

FINAL TECHNICAL IMPLEMENTATION REPORT

“IMPACT OF OIL SPILLS ON SEABIRDS”



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(1) General reminder of project objectives, partnership and expected deliverables

Project objectives The effects of major oil spills and chronic oil pollution on marine wildlife, notably seabirds, are seemingly all too well known. Population effects of oil-induced mortality are difficult to assess, however, and few studies have succeeded in identifying trends in population size or recruitment, following a given spill. There are several reasons why the impact on seabirds may be difficult to quantify. Accurate estimates of the total number of birds killed require effort-corrected beached bird surveys and drift-experiments *during* the incident. Apart from these, two variables are very important: the age structure of the casualties and their (most likely) breeding origin. Hence, to be able to measure any population effects, high quality data should be obtained from corpses counted and collected *during* an oil spill. While it is clear that certain baseline data, collected during and after the event, are essential to be able to assess the impact of an oil spill, there is currently no manual, international protocol or standardised set of guidelines available to instruct scientists. As a result, the data collected during spills are often inadequate. The lack of standardisation flaws the possibilities to analyse the effects of spills. The **key objective** was to **organise an international workshop**, in order to discuss goals and previous experiences with leading experts and to **produce a set of guidelines (a manual)** with concrete research recommendations to be of use in future incidents on the basis of those discussions.

Partnership The project was run in partnership by Royal NIOZ, Texel, The Netherlands (beneficiary), and two partners, University of La Coruña.(Partner 1) and Sea Alarm (Partner 2).

Royal NIOZ would act as project leader, running the secretariat and project administration, and as principal editor of the manual and guidelines. Royal NIOZ would carry out the desk study prior to the international workshop and approached the most relevant and most wanted participants (in agreement with the Commission). The Beneficiary was also responsible for the production of the proceedings of the workshop and for the design and contents of a web-page.

Partner 1, University of La Coruña, would host the workshop and will be involved in the practical organisation of that event including translations into Spanish, act as chairperson and discussion leader and also as co-editor of the manual and guidelines.

Partner 2, Sea Alarm, would also be involved in the desk study prior to the workshop, and act as chairperson and leader of discussion sessions during the workshop and as co-editor of the manual and guidelines and co-editor of the workshop proceedings.

Expected results The expected results of the project was the international publication of practical guidelines, a manual, to be of use in future (major) oil spills throughout Europe. In order to reach an international agreement as to what aspects of an impact assessment have priority over others, and how a cost-effective, practical project during a spill should be organised, it was important to use the experience of workers in recent spills and to evaluate the outcome of their work in terms of population level effects on marine wildlife. The manual, resulting from the workshop, should have to be comprehensive enough to be of use throughout Europe, but easy to use, describing methods and tools that can be used even under the most difficult and stressful circumstances.

(2) General summary of project implementation process

The first part of the project comprised a desk study, to provide clear-cut proposals at the workshop with state of the art techniques based on previous recent examples. *In concreto*, there was listed being compiled with European Seas that had been studied in terms of sensitivity to oil pollution and which areas were data deficient. That list had circulated in Europe to be commented on and was upgraded where possible and the list was made available at the workshop for further discussion and presentation. Similarly, species specific OVI's were analysed, listed, checked for completeness, circulated and presented at the international workshop as working documents.



Figure 1. Conference logo and entry poster for the Santa Cruz International workshop, 7-9 September 2006 (design Antonio Sandoval Rey, A Coruña)

Prior to the international workshop, NIOZ made available the technical documents through a NIOZ website (www.nioz.nl/oilspills), where they are still available (under the headings ‘Documents’ and ‘General Reading’). NIOZ, assisted by Sea Alarm, took care of drafting a formal invitation which was sent to the EU Member State focal points by the Commission. After participants had been identified by the Focal points, NIOZ took care of the travel arrangements bilaterally with each of them.

