

Department for biosciences, fisheries and economics

BUREAUCRATS AND BOUNDARIES

THE CHANGING INTERSECTION BETWEEN EXPERTS, LOCAL COMMUNITIES AND ENVIRONMENTAL ADMINISTRATION IN NATURE PROTECTION



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PREFACE

A Norwegian comedian described success in academia as being a matter of how long you are able to sit still. The inevitability of sitting still at the computer or at the library; reading papers; dealing with endless formalities, procedures, styles and editing; the long-term horizon when writing a dissertation have indeed been major challenges for me. At the same time academia is a treasured place for creativity and curiosity, providing liberal and flexible frames within which doctoral students are privileged to develop analytical skills, new perspectives and insights.

This thesis would not have been submitted without the inspiration and advice I received from colleagues, friends and family. First and foremost I would like to thank my supervisor, Jahn Petter Johnsen. His tireless commitment and collegiality, coupled with great academic insights, generosity, humor and enthusiasm, were definitely reassuring for an academic “gjøkunge” who helped herself greedily to his time and resources without paying back in terms of engagement in his academic field of interest. Jørund Aasetre, my second supervisor and colleague on the research project, whose long-standing and wide knowledge in the field contributed to place my thesis in a long-lasting Norwegian and international discussion. Thanks also to Deborah Oughton, my third supervisor and a good friend, for her very special ability to read the message and see the potential in the most incoherent writings and work. She boosted my spirit and enabled me to continue countless times. I would also like to thank the project manager, Jostein Vik at the CRR, who taught me a lot about the art of putting an end to the various phases of academic writing.

The empirical investigations of environmental administration and protection planning would not have been possible without the large number of informants who made their time and resources available during my fieldwork. I encountered hospitality and a very open attitude from the Environmental Director at the Nordland County Governor’s office, Roar Høgseth, Gunnar Rofstad, Gudrun Hagen and many more at the Environmental Department, as well as Marit Bærøe at the Norwegian Seafood Association. They provided me with an office at their departments for several weeks. I really appreciated their interest in my research and their efforts, both of which were critical for my work. In addition, I was lucky enough to have the opportunity to participate in

mapping and assessing biodiversity value with Geir Gaarder at Miljøfaglig Utredning and his colleagues at Biofokus. The great exercise when traversing river gorges and running from the ground wasps; their most impressive biology skills and their insights regarding the science-policy interface; the many fruitful discussions following this field work these all stimulated my work in numerous ways.

My initial ambition to emphasize both marine and terrestrial protected areas made me apply for a Ph.D. at the Norwegian College of Fishery Science (University of Tromsø). Although my thematic focus became a bit skewed during the process, leaving little space for marine protected areas, I always felt welcome at the institute, which hosts a very inclusive and inspiring academic environment. A special thanks to Signe, Maiken, Maike, to mention some, for making my stays in Tromsø particularly inspiring and enjoyable. Although the thesis was submitted in Tromsø, my work was always at the Nordland Research Institute. I am particularly grateful to my good friends, colleagues and managers at the institute and UiN: Cecilie, Gunn Elin, Håkan, Grete, Tone, Audun, Gry, Ragnhild, Wibeke and many more, who for years have demonstrated how academic panic, pressure and pleasure can be balanced and mixed in a fruitful and fun way. A special thanks also goes to Berit and Asbjørn at UiN for fruitful comments.

Finally, I must express my gratitude to all of my friends and family who made me realize the (relatively) minor importance of a Ph.D. in the greater scheme of life. I warmly thank my four precious boys; Isak (14), who reminds me to rely on my gut feeling; Aksel (10), for his stoic calm and patience; Sigurd (6), for his ability to mix macro and micro perspectives in new and peculiar ways; and to Ove, for your total incapability to set boundaries for love and care in my life.

Ingrid

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SUMMARY

Loss of biodiversity and fragmentation of habitats are two of the world's persistent environmental problems. This is due to the emerging complexities, uncertainties and questions of societal scale in both defining and resolving the problems. One of the challenges connected to resolving these problems pertains to the divide between the local level, which carries the costs of restrictions and regulations of use and resource extraction, and the national and global levels, where benefits are realized in terms of multiple ecosystem services (also for future generations). Another salient challenge pertains to the divide between the aggregate level of scientific expertise about the environment and the concepts and capacities of stakeholders and their resource use. These are well-known divides that typically emerge in analyses of coupled social-ecological systems. Resolving environmental problems therefore takes place in the intersection between multiple scales, actors, agencies and competencies. The local and national/international levels are likely to differ in their perceptions of environmental problems and in their perceived needs and strategies for environmental protection.

Deliberative environmental governance is increasingly a focus of the international environmental agenda, and a wide range of political programs and efforts have been launched to implement and increase the efficacy and legitimacy of environmental protection. The shift from environmental governing to governance is placing more emphasis on sectors, stakeholders and knowledge across multiple scales in environmental and other policy areas. This has added the dimension of vertical divides to persistent environmental problems in addition to the horizontal ones described above. The integration of actors, agencies and competencies across both the horizontal and vertical divides influences decision-making processes and the role and position of the environmental administration. Compared with environmental governing, deliberative environmental governance places less

importance on legal instruments and formal rules, new roles for civil society, as well as trust in other institutions' expert knowledge. These shifts have implications for how the environmental administration maintains power and legitimacy for their decisions and programs.

This thesis asks how Norwegian environmental administration responds to such a shift from governing to governance, in particular with respect to the empowerment of local user interests and the implementation of expert knowledge in the protection of areas and biodiversity. It also addresses how the administration utilizes the potential for combining national and local ambitions and perceptions of environmental policy. The overall research question is examined in three published articles, each answering one sub-question. Findings from these articles show that: 1) there are differing responses at the regional and national administrative levels to challenges of accountability and competence resulting from the decentralization of power; 2) the environmental administration struggles to address the inherent limitations in expert knowledge applied in environmental planning, particularly with respect to the complexities of environmental problems and how to handle scientific uncertainties; and 3) the contesters of environmental protection apply various power resources to challenge the comprehension of environmental problems upon which environmental policy rests.

This thesis clearly shows how the ideals embedded in deliberative environmental governance are quickly faced with political, juridical and scientific complexities in the administrative reality. A paradox evolves as diverging strategies at administrative levels, and the lack of strategies to cope with the limitations of science, may weaken their power and position. Instead of protecting their role and the mandate of environmental programs, a further marginalizing of environmental protection may be the consequence.

This thesis suggests that administrative strategies and guidelines also need to be amended in order to solve persistent environmental problems. Lessons learned from this thesis include the need to

harmonize strategies across administrative levels and to develop guidelines to differentiate between users that are potential allies for nature protection (as embedded in international environmental conventions), versus the users that are capable of marginalizing the environmental administration and their legitimacy and efficiency. Environmental administration at both levels also needs to develop strategies to manage the limitations of scientific expertise (complexities and uncertainties) so that these are not used strategically to contest environmental programs. Finally, this thesis shows how the environmental administration not only deals with the protection of areas and nature, but also with the protection of discourses that regulate the administrative power, the boundaries between science and policy and the comprehension of coupled social-ecological systems.

1. INTRODUCTION

The protection of areas from human impact, whether on land or at sea, is acknowledged worldwide as an important way to preserve the natural resources that exist within them (IUCN 2008; UNESCO 2011). Approximately 12.9% of Earth's land surface and 0.72% of oceans are protected, often with the conservation of biological diversity as a primary objective (Chape *et al.* 2008). Yet, biodiversity and protected areas suffer from numerous threats, including unsustainable levels of tourism, financial shortfalls, invasive non-native species, poaching, and expansion of human settlement (Rands *et al.* 2010). Loss of biodiversity is also listed as a “persistent problem” by OECD’s *Environmental Outlook to 2030*; persistent problems are defined as those “which are not well managed, are in bad or worsening state, and which require urgent attention” (OECD 2008). Together with other persistent problems like the impact of accelerating climate change, the main challenges of biodiversity loss are linked to concepts of spatial interdependence, complexity, uncertainty and ambiguity (Hogl *et al.* 2012).

According to Sutherland *et al.* (2009) it appears that protected areas have been established more quickly than our capacity to manage them has grown. Therefore scholars have called for an increased focus on governing and steering mechanisms, and have stated that the institutional and organizational landscapes should be approached as carefully as the ecological in order to clarify features that contribute to the resilience of social-ecological systems (Olsson *et al.* 2004 p. 83). This thesis investigates area protection and how Norwegian environmental administration relates to societal changes, including the shift from governing to governance of natural resources.

1.1 THE SHIFT FROM GOVERNING TO GOVERNANCE

A transformative societal shift from government to governance has become a major focus of the political sciences the latest decades (Stoker 1998; Pierre *et al.* 2000; Kooiman 2005; Sørensen 2006). No single common and indisputable understanding of “governance” exists in the literature. A narrow

concept of governance has been defined in terms of what it is *not* supposed to be; namely, government (Hogl *et al.* 2012). A *governing perspective* concentrates on the state's role in regulating conflicting interests by means of majoritarian democracy and authoritative state decisions, largely based on command and control regulation and the distribution of material value. The *governance perspective* conceptualizes the state, markets, social networks and communities as regulatory mechanisms that may be at work in variable combinations (Baker *et al.* 2008; Hogl *et al.* 2012). The societal processes considered to be the main background for the conceptual change include: 1) growing societal complexity; 2) the realization that governments are no longer the sole proprietors of expert knowledge, and that they often need to trust in other institutions' expert knowledge, and; 3) the engagement of stakeholders representing the state, market and civil society has become essential since no single institution is capable of addressing governing challenges effectively (Pierre *et al.* 2000; Kooiman 2005). Røiseland (2011) argues that governance takes place on a scale ranging from very loose and floating structures to structures resembling formal organizations. In other words, there is or can be a gradual transition and overlap between governance and government.

In the realm of environmental policy and area protection, deliberation and involvement of local stakeholders has gained widespread international attention, both ideologically and in practice (UNCED 1992; World Summit on Sustainable Development 2002). Concepts like "sustainable development" (World Commission on Environment and Development 1987) the "Principle of subsidiary" from the International Union for Conservation of Nature (IUCN) (Dudley 2008) and the "Ecosystem Approach to Management of Biodiversity" from the Convention on Biological Diversity (1998) all emphasize the social, economic and institutional context within which the preservation of natural resources takes place.

Environmental governance has become a multi-disciplinary research area (Rhodes 1997; Ostrom 2002; Folke *et al.* 2005; Arts *et al.* 2009). Arts *et al.* (2006) imply that environmental governance involves:

- new roles for civil society and market parties in policy making;
- a diffusion of political power from the public to private domains and from national to sub-national and international levels;
- less importance of legal instruments and formal rules; and
- new discourses on steering and governing.

Hogl *et al.* (2012) summarizes three major challenges to environmental governance today; 1) participation, 2) co-ordination and 3) science-policy integration. This thesis focuses on two prominent characteristics of environmental governance: 1) the endeavor to empower non-state, civil actors in environmental decision-making; and 2) the effort to effectively integrate different types of scientific and civic expertise in environmental policy-making in a transparent and democratically accountable way. Natural scientific expertise is at the forefront of environmental policy development worldwide, and both environmental administrators and politicians consider it a necessity for making sound and legitimate decisions (Emmelin *et al.* 1999; Jasanoff 2004; Raymond *et al.* 2006; Koetz *et al.* 2008; Yuoatt 2008). The *linear view* is a classic way to describe the science-policy relationships firmly held within regulatory and policy-making circles (Carolan 2006). This view emphasizes that good policy comes from good science, and is pictured as a chain of knowledge consisting of steps from production, translation and transfer, to the use of knowledge.

According to the Malawi principles (Convention of Biological Diversity 1998), the objectivity of scientific knowledge can no longer be seen as independent from societal and economic contexts (art 4), and management must recognize that ecological change is inevitable (art 9). Also the Århus Convention on Access to Information Public Participation in Decision-Making and Access to Justice in Environmental Matters (1998) and the Water Framework Directive address the societal context in which knowledge is being constructed and interpreted, i.e., how environmental problems are

defined, mapped and assessed. Newig (2012) states that the rationales for science-policy integration found in these conventions both reflect aspects of effectiveness (via increased quality of implementation and decisions) as well as legitimacy (e.g., increased transparency).

1.2 WHY STUDY NORWEGIAN ENVIRONMENTAL ADMINISTRATION?

Although Norway is a minor actor in international area protection policy, the Norwegian national parks and marine protected areas may be useful for studying the tensions between local and more centralized perspectives on area conservation, for at least two reasons. First, Norwegian politicians have played key roles in the development of integrated use and protection concepts like sustainable development (World Commission on Environment and Development 1987) and the Malawi principles (Convention of Biological Diversity 1998). Thus, it could be expected that a new mandate was defined for the Norwegian environmental administration. Second, the idea of local and participatory democracy is an important cornerstone of the Nordic model of public management, which is characterized by multi-level and multi-sectoral collaboration and co-management between authorities and users of natural resources (Jacobsen 1966; Egeberg *et al.* 1978; Byrkjeflot 2003; Reitan 2004; Sverdrup 2004; Falleth *et al.* 2011). Sverdrup (2004) claims that the Nordic states pursue a consensus-seeking approach because of domestic traditions and styles of decision-making.

As stated by Arnesen (2009 p.8):

It is doubtful if any country in the world is better suited to the local management of nature protection than Norway. Strong democratic traditions in terms of institutions, resources and expertise, and robust traditions of multiple uses make Norway ideal for decentralizing environmental management.

This scope of this thesis includes the tensions and complexities associated with Norwegian protection planning, particularly the role and mandate of Norwegian environmental administration in its efforts to design efficient and legitimate political measures for the preservation of areas and biodiversity. Positioned in the middle of the process of implementing environmental policy and programs, public agencies and officials are the ones who interpret knowledge, deal with networks of powerful

interests and dovetail what can be done with what is known in their effort to design political measures (Lipsky 1980; Eriksen 2001). Substantial conflicts of interests, values and knowledge exist in environmental decision-making. Thus, there is a need for studies investigating how major societal changes and the shift from governing to governance in the political and scientific domains has influenced the interactions between scientists, user interests and environmental administration across sectors and levels in the process of defining environmental problems and their solutions.

Environmental officers are the ones to directly communicate with stakeholders at various levels and to share the ambitions of international environmental conventions with local communities in the areas adjacent to national parks. How the administration understands and implements scientific and local knowledge, and responds to the opposition and diversity of local interests and values is therefore a key factor in environmental protection. This thesis examines how these changing institutional settings and guidelines for making legitimate and effective environmental decisions, challenges Norwegian environmental administration.

1.3 RESEARCH QUESTIONS

The following research question is raised in this thesis:

How does Norwegian environmental administration respond to the shift from governing to governance in processes of area protection?

More specifically:

1. How does environmental administration at various levels respond to integrative use and protection planning?
2. How does environmental administration relate to the limitations of scientific knowledge?
3. How is administrative power contested and delegitimized in protection planning?

