

GEOREFERENCED COMPILATION ON BIRD IMPORTANT AREAS IN OPEN SEAS

MEDITERRANEAN REGION

Susana Requena-Moreno
RAC / SPA Consultant
November 2015

The Barcelona Convention (SPA/BD Protocol)

First phase

[...] in order to achieve the objectives of the project entitled "***Identification of possible SPAMIs in the Mediterranean areas beyond national jurisdiction***".



[...] will support RAC/SPA by compiling and analysing contents for the preparation datasets and layouts; a report on '**Georeferenced compilation on bird important areas in open seas**'; [...]

Contract N° 33/2009_RAC/SPA High Seas

The Barcelona Convention (SPA/BD Protocol)

Annex II: Seabird species

Calonectris diomedea – Scopoli's Shearwater

Puffinus yelkouan – Yelkouan Shearwater (endemic)

Puffinus mauretanicus – Balearic Shearwater (endemic)

Hydrobates pelagicus melitensis – European Storm-Petrel (Mediterranean subspecies)

Phalacrocorax aristotelis desmarestii – Mediterranean Shag (Mediterranean subspecies)

Larus audouinii – Audouin's Gull (endemic)

Larus melanocephalus – Mediterranean Gull

Larus genei – Slender-billed Gull

Sterna albifrons – Little Tern

Sterna bengalensis – Lesser Crested Tern

Sterna caspia – Caspian Tern

Sterna nilotica – Gull-billed Tern

Sterna sandvicensis – Sandwich Tern

occur further offshore and therefore are more representative of pelagic habitats

have higher levels of endemism, and therefore represent taxa that evolved in isolation in the Mediterranean

have higher levels of threat, according to international standards (IUCN, BirdLife International)

The Barcelona Convention (SPA/BD Protocol)

Annex II: Seabird species

- * *Calonectris diomedea* – Scopoli's Shearwater
- * *Puffinus yelkouan* – Yelkouan Shearwater (endemic)
- * *Puffinus mauretanicus* – Balearic Shearwater (endemic)
- * *Hydrobates pelagicus melitensis* – European Storm-Petrel (Mediterranean subspecies)
- * *Phalacrocorax aristotelis desmarestii* – Mediterranean Shag (Mediterranean subspecies)
- * *Larus audouinii* – Audouin's Gull (endemic)
- * *Larus melanocephalus* – Mediterranean Gull
- Larus genei* – Slender-billed Gull
- Sterna albifrons* – Little Tern
- Sterna bengalensis* – Lesser Crested Tern
- Sterna caspia* – Caspian Tern
- Sterna nilotica* – Gull-billed Tern
- Sterna sandvicensis* – Sandwich Tern



occur further offshore and therefore are more representative of pelagic habitats

have higher levels of endemism, and therefore represent taxa that evolved in isolation in the Mediterranean

have higher levels of threat, according to international standards (IUCN, BirdLife International)

Scientific name	Protected (1)	In decline (2)	Endemic or near-endemic	EC Birds Directive (3)	AEWA (4)
<i>Calonectris diomedea diomedea</i>	•	•	•	•	
<i>Puffinus yelkouan</i>	•	•	•	•	
<i>Puffinus mauretanicus</i>	•	•	•	•	
<i>Hydrobates pelagicus melitensis</i>	•		•	•	
<i>Phalacrocorax aristotelis desmarestii</i>	•	•	•	•	
<i>Larus melanocephalus</i>	•		•		
<i>Larus audouinii</i>	•		•	•	•

(1). Barcelona Convention. Protocol concerning specially protected areas and biological diversity in the Mediterranean. Annex II: List of Endangered or Threatened Species.

IUCN. IUCN Red List of Threatened Species. IUCN. 2008.

(2). BirdLife International. (2009). Species factsheets. <http://www.birdlife.org>

UNEP-MAP-RAC/SPA. (2006). Proceedings of the first symposium on the Mediterranean Action Plan for the conservation of marine and coastal birds. Vilanova i la Geltrú, Spain.

(3). EC Birds Directive. Council Directive 79/409/EEC on the conservation of wild birds. Annex I. Species subject of special conservation measures concerning their habitat in order to ensure their survival and reproduction in their area of distribution.

(4). AEWA. Agreement on the Conservation of African-Eurasian Migratory Waterbirds. Annex 2: Waterbird species to which the Agreement applies.

