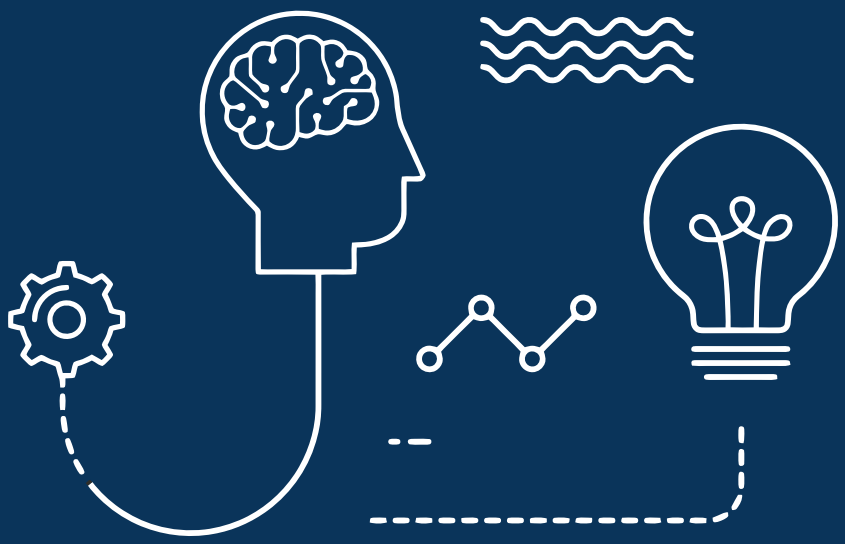


BLUEMED

PRELIMINARY IMPLEMENTATION PLAN

Horizon 2020 - BG-13-2016
Grant Agreement 727453

ANNEX 2
GUIDELINES FOR IMPACT EVALUATION

June 2020

bluemed

BLUEMED

PRELIMINARY IMPLEMENTATION PLAN

Horizon 2020 – BG-13-2016
Grant Agreement 727453

ANNEX 2
GUIDELINES FOR IMPACT EVALUATION

June 2020

Authors:

Fabio Trincardi (CNR, Italy)
Margherita Cappelletto (CNR, Italy)
Andrea Barbanti (CNR, Italy)
Jean-François Cadiou (IFREMER, France)
Amélie Bataille (CNRS, France)
Mónica Campillos Llanos (IEO, Spain)
Esther Chacón Campollo (AEI, Spain)
Abraham Trujillo Quintela (AEI, Spain)

ANNEX 2 – GUIDELINES FOR IMPACT EVALUATION

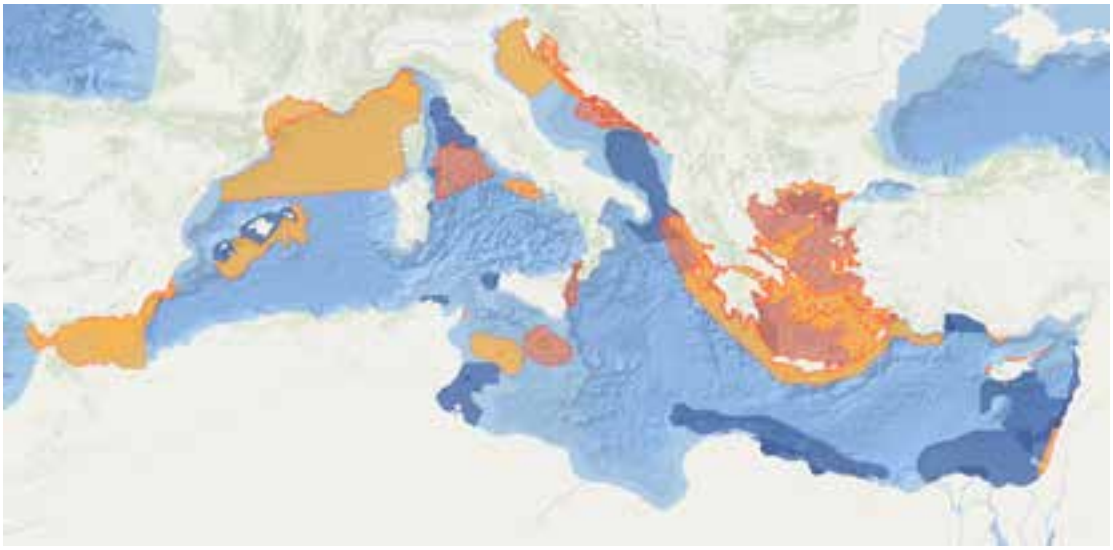
The following part of the document aims at providing some guidelines and details to facilitate the use of indicators dedicated to BlueMed impact evaluation, providing examples and recommendations on their objectives and the way to use them. Those indicators have been drafted according to already existing information, data and literature in order to facilitate evaluation activities. Major databases such as World Bank, OECD, Eurostat, MED POL and reports from UNEP/MAP, Plan Bleu have been very useful to produce the following annex.

Surface of coastal and marine protected areas in km²
P1_IND01
Definition: Measuring the sum of all surfaces of coastal and marine protected zones for a given year.
Unit: Km²
Measurement frequency: annual measure
Geographical coverage: national scale, coastal and marine areas scale measurement
Expected outcomes: improving managing solution and conservation plan to protect coastal and deep-sea ecosystems and reduce the loss of biodiversity. The surface of coastal and marine protected areas is therefore expected to increase in the following years.
Limits/precaution for use: legislations on preservation of natural and cultural spaces can be different according to countries. The International Union for Conservation of Nature can help to provide some common standards[1].
References/data sources: International Union for Conservation of Nature

TREND:

