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**Version préliminaire des Etudes de cas et recommandations pour une économie bleue durable
et inclusive en Méditerranée**

Pour des raisons de coût et de protection de l'environnement, le tirage du présent document a été restreint. Il est aimablement demandé aux délégations d'apporter leur copie de ce document aux réunions et de s'abstenir de demander des copies supplémentaires.

PNUE/PAM
Athènes, 2019



Programme des Nations Unies
pour l'environnement



Plan d'Action pour la Méditerranée
Convention de Barcelone



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Réunion des Points focaux nationaux du Plan Bleu

Marseille, France, 27-29 mai 2019

Economie bleue en Méditerranée : Etudes de cas - Leçons et perspectives

Version provisoire

Pour des raisons environnementales et économiques, le tirage du présent document a été restreint. Les participants sont priés de se munir de leurs propres exemplaires et de s'abstenir de demander des copies supplémentaires.

Note introductive

L'économie bleue (durable et inclusive) est l'un des thèmes d'activité centraux du Plan Bleu. Le Plan Bleu a notamment mis en œuvre un projet financé par la Fondation MAVIA de 2015 à 2017 sur la mesure, le suivi et la promotion d'une économie écologiquement durable dans la région méditerranéenne, en lien étroit avec les Centres d'activités régionales chargés des Programmes d'actions prioritaires et de la Production et consommation durables (CAR/PAP et CAR/CPD). Ces travaux ont notamment abouti à l'organisation d'une conférence conjointe en mai 2017, qui a permis de proposer des recommandations et des synergies entre les initiatives et programmes touchant à l'économie bleue. Des institutions internationales et régionales, en particulier l'OCDE et l'Union pour la Méditerranée, se mobilisent également sur ce thème. Les travaux du Plan Bleu sur l'économie bleue ont pris de l'importance en 2018 et 2019, avec plusieurs rapports attendus.

Le programme de travail 2018-2019 adopté par les parties Contractantes à la Convention de Barcelone en décembre 2017 à Tirana prévoit notamment la réalisation par le Plan Bleu d'études de cas pour favoriser la transition vers une économie bleue. Ces études de cas pourront porter sur les pêches et l'aquaculture, le transport maritime et les activités portuaires, l'énergie éolienne, le tourisme et les loisirs, et les ressources biologiques.

Des études de cas sont présentées dans ce document provisoire. D'autres études de cas sont en cours d'élaboration. Une première synthèse des messages clés et des recommandations pratiques émergeant de la préparation des études de cas est également présentée pour discussion.

Agenda pour la réunion des Points focaux du Plan Bleu :

Les progrès dans la préparation des études de cas et les premières pistes de recommandation en découlant seront présentés lors de la Réunion des Points focaux du Plan Bleu.

Le présent document provisoire servira de base pour discussion. Les Points focaux sont invités à fournir des commentaires et suggestions, en particulier sur les Sections 3 « Messages clés » ; 4. « Orientations stratégiques » (encore à développer) et 5. « Leçons /recommandations découlant des études de cas ».

Remarque : seul le rapport principal a été traduit en français, les fiches en annexes sont en anglais.

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1 INTRODUCTION

1. Les océans couvrent 72 % de la surface de notre planète bleue et accueillent plus de 95 % de la biosphère. La vie est d'abord apparue dans les océans et ces espèces continuent de contribuer à la vie de notre planète en produisant de l'oxygène, en absorbant du dioxyde de carbone, en recyclant les nutriments et en régulant le climat et les températures au niveau mondial. Les océans fournissent de la nourriture et des moyens de subsistance à une grande partie de la population mondiale. Ils constituent également 80 % des moyens de transport du commerce mondial. Le concept et la mise en œuvre d'une « économie verte » étaient au cœur des échanges qui ont eu lieu lors de la Conférence Rio+20¹. Or lors de la phase préparatoire, de nombreux pays côtiers se sont interrogés sur l'applicabilité de l'« économie verte » dans leur contexte et ont plutôt plaidé pour l'adoption plus large d'une approche de type « économie bleue » sachant que les mers et les océans sont essentiels pour une transition vers des modes de développement durables, à faibles émissions en carbone, efficaces dans l'utilisation des ressources et inclusifs.

2. Au niveau mondial, le Programme de développement durable à l'horizon 2030 (Agenda 2030) défini en 2015 au cours de plusieurs conférences, notamment celle de New York (Objectifs de développement durable, ODD) et de Paris (Accord de Paris sur le climat), vise entre autres objectifs la conservation et l'exploitation durable des océans, des mers et des ressources marines (ODD 14). De même, la conservation et l'exploitation durable de la biodiversité marine et côtière s'inscrivent dans les travaux préparatoires pour le Cadre mondial pour la biodiversité post-2020 de la Convention sur la diversité biologique qui permettront de contribuer à la vision pour 2050 « Vivre en harmonie avec la nature ». Depuis l'Antiquité, la mer Méditerranée est essentielle au développement économique régional des populations et pays côtiers. Aujourd'hui, les secteurs traditionnels (aquaculture, pêche, tourisme côtier et maritime, transport maritime, construction/réparation navale, ports) et émergents de l'économie maritime (biotechnologies bleues, démolition navale, énergie marine) présentent un énorme potentiel en termes de prospérité et de croissance inclusives qui est indissociable de notre capacité à mettre en œuvre des pratiques de gestion respectueuses de l'intégrité des écosystèmes marins et des services qu'ils rendent. La mer Méditerranée est un espace de développement qui, s'il est exploité durablement, peut déclencher la prospérité économique et contribuer à la stabilité de la région en créant de l'emploi et favorisant l'innovation commerciale dans les secteurs maritimes.²

3. L'économie bleue est une économie peu polluante, circulaire et efficace dans l'utilisation des ressources, reposant sur des pratiques de consommation et de production durables, qui favorise le bien-être humain et l'égalité sociale et qui crée de la valeur économique et de l'emploi, tout en réduisant de manière significative les risques pour l'environnement et les pénuries de ressources. L'économie bleue comprend de nombreuses activités économiques allant du tourisme côtier et marin au transport maritime et de la pêche et de l'aquaculture aux énergies renouvelables offshore. Sa contribution potentielle à la création durable d'emplois, à la sécurité alimentaire, à la fourniture d'une énergie propre, à l'économie circulaire et à une mobilité durable est conséquente.

4. Dans le cadre du Programme de travail 2018-2019 du PNUE/PAM, le secrétariat du PNUE/PAM, par l'intermédiaire du Plan Bleu/Centre d'activités régionales, a été chargé d'identifier des « études de cas » dans le but final de fournir une perspective méditerranéenne des principaux enjeux et défis de l'économie bleue et de formuler des recommandations pour une transition vers une économie bleue méditerranéenne conforme à l'ODD 14.

¹ Conférence des Nations unies sur le développement durable, Rio de Janeiro 20-22 juin 2012.

² Ceci est souligné dans la Stratégie méditerranéenne pour le développement durable (SMDD 2016-2025) adoptée par la COP19 de la Convention de Barcelone, dans la Déclaration ministérielle de l'Union pour la Méditerranée de 2015 sur l'économie bleue et dans les travaux de la Commission européenne, la Banque mondiale, la Banque européenne d'investissement, etc.

Extrait du Programme de travail et budget 2018-2019 (Décision IG.23/14)

SMT Résultats Stratégiques:	4.4 Suivi et évaluation
Résultats clés indicatifs:	4.4.1 Cartographie des mécanismes d'interaction sur l'environnement côtier et marin aux niveaux régional et local, comprenant une évaluation des risques d'élévation du niveau de la mer et de l'érosion côtière, ainsi que de leurs impacts sur l'environnement côtier et les communautés
Activité principale :	4.4.1.2: Mettre en œuvre l'ODD 14 en Méditerranée, en promouvant l'économie bleue.
Produit attendu :	Études de cas visant à promouvoir l'économie bleue (pêche et aquaculture, transport maritime et activités portuaires, énergie éolienne, tourisme et loisirs, ressources biologiques), couvrant les avantages économiques des services environnementaux, de l'innovation, de l'inclusion (par exemple des jeunes). Recommandations pour une transition vers une économie bleue en Méditerranée.

5. Cette activité a été également conçue dans le but d'alimenter le rapport du Plan Bleu et du PNUE/PAM « État de l'environnement et du développement en Méditerranée en 2019 », qui comprendra un chapitre sur les secteurs économiques et sur les potentiels de transition vers une économie bleue/verte circulaire.

6. L'objectif principal du présent rapport est d'évaluer et de souligner le poids actuel de l'économie bleue ainsi que les différentes opportunités en matière de développement durable en région méditerranéenne et de mettre en évidence plusieurs bonnes pratiques et exemples concrets sur la manière de mettre en œuvre l'économie bleue dans la région. Les objectifs sont les suivants : i) présenter le contexte politique et socio-économique général actuel de l'économie bleue ainsi que les perspectives futures en Méditerranée ; ii) illustrer les opportunités offertes par l'économie bleue à l'aide d'un nombre limité d'études de cas réalisées dans diverses régions et secteurs géographiques ; iii) définir des orientations stratégiques pour le développement futur de l'économie bleue dans la région méditerranéenne. Selon de nombreuses ressources bibliographiques, les « études de cas » sont particulièrement bien adaptées pour comprendre le lien entre les contextes et les phénomènes au moyen d'hypothèses permettant de réconcilier des données factuelles avec des résultats observables. Basé sur un ensemble non exhaustif d'expériences de terrain dans différents secteurs maritimes et zones géographiques, le rapport met en évidence les opportunités et les freins de l'économie bleue concernant le soutien du développement durable dans la région méditerranéenne. Suite aux « études de cas » présentées dans le présent document, des recommandations ont été faites sous la forme d'Orientations stratégiques pour le développement d'une économie bleue en région méditerranéenne.

7. Afin d'être pris en compte pour la présente collection, les projets et initiatives en cours et achevés dans divers secteurs maritimes (PÊCHE ET AQUACULTURE, TRANSPORT MARITIME ET ACTIVITÉS PORTUAIRES, ÉNERGIE ÉOLIENNE, TOURISME ET LOISIRS et RESSOURCES BIOLOGIQUES) ont été évalués selon des critères spécifiques, notamment : i) répondre aux besoins pertinents du point de vue des bénéficiaires ciblés ; ii) promouvoir des bénéfices socio-économiques directs/indirects ; iii) inclure des éléments de durabilité institutionnelle, sociale, économique et environnementale ; iv) œuvrer à la prévention de la dégradation de l'environnement et à la conservation/valorisation des services écosystémiques ; v) présenter ou mettre en œuvre une méthodologie ou une technologie innovante ; vi) prendre en compte l'enjeu de l'inclusion sociale ; vii) avoir les capacités de fournir des informations quantitatives/qualitatives ; viii) faire participer un large éventail de parties

prenantes ; et ix) vérifier surtout le potentiel de leur répliquabilité/mise à l'échelle complète ou partielle.

8. Le rapport est le résultat d'un échange soutenu et continu avec les porteurs des projets ou initiatives présentés, sans lequel la présente analyse n'aurait pas été possible. Il s'appuie sur le projet « Mesurer, surveiller et promouvoir une économie bleue pour le développement durable de la région méditerranéenne » financé par la Fondation MAVVA, qui a fourni en 2017 plusieurs indicateurs couvrant les secteurs maritimes et rédigé les conclusions et recommandations générales suivantes (Encadré 1) :

Encadré 1: Conclusions et recommandations sur les efforts de promotion de l'économie bleue aux niveaux national et régional

1. Améliorer la gouvernance pour une économie bleue. Pour ce faire, il faut d'abord mettre en œuvre les accords internationaux existants relatifs à la mer aux niveaux mondial et régional. Ces accords doivent être signés, ratifiés et mis en œuvre dans l'intérêt des pays signataires et de la région dans son ensemble. Au-delà des accords existants, le développement futur des droits internationaux et de la coopération internationale sur les questions marines et maritimes repose sur les travaux de l'ONU, de la Banque mondiale, de l'OCDE et de l'ONU Environnement, ainsi que sur ceux de l'Union pour la Méditerranée (UpM), l'Union européenne (UE) et l'ONU Environnement / PAM. Deuxièmement, cela nécessite la mise en œuvre appropriée de la législation, des réglementations et des politiques aux niveaux national et régional, combinant la participation appropriée des parties prenantes et des processus de prise de décision transparents.

2. Développer l'utilisation des instruments économiques (prix, taxes, subventions) en améliorant la connaissance des distorsions économiques (résultant par exemple de subventions dommageables à l'environnement), en utilisant une fiscalité plus verte et en renforçant le rôle incitatif des prix, en particulier pour les produits ressources naturels et pollution.

3. Soutenir l'innovation technologique et sociale en promouvant des technologies appropriées, en partageant les meilleures pratiques et en entrepreneuriat social. Il est important de réduire les impacts environnementaux de la haute mer et de l'économie côtière et d'accroître de ce fait les avantages socio-économiques (création d'emplois, formation et emploi des jeunes, sécurité alimentaire, réduction de la pauvreté).

4. Investir dans l'économie bleue et augmenter les financements associés en incluant divers outils de financement - traditionnels et innovants, nationaux et internationaux (banques de développement, fonds internationaux), publics et privés (philanthropiques ou non).

5. Promouvoir le développement et l'utilisation de statistiques et d'indicateurs afin de fonder les politiques de l'économie bleue sur des connaissances scientifiques et factuelles et de suivre leurs progrès de manière cohérente.

(Source: Conférence sur "A blue economy for sustainable development in the Mediterranean region", CAR/PAP; CAR/ASP et Plan Bleu, Marseille, May 2017)

2. CONTEXTE

- **Les océans et les mers, une "nouvelle frontière" pour le développement économique mondial**

On assiste depuis le Sommet Rio+20 à une prise de conscience internationale de l'importance du milieu marin en tant qu'écosystème exposé à de nombreuses menaces environnementales (pollutions diverses, déchets plastiques, épuisement des ressources halieutiques, acidification et élévation des températures,...), en même temps qu'il est un facteur important de développement socio-économique au fort potentiel d'exploitation et de création d'emplois sur le long terme pourvu qu'il soit géré durablement (doublement, voire triplement, de la valeur ajoutée du secteur prévue entre 2010 et 2030 au niveau global). C'est pourquoi, la communauté internationale se mobilise pour la protection et la promotion d'une gestion durable des océans.

- **Un potentiel de développement de l'économie bleue qui reste considérable**

L'économie bleue et ses différents secteurs d'activité (tourisme, activités portuaires et équipements côtiers et marins, pêche et aquaculture, transport maritime, exploitation offshore d'hydrocarbures ou minière, énergies...) représentent, aujourd'hui, 2,5% de la valeur ajoutée brute mondiale (€1.3 trillion). Le potentiel de développement économique des océans et des mers est loin d'être encore totalement mis en valeur et une croissance des activités est anticipée, notamment dans les domaines de l'aquaculture marine, l'énergie éolienne offshore, le tourisme (en particulier les activités de croisières), les équipements portuaires et maritimes, le transport, la transformation des produits halieutiques, la réparation et le démantèlement des navires (OCDE 2030). Potentiellement, la mer peut devenir, plus encore qu'aujourd'hui, un facteur majeur de prospérité, de richesses, d'innovations, d'emplois et de lutte contre la pauvreté.

- **La dégradation des océans : une menace pour l'économie bleue**

Cependant, les activités économiques et humaines exercent des pressions croissantes sur l'écosystème marin qui menacent son intégrité et sa capacité à maintenir son potentiel productif à long terme : absence de système de gestion efficace des déchets et des eaux usées, importance du trafic maritime, y compris pétrolier, et son cortège de pollutions, surpêche et menaces liées à la pêche illégale, dégradation des habitats marins et côtiers, essor du tourisme et ses impacts sur les ressources naturelles (eau, occupation des sols,...), etc.

Il apparaît de plus en plus évident que la dégradation du capital naturel des océans résultant d'activités économiques non durables érodent les bases mêmes de ressources dont dépendent ces activités. Les principales causes de cette dégradation tiennent au déficit d'information sur les problèmes ainsi identifiés et à l'absence de mécanismes d'intégration efficaces des externalités environnementales et sociales dans les choix publics comme privés qui ne permettent pas de créer les conditions d'une gestion durable des océans.

- **Les déclarations et décisions politiques relatives à l'économie bleue**

Au cours des dernières années, on note la multiplication des déclarations et engagements politiques en faveur d'une gestion durable des océans au niveau international (l'Agenda 2030 et l'ODD 14 "Conserver et exploiter durablement les océans, les mers et les ressources marines", la conférence "Océan" des Nations unies de juin 2017,...), comme au niveau régional (CoP 17 de la Convention de Barcelone, l'article 9 du Protocole GIZC, la déclaration ministérielle de 2015 de l'Union pour la Méditerranée-UpM, la stratégie de l'UE sur l'économie bleue,...), et les travaux antérieurs du PAM et du Plan Bleu.

L'économie bleue dans le bassin Méditerranéen

• Quelle approche de l'économie bleue pour le bassin Méditerranéen ?

A l'image de nombreux concepts "émergents" sur la scène internationale la notion d'économie bleue n'échappe pas à la critique et peut, à bien des égards, apparaître imprécise, voire ambiguë, et il importe de pouvoir se démarquer des effets de mode et de vitrine.

Pour la Stratégie méditerranéenne de développement durable (SMDD 2016-2025) "*Une économie verte - appelée économie bleue lorsqu'elle est appliquée aux secteurs côtiers, marins et maritimes - favorise le développement durable tout en améliorant le bien-être humain et l'équité sociale, et réduit les risques environnementaux et les pénuries écologiques*".

La Conférence "*Measuring, monitoring and promoting a Blue economy for a sustainable development of the Mediterranean region*" organisée sous l'égide du PAM par le Plan Bleu les 30-31 Mai 2017 a, de son côté, proposé la définition suivante : "*Blue economy is a low polluting, resource-efficient and circular economy based on sustainable consumption and production patterns, enhancing human well-being and social equity, generating economic value and employment, and significantly reducing environmental risks and ecological scarcities. The blue economy allows preserving Mediterranean healthy marine and coastal ecosystems and ensures the continuous delivery of goods and services for present and future generations. Progress towards a successful blue economy relies on the sustainable development of key socioeconomic activities: fisheries; aquaculture; tourism and recreational activities; maritime transport and port activities; bio-prospecting or exploitation of biological resources; exploitation of renewable energy sources*".

Ce positionnement du PAM et du Plan Bleu permet de clairement marquer la différence entre "l'économie bleue" caractérisée par des trajectoires découplées de la croissance et se basant sur les principes de l'économie circulaire et "la croissance bleue" qui perçoit les mers et les océans comme des moteurs encore insuffisamment exploités de la croissance économique.

Les modes d'intervention et les leviers peuvent en conséquence différer selon que l'on considère l'une (économie bleue) ou l'autre (croissance bleue).

• Quel poids pour l'économie bleue dans le bassin Méditerranéen ?

Les secteurs de l'économie bleue forment une composante centrale de l'économie régionale et offrent un potentiel d'innovation et de prospérité très significatif. Avec 46 000 km de côtes et des ressources marines et halieutiques uniques, la mer Méditerranée représente la cinquième plus grande économie de la région, avec une valeur globale estimée à 4,7 billions d'euros. Selon des études récentes :

- En 2015, la contribution directe du tourisme au produit intérieur brut (PIB) des pays méditerranéens était de 4,5% du PIB régional.
- Le secteur des croisières en Méditerranée est devenu le deuxième plus grand marché du monde après celui des Caraïbes.
- La flotte marchande maritime opérant en Méditerranée assure 25% de la valeur du commerce maritime mondial³.
- Avec une valeur actuelle de plus de 4,1 billions d'euros et 353 000 emplois directs créés, la mer Méditerranée est l'un des secteurs les plus prometteurs en termes de croissance et d'employabilité.

• Les opportunités de développement de l'économie bleue

Les opportunités aujourd'hui identifiées concernent plusieurs secteurs :

- Le transport et les équipements portuaires

³ UfM, the maritime sector, an opportunity for development and growth in the Mediterranean: <http://ufmsecretariat.org/the-maritime-sector-an-opportunity-for-development-and-growth-in-the-mediterranean/>

- La pêche et l'aquaculture
- Le tourisme
- L'énergie
- Les biotechnologies

- **Les accords internationaux applicables au milieu marin**

Les opportunités de développement de l'économie bleue s'inscrivent dans le contexte des accords internationaux existants, de flux financiers importants (aide, investissement directs étrangers,...), et de flux commerciaux majeurs. S'agissant des accords internationaux applicables au milieu marin⁴, il convient notamment de citer la Convention des Nations unies sur le droit de la mer, les conventions régionales sur les mers (dont fait partie la Convention de Barcelone), les décisions ou cadres techniques adoptés dans le cadre des agences onusiennes FAO (pêche), OMI (transport maritime),... les conventions de Rio (CDB et ABT, CCNUCC, CNUCLD), l'Agenda 21 et notamment l'ODD 14, les autres conventions environnementales (conventions liées à la biodiversité, Stockholm, Rotterdam, Minamata, plastiques, Arctique), etc.

- **Les acteurs de l'économie Bleue en Méditerranée : approches privilégiées, stratégies et activités mises en œuvre**

Plusieurs initiatives sont d'ores et déjà en ordre de marche au plan régional pour favoriser la transition vers une économie bleue/verte :

- La Stratégie méditerranéenne de développement durable (SMDD 2016- 2025) dont l'objectif stratégique 5 porte sur la "Transition vers une économie verte et bleue".
- La Banque mondiale : dans le cadre de son portefeuille d'actions sur la croissance bleue, la Banque mondiale aide les pays à promouvoir une gouvernance durable des ressources marines et côtières pour soutenir la croissance durable et inclusive en soutenant la pêche durable et l'aquaculture, en créant des aires protégées côtières et marines, en réduisant la pollution, en intégrant la gestion des ressources et le développement des connaissances et des capacités en matière de santé des océans. Par exemple, via les actions dans sa région MENA et ceux du CMI.
- La FAO : l'initiative "Croissance Bleue" lancée en 2013 s'appuie sur le Code de conduite pour une pêche responsable (CCPR) et se concentre sur les pêches de capture, l'aquaculture, les services écosystémiques, le commerce et la protection sociale.
- UN-Environnement : l'initiative sur l'économie verte, lancée par le PNUE à la fin de 2008, comporte plusieurs volets dont l'objectif est de soutenir le développement des activités dans les secteurs "verts" tout en "verdissant" les secteurs polluants ("gris"). UN-Environnement n'a pas développé de stratégie spécifique sur l'économie bleue mais a publié un document de bonnes pratiques sur le sujet "*Blue Economy: Sharing success stories to inspire change*" (2015). Dans le cadre du PAM on note les actions suivantes : le Plan d'action sur la consommation et la production durables (SCP), l'approche fondée sur les écosystèmes (EcAp), le protocole sur la gestion intégrée des zones côtières (GIZC),
- L'Union pour la Méditerranée : les ministres de l'UpM réunis à Bruxelles en novembre 2015 se sont engagés à promouvoir l'économie bleue. Ils ont convenu de la nécessité pour la région méditerranéenne d'utiliser au mieux le potentiel de l'économie bleue pour promouvoir la croissance, l'emploi et les investissements et réduire la pauvreté, tout en agissant pour la qualité du milieu marin et la promotion d'une vision claire pour le développement durable et intégré des secteurs maritimes et maritimes au niveau national et au niveau des bassins maritimes.
- L'Union européenne : la stratégie "Croissance bleue" de l'UE forme le cadre stratégique pour soutenir la croissance durable dans les secteurs marins et maritimes. Elle constitue la contribution "marine et maritime" à la stratégie Europe 2020 pour une croissance intelligente,

⁴ Plan Bleu/UNEP-MAP, Les accords multilatéraux sur l'environnement (AME) et les référentiels d'action au Sud et à l'Est de la Méditerranée, 2016.

durable et inclusive, et s'articule autour de trois axes : le développement des secteurs, le cadre légal et de connaissance, les stratégies par bassins maritimes. Parmi les nombreux outils d'intervention à sa disposition on notera : la directive cadre sur la stratégie marine (MSFD), le paquet sur l'économie circulaire ou encore les projets régionaux soutenus par elle tels que SwitchMed, BlueMed, WestMed, InterRegMed.

- La BEI : à la suite de la conférence des Nations unies sur les océans (juin 2017), la BEI s'est engagée à soutenir des projets contribuant à la protection des écosystèmes côtiers via la réduction de la pollution de l'environnement marin et continuera, en partenariat avec l'Union européenne et des institutions homologues, à promouvoir l'innovation, notamment via des investissements participant à l'essor d'une économie bleue durable.
- La Commission des pêches pour la Méditerranée : la stratégie (2017–2020) pour une Méditerranée durable de la Commission s'ordonne autour de 5 objectifs : (1) inverser la tendance au déclin des stocks de poissons par la diffusion de la connaissance scientifique, (2) le soutien à la pêche artisanale comme source de moyens de subsistance, (3) la lutte contre la pêche INN, (4) la réduction des impacts de la pêche sur les milieux marins, et (5) le renforcement des capacités et de la coopération.
- Le WWF est l'auteur d'un rapport sur la question : "*Blue Growth in the Mediterranean Sea: the Challenge of Good Environmental Status*", MedTrends Project (2015).
- Les ONG régionales (e.g. ANIMA, Femise) et les réseaux associés aux entreprises (e.g. IPEMED)...

- **Les outils de gestion générale**

- Le développement de politiques et de stratégies cadres (ex : la Stratégie méditerranéenne de développement durable ou bien encore la politique européenne de la pêche)
- La planification spatiale (GIZC, PSM,...) et les approches de gestion basées sur les écosystèmes (Approche basée sur les écosystèmes, aires marines protégées) et leurs déclinaisons au niveau sectoriel: pêche (Pêcheries basées sur les écosystèmes), aquaculture (Aquaculture basée sur les écosystèmes),...
- Les outils préventifs et d'intégration (études d'impacts...)
- Les codes de bonnes pratiques (e.g. le Code de conduite pour une pêche responsable de la FAO)
- La normalisation et les labels (SCP, labels bio,...)
- La formation et le renforcement des compétences
- L'information, la communication
- La promotion de la coopération régionale.

- **Les instruments (réglementaires, économiques et financiers)**

Plusieurs types d'outils réglementaires, économiques ou financiers peuvent être utilisés (le plus souvent en association) pour promouvoir une économie bleue en Méditerranée :

- Prix et redevances
- Taxes
- Subventions
- Paiements pour services rendus
- Fonds fiduciaires
- PPP
- La réglementation (aires marines protégées, pratiques et périodes de pêche, taille des mailles de filets, pêche INN, aménagements portuaires,...).
- Soutien à l'investissement, au développement des chaînes de valeur, aux filières commerciales
- Soutien à la R&D et à l'innovation
- Les droits individuels (e.g. de propriété, d'usage) et d'entreprendre.

Il semble qu'aucune étude n'ait encore été engagée sur leur usage en Méditerranée, et l'usage des instruments reste le plus souvent sectorielle ou par domaine.

- **La connaissance du milieu marin**

Pour mieux comprendre les opportunités offertes par l'économie bleue, il importe également de bien tenir compte de la connaissance scientifique et statistique sur l'état des écosystèmes marins et côtiers, des potentiels qu'ils offrent et des menaces dont ils peuvent faire l'objet (pollution, changement climatique, dégradation des milieux fragiles, etc.). C'est là une des fonctions historiques du Plan Bleu que de travailler sur la construction d'observatoires, de bases de données, de cartographies aux différentes échelles pertinentes, et la préparation du prochain Rapport sur l'état de l'environnement et du développement en Méditerranée en constitue l'une des illustrations les plus récentes.

3. MESSAGES CLES

Gouvernance

Les activités humaines en mer Méditerranée sont interconnectées de façon indissociable. Afin de remédier à la dégradation des écosystèmes marins/côtiers et à l'épuisement des ressources naturelles tout en exploitant le potentiel de développement socio-économique des secteurs maritimes, il est nécessaire de renforcer la gouvernance pan-régionale pour l'économie bleue. Des processus décisionnels stratégiques, inclusifs, transparents et responsables reposant sur des cadres juridiques et réglementaires clairs sont essentiels pour la mise en œuvre d'actions publiques/privées coordonnées et basées sur la prise en compte exhaustive des informations scientifiques pertinentes. La première étape est d'aider les pays à faire appliquer les dispositifs contraignants (la Convention de Barcelone et ses protocoles par exemple) en identifiant les mécanismes de conformité tout en cherchant à faire appliquer des mécanismes de mise en application souples aux niveaux national et régional pour les dispositifs non-contraignants existants (par exemple, la Stratégie méditerranéenne de développement durable, le Plan d'action régional pour la consommation et la production durables en région méditerranéenne, le Plan régional sur la gestion des déchets marins dans la Méditerranée, etc.)

Éducation, employabilité et entrepreneuriat

L'économie bleue offre une occasion unique de promouvoir le développement durable, le bien-être humain et l'égalité sociale tout en réduisant la dégradation actuelle des écosystèmes marins et côtiers. L'économie bleue connaît un élan considérable tant au niveau mondial que régional. Pour conserver cette dynamique, il est essentiel de trouver des solutions pratiques permettant de concrétiser le cadre conceptuel de l'économie bleue afin de créer de nouveaux emplois et de nouvelles opportunités commerciales qui bénéficieront à la toute société, et particulièrement aux jeunes, aux femmes et aux personnes à faibles revenus. Pour cela, il est important : i) de soutenir les initiatives existantes ou d'en créer de nouvelles afin de faire correspondre l'offre pédagogique aux besoins du marché du travail du secteur maritime ; ii) de diversifier l'offre pédagogique actuelle pour les « compétences bleues », éviter la duplication des cours, des masters, des écoles, etc. tout en encourageant la complémentarité et les synergies ; iii) de faciliter l'accès au financement pour les jeunes PME, les jeunes entreprises ou les activités de démonstration de nouvelles technologies, tout en soutenant la création de pôles pour transférer les innovations pertinentes par secteur ; iv) de promouvoir les processus de capitalisation régionaux et les événements de capitalisation spécifiques à un secteur afin de partager les connaissances les plus récentes et de diffuser les pratiques qui ont fait leurs preuves et produisent des résultats.

Pollution maritime

La pollution maritime est l'un des principaux stress anthropiques qui affectent négativement les écosystèmes marins et côtiers méditerranéens. Les problèmes liés à la pollution comprennent i) les charges excessives de nutriments provenant des égouts, des flux fluviaux, des fermes aquacoles, des engrais et des installations industrielles, présentant des phénomènes eutrophes intenses aux nombreux effets néfastes sur les écosystèmes marins et les humains (par exemple, espèces toxiques, mortalité massive due au manque d'oxygène) ; ii) la pollution sonore et lumineuse qui nuisent aux tortues dans les aires de reproduction et a un impact sur les habitats des phoques moines et des dauphins ; iii) la contamination de l'air qui affecte les humains dans les zones marines et côtières ; iv) les substances chimiques dangereuses provenant des émissions industrielles et urbaines atteignent la mer par rejet direct ou par les fleuves et par les eaux de ruissellement provenant du sol ou de dépôts atmosphériques ; v) enfin, la mer Méditerranée a récemment été identifiée comme une grande zone d'accumulation de débris de plastique.⁵ La mer Méditerranée devient un dangereux piège à plastique et connaît des niveaux records de pollution liés aux microplastiques qui menacent les espèces marines et la santé humaine.⁶ Dans ce domaine, il est urgent de définir des mécanismes incitatifs et/ou de mise en application innovants pour la mise en œuvre des dispositions pertinentes des protocoles adoptés dans le cadre de la Convention de Barcelone⁷ et des stratégies de conformité pour la mise en œuvre de documents stratégiques existants.⁸

Adoption d'une combinaison de politiques efficace

Les mesures réglementaires seules ne suffisent pas à lutter contre les différents problèmes environnementaux liés aux multiples pressions et activités qui sont souvent associées à des intérêts économiques forts. Comme déjà amplement démontré⁹, les politiques environnementales efficaces doivent s'appuyer sur une combinaison adaptée de politiques et instruments réglementaires comprenant : i) des instruments économiques, des mesures fiscales, des mécanismes de financement innovants et des partenariats (par exemple, partenariat public-privé) pour encourager la transition vers la durabilité ; ii) des campagnes de sensibilisation, des labels et des accords volontaires ; iii) des incitations à l'adoption d'outils de planification dans les zones soumises à de fortes pressions.

