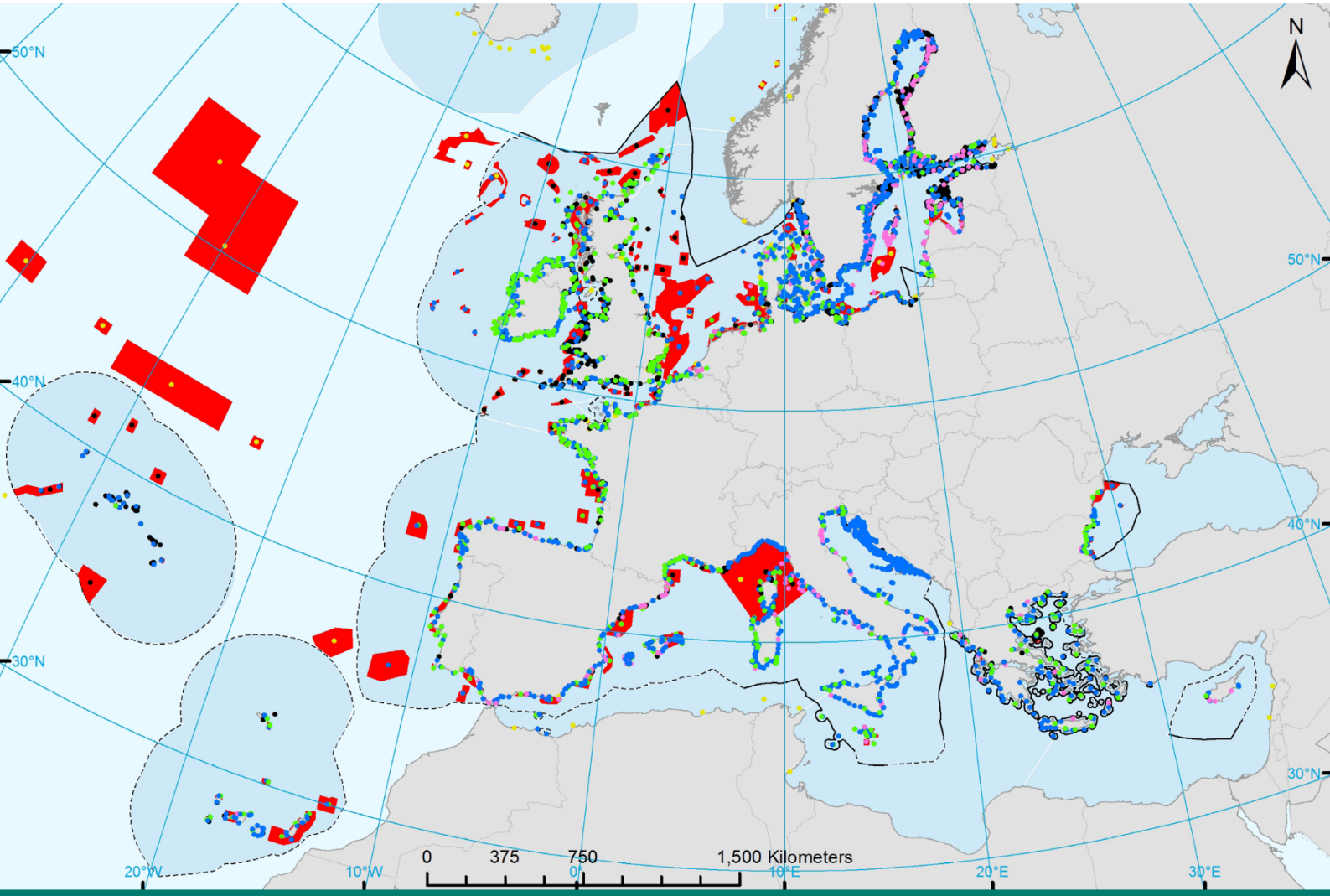
ETC/ICM Technical Report 4/2017

Spatial Analysis of Marine Protected Area Networks in Europe's Seas II, Volume A, 2017



Authors:
Sabrina Agnesi, Giulia Mo, Aldo Annunziatellis, Pete Chaniotis, Samuli Korpinen, Luka Snoj, Lidija Globevnik, Leonardo Tunesi, Johnny Reker

ETC/ICM consortium partners: UFZ, CENIA, CMCC, Deltares, Ecologic, HCMR, ICES, ISPRA, IWRS, JNCC, NIVA, NTUA, OIEau, SYKE, TC Vode, UBAD, UoL and WMR.

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Cover picture: Map 3.4 'Distribution of MPA networks in MPA assessment areas of the European regional seas'

Layout: Miluše Rollerová

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ISBN: 978-3-944280-59-2

Author affiliation:
Sabrina Agnesi, Aldo Annunziatellis, Giulia Mo, Leonardo Tunesi – ISPRA, Italy
Pete Chaniotis – JNCC, United Kingdom
Samuli Korpinen – SYKE, Finland
Lidija Globevnik, Luka Snoj – TC Vode, Slovenia

EEA Project manager:
Johnny Reker, European Environment Agency, Denmark

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European Topic Centre on Inland, Coastal and Marine Waters – ETC/ICM
Helmholtz Centre for Environmental Research GmbH – UFZ
Brückstr.3a
39114 Magdeburg
Germany
Web: water.eionet.europa.eu

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List of Acronyms

CDDA	Common Database on Designated Areas
EEA	European Environment Agency
EEZ	Economic Exclusive Zone established under UNCLOS framework
EPZ	Ecologic Protection Zone established under UNCOS framework
ETC/ICM	European Topic Centre on Inland and Coastal Marine Waters
HELCOM	Baltic Marine Environment Protection Commission - Helsinki Commission
MPA	Marine Protected Area
MSFD	Marine Strategy Framework Directive
NDSs	National Designated Sites
N2K	Natura 2000
OSPAR	Convention for the protection of the marine environment of the north-east Atlantic
RAC/SPA	Regional Activity Centre for Specially Protected Areas
RSC	Regional Sea Convention
SCI	Site of Community Importance
SPA	Special Protection Area
SPAMI	Specially Protected Area of Mediterranean Importance

Marine regions/sub-regions:

ADRI	Adriatic Sea
AELE	Aegean and Levantine Sea
BALT	Baltic Sea
BBIC	Bay of Biscay and Iberian Coast
BLAC	Black Sea
CELT	Celtic Sea
GNKE	Greater North Sea, incl. the Kattegat and the English Channel
ICME	Ionian and Central Mediterranean Sea
MACA	Macaronesia
NEAO	North-East Atlantic Ocean
WMED	Western Mediterranean Sea

1 Aims and scope of the report

This technical report presents an overview of the spatial distribution of marine protected areas (MPAs) in Europe's seas established as of 2016 (excluding overseas territories). It represents a rerun and advancement of the spatial statistics run by ETC/ICM on MPA reported data in 2012 (EEA 2015a) and as such provides insight on the observed changes in European MPAs established in the four years period 2013–2016.

ETC/ICM work on MPA assessments in recent years has provided groundwork of EEA MPA policy briefings (EEA, 2015b) and has underpinned the EEA's supporting role to the Commission on progress reporting on MPAs. More specifically ETC/ICM work in the past years focused on defining the methodology for defining EU MPAs based on the analysis of tabular and spatial data reported through EEA and RSC reporting fora which led to the generation of preliminary MPA spatial statistics (ETC/ICM 2015a). Recent ETC/ICM work proposed a pan-European methodology for assessing MPA network coherence consisting of different levels of assessment measuring the overall network against: a) single thresholds in order to describe the representativity of the network at different levels of detail and b) against more than one threshold in order to describe the network in terms of the regionally agreed principles of adequacy, connectivity and replication (ETC/ICM, 2017). This report represents ETC/ICM progression of work on the assessment of MPA networks consisting in the reiteration of updated statistics on MPAs based on improved assessment methodologies in order to describe the progress made on a European scale in the time period 2013–2016.

The report contains a detailed explanation of the methodology and datasets used and the reasoning for producing the spatial statistical analysis. The report therefore covers aspects concerning data handling issues experienced during the analysis with particular reference to methodological approaches used that differ from those used in the previous reported MPA statistics (EEA, 2015a).

The networks of MPAs taken into account in the analysis are those established under the framework of:

1. The EU Nature Directives, i.e. the Habitats and Birds Directives (Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora; and Directive 2009/147/EC of 30 November 2009 on the conservation of wild birds), recorded in the Natura 2000 (N2K) database.
2. National designations, i.e. nationally designated sites (NDSs) recorded in the Common Database on Designated Areas (CDDA).
3. The Regional Sea Conventions (RSCs) encompassing Europe's regional seas and containing EU waters.

It is important to note that the above MPA categories are rarely mutually exclusive (for example RSC sites often overlap directly with Natura 2000 sites). This has been accounted for in the results presented within this report.

It is important to note that the Regional Sea Conventions (RSCs) encompassing EU waters are the:

- Convention on the Protection of the Marine Environment of the Baltic Sea Area (Helsinki Convention);
- Convention for the Protection of the Marine Environment of the North-east Atlantic (OSPAR Convention);
- Barcelona Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean sea (Barcelona Convention)
- Convention on the Protection of the Black Sea against Pollution (Bucharest Convention)

As indicated by EEA (2015) the conservation of species and habitats through the establishment of MPAs is a common mandate shared by all four RSCs, however, at present only the first three conventions have defined a process through which Contracting Parties establish and report on MPAs of regional importance.

MPAs established under these three RSC frameworks are thus considered in the framework of the present analysis.

The MPA assessment area used for the purpose of the present report are based on the same assumptions illustrated in the EEA 2015 report whereby the marine extension considers the 200 nautical mile (NM) limit from the EU coastline or one of equidistance to neighbouring countries with the exception of the 6 NM limit considered for Greece. MPAs established by MS beyond these boundaries are not considered for the purpose of the present report.

Regional boundaries within the MPA assessment area have been harmonised with the biogeographic boundaries established under the Habitats Directive and the boundaries reported by EU Member States under the Marine Strategy Framework Directive (MSFD). Hence, the MPA assessment areas report the names of the regions and sub-regions referred to in MSFD reporting mechanisms.

2 Data sets and methodology

Chapter 2 contains information on the data sets and methodologies used to define the base shapefiles (MPA assessment areas divided according to regions and sub-regions and buffer distance belts) and the different MPA networks considered for the MPA analysis and reiteration of statistics of European MPAs. It also defines the data and methods used to define the surface area extension of marine waters of EU Member States, on the basis of data reported by EU Member States under the MSFD in 2013 and afterwards.

2.1 Data sets

Table 2.1 provides an overview of the datasets used to support the analysis. The baseline information analysed in the report is based on MPA data reported either at the end of 2016 (N2K data) or at the beginning of 2017 and made publicly available by mid-2017. All the datasets used for the analysis were set to the coordinate system LAEA 52N 10E – ETRS 89 (Lambert Azimuthal Equal Area as projection and European Terrestrial Reference System 1989 as geodetic reference system) in accordance with European guidelines (INSPIRE, 2014; EEA, 2008; Annoni et al., 2001) using version 10.1 of ArcGIS (ESRI inc.). The GIS analyses that were run in order to compile the statistical tables and for producing the maps were processed mainly using Python scripts.

Table 2.1 GIS and tabular data sets used for the layout preparation and for the analysis

Description of data layer	Name of the database version	Version date /download	Source; Link to Source; Obtained from
Assessment areas and units			
European coastline shapefile	EEA_Coastline_20170228	28/02/2017	EEA CWS; S:\Common workspace\Marine\MarineRegions_layer\MSFD_layers_for_publication_20170228.gdb
Boundaries of European Seas	Regional_seas_extended_version_20170228	28/02/2017	EEA CWS; S:\Common workspace\Marine\MRU\Spatial_units.gdb
Marine Region	MarineRegions	26/04/2017	EEA; https://www.eea.europa.eu/data-and-maps/data/msfd-regions-and-subregions
Marine Sub-regions	MarineSubregions	26/04/2017	EEA; https://www.eea.europa.eu/data-and-maps/data/msfd-regions-and-subregions
Extension of Member State declared marine waters	MSFD_Marine_Subregions_Watercolumn_EEZ_20170228	28/02/2017	EEA CWS; S:\Common workspace\Marine\MarineRegions_layer\MSFD_layers_not_published_20170228.gdb
Country terrestrial borders	CNTR_RG_100K_2010_XK (Country borders)		GISCO(Geographical Information and maps) by Eurostat (European Commission); © EuroGeographics for the administrative boundaries; http://epp.eurostat.ec.europa.eu/portal/page/portal/gisco_Geographical_information_maps/popups/references/administrative_units_statistical_units_1
Country terrestrial borders	CNTR_RG_01M_2010_XK (Country borders)		GISCO (Geographical Information and maps) by Eurostat (European Commission); © EuroGeographics for the administrative boundaries; http://epp.eurostat.ec.europa.eu/portal/page/portal/gisco_Geographical_information_maps/popups/references/administrative_units_statistical_units_1
EMODnet broadscale seabed habitat map for Europe (EUSeaMap)	R20170615_EUSeaMap2016.zip	06. 15. 2017	http://www.emodnet-seabedhabitats.eu/default.aspx?page=1953
Designation types			
Natura 2000 tabular database	PublicNatura2000End2016.mdb	06. 04. 2017	EEA; http://www.eea.europa.eu/data-and-maps/data/natura-8
Natura 2000 shapefile	Natura2000_end2016	06. 04. 2017	EEA; https://www.eea.europa.eu/data-and-maps/data/natura-8#tab-gis-data
OSPAR Convention MPAs shapefile	ospar_polygon_wdpa_simplified.shp	July 2017	Downloaded on request the version containing data up to 2016; http://carto.mpa.ospar.org/1/ospar.map
Helsinki Convention MPA (BSPA) shapefile	HELCOM_MPAs_2017_ETRS89_LAEA.shp	March 2017	HELCOM; http://mpas.helcom.fi/apex/f?p=103:1
Barcelona Convention MPA (SPAMI) shapefiles	SPAMIs_End2016_ETRS89_LAEA	January 2017	RAC/SPA secretariat; www.rac-spa.org
CDDA tabular database	CDDA_v15.mdb	09. 18. 2017	EEA: https://www.eea.europa.eu/data-and-maps/data/nationally-designated-areas-national-cdda-12
CDDA shapefile	CDDA_v15_Shapefile.zip	09. 18. 2017	https://www.eea.europa.eu/data-and-maps/data/nationally-designated-areas-national-cdda-12#tab-gis-data

2.2 Definition of MPA assessment areas

The spatial extent of the MPA assessment areas was defined as in EEA, 2015a. The spatial extent is considered as being the marine waters surrounding the EU countries whose outer limit is defined by the 200NM boundary from the coast (possibly coinciding with formally recognized EEZ or EPZ boundaries) or by the presence of a boundary defined by an agreed treaty. Since no formal boundary of this map exists, the boundary of the maritime area submitted by EU Members States under MSFD Articles 8, 9 and 10 to the

Eionet Central Data Repository (CDR) was considered a valid proxy and the decision was taken to use the latest MSFD Region/Sub-region boundary shapefile published by EEA in 2017[1]. It is to be remembered here that the delineation of the marine regions and sub-regions has been under development since 2010. It is based on multiple inputs from representatives from EU Member States participating in groups defined under the MSFD Common Implementation Strategy (CIS) as well as by the outputs of the reporting under the MSFD Initial Assessment and Marine Regions as well as ICES advice. The latest marine regions and sub-regions spatial layers were agreed by EU Member States in the MSFD Committee in November 2016 and have been through a Commission inter-service consultation with all DG's led by DG ENV (ETC/ICM, 2017). The boundaries between marine regions and sub-regions are, to the extent possible, harmonised with existing boundaries established under the Regional Sea Conventions, the biogeographic boundaries established under the Habitats Directive and the boundaries of marine waters reported by EU Member States under the MSFD. The inner boundary of all regions and sub-regions has used the "EEA coastline for analysis"[2]. These spatial layers allow us to define the offshore boundary of the MPA assessment areas and they represent the surface area that for the scope of this work is considered to be the EU portion of European seas. The above mentioned geographical boundaries indicate the limit between the marine regions (i.e. Baltic, North-east Atlantic Ocean, Mediterranean, Black Sea) and, where relevant, the sub-regions (i.e. in the Mediterranean sea: the Western Mediterranean, Ionian Sea and Central Mediterranean Sea, Adriatic Sea, Aegean-Levantine Sea) as interpreted within the implementation framework of the MSFD and more specifically with respect to the marine spatial areas for which EU Member States have claimed their commitment to define and guarantee GES. The **MPA assessment areas** reported in the spatial statistics report are therefore referred to throughout the report based on the names of the different **marine regions/sub-regions in which they lie**.

