

Table 1. Changes in hydrobiological characteristics of Jagannath canal in lentic condition in the reservoir during February-March period.

Parameters	Reservoir											
	Days											
	2	4	6	8	10	12	14					
Temperature (°C)	25.30 ± 0.50	25.18 ± 0.42	25.69 ± 0.56	26.10 ± 0.70	26.00 ± 0.56	26.19 ± 0.62	26.34 ± 0.70	26.13 ± 0.68				
*SPM (mg l ⁻¹)	88.55 ± 11.12	11.19 ± 2.45	10.15 ± 2.65	13.15 ± 2.00	17.38 ± 2.42	19.42 ± 2.64	12.04 ± 1.28	8.46 ± 1.21				
Transparency (cm)	14.36 ± 2.63	52.30 ± 4.86	40.35 ± 3.64	34.20 ± 3.89	22.19 ± 2.60	20.24 ± 2.12	38.92 ± 3.26	46.98 ± 3.18				
Salinity (‰)	4.05 ± 1.36	4.20 ± 1.00	4.34 ± 1.40	4.46 ± 1.51	4.53 ± 1.08	4.82 ± 1.16	5.00 ± 1.20	5.28 ± 1.42				
pH	7.76 ± 0.06	8.10 ± 0.05	8.42 ± 0.06	8.56 ± 0.11	8.64 ± 0.06	8.83 ± 0.16	7.84 ± 0.30	7.63 ± 0.34				
CO ₂ (mg l ⁻¹)	2.16 ± 0.18	1.22 ± 0.06	-	-	-	-	3.52 ± 1.12	4.89 ± 1.63				
Total alkalinity (as mg l ⁻¹ CaCO ₃)	146.18 ± 6.21	143.92 ± 5.64	135.34 ± 5.20	130.15 ± 4.69	108.65 ± 5.83	96.16 ± 5.90	98.02 ± 6.53	97.13 ± 5.30				
Dissolved oxygen (mg l ⁻¹)	4.50 ± 0.63	5.53 ± 0.68	7.93 ± 1.28	10.34 ± 2.20	12.63 ± 2.46	11.82 ± 1.61	3.19 ± 0.83	5.50 ± 1.96				
Chemical oxygen demand (mg l ⁻¹)	23.16 ± 3.89	8.32 ± 2.18	10.42 ± 3.64	23.48 ± 3.58	38.19 ± 5.19	42.34 ± 5.80	48.12 ± 4.34	47.40 ± 4.18				
NO ₃ -N (µg-at l ⁻¹)	50.93 ± 5.65	53.83 ± 4.18	38.36 ± 3.08	30.00 ± 3.12	23.24 ± 3.22	14.63 ± 2.42	12.45 ± 1.83	15.19 ± 2.64				
NH ₄ -N (µg-at l ⁻¹)	25.78 ± 4.20	18.65 ± 2.62	10.48 ± 2.13	5.34 ± 1.25	2.18 ± 1.20	1.20 ± 0.26	15.68 ± 0.38	14.63 ± 2.11				
PO ₄ -P (µg-at l ⁻¹)	7.63 ± 2.06	7.29 ± 1.95	5.14 ± 1.34	3.82 ± 1.18	2.00 ± 0.62	1.34 ± 0.31	1.92 ± 0.42	3.73 ± 1.12				
SiO ₂ -Si (µg-at l ⁻¹)	96.30 ± 7.82	88.13 ± 9.10	86.34 ± 6.46	85.34 ± 6.82	82.63 ± 5.95	72.64 ± 6.12	72.84 ± 6.34	71.69 ± 5.82				
Phytoplankton (x 10 ² No. l ⁻¹)	65.19 ± 10.36	68.96 ± 8.42	71.42 ± 7.18	81.20 ± 9.52	188.38 ± 9.43	226.76 ± 9.84	52.36 ± 6.32	42.19 ± 5.40				
**GPP (mg C m ⁻³ h ⁻¹)	17.67 ± 4.42	36.42 ± 3.50	65.83 ± 4.61	71.40 ± 4.86	86.38 ± 7.21	85.48 ± 7.62	34.08 ± 3.09	41.24 ± 3.18				
†P/R	0.96 ± 0.09	3.34 ± 0.22	3.88 ± 0.23	2.33 ± 0.53	2.73 ± 0.34	2.24 ± 0.51	1.13 ± 0.22	1.31 ± 0.18				
‡THB (x 10 ⁵ CFU ml ⁻¹)	329.28 ± 28.58	98.24 ± 11.16	81.23 ± 9.42	68.19 ± 10.34	50.42 ± 6.62	40.34 ± 7.19	126.19 ± 11.20	150.69 ± 9.63				