Financement durable

La notion de « financement durable » va au-delà de la performance économique en intégrant des critères environnementaux, sociaux et de gouvernance. Les décisions d'investissement sont prises non seulement sur la base des avantages pour les investisseurs et de leurs clients mais aussi pour la société de manière générale. Il est évident que le secteur des finances et des investissements peut jouer un rôle crucial dans la transition vers une économie bleue dans la région méditerranéenne. Des initiatives spécifiques ont déjà abordé cette question et fournis des résultats utiles.¹⁰ Il est temps maintenant de

⁵ Notes du Plan Bleu n°36 Marine Environment - Resources and natural environment (Milieu Marin - Ressources et environnement naturel), avril 2018.

⁶ Rapport WWF « Pollution plastique en Méditerranée. Sortons du piège ! », juin 2018.

⁷ Spécifiquement dans le cadre du protocole relatif à la coopération en matière de prévention de la pollution par les navires et, en cas de situation critique, de lutte contre la pollution de la mer Méditerranée, 2002 (installations de réception portuaires) ; Protocole relatif à la prévention et l'élimination de la pollution de la mer Méditerranée par les opérations d'immersion de navires et d'aéronefs ou d'incinération en mer, 1995 (interdiction de l'immersion de déchets) ; Protocole relatif aux aires spécialement protégées et à la diversité biologique en Méditerranée, 1995 (Plans régionaux de protection des espèces menacées d'extinction ; création de ZPS et d'ASPIM) ; Protocole relatif à la protection de la mer Méditerranée contre la pollution résultant de l'exploration et de l'exploitation du plateau continental, du fond de la mer et de son sous-sol, 1994 (interdiction de l'élimination des déchets des installations en mer) ; et le Protocole relatif à la prévention de la pollution de la mer Méditerranée par les mouvements transfrontières de déchets dangereux et leur élimination, 1996.

⁸ Plan régional sur la gestion des déchets marins dans la Méditerranée, PNUE (DEPI)/MED GT. 379/5 28 mai 2013.

⁹ Travail thématique OCDE <http://www.oecd.org/env/tools-evaluation/mixesofpolicyinstruments.htm>

¹⁰ https://ec.europa.eu/maritimeaffairs/befp_en

poursuivre ces efforts et de mobiliser les ressources régionales pour échanger avec les établissements financiers publics/privés dans le but d'inclure et d'opérationnaliser un ensemble d'objectifs et de principes durables lorsqu'ils investissent dans le secteur maritime.

Aires marines protégées

Les aires marines protégées (AMP) méditerranéennes subissent de nombreuses pressions qui ne facilitent pas les efforts de planification spatiale, réduisent la surface disponible de ces aires et pour les parties prenantes traditionnelles (pêche artisanale) et affectent la connectivité ou représentativité requise du réseau d'AMP.¹¹ En région méditerranéenne, la conservation de la biodiversité et des habitats et espèces clés reste l'objectif principal pour toutes les AMP.¹² Ce sont des outils de gestion pour protéger/restaurer les habitats, la biodiversité et les réseaux trophiques, régénérer les populations marines exploitées et planifier les activités humaines et les usages marins. Si elles sont bien conçues et gérées efficacement, les AMP peuvent fournir des bénéfices offrant une valeur socioéconomique directe, immédiate ou différée, en plus des bénéfices associés à la valeur de conservation.¹³

2 ORIENTATIONS STRATEGIQUES : ACTIONS PERMETTANT UNE TRANSITION VERS UNE ÉCONOMIE BLEUE EN MÉDITERRANÉE

4. Cette section sera complétée sur la base des échanges sur les études de cas et éléments de cadrage général avec les parties prenantes qui y participent, les points focaux nationaux et les membres de la CMDD. Elle permettra ensuite de proposer des actions stratégiques dans le cadre de la Convention de Barcelone et de cibler les prochains travaux du Secrétariat du PNUE/PAM via son Centre d'activités régional du Plan Bleu.

3 LEÇONS TIREES/RECOMMANDATIONS ISSUES DES ETUDES DE CAS

5. Les points listés ci-après sont directement tirés des études de cas présentées dans la prochaine partie du document. Ils seront complétés par des références directes aux études de cas correspondantes ainsi que par un résumé des pratiques et des méthodologies clés transférables dans chaque secteur. Le présent document sera peut-être complété dans les mois qui viennent par différentes références pertinentes (y compris des liens vers des documents, des outils et des pratiques innovantes en ligne) qui pourraient être mises à disposition en ligne sur le site du Plan Bleu.

3.1 PÊCHE ET AQUACULTURE

- Une gouvernance efficace est essentielle pour la conservation des ressources marines naturelles mais aussi pour exploiter tout le potentiel offert par les secteurs de la pêche et de l'aquaculture. La coordination opérationnelle basée sur des objectifs communs et des approches alignées ainsi que la collaboration entre les organisations compétentes doivent être renforcées au niveau régional et sous-régional ;
- Définir des actions transnationales, intersectorielles et impliquant plusieurs acteurs basées sur une « approche de chaîne de valeur » pour générer de nouvelles sources de revenus pour les pêcheurs (par exemple le suivi de l'environnement marin, la sensibilisation à l'environnement, le tourisme de pêche, les activités de patrouille des AMP, la valorisation

¹¹ MedPan <http://medpan.org/fr/realites-mediterraneennes/>.

¹² Il existe 1 234 aires marines protégées (AMP) et autres mesures de conservation efficaces par zone (OECM) en région méditerranéenne, ce qui représente une surface de 8,98 % sous une désignation légale.

¹³ *Socioeconomic impacts of marine protected areas in the Mediterranean and Black Seas* (Impact socioéconomique des aires marines protégées en mer Méditerranée et en mer Noire), tiré d'un article de *Ocean & Coastal Management*, décembre 2016.

des produits de pêche locaux, etc.) et examiner de façon critique les lacunes ou goulots d'étranglement législatifs actuels qui entravent cette diversification des revenus ;

- Définir des mécanismes clairs pour la participation des petits pêcheurs aux prises de décisions dans les AMP, dans le cadre de la collaboration entre AMP et autorités de pêche ;
- Contribuer à des solutions technologiques pour des pratiques de pêche durables tout en encourageant la valorisation des rejets par des secteurs auxiliaires, permettant ainsi de créer des emplois et de favoriser des investissements ciblant les terres ;
- Lutter contre la pêche illégale, non déclarée et non réglementée en fournissant les ressources humaines et financières pour contrôler et inspecter les activités de pêche conformément à la législation en vigueur, en renforçant les capacités institutionnelles et en créant des opérations transnationales communes ;
- Promouvoir le regroupement du secteur du tourisme de pêche pour faciliter les transferts de connaissances et donner une meilleure visibilité tout en harmonisant les méthodes de collecte et de production des données relatives au secteur dans la région ;
- Considérer les communautés côtières comme des « avant-postes socioculturels » capables de contribuer à la réduction de la pauvreté et à la protection des ressources marines ;
- Créer des politiques et des modèles de développement pour les zones côtières en prenant en compte les désirs et les besoins des communautés côtières afin d'éviter à l'avenir des impacts négatifs sur l'environnement et la société.

3.2 TRANSPORT MARITIME ET ACTIVITÉS PORTUAIRES

- Réduire l'impact des infrastructures côtières et marines, notamment dans les zones fortement urbanisées, en mettant en œuvre des solutions techniques et écologiques sur les fronts de mer. Les tendances actuelles, appuyées par un nombre croissant de publications scientifiques, confirment l'usage de technologies respectueuses de l'environnement pour soutenir à la fois les fonctions écologiques et structurelles ;
- Les ports peuvent jouer un rôle essentiel dans la promotion des investissements du secteur privé, devenir des centres d'investissement pour les technologies propres et, de façon indirecte, créer le besoin de nouveaux profils professionnels et par conséquent de nouveaux emplois.
- Le secteur de la plaisance, les ports touristiques et les ports de plaisance sont confrontés à de nombreux défis (par exemple, la protection des environnements côtiers et marins, le changement climatique, une concurrence accrue dans le secteur ou la demande de nouveaux services par les utilisateurs finaux). La transformation numérique est essentielle pour offrir des services de grande qualité et doit être introduite progressivement par le biais du renforcement des capacités et d'une adaptation administrative ;
- Définir des politiques publiques pour mettre en œuvre un secteur de la plaisance durable via des modèles économiques incluant des approches et des outils durables et un cadre réglementaire homogène dans toute la région méditerranéenne ;
- Renforcer les connaissances à l'interface terre-mer afin de promouvoir une meilleure connexion entre le transport maritime (ports) et les activités logistiques dans les terres (réseaux ferroviaire et autoroutiers) ;
- Inclure des éléments de réflexion innovants dans les outils de planification comme Geo Hazard en raison de l'activité géologique de la mer Méditerranée ;
- Les autorités de gestion des aires marines protégées (AMP) peuvent collaborer avec les autorités locales pour définir des routes et des escales pour les navires de croisière pour limiter les dommages causés par les ancres (fond marin, habitats benthiques) ;

- La planification spatiale et la réglementation des transports maritimes (limitations ou interdictions) sont essentielles pour prévenir tout accident lors des transports maritimes et les gestionnaires des AMP peuvent jouer un rôle important dans la promotion des initiatives auprès des autorités publiques. Il peut être utile de définir des Zones maritimes particulièrement vulnérables (ZMPV), des Zones à éviter (ZAE) ou les Dispositifs de séparation du trafic (DST) ;
- Les autorités nationales peuvent définir, de manière préventive, des limitations strictes et des zones tampons concernant les distances minimales des côtes des aires protégées que les paquebots doivent respecter lors de leur déplacement, leur amarrage ou leur escale pour faire face au fort intérêt anticipé dans le secteur ;
- L'un des principaux intérêts des routes de croisière dans une aire marine protégée est la découverte d'un environnement vierge et intact. Puisque l'environnement naturel et la faune et la flore qui y vivent sont extrêmement sensibles, un suivi en continu des activités de croisière de façon commune entre les gestionnaires des AMP et des autorités publiques concernées (par exemple, l'enregistrement de statistiques d'exploitation, d'émissions, des rejets et de type de carburant) est essentiel ;
- L'octroi d'une autorisation par les autorités compétentes pour la navigation dans des zones naturelles extrêmement sensibles doit être un processus bien informé pour lequel une coopération étroite entre l'État et les gestionnaires d'AMP est essentielle afin de limiter les risques liés aux activités de croisière, par exemple les échouements et les collisions ;
- Les limitations de vitesse représentent une mesure importante et efficace pour réduire les risques de collision. De plus, elles permettent de réduire les nuisances sonores potentielles ainsi que la consommation de carburant ;
- La réglementation relative à la consommation de carburants à faible teneur en soufre dans le secteur des croisières doit être encouragée pour limiter les impacts sur l'environnement et donc sur les AMP au niveau des éco-régions et des mers régionales (ZMPV, ZEC) ;
- Une plus grande transparence de la part des compagnies de croisière concernant les caractéristiques des navires de transport maritime (par exemple, traitement des eaux usées, conformité relative à la qualité de l'eau, réduction de la pollution de l'air) et leurs impacts sur l'environnement est nécessaire à la fois pour les autorités et les clients afin d'obtenir un tableau plus exhaustif des meilleures technologies disponibles. Les décideurs politiques de haut niveau pourraient faciliter la mise en place de normes plus strictes dans ce secteur.
- Les absorbeurs-neutralisateurs permettent de limiter les émissions de particules de soufre, mais les résidus concentrés collectés sont aussi considérés comme dangereux. L'usage de carburants à faible teneur en soufre semble donc un choix stratégique plus pertinent pour limiter à long terme l'impact des émissions de gaz ;
- La collecte d'informations concernant les aires protégées permet d'aider les compagnies de croisière à identifier les potentiels points chauds de cétacés : les tendances saisonnières et temporelles de la répartition des baleines et les zones à éviter en raison d'une bathymétrie complexe, avec des instructions et des formations de routage appropriées pour les capitaines et leur équipage ;
- Les compagnies de croisière peuvent générer des bénéfices supplémentaires en étudiant sérieusement la possibilité de mettre en œuvre les mesures de réduction des risques de collision avec les baleines et d'en faire un argument marketing. Les approches respectueuses des baleines permettront probablement de valoriser leur image auprès des clients ;
- L'augmentation des informations collectées via la coopération entre les compagnies de croisière et le secteur du transport maritime en général contribuera à l'élaboration de mesures d'atténuation plus efficaces. L'enregistrement des collisions et des presque accidents doit être encouragé et les statistiques doivent être largement diffusées à tous les types de navires, par exemple la plateforme d'enregistrement des collisions : <http://iwc.int/ship-strikes>;

- Il n'existe aujourd'hui aucune solution technologique permettant d'éviter les collisions de navires de façon efficace. Cependant, les compagnies de croisière pourraient considérer la mise en œuvre ou le test de solutions technologiques existantes, comme les jumelles de vision nocturne, les caméras infrarouges, les systèmes acoustiques passifs, la transmission en temps réel des observations de baleines, etc.¹⁴

3.3 ÉNERGIE

- La nouvelle législation relative aux projets éoliens offshore et inspirée de la législation en vigueur dans les pays du nord de l'Europe doit rapidement s'adapter au marché de l'éolien offshore en pleine évolution ;
- Les industries du pétrole et du gaz ont développé une large gamme de services et de produits pour l'exploration, la production et la commercialisation. La plupart de ces outils, savoir-faire et expériences peuvent être utilisés pour concevoir, construire, mettre en œuvre et exploiter de grandes structures mécaniques offshore (par exemples les éoliennes flottantes) ;
- L'énergie houlomotrice offre des avantages comparatifs par rapport aux autres sources d'énergie renouvelable, comme l'augmentation de la puissance en hiver lorsque la demande en électricité est la plus forte, les faibles coûts environnementaux et la capacité des satellites à prévoir les mouvements des vagues deux jours à l'avance. Pour que l'énergie houlomotrice joue un rôle important dans le futur mix énergétique renouvelable de la région méditerranéenne, les PPA (*Power Purchase Agreements* ou contrats d'achat d'énergie) et les tarifs de rachat doivent être pris en compte dans le cadre d'une stratégie régionale pour atténuer le changement climatique ;
- S'assurer que les cadres législatifs et réglementaires nationaux existants relatifs à l'énergie marine ne soient pas la source d'incertitude pour des investisseurs potentiels ni ne freinent le développement du secteur, un secteur qui est, encore aujourd'hui, peu porteur. Des politiques publiques, des modèles d'investissement et des programmes financiers spécifiques sont nécessaires pour le développement du secteur.

3.4 TOURISME ET LOISIRS

- La promotion d'un tourisme marin et côtier durable nécessite la création d'un environnement favorable à l'écotourisme dans les organisations régionales et nationales et permettant de pallier la fragmentation des efforts de planification et le manque de politiques intersectorielles ;
- Des incitations financières pour promouvoir l'économie circulaire et des produits et services touristiques innovants sont nécessaires (événements attractifs hors saison, routes pour relier les attractions maritimes et intérieures, activités alternatives telles que le pesca-tourisme, la pêche récréative, le patrimoine sous-marin, etc.) ;
- Les forces régionales doivent être mobilisées pour établir un dialogue efficace avec les investisseurs financiers publics et privés dans le but d'inclure un ensemble de principes et objectifs durables dans leurs stratégies lorsque des évaluations sont réalisées dans le cadre de projets touristiques ;
- Consolider l'interface entre les entreprises, les investisseurs et les fournisseurs de connaissances de façon à faciliter l'introduction de solutions et de pratiques innovantes et à faible impact dans le modèle touristique maritime et côtier actuel ;
- Encourager la création ou la consolidation de pôles nautiques dédiés est une bonne orientation stratégique non seulement pour soutenir la durabilité, la compétitivité,

¹⁴ La plupart des recommandations sur le secteur des croisières sont appuyées par le projet PHAROS4MPA financé par Interreg Med.

l'innovation et le transfert de résultats du secteur mais aussi pour favoriser le progrès social (création d'emplois) et l'inclusion (jeunesse, femmes) ;

- L'organisation de campagnes de sensibilisation au niveau régional concernant de nouvelles politiques publiques en faveur d'un secteur de la plaisance plus durable et basées sur des preuves scientifiques peut convaincre des décideurs politiques clés à renforcer les normes dans ce secteur ;
- La modernisation des ports de plaisance par le biais de PPP et de pôles permettrait d'intégrer des solutions durables dans leur offre de services s'appuyant sur de nouvelles technologies ;
- Aider les pays à consolider leurs outils en identifiant les procédures et mécanismes de conformité ;
- La préservation du patrimoine naturel et culturel sous-marin et des écosystèmes et biodiversité marins environnants devrait être incluse dans les politiques, les stratégies et les plans portant sur le développement durable et responsable du secteur du tourisme ;
- Promouvoir l'écotourisme comme stratégie de rupture permettant de renforcer la capacité des gestionnaires locaux qui ignorent souvent les approches basées sur un tourisme durable. Les aires protégées sont des sites idéals pour investir dans des initiatives d'écotourisme à condition que les acteurs locaux et régionaux acquièrent les compétences nécessaires pour rester compétitifs et sachent à la fois répondre aux attentes du marché ainsi qu'aux besoins en matière de conservation ;
- Évaluer l'impact social culturel et économique des produits et services touristiques pour certaines destinations en développant des indicateurs spécifiques plus fins et des moyens de contrôle dans le cadre d'un processus de planification informé ;
- Promouvoir les investissements dans des produits et services touristiques durables sur la base de statistiques indiquant les éléments concurrentiels dans le secteur du tourisme (par exemple, une meilleure performance, la réduction des déchets, des économies d'énergie et une meilleure gestion des ressources) ;
- Si de nouveaux produits ou services touristiques sont créés, le point de vue de toutes les parties prenantes doit être pris en compte dès le début du processus, notamment les personnes et les organisations les plus vulnérables. Bien que les produits et services touristiques doivent être planifiés de manière holistique et ne pas se limiter aux simples revenus économiques, il est important de se mettre d'accord sur des objectifs concrets qui peuvent donner lieu à des avantages économiques afin de faire participer le secteur privé ;
- Les AMP, comme toutes les aires protégées, ont pour but de protéger le patrimoine naturel mais doivent de plus en plus jouer un rôle dans le soutien de la croissance locale en proposant des opportunités commerciales et de création d'emplois. Elles doivent s'intéresser aux principaux services écosystémiques qu'elles fournissent à la population locale et, une fois identifiés, définir des collaborations ad hoc avec des entreprises, des universités, etc. pour renforcer les écosystèmes particulièrement essentiels au développement local, notamment pour le tourisme ;
- Permettre aux AMP de définir des droits d'entrée pour les visiteurs internationaux non-résidents. Afin d'éviter toute inégalité, une partie de ces revenus pourrait être versée sur un fonds national/régional pour soutenir le développement d'autres AMP ;
- L'adoption de labels écologiques est un avantage concurrentiel dans un secteur qui est de plus en plus sensible aux enjeux d'environnement durable. Des réglementations et des incitations financières spécifiques devraient être définies pour encourager les opérateurs à adopter des pratiques respectueuses de l'environnement dans le but d'obtenir des labels officiels, ce qui pourrait s'appliquer non seulement aux secteurs économiques mais aussi aux acteurs institutionnels.

3.5 RESSOURCES BIOLOGIQUES

- Sensibiliser la population et chercher son soutien en matière de restauration du milieu marin tout en fournissant aux autorités publiques et aux décideurs politiques des lignes directrices concernant des mesures de restauration marine durables, innovantes, éprouvées et adaptées aux différents habitats/écosystèmes marins ;
- Positionner la restauration des écosystèmes marins comme une opportunité commerciale et définir des initiatives pour le transfert des dernières connaissances scientifiques en impliquant les secteurs privés/publics par le biais de partenariats public privé (PPP) ;
- Les labels qualité des plages devraient insister sur les écosystèmes et donc accorder la plus grande importance aux herbiers marins et aux banquettes des plages de sable présentant des dunes côtières ;
- Les approches de gestion côtière doivent prendre en compte la dynamique des zones côtières de posidonies, la formation et la densité des banquettes, la présence de zones sensibles (en particulier, sans s'y limiter, les sites protégés et leurs environs) ;
- L'approche écosystémique devrait être mieux comprise et utilisée et l'objectif d'atteinte du « Bon état écologique » devrait inclure la formation de banquettes au niveau des plages ;
- Conserver et/ou restaurer les « dépôts de carbone bleu » ainsi que les services de séquestration fournis par les habitats d'herbiers marins et de marais maritimes, notamment les éléments qui s'accumulent dans le sol.¹⁵

4 ANNEXES

¹⁵ Les débats sont en cours concernant l'utilisation de mécanismes de financement Carbone bleu pour soutenir financièrement la gestion efficace des AMP existantes ou la création de nouvelles AMP.
(<http://www.medmpaforum.org/node/6795>)

ANNEX 1: “CASE STUDIES” LIST BY SECTOR:

1. FISHERIES AND AQUACULTURE

- 1.1 CO-MANAGEMENT COMMITTEE OCTUPUS FISHERY
- 1.2 FISHERMEN'S ORGANIZATIONS AGREEMENTS FOR THE PROTECTION OF DEMERSAL FISHERIES RESOURCES
- 1.3 FISHING GOVERNANCE IN MPAS: POTENTIALITIES FOR BLUE ECONOMY-FISHMPABLUE2
- 1.4 MINOUW - TECHNOLOGY AND SOCIETY INITIATIVE TO MINIMIZE UNWANTED CATCHES IN EUROPEAN FISHERIES

PENDING CASES TO BE INCLUDED:

- MedAID (integrated aquaculture led by CIHEAM Zaragoza)
- IMTA (integrated aquaculture led by Institut océanographique Paul Ricard)

2. MARITIME TRANSPORT AND PORT ACTIVITIES

- 2.1 CLEAN MARINAS
- 2.2 BLUE GROWTH PORT OF VIGO

PENDING CASES TO BE INCLUDED:

- Port of Marseille
- MedPorts (association of Mediterranean ports, including the port of Barcelona and Genova)

3. ENERGY

- 3.1 ECO WAVE POWER GIBRALTAR POWER STATION
- 3.2 RENEWABLE ENERGIES IN THE MARINE-COASTAL AREAS OF THE ADRIATIC IONIAN REGION – ENERCOAST
- 3.3 MAESTRALE
- 3.4 PROVENCE GRAND LARGE - FLOATING OFF SHORE WIND FARM

4. TOURISM AND RECREATION

- 4.1 BLUEMED
- 4.2 MEDITERRANEAN ECOTOURISM DESTINATION: MAIN COMPONENTS FOR A GOVERNANCE SYSTEM IN MEDITERRANEAN PROTECTED AREAS – DESTIMED
- 4.3 MEET A NETWORK ASSOCIATION FOCUSED ON PROTECTED AREA ECOTOURISM
- 4.4 NATIONAL PARK LA MADDALENA - ENVIRONMENTAL QUALITY LABEL “SOLE AMICHE DEL CLIMA”
- 4.5 SIROCCO
- 4.6 SUPPORT THE DIVING SECTOR TO CREATE A PROFITABLE ECOTOURISM ACTIVITY IN THE TAZA NATIONAL PARK

5. BIOLOGICAL RESOURCES

5.1 LIFE BLUE NATURA

5.2 POSBEMED - SUSTAINABLE MANAGEMENT OF THE SYSTEMS POSIDONIA- BEACHES IN THE MEDITERRANEAN REGION

5.3 MERCES - MARINE ECOSYSTEM RESTORATION IN CHANGING EUROPEAN SEAS

PENDING CASE TO BE INCLUDED:

- Ecological Anchor (conservation of Posidonia and sea floor ecosystem – patent of a French enterprise)

6. MULTI-SECTORIAL

6.1 CLEANING LITTER BY DEVELOPING AND APPLYING INNOVATIVE METHODS IN EUROPEAN SEAS (CLAIM)

6.2 PROMOTING THE CO-EVOLUTION OF HUMAN ACTIVITIES AND NATURAL SYSTEMS FOR THE DEVELOPMENT OF SUSTAINABLE COASTAL AND MARITIME TOURISM (CO-EVOLVE)

6.3 ECONCRETE – BLUE IS THE NEW GREEN

6.4 IBLUE - INVESTING IN SUSTAINABLE BLUE GROWTH AND COMPETITIVENESS THROUGH THE 3-PILLAR BUSINESS MODEL

6.5 INNOVATIVE TECHNOLOGY FOR THE REALIZATION OF A SUSTAINABLE MARINE AND COASTAL SEABED MANAGEMENT PLAN - MARINA PLAN PLUS

6.6 MED-IAMER INTEGRATED ACTIONS TO MITIGATE ENVIRONMENTAL RISKS IN THE MEDITERRANEAN SEA

6.7 CONSERVATION OF BIODIVERSITY AND ECOSYSTEM FUNCTIONS THROUGH THE PROMOTION OF THE MANAGEMENT AND SUSTAINABLE USE OF NATURAL RESOURCES WITHIN THE MARINE PROTECTED AREA OF AL HOCEIMA NATIONAL PARK

6.8 NEMO

6.9 SAMMY - SMART APPLICATION FOR MANAGEMENT OF MARINAS AND YACHTS

6.10 SAR-LAB SITE ATELIER RESTAURATION ECOLOGIQUE LAGUNE DU BRUSC

PENDING CASES TO BE INCLUDED:

- BLUE SKILLS (regional project on “blue education” labelled by the Union for the Mediterranean)
- PLASTIC BUSTERS (regional project on marine litter labelled by the Union for the Mediterranean)
- MA GEF ICZM (regional project funded by the World Bank)
- Torre Guaceto marine protected areas (promoted by WWF)

ANNEX 2: “CASE STUDIES”

1. BLUEMED



Blue Economy sector:
TOURISM AND RECREATION

Objective(s) of the project:

The overall objective of BLUEMED is to align/integrate regional development policies, plans and management practices for underwater museums and diving parks for a tourism valorization of underwater natural and cultural heritage in accordance with principles of sustainable, responsible and blue growth. BLUEMED aims to produce diversified and competitive tourism products with distinct local characteristics by adopting a ‘place-based’ approach. To ensure strong cooperation and added value for the entire Mediterranean area, BLUEMED will pay special attention to the networking of sites and creation of an ‘*Underwater Natural and Cultural Route in the Mediterranean*’ thematic itinerary. BLUEMED applies common methodologies so as to: i) address priorities of the European Strategy for more Growth and Jobs in Coastal and Maritime tourism; ii) integrate principles of the EU Protocol on Integrated Coastal Zone Management, the Maritime Spatial Planning Directive, and the Mediterranean Strategy for Sustainable Development; iii) help preserve and protect underwater cultural resources in situ by leveraging the implementation of the Convention on the Protection of the Underwater Cultural Heritage; iv) assist the Biodiversity and Adaptation EU strategies in minimizing impact to marine ecosystems and help selected sites adapt to climate change.

Project promoter: Region of Thessaly - Regional Development Fund

Project Partners:

Atlantis Consulting SA; University of Calabria-DIMEG; University of Zagreb - Faculty of Electrical Engineering and Computing; Ministry of Cultural Heritage and Activities and Tourism-Institute for Conservation and restoration; University of Cyprus-Oceanography Centre; University of Patras-Department of Civil Engineering; Foundation University Enterprise of the Region of Murcia

PP8: Dubrovnik Neretva Regional Development Agency; Ministry of Culture and Sports of Greece-Ephorate of Underwater Antiquities; Province of Croton - Marine Protected Area "CAPO RIZUTTO" (Associate); Municipality of Pylos-Nestor (Associate); National Museum of Underwater Archaeology-ARQUA (Associate); Superintendence of Archaeology, Fine Arts and Landscape for the Naples Metro Area (Associate).

Geographical area(s) of implementation:

Pilot sites: the Underwater Archeological Park of Baiae (Italy), the Marine Protected Area of Capo Rizzuto (Italy), the Underwater Museums of Western Pagasitikos/Sporades (Greece) and the Cavtat Underwater Archaeological Sites (Croatia)

□ Target beneficiaries:

i) BLUEMED consortium and the future network of parties interested in establishing and/or consolidating Underwater Museums and Diving Parks; the Interreg-Med sectoral agencies, including Horizontal projects and Thematic Communities; ii) Business support organizations: Technological Parks, incubators, accelerators which host, mentor and support tourism related start-ups and new SMEs with activities in pilot locations; iii) Education/training centers and schools; iv) Enterprises, except SME: Large-sized enterprises offering products and services in tourism, diving, and cultural industries; v) General public: Local/regional communities, civil societies, visitors and NGOs;
 - Interest groups including NGOs: Local/regional civil societies and competent NGOs; Museums; MPAs; vi) Universities and research organizations specializing in sustainable tourism, underwater research, engineering, archaeology, maritime/nautical archaeology and environmental sciences; vi) International organizations, underwater cultural heritage sector; vii) Local/Regional public authorities and development agencies from the Mediterranean area; viii) National public authorities (Ministries and Agencies of Tourism, Development, Culture and Environment); ix) Local/regional small-medium enterprises and other economic actors offering products and services in tourism, diving and cultural industries.

□ Duration:

2016-2019 (extended until January 2020) On-going

□ Overall budget: 2.797.549 EUR**Summary of the project:**

The BLUEMED project aims to protect and promote Mediterranean natural and cultural resources by enhancing sustainable development policies for more efficient valorization of underwater natural resources and cultural heritage in coastal and adjacent maritime areas in accordance with the 2001 Convention on the Protection of the Underwater Cultural Heritage and by strengthening sustainable and responsible coastal and maritime tourism in the Mediterranean Area.

BLUEMED main focus is on: i) promoting a process scheme for supplying local/regional authorities with a multi-disciplinary plan (management models and innovative technologies) for Underwater Museums, Diving Parks and Knowledge Awareness Centers to be developed in Capo Rizzuto, Baia bay, Western Pagasitikos/Sporades and Cavtat sites (policy recommendations, management practices, networking and promotion); ii) promoting innovation in the diving industry and improving divers experience through innovative diving services and technologies; iii) attracting an increasing number of people who choose diving tourism; iv) introducing the wider public to underwater cultural heritage by means of 3D immersive visualization in museum exhibitions and Knowledge Awareness Centers ; v) setting up the “*Underwater Natural and Cultural Routes in the Mediterranean*” web-based platform for networking of the Mediterranean underwater natural and cultural heritage sites.

□ Results achieved: i) Promote a sustainable responsible model of tourism for coastal areas and islands through: a) transferring of best practices among underwater natural and cultural heritage sites with important know-how; b) cross-fertilization of knowledge gained in the field of employability, seasonality reduction, incentives for the protection and preservation of natural and cultural heritage etc.; ii) assessment of national and regional governance plans and actions (national strategies and RIS3 regional plans) implementing existing legal frameworks and development of innovative regional/local territorial development strategies; iii) recommendations for harmonizing policies at national/regional/local level for improving underwater museums and MPAs management, and increasing their conservation status; iv) combination of available and

innovative funding mechanisms/tools taking into account green Infrastructure, integrated coastal zone management, marine spatial planning and accessible tourism for all (diving is an activity accessible to persons with physical disabilities); v) validation of innovative financial instruments which ensure sufficient funding for the establishment and management of Underwater Museums and Diving Parks; vi) maritime/land planning studies assessed/complemented/conducted for the establishment of a combination of Underwater Museums and Diving Parks in the most appropriate size; vii) management models designed for the sustainability of investments and operations of Underwater Museums and Diving Parks. Key Performance Indicators (KPIs) were developed for measuring sustainability throughout the project; viii) pilots for testing Underwater Museums, Diving Parks and Knowledge Awareness Centres in selected locations and capitalization on existing successful cases; ix) data collection (as part of pilots validation) to enable KPIs measurements and analysis, with emphasis on minimizing impact to ecosystems in the pilot areas; x) raised awareness of the social value, the competitive advantages, and the particularities of underwater natural and cultural heritage through Knowledge Awareness Centers; xi) effective networking and coordination among managing authorities and active stakeholders of the Underwater Museums and Diving Parks across the Mediterranean and internationally through exchange of knowledge and know-how transfer between sites; xii) set forth the '*Underwater Natural and Cultural Heritage Routes in the Mediterranean*' campaign for the creation of added value for the entire Mediterranean area.

Strengths:

- special protocols for *in situ* preservation of underwater cultural heritage;
- contribution to EU strategies to minimizing impact to marine ecosystem and help selected sites adapt to climate change;
- financial sustainability study and feasibility study of proposed/existing business models for pilot Underwater Museums and Diving Parks;
- guidelines for designing and implementing restoration and conservation plan of underwater cultural heritage;
- increase of employability opportunities through a new model for national growth;
- a web-based platform (Underwater natural and Cultural Routes in the Mediterranean) for networking and promoting Mediterranean locations with underwater natural and cultural heritage;
- detailed roadmap, with identified and prospective stakeholders, to uptake main outputs and results from areas with similar characteristics of the BLUEMED pilot sites;
- roadmap for replicability and transfer activities, for involvement of local/regional communities and economic operators.

