



**British  
Geological Survey**

NATURAL ENVIRONMENT RESEARCH COUNCIL

# Review of Minerals Surveys in England

Minerals and Waste Programme

Open Report OR/11/026



BRITISH GEOLOGICAL SURVEY

MINERALS AND WASTE

OPEN REPORT OR/11/026

# Review of Minerals Surveys in England

T J Brown, C E Wrighton and J M Mankelow

*Editor*

A J Bloodworth

*Keywords*

Minerals; Surveys; Statistics.

*Bibliographical reference*

BROWN, T J, WRIGHTON, C E  
AND MANKELOW, J M. 2011.  
Review of Minerals Surveys in  
England. *British Geological  
Survey Open Report*, OR/11/026.  
51pp.

Copyright in materials derived  
from the British Geological  
Survey's work is owned by the  
Natural Environment Research  
Council (NERC) and/or the  
authority that commissioned the  
work. You may not copy or adapt  
this publication without first  
obtaining permission. Contact the  
BGS Intellectual Property Rights  
Section, British Geological  
Survey, Keyworth,  
e-mail [ipr@bgs.ac.uk](mailto:ipr@bgs.ac.uk). You may  
quote extracts of a reasonable  
length without prior permission,  
provided a full acknowledgement  
is given of the source of the  
extract.

## BRITISH GEOLOGICAL SURVEY

The full range of our publications is available from BGS shops at Nottingham, Edinburgh, London and Cardiff (Welsh publications only) see contact details below or shop online at [www.geologyshop.com](http://www.geologyshop.com)

The London Information Office also maintains a reference collection of BGS publications, including maps, for consultation.

We publish an annual catalogue of our maps and other publications; this catalogue is available online or from any of the BGS shops.

*The British Geological Survey carries out the geological survey of Great Britain and Northern Ireland (the latter as an agency service for the government of Northern Ireland), and of the surrounding continental shelf, as well as basic research projects. It also undertakes programmes of technical aid in geology in developing countries.*

*The British Geological Survey is a component body of the Natural Environment Research Council.*

*British Geological Survey offices*

### **BGS Central Enquiries Desk**

Tel 0115 936 3143 Fax 0115 936 3276  
email [enquiries@bgs.ac.uk](mailto:enquiries@bgs.ac.uk)

### **Kingsley Dunham Centre, Keyworth, Nottingham NG12 5GG**

Tel 0115 936 3241 Fax 0115 936 3488  
email [sales@bgs.ac.uk](mailto:sales@bgs.ac.uk)

### **Murchison House, West Mains Road, Edinburgh EH9 3LA**

Tel 0131 667 1000 Fax 0131 668 2683  
email [scotsales@bgs.ac.uk](mailto:scotsales@bgs.ac.uk)

### **Natural History Museum, Cromwell Road, London SW7 5BD**

Tel 020 7589 4090 Fax 020 7584 8270  
Tel 020 7942 5344/45 email [bgs\\_london@bgs.ac.uk](mailto:bgs_london@bgs.ac.uk)

### **Columbus House, Greenmeadow Springs, Tongwynlais, Cardiff CF15 7NE**

Tel 029 2052 1962 Fax 029 2052 1963

### **Maclean Building, Crowmarsh Gifford, Wallingford OX10 8BB**

Tel 01491 838800 Fax 01491 692345

### **Geological Survey of Northern Ireland, Colby House, Stranmillis Court, Belfast BT9 5BF**

Tel 028 9038 8462 Fax 028 9038 8461

[www.bgs.ac.uk/gsni/](http://www.bgs.ac.uk/gsni/)

### *Parent Body*

### **Natural Environment Research Council, Polaris House, North Star Avenue, Swindon SN2 1EU**

Tel 01793 411500 Fax 01793 411501  
[www.nerc.ac.uk](http://www.nerc.ac.uk)

Website [www.bgs.ac.uk](http://www.bgs.ac.uk)

Shop online at [www.geologyshop.com](http://www.geologyshop.com)

## Foreword

This research was commissioned by the Department for Communities and Local Government (DCLG) via the DCLG – BGS Joint Minerals Information Programme. It was undertaken by Teresa Brown, Chloe Wrighton and Joseph Mankelow of the British Geological Survey (BGS). Whilst every effort has been made to ensure the accuracy of the report, the authors will not be liable for any loss or damages incurred through the use of this report.

This research was commissioned and undertaken in March 2011 and presents a summary of the different minerals surveys undertaken within the UK together with a discussion relating to how they may be improved. It also collates the views received via a short consultation exercise.

## Acknowledgements

The authors would like to thank the individuals who provided assistance to this review by submitting their responses to various questions, either in writing or verbally. In addition, we would like to thank Andrew Bloodworth of the BGS for reviewing the report.

# Contents

<b>Foreword</b> .....	<b>i</b>
<b>Acknowledgements</b> .....	<b>i</b>
<b>Contents</b> .....	<b>ii</b>
<b>Executive Summary</b> .....	<b>iv</b>
<b>1 Introduction</b> .....	<b>1</b>
<b>2 Outline of surveys conducted</b> .....	<b>2</b>
2.1 Annual Minerals Raised Inquiry .....	2
2.2 Annual Monitoring by Mineral Planning Authorities .....	3
2.3 Aggregate Minerals Survey .....	4
2.4 Quarterly Survey of Marine Aggregates .....	5
2.5 Crown Estate half-yearly royalty returns .....	5
2.6 Recycled and secondary aggregates .....	6
2.7 Data collected by the Environment Agency .....	7
2.8 Survey of Land for Mineral Working .....	8
2.9 Opencast coal statistics .....	8
2.10 The Coal Authority .....	9
2.11 Digest of UK Energy Statistics .....	9
<b>3 Comparison of Surveys</b> .....	<b>12</b>
3.1 Coverage .....	12
3.2 Time taken to complete surveys .....	13
3.3 Response rates .....	17
3.4 Legal basis .....	20
3.5 Comparison of results .....	21
<b>4 Discussion</b> .....	<b>24</b>
4.1 Use of current surveys .....	24
4.2 Requirements for additional data .....	25
4.3 Confidentiality .....	27
4.4 Streamlining of data collection .....	29
4.5 Improving data collection .....	31
<b>5 Conclusions and Recommendations</b> .....	<b>33</b>
<b>Appendix 1</b> .....	<b>36</b>
<b>Appendix 2</b> .....	<b>37</b>
<b>Appendix 3</b> .....	<b>39</b>
<b>References</b> .....	<b>40</b>

**FIGURES**

Figure 1: Collection of minerals data by Office for National Statistics and the publications in which they are released..... 3

Figure 2: Estimated time taken to complete the AMRI 2006 questionnaire..... 14

Figure 3: Cumulative response time for Aggregate Minerals Survey 2009..... 17

Figure 4: Summary of responses from Aggregate Working Parties on their use of the surveys. 24

Figure 5: Summary of responses from Mineral Planning Authorities on their use of the surveys.25

Figure 6: Percentages of respondents who have concerns surrounding confidentiality of the statistical data..... 28

Figure 7: Percentages of MPAs and AWP Secretaries who feel that “standard rules” would or would not be helpful to guide them with confidentiality issues. .... 28

**TABLES**

Table 1: Publication dates and lengths of Annual Monitoring Reports published by the Aggregates Working Parties in England. .... 4

Table 2: Summary of surveys carried out relating to the minerals industries..... 10

Table 3: Coverage of the various minerals surveys ..... 11

Table 4: Summary of response rates from industry achieved by the various minerals surveys ... 19

Table 5: Comparison between data collected as part of the Aggregate Minerals Survey in 2009 and the AMRI data for 2009 published in Business Monitor PA1007..... 22

Table 6: Comparison of marine-dredged sand and gravel sales/landings, 2009..... 23

# Executive Summary

There are a number of statistical surveys carried out in England which establish the evidence base for minerals policies and enable monitoring to take place. However, these surveys place a burden on all parties, both in time and costs, for the completion of forms, the collation of data and the publication of results. Whilst an evidence base is essential to provide sufficient information to enable Mineral Planning Authorities to discharge their duties, there is concern that ‘survey fatigue’ has a negative impact on the results obtained.

It is important that any surveys undertaken are clear, relevant and focused on essential information; in other words that they are ‘fit for purpose’. As a consequence, the British Geological Survey (BGS) was requested by the Department for Communities and Local Government (DCLG) to review the scope of existing statistical surveys relating to minerals and to make recommendations on how current data collection could be improved. In order to undertake the review the BGS consulted with a range of external partners and their input proved valuable.

This report presents information on the following surveys:

- The Annual Mineral Raised Enquiry;
- Annual Monitoring by Mineral Planning Authorities;
- The Aggregate Minerals Survey;
- The Quarterly Survey of Marine Aggregates;
- The Crown Estate Marine Aggregates Half-Yearly Royalty Returns;
- The Survey of Land for Mineral Working;
- The Digest of UK Energy Statistics;
- Surveys of recycled and secondary aggregates; and
- Surveys of coal production.

It is clear that all parties recognise the need for the complete and accurate data collected through the various minerals surveys. With the exception of the Survey of Land for Mineral Working it is considered that the outputs from the surveys are worthwhile and justify the time and cost involved. Whilst all other surveys collect and present valuable data, those covering recycled (specifically Construction, Demolition and Excavation Waste (CDEW)) and secondary aggregates need significant improvement primarily through means of increasing the response rate and survey coverage.

There is some overlap between surveys and hence duplication of data provided. However, where this is the case, streamlining in recent years has already occurred by ensuring that questions asked by the different surveys are aligned. Combining surveys is difficult to achieve because they include different data and are carried out for different purposes by different organisations. The legal auspices, or requirements to preserve confidentiality, prevent the sharing of overlapping raw data collected by different surveys between the surveying organisations or the expansion of the remit of one survey in order to remove another.

Specific recommendations on surveys undertaken for or under the auspices of DCLG are:

*Annual Minerals Raised Inquiry (AMRI)*

1. Publicity would be helpful amongst the industry (particularly amongst non-members of trade associations) to emphasise the importance of the survey and of returning forms quickly.
2. Establishing central contact points for multi-site companies, where batches of the forms can be sent for completion, may enable the speedier return of forms.
3. More rigorous chasing of non-responders may also be worthwhile, including via trade associations and senior managers within companies.
4. The re-evaluation of categories used within the AMRI tables could be carried out to see if a modified structure would enable more data to be released and thus provide more of the necessary detail, whilst still preserving commercial confidentiality.
5. Continue to annually update the ONS distribution list of operating sites to ensure the AMRI distribution is comprehensive.

*Annual Monitoring by Mineral Planning Authorities (MPAs) and Aggregate Working Parties (AWPs)*

6. Publicity would be helpful amongst MPAs and the industry of the Staffordshire case, which would appear to support their actions on confidentiality.
7. Consideration should be given to a set of “standard rules” to guide MPAs in their handling of confidentiality issues surrounding the Annual Monitoring data. These should ideally be agreed with all sections of the industry and be consistent across the country.
8. The forms used for Annual Monitoring should be standardised across England and the descriptions used should match those on the AMRI forms, to help industry complete them quickly. Alternatively, the completed AMRI forms themselves could be provided by the industry to the MPAs (with the value of sales removed), although additional data such as permitted reserves would also need to be supplied.
9. The timing of forms being sent to the industry should be co-ordinated so they arrive at the same time or shortly after the AMRI forms, to help industry complete the forms promptly.
10. Consideration should be given to specifying minimum content requirements for AWP reports and to standardising publication dates.
11. The local collection of data on other minerals, even if they cannot be published for confidentiality reasons, should be continued.

*Four Yearly Aggregate Minerals Survey*

12. The collation system that was used in 2009 should continue, as should the combination of Annual Monitoring with the 4-yearly AM survey in the appropriate years.
13. The regional differences that exist between AM2009 and AMRI should be investigated further.
14. Consideration could be given to the need for including minerals other than aggregates in the AM survey, but with due regard given to the additional workload and confidentiality issues that would be created.

*Marine-dredged aggregates*

15. A more detailed investigation of the regional differences in the result data should be carried out by examining detailed list of wharves covered in each survey.

16. Consideration could be given to adding marine-dredged sand and gravel to the AMRI survey.

*Secondary and recycled aggregates*

17. Representation should be made to the Environment Agency to improve data collection through their permitting system such that:
  - a. quantities of CDEW material sold as a recycled aggregate product are captured;
  - b. quantities of other wastes, e.g. from power station ash, which are sold as secondary aggregates are captured; and
  - c. quantities of material which are crushed and reused at registered exempt sites instead of primary aggregates are also collected.

*Survey of Land for Mineral Working*

18. This survey should not be resurrected on a national scale.
19. Where the data is needed locally it should be collected by the MPAs.

*General point that relates to all surveys*

20. Investigate further the issues surrounding the electronic submission of data through online surveys or collation databases, although recognising that a paper option would still be needed.

# 1 Introduction

There are a number of statistical surveys carried out in England which establish the evidence base for minerals policies and enable monitoring to take place. However, these surveys place a burden on all parties, both in time and costs, for the completion of forms, the collation of data and the publication of results. Whilst an evidence base is essential to provide sufficient information to enable Mineral Planning Authorities to discharge their duties, there is concern that ‘survey fatigue’ has a negative impact on the results obtained.

The requirement for an ‘evidence base’ is set out in Planning Policy Statement 12: *Creating strong safe and prosperous communities through Local Spatial Planning* (PPS12) which states in paragraph 4.36 that a Local Authority’s Core Strategy must be “founded on a robust and credible evidence base” (DCLG, 2008). This is expanded in paragraph 4.37 which states:

“Core strategies have major effects. ... It is therefore essential that core strategies are based on thorough evidence. The evidence base should contain two elements:

*Participation*: evidence of the views of the local community and others who have a stake in the future of the area.

*Research/ fact finding*: evidence that the choices made by the plan are backed up by the background facts.

Evidence gathered should be proportionate to the job being undertaken by the plan, relevant to the place in question and as up-to-date as practical having regard to what may have changed since the evidence was collected.”

Other parts of PPS12 refer to the necessity of a robust and credible evidence base as part of the assessment of whether a Core Strategy is “sound”, i.e. whether it is “justified, effective and consistent with national policy”. The same requirements are also specified for other Development Plan Documents in later paragraphs of PPS12 (e.g. paragraph 5.2).

The specific requirement to carry out minerals surveys is outlined in Mineral Planning Statement 1: *Planning and Minerals* (MPS1) which states, in paragraphs 10 and 12 under the heading “National policies for mineral planning” (DCLG, 2006):

“To achieve the objectives and measures set out above, RPBs [Regional Planning Bodies], MPAs [Mineral Planning Authorities] and LPAs [Local Planning Authorities] should carry out their functions in relation to the preparation of plans and in relation to development control, in accordance with the national policies for minerals planning set out below: ...

Survey:

- use the best available information on mineral resources within their areas and consider the social, environmental and economic benefits and constraints of working them;
- undertake regular assessments of the reserves for which planning permission has been granted for all mineral workings in their areas, taking into account the need for, distribution, production and uses of, each type of mineral, while maintaining mineral operators’ reasonable need for commercial confidentiality;
- assess the range, volumes and availability of waste material which may exist within reasonable proximity and which could provide suitable alternatives to primary minerals.”

It is important that any surveys undertaken are clear, relevant and focused on essential information; in other words that they are ‘fit for purpose’. As a consequence, the British Geological Survey (BGS) was requested by the Department for Communities and Local Government (DCLG) to review the scope of existing statistical surveys relating to minerals and to make recommendations on how current data collection could be improved.

This report is structured such that a brief description of each of the surveys carried out in England is given in Section 2, the data collected in them are compared in Section 3, Section 4 provides some discussion regarding the possible options for future surveys, and this is followed in Section 5 with some conclusions and recommendations. Sections 3, 4 and 5 draw upon information provided by a range of stakeholders contributing to this review.

## 2 Outline of surveys conducted

Mineral planning in the United Kingdom is a devolved power and consequently differences have evolved in the number, type and frequency of statistical surveys to inform this function between England, Scotland, Wales and Northern Ireland. This report specifically looks at the situation in England, but reference to other parts of the UK is made where this may be informative. A summary table is provided as Table 2 at the end of this section.

### 2.1 ANNUAL MINERALS RAISED INQUIRY

The Annual Minerals Raised Inquiry (AMRI) is carried out by the Office for National Statistics (ONS) on behalf of the DCLG, the Department for Business Innovation and Skills (BIS), the Welsh Assembly Government and the Scottish Government. It collects figures relating to the quantity and value of sales of all non-energy mineral extraction in England, Scotland and Wales.

