



Strength from the depths

Fifth sustainable development report for the
British marine aggregate industry

January 2012

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Sustainable development

This report charts the progress of the sustainability programme that we initiated five years ago. The challenge we have set ourselves is to maintain our sector's important contribution to the UK economy and to a strong, healthy and just society while living within environmental limits that do not compromise the quality of life of future generations. We believe we can do that through good governance and the application of sound science.





Headlines

2010 production dropped by over 20% as a result of a reduction in one-off contract fill/beach nourishment

Total UK marine aggregate production decreased from 20.10mt to 15.95mt

Total tonnage landed in England and Wales reduced from 10.03mt to 9.94mt

Operational fleet capacity reduced by 8,800 tonnes with four vessels laid up or working part-time

Area of seabed licensed for dredging increased from 1,286km² to 1,291km²

Area of seabed dredged decreased from 123.63km² to 105.37km²

Total CO₂ emissions reduced by 5.9%

BMAPA launched a new Biodiversity Action Plan for the industry

Regional Environmental Assessments continued to be developed in four regions in support of licence renewals

Key facts and figures

Key areas

	2010	% change	2009	2008	2007	2006
Area of UK seabed	867,000km ²		867,000km ²	867,000km ²	867,000km ²	867,000km ²
Area of seabed licensed for dredging	1,291km ²	+3.9%	1,286km ²	1,278km ²	1,343.83km ²	1,316.33km ²
Area available to be worked	552km ²	+3%	536km ²	570.31km ²	556.03km ²	576.10km ²
Area dredged	105.37km ²	-14.5%	123.63km ²	137.9km ²	134.67km ²	140.6km ²

Market summary*

	2010	% change	2009	2008	2007	2006
Total GB aggregates market	206mt	+1%	203mt	256mt	280mt	277mt
Land-based aggregates	148m	+1%	147mt	187mt	195mt	193mt
Recycled and secondary aggregates	58mt	+1.8%	57mt	69mt	70mt	70mt
Total marine aggregates production	15.95mt	-20.6%	20.10mt	21.24mt	23.20mt	24.29mt
Marine landings to GB aggregates market	9.94mt	-0.9%	10.03mt	13.12mt	14.45mt	13.43mt
Marine landings to European aggregates market	5.19mt	-8.3%	5.66mt	6.21mt	6.65mt	6.71mt
Beach replenishment contract fill	0.86mt	-80.9%	4.50mt	2.21mt	2.10mt	4.15mt

Market contribution to GB sand and gravel market

	2010	% change	2009	2008	2007	2006
Total GB market	55mt	0%	55mt	72mt	79mt	80mt
Total England & Wales market	47mt	-4%	49mt	64mt	73mt	73.6mt
Marine landings to England & Wales	9.94mt	-0.9%	10.03mt	13.12mt	14.45mt	13.43mt
Marine landings to South East England	7.81mt	-2%	7.97mt	9.61mt	10.56mt	9.60mt
Marine landings to London & Thames Corridor	5.38mt	-8%	5.85mt	7.18mt	7.36mt	6.71mt
Marine landings to Wales	0.61mt	-6.2%	0.65mt	0.9mt	1.12mt	0.99mt

* Incorporates updated statistics from ONS





Foreword

Welcome to our fifth annual report, which comes to you at a time when the economic downturn continues to be felt across the wider construction industry.

An overall fall in marine production of over 20% reflects an absence of one-off contract fill projects during 2010. Given that such production is often undertaken by third party contract dredgers, the impact on many of the sector's key performance indicators has been negligible.

The diverse range of markets we supply remains one of our key strengths and the linkages with wider policies relating to climate change adaptation, security of energy supply and transport infrastructure, have been recognised in the UK Marine Policy Statement which was published in March 2011. Significantly, the need to consider safeguarding areas of future offshore mineral resource has been suggested for the first time.

The process of marine planning in English waters is now well underway, with the Marine Management Organisation formally starting work on the first marine plan areas in the Southern North Sea during 2011. These areas contain around 60% of the UK marine aggregate sector's production capacity along with significant areas of future potential resource. The marine planning process provides an opportunity to ensure that marine aggregate interests are properly accounted for in the long term at a regional sea scale.

The regional sea perspective is also vitally important for the ongoing process of developing a network of Marine Protected Areas. Through BMAPA, marine aggregate operators have played a full and active part in these processes, often providing survey information that represents the best available evidence. We have this year further bolstered the process by producing a Biodiversity Action Plan (BAP) strategy. With input and support from Natural England and the Countryside Council for Wales, the strategy aims not just to protect and enhance marine biodiversity, but to put in place a structure to ensure that issues are dealt with robustly and consistently.

Finally, (and most importantly) protecting the health and safety of those who work for us directly and indirectly remains our top priority. Our ultimate aim will always be "zero harm" to our workforce. BMAPA members have contributed to a number of initiatives over the year, with experiences shared and lessons

learned through the circulation of "Safety Alerts". We have also developed specific safety measures to cover major works, dry-docking and refits of vessels.