*SPM, suspended particulate matter; **GPP, gross primary production; †P/R, primary production/respiration; ‡THB, total heterotrophic bacteria

Table 2. Changes in hydrobiological characteristics of Jagannath canal in lentic condition in the reservoir during June-July period.

Parameters	Reservoir													
	Source water							Days						
	2	4	6	8	10	12	14							
Temperature (°C)	29.48 ± 0.63	28.80 ± 0.51	28.90 ± 0.38	29.00 ± 0.70	29.20 ± 1.12	28.70 ± 0.86	29.10 ± 1.21	28.70 ± 1.32						
*SPM (mg l ⁻¹)	207.13 ± 13.16	20.45 ± 3.67	12.10 ± 1.18	14.24 ± 2.14	15.18 ± 3.02	16.24 ± 3.18	7.69 ± 1.12	6.45 ± 0.82						
Transparency (cm)	8.50 ± 1.83	50.60 ± 4.69	38.10 ± 3.45	25.20 ± 2.42	26.12 ± 3.07	44.60 ± 4.28	56.90 ± 5.18	50.64 ± 3.24						
Salinity (‰)	5.38 ± 1.64	5.40 ± 1.24	5.46 ± 1.30	5.82 ± 1.24	6.10 ± 1.64	6.21 ± 1.34	6.34 ± 1.80	6.50 ± 1.64						
pH	7.88 ± 0.12	8.23 ± 0.20	8.50 ± 0.18	8.55 ± 0.18	8.75 ± 0.24	8.21 ± 0.13	7.86 ± 0.12	7.88 ± 0.23						
CO ₂ (mg l ⁻¹)	3.18 ± 1.12	1.65 ± 0.09	-	-	-	4.12 ± 1.24	3.65 ± 0.88	3.18 ± 1.04						
Total alkalinity (as mg l ⁻¹ CaCO ₃)	170.48 ± 7.46	166.52 ± 8.20	155.18 ± 6.42	134.56 ± 5.82	132.13 ± 6.34	141.34 ± 9.64	140.46 ± 7.88	138.68 ± 8.45						
Dissolved oxygen (mg l ⁻¹)	5.30 ± 1.18	6.18 ± 1.30	8.12 ± 1.83	11.59 ± 3.42	12.34 ± 2.92	3.67 ± 0.89	2.23 ± 0.48	6.82 ± 1.98						
Chemical oxygen demand (mg l ⁻¹)	15.50 ± 4.19	6.34 ± 1.62	8.84 ± 2.48	24.48 ± 4.19	36.36 ± 3.89	48.24 ± 4.90	47.36 ± 5.48	38.34 ± 2.32						
NO ₃ -N (µg-at l ⁻¹)	38.94 ± 4.28	41.16 ± 3.68	38.35 ± 4.92	27.16 ± 3.41	21.34 ± 3.18	18.42 ± 2.69	16.23 ± 3.10	17.45 ± 2.86						
NH ₄ -N (µg-at l ⁻¹)	13.46 ± 2.92	10.42 ± 3.18	6.34 ± 2.32	3.12 ± 2.16	2.40 ± 0.86	18.36 ± 2.60	19.13 ± 3.18	14.20 ± 3.08						
PO ₄ -P (µg-at l ⁻¹)	8.18 ± 2.09	7.46 ± 1.36	6.82 ± 1.48	4.67 ± 1.21	2.18 ± 0.94	2.24 ± 0.43	3.46 ± 0.84	4.65 ± 0.93						
SiO ₂ -Si (µg-at l ⁻¹)	126.97 ± 12.82	120.32 ± 6.54	115.20 ± 5.42	110.19 ± 6.19	95.63 ± 5.18	87.34 ± 6.39	84.16 ± 5.42	82.45 ± 5.90						
Phytoplankton (x 10 ² No. l ⁻¹)	68.42 ± 9.62	71.30 ± 8.82	72.85 ± 7.98	218.46 ± 8.80	244.10 ± 9.46	44.32 ± 6.30	42.36 ± 5.42	46.32 ± 4.92						
**GPP (mg C m ⁻³ h ⁻¹)	13.42 ± 3.42	29.42 ± 3.89	82.14 ± 6.60	92.34 ± 7.50	90.12 ± 6.69	42.23 ± 3.92	22.16 ± 3.10	23.64 ± 3.24						
†P/R	0.81 ± 0.09	3.32 ± 0.20	2.66 ± 0.18	2.62 ± 0.16	2.10 ± 0.18	1.11 ± 0.13	0.96 ± 0.08	1.37 ± 0.10						
‡THB (x 10 ⁵ CFU ml ⁻¹)	389.18 ± 26.21	108.65 ± 9.90	80.13 ± 8.85	75.64 ± 6.86	68.24 ± 7.32	124.82 ± 9.58	202.48 ± 15.70	182.42 ± 9.46						