The AMRI is statutory under the Statistics of Trade Act 1947 and as such it is compulsory for recipients to complete and return the questionnaires. Penalties may be incurred for non-return under section 4 of the 1947 Act but in practice no organisation has been prosecuted for non-compliance for many years because the threat of enforcement is usually enough to elicit a response (see also section 3.3 on response rates). Information provided to the ONS as part of this survey is kept strictly confidential and it is illegal for ONS or others to reveal data to unauthorised persons which could enable an individual business to be identified. Estimates are included for the non-responses in order that the totals are complete.

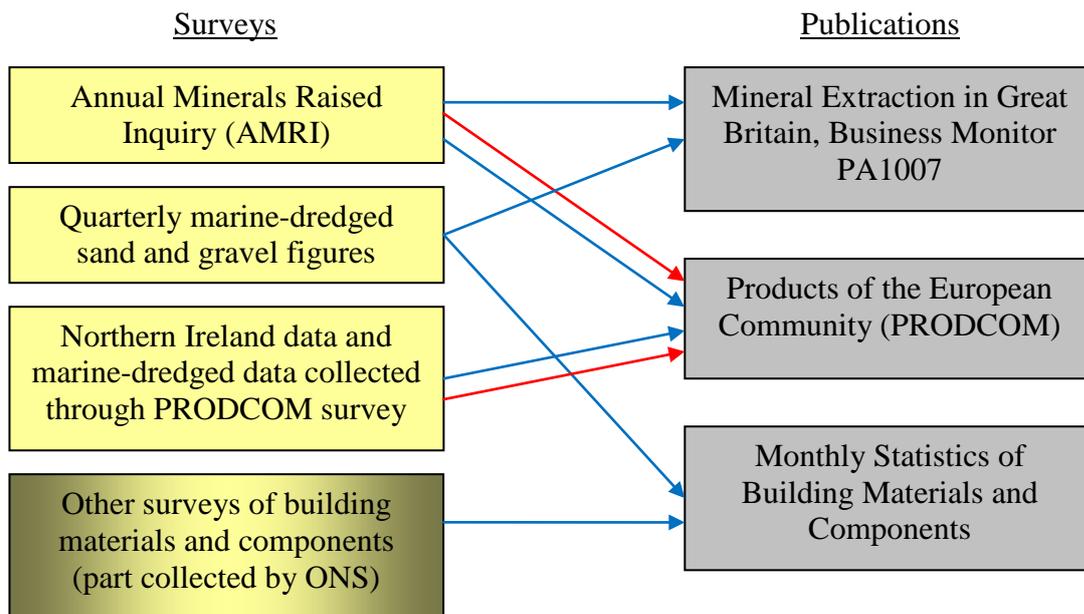
Once combined into categories, the quantity data are published in Business Monitor PA1007 “Mineral Extraction in Great Britain” (ONS, 2010). This publication presents data by mineral, end use and area of extraction. The latter is shown by Mineral Planning Authority (MPA) or small groups of MPAs, by regions in England and also by country. Quantities for marine-dredged sand and gravel are also published in this document, but these are not collected as part of AMRI (see section 2.4). Where publication of particular figures could potentially lead to the disclosure of individual businesses, the statistics are suppressed and replaced with an asterisk.

Similar data for Northern Ireland, is collected by the Department of Enterprise, Trade and Investment, a department of the devolved government of Northern Ireland, and published separately in their Annual Mineral Statement (DETINI, 2010). The survey is similar to the AMRI in that it is statutory, under the Quarries (Northern Ireland) Order 1983, and therefore compulsory for operators to complete and return. Although in theory non-respondents are committing an offense, in practice none have been prosecuted in recent years.

The value of sales data collected during the AMRI feed through to a separate survey carried out by the ONS called “Products of the European Community” (PRODCOM) which is sent to the European Union statistical organisation, Eurostat (ONS, 2011). PRODCOM uses standardised

product codes across all Member States of the European Union and covers a wide range of manufacturing industries, “other mining and quarrying” is Division 8 within this coding system. Additional data relating to the value of sales in Northern Ireland and value of sales of marine-dredged material, both of which are not collected during the AMRI, are gathered by ONS for PRODCOM using a separate questionnaire. This questionnaire is also used to gather data from all the non-mineral industries included in the PRODCOM results, and ONS have the ability to modify the first section of questions to suit the specific responder. In general PRODCOM is a sample survey with the results “grossed up” to create national figures for the UK and it takes place between January and June of each year. It is a very wide ranging survey and minerals only represent a small part of the whole.

The collection of minerals data by ONS and the published documents they produce is summarised in Figure 1.



**Figure 1:** Collection of minerals data by Office for National Statistics and the publications in which they are released.

Notes: ONS surveys are coloured yellow, blue arrows indicate where quantity figures are used, red arrows indicate where value figures are used.

## 2.2 ANNUAL MONITORING BY MINERAL PLANNING AUTHORITIES

Each Mineral Planning Authority (MPA) in England and Wales conducts an annual survey of sales, permitted reserves and planning permissions, for primary land-won sand and gravel and crushed rock aggregates. In many areas data are also gathered for building stone, silica sand and material for other non-aggregate uses (e.g. limestone worked for cement or industrial uses) although these data are not always published.

These surveys are voluntary and response rates vary (see section 3.3). Estimates are usually made by MPA officers for non-responses in order to calculate a total for the MPA. The figures relating to aggregates are sent digitally to the Aggregates Working Party (AWP) for the region and published in Annual Monitoring Reports (see reference list for details of the most recently available).

Annual Monitoring Reports for England vary widely, both in publication date and content. Reports with 2008 statistics were published between October 2009 and January 2011 as shown in Table 1. Reports with 2009 data had not been published at the time of writing due to the four-yearly Aggregates Minerals Survey (see section 2.3). The length of the reports containing 2008 statistics

varied between 9 and 82 pages in length (Table 1) and this reflects the extensiveness of the content and the level of detail they contain.

Region	Year	Date of publication of report	Length of report (pages)
<b>England</b>			
North East	2008	21 January 2011	37
North West	2008	21 January 2011	82
Yorkshire & the Humber	2008	30 October 2009	27
East Midlands	2008	30 November 2009	36
West Midlands	2008	23 December 2010	9
East of England	2008	21 May 2010	15
South East	2008	17 December 2009	57
London	2008	31 January 2010	33
South West	2008	23 December 2010	49

**Table 1:** Publication dates and lengths of Annual Monitoring Reports published by the Aggregates Working Parties in England.

### 2.3 AGGREGATE MINERALS SURVEY

The Aggregate Minerals Survey (AM) is a four-yearly survey (conducted since 1973), carried out in England and Wales on behalf of DCLG and the Welsh Assembly Government. The most recent survey is for 2009 (Mankelov *et al.*, 2011). The data are gathered and collated at the local level by the MPAs, collated at a regional level by the AWP and then collated and published at the national level by a contractor (in recent years this national collation has been carried out by the BGS). This structure ensures that confidentiality is preserved as only the MPAs see the actual survey returns for individual sites and operators (see also section 4.3).

The data collected relates mainly to minerals used for aggregates purposes, be they extracted as a principal activity or as a subsidiary activity, such as a by-product of building stone or ancillary to silica sand extraction. Whilst statistics relating to construction sand extracted during the process of working silica sand deposits are captured, the silica sand itself is grouped with other minerals for non-aggregate uses and not separately disclosed.

The AM survey collects data for sand and gravel (both land-won and marine dredged) and crushed rock. The latter includes limestone (including dolomite), igneous rock (including metamorphic rock), sandstone (including gritstone, greywacke and quartzite), chalk and ironstone. This comprehensive survey covers quantities of sales by end use, consumption, sub-regional and inter-regional flows, permitted reserves, and planning permissions granted, refused, withdrawn or awaiting a decision. For planning permissions, the AM surveys collect data not only for the survey year but also the preceding three years. The AM survey is the only survey to collect data by selected environmental designations. The resulting report presents the data by region and sub-region (which are MPAs, or small groups of MPAs, aligned to those utilised by the AWP for their Annual Monitoring Reports).

The most recent equivalent survey for Scotland was carried out centrally by the then Scottish Executive (now Scottish Government), and collated data for 2005 (Scottish Executive, 2007). The survey was not as comprehensive because it did not collect data relating to end use of the extracted material or type of crushed rock (e.g. igneous rock, limestone, sandstone, etc). It also did not take account of designated areas and made no distinction between permitted reserves at active or inactive sites. The data collected for distribution of product sold related only to regions and not sub-regions. Figures relating to planning permissions or refusals were not requested and there is no landing of marine-dredged sand and gravel in Scotland.

There have been no equivalent surveys in Northern Ireland.

## 2.4 QUARTERLY SURVEY OF MARINE AGGREGATES

In addition to AMRI (described in section 2.1), the ONS carry out a quarterly survey of all marine-dredged sand and gravel landed at ports in England and Wales (there is no material landed in Scotland or Northern Ireland). This is conducted on behalf of the Department for Business Innovation and Skills (BIS) and is also statutory under the Statistics of Trade Act 1947.

This survey only requests quantity data, based on sales. Data from four quarters are summed to produce the annual data which are then amalgamated into regions and published in Business Monitor PA1007 “Mineral Extraction in Great Britain”, Figure 1. These data are also released in “Monthly Statistics of Building Materials and Components” which is published by BIS (BIS, 2011). Estimates are made for non-responses but no adjustments are made to previous quarters when producing the annual figures. As a consequence, the marine-dredged figures published in Business Monitor PA1007 may contain a greater proportion of estimation than would be expected if they were collected annually.

At the same time the ONS conduct a voluntary quarterly survey of land-won sand and gravel sales, based on a selected sample of operators (currently numbering 224). Responses from this are ‘grossed up’ to represent the whole of Great Britain and published in “Monthly Statistics of Building Materials and Components”. There is no similar quarterly survey for crushed rock aggregates.

## 2.5 CROWN ESTATE HALF-YEARLY ROYALTY RETURNS

The majority of the seabed on the UK continental shelf, out to the 12 nautical mile territorial limit, is owned by The Crown Estate. The same applies to around half the foreshore (between the mean high tide and mean low tide limit) and approximately half the beds of estuaries and tidal rivers in the UK. The Crown Estate also owns the mineral rights to the seabed extending to the edge of the UK continental shelf.

This includes most, but not quite all, of the areas licensed for the extraction of marine-dredged sand and gravel. In 2008 there were production licences covering an area of 1278 km<sup>2</sup> although less than 140 km<sup>2</sup> was actually dredged (Crown Estate, 2009). The operator of each dredging licence is required to send a Royalty Return Form to The Crown Estate on a six monthly basis at the end of June and December each year, using a standard form. These returns are subject to an annual audit by Haskoning UK Ltd. Royalty returns are always made in metric tonnes, with the exception of a few contract fill or beach nourishment contracts where the return may be submitted in cubic metres.

The actual measurement of sand and gravel extracted from the seabed by dredging is carried out in a number of different ways, depending on the vessel concerned and the wharf used to discharge the material. Some ships are fitted with an on-board belt weigher that measures the mass of the material in tonnes as it is discharged from the ship. For other ships the known capacity of the cargo hold (known as the vessel’s ‘ullage’) is used to determine the volume of material and this is converted to tonnage using a density conversion factor. Many wharves are also fitted with belt weighers at their discharge points and these measure the mass of the sand and gravel in tonnes as it is physically landed at the wharf. This figure is usually compared to the figure obtained from the ship’s own belt weigher or its ullage.

The conversion of measured volumes in cubic metres to mass in tonnes is carried out using the density factor of 1.73 tonnes per cubic metre for mixed sand and gravel, and 1.5 tonnes per cubic metre for cargoes which are sand only. Historical licences, issued before 1999, used a conversion factor of 1.66 tonnes per cubic metre for mixed sand and gravel; however, these licences are being phased out or replaced with updated ones using the revised conversion factor. These conversion factors are based on an average of the figures in general use and are standard across The Crown Estate, i.e. they are not negotiated by individual dredging licence. The conversion factor for sand does not change but the figure for mixed sand and gravel depends to some extent on the

specification, i.e. grain size, of the gravel resources available. The amendment in 1999 was carried out because it was considered that the higher conversion rate was better supported by the scientific information available.

The annual audit, carried out by Haskoning UK Ltd on behalf of The Crown Estate, involves a random batch check of cargoes whereby Haskoning compare data from the ship's on-board Electronic Monitoring System (EMS), royalty return declarations, company cargo tickets, the ship's Masters Logs and other company records. Any anomalies will trigger a full audit of every cargo. Any identified issues are corrected at the time and would be reviewed in the subsequent audit. The EMS is a system that automatically records the position of the vessel every 30 seconds when the ship's dredging equipment is employed, and every 30 minutes otherwise. It has been fitted to every vessel licensed by The Crown Estate to dredge for aggregates since 1993.

Measurement of cargoes is not carried out at the point of extraction or loading because in some instances the material is screened during this process. This may remove surplus sand or gravel depending on the specification required at the wharf compared to the specification of the resource. It is not done unless absolutely necessary, because it can take up to four times as long to complete the loading of the cargo. Any surplus material is returned to the water column in a continuous flow during the dredging process.

The amalgamated statistics from The Crown Estate's royalty returns are published annually in "Marine Aggregates, The Crown Estate Licences, Summary of Statistics". This document presents landing statistics by port and region, and includes material extracted from the UK continental shelf but landed at foreign ports, which is not available elsewhere (Crown Estate, 2010). Material that is dredged from licensed areas outside The Crown Estate's jurisdiction is not included.

## **2.6 RECYCLED AND SECONDARY AGGREGATES**

Recycled aggregates are defined as aggregates produced from the processing of construction, demolition or excavation waste, e.g. crushed concrete, together with asphalt planings (road surfacing material removed during highway works) and spent railway ballast. Secondary aggregates are those produced as a by-product of other mining or quarrying activities, e.g. china clay waste, or as a by-product of other industrial processes, e.g. blast furnace slag.

Statistical data relating to these alternative aggregates are difficult to obtain as a result of the wide variety of sources where these materials may arise and the much wider range of companies that may be involved. However, an attempt at establishing their extent is important because MPS1, in paragraph 1 states (DCLG, 2006):

"... In order to secure the long-term conservation of minerals it is necessary to make the best use of them. This can be achieved by adopting a hierarchical approach to minerals supply, which aims firstly to reduce as far as practicable the quantity of material used and waste generated, then to use as much recycled and secondary material as possible, before finally securing the remainder of material needed through new primary extraction. ..."

Furthermore, paragraph 5.1 of Annex 1 of MPS1 states:

"It is Government policy to encourage the greatest possible use of alternatives to primary aggregates. The National and Regional Guidelines for Aggregates Provision in England set a target that will be reviewed annually and revised when necessary."

Surveys of construction, demolition and excavation waste (CDEW) were carried out by a contractor on behalf of DCLG in 1999 and 2001 for England and Wales, and in 2003 and 2005 for England only (Capita Symonds Ltd, 2007a). A similar survey was carried out in Wales in 2003 and 2005, by different contractors on behalf of the Welsh Assembly Government (Faber Maunsell, 2007). A survey of CDEW was also undertaken by a contractor in 2003 in Scotland for the then Scottish Executive (Capita Symonds Ltd, 2004) and by the same contractor for the Department of the

Environment in Northern Ireland covering the years 2004/05 and 2005/06 (Capita Symonds Ltd, 2006). The latter survey is currently in the process of being repeated.

A further survey of CDEW was carried out in England by Capital Symonds Ltd on behalf of the Waste and Resources Action Programme (WRAP) in 2008, albeit using a partially different methodology and with a slightly different emphasis (Capita Symonds Ltd, 2010). For this survey some information was supplied to WRAP by the Environment Agency (EA) but it appears this was not sufficient and a set of paper questionnaires were also used (see section 2.7 for more details of the data available from the EA). The overall purpose of this survey was to assess the quantity of waste generated and the routes of the various waste streams rather than how much of the material was used as recycled aggregates.

A survey of secondary aggregates, described as “Other Materials”, was carried out in England and Wales in 2001, and for England only in 2005 (Capita Symonds Ltd, 2007b). This survey estimated ‘arisings’ and use for a range of materials including: china clay waste, ceramic waste, colliery spoil, power station ash, incinerator ash, spent foundry sand, pulverised fuel ash, blast furnace slag, slate waste and waste glass. This report also estimated the quantities of asphalt planings and spent rail ballast used as recycled aggregates. Despite the range of potential sources of this material, in practice the quantity used as secondary aggregates only amounted to approximately three per cent of England’s aggregates supply in 2005. The contribution of asphalt planings and spent rail ballast to recycled aggregates amounted to two per cent of the total aggregates supply, compared to 21 per cent for CDEW. No other survey of these materials has been carried out in recent years.

