

LN695-062

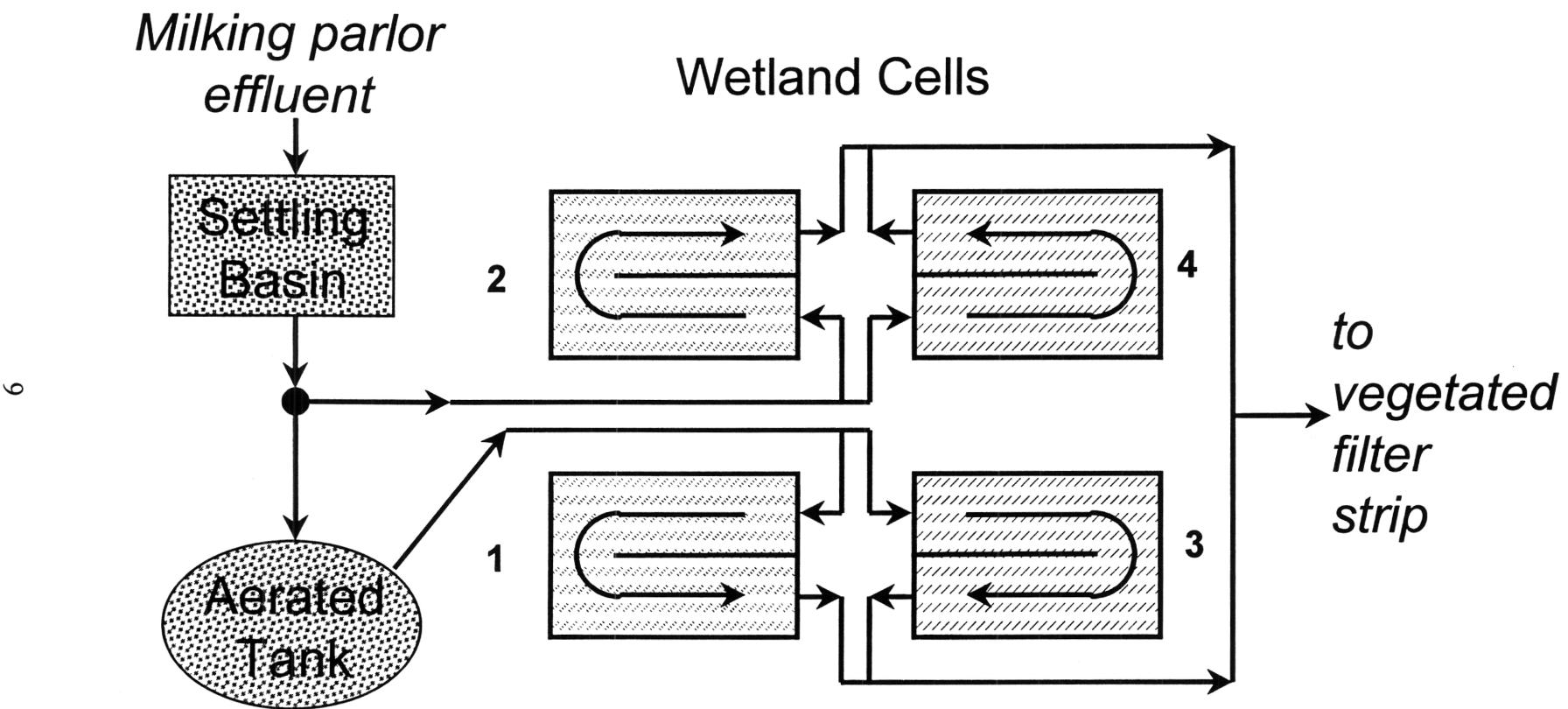


Fig. 1. Constructed wetland system for treating dairy waste at the Central Maryland Research and Education Center, Clarksville Facility.

Table 1. Summary of water quality data for pretreatment units. Values are mean and standard error (SE) for monthly observations of concentration (mg/L) for wetland cells (October 1997-December 1998) and settling basin and aerated tank (October 1997-May 1998). Percentage change between influent and effluent concentrations and P-value for *t*-test are shown below each mean.

