MARINE ECOLOGY AND MODELLING

MARINE ECOLOGY

- Carry out marine flora and faunal studies inside and outside the proposed construction site
- Carry out marine sediment studies inside and outside the proposed construction site
- Carry out acoustic tracking study on migrating salmon smolts
- Statistically examine all results
- Comment on the likely impacts of the construction on marine ecology
- Contribute to the Appropriate Assessment

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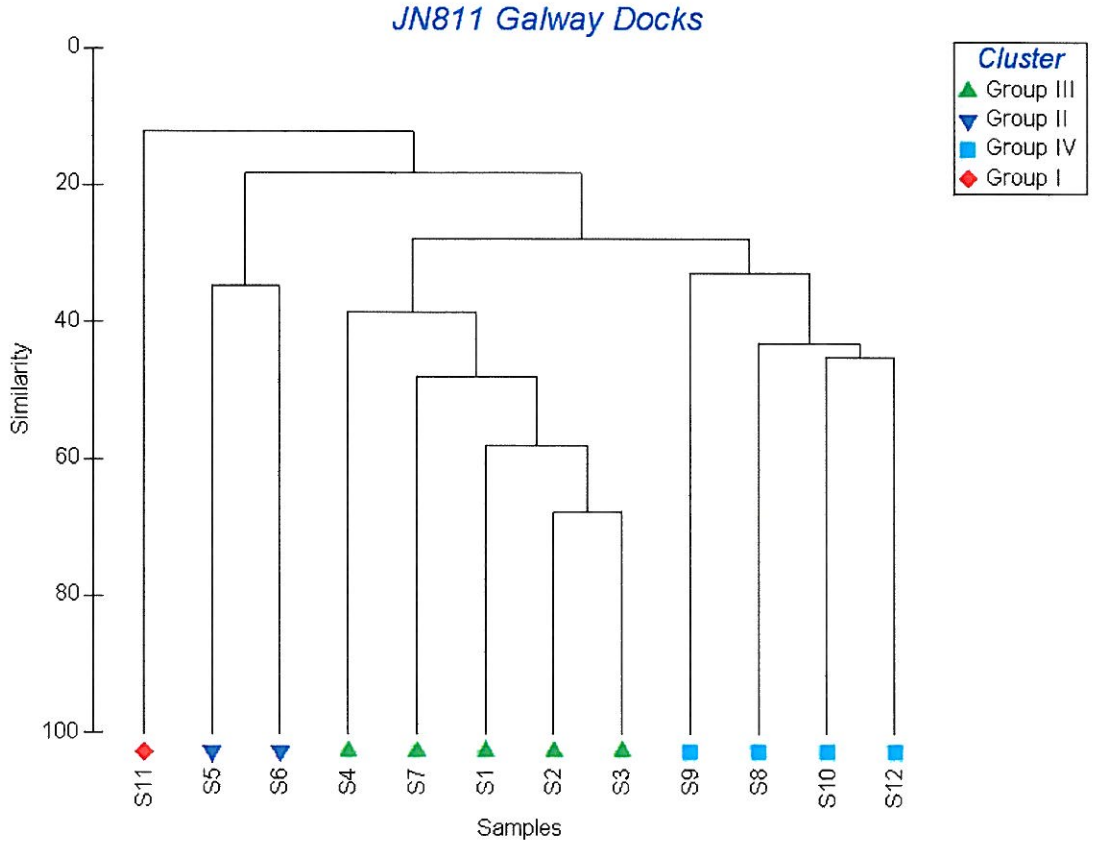
SEA BED STUDIES (BENTHOS)



- A desk study will be undertaken to review existing reports on the area where the new structure is to be built including the larger dredge area
- A total of 146 species were recorded none of which are rare or unusual
- Statistical analyses are on-going
- The results of the sea bed study will be examined in the light of construction and operational impacts that will result in the construction of the new pier

