




Guide to using HiDef Seabird Oil Sensitivity Index GIS Project files

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1 Introduction

- 1 This document is a companion to the HiDef Seabird Oil Sensitivity Index geographical information system (“GIS”) Project, which provides a GIS version of mapping outputs contained in the 2015 draft HiDef report “Sensitivity of offshore seabird concentrations to oil pollution around the United Kingdom: Report to Oil & Gas UK”. This report should be read as a companion to this GIS product, because it explains the provenance of the information contained in the GIS files, their meaning and their limitations.

2 Installation guide

2.1 User requirements

- A working copy of ESRI ArcGIS version 10.1 or later;
- A working knowledge of ESRI ArcGIS; and
- At least 2 GB of storage space for unzipped files.

2.2 Installation

- 2 The HiDef Seabird Oil Sensitivity Index GIS Project is supplied as 12 ZIP files; one for each month of the year. The files should be extracted and will install 12 data folders, each storing two geodatabase (.gdb) files and 11 layer files.
- 3 Twelve ESRI ArcGIS project (.mxd) files are copied to the same folder as the data files. Double clicking any one of these will open an ArcGIS project for the relevant month of the year, and contains all information for reproducing the maps contained in the companion report.
- 4 The 11 layers files provided with each project can be used with the corresponding HiDef SOSI Data Geodatabase file to insert layers into the users’ own ESRI ArcGIS products.

3 User guide

3.1 Geodatabases

- 5 One geodatabase files is provided for each month called HP00061-702-**MM**_SOSI_Data_Month_v01_20151218, where **MM** is a two-digit representation of the month, and **Month** is the name of the month. It contains five shapefiles:
 - DECC_OFF_Licensed_and_Unlicensed_Blocks - a copy of the Department of Energy and Climate Change (“DECC”) “Grid of all licensed and unlicensed blocks on the UKCS” ArcGIS shapefiles, supplied under the terms of the Open Government Licence, dated 19 October 2015;
 - SOSI_MMM_Month_DECC_OFF_Licence_Blocks – the same shapefile as above, but with additional attributes for mean, median, minimum, maximum SOSI scores, the Confidence Index scores and the component parts of the confidence index;
 - SOSI_MMM_Month_Species_Mean_Blocks – the same shapefile as above with mean SOSI score, Confidence Index score and the mean density for all species recorded in the month;
 - Nweurope - a shapefile containing a representation of the north-west European coastal outline, supplied under the terms of the Open Government Licence; and

- Composite_SOSI Density_MMM, contains outputs from a Kernel Density Estimation (“KDE”) analysis of survey data. The single Shapefile contains data on predicted Seabird Oil Sensitivity Index values within approximately 3km grid squares within the study area. It also contains predicted density (number/km²) of each component seabird species under the heading of “DENS_EEEE” where EEEE is a four letter alphanumeric representation of the Euring code for each species (see Table I below). Although this geodatabase file is supplied, it does not have a layer in the project file because of the specialist requirements for interpreting these data.

3.2 Layers









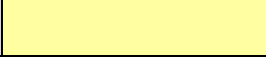
- Thirteen layers are provided for the user. These display data contained in four ESRI shapefiles contained in the SOSI_MMM_Month_DECC_OFF_Licence_Blocks geodatabase.
- Median sensitivity displays “MED_SOSI” in SOSI_MMM_Month_DECC_OFF_Licence_Blocks shapefile, which is the median SOSI score in each licence block from KDE data files. The description of the thematic shading is contained in Table I;

Table I Key to thematic shading for median, maximum and minimum sensitivity of seabird concentrations to oil pollution in DECC Offshore Oil Licence Blocks. Values of -1 occur where no SOSI data exist.

Assessment	Colour	Median SOSI scale	Percentile range
Low	White	0 – 3.895	0% – 60%
Medium	Light blue	3.895 – 7.620	60% – 70%
High	Blue	7.620 – 16.588	70% – 80%
Very high	Dark blue	16.588 – 40.545	80% – 90%
Extremely high	Very dark blue	> 40.545	90% – 100%
No data	Light yellow	-1	N/A

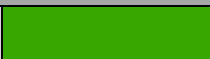




- Maximum sensitivity displays “MAX_SOSI” in SOSI_MMM_Month_DECC_OFF_Licence_Blocks shapefile, which is the maximum SOSI score in each licence block from KDE data files. The description of the thematic shading is contained in Table I;
- Minimum sensitivity displays “MIN_SOSI” in SOSI_MMM_Month_DECC_OFF_Licence_Blocks shapefile, which is the minimum SOSI score in each licence block from KDE data files. The description of the thematic shading is contained in Table I;
- Confidence Index displays “CONF_IND” in SOSI_MMM_Month_DECC_OFF_Licence_Blocks shapefile, which is the confidence index score in each licence block from KDE data files. The description of the thematic shading is contained in Table 2:

Table 2 Key to thematic shading for confidence in the assessment of sensitivity of seabird concentrations to oil pollution in DECC Offshore Oil Licence Blocks. -1 confidence index scores occur where no SOSI data exist including by extrapolation using KDE.