I hope you find this report interesting and informative. We will welcome your comments and suggestions for the future.

Kevin Seaman, Chairman, British Marine Aggregate Producers Association

... protecting the health and safety of those who work for us directly and indirectly remains our top priority. Our ultimate aim will always be "zero harm" to our workforce.



Kevin Seaman, *Chairman*, British Marine Aggregate Producers Association

The ability to respond to one-off demand relating to beach nourishment and contract fill in support of national infrastructure remains one of our key strengths.

Sustainable production

Core values

Sustainable products: we understand our role in sustainable construction and actively promote the most efficient use of our products

Resource conservation: we recognise that we must make the most efficient use of all resources

OBJECTIVE 1

Maintain and improve profitability in order to provide for continuing investment and employment

Key performance indicator: Annual marine production

Total marine aggregate production from UK licence areas during 2010

	2010	% change	2009	2008	2007	2006
Total (Crown Estate figures)	15.95mt	-20.6%	20.10mt	21.54mt	23.20mt	24.29mt
BMAPA reported production ¹	13.86mt	-7.2%	14.94mt	19.75mt	20.64mt	20.29mt

Key performance indicator: National/regional contribution to supply

	2010	% change	2009	2008	2007	2006
Landings to England & Wales	9.94mt	-1%	10.03mt	13.12mt	14.45mt	13.43mt
Landings to South East England	7.81mt	-2%	7.97mt	7.18mt	7.35mt	6.71mt
Landings to Wales	0.61mt	-6.2%	0.65mt	0.90mt	1.12mt	0.99mt
Beach replenishment/fill	0.86mt	-80.9%	4.49mt	2.21mt	2.10mt	4.15mt
Exports	5.19mt	-8.3%	5.66mt	6.21mt	6.65mt	6.71mt

Total marine aggregate production dropped by just over 20% against 2009, as a result of the significant reduction in one-off contract fill/beach nourishment tonnage. Construction aggregate demand remained relatively flat compared to 2009, although the export market reduced by just over 8% in response to the wider economic downturn.

BMAPA reported production remained relatively stable. This stability, coupled with the reduction in overall marine production, meant that the direct BMAPA contribution increased to 87% of total production in 2010 (74% in 2009).

OBJECTIVE 2

Maintain and increase investment in dredgers and dredging technology in order to improve efficiency and environmental performance

Key performance indicator: Profile of age/capability of dredging fleet

	2010	2009	2008	2007	2006
Average age of dredging fleet	21.39 years	20.39 years	20 years	19.68 years	18.68 years

23 vessels operated by members at the end of 2010.

With the continuing reduced demand for construction aggregate throughout 2010, the production capacity of the dredger fleet remained limited during the year with a number of vessels either laid up or only working part time. Four vessels were affected in this way during 2010 (two stopped and two reduced to part-time working), with a fifth vessel re-entering service in the second half of the year. By the end of 2010, the operational fleet capacity was reduced by 8,800 tonnes – a reduction of 8.45% total capacity.

Key performance indicator: investment in vessels/technology over previous five years¹

2010 cap-ex investment in vessels (not including maintenance):

2010	% change	2009	2008	2007	2006
£4.16m	-1%	£4.20m	£9.90m	£3.67m	£2.49m

Rolling investment over previous five years

2010	% change	2009	2008	2007	2006
£24.83m	-1.6%	£25.24m	£29.44m	£24.67m	£54.35m

¹ Based on reported data from 22 out of 23 vessels operated by BMAPA members in UK waters.



OBJECTIVE 3

Key performance indicator: Area dredged and hours dredged

Make the most efficient use of available licensed resources

	2010	% change	2009	2008	2007	2006
Area of seabed licensed for dredging	1,291km ²	+3.9%	1,286km ²	1,278km ²	1,343.83km ²	1,316.33km ²
Area available to be worked	552km ²	+3%	536km ²	570.31km ²	556.03km ²	576.10km ²
Area dredged	105.37km ²	-14.5%	123.63km ²	137.90km ²	134.67km ²	140.6km ²
Hours dredged ¹	16,646 hrs	-6.4%	17,778 hrs	22,985 hrs	26,340 hrs	28,686 hrs ¹

OBJECTIVE 4

Key performance indicator: Tonnes landed per hour dredged¹

Minimise the screening activity in the production process

	2010	% change	2009	2008	2007	2006
Marine aggregate production	13.86mt	-7.2%	14.93mt	19.75mt	20.64mt	20.29mt
Hours dredged	16,646 hrs	-6.4%	17,778 hrs	22,985 hrs	26,340 hrs	28,686 hrs
Tonnes landed/hour dredged	832.4tph	-0.9%	840.14tph	859.12tph	783.57tph	707.41tph

The slight reduction in hours dredged (-6.4%) closely correlates with the equivalent reduction in overall production (-7%), which suggests that the overall level of screening activity has remained constant. As a consequence, the metric for tonnes landed per hour dredged has remained comparatively stable, decreasing by only 0.9%.

