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Supplementary Materials for **Climate impacts on global hot spots of marine biodiversity**

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Supplementary Materials

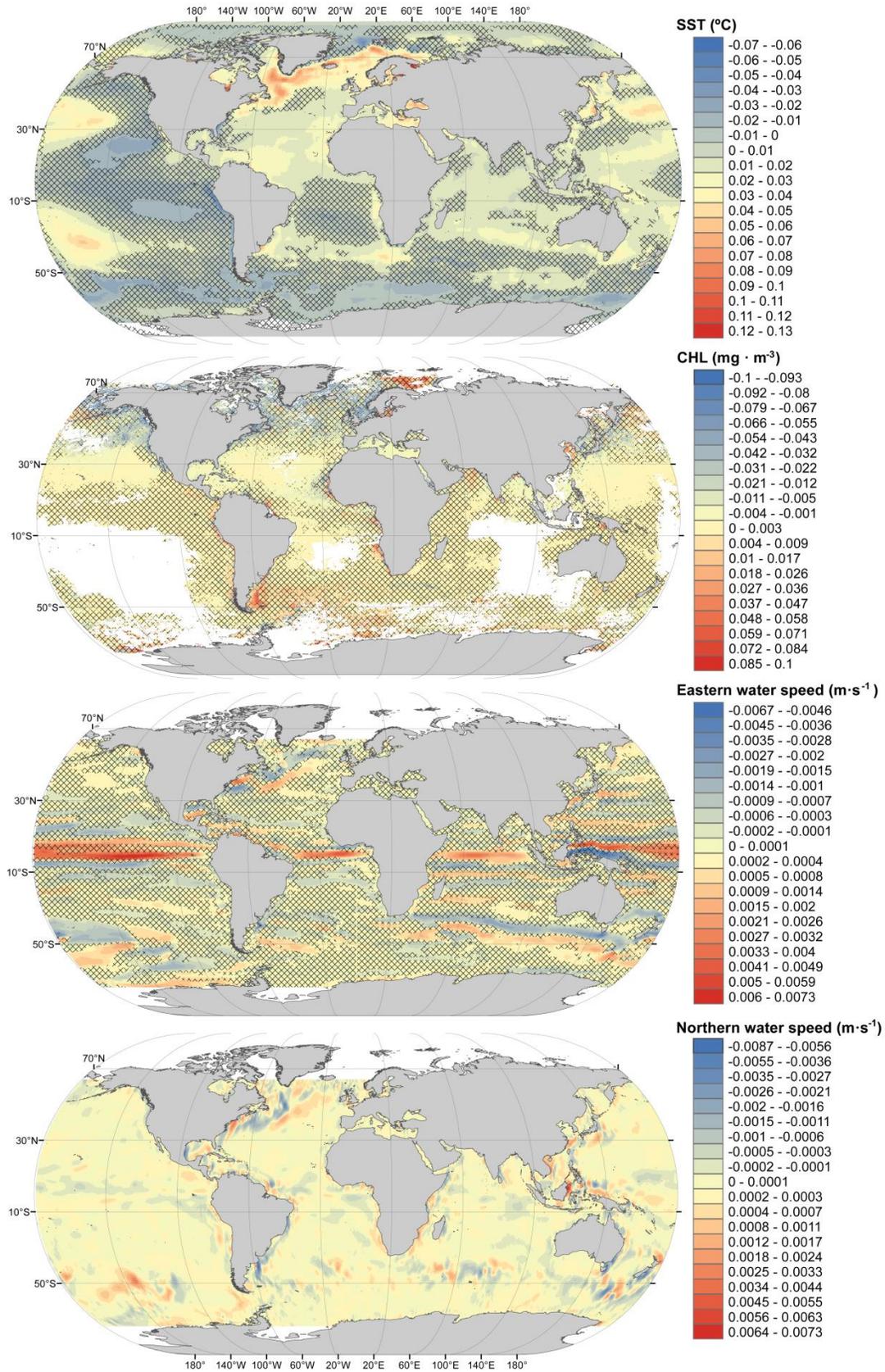
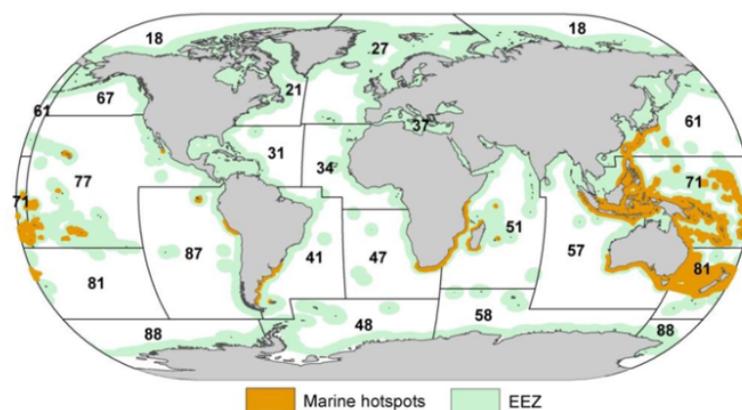


