

1 **Supplementary Material for:**

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4 **Are long-term changes in mixed layer depth influencing**
5 **North Pacific marine heatwaves?**
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27 **Supplemental Table 1** CMIP5 models used in this study. Mixed layer depth was calculated using
 28 monthly means on the native model grid. Data were then interpolated to a common 1.0° x 1.0° grid
 29 before taking JJA average. For each model, the MLD trend for 1980-2015 and 2016-2099 are
 30 reported, with the latter in parenthesis. Significant trends are bolded and are based on a 95% Mann
 31 Kendall test. These models were chosen because they offered monthly mean ocean temperature
 32 and salinity profiles for both the historical and future warming periods.

<i>CMIP5 Model</i>	<i>Institution</i>	<i>Native lat/lon resolution</i>	<i>NEPac MLD Trends (m dec⁻¹)</i>
			Trend for 1980-2015 (2016-2099)
<i>ACCESS1-0</i> <i>ACCESS1-3</i>	CSIRO and BOM, Australia	0.6° x 1.0°	-0.22 (-0.68) -0.07 (-0.95)
<i>CESM1-BGC</i> <i>CESM1-CAM5</i>	National Center for Atmospheric Research	0.5° x 1.125°	-0.41 (-0.13) -0.1 (-0.46)
<i>CNRM-CM5</i>	Centre National de Recherches Meteorologiques	0.6° x 1.0°	0.47 (-0.3)
<i>GFDL-CM3</i> <i>GFDL-ESM2M</i>	Geophysical Fluid Dynamics Laboratory	0.9° x 1.0°	-0.56 (-0.62) -0.08 (-0.31)
<i>GISS-E2-R</i>	NASA Goddard Institute for Space Studies	2.0° x 2.5°	-0.43 (-0.41)
<i>IPSL-CM5A-LR</i> <i>IPSL-CM5A-MR</i> <i>IPSL-CM5B-LR</i>	Institute Pierre-Simon Laplace	1.2° x 2.0°	-0.21 (-0.29) -0.30 (-0.34) -0.12 (-0.26)
<i>MPI-ESM-LR</i> <i>MPI-ESM-MR</i>	Max Planck Institute for Meteorology	0.8° x 1.4°	-0.17 (-0.52) -0.44 (-0.49)

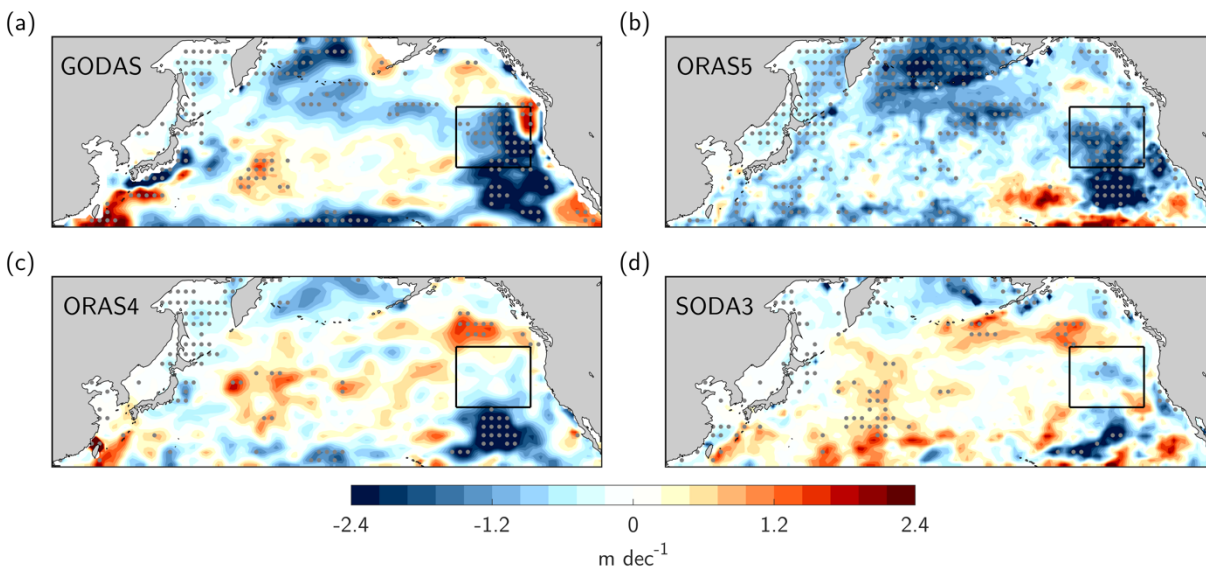
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39 **Supplemental Figure 1** Individual JJA MLDA trend maps for the ocean reanalysis products

40 outlined in Table 1. Stippling represents 95% significance for a Mann-Kendall test.

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