**MAKING FRIENDS AND INFLUENCING PEOPLE: HOW INTER-SPECIES SPATIO-TEMPORAL CORRELATIONS AFFECT FISHERY CATCHES**

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Fishers exploit fish populations that are heterogeneously distributed in space and time, yet species exhibit spatial correlation with one another where there is similar habitat or environmental preference. As a consequence, some species are more likely to be caught together in ‘mixed fisheries’, which can impact the success of management when a weaker population is caught alongside a healthier population. In Europe where fisheries are predominantly managed by species-specific landings quotas, discarding of the weaker population (the throwing back of fish for which you don’t have quota) has in the past undermined efforts to rebuild depleted populations. Under the 2013 reform of the Common Fisheries Policy (CFP) a requirement to land all fish caught has started to come into force. In order to maximise benefit from fisheries that exploit multiple fish populations by maximising yield from healthy stocks while protecting weaker populations, there is increasing interest in spatial management measures that can decouple exploitation. Thus, a detailed understanding of spatio-temporal dynamics of fish populations is needed in order to identify where spatial management closures can be effective. Here, we employ state of the art model based geostatistical methods to understand co-occurrence of nine of the most commercially important quota species in the Celtic Sea, by fitting a ‘Vector Autoregressive Spatial-temporal model (VAST) to 25 years of survey data collected through various fisheries independent research cruises. We use the results to draw inference on how geostatistical methods can be used to support spatio-temporal management measures and improve sustainability in mixed fisheries.

Oral – preferred, Speed talk – considered, Poster – considered

Theme: Tools for understanding and managing fish populations (modelling); Valuing and managing fish populations (fisheries and aquaculture)