

TABLE 1.1 PRINCIPAL POLLUTION PROBLEMS, AFFECTED USES,
AND ASSOCIATED WATER QUALITY VARIABLES

Manifestation of problem	Water use interference	Water quality problem	Water quality variables
1. Fish kills Nuisance odors, H ₂ S "Nuisance" organisms Radical change in ecosystem	Fishery Recreation Ecological health	Low DO (dissolved oxygen)	BOD NH ₃ , org N Organic solids Phytoplankton DO
2. Disease transmission Gastrointestinal disturbance, eye irritation	Water supply Recreation	High bacterial levels	Total coliform bacteria Fecal coliform bacteria Fecal streptococci Viruses
3. Tastes and odors—blue green algae Aesthetic beach nuisances—algal mats "Pea soup" Unbalanced ecosystem	Water supply Recreation Ecological health	Excessive plant growth (Eutrophication)	Nitrogen Phosphorus Phytoplankton
4. Carcinogens in water supply Fishery closed—unsafe toxic levels Ecosystem upset; mortality, reproductive impairment	Water supply Fishery Ecological health	High toxic chemical levels	Metals Radioactive substances Pesticides Herbicides Toxic product chemicals

SOURCE: E. V. Thomann & J. A. Mueller
Principles of Surface Water
Quality Modeling and Control
Harper Collins Publishers, 1987