Colour		Confidence index scale
Green		1
Medium green		0.9 – 0.99
Light green		0.8 – 0.9
Very light green		0.7 – 0.8
Yellow		0.6 – 0.7
Orange		0.5 – 0.6
Dark orange		0.4 – 0.5
Red		< 0.4
Light yellow		- 1

- Number of samples displays “N_SAMPLES” in SOSI_MMM_Month_DECC_OFF_Licence_Blocks shapefile, which is the number of independent samples score in each licence block from KDE data files. The description of the thematic shading is contained in Table 3;

Table 3 Key to thematic shading for number of independent samples per DECC Offshore Oil Licence Blocks. Values of 0 occur where SOSI data have been calculated by extrapolation using KDE and -1 where no SOSI data exist.

Colour		Number of independent samples
Green		> 10
Light green		6 – 9
Orange		1 – 5
Red		0
Light yellow		- 1

- Effort (km²) displays “AREA_KM2” in SOSI_MMM_Month_DECC_OFF_Licence_Blocks shapefile, which is the total effort in km² surveyed in each licence block. The description of the thematic shading is contained in Table 4;

Table 4 Key to thematic shading for total survey effort (km²) per DECC Offshore Oil Licence Block. Values of 0 occur where SOSI data have been calculated by extrapolation using KDE and -1 where no SOSI data exist.

Colour	Effort (km ²)
Green	> 100
Light green	20.01 – 100
Very light green	10.01 – 20
Yellow	1.01 – 10
Orange	0.01 – 1
Red	0
Light yellow	- 1

- Incomplete species watch displays “SPECIES” in SOSI_MMM_Month_DECC_OFF_Licence_Blocks shapefile, which is the presence effort in which not all species were recorded in each licence block from KDE data files. The description of the thematic shading is contained in Table 5;

Table 5 Key to thematic shading for effort in DECC Offshore Oil Licence Block in which not all species were recorded

Incomplete species watch	Colour	Number scale
Licence block surveyed, all species recorded	Green	2
Block surveyed, incomplete species watch	Red	1
Extrapolated data only	White	0
No data	Light yellow	- 1

- Year of last survey displays “LAST_SRVDYD” in SOSI_MMM_Month_DECC_OFF_Licence_Blocks shapefile, which is an index of the last year of survey in each licence block. The description of the thematic shading is contained in Table 6;

Table 6 Key to thematic shading for last year of survey in each DECC Offshore Oil Licence Block. Values of -1 occur where no survey data exist within this time frame.

Colour	Year of last survey
Green	>= 2010
Light green	2005 – 2009
Orange	2000 – 2004
Red	1995 – 1999
Light yellow	- 1

- Number of survey years displays “N_YEARS” in SOSI_MMM_Month_DECC_OFF_Licence_Blocks shapefile, which is an index of number of years of survey in each licence block from KDE data files. The description of the thematic shading is contained in Table 7;

Table 7 Key to thematic shading for number of years of survey in each DECC Offshore Oil Licence Block. Values of 0 occur where SOSI data have been calculated by extrapolation using KDE and -1 where no SOSI data exist.

Colour	Number of survey years
Green	>= 3
Light green	2
Orange	1
Red	0
Light yellow	- 1

- Median SOSI +species displays “MEDIAN_SOSI” in SOSI_MXX_Month_Species_Median_Blocks shapefile, which is the mean SOSI score within each licence block from KDE data files. This is the same as the first layer but includes mean seabird density data for all species in the shapefile attribute table represented by columns with the format “MEAN_EEEE”, where EEEE is a four letter alphanumeric representation of the Euring code for each species (see Table 8 below).
- Europe displays the outline for land over the top of the other shapefiles which points to shapefile nweurope; and
- No data sits underneath all of the other datasets and displays to provide a background colour to represent blocks with no data. It points to DECC_OFF_Licensed_and_Unlicensed_Blocks.

