Shellafield Site
Irish Sea Radionuclide Contamination and Its Reduction
Useful Information for Fukushima

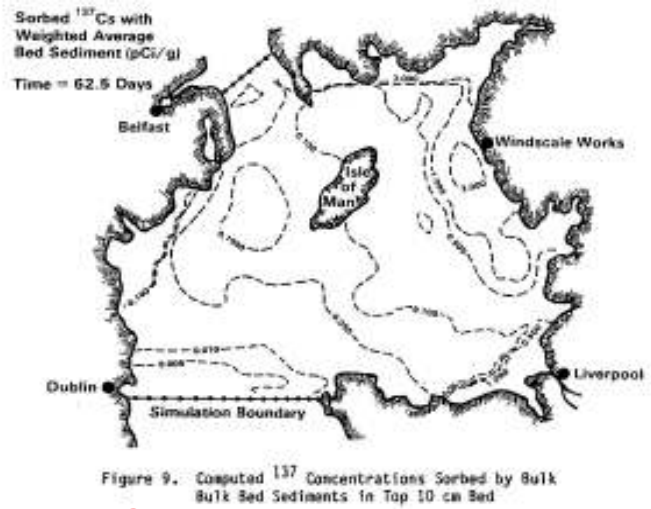
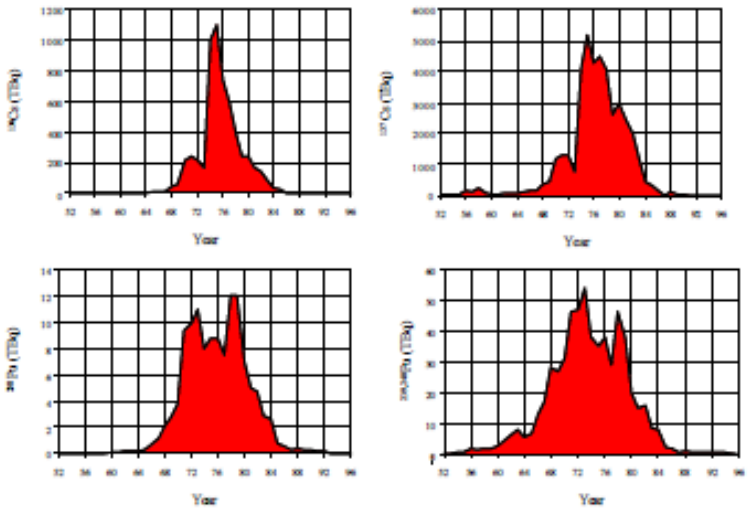


Figure 9. Computed ^{137} Concentrations Sorbed by Bulk Bed Sediments in Top 10 cm Bed

Yasuo Onishi's FETRA Code Prediction



^{134,137}Cs Discharge

^{238,239,240}Pu Discharge

- 1952～1998：Radionuclide discharge to the Irish Sea
  - ^{134,137}Cs releases: 4.9x10^{16} Bq (1.5 times more than Fukushima nuclear accident release)
  - ^{3}H: 3.7x10^{14} Bq
  - Pu: 2.2x10^{16} Bq (Most is still within the Irish Sea bed)
  - Most of current Cs and Pu in the sea is due to desorption from the sea bed
  - Max exposure: (1970s～1980s)was 3 mSv annularly from sea food consumption
  - Currently 1.7μSv annually from sea food consumption
  - 1952：Reactor fire (mainly milk contamination)
    - ^{131}I and ^{137}Cs were released to atmosphere (7．4x10^{14}Bq)
    - Main exposure pathway was milk (0．05Bq／L)．