The two first questions address the role and mandate of scientific knowledge and stakeholders in protection planning. The third question investigates how the intersection between environmental administration and user interests becomes an arena where opposition and reframing of

environmental problems takes place. Together these three questions approach the overall question from various angles.

1.4 OUTLINE OF THE THESIS

This introduction is divided into seven parts. The second part gives an overview of Norwegian area protection, i.e., the state environmental administration and formalized procedures for area protection. The third part explores the literature as well as the theoretical framework and concepts used to investigate the research questions. This includes an examination of institutional theory and how discursive institutionalism can help enlighten the role and mandate of environmental administration. This chapter also gives a brief overview of various aspects of area protection conflict and describes how reforms have been designed to meet those challenges. The fourth part is the methodological section, describing the various steps and trade-offs that were made during the planning and accomplishment of the research. The fifth part consists of the papers. The sixth part summarizes the main findings from the three studies, and places them in the context of the national and international literature of deliberative initiatives in area protection, environmental discourse as well as studies of the boundary area between science and policy. Finally, the seventh part presents the conclusion.

2. NORWEGIAN AREA PROTECTION

2.1 THE MANAGEMENT SYSTEM

2.1.1 The formal institutional setting

The division of responsibilities and power between local, regional and national politicians in Norwegian environmental authorities has been debated since environmental authorities and institutions were first established during the 1970s. One of the major debates at that time was whether environmental bureaucracy at the regional level should be overseen by regional politicians or by those at the national level. The power and bureaucracy was finally directed to the state representative at the regional level: the County Governor environmental departments became responsible for implementing the Ministry of Environment's policy in the nineteen counties (Grøndahl *et al.* 1999). The Norwegian environmental sector flourished after the establishment of the Nature Conservation Act in 1970¹.

The Norwegian parliament adopted two white papers (in 1982 and 1992 respectively) outlining the procedures for establishing national parks and large protected areas (St.meld. nr. 68 1980-1981; St.meld. nr. 62 1991-1992)². By 2011, 41 national parks (NPs; 34 of which are located on the mainland and seven on Svalbard) and hundreds of protected landscapes, nature reserves and natural monuments were established (Table 1). Protected areas encompassed 17% of the mainland (equivalent to 31 000 km²) (SSB 2011). The national parks account for the largest part of the protected areas.

¹ This was replaced by the Act on Nature Diversity set to force June 2009.

² An overall review of the nature conservation according to the first Conservation Act was made in 1980, "Preservation of Norway" (NOU 1980:23). This represented an important part of the basis for the future protection programs including the government's white paper, "Protection of Norwegian nature" (St.meld. nr. 68 1980-1981). This was followed up in the "Environment and Development" (St.meld. nr. 46 1988 - 1989) and "Environmental policy for sustainable development" (St.meld.nr. 58 1996-97). In addition, area protection have been included in a number of other white papers including "Protecting coniferous forests" (St.meld. nr. 40 1994-1995), marine areas (St.meld. nr. 8 2005-2006), and coastal areas (St.meld. nr. 43 1998-99).

Table 1. Categories, numbers and sizes of protected areas in Norway under the Act on Nature Diversity, as of 31.12.2011.

Protected Area Type	Number of areas	Area (including freshwater) (km²)	Proportion of mainland Norway, (%)
National parks	34	31 046	9.59
Landscape protected areas ³	202	17 321	5.35
Nature reserves	2 048	5 644	1.74
Other ⁴	473	389	0.12
Total	2 757	54 402	16.80

National parks are defined as large, relatively undisturbed areas intended to preserve natural assets and to safeguard possibilities for outdoor recreation. The parks are first and foremost established to protect large contiguous areas from encroachments and commercial activities by prohibiting infrastructure (roads, buildings, hydro-power plants) and encroachments from industry and traffic, thereby protecting landscape and biodiversity assets (Direktoratet for naturforvaltning 2001). Fishing, hunting and motorized traffic, however, are examples of activities that are not regulated by the Nature Conservation Act, making protected areas subject to a wide range of bodies of laws. Protected landscapes – the least restrictive form of conservation – comprise “beautiful natural or cultural landscapes”, and traditional land uses such as marginal agricultural and forestry activity, as well as aquaculture, may be permitted. Nature reserves are small, virtually undisturbed areas comprising a particular type of habitat with scientific or educational importance and are the category of preserved area with the highest level of protection (Direktoratet for naturforvaltning 2001).

2.1.2 Terrestrial protection planning and the role of environmental administration

The procedures for establishing protected areas have generally been administrated as a top-down process. The Ministry of Environment (ME) delegates the responsibility for implementing the white papers to the Directorate for Nature Management (DN), which further delegates the mandate to develop protection plan proposals to the state representative at the regional level, the County Governor (CG) and their environmental departments. The county administrators are guided by

standardized procedures to ensure equal implementation of protection policy across the nineteen counties in the country (Fig. 1).

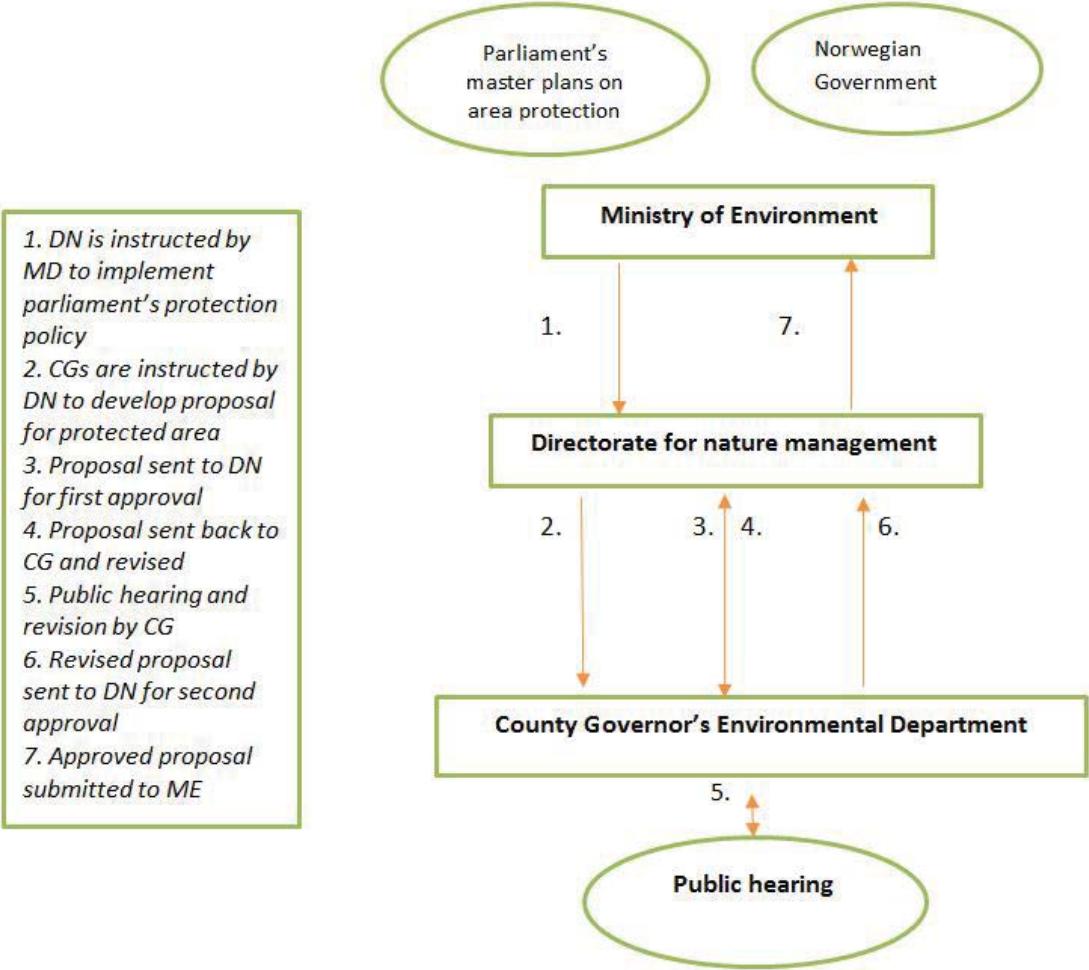


Figure 1. Standard procedure for establishing protected areas according to the DN (Direktoratet for naturforvaltning 2001)

Environmental officials follow these standardized procedures when informing property owners and the public, demarcating a “working border”, investigating the area’s natural assets and conducting assessments on the societal and economic impacts of area protection. Based on the information gathered, a plan proposal is developed and sent to the DN for expert approval, and then submitted

for a public hearing. After the public hearing, the DN sends the proposal to the Ministry, which brings it to the government and cabinet.

Positioned at the core of the decision-making processes, public environmental officials are the ones to implement environmental policies and to find legitimate solutions based on scientific knowledge and context-specific conditions and needs. According to the ideals of the Weberian model of bureaucracy, the administration is to be loyal to its political masters and there are to be strict rules defining the ways in which civil servants are to fulfill its role (Weber 1971; Stoker 2000, cited in Saglie 2006). The role of environmental administration in this regime is considered to be instrumental, since the loyalty of public administration to politically decided instructions and decisions is necessary to prevent the transformation of the democratic system into a “tyranny of experts” (Dahl 1967).

2.1.3 The role of expert knowledge

The process of establishing protected areas requires substantial information about the social-ecological systems in the selected areas, their natural and cultural assets, historical and present uses, etc. This knowledge is usually provided by external contractors to ensure independent and sufficient information. The experts are meant to provide knowledge about: 1) *value assessments* (i.e., determinations of landscape values, biodiversity, cultural heritage, geological values, etc.) and; 2) *impact assessments* (i.e., determination of the effects of protection regulations on economic and user interests such as agriculture, aquaculture, tourism, recreational interests and so on.) In this thesis an in-depth study is given on the value assessment of biodiversity (*Article 2: The premises and promises of trolls in Norwegian biodiversity preservation*).

Because biodiversity is complex and multifaceted³, mapping diversity in large geographical areas is an enormous task. The value assessment of biodiversity is therefore carried out according to five themes, each directed by a standard procedure (outlined in DN - handbooks⁴), developed to ensure a transparent and coherent methodology for the assessments (Fig. 2).

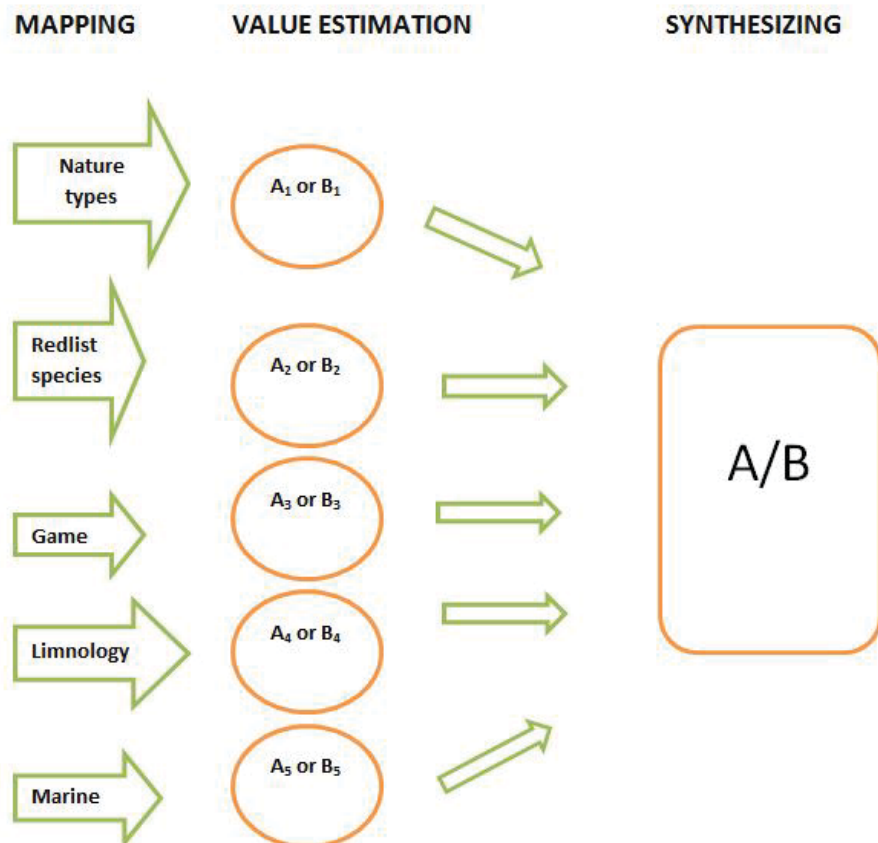


Figure 2. Value assessment of biodiversity according to the DN (2001)

³ According to the United Nations Convention on Biodiversity, biological diversity means “the variability among living organisms from all sources including, *inter alia*, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems” (Convention on Biological Diversity 1992 art 2)

⁴ These are:

- Nature types and Red-list species (Direktoratet for naturforvaltning 2007)
- Game (Direktoratet for naturforvaltning 2000)
- Freshwater data (Direktoratet for naturforvaltning 2001)
- Marine (Direktoratet for naturforvaltning 2007)

The handbooks vary in origin, history, age, and timespan, but are all subject to three stages: mapping, value estimation and synthesizing. Mapping is a descriptive exercise, meant to give a detailed picture of the area using five themes: nature types, red-list species, game, limnology and marine species. The limited time and resources available for this task (about two man-weeks for Sjunghatten National Park, which is 380 km²) make it necessary to prioritize what components (e.g., marine environment, limnology or nature type) to be emphasized most. These prioritizations are determined by the costs connected to field work, and the formal training of the experts hired to do the investigation (e.g., whether the expert is an entomologist, marine biologist or botanist).

Value estimation is a normative exercise where the consultant grades the species' or nature types' *importance* as either an "A" (particularly important) or "B" (important). Synthesizing refers to the process of merging the As and Bs of all five themes, leading to one overall grade for the area. This grade indicates the stringency needed to provide sound protection (e.g., whether to apply the "protected landscape" category versus that of "national park"). The experts therefore provide both a scientific investigation and a normative assessment of the importance of the areas of interest. Thus, the production of expert knowledge in protection planning processes takes place in the boundary area (see section 3.3) between the scientific and political domains.

2.2 ENVIRONMENTAL SPATIAL PLANNING ACROSS LEVELS

Today, 16 % of Norwegian territories are subject to the Act on Nature Diversity and thus are planned and managed by state agencies under the Ministry of Environment. Whereas this body of law is perceived as being *con* local development, the remaining 84% of Norwegian territories are planned according to the Plan and Building Act (PBL), and thus are managed by regional and local governments. This law regulates use and local development and is the most important instrument for balancing various interests and rights (including conservation values) at the local level. In addition,

the County Municipality is responsible for developing county plans or inter-municipal plans for societal and spatial priorities.

