

EcoQO on the proportion of oiled guillemots

Background

As a result of chronic marine oil pollution, many thousands of seabirds wash ashore on beaches every year. Systematic Beached Bird Surveys (BBS) have been conducted since the early 1960s around the North Sea to study temporal and spatial trends in oil-related mortality in seabirds. Common guillemots are common and widespread seabirds that are sensitive to oil pollution. Spatial patterns in common guillemot oil rates reflect different levels of chronic marine oil pollution around the North Sea, whereas temporal trends in oil rates are indicative for changes in these levels over time. The bird is common enough to provide useful data on an annual basis in all North Sea countries, and the species has therefore been selected as a prime object for the monitoring study. The EcoQO Oiled Guillemots describes the proportion of oiled common guillemots *Uria aalge* among those found dead or dying on beaches within the OSPAR area.

The EcoQO Oiled Guillemots is not only meant to monitor current patterns in oil rates, but can also be used to check if set targets will actually be reached. In the more heavily polluted parts of the North Sea, only a few decades ago, around 90% of all stranded common guillemots were oiled. Oil rates have substantially declined in most areas, and the most heavily polluted areas today produce oil rates of around 50%. Even though this means a considerable improvement in comparison with the 1960s, 1970s and even 1980s, such levels are still considered high. Law enforcement, in combination with new measures to minimise chronic oil pollution at sea, should lead to further reductions, so that eventually:

The average proportion of oiled common guillemots in all winter months (November to April) should be 10% or less of the total found dead or dying in each of 15 areas of the North Sea over a period of at least 5 years.

The implementation of the EcoQO Oiled Guillemots is currently under consideration. This evaluation describes the suitability of present (existing) monitoring schemes around the North Sea and provides an update of current levels of oil pollution in stranded guillemots around the North Sea. BBS co-ordinators around the North Sea were consulted to check the current status of the various monitoring projects, to see what steps should be taken to modify schemes that are currently sub-standard or simply different from the international monitoring scheme now proposed, and to provide an inventory of any costs that may be involved to upgrade existing schemes and to have countries participating. Finally, the co-ordinators were asked to provide an update on current levels of oil rates in stranded common guillemots. Gaps in knowledge will be highlighted and suggestions to improve existing BBS programmes and to harmonise the collections of data will be provided.

Overview of results from recent monitoring

Monitoring of oiled common guillemots around the North Sea

Although national boundaries may be the most practical subdivision of the North Sea in terms of financing and logistics, a further subdivision is required to describe spatial differences in oil rates all over the North Sea. Following OSPAR 2005, 15 sub-regions were studied:

Sub-regions	
1	Shetland UK
2	Orkney and north coast of Scotland UK
3	East Scotland Duncansby Head to Berwick on Tweed UK
4	North-East England Berwick on Tweed to Spurn Head UK
5	East England Spurn Head to North Foreland UK
6	Eastern Channel line between North Foreland and Belgian/French border to line from Cherbourg to Portland UK, F
7	Western Channel line between Cherbourg and Portland to line from Lizard to Ouessant UK, F
8	Eastern Southern Bight French border Belgian coast to Texel B, NL
9	Southern German Bight North Sea coast Frisian Islands Texel to Elbe NL, D
10	Western Wadden Sea mainland and Wadden Sea coast Frisian Islands Texel to Elbe NL, D
11	Eastern Wadden Sea mainland coast and Wadden Sea coast Elbe to Esbjerg D, DK
12	Eastern German Bight North Sea coast Wadden Sea Islands Elbe to Fanø D, DK
13	Danish west coast mainland coast Esbjerg – Hanstholm DK
14	Skagerrak east of line between Hanstholm to Kristiansund, north of a line from Skagen to Gothenburg N, DK, S
15	SW Norway Kristiansund to Stadt N

Oil rates are species- and area-specific, but also vary seasonally and can even be age-specific (annual natural mortality of juvenile guillemots is proportionally higher than in adults). The use of scavenged or otherwise incomplete corpses ('remains') found on beaches may bias the results. For reasons of consistency, participants are asked to systematically search for guillemots between November and April, to identify and age the birds they find according to standardised ageing techniques, to check the corpses for missing parts, and to carefully check for oil in the feathers.

