

5.5 Effects of Water Quality Improvement Measures

To visualize the effects of water quality conservation measures, we computed the river inflow load after implementation of the countermeasures, and estimated the changes in water quality of Patos Lake.

Table 5.5-1 shows the river inflow load after implementation of the countermeasures. The same countermeasure implementation rate was used for the whole basin, and the permissible inflow load value was distributed to each river using the current runoff load value.

Fig. 5.5-1 to **Fig. 5.5-5** show the distribution map of water quality and concentrations after the implementation of countermeasures. Also, **Fig. 5.5-6** shows the comparison of concentrations of with-measures and present value for T-P, and **Fig. 5.5-7** compares concentrations of with-measures with the provisional conservation target.

The comparison of current T-P concentrations with those after the implementation of the countermeasures shows a significant improvement in water quality in the northern water area of Patos Lake and in the water areas around the Camaqua and Sao Goncalo inflow points. Also, the provisional conservation target is generally attained all over Patos Lake, except in the water area along the north-west shore.

Table 5.5-1 Inflow Loads into Patos Lake with Measures (Average Values)

RIVER NAME	Inflow Point			Discharge	BOD		T-N		T-P		COD	
	No.	Mesh Number			Load (t/day)	Concentration (mg/l)	Load (t/day)	Concentration (mg/l)	Load (t/day)	Concentration (mg/l)	Load (t/day)	Concentration (mg/l)
		I	J	(m3/s)								
Guaiba Lake	1	48	117	920.7	99.1	1.2	71.6	0.90	11.9	0.149	862.3	10.8
	2	45	117	920.7	99.1	1.2	71.6	0.90	11.9	0.149	862.3	10.8
	Total			1841.3	198.2	1.2	143.2	0.90	23.7	0.149	1724.5	10.8
Porto Alegre	3	48	109	13.4	14.2	12.3	8.1	7.01	2.3	1.970	17.8	15.4
P-7	4	63	100	1.8	2.8	18.1	1.8	11.49	0.5	3.049	0.1	0.8
	5	68	102	1.8	2.8	18.1	1.8	11.49	0.5	3.049	0.1	0.8
	6	75	107	1.8	2.8	18.1	1.8	11.49	0.5	3.049	0.1	0.8
	Total			5.3	8.3	18.1	5.3	11.49	1.4	3.049	0.4	0.8
Rio Camaqua	7	23	50	397.6	28.8	0.8	14.5	0.42	7.3	0.214	595.7	17.3
P-5	8	37	71	2.4	3.5	17.0	2.3	11.34	0.7	3.234	0.4	2.2
	9	40	79	2.4	3.5	17.0	2.3	11.34	0.7	3.234	0.4	2.2
	10	45	89	2.4	3.5	17.0	2.3	11.34	0.7	3.234	0.4	2.2
	Total			7.1	10.5	17.0	7.0	11.34	2.0	3.234	1.3	2.2
P-6	11	13	36	1.3	1.9	17.0	1.3	11.35	0.4	3.235	0.2	2.0
	12	13	42	1.3	1.9	17.0	1.3	11.35	0.4	3.235	0.2	2.0
	13	16	47	1.3	1.9	17.0	1.3	11.35	0.4	3.235	0.2	2.0
	Total			3.9	5.7	17.0	3.8	11.35	1.1	3.235	0.7	2.0
Canal do Sao Goncalo	14	3	25	539.6	65.9	1.4	33.0	0.71	6.0	0.129	828.3	17.8
Rio Grande	17	7	11	2.5	3.2	15.0	2.1	9.64	0.6	2.749	4.0	18.4
M-7	15	3	25	4.7	6.1	15.0	3.9	9.68	1.1	2.757	7.1	17.4
Pelotas	16	3	25	7.5	10.2	15.7	6.8	10.38	1.9	2.919	0.6	1.0
Total				2823.0	351.1	-	227.7	-	47.5	-	3180.4	-