

Report from the Seabird Monitoring Programme Workshop

22-23 October 2008

Inverness

Organised by the Joint Nature Conservation Committee

Venue: Scottish Natural Heritage HQ, Great Glen House, Leachkin Road, Inverness IV3 8NW

Present

A list of participants is given in Appendix : 26 participants attended from 16 organisations.

Apologies

Janice Dockerill & Paul Veron – Guernsey State Government

Joan Edwards & Fiona Mahon – The Wildlife Trusts

Debbie Russell – Natural England

1 Introduction

Ian Mitchell, leader of JNCC's Seabird Colony Team, welcomed and thanked all participants. He outlined the aims and intended outcomes of the workshop.

1.1 Workshop Aims

- i. To obtain stakeholder input into recommendations for future seabird surveillance as part of JNCC's review of the Seabird Monitoring Programme (SMP).
- ii. To determine how partners can more efficiently contribute their data to the SMP and resolve any conflicting issues of data ownership and rights.
- iii. To determine stakeholders' requirements for information and data.

1.2 Workshop Outcomes

- i. A list of ratified aims and objectives for the SMP that fulfil the requirements of the UK's Biodiversity Surveillance Strategy and of individual stakeholders (See Table 2 and Table 3)
- ii. A memorandum of understanding between each contributing partner, JNCC and the other partners that specifies terms of the SMP partnership with respect to data exchange and ownership (see Table 4).
- iii. A strategy for the future monitoring and surveillance of breeding seabirds in the UK, Republic of Ireland, Isle of Man and the Channel Islands (see Appendix 1 and Table 5).
- iv. A list of reporting products that satisfies stakeholder needs.

1.3 Workshop Structure

The workshop was divided into four themed sessions A-D, each tasked with producing one of the outcomes listed above, and a final summing-up session. Prior to Session A, Matt Parsons gave a presentation on the history of the SMP and what it has achieved since its inception in 1989.

All presentations from the workshop are available at <ftp://213.210.8.161/seabirds>
username = marine
password = FTPmarine

A list of available presentations is in Table 1.

2 Session A: SMP future aims & objectives

Session chair: Ian Mitchell (JNCC)

The objective of session A was to agree on the aims and objectives for the SMP that fulfil the requirements of the UK's Biodiversity Surveillance Strategy and of individual stakeholders.

2.1 UK and international drivers

Lawrence Way, Head of JNCC's Surveillance Team presented an outline of the key drivers of the SMP from a UK and international perspective. He described ongoing work to develop a UK Strategy for Biodiversity Surveillance. The strategy uses three top level objectives for the surveillance of biodiversity:

- i. Measuring the overall goals set for biodiversity in UK and country strategies;
- ii. detecting the impacts of the pressures affecting biodiversity, through changes in biodiversity status, in order to help set measures and strategies for taking action; and
- iii. assessing the status of the wide range of species and habitats covered by the sum of the policy, legislative, and international conservation commitments.

In order to meet these objectives, Lawrence recommended that seabird surveillance needed to provide the following evidence:

- a) Spatially and temporally sensitive trends for a subset of seabird species that will act as indicators of the impacts of pressure such as climate/fishing.
- b) Research to determine links between pressures and seabird population change.
- c) Periodic assessments of the status of all seabird species.
- d) Targeted monitoring and research to determine causes of change in severely declining population to inform the most appropriate mitigation.
- e) Feedback into land-based management for seabird populations or individual colonies.

2.2 Stakeholder objectives & evidence needs

Each stakeholder then presented a summary of their objectives and evidence needs i.e.

- a) Why information on breeding seabird populations is needed (i.e. the objectives they hope to fulfil); and
- b) What information and services are needed (e.g. trends, population estimates, advice).

The stakeholders' objectives were collated in Table 2 and grouped according to the UK surveillance strategy objectives listed above. Most of the stakeholder objectives fitted neatly within the overall strategic objectives outlined by Lawrence (see 2.1). There were three objectives of NGO partners that could not be fitted easily (see Table 1). Of these, monitoring of nature reserves may actually overlap with the statutory obligation to monitor protected sites, since many NGO reserves overlap or fall within legislative conservation boundaries.

Republic of Ireland, Channel Islands and Isle of Man have similar statutory obligations to the UK under their own national legislation and international conventions. The key EC Driver to bird conservation in the UK and Republic of Ireland is the Birds Directive. This mainly covers designation and management of SPAs and contains no implicit requirement for monitoring, although this is carried out by all UK country agencies as part of Common Standards Monitoring (CSM). It is envisaged that member states will be requested to report on favourable conservation status of species listed in the Birds Directive as part of the implementation of the Environmental Liability Directive.

Stakeholder needs were collated in Table 3 into three groups: data, products and services. One of the most frequently expressed needs was for estimates of trends and population size at a variety of geographical scales to give context to the size and trends of individual colonies i.e. in NGO nature Reserves or in statutory protected sites. There was also a demand for information on the causes of change within seabird populations.

After some discussion it was felt that the need for information on foraging ranges expressed by the RSPB was not an appropriate output of the SMP. Foraging ranges are not something that need to be monitored, but should be part of bespoke studies to identify important feeding areas, possibly as part of marine protected area designation.

2.3 Stakeholder contributions

Some stakeholder presentations also gave details of what they could contribute to the SMP, mainly through submission of monitoring data (see individual presentations). As a relatively new partner to the SMP, Chris Wernham of BTO was keen to emphasise the other ways in which BTO could contribute in the future: influence over the collection of certain ringing data for estimates of seabird phenology and survival, expertise in the recruitment and co-ordination of volunteers and expertise in online recording and reporting.