Overview and evaluation of the information provided by each Contracting Party:

In **Britain**, the situation is fairly complex. There are currently no surveys conducted according to the standards set for the EcoQO Oiled Guillemots, with the exception of Shetland, Orkney, NE England, and small parts of SE England. The Royal Society for the Protection of Birds, co-ordinating the national BBS, only carries out the annual census at the end of February, so a BBS network is in place, but the one for the EcoQO is not. The Shetland and Orkney (monthly) surveys are intact and available for the EcoQO.

For **France**, the *Ligue pour la Protection des Oiseaux* (LPO) provided a single data sheet showing numbers of oiled common guillemots in winter (November - April) 2003 - 2007. Neither the observer effort (km surveyed), nor the exact geographical location are known. There is no information on the age of the birds, or on numbers found without any oil in the feathers and oil-rates can therefore not be calculated. While the timing of the surveys is in accordance with the EcoQO Oiled Guillemots, the rest of the material provided is not. It is not clear if the rest of the necessary information is unavailable, or if the database analysis has been incomplete.

Germany's BBS is suitable for the evaluation of the EcoQO Oiled Guillemots. In Niedersachsen, the monitoring system is ideal. Counts are carried out every two weeks at spring tide on a number of survey sites throughout the year. In Schleswig-Holstein counts are carried out every two weeks at spring tide on a number of survey sites. However, the monitoring season needs to be extended to cover April (now only monitoring in October - March, test for April in 2007). To improve the quality of the data, notably with regard to ageing and percentage of plumage covered with oil, an improved schooling of survey workers will be necessary. Minor amendments to databases will be necessary.

Note that only 19 complete guillemot corpses were found in the winter 2005/06 in Schleswig-Holstein. Unless this was an exceptional winter, more effort (*i.e.* more km) will be required in the future to increase the number of corpses found and used to calculate the oil rate.

Winter-surveys (BBS) in **Belgium** are co-ordinated by the Research Institute for Nature and Forest (INBO) on a monthly basis during October - March covering the entire Belgian coastline including the outer port of Zeebrugge. Occasionally, surveys were conducted outside the winter season (*e.g.* April 1998). Exceptionally high numbers of stranded birds (wrecks) were encountered in February 1999. On average, adults constitute about 51% of the guillemot strandings in Belgium. The Belgian BBS programme can be considered fully suitable for the EcoQO Oiled Guillemots, while the scope for regular extension of the monitoring work into the month of April may be investigated.

In **The Netherlands**, surveys are co-ordinated by the Royal Netherlands Institute for Sea Research and conducted by volunteers recruited from the Dutch Seabird Group. BBS are conducted year-round, but at a rather low level from May through October. Mainland coast surveys are seriously hindered by clean-up operations of coastal communities and high levels of damage from scavengers. For most sub-regions, however, annual indices will be available based on a sufficiently large number of intact and aged carcasses. The most recent data were published in June 2007 (covering winter 2006/07), showing an all-time low in common guillemot oil rates.

No response was received despite enquiries from **Norway** and **Denmark**. It is possible that changes in the address or person of co-ordinators have led to a lack of response, but the risk that BBS schemes have actually been discontinued cannot be excluded. The establishment of an international monitoring project would require immediate action to clarify these matters and to see if the relevant data can (still) be obtained from the NE North Sea countries.

It was clear that most co-ordinators were awaiting the implementation of the EcoQO Oiled Guillemots before they were prepared to (if needed) re-structure their monitoring programme and to collect and analyse the data on the scales required to fully meet the requirements. A summary of BBS programmes around the North Sea and the potential to provide data for each of the 15 sub-regions on an annual basis given the current conditions of monitoring work is provided below:

Sub-region	Countries involved	BBS scheme running	Compliance EcoQO	Update for 2006
1 Shetland	UK	Yes (SOTEAG)	complete	available
2 Orkney	UK	Yes (RSPB Orkney)	complete	available
3 E Scotland	UK	Annual mid-winter	not	not available
4 NE England	UK	Yes (Dan Turner)	needs modification	not yet available
5 E England	UK	Annual mid-winter	not	not available
6 E Channel	UK	Annual mid-winter	not	not available
7 W Channel	UK, F	Annual mid-winter	not	not available
8 E Southern Bight	B, NL	Yes	complete	available
9 S German Bight	NL, D	Yes	complete	available
10 W Wadden Sea	NL, D	Yes	complete	available
11 E Wadden Sea	D, DK	D Yes, DK unknown	partly	partly available
12 E German Bight	D, DK	D Yes, DK unknown	partly	partly available
13 Danish W coast	DK	unknown	not known	data deficient
14 Skagerrak	N, DK, S	unknown	not known	data deficient
15 SW Norway	N	unknown	not known	data deficient

B = Belgium, D = Germany, DK = Denmark, F = France, N = Norway, NL = the Netherlands, S = Sweden, UK = United Kingdom.

