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Modeling the mercury exposure of Rhode Island anglers and their families

Patrick R. Williamson
Roger Williams University, USA

An exposure assessment model was used to estimate mercury (Hg) intake by RI anglers and their families owing to local fish consumption. We sought to: (1) measure muscle Hg concentrations in a variety of recreationally-targeted fishes using AA spectrometry; (2) disseminate food frequency questionnaires (FFQ) to RI anglers and their families to ascertain each person's fish eating habits, and; (3) model Hg exposure in this sensitive subpopulation by coupling their dietary habits with fish Hg data.

Hg content was positively related to fish length across all species, indicating Hg bioaccumulation. Moreover, for striped bass, bluefish, and tautog, Hg concentrations were near the EPA action level (0.3 ppm) at their legal catch size, while remaining fishes had contaminant levels below this threshold. The FFQ was completed by 284 individuals, of which 78.2% were male and the mean age was 52.4 (range = 15-81). Respondents' mean fish consumption rate was 7.8 meals per 30 days (range = 0-30), which is significantly higher than estimates for national and coastal populations, and equivalent to the high-end fish eating habits of NY/NJ anglers. The mean estimated Hg exposure for RI anglers and their families was significantly higher than rates reported for other US coastal regions. Moreover, 38% of the respondents were estimated to have Hg exposures above the EPA reference dose through their fish consumption. Hence, continuing research on fish consumption and Hg exposure in this sensitive subpopulation supports public health risk assessments and risk management decisions related to the issuance of fish consumption advisories.

Biography

Patrick Williamson is currently an undergraduate student in his senior year at Roger Williams University. He is currently working on numerous projects in Dr. Dave Taylor's research lab including his senior thesis entitled, *Creating effective Hg advisories for recreationally important fishes in southern New England*. In the past, Patrick has worked with the BLM in Alaska as a fisheries and hydrology tech. He aspires to go to graduate school and continue research on contaminants and fishes next fall.

pwilliamson607@g.rwu.edu