AQUATIC POLLUTION GROUP

WESTLAKES SCIENTIFIC CONSULTING

Project: Foodchain transfer of radionuclides arising from the production and utilisation of UK , Irish and Norwegian Seaweeds

Client: Food Standards Agency

The Challenge

The FSA required information relating to the potential entry for radionuclides into the UK foodchain via seaweed utilisation. The aim was to provide information regarding the significance of this pathway in order to protect consumers from any radioactive contamination that may compromise food safety.

Seaweed growing on the shoreline of an estuary in the UK

Livestock reared on seaweed meal or grazed on seaweed-fertilized pastures can act as an exposure route of radionuclides to man

The Solution

A detailed review of the literature in conjunction with talking to relevant interested parties within the seaweed industry were used to understand the potential of radioactivity to enter the foodchain through the use of seaweed.

Seaweed Industries Database

- Questionnaire sheets were developed to obtain relevant information from the seaweed industry
- Results from the survey were entered into a specially developed database

Main seaweed uses relating to foodchain investigated

- Seaweed liquid extract and meal as a fertiliser
- Alginates (from Scotland or Norway) in food
- Consumption of laverbread in South Wales

Dose Calculations

- A number of conservative assumptions were used when gaps in the knowledge were unable to be filled within the remit of this study
- Committed Effective Doses (CEDs) were calculated for adults, children and infants.
- Highest dose calculated was of the order of 40 µSv a^{-1} for infants. This was a highly conservative estimate and was still well below the annual dose limit to the general public from man-made sources of 1000 µSv a^{-1}

The Benefits

- Following this work it was clear that estimated doses derived from seaweed entering the foodchain are very low.
- Modelling results were validated by monitoring data. All exposure pathway scenarios considered here were <4%, with the majority being < 1%, of the statutory United Kingdom annual dose limit to members of the public of 1000 µSv.