MESMA Work Package 6 (Governance)

Deliverable 6.3

Tool box of incentives for the governance of spatially managed marine areas

Peter J.S. Jones, Wanfei Qiu and Louise M. Lieberknecht

Department of Geography

University College London

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1. Introduction

This report is one of three formal deliverables of MESMA Work Package 6 (WP6) on governance. MESMA was a project to investigate and provide advice on the 'monitoring and evaluation of spatially managed marine areas'. It was an EU-funded FP7 project which focused on marine spatial planning, aiming to supply innovative methods for the monitoring, evaluation, and implementation of sustainable marine planning in Europe's seas. The project operated from 2009 to 2013, involving 21 partners from 13 European countries, and was coordinated by IMARES in the Netherlands.

The project's work was partitioned into several work packages. UCL coordinated WP6 and this report is the third of three deliverables from WP6:

- D6.1 Typology of conflicts generated by spatially managed marine areas (SMAs) and the perspectives on such conflicts amongst different users;
- D6.2 Review of different approaches to addressing these conflicts and the perspectives on such approaches amongst different users, including an analysis of the potential of different approaches to ensure the fulfilment of strategic ecosystem conservation obligations
- D6.3 'Tool box' of incentives that can be employed in SMA governance in different contexts to provide for a balance to be achieved between the fulfilment of strategic ecosystem conservation obligations and the provision for appropriate levels of user participation.

This report forms Deliverable 6.3 'Tool box' of incentives for SMAs. This report aims to introduce the tool box of incentives and discuss how the incentives have been used in MSP initiatives in different MESMA case studies. It is divided into several sections:

1) development of a tool box of incentives that can be used to promote SMA governance in different contexts;
2) overview of results in different MESMA case studies;
3) discussion of the role of incentives in individual MESMA case studies;
4) discussion focused on the role of incentives in promoting strategic conservation objectives and user participation, as well as some reflections on the application of the incentives as a 'tool box'.

The information presented in this report is based on the research carried under WP6 following the Governance Analysis Framework, which is designed to capture different aspects of governance in the MESMA case studies (see section 1.4 in Deliverable 6.1 for more information about the Governance Analysis Framework). The use and effectiveness of different categories of incentives is a key element of the Governance Analysis Framework. Researchers involved in different MESMA case studies were asked to evaluate the use and effectiveness of different incentives in each case study, using a variety of methods and sources of information including literature reviews, semi-structured interviews and expert opinions (including their own). Individual case study workshops were also organised to discuss case study findings, and to improve the incentives tool box with inputs from the researchers involved in the

case studies. The case study analyses are summarised in individual case study reports (see Deliverable 6.1). This report presents an overview of the results relating to the use of incentives, which are mainly based on the case study reports, as well as the authors own understanding of the incentives and their use in different case studies.

It is important to note that this report builds on the other two WP6 deliverables and some important information relating to the context of each case study, including the objectives and conflicts, is summarised in Deliverables 6.1 and 6.2, and is not repeated in this report. Readers should therefore refer to the other two WP6 deliverables, particularly D 6.1 to gain a basic understanding of the case studies before reading this report.

2. The development of the incentives 'tool box'

In the WP6 Governance Analysis Framework, incentives are defined as '***particular institutions that are instrumentally designed to encourage people to choose to behave in a manner that provides for certain policy outcomes, particularly conflict management & ecosystem conservation, to be fulfilled***'. This definition may differ from what is commonly known as an incentive, for example, certain legal institutions that are design to prevent people from taking certain actions are commonly understood as disincentives, but if such legal institutions promote compliance and the achievement of the strategic objective, they are defined as incentives in the Governance Analysis Framework. Governance has accordingly been defined as '***steering human behaviour through combinations of people, state and market incentives in order to achieve strategic objectives***' in the Governance Analysis Framework (Jones *et al*. 2011, see Deliverable 6.1), *ie* incentives can be seen as different sources of 'steer' to support the achievement of strategic objectives.

The incentives 'tool box' was adapted from a set of incentives developed in the UNEP-funded Governing Marine Protected Areas (MPAG) Project, in which five categories of incentives were used as part of an analytical framework to allow systematic analyses and comparisons between case studies on MPA governance. This initial list of incentives in the MPAG project was primarily focused on incentives that promote the achievement of environmental conservation objectives, but incentives that aim at promoting compatible economic activities, the integration of user knowledge, fairness and user participation are also included.

In the MESMA project, this initial list of incentives was adapted for the context of marine spatial planning and the governance of spatially managed areas based on literature review, and subsequently improved with inputs from MESMA case study participants (see box 1). A total of 36 incentives are included in the incentives 'tool box'. Five categories of different, but sometimes inter-related incentives are recognised:-

- *Economic incentives* – using economic and property rights approaches to promote the fulfillment of strategic objectives **(market approach to governance)**

- *Interpretative incentives* – promoting awareness of the ecological and cultural values of the marine environment, understanding of and support for related policies, objectives and measures for the long-term planning and management of the marine environment. **(can be employed to support market, state and/or civil society approaches)**

- *Knowledge incentives* – respecting and promoting the use of different sources of knowledge (local/traditional and expert/scientific) to better inform decisions **(can be employed to support market, state and/or civil society approaches)**

- *Legal incentives* – use of relevant laws, regulations, *etc* as a source of 'state steer' to promote compliance with decisions and thereby the achievement of MSP obligations **(state approach)**

- *Participative incentives* – providing for users, communities and other interest groups (*eg* NGOs and representatives of the public) to participate in and influence decision-making in marine spatial planning (MSP) that may potentially affect them in order to promote their 'ownership' of the initiative and thereby their potential to cooperate in the implementation of decisions **(civil society approach)** (Jones *et al*. 2011)

The development of the incentives 'tool box' takes into consideration the general principles and requirements related to marine spatial planning that are outlined in the EU directives and policies (see Deliverable 6.1), as summarised in Table 1 (the 'Related incentives' are subsequently explained and discussed in Box 1).

General principles	Related incentives
Using marine spatial planning according to area and type of activity	E1, L8, P7
Defining objectives to guide marine spatial planning	L2, L6
Developing marine spatial planning in a transparent manner	K6, L11, P5
Stakeholder participation	K3, K4, L8, P1-10
Coordination within Member States — Simplifying decision processes	K6, L6, L9, L11
Ensuring the legal effect of national marine spatial planning	L1-10
Cross-border cooperation and consultation	K6, L2, L5, L10
Incorporating monitoring and evaluation in the planning process	K5-6
Achieving coherence between terrestrial and maritime spatial planning — relation with ICZM	K6, L2, L6, L9
A strong data and knowledge base	K1-6

Table 1. General principles for marine spatial planning as set out in the Roadmap for Maritime Spatial Planning[1] and relevant incentives in the incentives 'tool box'.

One of the important challenges is that while the primary focus of marine protected areas is about environmental conservation, marine spatial planning and spatially managed areas can have multiple objectives, including those of a social and economic nature. This means that while one set of incentives can be used to promote the achievement of one objective (*eg* environmental conservation), they may not be relevant or even conflict with other objectives (*eg* economic development). For this reason, MESMA case study participants were asked to identify a 'priority objective', which is the objective that is considered most important by the researchers to be analysed through the governance research. Case study participants can then identify and analyse the incentives that have been used to help achieve this priority objective, as well as the incentives that have been used to manage potential conflicts in the process, including potential conflicts between the priority objective and other objectives. In this way, MESMA case study participants can conduct an in-depth analysis of governance focusing on one priority objective, but also include in their analyses the interactions and potential conflicts between the priority and other objectives, and the incentives that have been used to address such conflicts.

One limitation of this approach is that the results of the governance analyses are heavily influenced by the choice of the priority objective. If a spatially managed area has multiple and potentially conflicting objectives, for example, nature conservation and the development of offshore renewable energy, the set of incentives for achieving the former objective would differ significantly from the incentives for achieving the latter objective. If both objectives must be achieved, combining the two sets of incentives is often not the best approach, as some incentives for promoting nature conservation can serve as

[1] Communication from the Commission - Roadmap for Maritime Spatial Planning: Achieving Common Principles in the EU (COM/2008/0791 final).
http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:DKEY=483715:EN:NOT

'disincentives' for the development of offshore renewable energy. Most MESMA case studies are able to avoid this problem by focusing on relatively small-scale and well defined marine spatial planning initiatives or processes with a clear objective or priority. For most MESMA case studies, it is clear which objective is driving the process (see Introduction in Deliverable 6.1). This incentives 'tool box' is therefore arguably most applicable for MSP initiatives with a clearly defined objective or priority. Given the focus of the WP6 on ecosystem-based MSP, the priority objective ideally will be aimed at contributing to the achievement of good environmental status (GES) under the MSFD, *ie* aligned towards ecosystem-based MSP rather than towards integrated-use MSP (see section 2.5. D6.1), but some of the WP6 case studies did focus on a integrated-use related priority objective, *eg* Bay of Biscay.

The incentives 'tool box' is designed to have a dual function. In the MESMA project, the incentive 'tool box' was mainly used as part of an analytical framework to 'deconstruct' the different elements of governance in the case studies. The results of the analyses, including how individual incentives are used in individual case studies, are summarised and discussed in detail in the next section. As a 'tool box' for analysing governance, the incentives are an inseparable part of the Governance Analysis Framework (see Deliverable 6.1). In addition, the tool box can also be used by planners and managers to identify the incentives that are already in use and the incentive that can potentially be used to improve governance of spatially managed areas. Similar to what the researchers have done in the governance analyses, planners and managers need to take into consideration the particularly context of the spatially managed area, the objectives that need to be addressed, and the existing and potential conflicts that need to be addressed.