Table 8 Euring code for all seabird species used in the attribute tables for ESRI Shapefiles.

Euring code	Species/species group	Scientific name
0020	Red-throated diver	<i>Gavia stellata</i>
0030	Black-throated diver	<i>Gavia arctica</i>
0040	Great northern diver	<i>Gavia immer</i>
0059	Diver sp.	<i>Gavia sp.</i>
0090	Great crested grebe	<i>Podiceps cristatus</i>
0100	Red-necked grebe	<i>Podiceps grisegena</i>
0110	Slavonian grebe	<i>Podiceps auritus</i>
0129	Grebe sp.	<i>Podiceps sp.</i>
0220	Northern fulmar	<i>Fulmarus glacialis</i>
0360	Cory's shearwater	<i>Calonectris diomedea</i>
0400	Great shearwater	<i>Puffinus gravis</i>
0430	Sooty shearwater	<i>Puffinus griseus</i>
0460	Manx shearwater	<i>Puffinus puffinus</i>
0462	Balearic shearwater	<i>Puffinus mauretanicus</i>
0469	Shearwater sp.	<i>Puffinus sp.</i>
0520	European storm-petrel	<i>Hydrobates pelagicus</i>
0550	Leach's storm-petrel	<i>Oceanodroma leucorhoa</i>
0710	Northern gannet	<i>Morus bassanus</i>
0720	Great cormorant	<i>Phalacrocorax carbo</i>
0800	European shag	<i>Phalacrocorax aristotelis</i>
0809	Cormorant sp.	<i>Phalacrocorax sp.</i>
2040	Greater scaup	<i>Aythya marila</i>
2060	Common eider	<i>Somateria mollissima</i>
2120	Long-tailed duck	<i>Clangula hyemalis</i>
2130	Common scoter	<i>Melanitta nigra</i>
2139	Scoter sp.	<i>Melanitta spec.</i>
2150	Velvet scoter	<i>Melanitta fusca</i>
2180	Common goldeneye	<i>Bucephala clangula</i>
2210	Red-breasted merganser	<i>Mergus serrator</i>

2230	Goosander	<i>Mergus merganser</i>
2269	Duck sp.	<i>Anatidae sp.</i>
5650	Grey phalarope	<i>Phalaropus fulicaria</i>
5660	Pomarine skua	<i>Stercorarius pomarinus</i>
5670	Arctic skua	<i>Stercorarius parasiticus</i>
5680	Long-tailed skua	<i>Stercorarius longicaudus</i>
5690	Great skua	<i>Stercorarius skua</i>
5699	Skua sp.	<i>Stercorarius sp.</i>
5750	Mediterranean gull	<i>Larus melanocephalus</i>
5780	Little gull	<i>Hydrocoloeus minutus</i>
5790	Sabine's gull	<i>Xema sabini</i>
5820	Black-headed gull	<i>Chroicocephalus ridibundus</i>
5900	Common gull	<i>Larus canus</i>
5909	Small gull sp.	<i>Larus/Rissa sp.</i>
5910	Lesser black-backed gull	<i>Larus fuscus</i>
5920	Herring gull	<i>Larus argentatus</i>
5990	Glaucous gull	<i>Larus hyperboreus</i>
6000	Great black-backed gull	<i>Larus marinus</i>
6005	Large gull sp.	<i>Larus sp.</i>
6009	Black-backed gull sp.	<i>L. fuscus/L. marinus</i>
6020	Black-legged kittiwake	<i>Rissa tridactyla</i>
6049	Gull sp.	<i>Larus sp.</i>
6110	Sandwich tern	<i>Sterna sandvicensis</i>
6140	Roseate tern	<i>Sterna dougallii</i>
6150	Common tern	<i>Sterna hirundo</i>
6160	Arctic tern	<i>Sterna paradisaea</i>
6169	Common/Arctic tern	<i>S. hirundo/S. paradisaea</i>
6240	Little tern	<i>Sterna albifrons</i>
6270	Black tern	<i>Chlidonias niger</i>
6289	Tern sp.	<i>Sterna sp.</i>
6340	Common guillemot	<i>Uria aalge</i>
6345	Guillemot/razorbill	<i>Alca torda/Uria aalge</i>

6360	Razorbill	<i>Alca torda</i>
6380	Black guillemot	<i>Cepphus grylle</i>
6470	Little auk	<i>Alle alle</i>
6540	Atlantic puffin	<i>Fratercula arctica</i>
6549	Auk sp.	<i>Alcidae sp.</i>