Challenges:

- difficulties encountered by some of the countries in establishing 'good' legal and administrative practices for the recreational use and monitoring of their Underwater Cultural Heritage sites. The Underwater Cultural Heritage sites are managed differently throughout Europe, and each country adopts its own strategy to ensure their protection and the way they could (or could not) be visited.

Lessons learnt/recommendations:

- the BLUEMED final Report, still to be elaborated, will include detailed results and statistical analysis which will allow a comparative assessment among the five pilot sites and, as such, the formulation of recommendations concerning: i) future similar programs/initiatives; ii) policies/strategies/plans for sustainable and responsible tourism development through the valorization of underwater natural and cultural heritage; iii) legislative, planning, management, financial and coordination best practices for establishing Underwater Museums, and Diving Parks and Knowledge Awareness Centers; iv) protection/preservation of underwater cultural heritage sites and surrounding

marine ecosystem and biodiversity while improving accessibility and sustainable tourism development.

Sources of information:

<https://bluemed.interreg-med.eu/>

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2. Cleaning Litter by Developing and Applying Innovative Methods in European Seas (CLAIM)



Blue Economy sector:

MULTI-SECTORAL - Waste disposal, coastal/maritime tourism, fishing, coastal protection, biodiversity

Objective(s) of the project:

i) advance in the knowledge of the current status of marine plastic pollution; ii) develop innovative technologies to reduce the amount and impact of plastic pollution on the ecosystem-based services of the Mediterranean and Baltic Seas; iii) set the basis for operational forecasting of the impacts of marine plastic litter pollution on ecosystem services; iv) apply an ecosystem services angle (such as fishing industry) to identify areas where intervention with project-developed technologies has the greatest potential to tackle marine litter and produce positive impact on human health (food chain) and economic sectors (marine and coastal tourism activities); v) test the economic feasibility, social acceptance and enabling institutional framework for the uptake and upscaling of innovative marine litter reduction technologies; vi) promote policy action, raise public awareness and influence relevant decision-making processes through focused stakeholder engagement and communication strategies.

Project promoters:

Coordination: Hellenic Centre for Marine Research, Greece
Dissemination partner: Pensoft Publishers, Bulgaria

Project Partners:

i) Hellenic Centre for Marine Research, Greece; ii) Danish Meteorological Institute, Denmark; iii) KTH Royal Institute of Technology, Sweden; iv) Institute of Marine Sciences, National Research Council, Italy; v) Denmark's Tekniske Universitet, Denmark; vi) Institute for Environmental Studies, Vrije Universiteit Amsterdam-The Netherlands; vii) Pensoft Publishers Ltd, Bulgaria; viii) IRIS SRL, Italy; ix) Iker Consulting European and Regional Innovation, Spain; x) Kiel University, Germany; xi) Tallinn University of Technology, Estonia; xii) Institut National des Sciences et Technologies de la Mer, Tunisia; xiii) Marine and Environmental Research Centre - Universidade de Coimbra-UC, Portugal; xiv) PP Polymer AB, Sweden; xv) Lebanese University, Lebanon; xvi) Waste Et Water Sarl, France; xvii) Institute for European Environmental Policy, United Kingdom; xviii) New Naval Limited Liability Company, Greece; xix) Université d'Aix Marseille, France.

□ Geographical area(s) of implementation:

Mediterranean and Baltic Seas

□ Target beneficiaries:

Wastewater treatment plants, coastal municipalities, ports, commercial vessels and ferryboats

□ Duration:

Nov 2017-Oct 2021 (ongoing)

□ Overall budget:

6.185.612 EUR

Summary of the project:

CLAIM (Cleaning marine Litter by developing and Applying Innovative Methods) is seeking out new strategies for prevention and *in situ* management of visible and invisible marine litter with a focus on the Mediterranean and the Baltic Seas. Marine litter impacts everybody and everything. Reducing and eliminating plastics from oceans is a daunting challenge, but an essential one for achieving sustainable development, in particular SDG 6, 12 and 14. Five key technological innovations are being developed to prevent litter from entering the sea at two main source points, namely wastewater treatment plants and river mouths. They are: i) in terms of waste water treatment, an automated cleaning device is being developed and tested to filter out micro-plastic and prevent larger micro-litter from entering in marine areas; ii) a photocatalytic device will use project-developed and validated green nanostructured coatings to degrade common invisible nano-plastics, such as polypropylene, polyethylene, PVC and nylon, using the power of visible light; iii) at river mouths, floating booms equipped with cameras monitoring the collection of litter are to be strategically placed to collect visible floating pieces, before or as they enter the sea; iv) the project also develops and will demonstrate for the first time a small scale thermal treatment device that uses clean plasma technology to pyrolise floating plastic litter items, producing fuel (syngas) and recoverable heat to be exploited on marine litter-collecting boats and at port facilities; v) an automated passive flow-through filtering system for detecting micro-plastic in open seas by using ships of opportunity or FerryBoxes supported by a seawater sampling device is being developed by the project.

Real-world testing to validate the innovations proposed is at the core of the CLAIM innovation cycle, they have been tested *in-situ* in several areas in the Mediterranean and the Baltic Sea (e.g. Lyon Gulf, Ligurian Sea, and Saronikos Gulf). Besides the tests, the project seeks out new business models to enhance the economic feasibility for upscaling CLAIM innovations. The project is also developing innovative modelling tools to assess and create informative maps about visible and invisible marine plastic pollution at basin (Mediterranean Sea and Baltic Sea) and regional scales (e.g. Saronikos Gulf, Gulf of Lyon, Ligurian Sea, Gulf of Gabes, etc.). Data collected during the project will feed into new models determining the concentrations of macro and micro-litter on basin scale both in Mediterranean and the Baltic Sea.

□ Results achieved:

i) a dataset on visible and invisible marine plastic litter based on historical observations in the Baltic Sea and Mediterranean Sea has been set up; ii) marine plastic litter source datasets have been compiled for the Mediterranean and Baltic Seas; iii) first testing of CLAIM's pre-filtering device has been successfully conducted; iv) nano-coating¹⁶ advancement, a device to be used for degradation of micro plastics in water and specifically in Waste Water Treatment plants; v) the establishment of an online data visualization tool for macro and micro litter is in its final stage and it is now validated in the field; vi) the floating booms development at river mouth for

¹⁶ The process by which a thin layer of thickness about <100 nm is deposited on the substrate for improving some property or for imparting new functionality.

collecting macro litter is in its final stage; vii) existing methods for monitoring and managing plastic litter and related guidelines and regulations have been gathered for both seas; viii) a review of the mode and impact of visible and invisible plastic pollution on organism vital rates and habitat quality was compiled (both micro and macro plastics on ecosystem services with a focus on litter impact evaluation in commercially relevant seafood species in the Mediterranean and Baltic Seas); ix) a global scan of existing marine litter clean-up technologies was carried out, including their cost-effectiveness, underlying business models, and a review of existing enabling policy environments.

Strengths:

- propose answers to one of the major environmental concerns nowadays through cost-effective, environmentally friendly and innovative solutions;
- positively impact society (public health) and coastal areas economy (preservation of cultural/historic heritage and biodiversity);
- introduce new business models to evaluate cost-efficiency and feasibility of the proposed solutions within existing policy and legal frameworks on the basis of social acceptance;
- Technologies used meet real demand and are suitable for uptake and upscaling, and those already validated have the potential to be commercialized throughout Europe and in other parts of the world.

Challenges:

- laboratory allows a wide range of marine litter parameters to be collected but some results may turn different in a natural environment;
- replication of the devices developed by the project in other countries significantly depends on the existence of proper regulations (e.g. on waste management, seafaring, marinas, etc.);
- available data/information on existing marine litter technologies is very limited, making hard, if not impossible, to compare existing technologies (for example, their cost-effectiveness);
- the project should be promoted at industrial level to maximize its impact. This implies a proper policy/regulatory framework able to involve relevant stakeholders for synergies and collaboration, and also attract private investors during and after the duration of the project.

Lessons learnt/recommendations:

- 80% of the plastic found in the ocean come from land-based sources and the remaining 20% is the result of water-related activities. In the Mediterranean, marine litter mainly arises because of coastal activities (whereas the Northern Sea suffers most from marine activities);
- standardized reporting and accounting formats for “best available marine litter technologies” are needed along the line of Best Available Techniques;
- a holistic approach (e.g. microbeads, ban of single-use plastic, etc.) is needed to better coordinate stakeholders’ actions (plastic producers and users) whose implementation should be ensured by the EU countries and Regional Authorities at national and local level;
- international organizations and initiatives should further support cooperation between EU and non-EU Countries on developing and aligning their R&I strategies.

□ **Sources of information:** website, evaluation report, etc.

Website: <http://www.claim-h2020project.eu/>; Flyer, poster, press releases: <http://www.claim-h2020project.eu/media-pack/>; Technologies: <http://www.claim-h2020project.eu/technologies/>; Work packages: <http://www.claim-h2020project.eu/work-packages/>

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3. CLEAN MARINAS



Blue Economy sector:
MARITIME TRANSPORTS AND PORT ACTIVITIES

Objective(s) of the project: to have an excellence in the sustainable management of marinas

Promoters: UPACA (Union des Ports de Plaisance Provence-Alpes-Côte d'Azur et Monaco), which is the promoter of the certification, with the support of the Regional Council of Provence Alpes Côte d'Azur and other Regions.

Partners: In Provence Alpes Côte d'Azur, different partners work with UPACA (Région Sud, Agence de l'eau, DREAL, ADEME, DIRM).

Geographical area(s) of implementation: Europe

Target beneficiaries: marinas' managers (public or private), and users (boaters, inhabitants of coastal towns, boating professionals, tourists, etc.).

Duration: The 2008 French certification no longer exists; it has been replaced by in December 2011 by the European one). So, the certification was already there.

Overall budget: the setting up of the European "Clean Marinas" certification required around 200.000 EUR

Summary of the project:

Unique in Europe and specific to marinas, the European "Clean Marinas" certification is a sign of excellence in their sustainable management. Prior to the certification process, the managers of the "candidate" marina are required to control the chronic and accidental pollution, the waste resulting from the activities of the marina and pay attention to water and energy saving.

There are compulsory steps to undertake before the certification audit : i) running a diagnostic study of the pollutants and waste streams produced by, or transiting through, the marina; ii) adopting measures to combat recurring pollution (e.g. setting up an equipment to collect, sort and treat wastes and effluents); iii) undertaking actions for fighting accidental pollution (e.g. plans and/or kits of intervention); iv) promoting energy and water savings; v) trainings for the managers and the staff, and activities of sensibilization for the users of the marina.

To communicate on their environmental excellence and see their efforts acknowledged, the marinas, which have gone throughout the process, will have their practices audited by an independent organization (AFNOR in France). This guarantees a total independence in the decision and, as such, it assigns an additional value to the certification. The price of the

certification is adapted to the size of the marinas. Certified marinas are easily recognizable thanks to a “Clean Marina” flag at the Marina Master's Office.

□ Results achieved:

Since 2012, 72 marinas have achieved the certification, out of which 56 in Provence Alpes Côte d’Azur.

Strengths:

- marinas, which demonstrate environmental excellence through the certification, show direct/indirect positive impacts in all associated socio-economic sectors (tourism, trade, hotels, pleasure, fishing, professional boating, etc.);
- in Provence Alpes Côte d'Azur, the certification “Clean Marina” is the obligatory prerequisite to engage into the Charter for the Sustainable Development of marinas;
- between 10 and 15 jobs created per year;
- prevention of environmental degradation through the fight against chronic and accidental pollution;
- savings of water and energy through photovoltaic panels, software for the detection of leaks, smart terminals, etc.;
- marinas foster innovation since any technical innovation, in line with the certification approach and respectful of the existing legislation, can be tested;
- data availability both about the administrative issues (e.g. waste register, waste treatment plan, environmental policy statements, etc.) or technical ones (e.g. equipment available). A website visualizes all certified ports;
- this certification can be replicated in all French and European marinas.

Challenges:

- a growing number of marinas are certified “Clean Marinas, the challenge is to transform this European certification into a global standard;
- introduce specificities into the “Clean Marinas” certification, such as national certifications for those active in biodiversity to stress further their environmental commitment;
- cities and industries operating in the “Clean Marinas” watershed are promoted to put in place systems to prevent waste and polluted effluents reaching the marina and thus the sea.

Lessons learnt/recommendations:

- marina managers and associated professional organizations should take the lead in the certification processes;
- several French regions are promoting the “Clean Marinas”, with an exponential increase in the number of certified ports;
- grasp all the opportunity to gain more visibility vis-à-vis institutions and general public.

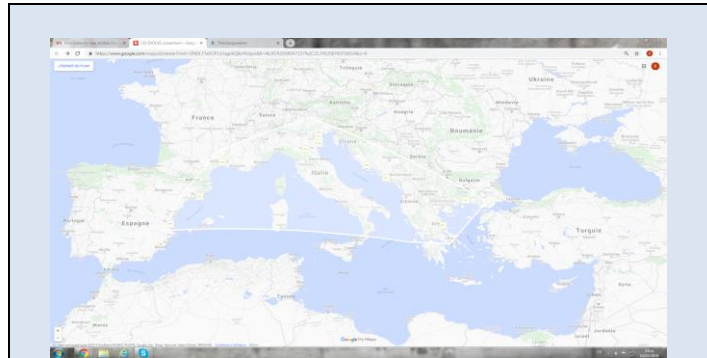
□ Sources of information:

www.portspropres.org ; www.upaca.com

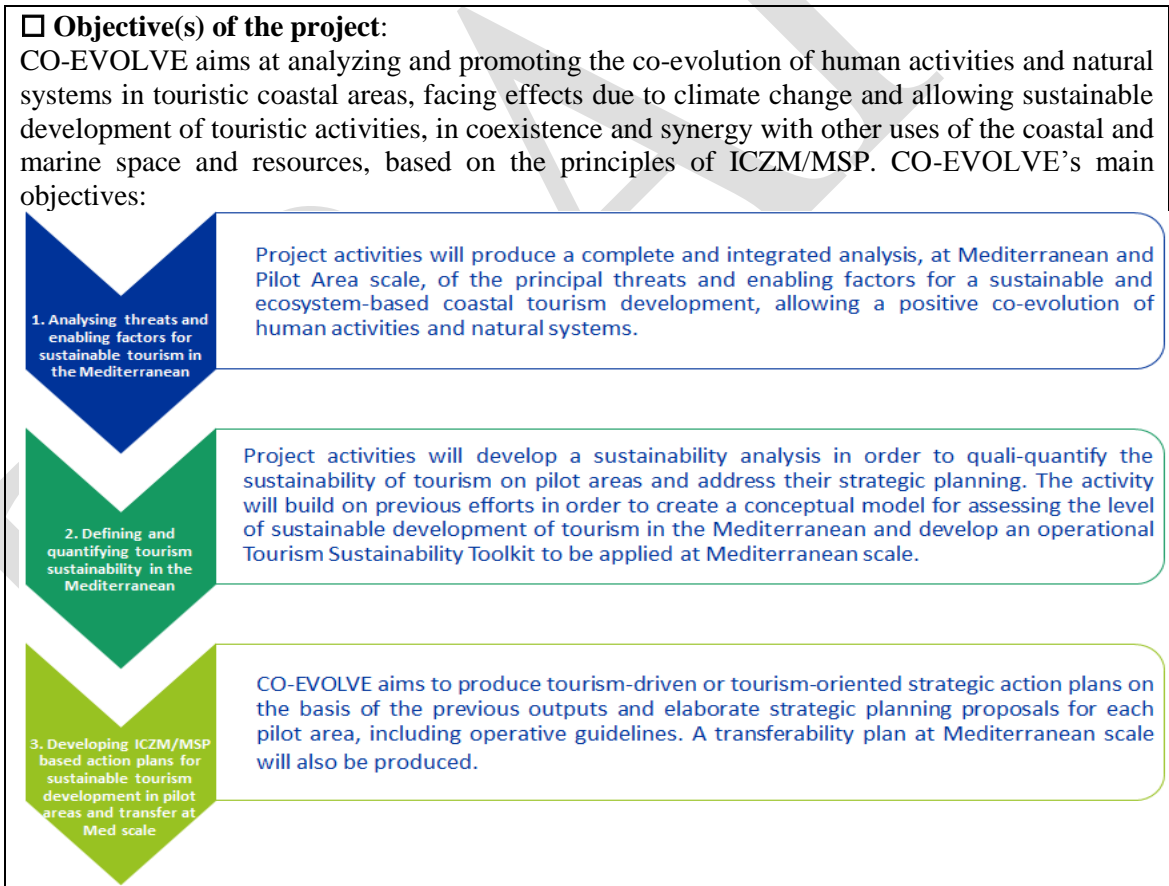
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4. Promoting the co-evolution of human activities and natural systems for the development of sustainable coastal and maritime tourism (CO-EVOLVE)



□ Blue Economy sector:
MULTI SECTORIAL - climate change and morphological stability; coastal protection measures; tourist fluxes and carrying capacity; pollution and other anthropogenic pressures to ecosystems; ecosystem protection; littoralization and urbanization; conflicts among different uses on land and at sea and land-sea interaction; water supply and depuration; transport and accessibility.



□ Project promoters:
Region of East Macedonia and Thrace - EL

□ Project Partners:

i) Conference of Peripheral Maritime Regions of Europe – FR; University of Thessaly – EL; ii) Emilia-Romagna Region – IT; Priority Actions Program Regional Activity Centre – HR; iii) Port Institute Foundation of Studies and Cooperation of Valencia - ES; iv) Po Delta Park Veneto Region - IT; v) Dubrovnik Neretva Regional Development Agency - HR; vi) Department of Hérault - FR; vi) Public Institution for Coordination and Development of Split Dalmatia County - HR; vii) Iuav University of Venice - IT; viii) National Research Council - Institute of Marine Sciences - IT

□ Geographical area(s) of implementation:

Alexandroupoli/ Makri area & Thassos/Keramoti area – EL; Catolica (RN) port and coast area & Comacchio-Lido di Spina (FE- Po Delta park) – IT; Polesine Camerini & Rosolina Mare – IT; La Albufera – ES; Maguelone/Frontignan area & West Hérault coast – FR; Kastela Bay – HR; Neretva Delta - HR

□ Target beneficiaries:

Sectoral Agencies: for local/regional development, Environment, Employment, Spatial Planning & Infrastructures, Civil Protection, Transport & Communication, Water Directorates, Managing regional and national parks and protected areas, Managing cultural heritage; **Interest Groups including NGOs:** Economic sectors, NGO's and citizens will be involved in different moments and places of activities, through direct contacts and interviews, socials, workshops, conferences and events: for data collection and review; tools testing; recommendations; plans and pilots; **Local Public authorities:** Municipalities of the coastal proximity in the countries of the project partnership as well as at EU Mediterranean scale in general; **National Public authorities:** Ministries of Environment & Planning, Tourism, Development in the countries of the Partners and at EU Mediterranean scale. The Union of the Mediterranean, the BLUEMED Initiative, and the UNEP PAP/RAC National Focal Points for the ICZM Protocol Barcelona Convention; **Regional Public authorities:** Regional authorities for policy development/implementation of action plans in the countries of the Partners and at EU Mediterranean level, CPMR-IMC members (41 Med Regions) and the Bologna Charter Initiative members (25 Mediterranean Regions); **SMEs:** SMEs, tourism related companies, will be involved in the implementation of several pilot actions. The economic sectors they belong to, will benefit after the project from project outcomes and action plans.

□ Duration:

3 years (on-going): November 2016-October 2019

□ Overall budget:

3.000.000 EUR

Summary of the project

CO-EVOLVE aims at analyzing and promoting the co-evolution of human activities and natural systems in touristic coastal areas, facing effects due to climate change and allowing sustainable development of touristic activities, in coexistence and synergy with other uses of the coastal and marine space and resources, based on the principles of ICZM/MSP. The present policy landscape (e.g. Directive 2014/89/EU, ICZM Protocol, COM (2014)86 final) pushes in this direction since sectoral approaches produce unsustainable results in the medium-long term. The project addresses crucial challenges for the sustainability of tourism (e.g. seasonality of demand, transport, minimizing resource use, community prosperity and quality of life, conserving and giving value to natural and cultural heritage) and proposes specific action plans in representative pilot areas. In particular, the project addresses: i) high cultural and environmental resources threatened by human activities; ii) high pressure of tourism activities and urbanization; iii) increased pressure on natural resources due to the combination of human activities and environmental changes (especially climate change); iv) increased pressure on water resources.

□ Results achieved:

CO-EVOLVE's activities started with the Studying phase (WP3). Partners first worked on analyzing principal threats and enabling factors for the development of sustainable coastal tourism at Mediterranean scale and pilot areas scale. Pre-identified threats include climate change, morphological stability, littoralisation, urbanization, pollution, conflicts of use, etc. and main enabling factors are coastal and ecosystems protection, water cycle and depuration, transport and accessibility, legislation and governance. WP3 also included the preparation of a study called "Building a common approach in tourism sustainability evaluation" which aims at defining and quantifying tourism sustainability in the Mediterranean. This study includes a "Synthetic Tourism Destination Typology" form that will be filled by project partners with the results of their Threat/Enabling Factor analyses. In addition to this, the 'Tourism Sustainability Toolkit' was produced and applied in the pilot areas. Until now, a lot has also been done in terms of communication and enhancing CO-EVOLVE's visibility. The consortium also established strong interactions with the 'Sustainable Tourism' thematic community and monitors several Euro-Mediterranean initiatives and strategies of interest. It is also to note that CO-EVOLVE signed a Memorandum of Understanding with the Interreg MED MITOMED+ project to exchange knowledge and plan joint activities. Partners are currently finalizing the testing phase (WP4), which consists in translating in practice the findings of WP3 in order to implement Pilot Actions (plans, concrete actions and measures), setting the conditions for a sustainable tourism in coastal areas and related maritime space and promoting robust and transparent decision-making processes in the project's 7 pilot areas. After this, the project's transferring phase (WP5) will be launched and include the elaboration of a transferability plan at Mediterranean level. Preliminary actions for the construction of the transferability plan are currently being carried out.

Strengths:

- local participation to identify needs and exploit data of previous projects;
- indirect socio-economic benefits such as climate change adaptation, local investments and preservation of cultural/historic heritage;
- the project elaborates on the concept of co-evolution, introducing an explicit analysis of future scenarios coupling natural (i.e. climate change) and anthropogenic change;
- integration of all the aspects of sustainable innovation (economic, environmental, social) in planning processes establishing an innovative and common approach to the definition and evaluation of tourism sustainability (Tourism Sustainability Toolkit) and facilitating networking which helps the integration of sustainability into innovative planning processes;
- Co-Evolve exploits data from previous projects and capitalizes more than ten years of experiences in interregional cooperation;
- the project develops agreed approaches, tools and best practices from partners of different Mediterranean countries triggering a multiplier effect at territory and transnational level on project outcomes and solutions;
- the existing transferability plans at different scales (local and regional) raises project's scalability.

Challenges:

- lack of data in some cases may raise uncertainty in "needs" selection while comparable data for the Pilot Areas are scarce and pilot areas samples are small;
- restricted practical applications (only few small-scale investments);
- the time scale of the project cannot adequately address spatial planning issues (e.g. touristic fluxes, conflicts among different uses, etc.);
- some aspects of coastal pollution are not taken into account (e.g. discharges of ship fuel & agricultural farming effluents) in sustainable planning process;
- Lack of motivation and engagement of local stakeholders in a few cases, and final coastal users are not included in the procedure;

- Participants only from EU with a common legislative framework;
- Lack of a study for the identification of possible barriers and limitations for the replicability and scalability of the project.

Lesson learnt/recommendations:

The project is still under implementation. Its most crucial phase (WP4: testing phase) is not completed yet, so the lessons learnt are delimited in a theoretical perspective:

- climate change and morphological stability are recognized as important threats to sustainable tourism across all Mediterranean areas;
- some work and strategy on coastal protection have been developed at local level;
- Several of the Co-EVOLVE project areas have embraced their “protection status” to promote ecotourism as a shift from more traditional forms of “sun and sea” tourism;
- The majority of local management plans ignore important aspects of sustainable tourism, while their level of implementation can vary greatly from one area to another;

Sources of information: .

Website, project’s application form, project’s progress reports, project meetings’ minutes

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5. CO-MANAGEMENT COMMITTEE OCTOPUS FISHERY



Map of the project area (in orange)

□ Blue Economy sector:

FISHERIES AND AQUACULTURE – the project affects artisanal-fishing sector, scientists, environmental and social organizations, public administration

□ Objective(s) of the project:

Promote a long-term conservation and sustainable octopus fishery by the enforcement of measures for preserving fishing resource and ecosystems as well as improving the socio-economic conditions of the fishing sector. This is to achieve through an equal footing decision-making committee composed by fishermen, scientists, social and environmental organizations and public administration.

□ Project promoters: The fishing sector itself was the promoter of the management plan together with the public administration; this enabled the co-management mechanism which gives equal weight to all the sectors implied.

□ Project Partners: Artisanal fishermen coming from 6 fishing auctions (Sitges, Vilanova i la Geltrú, Calafell, Torredembarra, Tarragona and Cambrils), Scientists from the Marine Science Institute (ICM- CSIC), Social and environmental organizations (ENT and Lonxanet) and Administration (Catalan Government).

□ Geographical area(s) of implementation: the Management Plan takes place in the central coast of Catalonia (from Sitges to Cambrils) on the Northwestern Mediterranean coast.

□ Target beneficiaries: The main beneficiaries from the project, in the short term, will be the artisanal fishing sector and, in the long term, the fishing resources which, in return, will lead to a regional benefit both environmentally and socially.

□ Duration: ongoing since January 2019. During this period the Co-management Committee has been created, a total of 4 meetings held and a draft of the Regulation measures to be taken already performed.

□ **Overall budget:** 18.150 EUR/year for the research survey

Summary of the project:

Within the framework of the Maritime Strategy of Catalonia and due to the interest of the artisanal fishing sector targeting the octopus in the central coastline of Catalonia, the Octopus (*Octopus vulgaris*) Management Plan on the central area of Catalonia has been created. The main goals of the Management plan are to ensure the sustainability (considering biological, social, economic and environmental factors) of the octopus (*Octopus vulgaris*) artisanal fishery through an innovative co-management participation mechanism (Co-management Committee). This tool is an equal footing decision-making structure composed by all the sectors implied, namely the octopus artisanal fishing sector, the scientists on the species, the local and national environmental and social organisations, and the regional administration.

It should be noted that the octopus artisanal fishery is very relevant in the area both historically, socially and economically, and traps used are highly selective ensuring the long-term conservation and sustainable fishery. These aspects highlight the relevance assumed by the co-management committee whose main output is the baseline of measures to be taken for guaranteeing the sustainable use of the fishery resource at biological, social and economic level. On this basis, the Committee has been working on defining the measures that must be included on the Management Plan and reaching to agreements. Here are some of the measures considered: i) biological measures (e.g. minimum weight) ii) fishery measures (e.g. temporary closures, fishing capacity, effort applied on the fishery source, time schedule, restriction on the fishing gears; iii) socio-economic measures (e.g. increase the value of the product, analysis of the historical trends on catch and price). Remark that we are currently working on the Management Plan baseline.

It must be pointed out that besides giving equal weight on decision making to all the sectors implied, co-management is accomplished through adaptive management, which implies that divergent claims need to be adjusted along the process to adapt the fishery to the current situation and in order to achieve a long-term sustainable fishery.

□ **Results achieved:**

i) formation of the Co-management Committee; ii) prior to the formation of the Co-management Committee, two-year research survey has been performed on artisanal octopus fishery in order to characterize the morphological characteristics as well as determine the reproduction stages and period of the octopus population available for the fishery targeting it; iii) exploring the implementation of a “sustainable certification”; iv) advance towards the management plan baseline.

Strengths:

- the Co-management Committee is currently studying sustainable certification options and other commercial measures together with the fishing sector and specialized personnel on the administration with knowledge on commercialization. A shift towards an improved commercialization will provide socioeconomic benefits;
- through the management plan, the project promotes the use of highly selective gears (two types of traps), historically used for the octopus, to achieve both the preservation of the resource and the cultural heritage of the area;
- a Co-management Committee integrated by all the sectors guarantees the promotion of sustainability;
- before the elaboration of the Management Plan, a two-year scientific survey has been performed providing crucial scientific knowledge in support of the decision-making process;
- data on octopus catches and prices are obtained daily from the fishing auctions;

- reports performed during the past two years are available upon request.
- several Management Plans have been created over the last few years, so lessons learnt from previous failures or achievements can be applied to other similar exercises.

Challenges:

- achieve a long-term sustainable fishery based on a deeper knowledge on the biology and ecology of this species, and the subsequent implementation of measures that would benefit both the fishing sector and the targeted species itself.

Lessons learnt/recommendations:

- co-management allows management transparency in the decision-making process;
- the empowerment of the fishing sector (through equal footing decision-making) ensure their involvement for the long-term endorsement and success of the actions;
- the presence of scientific, environmental and social organizations, and fishing and administration sectors in the Co-management Committee ensure a holistic approach to fishery and therefore its long-term sustainability;
- adaptative management is essential in order to react to changing conditions and ensure a dynamic management of the fisheries.

☐ Sources of information:

Press: https://ruralcat.gencat.cat/noticia/-/journal_content/2002/20181/5081877/agricultura-impulsa-la-constitucio-del-comite-de-cogestio-del-pla-de-gestio-del-pop-roquer-del-litoral-de-catalunya-central

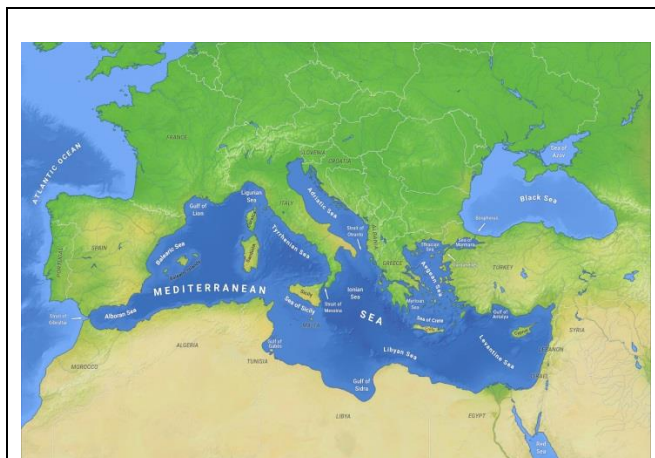
Master 'Estructura poblacional y ciclo reproductor de *Octopus vulgaris* Cuvier, 1797 (Cephalopoda: Octopodidae) en la costa central catalana' (by Oscar Escolar):
<http://hdl.handle.net/10261/176855>

☐ Contact person details:

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Oscar Escolar (oscar.escolar@gencat.cat), fishermen with Master degree in Biology; he was in charge of performing the scientific survey.

6. MEDITERRANEAN ECOTOURISM DESTINATION: MAIN COMPONENTS FOR A GOVERNANCE SYSTEM IN MEDITERRANEAN PROTECTED AREAS - DESTIMED



Blue Economy sector:
TOURISM AND RECREATION

Objective(s) of the project:

The main objective of the project is to foster joint planning, management, monitoring and promotion of ecotourism in Mediterranean protected areas, and in particular to: i) assess and monitor the sustainability of ecotourism products developed in Mediterranean protected areas; ii) reinforce capacities and cooperation for sustainable ecotourism product development at local and at regional scale; iii) improve the regional governance of ecotourism in Mediterranean protected areas.

Project promoters:

Lazio Region

Project Partners:

MedPAN – Mediterranean Protected Areas Network; WWF Adria; WWF Mediterranean; IUCN Med - Centre for Mediterranean Cooperation; Federparchi – Italian Federation of Parks and Nature Reserves; NAPA - National Agency of Protected Areas in Albania

Geographical area(s) of implementation: France, Spain, Italy, Croatia, Greece, Albania

Target beneficiaries: Protected Areas of the Mediterranean, and surrounding communities, local Tour Operators and service providers in the tourism sector, Local Authorities.

Duration: Nov. 2016 to October 2019 (on-going)

Overall budget: 2.500.000 EUR

Summary of the project:

DestiMED is a transnational cooperation project addressing sustainable tourism issues. The project brings together a network of partners and protected areas in six Mediterranean countries to collectively develop, manage, and promote ecotourism that inspires transformative nature experiences and cultural exchange. Selected protected areas designed new ecotourism packages, which were tested following ecotourism standards and monitoring methods, and developed

guidelines for sustainable tourism management. DestiMED builds on the success of the previous MEET project (Mediterranean Experience of Ecotourism) and aims at bringing forward a participatory approach in ecotourism planning by developing an innovative approach to measuring and reducing the environmental impact of tourism, based on the Ecological Footprint methodology.

