11 MARINE MAMMALS

11.1 INTRODUCTION

The environmental assessment identified that the only cetacean species seen with any regularity in Liverpool Bay and the local area is the harbour porpoise (*Phocoena phocoena*). Due to the fact that numbers of this species are low in Liverpool Bay, and that it was considered unlikely to be significantly affected by the construction, operation or decommissioning of the North Hoyle offshore wind farm, no specific on-site monitoring for cetaceans has been included in the environmental monitoring. However, recording of cetaceans is now being undertaken in conjunction with boat-based and aerial bird counts and will be reported in the next report.

For cetaceans, liaison with the Sea Watch Foundation has been maintained to monitor cetacean sightings in Liverpool Bay and the local area through the National Cetaceans Sightings Database. Sea Watch Foundation have provided a report on cetacean sightings throughout Liverpool Bay over the period 2001 to 2005, covering the period of construction and initial operation of North Hoyle. This report is incorporated below.

Atlantic Grey Seals (*Halichoerus grypus*) haul out onto West Hoyle bank at Hilbre Island are currently monitored by the Hilbre Island Ranger Service and the Hilbre Island Bird Observatory. Monthly seal count data from Hilbre are published annually in the Hilbre Bird Observatory report. Data are available for the period 1964 to 2002 (excluding 2000) and are reproduced here an used to highlight any general increase or decrease in the numbers of seals using the sand banks around Hilbre island. Reference has been made to studies on grey seal movements in the North Hoyle wind farm development area for the Strategic Environmental Assessment (SEA) Area 6 (Hammond et al. 2005).

Anecdotal records during other CMACS survey work of marine mammal activity in and around the North Hoyle wind farm have also been collated and are reported here.

11.1.1 Sea Watch Foundation Cetacean Report

The following section summarises a report provided to CMACS by Dr Peter Evans and Pia Anderwald (Sea Watch Foundation) on cetaceans in Liverpool Bay and the Northern Irish Sea during the period 2001-2005. The report updates previous work (Evans and Shepherd 2001) that was commissioned to support the environmental impact assessment for North Hoyle. The period 2001 to 2005 covers the period of construction and initial operation of the North Hoyle offshore wind farm.

11.1.1.1 Introduction

Liverpool Bay and the waters adjacent to the northern Irish Sea are not rich areas for cetaceans compared with other parts of the United Kingdom (Evans and Shepherd 2001). No new species have been recorded since 2001, so that the total number of species of cetaceans recorded since 1975 in near-shore waters remains at fifteen (Evans, 1996b; Reid *et al*., 2003; Evans *et al*., 2003). These include six species which are either present at any time of the year or recorded annually as seasonal visitors: minke whale *Balaenoptera acutorostrata*, long-finned pilot whale *Globicephala melas*, Risso's dolphin *Grampus griseus*, bottlenose dolphin *Tursiops truncatus*, common dolphin *Delphinus delphis*, and harbour porpoise *Phocoena phocoena*. Other cetacean species that have been recorded only casually in the region include: fin whale *Balaenoptera physalus*, sei whale *Balaenoptera borealis*, sperm whale *Physeter macrocephalus*, northern bottlenose whale *Hyperoodon ampullatus*, Sowerby's beaked whale *Mesoplodon bidens*, white-beaked dolphin *Lagenorhynchus albirostris*, Atlantic white-sided dolphin *Lagenorhynchus acutus*, striped dolphin *Stenella coeruleoalba*, and killer whale *Orcinus orca*.

Since 2001, there has been no confirmed reports of long-finned pilot whale in the region (although there have been a number of possible sightings) and so it is not considered further here. It is primarily an offshore species, and is therefore not part of the cetacean fauna of Liverpool Bay itself. A summary of the current status and any possible changes of the other five species is provided in the next section.