Parameter	Wetland Cells				Settling Basin				Aerated Tank			
	Inflow Mean	SE	Outflow Mean	SE	Inflow Mean	SE	Outflow Mean	SE	Inflow Mean	SE	Outflow Mean	SE
Chemical Oxygen Demand	3190	756	518	54	7790	688.15	7526.25	726.28	6128.75	730.56	6391.25	898.89
% change	-83.8%				-3.4%				+4.3%			
<i>t</i> -test P-value	< 0.0001				0.8905				0.5978			
Ammonia Nitrogen	110.3	10.9	25.6	1.9	193.35	29.35	244.26	32.09	211.43	24.98	211.09	31.34
% change	-76.8%				+26.3%				-0.2%			
<i>t</i> -test P-value	< 0.0001				0.7724				0.4641			
Nitrate Nitrogen	4.02	0.54	1.83	0.21	9.46	2.01	8.45	1.56	6.76	1.11	6.54	1.32
% change	-54.5%				-10.7%				-3.3%			
<i>t</i> -test P-value	< 0.0001				0.4100				0.5810			
Ortho-phosphate	39.2	3.5	18.7	1.7	44.4	7.78	44.07	10.82	33.81	6.92	21.95	4.71
% change	-52.3				-0.7%				-35.1%			
<i>t</i> -test P-value	< 0.0001				0.2466				0.1265			
Total Kjeldahl Nitrogen	109	11.7	29.5	3.1	234.82	18.51	287.18	34.11	286.06	18.97	258.6	19.09
% change	-72.9%				+22.3%				-9.6%			
<i>t</i> -test P-value	< 0.0001				0.0438				0.9811			
Total Phosphorus	59.5	8.9	9.4	0.64	93.39	7.73	73.49	9.56	79.28	3.85	68.28	3.86
% change	-84.2%				-21.3%				-13.9%			
<i>t</i> -test P-value	< 0.0001				0.4204				0.9962			
Total Suspended Solids	1916	529	246	36.2	4106.8	988.687	2601.47	613.52	2243.6	444.88	1619.29	516.04
% change	-87.2%				-36.7%				-27.8%			
<i>t</i> -test P-value	< 0.0001				0.2062				0.8255			