Box 1 List of incentives

Note that this list of incentives is focused on incentives that have been applied to promote the achievement of the main priority objective and to address related conflicts, not necessarily incentives that could be used to promote the achievement of all objectives that are relevant in your case study area

Economic incentives

E1 Promoting and protecting the rights and entitlements of local 'customary' users, *eg* through assigning fishing rights to certain marine areas and fish stocks

E2 Providing certainty to potential industries and their investors, *eg* through licensing and granting concessions to renewable energy developers in certain marine areas

E3 Seeking and promoting economic development opportunities and alternative livelihoods that are compatible with the priority objective and can generate sustainable income for local people

E4 Providing fair economic compensation for those users who carry costs as a result of restrictions on their activities that cannot reasonably be offset through compatible alternative livelihoods

E5 Providing sufficient government funding to support the development and implementation of the initiative to achieve the priority objective, including surveillance and enforcement activities and the use of other economic incentives

E6 Seeking NGO and corporate funding through endowments to support the development and implementation of the initiative to achieve the priority objective, including surveillance and enforcement activities and the use of other economic incentives, whilst ensuring that such funders cannot 'capture' governance through an inappropriate degree and type of influence

Interpretative incentives

I1 Using maps (paper or digital) for displaying boundaries, zones for different activities and related regulatory restrictions to support awareness and implementation of management measures related to the priority objective

I2 Promoting recognition of the potential resource development benefits resulting from the achievement of the priority objective, whilst being realistic about such potential benefits and not 'over-selling' them, *eg* displaying development zones to potential developers and investors, potential internal and spillover/export benefits of MPAs

I3 Promoting recognition of the biodiversity and ecosystem conservation-restoration benefits of spatial restrictions

Knowledge incentives

K1 Explicitly recognising the challenges raised by scientific uncertainty and the importance of developing approaches to help reduce and address such challenges, *eg* establishing ground rules for the interpretation and application of the precautionary principle, decision-making under uncertainty, and adaptation in the light of emerging knowledge

K2 Developing mechanisms for independent advice and/or arbitration in the face of conflicting information and/or uncertainty, including transparency in the use of such mechanisms

K3 Promoting mutual respect amongst local resource users and scientists for the validity of each other's knowledge and promoting collective learning through partnership research, research/advisory groups, participative workshops, *etc*, *eg* conducting studies in collaboration with users on the patterns of biodiversity and resource use, including trends

K4 Using interactive maps (paper or digital) for gathering information from users on spatial and temporal distribution of different activities, environmental impacts of activities, distribution of conservation features, *etc* to support the achievement of the priority objective while reducing conflicts

K5 Maximising scientific knowledge to guide/inform decision-making and monitoring/evaluation in relation to the priority objective

K6 Reducing the barriers in access to information and data held by different agencies, user groups and countries, and promoting the exchange, sharing and integrated use of such information and data in the existing initiative, *eg* geo-spatial data, ecological trends, fisheries data

Legal incentives

L1 Performance standards/conditions/criteria/requirements attached to licenses, concessions and user/property rights, *etc* in order to ensure the achievement of the priority objective, such as achieving environmental standards and providing access rights for particular uses

L2 International-regional-national-local legal obligations that require the fulfillment of the priority objective, including the potential for top-down interventions

L3 Adopting a sensitive but effective approach to legal interventions to address conflicts that would otherwise undermine the fulfillment of the priority objective, *ie* providing for enforcement whilst avoiding a complete 'command-and-control' approach

L4 Ensuring that sufficient national-local state capacity, political will, surveillance technologies and financial resources are available to ensure the equitable and effective enforcement of all restrictions on all local and incoming users

L5 Effective system for enforcing restrictions and penalising transgressors in a way that provides an appropriate level of deterrence *eg* at national, EU or international level

L6 Clarity and consistency in defining the legal objectives of the MSP initiative, general and zonal use restrictions, and the roles and responsibilities of different authorities and organisations, including the relationship between the initiative to achieve the priority objective and existing plans/regulations for the management of individual sectoral activities

L7 Employing legal appeal and adjudication platforms to address injustices and regulate conflicts at national, EU or international levels

L8 Scope for legal flexibility – subsidiarity, adaptive management and local discretionary action – maintaining, reinforcing, building on and working through lower level institutions, provided that this does not undermine the fulfillment of the priority objective

L9 Legal or other official basis for coordination between different sectoral agencies and their related sectoral policies, aimed at addressing cross-sectoral conflicts in order to support the achievement of the priority objective.

L10 Legal or policy basis for promoting cross-jurisdictional coordination between member states.

L11 Establishing legal provisions to ensure transparency in policy processes, *eg* statutory requirements for public access to information, appeals, public hearings, *etc*

Participative incentives

P1 Developing participative governance structures and processes that support collaborative planning and decision-making, *eg* user committees, participative GIS, postal consultations on proposals that provide for detailed feedback, participative planning workshops, *etc*, including training to support such approaches

P2 Decentralising some roles, responsibilities and powers to local people and their constituencies, including local government, through a clear management structure, whilst maintaining an appropriate balance of power between local people and the state in relation to the priority objective. Managing

expectations in this respect can be particularly important by being realistic about the degree of autonomy and influence that local people and governments/agencies can expect

P3 Clear rules on the means and degree of participation from different sectoral groups and the unbiased representation of all sectors in participation processes

P4 Building trust/social capital between different actors through transparency, face-to-face discussions, equity promotion, *etc*, recognising that this can lead to an 'upward spiral' (Ostrom 1998) of cooperation and confidence that cooperation will be reciprocated amongst different actors, whilst erosion of trust through lack of transparency, equity, enforcement, *etc* can lead to a 'downward spiral'

P5 Transparent participation and decision-making processes, including about how user participation has affected decisions and why it may or may not have done, and being very clear and honest, once decisions are made, about the potential benefits and costs, as well as the restrictions imposed on certain users

P6 Providing for participative enforcement amongst users, *eg* peer enforcement, community rangers/wardens, and promoting the potential for cooperation and peer enforcement of restrictions

P7 Promoting consistency with and respect for local traditions, customs, norms and practices, in so far as they are compatible with and contribute towards the fulfillment of the priority objective

P8 Promoting recognition and realisation of the potential for a the participative governance of the existing initiative to influence the higher-wider statutory framework, processes and obligations, *ie* that local users can have an influence on higher level institutions as well as being influenced by them - co-evolution

P9 Bringing in 'neutral' facilitators to support governance processes and negotiations or training state employees to do so

P10 Employing 'neutral' and widely respected panels to arbitrate on issues, conflicts, options, *etc* and recommend decisions

3. Overview of results from MESMA case studies

Most of the 36 incentives included in the incentives 'tool box' have been identified to have been used or partly used in at least one MESMA case studies (see Table 2). An incentive is considered to be partly used when it is only used in certain parts of the whole process, or when it is attempted but is considered ineffective in the context of the case study. Only three incentives are not identified to have been used or partly used in any of the MESMA case studies:

- **L7** Employing legal appeal and adjudication platforms to address injustices and regulate conflicts at national, EU or international levels
- **P6** Providing for participative enforcement amongst users, *eg* peer enforcement, community rangers/wardens, and promoting the potential for cooperation and peer enforcement of restrictions
- **P10** Employing 'neutral' and widely respected panels to arbitrate on issues, conflicts, options, *etc* and recommend decisions

All three of these incentives have been employed in case studies of marine protected areas (Jones *et al*. 2010) but do not appear to have yet been employed in these MSP case studies. The lack of L7 in the case studies may be due to the fact that most spatially managed areas analysed in the MESMA case studies have not been implemented, or are still in the early stages of implementation, therefore the consequences and impacts on affected users and communities are still not clear. Peer enforcement (P6) may be more appropriate for marine protected areas than other types of spatially managed areas. It also seems that as most MESMA case studies employ a top-down and centralised governance approach (see Deliverable 6.2), there is little room for peer enforcement in the context of the MESMA case studies. This top-down, centralised approach may have also led to the lack of arbitration panels, as decisions in the face of uncertainty and conflicts tend to be taken by high-level authorities with no recourse to appeals. In the context of marine spatial planning, when multiple sectors are present and complex claims are made, it is arguably difficult to find individuals or organisations that are capable of winning the trust and respect of all parties.

As shown in Table 2, there are significant differences in the total number of incentives used in the MESMA case studies. It is important to recognise that the table aims to provide an overview of the results in different case studies and an indication of the relative frequency of use, rather than serving the purpose of a qualitative analysis. The number of incentives used in a particular case study may be affected by a number of factors including:

- The national political, legal, cultural, economic, *etc* context;
- The type of spatially managed area, and the nature and objective of the case study;
- The stage that the MSP process has reached. While in some case studies the areas are still in the planning stage and have not yet been implemented, other case studies are much more advanced in terms of implementation;
- The focus of case study analysis, some case studies focus on a specific project and time period, while others cover wider spatial and temporal scales;

- The knowledge and opinions of the researchers undertaking the governance analysis. The assessment of which incentives have been used and which ones are needed is inevitably affected by the researchers' involvement in the case study, their knowledge and views about it and the sources of information on which they base their analyses. The incentive analyses therefore should not be seen as objective and qualitative analyses.

The incentives most frequently citing as being used or partly used in the MESMA case studies are:

- L2 International-regional-national-local legal obligations that require the fulfilment of the priority objective, including the potential for top-down interventions (cited as being used or partly used in all 12 case studies).
- P1 Developing participative governance structures and processes that support collaborative planning and decision-making, eg user committees, participative GIS, postal consultations on proposals that provide for detailed feedback, participative planning workshops, etc, including training to support such approaches (cited as being used or partly used in 11 of the 12 case studies).
- K4 Using interactive maps (paper or digital) for gathering information from users on the spatial and temporal distribution of different activities, environmental impacts of activities, distribution of conservation features, *etc* to support the achievement of the priority objective while reducing conflicts (cited as being used or partly used in 10 of the 12 case studies).
- K5 Maximising scientific knowledge to guide/inform decision-making and monitoring/evaluation in relation to the priority objective (cited as being used or partly used in 8 of the 12 case studies).

It is possible that K4 and K5 are cited frequently in MESMA case studies because most researchers involved in MESMA are scientists, and are most familiar with the use of this type of incentives in their own case study.

The incentives most frequently cited as being needed in the MESMA case studies are:

- L9 Legal or other official basis for coordination between different sectoral agencies and their related sectoral policies, aimed at addressing cross-sectoral conflicts in order to support the achievement of the priority objective (cited as being needed in 6 of the 12 case studies).
- P1 Developing participative governance structures and processes that support collaborative planning and decision-making, *eg* user committees, participative GIS, postal consultations on proposals that provide for detailed feedback, participative planning workshops, *etc*, including training to support such approaches (cited as being needed in 5 of the 12 case studies).
- P2 Decentralising some roles, responsibilities and powers to local people and their constituencies, including local government, through a clear management structure, whilst maintaining an appropriate balance of power between local people and the state in relation to the priority objective. Managing expectations in this respect can be particularly important by

being realistic about the degree of autonomy and influence that local people and governments/agencies can expect (cited as being needed in 3 of the 12 case studies).

- P3 Clear rules on the means and degree of participation from different sectoral groups and the unbiased representation of all sectors in participation processes (cited as being needed in 3 of the 12 case studies).
- P5 Transparent participation and decision-making processes, including about how user participation has affected decisions and why it may or may not have done, and being very clear and honest, once decisions are made, about the potential benefits and costs, as well as the restrictions imposed on certain users(cited as being needed in 3 of the 12 case studies).

It is possible that as marine spatial planning is still in a very early stage in most MESMA case studies, and that most of the spatially managed areas have not been implemented, it is difficult to see which incentives will be needed to improve governance in most MESMA case studies. It is also interesting that P1 is cited both as one of the most used and most needed incentives, which means that although participative governance structures and processes have been used to some degree in most case studies, such structures and processes still need to be improved to provide for better stakeholder participation, which is discuss in more detail in subsequent sections. There is therefore no surprise that 4 of the 5 most needed incentives are participatory incentives. This trend of the identified need for better participative incentives must, however, be considered in the light of the discussions in Deliverable 6.2.