Universidade A Coruña proceeded to organise the Conference in Santa Cruz (A Coruña, Spain). This this included the booking of a hotel, the conference venue, local logistics and the drafting of an excellent conference logo, based on a satellite image of the Prestige Oil Spill (Fig. 1).

Sea Alarm took care of facilitating the formal invitation of a number experts by their authority, which was a not anticipated task, but necessary because of the not pro-active attitude of focal points in a number of the different Member States.

Roberto Bao (Universidade A Coruña) The Prestige spill – a reminder
Antonio Sandoval Rey (Terranova Interpretación y Gestión Ambiental S.L.) European Seabirds – what is it we are protecting?
Kees Camphuysen (Royal NIOZ) Welcome of participants
Concepción Herrero (Vice-chancellor of Research, University of A Coruña) Welcome of participants
Carlos Vales (Director of CEIDA) Welcome of participants
Manuel Vázquez (Galician Ministry of Environment) Workshop aims, set up, anticipated output and follow up
Kees Camphuysen (Royal NIOZ) Key note: Oil spills and seabird population recovery
Vicky Friesen (Queens University Ontario) Measuring population level effects of oil spills, a European perspective
Martin Heubeck (SOTEAG, UK) Evaluating the effects of chronic oil pollution: a Baltic experience
Kjell Larsson (Gotland University) Questions and discussion
Key note: Collaborative research involving academic and governmental representatives focusing on oil related environmental issues in the Canadian marine Exclusive Economic Zone
Patrick O’Hara (Univ. of Victoria, Canada) On the spot descriptions of the sensitivity of sea areas regarding oil spills and forecasting shifts in the abundance of the most sensitive species
Kees Camphuysen (Royal NIOZ, NL) Vulnerability atlases: from seabirds distribution data to concrete advice
Zoë Crutchfield (Joint Nature Conservation Committee) Questions and discussion
Impact assessment in the aftermath of the Tricolor incident
Francis Kerckhof (MUMM) & Eric Stienen (IN) Impact assessment in the aftermath of the Erika incident
Bernard Cadiou (Bretagne Vivante) Impact assessment in the aftermath of the Prestige incident
Roberto Bao (Univ A Coruña), Antonio Sandoval Rey (Terr. Int. Gest. Amb.) and Martin Heubeck (SOTEAG, UK) Discussion: What is to gain from an internationally agreed handbook?
Oil spill management and financial compensation
Franck Laruelle (ITOPF) Planning for impact assessment as an integrated part of oil spill response
Hugo Nijkamp (Sea Alarm) Questions and discussions
Introduction to subsession “Oil spill impact assessments”
Martin Heubeck (SOTEAG, UK) Introduction to subsession “Biological Advice”
Kees Camphuysen (Royal NIOZ) Introduction to subsession “Planning for Impact Assessment”
Hugo Nijkamp (Sea Alarm) Questions and discussion

Figure 2. Conference programme for the first evening and following day, highlighting the variety of topics addressed that were meant to introduce the discussion sessions and handbook preparations on the next day.