Fig. 2. Ammonia Nitrogen

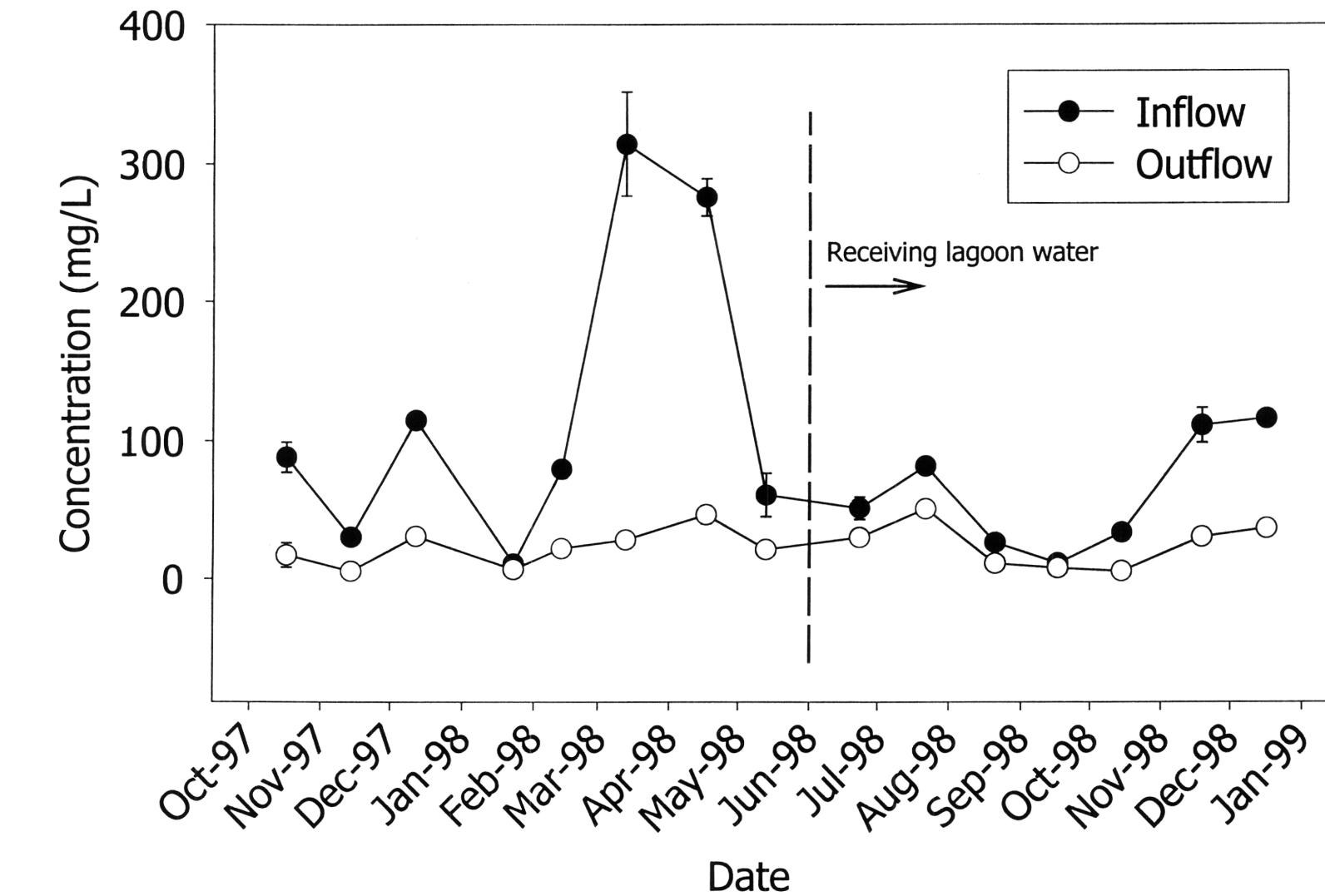


Fig. 3. Nitrate Nitrogen