Incentive	Belgium	Dogger Bank	Skagerrak	Wadden Sea	Barents	Pentland	Celtic	Biscay	Sicily	Malta	Inner Ionian	Baltic Sea
E1 customary rights					U			PU/N	PU/N		U	
E2 certainty	U				U	U		U				
E3 alternative livelihoods								U	PU/N		N	
E4 economic compensation								PU/N				N
E5 sufficient funding	U	PU/N	U		U		PU					PU/N
E6 NGO/private funding							U			U	U	U
I1 maps	U	U		U	U	U	U	U	PU/N		U	PU
I2 resource benefits					U			U	PU/N			PU
I3 conservation benefits	U			U	U		U		PU/N		N	PU
K1 addressing uncertainty			PU		U	U	PU					
K2 independent arbitration		PU	U		PU						PU	
K3 diverse knowledges		PU	PU				U	N				
K4 interactive mapping		PU	N		U		U				N	
K5 science base	U	PU	U	U	U	U	U		PU/N			
K6 information sharing					U							
L1 condition use			N		PU	U			PU/N			U
L2 legal obligation	U	U	U	U	U	U	U	U	U	U	U	U
L3 sensitive intervention									PU/N			U
L4 sufficient capacity					U	U			N			N
L5 effective enforcement					U				PU/N			
L6 legal clarity	PU		U				PU				N	U
L7 appeal / adjudication						N						
L8 flexibility/subsidiarity						N						U
L9 cross-sector Integration		PU/N	N	N		U	PU	N	PU/N	PU		PU/N
L10 cross-jurisdictional coordination		N			U		PU					
L11 transparency/rights		N	U		U	PU	U					U

P1 participative process	PU	PU/N	PU/N	PU	PU	N	U	PU/N	PU/N	PU	PU	PU
P2 decentralisation						N	U		PU/N		N	
P3 clear rules		U	PU		PU		U	N	N		N	
P4 trust/social capital		PU	PU/N		PU	N	U					
P5 Transparent decision making					PU/N	N	PU	N				
P6 Peer enforcement											N	
P7 local tradition			N		U							
P8 co-evolution		PU	N		U	N						
P9 facilitation		U					U				N	
P10 neutral arbitration											N	
Total number of incentives used or partially used	**8**	**13**	**11**	**5**	**23**	**9**	**19**	**8**	**13**	**4**	**6**	**13**

Table 2. The incentives used (U), partly used (PU) or needed (N) in the MESMA case studies.

Incentive	Number of case studies in which the incentive has been used or partly used	Number of case studies in which the incentive was considered to be needed
E1 customary rights	4	2
E2 certainty	4	
E3 alternative livelihoods	2	2
E4 economic compensation	1	2
E5 sufficient funding	6	2
E6 NGO/private funding	4	
I1 maps	10	1
I2 resource benefits	4	1
I3 conservation benefits	6	2
K1 addressing uncertainty	4	
K2 independent arbitration	4	
K3 diverse knowledges	3	1
K4 interactive mapping	3	1
K5 science base	8	1
K6 information sharing	1	
L1 condition use	3	2
L2 legal obligation	12	
L3 sensitive intervention	2	1
L4 sucifficient capacity	2	2
L5 effective enforcement	2	1
L6 legal clarity	4	1
L7 appeal / adjudication		1
L8 flexibility/subsidiarity	1	1
L9 cross-sector integration	6	6
L10 cross-jurisdictional coordination	2	1
L11 transparency/rights	5	1
P1 participative process	11	5
P2 decentralisation	2	3
P3 clear rules	4	3
P4 trust/social capital	4	2
P5 Transparent decision making	2	3
P6 Peer enforcement		1
P7 local tradition	1	1
P8 co-evolution	2	2
P9 facilitation	2	1
P10 neutral arbitration		1

Table 3. The total umber of MESMA case studies in which a specific incentive has been used or partly used, or is considered to be needed.

4. The role of incentives in MESMA case studies

This section focuses on the role of different categories of incentives in MESMA case studies, particularly in promoting the achievement of strategic policy objectives and providing for appropriate levels of user participation. The findings in relation to the incentives in each MESMA case study are briefly summarised and discussed. Readers should be aware that more detailed contextual information about the case studies, including conflicts and governance approaches, is summarised in Deliverables 6.1 (Conflicts) and 6.2 (Governance approach).

4.1 Belgium Part of the North Sea

In the Belgium case study, economic incentives are used in the development of the Masterplan to reduce potential conflicts between different sectors. Space was allocated through the allocation of concessions for sand and gravel extraction and renewable energy before the delineation of *Natura 2000* sites, in this way the investors have the certainty that the designation of *Natura 2000* sites will not interfere with their planned activities (E2). It is also promised that multiple-use will be allowed in the wind parks and *Natura 2000* sites (E3), as a way to reduce potential conflict with the fishing industry.

Several interpretative and knowledge incentives were used particularly in the designation of the Vlaamse Banken *Natura 2000* site. Maps were used to show the borders of different zones (I1) and a scientific study was commissioned by the Federal Government to delineate potential areas for the designation of *Natura 2000* sites, which served as the basis for the designation of the first marine SAC in Belgian waters: Vlaamse Banken (K5).

The most important incentive for the designation of the two *Natura 2000* sites, as part of the Masterplan, is the legal obligations under the EU Birds and Habitats Directives (L2). In 2007, a letter was drafted by DG Environment to request that member states should establish *Natura 2000* sites within in the EEZ before 2008. Belgium did not succeed but undertook steps to finally propose the area Vlaamse Banken to the European Commission in 2010. It is generally considered that MPAs are inevitable due to this European obligation, despite earlier oppositions against the designation of such sites. However, other legal incentives are either not used or used to a limited degree. There is no enforcement and user agreements have been introduced to manage fisheries. Such agreements contain a series of recommendations for fishing activities with *Natura 2000* sites, but the consequences of violating these recommendations are not mentioned in the agreements. There is also a lack of coordination between the Federal Government (responsible for *Natura 2000* sites) and the Flemish Government (responsible for fisheries management), with no formal mechanism or policy basis for ensuring the cooperation between the two governments.

Participative processes (P1) were in place. In the first phase of the Masterplan, when the first *Natura 2000* sites (Vlakte van de Raan and Trapegeer Stroombank) were designated, participation was mainly limited to bi-lateral consultation. Ministers conversed with representatives of each sector separately

and there were clear rules (P3) that the content of such bi-lateral meetings must be kept confidential. This means that information on the content and outcomes of such bi-lateral meetings is not available to other sectors and to the general public, and the lack of transparency was a key concern. In the designation of the second *Natura 2000* site (Vlaamse Banken), the process was more transparent. Stakeholders were informed and given background information, public consultation and hearings were organised and stakeholders were given the opportunity to comment on the scientific report and be informed about whether their comments have led to any change. However, it was clearly stated that stakeholders can only comment on the scientific content and that socio-economic issues could only be addressed at a later stage, in keeping with the legal obligations under the Habitats Directive (Pecceu *et al* 2013).

4.2 The Dogger Bank

In the Dogger Bank case study, economic incentives are used to a limited extent (concession to wind farm developers in UK section – E2). The trans-boundary *Natura 2000* sites are still in the planning stage and so far, it is still not clear if and which economic incentives will be used. It could be argued that the promotion of economic development opportunities (E3) is being discussed as the current approach is to restrict only bottom impacting gears and some vessels could diversity to support the wind farm developments. A lack of funding from governments has been a key concern. The Dogger Bank Steering Group and other planning processes have been funded under various EU projects such as FIMPAS and MASPNOSE, by the fishing industry and participating member states. The budget has been very limited and it is not clear whether funding will be available for future activities once the EC-funded projects are finished.

Interpretative incentives are also used to limited extent. As the management plan is still being drafted, maps (I1) are mainly used to display and collate more information, rather than to promoting awareness and compliance. As in other *Natura 2000* sites, the objectives of the Dogger Bank are mainly written to protect conservation features, making it difficult to communicate the economic benefits of proposed closure of bottom trawling.

Knowledge incentives play an important role in the spatial planning process. For example, in the initial mapping process, digital map tables were used to display and collate data (K4). This was based on a map drawn by an independent scientist on behalf of WWF, which shows the distribution of the five benthic communities. This map was used as an interface through which participating fishermen added their own knowledge and track data. This mapping process also promoted dialogue between different stakeholders involved (K3). This process involved discussions about available data and knowledge and agreeing on accepted as well as disputed data and knowledge. There are however concerns regarding the use of some knowledge incentives. In the planning process, ICES (International Council for the Exploration of the Sea) was invited to provide scientific advice as well as to carry out the practical planning work for the Dogger Bank Steering Group. The fisheries management proposal produced by the Dogger Bank Steering Group (including the zoning plan) was then reviewed by a special committee in

ICES. This double role of ICES, both as an information provider and evaluator, makes it difficult for stakeholders to see ICES as an independent advisor (K2). Ecologists from the participating countries were not invited to provide information and advice, only the report commissioned by WWF and papers prepared by the ICES were used as the scientific basis for the planning process. This has arguably undermined the scientific basis for decision-making as the knowledge of those who actually use the Dogger Bank and of experts in the relevant member states was not directly drawn on and combined with 'expert' knowledge from ICES (K3).

Legal incentives represent the biggest challenge for the Dogger Bank *Natura 2000* sites. Although under the Habitats Directive member states must ensure that the conservation objectives area met (L2), as the Dogger Bank is located in the offshore area, fisheries management measures can only be applied to all boats if the EC sanctions these measures under the CFP. A lack of leadership from the EC makes it very difficult to reach decisions on fisheries restrictions. Due to the different priorities and interests in the countries involved, there are areas to be improved in relation to several other legal incentives, such as clarity, consistency (L6), cross-jurisdictional cooperation (L10) and transparency (L11). As one of the first trans-boundary marine spatial planning exercises in the EU, the continuation of the documenting and analyses of the Dogger Bank process is therefore very valuable for future initiatives.

Participative incentives have been used but their effectiveness could be improved. The Dogger Bank process started as a top-down initiative which was mainly driven by the inter-governmental Dogger Bank Steering Group. Stakeholders had not been involved until the North Sea Regional Advisory Council was invited by the Dogger Bank Steering Group to participate in the process. Three stakeholder-driven workshops were organised by a spatial planning sub-group of the North Sea Regional Advisory Council, and representatives from the fishing, NGO and renewable energy sectors took part in the workshops (P1). Although the participative process did not lead to a joint zoning proposal supported by all stakeholder representatives, it did create a platform for cross-sectoral dialogue and the promotion of trust and social capital between the representatives (P4). One of the biggest hurdles for the participative process is a lack of clear direction from the Dogger Bank Steering Group. It was not very transparent to all stakeholders what had been expected from them, and whether their opinions would be listened to (P5). This lack of transparency and direction hinders the effectiveness of the participative incentives (Goldsborough 2013).

