Paul Dolder

Marine and Freshwater Research Centre

Galway-Mayo Institute of Technology

Galway, Ireland

Email: [paul.dolder@gmit.ie](mailto:paul.dolder@gmit.ie)

Phone: +353 838264167

5th March 2018

*Editorial office*

The Macmillan Building

4 Crinan Street

London N1 9XW

Dear Editor,

Enclosed is our manuscript “Spatial separation of catches in highly mixed fisheries”. Please accept it as a candidate for publication in *Nature Scientific Reports*.

**Rationale for publication in *Nature Scientific Reports***

How humans exploit heterogeneously distributed wild animal populations is an important research topic as it supports food security, sustainability and managing natural capital. Wild capture fisheries are spatially and technically complex, with fisheries simultaneously catching different size classes of multiple populations with different management or conservation goals.

In our manuscript we argue that there is no system presently capable of addressing spatial concerns of the dominant type of wild capture fishery found worldwide, mixed fisheries, and set out a framework to reduce the complexity of spatiotemporal dynamics by capturing key spatial, fishery and species interactions that drive catches. We demonstrate how axes of maximal separation show the potential for - and limitations of - spatial harvesting and underline the importance of the approach in the context of the most significant policy change to face European fisheries in recent times – that of the forthcoming ban on discarding in Europe (‘landings obligation’).

While attracting a high media profile, the considerable scientific challenges and implications of the landings obligation have received less attention in broad scientific journals (Cascading ecological effects of eliminating fishery discards. *Nature Communications*. 2014; 5:3893; focusses on the effects on scavenging fish) but has the potential to markedly change how we manage the impact of fisheries on fish populations. We present an approach that goes beyond current practices to show how spatial mitigation can support adaptation to the new European fisheries management system. We feel our work merits review and publishing In *Nature Scientific Reports*, as it not only highlights the pressing challenges of a major policy reform with global implications but, moreover, it presents a possible solution to some of the challenges, thus enabling long-overdue scientific discourse on spatial mitigation to commence.

The manuscript is our original unpublished work and it is not currently being considered by any other journals. Suggested referees are:

* Dr Ana Parma (expert in fisheries modeling, assessment, and management)

Centro para el Estudio de Sistemas Marinos

Centro Nacional Patagónico-CONICET

Blvd. Brown 2915

U 9120 ACF Puerto Madryn, Chubut

Argentina

email: [anaparma@gmail.com](mailto:anaparma@gmail.com)

* Dr Andrew Rosenberg (expert in fisheries modelling, policy and management)

Director, Center for Science and Democracy

Union of Concerned Scientists

Cambridge, MA,

USA

email: [arosenberg@ucsusa.org](mailto:arosenberg@ucsusa.org)

* Dr Daniel C. Dunn

Duke Marine Lab,

Duke University,

135 Marine Lab Road,

Beaufort, North Carolina 28516

United States

email: [daniel.dunn@duke.edu](mailto:daniel.dunn@duke.edu)

We would recommend **Dr Margaret E. Andrew**, **Dr Andrea Belgrano** and **Dr Mathieu Basille** as good candidates from the Editorial Board Members to handle the manuscript. We have had no prior discussions with any of the Editorial Board Members about this work.

A Supplementary materials section is included.

Yours faithfully,

Paul Dolder, Cóilín Minto and James Thorson