Several points should be noted in the interpretation of the appended plots of sightings between 2001-05. First, there has been greater observation effort in the region in the last few years, in part as a direct response to interest in the area for wind farm development. This means that for the more regular species, there have been more records in the last four years than in the previous ten. However, to counterbalance this, the maps presented here do not include data sets that have only recently been submitted but have not yet been fully checked. Where there are significant data sets, mention of them is made in the text, along with a preliminary interpretation of their findings.

11.1.1.2 Status and Ecology

Five species are considered here from the perspective of possible status changes and how these compare with patterns observed over the UK and NW European shelf as a whole.

11.1.1.2.1 Minke Whale (Balaenoptera acutorostrata)

The minke whale is the most common species of baleen whale in British & Irish waters, and numbers appear to have increased markedly since the 1980s (Evans *et al*., 2003). However, there have been few sightings of the species in the region since 2001 (although some recent records from around the Isle of Man are not yet incorporated in the database and therefore have not been plotted). The species is rare in the north-east sector of the Irish Sea although in June and July 2005 there have been potential sightings of up to two minke whales around Anglesey (Sea Watch, unpublished data). No live sightings of the species have been reported from Liverpool Bay itself.

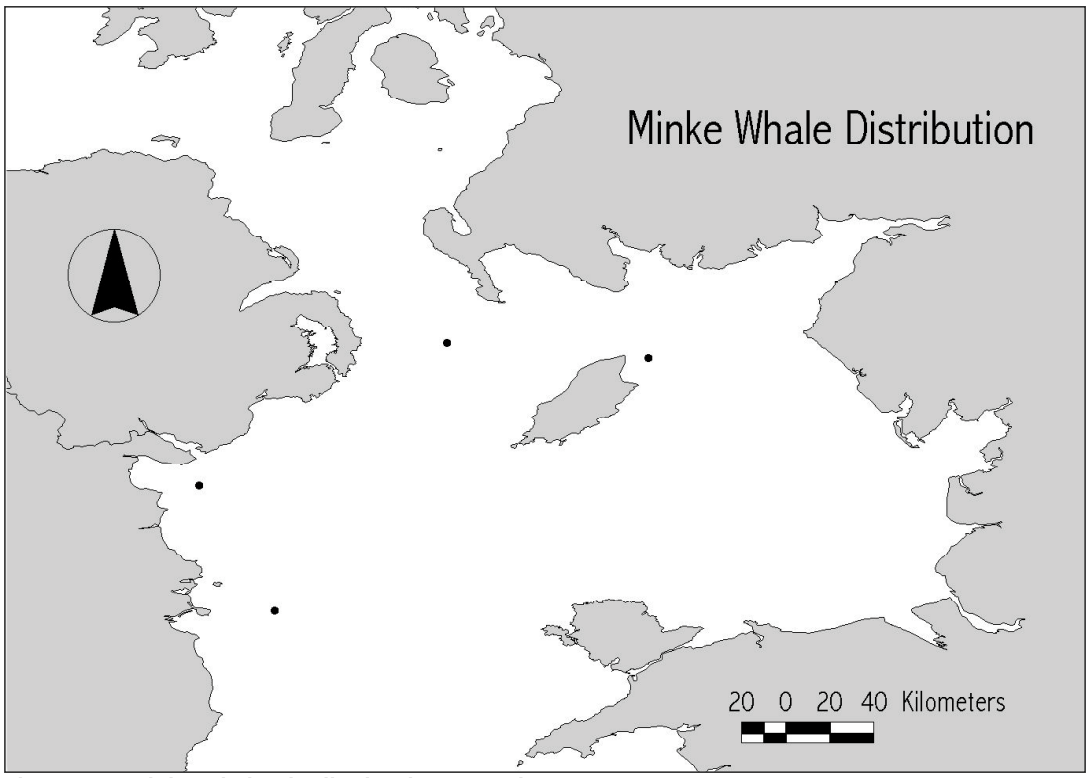

Figure 11.1 Minke Whale Distribution (2001-2005)

*11.1.1.2.2 Risso's Dolphin (*Grampus griseus*)*

This is another species which rarely enters the north-east part of the Irish Sea, with most records in the past concentrated around the Isle of Man, Bardsey Island and the Lleyn Peninsula of North Wales. In recent years, it has been seen less frequently off Bardsey and there have been no records east of Anglesey within or adjacent to Liverpool Bay. A small number of sightings (not yet included in the database and maps attached here) have occurred to the north and west of the Isle of Man.