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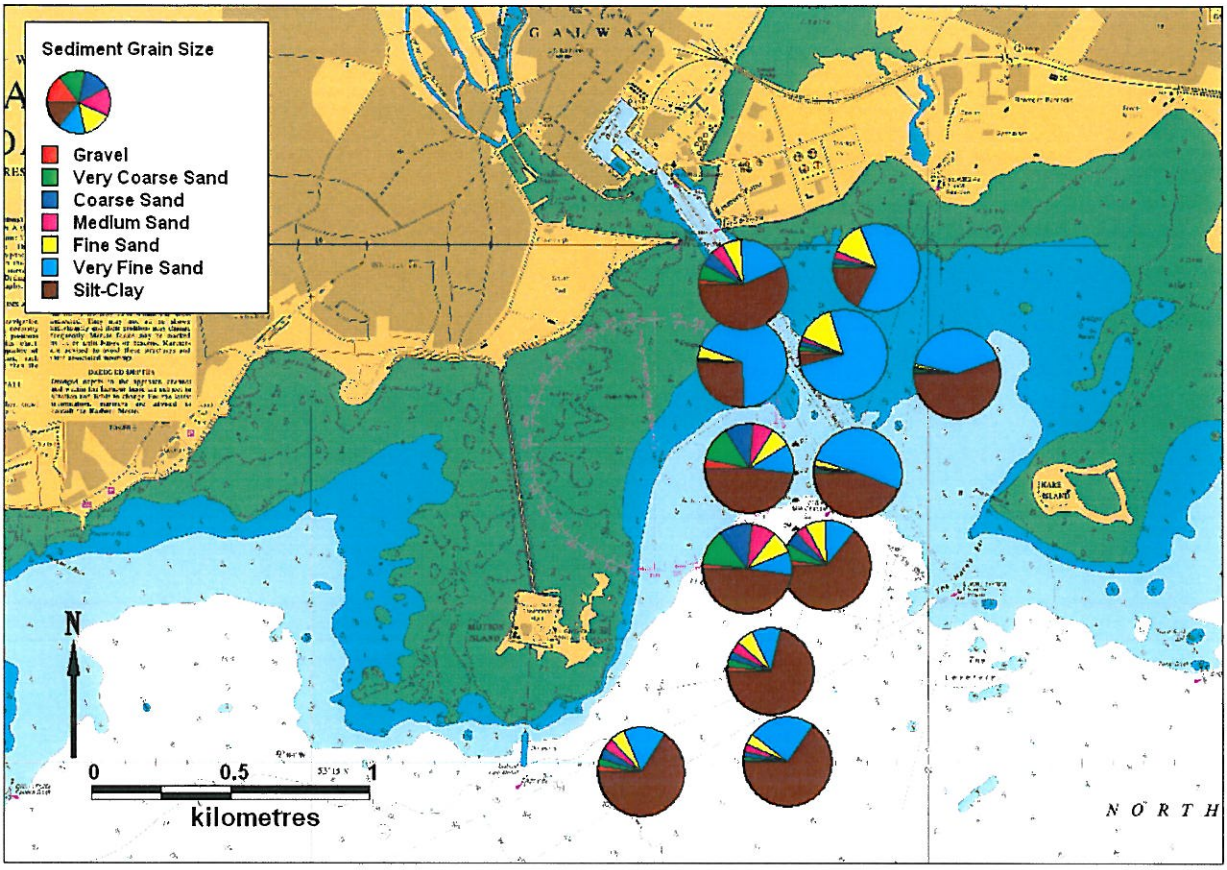
MARINE BENTHOS

- SEDIMENT ANALYSIS



- Sediments are characterised by silts and fine sands
- Low levels of coarse sediments occur within the area
- REDOX (REDuced OXygen) levels are shallow
- Contaminant levels are low
- The results of the sediment transport and dredge spoil model will be examined to see where the surficial sediments will be re-distributed and to comment on the likely impact of these changes on the ecology of the area

