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TITLE: A global assessment of marine heatwaves and their drivers

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ABSTRACT:

Abstract Marine heatwaves (MHWs) can cause devastating impacts to marine life. Despite the serious consequences of MHWs, our understanding of their drivers is largely based on isolated case studies rather than any systematic unifying assessment. Here we provide the first global assessment under a consistent framework by combining a confidence assessment of the historical refereed literature from 1950 to February 2016, together with the analysis of MHWs determined from daily satellite sea surface temperatures from 1982?2016, to identify the important local processes, large-scale climate modes and teleconnections that are associated with MHWs regionally. Clear patterns emerge, including coherent relationships between enhanced or suppressed MHW occurrences with the dominant climate modes across most regions of the globe ? an important exception being western boundary current regions where reports of MHW events are few and ocean-climate relationships are complex. These results provide a global baseline for future MHW process and prediction studies.

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