In many ways, this centrally-oriented institutional setting stands in contrast to Norway's long traditions of local democracy in area planning, entitling and obliging the 430 municipalities to plan their territories according to the Planning and Building Act. At the same time, many municipalities suffer from scarce formal planning competence and resources, in particular in the field of environmental planning (Langdalen 1994; Arnesen *et al.* 2003). In an attempt to bridge the gap between local and national spatial management, and to enhance competence and skills in Norwegian municipalities by the Brundtland Commission initiated local environmental administration in the late 1980s. With the help of financial resources from national authorities, the municipalities in Norway established positions for environmental officers. These officers should ensure competence and legitimacy in environmental matters and in municipal planning decisions, including management of watersheds, game, fish and areas. Nevertheless, after less than five years, the transfer of national money was no longer designated for these positions, leading to a major decline in number of environmental consultants in the municipalities. Today, only a fraction of Norway's municipalities prioritize environmental consultants, leading to a situation where competence and power concerning environmental protection is aggregated at the state level (Aall *et al.* 2007).

At the same time the juridical framework for area protection permits the involvement of local and regional governments, and does so on a broader scale than the standardized procedure illustrated in Figure 1 (where local governments have the right to express their views only at a later stage according to conventional planning procedures). The "Rundskriv T-3/99" outlines the possibility to adjust use and protection plans, and the possibility for parallel (integrative) plan processes:

The Governor, the county and municipalities will discuss how the work of conservation proposals can best be adapted to local and regional plans, needs and opportunities for coordination of planning, including parallel planning, the use of instruments, delineation of the planning area and progress in the planning process (Direktoratet for naturforvaltning 2001).

These formalized procedures therefore allow for some procedural deviations between planning processes, including the involvement of local and regional governments and spatial planning across levels and scales. Environmental administrations are provided room to maneuver when making choices that resembles core structures of environmental governance⁵. This is what made the County Governor in Nordland able to design an integrated use and protection plan procedure (the Nordland approach), which is of particular interest in this study.

2.3 NORWEGIAN AREA CONFLICT AND REFORMS

In Norway, the centralized organization of Norwegian environmental administration has been debated since its origin the 1970s (Grøndahl *et al.* 1999). Since the first national park was established in Rondane in 1962, the national planning and management of national parks have been subject to substantial criticisms by local voices calling for local autonomy and integrated protection and development projects (ICDP). The procedures, and the fact that protected areas were established and managed only by national authorities (Fig. 1), were challenged by local authorities, business actors, property owners, and Sami people for decades⁶. In their opinion, the planning procedures caused an authoritative implementation of not only juridical instruments and formalized regulations, but also of specific interpretations and understandings of natural assets (Sandström *et al.* 2008; Skjeggedal 2008; Reitan *et al.* 2012). The Norwegian and international literature on area conflicts and reforms will be further elaborated upon in section 3.1.

Both formalized management structures and ideas connected to the value of nature are considered problematic by stakeholders across scales and sectors. On behalf of the Parliament, the ME therefore launched several initiatives to address critiques from multiple sources and to improve the

⁵ The administrative action range also relates to the development of a *management plan* for protected area, which set the frames for what activities and uses are allowed inside the boundaries of the national park.

⁶ Sami people have claimed rights to land and water resources based on indigenous rights (ILO 1989 ; NOU 2007:14)

correspondence between protection policy/institutions and the social-ecological systems subject to protection. Some of these initiatives are listed below⁷.

- In 1998, The Ministry of Environment invited for municipal management of nature reserves, protected landscapes, natural heritage, and biosphere areas (Hovik *et al.* 2006; Direktoratet for naturforvaltning 2008; Falleth *et al.* 2009; Fedreheim 2012).
- In 2001, a pilot project experimented with various forms of inter-municipal management of national parks and landscape protected areas (St. meld. nr. 31 2000-2001; Daugstad 2006; Falleth *et al.* 2009).
- In 2003, the *Mountain Text* was formulated by the Norwegian parliament in 2003, opening up and encouraging business development in Norwegian protected areas (St.prp. nr 65 2002-2003; Direktoratet for naturforvaltning 2009; Direktoratet for naturforvaltning 2010).
- As a follow up to the 2001 pilot project, local/regional national park boards (local and regional politicians) were established in 2010. Park rangers were employed by the CG, but situated in local communities. The rangers are supposed to be loyal to the national park board in their tasks.

Finally, public-public partnerships were created between county municipalities and County Governors for the planning of recent national parks (Skjeggedal 2005; Daugstad 2006; Sandersen *et al.* 2008). It is in this empirical context this PhD is being positioned. This thesis investigates the implementation of integrative use and protection planning in two cases involving terrestrial protected areas in Norway. In addition, one case involving a marine protected area was selected to expand the scope of the study and to investigate environmental administration in a broader context. A brief description of these planning processes is given below.

2.3.1 Protecting salmon fjords

Two master plans have been launched with respect to marine protected areas (MPA). The first focuses on “untouched marine nature in coastal areas” and the protection of habitats and ecosystems. According to the DN, “the pressure on these areas is increasing, and a national marine protection plan will protect representative areas, and the diversity of species and nature types” (Direktoratet for naturforvaltning 2011). The second type of MPA, and the focus of this study, was established to protect one species (wild salmon) from one type of user activity (fish farming). A national committee was established in the 1980s due to a sharp decline in Atlantic salmon in

⁷ The assessments from the environmental reforms are found in the next chapter (section 3.1.2).

Norwegian rivers (Miljøverndepartementet 1999; NOU 1999:9). After considering the various threats, exclusion of fish farming from the most valuable salmon fjords and water systems was suggested as one of several countermeasures. In 1989, preliminary security zones were introduced in a number of fjords. In 2002, the first set of salmon fjords were adopted by the government (St.prp. nr 79 2001-2002). Four years later, another nine fjords were confirmed. In the meantime, three of the suggested sites were excluded from the implemented plan, including the Skjerstad fjord (Aasetre *et al.* 2013).

2.3.2 The Nordland approach

When initiating the protection process for Lomsdal-Visten in 2003, the County Governor in Nordland invited the county municipality, the municipalities and a wide range of other stakeholders to take part in the planning of the protected area and the adjacent zone surrounding what should be the national park (Fig. 3). This approach involved the application of two laws, since protected areas are subject to the Nature Conservation Act (administered by national environmental authorities), whereas adjacent areas – or buffer zones – are subject to the PBL (administered by municipalities and regional authorities). The process design is according to “Rundskriv T-3/99” (Miljøverndepartementet 1999) and was approved by the DN.

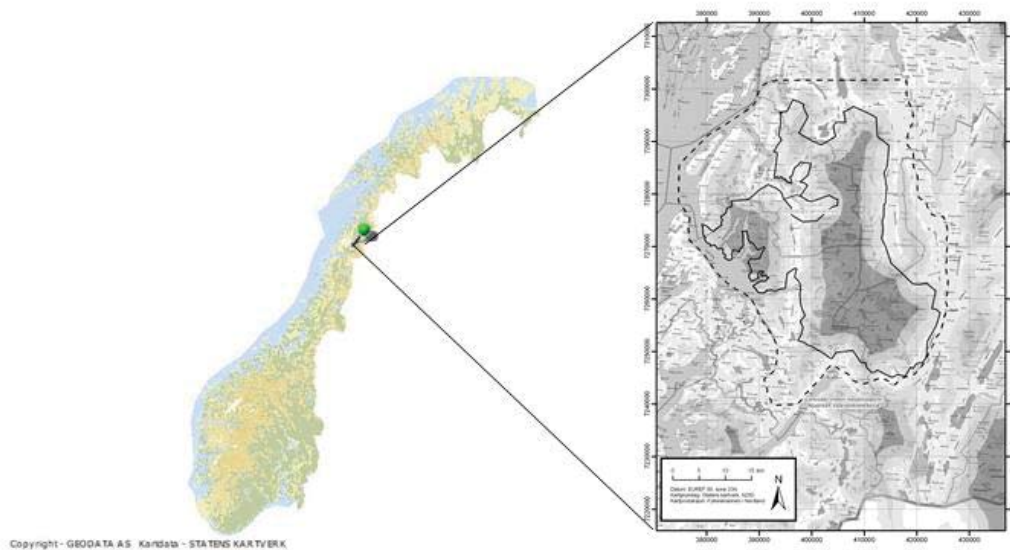


Figure 3. Map showing the target areas in the Lomsdal-Visten protected areas (Fylksemannen in Nordland and Statens Kartverk 2009). The protected area (inner demarcated area) was planned according to the Nature Conservation Act whereas the buffer zone (outer demarcated area) was planned according to the Plan and Building Act.

This approach to integrative national and regional/local spatial planning has been carried out before in (see e.g. Svarstad H *et al.* 2003; Sandersen *et al.* 2008). However, the Nordland approach is unique in that the steering committee is chaired by regional politicians, whereas the County Governor participates as the secretary. The steering groups in Sjunghatten and Lomsdal-Visten together developed two plan documents, one focusing on user-interests in the buffer zone (county plan on the basis of PBL), and one focusing on the nature values in the protection zone (on the basis of the Act on Nature Diversity). In addition, the municipalities prepared spatial plans for the areas within the municipality. In these processes, the county municipality played a vital role, chairing the joint steering committee and involving local stakeholders in the decision-making process. The county municipality⁸ provided additional funds for impact assessments and facilitated municipal planning in the buffer zone. Among the objectives for merging the planning of these areas were: 1) lower the level of conflict, 2) develop a holistic plan an ecologically contiguous areas, 3) strengthen an

⁸ A regional political level, consisting of elected representatives from the county as well as their administration

awareness of both natural and societal values in a larger area, 4) encourage new thinking and innovative efforts for sustainable use, and 5) improve municipal planning, as many municipalities struggle from lack of competence, both in environmental and general area planning (Fylkesmannen i Nordland *et al.* 2003; Fylkesmannen i Nordland *et al.* 2004).

All affected municipalities⁹, Nordland County¹⁰, sectoral authorities representing reindeer husbandry and aquaculture were invited to take part in the steering committee, the body that developed and decided upon the plan proposal. In addition, other stakeholders took part through sub-groups (Fig. 4).

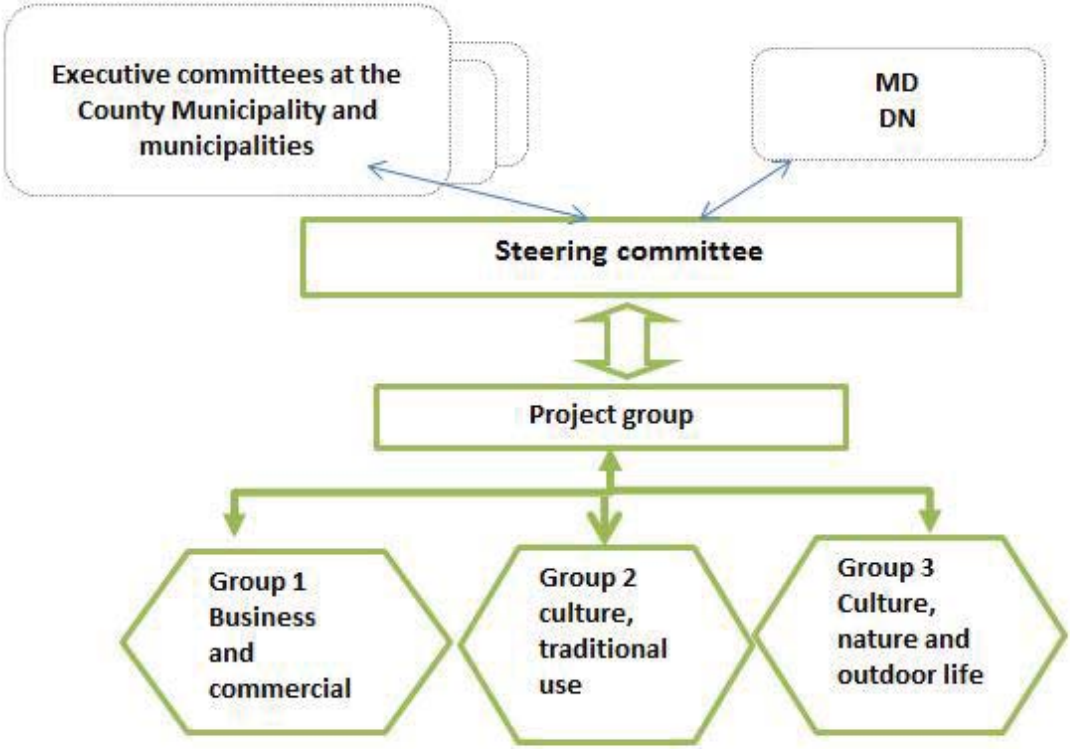


Figure 4. Overview of vertical and horizontal integration of different stakeholders and authorities. The steering committee was led by a Chief Executive of the county and consisted of representatives from the governor’s environmental department, sectoral authorities (reindeer, aquaculture) and affected municipalities. The project group included executive officers (governor’s office and county), and municipal

⁹ Local political entities governed by elected representatives from the municipality

¹⁰ Regional political entity governed by elected representatives from the county

area planners. The sub-groups consisted of property owners, NGOs and others, providing knowledge and viewpoints to the scope of the impact assessment, and/or particular subjects or areas.

Thus, the processes emphasized horizontal integration between planning authorities and their instruments at the regional level, as well as vertical integration between environmental administration and municipalities, local stakeholders (e.g., local politicians, business operators, ENGOs, property owners, citizens, etc.). The steering committee served as the decision-making body responsible for formulating the two plan documents, whereas a project group – in collaboration with the regional and discipline groups – was responsible for collecting and including local knowledge, such as the description of traditional use of outfields in recent and ancient history. The regional groups were focused on one particular geographical area, whereas the discipline group took care of thematic subjects like industry, commercial activities, outdoor life, culture and natural values, etc. In addition to the activities of these groups, public meetings, information meetings and “open offices” (where the governor was available at an announced time/place in the city hall) were arranged. Compared to conventional conservation planning, the Nordland approach therefore provided information and knowledge on a broader spectrum of societal interests and a bigger geographical area. As the next chapter will show, the formalized frameworks for environmental decision-making, and how they structure, enable and include user interests and knowledge in protection planning, have been subject to major contestations by political and academic agendas in Norway and internationally.

3. THEORETICAL FRAMEWORK

This section describes the theoretical concepts and tools applied to the investigation of environmental administration in processes of societal change. The three articles derived from this research were inspired by different theoretical approaches. The first article (*“The conservationists’ concerns: on national administration response to integrated use and protection planning”*) provides a brief network analysis of the organizations and actors taking part in the Nordland approach. The second article (*The premises and promises of trolls in Norwegian biodiversity preservation*) is founded on post normal science (PNS) and boundary work to investigate how environmental administration relates to limitations in environmental decision-making. The third and final article (*The constitution of power in Norway’s protected areas: onshore and in the sea*) applies concepts from discourse analyses to compare conventional and deliberative protection planning in Norwegian territories. To frame the three articles, I introduce institutional theory as an overall theoretical framework. This provides an opportunity to investigate how the three articles together may inform how the intersection between governing and governance challenges environmental administration.

