Fukushima Dai-ichi and the Ocean: 10 years of study and insight Abstract Submission Form : Entry # 30

Name

Derin M Thomas

Title

Dr

Affiliation

School of Marine and Atmospheric Sciences, Stony Brook University, Stony Brook, New York 11794-5000

Email

derin.mary@gmail.com

Country

India

Additional Authors (names only)

Nicholas S. Fisher

Session

Biological uptake of radionuclides

Abstract Title (English, limited to 300 characters)

Influence of body size on 137Cs uptake in marine animals

Abstract (English)

137Cs bioaccumulation and retention in seven different marine animal species including crustaceans, mollusc larvae, and fish larvae where investigated to understand the influence of body size on the uptake of radiocesium. The experimental organisms are common prey species for fish higher in the food chain and are commonly found in coastal waters everywhere, including near Fukushima, Japan. The animals were experimentally exposed to 0.5 nM 137Cs dissolved in filtered seawater for 3 days, and their 137Cs contents were periodically measured using gamma spectrometry. Among the seven species, 137Cs bioconcentration factors ranged from 14 to 239 at the end of the exposure periods. The 137Cs bioconcentration factors were directly related to animal size and hence their surface: volume ratios, consistent with the conclusion that Cs sorption from the aqueous phase is the principal uptake mechanism in these animals. Interestingly, temperature had no major influence on Cs uptake and efflux in the experimental animals.