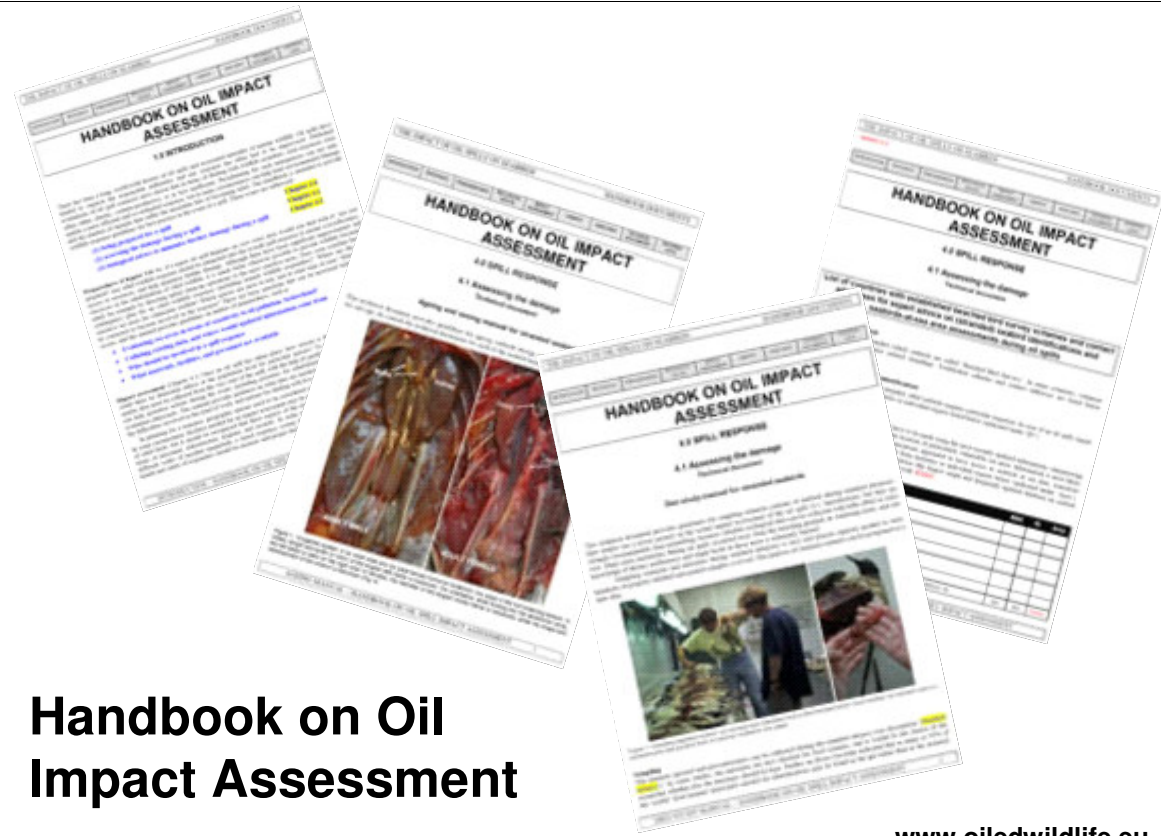
The Workshop took place between 7 and 9 September 2007 and involved 20 delegates, government officials, scientists and NGOs from 11 European countries (10 EU Member States and Norway). Grants to pay for the participation of two North American scientists were provided by Fundación Arao and the use of the venue was co-sponsored by Xunta de Galicia (see Workshop Proceedings, sent separately).

The workshop started with an informal session of two introductory lectures in the evening of Thursday 7 September followed by a one day seminar on Friday. This seminar included the formal opening session and eleven lectures on various subjects. Saturday September 9 was spent on in-depth discussions on the proposed contents of the Handbook, tentatively called “the **Handbook on Oil Impact Assessment**”, during three parallel sessions.

On 9 September, the workshop broke up into three parallel sub-sessions, each focusing on a distinct part of the anticipated handbook, respectively Impact Assessment, Area Assessment and Planning Issues. The results of the morning discussions in each of the sub-sessions were plenary presented before lunch break. After lunch, participants had the opportunity to switch to another session if they wanted to. In the afternoon, the overall results were presented and discussed, and some conclusions from the Workshops were drawn. The reports of the sub-sessions and the conclusions will be used for the drafting of the Handbook. The workshop ended with a rather long list of recommendations, each of which were taken into account while drafting the Handbook of Oil Impact Assessment, the final product of this project.

Following the workshop, minutes of the discussions were written by NIOZ and used in an intermediate report to the Commission. The minutes were used by Sea Alarm to write the proceedings of the workshop, which were sent to the participants and published at the website www.oiledwildlife.eu.

Fig. 3. Handbook on Oil Impact Assessment, examples of Technical Documents and publishers as presented during a powerpoint presentation in Ostend, September 2007.