All of these surveys have commenced with an attempt to establish a complete list of potential respondents. These include demolition contractors, fixed recycling centres, waste transfer centres, licensed landfill sites, registered exempt sites (exempt from certain regulations of the Environment Act) and operators of fixed or mobile crushers. The surveys are always voluntary and suffer from poor response rates (see section 3.3).

## **2.7 DATA COLLECTED BY THE ENVIRONMENT AGENCY**

Sites involved in the transfer and/or treatment of waste materials require permits or registered exemptions which are issued by the Environment Agency (EA). These waste materials include, but are not limited to, CDEW and consequently the EA may provide a source of information relating to the recycling of these materials into aggregates. The 2008 CDEW survey carried out in England (Capita Symonds Ltd, 2010) specifically states that it attempted to make “maximum use” of data supplied to WRAP by the EA.

Lower risk activities are covered by exemptions and although these have to be registered with the EA they are not required to submit returns containing quantities. These activities include:

- the use of waste in small scale construction instead of primary aggregates (this includes crushed concrete, bricks or waste aggregates); and
- crushing and screening of waste on site to make it suitable for use in construction.

As a consequence of these exemptions, and in particular the fact that operators are not required to submit returns containing the quantities involved in their registered exemptions, any use of EA data to estimate recycled aggregates is likely to result in an under estimation. The 2008 CDEW survey report quotes some figures from the National Federation of Demolition Contractors (NFDC) which suggests that in 2008 the quantity of material generated and used on the same site could amount to 13.6 million tonnes in England and Wales from their member organisations (Section 2.4, pg 13 – Capita Symonds Ltd, 2010). This compares to just over eight million tonnes reported by the NFDC as material leaving the demolition site for use or treatment elsewhere.

Sites requiring permits from the EA include: landfill sites, waste transfer stations, waste treatment facilities, metal recycling centres and incinerators. The first three of these may handle CDEW and

produce recycled aggregates. Although the first would appear to be final disposal, and therefore would remove the CDEW from the aggregates supply chain, the 2008 CDEW survey report suggests that the EA do not always separately distinguish areas within the boundaries of a site which are used to recover material (i.e. sites which could be considered as transferring or treating waste) from those areas of the site used for disposal; they are covered by the same permit (Capita Symonds Ltd, 2010).

Information available on the EA's website suggests that in 2009 there were 497 operational landfill sites (this includes both inert and household waste sites), 3591 waste transfer stations and 1381 waste treatment facilities. Although not all of these sites would handle material that could be recycled into aggregates, this does explain to some extent the scale of the difficulties involved in compiling a comprehensive list of respondents for any survey.

All sites with permits are required to submit "site returns" to the EA on a quarterly basis and these include quantities of wastes, both entering and leaving the site, categorised according to the European Waste Catalogue. From the perspective of this review, the most significant difficulty appears to be that these reported figures are materials categorised as "waste" and therefore may not include material which has been processed and sold as a "product" such as recycled aggregates because these would no longer be classified as "waste".

Top level data are available on the website for the EA but are only split into broad categories which are not sufficient to identify arisings that may be suitable for recycling into aggregates. The site return data is available to purchase on the EA's Waste Interrogator CD.

## **2.8 SURVEY OF LAND FOR MINERAL WORKING**

This survey was carried out by Mineral Planning Authorities on behalf of DCLG's predecessor departments at regular intervals since 1974. The last of these surveys was undertaken in 2000 (DCLG, 2002), and although the original intention was for it to be continued at six-yearly intervals, this did not take place in 2006 due to budget constraints. The survey collected information on:

- the number and extent of sites covered by planning permissions for mineral extraction and "spoil tips" (including by two environmental designations – National Parks and Areas of Outstanding Natural Beauty);
- whether sites were actively worked, yet to begin, or in the process of being reclaimed;
- the extent of permitted areas subject to reclamation or aftercare conditions;
- the extent of land reclaimed in the previous six years subdivided by after use; and
- the areas of surface land used by underground mine sites.

The results are published in two volumes, with the first showing the data at a national and regional level and the second including figures at MPA level. The survey covered most types of minerals in England and the response rate appears to have been very good. There does not appear to have been any similar surveys in other parts of the UK. This survey was very time consuming to complete and there is some debate about whether the results were sufficiently worthwhile in light of this (see also section 4.1).

## **2.9 OPENCAST COAL STATISTICS**

This is an annual survey conducted by the BGS on behalf of DCLG, the Welsh Assembly Government and the Scottish Government, in collaboration with the Coal Authority and MPAs, and with the support of the Planning Officers' Society and the Confederation of UK Coal Producers (CoalPro). There are currently no working coal sites in Northern Ireland.

Figures relating to saleable production and permitted reserves are provided by the Coal Authority (see section 2.10). In addition, BGS conducts a survey of MPAs with opencast coal resources in their areas to obtain details of planning applications granted or refused in the previous year. The

figures are then brought together by the BGS and published on the MineralsUK.com website (BGS, 2010).

## **2.10 THE COAL AUTHORITY**

The Coal Authority was established in 1994 as part of the privatisation of the coal industry, and is accountable to the Department of Energy and Climate Change (DECC). The Authority owns the rights to all coal resources in the UK, on behalf of the State.

The Authority is responsible, amongst other things, for the licensing of coal extraction and this process includes a mine lease which contains a condition requiring the tenant to submit a production report to the Authority within 10 days of the end of each calendar month. Another condition of the lease is for the tenant to send to the Authority a copy of any report relating to permitted reserves at the mine.

The Authority publishes quarterly and annual statistics on production and manpower from both surface and underground coal mines, by MPA and country (i.e. England, Scotland and Wales). There is no indication of response rate on their published tables, but there is a comment that estimates are made where returns have not been received (Coal Authority, 2011).

## **2.11 DIGEST OF UK ENERGY STATISTICS**

The Digest of UK Energy Statistics (DUKES) has been produced on an annual basis since 1948. It is currently published by DECC and contains “a comprehensive picture of energy production and use over the last five years, with key series taken back to 1970” (DECC, 2011). For the purposes of this review, DUKES contains specific chapters relating to coal, oil and natural gas production in the UK. DECC also produce statistics relating to energy, which include these energy minerals, on a monthly and quarterly basis but as they come from the same sources only the annual digest is described here.

Within DUKES, coal appears in Chapter 2 headed “Solid fuels and derived gases”. This chapter includes figures for production, consumption, imports and exports of coal, solid products derived from coal, e.g. coke, and gases derived from coal, e.g. coke oven gas. Coal production output figures are sourced from the Coal Authority (see section 2.10), trade figures are from HM Revenue and Customs and consumption figures are reported directly by the relevant industries.

Chapter 3 of DUKES, headed “Petroleum”, includes a similar range of statistics relating to crude oil, natural gas liquids and petroleum products. The data is collected via DECC’s own Petroleum Production Reporting System. This is an administrative system that requires all licensees, as a condition of their operating licenses, to report monthly details of their production, of both oil and gas. DECC also has a Downstream Oil Reporting System to capture data relating to the transformation of crude oil into petroleum products at refineries and supplements this data with information from HM Revenue and Customs and some industry consumers.

“Natural Gas” is the heading of Chapter 4 of DUKES and includes statistics for production, transformation and consumption of natural gas and colliery methane. It also includes imports and exports of natural gas, both by pipeline and that shipped as liquefied natural gas. The data is also collected via DECC’s Petroleum Production Reporting System, supplemented with data from HM Revenue and Customs and the National Grid.

Name	Organisation	Frequency	Area Covered
Annual Minerals Raised Inquiry (AMRI)	ONS on behalf of DCLG, BIS, WAG and SG	Annual	England, Scotland & Wales
Annual Monitoring (and AWP reports)	MPAs and AWPs	Annual	England & Wales
Aggregate Minerals Survey	MPAs, AWPs and BGS on behalf of DCLG	4-Yearly	England & Wales <sup>1</sup>
Quarterly Survey of Marine Aggregates	ONS on behalf of BIS	Quarterly	England & Wales <sup>2</sup>
Crown Estate Half Yearly Royalty Returns	The Crown Estate (and audited by Haskoning Ltd)	6-Monthly	England & Wales <sup>2</sup>
Secondary and Recycled Aggregates	Various contractors on behalf of DCLG, WAG, SG or DOENI	Variable	All parts of the UK separately
Environment Agency Waste Interrogator CD	Environment Agency	Returns are Quarterly, CD is Annual <sup>3</sup>	England & Wales
Survey of Land for Mineral Working	A contractor on behalf of DCLG	6-yearly	England
Opencast Coal Statistics	BGS and CA on behalf of DCLG	Annual	England, Scotland & Wales <sup>4</sup>
Coal Authority reports	CA	Annual	England, Scotland & Wales <sup>4</sup>
Digest of UK Energy Statistics	BIS (including data from the CA)	Annual	UK

**Table 2:** Summary of surveys carried out relating to the minerals industries

Notes: ONS = Office for National Statistics; DCLG = Department for Communities and Local Government; BIS = Department for Business Innovation and Skills; WAG = Welsh Assembly Government; SG = Scottish Government; MPAs = Mineral Planning Authorities; AWPs = Aggregate Working Parties; BGS = British Geological Survey; DOENI = Department of Environment Northern Ireland; CA = Coal Authority

<sup>1</sup> Scotland carried out a similar but separate survey of 2005 data

<sup>2</sup> Not applicable for Scotland or Northern Ireland

<sup>3</sup> CD containing site returns (sites requiring permits only)

<sup>4</sup> Not applicable in Northern Ireland

Name	Minerals	Level of Detail	Type of Statistics
Annual Minerals Raised Inquiry (AMRI)	Aggregates, industrial minerals <sup>1</sup> , ore minerals and peat	By end use, by MPA, by region, by country <sup>2</sup>	Sales quantities, sales values and employment
Annual Monitoring (and AWP reports)	Aggregates (other minerals are collected but not published)	By MPA and region	Sales quantities, permitted reserves and planning permissions
Aggregate Minerals Survey	Aggregates (other minerals data for by-product or ancillary activities are collected and published in amalgamated form)	By MPA, sub-region, region and country (including by selected environmental designations)	Sales, consumption, permitted reserves, planning permissions, sub-region and inter-regional movement
Quarterly Survey of Marine Aggregates	Marine-dredged sand and gravel	By MPA <sup>3</sup> and country (although none in Scotland and Northern Ireland)	Sales quantities
Crown Estate Half Yearly Royalty Returns	Marine-dredged sand and gravel	By landing port, region and UK total (although none in Scotland and Northern Ireland)	Quantities landed and permitted removal quantities
Secondary and Recycled Aggregates	Construction, demolition and excavation waste (and occasionally other secondary materials)	By MPA and region	Quantities of arisings and quantities of reuse
Environment Agency Waste Interrogator CD	Waste materials	Collected by permitted site, but reported by region	Quantities in broad categories
Survey of Land for Mineral Working	N/A Land worked for all types of minerals	By MPA and region (including by National Parks and Areas of Outstanding Natural Beauty)	Hectares of land under different conditions
Opencast Coal Statistics	Coal (surface mined only)	By MPA, region and country	Production quantities, permitted reserves and planning permissions
Coal Authority reports	Coal (surface and underground mined)	By MPA, region and country	Production quantities and employment
Digest of UK Energy Statistics	Coal, oil and natural gas (and other energy sources)	UK only	Production, imports, exports, consumption and supply balance

**Table 3:** Coverage of the various minerals surveys

Notes:

<sup>1</sup> Industrial minerals include silica sand, industrial limestone, industrial dolomite, clay and shale, chalk, fireclay, ball clay, china clay, chert and flint, gypsum, potash, salt, silica stone, slate, soapstone and talc.

<sup>2</sup> AMRI contains a significant amount of suppressed data for confidentiality reasons.

<sup>3</sup> Marine dredged sand and gravel is either shown for Great Britain by end use, or combined with land-won material by MPA.

## 3 Comparison of Surveys

The previous section has described, as briefly as possible, the range of statistical surveys carried out across the minerals industries in the UK. It is clear from the above that more surveys are carried out in England than other parts of the UK, but to understand fully why this is the case a direct comparison between these different surveys is necessary.

### 3.1 COVERAGE

Each of the surveys reviewed by this study covers a slightly different aspect of the minerals industries and presents its results in a different format to the others. Some surveys concentrate entirely on aggregates or on energy minerals, while others include a wider group of minerals. Some surveys concentrate on the national picture, while others present results in greater detail. Some surveys contain only sales quantities, while others collect details on sales values, permitted reserves or employment. Table 3 attempts to present a simplified comparison of what these surveys cover.

Although no two surveys are exactly identical, there does appear to be some overlap between parts of different surveys. To look at specific instances it is helpful to consider the different minerals under the following categories:

#### 3.1.1 Non-aggregate minerals

This category includes silica sand, industrial limestone and dolomite, building stone, peat, clay, fireclay, metal ores, china clay, ball clay, gypsum, potash, slate, soapstone, talc and other minor minerals. AMRI attempts to gather data on all of these minerals but frequently the ONS cannot publish actual figures for confidentiality reasons. Some MPAs also gather this data in their local area for their own planning purposes but cannot usually publish it in any form, for the same reason. Some of these minerals, e.g. silica sand, are surveyed during the 4-yearly Aggregate Mineral survey because some locations also sell aggregates, but figures are grouped together as “non-aggregate uses” and are not separately identified.

#### 3.1.2 Land-won primary aggregates

Sales of land-won primary aggregates are gathered in the AMRI, the Annual Monitoring by MPAs and in the 4-yearly Aggregate Minerals survey. However, the AMRI also covers a wide range of other minerals (everything except coal, oil and gas) and includes value and employment figures. The Annual Monitoring includes details of permitted reserves and planning permissions and provides commentary on landbanks and/or progress with development plans, etc. The Aggregate Minerals Survey also includes details of consumption, permitted reserves, planning permissions, sub-regional and inter-regional movement of aggregates plus information by selected environmental designations.

#### 3.1.3 Marine-dredged aggregates

The ONS collect sales figures for marine-dredged sand and gravel, based on quantities leaving the wharves, on a quarterly basis. The Crown Estate gathers figures half-yearly for landings at wharves, which is not necessarily the same thing as sales over any given period as a result of processing or limited stockpiling at wharves. The ONS also collects figures relating to the value of marine aggregates sales through the PRODCOM survey. The Crown Estate also publishes, in separate documents, figures regarding permitted reserves of marine sand and gravel and new licences. The Aggregate Minerals Survey also includes sales figures, consumption, sub-regional and inter-regional movement for marine-dredged sand and gravel. MPAs, in their Annual Monitoring report, present Crown Estate figures for marine-dredged sand and gravel unless it is an Aggregate Minerals Survey year whereby they will utilise data from the AM survey.

### 3.1.4 Secondary and recycled aggregates

The survey of CDEW and “other materials” carried out in 2005 was the only one of its kind that attempted to make a comprehensive estimation of the quantities of secondary and recycled aggregates entering the market. Although some MPAs attempt to gather similar data for their local areas this is not repeated across the whole country and appears to only include fixed recycling crushers. As such it will always be an under estimate of the full picture.

The report on the 2008 CDEW survey (Capita Symonds Ltd, 2010) specifically states that it attempted to update the estimates made in 2005. However, in practice the two reports collected data in different ways and the authors include a caveat that the categories in the two reports “are not always directly comparable”.

The Mineral Products Association includes an estimate for the total quantity of secondary and recycled aggregates in their Sustainable Development Report (MPA, 2010). Their response to this review indicates that this is an estimate based on the 2005 report and subsequent trends in construction activity.

### 3.1.5 Coal, oil and natural gas

The production of coal has to be reported to the Coal Authority on a monthly basis as a condition of the operators’ leases. This data is published by the Authority itself in its own reports, but is also used by BIS in the Digest of UK Energy Statistics and by the BGS in the Opencast Coal Statistics. In the latter publication figures for permitted reserves and planning permissions are also published and these are gathered through a separate survey.

Oil and gas figures are collected by BIS on a monthly basis through their Petroleum Production Reporting System which requires operators to submit production figures as part of their operating licences. The figures are published on a monthly, quarterly and annual basis.

