

APPENDIX A

List of Cold- and Warm-Water Preference Taxa

This appendix contains the lists of taxa that were included in the cold- and warm-water preference trait groups in Utah, Maine, and North Carolina. Lists have been sorted first by state, then by taxon. These lists were developed using thermal optima and tolerance values specific to each state and/or region, literature, case studies, and best professional judgment (BPJ) from regional advisory groups. These lists are meant as a first step—not a final product. They should be further refined as more data become available. These lists have been developed for particular regions, but there is some overlap (e.g., some taxa occur on the cold-water list in more than one state).

Table A-1. Metadata

State	State that the list was developed for (ME = Maine, NC = North Carolina, UT = Utah)
Order	Taxonomic level
Taxon	Highest level of taxonomic resolution
Percentage Abundance	Percentage of total individuals in the state database composed of that taxon
Percentage Stations	Percentage of stations at which the taxon has been documented to occur
Source	Source of data

Table A-2. Maine—cold-water list

Order	Taxon	% Abundance	% Stations	Source Type	Source Citation
Coleoptera	Oulimnius	0.0	4.4	Literature	Vieira et al., 2006
Diptera	Heterotrissocladius	0.1	8.6	Empirical—Maine	U.S. EPA, 2011
Diptera	Larsia	0.1	6.8	Empirical—Maine	U.S. EPA, 2011
Diptera	Macropelopia	0.1	5.1	Empirical—Maine	U.S. EPA, 2011
Diptera	Natarsia	0.1	7.7	Empirical—Maine	U.S. EPA, 2011
Diptera	Pagastia	0.1	11.3	Empirical—Maine	U.S. EPA, 2011
Diptera	Prodiamesa	0.1	3.3	Empirical—Maine	U.S. EPA, 2011
Diptera	Pseudodiamesa	0.0	1.4	Literature	Beck, 1977
Ephemeroptera	Ameletus	0.0	3.1	Literature	Poff et al., 2006
Ephemeroptera	Epeorus	0.4	20.3	Empirical—Maine	U.S. EPA, 2011
Ephemeroptera	Eurylophella	0.3	20.0	Empirical—Maine	U.S. EPA, 2011
Ephemeroptera	Rhithrogena	0.0	2.7	Literature	Poff et al., 2006
Megaloptera	Nigronia	0.1	20.0	Empirical—Maine	U.S. EPA, 2011
Odonata	Boyeria	0.3	37.8	Empirical—Maine	U.S. EPA, 2011
Odonata	Lanthus	0.0	1.3	Literature	Poff et al., 2006
Plecoptera	Capnia	0.0	0.6	Literature	Poff et al., 2006
Plecoptera	Leuctra	0.4	16.7	Empirical—Maine	U.S. EPA, 2011
Plecoptera	Nemoura	0.0	0.5	Literature	Poff et al., 2006
Plecoptera	Paracapnia	0.0	2.0	Literature	Poff et al., 2006
Plecoptera	Paranemoura	0.0	0.4	Literature	Poff et al., 2006
Plecoptera	Peltoperla	0.0	0.5	Literature	Surdick & Gaufin, 1978
Plecoptera	Perlodidae	0.3	25.0	Empirical—Maine	U.S. EPA, 2011
Plecoptera	Prostoia	0.0	0.1	Literature	Poff et al., 2006
Plecoptera	Pteronarcys	0.0	9.4	Empirical—Maine	U.S. EPA, 2011
Plecoptera	Sweltsa	0.1	7.8	Empirical—Maine	U.S. EPA, 2011
Plecoptera	Tallaperla	0.0	1.4	BPJ Regional Workgroup	2008-2011
Plecoptera	Utacapnia	0.0	0.4	Literature	Poff et al., 2006
Plecoptera	Utaperla	0.0	0.2	Literature	Poff et al., 2006
Plecoptera	Zapada	0.0	0.1	Literature	Poff et al., 2006
Trichoptera	Apatania	0.0	2.7	Literature	Poff et al., 2006
Trichoptera	Diplectrona	0.2	5.5	Empirical—Maine	U.S. EPA, 2011
Trichoptera	Glossosoma	0.2	14.0	Empirical—Maine	U.S. EPA, 2011
Trichoptera	Hydatophylax	0.0	5.8	Empirical—Maine	U.S. EPA, 2011
Trichoptera	Limnephilus	0.2	7.3	Empirical—Maine	U.S. EPA, 2011
Trichoptera	Micrasema	0.1	10.3	Empirical—Maine	U.S. EPA, 2011
Trichoptera	Oligostomis	0.1	10.3	Empirical—Maine	U.S. EPA, 2011
Trichoptera	Palaeagapetus	0.0	0.1	Literature	Harris & Lawrence, 1978
Trichoptera	Parapsyche	0.1	3.2	Empirical—Maine	U.S. EPA, 2011
Trichoptera	Psychoglypha	0.1	4.4	Empirical—Maine	U.S. EPA, 2011