2.4 SMP overall aim

Unfortunately there was insufficient time in the session for the workshop to ratify or amending the overall aim of the SMP that was drafted by the SMP Review Working Group:

The aim of the SMP is to contribute information to enable the appropriate agencies to maintain favourable status of seabird populations in the UK and the Republic of Ireland. It ensures that sufficient data on breeding numbers and appropriate demographic and

behavioural parameters of seabirds are collected- both regionally and nationally - to enable their population and conservation status to be assessed, and to monitor the impacts of ecosystem pressures.

Suggestions for amendments to the aim should be emailed to ian.mitchell@jncc.gov.uk by 31.12.08.

Table 1 List of presentations available for download from <ftp://213.210.8.161/seabirds>

Session	Presentation file name	Author
Introduction	1 Parsons Introduction to the SMP – the last 20 years.ppt	Matt Parsons (JNCC)
Session A: SMP future aims & objectives	2 Lawrence Way UK and international drivers of the SMP.ppt	Lawrence Way (JNCC)
	3 Douse UK Statutory conservation agencies.ppt	Andy Douse (SNH)
	4 Newton Republic of Ireland.ppt	Steve Newton (BirdWatch Ireland)
	5 Selman Isle of Man.ppt	Richard Selman (Manx Government)
	6 Heubeck SOTEAG.ppt	Martin Heubeck
	7 Daunt CEH.ppt	Francis Daunt
	8 Gilbert RSPB.ppt	Doug Gilbert
	9 Wernham BTO.ppt	Chris Wernham
	10 Foxwell Scottish Wildlife Trust.ppt	Mark Foxwell
Session C: SMP Sampling Strategy	13 Ratcliffe The Seabird Group.ppt	Norman Ratcliffe
	Vernon Channel Islands.doc	Paul Vernon (Guernsey State Government)
	14 Mitchell JNCCs recommendations for a sampling strategy.ppt	Ian Mitchell (JNCC)
	15 Parsons Monitoring of numbers and breeding success.ppt	Matt Parsons (JNCC)
	16 Heubeck Monitoring phenology	Martin Heubeck (SOTEAG/Aberdeen University)
Session D: Disseminating information – what do stakeholders need?	17 Robinson Estimating seabird survival rates from ringing data.ppt	Rob Robinson (BTO)
	18 Wanless Monitoring diet.ppt	Sarah Wanless (CEH)
Final Session: summing up	19 Disseminating information – what do stakeholders need.ppt	Matt Parsons (JNCC)
	20 Lawrence Way Summing up and The Way Forward.ppt	Lawrence Way (JNCC)

Table 2 Stakeholder objectives concerning seabirds.

UK Surveillance Strategy objectives	Stakeholder Objectives
Obligations	To meet requirements of international conventions (e.g. Bonn/AEWA, Ramsar, Bern, OsPar, Conv. on Climate Change, Conv. on Biological Diversity)
	To designate protected sites (legislative e.g. SPAs)
	To monitor condition of protected sites (legislative i.e. common standards monitoring)
	To manage protected sites
	Possible future determination of Favourable Conservation Status (under EC Environmental Liability Dir. Or Birds Dir.?)
	To establish environmental damage and take action under the EC Environmental Liability Dir.)
Biodiversity Goals	Moral obligation to conserve one of the most important features of our natural heritage/biodiversity
	To conduct large scale (country/UK) assessments of the state of seabird communities and the wider marine environment (e.g. as part of the UK Marine Monitoring & Assessment Strategy).
	To identify Important Bird Areas
	To design and implement Biodiversity Action Plans (e.g. country and UK BAP)
	To design and implement Species Action Plans
	To monitor priority/flagship species
Pressures	To establish and monitor the impacts of pressures
	To inform management to mitigate the impacts of pressure (e.g. Marine spatial planning)
	To monitor the effectiveness of management
	To increase stakeholder awareness through education
	To inform Strategic Environmental Assessment
	To assist in conflict management
NA	To inform management of non-statutory nature reserves
	To satisfy the expectations of members and the wider public
	To maintain the traditional interest of an island nation in its coastline

Table 3 Stakeholder evidence needs to fulfil objectives in Table 2.

Stakeholder Evidence Needs	
DATA	National Population estimates
	Wider geographical context re. trends and size of individual colonies; or country trends
	Species-specific trend indices at a range of geographical scales (country, region, UK)
	Multi-species trend indices for communities or guilds
	Baseline trend data to detect the impact of major pressure events
	Trends in demographic parameters for population modelling
	Long-term data sets
PRODUCTS	A secure, standardised database
	Data that is amenable to analysis
	Quick, post-season collation of information
	Reporting of annual population changes
	Interpretation i.e. causes of change
	Update of Seabird Monitoring Handbook
	Indicators of ecosystem components
SERVICES	Advice on monitoring methods/maintaining common standards
	Volunteer activation and mobilisation
	Research co-ordination
	Management advice
	Analytical expertise
	Input to Species Action Plans
	Input into determining Favourable Conservation Status
	Keeper of formal agreement between partners
	Online recording and reporting

3 Session B: The SMP Partnership

Session chair: Jim Reid (JNCC)

Jim started the session by highlighting the international significance of the SMP: it has been used as a model for seabird surveillance in other countries and data generated by the SMP has been used in international projects in collaboration with the ICES Working Group for Seabird Ecology and CAFF CBird.

Since its conception, the SMP has been considered a partnership of contributing organisations. However, other than meeting with JNCC in the SMP Liaison Group meeting, the roles of these partners have never been clearly defined. For instance, there are no formal agreements over data sharing and dissemination.

In three randomly assigned break-out groups, participants were asked to discuss how the partners might work more productively together and provide answers to the three questions that form the headings to sections 3.1-3.3 below. The break-out groups were chaired by Rhys Bullman (SNH), David Tierney (NPWS) and Mark Bolton (RSPB).