The MPA regional assessment areas do not include the extended continental shelf beyond 200 NM where some MS have advanced seabed/subsoil claims. It also does not extend beyond the 6NM territorial water extension claimed by Greece. Readers should therefore be aware that the report does not contain information on MPAs lying in areas beyond national jurisdiction (ABNJs). In so doing the report informs on the protection effort offered by MPA establishment in marine waters where MSs exercise full rights over the management of activities conducted in the water column and subsoil, in other words areas where eco-systemic management is feasible. The maps and tables provided in this report and resulting from the evaluation of the available datasets are not intended to influence or question any ongoing negotiations occurring in UNCLOS or jurisdictional issues regarding maritime boundaries pertaining to EU Member States or to non-EU countries.

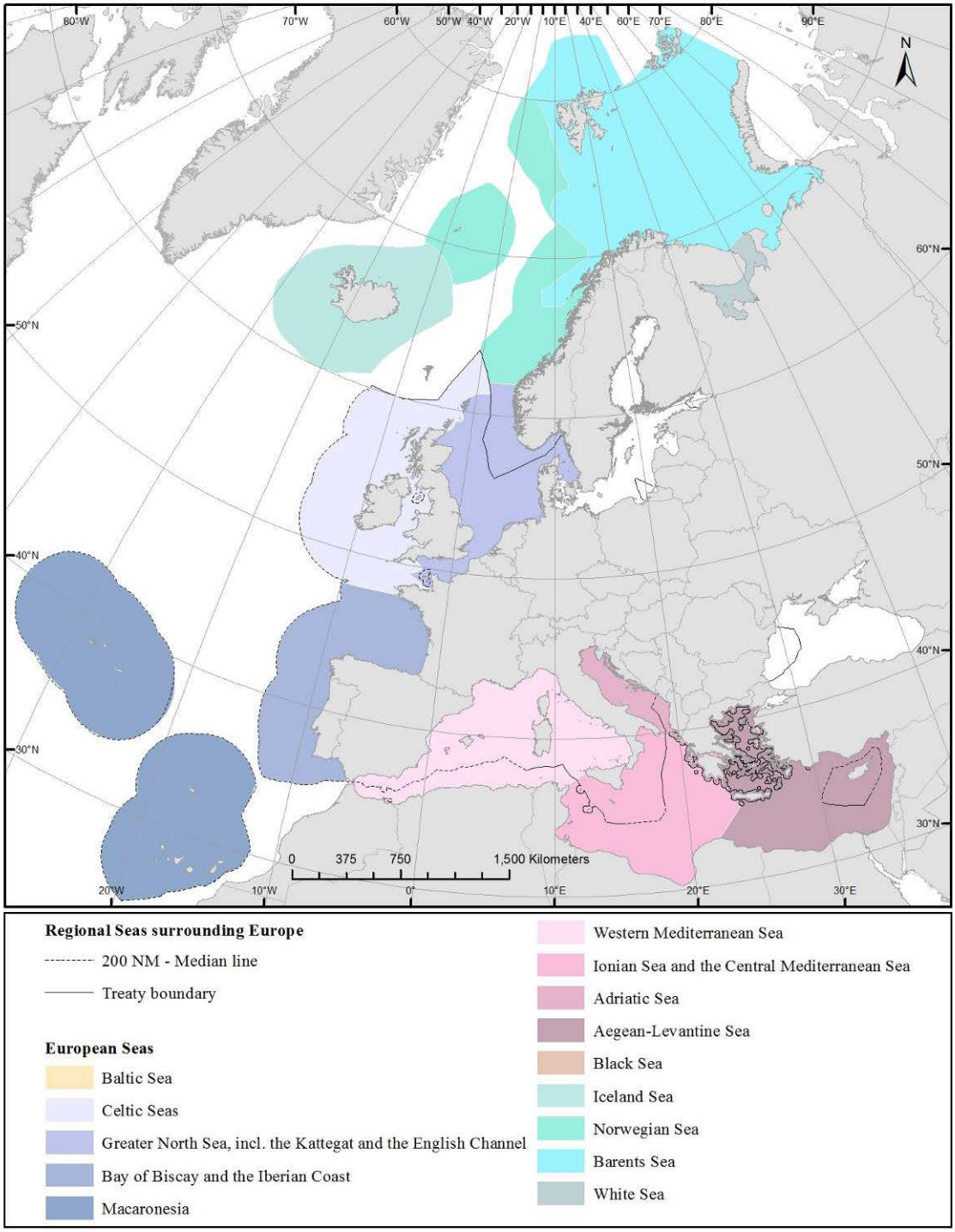
Map 2.1 illustrates the extent of European seas extending between the coasts of EU and third countries, and the MPA assessment areas as defined according to the above mentioned regional/sub-regional boundaries. It is to be noted that the boundaries used in this report only reflect assessment boundaries and do not represent the official maritime boundaries of EU Member States.

For the sake of clearer reading, MSFD regions and sub-regions are reported, where necessary, in the tables and text with the following acronyms: Adriatic (ADRI), Aegean-Levantine Sea (AELE), Baltic Sea (BALT), Bay of Biscay and the Iberian Coast (BBIC), Black Sea (BLAC), Celtic Sea (CELT), Greater North Sea, Kattegat and the English Channel (GNKE), Ionian and Central Mediterranean Sea (ICME), Macaronesia (MACA), Western Mediterranean Sea (WMED).

[1] The spatial data is publicly accessible on the following link: https://www.eea.europa.eu/data-and-maps/data/msfd-regions-and-subregions-1/#tab-gis-data

[2] Available at https://www.eea.europa.eu/data-and-maps/data/msfd-regions-and-subregions

Map. 2.1 EEA MPA assessment area delimited by the Regional Seas surrounding Europe and identified according to the European Seas region



2.3 Creation of buffer zones and correction of the coastline

The most recent version of the EEA coastline, published at a scale of 1:100 000, was overlaid on the MPA assessment area (MSFD sub-region shapefile using the same methodology as described in EEA 2015 in order to generate buffer distance belts (hereafter referred to as buffer zones) of the following sizes for each marine region/sub-region:

a) 0–1NM
b) 1–12 NM
c) 12 NM to the end of the MPA assessment zone

In order to facilitate reading these buffer zones will be hereon individually referred to, respectively, with the terms: nearshore, territorial and offshore. The buffer zones are constructed in order to describe the pattern of protection effort exerted from a nearshore to offshore perspective.

The differences in delineation between the 2013 coastline (used in the EEA 2015 assessment) and the latest (2017) coastline layer have been introduced only by three countries (Sweden, Finland and Greece). In Sweden, the delineation involved the replacement of more than 1500 km^2 of previously coastal areas, extending west of Stockholm, with terrestrial areas. In Finland and Greece the changes are rather marginal and in total do not exceed 1 km^2.

2.4 Calculation of reference surface area values

The total surface area (in square kilometers) of the MPA assessment areas, regions and sub-regions (EU section of sea in Table 2.2 below) was calculated so as to inform on their extent with respect to the broader extension of the European regional seas. The surface area extent of the nearshore, territorial and offshore zones are also reported. These figures are used in order to exact the proportion of sea area occupied by MPAs. It should be noted that some of the EU regional sea areas are different to those documented in the 2012 MPA statistics (EEA, 2015a) due to the use of a more updated EEA coastline and the redefinition of some of the MSFD sub-region boundaries. Results of the spatial extents of each marine component are listed in Table 2.2. Names of regions are indicated with cells in light grey background and bold type and sub-regions are indicated with cells in white background and normal text.

Table 2.2 Surface area (km^2) of marine regions and sub-regions, EU section of the sea and area of near shore (0–1 nautical mile), territorial (1–12 nautical miles) and offshore (beyond 12 nautical miles to the edge of EU waters)

European Regional Seas and sub-regions (*sensu* MSFD)	Sea surface area (km^2)	EU part of sea (km^2)	Near shore zone	Territorial zone	Offshore zone
Baltic Sea	392,215	368,720	51,028	151,441	166,250
North East Atlantic Ocean (NOEA)	7,929,712	4,082,719	57,529	352,942	3,672,248
Celtic Sea[(a)]	934,873	930,900	26,063	131,624	773,225
Greater North Sea incl. Kattegat & English Channel	654,179	491,305	19,053	101,288	370,965
Bay of Biscay and the Iberian Coast	803,350	803,350	8,425	57,553	737,359
Macaronesia	1,857,164	1,857,164	3,989	62,477	1,790,698
Mediterranean	2,516,652	1,274,892	55,470	341,921	877,501
Western Mediterranean	846,003	659,989	15,691	145,904	498,396
Ionian Sea and Central Mediterranean Sea	773,032	240,068	8,317	49,768	181,981
Adriatic Sea	139,784	120,069	10,466	48,505	61,098
Aegean-Levantine Sea	757,833	190,382	19,722	87,923	82,736
Black Sea	473,894	64,384	1,274	9,821	53,290
Total	**11,312,472**	**5,790,715**	**165,301**	**856,125**	**4,769,289**

[(a)] Celtic Seas – overlapping submissions of 148 994 km^2 to UNCLOS from UK and Kingdom of Denmark (not included in the sea surface area calculation above)

Calculation of country marine waters per buffer zone was carried out using the same methodology as described in EEA, 2015, with the exception that the shapefile relating to country borders prepared in 2017 by ICES under ETC/ICM work program 1.6.1.a was used for the purpose of this report.

2.5 Preparation of the shapefiles belonging to the different networks

The methodology and the procedure used for selecting the marine N2K sites from the 2016 tabular and spatial data, and the Regional Sea conventions MPA shapefiles are the same as those outlined under Section 2.6 of the EEA, 2015 report with the exception that the databases used are the updated ones indicated in table 2.1.

The selection of CDDA marine sites used for the purpose of the present report differs from that used in the previous EEA spatial statistics (EEA, 2015a). In the latter report the marine CDDA sites were selected by querying the CDDA spatial database on the basis of the 5% ex-Barometer rule which entailed considering those marine sites that lay within the MPA assessment area so long as no more than 5% of their surface area lay on land. At the time, there was no CDDA data field providing information on site general environmental characteristics and marine sites could only be approximated using this spatial selection procedure. However, as of 2015, the modifications introduced to the tabular reported data allow Member States to indicate the presence of marine areas present within a given site. The CDDA tabular database was therefore screened in order to filter marine sites on the basis of the site's declared ecosystem typology (marine, terrestrial or both). Sites flagged as having "marine" or "both" were considered as marine and the resulting selection was then joined to the spatial database using the "sitecode" field. The MPA assessment areas layer was used to select only those sites falling within the region/sub-region MPA assessment area.

It is important to note that a test comparison was run on the CDDA_end 2015 to evaluate the amount of discrepancy obtained, in terms of the number of marine sites and surface area, between the spatial selection procedure based on the ex-Barometer 5% rule versus the above mentioned tabular selection. The results of this comparison indicated that the 5% rule selection did not select the entire set of truly marine sites and 45% of the selected sites were not truly marine. However, despite this bias in the number of sites erroneously interpreted as marine, the surface area overestimation of marine sites introduced by the past methodology is minimal (only 5.8% of the area considered in the 2012 selection procedure belongs to sites that are not marine) and as such the introduction of a new and more accurate selection procedure is not expected to interfere with the detection of trends of newly established marine CDDA sites in the period 2013–2016.

2.6 Extraction and calculation of statistical information from MPA databases

The spatial statistics were carried out in ArcGIS; the procedures were automated by a series procedure developed in Python language. The basis of the analysis is the same of that defined for the analysis based on the 2012 data set, however the scripts were readjusted when needed.

The estimated and extracted statistical information from the spatial databases were the number of sites and total surface area, which allow us to estimate coverage. All parameters were extracted and reported according to each buffer zone and biological zones per marine region/sub-region.

The reasoning behind the analysis is the same of that developed and described in previous documents (EEA, 2015a and ETC/ICM, 2017) however, it is worthwhile emphasizing the following aspects:

- Counts of the total number or total area of sites per distance belt from the coast or biological zone refer to any site or part of any given site lying within a distance belt from the coast or biological zone. The grand total in each zone may therefore contain sites whose extension spans across more than one zone.
- The total area coverage (in km^2) accurately represents the spatial extent of a network, considering the areas of overlap between overlapping sites as a unique value, so as to prevent duplication of surface area counts for such areas.
- The percentage of surface area is calculated with respect to the surface area measurement of the MPA assessment area region/sub-region provided in Table 2.2.