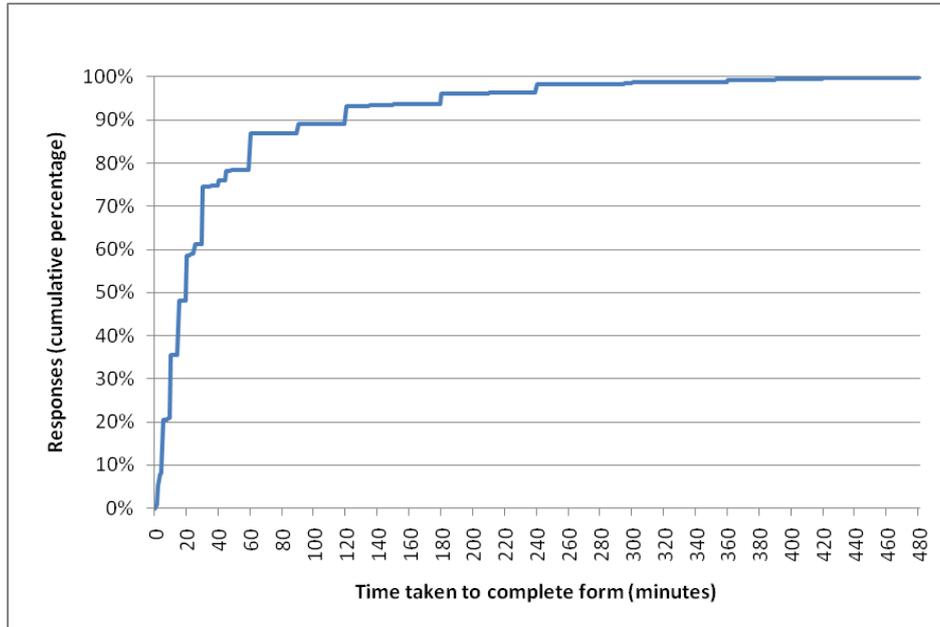
## 3.2 TIME TAKEN TO COMPLETE SURVEYS

Part of the purpose of this review is to consider ways in which the burden imposed by regular statistical surveys can be reduced. Consequently, the time taken to complete the survey forms, to collate the data and present the results has been carefully considered. A distinction needs to be made here between time taken to actually fill in the forms and the time that elapses between forms being sent out and completed forms returned.

### 3.2.1 Time taken to complete the survey forms

#### *Annual Minerals Raised Inquiry (AMRI)*

In recent years the AMRI survey form has included a question asking for the length of time taken to complete the form. Responses to this question, supplied by ONS, reveal that the forms typically take between a few minutes and three hours each. A more detailed breakdown of the responses to this question was provided by the ONS (with the permission of DCLG) in 2007/8 to inform the BGS-led review of the Managed Aggregates Supply System (Gunn *et al.*, 2008). These figures, based on the 2006 AMRI, are shown graphically in Figure 2. This illustrates that for nearly 87 per cent of responders who answered this question the form takes one hour or less to complete.



**Figure 2:** Estimated time taken to complete the AMRI 2006 questionnaire

Note: This graph does not include the 1871 forms where this question was not answered, the one response that the form took 2040 minutes, the three responses that it took 2220 minutes, or the one response that it took 4440 minutes to complete.

It should be remembered that the forms are completed on a site by site basis and therefore this time needs to be multiplied by the number of sites each operator has. Where a large operator wishes to complete all the forms centrally, which has benefits in terms of quality of data (providing the people concerned have been sufficiently trained in the requirements of the survey), completing one form per site is clearly time-consuming for the few individual persons involved. However, overall their familiarity with the task is likely to result in time savings compared with the option of completing the forms at individual sites. The responses we have received from industry suggest for the major companies it can take 5–8 days to complete the forms for all their sites. Complicated sites, selling multiple materials for a wide range of uses, will clearly take longer than simple sites where a single product is sold for only one purpose.

### *Annual Monitoring*

The responses we have received from industry with regards to the Annual Monitoring surveys suggests that it can take up to an hour per MPA, depending on how many sites there are within the boundaries of the MPA concerned. Again for the larger operators, with sites across several MPAs this timescale is quickly multiplied.

In some areas a copy of the AMRI form is provided to the MPA instead of a separate form and clearly this will be quicker and easier for the operator. In other parts of the country, although a separate form is used, the descriptions are identical to those on the AMRI form and consequently the data already compiled for AMRI can be easily transferred to the MPA form. Both these options have obvious benefits in terms of time but they also help to ensure consistency between the surveys.

From the MPA perspective, the staff time required for their Annual Monitoring surveys varies considerably. From the responses we have received it can take between 1 and 28 days to send out the forms, chase replies, collate and analyse the responses, although this time will not be required in one concise block as indicated in the next section. It does seem to be clear that the bulk of this staff time, and one reason for the variation, is the time required to chase for responses. However, the variation is also likely to result from the knowledge and experience of the individuals responsible for carrying out the survey and the level of training they receive. It may also be the case that individual workloads and perceptions regarding priorities affect the time allocated to this task.

Once the data has been collected by the MPAs, the aggregates figures are passed to the Secretary of the Aggregates Working Party (AWP), usually in digital format. There remains some additional work to collate and analyse the information in order to present it in the Annual Monitoring Reports. With such a wide variation in the length and content of these reports, clearly there is going to be a wide variation in the time required to complete this. The responses we have received from AWP Secretaries suggest that it takes between 3 and 34 days.

### *Aggregate Minerals Survey*

The 4-yearly Aggregate Minerals Survey requires more detailed information, particularly regarding the destination of sales, and hence often takes longer. A typical timescale from the industry's perspective may be from 1 hour up to 6 hours per MPA area, again depending on the number of sites involved in each. The most recent surveys have been careful to exactly replicate the AMRI descriptions in those parts of the survey that overlap (i.e. sales), again to save time and improve consistency.

From the MPA's perspective, the responses we received varied widely with many indicating that it took longer than their usual annual monitoring while others indicated it took a similar time. The responses suggest the MPA part of the survey takes between 1 and 40 days of staff time. Once again, the variation is likely to result from the experience of, and training received by, the individuals responsible for carrying out the survey and the amount of effort dedicated to chasing returns. Individual workloads and perceptions regarding priorities will also affect the time allocated to this task. At the AWP level, the responses we have received indicate that it takes the AWP Secretaries a further 4 to 25 days to complete their part of the survey.

### *Other Surveys*

There is little information available regarding the time taken to complete the forms for other surveys carried out. The responses we have received regarding the Survey of Land for Mineral Working indicates that it was a very time consuming exercise because the data required was not immediately available (see also section 4.1 for comments on the usefulness of this particular survey). As far as we are aware, this information was not gathered as part of the CDEW or marine aggregates surveys.

## **3.2.2 Time that elapses between sending and receiving forms**

One of the frequent comments that we have received as part of this review is that it takes a long time to gather all the forms back from the industry. This same difficulty appears to occur with all surveys and specific points are outlined below.

### *Annual Minerals Raised Inquiry (AMRI)*

With regards to the AMRI survey, the delay caused by late returns of forms means that the 'closure' date, i.e. the date at which no further forms are included in the results, changes from year to year. The forms are sent out in early January and a return deadline is set as 31 January, but despite two reminders in early February and early March, the closure date is usually June or July. This ensures a higher response rate (see section 3.3) but it also means that the results cannot be published until at least October each year. We have received a comment that the AMRI results should be published earlier, but in the current circumstances to do so would severely reduce the response rate and as a consequence a greater proportion of the result would be estimated.

A comment received from one of the larger companies within the industry suggests that some of the delay may be caused by the forms being sent to individual sites rather than a central contact point. Although many larger operators either have or are planning to centralise the completion of the AMRI forms, there is a clear potential for delay while the site personnel forward the forms to the

central location for completion. There may be some merit in a system whereby batches of forms for specified companies are sent to central contact points.

### *Annual Monitoring*

The responses we have received from the MPAs suggest that it takes between one and six months to receive all the responses from industry for their annual monitoring process. In most cases the forms are sent out between January and April of each year, although one MPA response indicated their forms were sent out in August. There are benefits to the forms being sent out at the same time as the AMRI forms are circulated, or very shortly afterwards, because this would make completion easier for the industry by enabling them to complete the two sets of forms at the same time with the same data (particularly if the questions are identically worded).

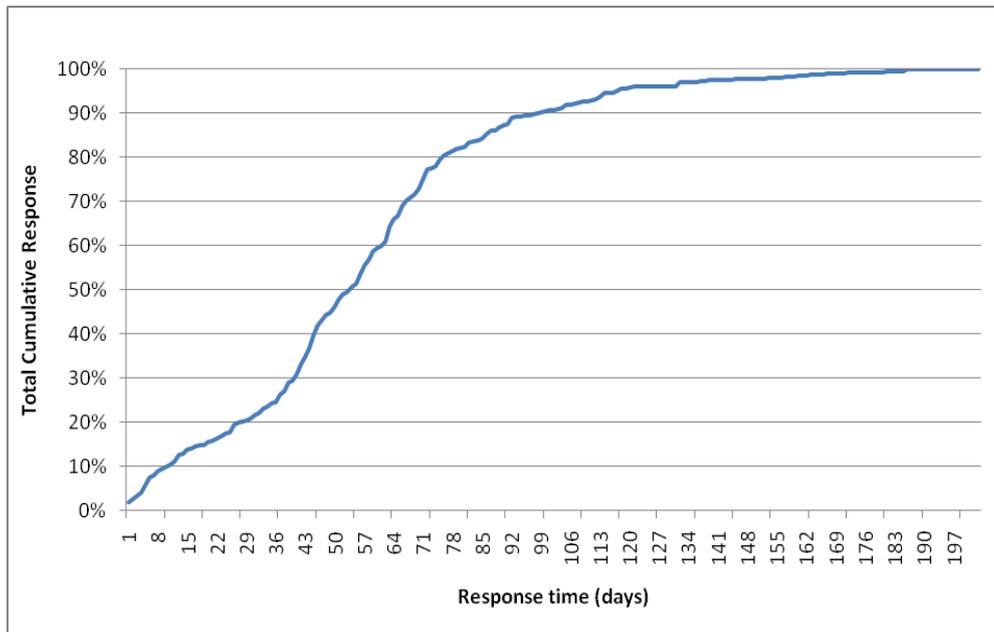
### *Aggregate Minerals Survey*

Historically, and certainly for AM1997 and AM2001, survey forms were distributed to the MPAs in order that they could be sent to operators in early January of the survey year in order to correspond with the arrival of AMRI forms. Latterly, due to later letting of the contract, this has not been possible. For AM2009, survey forms were distributed to MPAs in March who typically sent them to industry by the end of April. For the AM survey industry are requested to complete and make returns within eight weeks (i.e. end of June 2010 for AM2009).

In order to speed distribution and subsequently returns, for the past three surveys, electronic versions of the forms were made available so that, should an operator wish, they could complete and submit via email. Further, for AM2009, a number of companies provided central contacts thus allowing relevant MPAs to send survey forms direct and thus by-passing the MPA–site–central office route for forms.

The recently completed AM2009 survey, for the first time, recorded the date the survey forms were sent to operators and the date they were received back by MPAs. After ‘cleaning’ these data, e.g. removing responses where the two dates were identical (indicating an MPA estimated return), an analysis of the time taken to respond to the survey is shown in Figure 3. The percentages shown in this graph also ignore non-responses (that were unable to be estimated). This analysis shows that of the responses received, 40 per cent arrived within the 40 working days (or the eight week) deadline and that 90 per cent arrived within 100 working days, or 20 weeks, of the date the forms were sent out. Also of note is the fact that several MPAs were sending forms out in May and June.

As with other surveys of this type, whilst good coverage is essential a small number of late returns from large operating sites can have a significant impact due to their influence on the final results.



**Figure 3:** Cumulative response time for Aggregate Minerals Survey 2009.

Note: Non-responses are excluded, responses where the sent and received dates were identical have been removed, weekend days have been ignored.

#### *Other surveys*

In contrast to the length of time that elapses between sending and receiving forms for the surveys described above, The Crown Estate royalty returns are required from marine operators within one month of the end of June and the end of December each year. There is no indication in the response we received from Haskoning UK Ltd on behalf of The Crown Estate that would suggest late or non-responses are a problem. The advantage here is that these royalty returns are a requirement of the licences under which the operators are permitted to extract marine-dredged aggregates and their returns are also subject to an auditing process.

Production figures for coal, oil and natural gas are collected on a monthly basis by the Coal Authority or DECC, but in a similar way to The Crown Estate, the requirement to submit these figures are included within the licences or leases that enable the industries to operate. Clearly this adds weight to the requirement because, presumably, if an operator fails to comply the lease or license could be withdrawn. However, for most other minerals, planning permissions that allow extraction do not usually include such a requirement (except in very specific circumstances). If a decision was made that this requirement should be added to these permissions, it would take some considerable time to work through to all extraction operations in light of the time periods involved with most permissions.

### **3.3 RESPONSE RATES**

A summary of the response rates achieved by the various surveys is given in Table 4. At a first glance it would appear that the highest response rates are from surveys that are either a requirement under a licence/lease or are statutory. However, the true picture is not as straight forward as this. The AMRI survey is statutory, but the ‘closure date’ (which is effectively the deadline) is pushed back until the response rate is considered to be high enough. If a fixed deadline was imposed the response rate would be much lower, despite the possibility of non-responders being prosecuted and fined.

In contrast the 4-yearly Aggregate Minerals survey is voluntary but always experiences a response rate of greater than 90 per cent from all regions of the country. This is attributed to the recognition

by the majority of parties of the importance of the data that is obtained, together with the time and effort which is expended in chasing for replies.

Although most comments we received from MPAs regarding their annual monitoring indicated a high response rate from the industry, on a few occasions the percentage of responders was noticeably lower – in the order of only 50 to 65 per cent. This may be a reflection of the nature of the industries in particular areas or alternatively it may result from the pressures on the MPAs in those areas which restricts their ability to chase non-returns.

Comments suggest that smaller operators are more likely to be amongst the non-responders than larger ones. This would tend to suggest that the degree of estimation required to make up the shortfall is generally small in terms of tonnage and thus the accuracy of the resulting data remains good. Other comments suggest that non-responders tend not to be members of the national trade associations which might suggest that a different approach is required to emphasise to those operators the importance of the data.

The other very noticeable point to make from Table 4 is the universally low response rate received for all surveys of construction, demolition and excavation waste (CDEW). It is very difficult to draw sensible conclusions regarding the quantities of secondary and recycled aggregates entering the market while response rates remain in the range of 13 to 29 per cent. However, the producers of primary aggregates are estimated to represent only 10–20 per cent of the total number of operators producing secondary and/or recycled aggregates and this creates a problem which is hard to resolve.

One of the main difficulties with all surveys of CDEW producers is the compilation of a comprehensive and accurate mailing list. The contractor involved has attempted to do this by using previous survey information, by consulting the MPAs, by using a commercially published list of contractors, using a list provided by WRAP, etc. In each case there appears to be some doubt about the completeness of the list and despite their efforts the response rate remains low. Other comments we have received suggest that many of these producers are small, and/or less likely to see the relevance to their business of completing survey forms.

A few MPAs have attempted to collect local data on aggregates recycling but response rates remain generally low and the data obtained are both incomplete and inconsistent (e.g. in some cases “capacity” is reported rather than “sales”, or surveys only include fixed recycling centres and not mobile units). Almost all MPAs that were consulted as part of this review stated that better data on secondary and recycled aggregates are needed. As a consequence, the gathering of accurate data regarding secondary and recycled aggregates probably needs a different method of collecting data.

Options for improving response rates across all surveys include more vigorous chasing of non-responders, converting voluntary surveys into statutory ones, or establishing a system for electronic submission of the data. All options have their advantages and disadvantages and these are discussed more fully in section 4.4.

Name	Data for Year (where specified)	Response Rate % of total	Statutory or Voluntary
Annual Minerals Raised Inquiry (AMRI)	2009	96%	Statutory
Annual Mineral Statement (Northern Ireland)	typical rate	85%	Statutory
Annual Monitoring (and AWP reports)	2008	usually 80-100% but was reported as low as 50%	Voluntary
Aggregates Minerals Survey	2009	90% for active and inactive sites together 92% for active sites only <sup>1</sup>	Voluntary
Scottish Aggregates Survey	2005	88%	Voluntary
Quarterly Survey of Marine Aggregates	required rate	> 90%	Statutory
Crown Estate Half Yearly Royalty Returns	not available	not available	License requirement
Construction, Demolition & Excavation Waste Arisings, Use and Disposal in England	2008	13% for landfill sites receiving CDEW, 28.5% for recycling operations <sup>2</sup>	Voluntary
Survey of Arisings and Use of Aggregates from ... Waste in Wales	2005	15% <sup>3</sup>	Voluntary
Survey of Construction, Demolition & Excavation Waste and its Use as Aggregate in Scotland	2003	25%	Voluntary
Survey of Arisings and Use of CD&E Waste as Aggregate in Northern Ireland	2004/5 & 2005/6	29%	Voluntary
Survey of Land for Mineral Workings in England	2000	99% <sup>4</sup>	Voluntary
Coal Authority data	each year	Almost 100%	Lease requirement
Oil and gas data (DECC) for Digest of UK Energy Statistics	each year	Almost 100%	Licence requirement

**Table 4:** Summary of response rates from industry achieved by the various minerals surveys

Notes:

<sup>1</sup> Active sites are those that sold aggregate during 2009, inactive sites are those which have either been worked in the past or are yet to be worked, dormant sites are excluded from these figures. Including those sites estimated by MPAs survey coverage is 97%.