3.1 What are the key issues in the SMP Partnership that could be clarified in an MoU?

All participants agreed with JNCC's suggestion in the workshop programme that the working partnership of the SMP would benefit greatly from a Memorandum of Understanding (MoU) between partners that more clearly defined their roles and the terms of the partnership. It was envisaged that would not only clarify the terms of the relationship between partners, but would also help clarify the role of each partner plays in the SMP to the rest of its organisation. An MoU would also raise the profile of SMP work within each partner organisation, which could significantly enhance their contribution to the Programme.

There was some discussion about what defines a 'Partner' since some organisations present at the workshop were not currently considered to be SMP partners (i.e. NTS, SWT). Some participants suggested the partnership should admit only those organisations that have 'financial'/significant input into the SMP. Significant input may be difficult to define, so a more general distinction may prove more practical: invite organisations or individuals to join the partnership who can contribute more than just data and agree to sign up to the terms of the MoU. By signing the MoU partner would also have an obligation to contribute data with terms attached (e.g. ownership, submission deadline).

JNCC provided some suggestion for issues that might be included in an MoU. Each group was asked to accept or discard these suggestion and to suggest terms for those they accepted. The issues and terms suggested by the three groups are condensed into Table 3.

Funding applications should not be included in the MoU as this was not considered an appropriate role for the SMP.

Provision of policy relevant information was considered more appropriate for the terms of reference for the partnership rather than a stipulation of the MoU. The establishment of an evidence-base is a key aim for the Partnership and it could produce a list of key research issues that need to be addressed, which could be reviewed periodically.

BirdWatch Ireland would prefer the MoU to steer away from 'UK' terminology, use something more accurate 'British Isles' etc.

Table 4 Suggested issues to be covered by an MoU between SMP partners.

Issue	Terms
<p>Data sharing/ownership (under the terms of FIA, DPA & EIR¹)</p> <p>-Within Partnership</p> <p>-Outwith Partnership</p>	<ul style="list-style-type: none"> • Non-charging for data supply should be a principle • Ownership – acknowledgement of the organisation supplying data is a requirement • Requirement for raw data eg breeding success nest by nest survival (research community require this); however, some partners guarded about presenting ‘unsummarised’ data. • Spirit of Partnership should mean that data contributed ‘freely’ regardless of cost or funding source of original data • Could ‘label data in database so individual acknowledgement of data could be made – we could move towards this. • Confidentiality/ reporting of sensitive data • Requirement that data is available for download on line. • NBN, WeBS, BBS and the Raptor Group monitoring provide good model for data sharing terms.
publications	<ul style="list-style-type: none"> • Recognise the importance of acknowledging authors/contributors to publications • Issue of reports cover large datasets so many organisations contributing; acknowledgment should be appropriate but should recognise that logo acknowledgement often not appropriate. • Recognise that acknowledgements and authorship are different.
Media releases	<ul style="list-style-type: none"> • Partners provide advance warning to other partners when they intend to release information that is derived from SMP data. • Media releases must acknowledge data source and funder.
meetings and communication	<ul style="list-style-type: none"> • Should be JNCC-led
Funding for volunteers	<ul style="list-style-type: none"> • Partners could contribute to a central fund – administered by Seabird Group or other? • Other Partners have a good basis for voluntary working –eg BTO.

¹ Freedom of Information Act 2000, Data Protection act 1998 and Environmental Information Regulations 2005.

3.2 What are the most effective ways of ensuring communication and data exchange between partners?

There was across the break-out groups the existing SMP Liaison Group was no longer fit for purpose and should be replaced by a Steering Committee with a more strategic remit.

The original function of the SMP Liaison Group was to enable the main contributors to the SMP report on the status of seabird pops based on the previous seasons monitoring results; and for JNCC to update its partners on SMP co-ordination work e.g. database development, reporting, etc. The new Steering Committee (SC) should be made up of representatives from each partner (i.e. signatories of the MoU) and should contain skills/knowledge in policy, methods, seabird ecology and fieldwork logistics. The SC, in comparison with the liaison group, should focus much more on strategic and organisational issues, such as work programmes, how to fill data gaps, identifying questions, monitoring methods and ensuring the SMP meets the evidence needs of drivers.

The SMP SC should meet annually. There was a suggestion that the meetings could be 'themed' to address different topics. The annual meetings could be spread over two days with one day devoted to a concise update on key results and organisational work and the other day would focus on the chosen theme.

In between meetings The SC members could discuss issues online via some form of internet discussion group. However there was some pessimism expressed about how many members would actually use such a medium, though it could also be used to share documents.

It was suggested that data contributors, particularly volunteers, should be provided with a forum through which their views could be incorporated into the SG's strategic thinking and through which key strategic decisions could be communicated to them. One possible forum could be regional meetings or training days for volunteers and local staff of contributing organisations.

3.3 As a partnership, how does the SMP link its monitoring activities with research and policy to ensure the programme produces the necessary evidence?

There was broad support for JNCC suggestion to form a 'scientific working group'. The group should meet on an ad hoc basis to discuss specific issues identified by the SMP Steering Committee. Such a group may, for example, help to propose applied research questions, stimulate research and steer monitoring accordingly. The group should be composed of some members of the SC plus specially invited specialists including members of research community.

Other suggestions included: an overall research policy/agenda for the SMP SC; the SC could suggest themes for the triennial Seabird Group conference.

4 Session C: SMP sampling strategy

Session Chair: Norman Ratcliffe

Session C started with a presentation on JNCC's recommendations for an SMP sampling strategy (4.1.1). This was followed by four presentations (4.1.2-4.1.5) that each looked at the usefulness and feasibility of monitoring different parameters of seabird breeding biology as part of the recommended strategy.