- The representativity of the overall MPA network is described by measuring the network's capacity to reach:
  - the 10% Aichi target 11 at regional/sub-regional, buffer zone, and biological zone levels
  - the 20/60% target at the revised broad habitats level (as defined in ETC/ICM 2017)
  - The percentage of protected coverage increase of the biological depth zone and revised broad habitats is visualized in the tables using the following thresholds: >4% increase ☺; increase between 0 and 4 % 😐; no increase observed, ☹

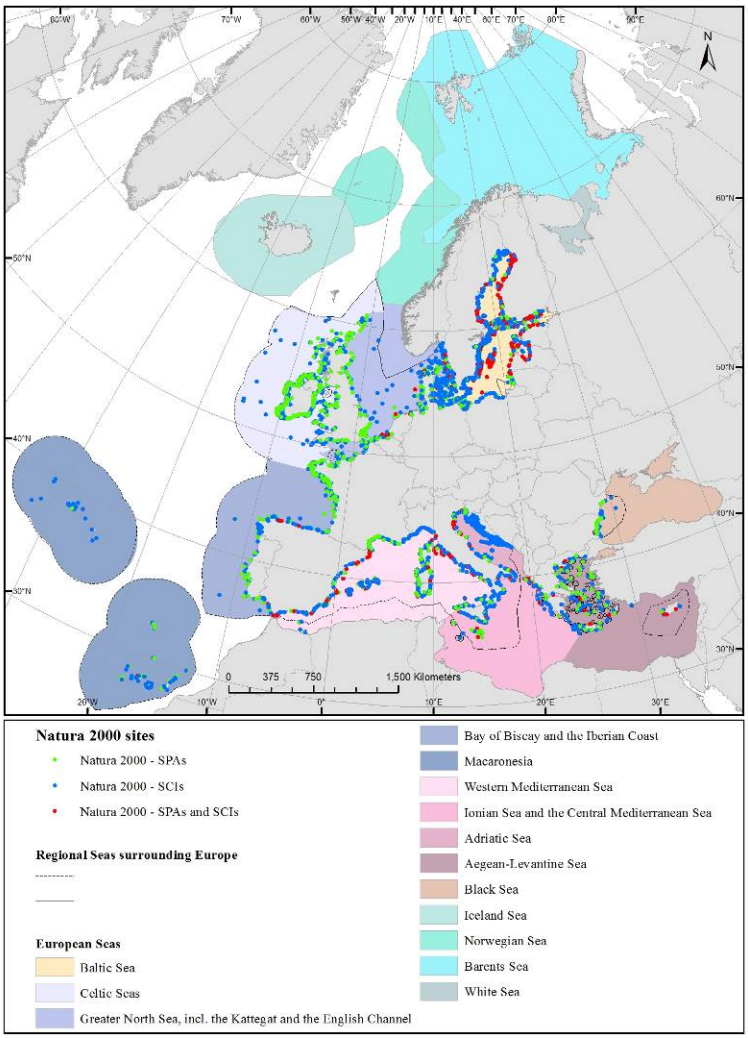
3 Results

In this section of the report, we present the percentage and surface area coverage of MPA networks across EU regions for Natura 2000 sites, Regional Sea Convention Sites and National designations individually and collectively – presenting information in each case on percentage and surface area coverage of MPAs across buffer zones from the coast, biological depth zones and considering the coverage of revised broad habitats.

3.1 Natura 2000 network

The overall distribution of marine N2K sites throughout Europe is represented in Map 3.1. Sites are graphically reported as SCIs, SPAs and SCIs combined with SPAs (typology C).

Map 3.1 Natura 2000 areas (SCIs and SPAs) in European marine regions



An overview of the total number, area coverage and percentage cover of marine Natura 2000 sites per MPA region/sub-region is presented in Table 3.1 together with number and area of SCIs and SPAs and their percentage area overlap.

The total number refers to the spatially distinct sites present in a given area, so as to avoid duplicating the count of sites that lie exactly over one another (as in the case of site category C, which represents an SCI and an SPA overlapping exactly). The total number of SCIs and SPAs refers to the site polygons defined by the selection procedure as marine SCIs or as marine SPAs; the sum of these two will therefore always be bigger than the total number of N2K sites indicated in the first column of the table for any given region/sub-region.

The total area coverage (in square kilometers) represents the actual spatial extent of both networks combined (SPAs and SCIs), considering the areas of overlap between SPAs and SCIs as a unique value, in order to prevent duplication of surface area counts for such areas. The total area of the respective SCIs and of the SPAs was obtained by measuring the extent of any polygon with SCI or SPA attributes, regardless of whether a polygon overlapped a polygon belonging to another category. Because of this, the sum of the total area of SCIs and that of SPAs is always bigger than the calculated total area covered by the N2K network. The percentage of overlap is obtained by calculating the surface area overlap of SCIs and SPAs with the respect to the total coverage of the N2K network.

The values indicated in italic and bold text in Table 3.1 indicate 2016 values that are equal or lower than those reported in the previous spatial statistics report (EEA, 2015a) referring to the 2012 reported data. The number of increased or decreased sites with respect to the 2012 reported data is reported with a +/- sign in the column adjacent to the total number of sites reported for in 2016. The lower number of SCIs and SPAs in the Greater North Sea, including the Kattegat and the English Channel region reported for in 2016 is due to the revised MSFD boundary definition of this sub-region which has led to a reduction in the extension of the GNKE sub-region. The observed lower number of sites in the Aegean and Levantine Sea sub-region instead is more likely due to two reasons: an improvement in the tabular and spatial data records reported and an improved EEA coastline. In fact, corrections introduced to the tabular reports of marine features or a more accurate coastline can lead to lower marine site counts that could account for this discrepancy. Despite the lower values in site counts in both these regions, it is to be noted that the percentage surface area coverage is nevertheless higher in 2016 than that reported in 2012 for GNKE. This can be interpreted as a result of the establishment of new sites as well as the overall regional change in size which can account for a higher overall proportion coverage. The lower percentage of overlap between SCIs and SPAs observed in most regions/sub-regions instead can be attributed to the increase in spatial designation of sites that do not share SCI and SPA designation areas.

Table 3.1 Total number, surface area, percentage cover, increases and percentage overlap of marine N2K sites (SCIs, SPAs) in European marine regions

MPA assessment area regions/sub-regions	Total n° of N2K sites	Trend Total n° of N2K sites	N° of SCIs	N° of SPAs	Area covered by N2K (Km²)	% covered by N2K	% increase since 2012	Area of SCIs (Km²)	Area of SPAs (Km²)	% of over-lap
Baltic Sea	856	+86	739	303	56,039	15	2.9	45,323	48,161	**66.8**
North East Atlantic Ocean	1,082	+77	691	432	290,172	7	3.4	245,329	110,785	***20.5***
Celtic Sea	443	+70	269	174	70,127	8	3.7	67,085	11,020	***2.4***
Greater North Sea incl. Kattegat & English Channel	***381***	***-20***	***250***	***159***	114,122	23	5.6	101,672	43,763	***27.4***
Bay of Biscay and the Iberian Coast	201	+18	127	86	78,685	10	6.6	53,801	44,300	***24.7***
Macaronesia	69	+11	52	18	27,238	1	1.4	22,771	11,701	***26.6***
Mediterranean	1,169	+314	984	299	62,941	5	2.5	39,471	41,553	***28.7***
Western Mediterranean	524	+34	424	174	44,926	7	3.8	24,516	33,970	***30.2***
Ionian Sea and Central Mediterranean Sea	155	+6	133	35	6,667	3	1.4	4,480	4,186	***30.0***
Adriatic Sea	361	+281	336	42	6,531	5	4.1	6,050	2,103	***24.8***
Aegean-Levantine Sea	***137***	***-7***	***96***	***51***	***4,818***	3	0.0	***4,424***	***1,293***	***18.7***
Black Sea	44	+4	29	18	9,156	14	9.7	8,636	2,183	***18.2***
Total	3,149	+482	2,441	1051	418,308	7	3.2	338,759	202,682	***27.9***

Table 3.1 indicates that:

- **The overall N2K coverage across European seas has almost doubled from the 4% coverage observed in 2012 to 7% coverage by the end of 2016.**
- **The highest increase in terms of numbers of N2K sites is in the Mediterranean region and Adriatic sub-region.**
- **The highest increase in terms of percentage coverage of N2K sites has been within the Black Sea, which now has 14% N2K site percentage coverage.**
- **The only region/sub-region with no additional N2K site designations between 2012 and 2016 has been within the Aegean-Levantine Sea.**

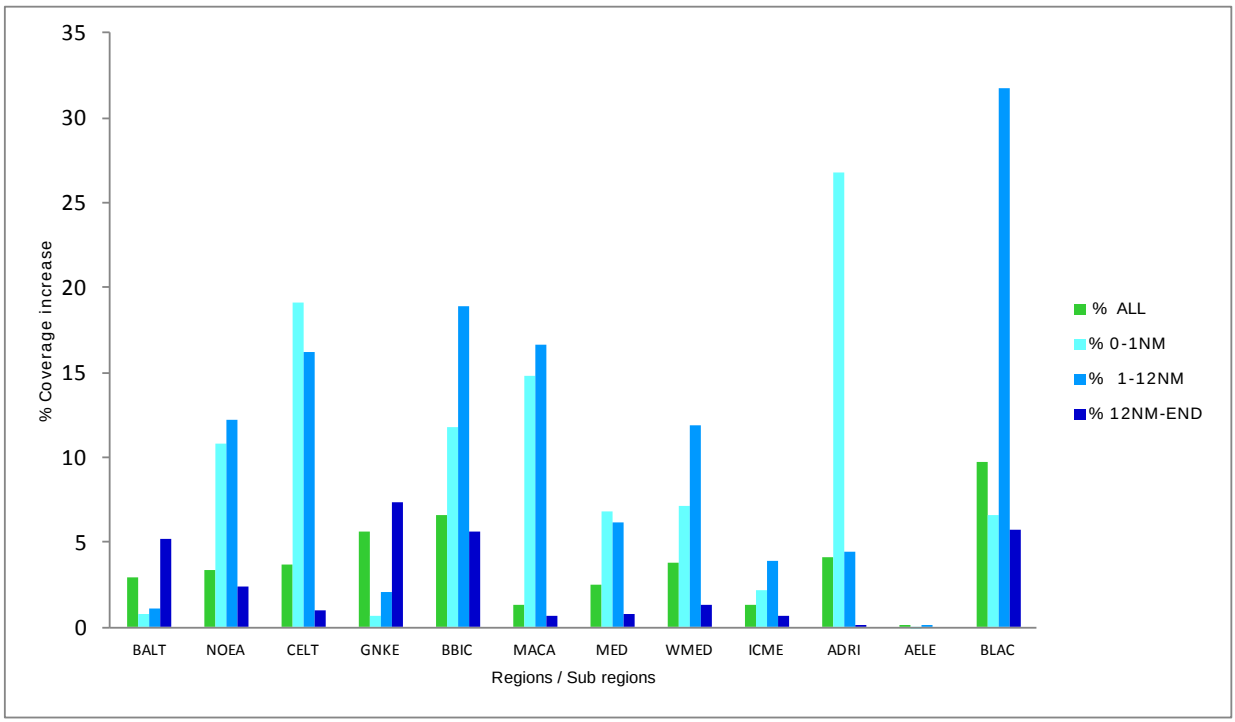
Table 3.2 indicates the surface area and percentage cover of the N2K sites per EU region/sub-region at varying distances from the coast (nearshore, territorial and offshore waters). The values indicated in bold and italic text indicate surface area and percentage coverages that are equal or lower than those reported for the same region/sub-region in 2012 (EEA, 2015a).

Table 3.2 Surface area, percentage cover and percentage of increase since 2012 of N2K sites in nearshore, coastal and offshore waters in European marine regions and sub-regions

MPA assessment area regions/sub-regions	Nearshore zone covered by N2K			Territorial zone covered by N2K			Offshore zone covered by N2K		
	Area (km^2)	% coverage	% increase since 2012	Area (km^2)	% coverage	% increase since 2012	Area (km^2)	% coverage	% increase since 2012
Baltic Sea	**16,158**	**31.7**	**+0.8**	**24,802**	**16.4**	**+1.1**	**15,079**	**9.1**	**+5.2**
North East Atlantic Ocean	**30,907**	**53.7**	**+10.8**	**97,381**	**27.6**	**+12.2**	**161,884**	**4.4**	**+2.4**
Celtic Sea	13,287	51.0	+19.1	31,656	24.1	+16.3	25,184	3.3	+1.0
Greater North Sea incl. Kattegat & English Channel	***11,366***	59.7	+0.7	***34,003***	33.6	+2.1	68,754	18.5	+7.3
Bay of Biscay and the Iberian Coast	5,014	59.5	+11.8	19,842	34.5	+18.9	53,828	7.3	+5.6
Macaronesia	1,240	31.1	+14.8	11,879	19.0	+16.6	14,118	0.8	+0.7
Mediterranean	**17,374**	**31.3**	**+6.8**	**37,373**	**10.9**	**+6.1**	**8,194**	**0.9**	**+0.8**
Western Mediterranean	8,300	52.9	+7.2	29,686	20.3	+11.8	6,940	1.4	+1.3
Ionian Sea and Central Mediterranean Sea	2,430	29.2	+2.2	2,993	6.0	+3.9	1,244	0.7	+0.7
Adriatic Sea	3,865	36.9	+26.8	2,656	5.5	+4.5	10	0.0	0.0
Aegean-Levantine Sea	***2,779***	***14.1***	0.0	2,039	***2.3***	0.0	0	0.0	0.0
Black Sea	**1,076**	**84.5**	**+6.6**	**5,004**	**51.0**	**+31.8**	**3,076**	**5.8**	**+5.8**
Total	**65,516**	**39.6**	**+6.3**	**164,560**	**19.2**	**+7.9**	**188,232**	**3.9**	**+2.2**

Figure 3.1 indicates the percent coverage increase per region/sub-region and per buffer zone between 2012 and 2016. There is no marked percentage increase observed in AELE. **Higher percentage increase is generally observed in the second buffer belt with the exception of the Celtic and Adriatic seas**.

Figure 3.1 Percentage cover increase of marine N2K sites between 2012 and 2016



A cross comparison of the overall results contained in the EEA, 2015b statistics and the statistics contained in Table 3.2 and Figure 3.1 indicates that:

- **There has been a percentage coverage increase in N2K sites of 6.3%, 7.9% and 2.2% respectively in the nearshore, coastal and offshore zones within European seas.**
- **The highest increase in percentage cover of N2K sites in the nearshore area has been within the Adriatic sub-region.**
- **The highest increase in percentage cover of N2K sites in the territorial seas area has been within the Black Sea region.**
- **The highest increase in percentage cover of N2K sites in the offshore area has been within the Greater North Sea incl. Kattegat & English Channel sub-region.**
- **The only region/sub-region with no change between 2012 and 2016 has been within the Aegean-Levantine Sea.**

3.2 National Designated Sites

Table 3.3 reports information on the total number of sites and total surface area coverage (in kilometres squared) of the marine National Designated Sites (NDSs) established in each of the MPA assessment area regions and sub-regions. The values indicated in bold and italic text indicate the total number of sites, surface area and percentage coverages that are lower than those reported for the same region/sub-region in 2012 (EEA, 2015a). The percentage increase refers to the period 2013–2016. The percentage NDSs network overlapping the marine N2K network was also calculated for each MPA assessment marine region.

The lower values observed across the MPA assessment areas are related to the different approach used for the selection of marine NDS sites in 2016. Although the new selection procedure reduces the total number of site counts throughout all the MPA assessment areas, the percentage surface area coverage of the network observed from 2013 to 2016 is in any case increasing.