A broad assemblage of international and national literature on decentralization of power shows that conflicting views exist regarding the centralized organization of protection planning and whether protection and development can be combined, and that this influences the realm of environmental administration. There is also ideological conflict connected to notions of nature being constructed in scientific or other societal contexts across networks and scales. After a brief review of this literature, I will return to the theoretical concepts and approaches chosen to study how Norwegian environmental administration operates within this context of social change.

3.1 AREA CONFLICTS AND MANAGEMENT REFORMS

As revealed in the introduction, the shift from governing to governance is conceptualized as a continuum that takes place along plural and non-linear dimensions, some of which are of particular interest in this study. These include the centralization versus decentralization of managerial power, and the linear versus complex perception of knowledge production and application (Fig. 5).



Figure 5. A simplified illustration over the shift from government and governance.

This conceptual approach reflects some of the inherent dilemmas associated with managing public goods or common pool resources like protected areas. One of the fundamental assumptions in these studies is that the characteristics of public goods lead to situations where the pursuit of individual rationality does not lead to collective rationality (identified by the subtractability and problem of free riders) (Rydin 2006). Institutional designs used to address this challenge and to ensure sustainable management of natural resources therefore range from solutions linked to governing through centralized regulations (or privatization) (Hardin 1968; Brandon *et al.* 1998; Oates 1999; Terborgh 1999) to social structures that emphasize shared norms, history of collaboration, self-organizing, and involvement of non-governmental actors (Ostrom 1990; Dryzek 2001; Saglie 2006). Deliberative theories have in common a fundamental basis on the Habermasian idea that it is possible for people to “make sense together” (Healey 1999; Allmendinger *et al.* 2002). The underlying assumption here is that no sovereign actor has the knowledge, instruments, authority/legitimacy and resources to tackle environmental problems unilaterally (Barry 1996; Ostrom 2002; Saglie 2006).

3.1.1 From truth to trust

In addition to the fundamentally different perceptions of the robustness of central and decentralized management structures described above, the role of environmental science in environmental governance can also be perceived as a continuum that in certain ways follows the shift from governing to governance. Norwegian and international studies have shown how the objectivity within the linear approach and orthodox ecology¹¹ have positioned professional environmental expertise in the front to define and resolve environmental problems since the early 1970s (see e.g. Jasanoff *et al.* 1995; Nenseth 1996; Nenseth 1997; Emmelin *et al.* 1999; Aasetre 2000; Asdal 2003; Carolan *et al.* 2003; Jasanoff 2004; Daugstad *et al.* 2006; Wilhere 2008; Jørstad *et al.* 2010). Today, science and public policy scholars note that science and expertise are resources that are increasingly sought for environmental policy-making, while at the same time the intensified interactions between science and politics has not come without problems. Hogl *et al.* (2012) claim that science-policy consultation practices are faced with two major challenges: 1) how to link expert knowledge and policy-making, and 2) how to ensure the democratic legitimacy of science in society.

Post normal sciences (PNS) addresses the management of complex science-related issues that emphasizes aspects of problem solving that tend to be neglected in traditional accounts of scientific practice: uncertainty, value loading, and a plurality of legitimate perspectives (Funtowicz *et al.* 1993; Ravetz 1999; Funtowicz *et al.* 2003; van der Sluijs 2005). In contrast to the linear view, PNS considers these elements as integral to science. This challenges the objectivity of expert knowledge, which is crucial for perceptions of legitimacy and effectiveness in the linear approach, as it questions whether scientific facts are constructed, performed or enacted. A general critique of PNS comes from scholars that claim that PNS lacks important considerations about the governance of problems and aspects of participatory and deliberative democracy. Changing scientific input in public policy making does not

¹¹ for example the Cartesian desire for absolute security where knowledge claims can be evaluated from an extra-discursive point of reference. Orthodox science has been described by Forsyth (p. 87) as “the search for universally applicable laws of nature based upon practices that guarantee accuracy and lack of political bias”.

necessarily hold the power to change its outcomes (Wesselink *et al.* 2011). Consequently, the combination of studies emphasizing administrative structures, and scientific advocacy on environmental problems is needed to investigate how environmental administration is able to legitimize their decisions in a changing scientific and political context.

The past few decades have also involved the development of environmental discourses as valuable approaches to understand conflict over ecosystems and their functioning. In this thesis the definition of discourses provided by Dryzek (1997), is applied:

A discourse is a shared way of comprehending the world . . . Embedded in language, it enables those who subscribe to it to interpret bits of information and put them together into coherent stories or accounts. Each discourse rests on assumptions, judgments, and connections that provide the basic terms for analyses, debates, agreements, and disagreements, in the environmental area no less than elsewhere (p. 8).

Environmental discourses explain how strategies to define environmental problems and social-ecological systems; their threats and need for protection are influenced by construction of meaning (Adger *et al.* 2001; Agrawal 2001; Wilshusen *et al.* 2002; Forsyth 2003; Goldman 2003; Folke *et al.* 2004; Armitage 2005; Hajer *et al.* 2005). These scholars suggest that a dichotomous view of humans and nature and the primary role of environmental sciences (exemplified in preservationist discourses and in the fortress approach) are major explanatory drivers to environmental problems (Adger *et al.* 2001; Robbins 2004; Hajer *et al.* 2005).

The Norwegian literature also includes studies on how environmental conflict is associated with a lack of value-pluralism, a dichotomous view on nature and culture (Gundersen 1996), the “freezing” of a certain state of landscape quality and the priority given to biological diversity and “natural ecological processes” (Arnesen 1998; Skjeggedal 2005; Daugstad *et al.* 2006; Riseth 2007; Ween *et al.* 2011). Hagen *et al.* (2002) argues that restoring the land towards an “authentic state” is a product of choice and not something naturally given. Instead, a “desired state” is a more accurate definition of the reality. Lundberg (1996) claims that the theory of stability and ecological balance as the ultimate

state, is a myth and that Norwegian nature conservation has so far failed to cope with the changing status of coastal landscapes and ecosystems. Studies suggest that user activities like land use are not only upholders of values, but are also a way of experiencing and perceiving landscapes (Fridman 2000; Eiter 2006; Bär 2007). Kränge *et al.* (2011) found that cultural resistance towards nature protection should be seen as a struggle for local autonomy rather than resistance to the idea of protection itself. Kaltenborn *et al.* (1999) claim that:

..it is essential to understand the complex relationships and meanings local people develop with their surroundings, in order to facilitate negotiation over contested issues. This has important implications for the ways in which managers apply different types of knowledge, develop strategies and communicate with local interests (p 178).

The resolution of disputes and the increased legitimacy of nature protection through environmental reforms are therefore not easily achieved. These inherent dilemmas to understand and define environmental problems are also prevalent in the literature assessing reforms in protection planning, including the decentralization of power and mandates.

3.1.2 Assessments of environmental reforms in Norway and abroad

In the literature of protection planning there are neither empirical nor theoretical bases for claiming success in decentralization of power in nature protection at a general level (Bulkeley *et al.* 2003; Campbell *et al.* 2003). Many scholars demonstrate the failures of integrated conservation and development programs (ICDPs) and collaborative approaches to conservation and local environmental management (see e.g., Kellert *et al.* 2000; Redford *et al.* 2000; Brown 2002; Bradshaw 2003; Reed 2007). The combination of protection and sustainable use should be detached because their combination does not serve either objective well (Cooke *et al.* 2002). Sources of skepticism range from shortcomings in the institutional capabilities of authorities and networks at multiple levels (Yang *et al.* 2007), to the compromises and undesired outcomes with no guarantee of diminished conflicts (Berkes 2003; Bradshaw 2003; Predmore *et al.* 2011). Wilshusen *et al.* (2002) conclude that a resurgence of the protectionist approach became apparent in the late 1990s, and

that this protectionist approach perceived nature's values as fundamentally different from man-made values and that nature continuously lost out in the face of population and economic growth.

Among the first to investigate the Norwegian reforms in environmental management was Reitan (1998), who identified institutional and interest explanations as being of particular relevance for successes, whereas failures were related to assumptions regarding underlying ideas of ecological modernization¹². Later assessments of Norwegian reforms in area protection and management stress that the scientific, legal and organizational complexities of nature management have been pointed out as major challenges at the local administrative level (Falleth *et al.* 2009). Studies have also emphasized how limited administrative capacity in local authorities generally constrains the implementation of new policies, and not only in the environmental sector (Reitan 1998). This may jeopardize the effectiveness of protection policy, leading to problems with accountability (Fouchald *et al.* 2012). The power to protect natural assets and biodiversity is not necessarily exercised or applied when management authority is decentralized to the lowest possible level. Rather, it may be fragmented and specialized, leading to problems of accountability, according to international conventions.

These assessments of local management of protected areas have also revealed challenges to deliberative democracy. Since local councils are constituted on the premise of representative democracy, majority interests are typically favored in the management of protected areas, leaving minorities' interests underrepresented in area decisions (Hovik *et al.* 2005; Falleth *et al.* 2009; Hovik *et al.* 2010). Thus, local stakeholders become competitors instead of collaborators (Riseth 2007). Falleth *et al.* (2008) ask how local management can survive with such conflicts and calls for clear and

¹² Environmental modernization refers to the literature that recognizes that environmental problems can be solved in accordance with the workings of the main institutional arrangements of society see e.g. (see e.g. Hajer 1995)

predictable frameworks for local actors, so that the premises of local management are not altered as a consequence of pressure put on local politicians by user interests.

Studies on how PBL can be integrated with the Nature Diversity Act in spatial planning give interesting results. Skjeggedal (2005) shows how nature management and regional planning are performed through separate and uncoordinated processes. Saglie (2006) demonstrates how deliberative governance models may facilitate partnerships that create fortresses around themselves, which creates a problem for transparency. On the contrary, Sandersen *et al.* (2008) found that the enabling role of the County Governor in integrated use and protection planning ensured fruitful partnerships between local municipalities and national protection authorities at the regional level, in terms of building trust and mutuality in communities with great proportions of protected areas. Involvement of the county administration was also critical in efforts to integrate coastal zone management between municipalities (Hovik *et al.* 2007).

3.1.3 The role of environmental administration

The literature also reveals challenges to the ways in which environmental administration applies its room to maneuver to ensure legitimate and efficient environmental decisions. Several studies claim that neither Norway nor Sweden has fulfilled international commitments to the principles of direct public involvement in nature conservation (Reitan 2004; Sandström *et al.* 2008) and that shift from governing to governance also implies a shift in the role of environmental administration. Hovik *et al.* (2010) state that the stipulations that administration must:

Implement enabling rules to assist facilitation of the local actors' involvement in nature conservation and they must be prepared to solve any political issues that arise as a consequence of the local actors' involvement (p. 175).

Norwegian studies have indicated that misunderstandings in environmental planning are associated with the relationship between politicians and bureaucrats, and that vagueness in terminology, protection measures, justification for protection categories, and the actual practice of protection

regulations have caused misunderstandings when communicating priorities made between aquaculture and landscape protection in Froan (Frisvoll *et al.* 2009). Also, international literature indicates that challenges to environmental reforms can be associated to the administrative level, and that planners act and transmit mixed messages, potentially because they are habituated to using defensive routines that may prohibit (meta) communication on basic tensions (Mäntysalo *et al.* 2011). Scholars also stress the need to openly debate the core of the problem in environmental conflict, namely, the need for protection and states that the roles of the planners and stakeholders must be rethought and must change from being “watch dogs” playing antagonistic zero-sum games in order to accept and legitimize the interests and goals of private participants and other public sector organizations (Saglie 2006; Yang *et al.* 2007; Mäntysalo *et al.* 2011). Through creative planning, flexibility of action, bureaucratic discretion, or open-endedness the coexistence of different interests is possible (Singleton 2002; Saglie 2006). These findings are interesting, in particular when combined with other studies indicating that the Weberian or centralized model of environmental administration is still dominant today. Mouritzen *et al.* (2002) show how the legitimacy of bureaucratic governance is safeguarded by a reliance on laws and norms regulating the conduct of public officials and political decision-making processes. Indications therefore exist that while administration is considered to have an instrumental role (in line with Weberian ideals of centralization) it is criticized for not using its position to improve the correspondence, communication and interplay between the two (or several) worlds that are merged in area planning and management. This is a tricky task.

Scholars have introduced the concept of “institutional mismatches” to describe the incompatibilities between governance problems and the institutional arrangements established to address them (Koetz *et al.* 2008; Young 2010). In the management of natural resources, these mismatches have been explained by substantial tensions between a continuing reliance on the established linear paradigm and an emerging deliberative approach to environmental governance. The mismatches are

expected to continue to undermine the credibility, relevance and legitimacy of these institutions, at least in the near future (Koetz *et al.* 2011).

Inspired by Jentoft *et al.* (2007) and Kooiman (2005) I hold that area-based nature protection can be conceptually understood as a relationship between two systems: a “governing/governance system” and a “system-to-be-governed” (fig 6).

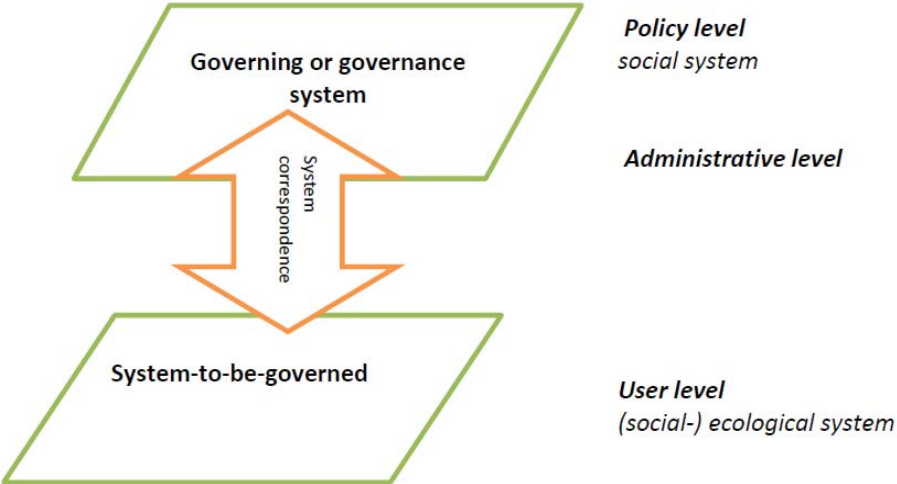


Figure 6. Environmental governance as the relationship between the governing system and the system-to-be-governed (elaborated from Jentoft *et al.* 2007).