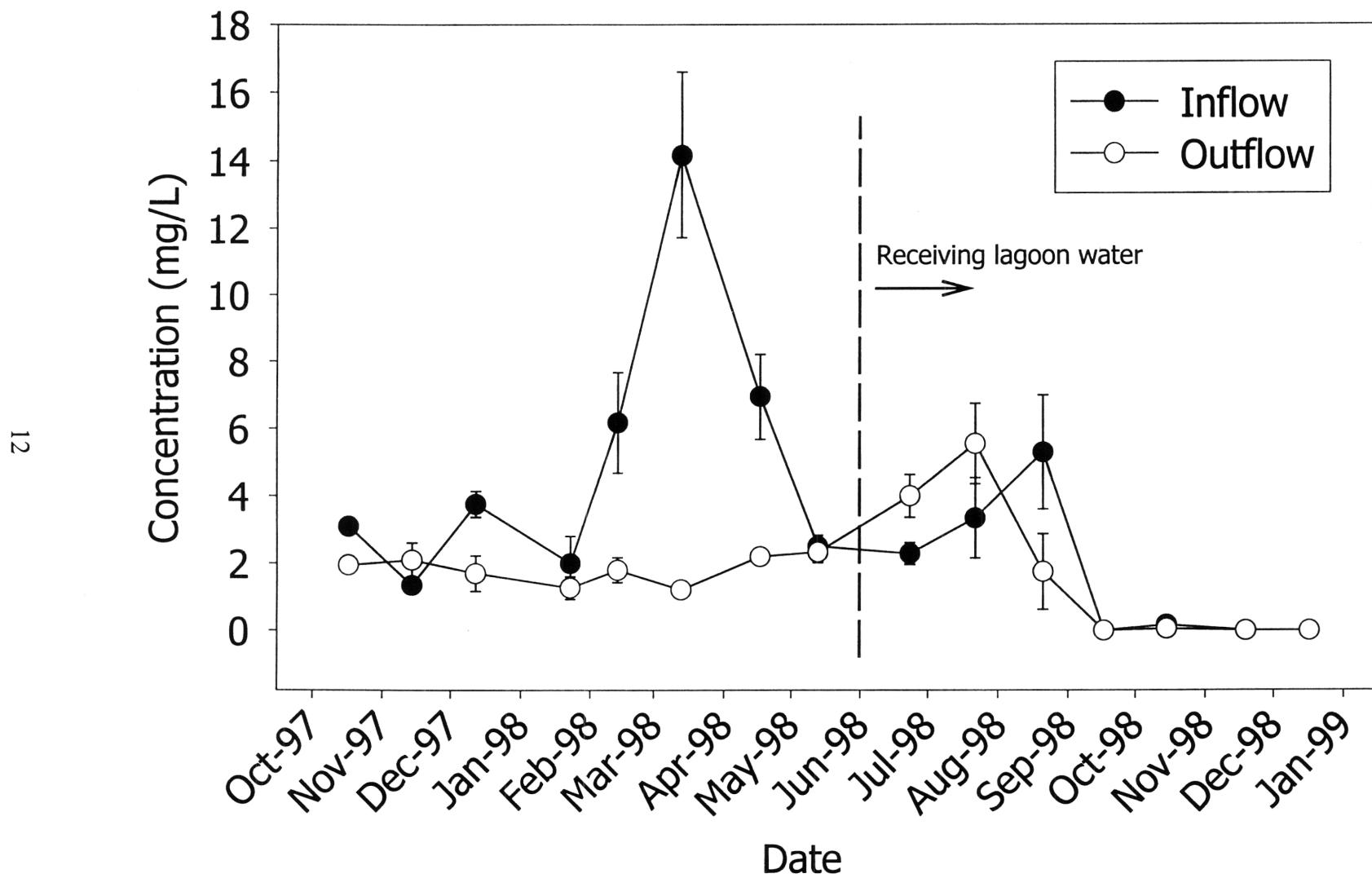


Fig. 4. Total Kjeldahl Nitrogen