Table A-3. Maine—warm-water list

Order	Taxon	% Abundance	% Stations	Source Type	Source Citation
Arhynchobdellida	Erpobdella	0.0	7.7	Empirical—Maine	U.S. EPA, 2011
Basommatophora	Ferrissia	0.1	12.0	Empirical—Maine	U.S. EPA, 2011
Basommatophora	Helisoma	0.1	7.8	Empirical—Maine	U.S. EPA, 2011
Basommatophora	Physa	0.2	13.6	Empirical—Maine	U.S. EPA, 2011
Basommatophora	Physella	0.3	18.3	Empirical—Maine	U.S. EPA, 2011
Coleoptera	Stenelmis	0.4	33.0	Empirical—Maine	U.S. EPA, 2011
Decapoda	Orconectes	0.1	11.7	Empirical—Maine	U.S. EPA, 2011
Diptera	Cardiocladius	0.0	6.1	Empirical—Maine	U.S. EPA, 2011
Diptera	Dicrotendipes	0.3	19.9	Empirical—Maine	U.S. EPA, 2011
Diptera	Hemerodromia	0.3	30.6	Empirical—Maine	U.S. EPA, 2011
Diptera	Labrundinia	0.1	16.1	Empirical—Maine	U.S. EPA, 2011
Diptera	Nilotanypus	0.1	15.7	Empirical—Maine	U.S. EPA, 2011
Diptera	Parachironomus	0.2	9.8	Empirical—Maine	U.S. EPA, 2011
Diptera	Pentaneura	0.2	16.4	Empirical—Maine	U.S. EPA, 2011
Diptera	Psectrocladius	0.3	19.0	Empirical—Maine	U.S. EPA, 2011
Diptera	Rheopelopia	0.1	17.0	Empirical—Maine	U.S. EPA, 2011
Diptera	Tribelos	0.3	9.2	Empirical—Maine	U.S. EPA, 2011
Ephemeroptera	Caenis	0.3	19.9	Empirical—Maine	U.S. EPA, 2011
Ephemeroptera	Isonychia	0.9	26.5	Empirical—Maine	U.S. EPA, 2011
Ephemeroptera	Leucrocuta	0.6	24.5	Empirical—Maine	U.S. EPA, 2011
Ephemeroptera	Plauditus	0.2	14.7	Empirical—Maine	U.S. EPA, 2011
Ephemeroptera	Pseudocloeon	0.2	13.3	Empirical—Maine	U.S. EPA, 2011
Ephemeroptera	Serratella	0.4	22.5	Empirical—Maine	U.S. EPA, 2011
Ephemeroptera	Stenacron	1.1	23.1	Empirical—Maine	U.S. EPA, 2011
Ephemeroptera	Stenonema	5.2	63.1	Empirical—Maine	U.S. EPA, 2011
Ephemeroptera	Tricorythodes	0.5	24.2	Empirical—Maine	U.S. EPA, 2011
Hoplonephmertea	Prostoma	0.0	7.2	Empirical—Maine	U.S. EPA, 2011
Hydroida	Hydra	0.1	13.3	Empirical—Maine	U.S. EPA, 2011
Neotaenioglossa	Amnicola	0.8	18.9	Empirical—Maine	U.S. EPA, 2011
Odonata	Argia	0.2	16.1	Empirical—Maine	U.S. EPA, 2011
Plecoptera	Acroneuria	0.8	39.0	Empirical—Maine	U.S. EPA, 2011
Plecoptera	Attaneuria	0.0	4.2	Literature	Poff et al., 2006
Plecoptera	Paragnetina	0.1	12.1	Empirical—Maine	U.S. EPA, 2011
Trichoptera	Ceraclea	0.2	17.9	Empirical—Maine	U.S. EPA, 2011
Trichoptera	Helicopsyche	0.4	12.3	Empirical—Maine	U.S. EPA, 2011
Trichoptera	Hydroptila	0.3	22.3	Empirical—Maine	U.S. EPA, 2011
Trichoptera	Macrostemum	0.8	19.8	Empirical—Maine	U.S. EPA, 2011
Trichoptera	Neureclipsis	2.6	37.7	Empirical—Maine	U.S. EPA, 2011
Trichoptera	Oecetis	0.6	36.0	Empirical—Maine	U.S. EPA, 2011
Tubificida	Chaetogaster	0.1	8.2	Empirical—Maine	U.S. EPA, 2011