In this context, the role of environmental administration is thought to link the governing or governance institutions with the (social-)ecological system. The efficiency of environmental policy depends on the correspondence between the environmental problem and the environmental measures designed to resolve the problem. In order to ensure the legitimacy and efficiency of environmental decisions, the environmental administration must enhance this correspondence. At the same time, there are reasons to believe that means by which institutional correspondence is enabled can change during the shift from governing to governance. First, international and national disputes over area protection matters encompass challenges related to the distribution of formal power and mandate, actors across levels and networks, and that these are associated with the

accountability and institutional capacity of different organizations. Second, major disagreements seem to be associated with the ways in which nature's value and vulnerability is connected to humans. Third, the premises for understanding and defining environmental problems and their solutions also shift, since the role of science is now being challenged by multiple perceptions of nature as social-ecological systems.

This literature review indicates that there is a need for further investigation of the governing structures designed to resolve problems like the fragmentation of large areas and the reduction of biodiversity. Positioned at the intersection between the two systems (fig 6), how is environmental administration enabled to strengthen the correspondence between the two levels in the context of societal change? This thesis investigates how environmental administration at various levels use its action range to respond to the shift from government to governance and the multiple discourses and contexts that constitute nature's value. The next sections will show how concepts from institutional theory have enabled the studies of Norwegian environmental administration and how they relate to the changing intersection between government and governance, and its consequences for the creation of adequate strategies to implement scientific knowledge and to involve interests across levels and scales.

3.2 ADMINISTRATIVE ROOM TO MANEUVER AND LOGIC OF APPROPRIATENESS - HOW TO MAKE ENVIRONMENTAL ADMINISTRATION RESEARCHABLE

This section elaborates on the theoretical concepts used to address and answer the research questions. March *et al.* (1989) define institutions as:

The routines, procedures, conventions, roles, strategies, organizational forms, and technologies around which political activity is constructed. We also mean beliefs, paradigms, codes, cultures and knowledge, that surround, support, elaborate and contradict those roles and routines (p. 22).

Institutions are considered to be manifested at the formal and informal level. Rydin (2006) claims that the core of institutional analyses comprises two elements. First there is a need to map

organizational arrangements and to understand how these can create linkages between actors. The second element of institutional analyses is the norms, rationalities, and everyday working practices of those operating within institutions. The combination of the formal and informal, the explicit and implicit, is a key feature of institutionalism.

In studying environmental administration, data have been gathered from formal institutions, the formalized structures, mandates, and procedures, how protection planning was organized and undertaken according to formal procedures and law, as well as corporate strategies in, for example, the Norwegian Seafood Federation (FHL). Formal institutions refer additionally to networks, interests, rationales, and ideas that are structured and shared between actors (e.g., perceptions of scientific knowledge). These are not necessarily formalized into policy processes, and are approached as discourses in this thesis. Together, these institutional elements create an action range or “room to maneuver” within which administration operates when implementing government policies. This room to maneuver also implies that environmental administration itself has to make some considerations on how to maneuver. The environmental officials need to understand their role according to these formalized and standardized frames. As stated by Rydin (2006)

Actors need to understand their allotted role and develop appropriate behavior for that role. Organizational arrangements can only operate because actors develop such roles and acquire such norms. Therefore considerable effort, including self – reflexive effort, goes into getting actors to behave and take decision in line with these roles and values; this is termed the ‘logic of appropriateness’ (p. 17).

This “logic of appropriateness” provides guidelines and strategies for administration when making professional judgments and decisions within the limits of the room to maneuver. This thesis thus applies the “logic of appropriateness” as a concept to understand how environmental administration responds to the altering positions of scientific knowledge and civic communities in protection planning.

The logic of appropriateness that actors use when interpreting their role and establishing priorities regarding how to maneuver is also constituted by informal institutions. This thesis however, investigated these alternate structures only to a limited degree. A structured investigation of informal institutions in public administration requires access to norms and values that are not necessarily derived or justified by formal frameworks. As further described in the methodology section, administrative officials may face dilemmas when disclosing informal structures (e.g., their values and norms), since they are set to represent the ideology resulting from political processes. This work therefore investigates environmental administration on the basis of formal documents, interviews and observations of the DN and County Governor.

The following section will identify key dimensions of the logic of appropriateness in the context of protection planning with the help of theoretical concepts from post-normal sciences and discursive institutionalism. Articles 1 and 3 investigate how participatory planning processes were met and addressed by environmental administration at various levels. They also investigate how ideas on nature's vulnerability and need for protection is linked to and embedded in networks and organizations. In addition, the second article focus on the role of scientific knowledge, in particular the limitations of scientific inquiry in terms of feeding into protection planning.

3.3 THE BOUNDARY AREAS BETWEEN SCIENCE AND POLICY

Boundary work was chosen to illustrate how the literature has addressed the interaction between science and policy when defining environmental problems and designing their solutions, particularly complex and uncertain environmental problems. Boundary work and objects are applied in article 2 and conceptualize the relationship between science and policy. *Boundary work* is associated with distinguishing "real science", which produces facts and evidence not influenced by contexts, from "meta science" (or applied science, post-normal science, etc.), which includes uncertainties and societal presumptions (Swedlow 2007; Molinga 2010; Palmer 2010). *Boundary objects* are described

in the literature as phenomena consisting of both political and ecological aspects (Gieryn 1983; van den Hove 2007; Turnhout 2009). One example is ecological indicators, which involve both ecological studies (like species interactions) and normative values (like continuity). These scientific and normative aspects have proven difficult to distinguish empirically. According to Turnhout (2003 p.11):

“any scientific claims for possible relationships between species diversity and aspects of ecosystems such as stability, productivity and ecosystem functioning have proven to be controversial, and ...empirical evidence for such claims has either remained absent or has been rendered shaky and contested”.

In this thesis, environmental administration is perceived as to operate within the boundary areas between science and policy, and facing various dilemmas for maintaining legitimacy of environmental decisions according to the reconceptualization of the linear approach.

3.4 DISCURSIVE INSTITUTIONALISM

Discursive institutionalism is the study of institutional change according to changes in discourses. For example, changes in environmental planning and governance the regulations; conflicts, discussions, actors, problem definitions and solutions have been considered as changes in environmental discourse during the past few decades (Bacchi 2004). The basic assumption in discursive institutionalism is that institutional dynamics originate from the emergence of new ideas, concepts and narratives in society¹³ that institutionalize in social practices and that affect social outcomes (Schmidt 2010). This happens first in terms of its representation of ideas, and second, as the discursive process by which it conveys those ideas. Discursive institutionalism thus assumes that actions need to be explained in terms of their meaning to the actor, as grounded in a system of reasons (e.g. context).

¹³ According to these theories institutions are ontologically prior to the individuals that populate them at any given time. This is what gives institutions causal properties. Agents, as stated by Archer (Archer 1996) confront institutions and structures as a ‘distinct strata of reality’, which must be dealt with in the here and now and perhaps changed over time (Bell 2012)

Discursive institutionalism also enables analyses of how shared perceptions of environmental threats and appropriate solutions inherit power resources that structure individuals, networks and environmental administration. Investigating environmental administration, I presume that discursive power can be exercised instrumentally (e.g., as one out of several power resources (see Article 3 and Benjaminsen *et al.* 2010), but can also be used in less obvious ways (following Hanssen *et al.* 2010). Characteristic of inexplicit power in planning contexts is the *taken-for-granted logic* that accompanies the framing of planning agendas, which leads stakeholders to favor certain interests even though they are not specifically advocated (Stoker, 2000). To ensure coherence, discourses also exclude arguments that are not considered valid according to their shared comprehension. These processes of exclusion are what Hanssen *et al.* (2010) describe as *cognitive closure mechanisms*.

3.4.1 Discursive battles and processes of formalization

The plurality of discourses, including the tensions and inconsistencies that provide openings for contestations, also exist on the organizational level (Bacchi 2004). A successful discourse ‘gets it right’ in a given context according to a given logic of communication, e.g., when speakers address their remarks to the right audiences at the right time in the right ways. Article 1 considers area conflicts as the battles between perceptions of the human-nature relationship and how the meaning of a landscape and nature assets varies between actors. Article 3 considers environmental conflict as formalized discourses (manifested in environmental policy), and opposing discourses, where the latter aims at destabilizing the dominating discourse (in terms of centralized management) and the former aims at maintaining it. The changes from governing to governance can thus be characterized either as change in which discourses are formalized at political and administrative levels or as changes which are not. Discourses that are not manifested through public environmental programs may be legitimized at the informal level through networks. Campbell characterized the process as being when “specific actors carried certain ideas into the policy making fray and used them effectively” (Campbell *et al.* 2003 p 23). This lead Dryzek (1990) to suggest that representative

democracy could include the representation of various discourses/worldviews, and not only individual interests.

These battles and bargaining processes where discourses are shared take place both within policy institutions and between authorities and end-users. According to Schmidt the formal institutional context has an impact on where and when discourse may succeed (Schmidt 2008 p.318). According to Schmidt (2008) discourses among policy actors are *coordinative* whereas discourses between political actors and the public are *communicative*. This means that discourses are adjusted both within and between networks across scales and actors. Also, discourses internal to environmental administration must be adjusted between administration at various levels and offices. Discursive coordination thus structures the adjustments of logics of appropriateness that guide administration in making judgments and professional discretion in protection planning. When investigating institutional change in environmental bureaucracy, the dynamics of multiple discourses internal to administration should therefore be emphasized.

3.5 POSITIONING THE RESEARCH IN INSTITUTIONAL THEORY

In this work, it is assumed that there a shift is taking place between government and governance in protection planning, and that this shift can be perceived as changes in institutions that govern and structure the role of scientific knowledge and stakeholder involvement in protection planning. These institutions may be formalized in environmental administration or between networks and organizations elsewhere (or both). The focus of this thesis is on the interaction between the institutions of the bureaucrats, and institutions and ideas that constitute what can be associated with deliberative environmental governance.

The responses of environmental administration to institutional change, and the formal procedures and discourses that enable or constrain environmental officials are investigated using theoretical

concepts from new institutionalism. Concepts like discourses, power, logic of appropriateness and legitimacy are not directly observable: these concepts are investigated via empirical manifestations like language and practices. These empirical manifestations take form as administrative practices and rationales associated with decisions, expert knowledge, participating stakeholders etc. Thus, the bureaucrats' and other informants' accounts in this project are their rationales and arguments (within which ideas occur)¹⁴. According to (Bacchi 2000; Schmidt 2008), discursive institutionalism (DI) makes it possible to explain how ideas go from individual thought to collective action, through explanations based on the coherence between ideas in formal and informal institutions across sectors. In this way DI can be used to show empirically how, when, where and why ideas and discourse matter for institutional change, and when they do not.

I have been inspired by various methodologies in writing the three articles; these articles (and therefore also the thesis as a whole) take a rather pragmatic theoretical approach. Schmidt (2010) provides a typology for new institutionalism, defining the epistemological foundation of the four branches as: rational choice, historical, sociological and discursive institutionalism. Although neither approach has been used in a strict manner, and since the three articles represent divergent institutional approaches to some extent, Table 2 methodologically anchors this thesis.

¹⁴ In Article 2 a metaphor (troll) was applied to investigate the ways in which practices and rationales can be translated into discourses and logics of appropriateness. The article described in more detail how rationales and ideas are found to cohere to practice and shared discourses.

Table 2. Four branches of new institutionalism and their epistemological structures. From Schmidt (2010)

	Rational choice institutionalism (RI)	Historical institutionalism (HI)	Sociological institutionalism (SI)	Discursive institutionalism (DI)
Definition of institution	Incentive structures	Macro-historical structures and regularities	Cultural norms and frames	Communication
Objects of explanation	Behavior of rational actors	Structures and practices	Norms and cultures of social agents	Ideas and discourse of sentient agents
Logic of explanation	Calculation-incentives structures	Path-dependency	Appropriateness	Meaning, structures and constructs
Approach to change	Static- continuity through fixed preferences, stable institutions	Static –continuity through path-dependency interrupted by critical junctures	Static –continuity through cultural norms and rules	Dynamic change through ideas and discursive interaction
Explanation of change	Exogenous shock	Exogenous shock	Exogenous shock	Endogenous process through background ideational and foreground discursive abilities.

Table 2 summarizes the approach taken in this work and is not the only solution for conceptualizing institutions in environmental administration. For example, institutional elements that govern the role of environmental officials (their logic of appropriateness) could be approached through investigations of norms and cultures of social agents (SI). As already stated, I investigate the logic of appropriateness through institutional elements that stem from the mandate and procedures of protection planning. In addition, I argue along the lines of discursive institutionalism, that ideas are at the core of any institution.

The *object of explanation* in Articles 1 and 2 encompasses both the structure and practices (HI) and behavior of rational actors (RI) that together creates the logic of appropriateness. In Article 3 the *object of explanation* is more linked to ideas and discourses of sentient agents (DI). The same structures seem to relate to the *logic of explanation*, where Articles 1 and 2 relate to the path-dependency of protection planning (HI), which means that environmental officials should be interpreted as operating according to long-term standards for safeguarding the implementation and effectiveness of environmental policy. Article 3, however, also branches out and explains the logic of

appropriateness according to meaning, structures and construct (DI). When it comes to *approaches and explanations to change*, Schmidt (2010) claims that HI, RI, and SI have investigated the ability of institutions to maintain stable and to *not* change. In this thesis, changes in logic of appropriateness follow DI and the exchange of ideas and discursive interactions associated with the shift from governing to governance. More specifically, the ways in which discursive shifts in protection planning challenge environmental administration and its logic of appropriateness, are examined.

3.5.1 Challenges to the theoretical approach

The above approach to institutions and how they govern administration across levels creates several challenges. The non-stringent methodological approach may challenge the methodological design of the study, especially the process of combining the three articles into one thesis. At the same time, the mixed methodological approach also enables a broader perspective on the shift from governing to governance according to multiple approaches.

At a theoretical level, it can be presumed that institutions are analytically distinguishable from agents and that they are exerting real, though interpreted, effects by shaping (though not determining): actors' interests and preferences; the scope of the agent's "bounded discretion" (logic of appropriateness) in an institutional setting; and the resources and opportunities that are available to agents (Bell 2011 p.179). At the same time, I see the difficulties in explaining social change as driven by either actor or structure. Here, I follow scholars operating with an *analytical dualism* (Giddens 1984; Archer 1996; Arts *et al.* 2006; Arts *et al.* 2009).

By focusing on formalized procedures and mandates, the relative importance of other planning instruments that also influence institutional change is downplayed. For example, the annual financial allocations set aside for protection planning, determined at the political level, is a critical premise of the kind of process that can be initiated. An integrative approach like that taken in the Nordland

approach would most likely need more financial and managerial resources than a conventional planning process. The possibility of using the room to maneuver given in “Rundskriv T-3/99” (see section 2.2) therefore may therefore be constrained by other factors than the administrations’ logics.

The last limitation is related to the environmental effectiveness in approaches to deliberative governance. Existing research on policy outcome has focused primarily on social outcomes (such as structures, networks, social capital, etc.) and a considerable gap remains in our understanding of the effects of process characteristics and policy outputs on environmental outcomes (Newig 2012). Since the environmental outcomes of the Nordland approach have not been investigated; future studies should address the environmental outcomes from the decisions made.

