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## **Supplementary Information**

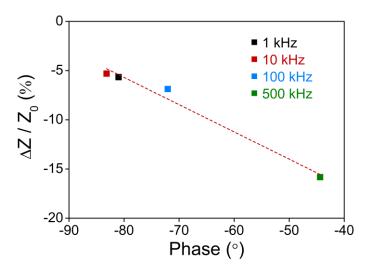
Title: Soft, flexible conductivity sensors for ocean salinity monitoring

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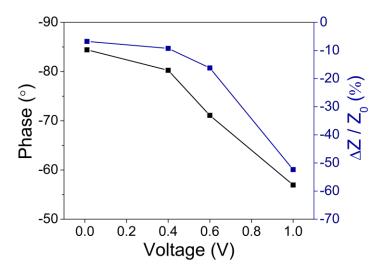
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**Figure S1.** Plot of relative impedance changes ( $\Delta Z/Z0$ , %) as a function of phase angle.



**Figure S2.** Plots of phase angle and relative impedance change ( $\Delta Z/Z_0$ , %) as a function of applied voltage for impedance measurements.

**Table S1.** Current density values of the salinity sensor calculated from their impedance and exposed areas.

Salinity sensor	E20	E300	E500	E1000
Impedance (Ω)	8891.0	8891.0	8891.0	4812.1
Calculated current (µA)	38.8	54.2	67.5	124.7
Effective sensing area (mm <sup>2</sup> )	0.08	1.2	2	4
Current density (A/m²)	484.5	45.2	33.7	31.2