MEDTRENDS (WWF) – MARINE PROTECTED AREAS IN THE MEDITERRANEAN

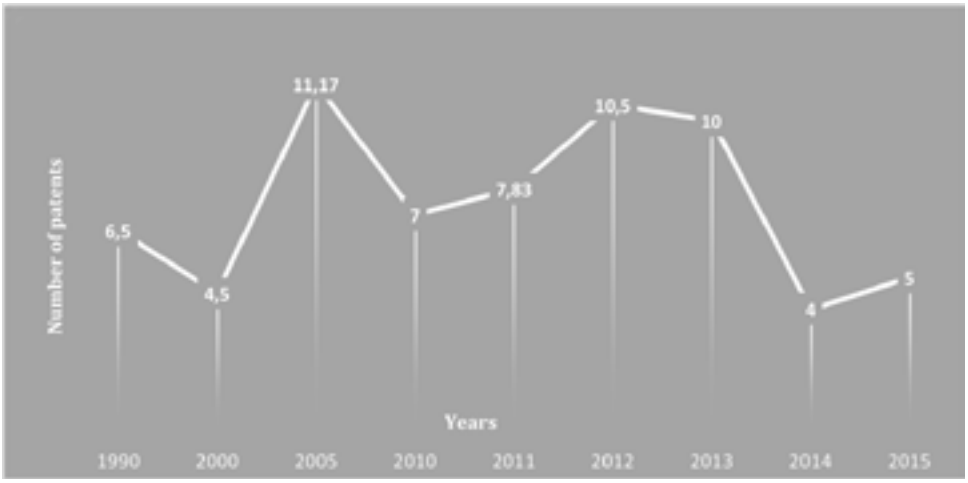
1 IUCN

Surface of marine mammal protected areas in km²
P1_IND02
Definition: Certain portions of sea habitats are considered as being very important to marine mammal species and their ecosystem health needs to be taken into consideration by governments, intergovernmental organisations, conservation groups and public[2]. These areas are marine mammals protected areas and this indicators offers to measure their surface in the Mediterranean basin. Example: the Pelagos Sanctuary.
Unit: km²
Measurement frequency: annual measure
Geographical coverage: national scale, coastal and marine areas scale measurement
Expected outcomes: increase the surface of these areas (creation of new sanctuaries, corridors for migration…) to strengthen best practices for marine mammals' conservation. Further studying the consequences of noises emitted by human activities at sea on ecosystems could encourage the development of new protected zones for marine mammals.
References/data sources: Marine Mammals Protected Areas Task Force
TREND:  MMPATF – IMPORTANT MARINE MAMMALS AREAS (ORANGE), CANDIDATE IMMA (RED), AREAS OF INTEREST (BLUE)

2 Definition from Marine Mammals Protected Areas Task Force

Number of patents in the field of climate change mitigation technology developments related to plastics recycling
P1_IND03
Definition: assessment of countries' and firms' innovative performance as well as the design of governments' environmental and innovation policies[3] related to climate change mitigation technology and solutions to tackle plastic pollution.
Unit: Number (family size: one and greater)
Measurement frequency: annual measure
Geographical coverage: national scale measurement
Expected outcomes: One of BlueMed's objective and the role of the Pilot Action on a Healthy, Plastic-free Mediterranean Sea is to address the issue of plastic marine litters in the Mediterranean Sea. Innovation in waste management is required and the number of patents in the domain is expected to increase in the following years.
Limits/precautions for use: Not all inventions or innovations are patented. Measuring the number of patents by itself does not provide information on their relative importance and impact.
References/data sources: OECD

TREND:



OECD – Total number of patents in the field of climate change mitigation technology development related to plastic recycling, the example of Italy (family size: one and greater)

3 OECD

Number of visitors on BlueMed Website page dedicated to the Pilot Action on a Healthy Plastic-free Mediterranean Sea
P1_IND04
Definition: number of clicks on the page dedicated to the Pilot Action on BlueMed Website
Unit: number
Measurement frequency: monthly measure
Expected outcomes: this number is expected to increase as the scaling up of the Pilot Action will increase its visibility.
Reference/sources: BlueMed website

Concentration of key harmful contaminants measured in the relevant matrix (biota, sediment, seawater)
P1_INDXX
Definition: measuring the amount of heavy metals (cadmium, mercury and lead, major MED POL contaminant group, lot of data). Different matrices can be considered: bivalves; fish and sediments.
Unit: µg/kg dw
Measurement frequency: annual measure
Geographical coverage: coastal areas
Expected outcomes: those numbers are expected to decrease in the following years
Reference/sources: UNEP/MAP ECAP / MED POL Database

Trends in the amount of litter washed ashore and/or deposited on coastlines
P1_INDXX
Definition: this Good Environmental Status indicator should be adjusted in the framework of BlueMed to focus on the amount of **plastic** litters found on Mediterranean **beaches**.
Unit: tonnes? Number of items per 100m?
Measurement frequency: annual
Geographical coverage: national scale measurement
Expected outcomes: this number is expected to decrease in the following years
Limits/precautions for use: limited clear data and information in the Mediterranean, multitude of NGOs, associations and initiatives leading their own cleaning and monitoring operations. There is a need to co-ordinate the data collected at local scales to have a global picture.
Reference/sources: UNEP/MAP ECAP/ UN Environment/MAP 2015 Marine Litter Assesment

Actual levels of contaminants that have been detected and number of contaminants which have exceeded maximum regulatory levels in commonly consumed seafood
P1_INDXX
Definition: measuring the number of detected contaminants to which human beings are exposed through commercial fish and shellfish species and measure their deviation from legal permissions set by national, European or international (WHO standards) regulations.
Unit: ?
Measurement frequency: annual measurement
Geographical coverage: national or sub regional scale
Expected outcomes: this number is expected to decrease in the following years
Limits/precautions for use: lack of data. Different contaminants legal permissions exist according to the countries. There may be a need for protocols and assessment methodologies harmonization before using this indicator.
Reference/sources: UNEP/MAP ECAP / national databases and surveys, national food laboratories, inspection and regulatory bodies.

Trend:

Table 1. Regulatory levels, reference legislation, code and foodstuff categories.

