

12. CONCLUDING STATEMENT

Based on surveys undertaken between 2001 and 2006, the construction of the NHOWF and the continued presence of the turbines does not appear to have affected sediment characteristics or the benthic infauna that occupy the seafloor sediments, with the majority of the monitoring sites having the same or very similar sediment classification and benthic community assemblage through the post-construction period (2003-06) as for pre-construction (2002).

Geophysical surveys over the same period suggest that near field effects on seabed from potential scour effects have not occurred as predicted pre-construction and therefore no impact on the seabed from scour has been established. Similarly, suspended sediment monitoring during construction concluded that there had been negligible impact on seawater quality and since this time, further study elsewhere has recommended that suspended sediment monitoring is no longer required to be undertaken.

In terms of benthic organisms, most recent results revealed fluctuations in taxa and individuals at all sites (including control sites) in line with results over the five year campaign with some sites showing higher numbers in 2006 than recorded from previous monitoring surveys. Biotopes established are similar in nature now to those originally found in 2001.

Despite reductions in number of taxa and individuals along the cable route during the construction phase year, rapid recovery was noted by 2005.

The results from the 2006 beam trawl monitoring survey support the results from the previous surveys (2001-2005) which identified the fish and epifaunal communities within and around the NHOWF as having similar qualities to those described by Ellis et al (2000) for the Irish Sea. When compared to the baseline data of 2001, there is no significant change in the diversity of organisms or the species composition of the benthic and demersal community.

The annual Cefas beam trawl surveys (post-construction) indicated most of the fish species considered were broadly comparable to previous years and within the long-term range, with some species showing recent increases and decrease in some species, but broadly mirroring regional trends.

It is also worthy of note that marine mammals such as harbour porpoise and grey seals are at times found within and around the NHOWF. Data sources suggest that there has been little change in species composition or spatial distribution of marine mammals within Liverpool Bay and therefore the construction and operation of the NHOWF has had little impact upon the marine mammal populations of the area.

Overall, there is strong evidence that temporal variation and spatial variability in benthic communities are more affected by natural processes such as seabed heterogeneity and, biological factors, than wind farm related activity. This is also found to be the case with

epibenthic and demersal fish communities. Thus the original conclusions made within the EIA regarding marine biological impacts are considered to be accurate.

Between March 2004 and March 2007 bird surveys have shown a progressive and significant rise in bird numbers within the survey area compared to baseline conditions. From assessing the species and numbers of birds and undertaking statistical analyses it can be concluded that there are few demonstrable impacts on key bird species. Within the wind farm area it is speculated that red throated diver numbers may be lower and common scoter numbers higher, although with relatively few birds of these species present no certainly can be placed on the conclusions.

Notwithstanding survey and analysis limitations, there appears to be little evidence from additional data of changes in common scoter numbers, whether increases or decreases. The combination of boat and aerial data suggest an increase in numbers of common scoter since the wind farm became operational in particular.

Zone analysis of boat survey data found no evidence of changes in bird distribution relative to distance from the turbines and likewise, the wind farm does not appear to form a barrier to common scoter or influence its flight direction.

Latest estimates of birds flying at rotor height (2% of population surveyed with less than 1% seen within the wind farm array) suggest that the number of key species is too low to justify modelling collision risk. Therefore, overall, the impact upon birds from construction and operation of the wind farm, and in the context of variations in the seabed and marine biological community, particularly food sources for diving species, appear to be negligible thus confirming that the conclusions of the EIA were correct.

Marine mammal research and ad hoc survey work in the area suggest that there has been little change in species composition or spatial distribution of marine mammals within Liverpool Bay since construction and operation of NHOWF. Overall, it appears that the presence of the NHOWF has had little impact upon the marine mammal populations of the area. This is unsurprising given the transient nature and wide ranging capacity of these species

In summary, there is strong evidence from the conclusions of the monitoring campaign that the NHOWF represents a benign marine development in environment impact terms. Any minor construction impacts quickly dissipated within one or two years. The construction and operation of the wind farm, to date, has shown no measurable indication that any significant environment impact has occurred, in fact quite the opposite.

The five year monitoring campaign results align closely with contemporary studies at other wind farm sites in Europe and provides a cross check with the predicted conclusions from the NHOWF EIA.

In view of these conclusions NWPO Ltd propose that no further environmental monitoring be undertaken for the NHOWF under the terms of the FEPA Licence.

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