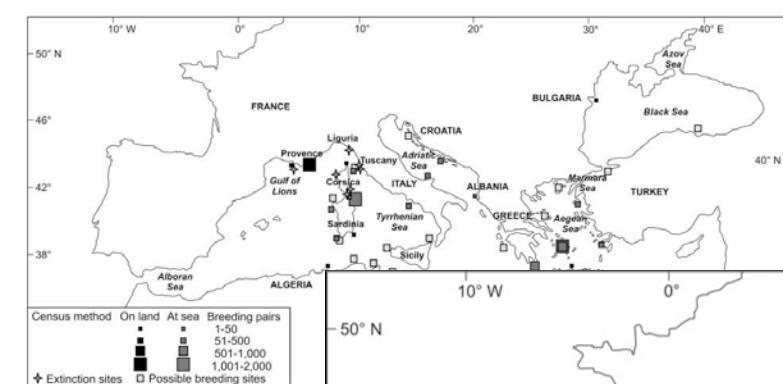
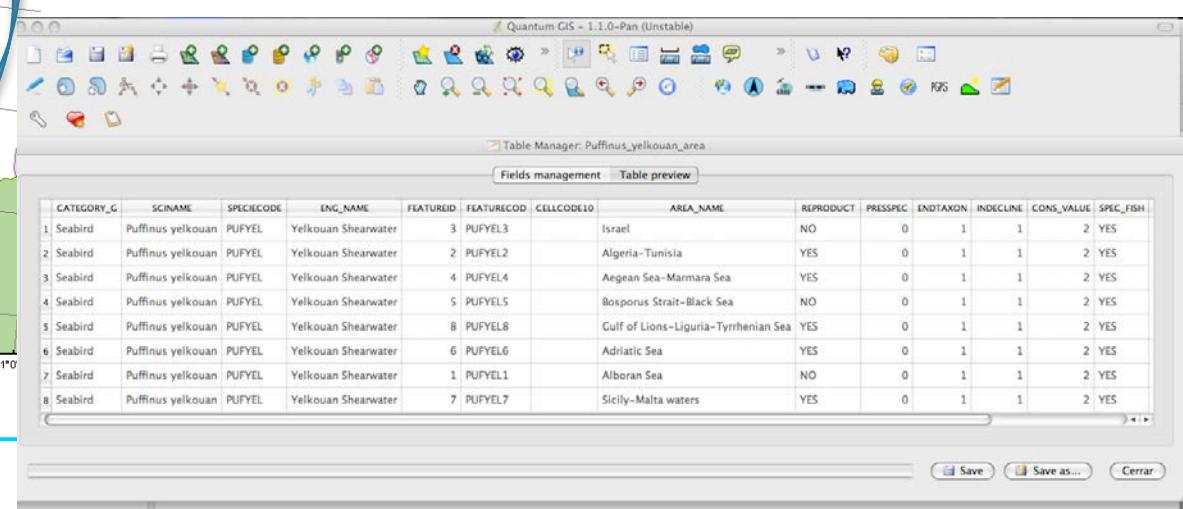
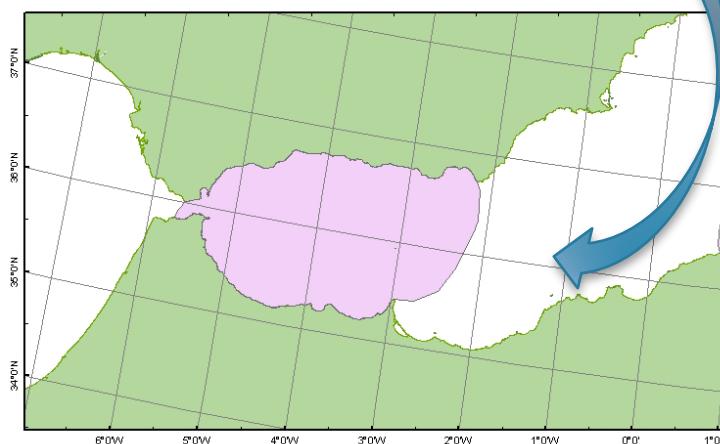
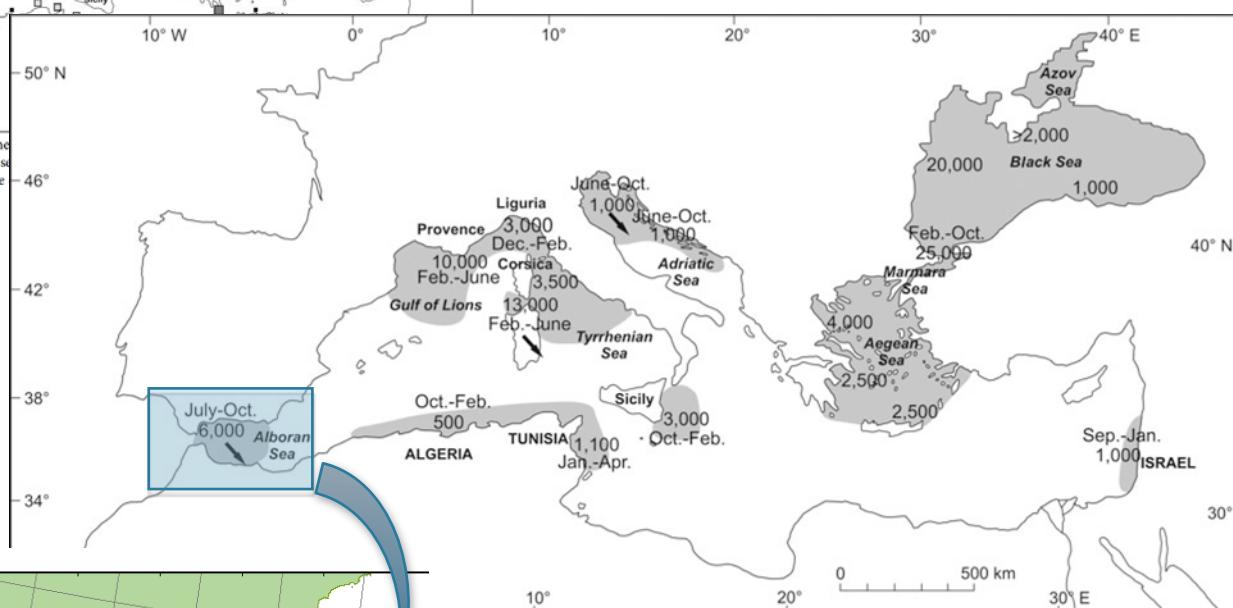
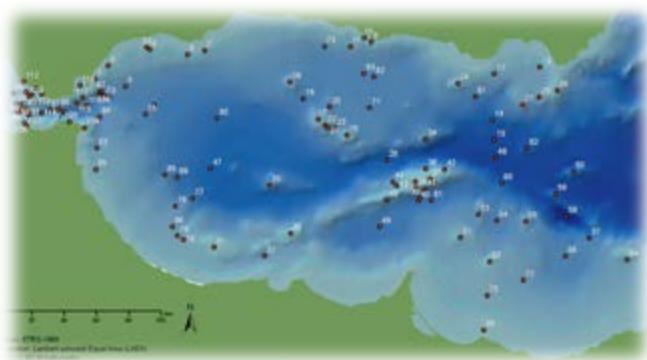


FIG. 1 Locations of breeding sites of the yelkouan shearwater determined by censuses on land or at sea and of the nine sites where the species appears to be

Bourgeois, K. & Vidal, E. (2008). The endemic Mediterranean yelkouan shearwater *Puffinus yelkouan*: distribution, threats and a plea for more data. *Oryx*, 42(2), 187–194