Handbook on Oil Impact Assessment

www.oiledwildlife.eu

EC DG Environment, NIOZ, Sea Alarm, Univ. A Coruña

Also after the workshop, NIOZ started to modify and expand on the contents of the draft Handbook, based on the workshop discussions, and circulating draft chapters to partners and an interested audience. Final versions of the chapters were published on the NIOZ website, and later on the www.oiledwildlife.eu website.

Finally, the role of SOTEAG must be mentioned. At the time of the call for proposals, SOTEAG could not meet the deadlines of the call and could not be included as a formal partner. But in the implementation of the project, they acted as an informal partner, especially with assisting in the workshop (Martin Heubeck accepted a role as a chairperson) and in the drafting and commenting on the different chapters of the Handbook..

(3) Evaluation of the project management/implementation process

The organisation and finalisation of the desk study prior to the workshop and the practical organisation of the workshop and the workshop logistics went smoothly and timely

Invitations were sent by the Commission, while suggestions were provided by the Beneficiary and the project partners. There was a fairly slow response, but in the end, after raising further attention by directly contacting potential participants, the result was a well attended workshop with a wide range of representatives (see Workshop Proceedings).

Additional funding, made available by Fundacion Arao (Spain), was used with the specific permission by the Commission to invite two key-note speakers from Canada, specialists in their field (molecular studies of seabird populations and studies of the Exxon Valdez oil spill respectively), to further widen the expertise available at the workshop.

Sea Alarm made sure that the activities and results of the project integrated well with two related other EG DG Environment projects (lead by resp. Sea Alarm and ZooMarine) that were running at the same time. In this way, a clear distinction could be made between issues of general oiled wildlife planning (the project coordinated by Sea Alarm), animal care activities (the project coordinated by ZooMarine) and the issues involved with impact assessment.(this project),.The workshop organised by Sea Alarm in France (Brest) had taken place before the Sta Cruz workshop had already bridged gaps in the understanding between managers and governmental representatives. This smoothed the discussions in Sta Cruz greatly.

The final phase of the project was the drafting and circulating of the Handbook. This phase was slightly slowed down and therefore delayed which had different causes. Partly it was a result of the necessary interactions with the other EU projects, partly because of the slow or not sufficiently adequate responses of external experts on the proposed texts. With all the comments and suggestions logged at the Sta Cruz workshop, the initial handbook set-up needed a major revision, and this initially led to some misunderstanding regarding the scope and outline of the documents. In a later phase of the project, when the handbook really began to get shape, when workshop participants could see the implementation of their own suggestions, and when drafts were posted on a temporary site on the internet for consultation on demand (which saved us sending multi-MB attachments through e-mails), the responses came more immediate and enthusiasm about the results were rapidly growing, smoothing the process.

Finally the Handbook, after its finalisation, received great support and enthusiasm when it was presented at two separate events, i.e. the international Sea Alarm Conference (Ostend, October 2007) and a Spanish oiled wildlife response planning workshop organised by Sea Alarm and Universidae A Coruña (A Coruña, November 2007). Both events offered an excellent opportunity to draw attention to the product and to activate an interested audience to help expanding and further improving the contents of the Handbook.

(4) Activities

+ **Desk study** (literature review of recent, major oil spills with emphasis on data collection and post-spill evaluations of population effects)

Completed and made available before the Sta Cruz (A Coruña) workshop, still available online at www.nioz.nl/oilspills (links 'Documents' and 'Further reading'). Many of the documents were received with agreement, a notable comment was received regarding the European species list ('which taxonomy should be followed') and the list was changed and included in the Handbook accordingly.

+ **International workshop** (invited participants, key individuals involved in the impact assessments and the effect on marine wildlife in any of the major recent European oil spills).

Successfully organized, 7-9 September 2006, Sta Cruz, A Coruña, and minutes produced as scheduled, sufficient turn out to have wide coverage in European sea-bordering countries, constructive discussions of the scope and outline of a Handbook Oil Impact Assessment to guide beneficiary and partners through the final production phase of the documents.

