HISTORY OF GUIDELINE DEVELOPMENT

Cyanobacterial toxins: Saxitoxins (STXs)

Cyanobacterial toxins were not evaluated in the 1958, 1963 and 1971 WHO *International Standards for Drinking-water* or in the first two editions of the *Guidelines for Drinking-water Quality*, published in 1984 and 1993. In the addendum to the second edition of the Guidelines, published in 1998, it was concluded that there were insufficient data to allow a guideline value to be derived for any cyanobacterial toxins other than microcystin-LR. The assessment was brought forward to the third edition of the Guidelines, published in 2004, and the fourth edition of the Guidelines, published in 2011.

STXs were evaluated in 2020, in a background document to the *Guidelines for Drinking-water Quality* and *Guidelines for Safe Recreational Water Environments*, where an acute health-based drinking-water guideline value of 0.003 mg/L for total STXs (sum of all congeners, free plus cell-bound) was derived based on studies of paralytic shellfish poisoning in humans caused by mixtures of STXs. As STXs are highly potent acutely but there is no indication of chronic toxicity from limited follow-up of human cases of paralytic shellfish poisoning, a lifetime guideline value for STXs in drinking-water was deemed inappropriate and further the data were insufficient to derive a lifetime health-based guideline value. Since the acute guideline value is based on infants, it was further noted that adults could tolerate a 5-fold higher concentration than the acute guideline value. The acute guideline value and associated guidance were incorporated in the fourth edition of the Guidelines incorporating the first and second addenda, published in March 2022.

The background document, which established a provisional recreational water health-based guideline value of 0.03 mg/L, informed the update of the WHO Guidelines for Safe Recreational Water Environments, published in 2021 as *Guidelines on Recreational Water Quality*.