<sup>2</sup> The survey was only part of the work carried out. Data was also received from the Environment Agency returns.

<sup>3</sup> Excluding non-operational sites, returns that provided no data and sites that refused to co-operate.

<sup>4</sup> Survey forms were completed by MPAs

### 3.4 LEGAL BASIS

As alluded to in Table 4, the surveys fall under three categories ‘statutory’, ‘voluntary’ and ‘license/lease requirement’. To understand more fully the differences these make a brief outline is included below.

#### *Statutory surveys*

The AMRI and the quarterly marine aggregates surveys are conducted by the ONS under the Statistics of Trade Act 1947. This Act enables certain ‘competent authorities’ to obtain information in order to understand economic trends, to provide a statistical service to industry and for government departments to discharge their functions. This information consists of:

- “the nature of the undertaking (including its association with other undertakings) and the date of its acquisition;
- the persons employed or normally employed (including working proprietors), the nature of their employment, their remuneration and the hours worked;
- the output, sales, deliveries, and services provided;
- the articles acquired or used, orders, stocks and work in progress; the outgoings and costs (including work given out to contractors, depreciation, rent, rates and taxes, other than taxes on profits) and capital expenditure;
- the receipts of and debts owed to the undertaking;
- the power used or generated;
- the fixed capital assets, the plant, including the acquisition and disposal of those assets and that plant, and the premises occupied” (Schedule to the Statistics of Trade Act 1947).

Although the ONS was not established at the time of the Act, subsequent Orders and the Statistics and Registration Service Act 2007 has established the ONS as the competent authority reporting directly to Parliament (as opposed to the Government). For a fuller explanation of this please see Appendix 1.

The Statistics of Trade Act 1947 imposes certain restrictions on the ONS in that the data they collect is strictly confidential and it is illegal for them to disclose data that would enable an individual business to be identified. The release of data by the ONS has to be authorised by a Government Department. This would make it extremely difficult for the ONS to provide actual AMRI return forms to MPAs, for example.

Although additional questions could, in theory, be added to the AMRI questionnaire, to do so would be likely to increase the costs of the survey to DCLG. It is not clear that the addition of questions would in practice negate the need for other surveys due to the restrictions required to preserve confidentiality and the requirement for MPAs to have access to the raw data in order to monitor and inform their Development Plan Documents and discharge other duties. Furthermore, there could be some debate regarding whether the permitted reserves held within a quarry would be considered as “fixed capital assets” and therefore fall within the remit of the 1947 Act.

For comparison, in Northern Ireland the equivalent survey is made statutory by the Quarries (Northern Ireland) Order 1983, Section 18, which states:

“The owner, occupier or agent of every quarry shall, on or before 1st February in every year, send to the Department a correct return in the prescribed form specifying, with respect to such quarry for the year ending on the preceding 31st December, the quantity in statute weight and the name of the mineral produced or gotten during that year, the value or selling price of the mineral in the condition in which it leaves the quarry and the number of persons ordinarily employed in the quarry.”

The Order itself does not contain any references to preserving confidentiality, however, where there is a risk of disclosing company commercial information the commodities are grouped together and included as “other” on the Annual Mineral Statement. This includes granite as well as rock salt, chalk, dolomite and fireclay.

It is interesting to note that this Order includes a specific deadline by which the respondent is required to supply the data. This is in sharp contrast to the AMRI survey, as described in Section 3.2.2).

#### *License/lease requirements*

For certain minerals there is a requirement in the license/permission/lease that statistical data has to be supplied by operators on a regular and time limited basis (for example, to The Crown Estate for marine-dredged aggregates and to The Coal Authority for coal). This ensures that the data required to monitor supply is readily available. For other minerals this has generally not been the case in the past. More recently some Mineral Planning Authorities when granting a new planning permission have begun to make the provision of data a requirement of the permission. As mentioned previously, whilst it may help to ensure required data is supplied, if this requirement should be added to all permissions, it would take some considerable time to work through to all extraction operations in light of the time periods involved with most permissions.

#### *Voluntary surveys*

For other minerals and, in particular, aggregates (via MPA annual monitoring and the four yearly Aggregate Minerals Survey), provision of data has been built up by voluntary co-operation between MPAs and the operators since the national collation of information first began in 1973. Data has been willingly supplied because all parties see the value of it. Coverage of the industry is high and the reliability of information provided has improved over the years. Despite this a small number of generally small firms persistently fail to participate in the surveys and concerns over Freedom of Information requests has meant the imposition of strict confidentiality agreements for more recent surveys by the industry, limiting the use which can be made of the data prior to submission.

There may be some merit in considering the possibility of making the AM Surveys (and even annual monitoring) compulsory thus ensuring both industry and MPA timely participation but the surveys would then no longer be seen as part of a shared endeavour in the sector, and consequently it might have as many drawbacks as benefits. In particular, this would have an impact on the trust relationship which is built up over time between the industry and MPAs. This relationship is very important in the functioning of the planning system more generally and should not be underestimated.

### **3.5 COMPARISON OF RESULTS**

It can be seen that the majority of surveys collect different data for different purposes and, therefore, direct comparisons of results are difficult. However, in the case of aggregates, sales quantities data are collected and published by several surveys which does enable a simple comparison to be undertaken.

#### **3.5.1 Comparison of ONS statistics with Aggregate Minerals Surveys**

Both the AMRI and the Aggregate Minerals Surveys present data on sales of aggregates from quarries and wharves. In theory the data should be the same, however, in practice the AM surveys have traditionally reported higher total primary aggregate figures albeit with regional variations. Table 5 compares data for 2009 whilst those for 2005 and 2001 are presented in Appendix 2. The total difference between AM Surveys and the AMRI has reduced from three million tonnes in 2001, to two million tonnes in 2005, to 0.66 million tonnes in 2009. The reason for this is that following

investigations post AM2005 it was identified that the ONS list of sites had become dated and, therefore, the AMRI survey was not as comprehensive. Subsequently DCLG requested that BGS provide an updated list of sites (which has been checked by Mineral Planning Authorities) to the ONS each year.

Region	Total sand and gravel			Crushed rock			Total primary aggregate		
	AM2009	PA1007	Difference	AM2009 <sup>a</sup>	PA1007	Difference	AM2009	PA1007	Difference
South West	3 638	4 677	-1 039	17 206	18 218	-1 012	20 844	22 895	-2 051
South East	10 992	9 345	1 647	1 111	1 085	26	12 286	10 430	1 856
Greater London	4 239	3 866	373	0	0	0	4 239	3 866	373
East of England	9 989	9 980	9	286	na	na	10 278	na	na
East Midlands	5 501	5 798	-297	21 421	21 575	-154	26 922	27 373	-451
West Midlands	5 860	6 397	-537	2 639	2 808	-169	8 500	9 205	-705
North West	2 276	2 121	155	5 897	5 629	268	8 174	7 750	424
Yorkshire & the Humber	3 122	3 235	-113	7 166	6 868	298	10 362	10 103	259
North East	1 321	1 110	211	3 328	3 194	134	4 649	4 304	345
<b>England</b>	<b>46 938</b>	<b>46 529</b>	<b>409</b>	<b>59 096</b>	<b>59 666</b>	<b>-570</b>	<b>106 253</b>	<b>106 195</b>	<b>58</b>
South Wales	757	-	-	8 185	-	-	8 942	-	-
North Wales	621	-	-	3 245	-	-	3 866	-	-
<b>Wales</b>	<b>1 378</b>	<b>1 668</b>	<b>-290</b>	<b>11 430</b>	<b>10 542</b>	<b>888</b>	<b>12 808</b>	<b>12 210</b>	<b>598</b>
<b>England and Wales</b>	<b>48 317</b>	<b>48 197</b>	<b>120</b>	<b>70 526</b>	<b>70 208</b>	<b>318</b>	<b>119 061</b>	<b>118 405</b>	<b>656</b>

**Table 5:** Comparison between data collected as part of the Aggregate Minerals Survey in 2009 and the AMRI data for 2009 published in Business Monitor PA1007.

Note: <sup>a</sup>AM Surveys also collect data on the minor quantity of chalk and ironstone used for crushed rock aggregate. To aid comparison data for these minerals has been excluded.

Although overall the data from the two surveys are converging, there remains some significant differences at regional level. The reasons for this could be that some operators are persistent non-responders and consequently that a greater degree of estimation is used. Alternatively differences may arise due to different values being provided to the different surveys as a result of the different timing of arrival of survey forms.

### 3.5.2 Comparison of Crown Estate and ONS statistics with Aggregate Minerals Surveys

Statistics on marine sand and gravel are presented in the AMRI, the Aggregate Minerals Surveys and by The Crown Estate. The annual reports of the Aggregate Working Parties (AWPs) also present data on marine landings, however, in all cases Crown Estate statistics are used for landings, unless it is an AM survey year in which case the AM results are used. In the AMRI and the four yearly Aggregate Minerals (AM) Surveys, sales of sand and gravel from marine wharves are surveyed in exactly the same way as onshore sand and gravel quarries. It is assumed, therefore, that the data returned reflect weighbridge sales of product (principally concreting aggregate) after processing at the marine wharf.

Table 6 compares data from the last four-yearly AM survey with those for both Crown Estate and ONS figures.

Sales/Landings by Region	Thousand tonnes		
	AM2009	PA1007	Crown Estate
South West	487	451	481
South East	4 985	3 899	4 800
London	3 662	3 419	2 979
East of England	322	409	209
East Midlands	0	0	0
West Midlands	0	0	0
North West	97 <sup>a</sup>	c	325
Yorkshire & the Humber	192 <sup>b</sup>	52	92
North East	563	c	504
<b>ENGLAND</b>	<b>10 308</b>	<b>8 719</b>	<b>9 390</b>
North Wales	32		27
South Wales	613		622
<b>WALES</b>	<b>645</b>	<b>873</b>	<b>649</b>
<b>ENGLAND &amp; WALES</b>	<b>10 953</b>	<b>9 592</b>	<b>10 039</b>

**Table 6:** Comparison of marine-dredged sand and gravel sales/landings, 2009

Notes:

<sup>a</sup> The low AM2009 figure for the North West is known to be due to some wharves not making a survey return.

<sup>b</sup> Includes a small quantity of land-won sand and gravel from outside England and Wales landed at a wharf.

c = Confidential

Sources: Collation of the results of the 2009 Aggregate Minerals Survey for England and Wales. *British Geological Survey*; Mineral extraction in Great Britain Business Monitor PA1007. *ONS*; Crown Estate Statistics.

The larger total for AM2009 is expected as it (a) includes sales from non-Crown Estate areas (for example, material extracted from estuaries under private ownership) and (b) the conversion factor used by the Crown Estate to convert cubic metres to tonnes (1.66 and 1.73 tonnes per cubic metre for mixed sand and gravel) is somewhat lower than actual density figures and, therefore, the sales figures collected by the AM survey are likely to be higher.

The Crown Estate figures also refer to ‘landings’ and not ‘sales’ after processing at a wharf and recorded by a weighbridge. This may account for small, but not significant, differences between the two datasets because there is very little unsold waste at the wharves. Small differences between the two datasets may also be attributed to some stockpiling occurring at larger wharves (i.e. not all material extracted during a year and delivered to a wharf may be sold during that same period, or material landed in the previous year could be sold in addition to that landed in the current year).

From the data reported it is not possible to determine the exact size of these effects, nor which applies to each region.

On the above basis it would also be expected that the ONS figures for sales would also be somewhat larger than Crown Estate landings. However, this is not the case. It would appear that for most regions the AM2009 survey still has a slightly more comprehensive coverage of wharves than

the ONS survey despite the ONS utilising an annually updated list of wharves. This cannot be confirmed, however, without a comparison of those wharves included in the surveys and those actually making a return. Nevertheless, there are significant differences for some English regions.

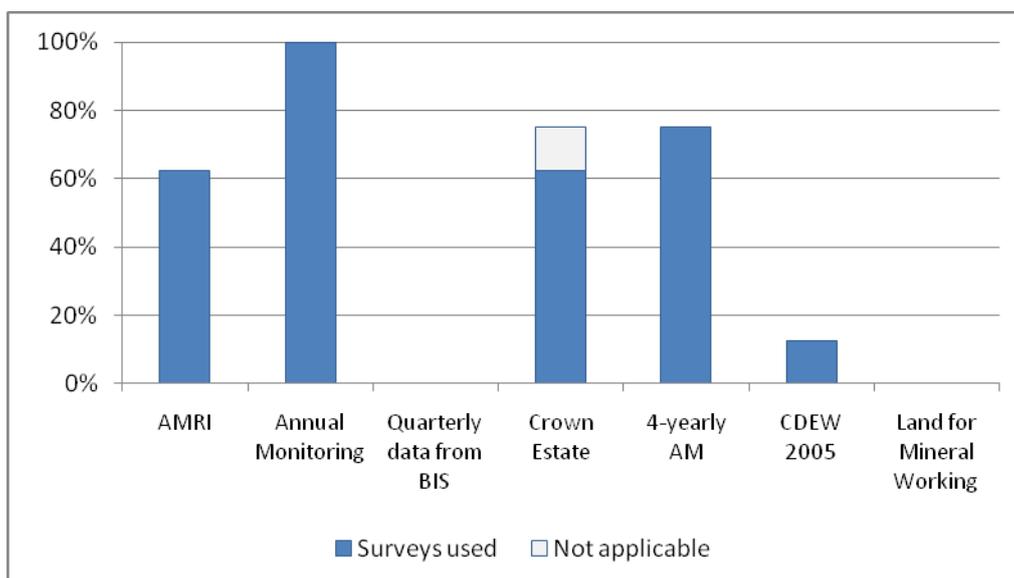
## 4 Discussion

### 4.1 USE OF CURRENT SURVEYS

As set out in the introduction, the overall reason for gathering statistical data on minerals permitted reserves, sales and use is to provide the evidence base needed to enable Government and MPAs to perform their mineral planning related duties. From the perspective of the MPAs these duties include the preparation of development plans at their local level, monitoring of landbanks, the assessment of individual planning applications and development management (control) procedures. Data are also required by the Aggregates Working Parties (AWP) in order to enable them to provide the technical assistance and advice relevant to their areas.

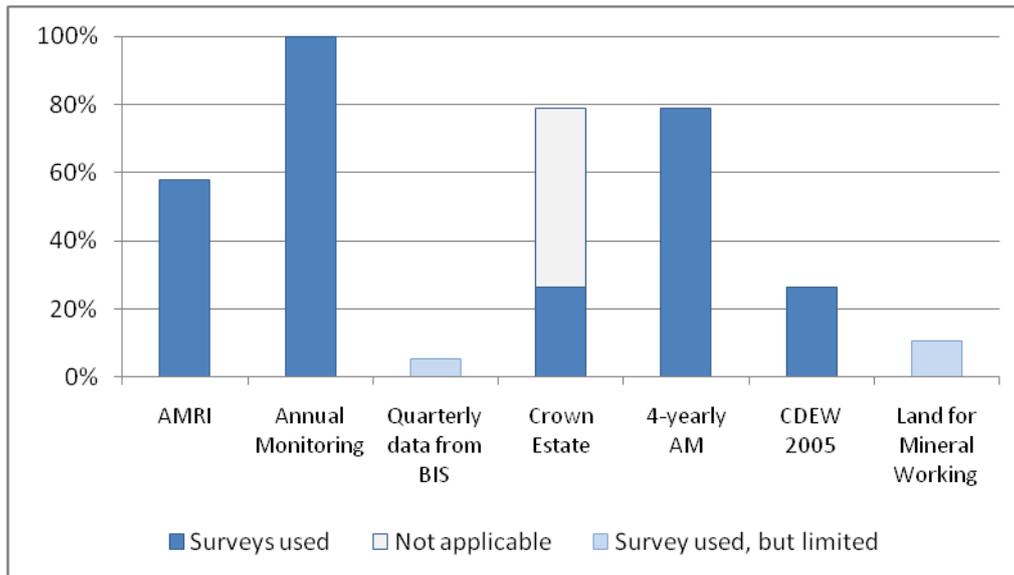
As part of this review, selected MPAs, all AWP Secretaries and representatives of the non-energy mineral extraction industries were asked to provide details of the actual surveys they use (see Appendix 3 for a list of respondents). The industry’s company representatives appear to make little use of the surveys described in this report, although it was specifically commented that the forms already completed for the AMRI are often used to provide data to the MPAs. However, the two aggregates trade associations use the AMRI, the 4-yearly AM survey and the AWP’s Annual Monitoring reports to provide an overview of the industry and this is an important use of the data.