Category code	Legislation	Foodstuff	Regulatory levels
Cd 3.2.5	Reg.1881/2006/CE	Muscle meat of fish (footnote 24)	0.05 mg/kg w.w.
Cd 3.2.6	Reg.1881/2006/CE	Muscle meat of listened fish	0.10 mg/kg w.w.
Cd 3.2.8	Reg.1881/2006/CE	Crustaceans	0.50 mg/kg w.w.
Cd 3.2.9	Reg.1881/2006/CE	Bivalve molluscs	1.0 mg/kg w.w.
Cd 3.2.10	Reg.1881/2006/CE	Cephalopods	1.0 mg/kg w.w.
Hg 3.3.1	Reg.1881/2006/CE	Fishery products and muscle meat of fish (footnotes 24, 25, 26)	0.50 mg/kg w.w.
Hg 3.3.2	Reg.1881/2006/CE	Muscle meat of listened fish	1.0 mg/kg w.w.
Pb 3.1.5	Reg.1881/2006/CE	Muscle meat of fish (footnote 24)	0.3 mg/kg w.w.
Pb 3.1.6	Reg.1881/2006/CE	Crustaceans	0.50 mg/kg w.w.
Pb 3.1.7	Reg.1881/2006/CE	Bivalve molluscs	1.5 mg/kg w.w.
Pb 3.1.8	Reg.1881/2006/CE	Cephalopods	1.0 mg/kg w.w.
Dioxins 5.3	Reg.1259/2011/CE	Muscle meat of fish and Bivalve molluscs	3.5 pg/g w.w.
Sum dioxins and dioxin like PCBs 5.3	Reg.1259/2011/CE	Muscle meat fish and Bivalve molluscs	6.5 pg/g w.w.
Benzo(a)pyrene 6.1.4	Reg.1881/2006/CE	Muscle meat of fish (footnote 24)	2.0 µg/kg w.w.
Benzo(a)pyrene 6.1.5	Reg.1881/2006/CE	Crustaceans and Cephalopods	5.0 µg/kg w.w.
Benzo(a)pyrene 6.1.6	Reg.835/2011/CE	Bivalve molluscs	5 µg/kg w.w.
Sum PAH 6.1.6	Reg.835/2011/CE	Bivalve molluscs	30 µg/kg w.w.

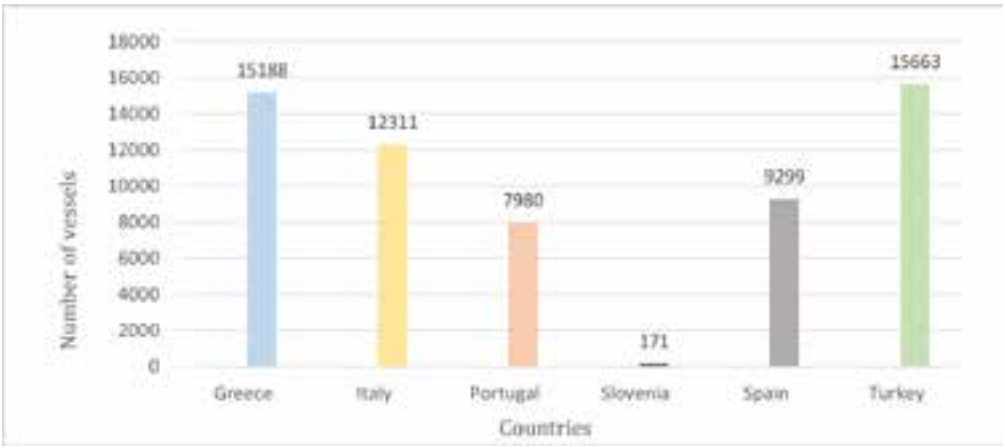
doi:10.1371/journal.pone.0108463.t001

Summary of current regulatory levels set by the EU (extracted from Maggi et al., 2014; PLOS ONE Journal)

Fisheries technology development
P2_INDXX
Definition: total number of inventions related to fisheries developed in a given country. It assesses the innovative performances of the firms implied and the innovation policies implemented by governments. Data linked to this indicator can be subdivided in several categories: - All domains of fishery (total number of patents); - Aquaculture technology (new methods to grow fish in captivity) ; - Harvesting technology (new ways to find or harvest fish, improvements in catch); - New products and markets (food technology/processing, improvement of market access, incentives for green growth).
Unit: Number (family size: one and greater)
Measurement frequency: annual measure
Geographical coverage: national scale measurement
Expected outcomes: BlueMed initiative aims at developing optimal fishing strategies, technologies and practices. Therefore, fisheries technology development is expected to increase in the following years.
Limits/precautions for use: Not all inventions or innovations are patented. Measuring the number of patents by itself does not provide information on their relative importance and impact.
References/data sources: OECD

Economic value of fisheries, as a percentage of GDP
P2_INDXX
Definition: measuring economic benefits of fisheries in Mediterranean countries.
Unit: percentage of GDP
Measurement frequency: annual measure
Geographical coverage: national scale measurement
Expected outcomes: Improve fish trades and encourage public authorities to develop additional legislation for food control at Mediterranean level in order to preserve marine ecosystems and fish stocks. At the same time, it is important to protect jobs and professionals who depend on fisheries activity.
Limits/precautions for use: This indicator measures benefits made by all fisheries, not only those using sustainable fishing techniques.
References/data sources: The state of world fisheries and aquaculture – FAO report 2018

Fishery fleet, total number of vessels
P2_INDXX
Definition: The term **"**fishery fleet" refers to mobile floating objects of any kind and size, operating in freshwater, brackish water and marine waters which are used for catching, harvesting, searching, transporting, landing, preserving and/or processing fish, shellfish and other aquatic organisms, residues and plants. The term "fishing vessel" is used instead when the vessel is engaged only in catching operations. The term "non-fishing vessel" applies to vessels performing other functions related to fisheries, such as supplying, protecting, rendering assistance or conducting research or training[4].
Unit: number
Measurement frequency: annual measure
Geographical coverage: national scale measurement
Expected outcomes: assess a detailed number of vessels to have a clear picture of the situation and a better control of fishing activities.
References/data sources: OECD/The state of world fisheries and aquaculture – FAO report 2018
Trend:



