

ERASMUS+ Atividade de Formação e Cooperação
(TCA) , 20 march 2025

“A Economia Azul e o Cluster Marinho” Madeira MSP in a nutshell



EUROPEAN COMMISSION

DIRECTORATE-GENERAL FOR MARITIME AFFAIRS AND FISHERIES



Região Autónoma
da Madeira
Governo Regional

Maritime Affairs

Home

Blue growth



Aquaculture



Coastal tourism



Blue biotechnology



Ocean energy



Seabed mining

Sustainable Blue Economy Finance
Principles

International ocean governance

Integrated maritime policy

Definition and scope

The Integrated Maritime Policy seeks to provide a more coherent approach to maritime issues, with increased coordination between different policy areas. It focuses on:

- Issues that do not fall under a single sector-based policy e.g. "blue growth" (economic growth based on different maritime sectors).
- Issues that require the coordination of different knowledge.

Specifically it covers these cross-cutting policies:

- Blue growth
- Marine data and knowledge
- Maritime spatial planning
- Integrated maritime surveillance
- Sea basin strategies



Madeira MSP in a nutshell



BLUE GROWTH

71%
of the Earth surface
is WATER





European Commission

WHAT IS THE BLUE ECONOMY?

All economic activities related to oceans, seas and coasts. Blue economy covers a wide range of interlinked established and emerging sectors.

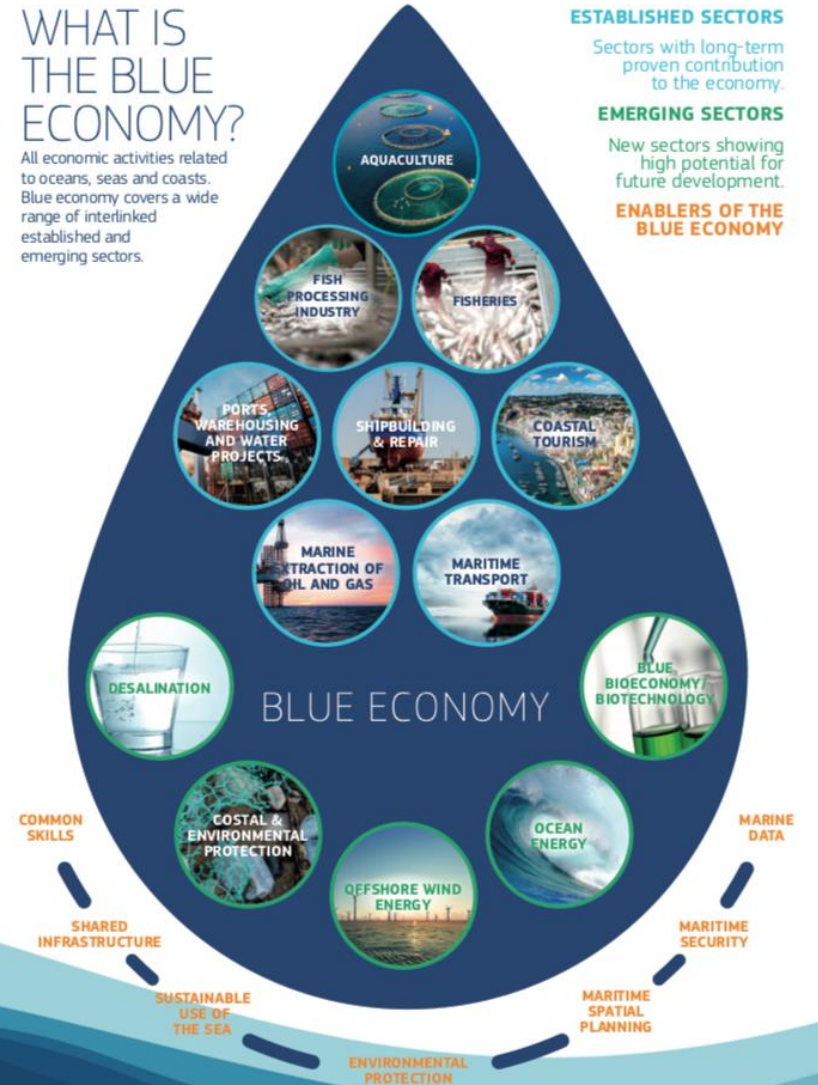
ESTABLISHED SECTORS

Sectors with long-term proven contribution to the economy.

EMERGING SECTORS

New sectors showing high potential for future development.

ENABLERS OF THE BLUE ECONOMY



What's "New" About the New Blue Economy?

Ocean
Economy



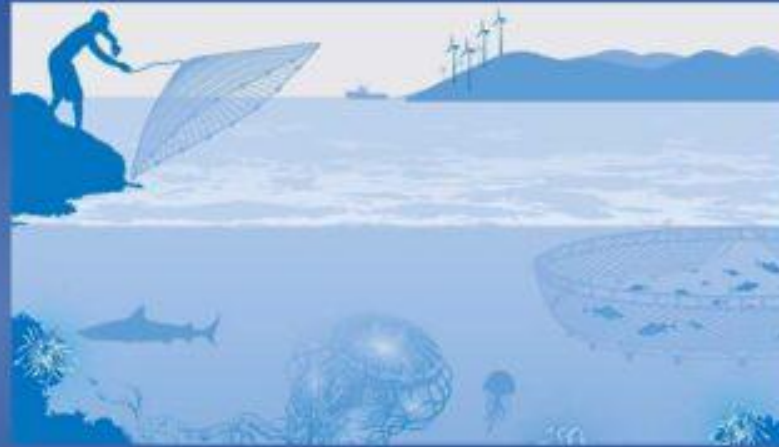
Blue
Economy



New Blue
Economy



All economic activities related to the oceans, seas, and coastal regions.

