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To: The Editors of Fish & Fisheries,

Please consider our manuscript ‘Global and historical meta-analysis of albacore tuna diet patterns and prey guilds synthesised using species traits’ for publication as an article in Fish and Fisheries.

As the world’s ecosystems are rapidly changing through anthropogenic climate change, scientists face significant challenges in modelling and projecting for dynamic as well as changing distributions and productivity of large, mobile and commercially valuable fisheries species. Even less is known of the relationships between tuna distributions and productivity and that of the resources they consume and grow from.

Here, we produce a reconstruction of the historical and cross-basin resource use of albacore tunas (*Thunnus alalunga*) from recent publications through to hard-to-access and archived reports from the early 20th century. We present, to-date, the most extensive taxonomic list of prey consumed by albacore tunas and relate those prey to functional traits consumed globally. We synthesize that diversity to 7 key functional prey guilds based on habitat association, life stage consumed and aggregation behavioural traits that are applicable by analysts to

Importantly, we built multivariate and multi-matrix trait-based models to assess both the taxonomic and trait-based variance in albacore diets across ocean basins and life stage of the predator. Using either the individual trait values or functional prey guilds, we captured broad trait-based patterns in the diets of these dynamic predators and revealed significant geographic signatures in albacore diets with greater explanatory power than multivariate models fitted to species taxonomic identities alone.

In addition to providing important biogeographic contingency to current food web modelling efforts, we propose the use of reproducible prey guilds and trait-based predictors for modelling shifts in these predator’s diets and resource use in other tunas and highly migratory pelagic spieces, in the context of changing environmental and ecological states. Finally, we provide accessible and digitised historical data on albacore diets as well as a comprehensive relational dataset of traits and reproducible analytical workflows that analysts can apply.

We present original work carried out by the authors and acknowledge the requirements for publication in this prestigious journal. We appreciate your time and attention in considering this manuscript.

Sincerely,

On behalf of all co-authors,

Natasha Hardy