+ Peer review and publication of **workshop proceedings**

Produced and circulated from October 2006, changed after some minor comments were received and made available to the participants. It was sent to the Commission with the Interim Report (plus request for an unfounded extension of the project, January 2007).

+ Peer review **draft manual / guidelines** for the impact assessment of future spills

A Handbook Oil Impact Assessment has been produced as a final product of the project, following ample discussions at the workshop, after circulation (initially) and web-postings (later stages) of draft texts. The entire product is made available as an electronic version with covering chapters (highlighting the rationales of the entire response) and numerous Technical documents (Species accounts and Area descriptions) and specific guidelines, including illustrated "shopping lists" (to be of use for specific actions during an oil spill response), laboratory guidelines, and autopsy sheets.

First drafts were prepared in the course of the winter 2006/2007, full circulation and constructive contributions and comments of drafts and concepts in summer 2007 during the unfounded extension, final products ready for web-postings late July to early September 2007, immediate use of the documents (including further refinements and updates on demand) during the Black Sea oil spill and northern North Sea auks wrecks in late autumn and early winter 2007.

+ Publication of the **final report and manual**: guidelines for the assessment of the impact on seabirds of major oil spills.

The "Handbook Oil Impact Assessment" was published on the internet in October 2007 at www.oiledwildlife.eu, the website maintained and developed by Sea Alarm. Hard copies of the introduction were produced for the commission, with the internet links to search the technical documents. The documents were sent as hard copies to the Commission early November 2007 (and acknowledgement of receipt was received).

(5) Presentation of the technical results and deliverables (one section per deliverable)

1. The interim report of the project, together with a request for an unfunded extension was sent to the Commission in January 2007 and an acknowledgement of receipt (accepting the deliverable) was received.
2. Finalised workshop proceedings, as a second deliverable, next to the workshop descriptions that had been forwarded to the Commission with the interim report in January 2007, was sent separately to the Commission on 29 October 2007. An acknowledgement of receipt (accepting the deliverable) was received.
3. The final report, the printed part of the Handbook Oil Impact Assessment, together with the (relevant) web links for the electronic part of the deliverable, were sent to the Commission separately on 29 October 2007. An acknowledgement of receipt (accepting the deliverable) was received.
4. The current document, the Final Technical Implementation Report, i.e. the last of the deliverables, describing the process and progress of the project and pointing at the type of work conducted and the other deliverables, is presented here.

(6) Evaluation of the technical results and deliverables

The two main deliverables of this project, the Workshop and the Handbook are closely related. In terms of their evaluation similar arguments can be used. Both deal with an aspect of the oiled wildlife response that is not always and everywhere considered as an essential and integrated part of oil spill response and planning. Part of the workshop was spent on explaining what was meant by an Impact Assessment, and *why* an assessment was relevant, and also why biological advice (on the right place, with sufficient authority and directed to exactly the right persons) is vital in attempts to minimise any further damage during a spill. Only when the aims became clear did genuine enthusiasm among invited participants fully emerge.

Rationale There was a warning in this, and that was that the aspects of impact assessments and biological advice needed to be explained more fully than anticipated. Specialists working on these issues (like the scientists involved as partners in this project), tend to underestimate the need for clear, simple-worded explanations. We therefore radically changed the wording (and basically shortened it to keep things very clear!) in the “covering documents”(the printed bit) of the Handbook of Oil Impact Assessment. We wrote a separate “Rationale” and carefully kept this as short as it now stands (one page), to make sure the message would come across even in a crisis situation. Sentences of this rationale were actually spelled out during the workshop, and participants could intervene whenever they felt for it (and this frequently occurred!). The debate leading to the Rationale, was probably one of the most essential phases of the entire project, for after this was settled, conclusions could more easily be reached.