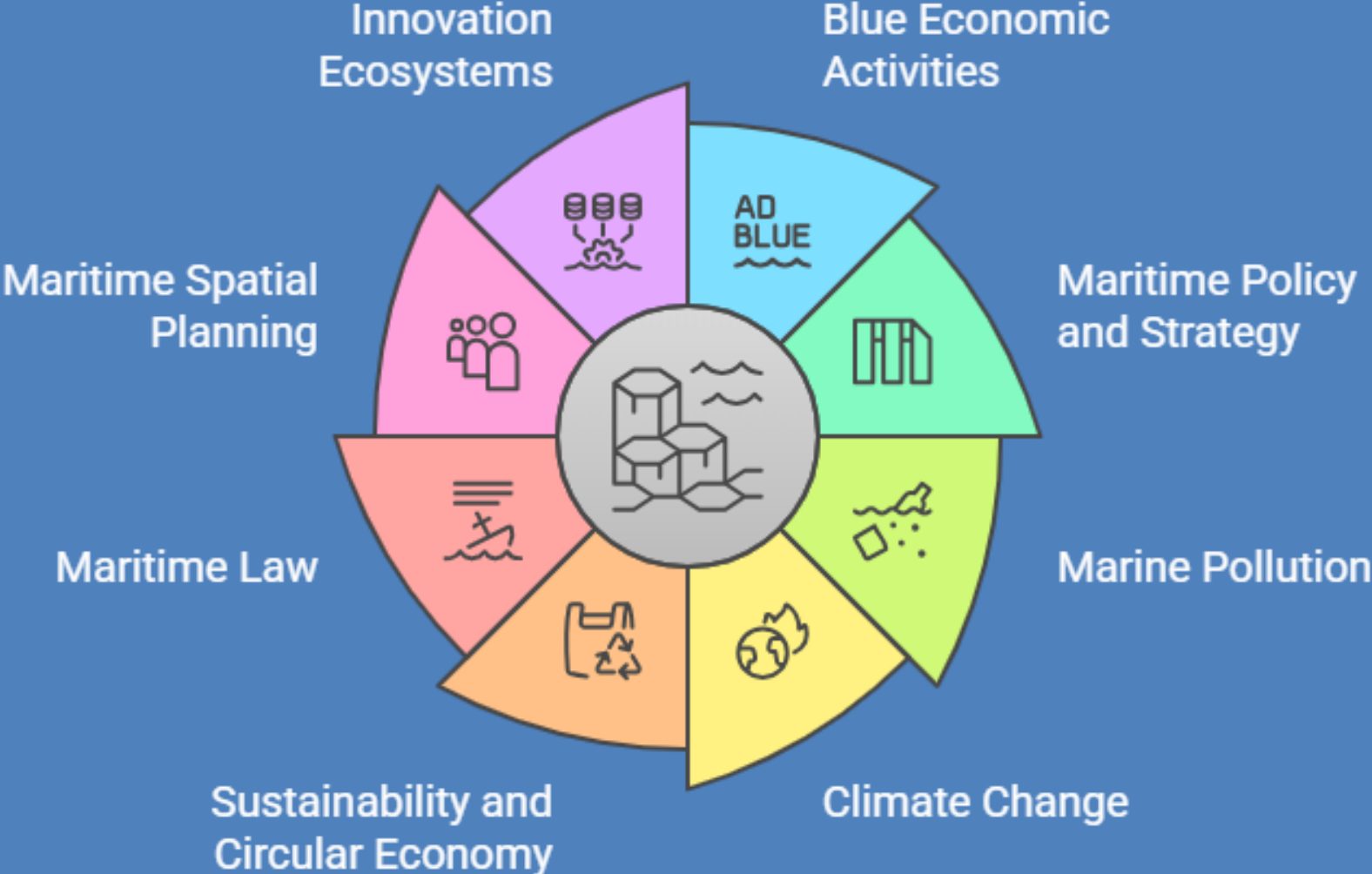


Couples the promotion of economic growth, social inclusion, and the improvements of lives and livelihoods, while ensuring environmental sustainability of the ocean and coastal areas.

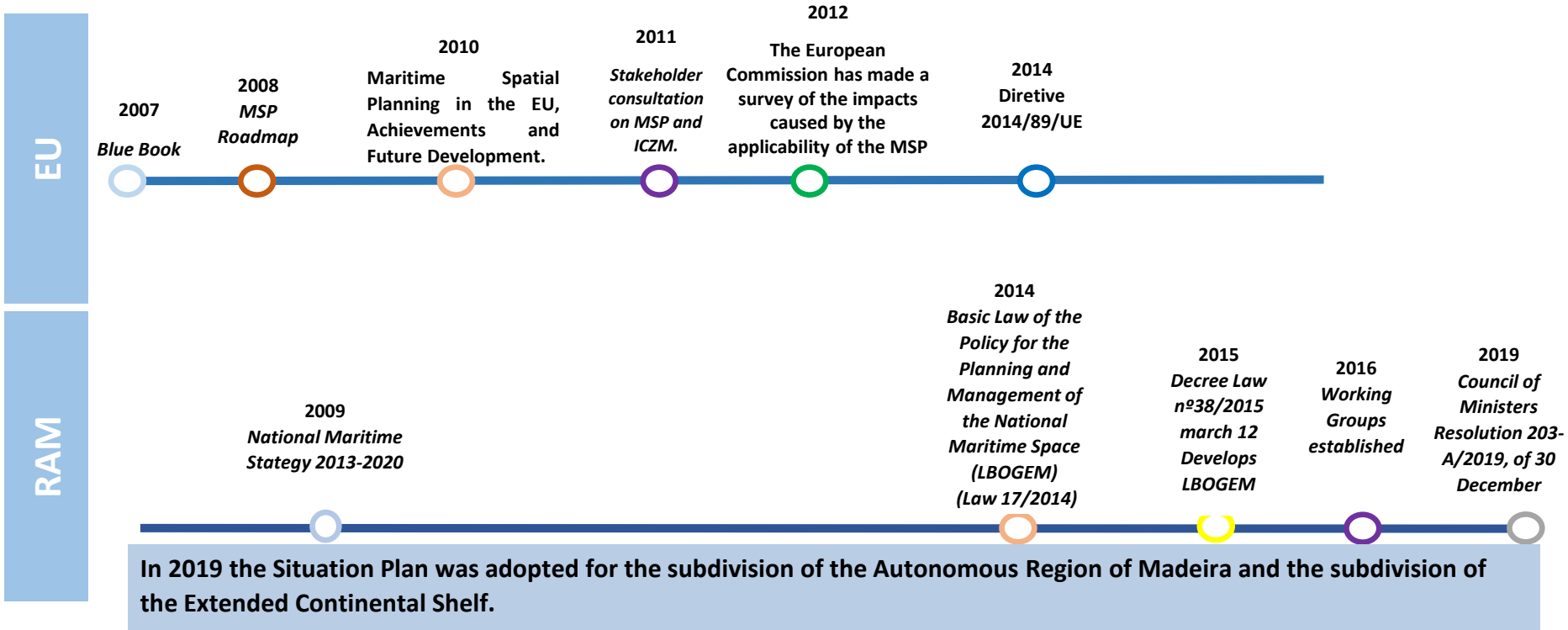


Uses **technology, data and information** to catalyze public and private sector innovation and inform smart decision making across all Blue Economy sectors.

Components of Sustainable Blue Economy



Marine Spatial Planning



Madeira MSP in a nutshell

**DIRECTIVE 2014/89/EU OF THE EUROPEAN PARLIAMNT AND OF THE COUNCIL
of 23 July 2014**

“Establishing a framework for maritime spatial planning”

