

Bea Claydon

From: Tara Higgins
Sent: 30 July 2012 10:07
To: Bea Claydon
Subject: FW: Shannon Foynes Port Company (Reg. No. S0009-02), received on 03/02/12
Attachments: Limerick-Foynes dumping at sea application 2.2012 note of IFI to EPA_30.7.2012.doc

From: Jimmy King [<mailto:Jimmy.King@fisheriesireland.ie>]
Sent: 30 July 2012 09:50
To: Tara Higgins
Cc: Michael Fitzsimons
Subject: Shannon Foynes Port Company (Reg. No. S0009-02), received on 03/02/12

Tara,

some comment on the above licence application, as requested.

Jimmy King

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EPA reference: S0009-02 Dumping at Sea Permit Application from Shannon Foynes Port Company

Placed on EPA website and notified to DAS committee 14.2.2012

This application relates to maintenance dredging by the above at Limerick Dock and at Foynes port. The application is in relation to a maintenance dredging period of six years and seeks a flexible option to remove to specified O.D. levels, with some leeway, in order to maintain a specified berthing depth for shipping.

Documentation is provided on modeling studies on dumping, its dispersal and plume settlement characteristics, thickness of deposition layer etc both in minimal velocity and maximum velocity situations. Results of sediment particle size composition and on chemical /heavy metal content of sediment samples are also provided.

The documentation provided also identifies that consideration was given to potential for beneficial re-use of dredge material. The very high silt content was considered to militate against reuse, combined with a lack of availability of land-based deposition/re-harvesting options.

Dumping - impact on bed levels

The modelling of dumping - deposition of spoil, in the case of the Limerick docks dumping site, appears to indicate that the full content of dredged material, if deposited, would breach the water surface at low tide conditions (Aquafact report; section 5.4 pp 20 - 22). The Aquafact report goes on to state:

“These extremely large accumulations of dredge material are due to the shallow depths of water at the sites, the low current velocities and the large volume of material to be dumped there.”

The Aquafact reports also indicate a substantial thickness of material would accumulate on the channel bed following a dumping campaign both at Foynes and at the more-recently developed second site to service the Limerick Docks.

Is one to conclude that the sites for dumping are not appropriate in terms of handling the volumes of material to be dumped? Clarification would be welcome.

Dumping - impact on benthic invertebrate fauna

The documentation indicates an adverse impact on bottom-dwelling invertebrate fauna. It also points to a low level of biodiversity and of biomass of invertebrates at these sites and to the fact that the fauna is typical of the surrounding bed area.

It would be desirable that ambiguity be removed as to the actual level or thickness of deposit that will occur as a result of the dredging and dumping. The thickness of deposition will be a clear factor in any recovery or recolonisation of impacted bed areas.

Methodology for dredging (including plough dredging / bed levelling)

Documentation provided by the applicant, with the application form, outlines the proposed method of operation for dredging.

“What we plan to do at the approach channel to Limerick Dock is to initiate bed leveling during Spring Tides so that the disturbed silt material is dispersed down river during the EBB tide. Some will be deposited in the River awaiting removal by Trailing Suction Hopper Dredger during the Annual Dredging Campaign.

The Plan in Foynes will be to initiate bed leveling during Spring Tides along the Berths and in the central harbour so that the disturbed silt material is dispersed down river during the EBB tide. Some will be deposited in the deeper sections of the Harbour awaiting removal by Trailing Suction Hopper Dredger during the Annual Dredging Campaign.”

There appears to be an interchangeability between the terms ‘bed levelling’ and ‘plough dredging’. I believe that the applicant may require to give clarification on these methods to EPA DAS.

The description above is somewhat confusing as it gives an impression that little suction dredging is required, unless the bed leveling / plough dredging is able to accumulate large quantities of materials in some unused area of the harbours, especially in the case of Foynes.

Appropriate Assessment (AA) documentation

This documentation is comprehensive and provides a platform for decision making. IFI concurs with the decision to move from Screening to Appropriate Assessment and also concurs with the overall outcome of the AA process and with mitigation measures identified. IFI welcomes the opportunity to engage further in more fine-tuned mitigation development, as proposed in the AA document

Both Limerick Docks and Foynes Harbour are identified as Heavily Modified Water Bodies under Water Framework Directive and are at Good Ecological Potential (p50 *et seq* in AA doc Section 7).

The mitigation measures relating to the works process as a whole and to the SAC/SPA nature of the works sites were outlined in the Appropriate Assessment document. The 'closed period' of 1st March to 30th June for fish migration is noted and would facilitate certain migration movements. However, reference to the table below indicates that up- or downstream migrations of some fish life stages are occurring throughout the year.

