) ▪ ecological restoration by technical means of coastal protection (H)	▪ NC has higher position in (harbor) economy, planning, management, society --> takes bigger part in practice	▪ nature conservation incoherent within own ideas / structures ▪ often it is tried to create / construct habitats for certain species, instead of preventing negative influences and keep natural dynamics ▪ nature conservationists sometimes dogmatic ▪ engagement of nature conservationists not always equals knowledge	▪ acceptance for NC not increased by valorization, difficult to confinve people and put into practice (SP) ▪ skepticims towards valorization, happening more indirectly: tourism would not work without nature in SH (L) ▪ valorization difficult topic; ecosystem service; useful to consider approach and see if it works; debate in NC: is it ethically OK to try to give economic value to creation? (XX1) ▪ nature conservation is always neglected, anthropogenic use already present (economic demands more important) (SP) ▪ difficult to redress nature (often only by lawsuits) (SP) ▪ nature conservation circumvented in planning (SP) ▪ nature only represented / included, if it doesn't harm anyone ▪ interest in nature often limited (nature already seen as everything which is not concrete / infrastructure / ... but it is more ▪ NC goal in SH: keeping stock (L) ▪ often intensity of use essential for level of interference (surfing) --> conflicts (L) ▪ use in (protected) areas always difficult (L) ▪ compensation difficult (replacement of habitat hardly possible) (XX1) ▪ should not be hardliner: little acceptance on political level, conflicts not solved (XX1) ▪ sometimes nature should have solitary function, but usually one partner of many (XX1) ▪ NC has strong legal instruments, just has to use them (mental problem) (XX1)
INC	▪ depends on what is integrated in what ▪ example: integrate accessibility in nature conservatio or integate world heritage site in touristic use ▪ sustainability strategy for tourism (Wadden Sea) ▪ very good approach but has to be done carefully: lose not sight of nature conservation goal ▪ important to gain higher acceptance in society --> long term success	▪ common use of natural areas -->necessary, as space is limited, has to be protected together	▪ no need for INC (advertising if nature conservation) -->open doors anyway for nature conservation ("natural country") ▪ nature conservation could come to rest	▪ expl: extensive agriculture and drainage in wetlands / dike: also advantage for nature conservation (A) ▪ becomes better known (A) ▪ consider nature conservation demands in other planning (H) ▪ lucky, if it is possible to combine interests of nature conservation and coastal protection (compensation measure) (H)	//	▪ nature has the right to exist independantly of humans, use should be at sectond place ▪ hmans cannot be charmed away, use and nature have to be combined	▪ in protected areas: use depends on protection goal, outsude of protected areas: has to be in line with natural demands (SP) ▪ integrate nature conservation in economy (agriculture, fishing, tourism,..) (SP) ▪ awareness rising, enlightment --> acceptance of giving space to nature increased (L) ▪ Environmental education: make clear that there has to be space free of use (L) ▪ useful (XX1)
Multiple-use	//	▪ important ▪ example: angler + divers + sailor --> no problems	//	//	//	//	▪ generally difficult, NC always neglected / behind, economy more important (SP) ▪ size of area relevant: how much can be "given" to other functions without nature being neglected --> segregation, not multifunctional development (SP) ▪ generally contradictionary: nature livable on its own, use can lead to disturbance of habitats --> conflicts