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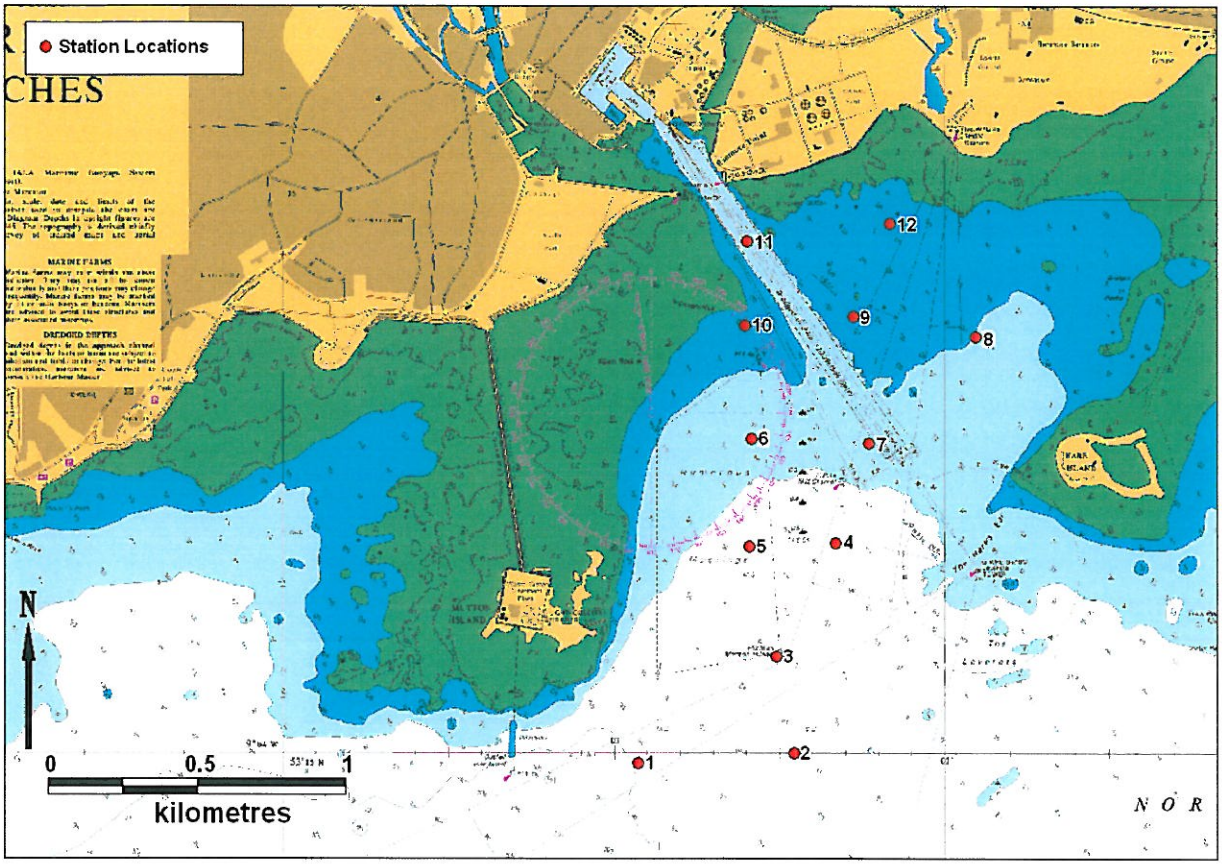
MARINE BENTHOS

- SUBTIDAL STATION LOCATIONS



- 12 subtidal stations were sampled with a 0.1m Day grab for faunal and sediment analysis
- Faunal samples were washed on a 1 mm mesh sieve prior to sorting and identification in the lab
- Sediment samples were analysed for granulometry, organic carbon and a variety of a heavy metals,
- Faunal and sediment data will be combined and statistically analysed