*SPM, suspended particulate matter; **GPP, gross primary production; †P/R, primary production/respiration; ‡THB, total heterotrophic bacteria

Table 3. Changes in hydrobiological characteristics of Mooriganga river in lentic condition in the reservoir during February-March period.

Parameters	Reservoir										
	Days										
	2	4	6	8	10	12	14				
Temperature (°C)	26.40 ± 0.45	26.60 ± 1.36	26.50 ± 0.42	25.80 ± 0.61	26.00 ± 0.32	26.76 ± 0.56	27.12 ± 0.67	27.00 ± 0.57			
*SPM (mg l ⁻¹)	103.20 ± 4.56	23.45 ± 2.42	11.89 ± 1.86	8.20 ± 1.24	9.86 ± 1.06	8.18 ± 0.89	9.42 ± 1.03	9.00 ± 1.04			
Transparency (cm)	14.42 ± 3.04	43.19 ± 3.50	57.34 ± 3.65	52.10 ± 2.00	37.32 ± 3.46	33.34 ± 2.20	42.19 ± 3.10	45.32 ± 2.64			
Salinity (‰)	22.13 ± 3.60	22.64 ± 2.82	22.85 ± 2.46	23.24 ± 3.16	23.64 ± 3.54	24.20 ± 2.69	24.56 ± 3.00	24.68 ± 2.56			
pH	7.80 ± 0.07	8.04 ± 0.11	8.20 ± 0.08	8.51 ± 0.12	8.52 ± 0.04	8.56 ± 0.22	8.32 ± 0.34	8.34 ± 0.23			
CO ₂ (mg l ⁻¹)	1.96 ± 0.06	1.36 ± 0.07	1.18 ± 0.06	-	-	0.16 ± 0.29	2.24 ± 1.34	2.00 ± 1.16			
Total alkalinity (as mg l ⁻¹ CaCO ₃)	162.52 ± 5.62	163.28 ± 6.82	162.36 ± 5.64	156.24 ± 4.12	150.42 ± 5.00	152.19 ± 4.08	156.42 ± 3.60	145.45 ± 5.19			
Dissolved oxygen (mg l ⁻¹)	4.12 ± 0.52	6.00 ± 0.74	8.24 ± 1.24	9.16 ± 2.10	11.45 ± 2.56	8.42 ± 3.00	7.46 ± 2.13	6.82 ± 1.86			