Article 15

Transposition

3. The maritime spatial plans shall be adopted as soon as possible, and at the latest by 31 March 2021.



Madeira MSP in a nutshell

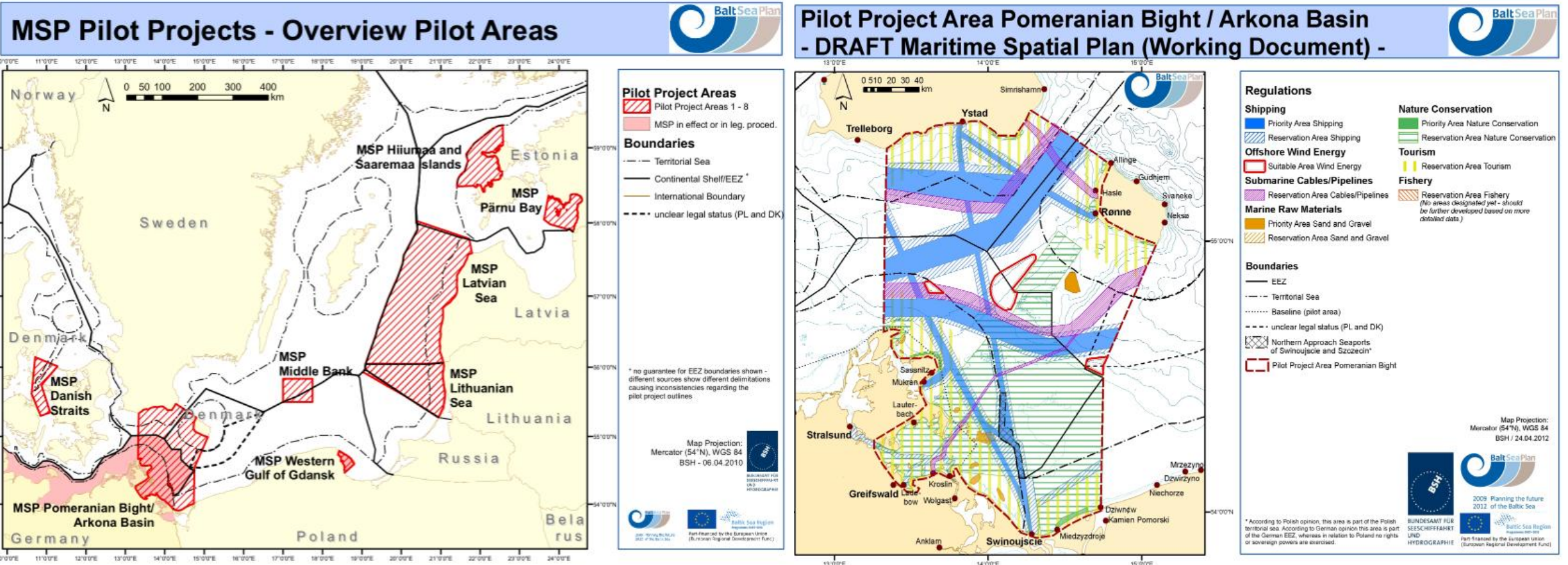
“There is no absolute knowledge. And those who claim it, whether they are scientists or dogmatists, open the door to tragedy. All information is imperfect. We have to treat it with humility.”

~ Jacob Bronowski

(1908-1974) Mathematician

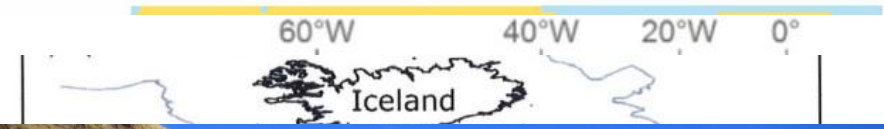
2. The sustainable development of the oceans and seas

The MSP around the world - benchmarking



Madeira MSP in a nutshell

Madeira nature conservation policy and the precautionary principle



Madeira MSP in a nutshell



Madeira MSP in a nutshell

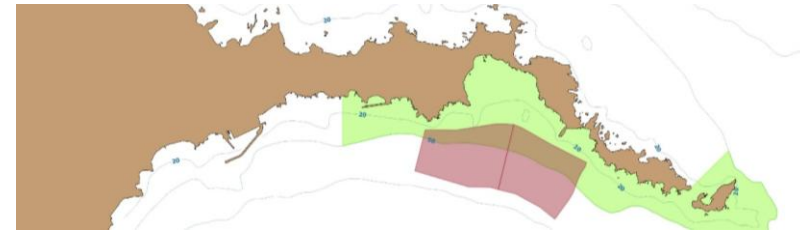
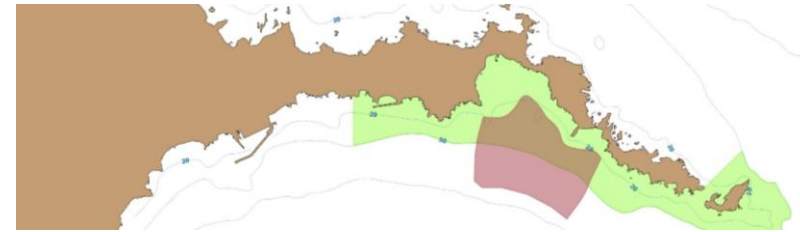
ADVISORY COMMITTEE

- DGRM
- National Maritime Authority
- Portuguese Environment Agency
- General Direction of Energy and Geology
- Association of Municipalities of Madeira
- Institute of Forests and Nature Conservation
- Regional Directorate for Fisheries
- Regional Directorate for Economy and Transport
- Regional Tourism Directorate
- Regional Directorate for Culture
- Regional Directorate for External Cooperation
- Regional Directorate for Innovation
- Regional Directorate for Youth and Sport
- APRAM - Administration of Madeira Ports
- Madeira Ocean Observatory
- AREAM - Agency for Energy and Environment
- ACIF - Commercial and Industrial Association



Madeira MSP in a nutshell

Building a team and a MSP government department



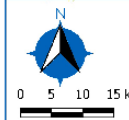
Madeira MSP in a nutshell



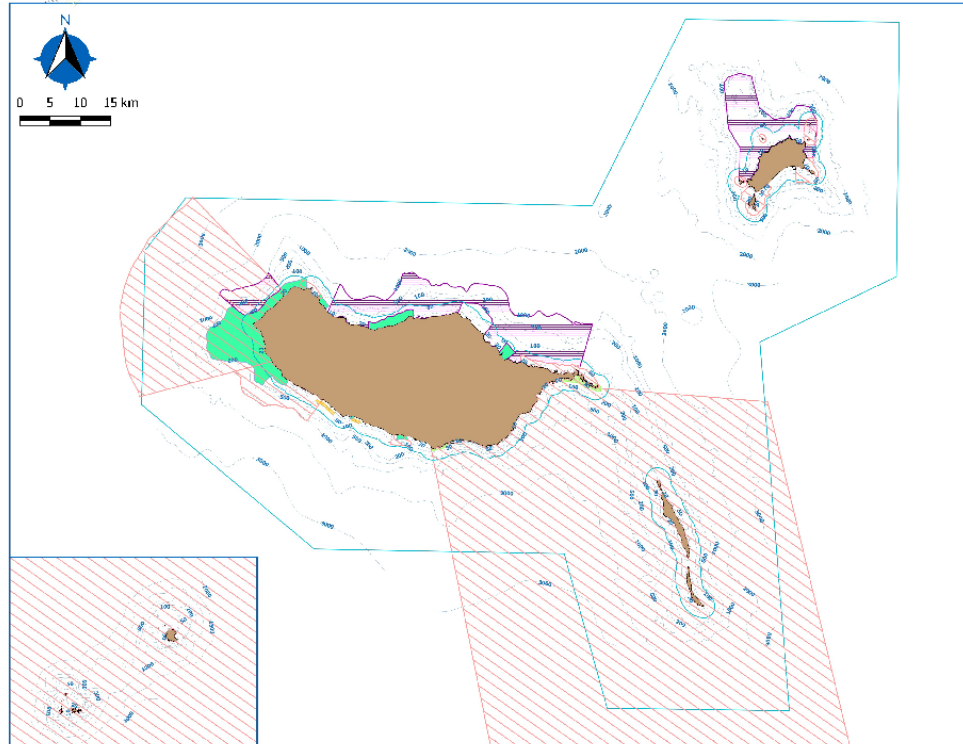
Plano de Situação do Ordenamento do Espaço Marítimo Usos, Atividades e Condicionantes



Madeira Maritime Spatial Planning Situation Plan - Existing Uses and Activities



Madeira Maritime Spatial Planning Situation Plan - Potential Uses and Activities




Legend:

- Coastal Line
- Energy and Marine Geological Resources**
 - Offshore Renewable Energy Areas
 - Areas of Marine Aggregates Extractor
- Bathymetry and Marine Geomorphology**
 - Isobaths
- Conservation and Heritage**
 - Surfing Reserves
 - Marine Protected Areas
- Scientific Research**
 - Areas of Scientific Importance
 - Selected Site of Community Importance