□ Results achieved:

i) tested methodology for measuring the environmental impacts of tourism products (including accommodation, transport, food & beverage, etc.) and definition and implementation improvement strategies. At the end of the project, an “Ecological Footprint Calculator” will be available online for any Destination Management Organization (DMO); ii) tested/assessed ecotourism packages in 13 Protected Areas in 6 Mediterranean countries; iii) governance method for ecotourism development (planning, implementing, monitoring, revising) applicable to any destination with significant natural/cultural assets and with a body acting as DMO.

Strengths:

- integration of 13 protected areas in the already existing MEET network and actual solutions for the management and reduction tourism flows’ impacts;
- preservation of natural and cultural assets while promoting new businesses, or new opportunities for already existing businesses, within the growing eco-tourism market;
- application of the Ecological Footprint methodology to a package of services for their measurement and monitoring throughout all the value chain;
- environmental degradation addressed through the direct involvement of the protected areas, which work on their own tourism products and monitor their impact;
- development of a complete tourism-related governance system;
- most ecotourism products supported by the project involve small local providers supporting social inclusion in the destination and strengthening local economy as a whole;
- for the first time (at least in the Mediterranean region), data on the environmental impacts of tourism products are collected and processed for improving the sustainability of such products;
- a Public-Private Partnership in place in each of the 13 pilot protected areas, starting from the establishment of a *Local Ecotourism Cluster – LEC* in each area involving ecotourism stakeholders in the destination and the park management bodies. This approach is replicable in any protected area that aims to improve ecotourism actions.

Challenges:

- lack of involvement of regional (Mediterranean) tourism policy makers;
- lack of opportunities to engage into a structured commercial promotion of products during the project due to EU rules;
- social and cultural impact of tourism is not well addressed (not being the project’s focus);
- project duration does allow addressing the low competitiveness and seasonality of the ecotourism offer in Mediterranean protected areas;
- mismatch of skills and capacities, especially in SMEs, to engage in effective local governance.

Lesson learnt/recommendations:

- adapt approach to the specific context of each protected area;
- assessing the impact of activities in specific destination may require specific indicators and means of verification since the Ecological Footprint looks at the overall impact;
- new and more refined tools are needed for social, cultural and economic impacts of tourism products;

- in order to incentive investments on sustainability as a competitive factor in the tourism market, proofs are needed based on data;
- organization of tourism activities/services in a protected area is not a warranty of sustainability *per se*;
- innovation must pass through testing phases so as to validate assumptions and expected results;
- within a participatory process, attention must be paid to the involvement of the weakest parts of the community;
- mobilize reliable local providers with sufficient capacity and aligned with the sustainability “vision” for ecotourism products is a time-consuming activity;
- need to develop monitoring methods and ensure continuous collection of data at local scale.

Sources of information: website, evaluation report, etc.
<https://destimed.interreg-med.eu/>

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7. EConcrete – BLUE IS THE NEW GREEN



Blue Economy sector:

MULTI SECTORAL PROJECT - maritime transport and port activities, tourism and recreation, biological resource. Project case study includes a public marina; it is also implemented in several EU ports and can be implemented in offshore wind/aquaculture operations.

Objective(s) of the project:

Accelerated coastal development is an integral part of the Mediterranean Sea. With rising population density along the shorelines, and constant increase in maritime and recreational activities, coastal hardening is inevitable. The result is constant destruction or depletion of natural coastal and marine habitats, being replaced by artificial structures that does not provide suitable conditions for the development of rich and diverse biological assemblages. The project described here aims to demonstrate the potential of implementing environmentally sensitive solutions based on ecological engineering principles, for enhancing the ecological value and biological productivity of coastal and marine infrastructure, while also increasing their structural integrity and resilience. This is achieved through application of EConcrete® technologies, that use bio-enhancing concrete admix, rough concrete surface textures, and complex 3D designs of concrete elements. The three components work in synergy to enhance the growth of rich and diverse marine flora and fauna on the concrete infrastructure. This growth, apart from its clear ecological advantages, also increases the stability and longevity of the structure.

The Specific objectives include:

- i) demonstrate the effectiveness of EConcrete's bio-enhancing concrete technologies on ecological and biological performance in one of the largest marinas in the Eastern Mediterranean;
- ii) assess long term performance of a comprehensive enhancement scheme within the marina comprising: Ecological Seawalls, Enhanced Anchoring System, Ecological Armor alternatives (1-4 in the above project map, respectively).

Project promoters: EConcrete Tech Ltd.

Project Partners: EConcrete Tech Ltd; The Herzliya Municipal Tourism Development Corporation Ltd.

Geographical area(s) of implementation: Herzliya Marina, Herzliya, Israel.

□ **Target beneficiaries:** Herzliya Marina Management, Visitors to the Marina, Local Fishermen, Local Ecosystem.

□ **Duration:** On-going

□ **Overall budget:** < 100K Euro (self-funded)

Summary of the project:

With nearly 60% of the human population concentrated around the coastlines, alongside growing threats from sea level rise and increased storminess, accelerated coastal development is inevitable. As most marine flora and fauna reside in coastal areas, anthropogenic changes to coastlines are a key reason for loss of coastal habitats, and associated ecosystem services. While coastal infrastructure such as seawalls, breakwaters or marinas add a significant amount of hard substrate available for colonization by marine organisms, they do not support similar species assemblages to those of natural habitats. This is mainly due to design features related to steep slopes, low structural complexity, and high homogeneity, all of which are rarely found in natural habitats. As a result, artificial structures are often dominated by nuisance and invasive species that prevent from local species to thrive.

In response to this, EConcrete Tech Ltd has developed a series of concrete mixes and science-based designs which provide suitable biological and environmental conditions for the development of rich and diverse floral and faunal communities, while providing structural function and complying with all standards for marine construction. EConcrete's solutions are innovative, scientifically based, load bearing and environmentally friendly, designed and manufactured with increased surface complexity and ecologically enhanced concrete composition, to encourage the development of a rich and diverse marine ecosystem as an integral part of urban and coastal marine infrastructure. The case study presented here provides an example for seascape architecture of coastal structures using EConcrete's solutions. The products were deployed in Marina Herzliya, one of the largest and most modern marinas in the Eastern Mediterranean Sea, located in the most densely populated coastal region in Israel, with over 3.6 million people. The marina enhancement scheme included the deployment of four ecologically enhanced concrete product types: Eco Seawalls, Eco Armor Blocks, Tidepool Armors and Enhanced Anchoring System. Installation took place in 2 stages and was followed by comprehensive monitoring of the ecological enhancement efforts.

Stage 1 included the installation of Eco Seawall made of ecological concrete with high surface complexity; and Tidepool Armor made of ecological concrete with surface complexity and water retaining capabilities. The Eco Seawall was installed between the "Mean Higher High Water" (MHHW) and the subtidal zone on an existing concrete seawall and was aimed at both intertidal and subtidal enhancement. The Tidepool Armor unit was installed in the intertidal zone on the outer face of the marina's main breakwater and was aimed at intertidal enhancement. Stage 2 included the installation of 6 Eco Armor Blocks and 3 Enhanced Anchoring Systems made of ecological concrete with high surface complexity. Both products were aimed at subtidal enhancement and included ecological enhancement treatments for oysters and fish. Stage 1 of the project included a detailed monitoring scheme that began roughly a month post installation and was repeated every 3 months for the first two years, then reduced to every 6 months. Each monitoring event included in-situ visual survey for mobile invertebrates, detailed fish census (pelagic and cryptic) as well as quadrat sampling for sessile invertebrate community. Monitoring for Stage 2 included periodic photographic monitoring.



Figure 1. Eco Seawall, before installation (left); and after 12 months (right).



Figure 2. Eco Armor Block, minutes after installation (left); and after 24 months (right).



Figure 3. Tidepool Armor, minutes after installation (left); and after 12 months (right).

□ Results achieved:

Results from the Eco Seawall installation were published in a peer-reviewed journal. These demonstrated the effectiveness of applying ecological considerations for biological and ecological enhancement of active infrastructure. All community parameters examined (live cover, richness, biodiversity) were significantly higher on the Eco Seawall compared to the existing marina seawall soon after deployment:

- *23 species were identified on the Eco Seawall, and only 11 on the existing marina wall*
- *Biodiversity has doubled on the Eco Seawall, as soon as 12 months after installation*

The sessile community developed on the Eco Seawall included oysters, barnacles, sponges and other organisms that deposit calcium carbonate (CaCO_3) skeletons. These are known as habitat forming species and ecosystem engineers, contributing to the creation, modification and maintenance of habitats. Such species, apart from their ecological benefits to the environment also provide coastal and marine infrastructure with valuable structural benefits. Calcitic biogenic buildup was shown to provide structural reinforcement, reduced sensitivity to chloride penetration, enhanced resistance to erosion, scouring and abrasion, reduced maintenance, and prolonged lifespan in a process often referred to as Bioprotection [10]. In addition, mobile invertebrates (shrimps and other crabs) and resident fish species were significantly enhanced through design aspects (holes and crevices) of the Eco Seawall.

Apart from the Eco Seawall, all other EConcrete products are frequently monitored and results show significant ecological enhancement of both sessile and motile communities, especially those that secrete calcium carbonate. The utilization of carbon in the bioprotection process, leads to CO_2 assimilation and contributes to the reduction of carbon footprint. This case study found that the inorganic biomass (calcium carbonate skeletons) have accumulated with an **annual assimilation rate of 300gr Carbon for every square meter of EConcrete infrastructure**. This high carbon assimilation rates, alongside the unique properties of the ecological admix, which integrates various by-products and recycled materials (thus reducing the amount of Portland cement used in the concrete mix), results in ecologically enhanced concrete products that have as much as 80% less carbon footprint compared to standard Portland cement based concrete elements.

Strengths:

- the project contributed to labeling the Herzliya Marina as a Blue Flag Marina;
- it offers on-site mitigation for environmental impacts of marine/coastal developments, enhances juvenile fish through eco-engineering helping increase fishing stocks locally, facilitate climate change mitigation (lower carbon footprint) and adaptation (stronger more adaptive “blue” infrastructure);
- it enhances life below water and increase biodiversity (SDG14), contributes to climate change mitigation through offset of carbon footprint, and adaptation through resilient living infrastructure and bio-protection (SDG 13), creates sustainable cities and coastlines (SDG 11), integrate reused materials and byproducts (SDG 12); potentially reduces maintenance of the structure over its life span, reduce dominance of invasive species;
- education opportunities for both facility operators and users, clear opportunity to engage youth – like local Sea scouts and local schools, and potential for fishing opportunities;
- promotion of innovative design, including biomimicry of natural coastal habitats, into a highly traditional field;
- it can be applied to different structures and different sectors, from ports to marinas, to offshore energy and aquaculture, urban waterfronts and more; applicable for both new construction and retrofitting aging infrastructure.

Challenges:

- paucity of long-term impact, new technology and relatively new field;
- no incentives for implementation of eco-engineered solution, thus it depends on cost effectiveness or external funding (e.g. EU);
- lack of awareness of biological enhancement and eco-engineering among relevant decision makers and stakeholders;
- in certain infrastructures, like intake systems, rich marine life might create interference with operational systems;
- even environmentally sensitive structures have a certain ecological footprint and no development of building with nature alternatives must always be preferred;
- difficulty to coordinate uses and space;

- application will depend on local regulations and criteria that might change from country to country.

Lesson learnt/recommendations:

- bringing life to coastal and marine infrastructure is a feasible, scalable and effective means for reducing the ecological footprint of coastal infrastructure even in a heavily urbanized setting;
- the roughness and complex surface features of EConcrete products create a variety of habitats and environmental conditions which are usually absent from standard concrete features. Based on the results of this case study, these alterations have increased the richness, abundance, and diversity of benthic assemblages, and supported higher variety of mobile species. This was achieved within the operational limitations of the marina (no extreme extrusions that might interfere with docking activities or compromise the integrity of ship hulls), and while complying with strict structural requirements of coastal infrastructure such as compression forces, cracking, and chloride penetration resistance;
- the project demonstrates the potential of applying principles of ecological engineering in active urban/working waterfronts without compromising day to day activities and services provided by the structure. Harnessing biological processes can increase both ecological and structural performance. Evidence of the benefits of biogenic buildup and bio-protection (longer life span, reduced maintenance) are clear but still call for more detailed and long-term investigation to gain more insight on financial implications;
- as many countries are adopting strategies of “Blue Growth” aimed at supporting sustainable management of marine resources in the maritime sectors, the incorporation of environmentally sensitive technologies to active ports and marinas always requires deep investigation.

Sources of information: website, evaluation report, etc.
www.econcretetech.com

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8. ECO WAVE POWER GIBRALTAR POWER STATION



Blue Economy sector:
ENERGY

Objective(s) of the project: create clean electricity, make scientific progress in wave energy development, create work places and new industry & receive awareness and recognition that wave energy can be a cost-efficient and reliable energy source within the renewable energy mix.

Project promoters: Eco Wave Power (EWP)

Project Partners: European Regional Development Fund, the Government of Gibraltar, Gibelectric.

Geographical area(s) of implementation: Ammunition Jetty, Gibraltar. 36.07° N, 5.20° O

Target beneficiaries: Gibraltar's citizens, scientific community, energy ministry & government

Duration: 2016-current (on-going).

Overall budget: USD \$450.000

Summary of the project:

Since 2016, EWP has been operating a 100kW wave energy array in Gibraltar. The station is the only grid-connected wave energy power station in the world operating through a commercial PPA. The station is the initial part of an overall 5MW PPA (Power Purchase Agreement) that was signed directly with the government of Gibraltar which is targeted to produce the 15% of all Gibraltar's electricity needs, helping them to reach the 20% renewable energy EU's target, with an independent, clean, reliable and cost-efficient technology. The 100Kw was co-funded by European Regional Development fund.

Results achieved:

i) the system has been successfully operating and providing clean energy to Gibraltar's grid since 2016; ii) the station served as a proof of concept of the viability of EWP's system. Notably, the station has surpassed 15,000 grid connection hours which set a new world record for wave energy; iii) the 100KW project created governmental awareness to the potential of wave energy globally; iv) due to the 100KW station, Eco Wave Power was able to accumulate worldwide projects pipe line of 160MW; v) significant scientific progress was made resulting from the tests and R&D conducted in the power station, such progress is assisting the

commercialization of wave energy worldwide and will be implemented in commercial wave farms in the future.

Strengths:

- the only grid connected to a power station in the world. The Government of Gibraltar issued EWP with a PPA to expand the station to 5MW, which will provide 15% of Gibraltar's electricity needs (once built);
- it is the only wave energy power station operating permanently through a commercial PPA;
- the scientific community gains practical info about the wave energy sector, while the Government expands their renewable energy mix and attracts investments;
- the station contributes to climate change mitigation, jobs creation & industry creation and local investment;
- it is a technology that will help Gibraltar to reduce its pollution from energy production (its main energy source is diesel generators) and reach the EU's 20% renewable energy target;
- the technology does not generate noise pollution, solid waste/wastewater, gaseous emissions and it uses biodegradable hydraulic fluid;
- the station protects the Ammunition Jetty in Gibraltar against coastal erosion;
- once expanded to 5MW, it will create new jobs for its construction and operation;
- high level of data availability and transparency including statistics and maps;
- the technology used is fully modular, namely it can be easily and efficiently replicated and scaled up in different compatible regions around the world. The main conditions for replicability are: supportive governance in place, policy setting and relevant regulations and legislative steps and attractive feed-in tariffs to assist sector's commercialization.

Challenges:

- being a new source of renewable energy, many countries do not have policies on wave energy in place and do not have feed in tariffs, which prevents commercialization and scalability efforts.

Lesson learnt/recommendations:

- wave energy can potentially produce twice the amount of electricity that the world produces now, thus it will have huge impact on the future renewable energy mix;
- Once supportive policies are in place, wave energy sector will grow significantly all over the world and will be able to have a critical impact on climate change mitigation.
- Gibraltar's Government was very efficient in setting up PPA (power purchase agreement) related policies and feed-in tariffs for wave energy, which enabled a relatively prompt execution of the first phase of the project.

☐ Sources of information:

<https://www.ecowavepower.com>; https://ec.europa.eu/regional_policy/en/projects/united-kingdom/ecowave-clean-reliable-wave-energy-for-gibraltar-uk

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9. RENEWABLE ENERGIES IN THE MARINE-COASTAL AREAS OF THE ADRIATIC IONIAN REGION - ENERCOAST



Blue Economy sector:
ENERGY - Renewable energy technologies in the coastal-marine environment

Objective(s) of the project:
The objectives of the projects are: i) state of the art of the renewable energy sector in the Adriatic-Ionian marine-coastal area (solar radiation, wind power, tidal current power, and sea water thermal energy to be used in heat pumps); ii) evaluate the existing installations of related technologies exploiting the mentioned sources ; iii) carry out a market analysis of the technologies useable for the exploitation of the above-mentioned resources ; iv) highlight the positive and negative environmental impacts of the technologies. As to the project's proposals: i) identify obstacles and solutions (technical and non-technical) to overcome such obstacles and facilitate the application of these innovative systems ; ii) elaborate a set of technical, economic, environmental and legislative orientations and proposals, to be used for the elaboration of future projects.

Project Promoter:
Province of Rimini, Italy (Leading Partner)

Project Partners:
i) Cortea srl, Italy; ii) Goriška Local Energy Agency Nova Gorica, Slovenia; iii) University of Zagreb, Faculty of Mechanical Engineering and Naval Architecture, Croatia; iv) University of the Aegean, Department of Shipping, Trade and Transport, Greece.

Geographical area(s) of implementation:
The Adriatic-Ionian marine-coastal area

Target beneficiaries:
i) producers of renewable energy systems; ii) local bodies and administrations (e.g. port authorities, municipalities); ii) public and private providers of transport, recreation and tourism, education and health services.

Duration: completed; July 2014-June 2015

Overall budget: 367,000.00 EUR

Summary of the project:

In coastal areas, with intense tourist activity and port infrastructures, a high consumption of energy is registered, which may cause significant economic and environmental impacts. In this context, it is therefore strategic to introduce sustainable energy systems, reduce environmental impacts while setting a different approach to economic development. ENERCOAST – Renewable Energies in the Marine-Coastal Areas of the Adriatic-Ionian Region is a project co-financed under the MED Programme. Its attention focused on elaboration of the state of art of the renewable energy sector through a deep analysis of the available data and technologies for the exploitation of renewable energy sources in marine-coastal areas, development of technical and non-technical solutions to increase the use of such technologies, in order to contribute to the Blue Growth through a transnational cooperation in the Adriatic-Ionian sub-region.

□ Results achieved:

i) report on Renewable Energy Sources availability, existing installations and national/local legislation in each country involved; ii) report on four detailed analyses of technologies under preparation; report on proposals for future projects for the exploitation of renewable energy.

Strengths:

- a comprehensive overview of the aspects affecting the increase of renewable energy in the Adriatic-Ionian area;
- promotion of marine renewable energy sources as a means to positively impact economic and social indexes such as jobs creation, local investments, poverty reduction and climate change mitigation;
- positive impact of marine renewable energy on employment;
- project team composed of private companies, public agencies and universities.

Challenges:

- some marine energy technology could have environmental effects that should be addressed before its large-scale implementation;
- the short duration of the project did not allow deep exchanges with the beneficiaries in order to customize the research to very specific needs;
- data and information gathered and elaborated by the project should be now used to define field actions.

Lessons learnt/recommendations:

- solar and wind power, which are crucial in driving down EU carbon emissions, have become cheaper over the past five years taking the lead among renewable energies;
- in countries with relatively small wind potential (e.g. Slovenia), such potential could be better exploited through small vertical wind turbines;
- innovative technological solutions are needed to overcome specific problems (e.g. wind changing direction, regulations that do not permit installations on the coast, etc.) also in countries with high wind potential;
- although the countries involved in the project are coastal countries, they do not have a strong marine energy sector with the exception of Italy, which significantly invest in marine technology;
- countries in the Adriatic-Ionian sub-region often share common problems when it comes to marine renewable energy sources such as sea depth, insufficient strong waves, sea bottom morphology, high investment costs, complex administration requirements and limited support from national Governments;
- policies and strategies are often there but they lack implementation and follow up. Actually, progresses are often the results of EU imposed targets rather than of national policies aware of the huge potential benefits linked to such technologies;

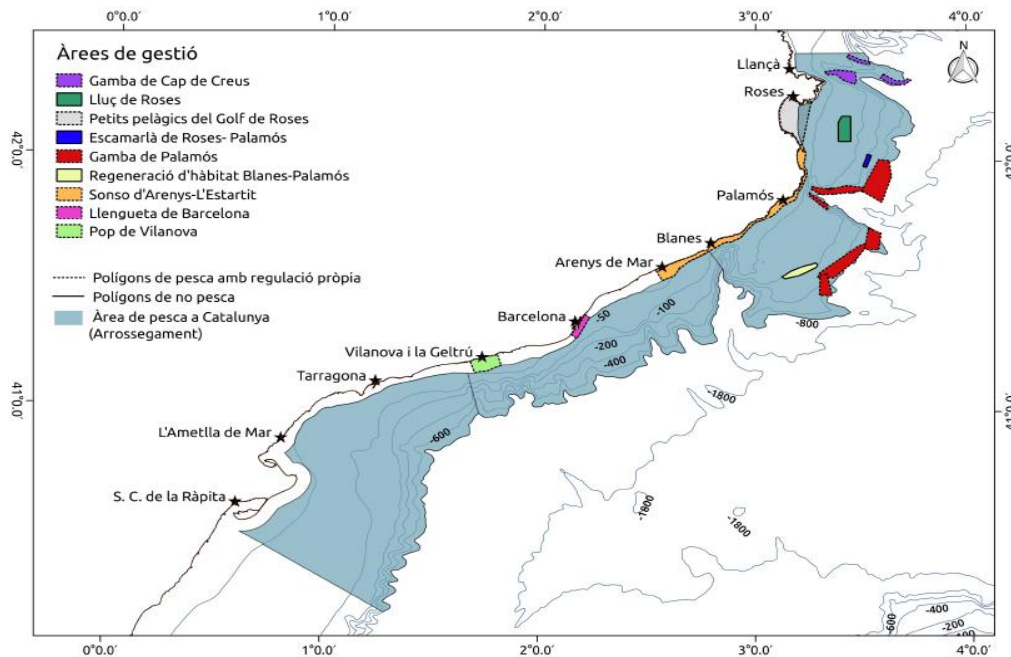
- further technological development is still needed in order to reduce costs and attract the interest of investors on renewable energy sector in the Adriatic-Ionian marine-coastal area.

Sources of information: website, evaluation report, etc.
<http://www.medmaritimeprojects.eu/section/enercoast>

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10. FISHERMEN'S ORGANIZATIONS AGREEMENTS FOR THE PROTECTION OF DEMERSAL FISHERIES RESOURCES



Blue Economy sector:

FISHERIES AND AQUACULTURE – although the economic sector mainly involved is the professional fishing, all economic sectors and social strata are indirectly benefited by, and connected with, the initiative. Anyway, the management and monitoring of the agreements made implies a multi-stakeholder scenario with public administrations, scientific community, fishing sector and NGOs included.

Objective(s) of the project:

All protected areas involved in the project follow the guidelines set by the Common Fisheries Policy (Regulation EU 1380/2013, 11 December 2013 of the European Parliament and the Council) concerning the improvement of the conditions for demersal resources with the consequent long-term maintenance of the depending fishing activity. The three main target species targeted by the project (*Merluccius merluccius*, *Aristeus antennatus*, *Nephrops norvegicus*) are in different states of overfishing, so the general objective, in line with Article 2 of the CFP, is to ensure that fishing activities are environmentally, economically and socially sustainable, namely ensure an exploitation of living marine resources that allows the restoration and maintenance of stocks above levels capable of producing the Maximum Sustainable Yield (MSY).

Project promoters: Coastal bottom trawling sector from Palamós, Roses, Blanes, Llançà and Port de la Selva (Catalunya, Spain).

Project Partners: Institute of Marine Science. ICM-CSIC; Catalan Fisheries Administration; WWF

Geographical area(s) of implementation: Demersal fishing grounds, either managed or with a fishing ban, in the coast of Girona.

Target beneficiaries: the coastal bottom trawling sector, the social fabric generated by them and, above all, the public resources affected.

Duration (Please, specify if completed or on-going): all fishermen's organizations agreements are on-going. In the intention of promoters, their duration will be *In Eternum*.

Overall budget:

A scientific monitoring program is being executed to assess the state of the exploited populations with a total annual cost of 150,000 EUR

Summary of the project:

The project is a fishing sector initiative. The proposal sent to the Catalan Fisheries Administration identifies fishing areas in the coast of Girona that the fishing sector would like to be carefully managed or apply a fishing ban. The biological and ecosystem characteristics of the fishing grounds suggested have significant value in terms of reproduction and/or spawning. For all of them, the industry has introduced several measures to reduce fishing effort, increase selectivity and control access to resources. All the rules were agreed by the fishermen's organizations involved and acknowledged by the General Board of the Territorial Federation of Fishermen's Organizations of Girona.

The main management measures approved and under implementation are: i) rules to reduce and/or restrict fishing effort: decreasing the number of operations of the fishing gear per day or per fishing ground; ii) the incorporation of technical measures to improve selectivity and/or reduce environmental impact: more restrictive technical measures (type of gear, mesh size, dimension, type of otter trawl doors); iii) access control regulations: census of authorized fleet; iv) temporal limitation for the fishing activity: temporary closures areas to protect juveniles and reduction of total fishing time per day; v) adaptive and multi-stakeholder management: active participation of the agents involved in the regulation of the activity.

These measures fully comply with the general goal of conservation and aim to reduce fishing pressure so as to adjust the capacity of fleets to the state of the resource, and balance environmental sustainability of the fishing grounds with the best long-term economic performance.

Results achieved :

i) improvement in the relations among fishermen; ii) better quality of the product sold (larger sizes, better pre-sale maintenance conditions); iii) reduction of physical impact on the grounds; iv) improvement in the biomass of harvested stocks; v) better economic efficiency; vi) involvement of the fishing sector in the decision-making process.

Strengths:

- due to the current state of harvested stocks and the uncertain future of fisheries in the Mediterranean Sea, the fishing sector will benefit from protection of the resources and the improved management;
- the project provides jobs and consolidate them, improves the profitability of the sector preventing it from disappearing, and strengthens fishing as an activity with high cultural and heritage value;
- all agreements subscribed improve the condition of demersal resources allowing the restoration and maintenance of the harvested stocks;

- the most innovative element of the project is the creation of a multidisciplinary Working Group in which, scientific community, public administrations, NGOs and the fishing sector sit together, discuss, share, learn, make consensus and, finally, make binding decisions;
- wide range of data (e.g. sales statistics, CPUE, scientific monitoring, structure of the caught populations, geo-referenced fishing grounds and density maps, fishing days by boat, etc.);
- it is a fully replicable model on a higher scale, incorporating co-management as a model of success in Multi-Annual Plans of the European Commission.

Challenges:

- to reach a sustainable exploitation of the fishery resources and, at the same, the economic viability of fishers and their associations;
- to sustain this sustainable equilibrium in the long-term.

Lessons learnt/recommendations:

- science results need to be easily understandable and trustable by all stakeholders;
- all participants need to reach a trustable relationship along the decision-making process.

□ Sources of information:

GAP2 project:

<http://gap2.eu/case-studies/case-study-10/>

Palamós red shrimp Management Plan:

http://agricultura.gencat.cat/ca/ambits/pesca/dar_especies_calador_mediterrani/plans-gestio-cogestio/pla-gestio-gamba-palamos/

(114) Clavel-Henry M., Solé J., Ahumada-Sempoal M.J., Bahamon N., Briton F., Rotllant G., Company J.B. (2019, in revision). Influence of the summer deep-sea circulations on passive drifts among the submarine canyons in the Northwestern Mediterranean Sea. Plos ONE (In revision).

(113) Clavel-Henry M., Solé J., Kristiansen T., Bahamon N., Rotllant G., Company J.B. (2019, in revision). Buoyancy in eggs and larvae of deep-sea Decapod *Aristeus antennatus* from the Northwestern Mediterranean Sea: simulated rise and drifts. Progress in Oceanography (In revision).

(112) Clavel-Henry M., Bahamon N., Solé J., Gorelli G., Garcia del Arco J.A., Carretón M., Rotllant G., Company J.B. (2019, in revisión). Deep-sea red shrimp *Aristeus antennatus* distribution in a continental margin crossed by submarine canyons of Northwestern Mediterranean Sea. Deep-Sea Research Part I (In revision).

(109) Carreton M., Company J.B., Boné A., Rotllant G., Guerao G., Bahamon N., Roldán M.I., dos Santos A. (in prep). Decapod larval community structure of the submarine canyon off Blanes, NW Mediterranean Sea. In preparation.

(108) Carreton M., Company J.B., Rotllant G. (in prep). Abundance and distribution of *Aristeus antennatus* larvae along the Spanish Mediterranean coast. In preparation.

(107) Carreton M., dos Santos A., de Sousa L.F., Rotllant G., Company J.B. (in prep). Morphological description of the first protozoal stage of the deep-sea shrimps *Aristeus antennatus* and *Gennadas elegans* providing evidence to distinguish both species larvae. In preparation.

(106) Carreton M., Company, J.B., Planella L., Heras S., Garcia-Marin J.L., Agullo M., Clavel-Henry M., Rotllant G., dos Santos A., Roldan M.I. (2019). Morphological identification and molecular confirmation of the deep-sea blue and red shrimp *Aristeus antennatus* larvae. PEERJ 7: e6063 (DOI: 10.7717/peerj.6063).

- (102) Paradis S., Masque P., Puig P., Juan-Diaz X., Gorelli G., Company J.B., Palanques A. (2018). Enhancement of sedimentation rates in the Foix Canyon after the renewal of trawling fleets in the early XXIst century. *Deep-Sea Research Part I* 132: 51-50 (DOI: 10.1016/j.dsr.2018.01.002).
- (101) Gorelli G., Company J.B., Bahamon N., Sarda F. (2017). Improving codend selectivity in the fishery of the deep-sea red shrimp *Aristeus antennatus* in the northwestern Mediterranean Sea. *Scientia Marina* 81 (3): 381-386 (DOI: 10.3989/scimar.04575.25A).
- (89) Gorelli G., Blanco M., Sardà F., Carretón M., Company J.B. (2016). Spatio-temporal variability of discards associated with a submarine canyon in the fishery of the deep-sea red shrimp *Aristeus antennatus* (Risso, 1816). *Scientia Marina* 80 (1): 79-88 (DOI: 10.3989/scimar.04237.24A).
- (87) Gorelli G., Sardà F., Company J.B. (2016). Fishing effort increase and resource status of the deep-sea red shrimp *Aristeus antennatus* (Risso 1816) in the Northwest Mediterranean Sea since the 1950s. *Reviews in Fisheries Science & Aquaculture* 24: 192-202 (DOI: 10.1080/23308249.2015.1119799).
- (75) Canals M., Company J.B., Martín D., Sánchez-Vidal A., Ramírez-Llodrà E. (2013). Integrated study of Mediterranean deep canyons: Novel results and future challenges (Preface). *Progress in Oceanography*, 118: 1-27 (DOI: <http://dx.doi.org/10.1016/j.pocean.2013.09.004>).
- (61) Puig P., Canals M., Company J.B., Martín J., Amblas D., Lastras G., Palanques A., Calafat A.M. (2013). Ploughing the deep sea floor. *Nature*, 489: 286-289.
- (60) Sardà F., Company J.B. (2012). The deep-sea recruitment of *Aristeus antennatus* (Risso, 1816; crustacea: decapoda) in the Mediterranean Sea. *Journal of Marine Systems*, 105: 145-151.
- (40) Company J.B., Puig P., Sardà F., Palanques A., Latasa M., Shaerek R. (2008). Climate influence on deep-sea populations. *PLoS ONE* (3)1: e1431 (doi:10.1371/journal.pone.0001431).
- (7) Bjorkan M., Company J.B., Gorelli G., Sardà F., Massaguer C. (2019). When fishermen take charge. The development of a management plan for the red shrimp fishery in Mediterranean. In: *Collaborative Research in Fisheries: Co-Creating knowledge for Fisheries Governance in Europe*. Editors: Holm P, Hadjimichael M, Mackinson S. MARE Publication Series, Springer.