4. METHODOLOGY

The development of this study's research questions and design was a cyclical rather than linear process. To start with, an explorative design was chosen to investigate the contexts of environmental planning and protection. The main research question has been answered through three separate studies and analyses, presented in chronological in chapter 5. The decision to write articles made it necessary to adjust the research questions and approaches along the way according to the internal dynamic that follows each publication. The methodological approach for studying deliberative environmental governance was therefore continuously revisited.

4.1 RESEARCH APPROACH

This thesis' aim is to establish a broader understanding of environmental administration and how its practices and rationales can be explained by fundamental ideas and discourses embedded in environmental policy and institutions. Looking at the main branches of research strategies presented by (Blaikie 2010) this study applies an abductive approach to explore and explain the relationship between action and ideas. An abductive approach anticipates that basic access to any social world is achieved through the accounts that people give of their own actions and the actions of others. Here, discourses, rationales, logics of appropriateness, language and practice, are perceived as the basis for the investigated model or pattern (Ryen 2002). Kern (2012) suggests an actor-centric focus when investigating discursive institutions, complemented by a focus on the institutional context in which processes take place, as well as on the ideas/interests that drive actors. Blaikie (2010) stresses how meanings and understandings also appear in the largely tacit, mutual knowledge of everyday life. Thus, it is necessary to see practices and interactions taking place between parties, contexts, networks, and meetings to gain a broader account of how the rationales are manifested and shared. Ultimately, by using such an abductive approach, it was necessary to piece together information from various data sources with the help of theoretical concepts. The analyses therefore involve the construction of meaning and explanation as a joint process between the researcher, and the

empirical and theoretical spheres. The strategies involved in validating these processes are further described in the final section of this chapter.

4.2 SELECTIONS AND SNOWBALLS – THE EMPIRICAL BASIS OF THE THESIS

The empirical basis of this thesis stems from two terrestrial case studies (Sjunkhatten and Lomsdal Visten), and one marine case study (Skjerstadjorden Nasjonal Laksefjord). *Snowball sampling* is a non-probability sampling technique that is used to identify subjects and informants in studies where these are difficult to locate. After observing the initial subject, the researcher asks for assistance from the subject to help identify actors or issues with a similar trait of interest (Ryen 2002). Three cases were scrutinized with the help of observation, document analyses and interviews. In Articles 1 and 3, the practices of environmental administration were studied as they took place throughout the planning process. The conclusion from Article 1 (which was based on qualitative data) inspired the questions posited in Articles 2 and 3. After following the planning processes in Nordland a study was undertaken to focus on the production and application of biodiversity assessments according to the DN handbooks. I therefore decided to join the field work of three biologists responsible for mapping and assessing biodiversity value. At that time, the mapping of biodiversity value in the two case areas was already completed. The participatory observation of biodiversity assessments is described in Article 2 therefore took place in Buskerud where the biologists from Sjunkhatten were doing field work (according to the same standardized DN procedures). An overview of the research methods applied in this thesis is provided in Table 3.

Table 3. Research methods applied in this thesis.

Method	Sources
Qualitative interviews	Five officials at County Governor's office, 2 officials at the Directorate for Nature Management, 20 property owners, 2 NGOs, 9 business operators.
Participatory observation	Shared office at FHL and County Governor's office. Inspections related to the hearing of Sjunghatten National Park. Biologists mapping biodiversity value.
Document analyses	Hearing replies to all processes, conclusions from the County Governor, White Papers, DN handbooks on environmental administration web pages (on nature protection), SSB, Norwegian Seafood Federation's web pages.

4.2.1 Case studies

According to Yin (1994 p. 9) case studies have distinct advantages when a "how" or "why" question is being asked about a contemporary set of events over which the investigators have little or no control. The research questions required methods that illuminated how ideas are tied to action. To establish a coherent account of the officials' rationales (phenomenon), and how these are related to discourses and logics of appropriateness (context), the boundaries between the object of explanation and the context must be established. Case studies are particularly valuable in this respect. Contextual understanding is enriched via the case studies of planning processes, and the language, rationales and practices can be investigated in relation to organizational arrangements, formal positions and mandates of actors and their networks. As outlined above, the Nordland case studies were undertaken during "real-time" protection planning; this provided insights on governing practices during their actual operationalization. These practices, as well as rationales provided in interviews and document studies, provide information for explaining and understanding environmental administration and stakeholder involvement.

A fundamental critique to case studies is their constraints in generalizing and transferring lessons learned between cases. In other words, how is it possible to know whether a particular case would be relevant in other contexts? Further reflections on the validation of the analyses are provided in section 4.4.

4.2.2 Document studies and interviews

Formal institutions were accessed via investigations of planning documents, bodies of law, methodological descriptions of mapping and the administration's replies to public hearings. Publications from the Ministry, County Governor and the DN related to the protection processes in Nordland, as well as for mapping and assessing nature types, were important sources for describing procedures for environmental planning. In addition, web pages from the two Nordland cases and FHL were visited (see appendix 1 for the list of documents). The documents were analyzed according to the same coding and validation procedures as described below (section 4.4).

Interviews were held with regional and national environmental administration, and with a wide range of stakeholders (Table 4). Since the focus here is the institutional, rather than the individual, level, group interviews were employed. Compared to individual interviews, group interviews would provide more accurate insight into discourses or logics that reflected shared (and therefore more general) rationales and interpretations. Together with formal documents, these data provided the basis for the analyses of the administrative considerations of appropriateness according to how environmental problems are understood and resolved. The aim was to include representatives from all stakeholder groups and administrative levels. A sample of 48 qualitative interviews was made. The selection was based on the stakeholder's proximity to protected areas and his/her active participation in the processes (either in stakeholder forums or hearing processes). Questions regarding protection policy and the case areas were asked, as were questions related to relationships to other stakeholders, participation, joint perceptions across levels and sectors, levels of conflicts, threats, dialogues and prospects for future activities in the affected areas. Questions to environmental administration also encompassed their interpretation of scientific investigations, including uncertainties and scientific judgments. Notes were taken during all interviews, and

transcripts were made for interviews with environmental administration (Directorate and County Governor). The interviewees were informed how the data would be used and published.

Table 4. Informants for qualitative interviews

Case Area	Economic actors	Municipalities (politicians and administration)	Regional environmental administration	National environmental administration (DN)	Others
Sjunkhatten	7	6	3	2	1
Lomsdal Visten	3	8	4	2	1
Skjerstadfjord	3	3	4	3	1 (ENGO)*
Total	16	17	12	7	3

* Environmental Non-Governmental Organisation

Qualitative interviews present several challenges. Among the most crucial considerations for qualitative interviews is to assess data *collection* versus data *production*. Social scientists often view the researcher as a measuring instrument, and return to Skjervheim’s question: “[a]re you a spectator or a participant?” (Skjervheim 1976). When conducting semi-structured interviews, open-ended questions were asked, with the aim of enabling interviewees to initiate the telling of their own stories and explanations. I made an interview guides outlining core dimensions to my thematic focus. The interviews were semi-structured and followed a group-wise template adjusted to the interviewees’ role and mandate.

Trust and confidence between the researcher and the interviewee is important to establish to gain access, not only to informants, but also to their knowledge and opinion. As Ryen (2002) asks: “Do you tell the same story about your holiday to your grandma in a family dinner that you tell to your friend? And would your grandma tell the same story that you told her when she reports to her friends?” In certain contexts interviewees serve as gatekeepers, ensuring that the researcher does gain access to certain information; this can happen, for example, when interviewees work in a public office. To gain knowledge about their factual versus formal planning practices and procedures, and about their underlying assumptions and expectation regarding stakeholders and complexities, was therefore

challenging. I therefore expected that administrative officials would mostly present formal policy and procedures during interviews, rather than their personal considerations and negotiations.

At the same time, regional officers expressed support for the project and research approach. During a multi-week period of direct interaction and observation at the County Governor's office and at the Aquaculture Association, the dialogue with employees was more open and deliberate. During the group interviews at the environmental office, the bureaucrats elaborated on difficulties and obstacles to the implementation process. The officials were also observed during internal and external discussions and bargaining. Officers in dialogue with opponents to protection emphasized the formal structures of policy implementation, stating that their roles were merely instrumental. In addition, personal relationships with some executives permitted access to nuanced insights. The two different roles (researcher/auditor and friend) diversified and increased my access to different stories. At the same time, having access to utterances that were not a part of formal politics raised ethical considerations regarding the confidence and publicity of the information gained. This had implications for the presentation of the data, particularly with respect to direct quotes from informants.

4.2.3 Participatory Observation

Observation is a suitable technique in exploratory approaches when the goal is to acquire knowledge about contexts without the constraints of theoretical structures and presuppositions. Observations related to the terrestrial area cases were made on three occasions: (1) a steering committee meeting, 2) a public meeting, and 3) a meeting between the Governor and three groups of 1-18 property/second home owners and farmers. In addition, participatory observation of biological field work was undertaken. These observations and discussions created an in situ understanding of the methodologies applied in biodiversity mapping, and of the limitations to this form of knowledge production.

As an observer in situations where many people and interest groups were represented (like the public meetings), it was possible to identify rationales and meanings as they occurred in the dialogue between administration and stakeholders. When observing the way disagreements were phrased and met (i.e., during steering group meetings, public meeting or site excursions) the language and meaning of the environmental administration were investigated and derived as it appeared in the planning context. These dialogues were not tape-recorded; rather, notes highlighting rationales for and against protection were taken on all occasions. In situations where only one interest group was represented (like in interviews or during biological field work) it became more appropriate to take a more proactive and participatory role, and the rationales and meanings were co-produced and uncovered during discussions in which I was a part. The discussions with the biologists continued by e-mail for several months after the field work was accomplished.

4.2.4 Limitations of thematic scope

The thematic subject for this dissertation is Norwegian protection planning, in particular the planning of huge areas without encroachments on land, and the marine protected areas of salmon fjords. In addition to these particular programs for area protection, Norwegian environmental policy also influences a wide range of thematic area protection programs, including the protection of coastal forests, coniferous forest, and the water frame directive. One advantage of investigating national park planning was that the national park plan held a central position in Norwegian environmental policy throughout several decades. The importance of terrestrial area protection, both nationally and internationally, made it possible to approach environmental administration and inquire about its strategies and range of action. By comparing marine versus terrestrial cases, access was gained to two administrative procedures and the responses (rationales and practices) in two different protection cases. This broadened the contextual scope and made it possible to reflect on the

interaction between environmental administration and user interests in an integrative versus conventional planning approach.

Another thematic demarcation made was the particular focus on scientific knowledge among many forms of knowledge. First, traditional and/or local knowledge from the stakeholders in Sjunghatten and Lomsdal-Visten, as well as technical knowledge and competence inherent the aquaculture industry in the Skjerstad case, are dimensions relevant to deliberative governance. A more thorough and explicit analysis of the role of traditional knowledge in the Nordland approach could have been undertaken to complement the analyses on scientific knowledge since these data were collected from local stakeholders in the two terrestrial cases. It would have been possible to analyze the role of local knowledge compared to that of scientific expertise, and how environmental officers related to these two forms of knowledge. A second demarcation was made between the many expert reports available in the process (see fig 2). The scope and available space of Article 2 did not allow both types of expert knowledge to be included (value assessments and impact assessments). Since scientific knowledge holds a specific position in defining environmental threats and problems, the use of this type of knowledge in environmental planning became the focus. Another limitation to the empirical material is the choice of only considering the protection planning, and not the processes of preparing management plans. The management plans were prepared at a very late stage and therefore were not prioritized for inclusion in this study.

4.2.5 Geographical scope

The two terrestrial planning processes (Sjunghatten and Lomsdal-Visten) used as case studies in this work are jointly referred to as the Nordland approach. There were several reasons for choosing Nordland as the geographical context. First, the County Governor had initiated a joint use and protection plan (i.e., the Nordland approach). The design of these planning processes was highly relevant to the thematic scope of this thesis and, since the processes were undertaken during the

onset of this thesis, the conditions for detailed interviews and observations were favorable. Indeed, it was possible to conduct a real-time investigation of the world of protection planning and how bureaucrats interacted with representatives of local governments and opposing parties. Secondly, the processes in Nordland involved a large fraction of private land. The relatively strong protection of private land provided an interesting starting point for this thesis, since stakeholder involvement is at the core of this work.

At the same time, the geographical scope has certain empirical limitations in terms of the analyses and conclusions. First, only one out of nineteen county governors is represented (the County Governor in Nordland - environmental department). The regional variance in terms of how they relate to local stakeholders and implement scientific knowledge is therefore not traceable in this thesis. The Norwegian literature on the involvement of local actors in environmental planning, however, makes it possible to position the experiences learned from Nordland in a larger context.

4.2.6 Limitations in empirical material

The thesis would benefit from data sources that enlightened the perceptions of scientific uncertainties and complexities at the highest administrative level. The Ministry of Environment is closer to national and international strategies, i.e., to the ideas, rationales and strategies behind increased collection of natural scientific knowledge. A study of its administrative tasks would therefore potentially broaden the picture of the logic behind administrative strategies. Unfortunately the Ministry of Environment considered the study to be of low relevance and rejected data collection at the national level. Thus, data from environmental administration are based on the DN and County Governor only. Although this knowledge gap could possibly provide additional insight, the officers in the Ministry deal with practical protection planning only to a small degree. Its absence was therefore more noticeable when examining attitudes at the principal and general levels, than when providing meaning and value to observed practice and actions.

In addition to the scientific considerations of research questions and methods, time and resources spent on data collection must be prioritized along with other theoretical considerations, courses, analyses, the writing of articles, etc. The process by which the research questions were depicted and defined was employed for the duration of this research. In retrospect, a more specific approach might have been beneficial.

4.3 VALIDATING MY DATA AND ANALYSES

A typical critique of abductive research approaches and qualitative analyses is the uncertainty connected to investigating a world in which the ideas are fundamental to the explanation. Despite intentions to conduct open-minded and unprejudiced examinations of data, a researcher's experiences and ideas can influence his/her ability to observe and experience empirical matters, and the ideas and associated discourses embedded in contexts and cases. Schmidt (2010) claims that interest-based explanations are expressions of the desire of social scientists and social actors for a certain world, rather than the world itself. Social scientists therefore must determine what comes from them, and what comes from the interviewee(s) and contextual framework(s).

To address this issue, there are several approaches a researcher can take to increase the validity, credibility and transferability of qualitative data and analyses (Bacchi 2004). According to (Creswell *et al.* 2000) validity procedures may be described according to two dimensions (Table 5): 1) paradigm assumptions (post positivist, constructivist or critical paradigm), and 2) lens of the observer (researcher, participant or people external to the study).