Name of the represented component:
Plano de Situação do Ordenamento do Espaço Marítimo

Name of the Plan:
SITUAÇÃO PARA O PLANO DE SITUAÇÃO MARÍTIMO

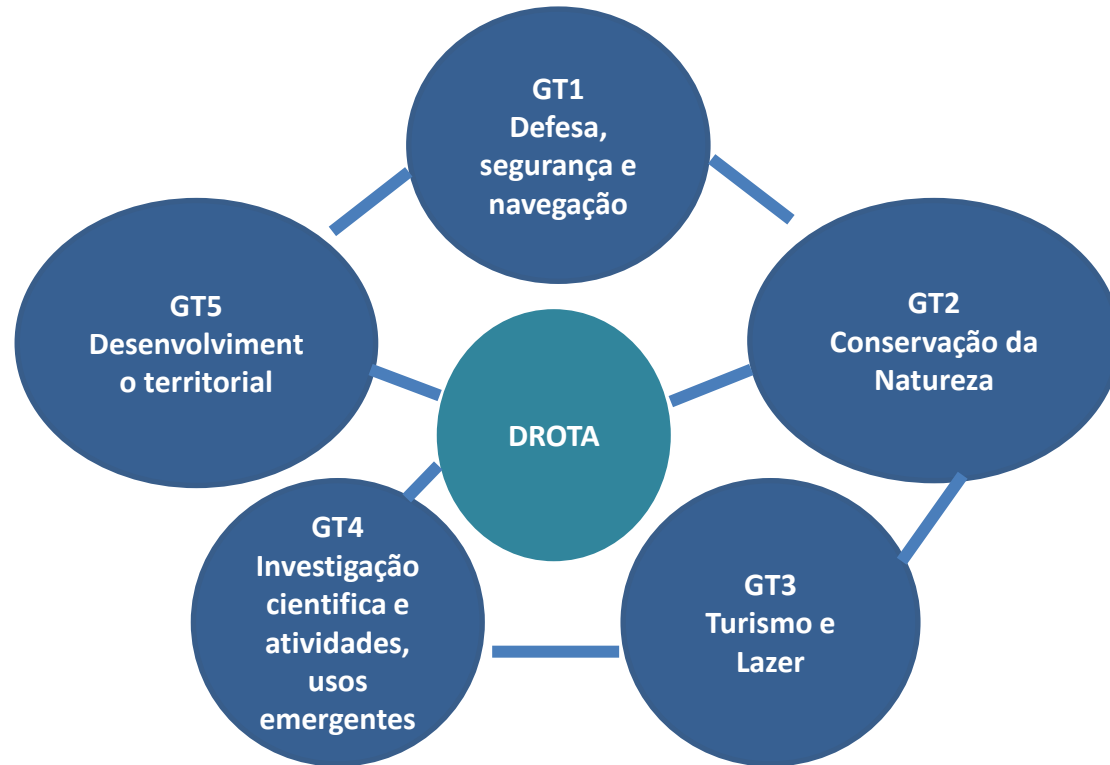
Producer:

 Departamento Regional do Ambiente e Recursos Naturais
 Agência Regional do Ordenamento do Território e do Ambiente

Scale: 1:50000	EPSG: 3086	Date: 11/01/2017
--------------------------	----------------------	----------------------------