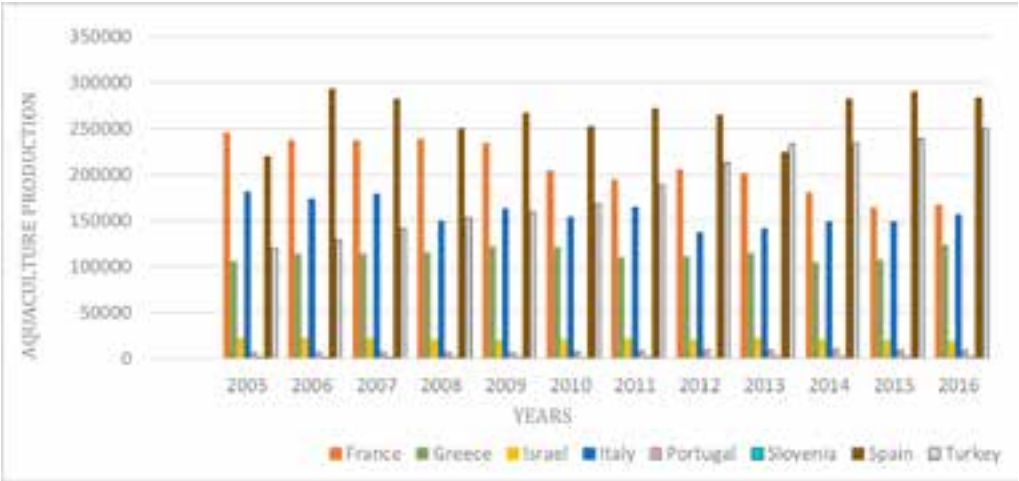
OECD – Fishing fleet, total number of vessels, the example of 6 Mediterranean countries, 2016

4 FAO

Fisheries capture of marine fishes in tonnes
P2_INDXX
Definition: measuring the volumes of fish catches landed by a country for all commercial, industrial, recreational and subsistence purposes[5].
Unit: tonnes
Measurement frequency: annual measure
Geographical coverage: national scale measurement
Expected outcomes: improve fish trades and encourage public authorities to develop additional legislation for food control at Mediterranean level in order to preserve marine ecosystems and fish stocks. At the same time, it is important to protect jobs and professionals who depend on fisheries activity.
Limits/precautions for use: illegal fishing practices are still recurrent but not taken into account by this indicator.
References/data sources: FAO Statistics The state of world fisheries and aquaculture – FAO report 2018

Economic value of aquaculture, as a percentage of GDP
P2_IND
Definition: measuring the economic benefits of aquaculture in Mediterranean countries.
Unit: percentage of GDP
Measurement frequency: annual measure
Geographical coverage: national scale measurement
Expected outcomes: BlueMed aims at studying and evaluating the best processes to adapt and diversify aquaculture activities (species and systems) and capacities in a changing environment. Developing aquaculture activities is a way to ease the pressure on fish stocks and marine ecosystems, and at the same time it is a source of social and economic benefits thanks to the creation of new skilled jobs. BLUEMED also aims at developing multipurpose maritime facilities, such as offshore platforms, which could be dedicated to both observation, scientific research and aquaculture activities. Therefore, the benefits made by a more sustainable aquaculture are expected to increase in the following years.
Limits/precautions for use: measures the economic values of all aquaculture activities, not only those using sustainable techniques.
References/data sources: The state of world fisheries and aquaculture – FAO report 2018

5 World Bank Open Data

Aquaculture production in tonnes
P2_IND
Definition: measuring the total output from aquaculture activities, which are designated for final harvest for consumption. Aquaculture is understood as the farming of aquatic organisms including fish, molluscs, crustaceans and aquatic plants[6].
Unit: tonnes
Measurement frequency: annual measure
Geographical coverage: national scale measurement
Expected outcomes: this number is expected to increase in the following years.
Limits/precautions for use: assesses the production of all aquaculture activities, not only those using sustainable techniques.
References/data sources: _ The state of world fisheries and aquaculture – FAO report 2018 / OECD
Trend:  OECD – Total aquaculture production, the example of different Mediterranean countries – in tonnes

6 World Bank Open Data

Proportion of fish stock within safe biological limits
P2_IND
Definition: measuring the proportion of fish stocks or species that are exploited within the level of *maximum sustainable biological productivity* (= the maximum catch that ensure maximum productivity while maintaining biodiversity and preserving functioning ecosystems)[7]. This indicator directly indicates the level of progress needed to tend towards sustainable management of fish stocks and it can have an impact on policy and decision-making.
Unit: percentage
Measurement frequency: annual measure
Geographical coverage: regional scale measurement
Expected outcomes: improve fish trades and encourage public authorities to develop additional legislations for food control at Mediterranean level. It is expected to avoid overfishing and mitigate impacts of fisheries on stocks, species and ecosystems. Prevent the decrease of the proportion of fish stock within safe biological limits, therefore, this number is expected to diminish.
References/data sources: The state of world fisheries and aquaculture – FAO report 2018 / OECD / Eurostat

Number of fish threatened species
P2_IND
Definition: anthropogenic pressures have a direct impact on marine ecosystems. Direct threats to fish species are the proximate human activities (such as unsustainable fishing). The International Union for Conservation of Nature established a red list of threatened species that are those classified as being endangered, vulnerable, rare, indeterminate, out of danger, or insufficiently known[8].
Unit: number
Measurement frequency: annual measure
Geographical coverage: national scale measurement
Expected outcomes: encourage Mediterranean countries to update their databases on fish threatened species to establish a clear picture of the situation to find sustainable solutions and make this number decrease. The situation is expected to improve thanks to a better surveillance and control of illegal fisheries that endanger marine ecosystems.
Limits/precautions for use: data collection highly variable depending on countries
References/data sources: the International Union for Conservation of Nature (IUCN) Red List of Threatened Species / World Bank Open Data