The responses received from AWP and MPAs are shown in Figures 4 and 5. Perhaps unsurprisingly, all those who responded use the data they collect themselves as the primary source of information but a high proportion also use the 4-yearly Aggregate Minerals Survey and the AMRI data (although sometimes this was simply as a method of cross-checking the data they have received through the Annual Monitoring process). This contrasts with much lower percentages for the quarterly data published by BIS, the CDEW surveys and the Land for Mineral Working survey. With regards to the first of these, the primary reason given was that annual data is sufficient for their requirements. Although a few MPAs occasionally found the quarterly data useful if annual data was not available, others indicated that they did not previously know this data existed.



**Figure 4:** Summary of responses from Aggregate Working Parties on their use of the surveys.

Note: The box marked “not applicable” relates to areas without marine-dredged material.



**Figure 5:** Summary of responses from Mineral Planning Authorities on their use of the surveys.

Note: The box marked “not applicable” relates to areas without marine-dredged material.

For the Land for Mineral Working survey the low figure is mainly because the last survey was carried out in 2000 and it is therefore too out-of-date to still be relevant. Several MPAs commented that although at the time it did provide some limited benefit in terms of assessing the position of restoration commitments, this was far outweighed by the quantity of work involved to complete it. For several MPAs the 2000 survey was conducted before the responding individuals took up their current post (which is also interesting). Very few MPAs responded that they would like to see this survey resurrected. Where this kind of information is required, it is usually gathered locally on an informal basis.

With regards to the surveys that have been carried out into CDEW and the secondary and recycled aggregates produced from this material, almost all AWP and MPAs commented that the previous surveys were insufficient for their needs. The response rate is considered to be too low to make the results sufficiently robust. Often it is not possible to break the data down to individual MPA level which reduces the usefulness of these surveys for plan preparation.

## 4.2 REQUIREMENTS FOR ADDITIONAL DATA

### 4.2.1 Secondary and recycled aggregates

The most universal response received during this review was the need for better data on secondary and recycled aggregates, with 88 per cent of respondents identifying this as a significant data gap. The main concerns are:

- Low response rate which reduces the reliability of the national estimates;
- Lack of accurate and reliable data by individual MPA;
- The merging of MPAs which reduces the usefulness of the data for plan making;
- Inconsistencies in the limited data obtained by MPAs themselves;
- The absence of data on how much CDEW is reused on sites; and

- Lack of data on material produced by mobile recycling units.

The responses recognise that obtaining accurate data on this aspect of the aggregates market is difficult and suggest that the reasons for this might include: insufficient regulation (particularly for smaller demolition sites), insufficient understanding of the planning system by some of the recycling operators resulting in a lack of appreciation for the importance of data collection, and the construction and demolition industry have no history of co-operation with surveys. Respondents also felt that the proportion of the material reused on sites is significant and this is not captured by surveys of fixed recycling centres. The number of smaller operators within the demolition industry will always pose difficulties in the maintenance of an accurate and complete database of responders for any surveys (whether carried out nationally or locally).

It was also generally agreed that data on secondary and recycled aggregates are required on an annual basis, in a consistent format across the whole country and presented at a local level in order for it to be comparable with that obtained for primary aggregates. Some respondents indicated that it would also, ideally, be split between end-use categories because not all recycled aggregates are suitable to replace all types of primary aggregates. Others felt that the movement of secondary and recycled aggregates between MPAs was also important.

For recycled aggregates, suggestions for resolving these data collection concerns mainly surround the collection of data by the Environment Agency. However, as described in section 2.7, this would need to be improved in order to provide the level of detail requested by the MPAs. Firstly, quantities of material recycled and reused as aggregates at a demolition and construction site would need to be collected as part of the process of registering those sites for an exemption under current waste legislation. Secondly, site returns received by the EA from landfill sites, waste transfer stations or waste treatment facilities would need to have additional categories added to ensure data is collected for recycled aggregates sold which are no longer considered as “waste”. The quantities of CDEW material leaving these sites which is not ready for immediate reuse should probably not be counted as recycled aggregates because it is likely to be merely transferred to another location for further processing and as a consequence double counting would occur. There would need to be some clarification provided to operators to ensure the collected data is accurate and complete.

Once the information is captured within the EA’s system, it could theoretically be provided to each individual MPA in an amalgamated form for their specific area. Some negotiation would be required with the EA to ensure this transfer of data protects commercial confidentiality while providing the MPA with the level of detail they require. Consistency across the country would also be necessary to enable regional or national scale figures to be compiled.

The difficulties surrounding secondary aggregates are generally less significant due to the smaller number of locations where they occur (compared to CDEW). Again the EA’s permitting process could be adjusted to capture these data.

#### **4.2.2 Other mineral types**

Virtually all the MPAs that responded to this review indicated that the available data for primary aggregates are sufficient for their needs. However, although aggregates represent the largest proportion of minerals extracted in England, at a local level other minerals are very important. Many MPAs include additional survey questionnaires, or additional questions, in their annual monitoring processes to capture data relating to brick clay, building stone, industrial limestone and silica sand. In some locations the specific identification of the sales and permitted reserves of high specification aggregates may also be useful.

Whilst the publication of much of this additional data is problematical for confidentiality reasons, it is still important for the individual MPAs concerned to gather this data for their own internal purposes.

Although many of these other mineral types are included within the AMRI survey, often the data gathered is suppressed to avoid disclosing confidential details. Consideration could be given to including more of these materials within the 4-yearly Aggregate Minerals survey but similar problems surrounding publication are likely to occur. Furthermore, the AM survey was established specifically for aggregates, and feeds into the aggregates guidelines, and it is important this focus is not lost.

Collection by and at the MPA level, with the proviso that it will not be published in any form, may remain the best option.

### 4.3 CONFIDENTIALITY

One of the main problems with the collection of statistical data that includes sales and permitted reserves of minerals is the issue of commercial confidentiality. If there are only two companies operating within an MPA's area then the publication of a combined figure for the MPA would enable each company to calculate the sales and permitted reserves for their commercial rival. As a result, there has existed for some time a "three company rule" where by a figure is only published if there are three companies operating within an MPA's area (irrespective of the number of individual sites each company may be operating). There has been some relaxation of this rule in recent years but only by members of the Mineral Products Association. This has resulted in a somewhat confused picture of what can or cannot be released.

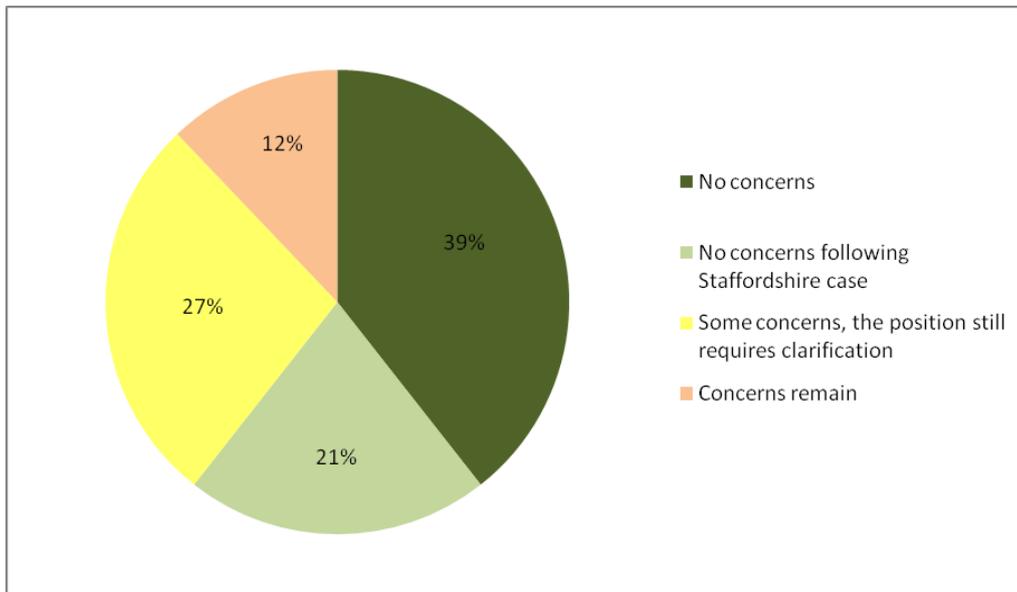
Furthermore, under the Statistics of Trade Act 1947 it is specifically illegal for the ONS, or any Government Department, to release data that could be identified to one particular business. This situation results in a great deal of the data gathered through the AMRI being suppressed within the Business Monitor PA1007, especially data by MPA, data for certain minerals (e.g. ball clay) or data for certain end uses (e.g. most of the industrial uses of limestone).

In some parts of the country, data gathered as part of the MPA's annual monitoring is stored in an anonymous form on a spreadsheet and the original survey forms are returned to the operator without copies being taken and certified to that effect. Clearly this will limit the subsequent usefulness of the data within the MPA. Confidentiality issues also mean that figures for neighbouring MPAs may have to be amalgamated together in order that a total for a broader area or region can be published. Again this reduces the usefulness of the published data for MPAs.

These confidentiality issues result in much more data being collected than can be published. They also cause additional surveys because data that has been collected for one purpose may not be available for another use, even if that subsequent use is equally as important and requires identical data.

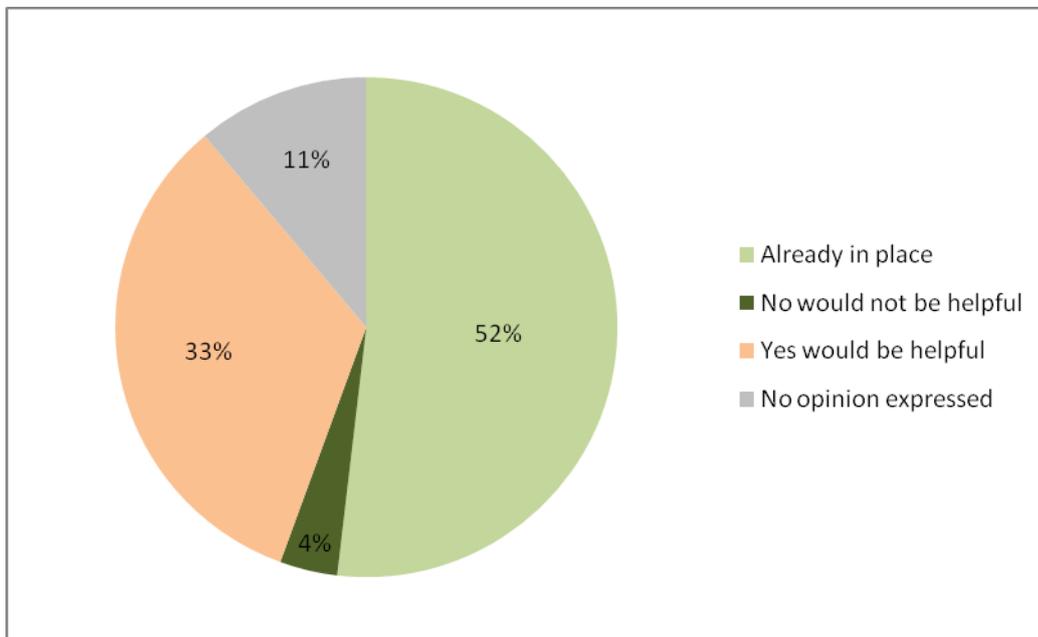
In 2010 a tribunal heard an appeal from Staffordshire County Council against a ruling from the Information Commissioner on the issue of data supplied by a company "in confidence" to the Council as MPA (Case number EA/2010/0015, Callendar-Smith, 2010). This appeal overturned a ruling by the Information Commissioner and allowed that data supplied in confidence as part of the voluntary scheme of annual monitoring could remain confidential in order to protect the trust that exists between an MPA and a Company. The Tribunal Judge and Members unanimously agreed that to release the information would be a breach of trust, which would result in less data being voluntarily supplied to the MPA in future, thus damaging a material benefit that occurs.

This case appears to strengthen the position of MPAs in collecting confidential information from companies and keeping that data confidential (whether purely for their own internal use, or amalgamating data into area or regional totals). Despite this, however, a significant proportion of the MPAs and others that provided responses to this review indicated that concerns remain, as shown in Figure 6. It may be that as the details of the above Tribunal case are more widely known and discussed more of these concerns will dissipate.



**Figure 6:** Percentages of respondents who have concerns surrounding confidentiality of the statistical data.

As part of this review the MPAs and AWP Secretaries were asked whether a set of “standard rules” to guide them on confidentiality issues was already in place or, if not, would be helpful. The results are categorised in Figure 7. Many of those who responded that rules were already in place were referring to the “three company rule”, or the slightly more complex version of this rule described above. Others were referring to the process that returned forms to operators with assurances that no copies had been kept. There is some variation between different parts of the country but at least a third of respondents felt that some clarification of the situation or a standardised set of “rules” would be helpful.



**Figure 7:** Percentages of MPAs and AWP Secretaries who feel that “standard rules” would or would not be helpful to guide them with confidentiality issues.

#### 4.4 STREAMLINING OF DATA COLLECTION

Clearly one method for streamlining, or simplifying, the collection of minerals data would be to conduct fewer surveys and combine some of the existing surveys together. However, there are a number of issues which mean this is not straightforward.

##### *AMRI and Annual Monitoring*

Although there are some clear overlaps between the data collected by MPAs as part of their annual monitoring and by the ONS in the AMRI there are important reasons for keeping these separate.

The issues of confidentiality and the statutory nature of the AMRI survey mean that the ONS cannot publish many of the data collected, which is not helpful for MPAs. Annual monitoring enables the MPAs to collect their own data, even if they cannot publish it.

The wording of the Statistics of Trade Act 1947 means that the ONS would not be able to provide the raw AMRI data to the MPAs, nor disclose confidential figures at the MPA level.

MPAs also need additional data, e.g. relating to permitted reserves, which are not currently collected in the AMRI. Although additional questions could be added to the AMRI this would increase the cost. It is not clear whether the 1947 Act would enable ONS to collect permitted reserves data.

Without the system of Annual Monitoring some of the interaction between the MPA and the industry would be lost. This would have an impact on the trust relationship which is built up over time. This relationship is very important in the functioning of the planning system more generally and should not be under-estimated.

It is not at all clear whether the ONS would be able to accept data from the MPAs rather than direct from the operators under the 1947 Act. The AMRI results would probably suffer if the survey was not statutory because the response rate would fall and consequently a greater degree of estimation would be required.

The AMRI survey covers the whole of Great Britain which is important for providing the national picture whereas the Annual Monitoring is a local process designed to assist with a very different purpose.

##### *AMRI and the 4-yearly Aggregate Minerals Survey*

Again there are clear overlaps in some of the data collected but there are distinct differences too. The AMRI includes all minerals except coal, oil and gas whereas the AM survey is primarily concerned with aggregates. However, the AM survey collects comprehensive data on consumption, permitted reserves, planning permissions, inter-regional flows and sales from environmental designations.

Furthermore, the AMRI is annual whereas the AM survey is 4-yearly. Much of the data collected in the latter are not required annually and to attempt to collect it more frequently would increase the survey burden rather than reduce it. The AM survey could be extended to include all non-aggregates minerals but this would not provide the annual data that is required and confidentiality issues would remain.

The prime purpose of the two surveys is different. AMRI is designed to provide a consistent time series of commodity data for economic and market analysis mainly by central government, but also industry and market analysts. The AM survey aims to provide comprehensive data for monitoring and facilitating aggregates provision at local, regional and national level. The output is used mainly by Government (DCLG and the Welsh Assembly Government), MPAs, industry and environmental interest groups.

### *Annual Monitoring and the 4-yearly Aggregate Minerals Survey*

To some extent these two surveys have already been combined, with AM2009 data collected by the MPAs also being used to provide the data they need for their Annual Monitoring. In theory the AM2009 collation report and the AWP 2009 reports, when they are released, should present the same data. However, in practice, slight differences will occur due to the receipt of late returns by the MPAs, after the AM survey completion date. The MPAs may also have collected additional data on non-aggregate minerals, separately from the AM2009 survey, which they may or may not be able to publish.

It would appear to make sense for this arrangement to continue whereby the MPAs collect their Annual Monitoring data each year but extend the survey every 4 years to incorporate the extra requirements for the AM survey.

There may be merit in investigating the possibility of the primary data being passed directly to the national coordinating organisation, which would then be responsible for collating all of the information. This would allow the information to undergo rigorous quality assurance, ensure a consistent approach to both data entry and the querying of possibly erroneous figures with the relevant MPA or Operator, and ensure that data is interpreted in a much more comprehensive and flexible way. Confidentiality restrictions currently preclude such an approach.