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11. Fishing governance in MPAs: potentialities for Blue Economy- FishMPABlue2



Blue Economy sector:
FISHERIE AND AQUACULTURE (mainly on small-scale fishery)

Objective(s) of the project:
Provide specific guidance - through testing a governance toolkit, capacity-building for end users (Mediterranean Protected Areas managers and local fishermen) and policy recommendations - in order to set up fishery management models which allow protected areas management bodies preserving marine ecosystems and species, assuring a sustainable exploitation of marine resources, and as such the sustainability of small scale fisheries in and around Med MPAs

Project promoters: Federparchi - Europarc Italy

Project Partners: IUCN Med (Spain), ECOMERS (France), WWF Med (Italy), CONISMA (Italy), MedPAN (France), APAM (France), WWF Adria (Croatia)

Geographical area(s) of implementation: Italy, Spain, France, Slovenia, Croatia, Greece

Target beneficiaries: Marine Protected Areas (MPAs) managing bodies and small-scale fishers

Duration: 3 years (ongoing)

Overall budget: 3.500.000 EUR

Summary of the project:

The FishMPABlue2 project is the follow-up of the FishMPABlue project (July 2014-June 2015) funded by Interreg MED Programme. FishMPABlue had carried out an analysis of the management of small-scale fisheries (SSF) within and around a set of Mediterranean MPAs and developed a “regional-based governance toolkit” to strengthen MPAs management capacity of SSF. The FishMPABlue2 Project aims to test this toolkit to demonstrate its effectiveness. More specifically, the FishMPABlue project had highlighted that fish stocks are healthier, fishermen incomes higher and social acceptance of management practices stronger (in other words, a successful management of SSF is reached) if a set of attributes is present in the MPAs, among which: regulation enforcement, presence of a management plan, fishermen engagement in MPAs management, fishermen representatives in the MPAs board and promotion of sustainable fishing.

The aim of FishMPABlue2 is to test the toolkit developed in FishMPABlue through a number of pilot actions so as to assess and quantify its capacity in achieving the expected results, namely MPAs ecological effectiveness, benefits delivered to SSF and stakeholders' acceptance

of management measures. Eleven pilot MPAs located in six Med countries (Spain, France, Italy, Slovenia, Croatia and Greece) were selected during the FishMPABlue project as they illustrate most of the management conditions existing in the Mediterranean basin so particularly adapt to test the effects of an important number of governance tools in an integrated way. In the first phase, testing will be carried out by engaging the MPAs management body and local small-scale fishermen through the establishment of “Local Governance Clusters – LGCs”. Identified governance tools will be implemented in each pilot MPA by the LGCs under the coordination of the MPAs managing body and with the “coaching” of relevant project partners. In this phase, a scientific monitoring will be carried out both before and after implementing the governance tools, in order to measure the ecological, economic and social status of the MPAs and the potential effect of the governance tools.

In a last phase, testing results will be transferred and discussed among the LGCs of the pilot MPAs in order to upgrade the tested “governance toolkit”; this will allow the project partners preparing a new version of the “governance toolkit” and sharing it with other MPAs in the Mediterranean. In parallel, a know-how exchange activity involving the eleven pilot MPAs will be carried out, in order to capitalize on, exchange and transfer the results of the implementation through communication tools and several cross-fertilization formats where the partners will be able to share common challenges and solutions.

□ Results achieved:

i) in each pilot MPA, establishment of a “Local Governance Cluster - LGC”, composed of MPA managing bodies and small-scale fishermen; ii) eleven pilot project “implementation plans” adopted and implemented with a selection of tools from the «*Small-Scale Fishery Governance Toolkit*» ; ii) capacity building: 2 trainings (on ecological-socio-economic monitoring of SSF, and SSF governance measures), 3 exchange visits between pilot MPAs and other MPAs; iii) monitoring campaigns for comparing the environmental-socio-economic status of SSF in each pilot MPA before and after the toolkit testing so to assess the benefits of the tested measures; iv) the “*Small-Scale Fishery Governance Toolkit*”: five steps for a successful governance system of SSF (enforcement, fishermen engaged in MPAs activities and Boards, incentive for sustainable fishing, and management plan); a list of ready-to-use management measures to reduce the catching pressure on halieutic resources.

Strengths:

- actual involvement of fishermen in selecting the management measures to be tested within a win-win cooperation between small-scale fishermen and MPAs managing bodies;
- contribution to the improvement of the socio-economic conditions of the SSF sector - declining from the economic (lower incomes) and social (ageing) point of view - by means of actions aimed to strengthen the economic value of their products (e.g. valorization of local fish species) and diversify their commercial offer (e.g. pesca-turismo);
- increased capacity of MPAs’ managing bodies in governing SSF, including better relationship with fishermen, more solid surveillance and monitoring capacities, etc.;
- reduced fishing efforts, which increase environmental conservation and fish stocks;
- huge amount of data and information whose process provides an updated picture of SSF in the Mediterranean region;
- the “*Small-Scale Fishermen Governance Toolkit*” as a tool applicable to any MPA in the Mediterranean region and disseminated through devoted tools (e.g. the small-scale fishermen online platform); the upscale of such tool is undergoing with definition of policy principles to be proposed to national governments.

Challenges:

- the project did not tackle the problem of recreational fishermen, which are competitors to artisanal (i.e. professional) fishermen;
- one-year project implementation is not enough to see the benefits on the environment (biological cycles need more time);
- a real “added value chain” to the SSF has not been tested;
- there is not real impact on recreational fishery.

Lessons learnt/recommendations:

- solutions must be always tested on field to check its feasibility and effectiveness;
- for the conservation of the environment and biodiversity is crucial to involve the drivers of pressures (in this case, fishermen) in the planning and management of MPAs and convert them in “allies”, especially by supporting them through alternative sources of incomes (e.g. marine environment monitoring, environmental education, fishery-tourism, involvement in MPAs patrolling activities, valorization of local fish products, etc.);
- for real “co-management” of SSF in MPAs, juridical adjustments of MPAs managing bodies powers are suggested;
- the “value chain approach” in MPAs helps exploit the potential of SSF in creating jobs and attract national/international investments;
- FishMAPBlue2 could be replicated in those countries where dialogue between MPAs managing bodies and local small-scale fishermen is already developed; if not, the “*Small-Scale fishery Governance Toolkit*” could be of help;
- FishMPABlue2 might achieve bigger results in the countries where it operates now if the law allowed fishermen’s representation in MPAs decision-making processes, and if integrated policies would be drafted jointly by MPAs and fishery-related authorities.

Sources of information:

<https://fishmpablue-2.interreg-med.eu/>

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12. iBLUE - Investing in sustainable blue growth and competitiveness through the 3-Pillar Business Model



Blue Economy sector:
MULTI-SECTORIAL - yachting sector including shipbuilding, nautical services, tourism.

Objective(s) of the project:
The main objective of iBLUE project is to improve the competitiveness of the yachting sector in the Mediterranean by i) promoting an integrated and transnational network; ii) developing and applying a “business model innovation” based on the 3 pillars of sustainability (economic, social and environmental); iii) strengthen the knowledge about the sector.

Project promoters: University of Udine -Department Polytechnic of Engineering and Architecture

Project Partners:
STEP RI Science and Technology Park of the University of Rijeka Ltd; Groupe Kedge Business School;
Official Chamber of Commerce, Industry and Shipping of Seville; Cyprus Chamber of Commerce and Industry; Lasithi Chamber of Commerce; University of Primorska -Faculty of Management; RCIDI- Development and Innovation Network; Durres Chamber of Commerce and Industry.

Geographical area(s) of implementation:
Mediterranean areas in Italy, Spain, Greece, Croatia, Portugal, Albania, Slovenia, Cyprus, and France.

Target beneficiaries:
Yachting SMEs (shipbuilding, nautical services and maritime tourism); business support organizations; members of the consortium and external stakeholders; higher education and research entities; policy makers; general public.

Duration:
on-going; from 2017 to 2020 (36 months);

Overall budget:
2.252.855 EUR

Summary of the project:
iBLUE will contribute to the sustainable development of the yachting sector (shipbuilding, nautical services, tourism) through a Mediterranean transnational network and a 3 pillars business model (3-PBM), which integrate all the elements of sustainability (environmental, social, economic). When addressing the crisis of the sector, and its unemployment challenges, place the focus only on the economic aspects would represent a threat for the Mediterranean. The application of the 3-PBM, along with the systematic data collection, will provide all stakeholders with: i) substantial knowledge of the yachting sector in the Mediterranean in terms of economic impact, employment potential, challenges and sustainability; ii) a system of indicators on the

sustainability of the yachting enterprises, useful for better resource allocation and impact evaluation; iii) a collection of best practices and innovative patterns to improve the performance of the sector; iv) training material to facilitate the implementation of business models based on circular economy principles.

□ Results achieved:

Intermediate milestones of the on-going project: i) state-of- the-art analysis of the Business Model Innovation (BMI); ii) database of best practices of yachting SMEs; iii) development of a 3-PBM methodology for a BMI in the yachting sector, and guidelines for its application; iv) development of a system of sustainability indicators; v) refinement of the 3-PBM methodology after technical feedback.

Strengths:

- promote the competitiveness of the yachting sector through the reformulation of business models based on the 3 pillars of sustainability and through the creation of a yachting cluster in the Mediterranean area;
- propose an integrated solution to enhance employment, productivity and social cohesion in the yachting sector based on a closed linkage between thematic priorities and regional policies;
- concrete cooperation between business and research, which stimulates investments in innovation and cross-fertilization of insights across boundaries;
- a set of indicators which provides an integrated overview of the yachting sector and enhance its sustainability;
- the methodology applied in the project could be applied to other business activities.

Challenges:

- a transnational approach is needed because of the coastal boundaries shared by the project partners;
- a delicate balance must be found between economic development, ecological sustainability and social needs;
- environmentally friendly technologies are scarcely adopted in the yachting sector, affecting the implementation process of the business model innovation according to the 3-PBM;
- lack of organized and standardized data/statistics of the sector as well as absence of common regulations among the countries of the project prevent the effective application of the business model innovation;
- the variety of all stakeholders in the yachting supply chain implies a great effort for managing a multi-stakeholder approach;
- the sector complexity - in terms of business variety within the yachting supply chain - affects the transferability of the results into all yachting related activities. Nonetheless, the methodology provides ad-hoc indicators and tools for the main groups (e.g. manufacture, services, infrastructures, etc.).

Lessons learnt/recommendations:

- importance of a transnational approach and need of policy makers' support to the yachting SMEs;
- need of specific policies to enhance yachting sustainability, and homogeneity of regulatory framework among European countries;
- apply sustainability concepts to business models and need of regulatory support to innovation;
- lack of standardized and organized data;
- readiness to manage complexity when dealing with various stakeholders;

☐ Sources of information:

The project website contains public deliverables and informative materials:

<https://ibblue.interreg-med.eu/>

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13. LIFE BLUE NATURA



Blue Economy sector:
BIOLOGICAL RESOURCES

Objective(s) of the project: To conserve effectively “blue carbon deposits” and sequestration services provided by the habitats of seagrass beds and tidal marshes in Andalusia, with emphasis on what accumulates in the soil. The final objective is to finance their conservation through carbon markets and the compensation of CO2 emissions under the voluntary regime.

Project promoters: Consejería de Agricultura, Ganadería, Pesca y Desarrollo Sostenible (Government of Andalucía)

Project Partners: Agencia de Medio Ambiente y Agua, UICN-Med, CSIC-CEAB y Asociación Hombre y Territorio. Co-financiador: Fundación Cepsa

Geographical area(s) of implementation: Andalusia (Spain)

Target beneficiaries: public and private enterprises willing to compensate emissions

Duration (Please, specify if completed or on-going): on-going; 2015-2019

Overall budget: 2.513.792 EUR

Summary of the project:

i) Quantify carbon deposits and sequestration rates of marine phanerogamous and tidal marsh habitats in Andalusia, with special emphasis on what accumulates in their soils, and analyze the evolution over the coming decades; ii) conduct an approximative evaluation of the environmental services generated by these habitats related for mitigating climate change; iii) build on existing initiatives for financing the projects on the conservation and/or restoration of blue carbon sinks within the current mitigation and adaptation policies, with special attention to the markets for emissions compensation; promote the necessary tools/procedures, replicable at international level, to allow the inclusion of these kind of projects in such markets.

One of the specific objectives of the project is the development of a regulatory framework for the new law (8/2018, October 8) on “*measures against climate change and for transition to a new model energy in Andalusia*”, namely elaborating an Andalusian standard for the certification of blue carbon credits coming from conservation/restoration projects of seagrass beds and tidal marshes, identification of standard projects for the creation of a catalog of “blue carbon” compensation projects in Andalusia, and involving and building the capacity of key

private/public sectors to ensure the development and continuation of such “blue carbon” conservation programs in the future.

□ Results achieved:

- Quantification of carbon sequestration and sink service of the coastal ecosystems in Andalusia, including seagrass meadows (approximately 11,803 ha) and tidal marshes (specifically those of Bahía de Cádiz and Marismas del Odiel). The estimates are available on the project website www.life-bluenatura.eu;
- The study on the stocks and flows of carbon in tidal marshes carried out by the Project is one of the most detailed so far;
- At present, 2 projects for the conservation and restoration of blue carbon sink ecosystems (meadows and tidal marshes) have been drafted;
- A manual for the certification of blue carbon projects generated by actions of conservation and regeneration of marine grasslands and tidal marshes is under preparation together with an “Andalusian Certification Standard” for conservation/restoration projects of seagrass meadows marine and tidal marshes. The results are expected to be available in the first semester of 2020;
- Multiple activities are carried out in the field of capacity building, communication and dissemination of the project results.

Strengths:

- In most cases, companies linked to blue economy prefer to offset their emissions through the conservation and restoration of sinkholes associated with coastal ecosystems than with terrestrial ecosystems less linked to their activity. The new law aforementioned contemplates and gives legal coverage to this option first time ever so it is necessary to develop all the necessary instruments, namely the standard for credit certification of blue carbon and a list of conservation/restoration projects within the Andalusian System of Emissions Compensation;
- The Project allows mitigating the effects of climate change by improving/restoring the capacity of coastal ecosystems to remove CO₂ from the atmosphere and store it under the ground in a stable manner for hundreds and hundreds of years;
- Develop tools enshrined in the most recent Andalusian policy/legislation against climate change and for the transition to a new energy model;
- The Project publishes for the first time a detailed study of the sink associated with tidal marsh ecosystems and a large-scale study on the sink in seagrass meadows. From the scientific point of view, the techniques and methodologies used are very innovative;
- A large amount of data and information, especially cartographies of coastal ecosystems and carbon sinks in Andalusia, all available in the Environmental Information Network of Andalusia <http://www.cma.junta-andalucia.es/medioambiente/site/rediam>;
- The capacity of replicability of the project, especially in the countries of the Mediterranean region, is one of the main strengths of this project. In particular when it comes to the methodological approach.

Challenges:

- Marine ecosystems, specifically marine phanerogams (*Posidonia oceanica*) have low growth rate (= uptake of CO₂ from the atmosphere) which, added to the high cost of the actions for their conservation/restoration, makes difficult for projects on these ecosystems/blue carbon sinks to be profitable from the financial point of view in the current carbon market. Therefore, the challenge is to give them an ecosystemic and social value;
- Coastal areas are spaces with increasing pressures and it is crucial to raise awareness of all stakeholders about the services offered by coastal ecosystems;
- It is necessary to disseminate these operational tools especially among the private sector;

Lesson learnt/recommendations:

- The project ends in the first half of 2020 and it will be necessary to continue working with the private sector, public authorities, managers and media. The regional government should elaborate a work strategy in the medium and long-term in order to keep all these actors involved and committed.

Sources of information: www.life-blunatura.eu

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14. MAESTRALE



Blue Economy sector:
ENERGY

Objective(s) of the project: the overall objective of MAESTRALE is to promote the development of blue energy as a key sector in the Mediterranean by strengthening existing, or establishing new, synergies and collaborative relations among public authorities, research bodies, businesses sector and civil society at both regional and transnational level in order to: i) create the pre-conditions to better exploit marine renewable energies preserving the environmental and cultural values of the Mediterranean area; ii) promote knowledge and technological transfer; iii) generate the critical mass and the environmental conditions to improve innovation capacities and competitiveness.

Project promoters: University of Siena-Department of Physical, Earth and Environmental Sciences (Italy)

Project Partners:
Business Innovation Centre of Valencia (Spain); Istrian regional Energy Agency (Croatia); Aristotle University of Thessaloniki - School of Architecture, Faculty of Technology (Greece); Goriška Local Energy Agency (Slovenia); University of Cyprus - Oceanography Centre (Cyprus); Informest (Italy); University of Algarve - Division of Entrepreneurship and Technology (Portugal); Maritime Cluster of Andalusia (Spain); Malta Intelligent Energy Management Agency (Malta); Autonomous Region Friuli Venezia Giulia - Education, Training and Research (Italy, Associated Partner).

Geographical area(s) of implementation: Mediterranean Area

Target beneficiaries: MAESTRALE will benefit SMEs and/or enterprises, business incubators working in the blue energy field as well as universities and research centers which deal with the technological research and innovation. MAESTRALE will also contribute to develop policies, strategies and debate on the blue energy affecting governments, local communities and civil society.

Duration: on-going (November 2016-October 2019).

Overall budget: 2.407.425 EUR

Summary of the project:

MAESTRALE project aims to lay the foundations for a blue energy strategy in the Mediterranean area by pursuing three objectives: i) improve the knowledge about blue energy potential, available technologies, laws and regulations, and internal or external factors which may hamper or advance its development; ii) reinforce networking across the Mediterranean area and improve cooperation among public authorities, research centers, energy agencies and enterprises (“Quadruple Helix”) in the blue energy sector through a series of regional and transnational Blue Energy Laboratories (BEL) open to key Mediterranean blue energy actors for facilitating information sharing and

innovation transfer and identifying limits and potentials of different marine renewable energy technologies; iii) develop 20 blue energy pilot projects (participatory feasibility studies¹⁷ and business plans) as baseline for the implementation of blue energy technologies in the Mediterranean area.

□ Results achieved:

MAESTRALE is still on-going but some important milestones have been reached.

STUDYING PHASE (WP3): in order to complete and update the knowledge framework about blue energy in the Mediterranean area, MAESTRALE collected information about available technologies, existing laws, potential of marine renewable energy sources. In particular, the following activities were carried out: i) approx. 50 case studies on marine renewable energy devices investigated and catalogued outlining pros and cons, and possible challenges to face; ii) a legislative analysis of national laws and EU directives related to the development of blue energy; iii) a web-GIS database created to collect and share information about existent technologies, main producers, etc.; iii) a SWOT analysis carried out to highlight strengths, weaknesses, opportunities and threats deriving from the development of blue energy considering several dimensions: socio-political, economic-funding, legal, technological and environmental. Thanks to these activities, several partners of the project published (or they are about to publish) scientific articles on a special topic of Frontiers Journal on Marine Renewable Energies.

TESTING PHASE (WP4) and TRANSFERRING PHASE (WP5): WP3 paved the way for the “testing and transferring” activities necessary for the creation of networks and the selection of pilot projects. The Transnational Blue Energy Laboratory (Transnational BEL) and the 10 Regional Blue Energy Laboratories (Regional BEL) in each project partner’s country served as starting point for the testing and transferring activities. So far, two Transnational BEL meetings have taken place where the knowledge acquired was shared among partners and other key blue energy sector’s stakeholders: As to Regional BELs, all partners organized at least one meeting in their own region with relevant stakeholders, and some of them have already selected also the pilot projects.

Strengths:

- the project benefits all the stakeholders involved by providing a detailed state-of-the-art review of data, by promoting networking and knowledge/information sharing, by facilitating new collaborations and aggregating competing interests for common solutions;
- stronger awareness of key stakeholders about the potential of blue energy in terms jobs creation, attraction of investments, climate change mitigation, and energy independence;
- it advocates for the development of a legislative framework for the blue energy sector based on the sustainable development of local resources and a fair and equitable distribution of benefits;
- environmentally effective as it promotes the use of clean energy from waves, tides currents etc., the restoration of ecosystems and their services and the regeneration of resources;
- support to innovative and competitive technologies, and strategic approaches for their installation
- innovative and open source informative tools (e.g. web-GIS database to spread data and knowledge);
- involvement of local communities, civil society and workers in the planning process, and support to local employability and business/investments.

¹⁷ Feasibility studies focused on environmental impacts, social acceptance, economic opportunities/constraints, and technological adaptability of installation to the territories.

Challenges:

- the current economic and (partly) technological lack of maturity of the blue energy sector;
- in its planning and analysis phase, the project needs to consider collateral environmental effects such as noise, vibrations and change of hydrodynamic processes;
- lack of information and trust about these technologies may turn into opposition of local communities;
- difficulty to collect detailed data due to the lack of geo-referred data on marine energy potential.

Lesson learnt/recommendations:

- MAESTRALE can be an example to follow to promote synergies and collaboration among stakeholders in the field of blue energy. Its *modus operandi* is simple and easily replicable. It consists in creating tools (e.g. Blue Energy Laboratory) and involving as many stakeholders as possible in order to collect their knowledge, experiences and expectations;
- more detailed mapping studies on the potentials of waves, tides, currents, osmotic and thermal gradients in the Mediterranean Sea are needed;
- in some European Mediterranean countries, current public policies as well as the legislative and regulatory frameworks cause uncertainties among potential investors delaying the development of the sector which, at the moment, results still unattractive;
- MAESTRALE cannot show ultimate evidences (for now) but preliminary assessments point out that marine energy technologies, if well planned, have low impacts. A participatory process is essential, however, to gain social acceptance and identify critical environmental and social issues to tackle.

Sources of information:

<https://maestrale.interreg-med.eu/what-we-achieve/deliverable-database/>

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15. INNOVATIVE TECHNOLOGY FOR THE REALIZATION OF A SUSTAINABLE MARINE AND COASTAL SEABED MANAGEMENT PLAN - MARINA PLAN PLUS



Blue Economy sector:
MULTI SECTORAL – maritime transport, coastal protection, maritime and coastal tourism

Objective(s) of the project:
The overall objective of MARINAPLAN PLUS is to apply and demonstrate, at industrial scale, an innovative and reliable technology for marine and coastal management able to ensure navigability and access to ports throughout the year, thus thriving maritime economy and environmental sustainability. The technology proposed avoids the usual collection of littoral materials nearby the entrance of harbors thanks to the installation of submerged and static devices, called “ejectors”; fed by pressurized water, they aspire the mixture of water and sediments and convey it through a pipe in an area where does not constitute obstacle to navigation. Coherently with the Marine Strategy Framework Directive, MARINAPLAN PLUS aims to develop an economically viable and environmentally friendly management plan for seabed maintenance that minimizes or no longer includes dredging as the main technology for sediments removal, since it severely impacts the marine environment.

Project promoters: EASME (Executive Agency for SMEs) European Commission

Project Partners: Trevi Spa, University of Bologna, Cervia Municipality, ICOMIA

Geographical area(s) of implementation: Cervia (RA), Italy

Target beneficiaries: Citizens, the harbor different activities (shipyard, marina, fishermen, etc.)

Duration: on-going (October 2016-December 2019).

Overall budget: 2.519.245 EUR

Summary of the project:

The specific objectives of the project are the following: i) the sustainable management of sediments in coastal areas and ports through a technology which avoids the damages and reduces the physical disturbances (underwater noise in particular) produced by dredging operations; ii) design a management plan for the maintenance of the seabed able to guarantee navigability with near-zero impact on marine environment; iii) contribute to the implementation of the Marine

Strategy Framework Directive (2008/56/EC), the Maritime Spatial Planning Directive (2014/89/EC) and the EUSAIR macro strategy; iv) contribute to the general EU policy framework for water set out in the EU Water Framework Directive (2000/60/EC), Roadmap for a Resource-Efficient Europe (COM 571-2001) and Innovation in the Blue Economy (COM 254-2014).

It is well known that dredging generates big impacts on biological resources. These impacts can be short or long term, direct or indirect. Short term impacts could include local changes in species abundance or community diversity during or immediately after dredging. Long-term impacts could include permanent changes in species abundance or community diversity caused by changes in the hydrodynamics or sediments type, or a decline or erratic trend beyond the normal range of variability in the years following the dredging. Direct impacts would be directly attributable to the dredging activity, such as loss of mudflat habitat or temporary turbidity which impacts the productivity of the eelgrass bed immediately adjacent to a dredging site. Indirect effects on organisms are not immediately measurable because of dredging operations. The disposal of dredged material on the seabed can also disrupt sediment-dwelling animals, with potential knock-on effects further up the food chain.

The expected results of the project are: i) design an industrial-scale plant for seabed maintenance, to be developed in modular form so to favor high technology replicability; ii) realization of a demo industrial-scale plant for seabed maintenance in Cervia Port (Italy); iii) economic assessment of the industrial-scale plant for seabed maintenance by monitoring its electric energy consumption. Project objective is to reduce seabed maintenance costs of about 55% yearly thanks to the minimization or no longer use of the dredging equipment; iv) highly replicable and sustainable management plan to be developed on the basis of the demo plant performance, thus containing information about authorization roadmap, management costs, ordinary and extraordinary maintenance costs, and environmental impacts; v) minimization or no longer use of the dredging equipment for seabed maintenance, with relevant benefits in term of environmental impact. The demo plant will be monitored to verify plant impact on marine flora and fauna (sea floor integrity assessment), including also undersea noise measurements. Also CO₂ emissions will be estimated on the basis of electric energy consumption: a reduction of about 3.5 ton/year has been estimated; vi) boats access to the port guaranteed throughout the year: the objective is to maintain seafloor depth in the port inlet to the appropriate level of 2.50/3.00 through industrial scale plant for seabed maintenance; vii) promotion of a more sustainable development of economic activities in marine environment, ports in particular.

□ Results achieved:

Trial tests have been performed in 2017. According to the experimental results, the industrial scale plant for seabed maintenance has been designed, built and assembled in Cervia Port (Italy). Networking activities have been giving good results. In fact, Trevi Spa has supplied a small plant for another European co-funded project called CO-EVOLVE in Cattolica (RN), Italy. Moreover, Bologna University has been awarded another project called ECOMEDPORT, in which the dissemination and the replicability evaluation of the technology among Mediterranean countries is funded (Italy, Tunisia, Lebanon, Greece). Puglia Region (South Italy) is interested in applying the technology in the small port of Rodi Garganico and they are currently working to find the needed financial resources.

Strengths:

- the project enhances navigation safety and infrastructures which suffer of silting;
- climate change mitigation by avoiding maintenance dredging and using renewable energy resources (solar and wind energy) for the plant;
- conservation of local habitats, and coastal erosion reduction.

- jobs creation for the management of the plant and local investments mobilized;
- regional and local authorities are directly involved in the project (e.g. local municipality and Bologna University are involved in monitoring different parameters);
- the performance of other experimental plants based on this technology is monitored, and commercial/scientific partnerships have been established to facilitate their replicability.

Challenges:

- the project pays the first industrial application of this innovative technology;
- the coast dynamics have to be well known to apply the technology efficiently;
- energetic independence (via solar or wind energy) has to be pursued;
- no on-line database of the monitoring results is expected to be produced;
- a business plan aimed to attract private investors should be produced.

Lesson learnt/recommendations:

- the project allowed learning a lot about materials durability and special design features;
- innovative technology needs to be well communicated to win resistances.

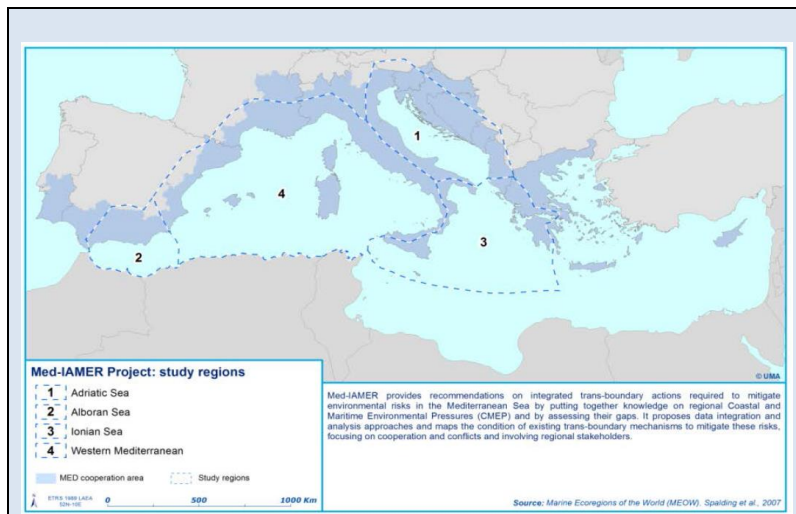
☐ Sources of information:

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16. MED-IAMER INTEGRATED ACTIONS TO MITIGATE ENVIRONMENTAL RISKS IN THE MEDITERRANEAN SEA



Blue Economy sector:
MULTI-SECTORIAL - fishery, aquaculture, oil and gas exploitation, coastal and maritime tourism, maritime transport, coastal urbanization, tourism, nature protection, offshore renewable energy production

Objective(s) of the project:
i) develop a transboundary knowledge base on the main socio-economic drivers and the major Coastal and Maritime Environmental Pressures (CMEPs) in the Mediterranean region; ii) categorize regional knowledge gaps through stakeholders' evaluation mechanisms; iii) map and understand the relevant legal and policy framework applying to the Mediterranean; iv) recommend specific actions and essential regional engagements to reduce the impact of the major pressures in the Mediterranean region.

Project promoters:
Joint Technical Secretariat of the MED Programme, European Environment Agency, EU Joint Research Centre (JRC), European Topic Centre of the University of Malaga (ETC-UMA), Plan Bleu, University of Thessaly, Territorial Observatory for Mediterranean Competitiveness (OTREMED) of the Region of Murcia, Strategic Partnership for the Mediterranean Sea Large Marine Ecosystem (Med-Partnership)
UNEP/MAP, FAO, International Hydrological Programme, SCP/RAC.

Project Partners:
European Topic Centre at University of Malaga, ETC-UMA (Lead partner); Agency for Sustainable Mediterranean Cities and Territories, AVITEM; Plan Bleu of UNEP/MAP; University of Thessaly.

Geographical area(s) of implementation:
Adriatic Sea, Alboran Sea, Ionian Sea and Western Mediterranean

Target beneficiaries:
A wide audience as project's recommendations, outcomes and indicators are publicly accessible

Duration: One year (completed in May 2015)

□ Overall budget: 353.653 EUR

Summary of the project:

Until recently the Mediterranean has lacked region-wide environmental monitoring mechanisms that are effective and adequately implemented. It is crucial to use up-to-date and consistent data to assess the trends of socio-economic activities and their impacts on the environment. Harmonized environmental information is crucial for supporting stakeholders and legislators for evidence-based decision making and planning.

The Ecosystem Approach (EcAp), as introduced and adopted in the Mediterranean region, aims at improving the effective protection of the environment and ensuring the continued provision of marine goods and services for human well-being. Med-IAMER was the first maritime project within the MED Programme to implement an ecosystem-based approach at transboundary scale. The aim of the project was to make recommendations for the 2014-2020 MED programming period in terms of transnational integrated actions to mitigate environmental risks in the region: The project produced methodological tools to structure abundant but not readily accessible spatial information, highlighted data gaps, identified the most vulnerable hotspots and their associated environmental pressures linking them to regional cooperation instruments. The project involved all stakeholders to validate its results and used its peer-reviewed results as a science-policy interface to influence regional management and policy making.

At conceptual level, the project provided an integrated framework for monitoring coastal and marine ecosystems in the Mediterranean region using the widely adopted DPSIR approach (*Drivers-*

Pressures-States-Impacts-Responses). The major socio-economic drivers, pressures and impacts were

first identified and quantified using a variety of sources and then validated by a wide range of regional stakeholders. At knowledge level, Med-IAMER generated a series of regional spatial indicators to assess the major socio-economic drivers, the main environmental pressures, and the potential aggregated impacts on coastal and marine ecosystems in the Mediterranean. At policy level, Med-IAMER produced: i) a robust harmonized information baseline on the state of the environment and its main stressors, based on the qualitative descriptors of the Marine Strategy Framework Directive (MSFD) for determining Good Environmental Status (GES) and on the efficiency of protection measures available at the transboundary level; ii) recommendations for better environmental management thanks to evidences provided by the project and literature review, and on the consensus expressed by the stakeholders during the consultations organized by the project; iii) a framework for mapping regional policies pursuing the achievement of GES based on three specific criteria: policies' integration, sustainability and effectiveness.