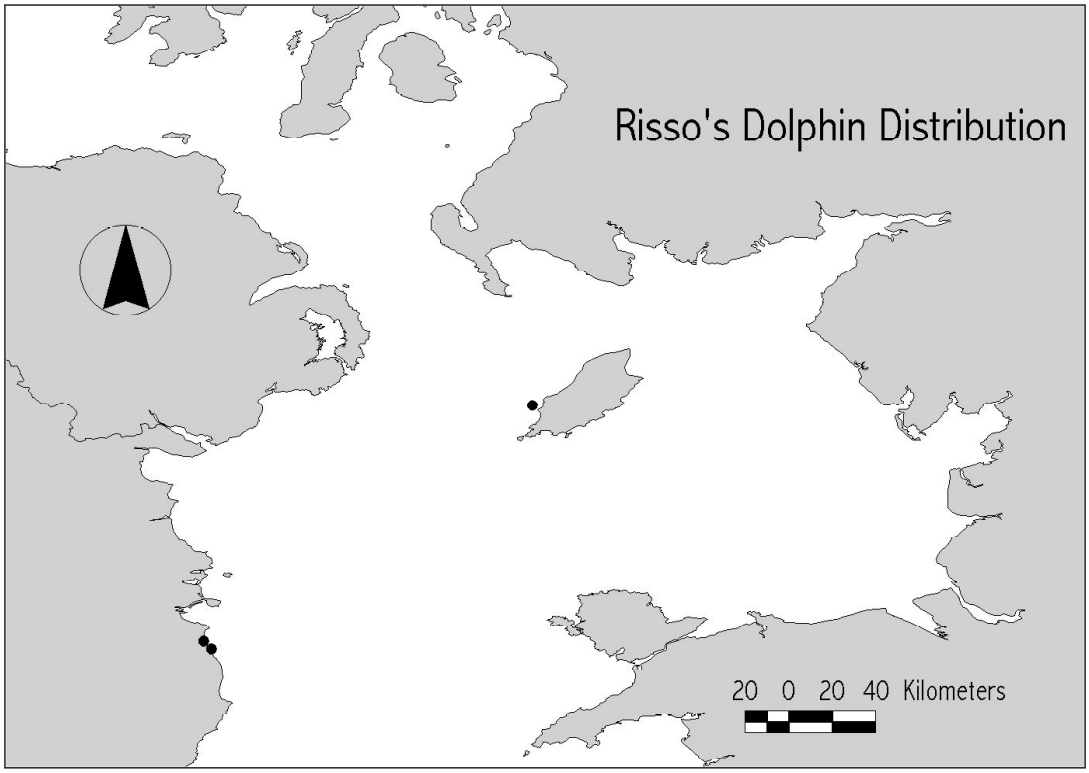

Figure 11.2 Risso's Dolphin Distribution (2001-2005)

*11.1.1.2.3 Bottlenose Dolphin (*Tursiops truncatus*)*

The bottlenose dolphin is the second most commonly recorded species in the northern Irish Sea (after harbour porpoise) (Evans *et al*., 2003; Reid *et al*., 2003). An increase in coverage of the region over the last few years has revealed the species to occur more regularly than previously thought (although in past decades the species appears to have been scarce). Sightings have occurred over a large part of the region primarily in coastal waters.