OBJECTIVE 5

Marine Aggregate Regional Environmental Assessment

Develop and promote best practice for resource management

Marine Aggregate Regional Environmental Assessments (MAREA's) continue to be developed by the industry in four regions (South Coast, Thames, East Coast and Humber) in support of a programme to renew a large number of existing production licence areas by the end of 2013/14. The MAREA's, which have been instigated and led by the industry with support from The Crown Estate, will provide regional-scale context to marine aggregate operations, reviewing potential cumulative and in-combination impacts and identifying areas of potential sensitivity. The outputs of the MAREA process will help to inform the site-specific environmental impact process that will be required to inform decisions over licence renewals. The first MAREA (for the Outer Thames Estuary region) was completed in 2011, and the remaining three regional studies are expected to be completed during 2012.

Third party & contract vessel protocol

Dredging operations on production licence areas are subject to stringent control through both the marine licence issued by the Marine Management Organisation /Welsh Government, and the production agreement issued by the mineral owner, The Crown Estate.

A protocol has been prepared by BMAPA and The Crown Estate to help guide employees of marine aggregate companies and third party vessel crews on best practice in the management of dredging operations involving third party dredgers and contract vessels that may take place on aggregate company licence areas from time to time, for example when supporting beach nourishment or contract fill projects.

¹ Based on reported data from 22 out of 23 vessels operated by BMAPA members in UK waters.

Climate change and energy

Core values

Adaptation: we recognise the need to support future coastal and flood defence schemes through the provision of suitable resources to support local, regional and national beach replenishment requirements.

Carbon management: we support the Government policy of reducing emissions of greenhouse gases

Transport: we are committed to reducing the impact of the transportation of aggregates and quarry products

OBJECTIVE 1

Reduce the impact of atmospheric emissions released through the production and transport processes

Key performance indicator: Fuel oil consumed per tonne landed¹

Total fuel oil consumed during 2009, broken down by vessel capacity:

	2010	% change	2009	2008	2007	2006
Total marine gas oil	35,630t	-5.9%	37,873t	42,206t	49,262.3t	49,593.6t
Marine aggregate production	13.86mt	-7.2%	14.94mt	19.75mt	20.64mt	20.29mt
Marine gas oil per tonne landed	2.57kg/t	+1.34%	2.54kg/t	2.14kg/t	2.39kg/t	2.44kg/t

Key performance indicator: CO₂ emissions¹

	2010	% change	2009	2008	2007	2006
Total CO ₂ emissions (tonnes)	113,659.7t	-5.9%	120,815t	134,637t	157,147t	158,204t
Marine aggregate production	13.86mt	-7.2%	14.94mt	19.75mt	20.64mt	20.29mt
CO ₂ emissions per tonne landed	8.20kg/t	+1.37%	8.09kg/t	6.82kg/t	7.61kg/t	7.80kg/t

(The calculation from MGO tonnes to CO₂ tonnes has been made using a conversion factor taken from DEFRA (2008) *Guidelines to DEFRA's Greenhouse Gas Conversion Factors for Company Reporting*. Department for Environment, Food and Rural Affairs, London. Accessed from: <http://www.defra.gov.uk/environment/business/reporting/conversion-factors.htm>)

The relative stability in fuel oil consumption and associated CO₂ emissions – both overall and in terms of emissions per tonne landed – demonstrates that the challenging economic environment in which marine aggregate producers are operating remains largely unchanged from 2009.

OBJECTIVE 2

Maximise the efficient use of the dredging fleet

Key performance indicator: Tonnes landed per kilometre travelled¹

	2010	% change	2009	2008	2007	2006
Total kilometres steamed	1.20m km	+10.6%	1.08m km	1.46m km	1.77m km	1.47m km
Marine aggregate production	13.86mt	-7.2%	14.94mt	19.75mt	20.64mt	20.29mt
Total landed per km travelled	11.59t/km	-16%	13.82t/km	13.54t/km	11.63t/km	13.76t/km

An increase in the overall steaming distance has been compounded by a reduction in overall production during 2010. This has meant that the overall efficiency measured as tonnes landed/km steamed has reduced, reflecting the fact that with the reduced capacity of the dredger fleet resulting from vessels being laid up or working part time, the fleet as a whole has had to travel further in order to supply less.

¹ Based on reported data from 22 out of 23 vessels operated by BMAPA members in UK waters.