□ **Results achieved:**

After a complex phase of data collection, validation and integration, Med-IAMER identified a wide number of indicators used to display spatial information about socio-economic drivers and environmental pressures in the Mediterranean region. A broad series of regional spatial indicators was produced, including 52 indicators on major socio-economic drivers, 10 indicators on major environmental pressures, and 1 composite indicator on potential cumulative impacts on coastal and marine ecosystems in the Mediterranean. All spatial indicators were used to produce maps for the whole Mediterranean basin, with a special focus on the Western Mediterranean area and on the Adriatic-Ionian Area. The mapping of indicators of drivers and pressures for the Mediterranean basin included: climate change, fisheries, aquaculture, marine litter, oil and gas, coastal and maritime tourism, maritime transport and coastal urbanization. Other maps displayed the distribution of marine protected areas, existing legal frameworks, fishing trends, blue energy resources and supply, and an additional map showed the cumulative pressure indicator, combining

the effect of the six major socio-economic and environmental drivers of pressures. Factsheets were also developed to produce a synthetic document for each ecoregion and driver, as support for discussion during the process of stakeholder consultation.

A detailed list of recommendations is included in the Med-IAMER final report. The recommendations are structured in four tables dealing with: (i) Data and mapping / Monitoring; (ii) Assessment methodologies; (iii) Pressures on marine biodiversity; and (iv) Marine protected areas and Management and transboundary cooperation. Each table consists of three columns, the last one subdivided into two. The first indicates the audience to whom the recommendations are addressed; the second contains the recommendation in detail and the third gives the justification for the recommendations. Two sources of justification are provided: one is the literature review and the other consists of stakeholders' points of view expressed during the consultations organized throughout the project.

Strengths:

- the project filled a knowledge gap by: i) providing a regional knowledge baseline on the state of the environment and its main stressors; ii) developing regionally harmonized qualitative descriptors of the Marine Strategy Framework Directive (MSFD) for determining Good Environmental Status(GES); iii) establishing an approach to assess the cumulative impacts that supports Member States in assessing their Maritime Spatial Plans; iv) assessing the efficiency of protection measures available at the transboundary level in the Mediterranean;
- high usability of project outcomes and indicators by regional stakeholders and policy makers supporting evidence-based decisions and prioritization measures related to climate change threats and impacts, and the conservation status of biodiversity and natural resources;
- mapping regional policies for achieving GES;
- application of innovative technologies to spatially locate major environmental pressures (e.g. Geographic Information Systems and modeling techniques);
- the project produced, validated and made available data, statistics, and maps that can be capitalized; it applied an open data policy and used the EU INSPIRE Directive to make metadata and data widely accessible and coherent with international standards;
- categorization of gaps, conflicts and cooperation opportunities when it comes to the planning and management of Mediterranean coastal and marine areas in the context of transboundary cooperation mechanisms;

Challenges:

- strong need to re-assess the trends in pressures using the baseline analysis;
- current financial instruments should prioritize trends' assessments using similar methods;
- although such baseline was made available, environmental degradation is still occurring in the Mediterranean as decisions are still being taken based on sectoral interests.

Lesson learnt/recommendations:

- maritime transport is a significant environmental threat to the Mediterranean both for the kind of impacts and its increasing socio-economic importance. If coastal infrastructure can be effectively regulated through horizontal policies and measures (e.g. Environmental Impact Assessments), the transport of goods seems difficult to control. In this respect, the need to evaluate the existing policies regulating maritime transport activities should be emphasized. Fisheries, tourism (especially cruising) and oil and gas (particularly during exploration activities) are also serious transboundary threats in environmental and socio-economic terms;
- address the environmental and socio-economic threats of the Mediterranean, policy improvements and additional regulatory and voluntary measures and incentives (e.g. eco-

labelling for sustainable fisheries and transport) are needed at regional and national level together with the effective implementation and streamlining of the existing regulations.

☐ Sources of information:

<http://www.medmaritimeprojects.eu/section/med-iamer>

<https://www.msp-platform.eu/projects/med-iamer-integrated-actions-mitigate-environmental-risksmediterranean-sea>

<https://www.msp-platform.eu/practices/maps-indicators-and-factsheets-mediterranean-sea-region>

<http://sdimed.imida.es/geoexplorer/composer/>

<http://medicip.grid.unep.ch/map/>

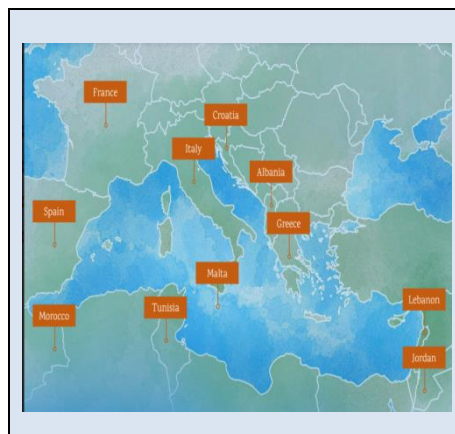
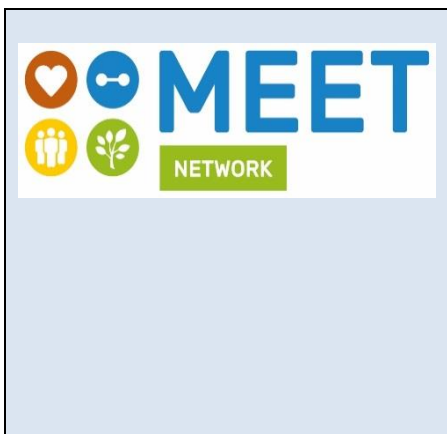
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17. MEET A NETWORK ASSOCIATION FOCUSED ON PROTECTED AREA ECOTOURISM



Blue Economy sector:
TOURISM

Objective(s) of the project: promote a network of protected areas (PAs) that join forces to plan, monitor, design and promote ecotourism in their PAs, in particular through the development and promotion of ecotourism products.

Project promoters: IUCN Med, MedPAN, Al Shouf Cedar society

Project Partners: Global Footprint Network, Monte Rufeno reserve, Samaria National Park, Port Cros National parks, Sierra Nevada National Parks, El Majistral national park, Sinis Marine Protected Area, Jabal Moussa National Park, Karpathos National park

Geographical area(s) of implementation: Italy, Spain, France, Greece, Lebanon, Malta

Target beneficiaries: protected area managers, local tour operators, local tourism service providers

Duration: on-going

Overall budget: N/A

Summary of the project:
The MEET Network is actively transforming ecotourism into a viable alternative for the Mediterranean region, supporting PAs in the development of high-quality ecotourism products while shifting the market perception towards a 4C Tourism model: *Conservation, Compassion, Connection, and Community*. During the last five years, IUCN has worked in partnership with other Mediterranean conservation organizations including WWF, MedPAN, Europarc Italy, RSCN, the Global Footprint Network and various public authorities in establishing a new model for Mediterranean ecotourism. This approach focuses on the development, management, and promotion of ecotourism products in PAs that benefit conservation within the Mediterranean region's unique assets and particularities.

Nearly 40 PAs have participated in establishing a new "protocol" for the development of ecotourism products, which includes guidelines for managing quality and sustainability, reducing environmental impact, and strengthening local governance through partnerships with the private

sector. In early 2018, the MEET Network was formally established, creating a regional association and a platform for promoting ecotourism in the Mediterranean protected areas. The tools tested and refined through previous EU-funded initiatives provided the network with a solid ecotourism development process and high-performance standards.

MEET offers PAs its expertise for the development and monitoring of ecotourism products, and their commercialization. What makes the MEET model so successful, and how is it different from any other ecotourism product development process? i) it ensures that PAs and conservation are at the center of the products offer; ii) it requires that all the products are created and managed in a participatory manner and designed according to the market needs; iii) it requires that the products contribute to a conservation activity; iv) it establishes a conservation fund to support regional conservation projects; v) the entire supply chain of its products is managed by local providers, including local tour operators. To do so, MEET offers expert assistance, capacity building, quality monitoring tools and on-the-spot support both for the PAs and local providers to ensure continuous improvement.

Those packages which are tested and achieve high performance scores in terms of quality, sustainability, and impact management are included in the MEET Guide. Once selected and approved by the MEET Board, this portfolio of products is sold to the market through both B2B and B2C channels under a Mediterranean ecotourism brand.

□ Results achieved:

i) MEET Network established and operational; ii) twelve active members and eight in the application phase; iii) five products included in the portfolio; iv) eight new products in the pipeline; v) strategic partnership established in Morocco and Tunisia;

Strengths:

- specific and marketable ecotourism products, attractive for the local private sector;
- participatory planning and management through the establishment of Local Ecotourism Clusters, which involve ecotourism stakeholders in the destination and the PAs management;
- a percentage of MEET ecotourism products feeds a conservation fund dedicated to conservation activities implemented by the network's members;
- it shows that PAs can be engine for local development, improving the perception of the PAs within local communities;
- the ecotourism products created within the MEET Network involve small local providers only, this supports social inclusion in the destination and strengthens small initiatives often put in place by women and youth;
- establish clear standards for ecotourism products, fully aligned with the principles of sustainability and conservation;
- environmental degradation is addressed through the involvement of PAs managers in defining ecotourism products and monitoring their impacts throughout the value chain;
- bottom up approach to collect data (in-situ questionnaire on ecological footprint and quality); data are stored in a dedicated platform open to local ecotourism clusters so to make informed decisions on how to improve ecotourism products and reduce their impacts;
- highly replicable in any PAs that want to improve ecotourism actions since its methodologies and tools have been tested;
- through a convention with a commercial partner, MEET Network ensures that the benefits of the ecotourism products placed to the market revert to the local tour operators.

Challenges:

- ensuring the marketability of the products created in line with the expectations of the local communities (often demand depends on factors beyond the capacities of the project);
- identifying indicators and means of verification able to report on the overall impact in the destination, and not only on its economic impact;
- as to ecotourism products, finding a balance between good quality level and environmental sustainability;
- finding local providers which are professional, reliable and aligned with the project's vision;
- ensuring data collection at local scale to monitor the ecotourism products;
- ensuring shared vision and effective coordination among the Local Ecotourism Cluster;
- promoting investments towards ecotourism products, especially concerning community-based products development;
- general lack of knowledge and data on tourism fluxes and their impacts in the destinations;
- limited capacity of the conservation sector to influence tourism and promote destinations;
- most of the times, PAs have legal limitations in receiving direct monetary contributions from visitors, while at the same time additional efforts related with tourism development are required to them, mostly without dedicated funding;
- promoting a collaborative environment in the tourism sector, which is too competitive.

Lessons learnt/recommendations

At local scale:

- for local governance to function, in particular when involving the private sector, it is important to work towards a common and tangible goal that can provide clear economic benefit to the participants, such as an ecotourism product;
- the perspective of tourism stakeholders has to be included at the very beginning;
- if the conditions allow, the initiatives supporting local development should move beyond the mere strategic planning and look at business opportunities in all their components, including promotion;
- tourism should be planned holistically (socio-economic growth, impact on the territory, etc.) so allow informed decision making;
- address low competitiveness and seasonality of ecotourism in the Mediterranean PAs as well as the lack of skills, especially of SMEs, to engage in effective local governance and deliver high-quality and sustainable ecotourism products and services.

At Mediterranean scale:

- need to measure understand and make informed decision on the basis of the Sustainable Net Impact of ecotourism actions across the territory, considering conservation, ecological impacts, and socio-economic aspects;
- PAs are ideal territories to invest in ecotourism initiatives, however local and regional actors need to gain skills to remain competitive and balance market expectations with conservation needs;
- PAs are established to protect natural values, but they are increasingly required to support local development by creating jobs and business opportunities;
- PAs should be focusing on the ecosystem services provided to local communities and, once identified, they should establish *ad-hoc* collaborations and partnerships with enterprises, universities, etc. for strengthening those services particularly crucial for local development, tourism in particular;
- PAs should network among them and lobby at national scale to receive more funding for the development role they have;
- conservation and tourism have to be developed under the same strategic goals so to halt tourism initiatives that could have detrimental impact on conservation;

- PAs should be allowed establishing entry fees, at least from non-residents; to avoid inequalities among PAs, part of the revenue should be directed to a national/regional fund and distributed among PAs.

Sources of information:

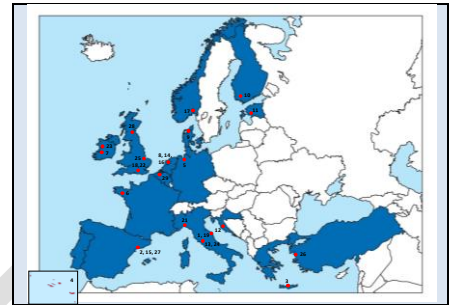
<https://www.meetnetwork.org/>

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18. MERCES - MARINE ECOSYSTEM RESTORATION IN CHANGING EUROPEAN SEAS



Blue Economy sector:
BIOLOGICAL RESOURCES

Objective(s) of the project:

i) improve existing, and develop new, restoration/rehabilitation actions on vulnerable and critical European marine habitats including shallow soft and hard bottoms as well as selected deep-sea ecosystems; ii) provide tools and guidelines for the integration of a “restoration agenda” into major policies on (blue and green) economic growth by analyzing the consequences of marine restoration on ecosystem services as well as on policy, governance and socioeconomic issues; iii) adapt restoration measures to increase the resilience of ecosystems to climate change; iv) enhance EU conservation capacity and preserve natural capital; v) provide robust contributions to the EU 2020 Biodiversity Strategy, the Water Framework Directive, the Marine Strategy Framework Directive and the Maritime Spatial Planning Directive; vi) conduct costs-benefits socio-economic analyses for marine restoration measures; vii) identify the benefits of establishing a network of restoration sites; viii) identify the policy/legal/governance frameworks facilitating the success of restoration actions; ix) create new employment opportunities and develop world markets for European industry.

Project promoters:

Università Politecnica delle Marche, Italy

Project Partners: 28 Partners from 16 countries:

Agencia Estatal Consejo Superior de Investigaciones Cientificas (Spain); Hellenic Centre for Marine Research (Greece); Imar-Istituto do Mar (Portugal); Alfred-Wegener-Institut Helmholtz-Zentrum fuer Polar-und Meeresforschung (Germany); Institut Francais de Recherche pour l'Exploitation de la mer (France); National University of Ireland, Galway (Ireland); Wageningen University (Netherlands);

Aalborg Universitet (Denmark); Abo Akademi (Finland); Tartu Ulikool (Estonia); Faculty of Science, University of Zagreb (Croatia); Consorzio Nazionale Interuniversitario per le Scienze del Mare (Italy);

Stichting Nederlandse Wetenschappelijk Onderzoek Instituten (Netherlands); Ecopath International Initiative Asociacion (Spain); Stichting Katholieke Universiteit (Netherlands); Norsk Institutt for Vannforskning (Norway); United Kingdom Research and Innovation (United Kingdom); Ecoreach SRL (Italy); Studio Associato GAIA SN (Italy); Deep Seas Environmental Solutions LTD (United Kingdom);

Marine Law and Ocean Policy Research Services Ltd (Ireland); WWW ITALIA (Italy); WCMC LBG (United Kingdom); Akdeniz Koruma Dernegi (Turkey); Universitat de Barcelona (Spain); Heriot-Watt University (United Kingdom); IODINE (Belgium)

Geographical area(s) of implementation:

European Seas

Target beneficiaries:

Business, Academia, Research institutes, Environmental Associations, general public.

Duration:

on-going (2016-2020)

Overall budget:

6.651.118 EUR

Summary of the project:

The project MERCES is focused on the restoration of different degraded marine habitats, with the aim of: i) assessing the potential of different technologies and approaches; ii) quantifying the returns in terms of ecosystems services and their socio-economic impacts; iii) defining the legal-policy and governance frameworks needed to optimize the effectiveness of the different restoration approaches. Specific aims include: i) improving existing, and developing new, restoration actions of degraded marine habitats; ii) increasing the adaptation of EU degraded marine habitats to global change; iii) enhancing marine ecosystem resilience and services; iv) conducting cost-benefit analyses for marine restoration measures; v) creating new industrial targets and opportunities. To achieve these objectives MERCES created a multi-disciplinary consortium with skills in marine ecology, restoration, law, policy and governance, socio-economics, knowledge transfer, dissemination and communication. MERCES started from the inventory of EU degraded marine habitats (WP1), conducted pilot restoration experiments from the shallow soft (WP2) and hard bottoms (WP3) to the deep sea (WP4) and assessed the effects of restoration on ecosystem services (WP5). The legal, policy and governance outputs will make effective the potential of marine restoration (WP6) and WP7 will be dedicated to assess the socioeconomic returns of marine ecosystems' restoration. The transfer of knowledge and the links with the industrial stakeholders will be the focus of WP8. The results of MERCES will be disseminated to the widest audience (WP9). The project will be managed through a dedicated management office (WP10).

MERCES will contribute to the blue growth by: i) improving the EU scientific knowledge on marine restoration, ii) contributing to EU Marine Directives; iii) implementing the Restoration Agenda, iv) enhancing the industrial capacity in this field, v) increasing the competitiveness of EU in the world market of restoration, and vi) offering new employment opportunities.

MERCES is a multi-disciplinary Consortium (28 partners), including business (6 SMEs from 4 EU countries), academia (11 partners from 10 EU countries), research (8 partners of which 7 from EU countries and 1 from Norway) and environmental associations with skills in marine ecology, spatial modelling, marine ecosystem restoration, law, policy and governance, socio-economics, knowledge transfer, dissemination and communication. Details and contacts of the different partners are reported in the MERCES website.

Results achieved:

i) current marine pressures and driving changes in marine habitats; ii) state of the knowledge on marine habitat restoration and literature review on the economic cost and benefits of marine and coastal ecosystem service restoration; iii) pilot studies testing different methods for marine restoration in shallow soft bottoms habitats: *Zostera marina*, *Posidonia oceanica*, *Mytilus edulis*, *Pinna nobilis*, *Macoma balthica*; coastal shallow hard bottoms and mesophotic habitats: *Laminaria hyperborean*, *Cystoseira balearica*, *Paracentrotus lividus*, *Arbacia lixula*, *Strongylocentrotus droebachiensis*, *Chondrilla nucula*, *Aplysina aerophoba*, *Spongia officinalis*, *Corallium rubrum*, *Paramuricea clavata*, *Eunicella singularis*, *E. cavolini*, *Pentapora fascialis*);

in deep-sea habitats: *Callogorgia verticillata*, *Paracalyptrophora josephinae*, *Viminella flagellum*, *Lophelia pertusa*, *Corallium sp.*); iv) review of existing international governance structures, regarding the conservation, restoration and recovery of marine ecosystems; v) review of current EU and international legal frameworks; vi) review on restoration, conservation and recovery of marine ecosystems in the four regional EU seas; vii) analysis of the social acceptance of the marine restoration based on questionnaires; viii) analysis of the cost-benefits of the restoration actions in different habitats along the EU seas; ix) transfer of scientific knowledge, involving public, private and industrial stakeholders: dedicated newsletters and webinars available in the MERCES website; x) publication of scientific papers stored in the MERCES repository in ZENODO; xi) dissemination of the results of the project to the largest audience possible (experts and non-experts, including industry, administration and general public): ocean literacy, citizen science, training, newsletters.

Strengths:

- first directory of degraded EU marine ecosystems;
- including restoration actions of marine habitats at different levels of governance;
- field experiments and environmental/socio-economic analyses on the performance of restoration actions in selected habitats and ecosystems, which allow identifying key processes and factors for building/managing marine ecosystem resilience;
- field and laboratory experiments allow testing new restoration methodologies, tools and practices as well as enhancing methods that are being practiced already. Pilot studies allow to set up restoration protocols in different marine environments covering shallow and deep-sea habitats and to assess the effectiveness of the proposed actions for a new generation of restoration operators.
- framing ecological restoration of marine ecosystems in terms of new jobs opportunity.

Challenges:

- ensuring that small-scale pilot restoration actions on the ability of marine habitats to recover ecosystem services, along with the production of ecosystem resilience models, contribute to the development of large-scale restoration protocols;
- encouraging local and EU administrations to adopt the restoration techniques and technologies developed, improved and validated in the framework of the project;
- translating project results into practical guidance for the industry on how and when implementing marine restoration measures. Coupled with regulatory reform, this would help stimulate private-sector innovation in marine restoration, create economic opportunity and promoting sustainable business;
- ensuring that the wide multi-disciplinary community of scientists, public/private industrial stakeholders and policy makers exchange experiences, identify strengths, weaknesses and best practices.

Lessons learnt/recommendations:

- business should be at the heart of the “restoration agenda” through the transfer of the latest scientific knowledge to public/private industrial stakeholders so to provide practical solutions and new opportunities of industrial development;
- public engagement, communication of activities and dissemination of results are priority along with the transfer of knowledge to the whole restoration community, including business, public administrations and civil society. It is crucial to gain social approval of marine restoration measures while providing administrations and policy makers with guidelines on sustainable, innovative, viable and tested marine restoration actions for different marine habitats/ecosystems.

□ **Sources of information:** website, evaluation report, etc.

MERCES website: <http://www.merces-project.eu/>

MERCES scientific publication repository in ZENODO MERCES project community (link also available in the MERCES website);

Most of the deliverables are open access and available in the MERCES website once the documents are approved by the European Commission.

MERCES is present in different social media: @merces.eu.project; @MERCES_eu; Research Gate; YouTube

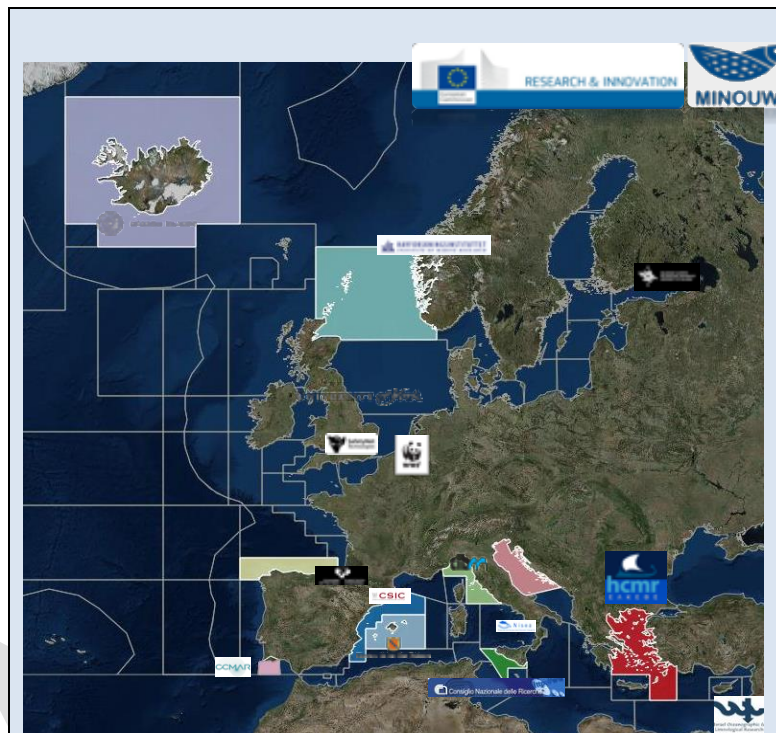
□ Contact person details:

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19. MINOUW - TECHNOLOGY AND SOCIETY INITIATIVE TO MINIMIZE UNWANTED CATCHES IN EUROPEAN FISHERIES



Blue Economy sector:
FISHERIES AND AQUACULTURE

Objective(s) of the project: To minimize unwanted catches by incentivizing the adoption of fishing technologies and practices that reduce pre-harvest mortality and post-harvest discards, while avoiding damage to sensitive marine species and habitats.

Project promoters: European Commission, H2020

Project Partners: CSIC, CNR, Univ. of Iceland, WWF Mediterranean Programme, Balearic Islands Government, CCMAR, IMR, CIBM, HCMR, Univ. Basque Country, NISEA, Univ. of York, IOLR, Univ. Helsinki

Geographical area(s) of implementation: Southern European Waters

Target beneficiaries: Fishing industry, fisheries stakeholders

Duration: March 2015-February 2019

Overall budget: 6,239,622.38 EUR

Summary of the project:

Sustainable fishery is a key aspect for the rational exploitation of European marine natural resources. Among the regulations enshrined in the reformed Common Fisheries Policy (EU Reg. 1380/2013), Article 15 establishes the progressive obligation to land all catches of regulated species in different phases in the period 2015-2019 (“Landing Obligation”). The

MINOUW project is a Research and Innovation Action of the H2020 Programme addressing the complexity of the problem of implementing the Landing Obligation from the scientific, technical, economic and societal perspectives. The strategy followed is based on a multi-actor approach, whereby scientists, technicians, fishermen, producers and NGOs collaborate to provide the scientific and technical basis for the gradual elimination of discards. Catches of unwanted fractions of target fisheries species can be large in demersal fisheries (particularly those using bottom trawls), but the magnitude varies according to the season of the year, depth and the fishery practice. In periods of high abundance of recruits, bottom trawling on fish nursery areas can generate large amounts of unwanted catches that are usually discarded for legal reasons (undersize specimens or catches over quota). The project followed a structured multi-actor approach where fishers, fisheries stakeholders, scientists and technologists jointly diagnosed the problem, agreed on a portfolio of practical solutions that were subject to field testing in commercial conditions, ranked the usefulness of the solutions under biological, social and economic criteria, and made recommendations for their adoption.

□ Results achieved:

The project has carried out field tests of fishing technologies aiming at the reduction of unwanted by-catch, jointly developed with fishers and tested in real commercial conditions. The results show that it is possible to decrease the production of unwanted by-catch by changes in fishing procedures, for example in purse seine fishing, or adopting more selective nets in bottom trawl or in set nets. New types of sorting grids specifically designed for Mediterranean trawls have proved effective. In small scale fisheries, a guarding net fitted to the footrope of the trammel net can reduce unwanted by-catch, as well as costs. In surface longline fisheries targeting swordfish, an important reduction in the catch rates of undersize swordfish was demonstrated. In addition to technological solutions, the project has progressed in researching technologies to avoid unwanted catches: the project is developing a GIS tool by combining maps of potential high discards with 'fisheries footprint' spatial information that can assist in marine spatial planning to exclude fishing from certain areas with high potential of production of unwanted catches. The post-release survival of unwanted catches has been researched in different commercial species and types of fishing, by way of experiments following standard methodologies. Demonstrated high survival of discards can be used to justify an exemption to the Landings Obligation for specific regulated species.

All project results are being communicated to the industry, policy makers, fisheries managers and other relevant stakeholders by means of communication actions. Communication activities included the organization of joint meetings with MEDAC (representing the fishing industry in the Mediterranean), the GFCM, the organization of fishermen's exchanges to promote the horizontal communication of results between peers and the production of short video films highlighting the project's results to a wider audience. The project scientific contributions are complemented with bio-economic analyses of the impact of the Landing Obligation at the level of individual fisheries, ecosystem and processing industry.

Strengths:

- the project identified feasible solutions to minimize discards;
- enhancing fishing opportunities, and increasing the competitiveness of the Mediterranean fishing industry in the long term, by decreasing fishing mortality on juveniles;
- the project works towards sustainable fishery in the framework of the Common Fisheries Policy by making stocks levels compatible with the production of maximum sustainable yield;
- if adopted by the fishing industry, the solutions proposed by the project, and tested in commercial conditions, would help reverse the currently degraded state of fishery resources;

- effective, low-cost fish selective technologies have been devised by the project;
- processed data available both in scientific publications and in the project's web page;
- the structured multi-actor approach applied in the project is replicable in other case studies;
- large potential for replicability in different contexts if financial incentives are put in place for the adoption of the solutions proposed.

Challenges:

- application of the proposed solutions in different pilot sites has been challenging due to reluctance of fishermen to adopt changes;
- feasible technological solutions are low-tech and do not have the large socio-economic impact desired;
- institutional and social barriers to better fisheries exploitation as well as the conservation of sensitive habitats or charismatic species could not be fully addressed by the project;
- project data not organized in an easily accessible data base;
- decisions taken by fishermen in the pilot sites are not always perceived as binding by the industry sector;
- identifying solutions, testing them in the field and analyzing the results is a relatively slow process.

Lessons learnt/recommendations:

- fishermen are the stewards of marine resources, and they have direct interest in pursuing the sustainability of their activities. While they tend to be resistant to innovation imposed from outside, they are not against innovation as such. Far from being the problem, they are integral part of the solution by leading the efforts towards sustainability;
- fishery managers are well placed to promote multi-stakeholders' solutions for keeping fishing mortality within sustainable levels and rebuilding the biomass of diminished stocks. They need to resist the pressure of industry to adopt measures focused on short-term profits and be ready to work closely with other actors to ensure the human/financial resources needed for monitoring and control, capacity-building and awareness campaigns;
- scientists and experts have a key role in improving the situation of discards, namely gather and rigorously analyze as much data as possible so as to gain knowledge and understanding of current trends, and develop innovative selective fishing gear and sustainable practices in close collaboration with fishermen;
- it is very unlikely that new jobs will be created in the fishing industry since the trend is towards automatization, like in other industries of the primary sector. However, the valorization of discards by other industries might lead to new jobs and on-shore investments;
- means for enforcing the existing regulation are needed;
- underfunded and understaffed fisheries management agencies cannot in practice promote the implementation of the solutions proposed by MINOUW and other scientific projects addressing the issue of overfishing. Public incentives should be put in place to attract private investments from technological companies considering that the Mediterranean fishing industry is mainly composed of micro-companies with very low capability of investment.

☐ Sources of information:

<http://minouw-project.eu>

☐ Contact person details:

Francesc Maynou, project coordinator

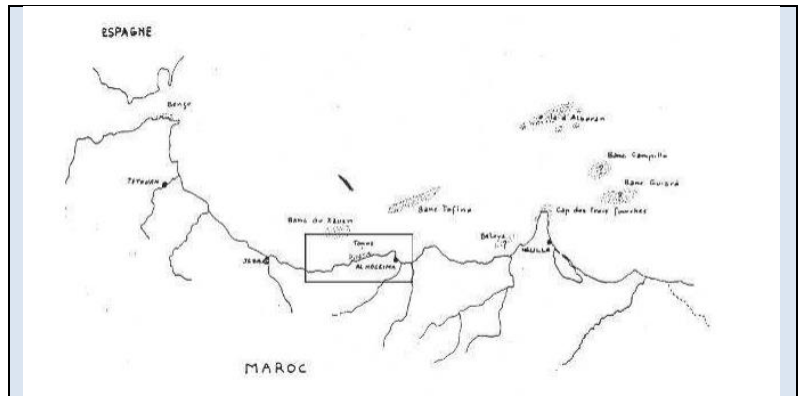
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20. Conservation of biodiversity and ecosystem functions through the promotion of the management and sustainable use of natural resources within the Marine Protected Area of Al Hoceima National Park

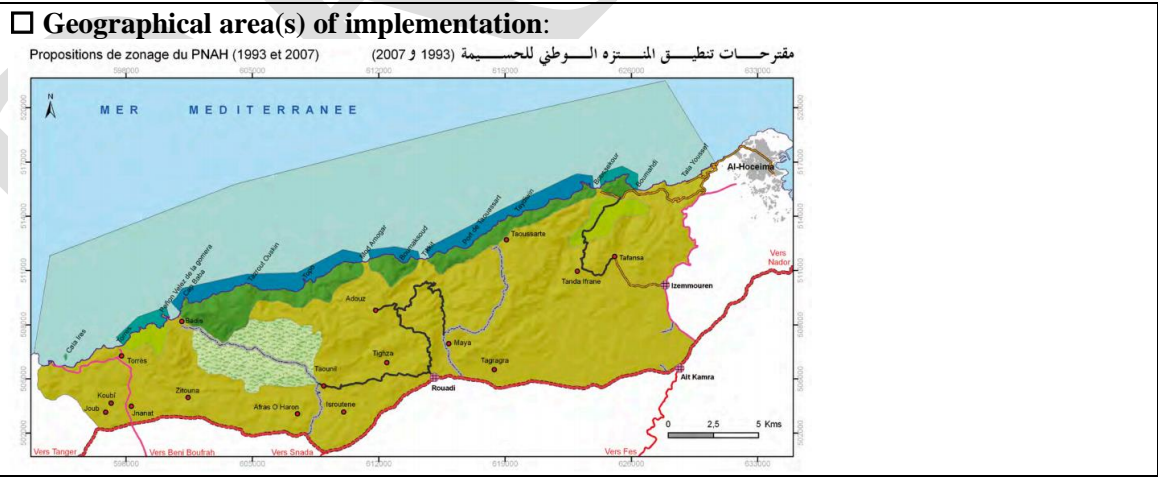


Blue Economy sector:
MULTI-SECTORIAL

Objective(s) of the project:
i) improve the knowledge about species and habitats affected by unsustainable fishing practices; ii) sensitization of fishermen and other relevant target groups; iii) capacity building of relevant actors (NGOs, fishermen's organizations, administrations) for the implementation of sustainable fishing practices; iv) implement demonstration projects on sustainable fishing practices (Strategy D).