+ other
relevant information
for a more realistic
adjustment of
the limits

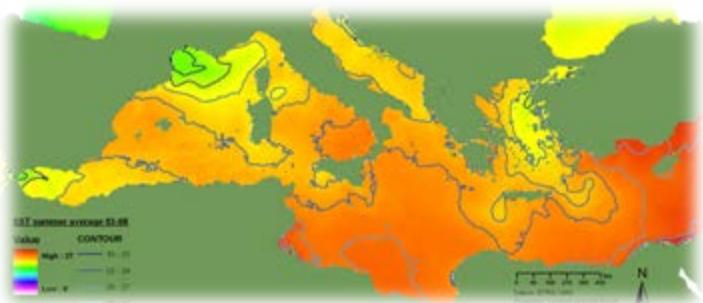
BirdLife International

Search the BirdLife Data Zone

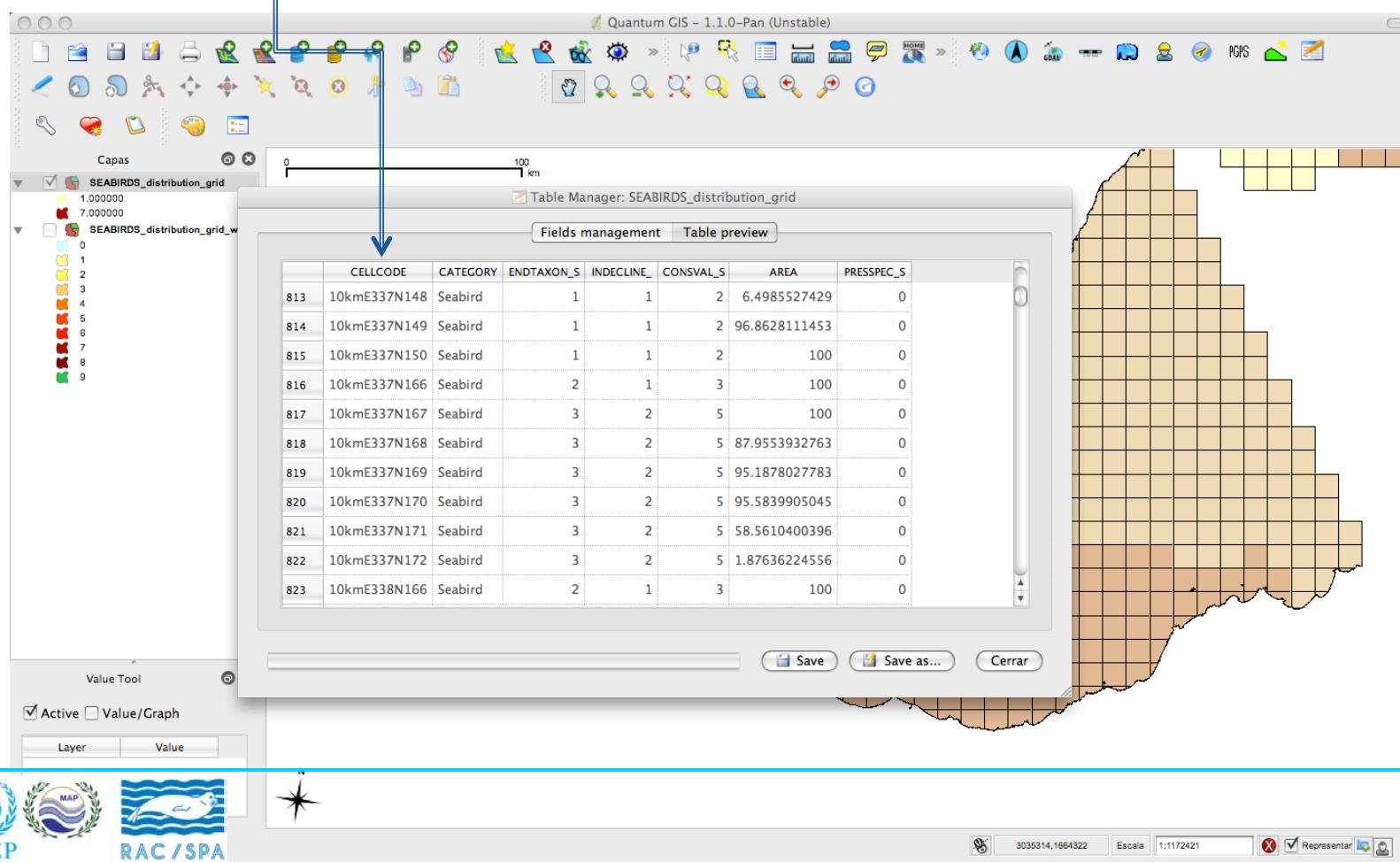
Species
Access information, maps and reports on the status of all 10,000 of the world's bird species

Sites (Important Bird and Biodiversity Areas)
Search our list of the most important sites around the world for the conservation of birds

Case studies (State of the world)



Translation into the EEA reference grid
ETRS-LAEA52N10E, 10 km cell.