Oil rates in relation to the objective

Sub-region		Countries involved	Oil rate 2006/07	Compliance EcoQO	Notes
1	Shetland	UK	UK Ad 21.1%, Juv 0.0%	UK fully; 14.3% for all intact, Nov-Apr 2006/07 data	
2	Orkney	UK	UK 4.2%	no age, complete corpses only, all year 2006-07 data	
3	E Scotland	UK	No data		
4	NE England	UK	Not yet available	Annual report expected	
5	E England	UK	No data		
6	E Channel	UK	No data		
7	W Channel	UK, F	No data		
8	E Southern Bight	B, NL	NL Ad 39.6%, Juv 11.9% B Ad 34.5%	NL fully, Nov-Apr data 2006/07 B fully, Nov-Apr data 2005/06 is most recent available	
9	S German Bight	NL, D	NL Ad 22.8%, Juv 27.6% D 8.3%	NL fully, Nov-Apr data 2006/07 D no age, Niedersachsen Oct-Mar data 2005/06	
10	W Wadden Sea	NL, D	NL Ad 17.1%, Juv 19.2%	NL fully, Nov-Apr data 2006/07	
11	E Wadden Sea	D, DK	No data		
12	E German Bight	D, DK	D 9.5%	D no age, North Sea data combined, Oct-Mar 2005/06	
13	Danish W coast	DK	No data		
14	Skagerrak	N, DK, S	No data		
15	SW Norway	N	No data		

From **Shetland**, updates on oil rates for 2005/06 (12.0%) and 2006/07 (14.3%) were received. The Shetland BBS fully accommodates the EcoQO standards and overall oil rates (all intact corpses) as well as a breakdown for age is provided. Sample sizes are rather small, however, because scavengers damage most corpses found. In 2005/06, adults scored 14.3%, whereas birds identified as juveniles had an oil rate of 11.1%. For both categories, the sample size was in fact too small (16 and 9 birds respectively). In 2006/07, adults scored 21.1%, juveniles 0.0%, but again, after breakdown the sample size was in fact too small (19 and 9 birds respectively).

Orkney reports an oil rate of 3.2% for all common guillemots found stranded between March 2006 and February 2007. There was no ageing of guillemots reported, but when only 'complete' carcasses were considered (as required for the EcoQO), the oil rate is 4.2%.

From surveys in **Belgium**, an overall oil rate of 40.4% is calculated for the 2005/06 season (more recent data is currently unavailable). Since the late 1990s, common guillemots are routinely aged during surveys, but in most seasons, the sample for aged birds is too small to calculate age-specific oil rates. Over the years, oil rates in juveniles in Belgium were only half (22.5%) the levels found in adult birds (55.6%). In 2005/06, the last year available, adult oil rate amounted to 34.5% (insufficient data for juveniles).

