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Department of Marine Sciences Presents a Seminar By

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Modeling mercury dynamics in the ocean's highest mercury fish

Mercury is an environmental contaminant of global human health concern, and the primary route of Hg transfer to humans worldwide is marine fish consumption. Studies of mercury dynamics in wild and farmed fish have been conducted but there are no quantitative models of Hg accumulation in the large marine fish that contribute the most Hg to human diet (e.g., tunas). We modeled Hg dynamics in Pacific bluefin tuna (*Thunnus orientalis*), kept in controlled conditions for up to 8 years. Application of the model to other large pelagic species showed that mercury dynamics were determined by the interaction of multiple parameters: biodilution via growth, prey mercury concentration, and mercury accumulation due to trophic increase. We obtained estimates of ecological variables that dictate predator mercury concentration that could not be predicted or inferred from predator mercury concentration patterns alone; in some cases, relationships between high mercury predators and the mercury concentrations of their prey were counterintuitive. This new model thus allows for quantitative comparison of factors driving mercury dynamics within and across pelagic species and/or ocean basins. In conjunction with measured data, the model can guide selective wild harvest or captive rearing conditions to minimize mercury in wild or farmed fish destined for human consumption and predict changes in wild fish mercury concentration as a result of increasing inputs of mercury into the marine environment.

Host: Zosia Baumann
Time & Date: 11:00 am, Friday, March 6, 2015
Place: Marine Sciences Building, Seminar Room 103

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email marinesciences@uconn.edu, or call 860-405-9152 or 860-405-9151