Comparing sightings since 2001 with those before that date, there is no evidence that suggests a change in status or a major distributional shift. The species is seen along the North Welsh coast around Anglesey, and further east in the vicinity of Morecambe Bay. This distribution is very similar to that obtained in the years prior to 2001 (Evans and Shepherd, 2001), and although sightings occur in most months of the year, there is some indication that the species ranges over wider areas during the winter months. As in other parts of the Irish Sea, peak numbers have been recorded during August (Evans *et al*., 2003).

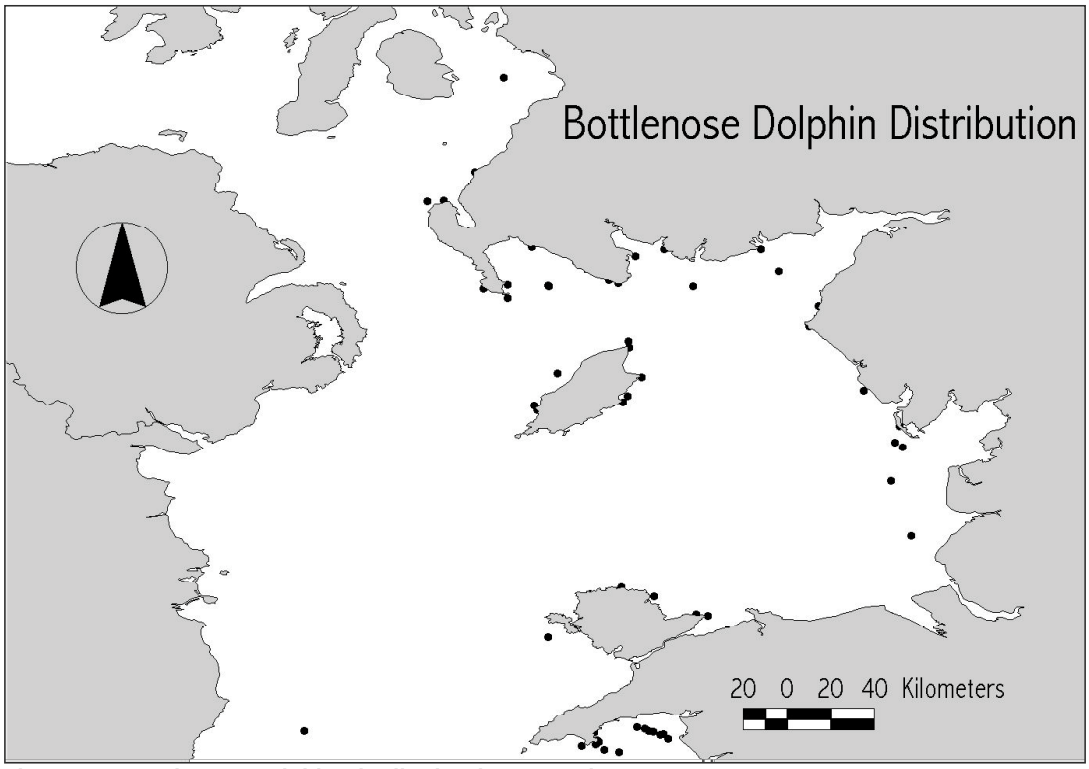

Figure 11.3 Bottlenose Dolphin Distribution (2001-2005)

*11.1.1.2.4 Short-beaked Common Dolphin (*Delphinus delphis*)*

Previously known as the common dolphin, there has been a recent taxonomic split of this species into long-beaked and short-beaked common dolphin (Evans and Raga, 2001). Only the latter species occurs in European seas, where it is found mainly offshore although it regularly comes onto the continental shelf, particularly in the southern Irish Sea (Evans *et al*., 2003; Reid *et al*., 2003).

Since 2001, there have been five confirmed live sightings of the species in the north-eastern Irish Sea, with the nearest to Liverpool Bay being reported from west of Blackpool (Lancs). With its typically pelagic distribution, the species is casual in the area of concern. There is no indication that common dolphins have shifted their distribution or markedly changed their status in this region since 2001 compared with the years prior to this date.