Chemical oxygen demand (mg l ⁻¹)	13.32 ± 2.16	8.96 ± 2.26	6.19 ± 1.82	9.46 ± 2.50	10.08 ± 2.02	10.60 ± 2.12	12.18 ± 3.64	10.02 ± 2.85			
NO ₃ -N (µg-at l ⁻¹)	16.56 ± 1.42	18.16 ± 1.65	14.31 ± 1.04	9.16 ± 1.82	6.42 ± 0.96	4.67 ± 0.42	3.65 ± 0.46	5.38 ± 0.72			
NH ₄ -N (µg-at l ⁻¹)	4.20 ± 0.50	3.82 ± 0.30	2.28 ± 0.18	1.38 ± 0.08	0.92 ± 0.10	0.58 ± 0.16	1.20 ± 0.12	1.82 ± 0.20			
PO ₄ -P (µg-at l ⁻¹)	2.21 ± 0.21	2.00 ± 0.19	2.06 ± 0.20	1.40 ± 0.08	0.28 ± 0.10	0.08 ± 0.05	0.22 ± 0.09	1.24 ± 0.20			
SiO ₂ -Si (µg-at l ⁻¹)	70.16 ± 4.40	68.34 ± 5.10	67.34 ± 4.89	52.68 ± 5.06	46.34 ± 6.16	38.12 ± 3.65	35.67 ± 3.76	36.42 ± 3.82			
Phytoplankton (x 10 ² No. l ⁻¹)	46.92 ± 4.58	48.78 ± 3.65	52.34 ± 4.20	56.18 ± 3.18	60.32 ± 3.69	64.34 ± 2.86	58.24 ± 3.00	45.18 ± 2.06			
**GPP (mg C m ⁻³ h ⁻¹)	22.42 ± 2.68	42.24 ± 3.89	42.32 ± 3.64	47.96 ± 4.75	44.43 ± 3.60	33.19 ± 2.83	25.60 ± 2.65	28.34 ± 3.00			
†P/R	0.95 ± 0.12	2.46 ± 0.22	3.09 ± 0.36	2.56 ± 0.19	2.19 ± 0.46	1.56 ± 0.30	1.41 ± 0.12	1.73 ± 0.20			
‡THB (x 10 ⁵ CFU ml ⁻¹)	151.16 ± 12.48	47.34 ± 8.40	41.36 ± 5.16	30.18 ± 3.18	21.32 ± 4.50	26.48 ± 3.65	27.58 ± 2.50	26.39 ± 3.08			

*SPM, suspended particulate matter; **GPP, gross primary production; †P/R, primary production/respiration; ‡THB, total heterotrophic bacteria

Table 4. Changes in hydrobiological characteristics of Mooriganga river in lentic condition in the reservoir during June-July period.

