GEOREFERENCED COMPILATION ON BIRD IMPORTANT AREAS IN OPEN SEAS

MEDITERRANEAN REGION

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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’; [...]
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)

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<table>
<thead>
<tr>
<th>Scientific name</th>
<th>Protected (1)</th>
<th>In decline (2)</th>
<th>Endemic or near-endemic</th>
<th>EC Birds Directive (3)</th>
<th>AEWA (4)</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Calonectris diomedea</em></td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td><em>diomedea</em></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Puffinus yelkouan</em></td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td><em>Puffinus mauretanicus</em></td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td><em>Hydrobates pelagicus</em></td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td><em>melitensis</em></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Phalacrocorax aristotelis</em></td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td><em>desmarestii</em></td>
<td></td>
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</tr>
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<td><em>Larus melanocephalus</em></td>
<td>●</td>
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<td>●</td>
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<tr>
<td><em>Larus audouinii</em></td>
<td>●</td>
<td></td>
<td>●</td>
<td>●</td>
<td></td>
</tr>
</tbody>
</table>

+ other relevant information for a more realistic adjustment of the limits
Translation into the EEA reference grid ETRS-LAEA52N 10E, 10 km cell.
The final conservation value for each of the cells of the grid

<table>
<thead>
<tr>
<th>Field</th>
<th>Possible values</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRESENCE</td>
<td>If a specie is present in the area</td>
</tr>
<tr>
<td>SPEC-FISH</td>
<td>If a specie is threatened by by-catch</td>
</tr>
<tr>
<td>ENDTAXON</td>
<td>If a specie is an endemic or near-endemic taxon in the area</td>
</tr>
<tr>
<td>INDECLINE</td>
<td>If the specie is in decline in the area</td>
</tr>
<tr>
<td>CONSVAL</td>
<td>The sum of all the above factors</td>
</tr>
</tbody>
</table>

- 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.
<table>
<thead>
<tr>
<th>Category</th>
<th>Area (km²)</th>
<th>%</th>
<th>% Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cat. 0</td>
<td>1410724.93</td>
<td>55.87</td>
<td>55.87</td>
</tr>
<tr>
<td>Cat. 1 to 7</td>
<td>1114413.08</td>
<td>44.13</td>
<td></td>
</tr>
<tr>
<td><strong>Total area Mediterranean Sea</strong></td>
<td><strong>2525138.00</strong></td>
<td><strong>100.00</strong></td>
<td><strong>44.13</strong></td>
</tr>
</tbody>
</table>

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<tr>
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<th>%</th>
<th>% Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cat. 7</td>
<td>17938.47</td>
<td>1.61</td>
<td>0.71</td>
</tr>
<tr>
<td>Cat. 6</td>
<td>33950.34</td>
<td>3.05</td>
<td>1.34</td>
</tr>
<tr>
<td>Cat. 5</td>
<td>242093.78</td>
<td>21.72</td>
<td>9.59</td>
</tr>
<tr>
<td>Cat. 4</td>
<td>81134.15</td>
<td>7.28</td>
<td>3.21</td>
</tr>
<tr>
<td>Cat. 3</td>
<td>265984.47</td>
<td>23.87</td>
<td>10.53</td>
</tr>
<tr>
<td>Cat. 2</td>
<td>386069.57</td>
<td>34.64</td>
<td>15.29</td>
</tr>
<tr>
<td>Cat. 1</td>
<td>87242.30</td>
<td>7.83</td>
<td>3.45</td>
</tr>
</tbody>
</table>

Sub-total value: 1114413.08, 100.00, 44.13

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**Mediterranean Sea**

- Total area: 2525138.00 km²
- Cat. 0: 55.87 %
- Cat. 1 to 7: 44.13 %
Mediterranean Sea

priority categories:

- **Priority "A"**: (5 to 7); 12%
- **Priority "B"**: (2 to 4); 29%
- *Not significant (0 to 1); 59%*

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

*Overall total: 55,87%*
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’
2nd phase: Gulf of Lions

Pelagic distribution of Mediterranean seabirds of conservation concern. Potential sites (SPAMI) in open seas.

OUTSTANDING AREAS

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

OUTSTANDING AREAS

- Gulf of Venice
- Central Adriatic Sea
OUTSTANDING AREAS

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

3rd phase:
Sicily Channel / Tunisian Plateau
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Sicily Channel / Tunisian Plateau

OUTSTANDING AREAS

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

Total area: 334710.56 km²
Cat.0: 13.71 %
Cat.1 to 7: 66.29 %
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](http://medabnj.rac-spa.org/images/stories/Publications/bird_important_areas.pdf)