Electrical Conductivity of Natural Waters

EC CONVERSIONS

dS/m = mS/cm = mmho/cm

µS/cm = µmho/cm

10 mS/cm = 1 S/m

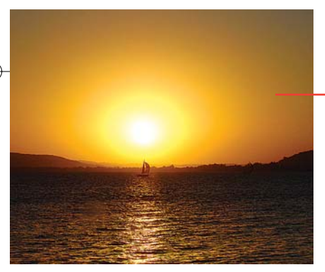
0.097 dS/m Lake Superior

0.15 dS/m Columbia River (Wenatchee)

0.16 dS/m Sacramento River (Tisdale)

0.41 dS/m Snake River (Minidoka)

0.85 dS/m Lake Mead



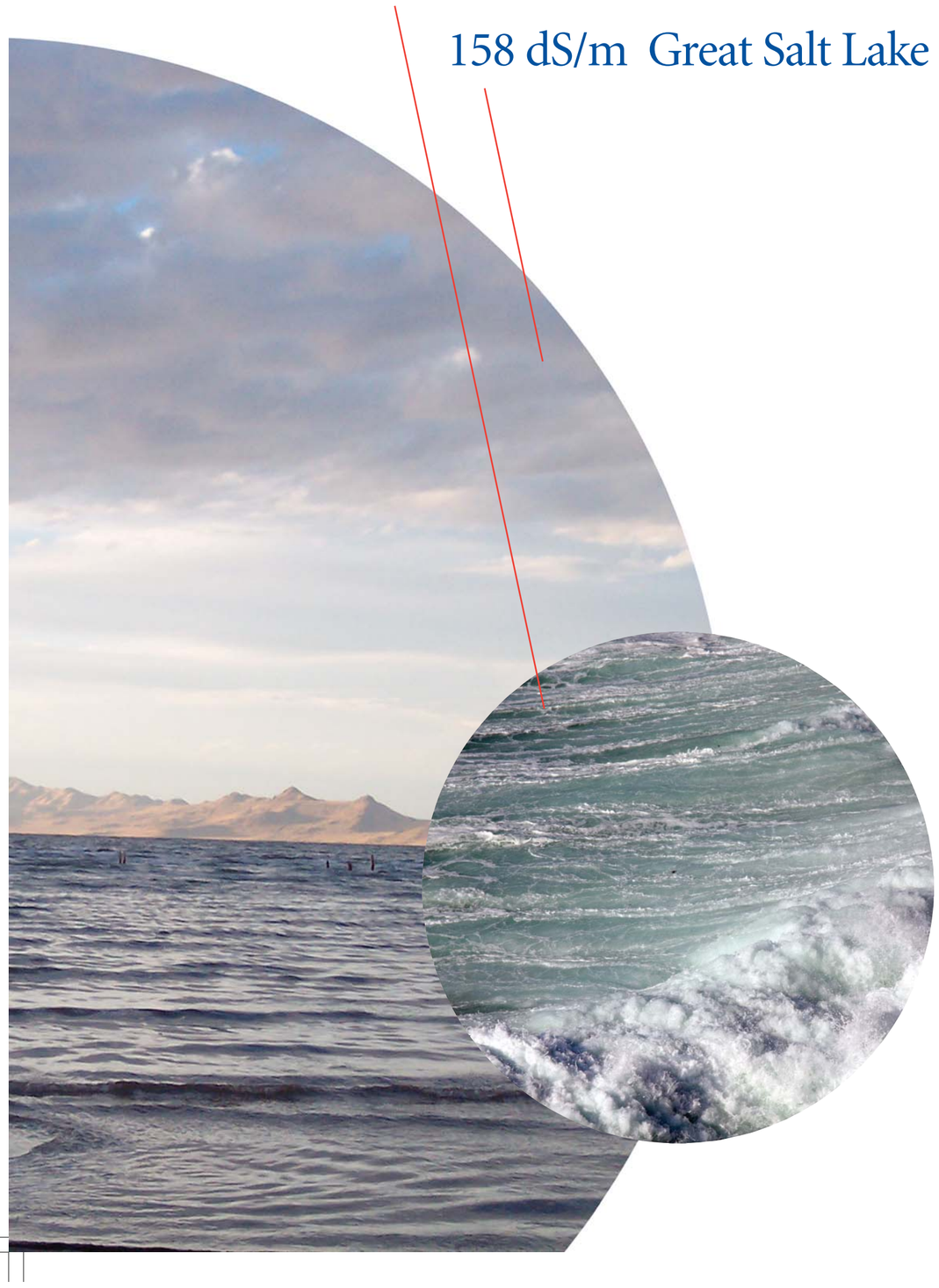
1.06 dS/m Colorado River (Yuma)

1.16 dS/m Rio Grande River (El Paso)

3.21 dS/m Pecos River (Carlsbad)

43 dS/m Atlantic Ocean

158 dS/m Great Salt Lake



0.001 dS/m
Distilled Water

0.1–1.0 dS/m
Drinking water

EC @ 25 C dS/m	Sodium Chloride[1] g NaCl/kg H_2O	Potassium Chloride[2] g KCl/kg H_2O
0.1	0.0455	0.0446
0.2	0.0935	0.0930
0.5	0.2421	0.2456
1	0.4970	0.5120
2	1.0205	1.0673
5	2.6413	2.8186
10	5.4232	5.8758
20	11.1351	12.2490

USEFUL EQUATIONS

Concentration vs. EC for NaCl[3]

$C(gNaCl/kg\ H2O) = 0.497\ EC^{1.04}$ *(EC in dS /m)*

Concentration vs. EC for KCl[4]

$C(gKCl/kg\ H2O) = 0.512\ EC^{1.06}$ *(EC in dS /m)*

Concentration of total dissolved solids for typical natural waters vs. EC[3]

$C(mg\ solids\ /\ kg\ H2O) = 683\ EC^{1.04}$ *(EC in dS /cm)*

EC in all cases is assumed to be the value at 25°C.

Temperature correction of EC[3]

$$EC_{25} = \frac{EC_T}{1 + 0.019\ (T\text{-}25)}$$

where T is Celsius temperature and ECt - is the EC at that temperature.

[1]USDA Handbook 60: Diagnosis and Improvement of Saline and Akali Soils
[2]CRC Handbook of Chemistry and Physics, 74th Edition
[3]Equation based on USDA Handbook 60 data
[4]Equation based on CRC Handbook data

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