THE GOVERNANCE OF COMMON RESOURCES: THE POLITICAL ECOLOGY OF THE KAŞ-KEKOVA REGION

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Title: The Governance of Common Resources: The Political Ecology of the Kaş-Kekova Region

This thesis analyzes the problems associated with marine resource access and its governance from a political ecology perspective. Taking the political ecology literature on environmental regulation in Turkey as a departure point, the argument that the Turkish state is unwilling and/or incapable to ensure environmental protection is followed. The thesis investigates the relevance of this argument on a given locality and explores how the political ecology of environmental conservation failure manifests and reproduces itself in the Kaş-Kekova case.

Kaş-Kekova is a Special Environmentally Protected Area on the southwestern coast of Turkey that faces degradation in its marine environment in terms of biodiversity and pollution. Relying on the fieldwork in which focus group discussions and in-depth interviews with ten local stakeholder groups were conducted, the objective was to find out how these groups position themselves towards five marine conservation options in the Kaş-Kekova region. The information gathered from the field is used to analyze to what extent actors' interests converge and how likely they are to form coalitions with each other based on the pairwise comparison technique of Novel Approach to Imprecise Decision Environments (NAIADE) method. By analyzing this specific case, this thesis aims to contribute to the political ecology literature of Turkey regarding marine resource governance.

Boğaziçi Üniversitesi Atatürk İlkeleri ve İnkılap Tarihi Enstitüsü'nde Yüksek Lisans derecesi için Irmak Ertör tarafından Mayıs 2013'te teslim edilen tezin özeti

Başlık: Ortak Kaynakların Yönetişimi: Kaş-Kekova Bölgesi'nin Politik Ekolojisi

Bu tez denizel kaynaklara erişim ve bu kaynakların yönetişimi sorunsalına politik ekoloji yaklaşımıyla açıklama getirmeyi hedeflemektedir. Türkiye'deki çevresel düzenlemelere dair politik ekoloji literatüründen yola çıkılarak, Türkiye'de devletin çevresel korumayı güvence altına almakta isteksiz ve/veya yetersiz olduğu savı benimsenecek ve bu savın geçerliliği Kaş-Kekova bölgesi üzerinden tartışılarak çevresel koruma başarısızlığının bu vaka özelinde kendisini nasıl gösterip yeniden ürettiği incelenecektir. Bu tezin amacı, on farklı paydaş grubuyla gerçekleştirilen odak grubu çalışmaları ve derinlemesine görüşmelere dayanarak, Kaş-Kekova bölgesindeki bu grupların kendilerini beş farklı denizel koruma alternatifine yönelik nasıl konumlandırdığını incelemektir. Sahadan edinilen bilgiler ışığında, paydaşların değerlendirmelerinin ve yönelimlerinin ne ölçüde birbirine yakınsadığı ve bunların benzerliklerine dayanarak birbirleriyle koalisyon oluşturma olasılıkları Novel Approach to Imprecise Decision Environments (NAIADE)'nin ikili karşılaştırma yöntemiyle incelenmektedir. Bu tez, bahsedilen özgün vaka çalışması üzerinden denizel kaynakların yönetişimiyle ilgili Türkiye üzerine geliştirilen politik ekoloji literatürüne katkıda bulunmayı amaçlamaktadır.

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CHAPTER 1

INTRODUCTION

This thesis analyzes the environmental conservation failure of marine resources and their governance from a political ecology perspective. Taking the political ecology literature on environmental regulation in Turkey as a departure point, I will follow the argument that the Turkish state is unwilling and/or incapable to ensure environmental protection. First, I will investigate the relevance of this argument on a given locality and analyze how the political ecology of environmental conservation failure manifests and reproduces itself in the Kaş-Kekova case. Secondly, I will reveal how different stakeholder groups have positioned themselves vis-à-vis several marine protection alternatives in Kaş-Kekova and look at possible coalition formations among them.

Kaş-Kekova is a Special Environmentally Protected Area on the southwestern coast of Turkey that faces degradation in its marine environment in terms of biodiversity and pollution. Relying on the fieldwork, during which I conducted focus group discussions and in-depth interviews with ten local stakeholder groups, my objective was to find out how these groups evaluate five marine conservation options in the Kaş-Kekova region. The information gathered from the field was used to analyze to what extent actors' interests converge and how likely they are to form coalitions with each other based on the pairwise comparison technique of the Novel Approach to Imprecise Decision Environments (NAIADE) method. By analyzing this specific case, this thesis aims to contribute to the political ecology literature of Turkey regarding marine resource governance.

Political ecology (as developed, among others, by Blaikie and Brookfield, 1987; Peet and Watts, 1996; Robbins, 2004) diverges from the conventional technocratic understanding of environmental management, and considers the governance of common resources comprising many complex social, economic, political and ecological aspects simultaneously. In the case of the existence of different stakeholders, i.e. people who affect or are being affected by the access to or governance of natural resources, political ecology provides the necessary tools to understand the conservation issue not only as an ecological, but also as a social and political problem. From this point of view, coalition formation analysis at the local level will give deeper insight into the uneven distribution of burdens and benefits of any conservation alternative and governance policy.

Being aware of the fact that different outcomes will affect various stakeholders to varying degrees, a detailed analysis is needed to look at the issue by covering its multiple dimensions. Framed as such, this thesis adopts a political ecology framework to analyze the ongoing environmental conservation failure in the Kaş-Kekova region. The objective was to find out how different local stakeholders position themselves towards marine conservation options in the Kaş-Kekova case and investigate what kind of coalitions are likely to be formed by different stakeholders.

This thesis consists of three chapters. Following the introduction, in the second chapter, an overview of the multidimensional characteristics of the Kaş-Kekova region is provided by focusing on its historical and institutional aspects. The chapter will first describe the social, economic, demographic, ecological and administrational features of the area and underline the environmental degradation observed in the region. Consequently, aiming to put the specific case into a broader literature of the

political ecology of environmental regulation in Turkey (by following Adaman and Arsel [2012]), I will discuss how the unwillingness and incapability of the Turkish state to enforce environmental regulations comes to the surface in Kaş-Kekova. In order to analyze the manifestations of the environmental conservation failure, a local coalition formation analysis becomes necessary, first because the state is unwilling to set environmental protection as a priority and secondly since it is incapable of ensuring the implementation of environmental regulations due to patronage-based relations. A local analysis at this point enables me to unfold local concerns and judgments of several stakeholder groups so that one can argue where a common compromise could occur and lead to better environmental conservation. Moreover, the local analysis is also needed since the legislations determined without taking local actors and their positions into account can hardly become successful regarding their implementations, as has been evidenced in the Kaş-Kekova region.

Before conducting a local coalition formation analysis in the following chapters, the second chapter provides the literature review on the political ecology of environmental conservation failure in Turkey, implying that what I describe is not unique to the Kaş-Kekova region. On the contrary, it is part of a bigger phenomenon of ineffective environmental conservation valid for other natural resources as well.

After a detailed description of the region is provided in the second chapter, the third chapter focuses on the field study and relevant social actors. In this chapter, I will first present the ten stakeholder groups relying on the qualitative data gathered from focus group discussions and in-depth interviews. The groups involved in the coalition formation analysis entail fishermen, diving center employees or owners, excursion boat operators in Kaş, excursion boat operators in Kekova, hotel owners or managers, restaurant owners or managers, farmers, Kaş Municipality, Demre

Municipality, and a mixed group composed of scientists and environmental NGOs. In addition, I will explain both the methodology of the field study, and why I chose these ten stakeholder groups.

The second section of this chapter will describe each of the five marine conservation alternatives that I presented to each stakeholder group during the fieldwork. The presentation included each option's possible costs and burdens and future projections to ensure stakeholders' realistic evaluation. Lastly, the third chapter examines local dynamics in which the relations of the stakeholders with each other gain importance. Different dimensions constituting the actors' level of "local agency" (following Özkaynak and Rodriguez-Labajos [2010]), in other words, their capability to participate and influence decision-making process affects the outcome of the coalitions and local people's likelihood to come together at a common compromise. Therefore, I will discuss each group's access to information, wealth, social mobilization history, and social networking, coordination skills and lobbying possibilities. The information about the stakeholders and marine protection alternatives provided in the third chapter will enable me to conduct an analysis of the ongoing environmental conservation failure and coalition building in the next chapter.

The fourth chapter is based on the information about the actors and marine protection alternatives offered in the third chapter, and it analyzes the data in two steps. First, it explores the evaluation of local stakeholder groups about how they will be affected by different marine conservation alternatives. To give a clear depiction, the first section of the fourth chapter represents the judgments of the ten stakeholder groups towards five different marine conservation alternatives in a Social Preference Matrix that entails linguistic variables generated with the Novel Approach to

Imprecise Assessment and Decision Environments (NAIADE) method (following Munda [1995]). This matrix illustrates all of the ten groups' positions towards five conservation options simultaneously. In this section, I will explain the evaluations of the actors in a detailed manner. My findings in this section will be in line with my prior argument that different groups of people are affected at varying degrees by natural resource conservation. With the information presented through the stakeholder analysis, I will lay the ground for the analysis of the ongoing environmental conservation problem and coalition building in the second section.

The second section explains the coalition formation analysis conducted by using the NAIADE method. I will first introduce the pairwise comparison technique used to discover the similarity of each group's evaluation for each option. Using this technique, I will present the Coalition Dendrogram generated by the NAIADE method for the Kaş-Kekova case, which illustrates whose interests are more likely to converge based on the similarity of actors' decisions. The method will also indicate how tight these coalitions would be and where all of the groups would come to a common compromise. Finally, the second section discusses the advantages and limitations of using the NAIADE tool for coalition formation analysis.

Thus, by conducting a local analysis of coalition formation from the perspective of a political ecology approach, the thesis highlights the environmental governance and conservation problem of marine resources in a specific region. Further, it both places the case into the broader context of the political ecology of environmental regulation in Turkey and focuses on the outcomes of coalition formation analysis by applying the NAIADE method. The steps of the analysis and outcomes will be questioned in the following chapters in detail, and the conclusion

will point out possible further research that may contribute to the investigation of the issue.

CHAPTER 2

AN OVERVIEW OF THE FIELD: A HISTORICAL AND INSTITUTIONAL DESCRIPTION

This chapter makes a historical and institutional analysis by focusing on specific features of the Kaş-Kekova region and historical stages through which it has passed. In making the institutional analysis, care will be given to place the case into a broader context of environmental governance in Turkey from a political ecology perspective. To achieve this, I will first explain the multidimensional characteristics of the Kaş-Kekova region by providing information about social, economic, demographic, ecological and administrational dimensions. Secondly, taking the state, society and environment relationship in Turkey as a departure point, I will discuss how this relationship manifests and reproduces itself in the case of Kaş-Kekova. Elaborating on this aspect, I will underline the ineffectiveness of environmental regulation in terms of guaranteeing marine resource conservation in the region. Once the inability of unwillingness of the Turkish state to ensure environmental protection is acknowledged, I will explain why there is a need for a local stakeholder analysis, which is conducted in the following chapters.

Multidimensional Characteristics of the Kaş-Kekova Region

The Kaş-Kekova region is located in the southwestern part of Turkey, in the province of Antalya.[1] The area is well known for both its natural and historical significance. The remains of the ancient Lycian settlements, the old Lycian Way passing through the region, the sunken city in Kekova, and several ruins from the Hellenistic period

[1] See Appendix A

generate a remarkable level of tourist attention. The natural characteristics, including a long coastline and high mountains, also attract both local and international tourists.[2]

With regards to the region's demographic characteristics and socioeconomic development, shifts both in demographic structure of the region and in the primary economic activity are noticeable. The main economic activity has changed from fishing and small-scale agriculture to tourism-related service sector and greenhouse farming (ÖÇKKB, 2010: 22). For instance, the town center of Kaş was a rather small fishing village before the 1980s, but the importance of fishing for the local population declined clearly, and local people have become gradually more engaged in tourism.

Currently, fishing activity in Kaş is limited to 20 licensed fishing boats registered to the district agricultural authority, most of which have a length of maximum nine meter. The Kaş Fisheries Cooperative has 32 members, all of whom who are small-scale fishermen using traditional artisanal gear such as fishing lines extending to 2,000 m and enabling fishing up to a depth of 40-50 m (UNEP/MAP, 2012). On the other hand, in the Kekova part, i.e. in the villages of Kale and Üçağız villages, about fifteen households or thirty people are involved in fishing activities (UNEP/MAP, 2012). However, in that part, fishing took the form of a wintertime activity, when the high season in tourism and boat excursions are over.

Moreover, local commercial fishermen of both parts are engaged only in small-scale fishing. Bigger industrial boats using gear such as trawls or purse seines cannot operate intensively in the area, since the rocky sea bottom does not allow their use. In addition, this part of the Mediterranean is not an appropriate habitat for many

[2] Turkish Ministry of Culture and Tourism General Directorate of Promotion. Kaş. http://www.tanitma.gov.tr/TR,22771/kas.html [20 April 2013].

economically-valuable species that are caught in greater amounts in the Black Sea and the Marmara Sea. Local fishermen thus only provide fish to close neighborhoods in relatively smaller amounts, and make a moderate living out of this activity.

The recent major source of income in the region, i.e. the tourism sector, has experienced a significant rise in the number of tourists, which is the common situation in Antalya and Turkey as well. The number of tourists visiting Turkey doubled within the last decade. 30% of them choose their destination as Antalya and its surrounding areas including Kaş and Kekova (UNEP/MAP, 2012). The recent infrastructural improvements making tourists' journey to Kaş and Kekova easier, such as new roads and an increased number of transfer opportunities from the Dalaman Airport, have turned the region into an even more popular touristic place.

Demographic changes in the region include a remarkable increase in the population. Parallel to the population rise in Turkey,[3] which has almost doubled in the last three decades, the population of Kaş and Demre centers has more than doubled in the same period. In 1980, Kaş center had a population of 3,158 people and Demre center had 6,656 residents; whereas in 2012, they had 7,258 and 16,299 inhabitants, respectively.[4] Both the shift in the main economic activity towards tourism and service sector and the trend of increasing population have raised the human pressure on the marine environment. Marine resources have become used more intensely and more frequently by the increased number of residents and tourists. These are some of the underlying reasons for the deterioration of the marine ecosystem, given that the conservation regime is not appropriate.

[3] Turkish Statistical Institute. 1980 General Population Census. http://tuikapp.tuik.gov.tr/nufus80app/idari.zul? [18 March 2013].

[4] Turkish Statistical Institute. 2012 Address Based Population Registration System Results. http://tuikapp.tuik.gov.tr/adnksdagitapp/adnks.zul [10 March 2013].

There were two reasons for selecting Kaş-Kekova as a case study. First, the region is very rich in terms of marine biodiversity, including the population of endangered species. This richness is the rationale behind the declaration of the region as a Special Environmentally Protected Area (SEPA). However, constituting the second reason, this status has done very little, if anything, to change the faith of the region, where scientific evidence indicates clearly that, as we will see shortly below, there is an ongoing degradation of marine environment. Additionally, all of the stakeholders observe deterioration of marine resources to some extent, which points out that the government does not procure the necessary environmental protection.

The region is very rich in terms of marine biodiversity in general, but the existence of some endangered species that are part of the IUCN Red List,[5] such as groupers (*Epinephelus costae, Epinephelus haifensis* etc.) and loggerhead sea turtles (*Caretta caretta*), makes it even more valuable. According to the results of biodiversity studies conducted in the area between 2002 and 2009, threatened fish populations of high economic value are in decline dramatically (Tural, 2010)**.** These studies indicate that the number of some species, including dusky grouper (*Epinephelus marginatus)*, dogtooth grouper (*Epinephelus caninus)*, Haifa grouper (*Epinephelus haifensis)*, and common sea bream (*Pagrus pagrus)* has decreased to one fifth or one tenth of their previous levels (See Appendix C).

Furthermore, it is reported that the area covered by an important type of sea meadow, i.e. *Posidonia oceanica*, providing the necessary oxygen for the sea habitat, decreased from 15% to 10% in Ufakdere between 2006 and 2010 (UNEP/MAP, 2012). The main pressure on sea meadows is the anchoring practice of boats. Since *Posidonia oceanica* is a type of meadow that has a very low rate of growth, when the

[5] IUCN Red List of Threatened Species, 2012. http://www.iucnredlist.org/ [10 February 2013].

anchoring activity damages its root, it can disappear easily and not cover the sea bottom anymore. This has a potential effect on the cleanliness and visibility in the sea as well. Another aspect of degradation is marine pollution. The level of chemical polluters and petro-hydrocarbons assessed in the Western section of SEPA remain within acceptable limits. However, pollution input resulting from waste water of the houses and hotels in Çukurbağ peninsula, construction activities including the new marina in Kaş, the lack of a well-established sewage system in Kale-Üçağız and agricultural waste and chemicals flowing down the sea from Demre rivers and Çayağzı have all affect the marine area substantially (UNEP/MAP, 2012; ÖÇKKB, 2011). These pollution effects occur despite the existence of a waste water discharge ban and regulations concerning waste treatment, which indicate that there is a problem of compliance and its control.

Marine biologists claim that although the richness in biodiversity will most probably continue to exist, endangered species with a high economic value are in rapid decline and some of them might go extinct in the area (Tural, 2010). This fact implies that there is pressure put not only by the commercial fishing, but also by the amateur fishing, especially due to the use of spear guns since the hunting of these species is not very likely with the gear used by the small-scale commercial fishermen. The pressure does not occur because there is no regulation determining their hunting. In the previous legislation, hunting groupers with a spear gun was banned, and the minimum size for a grouper to be caught with any gear was 30 cm. The recent legislation, valid since 1 September 2012, allows their hunting with a spear gun- but with a change in size restriction, i.e. after they have grown to 45 cm. However, there is an enforcement problem, where hunting smaller groupers with spear guns –sometimes even with scuba equipment, which is strictly forbidden for all

species– is a practice observed by many people. State officials cannot monitor this illegal activity, and the local people are generally afraid or unwilling to complain about these people conducting illegal fishing, since either they know them personally and do not want to reveal them, or they do not want to get into trouble with them.

Moreover, although the change in the legislation has been a positive step for their protection since the minimum size to catch the groupers increased, this step is not enough to protect them. This is first because of their biological characteristics, and secondly, at any rate since the law is not satisfactorily enforced, such regulations will have little effect, if any at all. An important biological feature of these endangered species is that they first mature as females after spending some years as immature individuals. Subsequently, they develop male reproductive organs after living for about 10 years and reaching a size bigger than approximately 80 cm (Tupper, 1999). Hence, in order to ensure the survival of this species, the existence of bigger male individuals needs to be guaranteed. It is known that these male individuals cannot be caught easily with long lines used by small-scale commercial fishermen. However, it is very easy to hunt them with spear guns used by amateur fishing. This is why amateur fishing, especially spear guns fishing, leads to greater adverse effects than small-scale commercial fishing in the region. As a result, the pressure on the marine life seems to be increasing especially due to illegal and amateur fishing, damage created by anchoring practices, and increasing pollution, all of which are influenced by the growth in population and in the number of tourists, and by a lack of law enforcement and compliance.

Related to the existing governance structure in the Kaş-Kekova region, an important aspect is that the environmental conservation failure in question occurs in and around a Special Environmentally Protected Area (SEPA) that falls within the

administrative authority of two towns, Kaş and Demre.[6] Currently, the central government, i.e. the Ministry of Food, Agriculture and Livestock, determines the usage of the area, and the responsible institution for the SEPA is the General Directorate of Natural Assets located in the city of Antalya. Although the city centers of Kaş and Demre remain outside of the SEPA borders, especially the developments in the Kaş center greatly influence marine resources by being very close to the Western border of SEPA and using the Western part of the SEPA marine area more intensely (UNEP/MAP 2012).

The Kaş-Kekova Special Environmentally Protected Area (SEPA) consists of both marine and terrestrial areas. It covers an area of 258 km^2, of which 92 km^2 is land and 166 km^2 is sea (ÖÇKKB, 2010). The Special Environmentally Protected Area does not exclude human use; on the contrary, there are settlements within the SEPA borders, and most of the marine area is open to activities such as diving, fishing, yachting and swimming. On land, some parts of the SEPA include strict renovation and construction restrictions for being an archaeological heritage area. However, on the marine area there was almost no restriction except the diving ban in the archaeological heritage area. Only very recently, since September 2012, the new national legislation excludes amateur and commercial fishing from some zones, which was both heavily debated in the region and considered to be as ineffective in order to decrease the human pressure on marine environment.

In 1988, the Environmental Protection Agency for Special Areas (EPASA) was founded with the duty of establishing management plans for specially protected local sites in parallel with the specific conservation aim. Kekova was designated as a

[6] A map of the SEPA borders can be found in Appendix B.

SEPA in 1990 for its archaeological significance.[7] In 2006, due to the outcomes of biodiversity studies conducted by marine scientists and with the effort of an NGO, namely WWF Turkey, the area was extended to cover the Kaş part as well for its rich marine biodiversity (Yokeş, 2003; Tural, 2010). These studies were conducted from 2002 onwards along the Lycian Coast, and they indicate that the Kaş region was one of the richest marine areas on that coast in terms of biodiversity. Although these developments such as the designation of the area as a SEPA and assigning a government body for its protection indicate an aim of establishing the framework to safeguard environmental conservation, they usually remained theoretical considerations not moving beyond administrative papers. In practice, many local people and tourists were even unaware that the region has been designated a SEPA (ÖÇKKB, 2010).

Until 2011, a responsible body existed also at the local level representing the Environmental Protection Agency for Special Areas (EPASA), which was a relatively more autonomous body established under the Ministry of Environment and Forestry. The administrative transformation affected the governance of the Special Environmentally Protected Areas as well. In 2011, the authorities and duties of the former Ministry of Environment and Forestry were allocated between the recently established Ministry of Environment and Urbanization and the Ministry of Forestry and Water Works. However, after this administrative change, EPASA was abolished and the Specially Protected Areas became part of the jurisdiction of the General Directorate of Natural Assets (GDoNA), which has no representatives at local level. The General Directorate of Natural Assets, located in Antalya, works in collaboration with the Governorship of Kaş, but does not have any special department at the local

[7] Resmi Gazete, 9 December 2006. Council of Ministers' Decree, 2006/11266. http://www.resmigazete.gov.tr/eskiler/2006/12/20061209-1.htm [14 November 2012].

level. This fact is in conjunction with my previous argument that the central government does not perceive environmental protection as a priority.

It seems that there is a lack of coordination between the authorities, which decreases the possibility for the public administration to understand local dynamics comprehensively and to make the necessary adjustments. For instance, although the Coast Guard is the main body responsible for monitoring the violation of rules for the sea, an overlap of responsibilities exists, for instance, to control the sale of fish. For the monitoring part, many state bodies such as the Gendarme, Coast Guard, and District Governorship or Agricultural Authority may take responsibility, but effective enforcement does not take place. In that sense, parallel with the main fisheries conflict in Turkey, where many fishermen catch and sell fish of a size below the catch limits determined in the regulations, the implementation of the rules face even greater difficulties in the marketplace or in the restaurants.

Another important amendment that occurred recently is the new marine use legislation, which was declared on 18 August 2012, and began to be implemented on 1 September 2012. The new legislation will be valid between 2012 and 2016 and determines the usage of marine zones in the Kaş-Kekova region. With this legislation, some of the most important zones for the biodiversity became closed to all types of fishing, including both amateur and commercial types. However, it did not involve any additional regulation for other marine activities that also put pressure on the marine ecosystem.