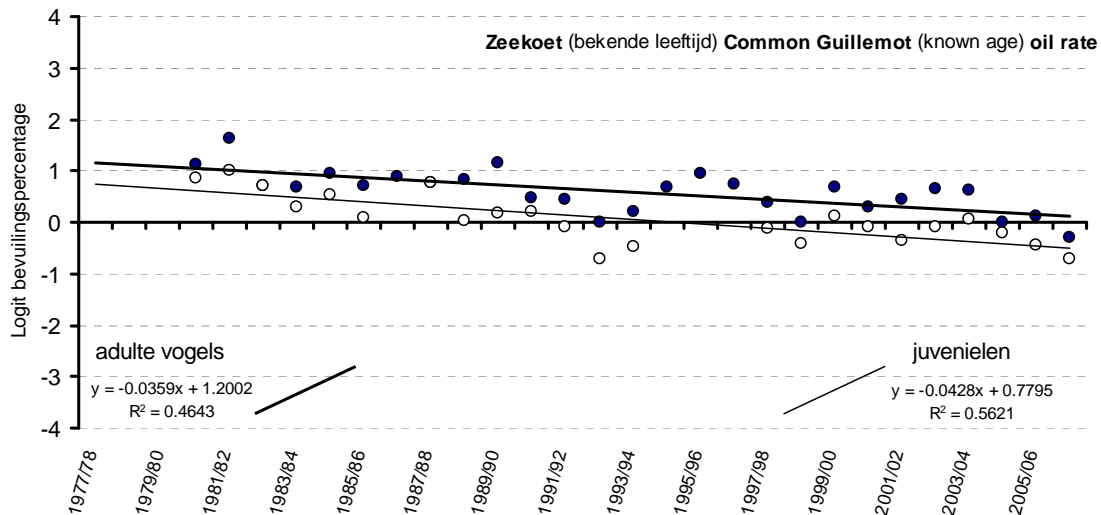


Figure 5.1: Logit-transformed oil-rates for common guillemots of known age in winter (● = adults, ○ = juveniles). Oil-rates were calculated when at least 25 complete carcasses were found; linear regression for both categories. Graph from Camphuysen 2007

The **Netherlands** reported an oil rate of 28.1% for all common guillemots suitable (complete) in winter ($n = 576$). Broken down for age and EcoQO sub-regions (fully complying), oil rates varied between 3.7% and 39.6% in mature birds and between 11.9% and 27.6% in juveniles, with young birds on average having a lower oil rate (18.6%) than adults (32.0%), and with particularly low levels within the Wadden Sea. A recent annual report showed that the difference between oil rates in adults and juveniles was highly consistent over time (Figure 5.1). The oil rates over 2006/07 were an all time low for the area.

Oil rates in **Germany** have declined over time (Figure 5.2). Data were split between Niedersachsen, Helgoland and Schleswig-Holstein North Sea coast. No separate data set for the Wadden Sea area (sub-regions 10 and 11) was received. Oil rates in Germany in 2005/06 (the most recent data) were very low in comparison with neighbouring countries.

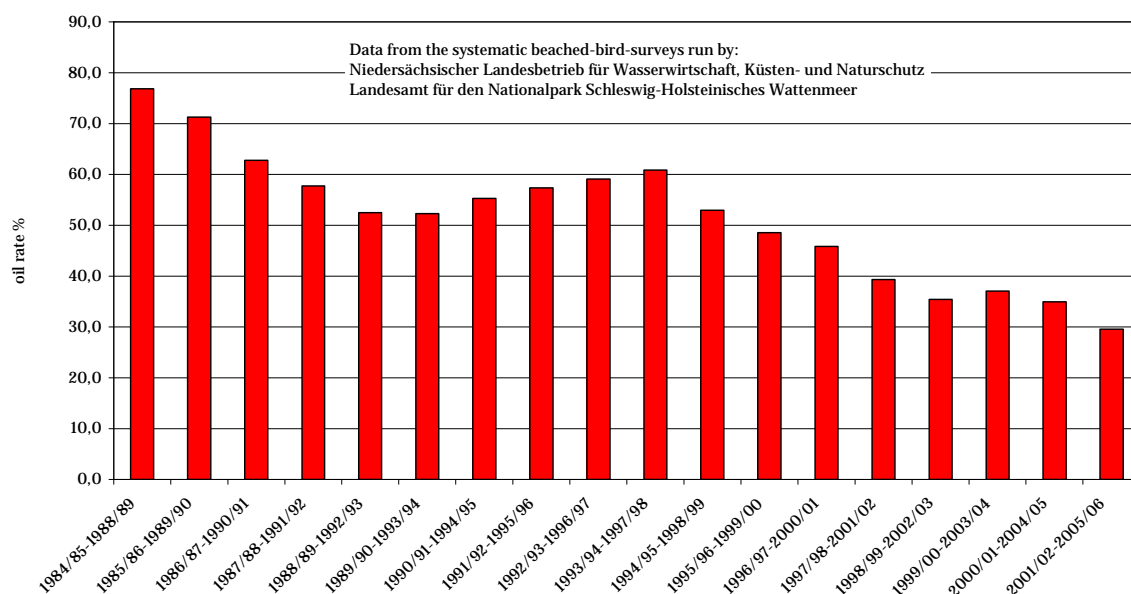


Figure 5.2: Common guillemot oil rates on the German North Sea coast (5-year running means). Graph courtesy David Fleet.

Consequences of failing to meet the EcoQO

The ecological consequences of failing to meet the EcoQO do not only apply to guillemots, but also to other species of birds, and other elements of the North Sea ecosystem.

