OIL&GAS UK

Premiam Conference: Oil Spill Response Forum Projects

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Contents

Oil Spill Response Forum

Forum

- *Created post OSPRAG*
- *Jointly chaired with DECC*
- *2 technical Groups*
- *Representatives from Industry, government, SNCBs, Local Authorities*

Objective

to facilitate the development and maintenance of an effective, robust and sustainable oil spill response capability for upstream operations on the UKCS

JNCC Joint Nature Conservation Committee

Scottish Natural Heritage

Department of Energy & Climate Change

mca Maritime and Coastguard Agency

Cefas

Met Office

SOTEAG

Coastal Sensitivity Mapping

Coastal Sensitivity Mapping

- 1990's Atlas Database, Coastal and Marine Resource Atlas on Magic 2003

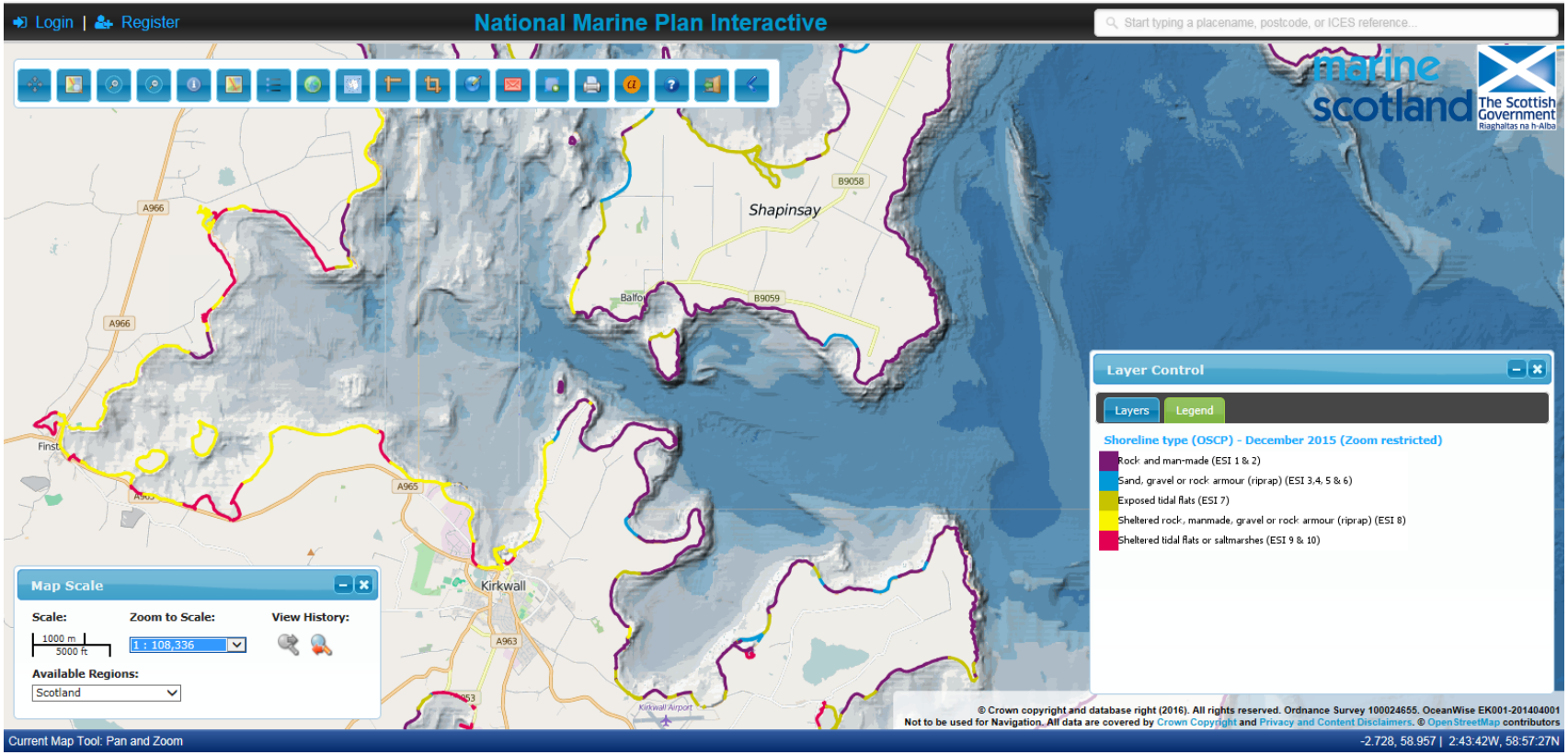
Aim
• To ensure that coastal and environmental sensitivities are sufficiently well described to enable effective spill planning and response. • To make sensitivity information readily available to operators, regulators and responders.