Furthermore, regarding the governance aspect in Kaş-Kekova, proposals about zoning or the replacement of anchoring with the use of buoys have not been offered by the state authority responsible for the MPA, but by the environmental NGOs or by local people who want to stop the deterioration of marine habitat they observe. This

means that the governance of marine resources in the case of Kaş allows for a local contestation and negotiation process within the framework of existing regulations. For instance, in order to declare the natural significance of the area and ensure its conservation, WWF-Turkey and EPASA signed a Collaboration Protocol in February 2010. Article 7.8 of the protocol stated their aim as "in the framework of Turkey's commitments under Barcelona Convention, to take steps in order to allocate the Kaş-Kekova SEPA into the SPAMI (Specially Protected Area of Mediterranean Importance) List" (WWF, 2013). The Management Plan proposed by WWF-Turkey claims that the inclusion of Kaş-Kekova into the SPAMI List carries great importance, since in this case it would be the first area in the eastern Mediterranean within that list, which would prove its uniqueness and significance. This fact also shows the international layer of marine resource governance, because different institutions try to address the protection concern by referring to international agreements. The issue of environmental conservation in the Kaş-Kekova case is multilayered as well, which means that it involves many actors at the local, national and international levels. This is one of the reasons for the following local analysis, in which I will focus on how the stakeholder groups at local layer might be affected differently by several alternatives below.

A Critical Evaluation of Turkey's Sociopolitical Setting in Terms of Environmental Regulation

The analysis of environmental conservation failure and natural resource governance requires a comprehensive examination of the ongoing ecological,

socioeconomic and political dynamics. In this sense, the Kaş-Kekova case is not isolated from the socioeconomic and political setting prevailing in Turkey, where the implementation of environmental policies is related to the country's general growth trajectory. Since the 1980s, following the global trend, the management of natural resources has been directed towards an overuse of natural resources such as mineral extraction, forestry use, expansion of massive tourism facilities especially in coastal areas. (UNEP/MAP, 2013; UNEP/MAP, 2012). This orientation has led to the following paradoxical situation. On the one hand, Turkey's existing legislative framework in terms of environmental regulation appears to be quite well established, strengthened by the paternalistic tradition and a strong state apparatus (Adaman and Arsel, 2005). On the other hand, many studies point an environmental degradation in several places, where a sustainable management of common-pool resources cannot be materialized due to different kinds of coordination failures. Furthermore, environmental conflicts have become much more visible, where the distribution of burdens and benefits of natural resource use is highly uneven.

Adaman and Arsel (2012) define the reasons for this paradox as the state's unwillingness or incapability. The state remains either unwilling to or incapable of ensuring environmental conservation by enforcing environmental regulations. The authors define the reason for unwillingness mainly as prioritizing growth orientation and perceiving environmental problems as secondary issues. Moreover, its incapability stems from patronage-based relations and bribery, where particular groups and their interests are favored to others and to environmental protection as well (Adaman and Arsel, 2012). Both of these reflect in the last instance an ineffective enforcement of environmental regulations.

This thesis takes the above discussed position of the state in Turkey (Adaman and Arsel, 2012) as a departure point and examines how this relationship is manifested in the Kaş-Kekova case by relying on an analysis of local stakeholders. My prior arguments about this relationship are that in the Kaş-Kekova case, the enforcement of environmental laws remains unsuccessful, and the conservation of natural resources remains ineffective, although they are generally under the state's control. Specifically, the state's unwillingness or incapability of ensuring environmental protection is manifested in the environmental degradation of Kaş-Kekova despite its special status for conservation. Illegal methods of fishing, such as using dynamite, spear guns, or fishing with light at night, that have generally not been monitored by the state apparatus in an effective manner are important aspects of the problem. Moreover, activities creating pollution such as illegal waste discharge to the sea and lack of investment in a proper waste treatment system contribute to the problem. In that sense, the Kaş-Kekova area does not provide an exception to the argument that environmental conservation does not seem to be a priority for the Turkish state in this case either.

The environmental degradation and associated problems about how to determine the governance of natural resources and how to ensure environmental protection is not something unique to the Kaş-Kekova case. Although the relevant natural resources may differ, the emergence of environmental problems, the state-society relationship affecting the environmental conservation failure and the political ecology of resource access establish a very similar portrait in several cases in Turkey such as in Burdur Lake, Uluabat Lake or Sultansazlığı Wetlands (Adaman et al., 2009; Akbulut and Soylu, 2012). In these cases as well, there is a two-sided failure of natural resource management. On the one hand, policy formation and

implementation fail to ensure conservation, and on the other hand, decision-making mechanisms fail to guarantee the democratic participation of all stakeholders (Akbulut and Soylu, 2012). Therefore, these examples from other regions of Turkey imply that what I analyze is part of a bigger phenomenon of ineffective environmental protection observed not only in the case of marine conservation, but also in the management of other types of natural resources.

For the analysis of environmental protection failure, political ecology provides the necessary tool to understand the conservation issue not only as an ecological, but also as a social and political process. As I have argued before, the management of natural resources is not only a technical issue. The governance of common resources such as the marine resources in the Kaş- Kekova case comprises many complex social, economic, political and ecological aspects simultaneously (Greenberg and Park, 1994). Therefore, any economic valuation of resources or a technical solution for their management will remain inadequate to cover these aspects, where political ecology including the distributional aspects offers a useful framework to handle this complex and dynamic issue from an interdisciplinary perspective. From this point of view, the coalition formation analysis at the local level will give a deeper insight into the uneven distribution of burdens and benefits of any preservation alternative and governance policy. Being aware of the fact that different outcomes will affect various stakeholders to varying degrees, a detailed analysis has to include stakeholders' perceptions of the decision-making process (Blaikie, 2008; Robbins, 1998).

To sum up, although the state legally has the authority to determine the rules of natural resource usage in the Kaş-Kekova case as well, I will raise the question of why the state is not ensuring the implementation of the regulations that are set centrally. Answering this question, I will first point out the unwillingness of the state

in terms of environmental protection (Adaman and Arsel, 2012), and then add that the legislation made without taking local actors and their positions into account can very hardly be successful in their implementations.

Parallel to this, the reason for a local analysis emerges first because the state remains either unwilling or incapable of ensuring environmental conservation by enforcing environmental regulations. If the state does not ensure the implementation of regulations, local actions may have a tendency towards noncompliance as well. Secondly, a local analysis is necessary since local actors may act within the existing legislative framework while taking further steps towards better environmental protection. Aiming at that, stakeholder groups may develop other forms for governance of common resources, where they can ensure a greater level of sustainability. For instance, in the case of Kaş, using buoys instead of anchoring is a step towards a greater level of marine protection. Although the state and central government have not taken measures to establish these, this can occur within the existing legislative framework and with the initiative of local actors. Furthermore, they can take additional measures to determine a more evenly distributed way of marine resource access, if they can end up with a consensus or co-management after a dynamic negotiation process.

In the case of Kaş-Kekova, since there are distinct stakeholder groups with diverse relations with the natural resource, central decisions that do not take the actors' positions into account can be implemented only with great difficulty. This seems to be the problematic and needs further explanation of different positions, judgments of possible marine protection alternatives, relationships between different actors and possible coalition formation among them. In line with this statement, the following chapters will provide first an analysis of the local actors and present

possible ways of marine conservation. Afterwards, it will make a coalition formation analysis relying on their different judgments of five potential alternatives.

CHAPTER 3

UNDERSTANDING THE FIELD AND THE RELEVANT SOCIAL ACTORS

The historical and institutional analysis of the Kaş-Kekova region provided in the second chapter is crucial for the investigation of local social actors and their relations among each other. Taking this analysis based on historical, legislative and administrative documents and previous scientific studies (WWF, 2013; UNEP/MAP, 2012; ÖÇKKB, 2010) as a backdrop, the third chapter presents ten groups of social actors in the area and explains the methodology of the field study.

This chapter first presents social actors based on the qualitative data gathered through focus group discussions and in-depth interviews conducted with stakeholders, who are all users of marine resources with different purposes. Secondly, it will explain the five marine conservation alternatives, each entailing incrementally more conservationist actions for protection of the marine environment. During the field study, these five alternatives were presented to ten stakeholder groups who will be discussed below to grasp their positions towards each of them. Thirdly, it will investigate the power of these actors by defining it as the varying ability to control access to the desired environmental resources (Tan-Mullins, 2007). In line with this, I will conceptualize power as the extent to which one is able to influence the governance structure. This part will focus on the notion of local agency, which is defined by Özkaynak and Rodriguez-Labajos as the "capability of local actors to pursue their own objectives and influence a given situation" (2010: 998), because this has a significant effect on the outcome of the environmental conservation problem. With the information about the stakeholders and marine

protection alternatives presented here, this chapter lays the ground for the analysis of the ongoing environmental problem and coalition building in the fourth chapter.

A Detailed Presentation of the Actors and the Methodology of the Fieldwork

Following a political ecology framework (Blaikie et al., 1987; Harvey, 1974; Peet and Watts, 1996; Young, 1999), the first section makes a detailed presentation of each stakeholder group, i.e. social actors who affect or are affected by the conservation of marine resources (Mikalsen and Jentoft, 2001). Following that, it explains why these actors were identified as the relevant stakeholder groups, the details of group formation process, and lastly the methodology and its limitations.

Which Actors Are Involved?

Relying on the historical and institutional analysis and the fieldwork realized through three visits between June and September 2012, I identified ten stakeholder groups, referring to people who have an impact on or who are affected by their level of access to marine resources and thus by the possible marine conservation alternatives. These ten stakeholder groups included in the analysis are the following: fishermen, diving centers, excursion boat operators in Kaş, excursion boat operators in Kekova, hotel owners or managers, restaurant owners or managers, farmers, Kaş Municipality, Demre Municipality, and a mixed group composed of scientists and environmental NGOs.

Why these Stakeholder Groups?

These stakeholder groups were mostly defined by previous studies conducted in the same region (WWF, 2013; UNEP/MAP, 2012; ÖÇKKB, 2010). Based on a review of the existing studies and interviews with other researchers who worked in the region before, I had a priori ideas for the formation of stakeholder groups. In conjunction with these, I was able to observe during focus group discussions that similar use types mostly resulted in parallel ideas about the impacts of marine conservation alternatives. Therefore, stakeholder groups were determined mainly according to their usages of marine resources. To be able to comprehend local dynamics and environmental conservation failure, the establishment of these groups and listening to their perceptions were crucial.

Updates in Stakeholder Groups due to the Outcomes of Focus Group Meetings

Before conducting the first phase of fieldwork, I established seven stakeholder groups consisting of fishermen, diving centers, farmers, the municipalities, hotel and restaurant owners, excursion boat operators and NGOs. These a priori ideas of how to form stakeholder groups with similar marine resource usages mostly showed to be reliable during the fieldwork for the cases of the fishermen, diving centers and farmers. The discussions in these focus group interviews indicated that the participants within the same stakeholder group evaluated marine conservation alternatives in a similar way.

The outcomes of the first visit to the field however, showed that the formation of some groups required an update**.** To obtain a more reliable list of stakeholders, I

changed the grouping according to the data gathered from the first phase of the field study. These changes included the separation of three stakeholder groups into two distinct categories. In other words, the municipalities of Kaş and Kekova, the excursion boat operators of Kaş and Kekova, and the restaurant and hotel owners were considered and interviewed as distinct stakeholder groups in the second phase of the fieldwork.

For some stakeholder groups I did not possess any prior information. This was the case for the two municipalities of Kaş and Demre, both of which possess a level of authority over the villages located within the borders of the Specially Protected Area. The visits to both municipalities showed that they have different evaluations of marine conservation activities. They pursue different visions and have different ideas about how these marine conservation alternatives would have an effect on them. This led me to update the group formation, and I separated the municipalities as two distinct stakeholders.

Furthermore, the observations in the field revealed that the excursion boat operators of Kaş and Kekova as well had different opinions about some marine conservation actions, especially when these impose a restriction on their marine use. For instance, the excursion boat operators in Kekova had very negative attitudes towards the obligatory implementation of buoying practices. However, the ones in Kaş generally seemed to support this marine conservation action, by saying that it could even facilitate their activity and protect the marine life and sea bottom. Because of that, after the first phase of fieldwork, I formed two distinct groups according to their locality, i.e. considering whether they were based in Kaş or Kekova.

For the hotel and restaurant owners, too, I had to form two different groups after the first meeting, although I previously had considered them in the same group. The first focus group discussion with them showed that they possess different perceptions of the impacts of the five marine conservation alternatives. In the second phase of the fieldwork, I tried to clarify my findings with supporting in-depth interviews. With the information I gathered in the second phase, it seemed to be more reliable to divide restaurant and hotel owners into two groups and to add their positions accordingly to the stakeholder analysis.

As a result, the two phases of fieldwork helped to ensure the relevance of the formation of ten stakeholder groups to be included in the coalition formation analysis, which I will explain in the next chapter. A list of the people who participated in the focus groups discussions or in-depth interviews together with the visual presentation of alternatives and a copy of evaluation forms provided to participants can be found in Appendix E and Appendix F.

The Methodology and Its Limitations

The methodology of the fieldwork consists of focus group discussions with each stakeholder group and additional in-depth interviews with some key actors, who did or did not attend the previous focus group meetings. In the focus group discussions and in-depth interviews, I first presented myself and explained my objective, i.e. realizing a stakeholder analysis concerned with the use and conservation of marine resources. I emphasized that I would ask their opinions about how the possible marine conservation alternatives would have an impact on them. Following that, I made the same presentation to each group entailing the current situation of marine

resources, marine conservation actions included in each of the five alternatives, their possible costs and burdens, and projections towards future if these actions will be implemented. Afterwards, I distributed an evaluation form that entailed a summary of actions involved in each alternative. The evaluation form also included a scale ranging from 1(indicating extremely bad) to 9 (indicating perfect) to be filled with participants' evaluation of each alternative. These focus group discussions mostly took around two hours until the participants had discussed and evaluated the impacts of each alternative in a comprehensive way.

I tried to include not only some of the key individuals, like the representatives of certain circles or the heads of local associations, but also those who are usually not heard such as women farmers, small hostel operators, or fishermen who are not part of the cooperative. The inclusion of both types of actors enabled me to investigate the ongoing environmental protection failure in the region in a more detailed way and to understand how the problem is perceived in terms of access to marine resources and their conservation. As a result, the above-mentioned ten groups were thought to be the ones best reflecting the internal dynamics of the ongoing environmental protection problem in the region, which was more or less proven during the interviews with different stakeholders.

It is important to remind the reader that, methodologically, focus group discussions with stakeholder groups cannot be representative in number. This would require a different methodology such as household surveys, which would not allow such an in-depth analysis, and is therefore beyond the scope of this thesis. Undoubtedly, even after conducting a household survey, there can be some individuals in the same stakeholder group, for example a fisherman who did not participate in focus group discussion or did not answer the questionnaire, with

different considerations about the five marine conservation alternatives. Although the methodology does not make it possible to cover all individuals, it helps to gain clear insights into the social dynamics prevalent in the local debates.

Another limitation of this methodology might be that some of the participants would not want to state their ideas openly in a group discussion (Munda, 2004: 670). I tried to overcome this limitation in two ways. First, I made supporting in-depth interviews where it seemed to be necessary and secondly, I collected the evaluations of stakeholders towards marine conservation alternatives both individually and as a common group decision. In the case of hotel and restaurant owners, for instance, this difference between individual and group decisions led me to divide this group into two separate ones. In this way, the individual decisions became more consistent with the group decisions to be considered within the same stakeholder group, since they had a common use type of marine resources.

Moreover, an individual in one stakeholder group does not represent only the ideas of that stakeholder group. Ontologically, no stakeholder belongs to only one stakeholder group. On the contrary, several complex social relations influence his or her values, judgments, ideas and positions. For this reason, one individual's ideas can reflect other stakeholder groups' perceptions as well, if for instance a fisherman's relatives are farmers. I tried to filter out this overlap by asking participants only about how they and their marine use would be affected by these marine conservation alternatives, but not about any possible socially and politically optimal solution which would include their thoughts about other stakeholders' evaluations as well.

By trying to get both the personal and common evaluations of the participants, I was also able to see who was more influential within the group, without letting others' voices be unheard. Moreover, as mentioned above, to have a reliable

presentation of actors for the following coalition formation analysis in the fourth chapter, the participants were chosen both among the representatives of associations, cooperatives or social networks, but also among people whose voices are usually not heard very much.

Meanwhile, the combination of different qualitative social research methods such as the historical and institutional analysis, focus group discussions and in-depth interviews allowed me to follow local discussions about several issues related to marine conservation alternatives. Further, it gave insights into relations between individuals and groups, which will be discussed at the end of the fourth chapter of this thesis.

Having examined the local stakeholder groups in the first section, I will make a detailed explanation of the five marine conservation alternatives that I presented during focus group discussions to all of the participants to learn their positions towards them.

Five Marine Protection Alternatives

After the clarification of the stakeholder list in the first section, in the second section I will explain the five possible marine protection alternatives that I presented to stakeholder groups in the focus group discussions in order to learn their perceptions about how these would have an impact on them.

The marine conservation actions involved in these alternatives are mostly those issues discussed in the region by many social actors. As mentioned before, I formed these alternatives relying on previous socioeconomic and biodiversity studies (Yokeş, 2003; ÖÇKKB, 2010; ÖÇKKB, 2011; Tural,2010) conducted in the region,

which include suggestions of scientists and environmental NGOs to reduce the human pressure on marine resources. However, these are not conservation actions agreed upon by all stakeholders, they are rather topics of discussion at the heart of the problem of access to marine resources and their protection.

The Current Situation

To understand the underlying reasons of these marine conservation actions, it is useful to remember the current situation of marine environment in the Kaş-Kekova region, which was explained in the second chapter in detail. In 1980, Kaş was a rather smaller town (ÖÇKKB, 2010: 15), with a population of 3,158 residents, and the Kale-Üçağız village on the coastal part of Kekova had a population of 285 people. Currently, in the Kaş center there are 7,258 inhabitants, and Kale/Üçağız has 473 residents[8]. It is important to note that both the populations of Kaş and Demre centers more than doubled since 1980. This fact certainly generates a level of pressure on the marine resources, where they get more frequently and intensively used by the increased number of residents and tourists.

The main economic activity of the region shifted from fishing and agriculture towards different types of tourism (ÖÇKKB, 2010: 22). Regarding the increasing number of national and international tourists visiting the region, Kaş seems to be following the trend of Turkey and Antalya. The number of tourists in Turkey doubled within the last decade. Thirty percent of them visit the city Antalya and its surroundings, including Kaş. The investments in infrastructure that facilitate the

[8] Turkish Statistical Institute, 2012. Address Based Population Registration System Results. http://tuikapp.tuik.gov.tr/adnksdagitapp/adnks.zul [18 March 2013].

transport of tourists to Kaş and Kekova, such as new roads and an increased number of airport transfer opportunities from Dalaman, make the region an even more popular tourist attraction.

Meanwhile, the deterioration of the marine ecosystem environment seems to reflect a pressure on it. There is a dramatic decrease in the number of some fish species, especially in those with a high economic value. Biodiversity studies conducted between 2002 and 2009 show that the recorded numbers of three species, i.e. Dusky grouper (*Epinephelus marginatus*), dogtooth grouper (*Epinephelus caninus*) and common sea bream (*Pagrus pagrus*), decreased to their one fifth or one tenth (Tural, 2010:10). Furthermore, the area covered by an important type of sea meadow, i.e. *Posidonia oceanica*, that generates the necessary oxygen for the sea habitat, fell from 15% to 10% in Ufakdere and Heybeliada between 2006 and 2010 (Yokeş, 2012; UNEP/MAP, 2012). As a result, the pressure on marine life seems to be increasing especially due to fishing, anchoring practices and increasing pollution.

The Five Alternatives

Having revisited the current situation of marine resources, I will now explain the five marine conservation alternatives that I presented to the participants in the focus group discussions. These five alternatives entail several marine protection actions. To obtain a realistic picture of the position of stakeholder groups towards the alternatives, all of these actions were presented to them with their potential social and economic costs and possible future outcomes. Afterwards, I asked each individuals' evaluation of each alternative with regards to their perception about how these alternatives would have an impact on them.

Table 1. Marine Conservation Alternatives

Alternative 1	**Alternative 2**	**Alternative 3**	**Alternative 4**	**Alternative 5**
Business as usual	Buoying and restrictions on marine use	Buoying, restrictions on marine use, and infrastructure related to waste management	Buoying, restrictions on marine use, infrastructure related to waste management, limit on agricultural chemicals and zoning of the marine area	Buoying, restrictions on marine use, infrastructure related to waste management, ban on agricultural chemicals and stricter zoning of the marine area

Alternative 1 is the maintenance of "Business as Usual" and does not include any additional marine conservation action. It assumes that the pressure of increasing tourism and construction activities and the level of pollution will continue to rise. Thus, the current environmental deterioration of marine resources mentioned above will proceed as well. Although some fragmented conservation attempts already exist in the region, Alternative 1 assumes the continuation of the problems regarding the ongoing degradation of marine resources.

In this alternative, there will not be any additional cost of marine conservation, but the ongoing marine deterioration would be an environmental burden to be faced by stakeholders. A future projection of this alternative entails increased threat to fish species' existence in the area, especially on those that possess an economic value. Moreover, the loss of the area covered by sea meadows (*Posidonia oceanica*) will increase by 40-50% (UNEP/MAP, 2012). The pollution level and construction activities will rise as well and thus some coastal areas will lose their blue flags status,

which is an indication of the cleanness of the sea. Public health will be under threat due to the inadequacy of wastewater treatment facilities such as the lack of drainage system in Çukurbağ and Kekova and this will affect the coast side where people go to swim, and the sea visibility will be undermined as well.

Alternative 2 consists of the following actions: 150 buoys will be placed in the bays that are mostly used for anchoring purposes by several stakeholders such as fishermen, tourist boats and diving boats. In compliance with this action, anchoring will be prohibited in these areas. Moreover, the use of jet skis and speed boats on the coasts and the establishment of fish farms will be prohibited as well. Amateur fishing will be restricted to license holders, and the use of amateur fishing boats will be prohibited. In case of any violation of this rule, people will face greater penalties, and a boat with the duty of controlling illegal fishing will be working in the region.

The costs and difficulties of this alternative include an economic cost of buoying and employing an additional boat and personnel to monitor illegal fishing. Half of these costs will be paid by the state and the remaining half will be paid by local municipal budget. This will create a burden on public budget proportional to the population. Another difficulty will arise when tying the boats at the same buoy; the captains have to organize themselves, as they will not be able to stay far from the other. The obligation of the use of buoys instead of anchoring will restrict the number of boats such that the capacity of boats in the harbor will remain very close to the existing one (personal conversation with Yokeş, 2012), which will limit the cash inflow from boat tourism. Besides, hotels and beaches will not be able to generate income from renting jet skis or speed boats. The income and employment possibly generated by fish farms will be undermined as well. Excursion boat

operators will not be able to organize amateur fishing tours or serve their clients fresh fish caught from the boat.

With the adoption of Alternative 2, the loss of the area covered by sea meadows (*Posidonia oceanica*) will be slowed down, and the habitat of marine species will be protected from anchoring, which will lead to the increase of the oxygen level in the sea. The restriction of amateur fishing will reduce the pressure on especially economically valuable fish species. The prohibition of jet ski and speed boat use will prevent possible damages to marine animals such as sea turtles. Fish farms will not be a source of pollution anymore, and this will reduce the possibility of eutrophication and related fall in sea visibility. All of these will generate positive steps towards marine resource protection.

Alternative 3 includes all of the marine protection actions proposed in Alternative 2 and adds the obligation of having a wastewater treatment system for hotels and other businesses in the coastal area. A drainage system will be established in the Çukurbağ Peninsula near to the center of Kaş and in the archaeological protection area of Kekova, of which all residential buildings and hotels will have to be part, and wastewater discharges to the sea will be banned absolutely. It will be ensured that domestic waste and waste resulting from construction activities will not reach the sea. Further, there will be a suitable area for the maintenance activities of the boats as well to hinder the discharge of chemicals to the sea. Additionally, one boat and its personnel will be responsible for collecting solid waste from boats.