Table 5. Validity procedures within qualitative studies (Creswell *et al.* 2000)

Paradigms Lenses	Post positivist or systematic paradigm	Constructivist	Critical paradigm
Lens of the researcher	Triangulation	Disconfirming evidence	Researchers reflexivity
Lens of study participants	Member checking	Prolonged engagement in the field	Collaboration
Lens of people external to the study (reviewers, readers)	The audit trail	Rich description	Peer debriefing

Triangulation is a validity procedure where researchers search for convergence among multiple sources of information and methods to form themes or categories in a study. By mixing methods this thesis has approached the various aspects of environmental governance through case studies (interviews, observations and document studies). Member checking refers to procedures where study participants are involved in the validation of the results and analyses. In this study, an end-user group took part in annual discussions of the analyses and conclusions generated from the findings. Since three articles were written, the validity of the work undertaken in this thesis was also assessed during the peer review process. The work has also benefited from feedback obtained at scientific conferences, and from the reviews and comments provided by three supervisors and project managers.

4.3.1 The challenge of context: coding and quoting

As mentioned before, when dealing with discourses and ideas, reality is multifaceted, complex and co-constructed by the researcher's narrative in addition to empirical findings. This challenge is significant when doing case studies and selecting extensive contextual knowledge. The empirical basis encompasses more than what is possible to include in the papers. It is therefore crucial to distinguish relevant contextual aspects from the irrelevant, and the robust data from the vague. How can I verify that the statements I have selected are robust and express a tendency more than only a single indistinct claim? In general, interviews in the first exploratory phase had greater contextual value than interviews made at the end of the project.

According to Aase *et al.* (2010) any methodology should start by describing the findings/data as concretely as possible, without abstractions or interpretations. rather than thick descriptions (table 5) I followed (Blaikie 2010) and developed “thin” or lay descriptions as the first step of the analyses. The interviews and initial descriptions of the Nordland planning processes, including technical descriptions of the interviewees’ social positions and interests were transcribed during the initial phase of the study.

According to Aase *et al.* (2010) the credibility of qualitative analyses lies in the process of moving from lay descriptions of social life to technical descriptions of that social life. During the analysis, the data and actors were coded and analyzed according to pros and cons of deliberative governance, scientific uncertainties and complexities, including perceptions of precautionary principles. Analyses were made of actors’ rationales for supporting/rejecting the Nordland approach and for approaching limitations in scientific knowledge as they did. Quotes were selected to illustrate the range of ideas that occurs in the process.

Several tasks and assessments were involved in the process of selecting rationales and quotes. First, some informants are more trustworthy in the sense that they provide more coherent stories than others. Secondly, some stories and arguments are more common than others: they are repeated by multiple informants. Rationales that were mentioned by many actors were therefore emphasized. Third, written statements were preferred before oral statements when the former were available. Fourth, the informants were asked to confirm the ways in which they were quoted. Finally, rationales with corresponding practices were emphasized.

4.3.2 Transferability

With respect to transferability, I consider public agencies and national stakeholders as particularly credible. The statements made by these entities are presumed to be applicable in similar situations

nationwide. Written statements from the Directorate were expected to be derived directly from formal institutions in protection planning. National stakeholder organizations were also expected to carry high degree of credibility, in line with their corporate policies. Quotes obtained from local stakeholders such as property owners are more difficult to generalize. However, at the public hearings property owners and reindeer herders were represented by groups and not as individuals. The two Nordland cases also provide opportunities to adjust and validate conclusions from each case. This may increase the transferability of the analyses and conclusions since they result from multiple voices expressed in unison.

Written statements were preferred over oral statements, since I presume the considerations, arguments, rationales or trade-offs in public hearing documents to be of less random, ambiguous and spontaneous than those expressed orally. In Article 1 and 3, emphasis is put on statements selected from the public hearing and from the DN's letter of advice to the government. In contrast, oral statements from the regional administrative level are less transferrable than those obtained from national-level sources. Thus, multiple oral statements were obtained from the regional administration, and they were accompanied by in-situ observations of the interactions between public officials and stakeholders.

5. THE ARTICLES

Article 1

Bay-Larsen (2010) The conservationists' concerns: on national administration response to integrated use and protection planning

Article 2

Bay-Larsen (2012a) The promises and premises of trolls in preservation of Norwegian biodiversity

Article 3

Bay-Larsen (2012b) The constitution of power in Norway's protected areas: onshore and in the sea

6. DISCUSSION OF PAPERS

The three articles in this thesis examine how environmental administration, in various ways, uses its room to maneuver in the process of ensuring effectiveness and legitimacy for protection policy. This chapter provides a summary of the main research question, namely how Norwegian environmental administration responds to the shift from governing to governance in the context of protection planning.

6.1 HOW DOES ENVIRONMENTAL ADMINISTRATION RESPOND TO INTEGRATIVE USE AND PROTECTION PLANNING?

This thesis builds on earlier studies demonstrating how reforms in area protection took place at the formal level through co-management, inter-municipal management of protected areas, and public-public partnerships between protection and spatial planning at the regional level. The integrated protection planning in Nordland enabled a joint use and protection plan for a larger area, and the transfer of competence to the municipal level. The next section discusses the role of environmental administration during these processes, and how its logic of appropriateness shaped, and was shaped by, the integrative processes.

6.1.1 Diverging logics and levels

What I first would like to elaborate upon in this concluding discussion is the fact that the national and regional administrations considered the regionally-developed plan differently. The regional administrative level (County Governor) administered the process that led to the integrated use and protection process. When being adopted by the DN, however, the regional administration decided to alter the protection plan. The DN also submitted a second, and even stronger, option in Sjunghatten that the Ministry of Environment could use in cases of governmental bargaining with other Ministries. The rationale for refusing the regional proposal was the need to ensure the similarity of

regulations between national parks, and because the DN thought that more emphasis should be given to expert knowledge than the judgments made by the steering committee did. At the same time, expert reports did not require a national park instead of protected landscapes since user activities were deemed worthy for nature assets. Whereas social-ecological dynamics are incorporated in protected landscape regulations, national parks put heavier constraints on traditional uses. Since greater stringency would constrain user activities (e.g., small scale forestry in Lomsdal-Visten and motorized vehicles in Sjunghatten) the regional proposal suggested this level of stringency for a larger fraction of the protected areas. The Lomsdal-Visten case is a typical coastal situation where private land represents more than 50% of the proposed area for protection, and where small-scale logging has been undertaken up to now. Whereas the regional administrative level appeared to be open to the site-specific social-ecological context of the system to be governed, DN adjusted its decision to standard protection regulations for national parks, derived over several decades. Although the County Governor, expert reports and new ideals following the shift from governing to governance were in favor of the regional proposal, the conventional structures and institutions in environmental administration at the national level outweighed the new ideas of environmental governance.

This reveals how the administrative room to maneuver, the formalized guidelines in the nature diversity act and "Rundskriv" (Miljøverndepartementet 1999), are interpreted and applied differently by the two bureaucratic levels. The logic for equity versus that of integrity resembles cases in the literature showing how new logics of appropriateness face difficulties when they challenge dominant discourses that have been embedded in powerful formal, institutional arrangements. This type of "slowness" in administrative reforms may also be important for ensuring predictability, juridical equity and democratic processes connected the innovations and societal change (Brox 1995). Kern (2012) shows how even when storylines that commit to different practices are accepted, in the concrete institutionalization of the storyline, the suggested practices are adjusted to be in line with

customary decision-making. The diverging logics and levels may also have to do with what Schmidt (2008) calls “coordinative discursive institutionalism”. This refers to discursive battles internal to organizations in the interpretation of protection policy, and how these may constrain institutional change. In this case it appears that the logic of juridical equity is robust at the national administrative level.

In this thesis I suggest that this coordination between levels can be partly explained by the administrative structure of Norwegian environmental administration, which creates geographical and administrative distance between national administration, street-level bureaucrats at the regional level, local authorities and stakeholders. Consequently the interaction and direct contact with the stakeholders were different since the administrative levels played different roles in the processes. The DN was not part of the steering group and never exposed itself to the mutual understanding that emerged in the meeting between the various networks. In the Nordland cases, proactive property owners and economic interests (i.e., those writing hearing replies and submitting claim compensations requests) were dominated by critical voices. Whereas the regional officers negotiated with the whole spectrum of participants, including positive representatives in the steering group, the DN mostly perceived the viewpoints as coming from opposing parties. I argue that this may have influenced the directorate and consequently; that the logic of appropriateness is relative to the closeness that environmental administration has with the social-ecological system.

6.1.2 Integration – accountability, representation and democracy

As outlined in section 3.1.2 problems of representation, competence and accountability have been documented in earlier assessments, questioning the robustness of decentralizing managerial power to lower levels. This means that DN’s rejection also should be seen in relation to these challenges. When it comes to problems of accountability the design of the Nordland approach is different in principle from the deliberative reforms presented in section 3.1.2, in the sense that it is not a matter

of redirecting power to the local councils and leaving it to municipal sovereignty. Several key points can be made. First, the regional level (county municipality), not the local level (municipality/mayors), was chairing the process. The focus of the chair was therefore elevated from one municipality to inter-municipal concerns regarding use and protection regulations. Second, the County Governor was the secretary for the steering groups, and could therefore perform quality checks on the plan proposal. The municipalities were therefore not left to shoulder all of the responsibility for fulfilling international and national ambitions for protecting areas and species. A third key point is that the Nordland approach was not only a matter of deliberation; it was also a matter of integrating use and protection interests and bodies of law, as well as of enhancing local planning competence. The planning process thus addressed the need for planning competence and capacity at the municipal level, and environmental awareness in development projects taking place in the adjacent areas of the national parks and elsewhere. My assessment is therefore that the organizational design by the County Governor in Nordland was able to meet key problems of accountability and competence.

This does not mean that no critical remarks were made during the two processes. First, several property owners were dissatisfied with the fact that they did not have a representative in the steering group¹⁵. Given the large fraction of private land under consideration, a representative of the property owners would perhaps have moderated the criticism directed at environmental authorities and at the design of the Nordland approach. The large number of participants in the steering group made the inclusion of a property owner representative difficult. Thus, property owners were invited to participate in the thematic groups instead. Second, one out of seven municipalities expressed significant skepticism regarding the procedural layout and held that the organization of the planning process would not benefit the municipality's interests. Third, several mayors and community members claimed the decision to establish a national park was already made, and that the

¹⁵ This had been the case in an earlier process (Sandersen *et al.* 2008) and therefore was expected to be repeated in these processes.

deliberative protection process was pro-forma. Their acceptance to participate in the steering committee was because “non-protection never was an option”. Thus, elements of co-option can be associated with the participants’ initial perceptions of the planning process. This confirms other scholars’ stating that participatory governance can become an instrument launched to increase legitimacy or efficiency of national, macroeconomic objectives (Hovik *et al.* 2004; Hovik *et al.* 2010), or that changes have occurred at the rhetorical, but not operational, level. Benjaminsen *et al.* (2010) claim that local actors are co-opted, politically marginalized and poorly compensated and that integration of use and protection interests therefore takes place according to a “fortress approach”.

6.1.3 Maintaining power by losing it

Deliberative environmental governance in general and the Nordland approach in particular, means less importance of legal instruments and formal rules (Arts *et al.* 2006). To avoid jeopardizing the effectiveness of protection regulation, the formal institutions must be replaced by other institutional structures that constrain actors from fragmenting and reducing conditions for environmental sustainability. I reason that the remote position of the DN may have made it difficult for this administrative level to assess the institutional change and how integrative planning at the regional level may ensure accountability and competence through shared ideas (institutions) of sustainable spatial planning among members in the steering group¹⁶. They may also be unaware the risk of weakening these networks and institutions, that potentially may replace formal institutions and sanctions, when altering the regional proposal. The remote position of DN may therefore disable their ability to develop the professional judgments needed to assess informal institutions and their qualities. These skills and logics, I believe, are necessary to develop for environmental administrations facing changes in the conceptualization of environmental problems in the future.

¹⁶ The assessments of Nordland approach would have benefited from more thorough analyses of these networks, and how informal institutions like social capital (trust, mutuality and reciprocity) are constituted between actors within or between networks. These informal institutions are crucial for justifying decentralization of power, and may enable environmental administration to remain power by letting go of it. A further analysis of these networks therefore may have identified whether informal institutions across actors and networks could have replaced parts of the formal institutions.

6.2 HOW DOES ENVIRONMENTAL ADMINISTRATION RELATE TO THE LIMITATIONS OF SCIENTIFIC KNOWLEDGE?

6.2.1 Lack of logics – marginalizing and minimizing the administrative room to maneuver

The second article (*The premises and promises of trolls in Norwegian biodiversity preservation*) investigates how Norwegian environmental administration relates to complexities and uncertainties in expert knowledge and how administration strives to position itself in this fuzzy boundary area between science and policy. The article demonstrates how environmental administration seemed to lack strategies to relate to scientific uncertainties and complexities in existing protection planning. The bureaucrats only to a limited extent considered these elements as relevant or appropriate according to their responsibility area. No standard procedure for making explicit professional judgments and scientific discretion existed, not even regarding when, where and why the precautionary principle was applicable. The article reveals how administration rather exports these considerations to the political or scientific level. This makes it acceptable to ask whether administrative room to maneuver and role in protection planning is undermined by the officials themselves.

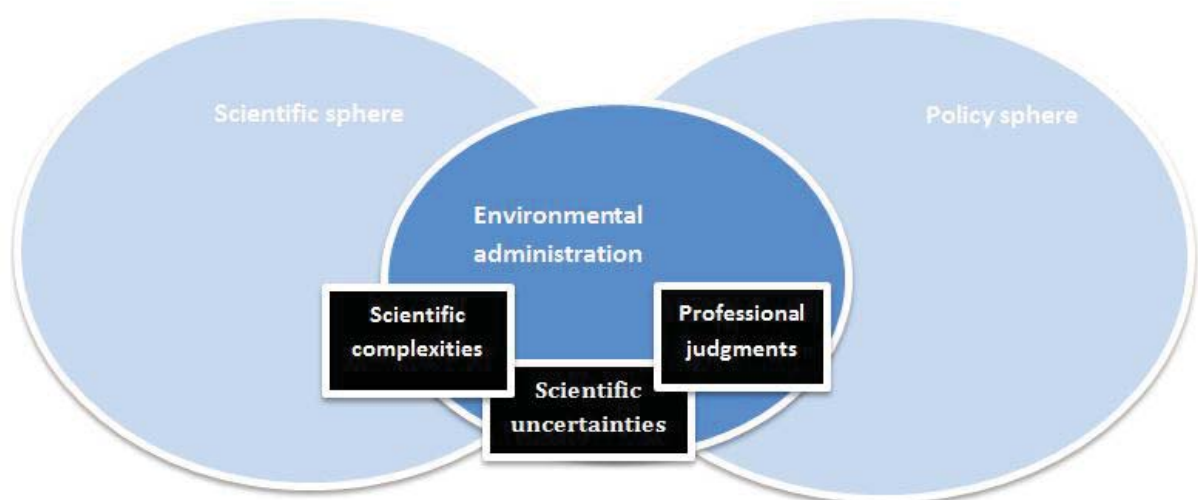


Figure 7. Environmental administration as positioned in the boundary area between science and policy. Boundary areas and objects occurring in the interface between the three domains are black-boxed.

