

Development of a platform for fine scale spatial assessment of fishing activities around Scotland

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The advancement of tracking technology allows fisheries managers to obtain huge amounts of vessel movement data. The implementation of Automatic Identification Systems (AIS), has opened up the potential for the analysis of inshore fishing activities at fine spatial scales. However, this fast-growing process results in large amounts of data and has so far not been adequately followed up by development of procedures to manage and integrate vessel movement data sets. A large amount of raw AIS data (>90 million rows of information) was collected over a six month period as an output from the European Fisheries Fund project 'Evidence Gathering in Support of Sustainable Scottish Inshore Fisheries'. A database to collate and analyse fishing activity was developed using open-source software platforms. PostGreSQL with PostGIS and QGIS provided a valid platform for the analysis of the AIS and contingent vessel data, these platforms are user friendly, free, and have considerable online support. Using these platforms potential applications for fisheries management are presented and include: accurate spatio-temporal depiction of fishing grounds around Scotland, examining compliance with spatial or temporal fishing regulations, and development of fishing "fidelity indices" which could be used to provide objective comparative measures of the impact of spatial fishing restrictions on a per vessel or per region basis.

Keywords: Scotland; inshore; Automatic Identification System; database management; spatio-temporal data

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