Ordenamento do Espaço
Marítimo Nacional
Plano de Situação



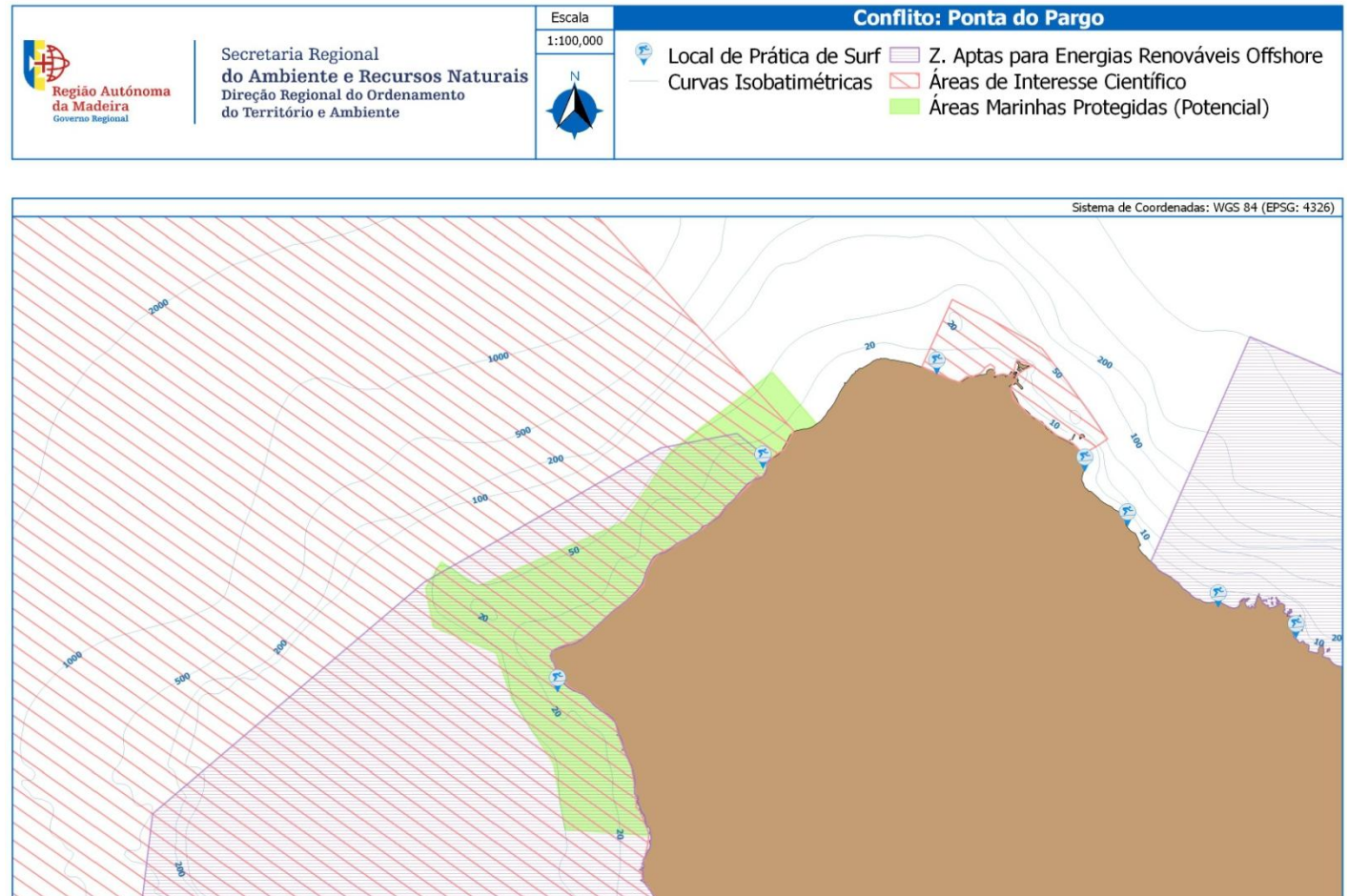
Madeira MSP in a nutshell



5. Roadmap: from theory to practice

Conflict resolution

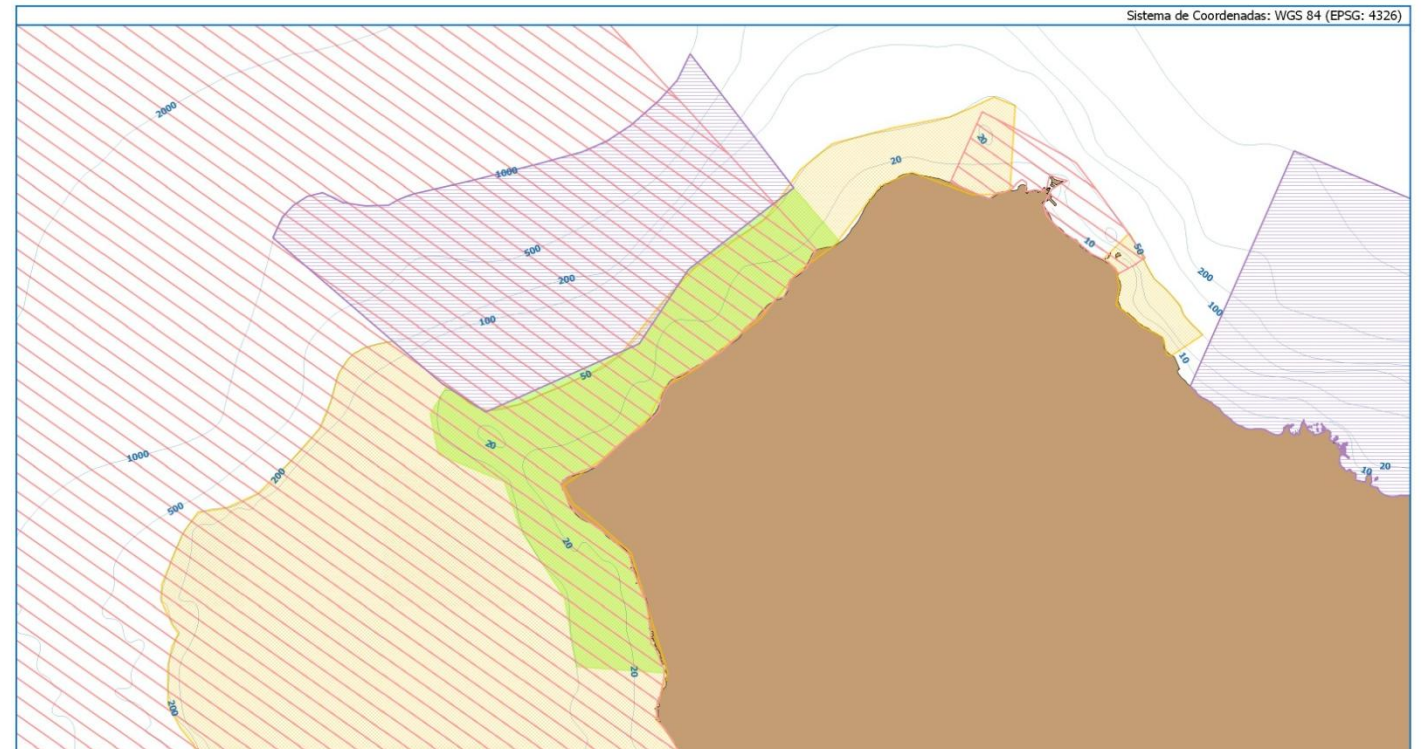
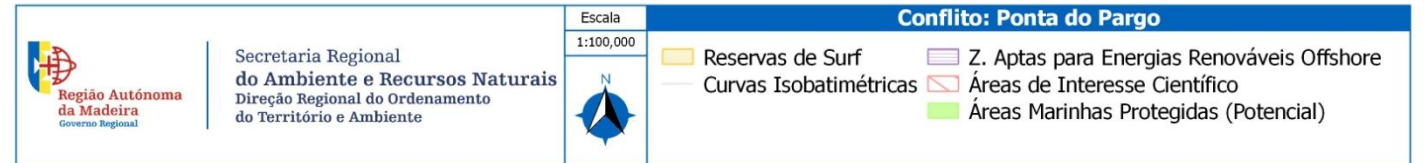
- A conflict was detected in the area of Ponta do Pargo - Madeira Island
- Conflict between the constitution of a new protected marine area, the development of a surfing reserve and a potential area for renewable energy



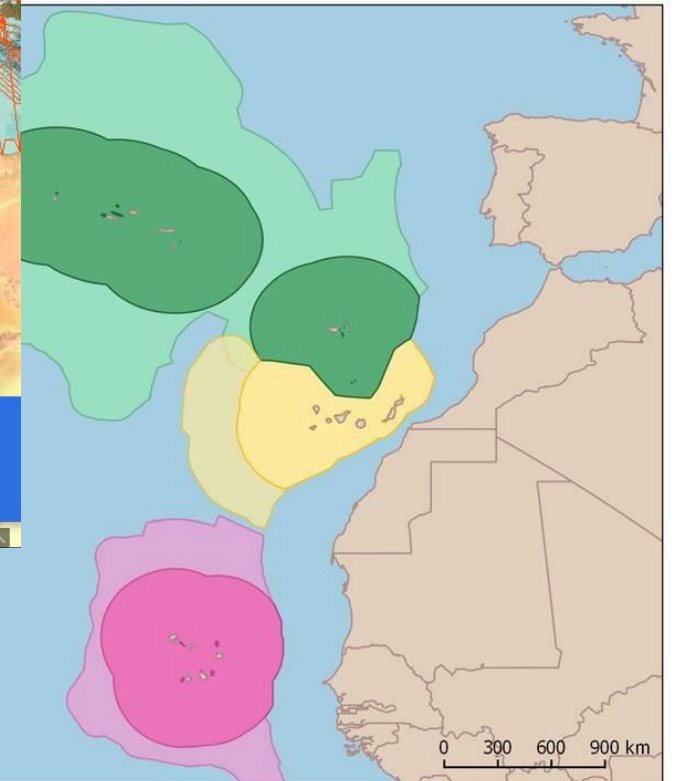
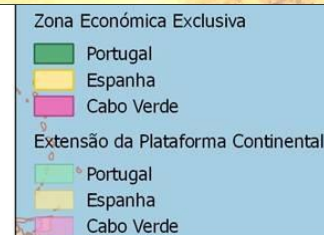
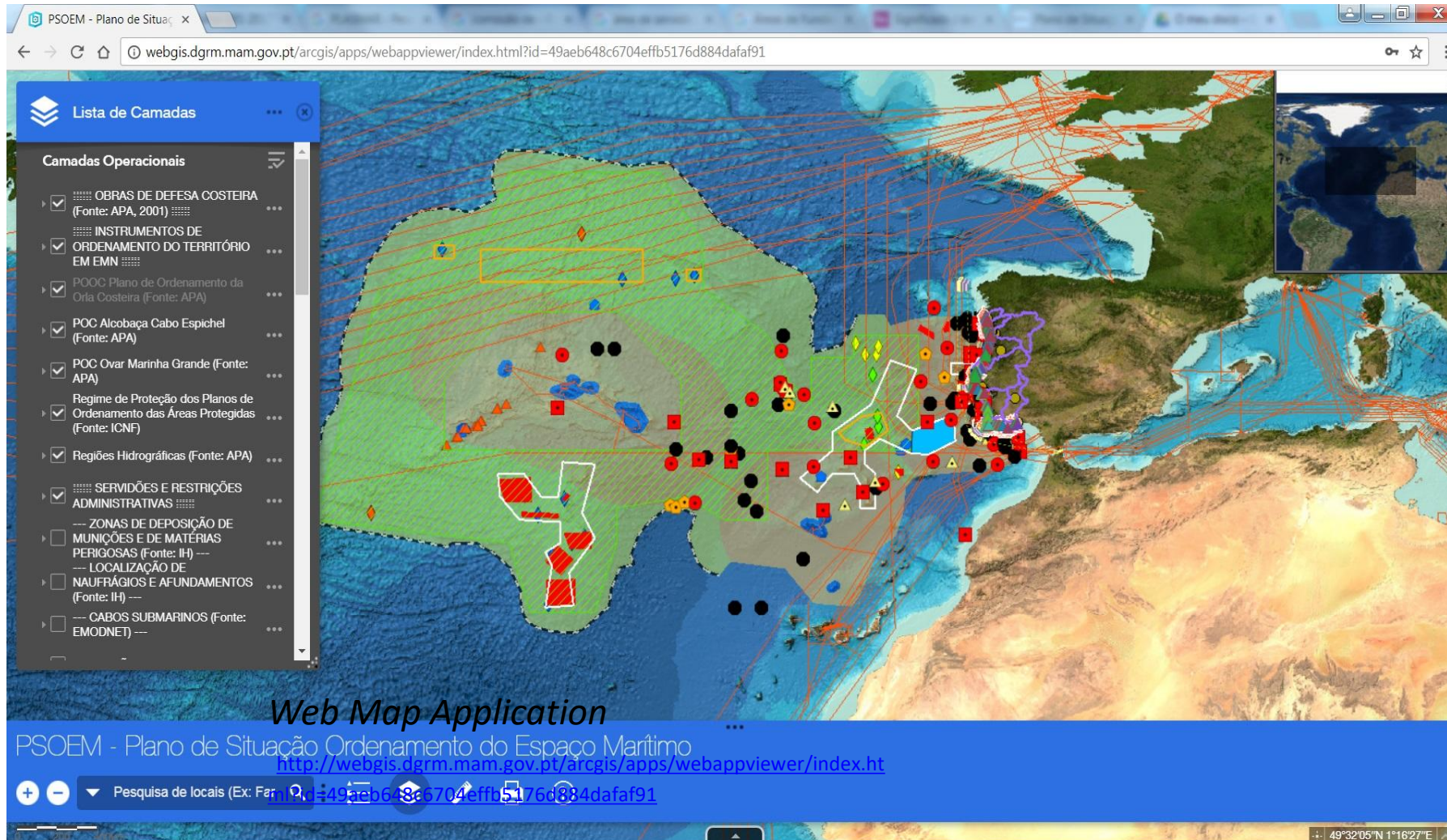
5. Roadmap: from theory to practice