These presentations were then followed by a break-out session in which participants were divided into groups that represented the following areas:

- a. Scotland
- b. England, Wales, Isle of Man
- c. Ireland

Each group was asked to provide responses to the recommended sampling strategy and to answer the following questions (see 4.2 - 4.2.3):

- Does the strategy fulfil the aims of the SMP and meet the requirements of its stakeholders (as concluded in Session A)? If not, why?
- Are the recommendations feasible given logistical and resource constraints?
- What changes should be made to the strategy?
- Should intensive monitoring at key sites be continued?
- Do we need periodic seabird censuses and if so, how often and could they be feasibly undertaken?

4.1 Presentations

4.1.1 JNCC's recommendations for a sampling strategy – Ian Mitchell

Following its review of the SMP, JNCC recommended a future sampling strategy consisting of what should be monitored (i.e. species and parameter) and what sampling effort is required to obtain representative trends and information. The strategy's recommendations concerned the UK but a similar approach could be applied elsewhere – in Ireland for example. The strategy was designed to provide evidence needed to fulfil the three objectives of the UK surveillance strategy and thereby meet those of its stakeholders (see section 2).

The strategy consisted of:

- *Intensive monitoring of indicator species - seven widely distributed species that provide indicators of pressure impacts and of the state of seabird communities and the wider marine environment.
- *Intensive monitoring of species to monitor management and to determine causes of change in rapidly declining species.
- #Extensive monitoring of all other species, but more frequent monitoring targeted at species of greater conservation concern.(

*intensive = annual sampling of colonies to produce accurate UK and regional trends of numbers and breeding success, plus chick diet, phenology and survival for indicator species where feasible.

#extensive = counting breeding numbers at all protected colonies during each 6-yearly CSM cycle, or counting all colonies during a census every 12-18 years.

4.1.2 Monitoring Numbers and breeding success – Matt Parsons

Matt the data collected over the last 20 years by SMP to examine if they had been sufficient to produce accurate trends in number and breeding success at a UK scale. He compared the results with the recommended future surveillance presented by Ian in order to determine where the gaps in the current sampling exist.

He concluded that in order to implement the recommended sampling strategy, the annual sample of colonies would need to be expanded in order to produce accurate UK trends in gannet abundance and breeding success, razorbill breeding success and European storm-petrel abundance. The other notable gap i.e. absence of annual monitoring of numbers and breeding success of Manx shearwaters on Rum will soon be filled by SNH.

4.1.3 Monitoring phenology – Martin Heubeck

Martin pointed out that phenology can be a useful proximate measure of the availability of food and a useful insight into the factors driving productivity in a colony. However phenological measures such as first egg date or median laying date require many repeated visits to a colony, which are limited by time available and accessibility of the colony. Hence, phenology is measured at few colonies currently. Martin presented preliminary results that suggested that in guillemots at least, estimates of chick age made from either observations or more precisely from wing-length measurements, could be extrapolated to produce estimates of median laying dates. More work is required to examine how consistently accurate these proximate measure can be and on whether or not proximate measures can be obtained for the other indicator species earmarked for more intensive monitoring in the future (see 4.1.1).

4.1.4 Estimating seabird survival rates from ringing data – Rob Robinson

Ringing can potentially provide estimates of recruitment, survival and dispersal, which together with estimates of breeding success, can be used to predict future changes in population size. Survival can be estimated from resightings of colour-marked individuals or from recoveries of metal-ringed birds. The use of the former is restricted to individual colonies and is labour intensive, but has provided valuable insights into factors affecting survival e.g. the impact of climate and oil spills on guillemot survival on Skomer. Rob stressed a need for extensive metal ringing at widespread sites, as well intensive projects at individual sites, in order to detect unforeseen events. The BTO's RAS scheme – Retrapping Adults for Survival currently includes only eight seabird species at just 1-3 sites each. The ringing effort at a site should be tempered so that it can be sustained year on year to avoid gaps in the times-series of data produced. BTO is currently seeking funding to analyse ringing data on seabirds – their high priority species are Manx shearwater, cormorant, lesser black-backed and herring gull, Sandwich and roseate tern and guillemot.

4.1.5 Monitoring chick diet – Sarah Wanless

Recent substantial changes in the status of seabirds breeding in the British Isles are likely to be a result of changes in food availability. Monitoring prey availability directly is outside the scope of SMP and is time consuming and very expensive. Prey availability can be measured

indirectly by using the birds themselves as a sampling tool. Ease of sampling is dependent on species i.e. some transport a single item in their bill e.g. guillemots and terns and can be observed remotely, whereas others transport multiple items in their bills e.g. puffins, or carry prey in their stomach e.g. shags and kittiwakes, which require more invasive sampling. Monitoring chick diet can provide information on prey species, age and size and the rate of delivery. Such monitoring on the Isle May has yielded important information e.g. there has been a decrease in the length of sandeels caught by puffins over the last 30 years. Diet is currently collected at few sites other than the SMPs key sites and it is likely that information from these sites is not necessarily indicative of food availability elsewhere. CEH, collaboration with other SMP contributors, conducted a pilot study in 2006 to determine how easily guillemot prey species and provisioning rates could be recorded at other colonies – data was collected at 19 colonies. The monitoring proved more time-consuming than anticipated and proved difficult to fit into the busy work schedules of reserve wardens. If time/resources are then effort should be directed at recording diet composition rather than provisioning rates. In order to ensure good quality of diet composition data, training of observers should focus on fish ID skills and on distinguishing breeding adult guillemots carrying chick food from non-breeding birds carrying display fish.