Natural resources and environmental protection

Core values

Environmental protection: we recognise the potential of our operations to impact upon the marine environment and are committed to minimising and mitigating such effects

Biodiversity: we recognise the importance of marine biodiversity and the contribution we can make to better understanding and protection of marine species and habitats

Heritage: we recognise the historic significance of the seabed around the UK and believe that we can make a positive contribution to the understanding and protection of the marine historic environment

Marine stewardship: we have a responsibility to manage our operations in order to minimise the significance of our operations to stakeholders and the environment

OBJECTIVE 1

Minimise the spatial footprint of dredging operations through responsible and effective management

Key performance indicator: Area of seabed licensed for dredging

	2010	% change	2009	2008	2007	2006
Area of seabed licensed for dredging	1,291km ²	+0.4%	1,286km ²	1,278km ²	1,344km ²	1,316km ²
Active dredge area	551km ²	+2.8%	536km ²	570.31km ²	556km ²	576km ²
Area of seabed dredged	105.37km ²	-14.8%	123.63km ²	137.9km ²	134.7km ²	140.6km ²
Area of seabed where 90% of dredging occurs	37.63km ²	-13.4%	43.45km ²	48.22km ²	49.95km ²	49.19km ²
Area of seabed dredged for more than 1.25 hours	6.83km ²	0%	6.83km ²	9.28km ²	10.16km ²	8.66km ²

OBJECTIVE 2

Maintain and develop the industry contribution towards the understanding of marine sand and gravel habitats

Biodiversity Action Plan Strategy

Recognising the important role that marine aggregate operators can play in developing the understanding of broad scale sand and gravel habitats and their associated features both in their own right and as part of the wider Marine Protected Area network, BMAPA published a Biodiversity Action Plan (BAP) strategy and implementation plan during 2010, developed with input from Natural England and the Countryside Council for Wales.

As part of the sector's wider commitment to sustainable development, the approach defines a single strategy and reporting process which should in turn enable a more coherent, consistent and robust approach to addressing this important issue for operators, regulators and advisors.

The guiding principles that underpin the strategy include:

- Ensuring that BMAPA members work to a common biodiversity framework
- Describing the potential effects of marine aggregate dredging on biodiversity
- Defining priority species and habitats that may be affected
- Identifying operational best practice for mitigation and promoting benefits
- Formalising a reporting and review process

While the BAP strategy establishes some high-level aims, supporting activities and actions for the sector's activities at a national scale, more specific aims and actions have been defined for each of the seven dredging regions around England and Wales.

A regional baseline report for the BAP will be produced in Q.2 2012 focussing on the status in 2011. This will be followed by an annual review process that will begin in Q.2 2013.

The BAP strategy can be downloaded from: http://www.bmapa.org/issues_biodiversity01.php

"Marine aggregate producers are leading the way in demonstrating marine environmental stewardship"

James Marsden, Director Marine, Natural England



Marine Protected Area Network

BMAPA and its member companies have continued to play a full and constructive role in the development of a network of Marine Protected Areas in UK seas.

The data and expert knowledge that marine aggregate operators provided to Natural England in support of the definition of sand bank features within nearshore Special Areas of Conservation in the Southern North Sea were presented to Defra's Chief Scientific Advisor as an example of the best available evidence for site identification.

BMAPA members have continued to play an active and constructive role in all four National Marine Conservation Zone projects that have been taking place – Net Gain (in the North Sea), Balanced Seas (in the English Channel), Finding Sanctuary (in the South West) and the Irish Sea Marine Conservation Zone Project. In many cases, the evidence provided by the marine aggregate industry – whether through site-specific EIA, resource management or licence compliance data, or through wider marine mapping evidence delivered through the Regional Environmental Characterisation surveys and Regional Environmental Assessment process – has represented the best available evidence.

Marine Aggregate Levy Sustainability Fund

The Marine Aggregate Levy Sustainability Fund programme unfortunately came to an end in March 2011. Since its introduction in April 2002, nearly £25m of research had been commissioned to improve the way in which marine aggregate operations are planned, assessed, managed and monitored. The wide range of outputs have also provided a considerable 'added-value' resource that can be applied and related to more general marine management issues.

To maximise the value of the programme outputs, a series of monograph reports have been published which summarise the step changes in knowledge and understanding that have occurred across a range of issues, from the direct and indirect impacts associated with marine aggregate extraction, to our understanding of the marine historic environment and improvements in the way in which we map and monitor the marine environment.

The six monograph reports are available to be downloaded here:
<http://cefas.defra.gov.uk/alsf/downloads/monograph-series-2011.aspx>

A further 'state of knowledge' review has been recently commissioned by BMAPA and The Crown Estate. This will demonstrate how the research outputs from the Marine ALSF programme have directly influenced and shaped current best practice in the way in which marine aggregate operations are managed. This is expected to be published in 2012.

Natural resources and environmental protection - continued

Beach Nourishment Research

Welsh beaches are an important visitor and tourist attraction, with Visit Wales estimating that almost half the jobs in the coastal and marine environment are tourism related. Welsh beaches also provide and protect important coastal habitat for a range of wildlife, and play a vital role in coastal defence, protecting coastal communities and infrastructure by reducing the energy of waves. These natural assets therefore provide multiple benefits across the social, environmental and economic elements that comprise the sustainable Welsh economy.

A series of studies commissioned by The Countryside Council for Wales, and supported by BMAPA and The Crown Estate have looked at ways of protecting this valuable resource by placing additional sand or shingle on existing beaches through a process termed beach nourishment or replenishment. In doing so, the important social, environmental and economic functions that Welsh beaches provide could be maintained and potentially even enhanced.

