

Technical Annex 12K Water Fowl Response to Disturbance
Stimuli from Construction Site – Background Information

Waterfowl Response to Disturbance Stimuli from Construction Sites – Background Information

Disturbance responses of feeding birds

As a rule, ingress of personnel onto normally undisturbed intertidal habitats or saltmarsh creates the greatest disturbance effect, with the long-term operation of plant immediately inland of the intertidal zone for instance on or immediately behind a bank (and without the presence of personnel external to the plant) having the least effect. Ingress onto a normally undisturbed intertidal zone or saltmarsh by personnel can cause some feeding species to fly at a distance of over 300m, but with most moving off at around 100m to 200m, and some, such as oystercatcher and turnstone, being tolerant of approaches to within 50m to 75m.

In areas of extensive intertidal habitat, resettlement is often relatively rapid, and further along or down shore. However, although this may not therefore be of particular significance in terms of direct energy budget implications, it may be that flocks are pushed onto sub-optimal feeding areas, whilst similarly, an increase in predation (in combination with existing feeding activity) may also occur, both factors being of key significance if the disturbance effect were to be maintained over a protracted period. However, the flight response of feeding birds does appear to have a series of variables attached to it, most of which cannot be readily ascribed to clearly identifiable factors.

Some feeding waders appear to be more tolerant of approach when feeding either side of high water either initially on ebb phases or latterly of the flood. This may reflect an increased tolerance to disturbance stimuli if prey availability is greater, or if they have been roosting, intake requirements being more important. Often feeding species such as dunlin and redshank can approach ongoing plant operation to well within 50m (much closer than an allowed approach distance by a third party), although often this approach is in a cyclical manner, ie with a close approach followed by a 'spook' back down or along shore, and then with a further movement back towards the activity, followed by a further spook away etc. However, a single occurrence of small scale construction work can have a proportionally greater impact in terms of flight response compared with that caused by more large scale operations.

Disturbance responses of roosting birds

Disturbance responses from high water roost sites have been found to be far more variable than for feeding flocks, depending on a series of parameters apparently including topography, extent and species. For the most part, approach distances appear to be reduced, but given the usual location on the upper shore, such areas are prone to a greater frequency of disturbance. Depending on the extent of the roost site (for instance a large saltmarsh), disturbance impacts have been seen to be relatively low for single short-term activity, with flocks resettling elsewhere in the area. However, if the potential roost area is of limited size, then activity may well lead to the movement of flocks out of the area. If

this continues over a couple of consecutive tides, then there is often a period of several days after the cessation of activity until the site is recolonised again.

Third party disturbance events are frequently of greater impact than those of ongoing construction work, with the overflight by aircraft often having a significant 'one-off' effect, putting flocks to flight and with low speed light aircraft appearing to have a greater impact than military and commercial jets. In addition, irregular but frequent activity such as dog walking and bird watching on the upper shore can have the effect of excluding bird usage from an area of habitat, this being particularly important on high water roost areas.

Bird responses to noise stimulation

Research into responses to noise suggests that at levels in excess of 84dB(A) there is a flight response in waterfowl, whilst below 55dB(A) there is no effect, although for levels between 43dB(A) and 87dB(A), the results are less clear, but with ultimately no effect on levels of diversity recorded (Smit & Visser, 1993), whilst very high sound levels, occasional noise and variable noise levels can elicit a greater response in feeding waterfowl than more regular noise generation, particularly if accompanied by a visual stimuli. However, habituation can occur to regular noise and or visual stimuli, particularly in birds that have remained in an area for sometime i.e. over-wintering.

Prepared by N.D Cutts

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Institute of Estuarine & Coastal Studies
(IECS)
The University of Hull
Cottingham Road
Hull
HU6 7RX
UK

Tel: +44 (0)1482 465667 or 465661

Fax/Tel: +44 (0)1482 465001

E-mail:
iecs@hull.ac.uk

Web site:
<http://www.hull.ac.uk/iecs>

