Table 4.7 Concentrations of dissolved metals in selected estuaries: 1991-1995

England and Wales

Estuary	EQS[1]	Average concentration[2, 3]					Maximum[3]					Minimum[3]				
		1991	1992	1993	1994	1995	1991	1992	1993	1994	1995	1991	1992	1993	1994	1995
Arsenic (µg/l)																
Tyne	25	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
Wear	25	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
Tees	25	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
Ouse	25	3.5	2.2	1.9	0.6	0.0	7.9	3.7	3.0	3.0	0.0	0.0	0.8	1.1	0.0	0.0
Wash	25	3.7	1.4	1.8	0.0	0.0	3.9	1.7	1.8	0.0	0.0	3.6	1.1	1.8	0.0	0.0
Thames	25	0.0	0.0	0.0	. .	. .	0.0	0.0	0.0	. .	. .	0.0	0.0	0.0	. .	. .
Tamar	25	3.0	2.2	4.0	3.9	0.0	3.0	7.1	9.0	8.4	0.0	3.0	0.0	1.3	2.0	0.0
Cadmium (ng/l)																
Tyne	5,000	382.7	725.5	433.0	254.8	49.1	700.0	2,500.0	3,400.0	1,120.0	240.0	0.0	50.0	0.0	0.0	0.0
Wear	5,000	1,333.3	1,190.0	52.0	174.5	0.0	4,700.0	6,200.0	195.0	1,380.0	0.0	100.0	0.0	0.0	0.0	0.0
Tees	5,000	366.9	240.8	24.6	158.2	24.6	2,200.0	2,900.0	85.0	974.0	390.0	0.0	0.0	0.0	0.0	0.0
Ouse	5,000	. .	132.0	0.0	0.0	0.0	. .	1,000.0	0.0	0.0	0.0	. .	0.0	0.0	0.0	0.0
Wash	5,000	. .	0.0	0.0	0.0	48.8	. .	0.0	0.0	0.0	439.0	. .	0.0	0.0	0.0	0.0
Thames	5,000	163.2	147.1	95.4	435.0	85.0	290.0	380.0	400.0	760.0	160.0	0.0	0.0	0.0	110.0	0.0
Tamar	5,000	42.5	101.8	0.0	23.3	43.9	120.0	450.0	0.0	70.0	130.0	0.0	0.0	0.0	0.0	0.0
Chromium (µg/l)																
Tyne	15	14.0	1.6	0.4	1.9	2.5	66.0	11.0	2.2	5.2	9.0	0.0	0.0	0.0	1.0	0.0
Wear	15	17.7	0.7	0.6	8.2	0.8	44.0	4.0	1.6	19.0	3.0	6.0	0.0	0.0	1.1	0.0
Tees	15	10.5	4.3	1.0	8.6	2.0	53.0	37.0	2.3	23.1	16.0	0.0	0.0	0.0	1.0	0.0
Ouse	15	. .	. .	. .	0.4	0.0	. .	. .	. .	4.7	0.0	. .	. .	. .	0.0	0.0
Wash	15	. .	. .	. .	0.0	0.0	. .	. .	. .	0.0	0.0	. .	. .	. .	0.0	0.0
Thames	15	2.9	0.6	0.2	0.3	0.3	17.0	1.8	0.8	1.2	0.8	0.0	0.0	0.0	0.0	0.0
Tamar	15	6.6	0.0	. .	. .	0.1	30.0	0.0	. .	. .	1.0	0.0	0.0	. .	. .	0.0
Copper (µg/l)																
Tyne	5	0.6	8.8	3.6	. .	4.9	2.0	18.0	9.7	. .	29.0	0.0	2.5	1.0	. .	0.0
Wear	5	6.4	7.4	1.6	. .	3.0	32.0	18.0	2.9	. .	5.0	0.0	1.4	0.0	. .	0.0
Tees	5	2.9	36.1	2.5	. .	1.0	11.0	505.0	4.0	. .	3.0	0.0	0.0	1.0	. .	0.0
Ouse	5	0.0	5.6	2.7	3.0	0.0	0.0	12.0	6.0	12.3	0.0	0.0	1.4	0.0	0.0	0.0
Wash	5	. .	0.0	3.3	4.4	0.0	. .	0.0	3.3	10.3	0.0	. .	0.0	3.3	0.0	0.0
Thames	5	13.9	4.7	4.0	4.6	7.0	30.4	12.0	7.1	9.3	18.8	3.1	0.0	0.0	0.7	2.1
Tamar	5	9.7	-	. .	3.3	2.5	50.0	-	. .	6.1	3.9	2.0	-	. .	2.0	0.0
Lead (µg/l)																
Tyne	25	18.0	3.8	1.4	4.1	2.5	64.0	10.5	2.9	12.7	4.0	0.0	0.0	0.0	1.7	0.0
Wear	25	31.0	2.1	0.4	0.6	2.0	72.0	6.0	2.0	3.3	9.0	16.0	0.0	0.0	0.0	0.0
Tees	25	13.8	1.8	1.2	2.2	1.0	70.5	10.5	2.6	15.3	4.0	0.0	0.0	0.0	0.0	0.0
Ouse	25	. .	0.3	0.8	0.0	0.0	. .	3.0	5.6	0.0	0.0	. .	0.0	0.0	0.0	0.0
Wash	25	. .	0.0	0.0	0.0	0.0	. .	0.0	0.0	0.0	0.0	. .	0.0	0.0	0.0	0.0
Thames	25	6.7	1.2	0.9	0.6	0.5	23.6	7.0	2.1	1.1	1.2	0.0	0.0	0.0	0.2	0.1
Tamar	25	0.5	0.7	0.2	0.5	0.2	1.7	3.4	0.8	2.2	0.5	0.0	0.0	0.0	0.2	0.0