Table 3.3 Surface area and percentage cover of marine NDSs in MPA assessment areas, and percentage overlap with the EU N2K network

MPA assessment area regions and sub-regions	Total no of sites	Area covered (km2)	% covered by NDSs	% increase	% of nearshore zone covered by NDSs	% of territorial zone covered by NDSs	% of offshore zone covered by NDSs	% area overlap with N2K
Baltic Sea	***1720***	**24,443**	**6.6**	**+0.5**	**19.2**	**8.1**	**1.4**	***88.5***
North East Atlantic Ocean	***770***	**164,186**	**4.0**	**+2.8**	***24.4***	**7.7**	**3.4**	***29.6***
Celtic Sea	***261***	68,398	7.3	+6.3	***14.6***	5.6	7.4	***9.2***
Greater North Sea incl. Kattegat & English Channel	***374***	49,989	10.2	+5.4	40.5	14.2	7.5	***62.4***
Bay of Biscay and the Iberian Coast	***80***	10,148	1.3	+0.8	23.0	6.8	0.6	96.3
Macaronesia	***58***	35,650	1.9	+1.2	***15.0***	2.2	1.9	4.1
Mediterranean	***218***	**50,321**	**3.9**	**+0.8**	**13.3**	**9.7**	**1.1**	**32.0**
Western Mediterranean	***102***	42,150	6.4	+1.4	31.0	19.7	1.7	21.6
Ionian Sea and Central Mediterranean Sea	***37***	4,759	2.0	+1.4	13.4	4.8	0.7	87.7
Adriatic Sea	***48***	1,135	0.9	0.0	7.1	0.8	0.0	58.9
Aegean-Levantine Sea	***31***	2,277	1.2	0.0	3.4	1.8	0.0	***94.1***
Black Sea	***5***	***83***	***0.1***	**-2.1**	***1.3***	***0.7***	**8.0**	**100.0**
Total	***2597***	**239,033**	**4.1**	**+2.2**	**18.9**	**8.5**	**2.9**	***36.2***

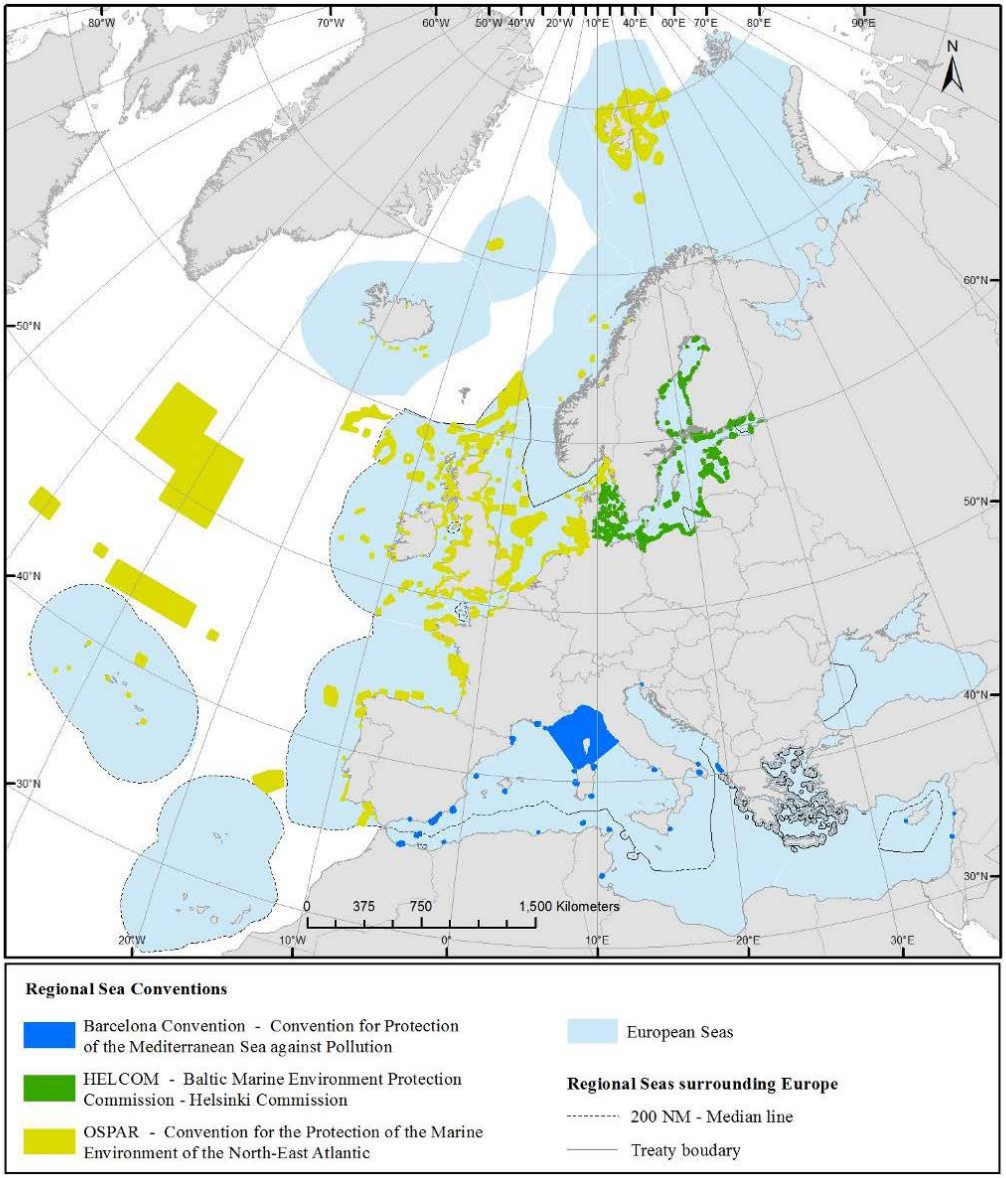
Table 3.3 indicates that:

- **The overall NDS coverage across European seas increased by ~2 % from 2012 to 2016**
- **Majority of NDSs are located in the coastal zone and their coverage steadily decreases towards offshore**
- **About one third of the NDS area is also designated as N2K; Highest percentage area overlap is observed in the Baltic Sea, Bay of Biscay and the Iberian Coast, Ionian Sea and Central Mediterranean Sea, Aegean-Levantine Sea and Black Sea**

3.3 MPA networks established under the Regional Sea Conventions

The distribution of RSC MPAs within and outside the MPA assessment area regions and the European seas is represented in Map 3.2.

Map 3.2 MPAs established under the Regional Sea Conventions, within and outside MPA assessment areas



The total surface area of the RSC site polygons, considering those lying within the European Regional Sea boundaries and in the MPA assessment area regions (considered as being the EU waters of the EU Regional Seas) are reported in Table 3.4. The total surface area of the RSC site polygons in the European Regional Seas is close to 370 000 km^2. Within the boundaries of the MPA assessment area regions (considered as being the EU waters of the EU Regional Seas), the MPA surface area is ca. 367 000 km^2.

The percentage of surface area extent of each RSC network was calculated with respect to the surface area measurement of the respective EU Regional Seas and MPA assessment marine regions. It is worthwhile noting that the OSPAR and HELCOM conventions both exert their jurisdiction in the Kattegat area of the GNKE sub-region (see Map 3.3). Consequently, the surface area value of the RSC network in this portion of the MPA assessment area regions contains a surface area of overlap between the OSPAR and HELCOM

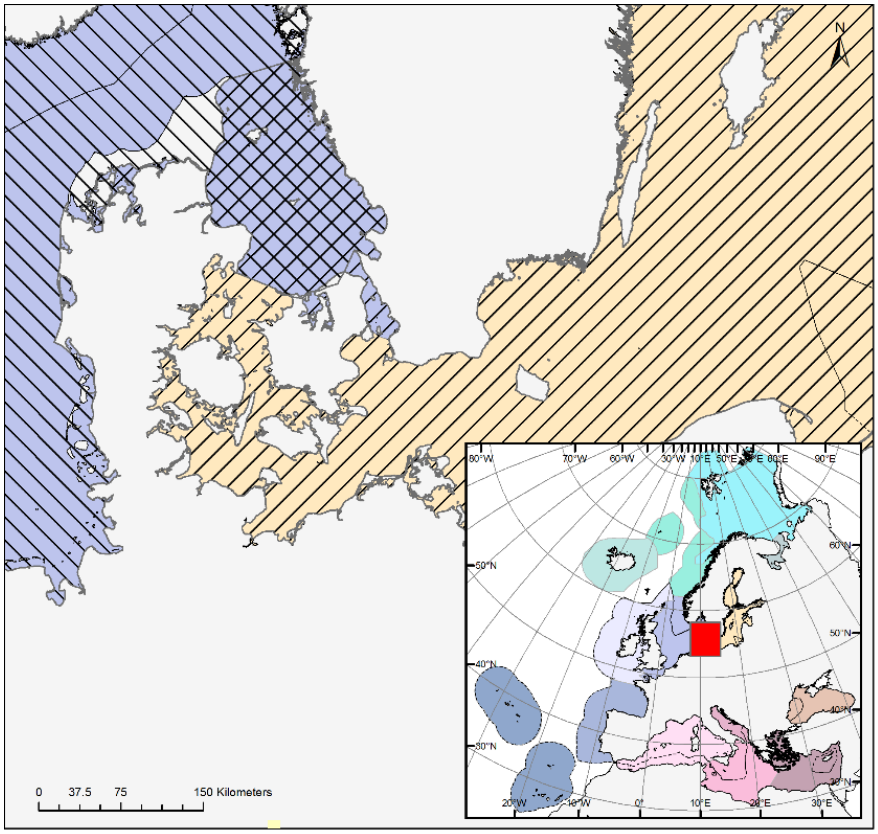
network. The surface area of the HELCOM MPAs that lie in the Kattegat is 5717 km^2. 92.4% of this surface area overlaps with OSPAR sites. The percentage of RSC network overlapping the N2K network was also calculated for each MPA assessment marine region.

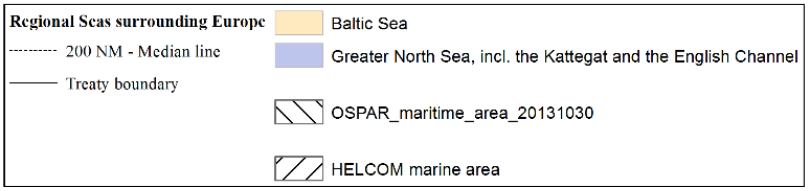
Table 3.4 Total surface area, percentage cover of RSC sites in European regional seas and MPA assessment area regions, and overlap with EU N2K network

RSC name	Regional Sea	Area of RSC network in European Seas	Area of RSC network in MPA assessment area regions	% cover of RSC network in European Sea	% cover of RSC networks in MPA assessment area regions	RSC network % overlap with N2K in MPA assessment area regions
Helsinki	Baltic Sea	**43150**	**42235***	**11,0**	**11,5**	**93,7**
OSPAR	North East Atlantic Ocean	**236102**	**235633**	**3,0**	**5,8**	**64,1**
Barcelona	Mediterranean Sea	**89854**	**89209**	**3,6**	**7,0**	**10,1**

Note: * excluding Kattegat area: the MPA surface area in the entire Convention area is 48 867 km^2