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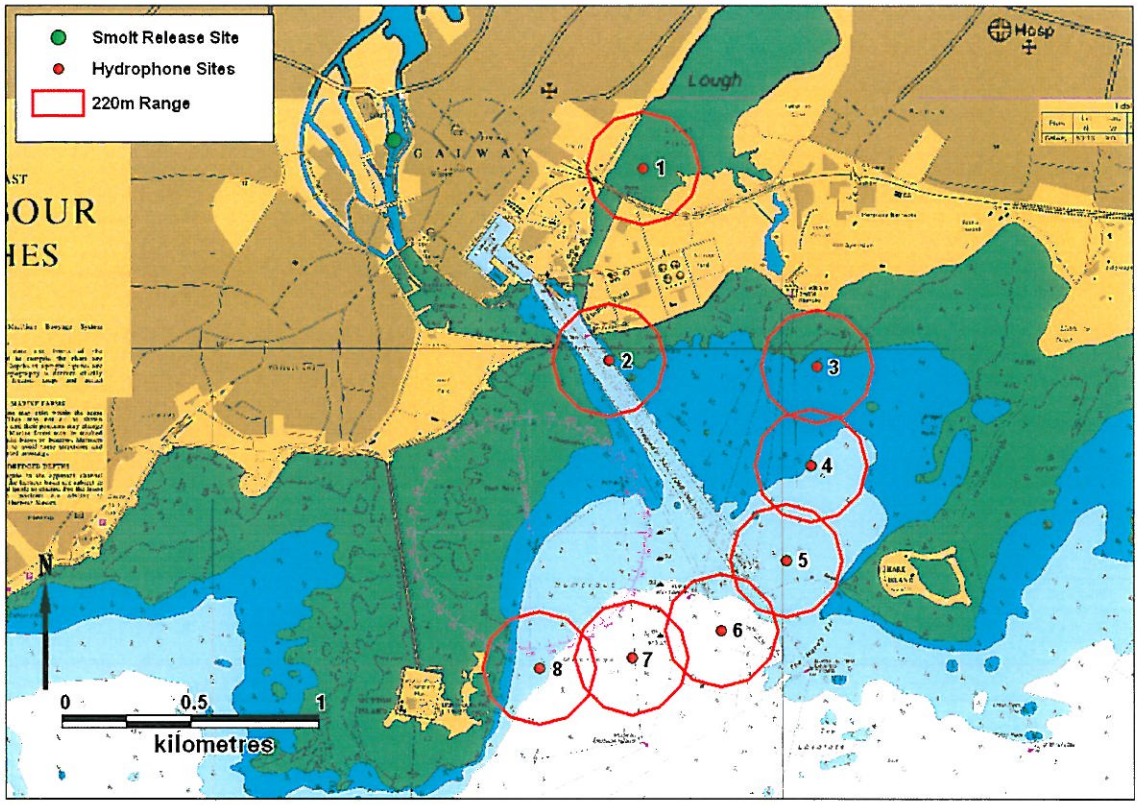
SMOLT TRACKING



Salmon smolts leave the River Corrib in the Spring and concerns were raised by the Sea Fisheries Protection Authority that the new structure may impact on these fish.

Ten listening stations were set up (see above);100 salmon smolts were tagged with acoustic devices and released in the River Corrib.

Their migration through the system was tracked and the results are being examined

The impact of the proposed structure on the migration patterns will be examined.

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MARINE ECOLOGY AND MODELLING

MODELLING

Mathematical modelling studies will include the following elements:

- Hydraulic assessment tidal and freshwater circulation and salinity modelling of the River Corrib
- Wave climate modelling, both locally generated and oceanic swell and the impact of the new structure on to surrounding wave conditions
- Sediment transport modelling to include erosion and deposition rates, changes to morphology and dredge plume impacts from construction phase
- Flood Risk Assessment

TELEMAC Numerical Modelling Software System will be used and will include
TELEMAC2D - Hydraulics and salinity model
TOMAWAC - Spectral wave climate model
SISYPHE - Sediment transport model

All models will be calibrated and validated with met/ocean. data collected locally and will be run with and without the new pier.