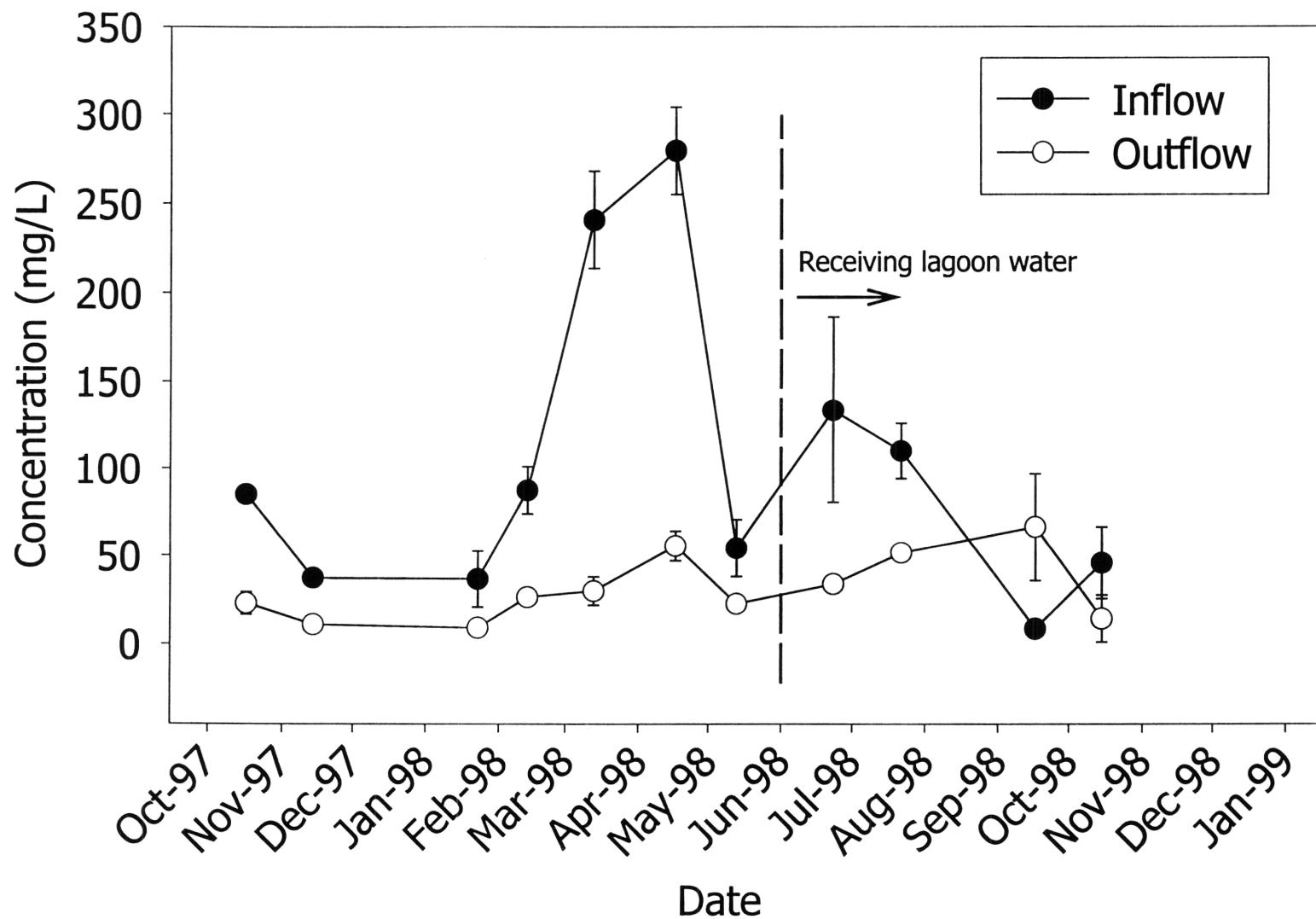


Fig. 5. Ortho-phosphate

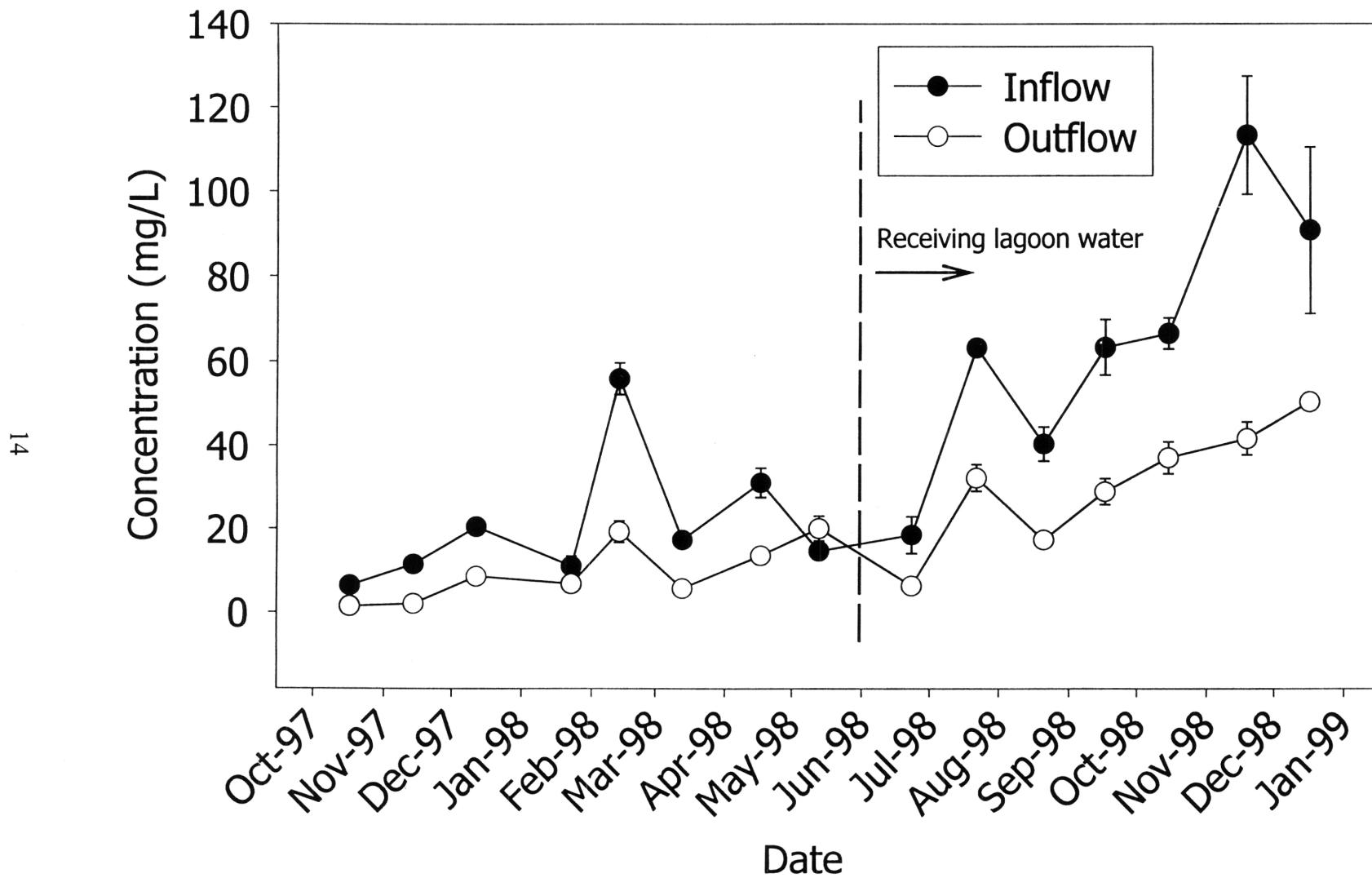