The additional costs that Alternative 3 would create entail the cost of a wastewater treatment system that will be paid for by the hotels and other businesses located on the coastline. Moreover, a share of the cost of the drainage system in the Çukurbağ Peninsula and Kekova will be paid for by the hotel owners and residential

buildings, and the rest will be paid for out of the local budget. The expenses of a suitable boat maintenance facility will be met by the local budget as well. The cost of the boat for solid waste collection and the salaries of the personnel will be shared by both the local budget and the budget allocated by the central government.

Looking at the possible outcomes of these conservation measures in the future, the environmental improvements in Alternative 2 and an additional protection of marine life from solid waste will be ensured. The adoption of Alternative 3 will have a greater positive impact on the protection of surface and groundwater pollution due to the decreased number of pollution sources related with construction, boat maintenance, and wastewater. This will positively influence the number of beaches awarded with blue flags, the associated interest of tourists, and ensure that public health will be protected regarding the sea use. Moreover, the turbidity of the sea due to pollution will decrease even more.

Alternative 4 entails all of the conservation actions mentioned in the third alternative. Additionally, it proposes both reducing the chemicals used in the agriculture in half and a zoning of the marine area that will determine the types of usages to be allowed in each zone. This zoning will include the determination of core zones, buffer zones, and extensive use zones. The use of marine resources for amateur or professional fishing and scuba diving will be determined according to the biodiversity constraints by focusing on such things as where species lay their eggs or where there are important sea bottom areas covered by *Posidonia oceanica*.

The first zone proposed in Alternative 4 is a strict protection zone, where only scientific research will be allowed. This “core zone” will include the surroundings of the small island Heybeliada, Ufakdere Bay, and Aperlai Bay since these are important areas in terms of biodiversity conservation. One exception is that

experienced recreational divers will be allowed to dive around Heybeliada on the condition that the dive boat is moored to a buoy instead of anchoring, whereas inexperienced divers will not be allowed. However, no more than two boats will be allowed to stay at the buoy at Heybeliada simultaneously in order to decrease the human pressure on the area. Another exception will be that in the outer part of Ufakdere, fishing with long lines will be allowed temporally to local, small-scale fishermen, who are members of the Kaş Fisheries' Cooperative.

In the second zone, both amateur and professional fishing will be prohibited, whereas other recreational activities will be allowed. This "no-fishing zone" will cover Limanağzı Bay, the outer part of the Five Islands and Kanyon, and two bays in the outer part of Kekova Island. In this part, the only exception will be the fishing activity of small-scale commercial fishermen of the Kaş Fisheries' Cooperative, who will be allowed to use only long lines to fish mackerel in Limanağzı Bay and the Five Islands.

The third zone will be a "commercial small-scale fishing zone" that will exclude amateur fishing and diving activities. This zone covers the coastline from İnce Burun to Fener and from the İnönü Bay to Aperlai Bay. As an exception, recreational diving will be allowed around İnönü Bay as well.

The fourth zone will be a "general use" zone, where all of these activities will be allowed with a restriction that amateur fishing can be practiced only in the form of angling from coastal rocks and professional fishing will be limited to local small-scale fishers.

These marine conservation actions will create additional burdens than generated by alternative 3, on the grounds that a reduction in chemical use will lead to less agricultural production for farmers, especially since the farming practice in

the region mostly relies on greenhouse cultivation around the area. Additionally, due to the exclusion of fishing in some areas, the income made by commercial fishing will fall at least in the short-term.

Looking at the outcomes, this alternative will create improvements in alternative 3 and it will lead to a further protection of marine resources, especially of the ones that are under the threat of extinction. Both the populations of fish and other marine species will be under a greater level of protection and the number of mature fish will rise. The rise in the population of fish of greater size in no-take zones will affect other zones, and the population outside of the no-take zones will witness increases as well. Thus, the fishing capacity in these zones also will grow in medium term. Furthermore, due to the decrease in chemicals used for farming, agricultural waste flowing down to the sea via Demre and Eşen rivers will be reduced, which will lead to a decline in the sea pollution and in the associated negative impact on sea meadows.

Alternative 5 includes the actions proposed in Alternative 4 and adds the total ban of chemical use for agriculture. Moreover, regarding the zoning, it proposes a total prohibition of both amateur and commercial fishing in all of the first three zones mentioned in alternative 4 and a total ban on scuba diving in the area of Beş Adalar (Five Islands). In addition, it suggests a restriction on construction activities both for touristic and residential purposes so that recently-constructed buildings may not be higher than two floors and touristic facilities will not be allowed to have a bed capacity of more than 200.

These actions will increase the cost of agricultural production for farmers. Some restaurants will need to pay higher prices for some fish species, since they will not be able to buy from amateur fishermen due to the strict control of fishing. In the

short-term, the income of commercial fishermen from fishing will fall since they will not be allowed to fish in some areas. The income of diving centers will fall as well since they will not be allowed to organize dive trips to some popular areas. Incomes generated by the tourism sector may fall due to the restrictions, but the opposite may be true as well since the region will witness a greater level of natural protection.

Alternative 5 will lead to improvements in marine resource conservation because it decreases the human-related pressure on marine resources, which will allow the reproduction of many marine species on considerable amounts. Both the number of mature individuals and juvenile fish will rise significantly so that their existence in the area will be ensured. Their protection will affect other zones in a positive way, and the number of fish of bigger size will rise in other zones as well, which will affect the fishing positively. The threat of chemicals flowing down to the sea will vanish, the pollution will be mostly prevented, and the beaches will continue to be rewarded with blue flags indicating their cleanness. The region will obtain the option to generate income from organic farming, and the pollution stemming from construction and increasing population will be halted.

Finally, an important characteristic of alternative formulation is that the alternatives entail incrementally stricter actions of marine conservation. This setting allowed me to ask stakeholders' perceptions towards a higher level of marine conservation in each alternative. Since the alternatives were presented with their associated higher costs and protection level, stakeholders positioned themselves according to the possible impacts of each alternative that includes the actions of the previous one. This eliminated a possible design problem in which stakeholder groups could only pick up some conservation actions and establish their own alternatives, which would not restrict their marine use at all. Since the objective is environmental

conservation, the alternatives should include an incrementally higher level of protection to investigate stakeholders' positions. With this design, I was able to observe stakeholders' positions towards the stricter protection of marine resources even when they had to carry the burdens of these conservation actions to varying degrees.

Following this chapter and the detailed explanation of social actors being a part of the environmental conservation failure, I will conduct a coalition formation analysis by investigating different groups' evaluation of marine conservation alternatives in the fourth chapter.

Discussion of Groups' Local Agency and Its Effects on the Coalition Formation

Having explained how each stakeholder group is formed and having explored the possible marine conservation strategies presented to the stakeholder groups during the field study, in this section, I will elaborate on the ongoing environmental conservation problem by focusing on detailed characteristics of stakeholder groups and their relations with each other. Since, analytically, it is not possible to include each aspect of the complex social relationships into the coalition formation analysis method provided in the following chapter, I will introduce a preliminary discussion of actor groups and their relationships with regard to the environmental conservation failure. To open the discussion, I will make use of the notion of local agency, which is defined by Özkaynak and Rodriguez-Labajos as the "capability of local actors to pursue their own objectives and influence a given situation" (2010: 998).

Since the ten stakeholder groups have different levels of local agency to influence decision-making, they do not have equal access to and control over

common marine resources. To uncover these inequalities, I will consider further elements constituting individuals' or groups' level of "local agency" (Özkaynak and Rodriguez-Labajos, 2010). These elements include access to information, economic wealth, social mobilization history, and social networking including coordination and lobbying. From this perspective, I will further evaluate the local and the relations of these stakeholder groups with each other, and discuss how these might influence the outcome of the coalition formation.

With that purpose, all social actors having an effect on marine resources or being affected by the conservation actions are included in this part of the analysis as well. To remind the reader, these groups examined below include fishermen, diving centers, excursion boat operators in Kaş, excursion boat operators in Kekova, hotel owners or managers, restaurant owners, farmers, Kaş Municipality, Demre Municipality, and a mixed group composed of scientists and environmental NGOs. The third section will analyze the relations between these groups in a detailed way.

Local Dynamics and Debates among Stakeholder Groups

In order to analyze each group's local agency level, one has to focus on the discussions among them as well. Regarding the relations among the stakeholder groups, the greatest divergence of interests seems to occur between the fishermen and the scuba divers.

The fishermen stress that the stakeholder group they are mostly in conflict with is diving centers, since they both use the same marine zones. There is competition among them about how to share the marine space. The right to access is another issue where fishermen feel oppressed, since they claim that they are the only group facing

strict restrictions. On the other hand, they argue that an increasing number of scuba divers and their diving boats are not subject to any restriction regarding marine use, despite the fact that the divers' use of marine resources poses a negative impact on the marine environment as well.

Another important dimension is the dichotomy of the local people versus the outsiders who came to the region and settled there within the last one or two decades. Many of the complaints of the fishermen include that people who were not even born in the region claim to have more rights and raise their voice more strongly in order to be influential on the access to marine resources. In this sense, the fishermen feel uncomfortable that the diving centers claim more rights over marine use, especially in marine spatial sharing debates. In a related manner, for instance, one of the fishermen stated that he has been doing this job for 35 years, whereas the scuba divers had only recently arrived and settled there; yet, they claim more rights over the marine area.

The problem of access to fishing in the region augmented after the Ministry of Food, Agriculture and Livestock issued a new legislation concerning commercial[9] and amateur[10] fishing on 18 August 2012. The new legislation will be valid for four years, between 2012 and 2016. I conducted the last in-depth interview with the fishermen after the legislation had been issued, which enabled me to observe their reaction to this new legislation, which imposes restrictions only on them. They point out that it is a case of injustice because according to the new legislation, the SCUBA

[9] 3/1 Numaralı Ticari Amaçlı Su Ürünleri Avcılığını Düzenleyen Tebliğ (No: 2012/65) http://www.resmigazete.gov.tr/main.aspx?home=http://www.resmigazete.gov.tr/eskiler/2012/08/20120818.htm&main=http://www.resmigazete.gov.tr/eskiler/2012/08/20120818.htm [14 March 2013].

[10] 3/2 Numaralı Amatör Amaçlı Su Ürünleri Avcılığını Düzenleyen Tebliğ (No: 2012/66) http://www.resmigazete.gov.tr/main.aspx?home=http://www.resmigazete.gov.tr/eskiler/2012/08/20120818.htm&main=http://www.resmigazete.gov.tr/eskiler/2012/08/20120818.htm [14 March 2013].

divers do not face any burden. These changes in the legislation have created a certain level of distrust and reaction to environmental NGOs as well. Previous debates on the marine spatial sharing and conservation proposals did not come out in the legislation in the way they were confirmed by the fishermen. Thus, the fishermen accuse the NGOs of being on the side of diving centers, and the implementation of both old and the recent legislations seems to be problematic as well.

According to the new legislation, the fishermen are no longer allowed to fish in some areas that are important for them. They claim that they had decided to use only loglines in these areas in their previous discussions with the NGOs and other stakeholders. However, they are now prohibited from catching any species in these areas, which will cause many economic problems and make it hard for them to survive, since especially in the winter period they need some bays to shelter in when the winds are strong. They mention that with this new legislation, there is no zone where they can go fishing anymore.

These discussions led to a certain degree of dissolution within the Fisheries' Cooperative as well. Some members of the cooperative held the representatives of the cooperative responsible for their previous negotiations with other stakeholders and claimed that their help led to the new legislation banning fishing activities in these areas. These discussions among cooperative members indicate that although the fishermen are to some extent organized in this institution, they lack a clear organizational structure and they do not easily come together. Moreover, they seem not to have a strong history of social mobilization. For instance, they only recently began to send official complaint letters to state bodies.

Further, they claim that they are the only ones carrying the burden of the new legislation. They argue that the restriction posed on local commercial small-scale

fishermen led some amateur fishermen to sell the fish they had caught. Although amateur fishermen are not allowed to sell anything they catch, the lack of enforcement enables them to engage in this economic activity, whereas local small-scale fishermen are the only ones strongly controlled because this is operationally easier. This implies that the change in the legislation most probably cannot solve overexploitation problem in the area.

Considering the other constituents of local agency (Özkaynak and Rodriguez-Labajos, 2010), the following should be stated. The fishermen have a low level of access to information, and they learned about the changes in the legislation when it was declared to them by the local authorities, whereas some other groups may have greater access to the debates in the Ministry and they learned about the changes immediately once they are issued. Meanwhile, having lower levels of economic wealth, one can argue that their level of local agency is relatively low as well.

On the other side of the main struggle, the scuba divers perceive both illegal and commercial fishing as the main problems. They do not want their activities to be limited, since they think that the pressure they put on marine resources is negligible. They feel uncomfortable since they have to share the same marine spatial area with the fishermen, and therefore they support the zoning proposals. However, they are against the restriction proposed in Alternatives 4 and 5, where they would be prohibited from diving in some of their favorite areas. They neither want to accept the prohibition of try-diving, i.e. an untrained person diving for the first time under the control of a diving instructor, or the exclusion of beginner levels' dives from these areas.

However, they support the proposal that some zones will be preserved only for scientific studies. Moreover, they are generally willing to contribute to biodiversity

investigations by providing equipment, and they spend money and time to help with the deployment of buoys in the area. They add that the diving centers are an organic part of marine conservation actions, since the education level and environmental awareness of the scuba divers who usually come to Kaş are very high. They argue that if diving is practiced consciously, it will not harm the marine environment at all. Yet, the supportive attitude of the diving centers in terms of a high level of marine conservation changes when the environmental concern involves restrictions on their activity.

This stakeholder group mostly consists of people with high levels of education, and self-organization and social networking capability. They have founded an effective association named KASAD (Kaş Underwater Association) and in some occasions, they are engaged in social mobilization as well. One of KASAD's activities was to sell pins to scuba divers to raise funds for marine conservation and for the deployment of buoys. Their economic wealth is also generally higher than that of the fishermen. Each of these characteristics affects their level of local agency as on a medium/high or high level especially when compared to that of the fishermen.

The restaurants in Kaş vary in terms of size, food type, and economic turnover. Most of the owners close their restaurants in the off-season, but it seems that their economic gain in spring and summer months is enough for them to open the restaurant in the next season. Their level of economic wealth is generally not low and they seem to be happy with the tourist attractions of the region.

They have one association called *Lokantacılar Derneği* (Association of Restaurant Owners) and they are organized to some extent, knowing each other well. Some of them are also active in other associations, such as the Kaş Tourism and

Promotion Association. They argue that being organized is very important, since they often face the lack of coordination among different actors. They mention that many stakeholder groups in Kaş come together easily, but usually what happens is that the hotel owners are unaware of what restaurant owners have discussed and decided, and vice versa. This stakeholder group includes both people who are originally from Kaş and those who settled there in the last decades, and they consider this dichotomy being very important as an obstacle for coordination on different issues. Their access to information is not limited, either. As a result, this group's level of local agency can be considered to be middle/high as well.

The hotel owners are against the impression that they are the ones most polluting the region and they claim that generally a higher contribution is expected from them for environmental protection. They argue that there are pollution problems especially in Çukurbağ Peninsula, but they claim that it is not the hotels, but the waste discharge of villas that is responsible for this.

Just like the restaurant owners, they place emphasis on being organized and having strong coordination among stakeholder groups. They are organized in a Hoteliers Association and they have close relations with such bodies as the municipalities and central state officials from Antalya. Thus, their level of access to information seems to be very high. Economically, they are also in a good position since the value of the buildings in the area gets higher and higher. To sum up, they tend to have a high level of local agency in order to influence the decision-making processes and coalition formations.

The group consisting of scientists having worked in the region and environmental NGOs generally has easier access to information in terms of legislative and administrative processes and scientific data. They also have strong

social networking skills and mobilization capabilities. Yet, while they are respected by the other stakeholder groups, on the other hand, some local actors hold them responsible and accuse them of favoring some stakeholder groups at the expense of others or not being able to pursue a well-established participative management system incorporating all stakeholders.

WWF-Turkey has been working in the region since 1996 and was able to make some proposals to decision makers in the Ministry of Food, Agriculture and Livestock. However, their proposals were not fully accepted in the recently issued legislations about marine use. This led to a conflict between them and fishermen after the legislation was issued, since they were in a sense considered to have a very high level of local agency. Their access to economic resources is not great enough very high to enable them to realize the project in the way they want, but it is not low, either.

Since many of them are aware of the local dynamics and have also worked for the implementation of the management plan of the marine part of the SEPA, which aimed to establish a more participatory process, their political view regarding the applicability differed from their pure environmentalist considerations. In this sense, they think that Alternative 4 is the most applicable one in terms of the compliance of all local actors and the protection of marine environment.

The municipality is an administrational entity in the coalition formation analysis. To some extent, it reflects the local power distribution since it is a locally elected entity that also takes the position of its electors into account. However, at the same time, it is a separate stakeholder since it possesses a certain level of both decision and monitoring power. The two municipalities of Kaş and Demre are both powerful in terms of access to information, but they both complain about the very

limited budget allocation of the central government. They also have different priorities: Demre municipality cares more for greenhouse farming and bigger investments like the construction of ports and bigger hotels to increase the number of incoming tourists, while the Kaş municipality prefers to not to grow too much, but rather to remain on the same scale.

The farmers possess a very low level of local agency since they have a low level of access to information, live relatively separated from where the discussions about marine resources take place, have no social mobilization history, nor any organizational structure under which they would come together to organize themselves. Their economic wealth is not very great, either. They are mostly local people who were born there and who previously gained their livelihood from animal husbandry. They reveal that they are now in a better economic situation by getting involved with greenhouse farming, but, in any case, they think that their needs and demands are neglected such that the municipality does not even care about their solid waste collection.

Most excursion boat operators were previously fishermen or they have relatives who are still professional, small-scale fishermen. In that sense, they show an empathy with them and reveal that marine conservation actions should not impose the greatest burden on them. In terms of economic wealth, access to information and education level, the excursion boat operators of both Kaş and Kekova are at a low/medium level.

The ones in Kaş share the view mostly held by the fishermen, that the divers create a pressure on the marine environment as well, both by affecting the sea bottom and by scaring the fish away with their bubbles. Especially they are against the try-diving practice, where a person without any training dives under the control of a dive

instructor. They believe that this practice is very harmful to the marine life on the sea bottom and to the eggs of fish. Therefore, they propose a restriction to the number of diving centers and number of diving boats.

Besides, they founded an association *Kaş-Likya Denizcilerini Koruma Derneği* (Kaş-Lycian Sailors' Protection Association), which implies that they are organized to some extent. They claim that around 80-90% of boats in Kaş are members of the association. However, one participant claimed that "since we do not possess high education levels, we cannot gather well and organize ourselves to argue our demands and ideas together. The divers' association KASAD comes more easily together because they are able to achieve a better coordination among themselves" (personal conversation with excursion boat operators, 2012) and thus they are more effective for making their voices to be heard at different levels of the decision-making process.

In Kekova, the excursion boat operators still go fishing in the winter season. They are not very much aware of fishermen's conflict with the diving centers, since most of the marine zones are closed to diving because of being archaeological SIT areas. Although they are generally from the region and know each other well, the ones in Kekova are not well organized. Some of them recently founded a cooperative, but most of them have not joined. The cooperative has only around five members. The excursion boat operators of Kekova also complain that they are the only ones held responsible for marine pollution and that they are strictly controlled by the Coast Guard.

As a result, one can see that local dynamics greatly influence the environmental conservation failure and the possibility of the groups to come together, where each constituent of the local agency plays an important role. This part of the analysis is crucial in order to understand the possible negotiation

processes and to establish common solutions to the shared environmental problem. An examination of the local dynamics from this perspective has offered a deeper understanding in that sense.

Summing up, in this chapter, I discussed the ten relevant stakeholder groups and five possible marine conservation alternatives that I presented to them during the field study, with their possible costs, burdens and projected outcomes. Deepening the analysis of the stakeholders, I gave further details about their relationships in order to draw a more reliable picture of what is going on in the region. Certainly, the discussion of local agency level of groups and their ability to influence the decision-making process is a necessary condition for being able to provide a clear analysis of the environmental protection failure.

CHAPTER 4

COALITION FORMATION ANALYSIS

Based on the information about the actors and the marine protection alternatives provided in the previous chapter, in the fourth chapter I will first report on the local stakeholder groups' evaluations about how they think they would be affected by these actions. I will explain which of these options they found preferable according to their general evaluation of all of the social, economic, political and ecological aspects. Combined with the information provided in the previous chapter, this will facilitate an investigation of the stakeholders' varying evaluations vis-à-vis marine resources and their governance. The findings from the field study explained in this chapter will reveal that in line with my prior argument that different groups of people will be affected to varying degrees by natural resource use and its conservation.

The first section of this chapter explains the stakeholder groups' positions toward each alternative in detail. The information is based on the discussions and final common evaluations in focus group meetings and in-depth interviews conducted during three visits to the field. The second section explains the coalition formation analysis conducted by using the Novel Approach to Imprecise Assessment and Decision Environments (NAIADE) method (Munda, 1995). This section first introduces the pairwise comparison technique of actors' evaluation for each option. Afterwards, it demonstrates the steps and outcomes of the coalition formation analysis by applying NAIADE to the Kaş-Kekova case, and indicates what kind of coalitions are likely to emerge based on the similarity of 10 the decision of the ten

groups. Finally, the second section discusses the advantages and limitations of using the NAIADE tool for coalition formation analysis.

Social Preference Matrix and Stakeholders' Positions

The Social Preference Matrix below is filled with linguistic variables corresponding to the stakeholders' beliefs about the impact of each alternative on them. The columns indicate the five alternatives explained in the third chapter, and the rows consist of ten actor groups. In this way, the matrix shows each group's position towards each alternative within a scale ranging from extremely bad to perfect, in other words from one to nine.[11]

[11] The corresponding number for each linguistic variable is the following: extremely bad: 1, very bad: 2, bad: 3, more or less bad: 4, moderate: 5, more or less good: 6, good: 7, very good: 8, perfect:9

Fig. 1 NAIADE Social Preference Matrix showing stakeholder groups and alternatives

Fishermen

The first stakeholder group in the matrix consists of people engaged in commercial small-scale fishing, most of whom are members of the Kaş Fisheries' Cooperative. The fishing activity is carried out mainly in boats usually of a length of around nine meters, and the gear used by fishermen is generally traditional artisanal gear such as fishing lines extending to 2000 m and enabling fishing up to a depth of 40-50m (UNEP/MAP, 2012). There are no industrial fishermen based in Kaş-Kekova who use trawls or purse seines, since the characteristics of the sea bottom does not allow the use of this type of gear. Currently, 32 fishermen are members of the cooperative, although the number is decreasing in recent years since many fishermen began to quit their jobs because they were not able to sustain their livelihoods with this economic activity (UNEP/MAP, 2012).

The fishermen are not pleased with the current situation of marine resources. They especially complain about the decrease in the amount of fish they can catch and, related to this, about their poor economic conditions. Thus, they evaluate Alternative 1, i.e. Business as Usual, as having a 'bad' impact on them (equivalent to "3" on a scale ranging from 1 to 9).