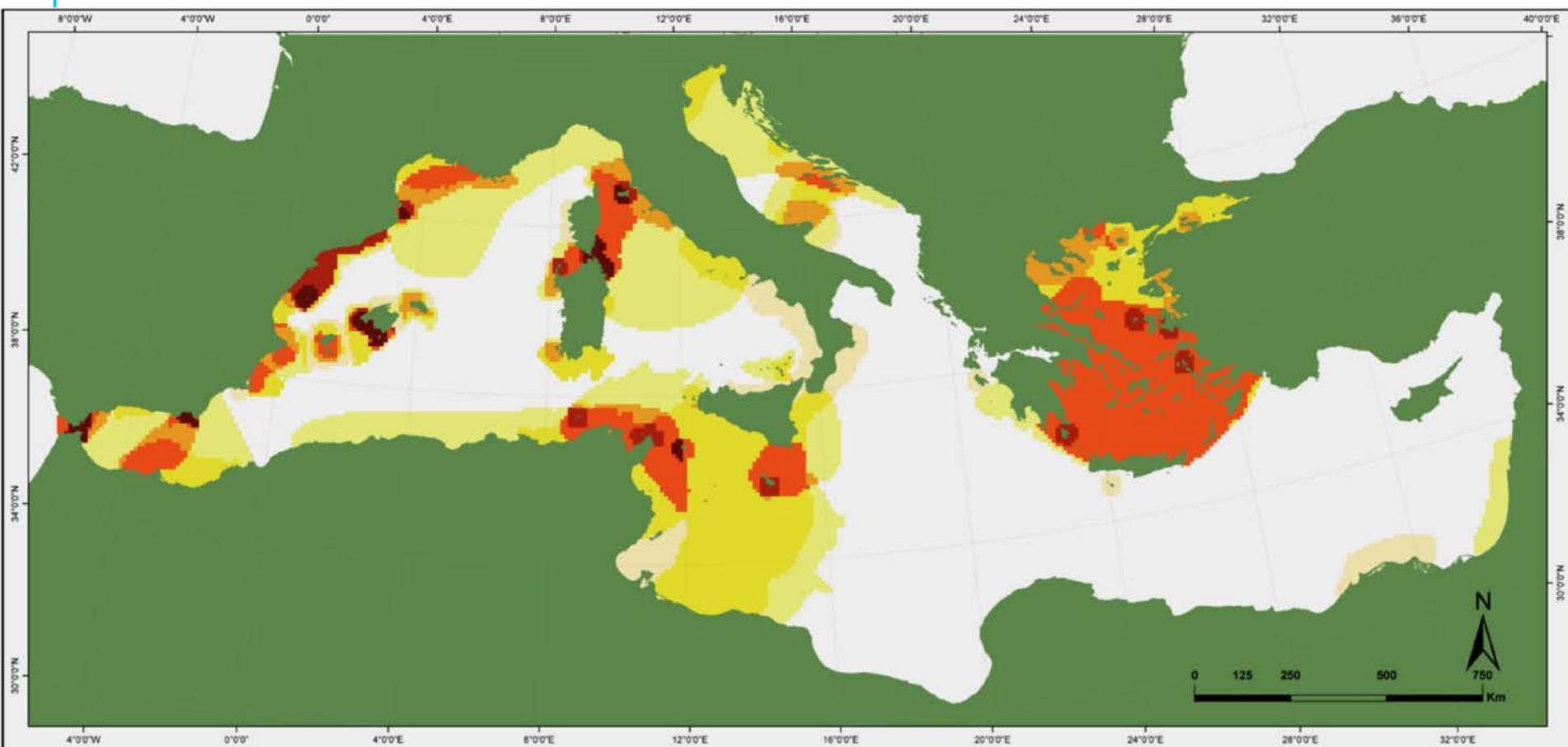


The final conservation value for each of the cells of the grid

Field	Possible values
PRESENCE	If a specie is present in the area
SPEC-FISH	If a specie is threatened by by-catch
ENDTAXON	If a specie is an endemic or near-endemic taxon in the area
INDECLINE	If the specie is in decline in the area
CONSVAL	The sum of all the above factors

- The final conservation value of each 100 km² is the result of an **additive process**.
- When the spatial join of all these layers is performed over the Mediterranean grid, each of the cells received a new value that corresponds to the sum of all the species that counts for any given cell.
- In this way, **CONSVAL** of a given a cell **could be ranked between**

 0 if there isn't presence for none of the species
to
11 if this cell counts for all the seven species.



**Pelagic distribution of Mediterranean
seabirds of conservation concern.
Potential sites in open seas.**

Legend
Potential seabird sites grid (conservation value global rank)

1	2	3	4	5	6	7
---	---	---	---	---	---	---



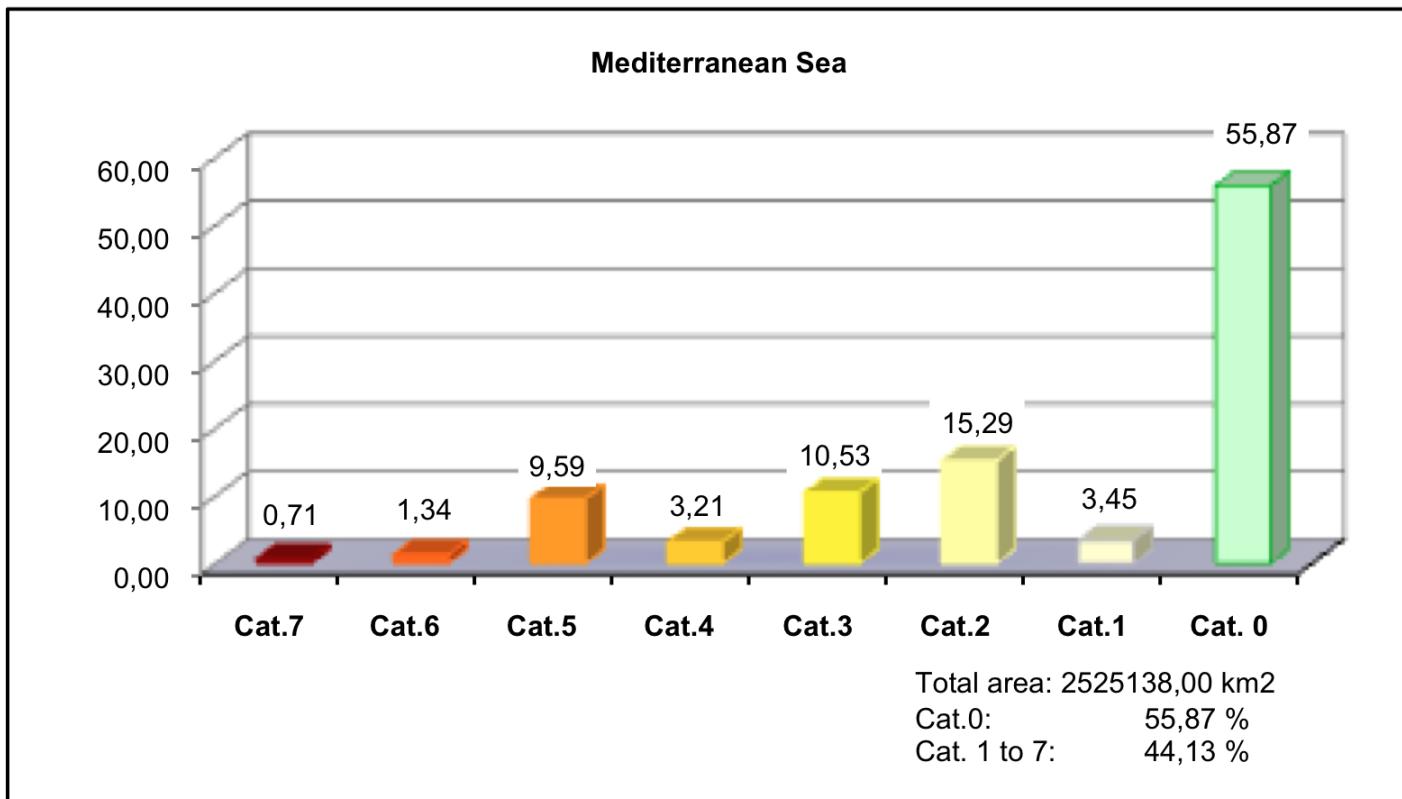
UNEP MAP, RAC/SPA - EC
*Identification of possible SPAMIs in the
Mediterranean areas beyond national jurisdiction*