4.2 Feedback on SMP Sampling Strategy

4.2.1 Does the strategy fulfil the aims of the SMP and meet the requirements of its stakeholders?

All three break-out groups agreed with the rationale used to underpin the strategy. In particular, there was support for using international importance as a priority-focusing mechanism. JNCC assessed international importance at an EU scale but it was suggested that more priority could be given to the globally important species Eg Manx shearwater.

The participants from the Country Agencies welcomed the proposed use of the SMP partnership to achieve the CSM requirements. But, SNH expressed concern regarding the ability of the SMP to fill the large gaps in CSM recording of seabird features in Scotland.

The assessment of current sampling coverage for producing trends in abundance and breeding success (see presentation by Matt Parsons - 4.1.2) was conducted at a UK scale. In order to meet the reporting requirements of partners, trends will need to be produced at various smaller regional scales. Further analyses are required to look at the effectiveness of sampling at these other scales. There is also a need to determine the most biologically meaningful scales of reporting based on the spatial variation present in the data. Such analyses may also provide insight into the main drivers of change (e.g. pressures). In particular, it would be useful to determine the spatial scale at which climate change impacts are operating on seabird populations. Once the most appropriate reporting scales have been determined, we can then ensure that sampling at these scales is sufficient to detect significant changes and the impacts of pressures. There was support for the proposed intensive monitoring of a group of indicator species (4.1.1) in order to determine how pressures impact on seabirds and at what spatial scale.

The sampling strategy should be periodically be reassessed to ensure that it continues to meet the objectives of the SMP partners.

4.2.2 Are the recommendations feasible given logistical and resource constraints?

The UK's country agencies are now in a good position to assess where the gaps in CSM are. SMP partners will in due course need to assess how feasibly these gaps can be filled. The greatest risk of not being able to top-up CSM is in Scotland. Options for expanding current SMP coverage are twofold: 1) increase volunteer effort, and 2) increase professional input from contributing organisations.

A barrier to volunteer involvement has been the perception that seabird surveys too specialised for volunteers. Participants felt this was not necessarily true and that greater use of volunteers should be encouraged. BTO offered to provide expertise re. volunteer recruitment. Information dissemination was identified as an important factor in motivating existing volunteers to continue or increase their effort, and in raising the profile of the SMP to encourage new volunteers to join in.

Professional input would be enhanced by the signing of the MoU between SMP partners (see above). The MoU should facilitate a higher level organisational 'buy-in' to the SMP among its partners. By doing so, the profile of the SMP within each organisation should be raised at all levels, which would hopefully help direct more core resources to seabird work, give greater value to data from individual sites and thereby enthuse local staff into conducting more seabird monitoring.

JNCC's Seabird Colony Team offered to lead in training both volunteers and professional staff and to provide an advisory service to help with survey design and methods. The imminent online publication of the Seabird Monitoring Handbook and its subsequent revision will greatly assist skills transfer.

Each country gave a brief assessment of how feasible implementing the sampling strategy would be:

- **Scotland:** CSM in Scotland represents a huge challenge and SNH's input into the current cycle of monitoring at seabird colonies is forecasted to be low. Hence the required topping-up by other SMP partners and contributors is substantial and there is a high risk of this not being achieved. However more detailed assessment is required. Specific gaps (identified in Matt's presentation 4.1.2) i.e. annual monitoring of abundance and breeding success of Manx shearwaters on Rum will soon be instigated by SNH; annual monitoring of large gannet colonies may be possible through RSPB input on their new reserve on Ailsa Craig and via the Scottish Seabird Centre's remote cameras on the Bass Rock.
- **England:** current coverage is sufficient re. data on breeding numbers, except in SW England for some species. Coverage re. data on breeding success is sufficient for the required species except there may not be any suitable monitoring sites for razorbills. Attempts by Natural England and RSPB to fill gaps in SW England by using volunteers proved unsuccessful, so NE is funding professional input.
- **Wales:** Full assessment of coverage needs to be conducted by CCW. Initial impressions suggest coverage in SW Wales to be sufficient, except that annual monitoring gannets on Grassholm needs be instigated (with possible input from RSPB.). IN contrast most colonies in NW Wales are not wardened (By CCW at least) and hence, monitoring is erratic and unstructured. There is possibly a role for greater volunteer input particularly in N Wales.

- **Isle of Man:** Most of the island's breeding terns are surveyed annually and 10-15% of guillemots and razorbills are surveyed annually. Periodic all-island censuses would be useful since most breeding seabirds are dispersed throughout many small colonies, most of which are not monitored annually. The most important Manx colony on the Calf of Man is monitored annually by a resident warden.
- **Northern Ireland:** Abundance and breeding success currently monitored annually at colonies on Rathlin, Copeland islands, Isle of Muck and at Bangor. Annual monitoring the Province's important terns and gull colonies around Strangford Lough currently records abundance only. Instigating annual monitoring of breeding success at the Strangford colonies would inevitably cause disturbance. Bespoke methods need to be developed for a sample of the colonies that will minimise disturbance. Assessment of coverage in Northern Ireland needs to be done at both a UK and All-Ireland scale to ensure that objectives relating to implementation of the Brides Directive and other drivers are met. See proposals below for an all-Ireland seabird mentoring strategy (section 4.2.4).
- **Republic of Ireland:** Participants from north and south of the border suggested the need for an all-Ireland monitoring strategy to complement that proposed for the UK (see section 4.2.4). Current monitoring of seabird numbers is not carried out on regular basis and is usually conducted to fulfil other monitoring requirements or as part of a larger 'national' census (e.g. Seabird 2000). There is no equivalent of CSM in the Republic of Ireland and it is unlikely that resources will be forthcoming to carry out such regular monitoring of the state of its 70 SPAs. BirdWatch and NPWS are currently developing a more systematic approach to monitoring seabirds akin to the SMP in the UK, which will include regular monitoring of breeding success. Good coverage was achieved during first two years of the project.