Table A-4. North Carolina—cold-water list

Order	Taxon	% Abundance	% Stations	Source Type	Source Citation
Coleoptera	Promoressia	0.4	11.8	Empirical—North Carolina	U.S. EPA, 2011
Diptera	Antocha	0.6	25.3	Empirical—North Carolina	U.S. EPA, 2011
Diptera	Atherix	0.2	8.5	Empirical—North Carolina	U.S. EPA, 2011
Diptera	Cardiocladus	0.3	13.4	Empirical—North Carolina	U.S. EPA, 2011
Diptera	Diamesa	0.1	6.6	Empirical—North Carolina	U.S. EPA, 2011
Diptera	Dicranota	0.2	10.1	Empirical—North Carolina	U.S. EPA, 2011
Diptera	Eukiefferiella	0.4	19.0	Empirical—North Carolina	U.S. EPA, 2011
Diptera	Heleniella	0.0	1.8	Empirical—North Carolina	U.S. EPA, 2011
Diptera	Pagastia	0.1	5.6	Empirical—North Carolina	U.S. EPA, 2011
Diptera	Potthastia	0.1	10.4	Empirical—North Carolina	U.S. EPA, 2011
Diptera	Rheopelopia	0.0	2.3	Empirical—North Carolina	U.S. EPA, 2011
Ephemeroptera	Acentrella	0.3	15.2	Empirical—North Carolina	U.S. EPA, 2011
Ephemeroptera	Cinygmula	0.0	1.4	Literature	Poff et al., 2006
Ephemeroptera	Drunella	0.3	7.8	Empirical—North Carolina	U.S. EPA, 2011
Ephemeroptera	Epeorus	0.6	14.3	Empirical—North Carolina	U.S. EPA, 2011
Ephemeroptera	Nixe	0.0	0.6	Empirical—North Carolina	U.S. EPA, 2011
Ephemeroptera	Rhithrogena	0.1	5.4	Empirical—North Carolina	U.S. EPA, 2011
Odonata	Lanthus	0.1	10.7	Empirical—North Carolina	U.S. EPA, 2011
Plecoptera	Amphinemura	0.1	10.0	Empirical—North Carolina	U.S. EPA, 2011
Plecoptera	Clioperla	0.1	5.5	Literature	Poff et al., 2006
Plecoptera	Cultus	0.0	2.5	Literature	Poff et al., 2006
Plecoptera	Diploperla	0.1	4.3	Literature	Poff et al., 2006
Plecoptera	Isoperla	0.5	17.7	Empirical—North Carolina	U.S. EPA, 2011
Plecoptera	Malirekus	0.1	4.7	Literature	Poff et al., 2006
Plecoptera	Tallaperla	0.4	13.4	Empirical—North Carolina	U.S. EPA, 2011
Plecoptera	Zapada	0.0	0.1	Literature	Poff et al., 2006
Trichoptera	Agapetus	0.0	1.9	Literature	Poff et al., 2006
Trichoptera	Apatania	0.0	1.7	Literature	Poff et al., 2006
Trichoptera	Arctopsyche	0.0	1.4	Literature	Poff et al., 2006
Trichoptera	Dolophilodes	0.4	11.2	Empirical—North Carolina	U.S. EPA, 2011
Trichoptera	Glossosoma	0.2	11.0	Empirical—North Carolina	U.S. EPA, 2011
Trichoptera	Parapsyche	0.0	1.9	Empirical—North Carolina	U.S. EPA, 2011