The project represents an initial pilot and feasibility study, and includes a number of recommendations for further work. For example, these include investigating possible shingle sources, and beneficial use of waste material, or sand dredged from ports and harbours, as alternatives to traditional sources. There is also a need to consider the ecological effects - both positive and negative - of beach nourishment in more detail.

The study has clearly demonstrated that Welsh beaches are highly valued by a wide range of stakeholders. It is also clear that beach nourishment is a tool that could be used more to help to safeguard or enhance this resource in the future.

The final report can be downloaded from:

<http://www.ccw.gov.uk/environmental-change/climate-change/safeguarding-welsh-beaches.aspx?lang=en>

OBJECTIVE 3

Maintain and develop industry contribution towards the understanding of Britain's marine historic environment

The archaeological reporting protocol which was developed by BMAPA and English Heritage to enable archaeological finds encountered during marine aggregate operations (either on board dredgers or at the wharves) continues to be delivered through an implementation service provided by Wessex Archaeology, and co-funded by BMAPA and The Crown Estate. The service allows finds recovered by industry staff to be identified and assessed for their significance by heritage experts, and where necessary for appropriate mitigation to be introduced on production licence areas to protect previously unknown sites of importance, for example aircraft crash sites.

Since the protocol was introduced in 2005, over 245 separate reports have been filed by marine aggregate industry staff, covering over 830 individual items. The implementation service includes an annual report which details every find reported during the reporting year, and commenting on trends emerging over time.

To support the practical delivery of the protocol, an awareness programme has been taking place in parallel targeted at employees working on both wharves and on the dredgers themselves. The programme involves site visits to provide staff with the knowledge and confidence to identify and report items of potential archaeological interest that may be found amongst dredged cargoes, as well as the production of twice-yearly newsletters. Previously, this work was funded through English Heritage's ALSF programme, but with the fund's demise at the end of March 2011, a partnership funding arrangement between BMAPA, The Crown Estate and English Heritage has been established to ensure its continuation until the end of 2012.

OBJECTIVE 4

Maintain effective controls to minimise the potential for pollution to the marine environment

Key performance indicator: number of recorded pollution incidents¹

2010	2009	2008	2007	2006
3 (all minor hydraulic leaks)	7	6	0	6

¹ Based on reported data from 22 out of 23 vessels operated by BMAPA members in UK waters.

Creating sustainable communities

Core values

Health & safety: our highest priority is the health & safety of employees, contractors and visitors

Employment: we recognise that our activities are an important source of employment and economic activity

Competence: we recognise the need to maintain and develop a competent workforce

Good neighbours: we engage with marine stakeholders, strive to be seen as good operators by other marine users and recognise the importance of partnerships in achieving both of these

Stakeholder accountability: we recognise the importance of operating as good corporate citizens

OBJECTIVE 1

Key performance indicator: Working days lost through work-related injury¹

Improve the occupational health and safety of the marine sector's employees

	2010	2009	2008	2007	2006
Number of reportable accidents (Lost Time Injuries)	3	6	3	5	7
Days lost through work-related injury	26 (sea staff) 0 (office staff)	219	391	251.5	164

Health and safety remains the marine aggregate sector's top priority. Our ultimate aim will always be "zero harm" to our workforce. In seeking to achieve this, a number of initiatives are currently underway.

Lost Time Injury reporting

During 2010, BMAPA members generated a historic record of Lost Time Injury incidents for the sector dating back to the beginning of 2009 for both office and sea staff. As well as recording total employee numbers and hours worked, this also details incidents that have occurred in the place of work, the consequence of which is an employee unable to work during his next shift.

The information is now being collated and updated through BMAPA monthly to generate a rolling 12-month Lost Time Injury frequency rate. This allows the frequency of incidents per million hours worked to be calculated, and normalises the accident rate to allow trends over time to be identified.

As the majority of sea staff are onboard for a two or three week period, during which time they are effectively at their place of work for the duration of this time, the LTIFR calculations for sea staff have been adjusted in the BMAPA summary to account for this on a consistent basis.

This information feeds into the wider "Hard Target" initiative coordinated by BMAPA's parent organisation, the Mineral Products Association (MPA). In 2009, MPA members achieved the five-year "Hard Target" of halving the number of reportable injuries amongst employees. MPA has now set a further target – to again halve the rate of lost time injuries by 2014.

Safety Alerts

With health and safety being of prime importance to BMAPA members, there is considerable value to be gained by sharing practical experiences. This allows the industry as a whole to collectively learn, allowing preventative steps to be taken in order to prevent similar incidents from occurring. Lessons can also be very usefully drawn from the experiences of other sectors – both terrestrial and marine.

To assist in this exchange of often hard-earned knowledge, BMAPA produces single-page "Safety Alerts" based on information provided by individual members. The main points of experience and lessons learned are presented in such a way that others may benefit from this information, while at the same time protecting the anonymity of the provider.

"Safety Alerts" are fed to all BMAPA member companies, who are encouraged to circulate them widely to offices, vessels and wharves.

¹ Based on reported data from 22 out of 23 vessels operated by BMAPA members in UK waters.