From a management point of view, exceeding the level of 10% indicates oil rates that should be reduced. The pilot project mentioned the following management measures could be taken to achieve the EcoQO:

The North Sea is a "Special Area" under MARPOL which means that discharge into the sea of oil or oily mixture from any oil tanker and ship over 400 gt is prohibited. OSPAR has developed regulations on discharges of oil in produced water from offshore installations. Other possible measures are related to control and enforcement of MARPOL, prevention, oil recovery/clearing and education.

Suitability of present monitoring and reporting

At present, in the absence of an international co-ordinator, the reporting of oil rates is infrequent, differs in structure between countries, and is difficult to compare. In Shetland, Orkney, NE England, Belgium, the Netherlands and Germany, it should be possible to obtain a full update and in some cases even a long-term trend of oil rates over the past decades. So far, countries listed here that share EcoQO sub-regions (sub-regions 8, 9, 10) have not attempted to combine their data on a regular basis. The participation of these countries, however, should guarantee that for sub-regions 1, 2, 4, (some data for 5), 8, 9, 10, 11, and 12 an annual index can be calculated. Sub-regions 3, (5), 6, 7, and 13-15 will be data deficient unless further steps are taken.

There is still a lack of information from Norway, Sweden, Denmark, France and (parts of) the United Kingdom.

Developments in harmonisation of monitoring and reporting schemes

There is already clear monitoring guidance available for implementation of this EcoQO (see the Handbook for the Application of Ecological Quality Objectives in the North Sea (OSPAR 2007/307)). This allows for harmonisation of monitoring of this EcoQO by the North Sea countries.

For NE England, the BBS data collection includes monthly censuses providing information on distance surveyed, number of guillemots found and number of guillemots oiled. Slight modifications are required to fully meet the EcoQO standards (ageing and recording state of corpses). Orkney and Shetland fully comply, whereas a substantial change is required to set up a national (UK wide) BBS that would produce data in accordance with standards outlined earlier. For Belgium, Germany and the Netherlands, there is no need to further harmonise the data, even if the material delivered to the EcoQO may be slightly different from the manner in which the data are presented and analysed nationally. The guillemots are properly aged and checked for completeness of the corpses, and the EcoQO sub-regions are properly sampled on a monthly basis during all (NL, D) or nearly all (B) in winter. The material received from LPO in France is incomplete and negotiations will have to be started to see where and how the French workers could modify their set-up to fully meet the EcoQO standards. Danish and Norwegian BBS organisers have shown in the past that their material is useful. In the absence of a response during the preparation of the present report, we must be prepared to accept that BBS schemes have perhaps either deteriorated, or were stopped entirely.

Costs of present monitoring and reporting

The monitoring of oil by using this EcoQO is much cheaper than monitoring by ships or planes. An important assumption for the budget presented below is that budgeted costs include only costs necessary for the successful completion of the project: an international combination of data..

Such (annual) costs include:

- overall international co-ordination and an annual report (lead country only, estimated at c. € 13 250 = per annum) and
- national expenses on top of the costs required to run a BBS and
- organisation of participating volunteers (estimated at € 1500 = per annum for participating countries).

The actual costs of a national BBS vary per country and these are not budgeted here, for they are seen as a national responsibility of countries represented at the North Sea Ministers Conference; those that signed the Bergen Declaration.

Additional costs are involved when the monitoring programme includes systematic oil sampling and the analysis of these samples as a study of the sources of oil. Costs would then include materials for sampling, the distribution of sampling tools and the central collection of the samples. A central laboratory is the most cost-effective solution for this task. Budgeted costs are based on estimates by the Bundesamt für Seeschifffahrt und Hydrographie in Hamburg (Germany). It should be highlighted that the Oiled Guillemot EcoQO could start even if a decision regarding the need for chemical analysis of oil samples is postponed.

Overview of costs involved

Co-ordination, lead country	Days	Rate (€)	Subtotal	Remarks
*Project co-ordination (work time)	10	750	7500	p.a.
*Production annual report	5	750	3750	p.a.
*Mailing, printing report, expendables		1000	1000	p.a.
*Travel		1000	1000	p.a.
Subtotal			13 250	p.a.
National co-ordination				UK, N, DK, D, NL, B, F
*Running BBS			p.m.	National responsibility; costs depend on present state of volunteer network and travel expenses
*EcoQO participation	2	750	1500	p.a. per country, as a compensation for work needed to implement the EcoQO on a national level: data preparation and steering of volunteers to follow the protocols exactly
Chemical analysis of oil and other substances				
*Technician	full time		40 000	BSH, Hamburg
*Supervision of work and reporting	5		3750	BSH, Hamburg
			43 750	

Extra costs of harmonising the monitoring

In **Britain**, the national co-ordinator (RSPB) has not adopted the EcoQO methodology and field work scheme (Nov-Apr) because there is no funding available. Shetland, Orkney, and NE England are prepared to deliver data at no extra costs and fully in compliance with the EcoQO standards.