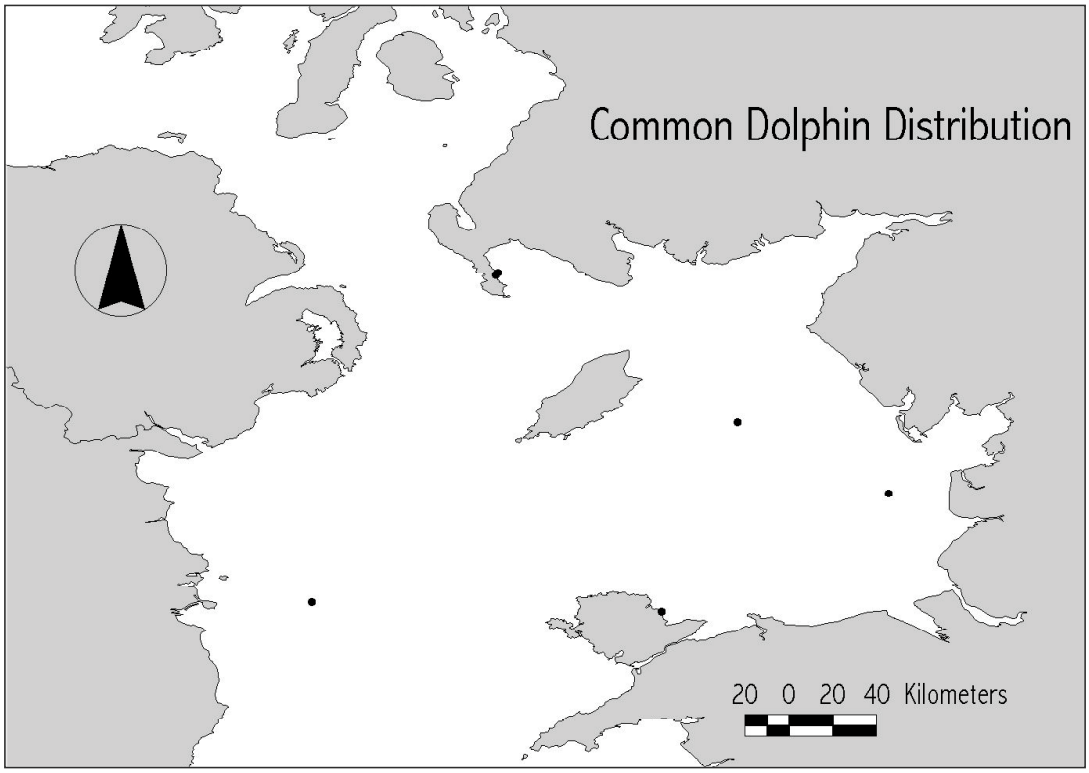

Figure 11.4 Short-beaked Common Dolphin Distribution (2001-2005)

*11.1.1.2.5 Harbour Porpoise (*Phocoena phocoena*)*

The harbour porpoise is the most widely distributed and commonly recorded species of cetacean in the northern Irish Sea, as well as elsewhere in the UK (Evans *et al*., 2003; Reid *et al*., 2003). Recent vessel surveys and acoustic monitoring along the North Welsh coast (R. Shucksmith and E. Dicks, unpubl. data) and further north in the region of the Solway Firth, (I. Gloyne-Philips, *pers. comm.*) have produced additional records. Previously, clusters of sightings were identified around the Isle of Man, off the Mull of Galloway, and off the north coast of Anglesey and the Llyn Peninsula in north Wales (Evans and Shepherd, 2001). With recent extensions of survey effort, the species appears to be more or less continuously distributed around the coasts of South-west Scotland, North Wales and North-west England, including Liverpool Bay. There is no evidence that the species has become less common or changed its distribution since 2001.

An analysis of effort-related sightings data collected between 1980 and 2002 was used to locate hotspots of porpoise distribution in UK waters (Evans and Wang, 2003). However, this did not reveal any distinct areas of concentration in the northern Irish Sea of UK importance.

