Dredging and disposal: Settlement of suspended sediments

Sediments dispersed during maintenance dredging and disposal may resettle over the seabed and the animals and plants that live on and within it. This blanketing or smothering of benthic animals and plants, may cause stress, reduced rates of growth or reproduction and in the worse cases the effects may be fatal (Bray, Bates & Land 1997). Generally sediments settle within the vicinity of the dredged area, where they are likely to have little effect on the recently disturbed communities, particularly in areas where dredging is a well-established activity. However, in some cases sediments are distributed more widely within the estuary or coastal area and may settle over adjacent subtidal or intertidal habitats possibly some distance from the dredged area.

The sensitivity of marine animals and plants to siltation varies greatly and discussed briefly below. In areas with high natural loads of suspended sediments, the relatively small increases in siltation away from the immediate dredging area are generally considered unlikely to have adverse effects on benthic populations. Assessment of the effects of siltation from capital dredging in Morecambe Bay concluded that some smothering of benthic animals was inevitable. It was suggested that given that the area is subjected to regular maintenance dredging of navigation channels and berths and that the adjacent subtidal and intertidal areas

appear to be productive, it is unlikely that effects from the proposed dredging programme will have anything more than temporary and fairly localised impacts (ABP Research R707 1997). Post-dredge surveys of the deepened navigation channel to the Port of Londonderry, Lough Foyle, which is in close proximity to important commercial shell fisheries, indicated that with appropriate care, substantial dredging works can be undertaken with no adverse effects on shell or other fisheries (Bates 1996).

Examples of the varying sensitivity of marine animals and plants to siltation

- Animals with delicate feeding or breathing apparatus, such as shellfish can be intolerant to increased siltation, resulting in reduced growth or fatality (ABP Research R707 1997).
- Maerl beds (calcified seaweed) are reported to be sensitive to smothering due to channel dredging (Birkett *et al* 1998).
- In important spawning or nursery areas for fish and other marine animals, dredging can result in smothering eggs and larvae. Shellfish are particularly susceptible during spring when spatfall occurs.
- When smothering of intertidal areas occurs, there may be subsequent effects on the availability of animals and plants in bird/fish feeding areas.

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