4.3 The Wadden Sea

The Wadden Sea case study focuses on the Wadden Sea Tri-lateral Cooperation, which is a high-level political process established to promote cooperation between the three countries (Germany, the Netherlands and Denmark). The incentives 'tool box' seems to be less useful in this case study compared to others, as sometimes it is difficult to see how decisions and general principles agreed at a higher political level are translated into actions and impacts on the ground.

Economic incentives do not seem to be dealt with under the Tri-lateral Cooperation, as the cooperation focuses on nature conservation. Economic issues relating to sustainable development are mainly discussed through the Wadden Sea Forum, which is a multi-sector body established to provide a platform for stakeholder participation. Some fisheries in Germany participate in the MSC certification scheme, but it is not clear if such certification actually promotes sustainability of fishing practices (Slob *et al*. 2013).

Interpretative incentives are used by the Tri-lateral Cooperation, Wadden Sea Forum and UNESCO World Heritage Site to display boundaries of the Wadden Sea Area and permanent closed zones in the Wadden Sea to support awareness and implementation of management measures related to the fulfilment of the priority objective (I1). Furthermore, the Wadden Sea is widely regarded as a unique area from ecological, geological and socio-cultural points of view. This value is promoted by the UNESCO World Heritage site (I3) (Slob *et al* 2013).

Knowledge incentives are also used and the Tri-lateral Cooperation coordinated monitoring efforts between the three countries. A Trilateral Monitoring and Assessment Programme was established to provide information on the status of the Wadden Sea ecosystem and to evaluate the status of the implementation of the assigned targets in the Wadden Sea plan. The programme enhanced the availability of scientific information and promoted the sharing and exchange of information and data between experts in the three participating countries (K6) (Slob *et al*. 2013).

Legal incentives are not directly employed by the Tri-lateral Cooperation. The Cooperation is a high-level political framework with no legislative power. Despite this the Wadden Sea is a highly regulated area with legal obligations under national, EU (Habitats and Birds Directives) and international (the World Heritage Convention) laws and convention. Legal incentives play an important role in the protection of the Wadden Sea. For example, mechanical cockle fishery was banned in the Wadden Sea following a judgement of the European Court of Justice to protect the integrity of the site, in accordance with Article 6 of the Habitats Directive (Slob *et al*. in prep.).

Participative incentives have been used but the effectiveness in promoting genuine stakeholder participation is arguably limited. The Wadden Sea Forum (WSF) is an independent stakeholder platform with participants from economic sectors, regional authorities, NGOs and other stakeholder groups from the Wadden Sea region of the three countries (P1). It was established by the Wadden Sea Council (consisting of governments from the three countries) but this remains the only formal link between the Forum and the Council. The forum mainly functions as a consultative body for local and national governments. However there are no clear definitions of the roles and responsibilities of stakeholders, and the influence of the Wadden Sea Forum is hard to measure. In addition, the Forum faces time and budget constraints and the benefits for stakeholders to participate in the Forum are not clear. This means that some stakeholders, such as large companies, have more resources and time for participation, while others, such as the fishing industry, have little incentive to participate in the Forum (Slob *et al*. in preparation). This ultimately limits the effectiveness of the Forum in promoting user participation.

4.4 Skagerrak

In the Skagerrak case study, economic incentives are focused on the provision of government funding for scientific studies to support the development of management and monitoring activities (E5). These activities include studies on the use of cameras on board small fishing vessels to monitor by-catch rates.

Several knowledge incentives have been used in the case study. Automatic cameras are being used to monitor fisheries and assess the bycatch of harbour porpoises to reduce the large uncertainty that has been prevalent in the scientific knowledge in this field (K1). The Danish Agrifish Agency has established the national '*Natura 2000* Dialogue Forum' as a means to promote the exchange of knowledge and ideas amongst managers, scientists and stakeholders about various themes related to *Natura 2000* implementation (K3). This forum, however, focuses on the implementation of the *Natura 2000* sites at a general national level and does not specifically target the two sites in the Skagerrak case study. In developing management measures for the two *Natura 2000* sites in Skagerrak, the Danish Agrifish Agency relies heavily on independent scientific advice from Aarhus University and DTU Aqua regarding harbour porpoise biology and distribution, and on the incidental bycatch of porpoises in fisheries, and does take the best available data into account. Much of this advice is currently centred on the harbour porpoise expert group which has been convened by the Agrifish Agency (K5).

Although still in an early stage of developing management measures and enforcement, several of the legal incentives are already in place or have been envisaged. It seems inevitable that there will be some conditions attached to the fishing license, such as the instalment of cameras on board fishing vessels for monitoring and surveillance purposes, and/or the use of acoustic deterrents on all gillnets (L1). As with other *Natura 2000 sites,* the conservation features are protected under the Habitats Directive (L2). Jurisdiction and the responsibilities of different authorities are clearly defined in the national legislation that transposes the Habitats Directive (L6). A public hearing was organised and all interested parties can comment on the boundaries and reasons for designation in the two sites in Skagerrak (L11). One of the biggest challenges in this case study is the disconnection between the Habitats Directive and national and EU fisheries laws (L9). As with other *Natura 2000* sites, currently there are no fisheries management measures that would support the conservation of harbour porpoises in these 'MPAs'.

In the Skagerrak case study, most participative incentives have been applied at the national level, such as the establishment of the national '*Natura 2000* Dialogue Forum' (P1). There are clear rules for engagement in the Forum and different sectors (including NGOs and fishing) are represented (P3). However, it is the Ministry of Fisheries who makes the final decisions and the members of the Forum have little influence once the meetings are over. Transparency is also a potential issue as the Forum is quite *ad hoc* and the participants do not seem to have any control over the subject area to be discussed, or the Ministry's long-term plan for *Natura 2000* implementation. The presence of such forums, however, does promote the potential for an upward spiral of cooperation and, to a lesser degree, mutual trust amongst the stakeholders (P4). However, there are few participative incentives that aim to

involve local users and stakeholders potentially affected by the two SACs in the Skagerrak apart from the public hearing (Kirk Sørensen and Kindt-Larsen 2012).

4.5 Sicily

In the Sicily case study, some economic incentives have been applied to alleviate the conflict between nature conservation and local economic needs in managing the Egadi Marine Protected Area. Within some zones in the MPA, fishing is only open to local (Egadi Island) residents (E1). Fishermen from the nearby Municipality (Trapani) are denied access. However, this has also led to conflicts between local and non-local fishermen. In addition, 'pescaturismo', a tourism activity involving taking tourists on board artisanal fishing boats to participate in traditional fishing activities, was introduced as a way to promote sustainable fishing and tourism activities (E3). This is seen as a way to increase the income of local fishers particularly during summer, when the catch is low and tourists are numerous. However, this activity is limited, mainly due to the costs and difficulty associated with obtaining permission for pescaturismo operations. As the Egadi Islands are economically less developed compared to most other areas in Italy and Europe, the further development of the economic incentives is arguably particularly important for improving the governance of this MPA.

Interpretative incentives have been used to a very limited extent. Information available online and in hard copies is poor and many tourists do not seem to be aware of the existence of the MPA. Similarly, knowledge incentives are also used to a very limited extent. Very few scientific studies have been commissioned by the MPA management authority. Some technical reports have been prepared and submitted to the MPA committee and conferences are organised to present the results (K5). However, it is perceived that science has had a limited influence on decision-making compared to political and economic considerations.

Legal incentives are in place, however their effectiveness in protecting the conservation features is limited. The Egadi MPA has been proposed to the EU as a *Natura 2000* site under the Habitats Directive, therefore management plans and measures will need to be developed in due course (L2). However, so far, enforcement and compliance has largely been ineffective. Efforts have started to address cross-sectoral coordination between the fisheries and conservation sectors by establishing integration mechanisms through the Local Fisheries Management Plan (L9).

The Egadi MPA has been designated and managed through a top-down approach and there are few participative incentives in place. However, there have been some changes since the new MPA director took office in 2011. The MPA is going through a re-zoning process and local stakeholders have been asked to provide input (P1). This has in general been seen as a positive change, although stakeholder participation during the re-zoning process may have been dominated by the interests of fishing trade associations. The re-zoning process therefore provides an important test field for developing more bottom-up governance approaches (D'Anna *et al*. 2013).

4.6 Malta

In the Maltase case study, the analyses focus on the Rdum Majjiesa to Ras ir-Raħeb MPA, in which the management plan is still lacking and very few incentives have been implemented.

The beach within the MPA is managed under the Project Olympus undertaken by the Gaia Foundation (a local NGO) and the NGO helps manage tourism activities (E6), though they have no legal mandate. In addition, the MPA was designated as a *Natura 2000* site in 2008. Therefore according to the Habitats Directive, more formal management measures will need to be developed by 2014 (L2) (Pace 2012).

4.7 Barents Sea

In the Barents Sea case study, economic incentives play an important role. The Barents Sea Management Plan is driven by the need to allocate space for oil & gas activities, and the Plan provides economic incentives to the oil & gas industry as it allocates licences for areas that will be opened for exploration and production (E2). This provides the industry with more certainty regarding development in a large sea area and allows them to seek a more long-term investment and development strategy. It also points out to the industry key conflict areas with fisheries and conservation interests, which allows the industry both to develop remedial measures and to lobby government to gain support for their oil & gas development proposals. Government funding is also provided for the MAREANO (seabed mapping) and SEAPOP (seabird mapping and monitoring) programmes to improve scientific knowledge that underpins decision-making (K5).

All of the interpretative incentives have been used in the case study. A dedicated website has been set up to share maps and information (I1). The Plan explicitly promotes the recognition of resource development benefits, and unites the development of the oil & gas industry and the related creation of jobs with fishing and environmental conservation interests (I2). The mapping of 'Vulnerable and Valuable Areas' through the MAREANO project highlights the areas of high importance for biodiversity conservation (I3).

Knowledge incentives also play an important role in the development of the Barents Sea Management Plan. Uncertainty concerning large-scale effects such as risks of oil spill and the impacts of climate change features strongly in scientific and political debates. Gaps of knowledge are documented and reviewed in the development and revision of the Plan. The failure to *a priori* agree on acceptance criteria for uncertainty and risk has led to extensive debates on when the precautionary principle should and should not be applied (K1). A new initiative is underway which makes use of a new legislation that oblige fishers to record the bycatch of sponges and corals on the electronic catch log. These observations from the fishers on sponges and coral habitats are thus linked to reliable geographical positions and allow the fisheries authorities to consider mitigating actions (zonation, time closures) to protect sensitive bottom habitats (K4). The development of the Plan is firmly science based (K5). Key government scientific institutions affiliated with relevant ministries (petroleum, fishing and

environment) are heavily involved in the decision-making and monitoring processes, which also promoted the collaborative efforts and the sharing of data and information between these institutions and ministries (K6).