Table A-5. North Carolina—warm-water list

Order	Taxon	% Abundance	% Stations	Source Type	Source Citation
	Erpobdella/Mooreobdella	0.1	7.5	Empirical—NC	U.S. EPA, 2011
Basommatophora	Physella	0.8	30.4	Empirical—NC	U.S. EPA, 2011
Coleoptera	Berosus	0.2	9.9	Empirical—NC	U.S. EPA, 2011
Coleoptera	Lioporeus	0.0	3.0	Empirical—NC	U.S. EPA, 2011
Decapoda	Palaemonetes	0.3	9.6	Empirical—NC	U.S. EPA, 2011
Diptera	Nilothauma	0.0	4.4	Empirical—NC	U.S. EPA, 2011
Diptera	Parachironomus	0.1	4.6	Empirical—NC	U.S. EPA, 2011
Diptera	Pentaneura	0.1	5.5	Empirical—NC	U.S. EPA, 2011
Diptera	Procladius	0.4	25.1	Empirical—NC	U.S. EPA, 2011
Diptera	Stenochironomus	0.4	26.7	Empirical—NC	U.S. EPA, 2011
Ephemeroptera	Tricorythodes	0.6	12.9	Empirical—NC	U.S. EPA, 2011
Hemiptera	Belostoma	0.0	3.5	Empirical—NC	U.S. EPA, 2011
Isopoda	Caecidotea	0.4	19.4	Empirical—NC	U.S. EPA, 2011
Odonata	Epicordulia	0.0	2.8	Empirical—NC	U.S. EPA, 2011
Odonata	Helocordulia	0.0	3.4	Empirical—NC	U.S. EPA, 2011
Odonata	Hetaerina	0.1	5.4	Empirical—NC	U.S. EPA, 2011
Odonata	Ischnura	0.0	3.6	Empirical—NC	U.S. EPA, 2011
Odonata	Macromia	0.6	28.9	Empirical—NC	U.S. EPA, 2011
Odonata	Neurocordulia	0.2	9.9	Empirical—NC	U.S. EPA, 2011
Odonata	Tetragoneuria	0.1	7.2	Empirical—NC	U.S. EPA, 2011
Rhynchobdellida	Helobdella	0.1	8.0	Empirical—NC	U.S. EPA, 2011
Rhynchobdellida	Placobdella	0.1	12.1	Empirical—NC	U.S. EPA, 2011
Trichoptera	Chimarra	0.6	19.7	Empirical—NC	U.S. EPA, 2011
Trichoptera	Macrosternum	0.2	4.8	Empirical—NC	U.S. EPA, 2011
Trichoptera	Neureclipsis	0.3	8.6	Empirical—NC	U.S. EPA, 2011
Trichoptera	Phylocentropus	0.1	7.2	Empirical—NC	U.S. EPA, 2011
Unionoida	Elliptio	0.2	6.7	Empirical—NC	U.S. EPA, 2011