Year	Progress
2013 - 2014	Trial of NOAA methodology
2014 – 2015	Review of BP data
2015	Work with NMPi steering group
2016	Marine Scotland upload on to NMPi

Coastal Sensitivity Mapping Layers

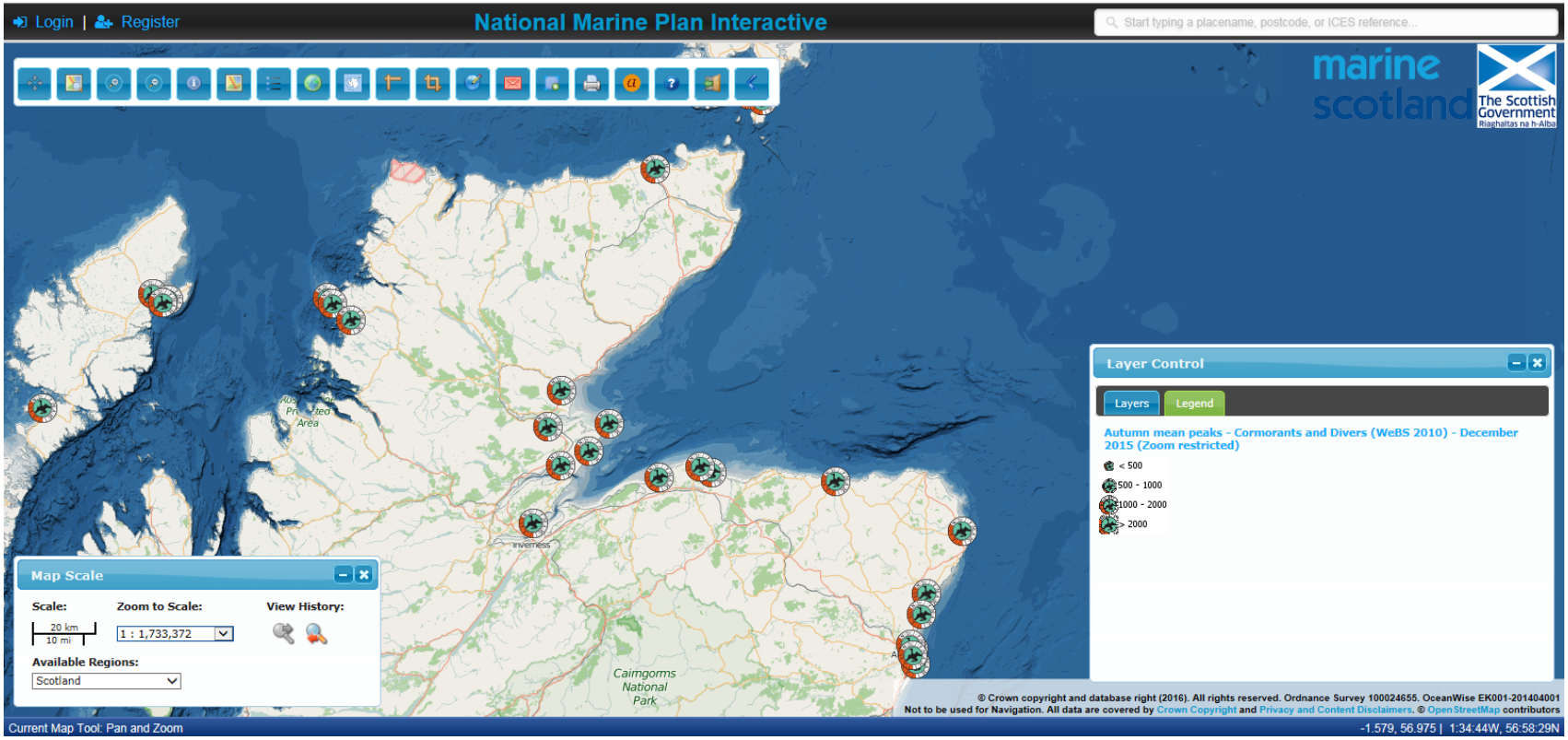
1. Habitats (6 layers): Marine Protected Areas (SAC's, SPA's, MPA's, SSSI, RAMSAR) and Shoreline Type (NOAA ESI)
2. Socio-economic (14 layers), beaches, renewables, fisheries, listed buildings
3. Biological Receptors seals (18 layers), waders, wildfowl, cormorants and divers, breeding seabirds

