State Comparison Table

	Wisconsin[1]	Minnesota[2]	New York[3]	Ohio[4]	Washington[5,6]
Basis	Numerical Values called sediment quality guidelines (SQGs) Based on MacDonald et al. (2000)[7] for most. Also CCME (1999)[8], Ontario Guidelines (Persaud, et al., 1993)[9] and NOAA (Long and Morgan 1991)[10] Benthic Effects based. Not for bioaccumulation or food chain. 3 values for each chemical: TEC, MEC and PEC	Numerical Values called sediment quality targets (SQTs) Based on MacDonald et al. (2000) for most. Also CCME (1999), and NYSDEC (1999)[11]. Benthic Effects based. Not for bioaccumulation or food chain. 2 values for each chemical: Level I SQT = TEC Level II SQT = PEC	Numerical Values called sediment guidance values (SGVs) Effects based and bioaccumulation based SGVs. For nonpolar organic contaminants, use the EPA equilibrium portioning procedures For metals, adopted MacDonald et al. (2000) TEC and PEC Values For total PCBs, NYDEC has their own SGVs	Numerical Values Recommends MacDonald et al. (2000), U.S. EPA Region V Ecological Screening Levels[12], Ohio EPA Sediment Reference Values[13] or U.S. EPA Region IX values for residential soil (for human health)[14]. Benthic effects and/or human health considered, depending on the potential exposure. After screening, for data that exceeds the SQGs, Ohio uses EPA procedures for equilibrium partitioning benchmarks. Not for bioaccumulation.	Numerical and narrative sediment standards. The only state with promulgated standards. Calculated sediment quality values (SQVs) from large datasets in Washington, Oregon and Idaho Updated in 2010 to reflect information from a larger geographic area. Large data analysis effort. Over 600 stations with combinations of bulk chemistry and bioassays used to develop. Effects based SQVs for benthic organisms.
Chemicals included	18 PAH, 12 metals, total PCB, pesticides and other compounds (see excel table for full listing).	13 PAH, 8 metals, total PAH, total PCB and 10 pesticides	SGVs for 9 metals and 61 organic compounds including total PAH, total PCB, pesticides, etc.	Does not list chemicals specifically for screening, but rather refers back to the available SQGs listed above. ESBs evaluated for 34 PAHs and metals.	SQVs for 10 metals, 21 organic chemicals, including total PAH, total PCBs, pesticides, etc. 2 SQVs for bulk petroleum hydrocarbons. Also includes ammonia and total sulfides.
How Used?	Part of tiered assessment framework Assess sediment quality for dredging projects Screening for benthic effects and bioavailability potential (ecological).	Designing monitoring programs Identify, rank and prioritize sediment associated contaminants Evaluate spatial patterns	For screening, classification and assessment of sediments only to determine if sediments are having an effect on aquatic life. 3 classifications of sediments Class A: low risk (<TEC)	Used for making sediment management decisions Three tiered process: 1. Screening to determine chemicals of concern 2. Evaluation of COCs for	Setting standards for sediment quality (numeric and narrative) Apply standards to reduce pollutant discharges Provide a decision process for