They perceive marine conservation actions such as buoying positively and are opposed to many types of amateur fishing practices, which lead them to evaluate Alternative 2 as "moderate." This means that they find the marine conservation actions in Alternative 2 as having better impact on them compared to the Business as Usual Alternative. One of the other marine conservation actions involved in Alternative 2, i.e. assigning a boat responsible for monitoring illegal fishing is

considered to be positive as well. Some of the fishermen could be employed at least temporarily, since they know the region very well. Moreover, they also support the waste water treatment actions included in Alternative 3 and evaluate this alternative as "more or less good" because of environmental criteria and expected improvements in pollution levels.

Their perception of Alternative 4 is that it could have negative impacts on them in the short-term, but they are willing to accept these burdens due to a more positive expectation for the medium term. They prefer trying to implement the proposed zoning practices with a hope that within five years, the fish stock would recover itself and that they would experience the positive effects of the recovery. Therefore, they position themselves slightly closer to Alternative 4 than Alternative 3 and evaluate Alternative 4 as "good." On the other hand, they insist that some restrictions should be imposed on other stakeholders such as the scuba divers as well, since they believe that not only fishing, but also diving activities put pressure on the environment and the population of some fish species. Finally, fishermen consider Alternative 5 both socially and economically unacceptable, since its impacts on them would be dramatically negative. It would restrict their activities so much that they would have to quit fishing. One fisherman says that in this case they all would "starve to death" (Personal conversation with fishermen, 2012).

Diving Centers

The next stakeholder group examined for the analysis is divers. Kaş is one of the most popular places for scuba diving in Turkey. Parallel to this, the number of diving centers has increased significantly in the last decades. Currently, there are 18 diving

centers and 14 diving boats in Kaş (UNEP/MAP, 2012), selling diving excursions or diving courses to national or international tourists coming to the region.

The scuba divers who participated in the focus group discussion consider Alternative 3 as the one with the most positive impacts on them, in other words as a "very good" alternative. They perceive both the investments to prevent pollution and the use of buoys instead of anchoring as crucial steps for marine conservation. Furthermore, they evaluate Alternative 1 as "more or less good" based on environmental and economic criteria, since they do not feel many of the negative impacts of today's situation, although they claim that the number of some species they come across during their dives has declined dramatically. They are in favor of buoying practices and a strict control of illegal fishing and the use of spear guns, thus they perceive Alternative 2 as a "good" one.

Furthermore, they consider Alternative 1 as having better impacts on diving centers compared with the "moderate" Alternative 4 and "more or less bad" Alternative 5, both of which would put greater restriction on their activities. The scuba divers perceive Alternative 5 as having the most negative impacts on them and evaluate it as "more or less bad" due to social and economic reasons. They assert that with the implementation of marine conservation actions involved in this option, "[n]obody would come to Kaş for tourism and diving, and Kaş would become a place for retired people only" (Personal conversation with diving center employees, 2012).

Restaurant Owners

With the rising number of tourists, many new restaurants and cafes have been opened in the region in recent years. Although most of them are closed during the off-season,

they are full of tourists in the summer. The stakeholder group consisting of restaurant owners or managers is not pessimistic about today's situation of marine resources and environment. Therefore, they evaluate Alternative 1 as a "more or less bad" option.

On the other hand, they are afraid that Kaş is gradually coming to resemble highly touristic areas such as Bodrum and Marmaris, where many mass tourism facilities have been built in the last decades with many adverse impacts on marine resources. Therefore, they attach great importance to the actions proposed in Alternative 2 and Alternative 3. They seem to be well informed about the projects of the Kaş municipality and about marine protection proposals of the WWF and other NGOs, and they evaluate these efforts positively. In conjunction with this, they evaluate the marine conservation actions in Alternative 2 as "more or less good."

The conservation actions in Alternative 3 receive their support as well. They are in favor of the establishment of waste treatment facilities and drainage systems, the current inadequacy of which leads to bad odor and marine pollution, according to them. They think that marine pollution leads to a decrease in tourism and will continue to do so, if no measures are taken. Therefore, they say that they would accept any cost regarding these conservation measures mentioned in Alternative 3, they evaluate this alternative as "good" and argue that this issue of waste management infrastructure requires maximum attention and a high level of investment.

They also care about the survival of fish species with an economic value as well as the protection of biodiversity. However, they also share the view that the region should not be more expensive and therefore they consider Alternative 4 as

"moderate," since it restricts amateur fishing and local commercial fishermen's activities that would make the access to fish more difficult and expensive.

Furthermore, they assert that "tourism is for the people and if the marine conservation actions affect people in a negative way, this would be a too high level of restriction" (Personal conversation with restaurant owners, 2012), which would pose a negative impact both socially and economically. Therefore, they perceive Alternative 5 as "very bad."

On the other hand, they believe that the existence of some species is very important. One of the restaurant owners told a story about "Süleyman, who has died." The clients in her restaurant were very sad and talked about Süleyman, who had recently died. Süleyman seemed to have been a well-known and popular person living in the region, and she was wondering who he was, but it turned out that Süleyman was in fact the name of a big grouper (*Epinephelus marginatus*) often seen during dives. The existence of this species is again perceived as a culture and value that should be protected along with tourism.

Hotel Owners

Hotel owners are important actors of the progressive tourism sector in the region. Previously, there had not been many big hotels in the Kaş-Kekova region. However, with the increase in touristic activities, especially in the summer months, the number of hotels and hostels has risen.

Hotel owners or managers seem to share the view mentioned by one of them: "the sea is our capital" (Personal conversation with hotel owners and managers, 2012). Because of that, they agree that some measures should be taken especially

regarding the direct use of the sea. They do not perceive the continuation of the current situation as causing too much trouble for themselves and thus evaluate Alternative 1 as being "moderate." However, they evaluate Alternative 2, entailing buoying practices, as having "good" impacts on them and Alternative 3 with "more or less good" impacts.

Overall, they support Alternative 2 as the best option including some actions related to the direct use of marine resources such as anchoring and consider its impacts as "good." They also support the waste treatment activities in Alternative 3 for being better than Business as Usual and consider it as "more or less good." The reason that they do not perceive one of these impacts as "perfect" is that these would generate high economic costs.

The hotel owners perceive Alternative 4 as not affecting them noticeably, since they usually do not serve locally caught fish in their hotels. Hence, they evaluate Alternative 4 as "more or less bad," since it imposes a higher level of restriction on marine use.

On the other hand, especially those with bigger touristic facilities are very much against the restriction of the size of touristic facilities such as putting a limit on the bed capacity of hotels, which they consider as having very negative impacts on them. Therefore, they evaluate Alternative 5 as "very bad" by focusing on possible economic consequences.

Environmental NGOs and Scientists

The stakeholder group consisting of environmental NGOs and scientists who conducted biodiversity studies in the Kaş-Kekova region considers the positive

impacts on the environment with an order beginning from Alternative 5, i.e. with the most strict marine conservation actions, towards Alternative 1, i.e. the Business as Usual.

They claim that the main problem of biodiversity is the dramatic decline in the number of endangered species. They argue that the biodiversity of the region has remained high because of the rocky sea bottom and the steepness of the coastline, which allow some species to escape from human access to some extent. In the Business as Usual scenario, although these species will most probably go extinct in shallower waters, they will continue to exist in deeper waters. This is why this stakeholder group considers Alternative 1 as not having "extremely bad," but "very bad" impacts.

They consider the worst impact to be illegal fishing, which involves amateur fishing, especially with spear guns. However, due to complex ecosystem dynamics, biodiversity studies could not determine whether the irreversible red line has already been crossed or not. Therefore, they argue that the commercial small-scale fishing has to be restricted as well, although it does not cause a high level of pressure on the ecosystem. If the red line has not been crossed, smaller restrictions and measures could be enough such that the conservation actions of Alternative 2 could be enough to restore the marine ecosystem. However, since the risk of overexploitation is very high, they rated the Alternative 2 as "moderate" since it does not include adequate marine conservation actions. The scientists assert that by controlling illegal fishing one can protect the bigger fish, and by restricting commercial small-scale fishing, one can protect smaller fish, both of which seem to be needed in the region according to them.

Another problem revealed by this group was that the region is under the threat of a massive wave of construction in terms of tourism facilities, ports and residential buildings with the aim of economic development. As a result, they evaluate Alternative 3 as having "more or less good," Alternative 4 as "good," and Alternative 5 as "very good" effects on the environment.

Demre Municipality

The representatives of Demre municipality state that they care for the marine resources and perceive today's situation and the Business as Usual Alternative 1 as "moderate." They perceive the positive impacts of using buoys instead of anchoring included in Alternative 2 and thus evaluate this alternative as "more or less good." The representatives also consider Alternative 3 as having important "good" impacts on them and explain their similar vision to ensure these activities such as the waste treatment project that they aim to implement in Kekova within two years.

Demre Municipality considers Alternative 4 and 5 as proposing very negative impacts on them, although they mention that they care for health and environmental standards. The main reason for the adverse effects is that the inhabitants of Demre are mostly engaged in greenhouse agriculture as their main economic activity. Therefore, these impacts on the municipality reflect mostly the possible negative economic effects on their voters. Alternative 4 is thus considered to have "very bad" impacts on Demre municipality.

On the other hand, there is the tendency towards attaining a higher level of economic development relying on the tourism sector that could increase the monetary flow to the region. With this purpose, there are big tourism investments

such as the construction of ports and big hotels, which leads the municipality to have a negative perception of Alternative 5 considering its impacts as "extremely bad."

Kaş Municipality

The head of Kaş municipality indicated in the interview that, in spite of budget constraints, the municipality puts the wastewater treatment and waste collection and recycling activities as priorities on their agenda. They do not perceive the current situation of marine resources to be in a very poor condition either. Hence, they consider the impacts of Alternative 1 as "moderate" and the ones of Alternative 2 as "more or less good."

The priority that Kaş municipality puts on waste treatment issues leads them to evaluate the impacts of Alternative 3 as being "good," in other words, better than the first two alternatives. Regarding the influence of Alternative 4 on the Municipality, they regard it as "very good," but they also mention that politically, marine zoning generates some reactions from different sides. On the other hand, they consider it very important that pesticides, solid and fluid wastes are not thrown into rivers, and say that this should be ensured through an increased level of education and awareness raising on environmental issues. Lastly, they evaluate Alternative 5 as having "very bad" impacts on them due to the high level of restrictions.

Comparing the comments of both municipalities comments, I argue that their positions are both affected by and affect the direction of development in their region. While Demre municipality prioritizes the development of touristic facilities and agriculture based on greenhouse farming, Kaş municipality does not consider the restriction of agricultural chemicals as imposing many adverse impacts. The Kaş

municipality rather seems to be concerned with the sea quality, although marine conservation actions may include some restrictions on them and on some other stakeholders.

Farmers

The main agricultural activity practiced in the region is greenhouse farming. Most of the farmers were previously engaged in animal husbandry or the cultivation of some legumes, such as lentils or chickpeas, which was a harder life for them and brought lower income. In general, the farmers consider the marine conservation alternatives and today's situation posing "bad" impacts on them.

Regarding Alternative 2, they think that using buoys would have a good impact on everyone, where a number of 150 buoys seem to be sufficient as well. They consider Alternative 2 as having a better environmental effect on them, but they are not happy with the restriction on amateur fishing, since some of the farmers fish with lights from small boats at night, the ban on which would affect them negatively in economic terms. Therefore, they evaluate this alternative as including "more or less bad" impacts in general.

Farmers find Alternative 3 to be the best one and perceive its impacts on pollution reduction as a positive development. They do not consider this action as an economically great burden, since the cost on the local budget will be shared among the local population. However, they still evaluate Alternative 3 as showing "moderate" impacts on them. They complain that the municipality's services for the inhabitants do not reach their villages; they even mention that the municipality does not collect their solid waste regularly and that they often have to burn it.

Regarding the use of chemicals in agriculture, they reported that they use an amount of pesticides reduced to one tenth in strength than before due to the legislations of the Ministry of Agriculture. They also complain about the lack of water they can use for farming and claim that they can hardly make a living from their level of production. This leads them to evaluate Alternative 4 as posing "very bad" impacts on them, since they would have to cut the use of chemicals in half. Closing Aperlai Bay near to Sahilkılınçlı village to amateur fishing is also considered very negatively both for social and cultural reasons, since amateur fishing is one of their free time activities and a cultural phenomenon which helps them to eat fish in an economical manner as well.

For the same reason concerning their agriculture practices, they argue that Alternative 5 would cause them to "starve to death," i.e. indicating "extremely bad" effects on them, since their farming practices almost totally shifted to greenhouse cultivation in last decades, which cannot be practiced without using chemicals.

Excursion Boat Operators of Kekova

Kekova is famous for its daily excursion boats. During the summer season, buses full of tourists arrive to Kekova for this activity. The excursion boat operators of Kekova react to the strict control and high penalties imposed on them by the Coast Guard. They claim that although they comply with rules for pollution prevention, their activity is still perceived as the main source of pollution. However, they mainly hold restaurants responsible for the pollution within the harbor.

They think of the current situation of marine resources, i.e. Alternative 1, as being "moderate," since they observe the decline in the fish population. Many of

them go fishing in the winter period as well, but mainly rely on excursion boats in the summer. They argue that fishing with spears should be restricted, which would have a positive impact on them and on environment. However, they are not pleased with the "more or less bad" marine conservation actions included in Alternative 2, since they claim that it poses restrictions only upon excursion boat operators, as it is generally the case according to them. They think that the obligation to use buoys instead of anchors will have adverse effects on them, since there are many small bays where they would face difficulties with many other boats mooring at the same place. According to them, buoying might be more applicable in the main harbor, where they could even benefit from its implementation and perhaps in some bays where they may stay outside of the bay by tiding the boats to one another, so that the inner part of these bays remain more untouched and beautiful. However, they in general consider the impacts of Alternative 2 worse than those of Alternative 1.

They evaluate Alternative 3 with marine protection actions of waste treatment and the implementation of a drainage system as "more or less good," since they claim that they care for the cleanness of the sea and since it not only imposes some burdens and restrictions on them, but also on other stakeholders.

Moreover, they evaluate Alternative 4 as having "bad" and Alternative 5 having "very bad" effects on them, since zoning proposals will impose considerable restrictions on their economic activity and in some bays they will not be allowed to take tourists to swim or to enter into these bays to stay at night.

Excursion Boat Operators of Kaş

The boat owners or people who organize daily excursion boats for tourists in Kaş are mostly local people who were born in the area. Previously, many of them were fishermen or farmers, but with the increase in tourism and with the shift of the region's main economic activity, most of them found this job better to earn a living. They perceive the Business as Usual as "more or less bad," since they are worried about the cleanness of the sea and size of the fish population in the region.

Regarding the marine protection alternatives, they consider the positive impacts of buoying on them. They think that 150 buoys for the entire Kaş-Kekova region is an adequate number. Therefore, with all other aspects being included, they evaluate the impacts of Alternative 2 as "moderate," which is better than the "more or less good" Business as Usual Alternative. They are against the use of spear guns, which will be strictly controlled in this option as well, but they do not want to accept the ban on amateur fishing from boats, since they perceive some methods to be very harmless to the environment.

Moreover, they claim that the actions preventing pollution would have a positive impact on them. They perceive that the cleanness and visibility of the sea is very important for the tourism sector. Hence, Alternative 3 becomes the one with the most positive impacts on them and is considered as "more or less good" due to environmental criteria, and they do not perceive its shared economic costs as a great burden.

Finally, in order to ensure marine protection and decrease the pressure on the marine environment caused by boats, they even propose a rotation for the use of buoys and for entering the bays. However, in general, they evaluate Alternative 4 and

5 as “bad” and “very bad,” respectively, since especially the last one imposes many restrictions on them.

To put all of the evaluations together, the option with most positively perceived impacts seems to be Alternative 3, which is followed by Alternative 2 or Alternative 4 depending on the stakeholder group (see Figure 2). However, for a thorough coalition formation analysis, one should not only investigate the ranking of the alternatives, but also how strongly alternatives are opposed to or supported by each group (see Figure 1). The setting of a scale ranging from “extremely bad” to “perfect” enabled this aspect to be included in the analysis as well, which I will explain below in detail. Important to note is that the coalition formation analysis does not search for the decision supported by the majority, rather, it looks for a point where groups’ interests converge and coalitions and consensus might occur.

Outcomes of the Coalition Formation Analysis Using NAIADE

After the detailed investigation in the first section of the positions of the ten stakeholder groups vis-à-vis marine conservation options, the second section presents a coalition formation analysis based on the information gathered during the fieldwork. In this section, I will first explain the technicalities of the NAIADE tool used for coalition formation analysis. Secondly, I will apply the NAIADE method to the ongoing environmental conservation failure regarding marine resources in the Kaş-Kekova region and examine the outcomes in this specific case. Thirdly, having presented the tool and its application in my case study, I will discuss the advantages and limitations of using NAIADE at the end of this section.

Novel Approach to Imprecise Assessment and Decision Environments (NAIADE) for Coalition Formation Analysis

Munda (2009) points out that the conventional method for evaluating common goods is cost-benefit analysis, which then plays an important role in the determination of their governance. However, he states that "it is worth remembering how economic values depend on inter- and intra-generational inequalities in the distribution of the burdens of pollution and in access to natural resources" (2009:308). Thus, adopting Martinez-Alier and O'Connor's argument (1996), Munda (2009) suggests that "externalities can be seen as 'cost-shifting' or as 'ecological distribution conflicts'." Therefore, to include different groups' varying valuations, perceptions and judgments into the analysis from a political ecology perspective, Munda (1995) developed a tool for coalition formation analysis called Novel Approach to Imprecise Assessment and Decision Environments (NAIADE).

Since, in my case, there are several users of marine resources with different levels of access to them, the extent to which they are affected by marine conservation alternatives differs substantially. As explained in the first section, different stakeholder groups have varying evaluations about marine conservation strategies and their interests often diverge. To analyze this problem, I will take the advantage of the NAIADE technique that can deal with qualitative information.

The NAIADE method enabled me to provide three types of information. First, the matrix shown in the first section provides a clear representation of the varying positions of the ten different groups. Secondly, NAIADE analyzes the distance between the judgments of these ten interest groups. By exploring the similarity of their judgments, it shows to what extent it is more likely for them to form a coalition;

in other words, to what extent their interests converge. To visualize this, NAIADE forms a tree-like Coalition Dendrogram (Figure 3), shown below in the second subsection, which demonstrates the possible coalition formations in an order with decreasing likelihood. Here, one can easily see which groups' interests converge at first stages and which of the others are likely to join them at the following nodes. Thirdly, NAIADE provides rankings of alternatives according to actors' preferences, which is updated after each coalition formation step as shown in the Veto Diagrams.

Social Preference Matrix

The Social Preference Matrix (Figure 1), formed by applying NAIADE, includes the list of alternatives in the columns and of stakeholder groups in the rows. For the analysis of the Kaş-Kekova case, it gives a linguistic indication of the judgments of the ten stakeholder groups for five marine conservation alternatives. This matrix facilitates the visual demonstration of each group's varying position in a scale ranging from "extremely bad" to "perfect" (from 1 to 9). After the generation of the matrix, the analysis continues with the exploration of the similarity of groups' positions, i.e. with the examination of the distance between their evaluations. To investigate how close or how similar they are to each other, the technique used in NAIADE for this coalition formation analysis conducts a pairwise comparison of each groups' evaluation for each alternative to the rest of the groups (Munda, 1995).

NAIADE allows attaching values to alternatives using a qualitative evaluation expressed by pre-defined linguistic variables such as "perfect," "moderate" and "more or less bad." These linguistic variables are defined in NAIADE by means of

fuzzy sets[12] that correspond to intersecting probability distribution functions (NAIADE Manual, JRC, 1996). This means that the evaluations indicated by linguistic variables are not treated as static points, and the distance between the judgments is not the distance between two points, but between two functions. To measure this, NAIADE uses the concept of semantic distance, which takes the position and the shape of the two functions into account (NAIADE Manual, JRC, 1996). In other words, the distance between the judgments 5 (moderate) and 4 (more or less bad), and 9 (perfect) and 8 (very good) are not the same, since in this framework, the distances between linguistic variables are defined by fuzzy functions with different distributions for each linguistic variable.

Munda (1995) argues that this method relying on fuzzy sets for the measurement of the performance of an alternative is very flexible for real world applications and enables the researcher to deal with the information affected by different types and degrees of uncertainty. This uncertainty refers to the fact that evaluating an alternative as "very good" is not the same for each person and provides a way to incorporate these differences into the analysis.

Coalition Dendrogram

By applying NAIADE, the data provided in the Social Preference Matrix are used for the formation of the dendrogram of the coalition formation process (Figure 4, showing its application to Kaş case) by investigating the similarity of each group's judgment. As De Marchi et al. (2000:276) explain, this graph illustrates "the

[12] See Appendix D for the intersection points of the functions that define each fuzzy set in the 0-1 scale and the respective membership values.

possibilities of convergence of interests among the various actors on the basis of the distance among their policy positions."

The Coalition Dendrogram shows the possibilities of convergence of interests, also called "possible coalition formations," with decreasing levels of likelihood, i.e. with diminishing similarity of the evaluations. To be more precise, stakeholder groups are represented with nodes in the dendrogram, and the values on the left of the diagram represent the credibility degrees of this convergence (i.e. coalitions) that are provided in a decreasing order from 1 to 0.5. Thus, 1 refers to the lowest degree of divergence among groups' interests, whereas 0.5 indicates the highest possible degree of divergence. In other words, 1 represents no distance between two groups' positions, while 0.5 points the greatest possible distance between them and a very low possibility for these groups to build a coalition. De Marchi et al. (2000: 276) explain that these results provided in the dendrogram have rather a "heuristic predictive value (in the sense of possible outcomes), but not a descriptive one." As a result, this graph clearly implies how tight the coalitions are; in other words, to what extent groups' interests converge.

Veto Diagrams

At each node where two or more lines intersect, i.e. each time when two or more groups enter into a coalition, NAIADE generates a new Veto Diagram. This has two implications. On the one hand, it shows the preference ordering of each coalition. On the other hand, it indicates vetoed alternatives by this coalition, if there are any. These vetoed alternatives affect other groups' actions in terms of whether they join the coalition at other nodes or establish another coalition among the rest of the

groups. In some cases, the entrance of a group into the coalition changes the preference ordering of the coalition and the alternative they are vetoing as well. Below, Figure 2 shows the veto diagram and preference ordering occurring at the last node, where all of the groups come together but with a very low credibility equaling to 0.5055. Although the likelihood that all groups come into such a common compromise seems very low, it is important to note that the veto diagram meanwhile indicates that all actors prefer a deviation from the Alternative 1, i.e. Business as Usual. This result gives an insight into a possible negotiation process between actors, and implies which alternative leads to a greater level of convergence of interests. For a detailed examination of each step of the analysis, the veto diagrams for each node, i.e. for each group joining one coalition, which occurs nine times with 10 groups, are provided in the Appendix with additional technical information on NAIADE.

Last but not least, it is important to underline that in this case I applied the NAIADE method with a linguistic variables scale ranging from "extremely bad" (corresponding to 1) to "perfect" (corresponding to 9). I did not ask the participants for a preference ordering of 5 conservation options, but I expected from them to evaluate these marine conservation alternatives' impacts on them according to this scale with 9 possible evaluations. This enabled me to investigate the intensity of their positions as well. Otherwise, I would not be able to find out whether one group is evaluating its first best choice as having "perfect" or "moderate" impacts on them. The advantages of applying this method will be discussed further below.

Fig. 2 The veto diagram

Analysis of the Coalition Dendrogram in the Kaş-Kekova Case

For the coalition formation analysis of the Kaş-Kekova case, it is important to remind the reader how the ten stakeholder groups positioned themselves vis-à-vis the five marine protection alternatives (See Figure 1). As De Marchi et al. (2000) state, given the importance of a variety of valuations for the environmental problems at hand, the formation of a matrix clarifying the impacts of different courses of action on each different interest group can be very helpful for resolving the conservation failure. To unfold these differences, the investigation of the Kaş-Kekova case was developed by applying a coalition formation analysis procedure that shows the groups whose interests seem to cluster together (De Marchi et al., 2000:269).