4.2.3 What changes should be made to the strategy?

The break out groups suggested the following changes should be made to the recommended species –specific sampling. These suggestions have been incorporated into a revision of the proposed sampling strategy (see ??).

- a) **Arctic terns** should not be removed from the group of intensively monitored 'indicator species' since they are not distributed widely throughout the UK, but concentrate in the Northern Isles and accurate annual monitoring of trends there would not be feasible as a full archipelago census would be required. But regular monitoring is required because of current decline, but relatively few breed in SPAs and SSSIs, so the input from ensuring complete CSM coverage will be limited. Therefore recommend a complete census of Northern Isles every six years. Elsewhere, provide top-up surveys of breeding numbers to CSM every 6 years.
- b) The 'indicator species' group would benefit from the inclusion of a large gull species. However no consensus could be reached on which species of gull to include.
- c) Given the current severe decline in the UK **Arctic skua** population, breeding numbers and breeding success at a sample of colonies should be monitored annually rather than every 6 years during CSM as originally recommended by JNCC. However this may be hindered by RSPB's recent decision to discontinue its monitoring of skuas in the Northern Isles.
- d) Add annual monitoring of survival of cormorants and of the numbers and age of birds culled.
- e) More frequent and extensive surveys of Black guillemots may be required under the devolved Marine Bills (e.g. colonies may be designated as Important Marine Areas

under the Scottish Marine Bill). Such surveys may prove feasible as they must be conducted over the survey period for all other seabird species. Black guillemot population trends may provide a unique niche indicator – i.e. shallow rocky sub-tidal.

4.2.4 A seabird monitoring strategy for Ireland.

Participants from Northern Ireland and Republic of Ireland discussed the possibility of adapting the proposed UK seabird sampling strategy to an all-Ireland context. They came up with the following changes to the species specific sampling recommended for the UK:

- Remove **Arctic tern** from the intensively monitored group of indicator species and add **Sandwich tern**.
- Remove **Arctic skua** and **roseate tern** from the group of severely declining species and add **black-headed gull**, but retain **herring gull**. Maintain monitoring of **roseate tern** because of international importance of Irish population.
- Develop strategies to accurately monitor **Manx shearwaters**, **European storm-petrels** and **puffins**.
- Monitor **red-throated diver**, **great skua** and **Mediterranean gull** through the Irish Rare Breeding Birds Programme.
- Conduct **cormorant** surveillance in parallel with activities in UK, to aid conflict management.

An 'All Ireland' strategy/forum would be desirable to formulate and then implement the sampling strategy. The forum would also collate data annually before inputting into the central SMP database. A forum co-ordinator may be required but funding is not readily available for such a post.

Ideally, a network of key sites would be monitored intensively in conjunction with monitoring at a more extensive sample of sites. The key sites should be distributed in different regions to ensure representative coverage of different maritime areas and ecological niches. Logistical considerations are likely to be equally problematic for sites on the mainland or on offshore islands. Possible candidate key sites are Rathlin, Horn Head, Cliffs of Moher, Lambay, Saltee, Skellig. The key sites would be monitored by NWPS staff or contractors.

4.2.5 Should intensive key site monitoring be continued?

Most participants expressed a desire to maintain long-term monitoring studies at the key sites. The main benefits of key sites to the SMP were identified as:

- The 20 year long series of multi parameter data provides a valuable analytical resource for examining links between seabird population dynamics, pressures and natural process.
- They provide a test-bed for trialling new monitoring techniques that can then be implemented more extensively.
- The intensive monitoring at key sites will enable continuous calibration of more extensive monitoring carried out at other sites.

One third of the SMP's annual costs are incurred by key site monitoring. Therefore, it is important that the SMP partnership clarifies the role of key site monitoring and makes the best use of the resultant data.

4.2.6 Should periodic seabird censuses be conducted?

Most participants expressed a desire to continue to regular censuses of all Britain and Ireland's breeding seabirds. Repeated censuses will monitor changes in distribution that may not be detected by sampling and they will provide independent validation of trends estimated from more frequent sampling. Some participants thought it would be relatively easier to secure the substantial resources for a high profile census than it would be to secure more moderate but continuous funding for annual monitoring.

The censuses should coincide with the 6 yearly cycle of CSM to make best use of resources. Hence the recommended interval between censuses should be 12 -18 years. The last census, Seabird 2000 was conducted during 1999-2002, so it needs to be determined if the next census should be conducted during the next CSM cycle (i.e. 2012 – 2017) or during 2018 – 2023.

Partisans from Ireland expressed concern that it would be difficult or impossible to continue their proposed annual programme of monitoring during the period of 3-5 years that it would take to conduct a census.

5 Session D: Disseminating information – what do stakeholders need?

The aim of this session was to canvass opinions on what the SMP's reporting framework should be.

5.1 JNCC proposed dissemination products

MP summarised existing products of the SMP, namely *Seabird Numbers and Breeding Success*, (a.k.a. 'annual report'); *UK Seabirds* leaflet (a.k.a. 'summary leaflet') and Seabird Monitoring Handbook. MP gave a brief demonstration of the data recording website (www.jncc.gov.uk/smp), stating that currently data can be viewed but not downloaded, which restricts the usefulness of the site with respect to reporting.

The proposals centred on moving away from paper products towards delivery via the JNCC website, thereby making information more widely available, more rapidly than could be achieved using traditional reporting, also re-focusing JNCC resources away from servicing data requests towards developing efficient recording/reporting mechanisms and providing advice to ensure common standards.

