Mapping bird sensitivity to marine oil pollution

MarineBirdOilMap

Layman’s Report
SEO/BirdLife is a non-profit organization, declared of Public Utility in Spain, whose main objectives are to study and preserve birds and the wider environment, and to communicate these values to the society. Its main office is based in Madrid, but it has a strong territorial implementation, through a network of regional offices scattered across Spain. It is the Spanish BirdLife partner.

LPO is the leading conservation association in France, recognized as being of public utility. LPO works daily to species conservation, preservation of natural areas and for education and environmental awareness. LPO is the official partner of BirdLife International in France. It is supported by 50 000 members and manages over 24 000 ha of natural areas, including LPO land holding of over 1 700ha.

SPEA is an environmental NGO with its mission to work towards the study and the conservation of the birds of Portugal and their habitats, by promoting a sustainable development. Since 1999, SPEA is the BirdLife International partner in Portugal. Co-operation with this organisation plays an important part in the consolidation of the Society, reinforcing its conservation work and involvement in international activities.

BirdLife International is a global partnership formed by 121 NGOs (one per country or territory), which strives to conserve birds, their habitats and global biodiversity, working with people towards sustainability in the use of natural resources. It combines a unique local-to-global approach that delivers high impact and long-term conservation for the benefit of nature and people. BirdLife is widely recognized as the world leader in bird conservation, basing its action on rigorous science.

Puertos del Estado is a public entity under the Ministerio de Fomento of Spain, with global responsibilities over the whole state-owned port system. It promotes sustainability as one of the pillars to guide the planning and management of ports.

Financing framework:
Prevention and Preparedness Projects in Civil Protection and Marine Pollution, DG-ECHO.

Budget:
283,274,00 €
(75% from EU)

Study area

1,226,670 km² of sea surface modelled

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Partnership:
5 partners
3 countries (ES, FR, PT)

Oiled northern gannet Morus bassanus © Marti Franch

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**Background**

Seabirds are amongst the groups of animals most affected by oil spills, and one of the most widely used indicators in this case of events. They also represent one of the most threatened groups of birds, with one third of the ~360 species being catalogued as threatened. Overall, their abundance has declined by 70% in the last 60 years. Their situation in Europe mirrors that depicted at global level, and about 15 of the seabird species occurring in the project area are considered as threatened at EU level.

Aims of the project

With the aim of **improving this decision-making process regarding accidental oil spills at sea** (or the risk of it), Marine Bird Oil Map was aimed to **elaborate a seasonal seabird sensitivity maps** of the Atlantic and Mediterranean shores of Spain, France and Portugal, in close coordination with the competent authorities and based on the best available scientific information. The project also intended to supply an analysis of information gaps, an information updating system, and a directory of institutions and professionals to contact in the eventuality of a maritime accident that may affect birds. Finally, a proposal comprising all these tools will be put forward for its implementation in all UE Member Countries and its extension to other animal groups and habitats.

Both Directive 2002/59/EC of the European Parliament and Resolution A.949(23) of the International Maritime Organization acknowledge that, should a vessel in distress be directed to a port of refuge, the Member States must first evaluate and find the best solution regarding the protection of both human life and the environment. Although Spain, France and Portugal all have georeferenced systems allowing for consideration of a great number of variables in adopting such a decision - including Special Protection Areas (SPAs) designated under Birds Directive (2009/147/EC), birds are highly mobile organisms and cover great distances in their seasonal movements, and so protected areas may not be the best tool to guard them from accidental oil spills, or at least they should not be considered as the unique tool at hand.
Through the 27 months of the project (January 2017 – March 2019), the five partners worked actively to achieve their common target: to produce a set of sensitivity maps that allowed responding to oil spills taking into account seabird risks, and having these maps incorporated into the response systems of the 3 countries involved: Spain, France and Portugal, while promoting this approach beyond their borders. This work included several meetings at national and international level, including liaison with authorities, expert assessment and partners’ coordination; desk office work of data compilation and methodological development; simulations; reporting; communications and advocacy; etc. Some of the project milestones are outlined here.
Data collection and methodological development (office deskwork)

The project devoted most efforts to collect data and develop a methodology to assess seabird sensitivity to oil spills and produce sensitivity maps. These tasks we conducted throughout most of the project, in parallel to other activities, and required regular contact between partners, plus incorporating expert opinion from specific consultations and organized workshops.

Engaging with national authorities

BirdLife partners met with their respective national authorities to present the aims of the project at the beginning (2017) and provided further input towards its end (2018-2019), to discuss the best way to incorporate the sensitivity maps into their national response systems. Besides, partners contributed by providing lists of organizations to be contacted in case of accident, reviewing response protocols, and making proposals to extend the methodology developed in the project to other faunal groups.

International meetings

The partners met twice during the project, aside of several skype meetings, to facilitate coordination. The first meeting (Arcachon, France, October 2017) was largely focused in the methodological approach, while the second (Athens, Greece, October 2018) put the focus on the communications and advocacy campaigns. In both cases, the project was presented to other BirdLife partners.

Experts’ workshops

Each country organized at least one experts’ workshop plus smaller meetings and consultations to improve and validate the methodological approach.

Oil-Spill Simulations

Two simulations were carried out in Spain, organized by Puertos del Estado and attended by SEO/BirdLife. The first one (June 2017) was a preliminary contact with the response systems, whereas in the second (Cartagena, November 2018) the simulation included specific actions with seabirds, taking advantage of the sensitivity maps and improved protocols of response.

Communications & advocacy campaign: #OceanAlert

The BirdLife partnership engaged in a communications and advocacy campaign along the last months of the project, to raise awareness on the problem of oil spills and the wider deterioration of our seas.

The #OceanAlert campaign was specifically aimed at claiming more funds for the protection of the marine environment, through the elaboration of the new European Maritime and Fisheries Fund (EMFF) for 2021-2027. It was translated to 7 languages, and got 58,200 of support by the end of the project.
Methodology

Seabird data and Spatial Distribution Models (SDM)

Based on available seabird data, the distribution of each species was modelled, obtaining a Species Distribution Model (SDM) for each species, season and region.

Seabird Sensitivity Index (SSI)

SSI was created taking into account 10 factors related to:

A. Probability of oil-spill contact based on the behavioural and ecological features of each species
B. Conservation status
C. Life-history traits

SSI was weighted by the abundance of each species in each region and season (saSSI).

Oil-spill Sensitivity maps (OSM)

Each SDM was weighted by the specific oil-spill sensitivity (saSSI), depending on each region and season, to obtain an OSM by species. The sum of all species’ OSMs generated the final regional and seasonal oil spill sensitivity map. The combination of all regions generated a final map per season for the whole project region.
The project was successful at producing sensitivity maps for each season and region/country.

The map here is an example for the winter period, integrating the whole study area.

These maps were agreed to be incorporated into the response systems of each member state.

Other partners of BirdLife International showed interest to extend the methodology to their respective countries, beyond the project area.
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Oiled Guillemot | © RSPB

Oil spill accident on Samet Island in Thailand | © Shutterstock

Oiled Black Guillemot | © Getty Images

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