Creating sustainable communities - continued

Shipyard best practice

As part of the sector's commitment to improving the performance and standards across every aspect of its operation, BMAPA has produced a set of common measures and minimum standards for the management of Health, Safety and Environmental protection during ship repair operations.

The measures define the best practice and minimum standards that will be adopted by all BMAPA member companies from September 2011 when undertaking major works, dry-docking and refits of their vessels both in UK facilities, and overseas.

By adopting a common approach, BMAPA members believe that the performance of individual ship operators and the contractors and shipyards that support them can be enhanced.

OBJECTIVE 2

Improving employee development through vocational training

Key performance indicator: Employment direct/indirect (office/ship crew)¹

	2010	% change	2009	2008	2007	2006
Office staff	57.8	+1.4%	57	64.6	80	121
Sea staff	375	-12.2%	427	429	467	441

Key performance indicator: Training days per employee (total no of training days)¹

	2009	% change	2009	2008	2007	2006
Training days per employee	1.9	-76%	8.02	2.21	4.02	2.53

¹ Based on reported data from 22 out of 23 vessels operated by BMAPA members in UK waters.





OBJECTIVE 3 Active dredge area charts

Increasing the transparency of activities, and maintaining and developing further liaison with other marine stakeholders

BMAPA continues to produce twice-yearly active dredge area charts in partnership with The Crown Estate. These define the extent of the area within which dredging is permitted to take place, enforced by analysis of Electronic Monitoring Data. The charts are widely circulated by local Marine Management Organisation offices to provide fisheries interests with the most up to date information on the extent of marine aggregate operations.

Industry representatives continue to attend bi-annual fisheries liaison committee meetings that take place on the south and east coast of England.

Area involved initiative

BMAPA and The Crown Estate continue to report summary information on the extent of licensed and dredged area under their area involved initiative which commenced in 1999. The report for activity in 2010 represented the 13th annual report, and the spatial data generated by this ongoing initiative is becoming increasingly important as the marine protected area network and marine planning processes evolve in English and Welsh waters.

Archaeology reporting initiative

The annual report for the BMAPA/English Heritage archaeology reporting protocol is widely circulated to regulators, heritage advisors and curators, as well as to all marine aggregate wharves and vessels. During the reporting period October 2010 to September 2011, a total of 40 reports were made by industry staff, encompassing 49 individual finds.

Economies of scale and the impact of the economic downturn

By delivering large volumes of a low cost, bulk material close to the point of demand, economies of scale represent one of the marine aggregate sector's greatest advantages.

The 22 vessels operated by BMAPA members for which data has been reported range in size from 880 tonnes to 8,800 tonnes capacity, with associated variations in vessel dimensions and engine power. However, all the vessels are highly specialised and fulfil particular roles in supplying essential marine sand and gravel supplies to the market place. This variation is effectively masked in the summing of overall key performance indicator information.

To assist analysis of key performance indicator data, the dredging fleet can be separated into two categories.

- i Vessels with cargo capacities below 3,000 tonnes, which typically supply local wharves from nearshore licence areas, such as along the south coast, in the Bristol Channel and in the Irish Sea. Vessels will typically supply a cargo every 12-24 hours. (7 vessels/10,642t total hopper capacity – 10.2% of total fleet capacity)
- ii Vessels with cargo capacities greater than 3,000 tonnes which typically operate in more offshore licence areas supplying more distant wharves, such as those along the River Thames and on the Continent. Vessels will typically supply a cargo every 24-48 hours. (15 vessels/93,743t total hopper capacity – 89.8% of total fleet capacity)

The two classes of vessel generally supply very different markets. Therefore, by separating their operational data it is possible to better understand and present the differences between the two. Over time, this should also allow the identification of trends that may occur in each class that would perhaps otherwise be masked in the summed dataset.





Sustainable production

OBJECTIVE 1 Key performance indicator: Annual marine production

Maintain and improve profitability in order to provide for continuing investment and employment

	2010	% change	2009	2008
Production <3,000t capacity	2,544,619 t (18.4% total)	+5.6%	2,409,769t (16% total)	3,949,263t (20% total)
Production >3,000t capacity	11,311,479 t (81.6% total)	-9.7%	12,526,171t (84% total)	15,797,665t (80% total)

OBJECTIVE 3 Key performance indicator: Area dredged and hours dredged

Make the most efficient use of available licensed resources

	2010	% change	2009	2008
Hours dredged <3,000t	3,811 hours, (22.9% total)	+2%	3,734 hours (21% total)	6,831 hours (29.7% total)
Hours dredged >3,000t	12,835 hours (77.1% total)	-8.6%	14,044 hours (79% total)	16,154 hours (70.3% total)

OBJECTIVE 4 Key performance indicator: Tonnes landed per hour dredged

Minimise the screening activity in the production process

	2010	% change	2009	2008
Tonnes landed/hour dredged (<3kt)	667.7t/hour	+10.3%	645.36t/hour	578.14t/hour
Tonnes landed/hour dredged (>3kt)	881.3t/hour	-1.2%	891.92t/hour	977.94t/hour



