

The chemical composition of water bodies, e.g. ground water, surface water (river, lakes), oceans, etc., depends on their source.

Ground Water:

Water is a gift of nature. Over 98 per cent of the fresh water on the earth lies below the earth as ground water. It is the main source of drinking water for about 50 per cent of the global population. It is generally believed that ground water is pure and safe to drink.

However, this is not true. In fact ground water can easily be polluted from wastes generated from domestic, industrial and agricultural sources. The average composition of ground water is given in Figure

<i>Parameters</i>	<i>Amount (ppm)</i>
Sodium	8.2
Potassium	1.4
Calcium	92
Magnesium	34
Iron (III)	0.09
Silica	10
Chloride	9.6
Bicarbonate	330
Nitrate	13
Sulphate	84
Total dissolved solid	434

River Water and Lake Water:

River water and lake water are referred to as surface water. The rivers, as we know originate from the mountains and on way dissolve various minerals they come across. The lakes are formed mostly from river water. The river water originally is pure, but on its way it gets polluted from surface run off, industrial and municipal waste, agricultural wastes, decomposed plant and animal matter and radioactive materials. The average

composition of surface water is given

in Figure

<i>Parameters</i>	<i>Amount (ppm)</i>
Sodium	6.5
Potassium	1.2
Calcium	36
Magnesium'	8.0
Iron (III)	0.02
Silica	1.2
Chloride	13
Bicarbonate	119
Nitrate	0.1
Sulphate	22
Total dissolved solid	1.65

Sea Water:

The oceans have been used by man for centuries for recovering salt and other chemicals. In recent years, besides the chemicals, the oceans have become a good source of petroleum oil, natural gas, etc. The oceans get their water from various rivers. Since there is continuous evaporation from sea, the concentration of various constituents

goes on increasing. The chemical composition of sea water is given in Figure

<i>Parameters</i>	<i>Amount (ppm)</i>
Major constituents	
Sodium	10561
Magnesium	1270
Sulphur	880
Calcium	400
Potassium	380
Chloride	18980
Minor constituents	
Bromine	65
Carbon	28
Strontium	13
Boron	4
Trace constituents¹	
Lithium	0.1
Iodine	0.05
Copper	0.003
Silver	0.0003
Gold	0.000006

Besides the trace constituents given in the table, sea water contain about 25 other trace constituents in very minute amounts. These include Rb, Ba, Zn, Al, Mo, U, Ni, Mn, V, Ti, Co. Cd, Cr, Hg, Pb, F.