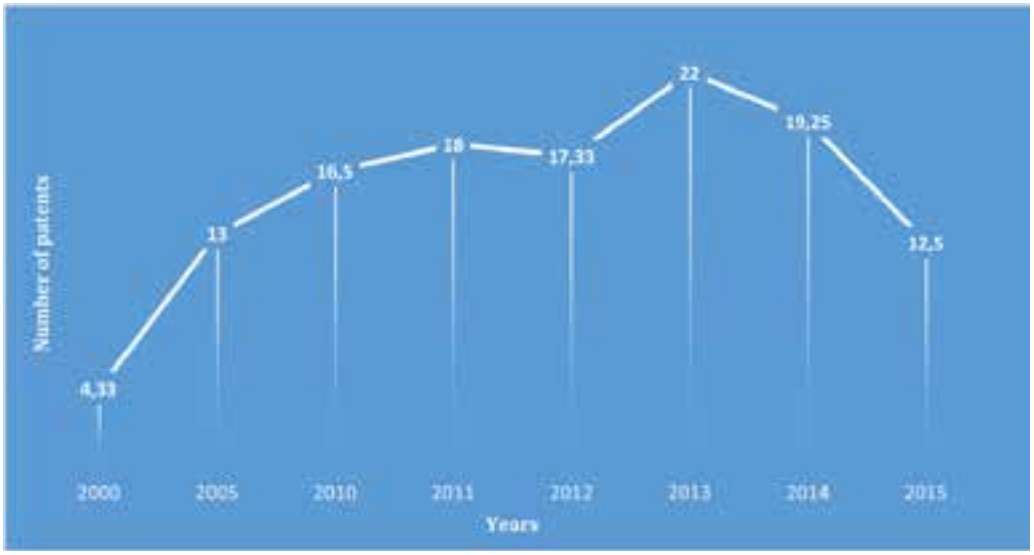
7 http://mdgs.un.org/unsd/mi/wiki/7-4-Proportion-of-fish-stocks-within-safe-biological-limits.ashx
8 Froese R. and Pauly D., 2008.

Number of fishers and fish farmers
P2_IND
Definition: This indicator measures the socio-economic impact of fisheries and aquaculture sector in Mediterranean countries**.** According to FAO, fishers and fish farmers are: 1. All commercial, industrial and subsistence fishers, operating in freshwater, brackish water, and marine waters in economically inspired efforts to catch and land any of the great variety of aquatic animals and plants, should be included. People working on fish farms, hatcheries, and employed in shellfish culture operations, should also be included. The term "fisher" should include not only those operating from fishing vessels of all types, but also those operating land-based fishing gears and installations from the banks of rivers, lakes, canals, dams etc., and from beaches and shores which do not require the use of auxiliary boats. Where possible a breakdown by the type of activity should be included. 2. The crews on fish factory ships, mother ships to fishing fleets, and on auxiliary craft such as, fish carriers, and fish transport craft should be included. 3. The data collected nationally should include nationals, and others employed on nationally registered vessels landing their catches in foreign ports. 4. The crews of state-operated fishery patrol vessels, fishery protection vessels, hospital ships, etc. should be excluded from the fishers statistics[9].
Unit: number (expressed in thousands)
Measurement frequency: annual measure
Geographical coverage: national scale measurement
Expected outcomes: increase the number of skilled jobs related to sustainable fisheries and fish farms in the following years.
Limits/precautions for use: measures all the jobs related to fishery and aquaculture, not only those using sustainable techniques. It would be interesting to subdivide this indicator to have separate data for fishing and aquaculture activities.
References/data sources: The state of world fisheries and aquaculture – FAO report 2018

9 FAO

Total number of patents in the field of climate change mitigation technology development
P3_IND
Definition: assessing countries' and firms' innovative performance as well as the design of governments' environmental and innovation policies[10] related to climate change mitigation technology. Patents are classified according to "family sizes", a term that designates the number of countries where the patent application has been filed. Family size "one and greater" means that the invention is protected in at least one country. This category includes all patents. Family size "two and greater' will count inventions that have sought protection in at least two countries, and so on[11]...
Unit: number (family size: one and greater)
Measurement frequency: annual measure
Geographical coverage: national scale measurement.
Expected outcomes: increase this number
Limits/precautions for use: not all inventions or innovations are patented. Measuring the number of patents by itself does not provide information on their relative importance and impact.
References/data sources: OECD

Trend:

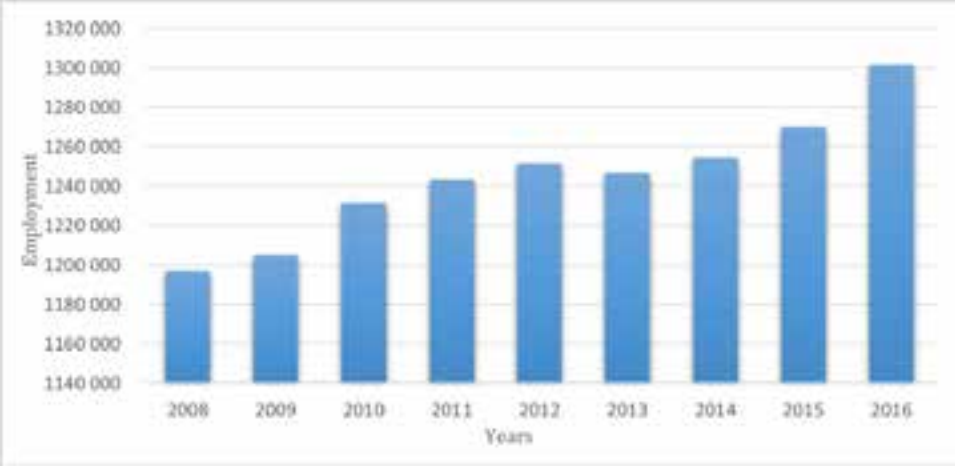


OECD – Total number of patents in the field of climate change mitigation technology development, the example of Slovenia (family size: one and greater)

10 OECD
11 OECD

Trends in abundance, temporal occurrence, and spatial distribution of non-indigenous species, particularly invasive, non-indigenous species, notably in risk areas
P3_INDXX
Definition: measuring the number and evolution of non-indigenous and invasive species
Unit: number
Measurement frequency: annual measure
Geographical coverage: sub regional area scale
Expected outcomes: clearly assess the situation, understand the potential relations with climate changes and anthropogenic pressures

Number of non-EU scientists who have access to European marine RIs
P4_INDXX
Definition: number of non-EU scientists who use European marine research facilities, laboratories, vessels or in situ platforms.
Unit: number
Measurement frequency: annual measure
Geographical coverage: measurement for each European marine RI
Expected outcomes: reinforce TNA access for non-EU scientists; facilitate their trips to EU facilities. This number is expected to increase.