Parameters	Source water	Reservoir										
		Days										
		2	4	6	8	10	12	14				
Temperature (°C)	29.80 ± 0.82	30.10 ± 0.96	30.24 ± 0.72	29.68 ± 0.65	29.82 ± 1.08	30.00 ± 1.21	29.80 ± 0.98	29.65 ± 1.16				
*SPM (mg l ⁻¹)	136.18 ± 8.16	37.35 ± 5.82	12.34 ± 3.00	7.24 ± 2.56	10.32 ± 1.86	13.16 ± 1.58	14.32 ± 2.24	13.38 ± 1.69				
Transparency (cm)	13.32 ± 2.01	38.34 ± 3.21	55.68 ± 4.23	43.24 ± 3.46	33.62 ± 4.20	32.19 ± 3.12	35.46 ± 2.86	38.60 ± 3.10				
Salinity (‰)	6.82 ± 1.80	6.98 ± 1.60	7.20 ± 1.56	7.34 ± 1.60	7.56 ± 1.20	7.73 ± 1.34	8.00 ± 1.54	8.23 ± 1.72				
pH	7.81 ± 0.08	8.15 ± 0.33	8.36 ± 0.24	8.60 ± 0.09	8.65 ± 0.13	8.52 ± 0.06	8.41 ± 0.12	8.29 ± 0.32				
CO ₂ (mg l ⁻¹)	2.85 ± 0.62	1.69 ± 0.31	1.20 ± 0.98	-	-	-	0.87 ± 0.75	2.24 ± 0.66				
Total alkalinity (as mg l ⁻¹ CaCO ₃)	112.52 ± 6.81	102.44 ± 7.42	98.64 ± 4.86	100.46 ± 5.60	90.42 ± 4.23	78.45 ± 3.46	70.19 ± 2.82	76.93 ± 4.65				
Dissolved oxygen (mg l ⁻¹)	4.18 ± 1.10	5.84 ± 1.64	6.20 ± 1.82	5.83 ± 1.65	9.56 ± 1.89	11.24 ± 2.63	10.19 ± 2.86	8.42 ± 2.04				
Chemical oxygen demand (mg l ⁻¹)	18.33 ± 3.51	10.12 ± 2.06	8.42 ± 1.63	6.50 ± 1.02	8.19 ± 1.84	15.26 ± 3.40	19.83 ± 3.24	22.16 ± 4.04				
NO ₃ -N (µg-at l ⁻¹)	22.19 ± 3.18	26.34 ± 3.62	25.34 ± 3.80	26.18 ± 3.16	18.34 ± 2.45	10.12 ± 2.20	8.21 ± 2.20	8.85 ± 1.62				
NH ₄ -N (µg-at l ⁻¹)	5.12 ± 1.87	3.18 ± 1.04	3.10 ± 1.12	2.82 ± 0.65	2.08 ± 0.98	1.04 ± 0.21	2.02 ± 0.32	2.31 ± 0.50				
PO ₄ -P (µg-at l ⁻¹)	2.89 ± 0.62	2.30 ± 0.76	2.15 ± 0.38	2.18 ± 0.42	1.00 ± 0.30	0.12 ± 0.03	0.30 ± 0.08	0.34 ± 0.11				
SiO ₂ -Si (µg-at l ⁻¹)	82.42 ± 5.46	80.16 ± 5.68	70.34 ± 6.22	63.49 ± 5.03	42.18 ± 3.69	29.24 ± 3.88	25.63 ± 3.42	25.19 ± 2.68				
Phytoplankton (x 10 ² No. l ⁻¹)	42.26 ± 3.89	46.40 ± 4.96	50.19 ± 4.24	58.35 ± 5.20	68.40 ± 4.89	65.64 ± 6.08	55.34 ± 5.69	53.48 ± 4.82				
**GPP (mg C m ⁻³ h ⁻¹)	19.42 ± 2.62	35.42 ± 4.18	36.32 ± 4.34	38.19 ± 3.62	58.65 ± 4.18	62.48 ± 4.86	55.46 ± 3.63	38.12 ± 3.15				
†P/R	0.89 ± 0.08	2.15 ± 0.13	2.63 ± 0.16	3.73 ± 0.34	2.64 ± 0.20	2.63 ± 0.44	1.72 ± 0.14	1.71 ± 0.22				
‡THB (x 10 ⁵ CFU ml ⁻¹)	135.40 ± 10.63	58.34 ± 8.16	43.40 ± 8.42	38.18 ± 6.08	27.32 ± 4.65	18.19 ± 3.45	29.42 ± 3.18	38.19 ± 4.40				

*SPM, suspended particulate matter; **GPP, gross primary production; †P/R, primary production/respiration; ‡THB, total heterotrophic bacteria