The species is apparently resident throughout the year in the region, although peak numbers are recorded in late winter and spring (Evans *et al*., 2003). The area is used both for feeding and breeding.

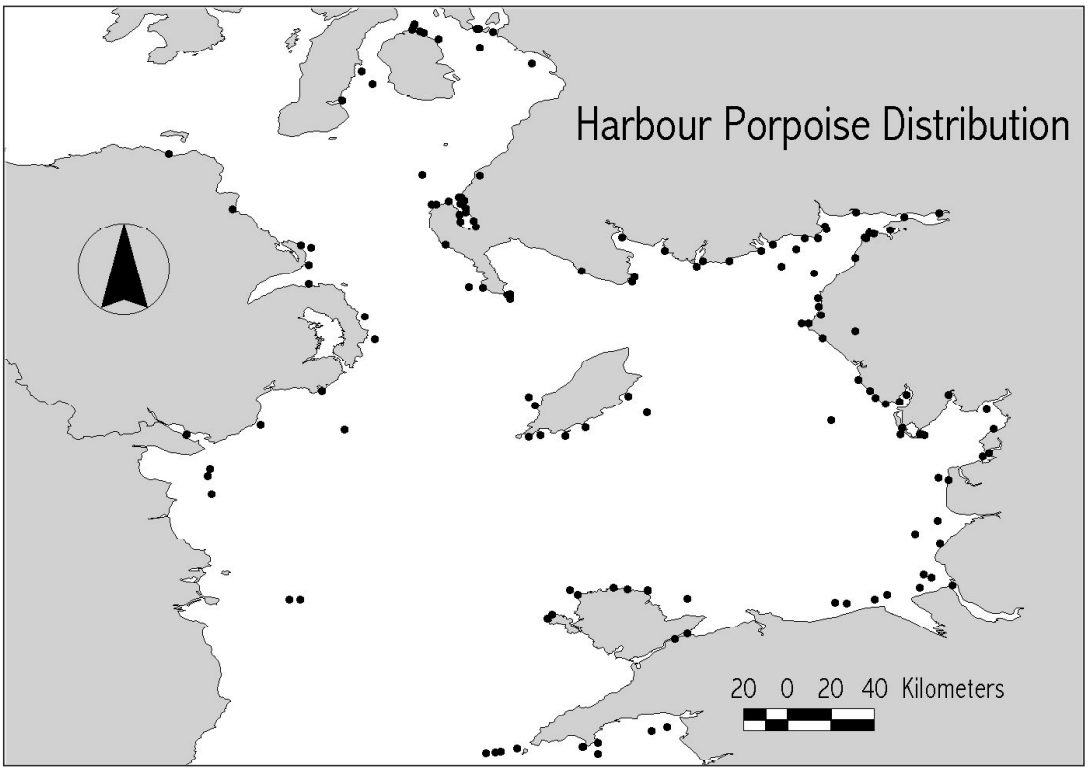

Figure 11.5 Harbour Porpoise Distribution (2001-2005)

11.1.1.3 Conclusions

Although wind farm construction activities can have a detrimental effect on particular near shore species of cetacean like the harbour porpoise, causing avoidance during pile driving, as has been found elsewhere (see, for example, Tougaard *et al*., 2003), there is no evidence for long-term distributional changes of any cetacean species from a comparison of sightings data before wind farm construction commenced with those thereafter. However, an important caveat should be made: there have been no systematic effort-related observations collected over the two periods in the vicinity of Liverpool Bay, and the results presented here have focussed upon overall distribution patterns from incidental sightings.

11.1.1.4 Anecdotal Records on Marine Mammal Activity

CMACS maintains records of any casual sightings of marine mammals during ongoing environmental monitoring work at North Hoyle offshore wind farm. Staff are not looking specifically for marine mammals during other field work and sightings are much more likely to be made in transit or when there is a lull in work than when, for example, grab or beam trawl samples are being collected.