Employment in tourism
P5_INDXX
Definition: measuring the socio-economic impacts of tourism. Tourism can be regarded as a social, cultural and economic phenomenon related to the movement of people outside their usual place of residence. An establishment in the tourism sector is an enterprise or part of an enterprise that is situated in a single location and in which only a single productive activity is carried out or in which the principal productive activity accounts for most of the value added. Data on employment in tourism refer to people or jobs[12].
Unit: number
Measurement frequency: annual measure
Geographical coverage: national, regional, coastal areas scale measurement.
Expected outcomes: the Mediterranean's unique features provide major local opportunities for blue growth and jobs, particularly regarding tourism industry. Bluemed aims at developing these opportunities and strengthening a sustainable and eco-friendly tourism. Therefore, employment value in tourism is expected to rise in the following years.
Limits/precautions for use: does not focus only on coastal tourism but on the overall tourism industry. Moreover, it encompasses all sort of jobs, not only those tending towards the development of a sustainable and eco-friendly tourism.
References/data sources: OECD
Trend:  OECD – Total tourism employment, the example of France

12 OECD

Proportion of bathing sites awarded the Blue Flag out of total coastal bathing sites
P5_IND
Definition: The eco-label Blue Flag qualifies sites, which meet and maintain a series of stringent environmental, educational, safety-related and access-related criteria. Improving coastal quality waters and reducing pollutions in the Mediterranean Sea could enable the augmentation of sites awarded the Blue Flag and promote a sustainable tourism that respects some key environmental standards.
Unit: percentage
Measurement frequency: annual measure
Geographical coverage: national, regional, coastal areas scale measurement.
Expected outcomes: increase this proportion in the following years, especially in countries of the southern shore of the Mediterranean, where the label is not very much used.
References/data sources: Blue Flag
Trend: 

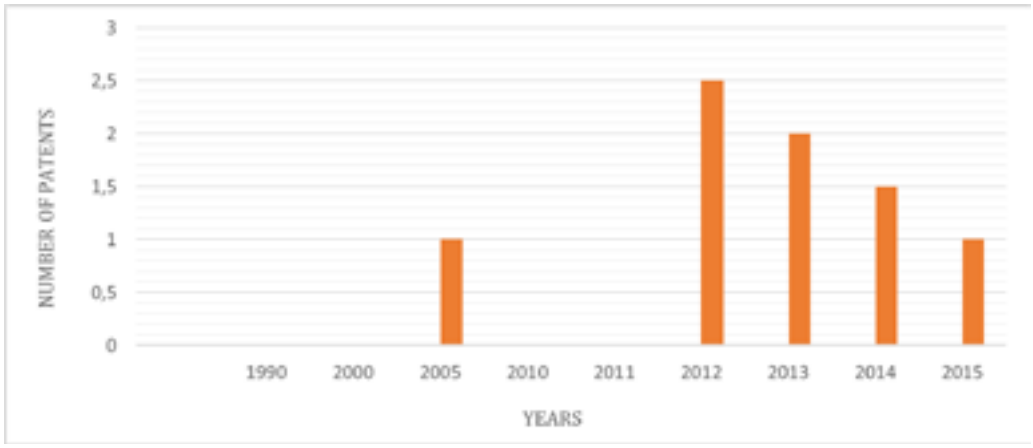
Blue Flag – Beaches awarded the Blue Flag label

Length of coastline subject to physical disturbance due to the influence of man-made structures
P6_IND
Definition: Mediterranean coastal areas are threatened by development that modifies the coastline through the construction of buildings and infrastructures that are needed to sustain residential, tourism, commercial, transport and other activities. Aims at measuring the length of artificial coastline and its share in total country's coastline.
Unit: km and percentage out of total coastline
Measurement frequency: annual measure
Geographical coverage: national and coastal scale measurement
Expected outcomes: assess the exact length of coastline subject to physical disturbance due to manmade structures in order to preserve the natural habitats and ecosystems.
References/sources: UNEP/MAP ECAP

Trend:

	LENGTH (KM) 2006			PERCENTAGE 2006		PERCENTAGE 2012		TREND 2006-2012
	total	natural	artificial	natural	artificial	natural	artificial	artificial
ITALY – continental	3844.985	3058.103	786.882	79.53	20.47	79.02	20.98	+0.51%
SICILIY	1177.769	1003.140	174.629	85.17	14.83	85.01	14.99	+0.16%
SARDINIA	1512.145	1444.395	67.749	95.52	4.48	95.46	4.54	+0.06%
TOTAL	6535.899	5505.638	1029.261	**84.25**	**15.75**	**83.89**	**16.11**	**+0.36%**

Length of built-up coastline in Italy in 2006 (EcAp-ICZM Italian Ministry of Environment/ISPRA)

Number of patents in the field of climate change mitigation technology related to maritime transportation
P7_IND
Definition: assesses countries' and firms' innovative performance as well as the design of governments' environmental and innovation policies[13] related to climate change mitigation and maritime/waterways transportation.
Unit: number (family size: one and greater).
Measurement frequency:
Geographical coverage:
Expected outcomes: increase this number
Limits/precautions for use: not all inventions or innovations are patented. Measuring the number of patents by itself does not provide information on their relative importance and impact.
References/data sources:
Trend:    Number of patents in the field of climate change mitigation technologies related to maritime transportation, the example of Spain.