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MODELLING STUDY AREA

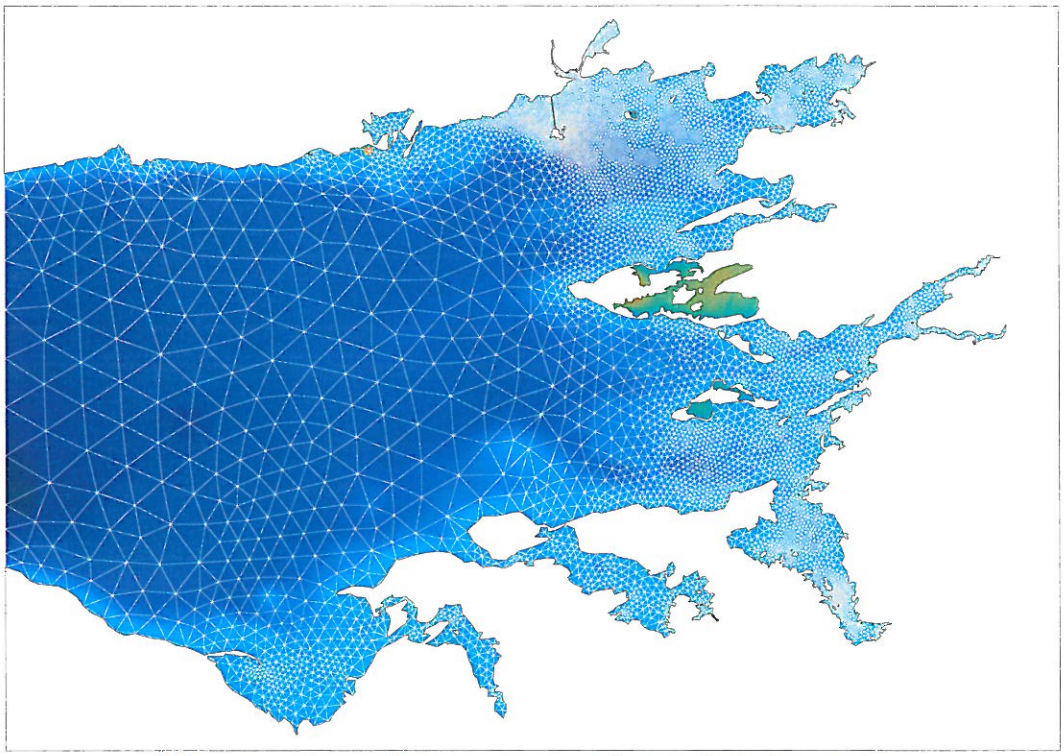

Figure showing extent of model domain.

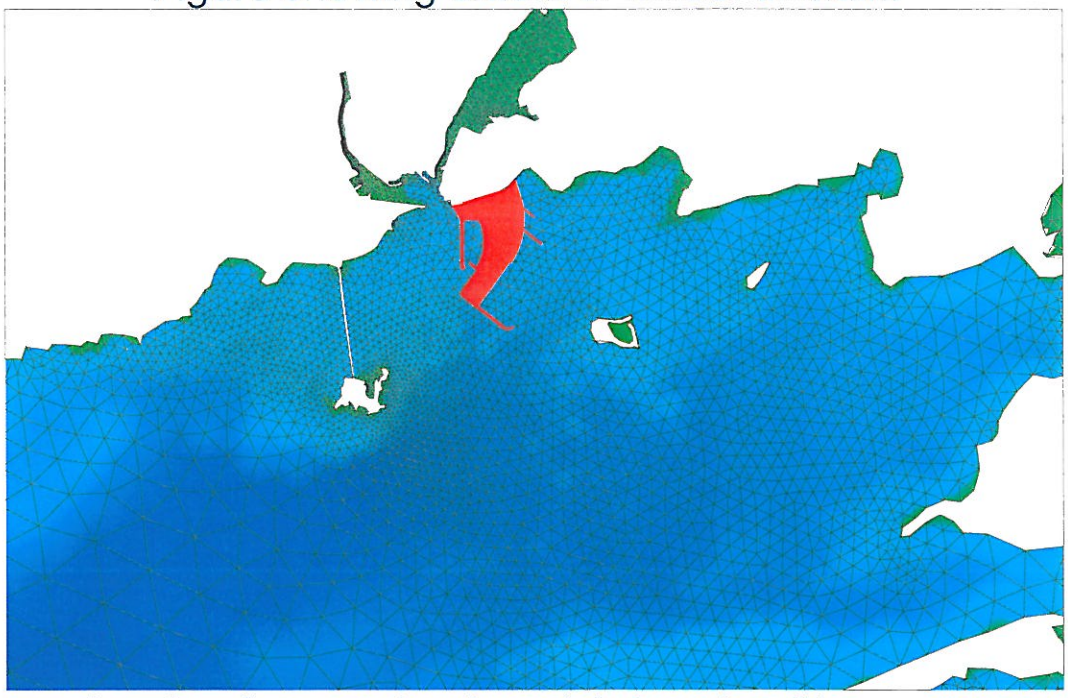

Figure showing finer scale of model domain with new structure.

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