APP4SEA Marine bird species-vulnerability workshop

Project background

With the projected increase in shipping activity and hydrocarbon extraction, there is an increased risk of negative ecological impacts on marine habitats and organisms. A new project, APP4SEA (Arctic Preparedness Platform for oil Spill and other Environmental Accidents), aims to '*strengthen the preparedness of environmental authorities and the awareness of general public in the coastal areas of the NPA (Northern Periphery and Arctic) region regarding oil spill response*' within Northern Europe and the Arctic. One aspect of this project focuses on the potential implications of oil spills on the seabirds within this region and aims to identify locations and species most at risk, taking into account: species vulnerability to oil spills, seabird spatial distributions, current and proposed protected areas, and patterns of ship traffic and hydrocarbon extraction.

It is known that seabirds are vulnerable to oil pollution incidences, which can result in mass mortality events. It is therefore important to objectively predict which species are most at risk from oil spills and where. To date, this has been achieved through the development of a methodology to calculate an index for seabirds' sensitivity to oil – the Oil Vulnerability Index (OVI. King & Sanger 1979; Williams *et al*. 1995), which can be used to create a spatial OVI through overlaying seabird species distributions with areas of potential oil spill risk. This methodology has been further developed by Certain *et al*. (2015), who provide a mathematical argument on how to objectively combine the factors used to consider a seabird's vulnerability to oil into a single sensitivity index.

The OVI has recently been updated for the United Kingdom Continental Shelf after a thorough review of the incorporating factors and spatial density data (Webb *et al*. 2016 – termed the Seabird Oil Sensitivity Index (SOSI)). Through APP4SEA, we are not looking to duplicate the existing OVI but to build on the current methodology and expand its applicability to the wider Northern Europe and the Arctic area (Figure 1), and to calculate OVI for all 69 seabird species that frequently occur within this region. One of the main aims of this workshop is to consult relevant experts and stakeholders to establish whether the existing OVI methodology can be used outside of the original region and if not, why and how this might be resolved.

Workshop aims

We envisage there will be challenges in expanding the OVI to a larger region and in incorporating additional seabird species, largely attributed to a lack of suitable data for determining the OVI factor values and for obtaining adequate spatial distribution / density data. These two elements will therefore be the focus of the workshop.

1. Firstly, we aim to discuss the factors that are currently used to calculate the OVI. Specifically, are these factors still relevant and are they the most important features to consider. Furthermore, are they relevant when expanding the methodology to the NPA region, and potentially globally. If not, what alternative information is available that can be used. For example, at the global scale is it appropriate to use IUCN Red List categories in replacement of a species presence on the EU Birds Directive or being listed on the Birds of Conservation Concern?

2. Secondly, we aim to discuss the spatial component of the OVI. Areas outside of the United Kingdom Continental Shelf are unlikely to have suitable, extensive seabird at sea data to establish seabird distribution densities adequately. Therefore, can additional data be incorporated to help assess the spatial distribution and density of seabirds, for example, integrating information from tracking studies, and methods for including species for which no or few tracking data exist.