Climate change and energy

OBJECTIVE 1

Reduce the impact of atmospheric emissions released through the production and transport processes

Key performance indicator: Fuel oil consumed per tonne landed

	2010	% change	2009	2008
Fuel oil <3,000t capacity	3,685t (10.3% total)	+2.6%	3,593t (9.49% total)	5,742t (13.6% total)
Fuel oil >3,000t capacity	31,945t (90.7% total)	-6.8%	34,280t (90.51% total)	36,464t (86.4% total)
<3kt kg fuel/tonne	1.45 kg/tonne	-2.7%	1.491kg/t	1.454kg/t
>3kt kg fuel/tonne	2.82 kg/tonne	+2.9%	2.737kg/t	2.308kg/t

Key performance indicator: CO₂ emissions

	2010	% change	2009	2008
<3kt carbon emissions	11,755.15t (10.3% total)	+2.6%	11,461.67t (13.6% total)	18,316.980t (13.6% total)
>3kt carbon emissions	101,904.55t (89.7% total)	-6.8%	109,353.20t (86.4% total)	116,320.160t (86.4% total)
<3kt CO ₂ /t landed	4.62 kg CO ₂ /t	-2.9%	4.756kg CO ₂ /t	4.638kg CO ₂ /t
>3kt CO ₂ /t landed	9.0 kg CO ₂ /t	+3.1%	8.730kg CO ₂ /t	7.363kg CO ₂ /t

(The calculation from MGO tonnes to CO₂ tonnes has been made using a conversion factor taken from DEFRA (2008) Guidelines to DEFRA's Greenhouse Gas Conversion Factors for Company Reporting. Department for Environment, Food and Rural Affairs, London. Accessed from: <http://www.defra.gov.uk/environment/business/reporting/conversion-factors.htm>)

OBJECTIVE 2

Maximise the efficient use of the dredging fleet

Key performance indicator: Tonnes landed per kilometre travelled

	2010	% change	2009	2008
Km steamed <3,000t capacity	200,780 km (16.8% total)	+26.2%	159,074km (14.7% total)	322,990km (22.15% total)
Km steamed >3,000t capacity	994,912 km (83.2% total)	+7.9%	921,905km (85.3% total)	1,135,517km (77.85% total)
<3kt t landed/km steamed	12.67t/km	-16.4%	15.148t/km	12.227t/km
>3kt t landed/km steamed	11.37t/km	-16.3%	13.587t/km	13.912t/km

Impact of the downturn

The overall performance of the sector continues to be significantly affected by the economic downturn, with the majority of KPI metrics for both nearshore and offshore vessels showing relatively minor changes during 2010 compared to 2009. This is against a background of reported production being reducing by nearly 40% compared to 2008, with corresponding reductions in hours dredged, steaming distances, fuel use and carbon emissions.

While production from smaller vessels slightly increased during 2010 (+5.6%) and production from larger vessels slightly decreased (-9.7%) over the same period, the most significant change compared to 2009 revolved around the distance the fleet steamed.

In particular, the smaller vessels demonstrated a significant increase in the total distance they steamed (+26.2%), while the larger vessels also increased (+7.9%). In both cases, these increases were considerably greater than any changes in production over the same period, reinforcing the trend for vessels having to steam further for every tonne they produced – even when compared to 2009. In part, this effect can be explained by the continued constraint in fleet capacity – with various vessels either laid up or subject to part-time working. This has meant that the remaining operational fleet has not been able to be used as efficiently as it could be, with the end result being an increase in overall steaming distances as the reduced capacity of the fleet has to continue to supply well established markets.



Appendices

GB market summary 1980 - 2010

	GDP Market prices chained volume measures	Construction output (GB) £m 2005 prices	Primary aggregates sales (GB) million tonnes	Crushed rock million tonnes	Sand and gravel (total) million tonnes
1980	678,013	72,563	199	103	96
1981	669,765	65,555	182	92	89
1982	684,517	68,086	194	103	91
1983	709,783	74,132	213	112	101
1984	728,887	76,593	211	111	100
1985	755,300	77,038	217	115	102
1986	785,620	79,974	228	123	106
1987	821,461	89,132	254	142	111
1988	862,797	97,623	291	162	130
1989	882,481	101,032	300	169	131
1990	889,358	100,437	278	162	116
1991	876,974	92,873	246	148	98
1992	878,260	89,146	233	144	89
1993	897,777	87,593	239	150	89
1994	936,204	87,151	259	162	98
1995	964,780	88,011	241	151	90
1996	992,617	90,818	215	133	82
1997	1,025,447	92,764	220	134	86
1998	1,062,433	94,366	218	132	86
1999	1,099,327	95,621	221	133	88
2000	1,142,372	96,626	219	130	89
2001	1,170,489	98,293	222	134	88
2002	1,195,035	103,711	210	127	83
2003	1,228,595	108,696	203	123	80
2004	1,264,852	114,349	214	128	86
2005	1,292,335	111,493	204	122	82
2006	1,328,363	112,314	207	127	80
2007	1,364,029	114,725	209	130	79
2008	1,363,139	111,578	187	115	72
2009	1,296,689	96,576	147	91	56
2010	1,314,245	104,379	148	93	55

Source: MPA 2010 SD report.