The table provided below (Table 2) gives a summary of how the actors rank the alternatives. This table does not give the intensity of their preferences as was demonstrated in the Social Preference Matrix (Figure 1) with a scale ranging from 1 to 9. It only gives the order of their choices. As one can see, although the ranking of alternatives does not differ substantially among the ten actor groups, the difference in the intensity of the evaluations, i.e. whether the best alternative is evaluated as "moderate" (corresponding to 5) or as "perfect" (corresponding to 9), leads to important variations in the interpretation of the results. This characteristic of the analysis is important while investigating the coalition formation process. As illustrated below with the Coalition Dendrogram (Figure 3), the first coalition will therefore not occur among the two groups that have the same preference ordering, but among the two that share more or less the same intensity when they position themselves towards the five alternatives.

Table 2. Ranking of Alternatives According to Each Actor (from most to least preferred)

Excursion boat operators of Kaş	Excursion boat operators of Kekova	Farmers	Kaş Municipality	Demre Municipality	Environmental NGOs and scientists	Hotel owners	Restaurant owners	Diving centers	Fishermen
A3	*A3*	*A3*	*A4*	*A3*	*A5*	*A2*	*A3*	*A3*	*A4*
A2	*A1*	*A2*	*A3*	*A2*	*A4*	*A3*	*A2*	*A2*	*A3*
A1	*A2*	*A1*	*A2*	*A1*	*A3*	*A1*	*A4*	*A1*	*A2*
A4	*A4*	*A4*	*A1*	*A4*	*A2*	*A4*	*A1*	*A4*	*A1*
A5	*A5*	*A5*	*A5*	*A5*	*A1*	*A5*	*A5*	*A5*	*A5*

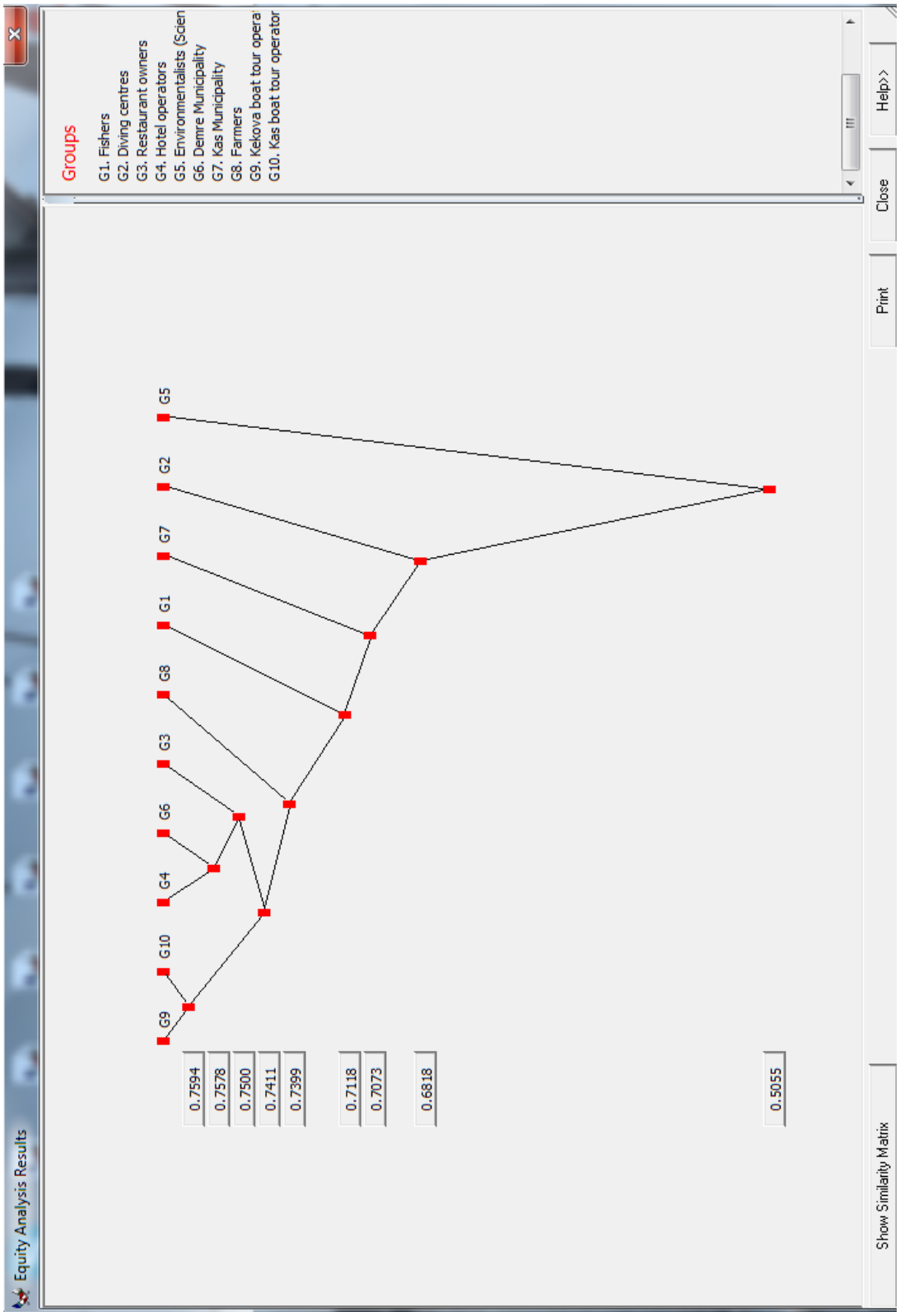


Fig. 3 The coalition dendrogram

NAIADE generates the above graph, i.e. the dendrogram of coalition formation (Munda, 1995). At the right hand side, the Coalition Dendrogram illustrates the list of ten stakeholder groups included in the coalition formation analysis. The main tree-like figure demonstrates the convergence of ten actor groups' judgments with a decreasing likelihood. As explained before, the values on the left hand-side corresponding to the intersection of two or more lines at each node range from 1 to 0.5, where 1 refers to a perfect resemblance of two groups' decisions and thus indicates the highest likelihood for a coalition, and 0.5 implies the opposite.

In this case, the first two groups whose interests converge are the excursion boat operators of Kaş and Kekova, with a credibility degree of 0.7594**.** The outcome of the coalition formation analysis implies that the interests of both groups are mostly parallel to each other. Since they have the least distance between their decisions, they are the first possible ones to form a coalition. The next resemblance is observed among the positions of hotel owners and Demre municipality, and the restaurant owners that join their coalition one step later. This means that restaurant owners have a slightly greater distance to the other two actors' judgments. After these first three coalition formations, the first five groups, i.e. excursion boat operators of Kaş, excursion boat operators of Kekova, hotel owners, Demre municipality and restaurant owners, may come to a common compromise at the next step. Since at each coalition node, NAIADE generates a new ranking for alternatives valid for that coalition, the updated ranking after these five groups showed a convergence of interest is the following:

1. Alternative 3 (C) – Buoying with waste treatment

2. Alternative 2 (B) - Buoying

3. Alternative 1 (A) – Business as Usual

4. Alternative 4 (D) – Buoying with waste treatment, zoning and restriction on chemicals in farming

5. Alternative 5 (E) - Buoying with waste treatment, strict zoning and ban on chemicals in farming

All other stakeholder groups seem to have much more individualistic features, because they are not likely to form any coalition among themselves, but might join the existing coalition with a lower likelihood in each stage, since their evaluations differ to a greater extent. Farmers, fishermen, Kaş municipality, diving centers and environmentalists, respectively will join the coalition of the first five stakeholder groups.

However, the last steps of the coalition formation where the level of similarity declines to 0.6818 and even to 0.5055 are very unlikely to occur, since the credibility degree gets very close to 0.5. In other words, the distance between groups' positions becomes substantially wide. This indicates a loose coalition among them because their preferences are less similar.

The Advantages and Limitations of NAIADE

Advantages

NAIADE provides a clear insight into the ongoing environmental conservation failure by analyzing the positions of ten groups towards five different marine conservation alternatives using pairwise comparison technique. This method enables

the investigation of the conservation issue where numerous groups are involved, each of which shapes the possible coalition formations in a certain direction. The application of NAIADE enabled me to compare all of the actors' interests with respect to one another and to generate their ranking of alternatives based on how close their interests are to each other.

As I argued at the beginning of this thesis, different groups possess different levels of access to and control over marine resources. Thus, each of them is being affected to a different extent by several marine conservation actions. NAIADE provides a tool to analyze how groups' perceptions and the impacts of different courses of action on them may diverge. Moreover, acknowledging that marine conservation entails varying burdens and benefits for different actors, the analysis with the NAIADE method meanwhile enabled me to find out what kind of a convergence of interests, in other words coalition formations, are most likely to occur based on the similarity of groups' judgments.

Furthermore, the use of NAIADE for the coalition formation analysis enabled me to examine the intensity of groups' judgments as well. All stakeholder groups assessed the alternatives with linguistic variables ranging from "extremely bad" to "perfect" with nine possible evaluations for each alternative. This allowed the investigation to go beyond a preference ordering and to see whether their best choice indicates "perfect" or "moderate" impacts on them. In this way, one can understand how intense the social actors consider the impacts of each alternative on them. The outcomes of the coalition formation analysis showing which groups are most likely to form a coalition are influenced by this intensity of evaluations as well. The difference in intensity made the analysis more reliable in terms of the coalition

formation by indicating the tightness of coalitions. Otherwise, any group with the same ordering of five alternatives would be assumed to have the same evaluation.

Finally, this analysis may provide insights for policy formation, since it implies which groups' positions mostly converge and where they most probably may come into a common compromise. It helps to gain a thorough understanding of what kind of a dynamic conflict resolution and co-management process could be established among actors. As I argued before, the governance of natural resources is not only a technical issue, but also a political and socioeconomic one, where cost-benefit analyses or top-down measures would remain ineffective and inadequate. Therefore, the political ecology perspective combined with the NAIADE tool for coalition formation analysis might help to generate dynamic co-management principles to ensure the local sustainable management of common marine resources.

Limitations

One limitation of NAIADE is that the Coalition Dendrogram displays all stakeholder groups as if they possess the same level of local agency to influence the decision-making or the coalition formation. Obviously, in reality, the power issue is not that simple**,** and coalition formation processes may diverge according to the local agency level of each actor group. Some stakeholders may have greater access to information; they might be more capable of coming together and, thus, may shape the possible coalition formation and the access to marine resources in the way they desire. This is why I discussed the local dynamics and groups' level of local agency in the previous chapter. Nevertheless, the study of power dimension requires another detailed analysis that is beyond the scope of this thesis.

Moreover, assuming that stakeholder groups are homogenous entities should not be leading to a mechanistic understanding of society. I acknowledge that individual decisions are shaped by complex social ties and relationships in such a way that a person cannot be restricted to belonging solely to one group of people. Different social actors are in fact affecting and being affected by each other. However, the way in which people relate themselves to marine resources and the manner in which they use them highly influence their position towards conservation alternatives, which, in this case, has proven to be true.

As a result, in this chapter, the use of the NAIADE method for the coalition formation analysis enabled me to provide a clear image of the ongoing local environmental conservation failure in the region, where many actors are involved simultaneously, some of which have significantly different positions from each other. Hence, the NAIADE method helped to examine these differences in stakeholder groups' judgments involving the intensity of their perceptions about how they would be affected by different types of marine conservation alternatives. Moreover, it allowed investigating how close their positions are to each other and which coalitions might be formed based on the similarity of their judgments by looking at the distance in fuzzy sets, enabling to involve the uncertainty of decision-making process as well. Munda, in this respect, claims that "mathematical approaches cannot of course be a panacea able to resolve all real-world conflicts; but they can help to provide more insight into the nature of these conflicts by providing systematic information" (2009:307). Furthermore, they facilitate to find "potential social compromises by making a complex situation more transparent to policy-makers and lay people" (2009:307).

In this case, a possible common compromise seems to occur in Alternative 3, but since this gathering has a very low degree of credibility showing the divergence of groups' evaluations, it is not a perfect solution that could lead to consensus. The negotiation process involves a coordination problem as well, where a certain body or group of people has to enable the participation of all groups in decision-making and establish some kind of consensus. Being aware that the environmental conservation failure, coalition formations and possible co-management strategies all involve dynamic features, providing this snapshot of the problem may give valuable inputs to decision-making processes in order to reach a common compromise.

CHAPTER 5

CONCLUSION

This thesis investigated the political ecology of access to natural resources by focusing on the ongoing environmental conservation failure between different actors using the same common pool resource, i.e. fisheries and marine resources. Through an examination of the local problem related to the access to marine resources and their governance in the Kaş-Kekova region, which is very rich in terms of these natural assets, the study aimed to find out how local stakeholders position themselves towards varying marine conservation options and to what extent their interests are likely to converge.

The application of the political ecology framework led to a more comprehensive analysis of the ongoing degradation and local dynamics in Kaş-Kekova, since this approach considers the conservation issue not only as an ecological and technical problem, but also as an economic, social and political one. Being aware of the fact that outcomes of possible coalitions affect different stakeholders to varying degrees, the study relied on the wide literature on political ecology that underlines the fact that sustainable governance of commons, where several actors make use of the same resource, requires a careful investigation of the dynamics in all of these dimensions. From this point of view, the coalition formation analysis at the local level gave deeper insight into the uneven distribution of burdens and benefits of any possible conservation alternative and environmental governance policy.

Based on my argument that local level sustainable management of commons cannot be ensured without constituting consensus between different stakeholder groups who use the resources, this thesis focused on local considerations of the possible impacts of marine conservation strategies. Therefore, in my research, I conducted a coalition formation analysis and investigated the evaluations of ten different stakeholder groups about five different marine protection alternatives. This part formed the examination of the local layer of governance problem, which is crucial to understand in which ways their positions could converge and how likely it is for different groups to form coalitions and where a common compromise would appear.

After the explanation of my objective and hypothesis in the introduction, in the second chapter, I described the Kaş-Kekova region from a historical and institutional perspective by focusing on two issues. First, I explained the social, economic, demographic, ecological and administrational characteristics of the area and drew attention to the ongoing environmental degradation. The clarification of the region's multidimensional features provided insight into why I have chosen this site as the case study for my local analysis.

Secondly, I placed my case into the broader context of environmental governance in Turkey from a political ecology perspective. By critically evaluating Turkey's sociopolitical setting in terms of environmental regulation, I discussed how this relationship manifests and reproduces itself in the case of Kaş-Kekova. Elaborating on this aspect, I pointed out the ineffectiveness of environmental regulation in terms of guaranteeing marine resource conservation in the region. After acknowledging the inability and/or unwillingness of the Turkish state to ensure environmental protection (following Adaman and Arsel, 2012), I explained the

emergence of a need for a local stakeholder analysis, since I argued that the legislations determined without taking local actors and their positions into account can hardly become successful regarding their implementations, as has been evidenced in the Kaş-Kekova region. With reference to the political economy of environmental conservation failures in Turkey (following Adaman et al., 2009; Akbulut and Soylu, 2012), I indicated that what I am describing is part of a more general phenomenon of ineffective environmental protection observed not only in the case of marine conservation, but also in the management of other types of natural resources.

While the second chapter discussed the historical and institutional analysis from a political ecology perspective, the third chapter explained the core of my field study. In this chapter, I first made a detailed presentation of social actors based on the qualitative data I gathered from the interviews with stakeholders, who are all users of marine resources with different purposes. These stakeholder groups were fishermen, diving centers, excursion boat operators in Kaş, excursion boat operators in Kekova, hotel owners or managers, restaurant owners or managers, farmers, the municipality of Kaş, the municipality of Demre, and a mixed group composed of scientists and environmental NGOs.

Furthermore, I described the methodology used for fieldwork consisting of focus group discussions and in-depth interviews and explained why I have chosen these ten stakeholder groups. Consequently, I introduced five different marine conservation alternatives and marine conservation actions they involve, which I presented to the ten stakeholder groups during the fieldwork. These alternatives were provided with their possible costs and burdens to each stakeholder and also with future projections in order to ensure that stakeholders can realistically evaluate them.

Last, the third chapter examined the relations of these stakeholders and local dynamics in a detailed manner. Given that different aspects constituting actors' level of local agency affect their ability to take part in the decision-making and to influence local decisions, I discussed (along the methodology proposed by Özkaynak and Rodriguez-Labajos [2010]) to what extent these ten groups possess access to information, wealth, social mobilization history and social networking, coordination skills and lobbying possibilities. With the information about the stakeholders and marine protection alternatives presented in this chapter, the third chapter laid the ground for the analysis of the ongoing environmental conservation failure and coalition building in the fourth chapter.

Based on the information about the actors and marine protection alternatives offered in the third chapter, in the fourth chapter I analyzed the data gathered from the field in two steps. First, I tried to uncover each local stakeholder group's evaluation about the possible impacts of different marine conservation alternatives. To achieve this, the first section of this chapter represented the judgments of the ten stakeholders groups towards five different marine conservation alternatives in an Social Preference Matrix entailing linguistic variables generated by the NAIADE tool (Munda, 1995), which made it possible to illustrate the position of each stakeholder group together in a clear depiction. In this section, I explained which attempts they found more preferable according to social, economic, political and ecological criteria. My findings were compatible with my prior argument that different groups of people are affected at varying levels from natural resource conservation. With the information I presented via the stakeholder analysis, I laid the ground for the analysis of the ongoing environmental degradation problem and coalition building in the second part of the fourth chapter.

In the second section, I used the Novel Approach to Imprecise Assessment and Decision Environments (NAIADE) method developed by Munda (1995) in order to conduct the coalition formation analysis. Through a pairwise comparison of the previous data represented in the matrix, i.e. stakeholder groups' judgments for each conservation option, I generated the relevant Coalition Dendrogram of NAIADE, which indicated to what extent these groups' positions are similar to each other and how tight these coalitions would be. The outcomes of the Coalition Dendrogram indicated that the first convergence of interests occured between excursion boat operators of Kaş and Kekova. Although they have some important different considerations that hinder them from being put into the same stakeholder group, the result showed that their positions are the most similar ones.

Secondly, actors working in the tourism sector such as restaurant and hotel owners or managers, seemed to be likely to come together with Demre municipality according to their evaluations of marine conservation alternatives and their possible impacts on them. Other stakeholder groups, i.e. farmers, fishermen, Kaş municipality, diving centers, and environmental NGOs and scientists showed a decreasing similarity in their preferences with the first two coalitions. The outcome of the coalition formation analysis indicated a possible convergence of all groups in Alternative 3, which consists of actions such as establishment of buoys and the prohibition of anchoring, control of illegal fishing activities and investments to ensure a better waste management system. However, this final convergence of all groups displayed a very low likelihood close to the lowest possible level of 0.5, which at the same time implied a low likelihood and difficulties for a consensus formation.

Lastly, the second section discussed the advantages and limitations of using the NAIADE tool for coalition formation analysis. Although I acknowledge that NAIADE technique involves some assumptions such as the homogeneity of the groups and actors' equal level of capability to influence decision-making, its strength lies in its capability to analyze all of the groups simultaneously and to clarify their positions and possible coalition formations. This way, it offers systematic information and enables a deeper understanding of these environmental conservation problems. Therefore, it helps to conduct possible negotiations in society since it makes a complex picture of conflicting interests clearer and easier to be handled with for policy-makers (Munda, 2009).

Finally, this thesis contributes to the literature of political ecology of natural resource access in Turkey by focusing on the ongoing environmental conservation failure in terms of marine resources in the Kaş-Kekova region. Since natural resource access and conservation cannot be considered only in ecological terms, the inclusion of social, economic and political aspects become highly important, where my work moved a step forward especially considering the lack of sufficient political ecology studies in Turkey. The main contribution to the literature is the investigation of several stakeholder groups' positions towards different marine protection alternatives and the related coalition formation analysis. To achieve this, I provided a clear representation of the ongoing environmental protection problem and analyzed possible coalition formations of these actors relying on the similarity of their preferences and valuations of natural resource.

In addition, with a discussion of the local agency aspect, although briefly, I was able to point out that the access to natural resources depends on the actors' ability to influence the governance structure. How and to what extent stakeholder groups can

make use of marine resources depends on their levels of local agency and relations among them as well. Therefore, the effect of local agency level on the conservation failure and decision-making process is another important aspect discussed in this thesis. This dimension would call for further research to argue in which direction the outcome of coalitions may move within different dynamics.

As a result, this thesis provides insights into the local dynamics of a natural resource co-management problem, which should be considered in policy formation processes in order to ensure that different users are not unevenly, negatively affected by the marine conservation alternatives and thus in order to guarantee their participation in decision-making and compliance with the conservation actions. In light of the analysis of the conservation problem, coalition formation and local dynamics provided in this thesis, policy makers might take these results into account, showing that "business as usual" is not the favored option for any stakeholder group. This implies that there are local concerns on a greater level for marine protection in the Kaş-Kekova region, and policy-making has to move towards a more participatory consensus-building process, which would ensure both environmental conservation and a more even distribution of its social, political and economic costs and benefits.

It is important to remind the reader that the evaluation of possible alternative policies is not a one-shot game (Munda, 2004), and policy formation has to take the dynamism of this learning process into account. The positions of stakeholders towards policy alternatives may change over time, and this is why such analyses gain greater importance. They facilitate the following of local dynamics and allow a flexibility and adaptation capacity to policy analysis. With respect to this, further research on the political ecology of the conservation problem in the region should

include a more detailed analysis of the power dimension in the region with additional social scientific studies focusing on the governance aspects.

Moreover, further investigation on possible co-management strategies could provide some down-to-earth solutions by taking the local actors' decisions and interests into account. As defined by Berkes (2005), co-management is a dynamic collaboration between resource users and the decision makers, where the governance takes a form in which the power to determine access and the responsibility to protect the resource are shared. Thus, for the establishment of any co-management system, the assessment of actors' access to information, economic wealth, and coordination and organization capacity is crucial, where the goal has to be ensuring all of the actors' recognition and participation. Moreover, reshaping the legislations according to local people's considerations would help to ensure the compliance with environmental regulations. As in any case of natural resource governance, policy formation requires forming a dynamic negotiation process generating consensus, for which further social science studies are necessary to include various dimensions such as social, economic, political and ecological as much as possible.