Map 3.3 Area of HELCOM and OSPAR overlap

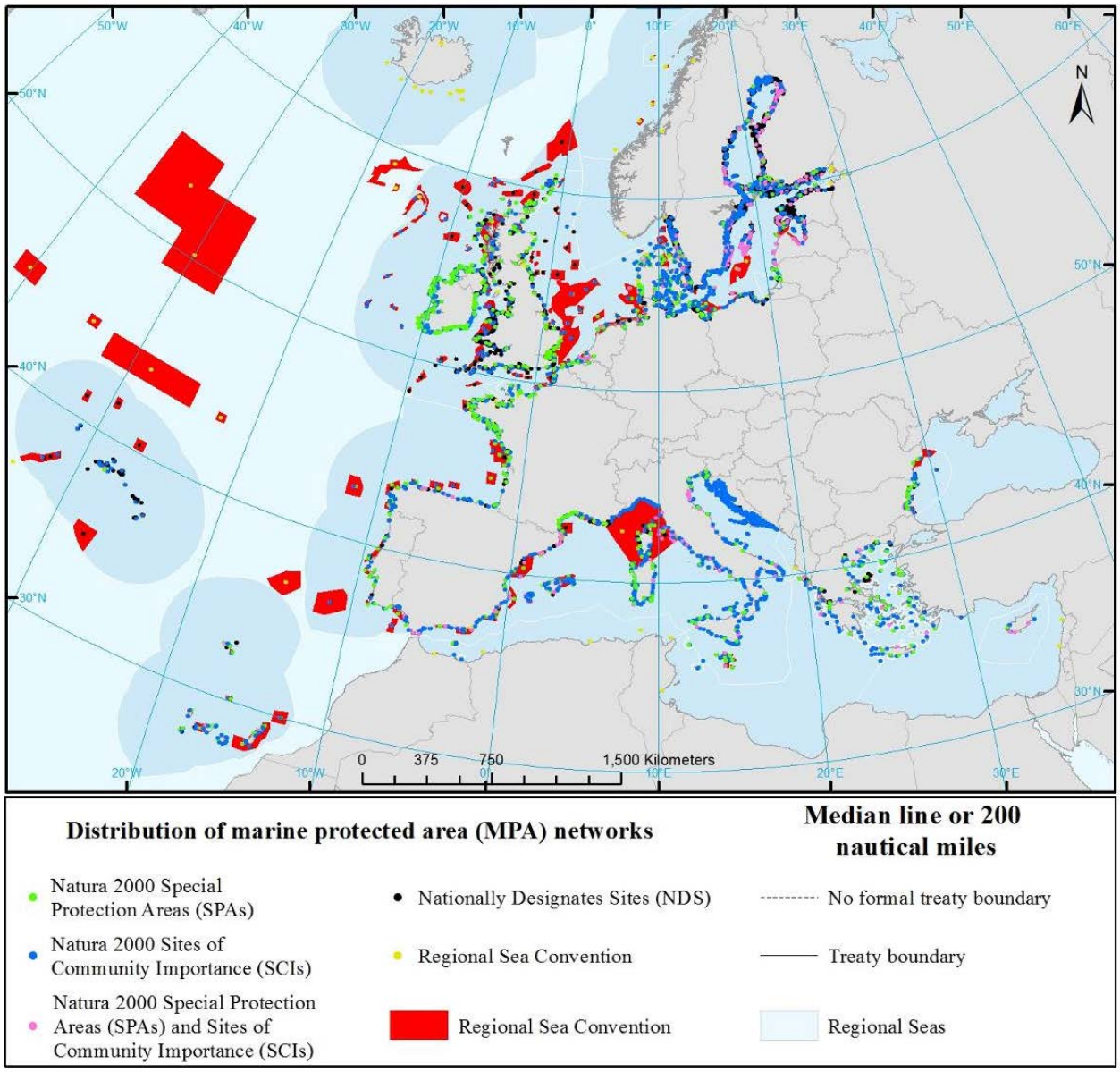




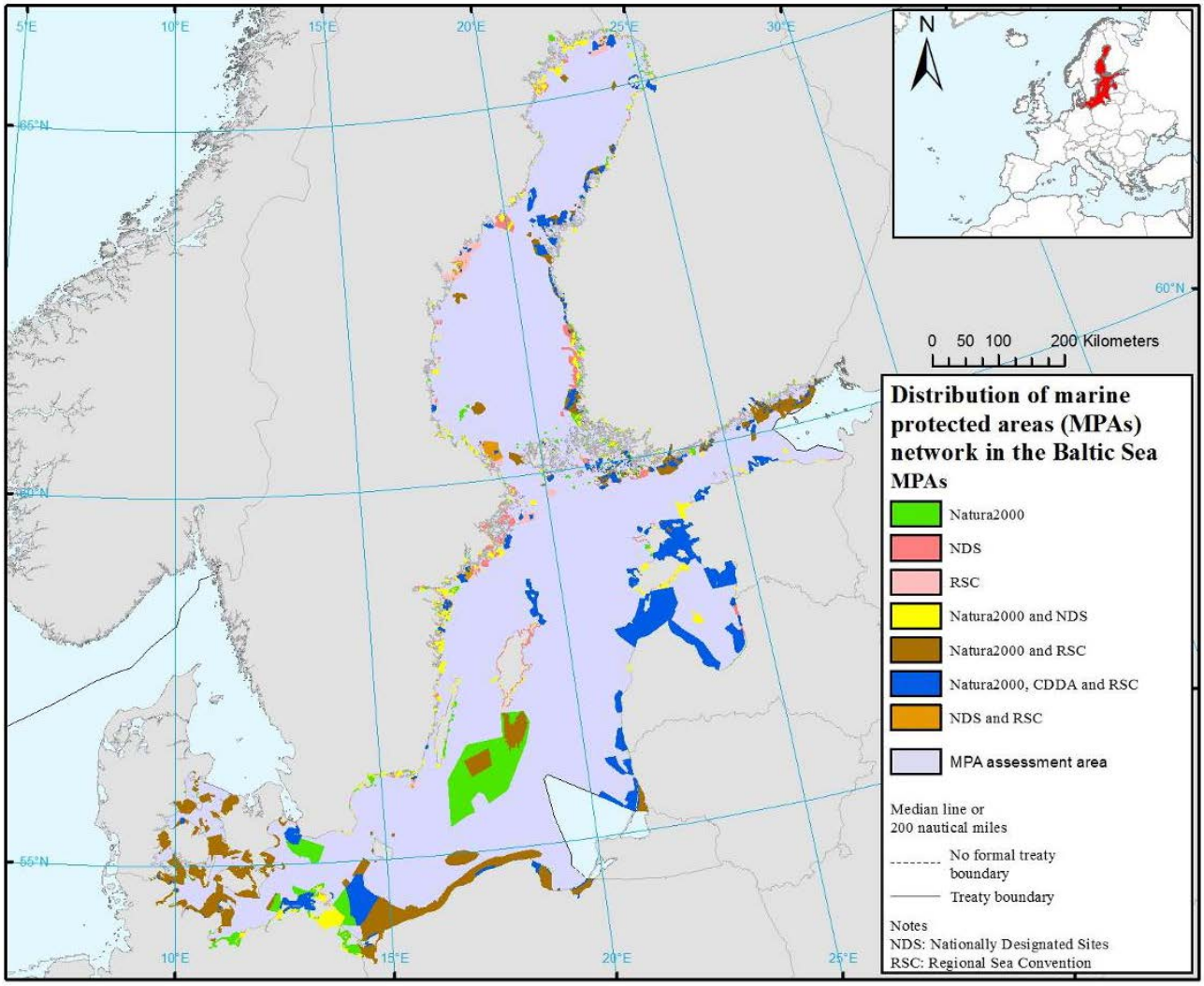
3.4 European MPA networks

In this section the MPAs established in the context of all the different considered networks (N2K, NDSs and RSC) are considered as a unique network and are hereafter referred to as MPAs. Map 3.4 presents the distribution of these MPAs but, to facilitate viewing; regional and sub-regional maps are reported subsequently in Maps 3.4.a to 3.4.j. The latter also allow portraying the overlap between sites of the three different networks.

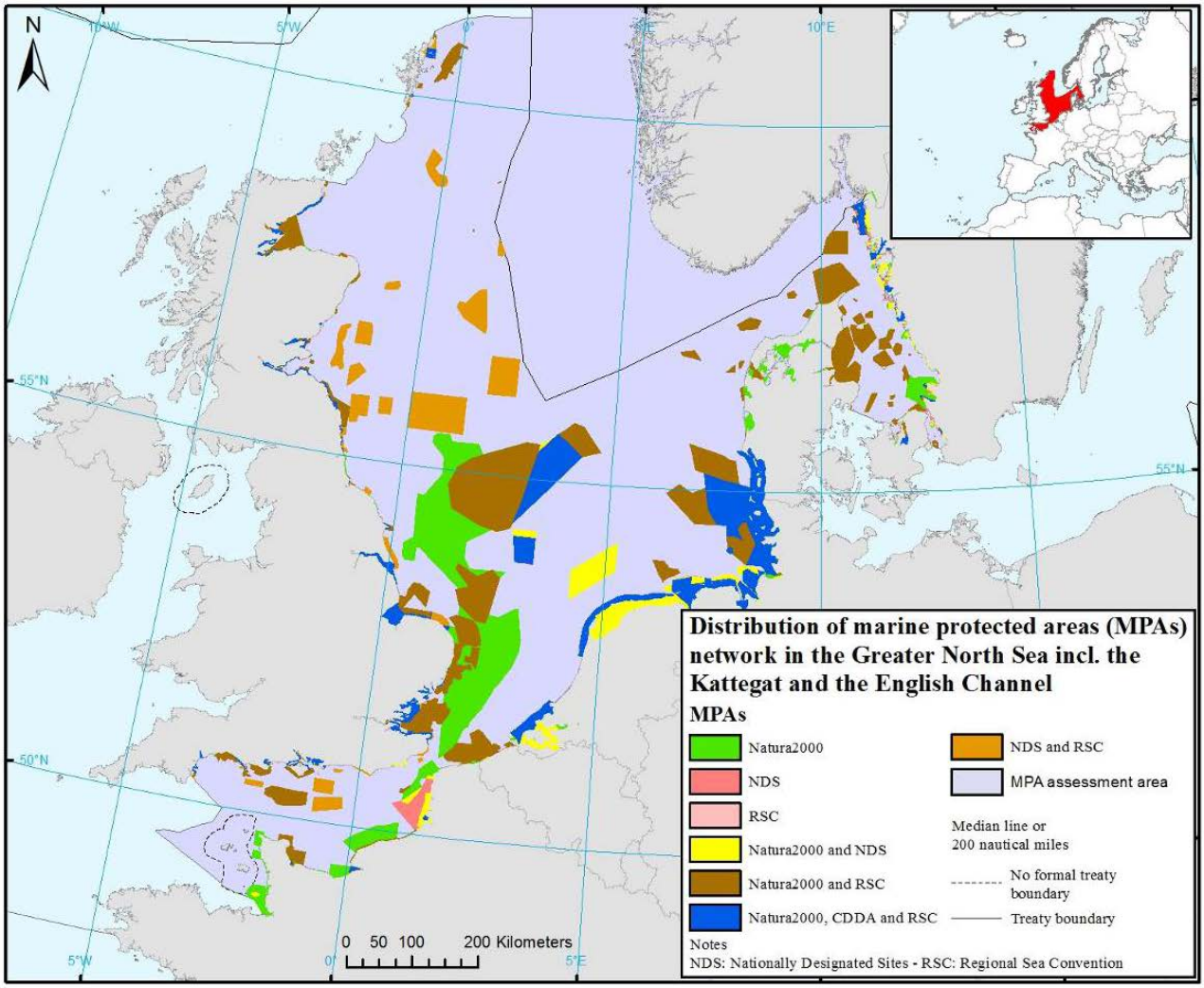
Map 3.4. Distribution of MPA networks in MPA assessment areas of the European regional seas



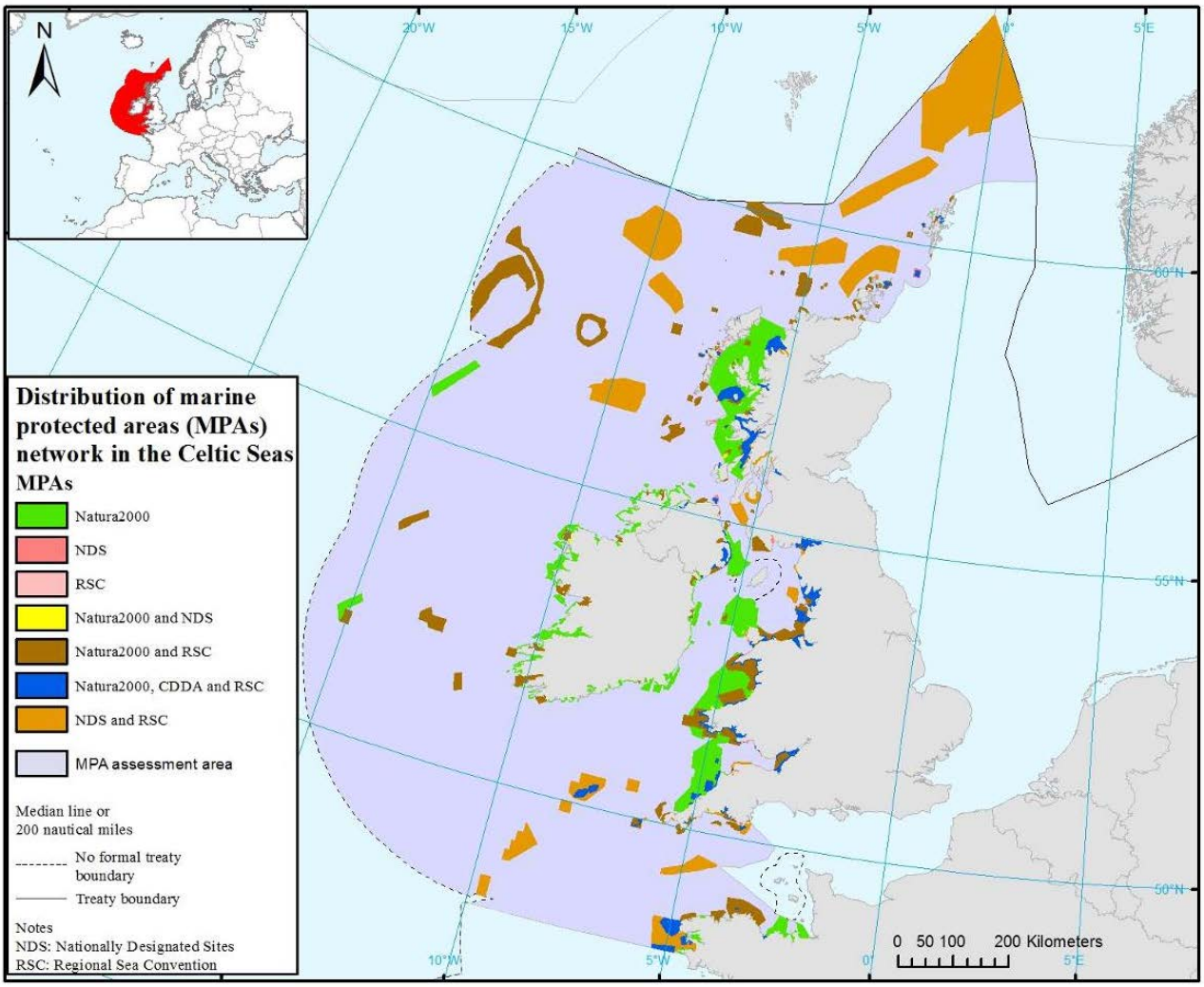
Map 3.4.a Distribution of MPA networks in the Baltic Sea marine region



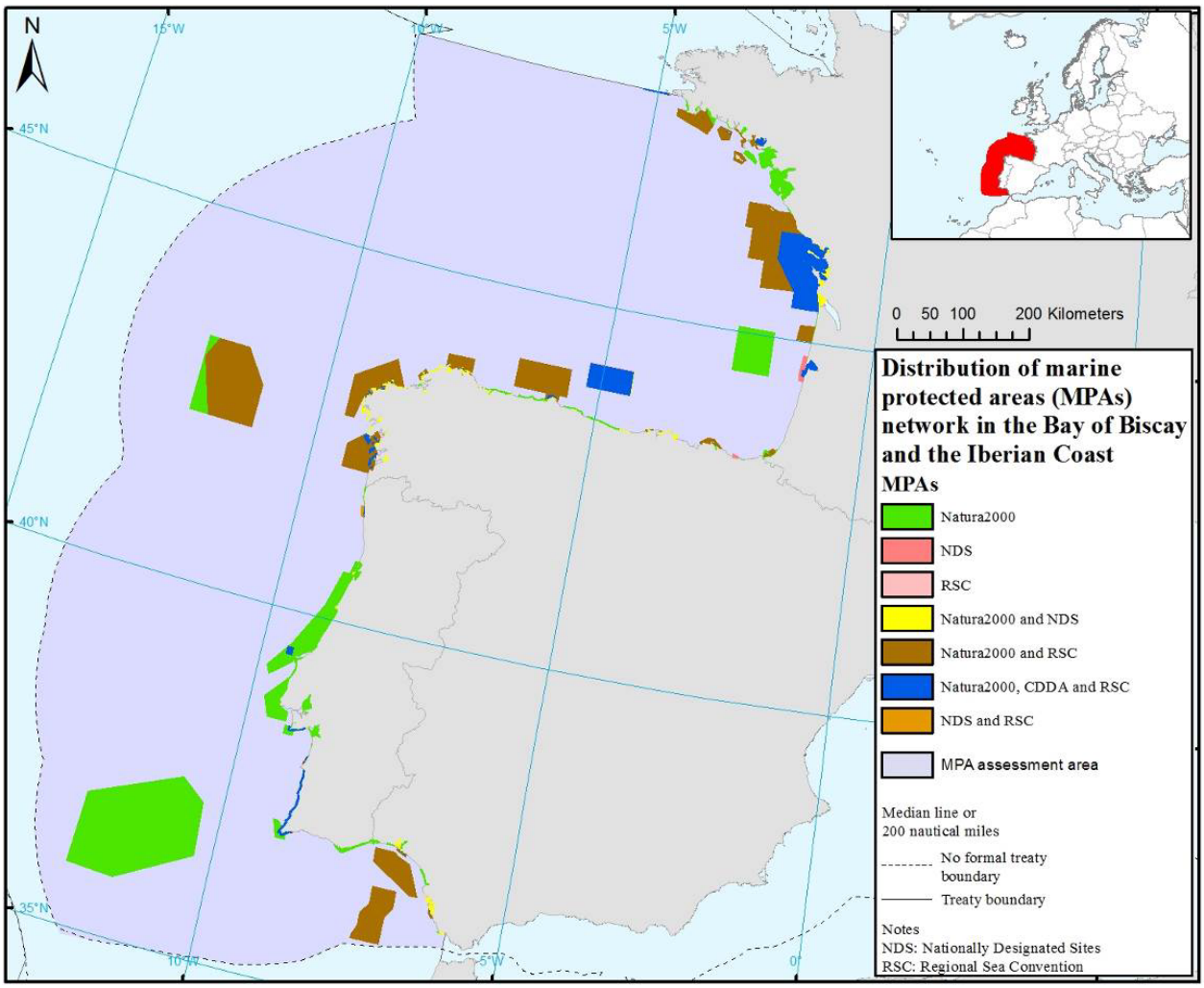
Map 3.4.b Distribution of MPAs in the Greater North Sea including the Kattegat and English Channel marine sub-region