Impact Assessment and Biological Advice A second conclusion from the workshop was, that discussions and manuals of Impact Assessments and Biological Advice should be separated in all aspects, even though the same people might be involved, and most certainly so in the final product, in the Handbook. The type of action was so different for each of these parts of a wildlife response, but also the motivation and duration or planning of the work was so radically different, that it would only be confusing if the two were mixed up.

In short, biological advice is provided on the spot (apart from preparations beforehand, so as the calculations of OVIs (Oil Vulnerability Indices) and collecting locality specific information about the sensitivity to oiling of particular sea areas), it should provide directions and suggestions for Technical Responders, and the work is discontinued somewhere during the incident. Impact Assessments should start the work immediately, span the entire incident, and have a considerable ‘aftermath’ of work in terms of analysis, communication, and publications. The work is so different that we split the sessions at the workshop (but with everyone involved or represented in both!), and that we clipped the handbook chapter in two (4.1 and 4.2, including all technical documents and shopping lists).

We feel that the technical results are considerable in a sense that for the first time in Europe we have proposed standardised guidelines for all aspects of an oiled wildlife response *other* than the rehabilitation attempts. Listening at the enthusiasm broadcasted by delegates at two workshops (Belgium and Spain) in autumn 2007, who were confronted with the main deliverable (the online handbook), we feel that the mission is at least accomplished for the time being. As will be stated in (7) Follow up, and as we already realised when the project was outlined (see proposal), the release of the handbook is a starting point rather than an end point, and we should and will actively expand the quality and contents of the publication, attract specialised co-authors for Technical Documents that need revision or that need be added given demands emerging during future oil spills.

(7) Follow-up

Continuation after the project ended What still needs to be done (that is, specific actions that will have to be continued or maintained), is updates and further expansion of the manuals and guidelines put forward on the internet (the ‘Handbook Oil Impact Assessment’, www.oiledwildlife.eu). The handbook will be subject to change long after the project, when new spills have taken place and when other ‘problems’ have been encountered, or simply to improve the texts and Technical documents. The electronic documents can be altered at very low cost, while scientists that need the manual can simply download the most recent version and print what is needed of it. In fact, the interactive phase of updating has commenced *during* the extension of the project, with new spills coming to the attention in Europe and beyond (e.g. Black Sea spill, November 2007), requiring swiftly updated information on the area sensitivity subject (Technical Documents Chapter 4.2). Similarly, several new mass-autopsies required updates of Technical Documents on bird families (Technical Documents Chapter 4.1). In the foreseeable future, project partners (certainly Applicant and Partner 2) will continue their long-standing activities with seabirds and oil pollution, and will be involved in major as spills as part of their activities. For others, participation into the improvement process of the handbook is open and co-authorships of improved Technical Documents are stimulated.

The Handbook Oil Impact Assessment was introduced during a key note presentation on the Sea Alarm Conference in Ostend, 1-3 October 2007.

The Handbook Oil Impact Assessment was brought to the attention of the scientific community in October 2007 during a major wreck of Razorbills *Alca torda* in Scandinavian waters. It appeared that the (relevant parts of the) handbook was instantly used and downloaded.

The Handbook Oil Impact Assessment was again introduced on the Conference “Jornadas Fauna salvaje Petroleada: planificación y repuesta”, A Coruña, 21-22 November 2007, where representatives from the Spanish central government and representatives of nearly all (coastal) autonomous regions were gathered to discuss the levels of preparedness for future oil spills in Spain.

In case of major upgrades of the manual, new funds may be sought, but the need for such funds is currently not foreseen.

We feel that the Handbook should be brought to the attention of relevant parties and means are considered how this could be achieved best.

Further prints (as handouts on conferences and workshop) of the printed part of the documents are considered, as well as web-site advertisements directing wildlife responders towards the appropriate web pages during incidents. It is clear that a simple advertisement would be without effect as a general advert. People are likely to pay attention only when they need the product, which is during spills or similar incidents. The involvement of Sea Alarm, an “intermediate” body during incidents (a communicating body between technical responders, governments, NGOs and the industry) is an enormous bonus to get the work implemented.