Project promoters: MAVA Foundation, SGP, M2P Trust Fund, European Union

Project Partners: Institut National de Recherche Halieutique, Haut-Commissariat aux Eaux et Forêts et à la Lutte Contre la Désertification, Universities in Morocco, Odyssea project partners



Target beneficiaries:
Fishermen communities, women' cooperatives, universities students, institutions, other users

Duration: on-going (2017-2021)

□ Overall budget: 450.000 EUR

Summary of the project:

The South Alboran Sea is characterized by the northern facade of the eastern, central and western Rif, 500 km long, which includes very high steep cliffs and underwater subsoil once sheltered, thanks to its ramparts, is one of the few in the Mediterranean. Unfortunately, this area has become the least protected area in Morocco over the past ten years, despite the fact that two spots were declared protected.¹⁸ The area is heavily impacted by the devastating effects of illegal trawling in shallow areas all over the Moroccan Mediterranean coast, an activity that destroys both the demersal stock and the biotope itself. In addition, a significant number of direct and critical threats to biodiversity target species have been identified as a matter of urgency, such as a new form of driftnet fishing (Tonailles) that target large pelagic species (particularly swordfish and bluefin tuna) and can irreversibly destroy commercial and non-commercial marine resources; they are considered IUU¹⁹ and can cause significant incidental catches of marine mammals. Further efforts must be made in the management and restoration of populations of threatened species with the involvement of fishermen together with administrative and scientific officials. Positioning itself as a prerequisite for the actions needed to reduce the threats aforementioned, the project aims to promote the management and sustainable use of natural resources. The project team work in parallel with the factors that cause these direct threats, mainly low enforcement of existing laws, by involving fishermen in the co-management of the Parc National d'Al Hoceima (ZMPNAH) and improving their incomes through better commercial management of fishery products without increasing their fishing effort.

□ Results achieved:

i) the protection of threatened species has been promoted through the improvement of knowledge; ii) targeted research and monitoring, and involvement of local fishermen community in the management and restoration of biotopes has contributed to restoring threatened species; iii) impact of driftnets on cetaceans in the South Alboran Sea has been reduced by at least 70% through the elimination of IUU fishing, the conversion of the longline fleet, and the changing policies in relation to IUU fishing; iv) monitoring and follow-up of trawlers has promoted ecosystems restoration by at least 30% (more precise measurement will be done by the new marine Observatory led by AGIR); v) monitoring of illegal dynamite fishing and of the use of copper sulphate, has contributed to the restoration of underwater landscapes by at least 30%; vi) the planting of 900 ha of artificial reefs in shallow areas has contributed to reducing trawling in these areas, restoring the biotope as well as the commercial and non-commercial species; vii) strengthening the artisanal fishing community through vigilance actions in the ZMPNAH has contributed to the elimination of the trawling within the marine zoning; viii) campaigns organized against juvenile fishing among consumers in northern Morocco contributed to a 30% reduction in juveniles bycatch in the Alboran Sea; ix) improving the management of protected areas, ensuring their financial viability through participatory planning, and supporting a sustainable marketing strategy for the fishery products has increased artisanal fishers income of around 30% in the areas targeted by the project; x) the administrative and commercial management of the fish products has improved fish products prices (+30%); xi) the administrative management of artisanal fishermen's cooperatives is improved (now part of the Caisse Nationale de Solidarité Sociale); xii) strengthening the capacities of civil society organizations and local institutions through exchanges and networking (13 artisanal fishermen's cooperatives networked with 3 Southern and Northern Mediterranean countries).

Strengths:

- considering the diverse needs of the project's beneficiaries, the project built the capacity of more than 3000 fishermen throughout the Mediterranean (ranging from the literacy of

¹⁸ Royal Decree of the Al Hoceima National Park PNAH (2004), and Alboran Marine Protected Area (2011).

¹⁹ Illegal, Unregulated and Unreported

fishermen, improving the administrative management of cooperatives or elaborating action plans for the co-management of marine resources);

- the creation of a rotating fund to ensure the sale of fishing gear produced by fishermen's wives increased the incomes of 300 fishermen and their family and created new jobs for dozens of women;
- the creation of a women fishermen's cooperative that manufactures fishing gear has promoted a local economy which strengthens women's presence in fishing ports, usually "closed" for women;
- a comprehensive management vision against the obsolete, fragmented and project-based vision of MAPs;
- opportunity for AGIR to work with the Haut Commissariat aux Eaux et Forêts et à la Lutte Contre la Désertification and jointly apply an environmental management process that helps have common goals in relation to the targets chosen in the marine coastal ecosystem, and develop indicators that ensure the sustainability of such targets, based on their size, conditions and/or geographical context;
- working on threats reduction through a prioritization process - based on the ranking of threats according to their scope, severity and irreversibility - which may have a positive impact on the restoration of certain emblematic species (e.g. the osprey population), commercial stocks or non-marketable biomass;

Challenges:

- the MPA within the National Park of Al Hoceima has become the place for practicing illegal fishing techniques (e.g. blast fishing, copper sulphate fishing, underwater fishing and illegal trawling), which have exceeded the threshold of tolerance;

Lesson learnt/recommendations:

- extending the duration of the M2P Trust Fund 2nd phase beyond the 5 years and consider a possible reduction of pilot sites in order to get best results through the reduction of logistical obstacles and without risking geographical dispersion;
- reflection over the possibility of achieving uniform results for all the sites, using international standards, and taking in consideration the work carried out, and the methodologies adopted, locally (e.g. the Open Standards for the Nature Conservation led by AGIR in Morocco).
- reinforcing and extending the role of AGIR in monitoring since even small variations in the results observed in the different sites might provide key lessons to be used in other sites;
- reflecting over the relevance and contents of collaborative management agreements, with a view to using them as tools for promoting common understanding of key principles of spatial planning between institutional and sectoral partners. This could facilitate multi-stakeholders and inter-sectoral actions in terms of land management with significant impacts on the populations concerned or in the conservation and management of biodiversity;
- encouraging the participatory approach led by AGIR to complete the mapping/diagnosis of biodiversity use practices. This could help re-frame current eco-development initiatives or capitalize traditional practices related to biodiversity conservation;
- support projects on gender issues so as to better integrate women, particularly in eco-development since productive options exist within the sustainable use of natural resources (e.g. crafts, medicinal plants and ecotourism practices);
- engaging national education partners to strengthen the visibility of the project's results;
- strengthening cross-sectoral/community collaboration for mobilizing investments towards the project;
- ensuring continuous communication with the local authorities and population.

Sources of information:

<http://agir-env.org>
https://www.sgp.undp.org/component/k2/item/download/1735_fed82a20653485f8800040c7c8734f54.html
https://panorama.solutions/sites/default/files/BlueSolution_39_AGIR_Nibani_Houssine_Morocco_SustainableManagementMarineResources.pdf
<https://panorama.solutions/sites/default/files/guide-de-bonnes-pratiques-amp.pdf>

□ Contact person details:

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<http://www.agir-env.org>

21. NATIONAL PARK LA MADDALENA - ENVIRONMENTAL QUALITY LABEL "ISOLE AMICHE DEL CLIMA"



Blue Economy sector:
TOURISM AND RECREATION

Objective(s) of the project: Promoting the diffusion of the culture of sustainability both among operators and users of the protected area through the attribution of an environmental quality label.

Project promoters: National Park of the Archipelago of La Maddalena

Project Partners: The network of economic operators registered to the brand

Geographical area(s) of implementation: the municipality of La Maddalena but the intention is to extend the project to neighboring municipalities, and potentially to the northern Sardinia, characterized by the same tourist vocation

Target beneficiaries: The first beneficiaries of the label are the economic operators of the "hospitality" sector, such as hotels and B&B, bars and restaurants. In 2018, the label was extended to the operators of the nautical tourism and the ports sector. The objective is to involve other categories of public and private operators.

Duration: The project is underway and no deadline is foreseen

Overall budget: About 25,000 EUR/year devoted for territorial animation, dedicated web site management, production and distribution of promotional material, realization of initiatives on sustainability culture such as campaigns for the reduction of disposable plastic consumption, use of biodegradable detergents and against food waste.

Summary of the project:

“Isole Amiche del Clima” (IAC) is a quality “label” attributed to economic operators who adopt the good practices of environmental sustainability proposed by the Park. The label recognizes the actions undertaken by the economic operators towards environmental sustainability, the promotion of the cultural heritage and the preference for local productions as crucial part of their business strategies. The ultimate aim is to strengthen the culture of sustainability both among the operators and the users of the protected area. The label has three-year validity and is assigned to those who meet the access requirements; the accession process, composed of progressive steps, is based on the possession of mandatory and optional sector-specific requirements. The requirements needed to obtain the label focus on five sectors: energy, water, waste, purchases and sensitization. The economic operator which gathers all the requirements is labeled as “top level”. The network of economic operators participating in the project gain visibility thanks to a dedicated web site and a series of promotional initiatives, which also stimulates forms of collaboration between them, such as the creation of groups of purchase or the implementation of campaigns on environmental sustainability.

□ Results achieved:

i) to date, the economic operators who have received the label are 19; ii) IAC is a dynamic project built on the inputs from the operators and the continuous exchange of knowledge and experience experiences; iii) the project is a suitable tool to promote cultural exchange, discussion, transfer of ideas and elaboration of projects on sustainable development.

Strengths:

- the label is clearly perceived as an added value in the business strategy of the economic operators;
- the label contributes to reduce the impacts of economic activities on the environment by valorizing local and zero-kilometer productions and raise awareness of environmental sustainability issues;
- the label may benefit of the funds made available by the project to test innovative products and services in terms of reduction of environmental impacts;
- data relating to the project and its members are available free of charge on the website: www.isoleamicheclima.it;
- the label is a way to involve local administration, for example the National Park of the Archipelago of La Maddalena has proposed to the local administration to adhere to the label as far as the management of the port area is concerned.

Challenges:

- the implementation of the practices required by the label represent an additional cost;
- insularity and the rigidity of the markets affect the costs of products and services as well as the provisions regulating production activities;
- although the label is recognized as a tool to influence the cultural context, its impact is difficult to measure;
- cooperation with local authorities in order to make them adopt the label has not yet brought the desired results.

Lessons learnt/recommendations:

- business’ associations consider the adoption of an environmental quality label an advantage to compete within a tourism market increasingly sensitive to environmental sustainability issues even if this represents a cost. Such costs could be amortized through the creation of consortia, which is not yet the case;
- more budget should be directed to encouraging economic operators to adopt the eco-friendly practices needed to achieve the label;

- the label is potentially extensible not only to economic sectors but also to institutional actors such as local administration, schools, military institutions, etc. present in the territory;
- the label is a promising tool to influence the cultural context and behavior;
- label success largely depends on the willingness of local institutions to make it concretely beneficial for those operators that adopt it (e.g. through incentives).

Sources of information:
www.isoleamichedelclima.it

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22. Networking for the Development of Maritime Tourism at EUSAIR level - NEMO



Blue Economy sector:

MULTI-SECTORAL PROJECT - fisheries, tourism, integrated coastal management, income diversification

Objective(s) of the project:

Despite its huge socio-economic and environmental potential, and its raising consensus, the fishing-tourism sector in the Mediterranean as a whole, and in the Adriatic-Ionian area, is still in its infancy. This mainly due to lack of common rules, integrated approach between the fisheries and tourism sectors, adequate operators' skills and a unique selling proposition. NEMO aimed to unlock its full potential and meet the socio-economic and environmental sustainability requirements. Its specific objectives are: i) identify a common methodology for data collection/elaboration at EUSAIR level as part of the Mediterranean area; ii) support the Community-led local development (CLLD) for setting up of Fisheries Local Action Groups (FLAGs) as partnerships between fisheries actors and other local private/public stakeholders; iii) identify general principles and specific measures in the FLAGs' strategies to promote, develop and support local and regional projects and initiatives dealing with tourism and fisheries; iv) develop a common framework for the coordination and networking of fishing-tourism initiatives at EUSAIR level; v) enhance dialogue and cooperation between different sectors in order to find common and shared solutions; vi) develop sound economic proposals and outline more effective regulatory framework for fishing tourism initiatives.

Project promoter:

Marche Region

Project Partners:

Bologna University- Dep. BIGEA-Marina Biology and Fisheries Laboratory (Italy); Mediterranean Agronomic Institute of Bari (Italy); Split- Dalmatia County, Institute of Oceanography and Fisheries (Croatia); European Regional Framework for Co-operation (Greece).

Geographical area(s) of implementation:

Mediterranean with a focus on the Adriatic-Ionian sub-region (EUSAIR)

Target beneficiaries:

i) National/regional/local authorities and policy-makers in charge of fisheries and tourism governance; ii) EUSAIR Strategy national and transnational key implementers; iii) Sectoral and Development Agencies; iv) Research Institutes and Academia; v) Fisheries operators; vi) Tourism Operators; vii) Business association; viii) End users of sea resources.

□ Duration: 12 months/completed in 2015

□ Overall budget: 410.281 EUR

Summary of the project:

The Mediterranean Sea basin is the world's leading destination in terms of international and domestic tourism. Mediterranean coastal areas are very mature tourist destinations accounting for one third of total arrivals worldwide. However, despite its socio-economic potential, coastal and maritime tourism industry face huge socio-economic and environmental challenges that threaten the important contribution of this strategic sector to the economic growth of the Mediterranean coastal communities. In this context, fisheries related tourism represents an opportunity to diversify fishermen incomes, improve local livelihoods, stop the declining of profitability and employment in the fisheries sector, promote and valorize fishermen profession and the associated socio-cultural heritage. On the other hand, fisheries related tourism can contribute to enhance the sustainable use of marine ecosystems while reducing fishing efforts. Despite its huge socio-economic and environmental potential, the "fishing-tourism" in the Adriatic-Ionian area in particular, is still in its infancy. To unlock the full potential of this sector and meet the socio-economic and environmental sustainability requirements, policies and technical gaps/obstacles hindering its sustainable development should be identified in order to propose a common strategic/operational action as contribution to the EUSAIR strategy implementation. The aim of NEMO project, co-financed under the MED Programme 2007-2013, was to propose concrete orientations (e.g. action plans, recommendations and guidelines) for future projects and initiatives in order to consolidate the Mediterranean as a dynamic socio-economic area. Institutional and operational partners from Italy, Croatia and Greece worked together to assess the state-of-play and future development paths of fishing-tourism in the Adriatic-Ionian macro region, contributing to the MED overall integrated maritime policy and acting as catalyst for coastal development while protecting environment and biodiversity.

□ Results achieved:

Thanks to a transnational methodology of data collection, elaboration and benchmarking at institutional, socio-economic and environmental level, NEMO delivered a SWOT analysis, a Roadmap, and a Strategic Action Plan for the development of fisheries related tourism in the Adriatic-Ionian region proposing technical and political hints for future cooperation projects and an integrated marine/maritime approach as key factor for the cohesion of the Mediterranean basin. NEMO results were capitalized and extended through follow-up projects within the Interreg MED 2014-2020 Programme and Interreg V B ADRION.

Strengths:

- strong stakeholders' consultations process to detect gaps/obstacles hindering the development of fishing-tourism and identify operational and strategic needs, actions and measures to be put in place;
- the findings of the socio-economic analysis carried out within NEMO showed high potential for fishing-tourism as a driver for the development of coastal communities in terms of employment and an effective approach for the preservation of traditional, cultural, ecological and ethnological values. The following specific points emerged from the analysis: i) the role of women in the fishing-tourism could be crucial ranging from gastronomic related activities to the preparation of complementary food products and handicrafts; ii) youth are also potential beneficiaries of developing fishing-tourism destinations as they have better knowledge of foreign languages and youth preferred

cultural activities; iii) elderly can also find their role in fishing-tourism either by attracting aged tourists or designing traditional hosting experiences for the visitors;

- sustainability issues were addressed by i) targeting policy-makers for an integrated governance of marine and maritime issues; ii) raising the profile of fishermen as keepers and stewards of maritime culture, tradition and heritage; iii) involving fishermen into environmental monitoring in close cooperation with research bodies;
- a common transnational methodology to map the state-of-play of fishing-tourism and potential for its development in the Adriatic-Ionian coastal regions was carried out together with a SWOT analysis of the sector and the identification of the elements needed for developing a “Unique Selling Proposition” as a tool to increase the attractiveness of the Mediterranean sub-regions;
- NEMO’s approach is replicable as it tackled a topic of growing interest for its environmental and socio-economic implications. Moreover, the transnational methodology developed allows a wide use by those institutions and operational partners interested in developing an integrated approach to fishing-tourism.

Challenges:

- the duration of the project allowed the formulation of an Action Plan at regional and transnational level but did not allow implementing several measures. Partners capitalized on NEMO results by submitting a capitalization project proposal (first MED call 2014-2020) that was rejected since the geographical scope was too focused on the EUSAIR region;
- the analysis and consultations run within project show the urgent need to simplify the regulatory framework;
- the use of project results in regional plans for fisheries and tourism is often hindered by administrative complexity and highly fragmented competencies.

Lessons learnt/recommendations:

- harmonize the methodologies used collecting and processing data and information on the fishing-tourism sector;
- promote “peer learning” among institutions in charge of developing fisheries diversification policies;
- transfer the FLAG’s approach and identified best practices to non-EU countries;
- promote the clustering of fishing-tourism community groups in order to increase visibility and strengthen impacts;
- develop multi-actors and cross-sectorial projects in the framework of calls dealing with income diversification and sustainable resources exploitation;
- design transnational pilot projects on fishing-tourism to set up a “Unique Selling Proposition” in the Adriatic-Ionian area;
- reviewing the existing legislative framework at regional and national level with the aim to support the diversification of fishermen’s income.

☐ Sources of information:

NEMO web-page is currently unavailable but the main source of information remains the MED Programme database.

☐ Contact person details:

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23. BLUE GROWTH PORT OF VIGO



Blue Economy sector:
MARITIME TRANSPORT AND PORT ACTIVITIES

Objective(s) of the project:
Port of Vigo makes its own the Blue Growth European proposal and aspires to position itself in the 2020 Horizon as a model of **competitiveness**, **efficiency**, and **sustainability** in all its activities, facilities, and services. These three horizontal principles rely on four vertical dimensions, precisely the Blue Growth Port of Vigo 2020 Objectives, which are there to channel the Projects and Actions. They are the following: i) a **connected port** in the broad sense, not only regarding the means and infrastructures of maritime and intermodal transportation, but also through digitized industrial and logistics processes, information and communication technologies, and an efficient management and administrative processing, key link with the end user; ii) an **innovative port** taking part in an ecosystem devoted to knowledge and its transfer, R&D&I, entrepreneurship, and differentiating commercial strategies; iii) a **green port** promoting the maritime and coastal environments protection and preservation, the responsible use of natural resources, and energy efficiency and sustainability; iv) an **inclusive port** focusing on the people and involved with the new professional training needs, the productive cohesion between the sea-related sectors, and social innovation actions.

Project promoters:
The Port of Vigo , Ports of State Authority, Secretary General of Fisheries, the Galician Regional Fisheries Ministry, the Galician Agency for Innovation, the Campus do Mar (joint research institutions and universities managed from the University of Vigo), and the Free Trade Zone Consortium of Vigo.

Project Partners:
The Blue Growth Vigo plan consists of 45 projects that contribute to the achievement of its objectives; each project has several and different partners (public and private), which represent of quadruple helix.

Geographical area(s) of implementation:
Hinterland of Port of Vigo (Galicia, NW Spain)

Target beneficiaries:
The maritime sector and coastal communities

Duration:
On-going (2016-2022)

□ Overall budget:

207.307 EUR (from public and private sources).

Summary of the project:

The Blue Growth strategy was launched by the European Commission in 2012 after acknowledging the importance of the oceans in the EU economy. That strategy is part of the Europe 2020 strategy and focuses on sectors that can generate sustainable marine economic activities. The Port of Vigo decided as a whole to implement the strategy, given its position as a hub of knowledge with high capacity to promote growth based on cross-cutting sectors, institutions and specialisations.

In 2016, the Port of Vigo designed its own Blue Growth plan working together with the Port Authority, the Galician Regional Fisheries Ministry, the Galician Agency for Innovation, the Campus do Mar (joint research institutions and universities managed from the University of Vigo) and the Free Trade Zone Consortium of Vigo. The Blue Growth Vigo Plan is aligned with international, regional, national and local policies dealing with innovation, education, regional development and so on. The first step was to identify 14 thematic areas on the basis of those already established by the Commission but applied to the case of the Port of Vigo. These areas are: fresh fishing, frozen fishing, level playing field, shipbuilding, marina, Motorways of the Sea, dry-port, administrative processing of cruise traffic, history, blue careers, blue technology and blue energy. More than 250 people, representing the 'quadruple helix' of innovation (administration, education and research, private sector and civil society) were invited to participate in identifying the challenges, projects and specific actions to be carried out by 2020. The main aim was to foster growth through innovation and competitiveness. In line with the identified thematic areas, there are currently up to 45 projects and 46 actions, all of which are integrated into four objectives, namely to become an innovative, green, inclusive and connected Port.

In July 2016, the Blue Growth Vigo Plan started being implemented, under the leadership of the Port of Vigo Authority and supported by the partners mentioned above. Almost three years later, all the stakeholders involved at the beginning of the process are still working on it, whilst others have been added. Best practices were identified to ensure the compliance of the projects and actions promoted in coastal areas with core blue economy principles. As a result, the following criteria were adopted: i) consultation with all the groups involved in the Blue Growth Vigo Plan to obtain their consent; ii) implementation of projects and specific actions; iii) meeting objectives and outcomes. The progress of the Blue Growth Vigo Plan has been measured since the beginning of the process; this is the only way to ensure its impact on economy, society and environment. A specific tool was designed for allowing stakeholders to have updated information about key performance indicators related to the objectives of the strategy. The tool is accessible to the public.

□ Results achieved:

The Blue Growth Vigo Plan has sparked great interest at national and international level, in particular with respect to the dynamics of its working groups and the process for its implementation:

State of projects	Nº of projects	Nº of projects / Total projects
Approved and under implementation	16	36%
EU co-funding	5	
Submitted (waiting for resolution)	3	6%
To be submitted (preparing proposal)	6	13%
Funding search	20	45%
Active projects (approved, under implementation, submitted and under preparation)	25	55%
TOTAL	45	
People involved through working groups	More than 300 from different economic sectors	

These data are continuously updated, because the Blue Growth Vigo Plan is a living process in constant evolution.

Strengths:

- through a participatory processes, needs and projects are defined with the aim to improve the competitiveness and sustainability of the maritime-port sector;
- the implementation of the Blue Growth Vigo Plan is achieving positive results both in social and environmental areas: jobs created, people trained, social innovation actions, GHG reduction, clean self-generated energy, surface of seabed regenerated, among others;
- sustainability is ensured by: i) stakeholders involvement; ii) impact measurement; iii) a solid structure that allows program management;
- projects and specific actions related to the objective of becoming a “Green and Innovation Port” focus on sustainability, good management of natural resources and environment preservation;
- the Blue Growth Vigo Plan involves more than 300 people from public and private entities from several sectors related to the maritime-port sector, and it seeks to improve their skills and strengthen their employability potential (165 people trained and 250 advised on maritime-fishery sectors);
- a solid communication strategy to gain the support of all the stakeholders (e.g. municipality, the private sector, research centres and universities, etc.) by using social networks, plenary sessions, press releases and an open website which shows qualitative information;
- the Blue Growth Vigo Plan has been designed through a methodology that can be replicated in any geographical context since based on knowledge, participation, implementation, monitoring and measuring;

Challenges:

- innovative technologies and business models are crucial to compete and promote growth in the maritime sector;
- young people have to adapt their professional profiles with respect to new technologies, IT tools, climate change issues, renewable energies, smart systems, etc.;
- ports are great consumers of natural resources, so investments in renewable energies are crucial promote their self-sufficiency and zero emissions.

Lessons learnt/recommendations:

- participatory approach must be ensured all through the process, and dynamization should be included in the action plan from the very beginning;
- sustainability must be part of the design strategy in order to be successful and, as such, ensure stakeholders' involvement;
- communication must be clear, transparent and continuous for a real involvement of stakeholders;
- working towards the development of clean technology is an effective way to attract international investments;
- building the capacity of young people both in new technologies and environmental issues is key to cover those vacancies in which new skills are demanded;
- ports can play an important role in promoting private sector investments in clean technologies and, indirectly, create the need for new professional profiles and thus new jobs;
- the experience of the Port of Vigo in other countries would be replicable only in presence of a multi-stakeholder approach, a solid communication plan and a deep analysis of the blue economy sectors and their respective challenges;
- innovative financial tools should be designed to allow rapid and smooth projects implementation.

☐ Sources of information:

Website: <http://bluegrowthvigo.eu/en/>

Social Media: Twitter and Facebook @bluegrowthvigo

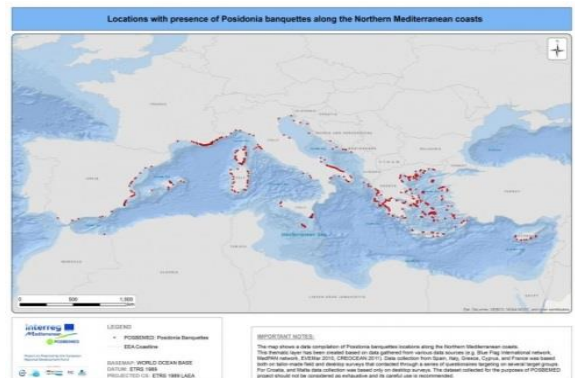
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24. POSBEMED - SUSTAINABLE MANAGEMENT OF THE SYSTEMS POSIDONIA-BEACHES IN THE MEDITERRANEAN REGION



Blue Economy sector:

BIOLOGICAL RESOURCES - beach management implies multi sectoral actors (target beneficiaries) with a focus on Posidonia banquettes which must not be considered as marine litter. Posidonia banquettes management requires an adaptive approach to tackle societal changes while providing biodiversity benefits.

Objective(s) of the project:

POSBEMED aims to enhance awareness on the benefits of this natural capital. This project offered common sustainable tools to improve management capacity, with practical and effective guidelines for beach users and managers. Its main output is a transnational joint management strategy for Posidonia meadows, beaches and foredune systems along the Mediterranean coast.

Project promoters: EID Méditerranée (France)

Project Partners: IUCN (Spain), ECO-logica srl (Italy), HCMR (Greece) and Foundation IMC (Italy).

Geographical area(s) of implementation: Mediterranean Sea (Spain, France including Corsica, Italy including Sardinia, and Greece)

Target beneficiaries: tourism related quality labels such as the “Blue flag network”, beach users, beach cleaning companies, municipalities, marine protected area, coastal camping sites, hotels.

Duration: 18 months, completed.

Overall budget: 596 750 EUR

Summary of the project:

The *Posidonia oceanica* is a Mediterranean endemic marine flowering plant (seagrass) forming extensive underwater meadows which are important contributors to the bioremediation of coastal waters and shoreline protection. Posidonia residues (withered leaves, fibers and rhizomes) are regularly stranded and beached ashore, where they help reduce wind and swell wave energy and act as seedbanks for dune formation, increasing thus the overall resilience of the coast to natural and climate change effects. This natural capital, however, is often perceived as an aesthetic

problem, especially in highly-frequented tourist zones. To ensure that the coasts and beaches remain attractive for tourism, various and sometimes destructive practices (tractors and heavy machinery) are used to remove tons of this material, even in protected areas with fragile sandy beaches and dune systems.

POSBEMED analyzed at the management, conflicts and opportunities of the Mediterranean coast, particularly in coastal protected and Natura 2000 areas where interdependence between seagrass meadows, dunes and beaches occurs, with a view to provide a Mediterranean strategy and governance model for enhancing management effectiveness of these areas and beyond. By integrating the results of several past projects and examining management practices, stakeholders' perception and expectations, guidelines with innovative management tools were produced to enhance local administrations and coastal managers' capacity across the Mediterranean. The results will be used to assist in improving protection measures and enhancing management effectiveness on these connected habitats, while promoting local blue growth and nature-based solutions on the use and sustainable management of the seagrass banquettes

POSBEMED's specific objectives are: **i)** to identify and analyze the current management practices of Posidonia beaches/dunes systems and banquettes in Mediterranean countries and provide a socioeconomic evaluation synthesis of its ecosystem services; **ii)** integrate and adapt tools for management of Posidonia beach/dunes in local sustainable growth and good practice guidelines for a holistic and integrated approach in conservation and management efforts; **iii)** to propose a model of governance and a common strategy for the management of Posidonia beach/dune systems in the Mediterranean Natura 2000 sites and other coastal protected areas.

□ Results achieved:

i) qualitative assessment of the management of Posidonia beaches/dunes in the Mediterranean; ii) GIS database of tourist activities on the coast, Posidonia and banquettes/stranded litter, dunes and protected areas; iii) socio-economic evaluation of Posidonia-beach/dunes; iv) review of existing guidelines for sustainable beach and stranded seagrass management; v) analysis of the coverage of specific coastal protected and Natura 2000 habitats, existing protection gaps and connectivity between land-sea surface; vi) definition of a strategy and action plan for the Mediterranean region; vii) capacity built on Posidonia beach management and conservation.

Strengths:

- the project provided a first ever overview of the Posidonia beach coastal ecosystems and local beach management practices across the Mediterranean, including existing gaps, recommended approaches and elements for a common transnational strategy and action plan at Mediterranean level;
- improvement of local management practices on beach banquettes and establishment of a set of criteria to assess their grade of sustainability;
- the project raised awareness of the importance of Posidonia beach-dune systems not only in terms of biodiversity conservation but also, and especially, in socio-economic terms, including climate change resilience.

Challenges:

- lack of public recognition of the role of banquettes in beach ecosystems. The presence of banquettes on the beaches is perceived negatively when choosing the destination, and their acceptance is even lower among tourist operators and local authorities;
- the sustainable management of Posidonia beach-dune systems requires a multidisciplinary approach, this implies the need to involve different economic sectors that often show little interest in collaborating.

Lessons learnt/recommendations:

- management approaches should take into account those factors that control the dynamics of the Posidonia littoral zone and the formation of banquettes, the density of banquettes, the presence of sensitive areas (e.g. protected sites) as well as the frequency and density of beach users, and the vulnerability of the coastline;
- Posidonia beach/dune systems must be considered as an integrated system depending on the sedimentary balance and flow of matter between the different compartments. Given the limited knowledge of their interrelation, a precautionary principle should be applied in their management;
- the ecosystem-based approach should be used, and the goal of achieving “good environmental status” should integrate the formation of banquettes in the beaches;
- criteria for quality beach labels should place stronger emphasis on the importance of seagrass meadows and banquettes in sandy beaches with coastal dunes;
- to have a management approach to Posidonia beach-dune systems capable to trigger a positive dynamic (including creation of jobs and attraction of investments), a proper regulatory and legal framework is needed. As a matter of fact, the current lack of clear regulations and specific legislation on the removal of banquettes and beach wrack in most areas is evident (local authorities often apply arbitrary rules for their collection);
- the popularity of beach certification schemes across the Mediterranean countries, such as the Blue Flag designation, has increased notably over the years. Actions should be taken in order to fill the gap existing in these schemes with regard to beach wrack material and procedure for their management;
- medium/long term management policies and strategies should be developed for all the beaches where banquettes accumulate, and such policies and strategies should be part of a wider framework for achieving integrated coastal zone management. Common action plans should be better defined based on common challenges, lessons learnt and opportunities arising in different regions and in different local contexts. Out of these efforts, good practice guidelines could be elaborated and tested in protected Mediterranean areas, including Natura 2000 sites.

☐ Sources of information:

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25. PROVENCE GRAND LARGE - FLOATING OFF SHORE WIND FARM



Provence Grand Large



Blue Economy sector:
ENERGY

Objective(s) of the project:

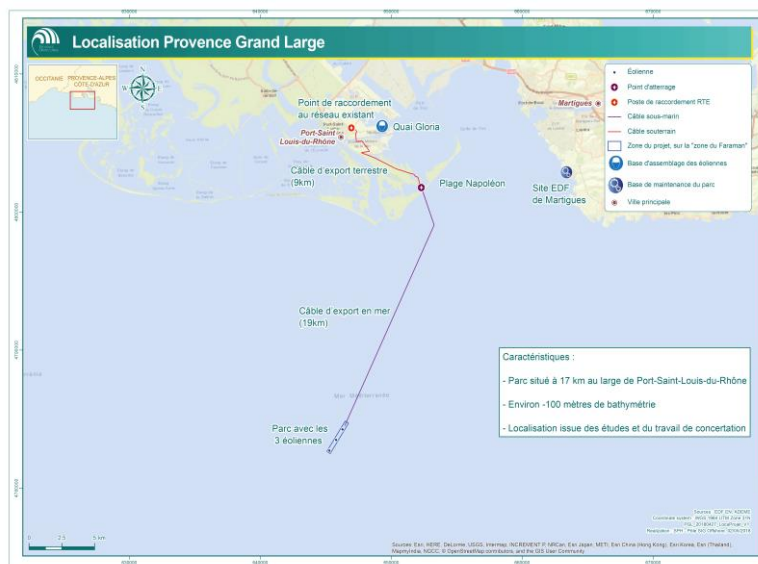
i) demonstrate the technical and economic feasibility of an innovative floating wind technology; ii) acquire a global (technical, environmental and societal) feedback at pilot scale (3 turbines) in real conditions; iii) produce electricity for 40 000 people under representative quality, environment and safety conditions; iv) setup the basis of an innovative industry within the Marseille-Fos harbor territory.