In **Germany** the oiled bird monitoring takes place as part of the management activities of the national parks. Co-ordination, analysis and reporting of the beached bird surveys are also carried out, at least in part, as part of the managing system or the general operations of the national parks. The effort and costs are directly related to the number and length of sites surveyed as well as the frequency of the surveys. Germany has about 40 standard sites with a total length of about 180 km. These sites are counted twice a month during the winter period. Currently, there is no need to greatly expand the work on a regular basis and there will therefore only be a demand for the extra costs to deliver data annually for the EcoQO reports.

Surveys in **Belgium** are supported by national funding. The delivery of data and formatting to meet EcoQO Oiled Guillemots standards are the only, fairly insignificant, extra costs needed to fully participate.

Surveys in **the Netherlands**, conducted by volunteers of the Dutch Seabird Group and co-ordinated by the Royal Netherlands Institute for Sea Research (NIOZ), are subsidised on an annual basis by the Dutch Ministry of Transport, Public Works and Water Management. The maintenance of the network is highly dependent on that financial contribution and future support is required to fulfil the national commitments for the Oiled Guillemot EcoQO. As long as the national surveys are subsidised nationally, there is no extra funding required to deliver data for the annual EcoQO report.

No information for **France, Denmark and Norway**.

Performance of the EcoQO

The technical performance of the EcoQO as provided by ICES, has been summarized by OSPAR (2006). See table next page.

ICES criteria	Comments
Relatively easy to understand by non-scientists and those who will decide on their use	A guillemot polluted with oil will die soon, because it is not able anymore to dive for gathering food
Sensitive to a manageable human activity	The guillemots are sensitive to oil. Input from oil arises mainly from shipping, oil incidents and to a lesser extent from the offshore mining industry
Relatively tightly linked in time to that activity	A guillemot polluted with oil will die soon, because it is not able to dive to gather food
Easily and accurately measured, with a low error rate	Volunteers can search on the beaches for dead guillemots, keeping counts of those polluted by oil. If volunteers are educated the error rate can be very low
Responsive primarily to a human activity, with low responsiveness to other causes of change	In a natural situation there should be no oil in the North Sea. All oil pollution originates from human activities.
Measurable over a large proportion of the area to which the EcoQ metric is to apply	In each country sub-regions should be chosen to sample the entire coastline appropriately. The selection of sub-regions should take into account local conditions and will vary between countries, with different strategies in those whose coastline is mainly comprised of long sandy beaches and countries where the coast consists of numerous islands, fjords or long stretches of cliff. A representative fraction of the coast directly bordering the sea should be chosen and remain standardised over the years. The length of coast chosen should produce sufficient beached birds of the most common species to enable the calculation of reliable oil rates. Information on the amounts of input of oil should be available
Based on an existing body or time-series of data to allow a realistic setting of objectives	Most North Sea countries have already measured oiled guillemots. There are already certain time series

Gaps in knowledge

As outlined above, several areas are data deficient, while other projects require (some) modifications to fully meet the EcoQO standards. While the most extreme areas in terms of oil rates (very low rates generally in the NW North Sea and normally by far the highest oil rates in the SE North Sea) are currently well monitored, those areas that should produce intermediate levels are not very well surveyed at the moment. Immediately after implementation, an international co-ordinator should put emphasis on improving that situation.

Effectiveness of communication

It is clear that all guillemots being oiled are a result of oil pollution caused by human activities, and stakeholders and the public could easily see the relevance of this EcoQO.

Inputs of oil come from ships, from land-based sources, by accidents and to a lesser extent from the offshore oil industry. In cases where oil slicks occur at sea, discharges are likely to be illegal. Since the discharge of oil or oily mixtures that cause slicks is prohibited, possible measures would be to further enforce current regulations. In addition, prevention, education, and effective oil recovery may lead to cessation of illegal discharges or reductions in impacts. The aim of this EcoQO is therefore to avoid the occurrence of oil spills and their effects.