Coastal Sensitivity Mapping – Habitat layer



http://marine.gov.scot/

Coastal Sensitivity Mapping – Biological Receptors



http://marine.gov.scot/

Seabirds Oil Sensitivity Index (SOSI)

Seabird Oil Spill Sensitivity Index (SOSI)

- Offshore Survey 2013
- Validation of OSI 2013-14
- *OSRF Environmental Sensitivities TIG recommend the continued use of the ESAS data and accompanying seabird sensitivity maps for oil spill planning purposes and impact assessment as the currently best available data.*
- Recommended Further Work
  1. Verification by an independent 3rd party of the statistical analysis used in the HiDef report to generate estimates of seabird densities and abundance
  2. Calculation of the OVI for study area (and perhaps wider UKCS) using the ESAS survey data collect post-1995 and any other suitable data sources. Comparison of the re-calculated OVI with OVI currently is use
  3. Exploration of the applicability of the factors used in the calculation of the OVI

Completed 2014

Completed 2016

SOSI Project 2016

Data Used

- boat-based line transect data
- visual aerial line transect data
- digital video strip transect data
- ESAS database (including surveys from 2014 – 2015)

Peer Review

- Steering Group: JNCC, DECC, MSS, Oil & Gas UK and BMT Cordah
- Wider Review Committee: SOTEAG, Genesis, MacArthur Green
- Peer Review: RSPB, NOIZ, Gregory Certain

OVI 1994

- Williams et al. (1994) OVI scores

$$2A + 2B + C + D$$

- A = Beached Bird oiling rates (1 –5) + proportion sitting (1 –5)
- B = Biogeographical population (1 –5)
- C = Potential recovery rate
- D = Relance on marine environnent

New SOSI Equation

1. Review of the factors
2. Review of the equation: request use of Certain et al 2015 method

- new approach to compiling species scores in which vulnerability comprised of primary factors (*a*) and aggravating factors (*g*);
- Primary factors multiplied together to give single *a* score;
- Aggravating factors average to give single *g* score;
- Then creates species score using this formula:

$$r=a1-g/(g-\gamma) \text{where } a\in 0,1, g\in 0,1, \gamma\in [0.1,1]$$

Revised Factors for SOSI

- F1 Proportion sitting on water
- F2 Proportion of tideline corpses oiled
- F3 Habitat flexibility
- F4 Proportion of biogeographical population in
- the UK (winter or summer separately)
- F5 Birds of Conservation Concern status
- F6 Presence on EU Birds Directive Annexes
- F7 Lifetime productivity
- F8 Adult survival rate

SOSI

$$SOSI_i = (F_1 \times F_2)^{1-\frac{F_3}{F_3+0.5}} \times \left(\frac{F_4+F_5+F_6}{3}\right)^{1-\frac{\left(\frac{F_7+F_8}{2}\right)}{\left(\frac{F_7+F_8}{2}\right)+0.5}}$$

individual sensitivity species sensitivity

- Combined with smoothed density Maps for each species (using Kernel Density Estimation)
- Calculated for each licence block
- New GIS layers of seabird sensitivity per month

NEW SOSI

Figure 38 Median sensitivity of seabird concentrations to oil pollution i

Figure 39 Upper range of sensitivity of seabird concentrations to oil pollution in DECC Offshore Oil Licence Blocks in July