Marine sand and gravel figures exclude beach nourishment/contract fill and exports.

Sand & gravel (marine) million tonnes	Recycling (est) million tonnes	Total Aggregates (GB) million tonnes	Asphalt (GB) million tonnes	Ready-mixed concrete (GB) million cu m
12.5	20	219	24	22.4
11.5	18	200	22	19.9
11.9	19	213	26	20.7
12.8	21	234	27.2	21.5
12.6	21	232	25.5	20.8
13.8	22	239	26.9	21.6
15.3	23	251	28.4	21.5
16.2	25	279	29.9	24.3
19.6	29	320	31.8	28.8
20.7	32	332	33.7	29.6
17.2	33	311	36.7	26.78
12.4	34	280	36.4	22.53
10.6	35	268	36.6	20.78
10.1	37	276	36.3	20.77
11.3	39	298	37.7	22.93
11.6	42	283	34.9	21.68
11.5	45	260	29.3	20.89
12.0	48	268	27.5	22.33
13.0	51	269	27.7	22.93
13.4	54	275	26	23.55
14.4	57	276	25.7	23
13.6	60	282	26.5	23
13	62	272	27.8	22.54
12	64.5	268	27.8	22.3
13.0	67	281	26.9	22.9
13.0	66.6	271	27.9	22.4
14.0	68.7	276	25.7	22.9
14.0	70.5	280	25.7	23.5
12.6	68.5	256	25	20
10.0	56.5	203	20.5	14.4
10.0	57.6	206	21.5	14.26

Appendices

Marine aggregate summary statistics 1998 - 2010

	Area of seabed licensed for dredging (km ²)*	Area available to be worked (km ²)*	Area dredged (km ²)*	Quantity dredged (million tonnes) **
1998	1,458		222.6	
1999	1,455		220.3	20.47
2000	1,464		155.4	23.68
2001	1,408	972	150.6	20.68
2002	1,359	896	149.8	22.76
2003	1,264	890	143.8	21.93
2004	1,257	780	134.5	22.23
2005	1,179	596	137.6	21.45
2006	1,316	576	140.6	21.09
2007	1,344	556	134.7	24.18
2008	1,278	570	137.9	21.24
2009	1,286	536	123.6	20.10
2010	1,291	552	105.4	15.95

* Taken from 'Marine Aggregate Dredging – The Area Involved' annual reports published by BMAPA and The Crown Estate between 1999 and 2010.

** Extracted from annual 'Marine Aggregates, Crown Estate Licences, Summary Statistics' reports published by The Crown Estate between 1998 and 2010. Quantity dredged comprises GB landings of construction aggregates, export landings of construction aggregates and beach replenishment / contract fill.



BMAPA members & dredging fleet

BMAPA member	Vessel	Built	Capacity (cubic metres)	Capacity (tonnes)	Age in 2010 (years)
Britannia Aggregates	Britannia Beaver	1991	2,775	4,800	19
CEMEX UK Marine	Sand Falcon	1998	4,832	8,359	12
	Sand Fulmar	1998	4,000	6,290	12
	Sand Harrier	1990	2,700	4,671	20
	Sand Heron	1990	2,700	4,671	20
	Sand Weaver	1974	2,400	4,152	36
	Welsh Piper	1987	790	1,367	23
DEME Building Materials	Charlemagne	2002	5000	8,650	8
Hanson Aggregates Marine	Arco Adur	1988	2,890	5,000	22
	Arco Arun	1987	2,890	5,000	23
	Arco Avon	1986	2,890	5,000	24
	Arco Axe	1989	2,890	5,000	21
	Arco Beck	1989	2,600	4,500	21
	Arco Dart	1990	700	1,250	20
	Arco Dee	1990	700	1,250	20
	Arco Dijk	1992	5,100	8,800	18
	Arco Humber	1972	4,600	8,000	38
Northwood (Fareham)	Donald Redford	1981	440	775	29
	Norstone	1971	800	1,400	39
Tarmac Marine Dredging	City of Cardiff	1997	1,418	2,300	13
	City of Chichester	1997	1,418	2,300	13
	City of London	1990	2,652	4,750	20
	City of Westminster	1990	3,000	5,200	20
			Total fleet capacity	Total fleet capacity	Average vessel age
			63,005m³	103,485 t	21.39

Other BMAPA members who do not operate vessels: Brett Group, Kendall Brothers (Portsmouth), Lafarge Aggregates, Sea Aggregates, Volker Dredging.

Tarmac Marine Dredging was previously known as United Marine Dredging.

Figures as of 31.12.10.



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The British Marine Aggregate Producers Association is part of the Mineral Products Association, the trade association for the aggregates, asphalt, cement, concrete, lime, mortar and silica sand industries

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