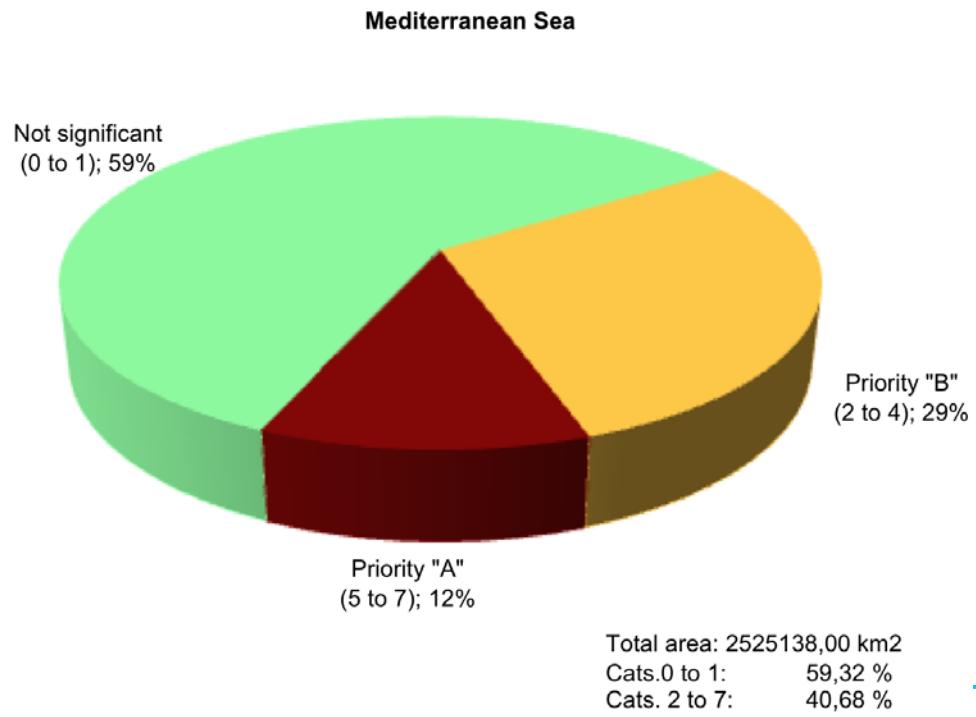
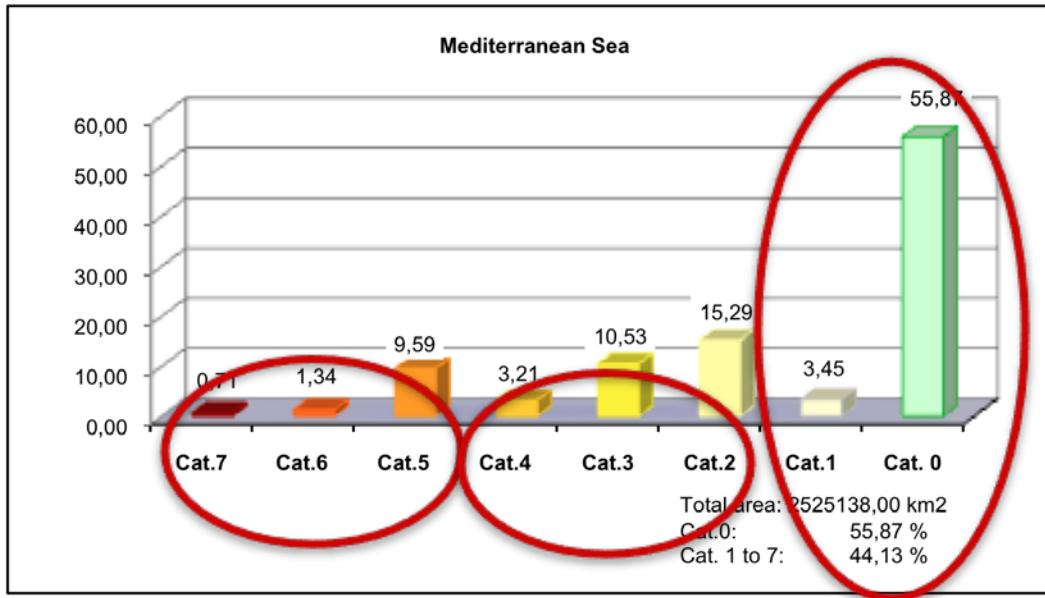
Author: Requena, S.

Date: May 2009

Projection: ETRS89 Lambert Azimuthal Equal Area 52N 10E

	Area (km2)	%	% total
Cat. 0	1410724,93	55,87	55,87
Cathegories 1 to 7	1114413,08	44,13	
Total area	2525138,00	100,00	
Cathegory			
Cat.7	17938,47	1,61	0,71
Cat.6	33950,34	3,05	1,34
Cat.5	242093,78	21,72	9,59
Cat.4	81134,15	7,28	3,21
Cat.3	265984,47	23,87	10,53
Cat.2	386069,57	34,64	15,29
Cat.1	87242,30	7,83	3,45
Sub-total value	1114413,08	100,00	44,13