Table 4.7 Concentrations of dissolved metals in selected estuaries: 1991-1995

England and Wales

Estuary	EQS[1]	Average concentration[2, 3]					Maximum[3]					Minimum[3]				
		1991	1992	1993	1994	1995	1991	1992	1993	1994	1995	1991	1992	1993	1994	1995
Mercury (ng/l)																
Tyne	500	105.0	59.8	87.9	0.0	24.2	105.0	130.0	185.0	0.0	80.0	105.0	0.0	0.0	0.0	0.0
Wear	500	. .	26.5	139.3	0.0	14.6	. .	31.0	565.0	0.0	60.0	. .	24.0	0.0	0.0	0.0
Tees	500	. .	63.8	19.9	0.0	16.2	. .	160.0	130.0	0.0	60.0	. .	0.0	0.0	0.0	0.0
Ouse	500	33.3	28.2	7.6	21.4	5.0	136.0	148.0	79.0	200.0	20.0	0.0	0.0	0.0	0.0	0.0
Wash	500	0.0	0.0	0.0	6.4	91.0	0.0	0.0	0.0	24.0	430.0	0.0	0.0	0.0	0.0	0.0
Thames	500	12.1	21.0	. .	. .	. .	53.0	110.0	. .	. .	. .	0.0	0.0	. .	. .	. .
Tamar	500	36.6	3.9	0.0	0.0	0.0	249.0	39.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Nickel (µg/l)																
Tyne	30	3.6	43.0	2.5	6.4	2.5	17.0	70.0	3.6	17.9	11.0	0.0	3.2	1.8	1.5	0.0
Wear	30	23.8	44.3	2.8	11.4	3.8	130.0	70.0	4.8	19.1	7.0	0.0	4.0	1.2	5.0	0.0
Tees	30	6.6	16.5	2.0	10.8	2.1	29.0	77.0	3.5	21.7	14.0	0.0	0.0	0.0	2.0	0.0
Ouse	30	. .	4.1	5.8	2.3	0.0	. .	9.6	14.0	3.6	0.0	. .	0.0	0.0	0.0	0.0
Wash	30	. .	0.0	9.5	1.4	0.0	. .	0.0	9.5	2.1	0.0	. .	0.0	9.5	0.9	0.0
Thames	30	10.2	8.2	4.1	3.5	3.5	16.9	19.6	6.7	4.6	5.5	0.0	0.0	1.3	1.4	0.9
Tamar	30	0.6	2.6	1.0	1.1	1.1	2.1	5.6	1.8	1.9	2.2	0.0	0.0	0.0	0.5	0.0
Zinc (µg/l)																
Tyne	40	161.8	29.9	28.0	88.0	28.6	478.0	64.0	44.5	296.0	50.0	22.0	8.4	9.2	20.0	0.0
Wear	40	92.3	18.9	17.1	67.7	5.1	203.0	42.0	22.0	346.0	16.0	32.0	5.1	7.9	18.1	0.0
Tees	40	50.9	26.9	14.4	74.2	50.6	212.0	220.0	23.0	397.0	417.0	2.7	0.0	7.7	5.0	0.0
Ouse	40	. .	28.7	15.7	19.1	0.0	. .	103.0	36.0	112.0	0.0	. .	5.3	5.5	0.0	0.0
Wash	40	. .	0.0	36.0	28.0	0.0	. .	0.0	36.0	67.9	0.0	. .	0.0	36.0	7.7	0.0
Thames	40	41.0	22.1	19.0	26.1	30.6	85.0	43.0	30.0	52.1	71.3	0.0	8.0	7.0	10.9	14.6
Tamar	40	12.4	. .	. .	8.2	7.4	110.0	. .	. .	18.2	19.5	0.0	. .	. .	4.7	2.7

Source: Environment Agency

[1] Environmental Quality Standards (EQS) are standards set in European Water Directives.

[2] Average values for each estuary were derived by taking the mean of the average values for each sampling point in the estuary.

[3] Where samples were below the limit of detection, zero values have been taken.

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