APPENDIX A

MAP OF THE KAŞ-KEKOVA REGION

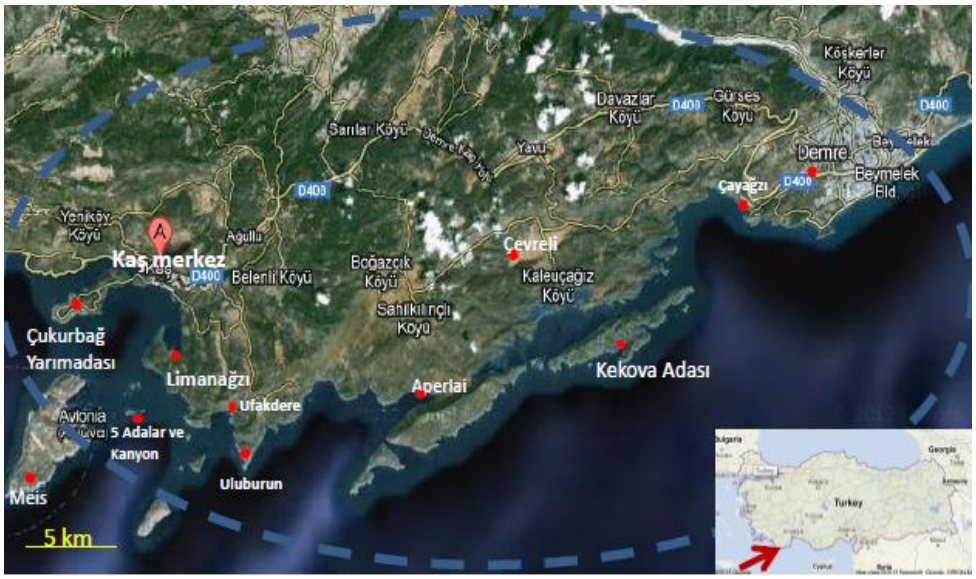


Fig. 4 Map of the Kaş-Kekova region

APPENDIX B

KAŞ-KEKOVA SPECIAL ENVIRONMENTALLY PROTECTED AREA BORDERS

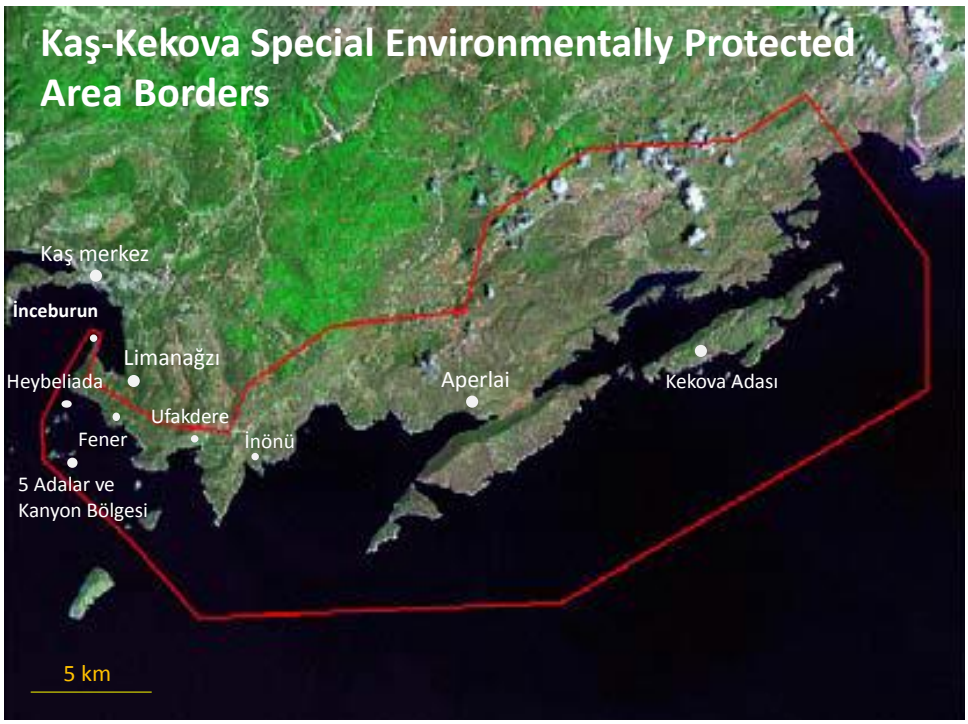


Fig. 5 Map of the Kaş-Kekova Environmentally Protected Area

APPENDIX C

RESULTS OF BIODIVERSITY STUDIES (Tural, 2010)

** Variation of P.pagrus and the grouper species' visual frequency per dive according to the years in Kas region*

		E. marginatus		*E. costae*		*E. aeneus*		*E. caninus*		*E. haifensis*		*M. rubra*		*P. pagrus*	
Year	Number of dives	n	gs	n	gs	n	gs	n	gs	n	gs	n	gs	n	gs
2002	136	959	7,05	169	1,24	16	0,12	16	0,12	1	0,01	63	0,46	100	0,74
2006	130	319	2,45	313	2,41	6	0,05	1	0,01	2	0,02	92	0,71	6	0,05
2009	129	194	1,50	279	2,16	20	0,16	4	0,03	0	0,00	27	0,21	11	0,09

n: number of recorded individuals , gs: *visual frequency per dive*

** Variation of P.pagrus and the grouper species' visual frequency per dive according to the years in Kekova region*

		E. marginatus		*E. costae*		*E. aeneus*		*E. caninus*		*E. haifensis*		*M. rubra*		*P. pagrus*	
Year	Number of dives	n	gs	n	gs	n	gs	n	gs	n	gs	n	gs	n	gs
2002	145	575	3,97	142	0,98	7	0,05	10	0,07	5	0,03	80	0,55	56	0,39
2009	139	120	0,86	108	0,78	16	0,12	1	0,01	1	0,01	28	0,20	3	0,02

n: number of recorded individuals , gs: *visual frequency per dive*

Fig. 6 Results of biodiversity studies

APPENDIX D

NAIADE TECHNIQUE

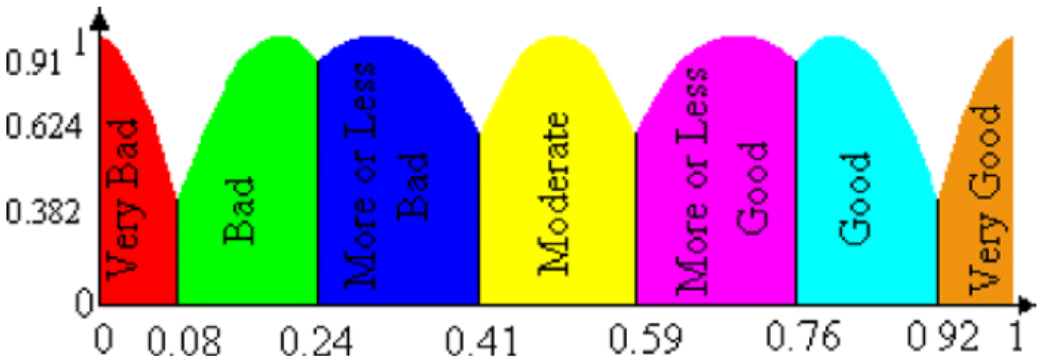


Fig. 7 Evaluation scores
Evaluation scores represented by means of linguistic variables (x-coordinates are arbitrary numerical scores and y-coordinates membership degrees)

APPENDIX E

LIST OF THE PARTICIPANTS

Restaurant owners:

- Female, came from Antalya to live in Kaş 11 years before, around 35, owns and manages a small restaurant
- Male, was born in Kaş, head of a tourism association, around 55, owns a big restaurant
- Male, was born in Kaş, around 40, manages a cafeteria

Hotel owners:

- Male, came from Adana, manager of a big hotel for 12 years, around 40
- Male, was born in Kaş, manager of a hostel, around 40
- Male, was born in Kaş, owns two hotels, 48 years old, head of an association

Fishermen:

- Male, 36 years old, born in Kaş, engaged in fishing for 28 years, member of Kaş Fisheries' Cooperative
- Male, 42 years old, born in Kaş, engaged in fishing for 25 years, former head of Kaş Fisheries' Cooperative
- Male, 43 years old, born in Kaş, engaged in fishing for 10 years, not a member of Kaş Fisheries' Cooperative
- Male, 45 years old, born in Kaş, engaged in fishing for 35 years, former head of Kaş Fisheries' Cooperative
- Two other male fishermen born in Kaş who did not want to participate officially, but shared their views

Diving centers:

- Male, 30 years old, engaged in fishing for 4 years and works in Kaş in a diving center for 3 years
- Male, around 35 years old, captain of a diving boat
- Male, 32 years old, born in Kaş, works as dive instructor in one of the diving centers for the last 10 years

- Male, around 35 years old, works as dive instructor in one of the diving centers

Farmers:

- Male, 25 years old, born in Sahil Kılınçlı village which is located between Kaş and Demre, engaged in greenhouse farming, works in diving boats in the summer
- Male, 40 years old, born in Sahil Kılınçlı village, has been engaged in animal husbandry, but now engaged in greenhouse farming for the last 6-7 years
- Female, 25 years old, born in Sahil Kılınçlı village, engaged in greenhouse farming
- Female, around 35 years old, born in Sahil Kılınçlı village, engaged in greenhouse farming
- Male, around 40 years old, born in Sahil Kılınçlı village, engaged in greenhouse farming

Excursion boat operators of Kaş:

- Male, 40 years old, born in Kaş, previously engaged in fishing and worked as captain of diving boats, now has his own boat and organizes excursions for tourists
- Female, 35 years old, born in Kaş, works together in excursion boat with her husband
- Male, around 40 years old, born in Kaş, has been working in the tourism sector since 1990
- Male, around 40 years old, born in Kaş, relative of the head of boat owners' association

Excursion boat operators of Kekova:

- Male, 35 years old, born in Kale/Üçağızlı village, head of the recently established cooperative
- Male, 40 years old, born in Kale/Üçağızlı village, very recently joined the cooperative
- Male, around 65 years old, born in Kale/Üçağızlı village, former fishermen, still engaged in fishing during winter
- Female, around 60 years old, born in Kale/Üçağızlı village, works together in an excursion boat with her husband, previously engaged in fishing with her father and husband

Environmental NGOs and scientists:

- Male, around 40 years old, lives in İstanbul, marine biologist, participated in biodiversity studies
- Female, around 35 years old, lives in İstanbul, environmental scientist, participated in biodiversity studies
- Female, around 30 years old, lives in İstanbul, marine biologist, participated in biodiversity studies and environmental NGOs
- Male, around 35 years old, lives in İstanbul, marine biologist, participated in biodiversity studies

Kaş municipality:

- Two male representatives from the municipality with administrative duties, around 50 years old and born in Kaş

Demre municipality:

- Two male representatives from the municipality with administrational duties and from the environment department, both around 45 years old and born in Demre

Other in-depth interviews:

- Local journalist
- Representative from Kaş Governorship
- Representatives of different NGOs in Kaş
- Informal interviews with diving centers

APPENDIX F

EVALUATION FORMS

Tarih:

İsim, yaş, cinsiyet:

Kaç senedir bu işle ilgilenmekte ve kaç senedir Kaş-Kekova Bölgesi'nde ikamet etmekte?

Alternatif 1	Alternatif 2	Alternatif 3	Alternatif 4	Alternatif 5
Bugünkü gidişatın sürdürülmesi	Şamandıralama ve deniz alanı kullanımında kısıtlar	Şamandıralama, deniz alanı kullanımında kısıtlar ve kirlilik önleyici altyapı yatırımları	Şamandıralama, deniz alanı kullanımında kısıtlar, kirlilik önleyici altyapı yatırımları ve deniz alanını bölgelere ayırma	Şamandıralama, deniz alanı kullanımında kısıtlar, kirlilik önleyici altyapı yatırımları, avcılık ve turizm kısıtları

Puanlama:

1: Aşırı kötü 2: Çok kötü 3: Kötü 4:Biraz kötü 5:Orta 6: Biraz iyi

7: İyi 8: Çok iyi 9: Son derece iyi

Alternatiflerin İçerdiği Eylemler:

Alternatif 1: Bugünkü gidişatın sürdürülmesi

- Daha etkin koruma için herhangi bir önlem alınmıyor.
- Bugünkü durum, çevreye zarar veren eylemler, altyapısal eksiklikler ile çevresel tahribat devam ediyor.
- Turizm ve yapılaşma bugünkü seyrinde artmaya devam ediyor.
- Hem denizi hem karayı etkileyen atıklar ve kirlilik yükseliyor.

Alternatif 2: Şamandıralama ve deniz alanı kullanımında kısıtlar

- 150 adet şamandıra yerleştirilecek ve çapa kullanılmayacak.
- Jet ski ve sürat teknesi kullanımı yasak olacak.
- Balık çiftliği kurulması yasak olacak.
- Amatör avcılık lisansa bağlanacak, tekneden amatör avcılık yapılamayacak ve cezai yaptırımlar yüksek olacak.
- Yasadışı avcılığı kontrolle görevli bir denetleme botu bulunacak.

Alternatif 3: Şamandıralama, deniz alanı kullanımında kısıtlar ve kirlilik önleyici altyapı yatırımları

- Alternatif 2'deki eylemler
- Otellere ve kıyıdaki diğer işletmelere atık su arıtma sistemi zorunluluğu getirilecek.
- Çukurbağ'a ve Kale/Üçağız'a (Kekova) kanalizasyon sistemi kurularak evlerin ve otellerin buna bağlanması sağlanacak. Tüm bölgede atık su deşarjları yasaklanacak.
- Evsel atıkların ve inşaat atıklarının denize atılmaması sağlanacak.
- Tekne bakımı ve onarımı atıklarının denize ulaşmaması için uygun çekek yeri yapılacak.
- Bir adet tekne ve personeli teknelerden katı atık toplama işlemi gerçekleştirecek.

Alternatif 4: Şamandıralama, deniz alanı kullanımında kısıtlar, kirlilik önleyici altyapı yatırımları ve deniz alanını bölgelere ayırma

- Alternatif 3'teki Eylemler
- Tarımda kimyasal kullanımı yarıya indirilecek.
- Deniz alanı; temel koruma bölgelerine ve tampon bölgelere ayrılarak ticari ve amatör avcılık ile dalış yapılabilecek alanlar biyolojik çeşitliliğin devamını sağlayacak şekilde düzenlenecek.

1) Katı koruma bölgesi (Sadece bilimsel çalışmaya açık alan)
Heybeliada civarı, Ufakdere koyu ve Aperlai koyu

2) Avcılık dışı temel koruma bölgesi (Ticari ve amatör avcılığa kapalı alan)
Limanağzı bölgesi, Beş Adalar'ın dış kısmı ve kanyon, Kekova Adası'nın dış tarafındaki iki koy.
Sadece Kaş Su Ürünleri kooperatifine bağlı kıyı balıkçılarına Limanağzı koyunda ve Beş Adalar'da palamut avı serbest

3) Küçük ölçekli balıkçılık bölgesi (Amatör avcılığa ve dalışa kapalı alan)
İnce Burun'dan Fener'e ve İnönü'den Aperlai koyuna devam eden alan

Küçük ölçekli ticari balıkçılık bölgede serbest olacak. İnönü koyu civarında dalış da serbest olacak.

4) Genel kullanım bölgesi:
Diğer deniz alanlarında sadece kıyıdaki kayalardan amatör balıkçılık yapılabilecek. Ticari balıkçılık yerel kıyı balıkçılarıyla sınırlı olacak.

Alternatif 5:

- Alternatif 4'teki eylemler
- Alternatif 4'te belirtilen ilk 3 bölgenin tümünde amatör avcılık yılın her dönemi yasaklanacak.
- Alternatif 4'te belirtilen ilk 3 bölgenin tümünde ticari avcılık yılın her dönemi yasaklanacak.
- Heybeliada ve 5 Adalar bölgesinde dalış yapılmayacak.
- Yapılaşma artışına ve turizm tesisi sayısına sınırlama getirilecek: Bölgenin turizm gelişme sahası belirlenecek, 2 kattan yüksek yeni bina yapılamayacak, ~200 yatak kapasitesinden büyük konaklama tesisi kurulamayacak.

Date:

Name, age, gender:

For how many years has s/he been in this business and living in the Kaş-Kekova region?

Alternative 1	**Alternative 2**	**Alternative 3**	**Alternative 4**	**Alternative 5**
Business as usual	Buoying and restrictions on marine use	Buoying, restrictions on marine use, and infrastructure related to waste management	Buoying, restrictions on marine use, infrastructure related to waste management, limit on agricultural chemicals and zoning of the marine area	Buoying, restrictions on marine use, infrastructure related to waste management, ban on agricultural chemicals and stricter zoning of the marine area

Evaluation:

1: Extremely bad 2: Very bad 3: Bad 4: More or less bad 5: Moderate

6: More or less good 7: Good 8: Very good 9: Perfect

Actions included in the alternatives:

Alternative 1: Business as usual

- No measures are being taken for a more effective protection.
- Environmental degradation continues because of the present circumstances, the actions damaging the environment, and the deficiency in infrastructure.
- Tourism and construction continues with the same pace.

Alternative 2: Buoying and restrictions on marine use

- 150 buoys will be placed and the use of anchors will be banned.
- The use of jet-ski and power boat will not be allowed.
- Installing fish farms will be forbidden.
- Amateur fishing will be licensed. Amateur fishing from boats will be prohibited, and the penalties will become higher.
- An inspection boat to control illegal fishing will be on duty.

Alternative 3: Buoying, restrictions on marine use, and infrastructure related to waste management

- The marine conservation actions included in Alternative 2
- The hotels and other enterprises at the coast will have the obligation to install wastewater treatment facilities.
- In Çukurbağ and Kale/Üçağız (Kekova), a drainage system will be installed, and houses and hotels will be connected to them. Discharge to the sea will be prohibited.
- It will be secured that domestic and construction wastes will not be discharged to the sea.
- There will be a suitable area for the maintenance activities of the boats to hinder the discharge of chemicals to the sea.
- One boat and its personnel will collect solid wastes from the boats.

Alternative 4: Buoying, restrictions on marine use, infrastructure related to waste management and zoning of the marine area

- The marine conservation actions included in Alternative 3
- The use of chemicals in agriculture will be reduced by half
- Marine area will be divided into core zones, buffer zones, and extensive use zones. The allowed activities will be determined accordingly to ensure the sustainability.

1) Strict protection zone: (Only scientific research allowed)
Heybeliada Island, Ufakdere Bay and Aperlai Bay

2) No-fishing zone: (Commercial and amateur fishing not allowed)
Limanağzı region, the outer part of Five Islands and Kanyon, two bays in the south of Kekova Island (a-b).
The only exception is the mackerel fishing of small-scale commercial fishermen of the Kaş Fisheries' Cooperative (in Limanağzı Bay and Five Islands)

3) Commercial small-scale fishing zone: (Amateur fishing and diving not allowed)
The coastline from İnce Burun to Fener and from the İnönü Bay to Aperlai Bay. As an exception, recreational diving will be allowed around İnönü Bay.

4) General use zone:
Amateur fishing can be practiced only in the form of angling from coastal rocks. Commercial fishing will be limited to local small-scale fishermen.

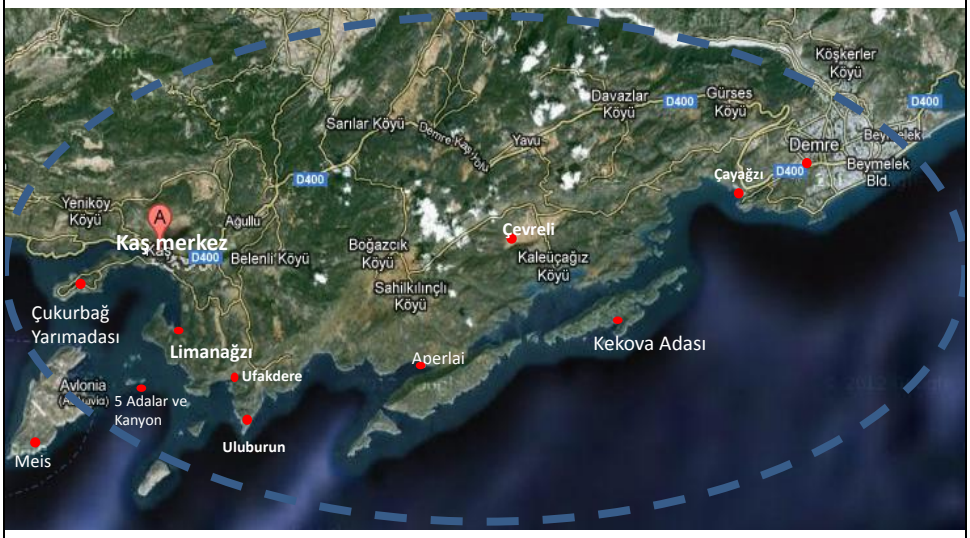
Alternative 5:

- The marine conservation actions included in Alternative 4
- Ban on chemicals use for agriculture
- Ban on amateur fishing in the first three zones mentioned in Alternative 4
- Ban on commercial fishing in the first three zones mentioned in Alternative 4
- Prohibition of diving in Heybeliada Island and Five Islands
- Limit on construction and tourism facilities: The tourism development zone of the region will be determined. New facilities will not be allowed to be higher than two floors and to have a bed capacity more than 200.

APPENDIX G

THE VISUALS PRESENTED TO PARTICIPANTS

Deniz Koruma Alternatifleri ve Kaş-Kekova Bölgesi'nin Sosyoekonomik Gelişimi



Bugünkü Durum

- **Nüfus:**
  - **Kaş ve Demre merkez** nüfusları 1980'deki nüfuslarının **2 katını aşmış** durumda.
- **Yerli ve yabancı turist sayısı:**
  - Türkiye 'de son 10 yıldaki turist sayısı **2 katına** çıktı. Bu turistlerin **%30'u Antalya'yı** ziyaret etmekte.
  - Kaş'ta da **son 15 yılda** benzer yönelim görülmekte (karayolu altyapısı, havayolu transferi vb.).
- **Denizlerdeki durum:**
  - **Ekonomik değeri yüksek** olan **balıklarda** önemli oranda azalma:
    - Orfoz, lahoz ve tokmakbaş mercan türlerinin bazılarının kaydedilen sayıları **1/5 ila 1/10'una düşmüş** durumda. (2002-2009)
  - ***Posidonia Oceanica*** (deniz çayırı türü) **kaybı:**
    - **Ufakdere** civarı **% 5-%10 azalma.** (2006-10)
  - Deniz canlıları üzerinde avcılık, çapalama, kirlilik vb. sebeplerle baskı artmakta.

	Şamandıra-lama	Deniz alanı kullanımında kısıtlar	Kirlilik önleyici altyapı yatırımları	Deniz alanını bölgelere ayırma	Tarımda kimyasal kullanımı	Yapılaşma kısıtları
Alternatif 1						
Alternatif 2	✓	✓				
Alternatif 3	✓	✓	✓			
Alternatif 4	✓	✓	✓	✓	✓	
Alternatif 5	✓	✓	✓	✓	✓	✓



Alternatif 1: Bugünkü gidişatın sürdürülmesi

Alternatifin İçerdiği Eylemler:

- Daha etkin koruma için herhangi bir önlem alınmıyor.
- Bugünkü durum, çevreye zarar veren eylemler, altyapısal eksiklikler ile çevresel tahribat devam ediyor.
- Turizm ve yapılaşma bugünkü seyrinde artmaya devam ediyor.
- Hem denizi hem karayı etkileyen atıklar ve kirlilik yükseliyor.

Eylemlerin Maliyetleri/Yaratabileceği Zorluklar:

- Ek bir maliyet yok.

2030'a Yönelik Projeksiyon:

a. Biyolojik çeşitliliğin korunması:

- **Ekonomik değeri yüksek** olan balık türlerinin **varlıkları tehlikeye girecek.**
- ***Posidonia Oceanica*** (deniz çayın türü) **habitat kaybı:** yaklaşık **%40-50** artacak.

b. Kirliliğin engellenmesi & Denizde görüş mesafesi

- Yoğun yapılaşma ve atık seviyesi **deniz kirliliğini** arttıracak. Plajlar **mavi bayraklarını kaybedecek** ve arıtılmadan denize karışan atık sular **halk sağlığına tehdit** oluşturacak.
- Deniz **berraklığını** yitirecek.

Alternatif 2: Şamandıralama ve deniz alanı kullanımında kısıtlar

Alternatifin İçerdiği Eylemler:

- 150 adet **şamandıra** yerleştirilecek ve çapa kullanılmayacak.
- **Jet ski ve sürat teknesi** kullanımı yasak olacak.
- **Balık çiftliği** kurulması yasak olacak.
- **Amatör avcılık** lisansa bağlanacak, tekneden amatör avcılık yapılamayacak ve cezai yaptırımlar yüksek olacak.
- Yasadışı avcılığı kontrolle görevli bir **denetleme botu** bölgede çalışacak.