Figure 7 illustrates how the administrative room to maneuver can be perceived as the boundary area between science policy and environmental administration. The emergence of the boundary areas and the move from the linear to the complex view seem to confuse environmental administration and its efforts to increase correspondence between the system to be governed and the governing system (Fig. 6). Rather than fully use its room to maneuver, their room to maneuver and logic of appropriateness (professional judgment guiding the management of scientific uncertainties and complexities), can be perceived as being black-boxed¹⁷.

Asdal (2005) has demonstrated the fragility of public area protection programs and the power that user interests might inherit, and claims that environmental authorities may be understood according to their marginalized position and power. Environmental policy is in many ways left on the sidelines, continuously contested by the oil, forestry, and fish farming industries to mention a few (Asdal 2011). For example, the battle of protecting biodiversity in Norwegian coniferous forest has also proven to be difficult and contentious. Only 1.4% of the forest is protected according to public environmental programs, which is a stark contrast to international ambitions. The forest owners have succeeded in establishing a voluntary protection program, in addition to their own methodology to assess biodiversity value in coniferous forest (Brandrup *et al.* 2008). In this marginalized position, the legitimacy for protecting areas and biodiversity may be sought by emphasizing (certainty about) scientific assessments, and to strengthen “objective” and “independent” expert reports, rather than to deliberately communicate how scientific uncertainties, complexities, professional judgments and discretion are inherent to environmental decision. Thus, hiding or black-boxing may be the consequence.

¹⁷ In the article, these black boxes were analyzed according to the troll metaphor (inspired by “monster” from van der sluijs 2005)

Two particular challenges arise due to this black boxing. First, to improve our methods for understanding of social-ecological systems and their threats, and to increase correspondence between the governing/governance systems and the system-to-be-governed (fig 6), an awareness of complexities, scientific ignorance and uncertainty is crucial. Secondly, the limitations of science are of great strategic importance for opposing parties in their effort to delegitimize environmental policy. This issue was expressed by the scientists involved in this study. Also, the huge body of literature on biodiversity policy, “Climategate” and other examples reveal how ignorance, uncertainties and unknowns become strategic components in a political battle (Oreskes *et al.* 2010; Beck 2012), and how actors actively try to influence the definition of the problem through boundary work (Hajer *et al.* 2005).

6.3 HOW IS ADMINISTRATIVE POWER CONTESTED IN PROTECTION PLANNING?

6.3.1 The logic of shared comprehensions

This thesis also focuses on the ways in which legitimacy and effectiveness are linked with processes of defining and resolving environmental problems; the correspondence between protection measures (area protection) and the perception of environmental problems. The third article (*The constitution of power in Norway’s protected areas: onshore and in the sea*) investigated how environmental conflict in this context can be perceived as a battle over environmental discourses. By examining one marine and one terrestrial protection case study, the article shows how administrative power is contested in one centralized and one integrative process. The article shows how the environmental policy’s comprehension of environmental problems and need for area protection (the preservationist discourse) were contested by opponents to area protection in both cases. Rather than seeing the environmental problem as being connected to human use, the opponents in Sjunghatten perceived the human presence in Sjunghatten as a precondition to nature’s value. In Skjerstadfjorden, FHL claimed that technical solutions, rather than area protection, would benefit environmental challenges in the aquaculture industry.

The Skjerstad case investigates how scientific knowledge, municipal power and social networks can be applied to destabilize and delegitimize environmental discourses, and how opponents to protection managed to remove power from the administrative to the political arena via strong constellations between municipalities and aquaculture, amongst others. In this process, power resources were applied to contesting the claim, and strong ties were established between the parliament/politicians and the aquaculture industry. The organization and collaboration between FHL and municipalities seemed to be crucial in this respect. A recent study on the controversial process of protecting Trillemarka, Reitan *et al.* (2012) confirm how networks are able to remove planning processes out of the administrative sphere. Before elaborating upon this analysis, one principle objection to addressing environmental conflict as battle of discourses can be made. Rather than interpreting the network agents as intertwined by ideas and shared discourses and comprehensions of the world, one could claim that opposing parties in both Trillemarka and Skjerstadjorden were based on shared *interests*. In line with discursive institutionalism I argue that distinguishing objective interests from their meaning context is difficult. I thus follow Schmidt stating that “all interests are ideas and ideas constitute interests” (Schmidt 2008 p.317).

6.3.2 Managing complexities and discourses

Several questions now naturally arise regarding how to consider administrative room to maneuver in the shift from governing to governance. This thesis indicates varying and absent logics to assess integrative networks like the steering groups in the Nordland processes, and to deliberately manage scientific uncertainties and complexities on the one hand. On the other, the thesis demonstrates how opponents apply power resources to strengthen their comprehension of the environmental problem at stake. Presuming that discourses are the core structures in environmental conflict, one could argue that deliberation not only involve stakeholders and their knowledge, but also shared comprehensions of environmental problems and their solutions. Applying this perspective, environmental administration not only has to protect a scientific definition of nature and

environmental problems, but also to protect the discourse. Contrary to black-boxing, Wynne (2010) suggests that value-based decisions regarding risks, uncertainties and complexities can best be made through deliberation and involvement. I argue that bureaucrats may play a key role in such processes. Instead of marginalizing their administrative room to maneuver, including the boundary areas and logics that guide them, procedures and standards for professional judgments and management of scientific uncertainties should be elaborated upon. This does not necessarily mean that the role of scientists should be downscaled. In the difficult task of assessing, communicating and managing scientific uncertainty, scientists might be important stakeholders. Scholars have stated that responsible science requires the development of good practices to communicate uncertainty across the science policy interface (van der Sluijs 2007). Sophisticated uncertainty assessment and quality assurance methods are available (Funtowicz *et al.* 1999). Boundary organizations have also been discussed and explored in the literature as institutions where representatives from science, stakeholders, environmental agencies and authorities are represented (see e.g. Guston 2001 for examples in water management).

In an investigation of stakeholder involvement in marine area protection, Armstrong *et al.* (2008) claimed that an important precondition for success was that the clear and focused aims of conservation needed to be voiced by the scientists. It may therefore be reasonable to strengthen the role of experts in decision-making processes. When the weaknesses of expert knowledge are adequately addressed, correspondence between the system-to-be-governed and the governing/governance system can be improved. While coherent and targeted judgments and scientific discretion are needed in Norwegian environmental administration, one should also be aware that an increase in bureaucratic space of action can lead to technocratic tendencies and the “tyranny of experts”. The literature reveals how this challenge have caused a change in European guidelines for advisory practice in the science-policy sphere(s) (Pregernig *et al.* 2012 p. 206). Consequently, many guidelines for resolving persistent environmental problems call for plurality in

policy advice; a plurality of scientific disciplines, theoretical paradigms and methodological approaches; a plurality of perspectives and viewpoints; and a plurality of socio-political backgrounds among the advisors.

Since legitimacy of environmental policy relies on the social acceptance of the wider public, officials and scientists are not able to build legitimacy only through system improvement. The acceptance of the limitations of scientific advice is also taking place in the public sphere. According to van der Sluijs (2007) the public abandons the expectation that scientists can provide ultimate answers regarding contemporary complex risks. It may therefore be time for discussing how a “boundary approach” may be designed and how the organization, mandate, and “boundaries of the boundaries” must be defined. Focusing on shared understandings of environmental problems and their solutions in environmental conflict, one would think that environmental administration needs strategies to enhance *coherence* of ideas and meanings across contexts or networks. Following this line of thought, one could argue that the role of environmental administration is not simply to ensure correspondence between the governing system and system to be governed. Rather than addressing institutional mismatches, environmental administration is set to strengthen and communicating the meaning and ideas of protection planning.

7. CONCLUSION

When the “Biodiversity Year” – a governmental effort to highlight and address biodiversity preservation – came to an end in 2010, the Ministry of Environment admitted that its ambition to stop the extinction of species was not met. About 2,300 Norwegian species out of a total of 60,000 were still under threat (Kålås *et al.* 2010). In addition, many species were not classified (Norwegian species data bank 2010). The protection of species and areas worldwide obliges parties of environmental conventions to set aside substantial fractions of their territories for purposes that potentially constrain ambitions of local development and commercial interests. Up to that time, Norway had fulfilled its 15% obligation through two master plans for national park protection. At the meeting of the parties in Convention on Biodiversity (CBD) in Nagoya, 2010, Norway signed new agreements to increase area protection to 17 % of terrestrial areas. The preservation of biodiversity and landscapes will therefore be a politically and scientifically relevant topic for years to come.

This thesis examines how environmental administration responds to the shift from governing to governance in the context of protecting areas and biodiversity. A particular focus has been placed on the implementation of integrated use and protection planning approaches and the management of limitations to expert knowledge. An overall presumption made is that formalized procedures and mandates create a room to maneuver within which environmental administration operates, and that its manouvring within these frames is guided by (multiple) logic of appropriateness. In the debate about how resolve persistent environmental problems I therefore argue it is necessary to investigate in more detail how environmental administration can develop the potential of their room to maneuver and their role as environmental official; in other words, to develop the practice of sensitive and systematic professional judgments and scientific discretion.

The first article reveals how environmental administration at various levels comes to different decisions in the integrative Nordland processes, and where the DN based their judgment on juridical equity. The second article suggests that both regional and national environmental officials lack strategies on how to transparently manage the complexities and uncertainties of expert knowledge when implementing biodiversity assessments in protection processes. Rather, the administration became reactive and seemed to black-box the limitations of scientific inquiry and the boundary areas within which it operated. This, however, may lead to challenges connected to the strategic importance of the boundary area between science and policy, as further illustrated in the third article. In the case of Skjerstadvjord, opponents to area protection successfully established an alternate understanding of the environmental problem (i.e., the decrease in salmon stock).

The major societal change that takes place in the shift from governing to governance is not a voluntary project that environmental policy can choose to take part in or not. Rather, these changes are built into formal institutions across sectors and levels that inherit the social constructs of discourses and informal institutions. The thesis shows how environmental law and standardized procedures do not eliminate the need to make site-specific professional judgments of the protected area's size and stringency. In fact, there seems to be many administrative informal strategies and logics of appropriateness that guide the administration in these decisions. Although this may appear rather obvious, this thesis shows how the shift towards deliberative governance imposes specific challenges on the environmental administration. The various dimensions of deliberative environmental governance are rapidly faced with political, juridical and scientific complexities in the administrative reality. Paradoxes and institutional mismatches may evolve in this intersection as the guidelines to maintain legitimacy and power in the government regime may weaken the position in the new regime. Instead of protecting its role and mandate of environmental programs, a further marginalizing of environmental protection may be the consequence. Professional judgment is inspired by multiple and sometimes-conflicting perspectives on appropriate management.

Considerations of which guidelines to apply in which cases are therefore needed for ensuring effective and legitimate environmental management.

In order to meet the societal shift, where threats and solutions are defined as a mixed process between local in situ observations as well as juridical principles and ecological models, and where limitations to scientific knowledge are strategically important and contested, this thesis suggests that the guidance of certain administrative tasks needs to be made clearer. Lessons learned from this thesis therefore include the need to develop logic of appropriateness and strategies to help environmental administrators:

1. Differentiate between user interests and organizations, between stakeholders that are potential allies for international environmental ambitions on the local scale, and user interests that will marginalize environmental administration and their power in the long run.
2. Differentiate between uses that are preconditions or threats to protection values.
3. Develop strategies to assess and manage the limitations of scientific expertise (complexities and uncertainties). One idea is to involve scientists and experts in deliberative decision-making.
4. Effectively address the social processes and power resources applied when defining and resolving environmental problems. To maintain power and legitimacy towards environmental decisions in a deliberative governance regime, networks and shared understandings of environmental threats and their solutions become increasingly important.

At the same time it is important to stress that institutional change in terms of rapid administrative adaption may not be consistent with a cautious and long-term protection of areas and biodiversity from multiple threats. The shift from government to governance will require carefully considered decisions on how the administrative room to maneuver can adequately address the fundamental bases of persistent environmental problems. To develop new administrative skills and strategies to maintain legitimacy and power according to the new regime is challenging. On the other hand, efforts made to develop steering mechanisms and strategies for deliberative environmental governance also represent an investment in legitimacy and effectiveness for environmental administration and protection policy.

7.1 UNRESOLVED ISSUES AND AGENDA FOR FURTHER RESEARCH

The latest developments in Norwegian protection of areas include the establishment of national park councils constituted by local politicians. The council, together with a park ranger, is set to manage protected areas according to state regulations (this was previously the responsibility of the County Governor). While this development is a major step in terms of decentralization, the ranger is formally employed by the county governor. This creates a hybrid constitution of management authority where the ranger is formally tied to the environmental administration, while at the same time he/she is supposed to be loyal to the national park council. Additionally, the CG and DN also holds the right to oppose any decision made by the council, thereby retaining management authority and formal power at some level. The results stemming from such an organizational model is one of several factors that should be addressed in future investigations of the management of protected areas.

Recent developments on the international environmental agenda, including The Intergovernmental Panel on Biodiversity and Ecosystem Services (IPBES), seem to strategically address the multiple paradoxes arising from the limitations of natural sciences¹⁸ as seen in IPCC (Direktoratet for naturforvaltning 2012). The aim of the new panel is to strengthen interactions between science and policy in the field of biodiversity preservation and to reduce biodiversity loss and degradation of ecosystem services. In Norwegian biodiversity protection a debate and awareness of the boundaries of expert knowledge and environmental administration also can be observed. When launching the new database for nature types (Nature Index) in 2010, the Director of the DN called for political clarification (Direktoratet for naturforvaltning 2010):

“The Nature Index is a gauge for estimating current status. The index does not dictate how robust our wildlife should be. That’s up to the politicians.”

¹⁸ The International Panel on Biodiversity and Ecosystem Services was established in Panama in April 2012 by the United Nations as a complement to the Intergovernmental Panel on Climate Change.

The experts who devised the nature index also wondered why there has not been a thorough political debate on the sort of wildlife we want to have, and the Norwegian Biodiversity Information Center stresses that “The Red list is not enough in itself ... to prioritize between species is not our task” (Kålås 2010). At the same time, both municipalities and national authorities are given responsibility for assessing the value of Norwegian biodiversity. Democratizing of biological knowledge is also taking place, as monitoring and mapping of biodiversity in recent years include interactive methods involving lay people in knowledge production, who, via mobile phones, GPS or digital devices, tag species’ localities based on their own observations. These tendencies provide new ways of approaching previous boundary areas between institutional spheres. This massive generation of knowledge following the Norwegian strategy for biodiversity and area protection may not only lead to great complexities and uncertainties with which management must cope. Also, the administration will require strategies for accumulating and managing the vast amount of knowledge about social-ecological systems.

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Paper 1

Paper 2

Paper 3