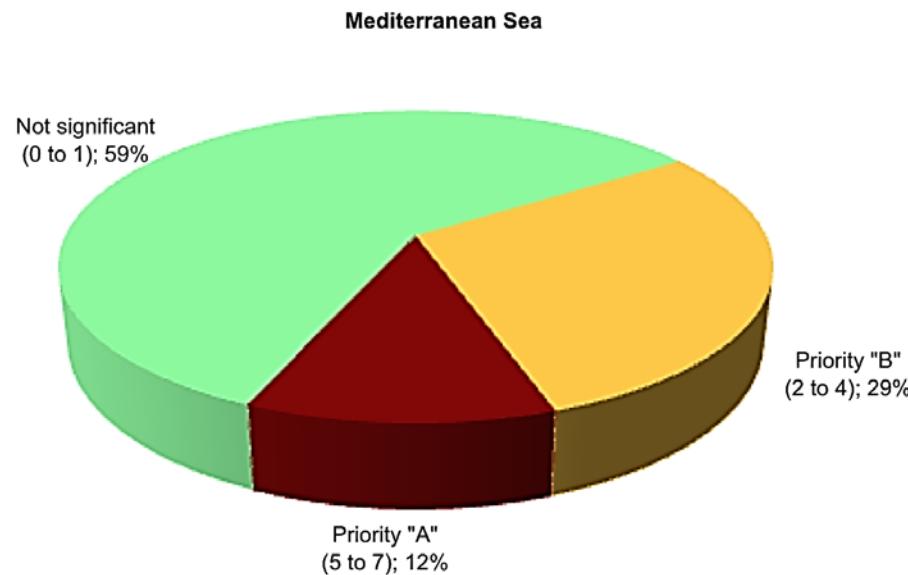




MEDITERRANEAN OVERVIEW

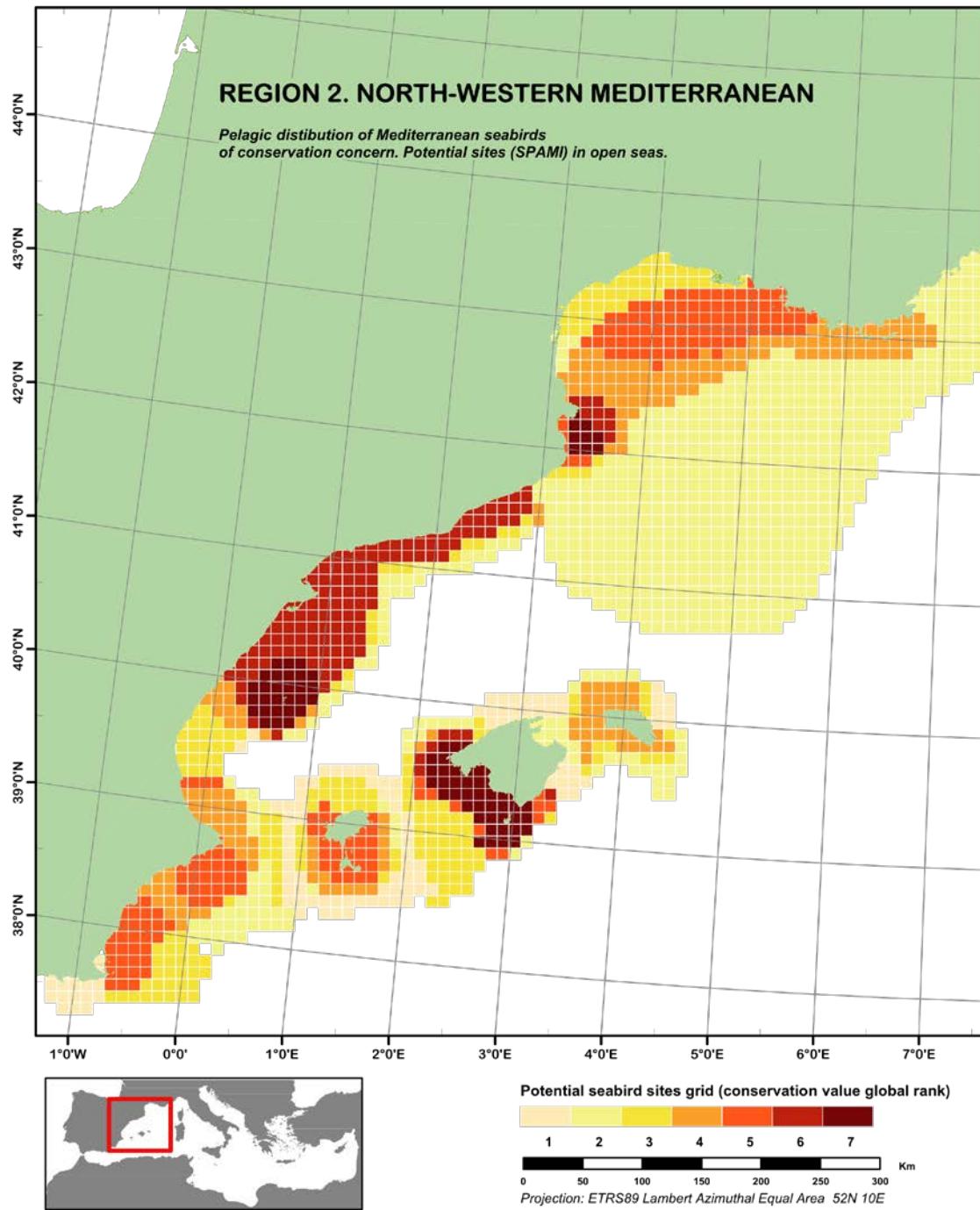
Some basic calculations revealed some trends that are worth mentioning:

- ✓ Nearly two-thirds (59,32%) of cells had an insignificant presence of priority species (cat. 0-1)
- ✓ Inversely, priority bird species were **present in only about one-third** (40,68%) of the total cells
- ✓ Priority bird species were **somewhat dispersed over the areas** where they were present; no single cells had a value >7, when the highest possible value was 11
- ✓ **Less than one-third (29%) of cells corresponded to cat. 2-4**; these were assigned '**priority B**'
- ✓ **About a 10% (11,6%) of the total sum of cells had the highest importance** (cat. 5-7) in terms of priority bird species present; these were assigned '**priority A**'

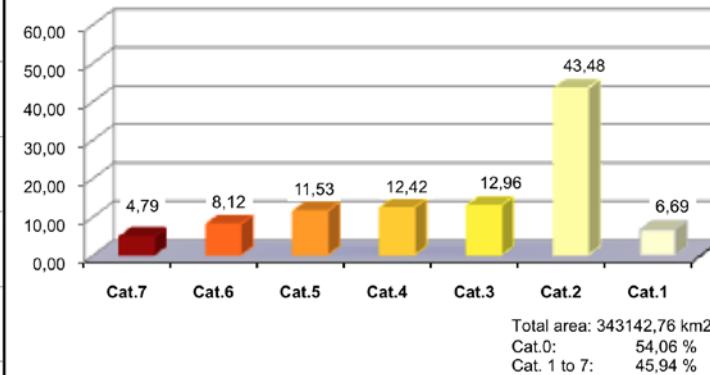


Total area: 2525138,00 km²
Cats.0 to 1: 59,32 %
Cats. 2 to 7: 40,68 %

2nd phase: Gulf of Lions



	Area (km ²)	%
Cathegory 0	185516,05	54,06
Cathegories 1 to 7	157626,71	45,94
Total area REGION 2	343142,76	100,00
Cathegory		
Cat.7	7552,03	4,79
Cat.6	12799,73	8,12
Cat.5	18176,47	11,53
Cat.4	19584,20	12,42
Cat.3	20433,07	12,96
Cat.2	68543,83	43,48
Cat.1	10537,38	6,69
Sub-total value	157626,71	100,00



