

2. Rationale for use of indicators in water-resource-quality-monitoring programs for meeting water-management objectives relevant to selected surface-water resources. These are status and trends indicators meant to illustrate the suitability of a water resource for use by a management objective rather than demonstrate success of a particular management objective on that water resources.

Selection of indicators to be used in specific programs will depend on selection criteria, water-body type, and management objective. **High-priority indicators are in boldface.** *Medium-priority indicators are in italics.* Low-priority indicators are in regular typeface. Numbers in brackets refer to reference at end of appendix. Literature citations included here offer some technical justification for indicator selection; the ITFM indicators task group does not mean to imply that these are the most appropriate. Also, some of the matrix cells with text do not yet have citations.]

Categories of indicators	Human health and aesthetics		Ecological condition		Economic concerns		
	Consumption of fish, shellfish, and wildlife	Public water supply and food processing	Recreation: Boating, swimming, and fishing (including catchability) ¹	Aquatic and semi-aquatic life, protected species and aquaculture	Industry: Makeup and cooling water, and other types of water	Transportation and hydropower	Agriculture and forestry
Part 1—Indicators of biological response and exposure							
Invertebrates (including problem species): Assemblage, toxicity, harvesting, populations.		<i>Populations of problem species clog intakes (locally important).</i>	Populations and harvesting show availability. Toxicity tests may indicate toxic conditions. Population of problem species show community alteration [18, 33].	Assemblage and harvesting show system status. Populations of problem species indicate invasion of species and alteration of community. Toxicity tests may indicate toxic conditions [14, 23, 33].	Populations of problem species clog intakes.	Problem populations clog dam conduits and interfere with navigation.	Overabundance of noxious species may interfere with irrigation systems.
(including problem species): Assemblage, biomarkers, abnormalities, aqueous or sediment toxicity, harvest communities, populations, biomass.	Abnormalities show possible carcinogen or parasite.		Growth, biomass, populations, and harvesting show availability. External abnormalities are repugnant to fishermen [16].	Population or Assemblage show status of community. Biomarkers and abnormalities show parasites, toxicity or animal health. Toxicity tests may indicate toxic conditions. Harvesting shows system status [16, 18].			Do.
Aquatic wildlife: Assemblage, populations, biomass, harvest-biomarkers.			Populations show number of harvestable organisms. Biomarkers show exposure to chemicals [4, 21].	Assemblage, populations, biomass, and harvesting show system status. Biomarkers show chemical exposure [4, 5].			Do.
Pathogens and fecal indicator microorganisms: (E. coli, Giardia, and botulism, fecal form.)	Populations indicate presence of pathogens in shellfish [35].	Concentrations of indicator bacteria show pathogenicity [1].	Populations or assemblage indicate human [29].	Concentrations of pathogens may indicate unhealthy conditions.			Concentration of fecal bacteria indicate livestock pathogens.