

20th September 2021

To: Editorial Office, Proceedings of the National Academy of Sciences (*PNAS*)

Dear Dr. Berenbaum,

We are pleased to submit our paper, "Global trade network patterns are coupled to fisheries sustainability", for publication as a Research Report in *PNAS*. The paper demonstrates previously unrecognized global relationships between the sustainability of marine fisheries and the structure of seafood trade networks. Our results reveal that (1) characteristics of trade networks are key indicators of fish stock status, and (2) the ways that trade networks develop are critical to fisheries health.

We evaluated the relationship between the connectivity and duration of global seafood trade networks and fishery sustainability by analyzing more than 400,000 bilateral trade flows since 1995 and stock status estimates for 746 stocks from 222 countries. We found that high connectivity - including high numbers of trade connections and low levels of clustering - is coupled to low fishery stock status.

While common explanations of why and how trade impacts on fisheries largely focus on prices and regulations in individual fisheries our results suggest exploring new hypotheses and regulatory approaches relating to international trade networks and connections.

Due to the novelty and generality of our findings, this paper will have broad implications for marine conservation, food security, natural resource economics, sustainability and fisheries science - hence its suitability for publication in *PNAS*.

We recommend the following Editorial Board and NAS Members to handle our submission because of their expertise in analyzing trade economics and natural resource systems:

- Editorial Board: William C. Clark: economic impacts on natural resources; B.L. Turner II: trade and sustainability; Bonnie J. McCay: fisheries governance
- NAS members: Stephen Polasky: ecological economics; Hugh O. Possingham: natural resources management; Arild Underdal: international governance; Nils Chr. Stenseth: fisheries science

This work has not been submitted anywhere else for publication and there are no conflicts of interest.

Thank you for your consideration and we look forward to hearing from you.

Sincerely,
L.G. Elsler, Ph.D.