Conflict resolution

- The protection of ecosystems is a key factor in the Region, so it was decided to move the area destined to the development of renewable energies
- The fact that there is a fixed infrastructure in the maritime space would also limit the development of surfing



Madeira MSP in a nutshell



- 1 – As áreas permitidas para a extração de inertes, são as seguintes:
 - 1.1 – Zona da Ponta do Leão: entre a foz da Ribeira da Madalena e a capela de N. Sra. da Vida, no interior do polígono A definido em anexo.
 - 1.2 – Zona da Madalena do Mar: entre o cais da Madalena do Mar e a foz da Ribeira da Madalena, no interior do polígono B, definido em anexo.
 - 1.3 – Zona do Luga no interior do polígono C, definido em anexo.

1.4 – Zona da Ribeira do Mar: entre o cais da Ribeira do Mar e a foz da Ribeira do Mar, no interior do polígono D, definido em anexo.

2 – A representação do sistema PTRAO8-U, igualmente as medidas, está disponível no WMS disponível no endereço: <http://wms.dgmr.gov.pt>

da uma piscicultura experimental pela Direção Regional de Pescas, que neste caso partilhará com um operador privado a parcela, ocupando a área mais próxima da linha de costa);

- a carga animal máxima autorizada por parcela será de 1200 toneladas de peixe de cultura (de acordo com a atual legislação, a partir das 1000 toneladas sujeito a estudo de impacto ambiental) sendo que, tratando-se de sistema de produção integrada multitrofica, poderão ser adicionadas produções de outros organismos aquáticos, para fins experimentais ou comerciais (desde que devidamente comprovada ser possível produzir em escala comercial);
- a área titulada pelo operador deverá corresponder à ocupação das suas estruturas de cultura;
- toda a área da parcela em redor da área concessionada não fará parte da concessão, sendo considerada zona tampão, para o meio ambiente envolvente, de proteção ao mesmo, sendo área de particular interesse para avaliar os potenciais impactos ambientais e eventualmente para mitigação de impactos (dentro da zona tampão será interdita a extração de inertes);
- as estruturas de cultura de uma parcela que contém os estoques de espécies a cultivar não poderão estar a uma distância inferior a 500 metros de estruturas que contém estoque de outra parcela;

- caso um operador tenha um título único de uso de duas parcelas contíguas, poderá a distância anteriormente referida ser inferior a 500 metros, desde que o conjunto de estruturas de cultura de cada parcela nessa proximidade não exceda a carga animal de 600 toneladas, impondo-se uma distância mínima de 500 metros para as restantes estruturas de cultura na parcela, até à carga máxima de 1200 toneladas por parcela;
- na divisória entre parcelas haverá um corredor de circulação de embarcações, que terá uma largura mínima de 100 metros, correspondendo ao somatório de 50 metros para o interior da linha de delimitação de cada parcela;
- os corredores serão espaços comuns para facilitar o acesso a todos os operadores e também, constituem zonas passagem apenas, para as pequenas embarcações locais de várias áreas de atividade económica e recreativa, não podendo as embarcações realizar nesta área qualquer atividade (pesca, ou outra);
- a monitorização ambiental e controle em cada ZIA deverá ter um plano único a ser cumprido pelos diversos operadores;
- a delimitação de cada concessão por boias sinalizadoras será da responsabilidade de cada operador;

1. Localização



Anexo I

Cartografia das Zonas de Interesse para a Aquicultura (ZIA)