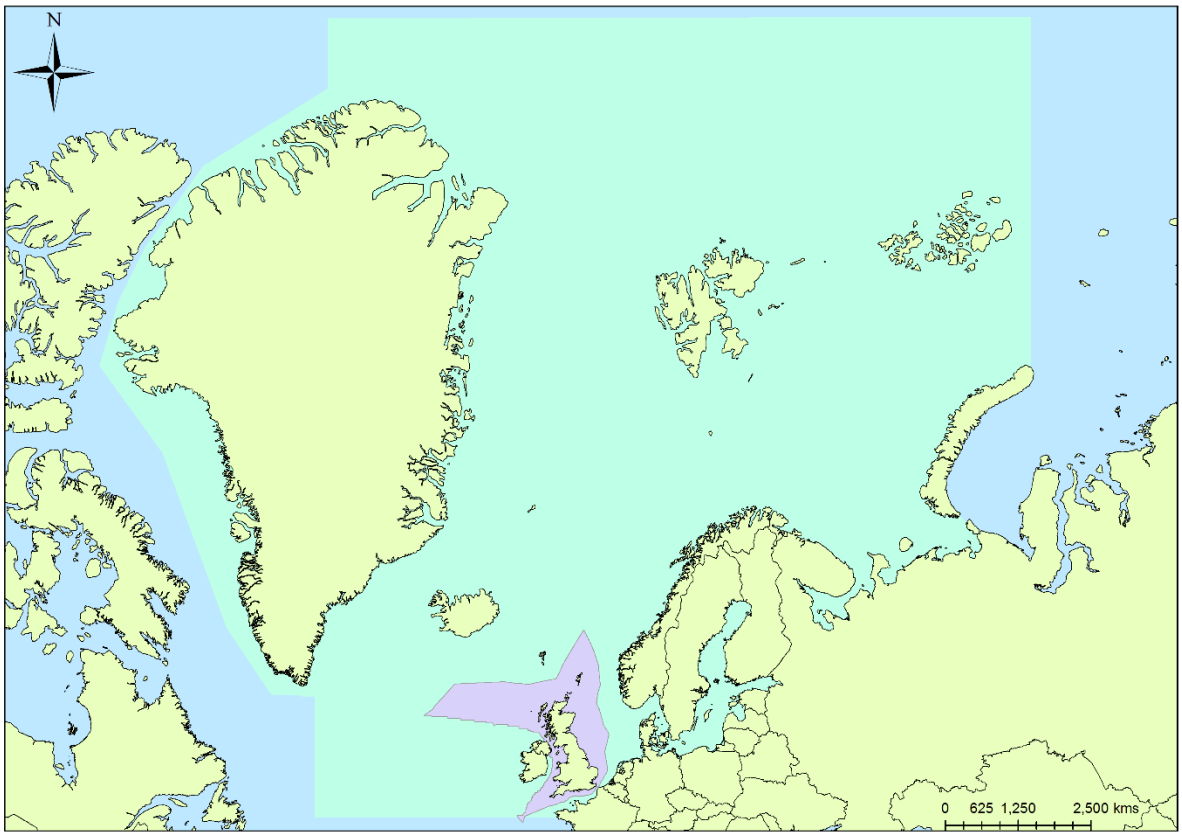


Figure 1. The current spatial SOSI (Webb *et al*. 2016) covers the United Kingdom Continental Shelf, shown in purple. As part of APP4SEA, we aim to expand this to cover the Northern Periphery and Artic (NPA) region, shown in pale blue.

We envisage that the outcomes of this workshop will have benefits to those attending, and others in the field, outside of APP4SEA. We hope that discussions from this workshop will develop knowledge and solutions that can be transferable to other locations with limited data to determine OVI factors and establish adequate seabird distributions and at sea densities. Therefore, discussions should provide potential solutions to challenges associated with data availability and quality, and how best to modify the OVI methodology in light of this. Furthermore, if additional information and data, for example from tracking studies, can be incorporated into expanding the OVI across Northern Europe and the Arctic, and potentially further afield, then this provides added value to existing data that people and organisations already hold.

Date and location

9:00 – 17:00, Friday 29th September 2017

UHI Executive Office, 12b Ness Walk, Inverness IV3 5SQ, UK,

Workshop outline

Arrival	
Welcome and introduction to the project and the OVI/SOSI	
Discussion	The current OVI: is it applicable and useful, and can it be improved Can the current OVI be expanded to other species
Lunch (provided)	
Discussion	How can the spatial component of the OVI be expanded into other areas, especially those where data on seabird distributions and densities are limited
Workshop conclusions	
Departure	

Key points for discussion

1. Are the current factors incorporated into the OVI relevant?
   Should any other factors be considered, or current ones be removed / altered?

   The eight factors used to calculate the Seabird Oil Sensitivity Index by Webb *et al.* 2016.

   1. Proportion of time spent sitting on the water
   2. Percentage of tideline corpses contaminated with oil
   3. Habitat flexibility
   4. Percentage of biogeographical population within the UK Continental Shelf
   5. Listing in Birds of Conservation Concern
   6. Presence on EU Birds Directive Annexes
   7. Potential annual productivity
   8. Adult survival rate