Project promoter: EDF Renewables

Project Partners:

i) Siemens Gamesa Renewable Energies (SGRE); ii) SBM Offshore in partnership with IFP Energies Nouvelles; iii) RTE (Réseau de Transport d'Electricité)

Geographical area(s) of implementation:



Target beneficiaries: General public

Duration:

Development: 2011-2019
Construction: 2019-2021
Commissioning: 2021
Operation: 25 years

Overall budget: 200.000.000 EUR

Summary of the project:

One of the challenges of our time is to keep global warming below the 1.5°C bar, compared to the pre-industrial age, means a radical change in our development pattern. Achieving this goal suppose we urgently move toward a low-carbon economy and wind energy will be a major driver. As a matter of fact, considering the growing demand of energy, especially electrical energy, we are supposed to massively diversify our energy mix and increase the use of renewable energy. From global to local level, users are today pushing for durable and clean forms of energy production, and the development of new technologies such as floating wind technology is the mirror of such ambition.

The expectations of growth of this technology are very promising worldwide. Installed in sea areas distant from the coast, with water depth ranging from minimum 50 to several hundred meters (currently out of reach of any other forms of renewable energy technology) and benefiting of very favorable wind regimes, they would interfere less with littoral activities while increasing the potential of offshore wind turbines bringing in a new perspective in the field of renewable energy production.

This technology, however, is currently in place through prototypes mainly and, considering the major challenges that it still need to tackle, needs to be further tested at a limited scale before its large scale deployment. This is the challenge of the Provence Grand Large project.

Its main aim is to gain experience and demonstrate, at the scale of a pilot farm composed of 3 floating wind turbines only, the technical and economic feasibility of generating electricity at a larger scale, as well as its environmental and social effects on its surrounding environment, . This would boost the development of future floating wind production projects, paving the way for a new sector of excellence in the field of renewable energies, with a global technical potential of development currently estimated in hundreds of GW worldwide.

Results achieved:

i) award of the NER 300 first round call (2012); ii) grid connection secured (2013); iii) wind turbines tender awarded (2016); iv) floaters and EPCI tender awarded (2016); v) award of ADEME floating wind pilot farms call for projects (2016); vi) submission of authorization package (2017); vii) favorable public debate commission (CNDP) report (2018); viii) early works agreement signed with WTG and FSS suppliers (2018); ix) favorable public hearing report (major authorizations obtained (2019); x) electric cables tender awarded (2019).

Strengths:

- Direct contribution to global warming reduction by developing a new renewable energy sector with strong potential share in the future electricity supply, worldwide;
- Creation of hundreds of direct and indirect jobs during development construction and operation phases;
- Initiation of an innovative industry sector based on the Marseille-Fos industrial harbor benefiting to the whole European economy ;

- Limited environmental impacts demonstrated by a wide range of environmental studies (e.g. birds, marine mammals, benthos) and proved to be fully compatible with the local Natura 2000 sensible environment area;
- Comprehensive set of environmental monitoring protocols designed with the support of a panel of independent experts, in order to assess interface issues with birds and marine fauna in view of designing future environmental-friendly large-scale floating wind farms;
- Successful local consultation history publicly recognized as strongly supported by local communities, by independent bodies in 2017 and 2018. They highlighted the special efforts made in term of co-development with local stakeholders since the origins;
- Based on latest technologies (e.g. the tensioned legs floater is the first ever of its kind in the offshore wind industry);
- Dedicated task force with chamber of commerce and business representatives in order to attract local companies and allow them to participate in project partners business opportunities.

Challenges:

- given the innovative nature and the small size of the project, administrative process could have been optimized, resulting in shorter delays and better opportunities for exporting the proposed technologies, worldwide. Although the project was among the very first, it is now facing competition with half a dozen of similar initiatives worldwide;
- since this is the first time that there would be offshore wind turbines deployed in the Mediterranean sea, the project had to overcome lack of knowledge of many environmental players, who do not consider that experience with the 4500+ wind turbines currently in operation, mainly in the North Sea, to be fully consistent with local environmental challenges;
- due to the innovative nature of the project and the risks to be taken by project sponsors (no previous record of experience could be used), it was not possible to involve local communities in the project's financing;
- the replicability of the project in other areas need to be considered due to some specific characteristics of this cutting-edge technology, especially in shallow waters.

Lesson learnt/recommendations:

- there are intensive electricity users operating in the immediate vicinity, so the issue of grid integration of future large-scale floating wind farms in the Marseille area should be addressed;
- although too late for this project, the implementation in France of the new legislation for offshore wind projects will allow more flexibility in the design of future floating wind farms, allowing to adapt the project to the rapidly evolving offshore wind market and resulting in a better integration of projects;
- as for most truly innovative projects, a number of technical and administrative challenges have appeared since the project inception resulting in technology changes, which impacted the overall project planning. The issue is that, considering the complex nature of the project and despite the particular efforts deployed in terms of consultation with all type all local stakeholders, many questions that were solved at one stage, have risen again just because the people in charge, either in the administrations or within the stakeholder representatives, had changed. As a matter of facts, after almost 10 years of local presence, hundreds of meeting organized and millions of euros spent in answering all kinds of questions, there are people wondering why and if, just like at the beginning of the story. This is a major difficulty, especially for an innovative project, whose main asset is its capability to be on time;
- over the past 50 years, according to the decision of the French government, the Marseille-Fos harbor development has been mainly dedicated to the oil industry, up to the point of becoming the French largest harbor in volume. Local industries, strongly supported by

the local and harbor authorities, have developed a wide range of services and products for oil and gas exploration, production and commercialization. Most of those tools have proved to be adaptable to the challenges inherent to design, construct, implement and operate large-scale offshore mechanical structures, such as a floating wind platform. There are also other examples of moving from oil and gas offshore platform assembly to offshore wind turbines and floaters constructions.

Sources of information:

<https://www.provencegrandlarge.fr/>

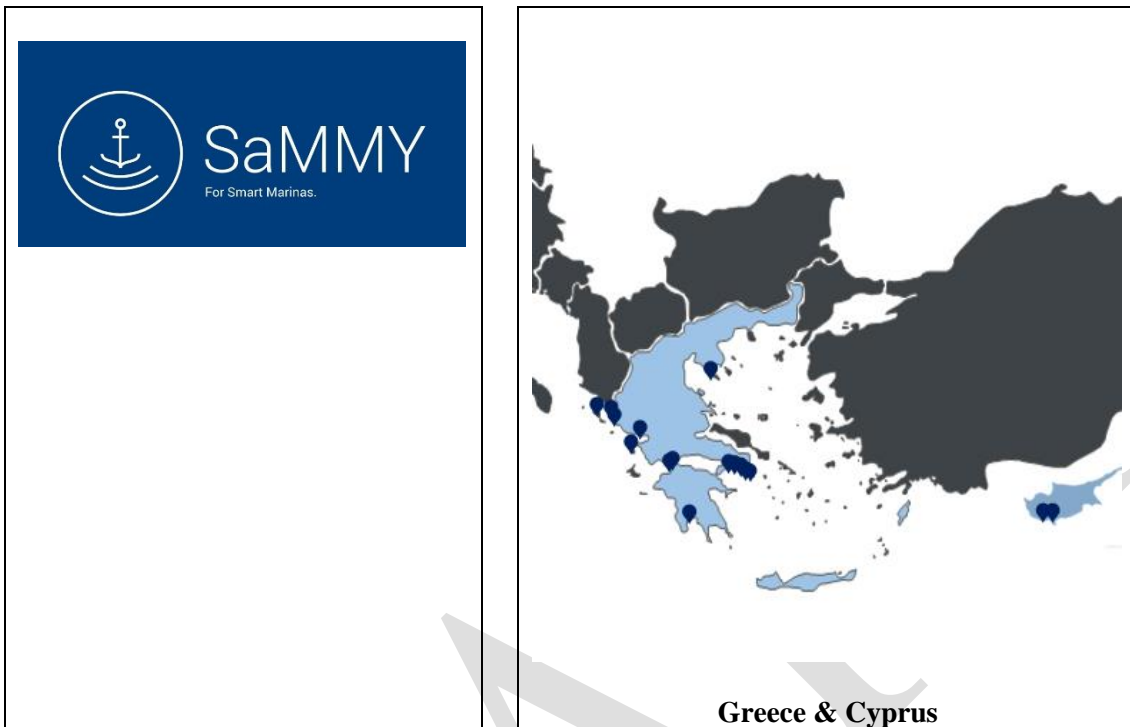
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DRAFT

26. SAMMY - SMART APPLICATION FOR MANAGEMENT OF MARINAS AND YACHTS



Blue Economy sector:

MULTI-SECTORIAL - Coastal Tourism, Maritime Transport and Coastal Protection

Objective(s) of the project:

The existing lack of technological solutions in yachting marinas and particularly the absence of integrated booking management systems, the scarcity of real-time monitoring and the ellipse of guidance & notification tools, are among the greatest problems today for marina administrators and for the yachting community. These gaps are commonly broadened by yacht mooring in already booked spaces, by inappropriate moorings (side mooring, occupation of multiple spaces etc.), by unnecessary maneuvers of the yachts or even by unlawful littering within the marina environment. From yachts owner/user side, the fact of arriving to a fully-booked marina, limited information about nearby Points of Interest (POIs), limited alert mechanisms for weather events or extreme conditions are some among the most common concerns. The main objectives of SaMMY project is to exploit the new technologies in order to: i) offer solutions for assisting marinas to manage their amenities and human capital in an optimal way; ii) attract more yachts and support the daily management of marinas; iii) simplify operational processes of yachting marinas; iii) protect marinas' environment and dynamically monitor the effects of tourists flows; iv) provide mobile assistance to the yachters and crew members; v) create sustainable jobs and internships.

Project promoters:

EU Organizations: European Commission (FIWARE Programme), FIWARE frontierCities Accelerator, H2020 Neptune Blue Growth Accelerator, H2020 SymbIOTe ecosystem, H2020 VICINITY ecosystem
Greek Organizations: Achaia Chamber of Commerce, SRATEGIS Maritime ICT Cluster, Blue Growth Piraeus, Corallia gi-Cluster

Project Partner: OptionsNet (Greece)

Geographical area(s) of implementation: Greece, Cyprus

Target beneficiaries: Marinas and Tourist Ports, Yachters and Charter companies, Yacht Brokers, Marine related businesses

Duration: Completed, on-going extensions through National and European R&D Initiatives (Regional RIS3, H2020)

Overall budget: 390.000 EUR

Summary of the project

With over than 27,000 km of inland waterways and more than 70,000 km of coastline, Europe offers the perfect environment for the 48 million people who regularly participate in recreational marine activities (36 million boaters), as well as countless numbers of tourists. Over 6 million boats are kept in European waters while 4.500 marinas manage 1.75 million berths both in inland and coastal areas in Europe [Source: ICOMIA Statistics Book, 2010].

SaMMY combines different technologies and tools in an integrated system, especially designed for the adverse conditions of the maritime environment and intends to efficiently serve the marinas and yachters. It responds to the challenge of extending the use of existing commercial products/services and smart sensor devices in the maritime domain and enhance their operation through innovative systems, creating this way new business opportunities (such as close cooperation with local market, provision of advanced trip scheduling services, providing marina-related open data to public authorities and businesses) in the growing yachting marina market. SaMMY platform is consisted of three (3) complementary subsystems described next:

i) An **application for mobile devices** (smartphones, tablets, integrated Yacht devices etc.) that aims to serve yachters, skippers and crew members. SaMMY app provides a simple environment for on-line berth booking, navigational and parking assistance services - during arrivals or departures - and instant communication with the preferred marinas. With SaMMY app a variety of high-level services are offered such as real-time information about the weather and sea conditions, notifications of extreme weather events or maritime incidents and full guidance to the nearby marina areas and points of interest

ii) A **System for the marina management (MMS)**. The platform allows the marinas to manage their contact details, the facilities, along with the berth positions and represent them on an interactive map. SaMMY also provides information about marinas' regulations, the pricing & cancelation policies and selected Points of Interest in the nearby areas. The marina administrators can easily use SaMMY for the daily management of the bookings, for handling weather alerts and for providing personalized notifications to the yachters. All the services are hosted on the "Cloud" and there is no extra need for investments in hardware or software for the marinas.

iii) SaMMY's advanced technologies transform a regular Marina into a '**Smart' one (Smart Marina Concept)**. A multi-purpose sensor grid consisted of waterproof wireless sensors is enrolled in order to feed a central system and provide booking, meteorological & environmental information. These services are facilitated through the installation of different types of sensors (ultrasound, meteorological, water quality, wave measurement etc.) which collect data and monitor the conditions within the Marina in real-time. The IoT grid raw data are gathered by a gateway and stored initially into a local database. An independent IoT agent that has been developed for the backend data processing operations processes the raw data stored in the local database and then sends the processed data sets to the cloud. The data are pre-processed depending

on the sensor type (water condition related data, weather condition related data, water level related data, berth availability space related data) and the final datasets are produced and offered online.

Results achieved:

The SaMMY platform has been developed and already tested in a maritime environment. The initial prototype has been successfully deployed in the Patras Port Authority (www.patrasport.gr), that hosts Mega-yachts between 20-50 meters long and the marina administration system has been demonstrated to the Patras Port Authority officers and used since 2016. Today the SaMMY platform (www.sammyacht.com) provides berth booking services to more than 30 marinas or tourist ports in Greece and Cyprus and it is used for the management of the marinas' operations by five marinas in Greece. As an innovative platform it has raised 390.000 euros from different European programmes (FP7, H2020 etc.) and it has currently contracted additional 150.000 euros from Regional Operational Programme of Western Greece (RIS3 Call) for further technical improvements and integration of IOT and knowledge management technologies.

SaMMY has been distinguished as one of the top 80 High Potential Impact solutions of FIWARE programme, selected as one of the top 70 companies at Google Startup Grind 2017 (London), nominated for the Accenture Innovation awards 2017, selected to H2020-SymbIOTe and H2020-Vicinity programmes in 2018 and awarded with the European Commission's Seal of Excellence (SME Instrument Programme).

Strengths

- fully in line with the EU strategic policy for the sustainable development of the coastal areas and Nautical tourism in Mediterranean sea basin and other coastal areas (Atlantic coast, Northern Europe, Black Sea basin etc.), SaMMY's technological platform supports the modernization of services in nautical tourism, contribute to the empowerment of the marinas and tourist port network in Europe and create a strong global branding for Mediterranean and possibly other areas as marine tourist destinations;
- SaMMY tackles problems present in any yachting marina in the EU and globally;
- The integration of SaMMY platform with an innovative IoT infrastructure which monitors in real time water quality, sea level and environmental conditions inside marinas or tourist ports is an effective mechanism for environmental protection and preservation;
- in terms of innovation, SaMMY platform combines new-wave tech solutions like Cloud services, Big Data Analytics, IoT smart grids and FIWARE technologies;
- SaMMY's architecture is open for future extensions and the middleware services are interoperable with other external systems and online platforms. The replicability and scale-up of the platform is high in terms of software systems and it is already scaled-up in Greece and Cyprus.

Challenges

- the IoT systems need extra field studies for each of the areas in which they are planned to be deployed;
- marinas and tourist ports need to unify their services and processes in the next year in order to arrive at a certain level of service provisioning.

Lesson learnt/recommendations:

- the yachting sector, and specifically the marinas and tourist ports, are currently facing different challenges related to protection of coastal and marine environment, climate change, raising competitiveness inside the business sector and demand for new service by end-users. The technology can be the catalyst of offering effective solutions for being confronted with those aforementioned challenges. During the deployment of services and the operation of a marina or tourist port with the assistance of technological tools it is

essential to convince all levels of administration that digital transformation will help facilitate their daily work and bring benefits for both the workers of an organization and also for its clients;

- there should be a step-by-step approach where technology is introduced along with the necessary training and change of the internal/external business processes, in order to provide successful and sustainable results;
- make efforts for the convergence of internal processes and minimization of the paperwork between different marinas or tourist ports, in order to simplify the marina administration work and upgrade the quality of services for the yachters/sea travelers. A global marina network with clearly defined processes, respect of National and EU regulations, acceptable level of technological infrastructures and services, can leverage the creation of jobs and attract national or international investors;
- for accelerating the scaling-up of SaMMY or similar initiatives is crucial the compliance of marinas and tourist ports with the existing legislations and EU regulatory framework (in particular, Directives 94/25/EC, as amended by Directive 2003/44/EC, which introduce requirements regarding user safety as well as exhaust and emissions rules). Additionally, these kind of technologies must be linked with recent standardization ISO13687 (Minimum Service Requirements for Basic Service Level harbours, Part1-3) and ISO21406 (Tourism and Relative Services – Yacht Harbours – Essential Requirements for Luxury harbours) which that provide a clear framework of how technologies can help marinas and yacht harbors provide basic and advanced services to their customers.

Sources of information: website, evaluation report, etc.

www.sammyacht.com

<http://www.libelium.com/smart-marina-monitoring-mooring-berths-by-controlling-sea-and-weather-conditions-in-a-touristic-port-in-greece/>

Contact person details:

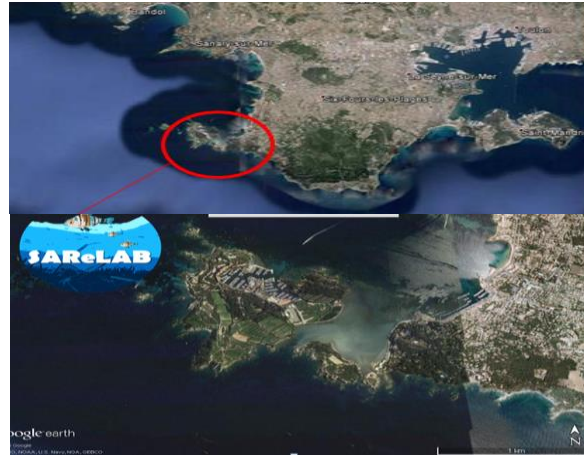
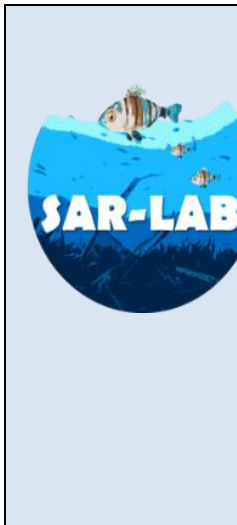
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27. SAR-LAB SITE ATELIER RESTAURATION ECOLOGIQUE LAGUNE DU BRUSC



Blue Economy sector:
MULTI SECTORIAL PROJECT - fisheries, ecological functions, R&D

Objective(s) of the project: restoration of ecological functions in Mediterranean port area, lagoon area, salt marshes and continuation of R&D

Project promoters: Institut océanographique Paul Ricard

Project Partners: Ecocean, Semantic TS

Geographical area(s) of implementation: Mediterranean (Var France)

Target beneficiaries: professional fishermen, environmental managers

Duration: 5 years (on going)

Overall budget: 1.286.000 EUR

Summary of the project:

The organization of the project and the different actions concern: i) the integration of port area to improve their ecological nursery functions; ii) artificial facilities to increase and to compensate for the lack of natural habitat; iii) ecological restoration actions of seagrass using magnoliophyte transplantation techniques; iv) the restoration of ecological functions on a degraded site (salt marshes); v) monitoring, research and knowledge acquisition through innovative techniques (R&D)

Results achieved:

Phase 1 2017-2018: Artificial habitats installation in different sites (ports, lagoon), seagrass transplantation, monitoring of fish abundance and growing of transplants. Phase 1 report due in April 2019;

Phase 2 2019-2020: monitoring of fish abundance and growing of transplants; rehabilitation of ancient salt marshes.

Expected results: offer tools to act favorably on the environment by innovative processes

Strengths:

- in term of environmental effectiveness: restoration, valorization of ecosystem services (nurseries area);
- innovative restoration method;
- combine the functional aspects from an ecological point of view with awareness raising and landscaping issues;
- strengthen the collaboration with professional fishermen, initiated in a previous program (characterization of a nursery area);
- communication towards general public and local managers.

Challenges:

- too early to assess the impact in terms of ecological benefits;
- involve port and environmental managers;
- promote the involvement of professional fishermen.

Lessons learnt/recommendations:

- replicate the same idea in another country, in accordance with local specificities (legislation, policy, etc.);
- develop communication on ecological restoration with local actors (conferences, public meeting).

☐ Sources of information:

Annual reports, website of Institute (www.institut-paul-ricard.org)

☐ Contact person details:

Dr. Jean-Luc Bonnefont director of research
Dr. Sylvain Couvray searcher
Dr. Rémy Simide searcher

28. SIROCCO



Project co-financed by the European
Regional Development Fund

Blue Economy sector:
TOURISM AND RECREATION - Cruising sector

Objective(s) of the project:
The objective of the project is to enhance sustainability of cruise maritime and coastal tourism in the Mediterranean area.

Project promoters: PI RERA S.D SD FOR COORDINATION AND DEVELOPMENT OF SPLIT DALMATIA COUNTY

Project Partners:
CENTRE FOR RESEARCH AND TECHNOLOGY HELLAS; SOUTH AEGEAN REGION;
LARNACA FAMAGUSTA DISTRICT DEVELOPMENT AGENCY; LAZIO REGION;
PORT AUTHORITY OF CIVITAVECCHIA; VALENCIAPORT FOUNDATION

Geographical area(s) of implementation:
CASE STUDIES IN FIVE PORTS IN THE MEDITERRANEAN AREA

Target beneficiaries:
Local community, local and regional government, tourist operators, general public, port authorities

Duration:
Completed in 2018; 20 months

Overall budget: 600.000 EUR

Summary of the project:

The project was focused on two streams: i) Operational level (collecting and integrating cruise tourism data, preparation of sustainable cruise tourism certification system, preparation of VC analysis, presentation and validation of Local and Joint action plans); ii) Policy level (preparation of policy coherence analysis, regional and interregional policy integration and validation of proposed actions). Increasing the level of sustainability of cruise tourism has direct positive impact on the sustainability of coastal tourism as a whole in Mediterranean.

With 40€ billion economic impact and 6 million passengers, cruise tourism plays a key role in Europe and especially in the Mediterranean, being top cruise market and exerting strong socio-economic pressures. As cruise tourism grows, the challenge is to exploit its full potential in a sustainable way. Sirocco had the ambition of tackling these problems by providing: i) an integrated view of the current state of cruise tourism in the Mediterranean and its environmental, economic, and social impact; ii) a foresight of cruise tourism in the Mediterranean in the following decades; iii) evidence-based and transferable recommendations on developing sustainable and responsible Cruise Value Chains in the region; iv) promote coordinated strategies and policies at

regional and transnational level regarding the development of a sustainable and responsible cruise maritime/coastal tourism.

The project provided an integrated view of the current state of the Mediterranean cruise tourism (as a whole and per segment) and its impacts (environmental, economic, and societal) with a foresight of Mediterranean cruise tourism for the following decade. Based on conducted research of available data and five real case studies elaborated within the project (Valencia, Civitavecchia, Split, Rhodes, and Limassol) the project offered transferable recommendations on developing sustainable & responsible Cruise Value Chains in the Mediterranean area. Such recommendations, to be followed in different cruise sectors and tourism fields, have the purpose to create a unique interregional integrated plan of actions and policies that can fix and correct different gaps and inefficiencies identified during the analysis of the Value Chain in the five case studies aforementioned.

□ Results achieved:

The cruise value chain analysis has been done in the cities of Valencia (Spain), Civitavecchia (Italy), Split (Croatia), Limassol (Cyprus) and Rhodes (Greece). Based on such analysis, five action plans have been prepared, presented and validated in different workshops. Along with validation workshops, project partners organized press conferences to disseminate the project activities and results. A joint action plan for the whole Mediterranean area has been presented and elaborated online.

The project has contributed towards achieving the Programme results outlined for its respective priority (i.e Level of sustainability of tourism in the Mediterranean coastal regions), by having delivered: i) five destination-specific Sustainable Cruise Value Chain Action Plans for enhancing the level of sustainability of cruise tourism, which were formulated based on the value chain analysis undertaken in each cruise destination (Valencia, Civitavecchia-Rome, Split, Rhodes, Limassol) focusing on the economic, environmental and social impacts of cruise tourism, the interaction between cruise tourism and cultural heritage, and the impacts related to seasonality; the Action Plan of each destination was finalized through local stakeholders validation, making use of the SIROCCO Sustainable Cruise Tourism Certification System; ii) a Sustainable Cruise Tourism Joint Action Plan for the Mediterranean region as a whole. Structured into priorities, objectives and actions for Mediterranean cruise destinations, the Joint Action Plan: (a) supports those Mediterranean ports and destinations that aim at a more sustainable cruise tourism sector; (b) federates Mediterranean stakeholders around a common set of high-importance priorities; (c) provides ideas for pilot projects to be included in future EU funding opportunities; (d) further promotes transnational cooperation among private and public cruise tourism actors in the Mediterranean; iii) a Sustainable Cruise Tourism Certification System, for assessing the level of sustainability of cruise tourism in the Mediterranean coastal regions: (a) compatible to the European Tourism Indicator System (ETIS); (b) addressing the specific requirements of cruise tourism; (c) integrating the three sustainability components (economic, environmental, social); (d) linking criteria, indicators, assessment types, data sources and cruise value chain actors.

Strengths:

- participative process in the pilots sites (10 workshops and validation meetings, and continuous exchange of information) ;
- project included aspects of job creation, and preservation of cultural / historic heritage;
- focus on all the aspects of sustainability (social, environmental and economic);
- elaboration of environmental indicators (e.g. availability of waste facilities, impact on local natural heritage, percentage of waste recycled every year, share of the destination's five most visited natural sites by cruise passengers designed for protection, availability of shore-side electricity, share of renewable public transport, share of renewable at destination);

- data collected from different sources (e.g. *Clia*, *EUROSTAT*, *CLIA Europe*, *MedCruise*, *Hellenic Posrt Association*, *Puertos del Estado*, *SeatradeCruise*, *ITF*, *Friends of Earth*);
- the project provided plausible pilot scenarios for each port;
- the approach employed for the formulation of the pilot scenarios was built on clear steps, such as the definition of the objectives and scenario of the pilot site, identification of the stakeholders required to be involved for a successful implementation of the pilot, analysis of the actions proposed by local stakeholders and testing before their implementation.

Challenges:

- validation of the Joint Action plan for the whole Mediterranean was done online but the response and participation of the Mediterranean community was limited;
- the link between investments and job creation was not addressed by the project;
- most of the data were collected through interviews, so they represent estimations of key stakeholders;
- real time data not available (collection of data in real time was proposed as a pilot project);
- participation of national or EU stakeholders was not as large as expected.

Lesson learnt/recommendations:

- involvement of relevant and active stakeholders (voluntary based in our case) is uttermost important to gain insights and trends of the sector and its local/regional particularities);
- validation of the action plans by largely representative working groups ensure credibility while facilitating consideration/implementation by the public authorities;
- organize public meetings, or followed with PRESS Conference, to activate stakeholders' participation.

Sources of information: website, evaluation report, etc.
<https://sirocco.interreg-med.eu/>

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29. SUPPORT THE DIVING SECTOR TO CREATE A PROFITABLE ECOTOURISM ACTIVITY IN THE TAZA NATIONAL PARK



Blue Economy sector:
TOURISM AND RECREATION - Diving sector, ecotourism

Objective(s) of the project:
i) establishment of a sustainable tourism policy in the Park; ii) raising awareness of divers and local population towards marine conservation

Project promoters: MedPAN, WWF MedPO, DGF

Project Partners: Taza National Park (TNP) - League of rescue, first aid and underwater activities of the wilaya of Jijel (LSSAS - Jijel) - WWF MedPO - MedPAN

Geographical area(s) of implementation: Algeria, SW Mediterranean

Target beneficiaries: Taza National Park, diving clubs

Duration: 18 months (completed)

Overall budget: 54,286 EUR

Summary of the project:

The Taza National Park aims to implement a policy of sustainable tourism in the park, promoting its natural land and marine areas. To this end, the park must rely on the dynamic private and non-profit sectors that are the real stakeholders in the development of tourism in the region. This project, supported by the National Park, had the objective to clarify the ecotourism development strategy in the park, implement activities associated with scuba diving, to support the organization of the private sector and raise the awareness of divers to the importance of marine conservation.

Results achieved:

i) The Taza Park has a strategy for the development of sustainable tourism; ii) the first Algerian underwater trail has been created; iii) 18 people were trained in the management of underwater trails; iv) national underwater photo contest was organized (2012); v) a partnership agreement between the Park and a local diving club is signed to ensure scientific monitoring and management of the underwater trail; vi) awareness and cleaning campaigns were organized including young people and families; vii) evolution of the national legislation to include underwater trails, which should facilitate future development on other sites.

Strengths:

- underwater trails will be used for a dual objective: developing an ecotourism activity (diving clubs) and raising awareness of the public about marine conservation (Taza National Park);
- potential for jobs creation and the preservation of the marine environment through the creation of an MPA in this area;
- underwater trails are concrete tools for sustainable development. They can create new jobs in an environmentally-friendly and responsible sector (ecotourism) and, secondly, be used as support for environmental education;
- underwater trails could be used as an effective tool for monitoring. Scientists could be an important stakeholder by doing assessment of biodiversity in order to highlight the ecosystem services of the area;
- underwater trails could be a very interesting field work for academics to test different protocols in the field of marine conservation (e.g. visual census surveys of fish);
- underwater trails are an instrument for integrating people with social or physical difficulties which is suitable for a large public (youth, children, family, seniors, etc.);
- underwater trails is a practical tool to gather stakeholders and promote the sharing of data between diving clubs, scientists and the future MPA management body within a perspective of participatory science;
- the creation and the management of the underwater trails facilitate a transboundary approach among all relevant stakeholders (tour operator for the creation of jobs, National Park staff for control, scientists for the assessment, etc.);
- it was a pilot project in Algeria. The diving club involved in this project contributed to train other clubs all over the Algerian coast and another underwater trail was created 2 years after on a basis of sharing of good practices.

Challenges:

- the ongoing process for the creation of the MPA and the absence of an effective management body;
- most local tour operators do not include ecotourism packages in their offers;
- absence of clear legislation for the development and promotion of underwater trails, something hard to set up because it requires the collaboration between several administrations (environment, tourism, trade, etc.);
- implementation of the monitoring tasks by all the stakeholders (Taza National Park, diving club, scientists, etc.);
- train the staff of the future MPA as well as the members of diving club in order to gain scientific knowledge;
- a transboundary approach is one of the hardest tasks to put in place mainly due to the centralized and sectorial approach and the lack of governance at local level;

Lessons learnt/recommendations:

- seek for external expertise for developing sustainable tourism strategies and marine trail management;
- public/Private Partnership: the Park positions itself to partner up with private operators (local dive clubs, national diving league) in order to initiate, train, and provide

development tools to these partners (underwater trail, training, photography contest, etc.) as well as to help revitalize non-profit sector;

- in order to avoid damage, underwater trail signs have to be removed and placed only during specific outings organized by diving clubs, something that increases management but also increases the equipment durability.
- support an underwater photo competition so to make it an annual event;
- support local clubs for an independent management and promotion of the underwater trail;
- conduct scientific monitoring campaigns through agreement with diving clubs and promote the results as a way to assess the effects of the protection or non-protection of the sites;
- the process of developing the awareness of local operators is in its infancy, and clubs and the National Diving League are still insufficiently trained and experienced to independently manage events, but significant progress has been achieved;
- the experience of the Taza National Park, and the knowledge gained by stakeholders thanks to the trainings organized within the project, can support the creation of underwater marine trails in different parts of the Algerian coast.

□ Sources of information:

Nocentini, L., 2013. Capitalisation of results from projects conducted in Mediterranean MPAs and supported by MedPAN from 2011 to 2013. MedPAN. 54pp.

□ Contact person details:

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ANNEX 3: TRANSFERABLE OUTPUTS/TOOLS FROM THE CASE STUDIES

DRAFT