### *Marine-dredged aggregates*

The Crown Estate will continue to collect the landings of marine-dredged sand and gravel as part of their royalty return process irrespective of what else happens with mineral surveys. This is a requirement of the licensing process for these materials. However, it should be remembered that this dataset includes most but not quite all the marine-dredged material landed in Great Britain.

The necessity for the ONS to continue with their quarterly marine-dredged survey is a matter for BIS as they commission this survey for use in their monthly bulletin.

Consideration could be given to including marine-dredged sand and gravel within the AMRI survey. The number of operators involved in this practice is small and several of these are also involved in land-won aggregates extraction. The number of wharves involved is also relatively small. Care would be needed in the wording of the extra question(s) on the AMRI survey form to make sure that material imported from other parts of the UK were separated from material extracted from the seabed.

### *Northern Ireland*

Although this review was primarily looking at the collection of data for England, it is interesting that the AMRI covers England, Scotland and Wales but not Northern Ireland. We did receive a comment during this review questioning why the AMRI could not be extended to cover the whole of the UK.

Data collection in Northern Ireland is carried out under a separate piece of legislation (although the Statistics of Trade Act 1947 covers every part of the UK). The data collected is by mineral type and does not include questions relating to end use. It is not currently possible to separate building stone from aggregates, for example. It is assumed this is primarily because of the small size of the minerals industries in Northern Ireland which could result in end-use figures being more at risk of disclosing commercially confidential information (and therefore the data would be suppressed under the “three company rule”). Including Northern Ireland within the published Business Monitor PA1007 would enable the end-use categories to be totalled for the UK, instead of for Great Britain, even if the figures for Northern Ireland itself were suppressed. However, this might also result in the suppression of figures for Wales or Scotland in order to protect against the Northern Ireland figures being back calculated.

*Secondary and recycled aggregates*

All of the surveys of secondary and recycled aggregates carried out in recent years have suffered from low response rates. It has been suggested to this review that one way to resolve this might be to bring these surveys under the remit of the Statistics of Trade Act 1947 and thereby make them statutory. However, it would not make sense to include questions on secondary and recycled aggregates within the existing AMRI survey because the regularly updated list of respondents for that survey would not include 80–90 per cent of the operators producing secondary or recycled aggregates. The difficulties experienced by certain MPAs, where they have attempted to collect data relating to this activity, would also suggest that these materials cannot easily be incorporated within the Annual Monitoring nor the 4-yearly AM survey.

An alternative would be a completely new, statutory survey carried out by the ONS but clearly this would result in additional cost. However, the increase in the existing survey burden for primary aggregates operators would not be significant because it would largely survey a different section of industry.

A better alternative could be to extend the existing arrangements under waste legislation through which the Environment Agency collect data on waste materials, as described in section 4.2.1. This would need to include the collection of data from registered exempt sites (where material is generated and reused on the same site) and to capture data on materials sold by waste processing or transfer facilities as a product.

*Survey of land for mineral working*

As mentioned in previous sections, this survey was last undertaken in 2000 and appears to have been of relatively limited benefit to the MPAs. It has also been described as “resource heavy” and “time consuming” and the data collected was rapidly out-of-date. The comments received as part of this review suggest that it would not make sense to resurrect it. Where this data is required it can be, and frequently is, collected locally by MPAs.

**4.5 IMPROVING DATA COLLECTION**

Although the previous section indicates there is little scope to combine surveys, there are other ways of improving the data collection process which will also save time and reduce the burden on all parties.

**4.5.1 Standardising forms and questions**

It would clearly assist with the completion of the survey forms if the data was consistently requested in the same categories and to the same level of detail each year. Specific suggestions are therefore:

- Ask the operators to keep a copy of their completed AMRI forms and pass these forms to their MPA (with value data removed). Reserve data would need to be provided to the MPA separately, but at the same time.

OR

- Make sure that forms used by MPAs exactly match the wording of questions in the AMRI forms (or vice versa) when requesting the same type of data.

These options are already used in certain parts of the country but are not universal.

**4.5.2 Co-ordination in the timing of surveys**

Comments received from industry during this review indicate that it would be much easier for them if surveys asking for similar data arrived at the same time of year. The data compiled for AMRI can

then be used to provide information to the MPAs for their Annual Monitoring or for the 4-yearly AM survey, even if a different form is required (providing the questions are identical). This prevents the need to re-find or recalculate the data, which will have the added benefit of improving consistency between survey results. AMRI forms are dispatched in early January and therefore Annual Monitoring forms (or AM survey forms in the appropriate year) should be sent either late January or early February.

#### **4.5.3 Electronic data submission**

Modern technology could potentially speed up the process of collecting and collating minerals data through the completion of online survey forms or the submission of collated data via databases, as used for AM2009.

In 2011 the national Census included the option of logging on to a secure website and submitting data online. This suggests that the security considerations for sensitive information have been improved sufficiently for this to be a viable option. Responses received as part of this review suggest that a significant proportion of the minerals industries are likely to be able to submit their data this way. However, the paper alternative will need to remain available for those who do not have the facilities, skills or confidence in an online system.

The AM2009 survey revealed a few issues with compatibility of IT systems and the necessity of designing collation databases carefully, but these are all problems that can be resolved. For a national survey, such as the AM survey, confidentiality restrictions would have to be overcome. With regards to the MPA's Annual Monitoring process the submission would also need to be consistent across all MPAs and AWP's.

A recent review by BIS into its building materials statistics (BIS, 2010) noted that use of the ONS electronic data submission system known as SEFT (Secure Electronic File Transfer) had improved response rates for their brick data inquiry from 74 per cent to 98 per cent. Clearly this improvement would suggest that there is value in the concept of electronic submission of data and this should be investigated further, although it must be remembered that the development of such systems will initially incur additional costs.

#### **4.5.4 Central contact points for large companies**

For any operator with multiple sites, completing all the AMRI, the Annual Monitoring and AM survey forms centrally can have advantages. The person given the task can become familiar with the questions on the forms and the locations of the appropriate data within the company's in-house systems thus speeding up their completion. It would also help to improve the consistency of the data across MPA boundaries. Concerns have been expressed that in some instances the person assigned this task is "junior" and consequently inexperienced, but this potential problem also exists at individual site level and the same argument could be applied to the MPAs themselves.

Notwithstanding this risk, there may be the potential for speeding up returns from particular companies if forms are sent to a central contact point rather than individual sites because it removes the delay while site personnel forward the forms to the central location. It also avoids the risk of forms going missing en-route and eases the chasing of late returns.

Co-ordination at a national level might be necessary to make sure no sites are accidentally missed from the AMRI through confusion over whether or not they are included within a batch sent to a central contact point.

## 5 Conclusions and Recommendations

From the responses received as part of this review, it is clear that all parties recognise the need for the complete and accurate data collected through the various minerals surveys. The views received from industry suggest that they accept the outputs from the surveys are worthwhile and justify the time and cost involved in completing the forms. The time taken to complete survey forms is relatively small and yet the return of completed forms typically takes a considerable period. Some streamlining of surveys has occurred but further combination of surveys is difficult to achieve because they include different data and are carried out for different purposes. Specific recommendations for further improvements are given below.

### *Annual Minerals Raised Inquiry (AMRI)*

This survey provides important, national level, data on all minerals in Great Britain with the exception of coal, oil and gas. It is statutory which makes it compulsory for respondents to complete but this also adds restrictions to ensure commercial confidentiality is preserved. These restrictions mean that the ONS would not be able to provide the raw data to the MPAs nor, in many cases, to distribute MPA level figures. Responses to this review indicate that the forms themselves do not take long to complete but the return of completed forms can take many months. The closure date for the survey is moved depending on the percentage of returns and this delays the publication of the results.

#### **Recommendations:**

1. Publicity would be helpful amongst the industry (particularly amongst non-members of the trade associations) to emphasise the importance of the survey and of returning forms quickly.
2. Establishing central contact points for multi-site companies, where batches of the forms can be sent for completion, may enable the speedier return of forms.
3. More rigorous chasing of non-responders may also be worthwhile, including via trade associations and senior managers within companies.
4. The re-evaluation of categories used within the AMRI tables could be carried out to see if a modified structure would enable more data to be released and thus provide more of the necessary detail, whilst still preserving commercial confidentiality.
5. Continue to annually update the ONS distribution list of operating sites to ensure the AMRI distribution is comprehensive.

### *Annual Monitoring by MPAs and AWP*

This annual survey is carried out at local level, with data related to aggregates being collated and published by AWP. It is voluntary and therefore reliant on the trust relationship between MPAs and industry. As a result, the MPAs need to be confident that they do not have to supply commercially sensitive data to anyone and the industry needs to be confident that they can trust the MPAs with their data. There is significant variation in the timing of the survey and some variation in the forms used across the country, in the data that is collected and in the format and publication dates of the AWP reports. However, it provides important, local data for MPAs, including data that is considered essential for discharging their duties but which they cannot publish for confidentiality reasons. These latter data are not available to them by any other method.

#### **Recommendations:**

6. Publicity would be helpful amongst MPAs and the industry of the Staffordshire case, which would appear to support their actions on confidentiality.

7. Consideration should be given to a set of “standard rules” to guide MPAs in their handling of confidentiality issues surrounding the Annual Monitoring data. These should ideally be agreed with all sections of the industry and be consistent across the country.
8. The forms used for Annual Monitoring should be standardised across England and the descriptions used should match those on the AMRI forms, to help industry complete them quickly. Alternatively, the completed AMRI forms themselves could be provided by the industry to the MPAs (with the value of sales removed), although additional data such as permitted reserves would also need to be supplied.
9. The timing of forms being sent to the industry should be co-ordinated so they arrive at the same time or shortly after the AMRI forms, to help industry complete the forms promptly.
10. Consideration should be given to specifying minimum content requirements for AWP reports and to standardising publication dates.
11. The local collection of data on other minerals, even if they cannot be published for confidentiality reasons, should be continued.

### *Aggregate Minerals Survey*

This survey is carried out every 4 years and includes comprehensive information on the destination of sales, consumption, permitted reserves, sub-regional and inter-regional movement, and sales from environmentally designated areas. It is primarily concerned with aggregates although other minerals are surveyed where aggregates may be produced as a by-product (although the results for the other minerals are not separately identified). Whilst there is some overlap with regard to the quantity of sales data collected, the differences between AMRI and the AM survey in the other information collected and the different purposes for which the surveys are undertaken, means that combining the surveys would be difficult to achieve. Some combination has already been made with the Annual Monitoring by MPAs. Only Annual Monitoring and Aggregate Minerals Surveys collect data on inactive and dormant aggregate sites.

#### **Recommendations:**

12. The collation system that was used in 2009 should continue, as should the combination of Annual Monitoring with the 4-yearly AM survey in the appropriate years.
13. The regional differences that exist between AM2009 and AMRI should be investigated further.
14. Consideration could be given to the need for including minerals other than aggregates in the AM survey, but with due regard given to the additional workload and confidentiality issues that would be created.

### *Marine-dredged aggregates*

Data is collected by the Crown Estate half-yearly through their royalty returns, by the ONS through their statutory quarterly survey and 4-yearly through the AM survey. There are noticeable differences in the results obtained and these are likely to be caused by a combination of factors including: the conversion density used by the Crown Estate is an average whereas the actual density will vary according to the precise mixture of sand and gravel landed; the Crown Estate figures do not include material dredged outside of their jurisdiction; stockpiling and processing at wharves (because the Crown Estate report “landings” while other surveys record “sales”); non-returns of survey forms and methods of estimation; and differences in the lists of wharves used.

#### **Recommendations:**

15. A more detailed investigation of the regional differences in the result data should be carried out by examining detailed list of wharves covered in each survey.

16. Consideration could be given to adding marine-dredged sand and gravel to the AMRI survey.

*Secondary and recycled aggregates*

Previous surveys carried out were not satisfactory due to low response rates and were insufficient for the needs of the MPAs due to the level of detail that could be achieved. They were reliant on voluntary surveys and encountered difficulties in developing an accurate and complete list of respondents. It seems clear that voluntary surveys do not work for this sector (for various reasons) and therefore that consideration should be given to obliging participation.

Previous attempts to use data collected by the Environment Agency revealed the complicated nature of the flows of CDEW but the material sold at various facilities as a “product” may not be captured if it is no longer considered to be “waste”. Sites which are exempt from the waste permitting system have to register their exemption but do not have to supply details of quantities involved. Importantly, this includes demolition sites where material is crushed into recycled aggregates and reused on the same site.

Data on the sale of secondary and recycled aggregates are essential because they reduce the quantity of primary aggregates required. More than 80 per cent of the people who responded to this review indicated that accurate and reliable data on secondary and recycled aggregates was currently a significant “data gap”.

**Recommendations:**

17. Representation should be made to the Environment Agency to improve data collection through their permitting system such that:
- a. quantities of CDEW material sold as a recycled aggregate product are captured;
  - b. quantities of other wastes, e.g. from power station ash, which are sold as secondary aggregates are captured; and
  - c. quantities of material which are crushed and reused at registered exempt sites instead of primary aggregates are also collected.

*Survey of Land for Mineral Working*

This survey was last conducted in 2000 and whilst the data collected had some use at the time it quickly became out of date. The collection of the data was very time consuming and “resource heavy” for the MPAs and this significantly outweighed the usefulness of the results.

**Recommendations:**

18. This survey should not be resurrected on a national scale.
19. Where the data is needed locally it should be collected by the MPAs.

*General points that relate to all surveys*

The process of collecting and collating minerals data could be speeded up through the completion of online survey forms. Responses to this review indicate that most organisations within the minerals industries would have the facilities for electronic submission of their data, although the paper alternative would still need to be available for others.

**Recommendations:**

20. Investigate further the issues surrounding the electronic submission of data through online surveys or collation databases, although recognising that a paper option would still be needed.

# Appendix 1

## *Statistics of Trade Act 1947*

In order to obtain information to understand economic trends, to provide a statistical service to industry and for government departments to discharge their functions, the Chancellor of the Exchequer is one competent authority<sup>1</sup> who may write to a person carrying on an undertaking, requiring details of:

- “the nature of the undertaking (including its association with other undertakings) and the date of its acquisition;
- the persons employed or normally employed (including working proprietors), the nature of their employment, their remuneration and the hours worked;
- the output, sales, deliveries, and services provided;
- the articles acquired or used, orders, stocks and work in progress; the outgoings and costs (including work given out to contractors, depreciation, rent, rates and taxes, other than taxes on profits) and capital expenditure;
- the receipts of and debts owed to the undertaking;
- the power used or generated;
- the fixed capital assets, the plant, including the acquisition and disposal of those assets and that plant, and the premises occupied.” (Schedule to the Statistics of Trade Act 1947)

Consequences of withholding information that is required under the Act can include fines and even imprisonment if a person knowingly or recklessly makes any false statements in estimates or returns. Under the Act, no individual estimates or returns can be disclosed except in specified circumstances, which include when a Minister in charge of the Department directs the release of the information.

## *ONS, the Statistics of Trade Act 1947 and the Statistics and Registration Service Act 2007*

The Office for National Statistics (ONS) was established as an Executive Agency in 1996. The ‘Carltona principle’, which allows a civil servant to carry out the duties of a Secretary of State, was exercised in order for the Director of ONS to exercise statutory functions on behalf of the Chancellor. As it was a department of the Chancellor, The Chancellor of the Exchequer was accountable to Parliament for all the activities of the Office (except those for which the Registrar General was accountable elsewhere). The Chancellor was also responsible for the resources allocated to it, but would not normally become involved in the day-to-day management of the Office.

In 2007, the Statistics and Registration Service Act was introduced. Under the Act the Office for National Statistics ceased to exist as a separate entity, instead becoming the executive office of the new UK Statistics Authority. The name of the office has been retained by the Authority, whose responsibilities now include producing statistics, providing statistical services and promoting statistical research. The functions carried out on behalf of the Chancellor by the Office for National Statistics have been delegated by Order<sup>2</sup> to the Statistics Board; consequently the Board of the Authority report directly to Parliament.

---

<sup>1</sup> As introduced by The Transfer of Functions (Economic Statistics) Order 1989

<sup>2</sup> The Statistics and Registration Service Act 2007 (Delegation of Functions) (Economic Statistics) Order 2008

## Appendix 2

Comparison of Aggregate Minerals Surveys and the Annual Minerals Raised Inquiry (PA1007) for 2009, 2005 and 2001. For crushed rock, the Aggregate Minerals Surveys also collect data on the minor quantity of chalk and ironstone used for aggregates. To aid comparison, data for these minerals have been excluded.