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	Not for bioaccumulation or food chain effects. Prioritize and rank sites and evaluate need to collect additional data Toxicity benchmarks for ecological risk assessments Weight of evidence decision making Not meant for stand-alone decision making, but could be used as remediation objective at sites where parties agree.	Ecological risk assessments Screening tools for larger sites Level II SQT can be used as clean up values for small sites. For complex sites, use SQTs with other assessments (toxicity, benthic surveys, bioaccumulation tests). Guidance notes *the weight of evidence generated should be proportional to the weight of the decision in the management of contaminated sediment.*	Class B: slightly to moderately contaminated (> TEC<PEC) Class C: high risk (PEC or greater) Not used for making decisions for sediment management, remediation, mitigation or disposal. Provide starting point for risk assessment Identification of COCs Weight of evidence approach, with additional lines of evidence used when predictions of toxicity from bulk chemistry and toxicity tests do not agree Other lines to use include benthic community, pore water, bioaccumulation testing, sediment contaminant aging, etc.	bioavailability using ESB and AVS/SEM 3. HHRA if human health is a concern, or toxicity testing for aquatic life.	cleaning up contaminated sediments Two effects levels, the sediment quality standard (SQS) and the clean-up screening level (CSL) SQS = no acute or chronic adverse effects level CSL = minor adverse effects level. The SQS is the long term goal for sediments CSL is the level above which clean-up sites are designated, and is the upper end of the range within which clean-up standards can be selected. Clean up goals fall between the SQS and CSL.
PAH Considerations	18 PAHs noted in guidance document. SQGs not available for 2 of the compounds, but noted their similarity to other compounds	13 PAHs in guidance document. Does not take into consideration toxic effects from UV exposure. In shallow environments, the SQTs could underrepresent the toxic effects.	For PAH mixtures, calculate ESB toxic units from 34 PAHs to evaluate effects to environment.	ESB procedures used for PAHs if found in screening step to be of concern.	Developed SQV only for total PAH
# in total	16 (different from MacDonald, which uses 13)	13. Guidance states to note if more than 13 used in total, indicate number.	Requires 16 for initial screening, 34 for higher level evaluation	34	19
TOC normalization?	Yes (for naturally occurring TOC). Where TOC not available, use bulk chemistry data.	No. Reviewed previous studies and found that dry weight concentrations predicted sediment toxicity as well or better than TOC normalized SQGs in field collected sediment. Notes that chemical binding to sediments is a complex and variable phenomenon that cannot be adequately represented simply by normalizing to TOC.	Yes, for the ESB TU calculations when evaluating PAH mixtures. In absence of TOC data, and to avoid additional data collection for TOC, NYDEC assumes a 2% TOC based on the statewide TOC average derived form 18 watersheds.	Yes (per ESB procedures)	No. Organic carbon normalization does not improve the reliability of the SQVs.

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Other Considerations	Noted potential for future use of EPA equilibrium partitioning approach for metals, PAH mixtures and other nonionic organic compounds for use as a screening tool.	For sediments with contaminant mixtures, MN uses mean PEC quotients (PEC-Q). Has procedures for calculating PEC-Q for mixtures containing total PAH, metals, and PCB.	NY guidance is very detailed with providing procedures modifying the EQP SGVs and for the metals SGVs to allow for site specific conditions.	2 alternatives to tier III evaluation: 1. Accept tier II evaluation and manage sediments according to results 2. Use pore water analysis to compare with state water quality standards.	Sediment biological criteria can also be used to set sediment clean up objectives. The SQS is set at the no adverse effects level including acute or chronic adverse effects. The CSL is set at the minor adverse effects level including acute or chronic adverse effects.

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3. New York State Department of Environmental Conservation (NYSDEC). 2014. Screening and Assessment of Contaminated Sediment.
4. Ohio Environmental Protection Agency. 2010. Guidance on Evaluating Sediment Contaminant Results.
5. State of Washington Department of Ecology. 2013. Sediment Management Standards. Chapter 173-204 WAC. Publication # 13-09-055.
6. State of Washington Department of Ecology. 2011. Development of Benthic SQVs for Freshwater Sediments in Washington, Oregon, and Idaho. Publication # 11-09-054.
7. MacDonald, D.D., C.G. Ingersoll, and T.A. Berger. 2000. Development and Evaluation of Consensus-based Sediment Quality Guidelines for Freshwater Ecosystems. Arch. Environ. Contam. Toxicol. 39:20-31.
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11. NYSDEC. 1999. Technical Guidance for Screening Contaminated Sediments, New York State Department of Environmental Conservation Division of Fish and Wildlife, Division of Marine Resources, Albany, NY.
12. U.S. EPA. 2003. Region V Ecological Screening Levels. August 22, 2003.
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14. U.S. EPA. 20008. Preliminary Remediation Goals for Soil. Region 9. May 2008.