Although the Barents Sea Management Plan is mainly a political framework, the decisions and provisions are implemented mainly through other sectoral legislation. The sectoral legislation sets exact environmental standards (Pollution Act), technical petroleum standards (Petroleum Act) and fisheries standards (Marine Resources Act) (L1). The political will and capacity for effective enforcement of the regulations were in place before the Plan was implemented (L4). Legal frameworks for the regulation of fishing and petroleum activities are effectively enforced (L5). For example, for the regulation of fishing activities, the North East Atlantic Fisheries Commission (NEAFC) has developed rules and control regimes to create closures and restrictions on fishing in different seas outside national jurisdiction. Various types of sanctions can be applied to violation of fishing regulations, ranging from a written warning to administrative sanctions and criminal charges. In regulating the petroleum activities, the Petroleum Safety Authority and the Norwegian Pollution Control Authority have had joint responsibility for regulations relating to risk management in the oil and gas industry since 1991. There is a requirement for zero discharges of drill cuttings and processed water to the sea. Licence holders in the Barents Sea-Lofoten area will not be permitted to engage in year-round petroleum operations unless they can substantiate that their operations will meet the requirement for zero discharges to the sea. There are legal provisions to ensure the transparency in MSP processes. This is statutory in the Planning and Building Act and in the Act on the Right to Environmental information (L11). Public hearings and consultation have been organised to facilitate public participation in the revision of the plan.

Compared to other categories of incentives, participative incentives do *not* seem to play an important role in the case study. The planning process was mainly led by the government and stakeholders were not actively involved (P1). During the revision of the Plan, political process led to substantial changes to the proposal (*eg* lifting discharge limits for petroleum industry), which were *not* transparent (P5). Nevertheless the process promoted cooperation between the different sectors represented by their respective ministries and scientific institutions (P4) (Olsen *et al*. 2012).

4.8 Bay of Biscay

In the Bay of Biscay case study, a range of economic incentives has been used. The rights of local 'customary users' have been recognised in the planning of the BIMEP (Biscay Marine Energy Project) (P1). In Spain, coastal fishers have a long tradition and their rights on territorial use are widely recognised and respected. The fishing guilds or cofradías are ancient institutions that defend the interests of local fishing communities and also consultative bodies to the government in decision-making. Consultation and negotiations were held between the government agency that promotes the installation of renewable energy platform and local cofradías. Regarding fair economic compensation, this was in fact proposed by the promoter to compensate fishermen for the potential economic loss (E4). Monetary and non-monetary compensatory measures were proposed in the

negotiation process. Non-monetary compensatory measures were proposed with the aim to create employment in relation to BIMEP activity. The BIMEP project also aims to create development and job opportunities through the promotion of renewable energy technology (E3).

Knowledge incentives have been used to a limited extent and this seems to be primarily focused on scientific knowledge (K5). However, evidence shows that local fishermen possess good knowledge of the marine area which could be helpful for planning and managing activities in the area (K3).

Legal incentives have also been used to a limited extent. There is a complex array of local, sub-national, national and EU policies and laws that are related to the development of marine energy and marine planning and management (L2). However, the lengthy process associated with gaining planning permissions for the BIMEP illustrates that there is a need for coordination between the different local and national authorities involved in the process (L9).

In the planning of the BIMEP project, various opportunities were provided to engage stakeholders (P1). A more comprehensive participation process was organised to involve the fishermen, who played an advisory role and, leading to technical decisions being modified. In spite of this, local fishermen still expressed concerns about not being involved at the very early stage of the decision-making process (Galparsoro *et al* 2012).

4.9 Pentland Firth and Orkney Waters

In the Pentland Firth and Orkney Waters case study, economic incentives seem to be the most important group of incentives used to promote the achievement of the objective (the promotion of wave and tidal energy development). Seabed lease concessions and licensing arrangements provide developers and investors with certainty for planning future activities and investments (E2). There are also various types of public funding available for the development of renewable energy. These include government grants and subsidies for the development of marine renewables through the Renewables Obligation Certificates (ROCs) (E5).

Interpretative and knowledge incentives have been used to limited extent. The Government's 'sectoral plans', which are not statutory and subject to licence requirements, indicate areas where marine wind, wave and tidal energy are likely to occur (I1). Uncertainty concerning the impacts of renewable technologies is also a key issue. The policy of 'deploy and monitor' allow developments to go ahead without full understanding of the impacts. In addition, the phased introduction of marine planning also allows knowledge gaps to be identified and addressed through targeted research efforts (K1). Whilst it is debatable whether this 'deploy, monitor and research' strategy for addressing uncertainty is in keeping with the precautionary principle, at least it is a strategy that explicitly recognises uncertainty as an issue and attempts to address it.

The legal framework for marine planning in Scotland is still under development; however various legal incentives are already in place. It is expected that conditions will be attached to licenses granted to renewable energy developers, including environmental standards (L1). Legal obligation to develop offshore renewable industry exists under the Marine Scotland Act (L2). There are also statutory provisions for public consultation (L11). However, further legal incentives will be needed in order to ensure that the process of marine planning is transparent and fair, and the outcomes do not hamper the interests of the local community in the development of marine renewables. These include the need for platforms of appeal when decisions are challenged (L7) and opportunities to involve local institutions in the decision-making process (L8). In the case study, the Crown Estate owns the seabed and leases were granted to developers with very limited consultation with local stakeholders. Marine renewable projects over 100 MW qualify as 'nationally significant infrastructure projects' and planning decisions are taken centrally. It is therefore essential that the interests and rights of local island communities are protected in the decision-making process.

Most participative incentives have been missing from the process. Decisions have mainly been driven by development interests and the participation of local stakeholders is mainly limited to information and consultation, many locals seeing the latter as 'tokenistic'. Improving the levels of participation and accountability represents a key area for improving governance in this case study. This should, at a minimum, be based on a simple right of appeal, *ie* communities are granted with the rights and means to appeal to decisions that may potentially have adverse effects on them. Further participative incentives aiming at empowering local communities during the negotiation and decision-making processes will also help bring in a better balance of power in a centrally driven planning initiative (Johnson *et al* 2013), though it is debatable whether the Scottish government would provide for this as it could undermine the fulfilment of national strategic objectives (as discussed in deliverable 6.2, section 4).

4.10 Celtic Sea

In the Celtic Sea case study, few economic incentives have been used, mainly due to the fact that the case study focuses on a process aimed at designating a network of marine conservation zones (MCZs) in south-west England (the Finding Sanctuary Project), and discussions on how to manage these sites once they are designated was not included in the process. Finding Sanctuary, a regional project set up to work with stakeholders in developing recommendations for potential MCZs in south west England, is a partnership between governmental and non-governmental organisations, and each of these organisations contributed funding towards project activities (E5).

Interpretative incentives have been used extensively in the case study. Maps of the boundaries of MCZs were made available to the stakeholders and the public (I1). I2 (Promoting the recognition of potential resource benefits) was used to a very limited extent, as according to the Marine Act, the grounds for designating MCZs are focused on conservation. In comparison, I3 (promoting the recognition of biodiversity conservation benefits) was used to a greater extent. The Finding Sanctuary project team

prepared materials (booklets, website) that highlight the conservation benefits of MPAs, and NGOs launched information campaigns in support of MCZs after the Finding Sanctuary project finished.

Several knowledge incentives have been used in the case study; however some of them were only used during the course of the Finding Sanctuary project and were dropped after the project finished. Scientific uncertainty was recognised during the Finding Sanctuary project, however, the strategy was to accept it and proceed with best available information during the stakeholder-driven planning process (K1). However, after the proposed network design is delivered to the Government, the approach has shifted to an evidence-based one, requiring detailed scientific information for the conservation features in individual sites. The use of K3 (promoting mutual respect among scientists and local users) and K4 (use of interactive maps to gather information from users) followed a similar pattern. The incentives were used intensively during the stakeholder –driven planning process, but dropped in subsequent processes. The gathering of user knowledge about the area and user activities, and the sharing of information and data ceased after the Finding Sanctuary project and in subsequent evidence-based process only scientific knowledge is used (K5).

As the MCZs have not yet been designated and implemented, many of the legal incentives have not yet been developed. The legal framework for the implementation of the MCZs, however, is in place. The main legal drivers are the Marine Strategy Framework Directive and the Marine and Coastal Access Act (2010) (L2). There are clear legal definitions on the objectives of the MPA network and the responsibilities of different authorities (L6). However, the restrictions and management measures in the designated sites are still not clear. The Marine Act requires that relevant authorities should work towards ensuring that conservation objectives of the MCZs are achieved. Other than that, at the moment there is very limited cross-sectoral integration between the MCZ planning process and other sectoral plans (L9). By actively engaging stakeholders from multiple sectors in the development of MCZ recommendations, there was some integration between the proposed MCZ network and the planning of other activities. However, such stakeholder processes and therefore the cross-sectoral integration mechanism have ceased to exist. The marine planning process undertaking by the Marine Management Organisation may in the future enhance the integration between MCZs and other sectoral activities (L9). There is a statutory requirement to consult stakeholders in the designation of MCZs and in the preparation of bylaws for managing individual MCZs (L11). There is also Freedom of Information Act, which ensures public access to information. However, not all information on the MCZ process is available on the public domain. During the Finding Sanctuary project and similar stakeholder-driven MCZ planning projects in other marine regions in England, the planning process strived for maximum transparency and relevant information was provided and the whole process was well documented. However, after Finding Sanctuary and other regional projects ended, it has not been very transparent regarding what is happening, who is driving the decisions and what is the government's plan for MCZ designation and management.

The use of participative incentives followed a similar pattern as some of the knowledge and legal incentives. During the course of Finding Sanctuary and other regional stakeholder driven projects, significant effort was made to provide a platform for the participation of stakeholder representatives

from multiple sectors (P1). Local users, through their representatives, were given significant roles in influencing the final recommendations on the proposed network (P2), and the stakeholder-driven planning process promoted understanding, dialogue and trust between the different stakeholders (P4). The Finding Sanctuary process was highly transparent (P5). There are also rules and protocols on participation and a dedicated team was established to facilitate the participation process (P3). However, representation was an issue that was debated at length during Finding Sanctuary. Some sectors, such as the commercial fishing sector, argued for more representatives from their sector to be presented at the planning meetings. An external facilitator was hired to facilitate the meetings and discussion (L11). However, when Finding Sanctuary and other regional projects finished, most of the participative incentives were ceased and the level of participation and transparency dropped significantly in the subsequent process (Lieberknecht *et al* 2013), eroding much of the social capital that had previously been generated.