Eylemlerin Maliyetleri/Yaratabileceği Zorluklar:

- **Şamandıraların maliyetinin** yarısı devletten, yarısı (nüfusa oranlı olarak) yerel bütçeden karşılanacak.
- Aynı noktaya bağlanmak isteyen tekneler (gezi veya dalış tekneleri) arasında **bağlama** ve birbirine çok **yakın olma sorunu** çıkacak.
- **Şamandıra kullanma zorunluluğundan dolayı tekne sayısı kısıtlanacak**, şu andakine yakın bir kapasitede tekne kullanımı sürecek, ama artışı engellenmiş olacak. Marinaya ve yerel ekonomiye girdi azalacak.
- Oteller/plajlar **jet ski kirasından** gelir elde edemeyecek.
- **Sürat tekneleri** bölgeye gelir getiremeyecek.
- **Çiftlik balık üretimi** bölgeye gelir kazandıramayacak.
- Bottan amatör avcılık yapılamayacağı için turistlere balıkturu yapan veya balık avlayan **tur teknelerinin gelirleri** düşecek.
- Amatör avcıları tespit ve kontrol etme konusu ek yükümlülük olacak ve **denetleme botu maliyetinin** yarısı devletten yarısı yerel bütçeden karşılanacak.

2030'a Yönelik Projeksiyon:

a. Biyolojik çeşitliliğin korunması:

- Çapa atılmayacağı için ***Posidonia oceanica*** **(deniz çayırı)** ile kaplı alanların azalması yavaşlayacak.
- **Canlıların habitatı** korunacak.
- Denizdeki **oksijen seviyesi** artacak.
- Amatör avcılığın kısıtlanması özellikle **ekonomik değeri yüksek türler üzerindeki baskıyı** azaltacak.
- **Jet ski ve sürat tekneleri** kaplumbağa vb. canlılara zarar vermeyecek.

b. Kirliliğin engellenmesi

- **Balık çiftliklerinin yaratacağı kirlilik** engellenecek.

c. Denizde görüş mesafesi

- Denizde **görüş mesafesinin** düşmesi ve ötrofikasyon ihtimali azalacak.

Alternatif 3: Şamandıralama, deniz alanı kullanımında kısıtlar ve kirlilik önleyici altyapı yatırımları

Alternatifin İçerdiği Eylemler:

- **Alternatif 2'deki eylemler** uygulanacak.
- **Otellere ve kıyıdaki diğer işletmelere atık su arıtma sistemi** zorunluluğu getirilecek.
- **Çukurbağ'a ve Kale/Üçağız'a (Kekova) kanalizasyon sistemi** kurularak evlerin ve otellerin buna bağlanması sağlanacak. Tüm bölgede atık su deşarjları yasaklanacak.
- **Evsel atıkların ve inşaat atıklarının** denize atılmaması sağlanacak.
- Tekne bakımı ve onarımı atıklarının denize ulaşmaması için uygun **çekek yeri** yapılacak.
- Bir adet tekne ve personeli **teknelerden katı atık toplama** işlemi gerçekleştirecek.

Eylemlerin Maliyeti/Yaratabileceği Zorluklar:

- **Arıtma sisteminin maliyetini** oteller ve kıyıdaki işletmeler kendileri karşılayacak.
- **Çukurbağ'daki ve Kale/Üçağız (Kekova)'daki ev ve otellerin kanalizasyon sistemine** bağlanmasının maliyetinin bir kısmı **ev ve otel sahipleri** tarafından, geri kalanı **yerel bütçeden** karşılanacak.
- **Çekek yerinin maliyeti** yerel bütçeden karşılanacak.
- **Katı atık toplama teknesinin** ve personelinin maliyetinin yarısı devlet tarafından yarısı yerel bütçeden karşılanacak.

2030'a Yönelik Projeksiyon:

- **Alternatif 2'deki düzelmeler**

a. Biyolojik çeşitliliğin korunması:

- Kaplumbağaların ve diğer **deniz canlılarının** suya atılan **katı atıklardan**, özellikle poşetlerden dolayı gerçekleşen ölümleri engellenecek.

b. Kirliliğin engellenmesi

- Denize etki eden inşaat, tekne onarımı, **atık su sebepli kirlilik kaynakları** önemli ölçüde azaldığı için **yüzey ve dip kirliliği azalacak**.
- **Mavi bayraklı plaj** sayısı artacak, **halk sağlığı** korunacak ve **turist ilgisi** artacak.

c. Denizde görüş mesafesi

- **Kirlilik kaynaklı su bulanıklığı azalacak,** görüş mesafesi daha da artacak.

Alternatif 4: Şamandıralama, deniz alanı kullanımında kısıtlar, kirlilik önleyici altyapı yatırımları ve deniz alanını bölgelere ayırma

Alternatifin İçerdiği Eylemler:

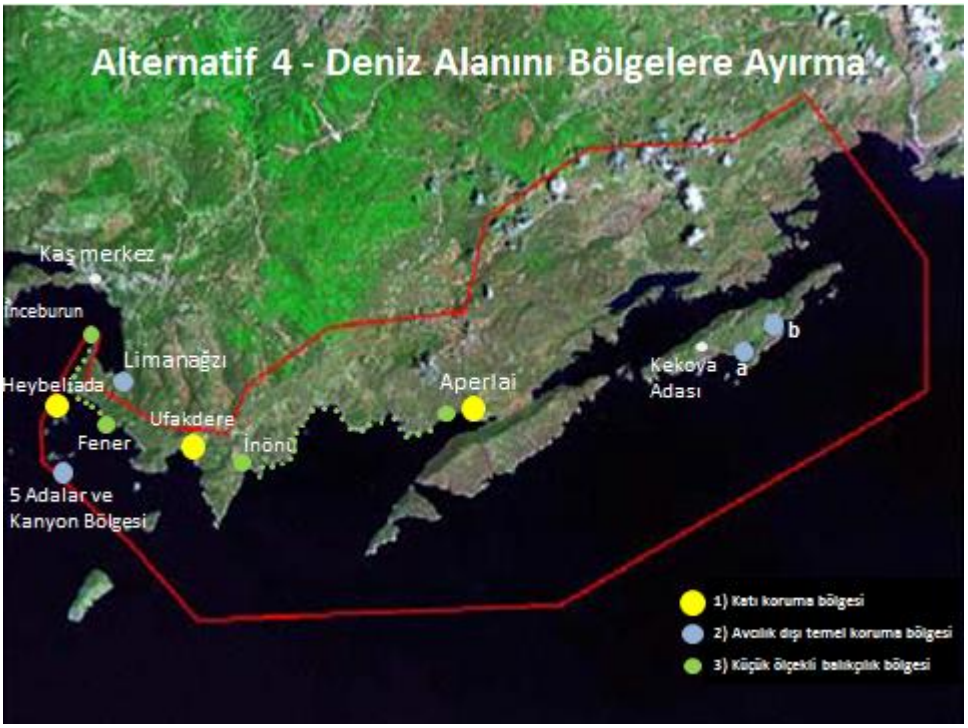
- **Alternatif 3'teki eylemler** uygulanacak.
- **Tarımda kimyasal kullanımı yarıya** indirilecek.
- Deniz alanı; **temel koruma bölgelerine ve tampon bölgelere** ayrılarak ticari ve amatör avcılık ile dalış yapılabilecek alanlar biyolojik çeşitliliğin devamını sağlayacak şekilde düzenlenecek.

1) Katı koruma bölgesi (Sadece bilimsel çalışmaya açık alan)
- Heybeliada civarı, Ufakdere koyu ve Aperlai koyu

2) Avcılık dışı temel koruma bölgesi (Ticari ve amatör avcılığa kapalı alan)
- Limanağzı bölgesi, Beş Adalar'ın dış kısmı ve Kanyon, Kekova Adası'nın dış tarafındaki iki koy(a-b)
- Sadece Kaş Su Ürünleri kooperatifine bağlı kıyı balıkçılarına Limanağzı koyunda ve Beş Adalar'da palamut avı serbest

3) Küçük ölçekli balıkçılık bölgesi (Amatör avcılığa ve dalışa kapalı alan)
- İnce Burun'dan Fener'e ve İnönü'den Aperlai koyuna devam eden alanda küçük ölçekli ticari balıkçılık serbest

4) Genel kullanım bölgesi
- Diğer deniz alanlarında sadece kıyıdaki kayalardan amatör balıkçılık yapılabilecek.
- Ticari balıkçılık yerel kıyı balıkçılarıyla sınırlı olacak.



Eylemlerin Maliyeti/Yaratabileceği Zorluklar

- **Çiftçilerin** daha az kimyasal kullanması dönem dönem alınan **ürün miktarını** düşürecek.
- Avcılığa kapalı bölgeler sebebiyle kısa vadede **ticari avcılıktan** edinilen **gelir düşecek.**
- Bölgelerdeki amatör avcılığın daha fazla denetlenmesi gerekecek. **Ek denetim botunun maliyetinin** yarısı devletten yarısı yerel bütçeden çıkacak .

2030'a Yönelik Projeksiyon:

- **Alternatif 3'teki düzelmeler**

a. Biyolojik çeşitliliğin korunması:

- Bahsedilen bölgeler biyolojik çeşitliliğe göre belirlendikleri için hem balıkların hem de diğer **deniz canlılarının ergin birey sayısı ve popülasyonları daha da artacak.**
- Avcılığa kapalı ve insan etkisi azalan bölgelerde artan deniz canlısı yoğunluğu **diğer bölgelerde de canlı popülasyonunu arttıracak, izinli bölgelerde tutulan balık sayısı** da orta vadede artacak.

b. Kirliliğin engellenmesi ve denizde görüş mesafesi

- Özellikle Demre ve Eşen çaylarından gelen **tarımsal atıkların denize ulaşması engellenecek**. Tanımda kimyasal kullanımının azaltılması **deniz kirliliğini daha da azaltacak**, denizdeki **görüş mesafesini daha da artıracak** ve deniz çayırlarına olumsuz etkide bulunmayacak.

Alternatif 5: Şamandıralama, deniz alanı kullanımında kısıtlar, kirlilik önleyici altyapı yatırımları, avcılık ve turizm kısıtları

Alternatifin İçerdiği Eylemler:

- **Alternatif 4'teki eylemler** uygulanacak.
- **Tarımda kimyasal** kullanımı **yasaklanacak.**
- Alternatif 4'te belirtilen **ilk 3 bölgenin tümünde amatör avcılık** yılın her dönemi **yasaklanacak.**
- Alternatif 4'te belirtilen **ilk 3 bölgenin tümünde ticari avcılık** yılın her dönemi **yasaklanacak.**
- **Heybeliada ve 5 Adalar** bölgesinde **dalış yapılmayacak.**
- **Yapılaşma artışına ve turizm tesisi sayısına sınırlama** getirilecek: Bölgenin turizm gelişme sahası belirlenecek, 2 kattan yüksek yeni bina yapılamayacak, ~200 yatak kapasitesinden büyük konaklama tesisi kurulamayacak.

Eylemlerin Maliyeti/Yaratabileceği Zorluklar:

- Kimyasal kullanılmadan yapılan **tarım üretimi** çiftçiler için **yüksek maliyetli** olacak.
- **Balık restoranları amatör avcılardan balık alamayacakları için** daha pahalıya balık satın almak zorunda kalacak.
- Kısa vadede **ticari balıkçılık gelirleri** düşecek.
- En ilgi çeken bölgelere dalış yapılamayacağı için **dalış merkezlerinin gelirleri** düşecek.
- Turizm sınırlandırılacağı için **turizm gelirleri** düşecek.
- Koruma bölgesi, **insan kullanımını** çok fazla kısıtlayacak.

2030'a Yönelik Projeksiyon:

- **Alternatif 4'teki düzelmeler**

a. Biyolojik çeşitliliğin korunması:

- İnsan kullanımı kaynaklı denizin üzerindeki baskı çok aza indirgenecek ve soyu tehlikede olanlar dahil olmak üzere hem balık türlerinin hem diğer **deniz canlılarının önemli miktarlarda üremelerine olanak** sağlanacak.
- **Ekonomik değeri yüksek balık türlerinin** hem ergin bireylerinde hem de yavrularının sayısında önemli **artış** gözlenecek. Türlerinin devamı sağlanabilecek.
- **Ekonomik değeri yüksek balıklar** korunabildiği için avcılık izni olan bölgelerde de büyük ve ekonomik olarak değerli balıklar avlanabilecek.

b. Kirliliğin engellenmesi

- **Denize kimyasal tarım ilacı karışma tehlikesi ortadan kalkacak. Denizel kirlilik** çok azalacak. Mavi bayraklı plaj sayısı daha da artacak.
- Bölgede **organik tarımdan** gelir sağlanabilecek.
- Yapılaşma ve doğal kaynağı kullanan insan sayısı sınırlandırılacağı için kirliliğin hızla artması engellenecek.

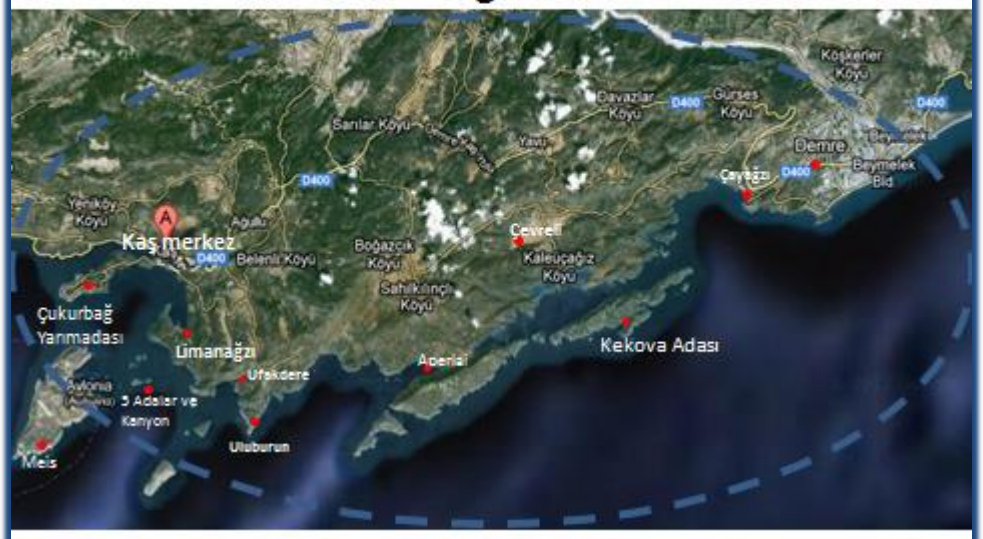
c. Denizde görüş mesafesi

- **Dalış turizmi için gelen turist** sayısı denizdeki görüş mesafesi ve canlı çeşitliliği korunduğu için **artacak.**

2030'a Yönelik Projeksiyon

	Biyolojik çeşitliliğin korunması	Kirliliğin engellen-mesi	Denizde görüş mesafesi	
Alternatif 1	Çok kötü	Çok kötü	Çok kötü	
Alternatif 2	Kötü	Kötü	Kötü	
Alternatif 3	Orta	Orta	Orta	
Alternatif 4	İyi	İyi	İyi	
Alternatif 5	Çok iyi	Çok iyi	Çok iyi	

Marine Conservation Alternatives and the Socioeconomic Development of the Kaş-Kekova Region



Current Situation

- **Population:**
  - In the town centers of Kaş and Demre, the population has more than doubled between 1980-2012.
- **The number of native and foreign tourists:**
  - In the last 10 years, the number of tourists in Turkey has doubled, 30% of which visit Antalya.
  - A similar trend can be seen in Kaş-Kekova in the last 15 years (highway infrastructure, transfer to and from the airport, etc.).
- **The situation of marine habitat:**
  - A significant **decrease** in the **number of fish with high economic value:**
    - The recorded number of some groupers fell to their **1/5 - 1/10** (2002-2009)
  - **Loss** of the area covered by ***Posidonia Oceanica*** (sea meadow) **kaybı:**
    - **% 5-%10 decrease in Ufakdere** (2006-10)
  - Increasing pressure on the sea life due to fishing, anchoring and pollution

	Buoying	Restrictions on marine use	Waste management	Zoning of marine area	Chemical use in agriculture	Limit on construction
Alternative 1						
Alternative 2	✓	✓				
Alternative 3	✓	✓	✓			
Alternative 4	✓	✓	✓	✓	✓	
Alternative 5	✓	✓	✓	✓	✓	✓









Alternative 1: Business as Usual

Actions included in the alternative:

- No measures are being taken for a more effective protection.
- Environmental degradation continues because of the present circumstances, the actions damaging the environment, and the deficiency in infrastructure.
- Tourism and construction continues with the same pace.
- The waste and the pollution affecting both the marrine and terrestrial area increase.

The Costs / Burdens of Conservation Actions:

- No additional cost

Projection towards 2030:

a. Conservation of Biodiversity:

- **The survival of fish species** with high economic value will be at risk.
- **Loss of the area** covered by ***Posidonia Oceanica*** (sea madow): around **%40-50**

b. Preventing the pollution & ensuring the visibility level in the sea

- Intense construction and waste levels will increase the **sea pollution**. The beaches renumerated by **blue flags** showing their cleanness will **lose their status**, and **waste water** that flows into the sea without treatment will **threaten the public health**.
- The sea will lose its level of clarity.

Alternative 2: Buoying and restrictions on marine use

Actions included in the alternative:

- **150 buoys** will be placed and the use of anchors will be banned.
- The use of **jet-ski and power boat** will not be allowed.
- Installing **fish farms** will be forbidden.
- **Amateur fishing** will be **licensed**. Amateur fishing from boats will be prohibited, and the penalties will become higher.
- An **inspection boat** to control illegal fishing will be on duty.

The costs / burdens of conservation actions:

- Half of the **cost of the buoys** will be covered by the state and the other half (proportional to the population) will be covered by the local budget.
- If boats (excursion boats, yachts and diving boats) want to moor at the same buoy there can be problems to tie the boats and the boats will be too close to each other.
- Because of the **obligation to use a buoy** the number of boats in the region will be limited. The capacity will remain almost the same as it is now, but an increase will be prevented. The input to the marina and to the local economy will decrease.
- The hotels/beaches will not earn any money from renting jet-skis.
- There will be no revenue of the power boats.
- There will be no revenue of **fish farms.**
- Since amateur fishing from boats will not be allowed, the income of boats organizing fishing tours or serving the tourists their clients freshly caught fish will drop.
- The detection and control of amateur fishers will cause supplementary administrative costs, and the cost of the **inspaction boat** will be shared by the state and by the local budgets.

Projection towards 2030:

a. Conservation of biodiversity:

- Since there will be no anchoring, the decrease in the areas covered by ***Posidonia oceanica (sea meadow)*** will slow down.
- **The marine habitat** will be protected.
- The **oxygen amount** in the sea will increase.
- **Limiting amateur fishing** will decrease the pressure on fish species with high economic value.
- The jet-skis and power boats will not injure sea turtles and other animals.

b. Preventing the pollution

- **Pollution caused by the fish farms** will be avoided.

c. Sea visibility

- The decline in the sea visibility and the rise in eutrophication level will be avoided.

Alternative 3: Buoying, restrictions on marine use and infrastructure related to waste management

Actions included in the alternative:

- **The marine conservation actions included in Alternative 2**
- **The hotels and other enterprises at the coast** will have the obligation to install waste-water treatment facilities.
- In **Çukurbağ and Kale/Üçağız (Kekova), a drainage systems** will be installed, and houses and hotels will be connected to them. Discharge to the sea will be prohibited.
- It will be secured that **domestic and construction wastes** will not be discharged to the sea.
- There will be a **suitable area** for the **maintenance** activities of the boats to hinder the discharge of chemicals to the sea.
- One boat and its personnel will collect **solid wastes from the boats**.

The costs / burdens of conservation actions:

- The cost of the **waste-water treatment facilities** will be covered by the hotels and the enterprises at the coast.
- The cost of the connection of the houses and hotels in Çukurbağ and Kale/Üçağız (Kekova) to the **drainage system** will partly be covered by the owners and partly by the local budget.
- **The cost of the** suitable boat maintenance facility will be met by the local budget.
- The cost of the **boat for solid waste collection** and the **salaries of the personnel** will be shared by both the local budget and the budget allocated by the central government.

Projection towards 2030:

- **Improvements in Alternative 2**

a. Conservation of biodiversity:

- The death of the **sea-turtles** and other animals due to the solid wastes, especially plastic bags, discharged into the sea, will be prevented.

b. Preventing the pollution

- Positive impact on the **protection of surface and groundwater pollution** due to the decreased number of pollution sources related with construction, boat maintenance, and wastewater
- Rise in the number of beaches awarded with blue flags and tourist interest, and protection of public health

c. Sea visibility

- The turbidity of the sea due to pollution will decrease more.

Alternative 4: Buoying, restrictions on marine use, infrastructure related to waste management, limit on agricultural chemicals and zoning of the marine area

Actions included in the alternative:

- **The marine conservation actions included in Alternative 3**
- **The use of chemicals in agriculture will be reduced by half**

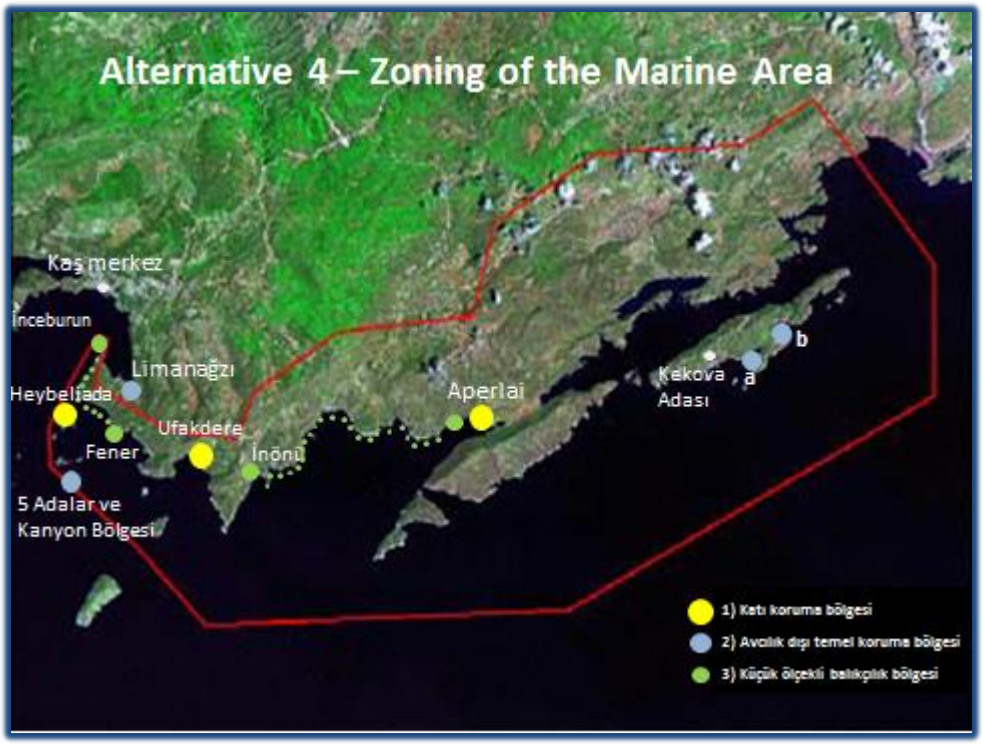
- Marine area will be divided into core zones, buffer zones, and extensive use zones. The allowed activities will be determined accordingly to ensure the sustainability.