OUTSTANDING AREAS

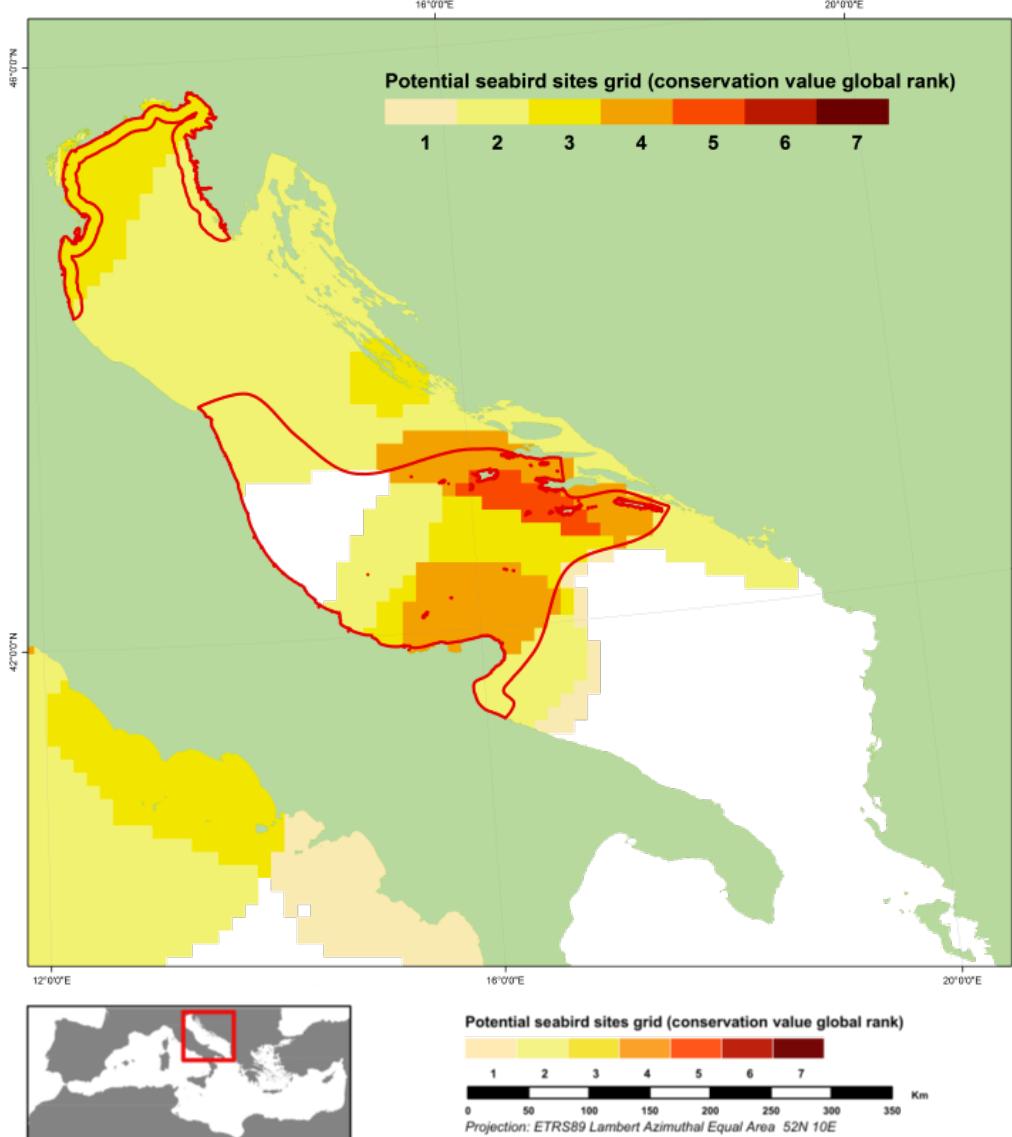
- Gulf of Lions
- Hyères Islands
- Cap de Creus
- Ebro delta & river system
- Columbretes Islands
- De la Nau Cap

 The image cannot be displayed. Your computer may not have enough memory to open the image, or the image may have been corrupted. Restart your computer, and then open the file again. If the red

2nd phase: Gulf of Lions

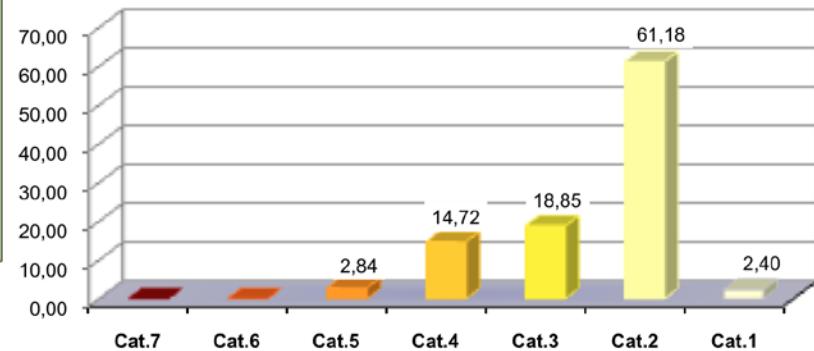
OUTSTANDING AREAS

- Gulf of Lion
- Hyères Islands
- Cap de Creus
- Ebro delta & river system
- Columbretes Islands
- De la Nau Cap



3rd phase: Adriatic Sea

	Area (km ²)	%
Cathegory 0	49563,31	36,31
Cathegories 1 to 7	86939,31	63,69
Total area REGION 7	136502,62	100,00
Cathegory		
Cat.7	n.d	n.d
Cat.6	n.d	n.d
Cat.5	2471,68	2,84
Cat.4	12801,27	14,72
Cat.3	16384,73	18,85
Cat.2	53191,85	61,18
Cat.1	2089,79	2,40
Sub-total value	86939,31	100,00