fig. S1. Significance and magnitudes of observed environmental changes. Long term trends in sea surface temperature (SST, 1983–2014), chlorophyll a concentration (CHL, 1979–2014) and the eastern and northern component of water speed (1980–2014). Colors represent the slope of derived least-squares linear regressions for each single pixel; white pixels indicate no data and gridded areas include those water masses in which observed trends were not significant (p -value > 0.05).



	Country	Fishing captures (tonnes)	Cumulative %
Pacific, Eastern Central MFA 77	Mexico	962,723.4	61.8
	Panama	155,137.3	71.8
	USA	136,875.9	80.6
	Others	302,971.3	100
Pacific, Southwest MFA 81	New Zealand	418,192.8	73.7
	Australia	62,201	84.7
	Others	87,087.6	100
Pacific, Southeast MFA 87	Perú	7,013,396.1	62.8
	Chile	3,344,109.1	92.7
	Ecuador	418,287.8	96.4
	Others	398,236.9	100
Atlantic, Southwest MFA 41	Argentina	615,552.6	47.1
	Brazil	458,650.1	82.2
	Uruguay	86,813.6	88.9
	Spain	71,457.3	94.4
	Others	73,593	100
Atlantic, Southeast MFA 47	Soth Africa	658,576.5	45.1
	Namibia	491,099.5	78.7
	Angola	239,899.6	95.1
	Others	71,151.1	100
Indian Ocean, Western MFA 51	India	1,688,476.4	44.3
	Pakistan	331,067.3	53
	Iran	329,393.9	61.6
	Yemen	174,535.9	66.2
	Spain	150,252.6	70.2
	Oman	146,678.7	74
	Maldives	141,404.5	77.7
	Others	849,019.8	100
Indian Ocean, Eastern MFA 57	Myanmar	1,521,985.4	29.3
	Indonesia	1,090,430.3	50.2
	India	859,186.2	66.7
	Thailand	560,752.5	77.5
	Malaysia	499,108.9	87.1
	Others	670,804.8	100
Pacific, Northwest MFA 61	China	8,532,664.1	58.5
	Japan	2,658,153.5	76.8
	Russia	1,855,706.7	89.5
	Others	1,527,230.7	100
Pacific, Western Central MFA 71	Indonesia	2,951,187.8	30.5
	Philippines	1,983,863.3	50.9
	Vietnam,	1,445,675.4	65.9
	Thailand	1,233,662.9	78.6
	Malaysia	632,644.1	85.1
	Others	1,440,805.1	100

fig. S2. Major contributors to fishing pressure. Top-ranked countries mostly contributing to fishing captures within Major Fishing Areas (MFA, according to FAO categorization) enclosing hotspots of marine biodiversity. The upper map shows the spatial distribution of the world's MFA, the Exclusive Economic Zones (EEZ) and the hotspots of marine biodiversity. The lower Table provides detailed information on the average fishing captures (raw values in tonnes and the percentage of accumulated captures with respect total captures) for those countries (sorted as a function of fishing captures) that mainly contribute to current human fisheries (since 2000) within MFAs with high biodiversity.