Recommendations

Whether the status of the EcoQO should be target, limit or indicator

It is proposed that the objective for EcoQO for oiled guillemots should be considered as a ***“limit”***, *i.e.* a quantitative value of an indicator associated with the state of ecosystem (*i.e.* physical, chemical or biological characteristics), usually expressed as a maximum or minimum, beyond which undesirable or even irreversible effects to living organisms may occur. If a limit has been exceeded, it should trigger management actions.

Proposals for modification and improvement of the EcoQO

The German co-ordinator regrets that there is no longer a systematic analysis of oil from the plumage of all birds found. A systematic analysis of oil samples may be implemented in the North Sea region. Furthermore, information on shipping densities and on the distribution of guillemots in the winter period would be helpful for the interpretation of the results.

The co-ordinator in the Netherlands would immediately support the suggestion to implement a systematic analysis of oil samples from feather samples as a very valuable source of extra information. A recent spill of a complex mixture of some vegetable oil and cleaning detergent (incidentally dissolving the soft parts of birds affected) has once more demonstrated the need to learn more about the origin and source of incidental spills.

No specific suggestions were provided by any of the other co-ordinators.

Specific linkages with the MSFD

The EcoQO on oiled guillemots can be used to contribute to the GES generic descriptor for “Concentrations of contaminants are at levels not giving rise to pollution effects”. Oil is a significant issue in the North Sea. The EcoQO expresses its impact at the level of individual organisms and populations. This EcoQO was defined as an aspirational objective in 1999, on the basis of what was achieved in terms of measures to address impacts from a single source in a remote area. This was well in advance of the concept of a region wide GES under the MSFD. The objective of 10% may not

therefore be realistic for areas subject to impacts from multiple pressures and therefore may have to be redefined for use in a GES context.

The ICG-EcoQOs recommends that the objective should be redefined. The objective of 10% would still serve as the long-term objective (to reach by 2030). For the short term, however, an adjustment to 20% is recommended based on the current rate of decline in the number of oiled guillemots. The proposal for the new objectives is:

The average proportion of oiled common guillemots in all winter months (November to April) should be 20% or less by 2020 and 10% or less by 2030 of the total found dead or dying in each of 15 areas of the North Sea over a period of at least 5 years.

Potential applicability of the EcoQO in other OSPAR regions

An EcoQO Oiled Guillemots could be useful in the entire Bay of Biscay area (France, NW Spain), although the ageing of birds in these waters is critical, given high proportions of juveniles in these waters. Further to the south, the Razorbill *Alca torda*, could be used to replace common guillemots as indicators.

Conclusions

On the basis of recent information (2006/2007, as described in this document) and on information on the period 1997/1998 up to 2001/2002 (as described in the Background Document on the EcoQO on Oiled Guillemots – publication 2005/252) it can be concluded that this EcoQO is not met in almost all sub-regions. Downward trends in oil rates are recorded, but it is unclear if the objective will be reached in all sub-regions by the year 2021. This date is important for the MSFD. EcoQOs can play a role in implementing this Directive.

This means that all the North Sea Contracting Parties have to take action on the control and enforcement of existing measures to achieve this EcoQO. It is not clear yet how realistic this is, in terms of cost-effectiveness.

It is proposed that the EcoQO for oiled guillemots should be considered as a “limit”.

The performance of this EcoQO is good, especially the communication of this EcoQO is very effective: It is clear that all guillemots being oiled are a result of oil pollution caused by human activities.

The monitoring is not fully in compliance with the requirements for the EcoQO in all 15 sub-regions, the same applies to the availability of data for 2006.

It is clear that BBS schemes have deteriorated on a North Sea scale since the first proposals to join forces and form an international database were written. This is partly because co-ordinators lost interest, or funds (or both), and partly because it took too long for the EcoQO to become implemented. Sceptic responses about an eventual implementation were received several times. However, we may expect an upsurge in interest as soon as the monitoring programme actually starts. For the moment, an incomplete coverage is better than no coverage. So far, excessive costs are not foreseen to establish an EcoQO Oiled Guillemots, at least as far as data deliveries and international co-ordination is concerned. To establish national BBS schemes in areas where the coverage is weak or incomplete (such as in most of the UK, France, Denmark and Norway), national support may be required.

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↪Go to full QSR assessment report on the evaluation of the OSPAR system of Ecological Quality Objectives for the North Sea (publication number 406/2009 (update 2010))