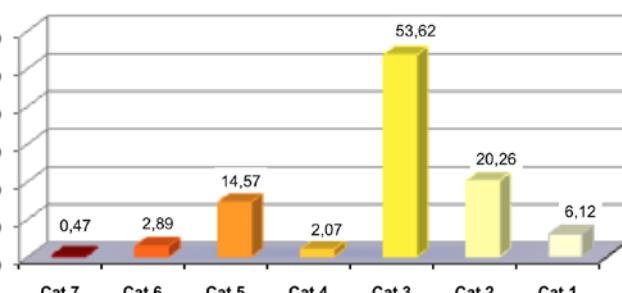
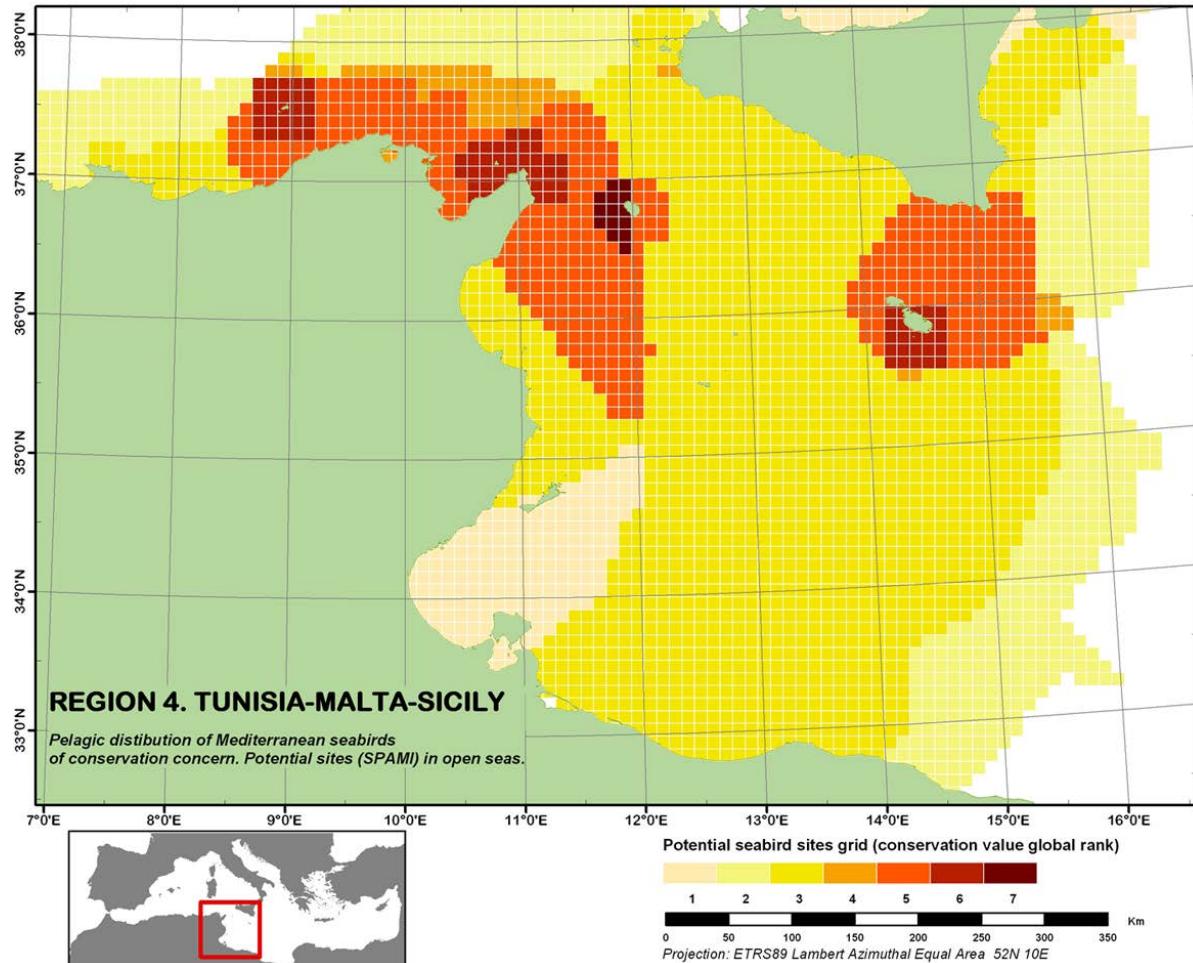


Total area: 136502,62 km²
 Cat.0: 36,31 %
 Cat. 1 to 7: 63,69 %

OUTSTANDING AREAS

- Gulf of Venice
- Central Adriatic Sea

3rd phase: Sicily Channel / Tunisian Plateau



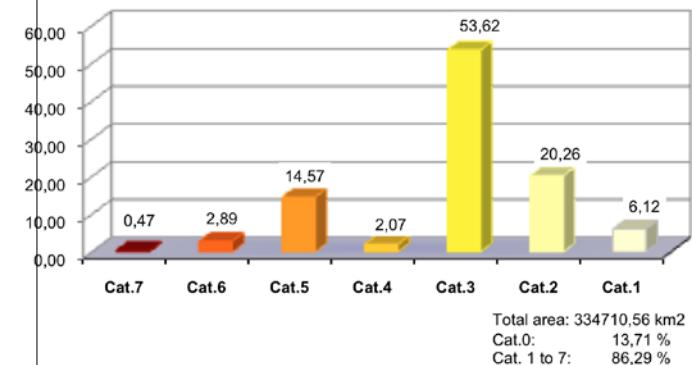
Total area: 334710,56 km²
 Cat.0: 13,71 %
 Cat. 1 to 7: 86,29 %

OUTSTANDING AREAS

- Strait of Sicily – Tunisia
- Egadi, Pantelleria & Pelagie Is.
- Malta & S. Sicilian waters
- Tunisian – Lybian waters

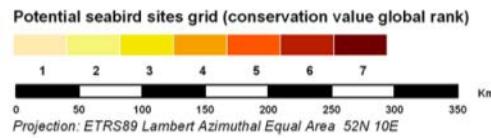
 The image cannot be displayed. Your computer may not have enough memory to open the image, or the image may have been corrupted. Restart your computer, and then open the file again. If the red x still appears, then the image is not available.

3rd phase: Sicily Channel / Tunisian Plateau



OUTSTANDING AREAS

- Strait of Sicily – Tunisia
- Egadi, Pantelleria & Pelagie Is.
- Malta & S. Sicilian waters
- Tunisian – Lybian waters



Acknowledgments

➤ All those make their information freely available on the Internet

- ✓ Quantum GIS Project
- ✓ Open Source Geospatial Foundation Project
- ✓ SeaWiFS and the MODIS Projects
- ✓ NASA Goddard Earth Sciences (GES)
- ✓ Data and Information Services Center (DISC)
- ✓ **BirdLife International.**
- ✓ GEBCO
- ✓ British Oceanographic Data Centre (BODC)
- ✓ the European Environment Agency (EEA)
- ✓ European Environment Information and Observation Network (EIONET)
- ✓ Communication and Information Resource Centre Administrator (CIRCA)

All who are contributing to improve our knowledge and the protection of the marine environment in the Mediterranean.

- The experts who made the revision of the results and advised me at every stage: C. Carboneras (IMEDEA-CSIC / UB) and Prof. J.M. Gili (Marine Sciences Institute, CSIC).
- Publication available: http://medabnj.rac-spa.org/images/stories/Publications/bird_important_areas.pdf