Fig. 6. Total Phosphorus

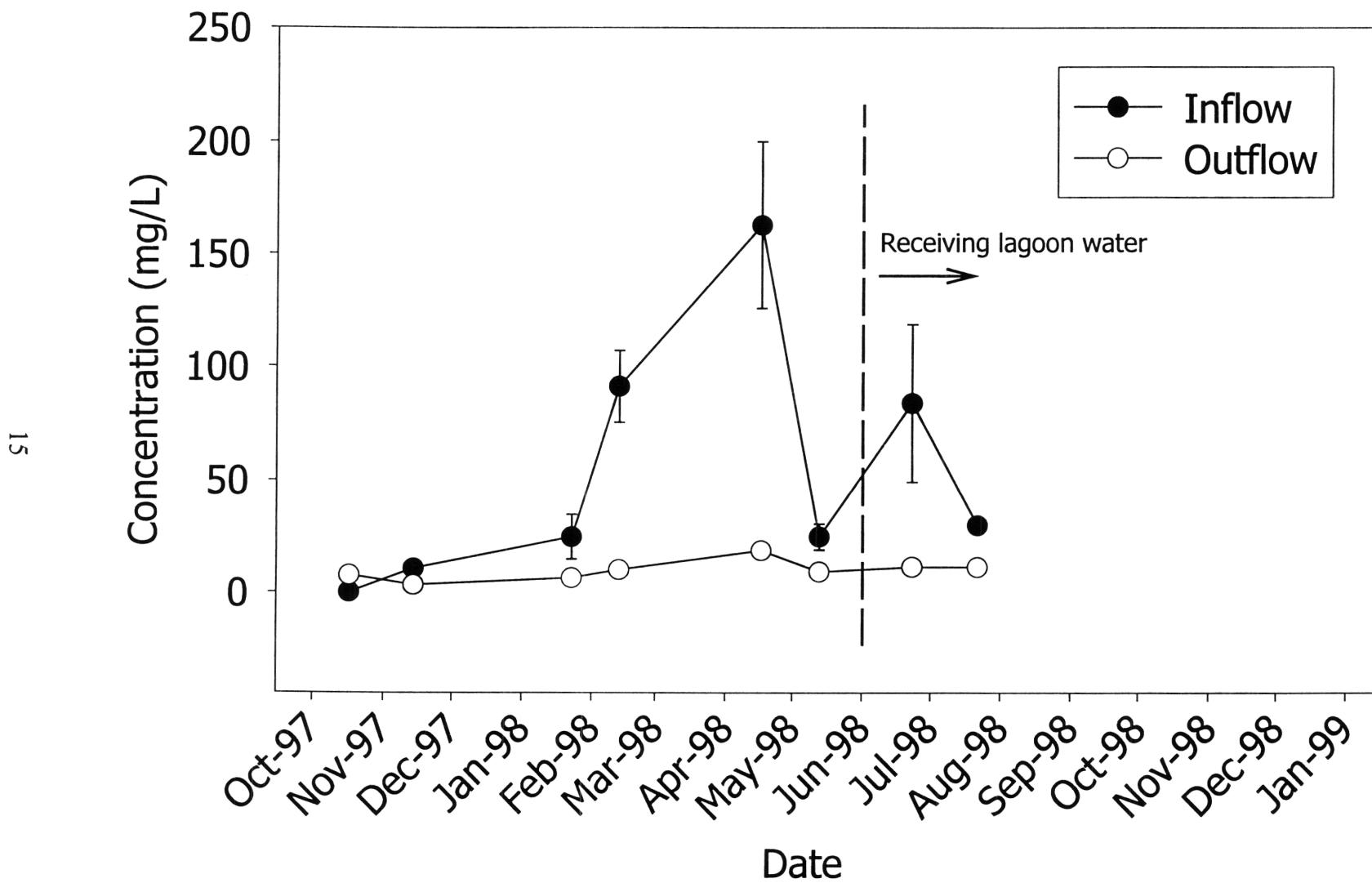


Fig. 7. Total Suspended Solids