4.11 Inner Ionian Archipelagos & adjacent gulfs

In the Greek case study, few incentives have been used to promote conservation objectives of the *Natura 2000* sites. The prohibition of beach seiners protects the interests of small-scale coastal fishermen, and the limitation of trawling to only local fishers is based on the recognition of the rights of local fishermen (E1). During the last 25 years the NGO Archelon is provided funds through successive LIFE-Environment programmes to support the development and implementation of the initiative 'protection of *Caretta caretta* nesting' in the National Marine Park of Zakynthos (E6). This has been supported by the Ministry of Environment. Maps of the distribution of Annex I habitats (under the Habitats Directive) have been prepared by government research institutions but their dissemination is rather limited (I1). Knowledge incentives appear to be limited but efforts have started to develop a sufficiently robust knowledge base for MPA restrictions, *eg* scientific mapping of sea grass beds (K5), and to address the issue of conflicting information (K3). There are legal obligations to protect the conservation features under EU, regional and national legislation (L2), however, the MPAs do not seem to be effectively protected from the potentially damaging activities, particularly demersal trawling. Participation from local users and stakeholders also seems very limited (P1).

It is clear that significant efforts will be needed to improve the effectiveness of the *Natura 2000* sites. Given the current economic situation in Greece, economic incentives, such as the provision of sustainable development opportunities likes eco-tourism (E3), will probably be more acceptable to local users compared to top-down interventions. Implementing some of the legal and participative incentives requires substantial changes in the current socio-political system but will probably remain as longer-term objectives for the *Natura 2000* process in Greece (Panayotidis *et al* 2013).

4.12 Baltic Sea

In the Baltic Sea case study, the use of economic incentives are mainly limited to E5 (Providing government funding) and E6 (Seeking NGO and external funding). Environmental projects and *Natura*

2000 areas in particular, are almost always present in the EC funded programmes, such as LIFE, EU Regional Programmes, or Norwegian and EEA grants. Both government organisations and NGOs have been awarded funding to work on conservation projects related to marine *Natura 2000* sites in Puck Bay. E4 (Providing financial compensation) is being discussed as a potential incentive, which will involve compensating fishermen for the protection of seals.

Interpretative incentives (I1-3) have mainly been used at the national level. The General Directorate for Environmental Protection maintains a web page dedicated to *Natura 2000* sites. This portal includes an e-learning component to promote public awareness on the *Natura 2000* network, and conservation benefits arising from these sites. However, there is no effort dedicated to *Natura 2000* sites in Puck Bay. Moreover, spatial zoning restrictions have not yet been defined or implemented.

Similarly, knowledge incentives do not seem to be in place to support the planning and management of the *Natura 2000* sites in Puck Bay. There are some initiatives that could be considered as a move towards developing knowledge incentives, for example, environmental impact assessment councils have been established at national and regional levels (K2). These bodies comprise the representatives of scientists, practitioners and NGOs. However, it seems that local and traditional knowledge is underrepresented, or perhaps even completely ignored. The lack of some knowledge incentives, such as K6 (reducing barriers in access to information and data) are considered as the main drawbacks in marine planning and management in Poland.

Legal incentives are the most important category of incentives in use in the case study, although management plans for the *Natura 2000* sites in Puck Bay are still under development. Environmental impact assessment and environmental permits are required as part of the licensing process for investments and developments in marine areas (L1). There are legal obligations under the Habitats Directive and the Helsinki Convention to effectively implement the *Natura 2000* sites (L2). Public participation in environmental decision-making and the right to obtain information about the environment is ensured through the legal act on 'public access to information about the environment and its protection, public participation in environmental protection and environmental impact assessment' (L11). Clarity and consistency in defining legal objectives (L6) and coordination between sectoral agencies (L9) are being addressed through marine spatial planning, national maritime policy and the development of management plans for the *Natura 2000* sites. However these policy instruments are still under development and will be essential for ensuring the implementation of *Natura 2000* sites. Similarly, incentives L4 (availability of surveillance technologies and resources) and L7 (legal appeal and adjudication platforms) have not yet been implemented. This remains a key concern for the case study, as it is not clear 1) what management measures and restrictions will be required and 2) whether sufficient resources will be available for the enforcement of the restrictions.

Most of the participative incentives have been used. The quality of participation in Poland is in general poor. However, there are initiatives aiming to promote stakeholder participation in the Puck Bay. Stakeholders were consulted during the development of the 'Pilot Draft Plan for the West Part of the Gulf of Gdansk' and SEA for the plan (P1). WWF Poland used a different approach, when the organisation

was granted a project to prepare protection plans for grey seals and harbour porpoises. A professional negotiating company was hired to run this project. There was a core group of experts, who were responsible for writing the final plans, and working groups of various stakeholders were established at the beginning of the process. In addition, there were two rounds of stakeholder consultations, when both draft plans were ready. However, it is doubtful if this participatory approach was successful. There are not only unsolved controversies between different stakeholders, but also between different groups of scientists. In addition, another key concern for the use of participative incentives, along with some interpretative and knowledge incentives, is that such activities are mainly funded by external organisations such as the EC. There is therefore limited financial sustainability once the projects finish and there link to formal and statutory decision-making processes is unclear (Piwowarczyk *et al* 2013).

5. Discussion

5.1 The role of incentives in providing for a balance to be achieved between the fulfilment of strategic ecosystem conservation obligations and the provision for appropriate levels of user participation

It is difficult to characterise what constitutes an ideal balance between 'the fulfilment of strategic ecosystem conservation obligations and the provision for appropriate levels of user participation' in a particular case study. The degree to which strategic ecosystem conservation obligations have been fulfilled can be evaluated, if the conservation objectives are clearly defined and information and data are available to undertake such an assessment. However, there is no simple answer to the question 'what is the appropriate level of user participation' or 'what level of participation is required to promote the fulfilment of strategic ecosystem conservation obligations'. Stakeholder participation is in general assumed to have a positive influence in most governance analyses; however, it is hard to draw a link between participation and the achievement of objectives. Some top-down initiatives, such as the Pentland Firth and Orkney Waters, and the Barents Sea, have managed to achieve the main planning objectives with very minimal levels of user participation. On the other hand, some participation processes may undermine the achievement of objectives, for example, in the Sicily case study, lobbying and pressure from the fishing trade associations led to more areas being opened up for trawling in the Egadi MPA (D'Anna *et al* 2013). The rest of this section therefore provides a discussion on 1) how strategic conservation objectives are being addressed and the levels of participation in the case studies and 2) how the incentives work together in promoting strategic conservation objectives and user participation as separate goals, rather than trying to analyse whether a balance between the two have been achieved.

In the context of the MESMA case studies, it is fair to say that strategic ecosystem conservation obligations have not yet been fulfilled in most cases, or that it is still too early to assess. Nine out of the 12 MEMSA case studies focus on conservation, or more specifically, various forms of MPAs. However, in most case studies, the MPAs are in very early stages of development and only in 3 cases have some forms of management measures been implemented (see Table 4). In the Sicily and Greek case studies, where some measures are in place, the measures are not considered to be adequate to achieve the

conservation objectives (D'Anna *et al* 2013; Panayotidis *et al* 2013). This is a reflection of the lack of progress in implementing EU and national conservation policies, particularly the Habitats Directive, though this was introduced in 1992.

With regards to the provision for user participation, some general observations can be made about stakeholder participation in the case studies:

1) It is fair to conclude that in most, if not all MESMA case studies, there is some form of stakeholder participation, although governance approaches in all MESMA case studies seem to be dominated by centralised and top-down approaches (see Deliverable 6.2). However, the forms of participation seem to be limited to information provision and consultation.
2) In a few case studies, genuine efforts have been made to provide opportunities for stakeholders to influence decision-making, most notably in the Celtic Sea case study, where stakeholders from multiple sectors jointly developed recommendations for networks of MCZs based on ecological guidelines from the government (Lieberknecht *et al* 2013). In the Sicily case study, as mentioned above, stakeholders also managed to yield some influence on the decisions regarding zoning, although influence could undermine the conservation objectives. In other case studies, such as the Wadden Sea, Dogger Bank, Skagerrak and Baltic Sea (Puck Bay), some efforts have been made to involve stakeholders in the decision-making process, however, the actual influence of stakeholders on decisions are very limited or not clear at best. Sharing power with stakeholders in marine spatial planning initiatives seems to be a major challenge, therefore it follows that statutory requirements for public participation, including in the proposed Maritime Spatial Planning Directive, are often limited to access to information and consultation.
3) In several case studies where stakeholder participation is actively promoted, it is clear that there is a disconnection between the bottom-up, participative processes and the centralised decision-making processes. In the Wadden Sea case study, the Wadden Sea Forum was created but its official roles are not clearly defined. There is only a very weak link between the Forum and the Council representing high-level political structure. In the Dogger Bank case study, stakeholder participation is facilitated by the North Sea Regional Advisory Council, which is separated from the political process facilitated by the Dogger Bank Steering Group. It is often felt that there are no clear directions from the Dogger Bank Steering Group. In the Celtic Sea case study, there was initially a good combination of bottom-up and top-down elements. However, after the stakeholders delivered their recommendations, the approach shifted towards a top-down one with very limited stakeholder involvement. From these case studies, it is questionable if the real value of stakeholder participation has been recognised by political parties. To some degree, stakeholder participation is seen as a means to 'smooth up' the process and it seems that participation is sometimes promoted as it is politically desirable to get stakeholders' approval on centralised decisions, even though these decisions were not significantly affected by the stakeholders' views and decisions.

As can be seen from the case studies, each of the five categories of incentives can be used to promote the achievement of strategic conservation objectives as well as user participation. Although it is difficult to make a quantitative assessment, in general it can be expected that the employment of a significant number of incentives from different categories can lead to more effective achievement of objectives and also better governance. If a process is designed to achieve the dual objectives of conservation and user participation, it will almost certainly need to have a reasonable number of legal and participative incentives in place. Other categories of incentives are arguably also required, as they provide economic means, awareness, and knowledge and information that support the dual objectives of conservation and user participation.

As the total number of case studies is small, and the analyses are heavily influenced by the perspectives of the researchers involved, the above observations need to be interpreted with caution. However, the results do highlight some key areas for future improvements.

Case study	Type of designation (national/EU)	Sites designated?	Management measures in place?
Belgium Part of North Sea	*Natura 2000* sites (EU)	Yes	No
Dogger Bank	*Natura 2000* sites (EU)	Yes	No
Wadden Sea	World Heritage, *Natura 2000* sites (EU) and national	Yes	Yes
Skagerrak	*Natura 2000* sites (EU)	Yes	No
Sicily	*Natura 2000* sites (EU) and national	Yes	Yes
Malta	*Natura 2000* sites (EU)	Yes	No
Celtic Sea	National	No	No
Greece	*Natura 2000* sites (EU)	Yes	Yes
Baltic Sea	*Natura 2000* sites (EU)	Yes	No

Table 4. The implementation of MPAs in the MESMA case studies.