MP outlined the proposed three strands of information delivery via the website: a) downloads of full datasets of censuses and of time series for breeding numbers and breeding success; b) downloads of reports and publications, including contract reports; c) development of a new 'search by species' delivery of abundance and breeding success trends, analysed using the latest techniques. The last would in effect replace the paper version of the annual report but also give prominence to results/interpretation of data (largely from Key Sites) on survival estimates, diet and phenology and present general background information on each species, distribution maps and census summaries.

5.2 Discussion re. online recording

The number of observers entering their data online over the last two years has been encouraging but JNCC hope to encourage more contributors to use the site. JNCC recognised that other organisations collate seabird data on their own separate databases and that some form of batch transfer onto to the SMP database is required to duplication of effort in entering data.

Participants agreed to promote online submission of data within their organisations.

The group identified a need for online submission (or electronic submission) of breeding success data (already planned by JNCC).

RR offered, in the light of extensive BTO experience, help from his colleagues with website development, which was gratefully accepted.

The group stressed the need for a set of unambiguous site boundary definitions that all partners would record against. JNCC have made good progress in achieving this; these are displayed on the website.

5.3 Discussion re. reporting products.

It was agreed that there was a requirement for the production and dissemination of trends-UK, country and regional – of abundance and breeding success and for these to be made available in a timely fashion following data collection.

While there was broad approval of JNCC's proposed annual online reporting in replace of the publication of the SMP annual report, some participants wanted the opinions of a broader spectrum of stakeholders should be canvassed before any decision was made.

JNCC's proposal to continue publication of the annual summary leaflet was endorsed.

There was discussion of the role of the State of the UK Birds (SUKB) publication in delivering reporting needs for seabird data. It was concluded that both SUKB and the summary leaflet had useful roles, the latter allowing more in-depth presentation of key results.

NR offered the Seabird Group Newsletter as a mechanism to annually present a summary of seabird trends, which was welcomed.

5.4 Next steps

Based on the discussions outline above, it was agreed that JNCC, as SMP data custodian, should aim to do the following:

- Negotiate the use of online data entry or of batch transfers with each partner
- Develop (in collaboration with BTO) the online entry of breeding success data.
- Develop (in collaboration with BTO) offline modes of electronic entry for users without access to broad band.
- Achieve more flexible online access to data.
- Work closely with partners and contributors to promote the use of consistent and unique 'spatial' definitions of colony locations.
- Base future dissemination products on feedback from the target audiences.

6 Summing-up

6.1 Conclusions

Lawrence Way presented his conclusions from the workshop:

1. Those present at the workshop represent a partnership of organisations with real needs for seabird data and information.
2. These needs can be met by the SMP partnership working together to implement the sampling strategy that was developed at the workshop (see Appendix 1).
3. The SMP sampling strategy aims to monitor annually a representative suite of species within a network of colonies, but there are problems that need to be overcome before this can be fully implemented (see below):
 - How do partners achieve the annual monitoring coverage required and can they collectively achieve full coverage of seabird features during CSM?
 - Determine the role of key sites.
 - Determine the best approach to periodic census.
4. The SMP partnership will benefit greatly from an MOU that will have three clear functions:
 - To enable data sharing while retaining ownership and ensuring due acknowledgement.
 - To act as a lever each partner can use to consolidate their contribution to data collection within the network of annual sampling locations.
 - To clarify the role of partners from the Republic of Ireland, Isle of Man and the Channel Isles.
5. The workshop provide some very useful feedback on JNCC's proposals for reporting and data collation/access and provide some suggestions on the best way forward (see)

6.2 Next steps

- a) The SMP Partners need to agree on terms of working together that will be defined in a memorandum of understanding. The MoU will also contain the terms of reference for the new SMP Steering Committee. The inaugural meeting of the Steering Committee, at which the MoU will be signed, will be held in September 2009.
- b) The SMP partners need to determine how they can implement the sampling strategy outlined in Appendix 1. In particular, can they provide the additional surveys to supplement CSM? More extensive use of volunteers is recommended in order to achieve the required coverage.
- c) Further analyses are required to determine whether the current sample of colonies produces trend data that are sufficiently sensitive and representative regionally for those species that require annual sampling in the future.
- d) Development is needed of less labour intensive and cheaper methods for measuring chick diet, adult survival and breeding phenology that would enable these parameters to be monitored in the main group of six 'indicator' species at more sites than at present.
- e) JNCC and its partners needs to determine a clear role for key site monitoring within the SMP and make better use of existing data.
- f) SMP partnership needs to decide on the timing and format of the next census of

breeding seabirds in Britain and Ireland and seek the necessary resources.