Predicted Sediment Concentrations

With Onishi's 2-D FETRA Code

Silt

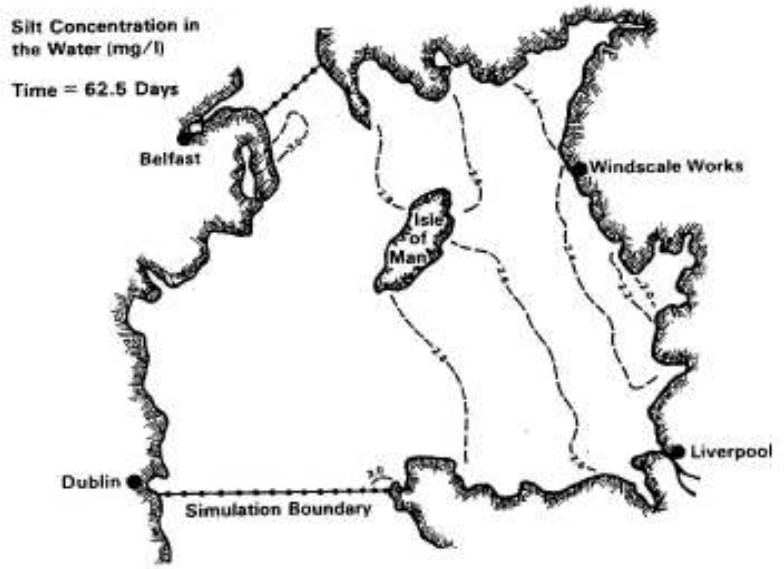


Figure 5. Computed Silt Concentrations in Water Column

sand

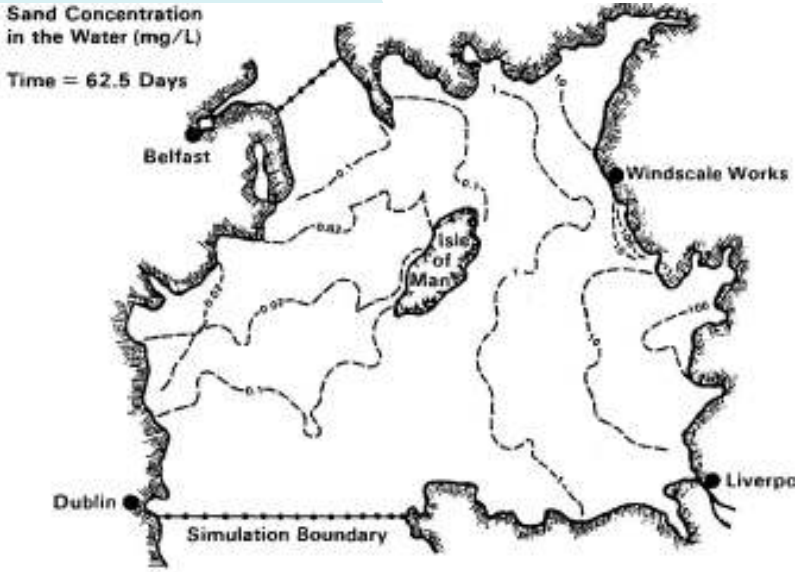


Figure 4. Computed Sand Concentrations in Water Column

Clay

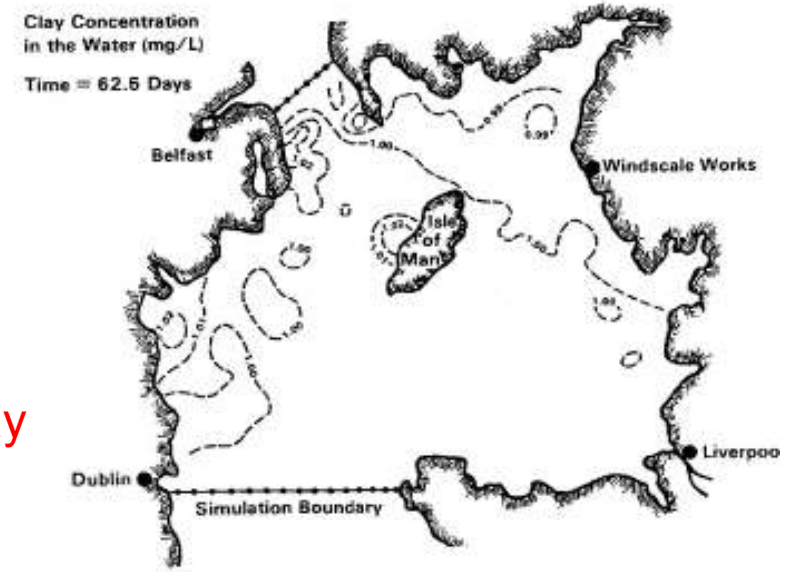


Figure 6. Computed Clay Concentrations in Water Column

Predicted ^{137}Cs in Water and Sea Bed

Dissolved ^{137}Cs in Water