5.2 Reflections on the usefulness of the incentives 'tool box'

In the MESMA project, the list of incentives is mainly used as an analysis tool box. The feedback from MESMA researchers indicates that in most cases, the incentives are useful for 'deconstructing' the complex realities of governance, and improving understanding about what has been tried and which incentives could be pursued. This is particularly useful for non-experts or researchers and practitioners who had no previous training in governance or social sciences. Most MESMA researchers had no previous training related to governance and social science, yet most of them were able to understand and apply the framework to their case study with some guidance from the UCL team.

Another advantage of the incentives 'tool box' is that it provides a systematic way for analysing governance and comparing findings from different case studies. As the number of case studies is relatively small, and there are large variations on the focus of the case studies and their spatial scale, it is difficult to identify general patterns relating to the use of incentives. However, developing a standard list of incentives is a first step towards systematic analysis and comparison of a large number of case studies. Such a standard list of incentives, coupled with examples of how they have been applied and combined with other incentives, can also provide guidance for practitioners engaged in the realities of marine spatial planning, *ie* a 'menu' of incentives.

Other feedbacks from the MESMA researchers include:

- The incentives 'tool box' is primarily designed for initiatives with objectives relating to ecosystem-based management, this has been discussed under Section 2. In real-life marine spatial planning initiatives, there are often multiple and potentially conflicting objectives. However, the incentives 'tool box' offers limited scope in dealing with multiple objectives.
- Some researchers suggest that a particular incentive can be divided into several while others suggest that some incentives can be merged into one. This points to difficulties in developing a standard list or taxonomy of incentives. With more empirical research it is possible to find ways to improve the list and develop better categorisation and terminology for the incentives.
- Some researchers suggested additional incentives or categories of incentives to be added to the list. For example, climate change incentives were suggested in the context of the Pentland Firth and Orkney Waters case study (Johnson *et al* 2013) to highlight incentives aimed at addressing climate change. Cultural incentives were suggested in the context of the Sicily case study to highlight incentives aimed at promoting traditional ways of live. Whether these incentives have been included in the current 'tool box' is subject to interpretation. However, as more case studies of marine spatial planning are documented, it is very possible that new incentives or even new categories of incentives will be added to the existing tool box.

As marine spatial planning initiatives further develop, there will be a need for analysis tools and tools for implementation. It is envisaged that the incentives 'tool box' can be also be used as a manual for planners and managers to identify what incentives are in place and which incentives will be needed to improve governance. To facilitate this, the incentives list is accompanied with examples of how a particular incentive has been used in MESMA case studies in the Appendix. The examples are not exhaustive, but rather serve the purpose of illustrating how a particular incentive may be applied, what it may achieve and some 'side effects' of the incentive. They provide a starting point for researchers, planners and managers to reflect on their own experiences and identifying solutions towards existing concerns and conflicts.

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Appendix Examples of the use of incentives in the MESMA case studies.

Incentives for which no approaches are described are considered either not to have been used in a particularly exemplary way in any of the case studies, or to be used on a very general and widespread basis in many if not all of the case studies, these examples adding little to the generic description. In some cases, an example is given from a case study which represents 2-3 of the incentives listed above.

Economic incentives

E1 Promoting and protecting the rights and entitlements of local 'customary' users, *eg* through assigning fishing rights to certain marine areas and fish stocks

In the Egadi Marine Protected Area (Sicily), within B and C zones in the MPA, fishing is only open to residents of the Egadi Islands. Within the A zone, pescaturismo (a tourism activity involving taking tourists on board artisanal fishing boats to participate in traditional fishing activities) is only allowed for residents of the nearby Marettimo Island (D'Anna *et al*. 2013).

E2 Providing certainty to potential industries and their investors, *eg* through licensing and granting concessions to renewable energy developers in certain marine areas

In the Barents Sea case study, the Barents Sea Management Plan provides economic incentives to the oil & gas industry as it gives clear guidance as to which areas will be opened for exploration and production. This allows the industry more certainty regarding development in a large sea area and allows them to seek a more long-term investment and development strategy. It also points out to the industry key conflict areas with fisheries and protection interests which allow the industry both to develop remedial methods and to lobby government to get acceptance for their views (Olsen *et al*. 2012).

In the Pentland Firth and Orkney Waters, and Dogger Bank case studies, seabed lease concessions and licensing arrangements provide developers and investors with some certainty for planning future activities and investments (Johnson *et al* 2013, Goldsborough 2013).

E3 Seeking and promoting economic development opportunities and alternative livelihoods that are compatible with the priority objective and can generate sustainable income for local people

In the Egadi MPA (Sicily), pescaturismo, a tourism activity involving taking tourists on board artisanal fishing boats to participate in traditional fishing activities, was introduced as a way to promote sustainable fishing and tourism activities (E3). This is seen as a way to increase the income of local fishers particularly during summer, when the catch is low and tourists are numerous (D'Anna *et al*. 2013).

In the Barents Sea case study, the plan promotes recognition of the potential resource development benefits of the MSP generally, and for some industries, more specifically. The management plan unites the goal of developing industry and jobs in the north with respect to consideration of fishing and environmental priorities (Olsen *et al*. 2012).

E4 Providing fair economic compensation for those users who carry costs as a result of restrictions on their activities that cannot reasonably be offset through compatible alternative livelihoods

In the Bay of Biscay case study, fair economic compensation was proposed by the promoter of the renewable energy platform to compensate fishermen for the potential economic loss. Monetary and non-monetary compensatory measures were proposed in the negotiation process. The latter measure was proposed with the aim to create employment in relation to renewable activity (Galparsoro *et al*. 2012).

E5 Providing sufficient government funding to support the development and implementation of the initiative to achieve the priority objective, including surveillance and enforcement activities and the use of other economic incentives

In the Skagerrak case study, the Danish government is financing studies with the aim of collecting data needed to support the development of management measures within the study areas. These studies focus on *eg* employment of cameras on board smaller vessels to gain better knowledge on the bycatch rates of this hitherto unexplored segment of the fishing fleet. In addition, the national Danish marine monitoring programme has recently initiated targeted monitoring of harbour porpoises within the study sites (Kirk Sørensen and Kindt-Larsen 2012).

In the Pentland Firth and Orkney Waters case study, there are various types of public funding available for the development of renewable energy. These include government grants and subsidies for the development of marine renewables through the Renewables Obligation Certificates (Johnson *et al* 2013).

E6 Seeking NGO and corporate funding through endowments to support the development and implementation of the initiative to achieve the priority objective, including surveillance and enforcement activities and the use of other economic incentives, whilst ensuring that such funders cannot 'capture' governance through an inappropriate degree and type of influence

In the Maltase case study, the beach within the MPA is safeguarded under the Project Olympus undertaken by the Gaia Foundation (a local NGO) and the NGO helps manage tourism activities (Pace 2012).

Interpretative incentives

I1 Using maps (paper or digital) for displaying boundaries, zones for different activities and related regulatory restrictions to support awareness and implementation of management measures related to the priority objective

Maps are used by the Tri-lateral Cooperation, the Wadden Sea Forum and UNESCO World Heritage Site to display boundaries of the Wadden Sea Area and permanent closed zones in the Wadden Sea to support awareness and implementation of management measures related to the priority objective (Slob *et al* 2013).

I2 Promoting recognition of the potential resource development benefits resulting from the achievement of the priority objective, whilst being realistic about such potential benefits and not 'over-selling' them, *eg* displaying development zones to potential developers and investors, potential internal and spillover/export benefits of MPAs

In the Barents Sea and Bay of Biscay case studies the benefits of providing for energy security and related economic benefits were illustrated to stakeholders through web sites, etc.

I3 Promoting recognition of the biodiversity and ecosystem conservation-restoration benefits of spatial restrictions

The Finding Sanctuary project team prepared materials (booklets, website) that highlight the conservation benefits of MPAs, and NGOs launched information campaigns in support of marine conservation zones after the Finding Sanctuary project finished (Lieberknecht *et al* 2013).

Knowledge incentives

K1 Explicitly recognising the challenges raised by scientific uncertainty and the importance of developing approaches to help reduce and address such challenges, *eg* establishing ground rules for the interpretation and application of the precautionary principle, decision-making under uncertainty, and adaptation in the light of emerging knowledge

In the Pentland Firth and Orkney case study, uncertainty concerning the impacts of renewable technologies is also a key issue. The policy of 'deploy and monitor' allow developments to go ahead without full understanding of the impacts. In addition, the phased introduction of marine planning also allows knowledge gaps to be identified and addressed through targeted research efforts (Johnson *et al*. 2013).

K2 Developing mechanisms for independent advice and/or arbitration in the face of conflicting information and/or uncertainty, including transparency in the use of such mechanisms

In the Skagerrak case study the Danish Technical University and Aarhus University are recognised as providing reasonably independent expertise and advice on the interactions between fishing activities and conservation features and on ways of mitigating these impacts.

K3 Promoting mutual respect amongst local resource users and scientists for the validity of each other's knowledge and promoting collective learning through partnership research, research/advisory groups, participative workshops, *etc*, *eg* conducting studies in collaboration with users on the patterns of biodiversity and resource use in the existing initiative, including trends

In the Skagerrak case study, the Danish government (Danish Agrifish Agency) has established the national '*Natura 2000* Dialogue Forum' as a means to convene fishermen and scientists from different

fields to gather input for and to discuss various themes related to *Natura 2000* implementation. Through discussions in this forum, managers, scientists and stakeholders (NGO's, fishermen) have exchanged views and knowledge on themes identified by the authorities (Kirk Sørensen and Kindt-Larsen 2012).

The Finding Sanctuary stakeholder process provided a cross-sectoral platform that gave stakeholder representatives (and project staff) the opportunity to learn about each other's concerns and positions, as well as about the marine environment of south-west England, and wider principles of systematic conservation planning. The project's scope did not extend to collaborative ecological field research, but stakeholders brought in a broad range of knowledge and data through a number of ways. This included, but was not limited to scientific data (Lieberknecht *et al* 2013).

K4 Using interactive maps (paper or digital) for gathering information from users on spatial and temporal distribution of different activities, environmental impacts of activities, distribution of conservation features, *etc* to support the achievement of the priority objective while reducing conflicts

In the Dogger Bank cases study, a two day workshop (August 2011) was organised to discuss relevant and available data with NSRAC members and invited guests. Two digital mapping tables (Maptable) were used to support this process and enable participants to comment on data and add new spatial information. The key ecological data were compiled by an independent scientist on behalf of WWF, and this report included a map showing the spatial distribution of the five benthic communities of the Dogger Bank. This map became the main driver for the spatial planning exercise. Early on it became apparent that the available ecological data was very limited. The fisheries data was supplied by ICES, covering the period 2007-2009. During the Maptable sessions fishermen added knowledge and insights from their own experience and available track data. They made use of data that they felt was most relevant, *ie* recent fisheries data and data from before 2007 (Goldsborough 2013).

