Title: The use of dietary biomarkers and Bayesian models to establish trophic linkages in aquatic food webs.

Abstract: Stable isotope (SI) based mixing models are one of the most common approaches used to infer resource pathways in consumers. However, SI based analyses are usually underdetermined, and consumer SI fractionation is often unknown. The use of fatty acid (FA) biomarkers in mixing models offers an alternative approach that can resolve the underdetermined constraint. We tested the utility of SI and FA approaches for inferring the diets of several aquatic consumers. Our analyses quantified how the performance of Bayesian mixing models was influenced by choice of trophic modification, and whether the model was under- or overdetermined. Our analysis shows the choice of dietary tracers and the trophic modification assumption greatly influences the performance of mixing model dietary reconstructions, and ultimately our understanding of what resources actually support aquatic consumers.

Biography: Mike Brett completed a BSc degree in Fisheries Biology at Humboldt State University in California, and a PhD in Limnology at Uppsala University in Sweden. After that he was a postdoc in the Limnology research group directed by Charles R. Goldman at the University of California, Davis. For the last 18 years, he has been a faculty member in the Department of Civil and Environmental Engineering at the University of Washington. Much of his research looks at the role essential fatty acids play in food web processes, as well as the use of fatty acids as dietary biomarkers.