30 April 2005 (13:00) Four harbour porpoise were seen feeding within the wind farm array during an underwater noise monitoring survey. Animals were seen as close as 5m to wind turbines and were observed for in excess of 1 hour.

12 February 2004 (20:30pm) A single grey seal was noted within the wind farm array during survey work to monitor the impact of the installation of a meteorological mast on suspended sediments. The animal was observed for more than half an hour and was apparently foraging in the area, although no prey were seen to be caught. For several minutes the seal inspected the survey boat from approximately 200m. Hammer piling to install the monopile support for the meteorological mast had taken place the previous night although no work was ongoing on site at the time of the sighting.

Both the above records occurred on calm days (sea state 1) when the turbines were either static or turning only slowly. Records during windy days are unlikely to be made as field work is only carried out in good weather (when marine mammals are also more likely to be sighted).

11.1.2 Hilbre Island Seal Haul Out Data

There is an established Atlantic Grey Seal Haul Out on the West Hoyle Bank, approximately 10km south east of the North Hoyle offshore wind farm. The seals at Hilbre are not a breeding population but use Liverpool Bay to feed, haul out and moult.

Maximum monthly counts of Grey Seal at the haul out between 1964 and 2002 (not including 2000) are summarised in Figure 11.5 with averages shown for each decade up to the 1990s and annual data plotted for recent counts. Numbers peak in summer with over 400 individuals regularly present in recent years and a peak of more than 500 in 2001 and 2002 . This reflects the importance of this site for Irish Sea Grey Seals which congregate near Hilbre over the summer, swelling the smaller local over-wintering population. Full count data are provided as Appendix 11.1.

Data are not yet available for 2003 and beyond and it is therefore not possible at this time to comment on the impact of the construction or operation of the wind farm on seal numbers at the West Hoyle haul out.

Hammond *et al*. (2005) tracked the movements of 19 seals around Wales, including several seals tagged at the Hilbre Island (West Hoyle) haul out, for approximately 3 months from mid June 2004. The authors identified that the southern part of Liverpool Bay (including the operational North Hoyle offshore wind farm site) was heavily used by grey seals and it is apparent from the tracks of tagged animals that individual seals swam through the (operational) wind farm array at North Hoyle. Hammond *et al*. (2005) also suggested that the grey seals which haul out at sites in Liverpool Bay, Wales and southeast Ireland comprise a separate population from animals to the north off western Scotland and to the south off Cornwall and France. The population breeding along the coast of Wales was estimated at around 5,000 animals.

11.1.3 Conclusions

Investigation of the Sea Watch Foundation cetacean sightings database suggests that there is no evidence that the construction and operation of North Hoyle offshore wind farm has had any adverse impact on populations of cetaceans, especially the most commonly occurring species, harbour porpoise, in Liverpool Bay.

There are currently insufficient data from the grey seal haul out at West Hoyle Bank to make similar conclusions for the only pinniped species to occur regularly in the area. However, casual records of both grey seal and harbour porpoise within the operational wind farm area and the movements of tagged grey seals through the operational wind farm demonstrate that individual animals are prepared to visit the wind farm site and apparently to forage actively within it. Given the concentration of food resources around wind turbine foundations (CMACS and MarineSeen 2004) this is perhaps not surprising but does provide reassurance that the presence of the wind turbines does not exclude these marine mammal species from the site. It must, however, be borne in mind that the casual records of harbour porpoise and grey seal occurred on relatively calm days (sea state 1) when operation noise from the wind turbines would have been minimal. No conclusion can be drawn about whether animals visit during windy days.

Further data will be reported in the next annual report as seal haul out data from West Hoyle bank and marine mammal sightings data from site-specific ornithological surveys become available.

Figure 11.5: Maximum grey seal counts per month at Hilbre Island. Average data per decade for 1960s to 1990s. (Data from Hilbre Bird Observatory Reports).