This incentive was used during Finding Sanctuary, in the FisherMap and StakMap projects, which set out to collect and map the distribution of fishing activities (particularly of small inshore vessels) and recreational sea use in south-west England through carrying out interviews with fishermen and recreational stakeholders (Lieberknecht *et al* 2013).

K5 Maximising scientific knowledge to guide/inform decision-making and monitoring/evaluation in relation to the priority objective

A scientific study was commissioned by the Belgium Federal Government to delineate potential areas for the designation of *Natura 2000* sites, which served as the basis of the designation of Vlaamse Banken (Pecceu *et al* 2013).

In the Barents Sea the oil industry funded the MAREANO and SEAPOP projects to investigate/map the distribution of seabed features and bird populations that were used to identify valuable and vulnerable areas which oil & gas developments should aim to avoid.

K6 Reducing the barriers in access to information and data held by different agencies, user groups and countries, and promoting the exchange, sharing and integrated use of such information and data in the

existing initiative, *eg* geo-spatial data, ecological trends, fisheries data

In the Wadden Sea case study, the Trilateral Monitoring and Assessment Programme (TMAP) was established to coordinate monitoring efforts in the Wadden Sea between Denmark, Germany and the Netherlands (Marencic (Ed.), 2009). Initiated by the Wadden Sea Council, the aim of the programme is to produce scientific information to assess the quality status of the Wadden Sea Ecosystem and to evaluate the status of the implementation of the assigned targets in the Wadden Sea plan. There are currently joint monitoring programmes for seals, migratory birds, breeding birds, bird eggs and eutrophication. The results of the TMAP are published every 5-6 years in Quality Status Reports (QSR) and thematic reports (Slob *et al* 2013).

The Barents Sea Management Plan is a collaborative effort where government institutes and directorates have shared data and maps to develop a spatial plan. This same sharing of data has continued through the implementation period and in the revision. The data and the new management maps developed are now available through various government websites. The new initiative – Barentswatch has also strengthened this cross-sectoral sharing of data. Also, the large cross-sectoral mapping projects MAREANO and SEAPOP have also contributed to improved information exchange. Lastly, the government is pushing for all government research data to be made freely available to the public (Olsen *et al*. 2012).

Legal incentives

L1 Performance standards/conditions/criteria/requirements attached to licenses, concessions and user/property rights, *etc* in order to ensure the achievement of the priority objective, such as achieving environmental criteria and providing access rights for particular uses

In two SACs in the Skagerrak, the development of management measures is underway, albeit at an early stage. Nonetheless, the output of this process will inevitably include requirements attached to licenses and/or fishing rights. It has on several occasions been envisioned that, for example, licenses could be given if vessels are monitoring harbour porpoise bycatch through the use of CCTV cameras and/or the use of acoustic deterrents on all gillnets could be made a mandatory condition of licences (Kirk Sørensen and Kindt-Larsen, 2012).

L2 International-regional-national-local legal obligations that require the fulfillment of the priority objective, including the potential for top-down interventions

In the Belgium case study, the most important incentive for the designation of the two *Natura 2000* sites, as part of the Masterplan, is the legal obligations under the EU Birds and Habitats Directives. In 2007, a letter was drafted by DG Environment to request that member states should establish *Natura 2000* sites within in the EEZ before 2008. Belgium did not succeed in time but undertook steps to finally propose the area 'Vlaamse Banken' to Europe in 2010. It is generally considered that marine protected areas are inevitable due to this European obligation (Pecceu *et al* 2013).

In most if not all of the case studies the obligations under the Habitats Directive are likely to become more binding and subject to more legal interventions as DG Environment shifts its efforts from ensuring member states are designating sites to ensuring that designated sites are maintained at or restored to favourable condition. Subsequently, the deadline for measures to be in place to achieve GES (2016) and for them to be effective in maintaining or restoring Europe's seas to GES (2020) will lead to more binding wider obligations.

L3 Adopting a sensitive but effective approach to legal interventions to address conflicts that would otherwise undermine the fulfillment of the priority objective, whilst avoiding a complete 'command-and-control' approach

L4 Ensuring that sufficient national-local state capacity, political will, surveillance technologies and financial resources are available to ensure the equitable and effective enforcement of all restrictions on all local and incoming users

L5 Effective system for enforcing restrictions and penalising transgressors in a way that provides an appropriate level of deterrence *eg* at national, EU or international level

In the Barents Sea case study, for the regulation of fishing activities, the North East Atlantic Fisheries Commission (NEAFC) has developed rules and control regimes to create sites closure and restrictions on fishing in different seas outside national jurisdiction. Various types of sanctions can be applied to the violation of fishing regulations, ranging from a written warning to administration sanctions and criminal charges. In regulating the oil & gas activities, the Petroleum Safety Authority and the Norwegian Pollution Control Authority have had joint responsibility for regulations relating to risk management since 1991. There is a requirement for zero discharges of drill cuttings and processed water to the sea. Licence holders in the Barents Sea-Lofoten area will not be permitted to engage in year-round oil & gas operations unless they can substantiate that their operations will meet the requirement for zero discharges to the sea (Olsen *et al*. 2012).

L6 Clarity and consistency in defining the legal objectives of the existing initiative, general and zonal use restrictions, and the roles and responsibilities of different authorities and organisations, including the relationship between the initiative to achieve the priority objective and existing plans/regulations for the management of individual sectoral activities

In the Celtic Sea case study, there are clear legal definitions on the objectives of the MPA network and the responsibilities of different authorities. However, the restrictions and management measures in the designated sites are still not clear. The Marine Act requires that relevant authorities should work towards ensuring that conservation objectives of the marine conservation zones (MCZs) are achieved. Other than that, at the moment there no clear guidelines on the integration or relationship between the MCZ planning process and other sectoral plans. The marine planning process undertaking by the Marine Management Organisation may in the future enhance the integration between MCZs and other sectoral activities (Lieberknecht *et al* 2013).

L7 Employing legal appeal and adjudication platforms to address injustices and regulate conflicts at national, EU or international levels

L8 Scope for legal flexibility –subsidiarity, adaptive management and local discretionary action – maintaining, reinforcing, building on and working through lower level institutions, provided that this does not undermine the fulfillment of the priority objective

L9 Legal or other official basis for coordination between different sectoral agencies and their related sectoral policies, aimed at addressing cross-sectoral conflicts in order to support the achievement of the priority objective.

L10 Legal or policy basis for promoting cross-jurisdictional coordination between member states.

L11 Establishing legal provisions to ensure the transparency in policy processes, *eg* statutory requirements for public access to information, appeals, public hearings, *etc*

In the Skagerrak case study, a national public hearing took place in 2010 through which all interested parties could express concerns over the boundaries and reasons for designation of the SACs. These concerns were then collected by the Ministry of Environment. The degree to which these concerns were accommodated in final site designation has not been analysed (Kirk Sørensen and Kindt-Larsen, 2012).

In the Barents Sea case study, transparency and right to environmental information is ensured through the Planning and Building Act and in the Act on the Right to Environmental information. Public hearings and consultation have been organised to facilitate public participation in the revision of the plan (Olsen *et al* 2012).

Participative incentives

P1 Developing participative governance structures and processes that support collaborative planning and decision-making, *eg* user committees, participative GIS, postal consultations on proposals that provide for detailed feedback, participative planning workshops, *etc*, including training to support such approaches

In the Wadden Sea case study, the Wadden Sea Forum (WSF) provides an independent stakeholder platform with participants from economic sectors, regional authorities, NGOs and other stakeholder groups from the Wadden Sea region of the three countries. The Forum mainly functions as a consultation body for governments (Slob *et al* 2013).

P2 Decentralising some roles, responsibilities and powers to local people and their constituencies, including local government, through a clear management structure, whilst maintaining an appropriate balance of power between local people and the state in relation to the priority objective. Managing expectations in this respect can be particularly important by being realistic about the degree of autonomy and influence that local people and governments/agencies can expect.

The Celtic Sea case study attempted to employ this incentive as one of four regional projects to which responsibility for developing recommendations for MPA networks were devolved. However, whilst stakeholders were told that this represented a bottom-up approach, therefore raising their expectations,

the eventual reality was that their recommendations had much less influence than they had been led to believe.

P3 Clear rules on the means and degree of participation from different sectoral groups and the unbiased representation of all sectors in participation processes

In the designation of Vlaamse Banken, public consultation was organised but it was clearly stated that only remarks on the scientific content could be made and that the socio-economic issues could only be addressed at a later stage (Pecceu *et al* 2013), in keeping with the Habitats Directive.

P4 Building trust/social capital between different actors through transparency, face-to-face discussions, equity promotion, *etc*, recognising that this can lead to an 'upward spiral' (Ostrom 1998) of cooperation and confidence that cooperation will be reciprocated amongst different actors, whilst erosion of trust through lack of transparency, equity, enforcement, *etc* can lead to a 'downward spiral'

In the Skagerrak case study, *Natura 2000* fisheries management issues are addressed openly in the Ministry of Fishery's *Natura 2000* Dialogue Forum. It is our observation that in many ways this forum does in fact lead to an upward spiral of cooperation and to a lesser degree also mutual trust. The latter relates mainly to the fact that participants in the forum have little influence on final decisions once meetings are over. In addition, the Dialogue Forum provides an opportunity for stakeholders (incl. environmental NGO's) to address decision makers and colleagues directly in a non-public context, which to a degree keeps some issues from "exploding" in the media (although some disagreements have been impossible to contain within the context of the forum such as the issuing of permits for blue mussel dredging within *Natura 2000* sites) (Kirk Sørensen and Kindt-Larsen, 2012).

P5 Transparent participation and decision-making processes, including about how user participation has affected decisions and why it may or may not have done, and being very clear and honest, once decisions are made, about the potential benefits and costs, as well as the restrictions imposed on certain users

P6 Providing for participative enforcement amongst users, *eg* peer enforcement, community rangers/wardens, and promoting the potential for cooperation and peer enforcement of restrictions

P7 Promoting consistency with and respect for local traditions, customs, norms and practices, in so far as they are compatible with and contribute towards the fulfillment of the priority objective

P8 Promoting recognition & realisation of the potential for a the participative governance of the existing initiative to influence the higher-wider statutory framework, processes and obligations, *ie* that local users can have an influence on higher level institutions as well as being influenced by them - co-evolution

P9 Bringing in 'neutral' facilitators to support governance processes and negotiations or training state employees to do so

In the Celtic Sea case study, Finding Sanctuary employed neutral facilitators (RK Partnership) to provide

facilitation during stakeholder meetings, and process advice to the project team. Their role within the formal phase of Finding Sanctuary was highly significant, advising on process matters, supporting the project team in defining tasks for each stakeholder meeting and the materials necessary to support those tasks, as well as facilitating the meetings themselves (Lieberknecht *et al* 2013).

P10 Employing 'neutral' and widely respected panels to arbitrate on issues, conflicts, options, *etc* and recommend decisions