

This is a novel study that uses modelling to estimate the impacts of MHWs on ecosystem functioning at a global scale. The methodology is explained clearly, and the results are presented and discussed effectively. There are still minor grammatical errors throughout the paper that affect clarity and readability. I have listed my suggestions line by line below.

Line 35 - "periods of more than 5 days of"

Line 59 - "drive" or "result in" would be more accurate than "imply"

Line 60 - would be clearer with a comma between "invertebrates" and "modifying"

Line 73 - "employed" is repeated twice

Line 75 - "implications" should be plural

Line 100 - "undergoing thermal stress"

Line 117 - "web's functioning"

Line 138, line 197 - "we provide"

Line 165 - "are increased" or "increase"

Line 170 - the second bracket should be a closed bracket

Line 258 - lower case "the"

Line 274 - "15-day time step"

Line 295 - "two sets of 15 days" or similar

Line 360 - "average duration of MHWs"

Line 394 - " $1.0 \pm 0.1\%$ " - you should consistently use the same number of decimal places

Line 445, 447, 483, 786 - "-16" should be superscript

Line 468 - "from 2013 to 2016"

Line 477, 649, 786 - "p-value"

Line 522 - "synergistic" is more widely used in ecological literature; see doi:

10.4319/lo.1999.44.3_part_2.0864

Line 535 - "analysis suggests" or "analyses suggest"

Line 540 - "and Smith et al. 2023"

Line 601 - "thermal limits"

Line 605 - "an acceleration"

Line 623 - "moderate mortality in these ecosystems" (to clarify that you are referring specifically to upwelling systems, not the effects of MHWs at a global scale)

Line 634 - "which tends"

Line 694 - "biomass change simulations"

Line 702 - "MHW impacts"

Line 701 - "specific regions"

Line 704 - "historical biomass simulations" would sound better

Line 712 - "availability and quality"

Line 715 - the last word, "estimates", should be removed from the sentence

Line 726 - quotation marks are not needed

Line 758 - "MHW impacts"

Line 772 - "monthly values to enable the EcoTroph-Dyn to run with 15-day timesteps"

Line 773 - "ecosystem responses"

Line 774 - "however" should be lowercase

Line 781 - "MHW occurrence"