13 OECD

Vessels operation pollution, in million tonnes
P7_IND
Definition: measures the operational pollution resulting of the discharge of wastes that have been produced on the boat. Operational pollution and commercial use of vessels (everything related to freight and passengers transport) = wastes dumping such as waste waters, garbage, dirty bilge waters, tank cleaning waters, and exhaust gas… Operational pollution from recreational boats = wastewaters and domestic wastes. Operational pollution from tankers = illegal oil discharges and ballast water[14].
Unit: million tonnes (Mt)
Measurement frequency: annual measure
Geographical coverage: National scale measurement
Expected outcomes: decrease this number in the following years
References/data sources: REMPEC

Annual mean of fuel consumption by ships over 5000GT
P7_IND
Definition: the International Maritime Organization (IMO) adopted a mandatory fuel consumption data collection. It requires ships above 5,000 gross tonnage to start collecting and reporting fuel consumption from the start of 2019. The aggregated data is reported to the flag State after the end of each calendar year and the flag State, having determined that the data has been reported in accordance with the requirements, issues a Statement of Compliance to the ship. Flag States are required to subsequently transfer this data to an IMO Ship Fuel Oil Consumption Database. IMO will be required to produce an annual report to MEPC, summarizing the data collected[15]. This regulation aims at determining precisely how much CO2 international shipping is responsible for before proposing policy decisions.
Unit: tonnes
Measurement frequency: annual measure
Geographical coverage: national scale measurement
Expected outcomes: this number is expected to decrease in the following years
Limits/precautions for use: the utilization of this data collection system for fuel oil consumption is brand new so quality and completeness of data is still uncertain. Moreover, only ships above 5000 gross tonnages are required to provide data.
References/data sources: IMO's data collection system for fuel oil consumption of ships (when available)

14 Plan Bleu
15 IMO

Annual mean concentration of fine particulate matter of less than 2.5 microns of diameter (PM2.5) in coastal urban areas
P7_IND
Definition: the annual mean concentration of fine suspended particles of less than 2.5 microns in diameters is a common measure of air pollution. The mean is a population-weighted average for urban population in a country[16].
Unit: Ug/m3 (at city levels)
Measurement frequency: annual measure
Geographical coverage: coastal cities of more than 10.000 inhabitants
Expected outcomes: this number is expected to decrease in the following years
Limits/precautions for use: quality of data differs according to countries (not the same amount of monitoring everywhere). There is a need to affine the WHO database before working on it (it presents all cities and not only coastal cities)
References/data sources: WHO

Number of firms active in blue biotechnology
P8_IND
Definition: measuring number of biotechnology firms, which are firms devoting at least 75% of their production of goods and services, or R&D, to biotechnology
Unit: number
Measurement frequency: annual measure
Geographical coverage: national scale measurement
Expected outcomes: increase this number
Limits/precautions for use: lack of data online on specific blue firms
References/data sources: OECD

R&D public investments for renewable energy
P9_IND
Definition: measuring investments made by governments to support the development of renewable energy.
Unit: euros
Measurement frequency: annual measure
Geographical coverage: national scale measurement
Expected outcomes: Invite governments to increase this value in the following years.
Limits/precautions for use: lack of data online. Does not focus only on marine renewable energy.
References/data sources: OECD/IEA
Number of national renewable energy incentives

16 WHO

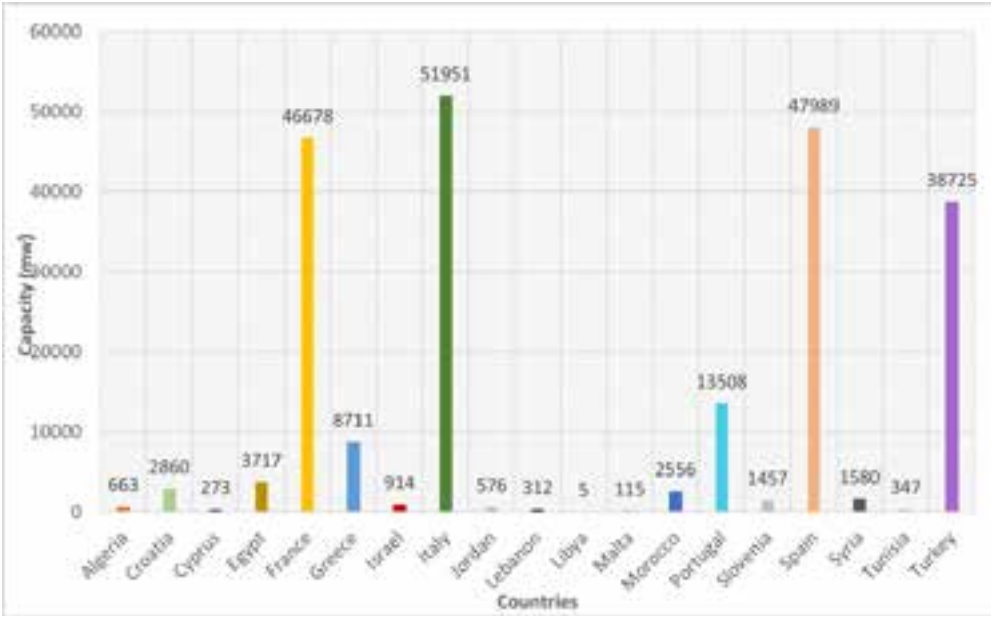
P9_IND
Definition: measuring incentives that are financial instruments, monetary benefits, implemented by governments to address barriers and support the development of renewable energy and energy efficiency technologies.
Unit: number
Measurement frequency: annual measure
Geographical coverage: national scale measurement
Expected outcomes: BlueMed aims at promoting the role of Marine Renewable Energies in the energy transition phase and wishes to develop the number of MRE farms and projects in the Mediterranean. This number is expected to rise.
Limits/precautions for use: does not focus only on marine renewable energy.
References/data sources: OECD/IEA

Number of scientific publications in the field of marine sciences in open access
P10_IND
Definition: measuring the total number of scientific papers related to marine sciences disciplines published every year in a given country.
Unit: number
Measurement frequency: annual measure
Geographical coverage: national scale measurement
Expected outcomes: increase in the following years
Limits/precautions for use: assesses the number of total publications related to marine sciences and not only those specific to Mediterranean Sea.