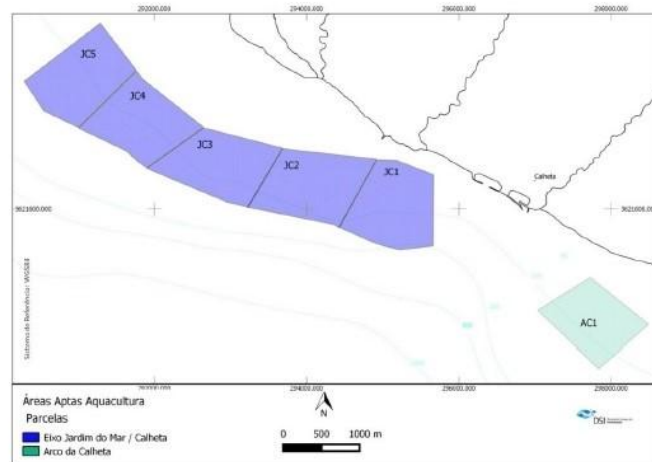
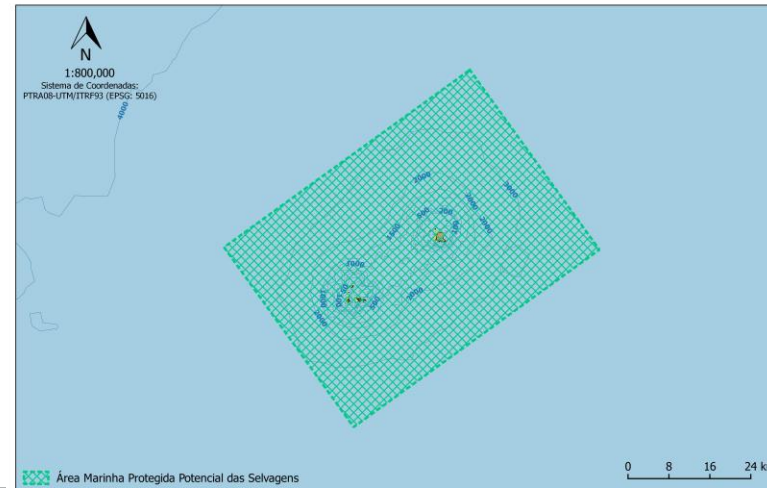
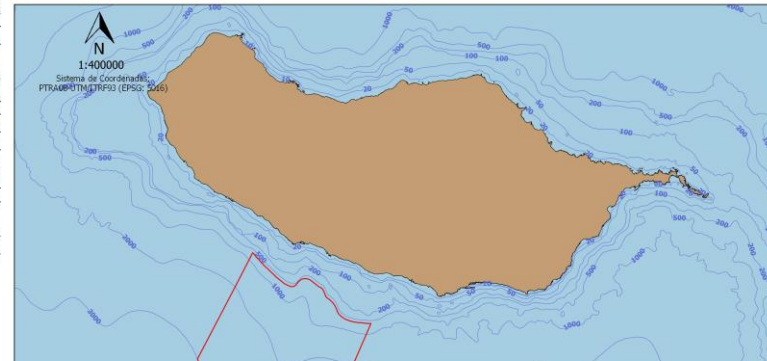


Figura 1. Zonas de Interesse para Aquicultura: eixo Jardim do Mar - Calheta (JC1, JC2, JC3, JC4, JC5); Arco da Calheta (AC1).





- PLASMAR will **define and propose robust scientific methodologies** in support of **Maritime Spatial Planning and Blue Growth** taking in consideration the **biogeographic characteristics of the Macaronesian Region**.
- INDIMAR is a web-app tool developed as a decision support system (DSS). Find best marine areas for setting up different activities according to values of a group of indicators (GES, MPA's, existing uses, oceanography...)
- Building Spatial Data Infrastructure (SDI), that incorporates data from several domains obtained through extensive research work carried out on 52 national and international platforms.
- Coordinating the MSFD, MSP Directive and INSPIRE.



Microplastic inge Canary Islands c

A. Herrera^{a,*}, A. Štini^b,
T. Montoto^c, B. Aguiar^d

^a Marine Ecophysiology Group (EOM)
^b Instituto de Tecnología de Materiales
^c Environmental Management, Techna
Islands, Spain
^d School of Marine Science and Policy

ARTICLE INFO

Keywords:

Fish
Marine litter
Canary Current
Wastewater
Plastic pollution

1. Introduction

Microplastics (MPs) were
(Carpenter et al., 1972; Shih,
the new millennium, they
investigations (Andradóttir,
Gimenez, 2015; Van Do Sul
Thompson, 2015; Thompson
concerns about their negative
living organisms, including
consider microplastics as an
secondary or primary), according
to (Arthur et al., 2009; G
diverted and indiscriminate di
indirect transfer of plastic li
common types of microplast
larger plastics, microplastic
from washing laundry, and
were lost during production
treatment plants are able to
debris (Mason et al., 2016; T
of microplastics still enter i

* Corresponding author.
E-mail address: alicia.herrera@ehu

<https://doi.org/10.1016/j.marpol.2017.11.007>
Received 6 July 2018; Received
Available online 04 January 2019
0025-326X/© 2018 Elsevier Ltd



Novel methodolo

Alicia Herrera^{a,*}, Palo
Juan López-Martínez^b

^a Marine Ecophysiology Group (EOM)
^b Instituto de Tecnología de Materiales

ARTICLE INFO

Keywords:

Marine litter
Microplastics
Plastic extraction
Density separation
Organic material
Beach

1. Introduction

Plastics are synthetic org
ability and low price, that a
Unfortunately, the same cha
material cause it to become a
report that 4.8 to 12.7 millio
the ocean in 2010 (Jambeck
pollution is one of the major
organizations responsible for
(Andradóttir, 2010, 2011; Ean
2010, 2013; Scientific and T
Plastic particles smaller t
(Arthur et al., 2009). Seco
graduation and fragmentation
plastics are manufactured w
metics, cleaning products or
plastic products (pre-product
be ingested directly or indire
2009; Scudlitz et al., 2014). T
chemical, physical, and biolo
et al., 2014; Tooten et al., 20
2013; Zettler et al., 2013).
To obtain reliable an

* Corresponding author.
E-mail address: alicia.herrera@ehu

<https://doi.org/10.1016/j.marpol.2017.11.007>
Received 15 November 2017; Received
Available online 12 February 2018
0025-326X/© 2018 Elsevier Ltd. All



Microplastic and study

A. Herrera^{a,*}, M. Asen

^a Marine Ecophysiology Group (EOM)
^b Swerfing Experience, Avenida M
^c Mathematics Department, Universid

ARTICLE INFO

Keywords:

Marine litter
Microplastic
Tar
Beach pellets
Polystyrene
Canary Islands

1. Introduction

Plastic, due its properties
low cost production, has
Microplastics (< 5 mm) and
thetic fibres, microbeads, an
derived from larger plastics. Th
the most common and persi
around the world (DeRaak, 20
et al., 2014; Erikson et al., 20
alert society about this proble
et al., 1972), but their warmi
has been increasing in recent
transport and arrival of NIS int
on ships and/or hull fouling (K
2014).
In the marine environment,
piers, pontoons, pilings, seawa
nets, buoys and cages) are pro
which a surface becomes encr
animals and their by-product
(Ruilkin, 2003; Magin et al., 20
floating docks and other art

* Corresponding author.
E-mail address: alicia.herrera@ehu

<https://doi.org/10.1016/j.marpol.2017.11.007>
Received 14 July 2017; Received in
Available online 06 November 2018
0025-326X/© 2017 Elsevier Ltd



Metal pollution aff recruitment in a s

Patrício Ramalhos^{a,b,c,d},
João Canning-Clode^{b,d,e,f}

^a OOM - Oceanic Observatory of Madeira
de Penafiel, 9020-105 Funchal, Madei
^b MARE - Marine and Environmental Sci
^c MARE - Marine and Environmental Sci
^d Centre of IMAR of the University of th
^e Smithsonian Environmental Research Ce

ARTICLE INFO

Keywords:

Biofouling
Anti-fouling paint
Copper
Mercury
Non-indigenous species (NIS)
Madeira Archipelago

1. Introduction

It is widely known that in
significant vectors contributing
marine non-indigenous species
to biodiversity in coastal marine
et al., 2008; Carlton and Ruiz,
have been increasing in recent
transport and arrival of NIS int
on ships and/or hull fouling (K
2014).
In the marine environment,
piers, pontoons, pilings, seawa
nets, buoys and cages) are pro
which a surface becomes encr
animals and their by-product
(Ruilkin, 2003; Magin et al., 20
floating docks and other art

* Corresponding author at: OOM
Madeira Tecnopolo, Piso 0, Camin
E-mail address: p.ramalhos@u

<https://doi.org/10.1016/j.marpol.2017.11.007>
Received 21 September 2018; Re
Available online 06 March 2019
0025-326X/© 2019 Elsevier Ltd.