2009										Thousand tonnes
Region	Total sand and gravel			Crushed rock			Total primary aggregate			
	AM2009	PA1007	Difference	AM2009	PA1007	Difference	AM2009	PA1007	Difference	
South West	3 638	4 677	-1 039	17 206	18 218	-1 012	20 844	22 895	-2 051	
South East	10 992	9 345	1 647	1 111	1 085	26	12 286	10 430	1 856	
Greater London	4 239	3 866	373	0	0	0	4 239	3 866	373	
East of England	9 989	9 980	9	286	na	na	10 278	na	na	
East Midlands	5 501	5 798	-297	21 421	21 575	-154	26 922	27 373	-451	
West Midlands	5 860	6 397	-537	2 639	2 808	-169	8 500	9 205	-705	
North West	2 276	2 121	155	5 897	5 629	268	8 174	7 750	424	
Yorkshire & the Humber	3 122	3 235	-113	7 166	6 868	298	10 362	10 103	259	
North East	1 321	1 110	211	3 328	3 194	134	4 649	4 304	345	
<b>England</b>	<b>46 938</b>	<b>46 529</b>	<b>409</b>	<b>59 096</b>	<b>59 666</b>	<b>-570</b>	<b>106 253</b>	<b>106 195</b>	<b>58</b>	
South Wales	757	-	-	8 185	-	-	8 942	-	-	
North Wales	621	-	-	3 245	-	-	3 866	-	-	
<b>Wales</b>	<b>1 378</b>	<b>1 668</b>	<b>-290</b>	<b>11 430</b>	<b>10 542</b>	<b>888</b>	<b>12 808</b>	<b>12 210</b>	<b>598</b>	
<b>England and Wales</b>	<b>48 317</b>	<b>48 197</b>	<b>120</b>	<b>70 526</b>	<b>70 208</b>	<b>318</b>	<b>119 061</b>	<b>118 405</b>	<b>656</b>	

2005										Thousand tonnes
Region	Total sand and gravel			Crushed rock			Total primary aggregate			
	AM2005	PA1007	Difference	AM2009	PA1007	Difference	AM2005	PA1007	Difference	
South West	5 264	6 934	-1 670	22 238	23 180	-942	27 501	30 114	-2 613	
South East	15 526	15 347	179	1 058	1 090	-32	16 763	16 437	326	
Greater London	5 073	4 015	1 058	0	0	0	5 073	4 015	1 058	
East of England	13 875	15 561	-1 686	486	238	248	14 361	15 799	-1 438	
East Midlands	10 014	9 235	779	28 691	27 468	1 223	38 807	36 703	2 104	
West Midlands	9 105	9 250	-145	4 516	4 416	100	13 261	13 666	-405	
North West	3 770	3 674	96	8 644	7 993	651	12 413	11 667	746	
Yorkshire & the Humber	4 695	5 248	-553	11 574	10 875	699	16 659	16 123	536	
North East	2 500	1 575	925	5 657	5 333	324	8 157	6 908	1 249	
<b>England</b>	<b>69 821</b>	<b>70 838</b>	<b>-1 017</b>	<b>82 862</b>	<b>80 593</b>	<b>2 269</b>	<b>153 356</b>	<b>151 431</b>	<b>1 925</b>	
South Wales	1 542	-	-	10 873	-	-	12 416	-	-	
North Wales	1 237	-	-	5 663	-	-	6 899	-	-	
<b>Wales</b>	<b>2 779</b>	<b>2 746</b>	<b>33</b>	<b>16 536</b>	<b>16 535</b>	<b>1</b>	<b>19 315</b>	<b>19 281</b>	<b>34</b>	
<b>England and Wales</b>	<b>72 599</b>	<b>73 584</b>	<b>-985</b>	<b>99 398</b>	<b>97 128</b>	<b>2 270</b>	<b>172 671</b>	<b>170 712</b>	<b>1 959</b>	

2001

Thousand tonnes

Region	Total sand and gravel			Crushed rock			Total primary aggregate		
	AM2001	PA1007	Difference	AM2001	PA1007	Difference	AM2009	PA1007	Difference
South West	5 791	7 126	-1 335	26 518	28 067	-1 549	32 309	35 193	-2 884
South East	19 669	18 603	1 066	1 904	1 984	-80	22 067	20 587	1 480
Greater London	4 562	3 401	1 161	0	0	0	4 562	3 401	1 161
East of England	16 412	15 694	718	655	452	203	17 066	16 146	920
East Midlands	10 046	9 716	330	30 884	30 780	104	41 300	40 496	804
West Midlands	9 932	9 894	38	5 497	5 688	-191	15 429	15 582	-153
North West	3 544	3 402	142	10 034	9 601	433	13 578	13 003	575
Yorkshire & the Humber	5 211	5 171	40	12 260	11 718	542	17 913	16 889	1 024
North East	2 162	1 566	596	6 596	6 338	258	8 758	7 904	854
<b>England</b>	<b>77 328</b>	<b>74 572</b>	<b>2 756</b>	<b>94 282</b>	<b>94 630</b>	<b>-348</b>	<b>172 981</b>	<b>169 202</b>	<b>3 779</b>
South Wales	1 289		-	10 021		-	11 310	-	-
North Wales	1 387		-	7 198		-	8 585	-	-
<b>Wales</b>	<b>2 676</b>	<b>2 886</b>	<b>-210</b>	<b>17 219</b>	<b>17 765</b>	<b>-546</b>	<b>19 895</b>	<b>20 651</b>	<b>-756</b>
<b>England and Wales</b>	<b>80 004</b>	<b>77 457</b>	<b>2 547</b>	<b>111 501</b>	<b>112 395</b>	<b>-894</b>	<b>192 876</b>	<b>189 852</b>	<b>3 024</b>

## Appendix 3

Respondents who assisted with this Review:

<b>Category</b>	<b>Organisation</b>	<b>Name</b>
ONS	Office for National Statistics	Rachel Phillips / Kim Craig
Crown Estate	Crown Estate / Haskoning UK Ltd	Stuart Gibson
Northern Ireland	Dept of Enterprise Trade & Investment (NI)	Dawn Montgomery
EA	Environment Agency	Anna Goss
Industry	British Aggregates Association	Peter Huxtable
Industry	Mineral Products Association	Jerry McLaughlin
Industry	Aggregate Industries	Hugh Lucas
Industry	Tarmac	Alan Everard
AWP	East of England	Jonathan Quilter
AWP	East Midlands	Ian Thomas
AWP	North East	Kevin Tipple
AWP	North West	Anne Mosquera
AWP	London and the South East of England	Chris Waite
AWP	South West	Philip Hale
AWP	West Midlands	Jasbir Kaur
AWP	Yorkshire & Humber	Dave Parrish
POS	Planning Officers Society	Peter Day / Richard Read / Paul Wilcox
MPA	Bradford Metropolitan District Council	Michael Eaglestone
MPA	Cheshire West and Chester Council	Natalie Durney-Knight
MPA	Derbyshire County Council	Richard Stansfield
MPA	Devon County Council	Andy Hill
MPA	Dorset County Council	Trevor Badley / John Bennett
MPA	East Sussex County Council	Kirsten Williamson
MPA	Essex County Council	Jonathan Quilter
MPA	Gloucestershire County Council	Lorraine Brooks
MPA	Greater Manchester Unitary Authorities	Mike Halsall
MPA	Hampshire County Council	Paul Prowting
MPA	Leicestershire County Council	Nigel Hunt
MPA	Lincolnshire County Council	Felicity Webber
MPA	Medway Council	Bryan Geake
MPA	Norfolk Council	Steven Halls
MPA	Peak District National Park Authority	David Bent / Karen Beresford
MPA	Shropshire County Council	Kelvin Hall
MPA	Somerset County Council	Ben Miller
MPA	Suffolk County Council	Simon Bailey
MPA	Surrey County Council	David Maxwell
MPA	Warwickshire County Council	Tony Lyons
MPA	Worcestershire County Council	Pete Durrans / Steven Aldridge

## References

- BRITISH GEOLOGICAL SURVEY. 2010. Opencast Coal Statistics 2009. Available online at: <http://www.bgs.ac.uk/mineralsuk/mines/coal/occ/home.html>
- CALLENDAR SMITH, R. 2010. In the First-tier Tribunal, General Regulatory Chamber, Information Rights – Case Number: EA/2010/0015. Staffordshire County Council vs Information Commissioner. Available online at: [http://www.informationtribunal.gov.uk/DBFiles/Decision/i470/EA.2010.0015;%20Decision;%202022.11.2010%20\(w\).pdf](http://www.informationtribunal.gov.uk/DBFiles/Decision/i470/EA.2010.0015;%20Decision;%202022.11.2010%20(w).pdf)
- CAPITA SYMONDS LTD. 2004. Survey of Construction, Demolition & Excavation Waste and its Use as Aggregate in Scotland. Published by the Waste and Resources Action Programme (Banbury, Oxfordshire)
- CAPITA SYMONDS LTD. 2006. Survey of Arisings and Use of Construction, Demolition and Excavation Waste as Aggregate in Northern Ireland in 2004/05 & 2005/06. Available at: [http://www.doeni.gov.uk/niea/finalcombinedcdewsurveyreport04\\_05\\_06.pdf](http://www.doeni.gov.uk/niea/finalcombinedcdewsurveyreport04_05_06.pdf)
- CAPITA SYMONDS LTD. 2007a. Survey of Arisings and Use of Alternatives to Primary Aggregates in England. Construction and Demolition Waste. Available online at: <http://www.communities.gov.uk/planningandbuilding/planningbuilding/planningresearch/researchreports/mineralswasteresearch/constructionwastesurveys/>
- CAPITA SYMONDS LTD. 2007b. Survey of Arisings and Use of Alternatives to Primary Aggregates in England. Other materials. Available online at: <http://www.communities.gov.uk/planningandbuilding/planningbuilding/planningresearch/researchreports/mineralswasteresearch/constructionwastesurveys/>
- CAPITA SYMONDS LTD. 2010. Construction, Demolition & Excavation Waste Arisings, Use and Disposal in England 2008. Published by the Waste and Resources Action Programme (Banbury, Oxfordshire)
- COAL AUTHORITY, THE. 2011. Production and Manpower Returns for the 12 month period January 2010 to December 2010. Available online at: <http://www.coal.gov.uk/publications/miningtechnology/index.cfm>
- CROWN ESTATE, THE. 2009. Marine Aggregate Dredging 2008. The Area Involved – 11<sup>th</sup> Annual Report. Available online at: [http://www.thecrownestate.co.uk/marine\\_aggregates](http://www.thecrownestate.co.uk/marine_aggregates)
- CROWN ESTATE, THE. 2010. Marine Aggregates, The Crown Estate Licences, Summary of Statistics 2009. Available online at: [http://www.thecrownestate.co.uk/dredge\\_areas\\_statistics](http://www.thecrownestate.co.uk/dredge_areas_statistics)
- DEPARTMENT FOR BUSINESS INNOVATION AND SKILLS (BIS). 2010. Review of Building Materials Statistics. Available online at: <http://stats.berr.gov.uk/construction/building/>
- DEPARTMENT FOR BUSINESS INNOVATION AND SKILLS (BIS). 2011. Monthly Statistics of Building Materials and Components. Available online at: <http://stats.berr.gov.uk/construction/building/>
- DEPARTMENT FOR COMMUNITIES AND LOCAL GOVERNMENT (DCLG). 2002. Survey of Land for Mineral Workings in England 2000: Volume 1 – Report on Survey Results. Available online at: <http://www.communities.gov.uk/archived/publications/planningandbuilding/surveyland>
- DEPARTMENT FOR COMMUNITIES AND LOCAL GOVERNMENT (DCLG). 2006. Minerals Policy Statement 1: Planning and Minerals. Available online at: <http://www.communities.gov.uk/planningandbuilding/planningsystem/planningpolicy/mineralpolicystatements/>
- DEPARTMENT FOR COMMUNITIES AND LOCAL GOVERNMENT (DCLG). 2008. Planning Policy Statement 12: Local Spatial Planning. Available online at: <http://www.communities.gov.uk/publications/planningandbuilding/pps12lsp>
- DEPARTMENT OF ENERGY AND CLIMATE CHANGE (DECC). 2011. Digest of UK Energy Statistics. Available online at: <http://www.decc.gov.uk/en/content/cms/statistics/publications/dukes/dukes.aspx>
- FABER MAUNSELL. 2007. Survey of Arisings and Use of Aggregates from Construction and Demolition Waste, Excavation Waste, Quarry Waste and Dredging Waste in Wales in 2005. Executive Summary only available online at: <http://wales.gov.uk/topics/planning/planningresearch/publishedresearch/1847106/?lang=en>
- GUNN, A.G., BATE, R., JACKSON, N.C., WARD, J., MARKER, B.R., BROWN, T.J. AND HIGHLEY, D.E. 2008. Managing Aggregates Supply in England, A Review of the current system and future options. British Geological Survey, Commissioned Report OR/08/042. 104 p. Available online at: <http://www.bgs.ac.uk/mineralsuk/planning/construction.html>
- MANKELOW, J. M., SEN, M. A., WRIGHTON C. E., AND IDOINE, N. 2011. Collation of the results of the 2009 Aggregate Minerals Survey for England and Wales. British Geological Survey, Commissioned Report OR/11/002. 155 p.
- MINERAL PRODUCTS ASSOCIATION. 2010. Building on progress ... facing the future. Summary Sustainable Development Report 2010. Available online at: <http://www.mineralproducts.org/sustainability/>
- OFFICE FOR NATIONAL STATISTICS (ONS). 2010. Mineral Extraction in Great Britain, Business Monitor PA1007. Crown Copyright. Available online at: <http://www.communities.gov.uk/planningandbuilding/planningbuilding/planningresearch/researchreports/mineralswasteresearch/annualmineralsraised/>

OFFICE FOR NATIONAL STATISTICS (ONS). 2011. Products Sales and Trade, Intermediate Final Estimates 2009. Division 8 “Other Mining and Quarrying”. Products of the European Community. Available online at: <http://www.statistics.gov.uk/statbase/Product.asp?vlnk=15281>

SCOTTISH EXECUTIVE. 2007. Scottish Aggregates Survey 2005. Crown Copyright. Available online at: <http://www.scotland.gov.uk/Publications/2007/11/26104244/0>

### **Annual Monitoring Reports from the Aggregates Working Parties in England**

EAST MIDLANDS AGGREGATES WORKING PARTY. 2009. Survey and Annual report for Calendar Year 2008. Available online at: <http://www.communities.gov.uk/publications/planningandbuilding/emrawp2008>

EAST OF ENGLAND REGIONAL AGGREGATES WORKING PARTY. 2009. Annual Monitoring Report 2008. Available online at: <http://www.communities.gov.uk/publications/planningandbuilding/eerawp2008>

LONDON AGGREGATES WORKING PARTY. 2010. London Aggregates Monitoring 2008. Available online at: <http://www.london.gov.uk/priorities/planning/london-aggregates-working-party>

NORTH EAST REGION AGGREGATES WORKING PARTY. 2011. Annual Aggregates Monitoring Report 2008. Available online at: <http://www.communities.gov.uk/planningandbuilding/planningbuilding/planningresearch/researchreports/mineralswastere search/aggregateworkingparties/awpannualreports/northeastawp/>

NORTH WEST REGIONAL AGGREGATES WORKING PARTY. 2011. Annual Monitoring Report 2009 (incorporating 2008 statistics). Available online at: <http://www.communities.gov.uk/planningandbuilding/planningbuilding/planningresearch/researchreports/mineralswastere search/aggregateworkingparties/awpannualreports/northwestawp/>

SOUTH EAST ENGLAND PARTNERSHIP BOARD. 2009. Aggregates Monitoring Report 2008. Available online at: <http://www.communities.gov.uk/publications/planningandbuilding/semonitoringreport2008>

SOUTH WEST REGIONAL AGGREGATES WORKING PARTY. 2010. Annual Report 2008. Available online at: <http://www.communities.gov.uk/planningandbuilding/planningbuilding/planningresearch/researchreports/mineralswastere search/aggregateworkingparties/awpannualreports/southwestawp/>

WEST MIDLANDS REGIONAL AGGREGATES WORKING PARTY. 2010. Annual Report 2008. Available online at: <http://www.communities.gov.uk/planningandbuilding/planningbuilding/planningresearch/researchreports/mineralswastere search/aggregateworkingparties/awpannualreports/westmidlandsawp/>

YORKSHIRE AND HUMBER REGION AGGREGATES WORKING PARTY. 2009. Annual Report 2008 Aggregates Monitoring 2008. Available online at: <http://www.communities.gov.uk/publications/planningandbuilding/yhannualreport2008>