Table 1. Generalised timing of life stages of relevant migratory fish species using Shannon estuary

Fish sp	EU Status	Life stage	Estuary transit
Atlantic salmon	Habitats - Annex II	Adult upstream migration	All times of year: 'spring' fish; grilse run in June - July
		Smolt downstream run	March - June
Sea lamprey	Habitats - Annex II	Upstream Adult spawning migration	April - July
		Seaward migration of young adults	Autumn - winter
River lamprey	Habitats - Annex II	Upstream Adult spawning migration	Autumn - winter
		Seaward migration of young adults	Autumn - winter
Smelt	None	Adult upstream spawning migration	February - April
		Larval - young adult downstream migration	Post-spawning gradual downstream dispersal - April- August
Eel	EU Eel Action Plan	Upstream migration of elvers	
		Downstream of adult fish	Autumn

The proposed closed window does accommodate downstream migrating salmon smolts and, in part, upstream migrating adult smelt, a species of particular importance in the Shannon given its limited national distribution, and sea lamprey. The closed window is particularly pertinent in the case of the Limerick docks dump site given the confined

nature of the channel at this location and the need for fish species to traverse this narrow area in their migrations.

In reviewing this closed window, applied in previous licenses, there is grounds to alter the specification:

- The Foynes Harbour dredging area is confined and out of the main flow of the R. Shannon, freshwater or tidal, while the Foynes Harbour dumping area is in an open area with notable depth and considerable exposure to freshwater and tidal flow. Both of these circumstances could permit a removal of any time restrictions on the dredge - dump process for the Foynes component of the application.
- The dredging area in Limerick Docks, particularly the approach channel, lies in a very confined area and occupies a large portion of the channel cross section at that area. As such, any fish migrating or traveling through this area could be impeded at times of dredging activity. This is elaborated below.

Adult **smelt** are known to traverse the proposed Docks dredge area in their migration to spawning areas within Limerick city on graveled and stony areas such as Clancy's Strand. The smelt typically spawns in mid March in Irish waters but is reported to spawn somewhat earlier in the Shannon. Adult smelt moving to spawning areas in Limerick may be moving from February onwards, with spawning generally completed by early April. The post-larval and young free-swimming smelt will descend the estuary gradually over the summer period and would be likely to have cleared the dredge area, moving downstream, by July. Tidal transport is likely to keep such small fish, 20 - 30 mm in June - July based on measurements from the R. Barrow, in a state of being shunted up- and down with the tide, despite being free swimming.

A recommendation of closed period for dredging and dumping in the Limerick Docks area from February to June, inclusive, would be important for smelt populations.

The March - June period is identified as the principal window in which **salmon smolts** descend river catchments and pass out to sea. These young fish are free swimming and may be 12 - 16 cm in length, approximately. In passing from freshwater to saline waters the fish must adjust their physiology to adjust for altered salinities. This puts an obvious pressure on their metabolism. The prospect of coping with stress caused by elevated suspended solids levels would be additive to the osmotic balance adjustments already referred to.

The recommendation in regard to smelt above would accommodate the salmon smolt requirements. They would also accommodate much of the upstream migration period of adult sea lamprey.

Other strategies relating to the dredging process would also provide mitigation measures for fish species:

- The timing of dredging, in relation to the tidal cycle, would also have potential to mitigate for fish. If maintenance is done on ebb or flood tidal conditions, only, then the remaining portion of the tidal cycle would not see generation of additional suspended solids, providing a 'window' for fish movement without this problem.
- The timing of dredging, on the 24-hour clock, may also provide for mitigation, if works proceed only in daylight hours. If dredging is a round-the-clock operation then this opportunity would not arise. However, if 24-hour working is in operation, and if works are linked to the tidal cycle, then there would be two 'suspended solids- free' periods in every 24 hours. Fish feeding and foraging movements are more prevalent in darkness than daylight in rivers and in lakes. Similarly, many fish migration movements are known for darkness hours only.

The dumping process, in general, follows the dredge process immediately in time i.e. fill the barge with dredge material, steam to dumping ground, release, return and repeat process. Therefore, the mitigations for dredging would also impact on the dumping process:

- Closed season timings for dredging clearly apply to dumping as well.
- There are advantages to dumping in the most high velocity period, in terms of tides and weather, in order to disperse the dumped material as widely as possible within the dump zone. This would maximize the dispersal of material on the bed and, hence, influence the thickness of deposition
- If it is agreed that dredging may proceed at Foynes at all periods of the year then dumping there should also be an option at all times of year - unless this impacts on other qualifying interests within the SAC
- Based on the information provided in the Ecofact reports on the dumping sites and the modeling process used, the question of the suitability of the dumping grounds used for Limerick Docks must be questioned. The reports appear to indicate that the extent of dumping proposed would lead to an overtopping of the water surface by silt deposits. The deposition areas may be strongly influenced by draw-down of water by ESB - in that low levels of drawdown would lead to low freshwater outflows, permitting a stronger influence by incoming tidal waters. This may send deposited dredge materials back up the channel to the Limerick Docks. While it would add to costs to steam the additional distance to the Foynes dump site, there may be savings over having the Limerick Docks dump sites overwhelmed with silt deposits.
- Other mitigations in regard to handling of fuels and other polluting substances is appropriate and should be incorporated into any licence conditions

Within the Appropriate Assessment documentation provided, there was an insertion referring to a proposed land reclamation operation at Foynes port (see 3.4.1 Foynes Port land reclamation project page 40). This does not seem pertinent to the current DAS application

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27.7.2012

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