Table 8: Understanding of concepts by stakeholders II

	Tourism	Diving	Sailing	Coastal Protection	Harbor & Industry	Coastal Waters	Nature conservation
ICZM	▪ integration: create management / cooperative rules of how to use coastal zone (2km) --> multifunctional use and conflicts which have to be solved ▪ "puffy" (XX2), should contain concrete projects with which money can be earned, but generaly good thing ▪ "Wolkenschieber" (XX2) ▪ important for tourism, as it is important function at the coast, has to be integrated ▪ should be beneficial for all actors ▪ solve conflicts / problems which limit development / debilitate by constructive cooepration ▪ heterogenouse structures at the Baltic coast, at Wadden Sea very good due to national park	▪ integration = all parties who use coast care / protect it together ▪ no experiences	▪ very important: all users are connected anyway (belong to water) ▪ planning not necessary: no problems, sectors too far apart, has to be sorted by interest groups	▪ horizontal / vertical cooperation, early participation, multi-sectoral integration, workshops (theory) (A) ▪ implementation works better than before, but still difficult due to change of habits / thinking needed (A) ▪ interdisciplinary communication in workshops, networks,... (H)	▪ not known but imagine: coastal management something like deepening of Elbe, integrated = participation	▪ "nebulous", no tools and successful examples known ▪ possibly there is a use, but no experiences, yet	▪ process such as WFD: devide coast in parts, set up groups for management so everyone is satisfied in the end (SP) ▪ should be updated regularly for longterm management (SP) ▪ don't work with it on local level, perhaps more relevant on state level (L) ▪ interesting aproach, as it combines different disciplines (coastal protection and nature conservation (XX1)
SES	imagine: ecology + society which should be linked --> equilibrium ▪ imagine: interaction between societal and ecological structures	▪ not known	▪ as soon as people keep eye on nature conservation goals	▪ not known	▪ imagine: combining environmental and economical systems	▪ imagine: human and nature consonant	▪ sustainabiliy (SP) ▪ to combine social and ecological demnds (SP) ▪ imagine: combine differnet interests (socially acceptable tourism and ecological knowledge) --> environmental education, nature conservation is not anti social (XX1)
Co-management	▪ heritage site as good example for cooperative management ▪ coopeation necessary to combine knowledge (tourism + nature conservation) for touristic product imagine: different actors address same task and try to manage it commonly	▪ different associations go for one goal	▪ management: questionable if needed --> self-organising anyway (no regulatory institution)	▪ imagine: two parallel management structures difficult? (A)	▪ joing working of managements	▪ no idea	▪ imagine: combined management of differnet actors but: municipalities have most power in planning anyway (SP)

Table 9: Analysis of spatial plans and Nature Conservation Act of Schleswig-Holstein

	LEP	Nature Protection Acts	RP Ostholstein / Lübeck	RP Kiel
General framework	▪ LEP only document responsible for coastal waters ▪ more responsibility for municipal level (regional planning) ▪ LEP provides framework conditions ▪ integrative policy of development for sustainable growth ▪ multi-level cooperation important (inter-municipal) with more responsibility for regions (interdisciplinarity) ▪ trust / respect important for cooperation ▪ sustainable and ecologically sound development (public-private) ▪ use potential of coastal zone (ICZM) while keeping natural dynamic and ecosystems ▪ bring different demands of use in line ▪ tourism: priority areas for tourism and recreateion, weighting of other functions, zoning of intensly used areas and free space, one kilometer from coastt line (coastal waters) is automatically priority area for tourism, new camping of holiday homes not in close distance to coast ▪ municipalities should concrete reservation areas	▪ perpetrator is responsible to compensate interference in natural system (compensation measure of financial compensation) ▪ in Natura 2000 sites construction is only allowed for urgend reasons for public interest	//	//
Limitations for cooperation / multi-use	▪ areas for coastal protection have to kept free of any other use / have priority over all other functions in sensitive areas ▪ Conflicts of interests seen, as many functions are present and ecological demands also exist ▪no regional planning for costal waters (only in LEP) ▪ new orientation of tourism does not include nature / sustainabliltiy aspects ▪ touristic concept: "Maritime holiday country"	▪ money for compensation has to be ring-fenced for nature conservation ▪ compensation measure only, if not co-financed	//	▪ develop sectoral concepts for tourism
Cooperation	▪ combination of instruments for regional / inter-municipal cooperatio ▪ goal: growth, attractivity, quality of living ▪ develop integrative tourism concept for linking private and public institutions	//	//	//
Support	▪ supportive financing for inter-municipal projects ▪ strengthening regional level ▪ growing cooperation in sectors such as research, nature conservation, sustainability, technology as basis for development, inter-municipal cooepration, informal cooperation ▪ arrange functions in coastal zone and considere goals / objectives of relevant sectors ▪ solve conflicts in integrated way (coordination requirement for spatial planning in coastal zone) ▪ integrative tourism concepts on regional level (sectoral, but cooperation between levels, public and private) ▪ make coastal waters accessible for recreatiopn / sporting, while keeping goals of nature protection ▪ coastal touirsm: integrate land and seaward infrastructure and offers, touristic valorization of water front ▪ review moving of camping and mobile homes away from the water frant to reduce conflict potential with nature conservation ▪ measures for ecologicla restorationin furture development ▪ protect typical natural areas for stabilisation of ecosystem and strengthening of economy / identity --> combinne natural values and development ▪ marien ecosystems / nature: protect for own value and livelyhood for humans ▪ coastal areas: use / administer / protect sustainability	▪ "Naturerlebnisräume": experience nature, influence humans have on it and natural sites, information centers in municipalities ▪ experience of nature as long as objectives of nature ocnservaiton are not affected ▪ allow access to protected areas / national parks (observation, education, experiencing, sustainable tourism, sustainable regional development	▪ regional development concept Lübeck: partnerships and re-orientation of strategies, "green" region for recreational use connected to landscapes, sustainable tourism for economic stability and growth, inclusion of multiple actors for reginal development ▪ sustainable development (Agenda 21) ▪ stronger inter-municipal cooperation, communication ▪ natural areas (Baltic Sea incl.) should be sectured long term, and, if necessary be restored ▪ natural areas should be kept for ecologically sound recreation ▪ combination of functions, by nature being potential for tourism, living, agriculture priority areas do not exclude other functions, just if they are not compatible ▪ nature parks: protection and recreation ▪ participation of nature conservation / agriculture in planning processes	▪ ICZM ▪ consideration of natural aspects when developing tourism ▪ weighting of other functions in priority areas for nature / landscape ▪ other functions not excluded from priority areas of nature, only those, which are not compatible ▪ coastal area of Baltic sea is priority are for recreation: use it in environmental freindly way ▪ reduce conflicts by steering ▪ expansion of "Naturerebnistourismus" (experiencing - nature-tourism)
	▪ planning / management with ecosystem approach ▪ no exclusion of functions from priority areas as long as natural development ▪ biodiversity with relevance for economic, social, cultural, educational and eastetic development ▪ voluntary agreements in priority areas for nature for inclusion of other functions ▪ ICZM			