Sorbed ^{137}Cs in Water

With Onishi's 2-D FETRA Code

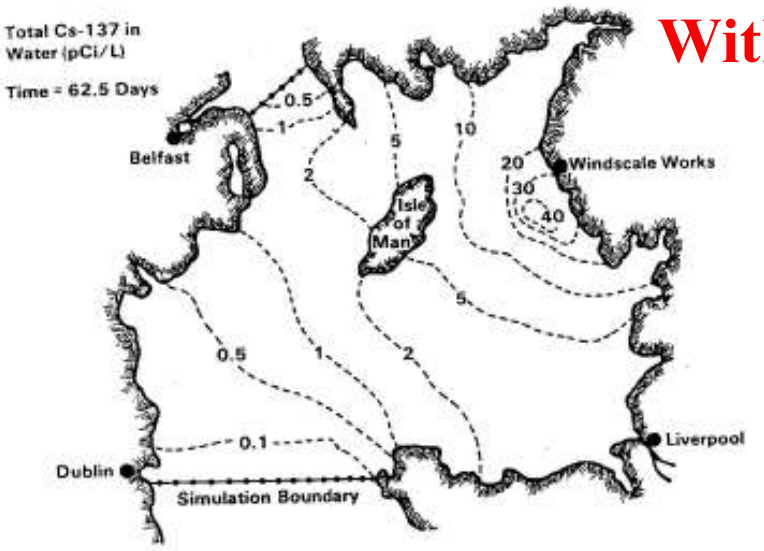


Figure 7. Computed Dissolved ^{137}Cs Concentrations

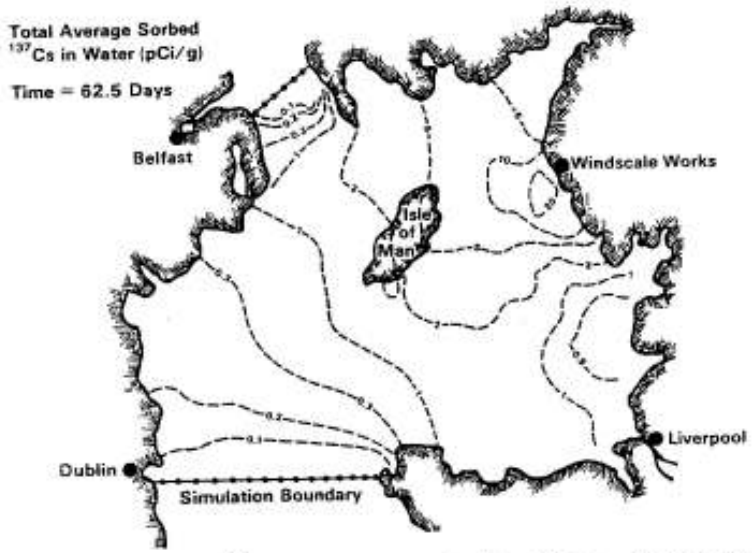


Figure 8. Computed ^{137}Cs Concentrations Sorbed by Bulk Suspended Sediment

^{137}Cs in Seabed

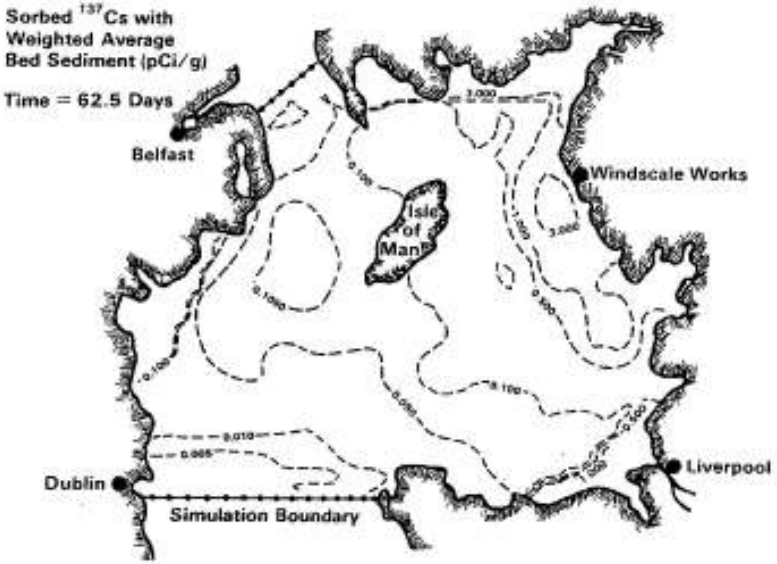


Figure 9. Computed ^{137} Concentrations Sorbed by Bulk Bulk Bed Sediments in Top 10 cm Bed