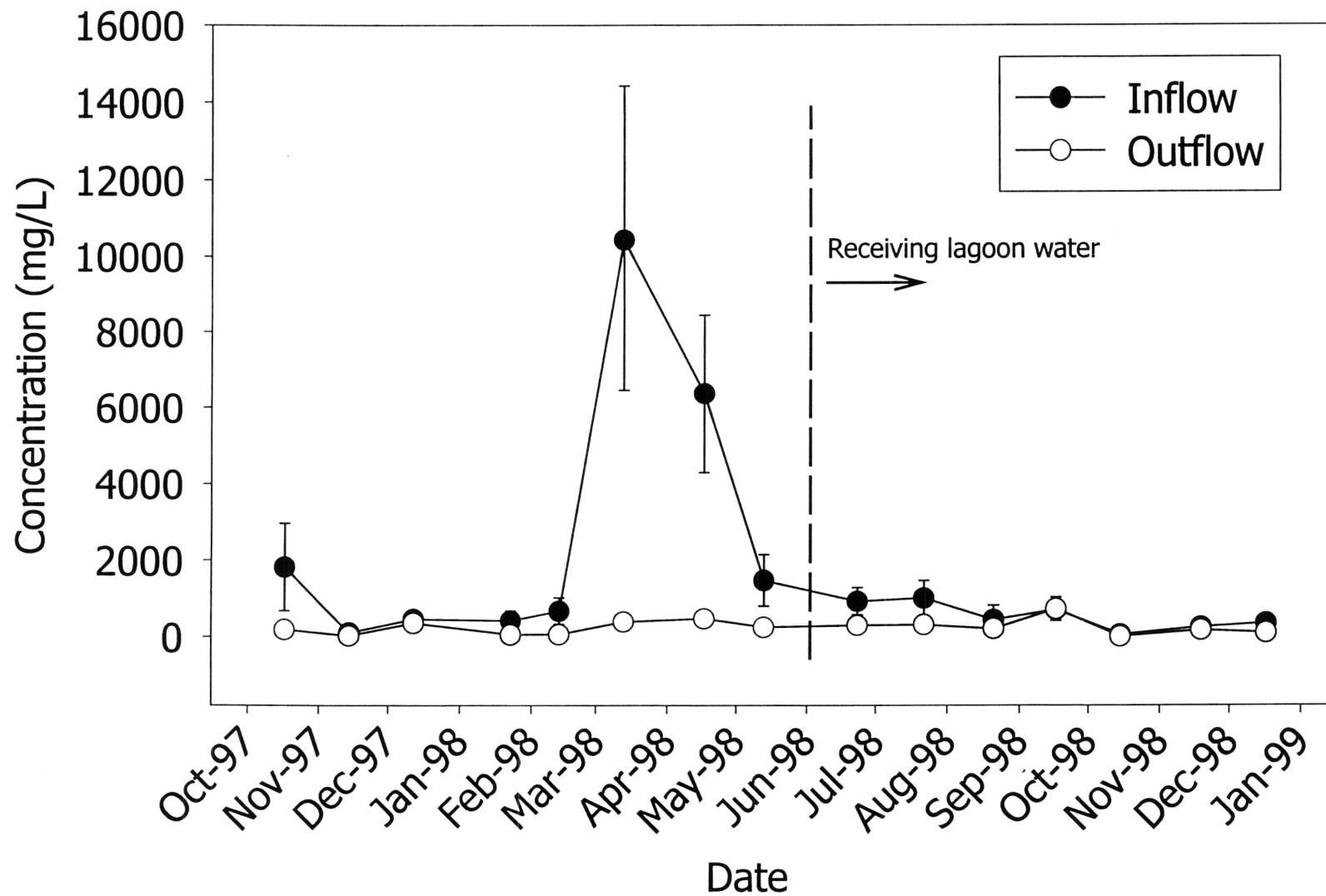


Fig. 8. Chemical Oxygen Demand