Appendix 1

Revised SMP sampling strategy

1. JNCC conducted a review of seabird surveillance and provisionally recommended patterns of surveillance (i.e. frequency, geographic scale and method of monitoring) for each species (see spreadsheet - Appendix 2). These recommendations have been amended to take account of the views expressed at the SMP Workshop. These species-specific approaches have been synthesised across groups of species in the recommendations listed below in Table 5.
2. It is important to note that some current monitoring activities will be continued regardless of the recommendations of this review, i.e. monitoring that is undertaken by SMP partners to meet their own specific objectives (e.g. for site management). Therefore, existing monitoring will not necessarily be terminated if not included in the list of recommendations below. Our recommendations denote the minimum level of seabird surveillance required to meet the objectives of the UK Surveillance Strategy. All species should receive some level of monitoring and not just those that currently provide cause for conservation concern, to ensure that future detrimental changes are not missed.
3. The species in Group 1 (see Table 5) were chosen for their potential as indicators of a) the state of the UK's breeding seabird community and b) the impacts of pressures. The group was considered to have good indicator potential because it includes representative species from all four feeding niches recommended by ICES (2008)², some of the most widespread and abundant of the UK's breeding seabirds, and there is evidence for each species that links population changes to pressures. The existing sample of colonies is sufficient to produce accurate UK trends for all of these species, except for Northern Gannet – more larger colonies will need to be included in the annual sample. All these species have over 50% of the UK populations breeding in SPAs and therefore the annual monitoring of these species contribute significantly to CSM.
4. In order to provide a better insight into the causes of seabird population change and in particular, provide an indicator of the impact of pressures, it is recommended that estimates of adult survival, phenology & chick diet for are collected annually for species in Group 1 where appropriate and possible. Appendix 2 lists for each species those parameters that have been correlated with a pressure and could therefore, provide a good indicator of pressure impacts. Current monitoring of adult survival, phenology and chick diet is confined largely to the SMP's key sites because methods are labour intensive and require frequent visits to a colony. The results from these sites may be limited in their applicability to colonies. However, there is scope to expand to more colonies: for example, by replacing direct measurements of phenology with proximate measures that require only a single visit to a colony (e.g. hatching date can be extrapolated from estimates of chick age obtained from wing-length measurements).

² ICES. 2008. Report of the Workshop on Seabird Ecological Quality Indicator, 8-9 March 2008, Lisbon, Portugal. ICES CM 2008/LRC:06. 57 pp.

Table 5: Summary of recommended future surveillance of breeding seabirds in the UK.

Group	Species	Monitoring objective	Recommended surveillance
1	Northern Fulmar, Northern Gannet, European Shag, Black-legged Kittiwake, Common Guillemot and Razorbill	To provide indicators of a) state of seabird communities at UK and regional scales b) pressure impacts	Annual monitoring of abundance & breeding success at a sample of colonies to produce accurate UK & regional trends. Estimates of adult survival, phenology & chick diet for species where appropriate and at colonies where possible.
2	Arctic Skua, Herring Gull, Roseate Tern	To determine why their populations have rapidly declined in size.	Annual monitoring of abundance & breeding success at important colonies, otherwise provide top-up surveys of breeding numbers to CSM every 6 years.
3	Manx Shearwater, European Storm-petrel	To determine whether or not UK populations are declining in size.	Annual monitoring of abundance at the most important UK colonies.
4	Sandwich Tern, Little Tern	To monitor their response to mitigation against disturbance and predation.	Annual monitoring of numbers and breeding success at a sample of colonies to produce accurate UK & regional trends.
5	Great Cormorant	To monitor impacts of licensed culling.	Annual monitoring of abundance at a sample of colonies to produce accurate UK and regional trends. Estimates of annual survival. Records of numbers and age of birds culled.
6	Red-throated Diver [#] , Great Skua, Mediterranean Gull*, Common Gull, Black-headed Gull, Arctic Tern, Atlantic Puffin.	To ensure regular updates on the status of species of conservation concern ³ that are not included in the monitoring described above.	Provide surveys of breeding numbers to fill gaps in Common Standards Monitoring every 6 years. Otherwise: [#] Periodic (12 year) targeted extensive surveys of divers through SCARABBS. *Tracking of population expansion through established Rare Breeding Birds Panel methods applied annually.
7	Lesser Black-backed Gull [†] , Great Black-backed Gull [‡] , Common Tern [†] , Black Guillemot [‡] .	To ensure regular updates on the status of all seabird species regardless of current conservation status.	[†] >50% UK population in SPAs, therefore, provide surveys of breeding numbers to fill gaps in Common Standards Monitoring every 6 years. [‡] <50% UK population in SPAs, therefore, provide surveys of breeding numbers to fill gaps in CSM every 6 years; otherwise census UK population every second or third CSM cycle (i.e.

			every 12 or 18 years).
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5. SMP partners have expressed a strong desire to maintain long-term monitoring studies at the key sites. The main benefits of key sites to the SMP were identified as:
 - The 20 year long series of multi parameter data provides a valuable analytical resource for examining links between seabird population dynamics, pressures and natural process.
 - They provide a test-bed for trialling new monitoring techniques that can then be implemented more extensively.
 - The intensive monitoring at key sites will enable continuous calibration of more extensive monitoring carried out at other sites.
6. One third of the SMP's annual costs are incurred by key site monitoring. Therefore, it is important that the SMP partnership clarifies the role of key site monitoring and makes the best use of the resultant data.
7. For most other species not included in Group 1 it was recommended that all SMP partners work closely with those in the statutory conservation agencies to ensure that all seabird colonies in protected sites (e.g. SSSI, SPA) are surveyed once every 6 years in line with the recurrent CSM cycle. In addition to meeting CSM requirements, this will enable regional (e.g. country) and UK assessments of state to be made regularly. CSM presents a considerable challenge to the statutory conservation agencies and therefore, we recommend that the SMP attempts to fill the gaps in CSM using input from other partners and through an increased input from volunteers.
8. SMP partners have expressed a strong desire to continue to regularly census all Britain and Ireland's breeding seabirds because repeat censuses will monitor changes in distribution that may not be detected by sampling and they will provide independent validation of trends estimated from more frequent sampling. The censuses should coincide with the 6 yearly cycle of CSM to make best use of resources. Hence the recommended interval between censuses should be 12 -18 years. The last census, Seabird 2000 was conducted during 1999-2002, so it needs to be determined if the next census should be conducted during the next CSM cycle (i.e. 2012 – 2017) or during 2018 – 2023.

Appendix 2: SMP Surveillance Strategy (version Nov 2009)

Follow link to download at :
www.jncc.gov.uk/page-1550

Appendix 3

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