Dear Dr Browman,

Please find enclosed an original manuscript entitled: "A general catch comparison method for multi-gear trials: application to a quad-rig trawling fishery for *Nephrops*", which we are submitting for exclusive consideration by the *ICES Journal of Marine Science*.

The paper details a new multinomial mixed effects method for comparing catches of multiple gears in experimental trials. We apply the method to trials on the commercially important but understudied quad-rig trawl fishery for *Nephrops norvegicus*. Our statistical approach includes many features which are not currently available in fisheries catch comparison analyses e.g.,:

* + Inference when two or more gears are towed simultaneously
  + Inclusion of case-specific covariates (e.g., carapace length) and cod-end specific covariates (e.g., total catch weight)
  + Accounting for sub-sampling ratios of multiple cod-ends
  + Including haul level effects via multivariate random effects
  + Overall inference in addition to haul-level inference
  + Open-source (ADMB-RE) code to implement

We believe the method provides significant capability in the analysis of multi-rig gear trials, particularly important with the developing EU Landing Obligation. The method can also be applied to other multi-category response datasets with clustering. For these reasons we consider the *ICES Journal of Marine Science* an excellent journal for communicating our work and would be grateful for your consideration thereof.

This work has the full approval of all co-authors to submit and no ethical considerations arose during the course of the study.

Sincerely,

Daragh Browne

Corresponding author