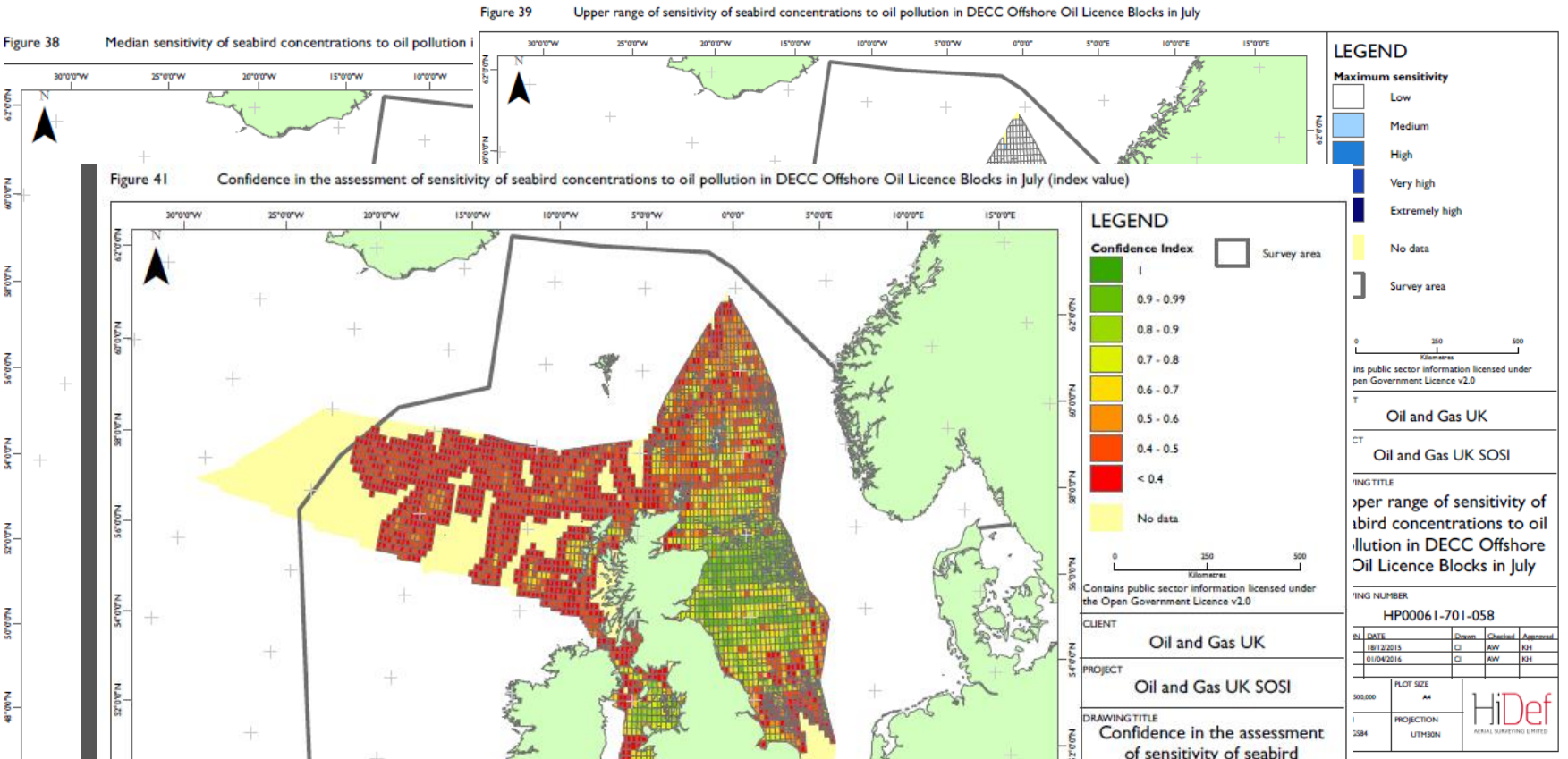


Figure 41 Confidence in the assessment of sensitivity of seabird concentrations to oil pollution in DECC Offshore Oil Licence Blocks in July (index value)

Monitoring Capability

Monitoring Capability Assessment

Aim
to examine the specific requirements for monitoring during an oil spill event on the United Kingdom Continental Shelf (UKCS) and assess capability within industry and the wider scientific community to carry out environmental monitoring in response to such an event

- Consideration of monitoring requirements in the first 12hours, 24 hours, weeks and months after an incident
- Monitoring capability questionnaire results

Monitoring Capability

- The types of monitoring depend on the risks presented by the spill which in turn will be the result of its specific circumstances, such as the location, weather, season, and the volume and type of oil
- **Type I**: Monitoring to inform the operational response procedure.
- **Type II**: Monitoring to assess environmental impacts from the spill and response procedure
- Responsible operator, Government agencies, (P)MCC, SCAT

Monitoring Capability results

- Questionnaires to 10 organisations
- Supplementary research

Topics covered

- Sampling and labs
- Modelling
- Vessels
- Aircraft
- Satellites

108
83 Organisations
2 offering dispersant testing
5 ecotoxicology
18 fauna analysis

OSIS, OSCAR, OILMAP
10 organisations
1 with 24/7 response capability

Monitoring Capability results

150
31% winch and crane
12 with wet and dry labs
50% physical and/or chemical sampling capability
21% with biological sampling capability

6
2 with 24/7 capability

28 aircraft
3 capable of spraying dispersant
Flight time 4- 8 hours

Summary

Oil Spill Response Forum has had success working across industry, response community with government agencies and the local authorities to deliver

1. Coastal sensitivity mapping for Scottish Coastline
2. New Seabirds at Sea Oil Sensitivity Index (using new data, new equation and based on updated factors)
3. Completed review of monitoring capability in UK to help inform our preparedness for an event

http://oilandgasuk.co.uk/publications.cfm

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