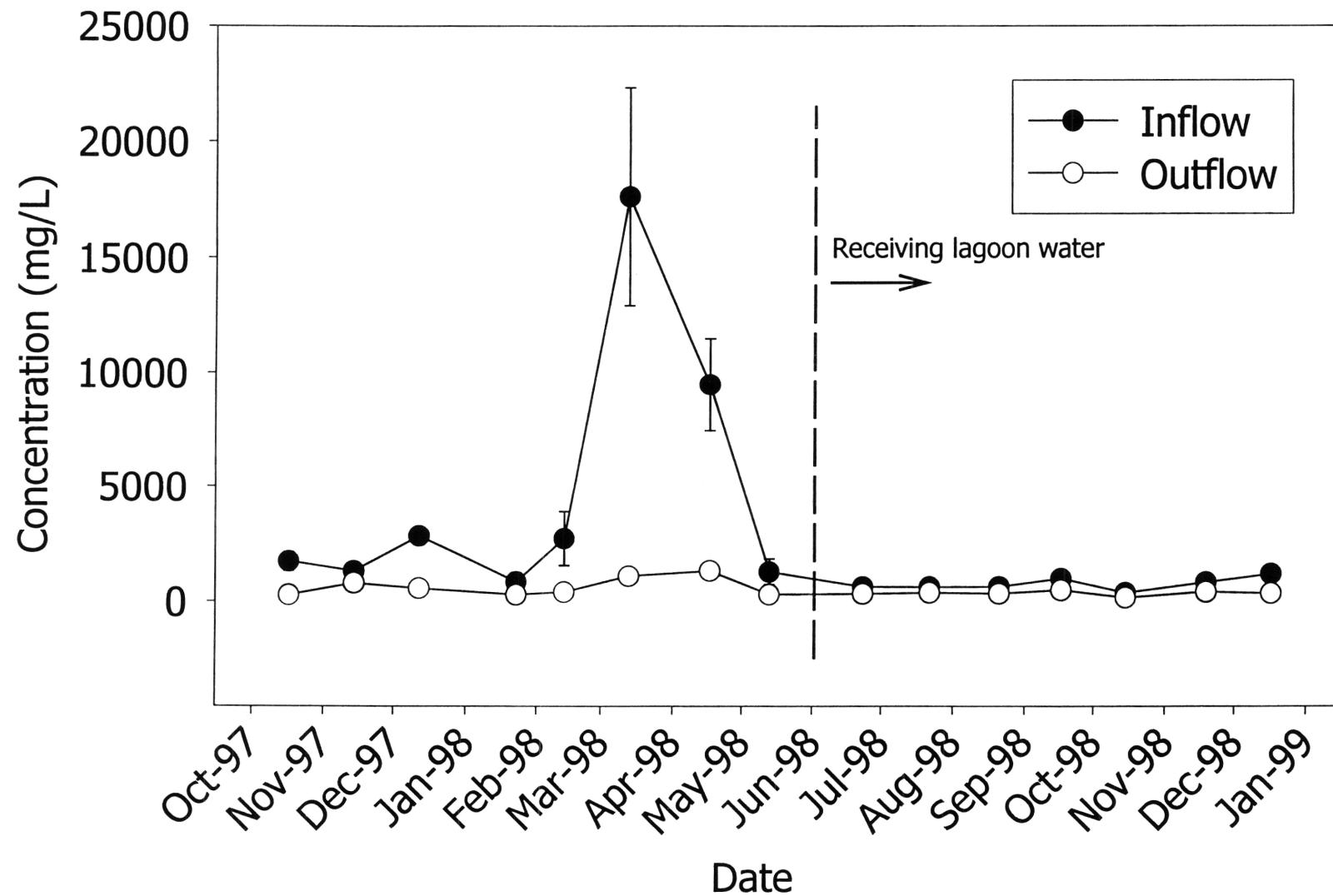


Fig. 9. Relationship between  $\text{BOD}_5$  and COD

