##### UNITED STATES DEPARTMENT OF COMMERCE

**National Oceanic and Atmospheric Administration**

**National Marine Fisheries Service**

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To the Editor,

Please find submitted a manuscript title “Response of kelp forest communities along the coast of Washington, USA to the 2014-2016 marine heatwave and sea star wasting syndrome” for consideration for publication in MEPS as a Research Article. Numerous studies have examined the effects of recent marine heatwaves and sea star wasting syndrome (SSWS) on the ecology of kelp forest communities along the West Coast of the USA. However, a none has focused on the Washington coast resulting in a geographical gap in our knowledge.

We examine the response of kelp communities along the Olympic Coast of Washington State, USA to the recent perturbations of anomalous warm-water events and SSWS. Overall we show that while kelp forests experience some loss of canopy cover (~ 50%) concurrent with warm sea surface temperatures in 2013 and 2014, kelp recovered quickly. While there were increases in urchin densities, these increases did not lead to phase shifts and persistent kelp loss as in other areas of the coast like Northern California, and we did not see strong urchin-kelp relationships that would suggest top-down effects of urchins on kelp. Densities of many sea stars also declined indicating continued effects of SSWS along the coast. While there was some temporal variation, spatial effects explained most of the variation in community structure indicting the importance of spatial variation in structuring the responses of kelp forest communities to disturbance and suggest that it is essential to ensure the protection of a diversity of kelp forests, each of which harbors habitats that can exhibit unique responses to ecological surprises yet to come.

All authors have agreed to be listed and have approved the submitted version of the manuscript. The manuscript has not been submitted elsewhere and is original.

Author contributions:

All authors contributed the manuscript through discussion of the overall study design, results, and concepts within and organization of the manuscript.

Nick Tolimieri designed the study, collected and analyzed data, and wrote the manuscript.

Andrew Shelton designed the study, collected and analyzed data, and wrote the manuscript.

Jameal Samhouri designed the study, collected and analyzed data, and wrote the manuscript.

Chris Harvey collected data, and wrote the manuscript.

Blake Feist conducted field work, produced figures, and edited the manuscript.

Greg Williams organized field work, collected and managed the data, and edited the manuscript.

Kelly Andrews collected data, and edited the manuscript.

Kinsey Frick collected and managed the data, and edited the manuscript.

Steve Lonhart collected data, and edited the manuscript.

Genoa Sullaway collected data, and edited the manuscript.

Owen Liu edited the manuscript.

Hellen Berry provided data, and edited the manuscript.

Jenny Waddell organized and conducted field work, and edited the manuscript.

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*Thank you,*

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Unit Diving Supervisor