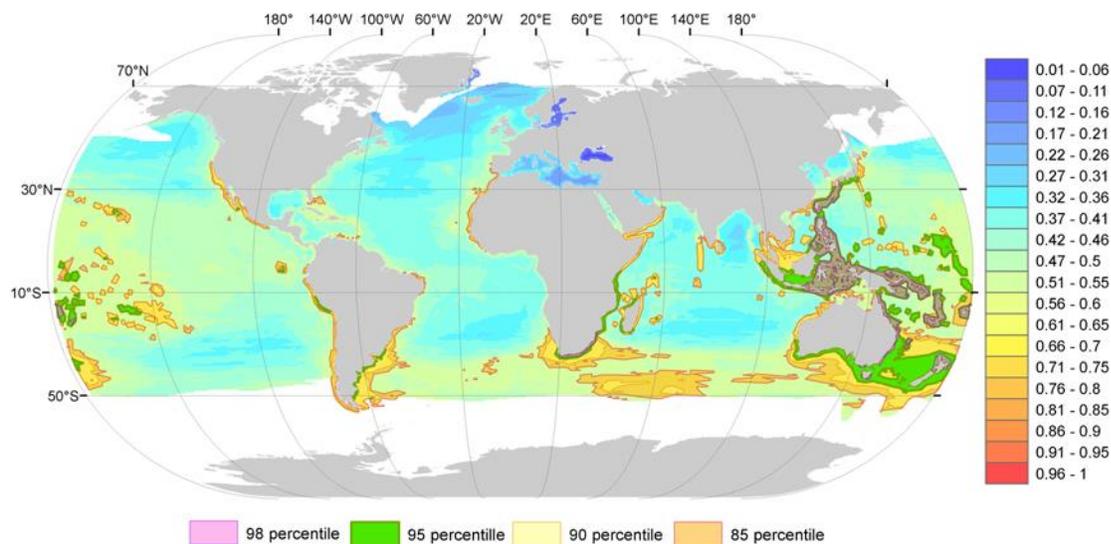


fig. S3. Identifying hot spots of marine biodiversity. Marine areas encompassing 0.5 degree pixels with values of species richness over the upper 85, 90, 95 and 98 percentiles. The upper 95 percentile include marine hotspots from main ocean basins (Indian, Pacific and Atlantic Oceans) while minimizing their extend (surface), thus providing a more realistic picture of potential areas to be protected. Background represents a dimensionless index of biodiversity ranging from 0 (absence of species) to 1 (maximum species richness).

table S1. Long-term, remote-sensing records of oceanographic features. Oceanographic features used for tracing the impact of global change on the marine ecosystems, accessed on 2015/04/20.

	Coverage		Resolution	
	Spatial	Temporal	Spatial (°)	Temporal
<i>Chlorophyll-a concentration</i>				
Coastal Zone Color Scanner (CZCS) ¹	90N - 90S, 0E - 360E	1979-1986	0.08333	annual
SeaWiFS ¹	90N - 90S, 0E - 360E	1997-2001	0.08333	annual
MODIS ¹	90N - 90S, 0E - 360E	2002-2014	0.08333	annual
<i>Sea Surface Temperature</i>				
NOAA Optimum Interpolation (OI) Sea Surface Temperature (SST) V2 ²	89.5N - 89.5S, 0.5E - 359.5E	1982-2014	1	monthly
<i>Marine currents</i>				
NCEP Global Ocean Data Assimilation System (GODAS) ²	74.5S - 64.5N, 0.5E - 359.5E	1980-2014	0.333 lat x 1 long	monthly

¹OceanColor: <http://oceancolor.gsfc.nasa.gov/cms/>

²NOAA: <http://www.esrl.noaa.gov/psd/data/gridded/data.noaa.oisst.v2.html>