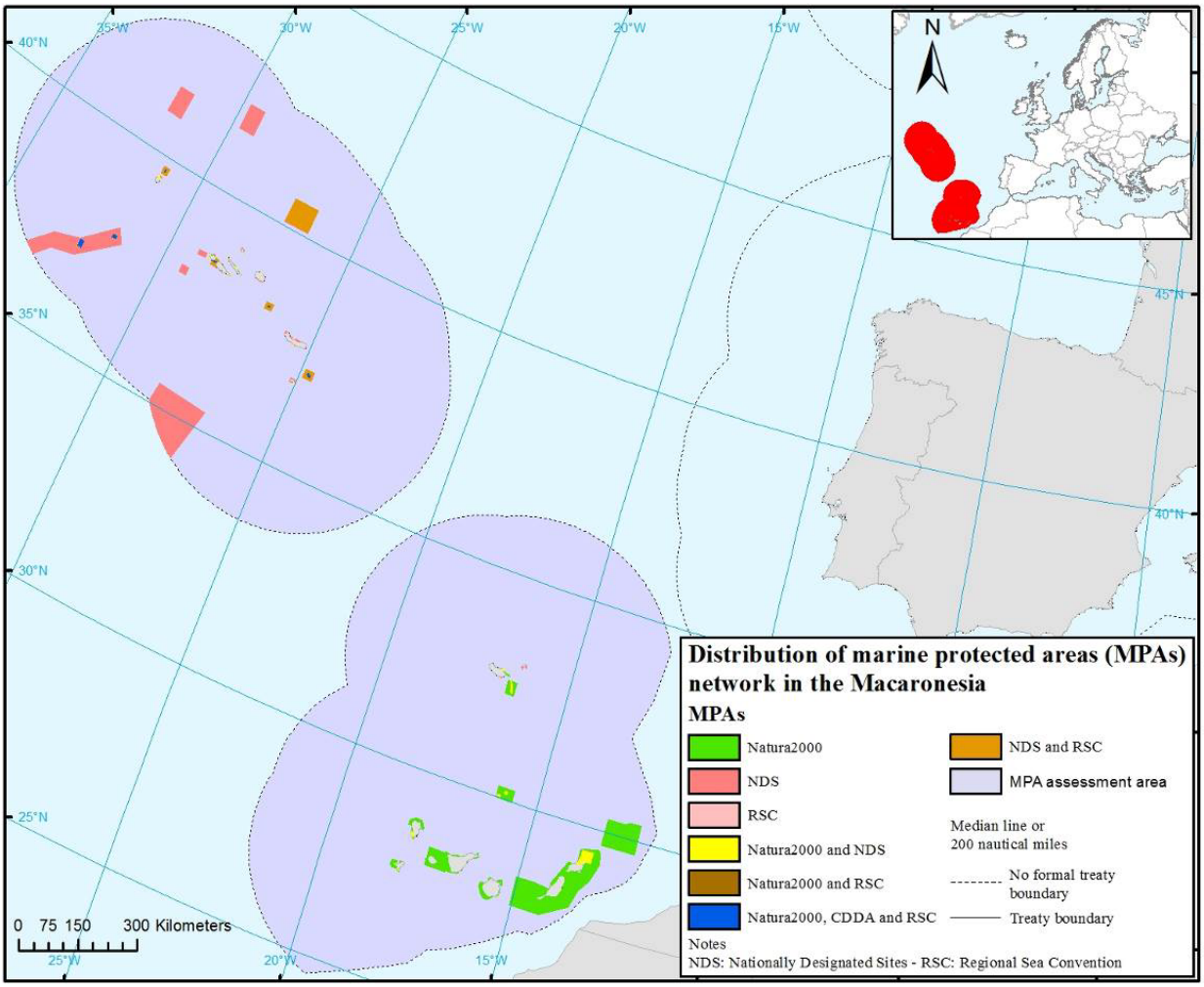
Map 3.4.c Distribution of MPAs in the Celtic Seas sub-region



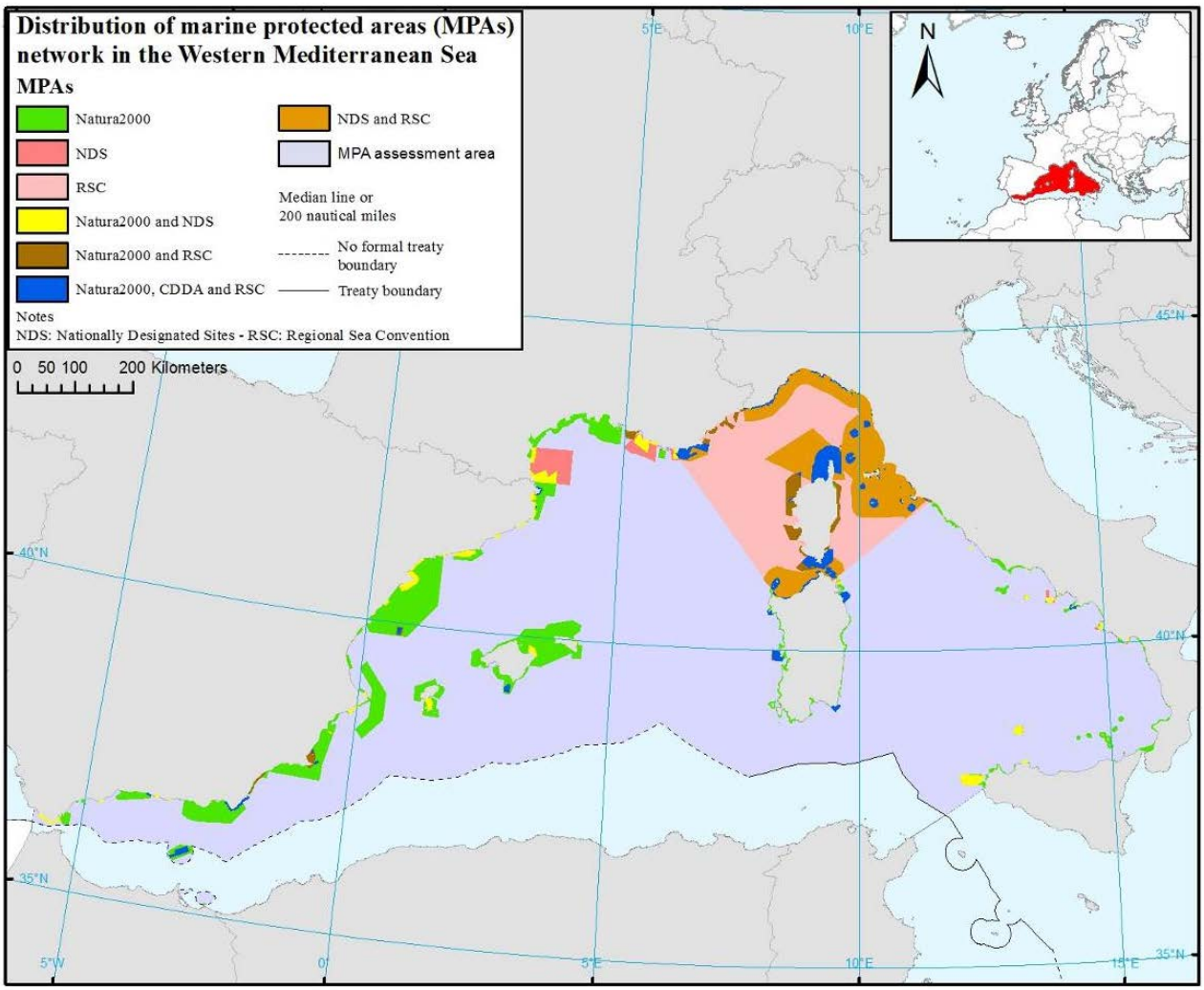
Map 3.4.d Distribution of MPAs in the Bay of Biscay and the Iberian Coast



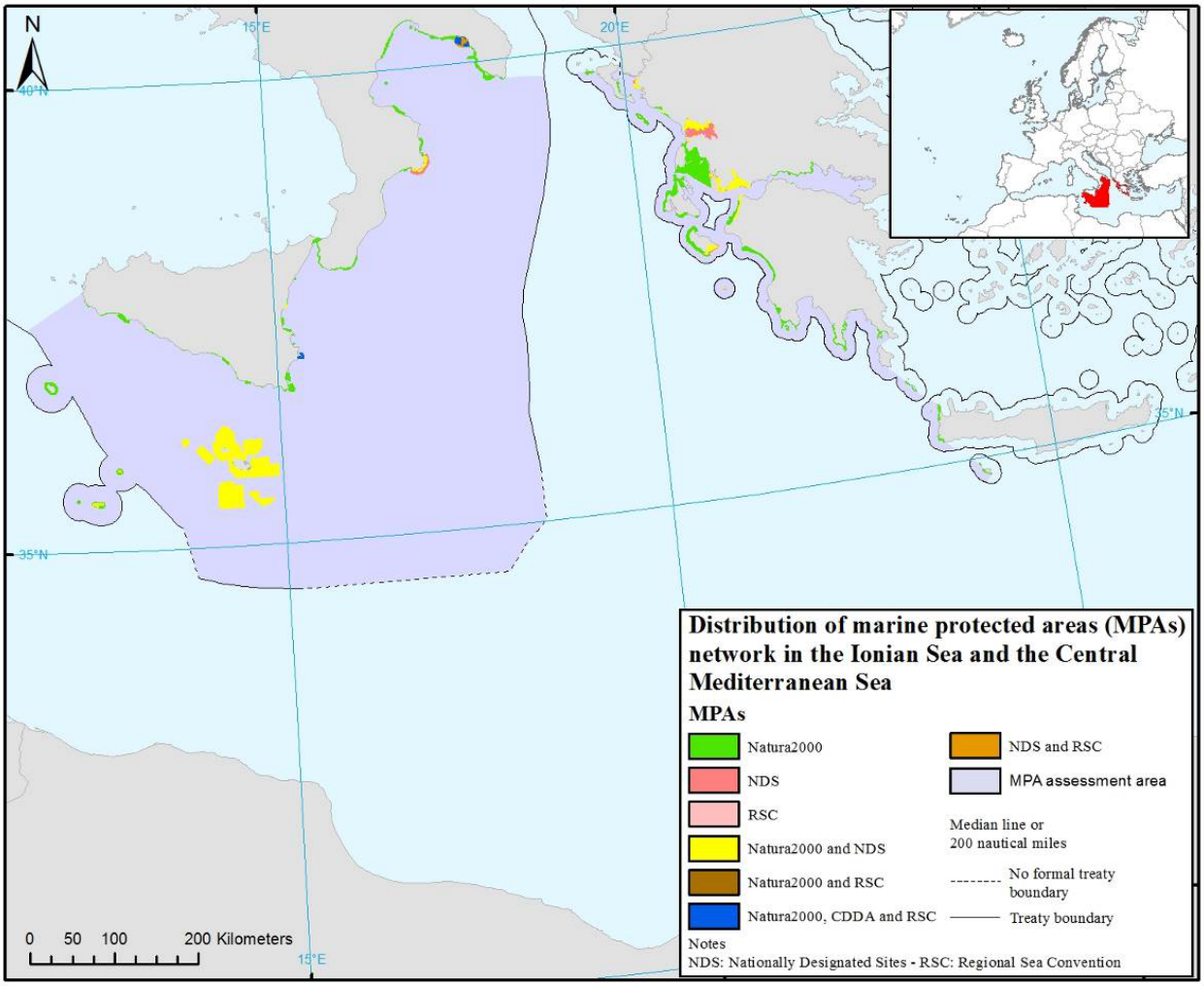
Map 3.4.e Distribution of MPAs in the Macaronesia sub-region



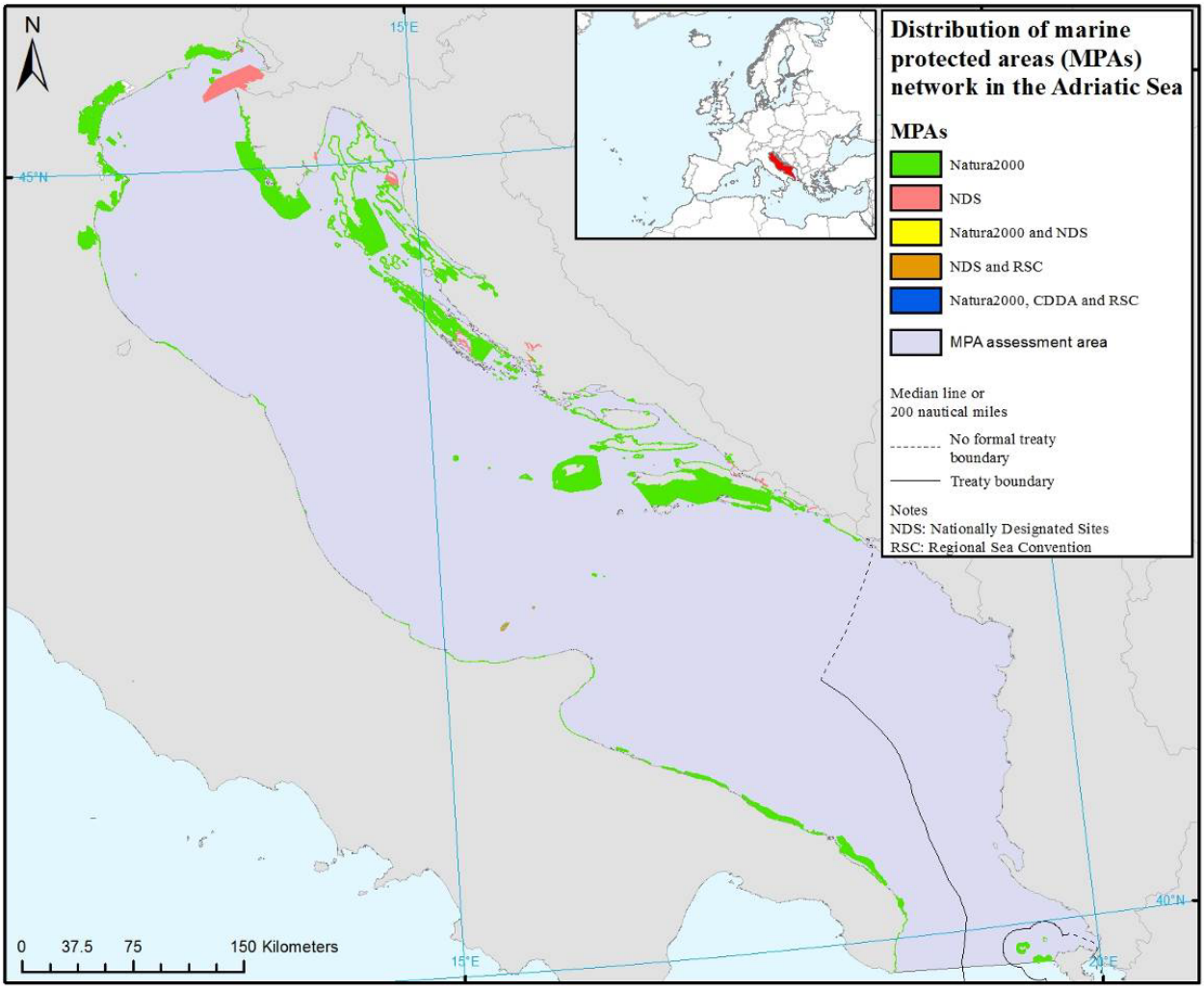
Map 3.4.f Distribution of MPAs in the Western Mediterranean Sea



