

## Flux of Cadmium through Euphausiids

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*Flux of the heavy metal cadmium through the euphausiid Meganyctiphanes norvegica was examined. Radiotracer experiments showed that cadmium can be accumulated either directly from water or through the food chain. When comparing equilibrium cadmium concentration factors based on stable element measurements with those obtained from radiotracer experiments, it is evident that exchange between cadmium in the water and that in euphausiid tissue is a relatively slow process, indicating that, in the long term, ingestion of cadmium will probably be the more important route for the accumulation of this metal. Approximately 10% of cadmium ingested by euphausiids was incorporated into internal tissues when the food source was radioactive Artemia. After 1 month cadmium, accumulated directly from water, was found to be most concentrated in the viscera with lesser amounts in eyes, exoskeleton and muscle, respectively. Use of a simple model, based on the assumption that cadmium taken in by the organism must equal cadmium released plus that accumulated in tissue, allowed assessment of the relative importance of various metabolic parameters in controlling the cadmium flux through euphausiids. Fecal pellets, due to their relatively high rate of production and high cadmium content, accounted for 84% of the total cadmium flux through M. norvegica. Comparisons of stable cadmium concentrations in natural euphausiid food and the organism's resultant fecal pellets indicate that the cadmium concentration in ingested material was increased nearly 5-fold during its passage through the euphausiid. From comparisons of all routes by which cadmium can be released from M. norvegica to the water column, it is concluded that fecal pellet deposition represents the principal mechanism effecting the downward vertical transport of cadmium by this species.*

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