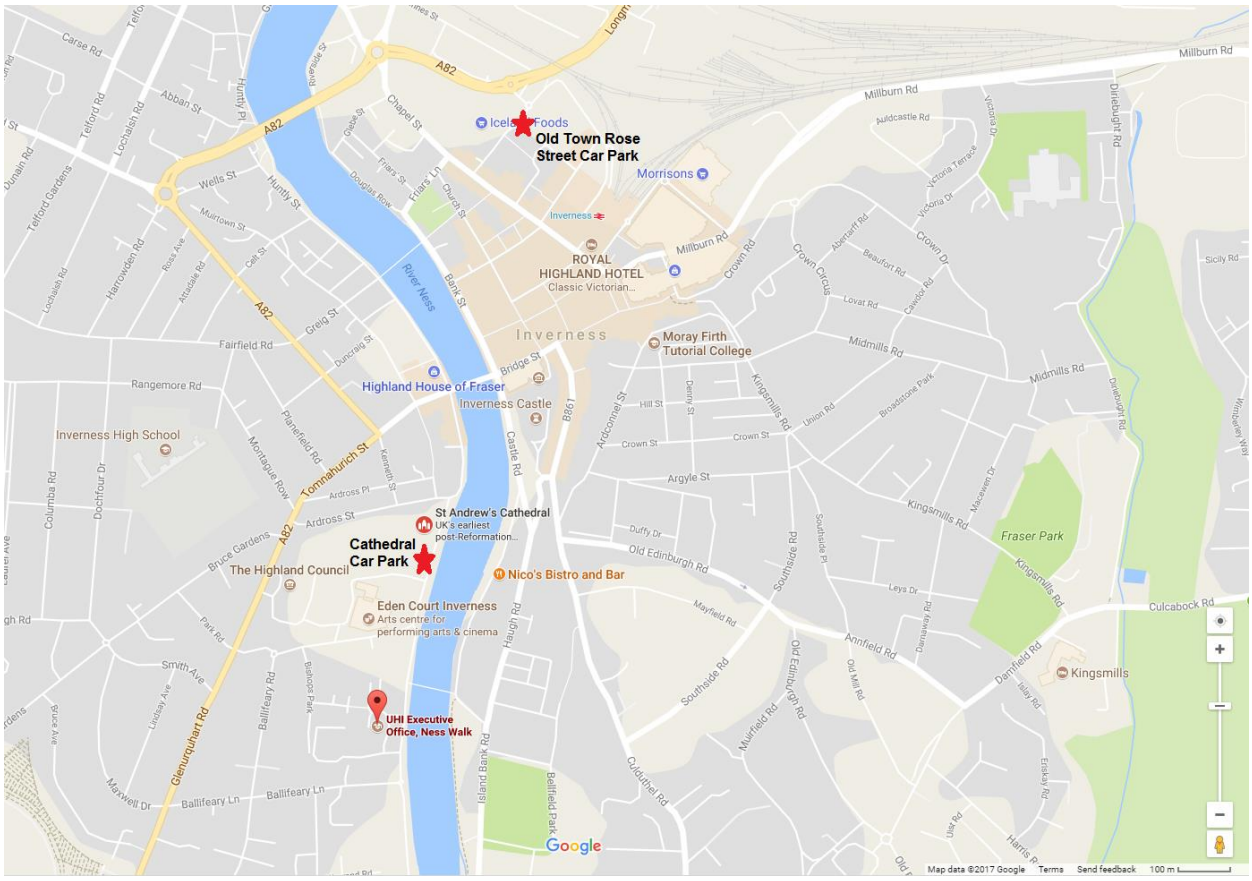
2. Are the above factors relevant to expand the calculation of OVI for all seabird species across Northern Europe and the Arctic, and potentially to all the world's seabird species?

3. Can the current spatial OVI methodology be expanded to other areas, such as the Northern Europe and the Arctic region?

4. Can alternative spatial information be incorporated with boat and aerial seabird at sea data to get better estimates of seabird densities?

Logistics

The workshop will take place at the UHI Executive Office, 12b Ness Walk, Inverness IV3 5SQ, UK



Lunch on the day of the workshop will be provided. Please advise if you have any allergies or dietary restrictions.

Participants must cover their own travel costs.

Directions

By air: Inverness airport is 10 miles from the UHI Executive Office. The taxi fare is around £21. Bus service 11 runs approximately every forty minutes from the airport to Marks and Spenser's (near Inverness Train Station) and takes around 25 minutes. The UHI Executive Office is a mile walk from the bus stop along the River Ness.

By train: there is regular train service to Inverness via Aberdeen (ca. 2:15 away) and Edinburgh (ca. 3:45 away). www.nationalrail.co.uk The UHI Executive Office is a mile walk from the train station along the River Ness.

By car: Inverness is accessible from the south via the A9 or the A82 and via the A96 from Aberdeen. There is very limited parking at UHI Executive Office. There is a public pay and display car park at Inverness Cathedral (£4.50 for 24 hours). Alternatively, there is the Old Town Rose Street Multi Storey car park (£4 for 10 hours)
http://www.highland.gov.uk/info/20006/parking_and_car_parks/83/rose_street_multi-storey_car_park_inverness/2

Accommodation

There are many hotels and B&Bs nearby.

Some recommended include:

Columba Hotel

http://www.bespokehotels.com/columbahotel/pages/contact-us

Best Western

https://www.bestwestern.co.uk/destination/highland/inverness

Glen Mhor Hotel

http://www.theinvernesshotel.co.uk/

Premier Inn

http://www.premierinn.com/gb/en/hotels/scotland/highland/inverness/inverness-centre-river-ness.html?cid=GLBC_INVRIV

There are also many more affordable B&Bs available around the local area.

References

Certain G, Bellier E, Planque B & Bretagnolle V (2007) Characterising the temporal variability of the spatial distribution of animals: an application to seabirds at sea. Ecography. 30: 695–708.

King JG & Sanger GA (1979) Oil vulnerability index for marine oriented birds. In Bartonek. C.J. & Nettleship. D.N. (eds) Conservation of Marine Birds of Northern North America: 227-239. Wildlife Research Report No. 11. Washington. D.C.

Webb A, Elgie M, Irwin C, Pollock C, Barton, Burns CS & Hawkins K (2016) Sensitivity of offshore seabird concentrations to oil pollution around the United Kingdom. Report to Oil & Gas UK.

Williams JM, Tasker ML, Carter IC & Webb A (1995) A method of assessing seabird vulnerability to surface pollutants. Ibis. 137: 147–152.