Share of fossil fuels in total primary energy supply
P9_IND
Definition: measuring the part of fossil fuels within the energy market. Fossil fuels include coal, oil shale, peat and peat products, oil and natural gas.
Unit: percentage
Measurement frequency: annual measure
Geographical coverage: national scale measurement
Expected outcomes: decrease this number in the following years
References/data sources: IEA/ OECD /BP Statistical Review of World Energy (June 2018)

Total renewable capacity energy, in MW
P9_IND
Definition: renewable power generation capacity is measured as the maximum net generating capacity of power plants and other installations that use renewable energy sources to produce electricity. For most countries and technologies, data reflect the capacity installed and connected at the end of the calendar year[17].
Unit: Megawatt (MW)
Measurement frequency: annual measure
Geographical coverage: national scale measurement
Expected outcomes: increase this number in the following years
Limits/precautions for use: takes into consideration all sources of renewable energies, not only MRE. For countries having several maritime coastlines, the indicator does not only focus on the Mediterranean.
References/data sources: BP Statistical Review of World Energy (June 2018) / IRENA / OECD

Trend:

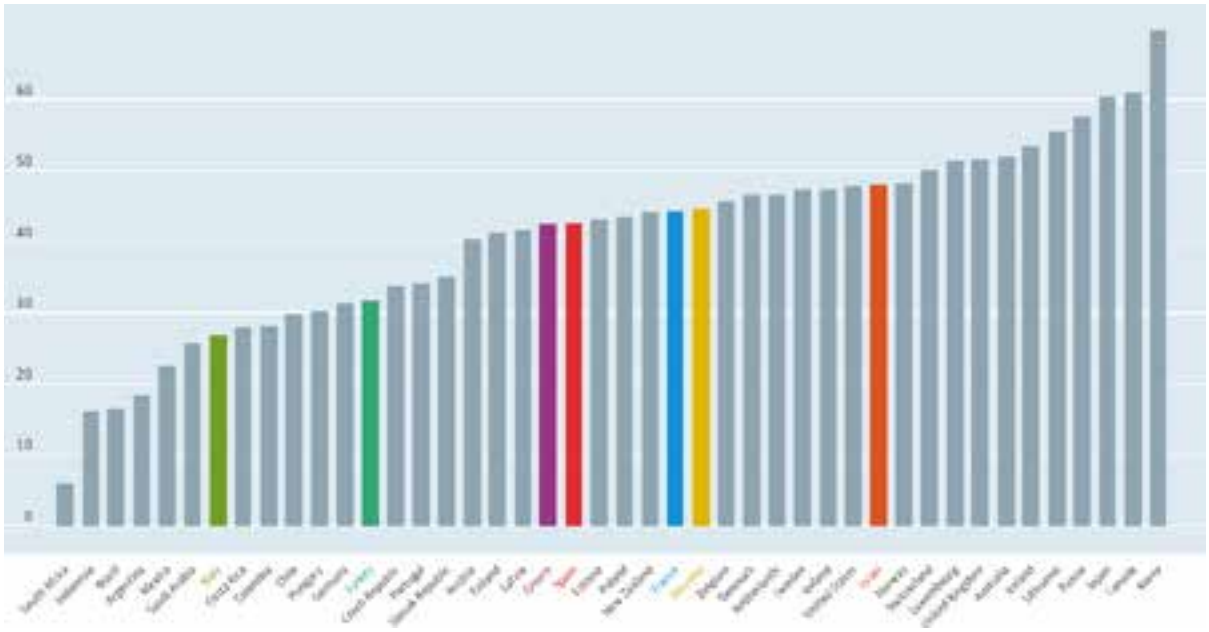


IRENA – Total renewable energy capacity in 2017

17 IRENA

Share of population with tertiary education
P11_IND
Definition: measuring the amount of people who completed the highest level of education, by age group. This includes both theoretical programmes leading to advanced research or high skill professions such as medicine and more vocational programmes leading to the labour market[18].
Unit: number
Measurement frequency: annual measure
Geographical coverage: national scale measurement
Expected outcomes: this number is expected to rise in the following years.
Limits/precautions for use: not directly linked to BlueMed actions. It rather aims at providing a general context. The measurement of population with tertiary education does not only focus on domains related to blue economy or marine sciences.
References/data sources: OECD

Trend:



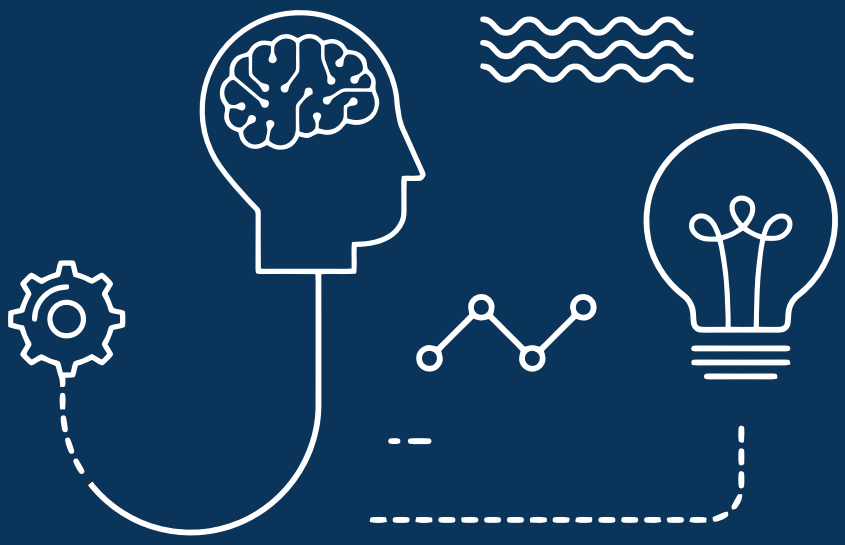
OECD – Population with tertiary education 25-34 years old in same age group, highlight on Italy, Turkey, Greece, Spain, France, Slovenia and Israel, 2017 or latest data available

18 OECD

Share of population holding a PhD in marine sciences
P11_IND
Definition: This indicator assesses the part of population holding a PhD in a discipline related to marine sciences in a given country.
Unit: number
Measurement frequency: annual measure
Geographical coverage: national scale measurement
Expected outcomes: this percentage is expected to rise in the following years.
References/data sources: national registers

Number of universities delivering trainings in marine sciences
P11_IND
Definition: information on the number of universities involved in delivering marine sciences trainings.
Unit: number
Measurement frequency: annual measure
Geographical coverage: national scale measurement
Expected outcomes: this number is expected to rise in the following years.
References/data sources: national registers

Total number of Master degrees in marine sciences
P11_IND
Definition: information on the number of marine sciences advanced degrees delivered by universities of a given country.
Unit: number
Measurement frequency: annual measure
Geographical coverage: national scale measurement
Expected outcomes: this number is expected to rise in the following years.
References/data sources: national registers



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 727453

blueMed