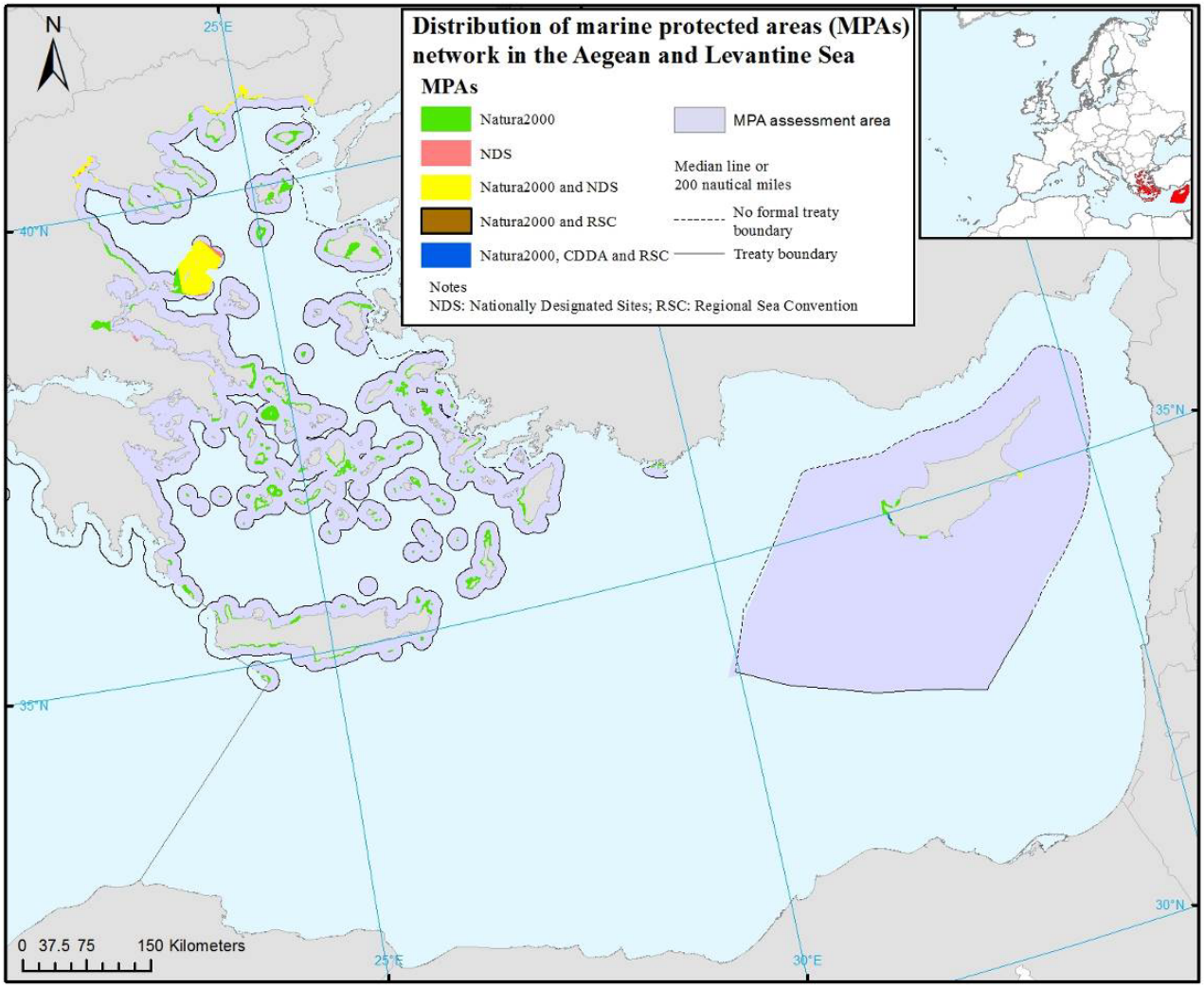
Map 3.4.g Distribution of MPAs in the Ionian Sea and the Central Mediterranean Sea



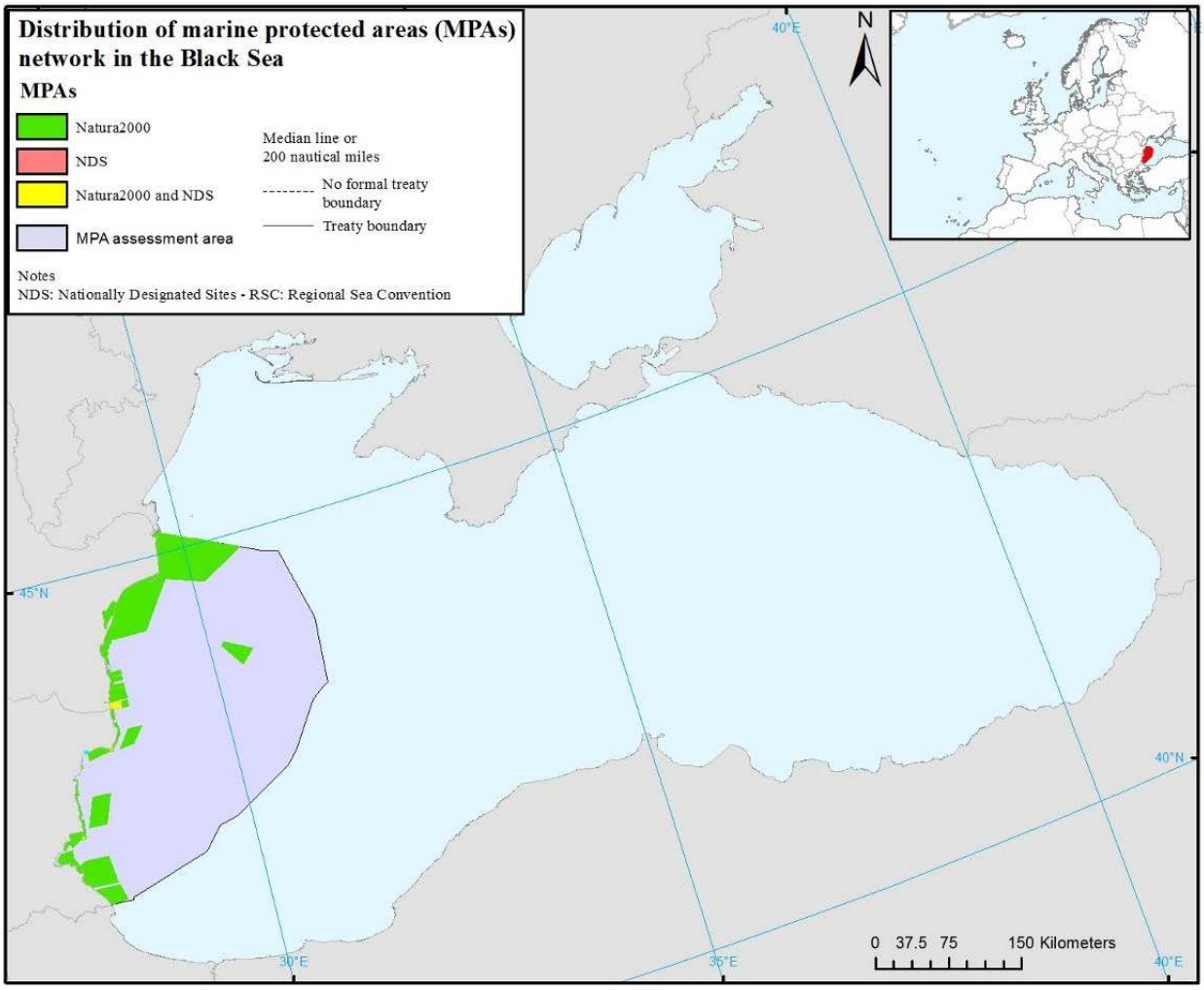
Map 3.4.h Distribution of MPAs in the Adriatic Sea



Map 3.4.i Distribution of MPAs in the Aegean and Levantine Sea



Map 3.4.j Distribution of MPAs in the Black Sea



3.4.1 MPA representativity

Table 3.5 provides statistics on the spatial extent of the MPA networks combined, considering the eventual areas of MPA overlap between networks as a unique value so as to avoid duplication of surface area counts for such areas. The percent surface area coverage for the entire network is calculated with respect to the surface extent of the MPA assessment area region/sub-region. The percent increase refers to that observed for the period end 2012–2016 while the percent overlap indicates how much of the overall network extension is affected by the overlap of two or more networks. Figures reported in bold and italic refer to values that are equal or lower to values indicated for the same region in the 2012 statistics (EEA 2015).

The lower values of the total number of sites observed in 2016 compared to 2012 are mostly to be attributed to: the revised marine CDDA site selection procedure, updated EEA coastline and sub-region boundary shifts.

Table 3.5 Surface area, percentage cover and percentage of increase of MPA networks in MPA assessment area regions and sub-regions (N2K, NDSs and RSC sites)

MPA assessment area regions and sub-regions	Area covered by MPAs (km²)	% covered by MPAs	% increase	Total no of sites	% area overlap with N2K
Baltic Sea	**60,827**	**16.5**	**+3.0**	***2,718***	***71.7***
North East Atlantic Ocean	**406,229**	**9.9**	**+5.7**	***2,306***	***60.6***
Celtic Sea	132,400	14.2	+9.8	***906***	***74.5***
Greater North Sea incl. Kattegat & English Channel	133,216	27.1	+9.2	***967***	***74.2***
Bay of Biscay and the Iberian Coast	79,140	9.9	+6.7	***321***	***53.2***
Macaronesia	61,473	3.3	+2.5	***134***	***11.0***
Mediterranean	**148,759**	**11.7**	**+2.2**	**1,412**	***32.3***
Western Mediterranean	129,559	19.6	+4.0	***646***	***31.6***
Ionian Sea and Central Mediterranean Sea	7,252	3.0	+1.4	***194***	58.9
Adriatic Sea	6,997	5.8	+3.8	411	9.6
Aegean-Levantine Sea	4,951	2.6	0.0	***169***	43.3
Black Sea	**9,156**	**14.2**	**+9.7**	***49***	***0.9***
Total	**624,971**	**10.8**	**+4.9**	***6,788***	***54.1***

Table 3.5 indicates that:

- **The lower number of sites does not influence in any case the MPA surface area which has increased in the 4 year period in all regions/sub-regions (total increase across all regions of 4.9%)** with the exception of the Aegean and Levantine sub-region.
- In 2012 only one European region had reached Aichi target. In the last four year period great advancement is recorded in terms of MPA coverage in the four regional seas: **three European regions now surpass the 10% Aichi target and in the North East Atlantic Ocean (NOEA) is very near to target (9.9%)**.
- Sub-regional coverage in the NOEA and the Mediterranean Sea is still not homogeneous: **1 out of 4 NOEA sub-regions and 3 out of 4 Mediterranean sub-regions have MPA coverages that are far below the 10% Aichi target**, indicating that protection effort is not evenly distributed amongst sub-regions.

Table 3.6 reports the surface area cover of the combined network per distance belt from the coast in each of the MPA assessment area regions and sub-regions. The percent increase columns indicate the increase observed in coverage during the period ending 2012–2016.

Table 3.6 Surface area, percentage cover and percentage increase (2012–2016) of MPAs in nearshore, coastal and offshore waters in European marine regions and sub-regions

MPA assessment area regions and sub-regions	Area (km²) of 0–1 NM zone covered by MPAs	Area (km²) of 1–12 NM zone covered by MPAs	Area (km2) of 12 NM – END zone covered by MPAs	% of nearshore zone covered by MPAs	% increase	% of territorial zone covered by MPAs	% increase	% of offshore zone covered by MPAs	% increase
Baltic Sea	***18850***	26887	15090	36.9	+0.8	17.8	+1.4	9.1	+5.2
North East Atlantic Ocean	33156	105470	267603	57.6	+5.5	29.9	+13.5	7.3	+5.0
Celtic Sea	14288	36201	81911	54.8	+7.3	27.5	+18.6	10.6	+8.3
Greater North Sea incl. Kattegat & English Channel	***12153***	36703	84360	63.8	+0.4	36.2	+3.8	22.7	+11.5
Bay of Biscay and the Iberian Coast	5138	20094	53907	61.0	+12.1	34.9	+19.1	7.3	+5.6
Macaronesia	1577	12471	47425	39.5	+11.5	20.0	+16.0	2.6	+2.0
Mediterranean	20154	69783	58822	36.3	+5.7	20.4	+6.2	6.7	+0.6
Western Mediterranean	10633	61358	57569	67.8	+7.4	42.1	+12.5	11.6	+1.5
Ionian Sea and Central Mediterranean Sea	2729	3279	***1244***	32.8	+2.3	6.6	+3.9	0.7	+0.7
Adriatic Sea	3992	2995	***10***	38.1	+21.1	6.2	+4.8	***0.0***	
Aegean-Levantine Sea	***2801***	2150	***0***	14.2		2.4	0.0	***0.0***	
Black Sea	1076	5004	***3076***	84.5	+6.6	51.0	+31.7	5.8	+5.8
Total	73236	207144	344591	44.3	+4.1	24.2	+8.6	7.2	+4.2

Table 3.6 indicates that:

- **MPA network has expanded in all buffer zones with overall percentage increases of 4.1, 8.5 and 4.2% for the nearshore, territorial and offshore zones of the European seas.**
- **MPA cover in the nearshore and territorial zones surpass the Aichi target in all regions and sub-regions with the exception of the ICME, ADRI and AELE sub-regions of the Mediterranean Sea.**
- **The Aichi target is still not reached in any of the offshore zones for European regions, but has been met in some sub-regions: CELT, GNKE and WMED.**

Table 3.7 illustrates the percentage cover resulting from sites established only under a single MPA network type and the percentage cover resulting from the overlap of sites designated under two or more network designations. The objective of this table is to indicate the degree of complementarity of each network type with respect to the overall MPA coverage resulting in each region and sub-region. Generally speaking, MPA overall coverage is the result of site establishment under more than one network.

Table 3.7 MPA percentage surface area coverage and the contribution of relative network percentage cover and percentage overlap in MPA assessment area regions/sub-regions.

MPA assessment area regions and sub-regions	% surface area cover all MPAs	% N2K contribution	% CDDA contribution	% RSC contribution	% shared network contribution
Baltic Sea	**16.5**	**21.6**	**3.5**	**3.2**	**71.7**
North East Atlantic Ocean	**9.9**	**31.5**	**7.8**	**0.1**	**60.6**
Celtic Sea	14.2	25.1	0.3	0.1	74.5
Greater North Sea incl. Kattegat & English Channel	27.1	24.1	1.5	0.2	74.2
Bay of Biscay and the Iberian Coast	9.9	46.3	0.4	0.1	53.2
Macaronesia	3.3	42.0	47.0	0.0	11.0
Mediterranean	**11.7**	**29.3**	**3.8**	**34.7**	**32.3**
Western Mediterranean	19.6	25.1	3.5	39.8	31.6
Ionian Sea and Central Mediterranean Sea	3.0	34.4	6.7	0.0	58.9
Adriatic Sea	5.8	83.8	6.6	0.0	9.6
Aegean-Levantine Sea	2.6	54.0	2.7	0.0	43.3
Black Sea	**14.2**	**99.1**	**0.0**	**0.0**	**0.9**
Total	**10.8**	**31.0**	**6.3**	**8.7**	**54.1**

Table 3.7 indicates that:

- **The percentage of network contribution to the shared percentage cover varies from one region to another and is generally high with the exception of the Macaronesia, Adriatic and Black Sea regions/sub-regions where sites established under two or more networks varies from 0.9 to 11%.**
- **N2K is the network which contributes most significantly to the overall attainment of MPA coverage as a single network on its own.**
- **Sites established only as CDDA or RSC instead contribute with lower percentages. This is likely due to the fact that in order to be established under RSC frameworks sites need to first be established under national designations of various types that are independent of N2K establishment frameworks.**
- **The exception to the above is in the Macaronesia region where sites are established either as N2K or CDDA, RSC sites are under 0% and a very small percentage of overlapping MPAs exists.**

Another representation of the distance from the 10% protection coverage indicated in Aichi target 11 is in Map 3.5. The colour of the sub-region represents this distance, covering all the MPAs occurring in the respective sub-region. The superimposed bar charts provide the same information estimated according to buffer zones, with the 10% value indicated with a dashed line.