Annex 5: Overview of recommendations

Table 1: Recommendations for better cooperation and INC

		Problem	Approach	Recommendation	Best Practice
A	Management	Little experiences of cooperative projects with nature conservation are used.	Common learning and adaptation to a dynamic and complex environment by experimental projects and their evaluation.	Introduce monitoring and evaluation practices	
B	Management	Stakeholders rather co-exist instead of cooperating. Dedication and interest in INC is lost along the way, as building and keeping strong networks is time intensive.	Implementation of leadership, guiding and steering cooperative processes.	Introduce a leading institution in management of INC projects.	
C	Management	Openness towards other approaches and sectors / stakeholders is limited.	Establishing and strengthening networks, transferring knowledge and developing synergies of cooperation.	Create a platform of collaboration	RAdOst
D	Policy	Missing incentives to initiate or join INC projects.	Strengthening of knowledge with regard to benefits and synergies of combining multiple functions.	Stronger valorization of nature conservation and enhancement of communication between sectors.	
E	Policy	Capacities are limited or are distributed unequally. Structures of responsibility within cooperation processes are often unclear or insufficient.	Enable policies which better distribute power and capacities and provide clear structures of responsibility.	(Partial) decentralization and financing of multi-sectoral projects.	National Park and World Heritage Site Wadden Sea
F	Policy	Incoherence within and between sectors limit INC.	Better organizing and structuring of responsibilities and frameworks.	Develop long term strategies which include collaborative aspects.	National Park and World Heritage Site Wadden Sea
G	Policy	Legal framework does not support multi-sectoral cooperation.	Establish legal framework which increases legal certainty of outcomes.	Integrate inter-sectoral planning in development and land use plans.	
H	Research	Ecological issues are not considered in planning especially on municipal level, what results in separation of functions.	Raising the awareness of decision makers and society for ecological functions, processes and alternative approaches to nature conservation.	Improve knowledge of ecosystem dynamics and nature conservation.	Umwelthaus Neustädter Bucht

Annex 6: Digital attachment

Content:

- Transcripts of the interviews
- Digital version of this master thesis

Author's Declaration of Originality

I hereby certify that I am the sole author of the presented thesis

"To what extent can 'integrative nature conservation' be embedded in coastal (socio-ecological) systems, which factors influence its potential and how can limitations be overcome?"

and that no part of this thesis has been published or submitted for publication.

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I declare that this is a true copy of my thesis, including any final revisions, and that this thesis has not been submitted for a higher degree to any other University or Institution.

Oldenburg,

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Carla Kuhmann