

**【Title of Paper】**

**Global warming threatens Lake Kasumigaura, a highly developed, desalinated former maritime lagoon in Japan**

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**【Abstract】**

**Global warming and climate change will be serious matters for the future of wide and shallow lakes. Lake Kasumigaura near the Tokyo metropolitan area was enclosed by a dyke and desalinated by a water gate in 1963 for use for agricultural, industrial and tap water. The lake water is now utilized efficiently. Surrounding swamplands were reclaimed for paddy fields and housing. Dyke and tidewater gate regulations were effective in preventing damage from floods and seawater.**

**Rises in seawater level forecast for the next centennial due to global warming will affect Lake Kasumigaura adversely. The gate will have to remain shut to prevent seawater rise, resulting in prolongation of retention time and further water quality deterioration. The lake water level will rise about 50cm from present in accordance with the sea level rise, resulting in destruction of marsh flora inside the higher dyke.**

**Also, higher temperatures will cause outbreaks of algal blooms, bacteria and parasite infestations, some species extermination, and material circulation in wetlands including paddy fields. Methane emissions from the marsh due to anaerobic decomposition will add problems. Heavier rainfall will wash the catchment area soil away and cause sewer systems to overflow pouring untreated wastewater into the lake.**