1) Strict protection zone (Only scientific research allowed)
  - Heybeliada Island, Ufakdere Bay and Aperlai Bay

2) No-fishing zone (Commercial and amateur fishing not allowed)
  - Limanağzı region, the outer part of Five Islands and Kanyon, two bays in the south of Kekova Island (a-b)
  - The only exception is the mackerel fishing of small-scale commercial fishermen of the Kaş Fisheries' Cooperative (in Limanağzı Bay and Five Islands)

3) Commercial small-scale fishing zone (Amateur fishing and diving not allowed)
  - The coastline from İnce Burun to Fener and from the İnönü Bay to Aperlai Bay. As an exception, recreational diving will be allowed around İnönü Bay.

4) General use zone
  - Amateur fishing can be practiced only in the form of angling from coastal rocks.
  - Commercial fishing will be limited to local small-scale fishermen.



The costs / burdens of conservation actions:

- A reduction in chemical use will lead to **less agricultural production** for farmers.
- **Income** made by **commercial fishing will fall** (at least in the short-term) due to the exclusion of fishing in some areas.
- **Cost of the additional monitoring boat** will be shared among local budget and central government.

Projection towards 2030:

- **Improvements in Alternative 3**

a. Conservation of biodiversity:

- The zoning according to biodiversity will allow for a **rise in the number of marine species**.
- The **rise in the population of fish** of greater size in no-take zones will affect other zones, and the population outside of the no-take zones will increase as well.

b. Preventing the pollution and sea visibility

- Decrease in chemicals used for farming will **reduce agricultural waste** from Demre and Eşen rivers.
- **Decline in the sea pollution** and in the associated **negative impact on sea meadows**.

Alternative 5: Buoying, restrictions on marine use, infrastructure related to waste management, ban on agricultural chemicals and stricter zoning of the marine area

Actions included in the alternative:

- **The marine conservation actions included in Alternative 4**
- **Ban on chemicals use for agriculture**
- **Ban on amateur fishing** in the **first three zones** mentioned in Alternative 4
- **Ban on commercial fishing** in the **first three zones** mentioned in Alternative 4
- **Prohibition of diving in Heybeliada Island and Five Islands**
- **Limit on constructon and tourism facilities:** The tourism development zone of the region will be determined. New facilites will not be allowed to be higher than two floors and to have a bed capacity more than 200.

The costs / burdens of conservation actions:

- **Increase** in the **cost of agricultural production** for farmers
- Some **restaurants will need to pay higher prices** for some fish species, since they will not be able to buy from amateur fishermen due to the strict control of fishing.
- In the **short-term,** the **income of commercial fishermen** will **fall**.
- The **income of diving centers will fall** since they will not be allowed to organize dive trips to some popular areas
- Incomes generated by the tourism may fall due to the restrictions.
- Protection zone will **restrict human use** at a high level.

Projection towards 2030

- **Improvements in Alternative 4**

a. Conservation of biodiversity:

- A significant decrease in human-related pressure on marine resources, and thus the reproduction of many marine species on considerable amounts
- The number of mature and juvenile fish will rise significantly, so the threatened fish species can be proected.
- Other **fish species** also in **«general use zones»** will increase in number.

b. Preventing the pollution

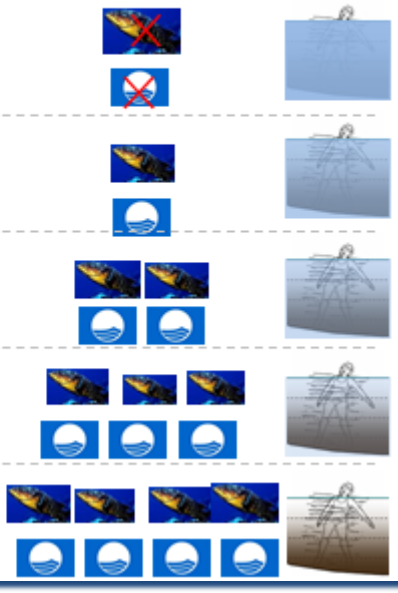
- The threat of chemicals will vanish, the pollution will be mostly prevented, and the beaches will continue to be rewarded with blue flags indicating their cleanness.
- The option to generate income from organic farming
- The pollution stemming from construction and increasing population will be halted.

c. Sea visibility

- Sea visibility will not be harmed by pollution.

Projection towards 2030

	Conservation of biodiversity	*Preventing the pollution*	Sea visibility
Alternative1	Very bad	Very bad	Very bad
Alternative2	Bad	Bad	Bad
Alternative 3	Medium	Medium	Medium
Alternative 4	Good	Good	Good
Alternative 5	Very good	Very good	Very good



APPENDIX H

VETO DIAGRAMS FOR EACH LEVEL OF COALITION

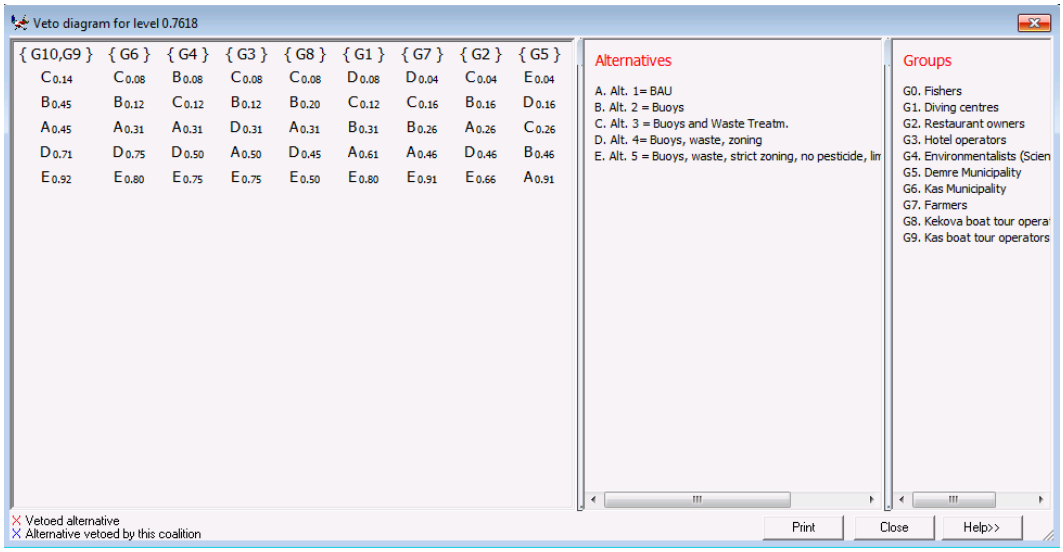


Fig. 7 Veto diagram for level 1

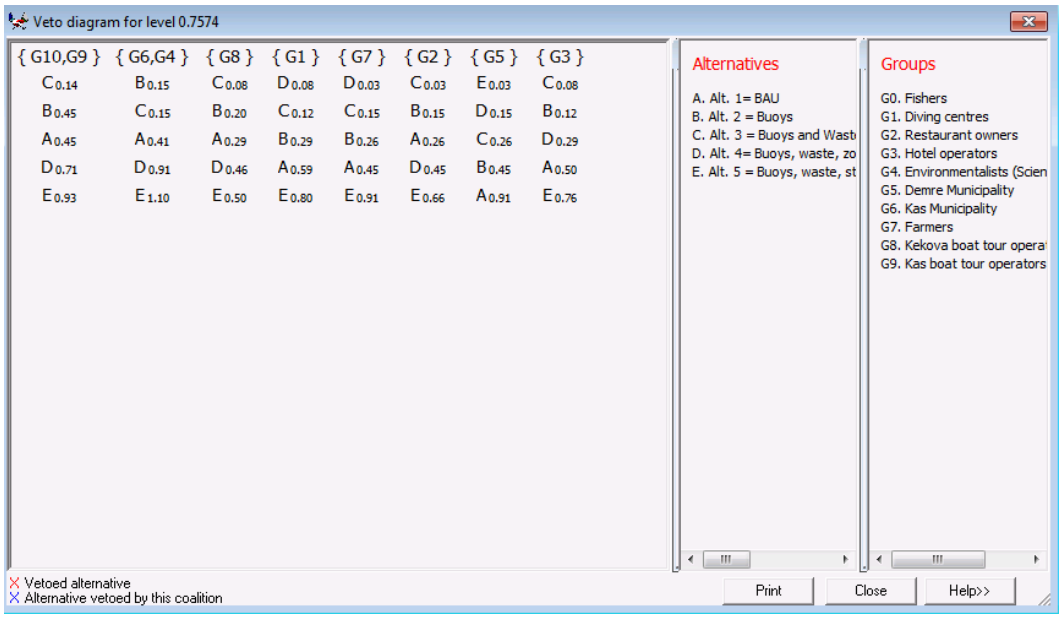


Fig. 8 Veto diagram for level 2

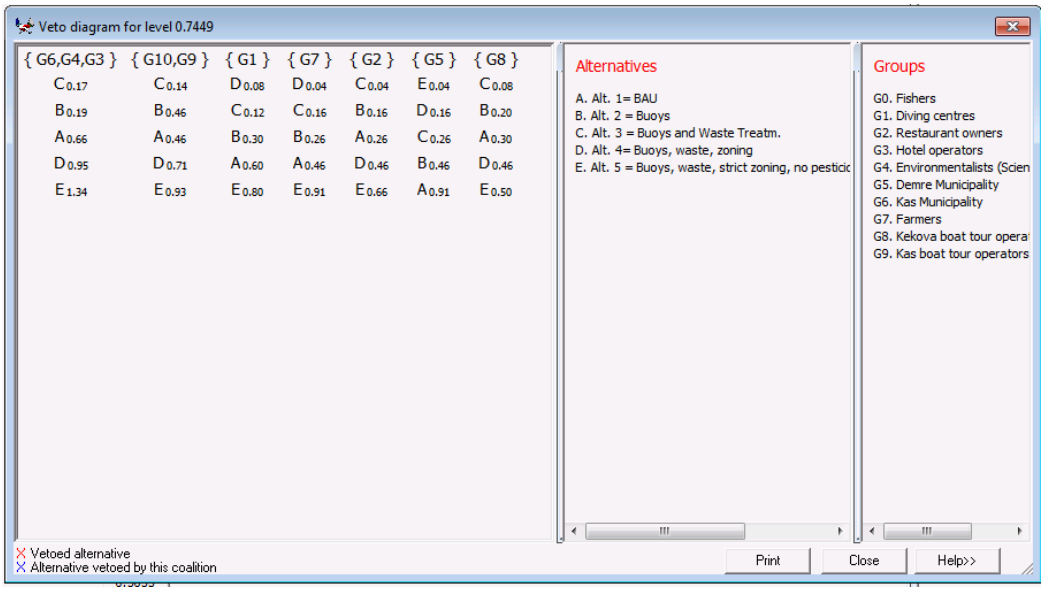


Fig. 9 Veto diagram for level 3

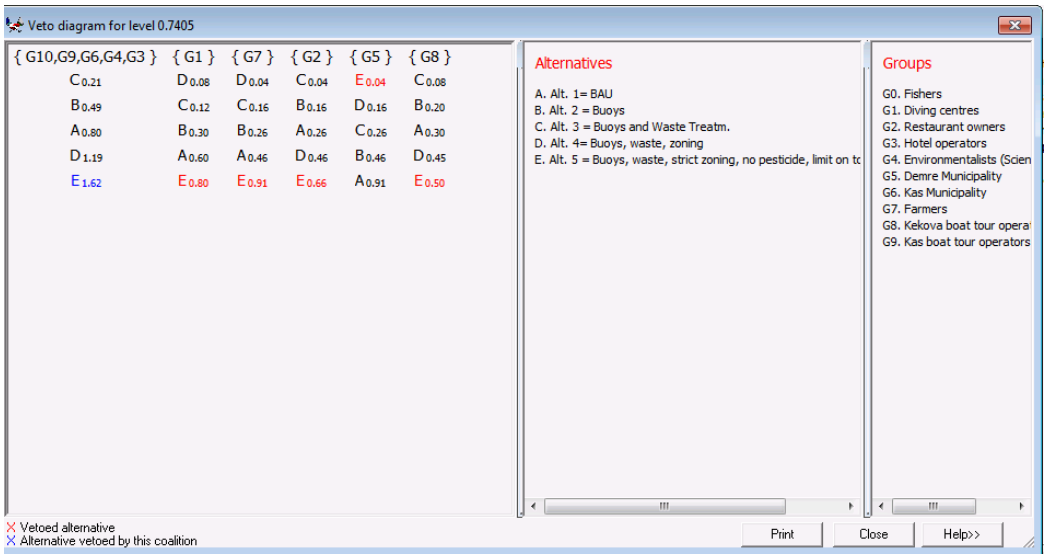


Fig. 10 Veto diagram for level 4

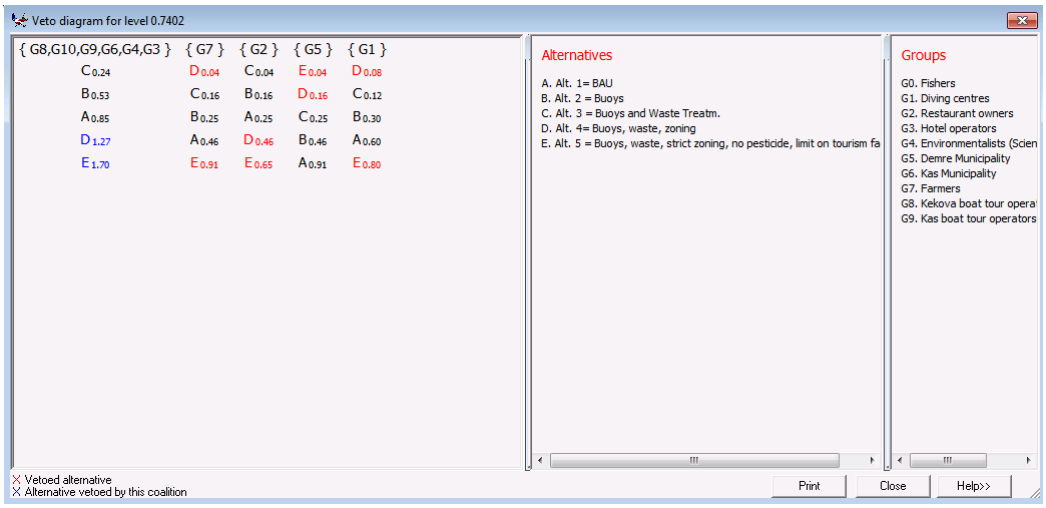


Fig. 11 Veto diagram for level 5

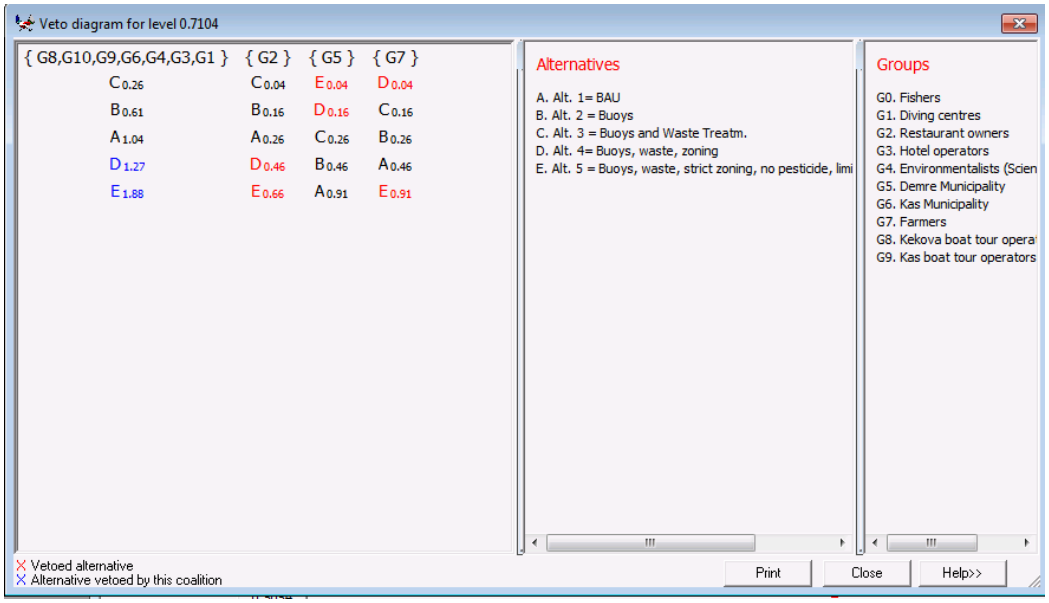


Fig. 12 Veto diagram for level 6

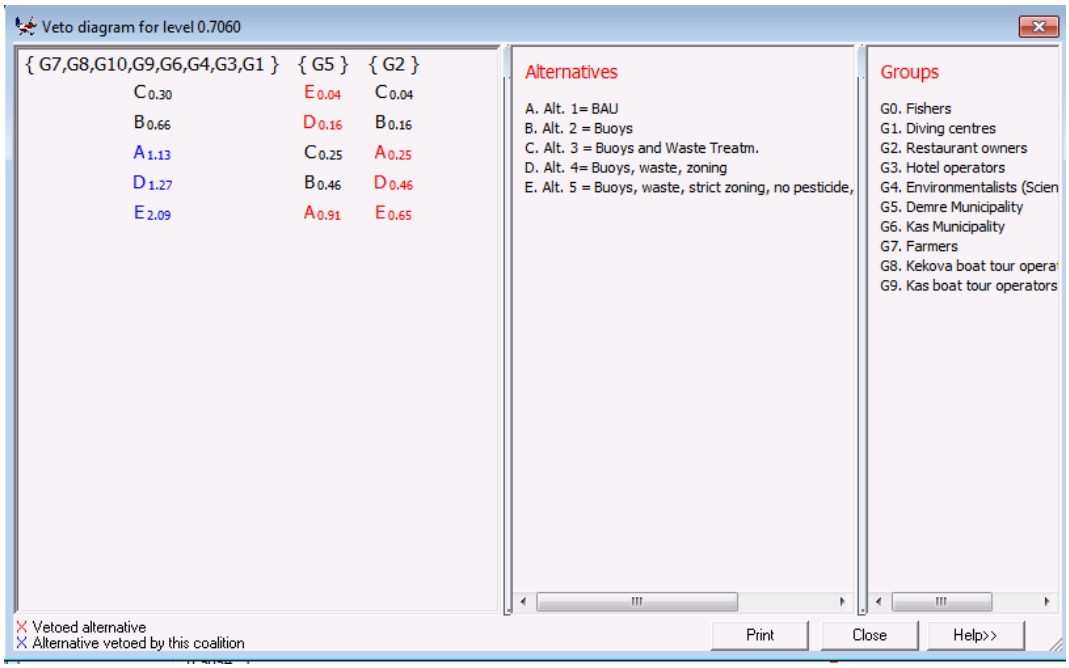


Fig. 13 Veto diagram for level 7

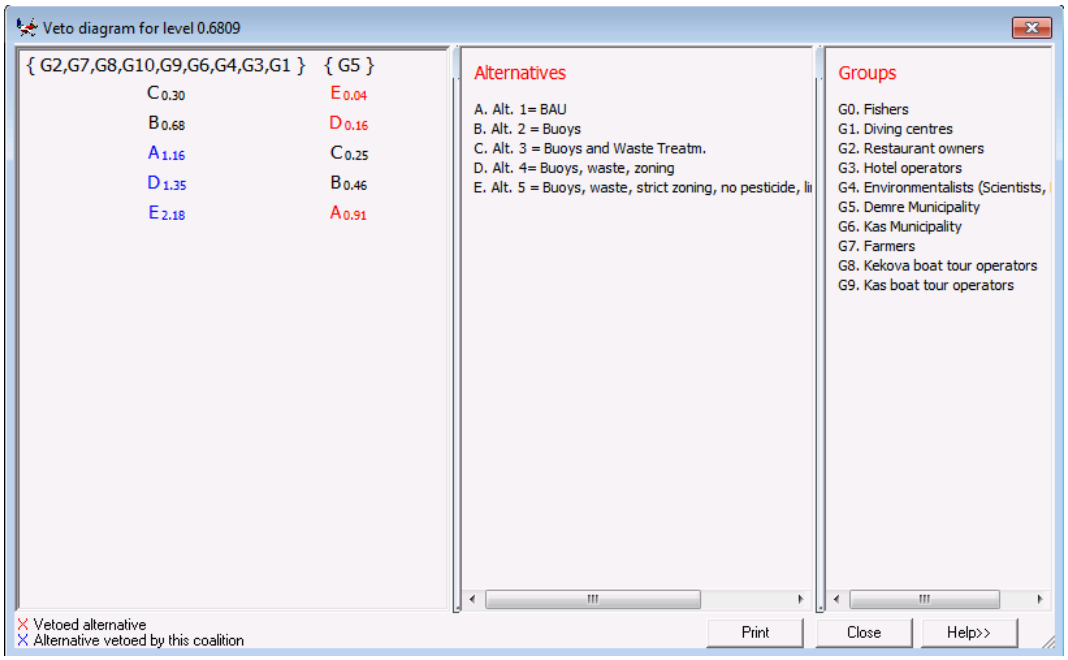


Fig. 14 Veto diagram for level 8

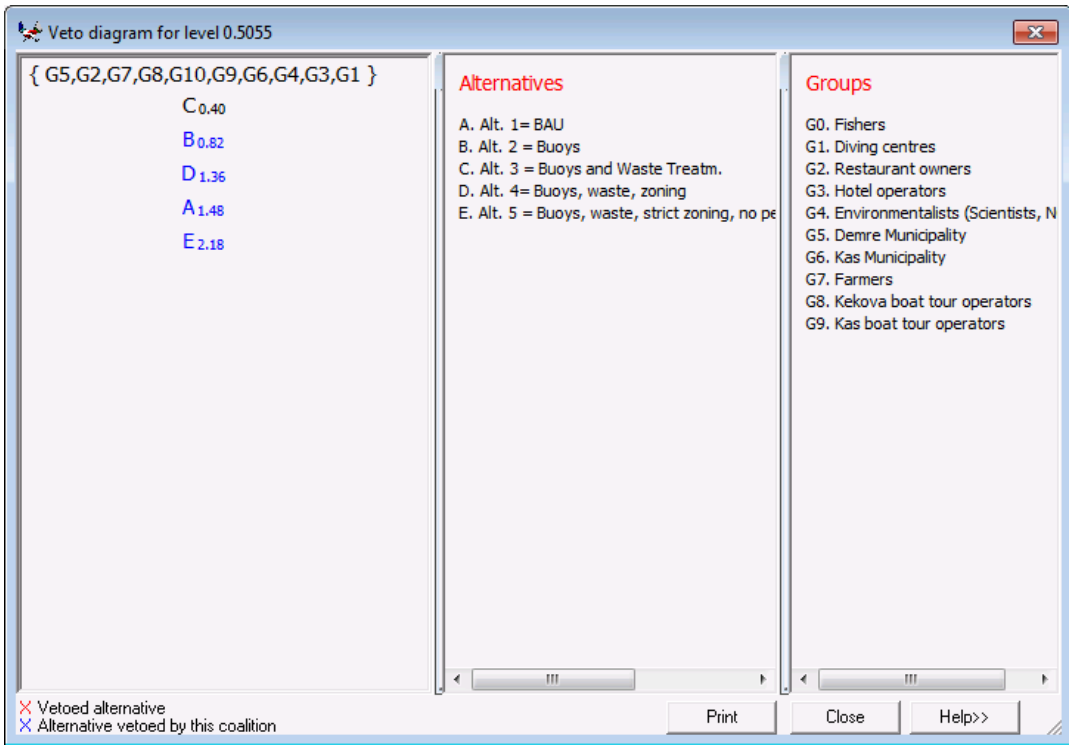


Fig. 15 Veto diagram for level 9

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