**Supporting information for: Quantifying behavioural and trophic variation among individuals in an invasive marine fish**

Nicholas P. Moran, André W. Visser, Jane W. Behrens

**S1. Sampling gear and effort**

**S2. Tagging and tissue sampling effects on behaviour**

We conducted an additional experiment to test effects of individual tagging and tissue sampling procedures on the ability to measure round goby behavioural traits. We predicted that PIT tag and fin clip procedures have no effect on activity and edge use behavioural traits over short- (2 day) and medium-time periods (10 day) post-procedure. Additionally, we tested for growth and survival effects over a longer (10 week) period and predicted no treatment effect.

Round gobies were collected from a local fisherman on 1 October 2020 from Karrebæk Fjord (55.1923°, 11.67241°), a site approximately 50 km north east Guldborgsund. Karrebæk is also a shallow estuarine environment that was invaded soon after Guldborgsund (~2011), so can also be considered a comparable well-established population characterised by high population densities (Azour et al., 2015).

Treatments were applied immediately after fish undertook their first behavioural assay (*day 0*), following an extended period of acclimation (40 days, 1/10/20 – 10/11/20) to minimise any confounding effects of laboratory acclimation on behavioural responses and survival. Fish (n = 48) were subject to one of three tagging/sampling treatments: Control (no-PIT tag, not tissue sampling); Tagged (PIT tagged); Fin-clipped (PIT tagged and tissue sampled). Due to the low number of fish available, a non-factorial treatments design was used.

* 1. *Behavioural experiment*

Three behavioural trials were conducted to measure short and medium-term behavioural effects of tagging and sampling; one pre-treatment (*day 0*) and two post-treatment (*day 2* and *day 10*). Previous studies have shown little to no physiological effects over …….. A common open field/ novel environment assay was used to measure activity-exploratory behavioural variables.

* 1. *Survival and growth response*
  2. *Statistical analysis*

Continuous moderators were z-transformed to aid interpretation (Schielzeth, 2010).

**S2. Discrimination factor estimation**

We also sought to validate the use of fin clips to estimate the recent diet of round gobies, and estimate δ13C and δ15N isotopic discrimination factors for fin and muscle tissue of round gobies. These values were used to conduct an exploratory analysis to measure the influence of behavioural trait on round goby’s diets, by testing for correlations/covariation between personality traits and trophic/diet variation.

These fish were also maintained in the laboratory, to measure their isotopic discrimination factor of fin and muscle tissue in relation to a standardised laboratory diet.