Ocean and Coastal Management

journal homepage: www.elsevier.com/locate/ocecoaman



Maritime spatial planning supported by infrastructure for spatial information in Europe (INSPIRE)

Andrej Abramic^{a,*}, Emanuele Bigagli^b, Vittorio Barale^c, Michael Assouline^{c,d},
Alberto Lorenzo-Alonso^{e,f}, Conor Norton^f

^a EcoAqua Institute @ University Las Palmas de Gran Canaria, Scientific & Technological Marine Park, Taliarte, 35200, Spain
^b Wageningen University, Laboratory of Geo-Information Science and Remote Sensing, Droevendaalsesteeg 3, 6708 PB, Wageningen, The Netherlands
^c Directorate of Sustainable Resources, Joint Research Centre, European Commission, Ipra, Italy
^d European Environment Agency, Copenhagen, Denmark
^e Earth Observation Applications, Indra Sistemas, Madrid, Spain
^f School of Transport Engineering, Environment and Planning, Dublin Institute of Technology, Bolton Street, D01 K822, Ireland

ARTICLE INFO

Keywords:

Maritime spatial planning
Maritime spatial planning
INSPIRE
Spatial data infrastructure
Data model
Data availability
E-reporting

ABSTRACT

The implementation of Directive 2007/2/EC - INSPIRE can improve and actually strengthen the information management and data infrastructures needed for setting up Maritime Spatial Planning (MSP) processes. Evidence for this comes from three parallel analyses: links between the MSP Framework Directive and INSPIRE components and implementation; the availability of marine and maritime data through the INSPIRE Geo-Portal; and the adequacy of using an INSPIRE data model for mapping maritime spatial plans. The first item identifies INSPIRE as a relevant instrument not only for data collection, but additionally for increasing transparency of the MSP processes, using already operational national and European data infrastructure. The marine/maritime data availability analysis highlights a significant difference in data sharing within European marine regions. Finally, the INSPIRE data model is adequate for mapping maritime activities and for the integration of sea and land planning in an overview of cross-border planning for a given sea region.

Please check Appendix 2 for definitions of the terminology used.

1. Introduction

Ancient sea maps have been traditionally populated by giant serpents and octopuses wrapped around ships, fierce-toothed animals clashing in the waves, deceivingly beautiful mermaids and a variety of other chimeric beings.¹ European map makers used such monstrosities to enchant viewers, but also to educate them about the dangers of the marine environment, dangers that could obstruct maritime activities like shipping, fishing or traveling. Sea monsters were not just mere playful illustrations, they were symbols trying to describe the main traits of a bizarre territory, made of a treacherous liquid element, and difficult to chart because of its featureless, and yet dynamical, nature (Ellis, 1994).

Sea monsters started to disappear from maritime maps at the end of the 17th century. As European understanding of the oceans and navigation advanced, more emphasis was placed on the ability of people to

master the watery element, to sail on it and conduct trade on it. Illustrations still appeared on maps, but for more pragmatic reasons: drawings of ships indicated areas of safe passage, while whales or other creatures pointed to good fishing areas (Bagrow, 2010). Some of the mystery was now gone and the sea was becoming yet another cradle of natural resources, rather than a churning darkness to be feared. However, the sense of awe captured in the old maps lingers on, to this very day, as many dangers and obstacles to maritime endeavours are still with us.

Modern maps of marine regions are free of sea monsters, but do point to a set of problems which are difficult to solve. Today, the main obstacle to human activities at sea is primarily competition for maritime space. Moreover, an increasing hunger for the many resources still available in the sea is placing a heavy burden on the preservation of the marine ecological balance. A management effort is required (IOC, 2006; Ardon et al., 2008; Day, 2008; Douvère and Ehler, 2009; EC, 2010) to avoid potential conflicts and create synergies between different activities (Suarez de Vivero and Rodriguez Mateos, 2012; Brennan et al.,

* Corresponding author.
E-mail address: abramic@vik-ing.eu (A. Abramic).
¹ See e.g. Olafur Magnus, *Garis marinas et Descriptio septentrionalium terrarum ac mirabilium rerum in eis contentarum, diligentissime elaboratae Aronem Domini 1539 Venetiis liberali bus Reverendissimi Domini Innocentii Quirini*, published in Venezia (Venice?), 1539.

<https://doi.org/10.1016/j.ocecoaman.2017.11.007>
Received 1 September 2016; Received in revised form 14 November 2017; Accepted 14 November 2017
0064-5601/© 2017 Elsevier Ltd. All rights reserved.

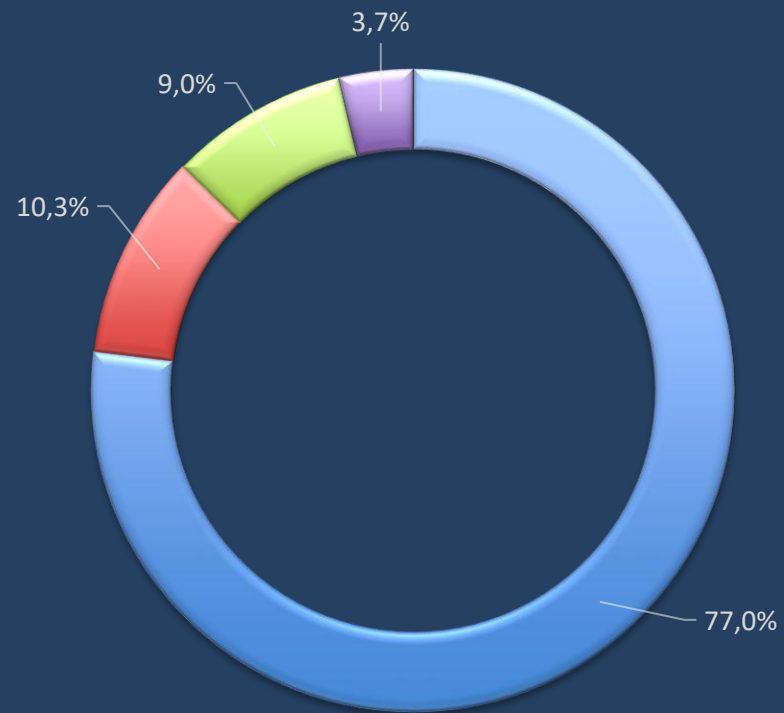
Madeira MSP in a nutshell

- Building capacity - Creating a permanent team
- Participate as much as possible in projects that enable knowledge acquisition monitoring and evaluation and cross-border cooperation (MARSP & PLASMAR).
- Keep it simple, keep it logic, keep it perceptive. It is the only way to truly involve all sectors, to be inclusive, otherwise we make the MSP into something very elitist that will favor only certain sectors and interests, discouraging engaging and jeopardizing the collective and strategic interest.

Thank you
Ara Oliveira
manuel.oliveira@madeira.gov.pt



Região Autónoma
da Madeira
Governo Regional



- Recreation, sport, culture and tourism
- Ports, transport and logistics
- Fishing, aquaculture, processing and marketing of their products
- Others

[Economia Circular](#)[Fechar o Ciclo](#)[Recomendações](#)

O QUE É A ECONOMIA CIRCULAR



Madeira's Circular Platform

This platform is a forum to bring together the main agents for the circular economy, including civil society, companies, public administration, and the scientific and academic community.

The main goal is to build the communication channels that are much needed to promote collaborative action and support the implementation of Madeira's Circular Agenda goals.