Map 3.5 Distance to 10% coverage target for each marine region and sub-region and for each buffer zone

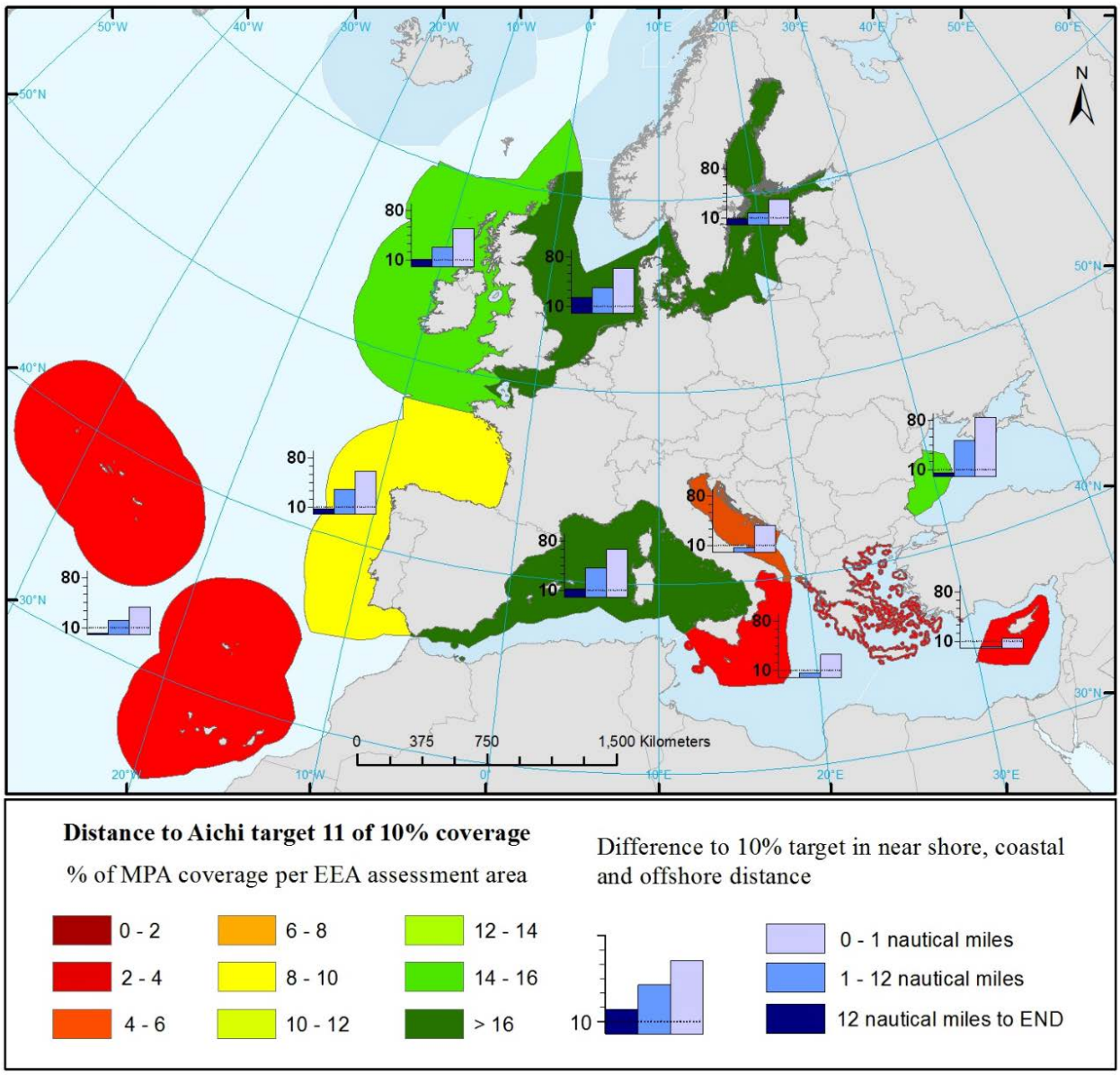


Table 3.8 illustrates the percentage cover of the MPA network with respect to modelled biological (depth) zone boundaries.

Table 3.8 Percentage coverage of MPAs in each biological depth zone within each EU marine region (NP = Biozone is not present in the region/sub-region)

MPA assessment area regions and sub-regions	Infralittoral	Circalittoral	Bathyal	Abyssal
Baltic Sea	**40.4**	**11.7**	**NP**	**NP**
North East Atlantic Ocean (NOEA)	**64.3**	**19.8**	**15.0**	**2.2**
Celtic Seas	57.3	14.5	17.5	0.3
Greater North Sea, incl. the Kattegat and the English Channel	72.3	23.7	41.6	NP
Bay of Biscay and the Iberian Coast	51.4	22.8	18.0	4.6
Macaronesia	61.8	52.0	10.8	1.5
Mediterranean	**40.6**	**22.1**	**9.3**	**6.3**
Western Mediterranean Sea	65.0	50.0	17.2	6.3
Ionian Sea and the Central Mediterranean Sea	33.2	8.5	1.2	NP
Adriatic Sea	27.6	4.3	0.0	NP
Aegean-Levantine Sea	16.2	3.7	1.3	NP
Black Sea	**67.1**	**23.4**	**0.7**	**NP**
Total	**48.7**	**18.7**	**12.0**	**2.5**

In summary Table 3.8 indicates that:

- **The MPA network appears to be reaching the 10% in all the infralittoral zones and most of the circalittoral zones of European regions and sub-regions with the exception of 3 of the 4 Mediterranean sub-regions (ICME, ADRI, AELE).**
- **Aichi coverage is reached in all of the bathyal zones of the NOEA and in the WMED while it is not reached in the remaining sub-regions.**
- **Aichi target is not reached in any of the abyssal zones of the regions/sub-regions.**

Table 3.9 illustrates the Aichi target achievement of the MPAs per biological depth zone while considering at the same time the rate of coverage increase observed during the four-year period (2013–2016). Percent increase trends over 4% are qualified positively on the assumption that yearly increases in coverage should be at least 1% per year in order to reach the 10% target in ten years. Trend increases lower than 4% indicate a lower rate of protection effort and as such are qualified with a graphic representation indicating intermediate effort. No increase in trends is represented with the lowest rating.

Table 3.9 Aichi target 11 achievement by MPAs network in each biological depth zone (green/red) and percentage of coverage increase with respect to 2012 coverage (>4% increase ☺; increase between 0 and 4 % 😐; no increase observed, ☹).

MPA assessment area regions and sub-regions	Infralittoral	Circalittoral	Bathyal	Abyssal
Baltic Sea	😐	😐		
North East Atlantic Ocean	☺	☺	☺	😐
Celtic Seas	☺	☺	☺	😐
Greater North Sea, incl. the Kattegat and the English Channel	😐	☺	😐	
Bay of Biscay and the Iberian Coast	☺	☺	☺	☺
Macaronesia	☺	☺	☺	😐
Mediterranean	☺	☺	😐	😐
Western Mediterranean Sea	☺	☺	😐	😐
Ionian Sea and the Central Mediterranean Sea	😐	☺	😐	
Adriatic Sea	☺	😐	😐	
Aegean-Levantine Sea	😐	😐	😐	
Black Sea	😐	☺	😐	
Total	😐	☺	☺	😐

In so doing, Table 3.9 highlights that:

- **Where Aichi target is reached, MPA coverage is in any case increasing**
- **The MPA biological zone coverages that are still far from attainment of the Aichi target are increasing at slower rates**
- **The rate of coverage increase observed in the circalittoral ICME and bathyal Bay of Biscay and the Iberian Coast is higher.**

Table 3.10 reports the MPA percentage coverage of the revised broad habitats while Table 3.11 illustrates the representativity of the target achievement (*sensu* ETC/ICM, 2017, i.e. twenty percent target coverage achievement and 60% for Posidonia) and the rate of coverage increase observed during the four year period (end 2012–2016). Percent increase trends are considered with the same conceptual approach as explained for Table 3.9.

Table 3.10 Percentage coverage of the revised broad habitats within each MPA assessment region (NP = Revised broad habitat is not present in the region/sub-region)

MPA assessment area regions and sub-regions	Ir	Ic	Is	Im	Imx	Pos	Cym	Cr	Cc	Cs	Cm	Cmx	Br	Bc	Bs	Bm	Bmx	Ar	Ac	As	Am	Amx
Baltic Sea	29.4	48.2	59.8	36.2	29.1	NP	NP	18.5	26.1	26.3	5.0	12.7	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP
North-East Atlantic Ocean	47.9	61.0	72.9	47.9	54.0	NP	88.4	28.0	22.1	19.9	14.6	27.5	27.3	20.6	20.8	11.7	24.9	0.0	0.0	0.8	0.1	0.6
Celtic Sea	38.3	55.1	69.3	0.0	60.5	NP	NP	27.7	16.6	10.9	13.7	28.3	67.6	22.2	25.1	18.2	34.5	3.7	NP	17.6	0.2	1.1
Greater North Sea incl. Kattegat and English Channel	45.7	65.3	78.9	57.0	56.9	NP	NP	41.9	30.7	24.6	12.1	21.2	NP	NP	0.0	0.0	39.6	NP	NP	NP	NP	NP
Bay of Biscay and the Iberian Coast	53.4	48.3	45.9	62.5	41.5	NP	NP	23.9	33.9	18.5	20.9	35.0	36.6	11.8	17.4	16.1	33.0	0.2	NP	0.7	0.8	NP
Macaronesia	68.8	67.9	72.4	89.3	19.2	NP	88.4	50.4	29.8	78.8	60.7	7.1	9.9	0.3	19.6	5.1	11.1	0.0	0.0	0.0	0.0	0.6
Mediterranean	48.8	49.7	16.1	NP	24.4	66.2	11.8	33.7	54.7	23.0	19.6	25.5	13.7	59.1	32.6	8.4	4.8	NP	48.8	42.8	4.9	NP
Western Mediterranean	70.9	62.2	0.0	NP	77.9	67.2	30.4	40.7	62.2	49.8	49.2	34.8	21.3	87.9	40.7	15.8	0.9	NP	48.8	42.8	5.2	NP
Ionian Sea and Central Mediterranean Sea	35.9	1.2	30.2	NP	0.1	53.1	0.0	18.9	28.1	4.9	4.0	27.1	3.2	3.5	11.5	0.9	4.8	NP	NP	NP	0.0	NP
Adriatic Sea	25.2	57.1	27.1	NP	61.2	68.3	2.0	29.1	34.9	6.8	2.3	11.8	NP	NP	7.8	0.0	NP	NP	NP	NP	NP	NP
Aegean-Levantine Sea	2.5	5.0	10.3	NP	1.0	76.4	NP	1.1	3.3	4.5	3.6	3.2	0.0	0.0	20.2	0.7	3.2	NP	NP	NP	NP	NP
Black Sea	77.4	81.6	78.8	34.8	68.8	NP	NP	93.7	40.9	24.2	27.7	9.6	NP	NP	NP	0.2	NP	NP	NP	NP	0.0	0.0
Total	42.5	54.3	53.4	39.1	31.6	66.2	15.9	27.2	23.1	20.8	13.9	16.0	24.0	23.6	24.1	9.4	23.0	0.0	48.8	6.7	0.9	0.6

Note: Habitat legend: I, C, B and A= infralittoral, circalittoral, bathyal, abyssal; r,c,s,m,mx =rock, coarse, sand, mud mixed sediments; Pos, Cy = *Posidonia oceanica* meadows, *Cymodocea nodosa* beds

Table 3.11 Twenty percent target coverage achievement (60% for Posidonia) of each revised broad habitat by MPAs network in each MPA assessment region (green/red) and percentage of coverage variation with respect to 2012 coverage (>4% increase ☺; increase between 0 and 4 % 😐; no trend increase observed, ☹).

MPA assessment area regions and sub-regions	Ir	Ic	Is	Im	Imx	Pos	Cym	Cr	Cc	Cs	Cm	Cmx	Br	Bc	Bs	Bm	Bmx	Ar	Ac	As	Am	Amx
Baltic Sea	😐	😐	😐	😐	😐	▪	▪	😐	☺	😐	😐	☺	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪
North-East Atlantic Ocean	☺	☺	😐	☹	☺	▪	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☹	☹	😐	☹	☹
Celtic Sea	☹	☺	😐	☹	☺	▪	▪	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	😐	▪	☹	😐	☹
Greater North Sea incl. Kattegat and English Channel	☹	😐	😐	☹	☹	▪	▪	☹	☺	☺	☺	☺	▪	▪	☹	☹	☹	▪	▪	▪	▪	▪
Bay of Biscay and the Iberian Coast	☺	☺	☺	☺	☺	▪	▪	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☹	▪	😐	😐	▪
Macaronesia	☺	☺	☺	☺	😐	▪	☺	☺	☺	☺	☺	☹	☺	☹	☺	😐	☺	☹	☹	😐	☹	☹
Mediterranean	☺	☺	☹	▪	☺	😐	☹	☺	☺	☺	☺	☺	☺	😐	😐	😐	☺	▪	😐	😐	😐	▪
Western Mediterranean	☺	☺	☹	▪	😐	☺	😐	☺	☺	☺	☺	☹	☺	😐	☺	😐	☹	▪	😐	😐	😐	▪
Ionian Sea and Central Mediterranean Sea	😐	☹	😐	▪	☹	😐	☹	☺	😐	😐	😐	☺	😐	☹	☺	😐	☺	▪	▪	▪	☹	▪
Adriatic Sea	☺	☺	☺	▪	☺	😐	😐	😐	☺	☺	😐	☺	▪	▪	😐	☹	▪	▪	▪	▪	▪	▪
Aegean-Levantine Sea	😐	☹	☹	▪	☹	☹	▪	☹	☹	☹	😐	☹	☹	☹	☹	😐	😐	▪	▪	▪	▪	▪
Black Sea	☺	☺	☹	☹	😐	▪	▪	☺	☺	☺	☺	☺	▪	▪	▪	😐	▪	▪	▪	▪	☹	☹
Total	☺	☺	☹	☹	😐	😐	☹	☺	☺	☺	☺	☺	☺	☺	☺	😐	☺	☹	😐	😐	☹	☹

Note: Habitat legend: I, C, B and A= infralittoral, circalittoral, bathyal, abyssal; r,c,s,m,mx =rock, coarse, sand, mud mixed sediments; Pos, Cy = *Posidonia oceanica* meadows, *Cymodocea nodosa* beds

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European Topic Centre on Inland, Coastal and Marine Waters
Helmholtz Centre for Environmental Research GmbH – UFZ
Brückstr. 3a
39114 Magdeburg
Germany
Web: water.eionet.europa.eu

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