Table A-6. Utah—cold-water list

Order	Taxon	% Abundance	% Stations	Source Type	Source Citation
	Nematoda	0.3	39.2	Empirical—Utah	U.S. EPA, 2011
Coleoptera	Heterlimnius	0.0	7.9	Empirical—Utah	U.S. EPA, 2011
Diptera	Bezzia	0.2	36.5	Empirical—Utah	U.S. EPA, 2011
Diptera	Bibiocephala	0.0	2.4	Empirical—Utah	U.S. EPA, 2011
Diptera	Chelifera	0.2	41.1	Empirical—Utah	U.S. EPA, 2011
Diptera	Dicranota	0.1	34.7	Empirical—Utah	U.S. EPA, 2011
Diptera	Oreogeton	0.0	2.1	Empirical—Idaho	Brandt, 2001
Diptera	Pericoma	0.3	33.1	Empirical—Utah	U.S. EPA, 2011
Diptera	Rhabdomastix	0.0	0.2	Empirical—Idaho	Brandt, 2001
Diptera	Wiedemannia	0.0	2.1	Empirical—Idaho	Brandt, 2001
Ephemeroptera	Ameletus	0.0	21.6	Empirical—Utah	U.S. EPA, 2011
Ephemeroptera	Cinygma	0.0	0.9	Empirical—Oregon	Yuan, 2006
Ephemeroptera	Cinygmula	1.0	43.8	Empirical—Utah	U.S. EPA, 2011
Ephemeroptera	Ephemerella	1.9	46.0	Empirical—Utah	U.S. EPA, 2011
Ephemeroptera	Ironodes	0.0	0.9	Empirical—Oregon	Yuan, 2006
Ephemeroptera	Rhithrogena	0.4	38.3	Empirical—Utah	U.S. EPA, 2011
Plecoptera	Capniidae	0.2	35.9	Empirical—Utah	U.S. EPA, 2011
Plecoptera	Chloroperlidae	0.4	48.7	Empirical—Utah	U.S. EPA, 2011
Plecoptera	Cultus	0.0	15.3	Empirical—Utah	U.S. EPA, 2011
Plecoptera	Glutops	0.0	0.6	Empirical—Idaho	Brandt, 2001
Plecoptera	Kogotus	0.0	2.2	Empirical—Idaho	Brandt, 2001
Plecoptera	Leuctridae	0.1	16.7	Empirical—Utah	U.S. EPA, 2011
Plecoptera	Megarcys	0.0	10.2	Empirical—Utah	U.S. EPA, 2011
Plecoptera	Taenionema	0.2	13.7	Empirical—Utah	U.S. EPA, 2011
Plecoptera	Visoka	0.0	0.2	Empirical—Oregon	Yuan, 2006
Plecoptera	Yoraperla	0.0	0.8	Empirical—Idaho	Brandt, 2001
Trichoptera	Anagapetus	0.0	0.3	Empirical—Idaho	Brandt, 2001
Trichoptera	Apatania	0.0	6.1	Empirical—Utah	U.S. EPA, 2011
Trichoptera	Ecclisomyia	0.0	2.2	Empirical—Oregon	Yuan, 2006
Trichoptera	Lepidostoma	0.8	37.8	Empirical—Utah	U.S. EPA, 2011
Trichoptera	Neothremma	0.3	15.8	Empirical—Utah	U.S. EPA, 2011
Trichoptera	Oligophlebodes	0.3	15.9	Empirical—Utah	U.S. EPA, 2011
Trichoptera	Parapsyche	0.0	6.3	Empirical—Utah	U.S. EPA, 2011

Table A-7. Utah—warm-water list

Order	Taxon	% Abundance	% Stations	Source Type	Source Citation
Coleoptera	<i>Microcylloepus</i>	0.2	7.9	Empirical—Utah	U.S. EPA, 2011
Coleoptera	<i>Ordobrevia</i>	0.0	0.8	Empirical—Oregon	Yuan, 2006
Coleoptera	<i>Psephenus</i>	0.0	0.6	Empirical—Idaho	Brandt, 2001
Diptera	<i>Caloparyphus</i>	0.0	4.1	Empirical—Utah	U.S. EPA, 2011
Diptera	<i>Maruina</i>	0.0	2.5	Empirical—Oregon	Yuan, 2006
Ephemeroptera	<i>Caenis</i>	0.0	1.7	Empirical—Oregon	Yuan, 2006
Ephemeroptera	<i>Leptohyphidae</i>	1.4	31.0	Empirical—Utah	U.S. EPA, 2011
Hemiptera	<i>Ambrysus</i>	0.1	6.1	Empirical—Utah	U.S. EPA, 2011
Isopoda	<i>Asellidae</i>	3.1	12.8	Empirical—Utah	U.S. EPA, 2011
Odonata	<i>Coenagrionidae</i>	0.1	18.4	Empirical—Utah	U.S. EPA, 2011
Plecoptera	<i>Calineuria</i>	0.0	1.4	Empirical—Oregon	Yuan, 2006
Trichoptera	<i>Cheumatopsyche</i>	0.4	16.5	Empirical—Utah	U.S. EPA, 2011
Trichoptera	<i>Nectopsyche</i>	0.0	5.5	Empirical—Utah	U.S. EPA, 2011
Trichoptera	<i>Ochrotrichia</i>	0.0	4.6	Empirical—Utah	U.S. EPA, 2011
Trichoptera	<i>Oecetis</i>	0.1	14.2	Empirical—Utah	U.S. EPA, 2011
Trichoptera	<i>Tinodes</i>	0.0	5.4	Empirical—Utah	U.S. EPA, 2011

Note: The warm-water preference list for Utah was limited by the need to retain a family-level operational taxonomic unit for Chironomidae in the long-term data set.

Table A-8. Additional notes—cold-water taxa

The following genera were excluded from the cold-water lists in the designated states because of variation in thermal preference at the species level:
Brachycentrus (UT)
Drunella (UT)
Epeorus (UT)
Ephemerella (NC)
Eukiefferiella (ME)
Eurylophella (NC)
Goera (NC)
Neophylax (NC)
Paragnetina (NC)
Rhyacophila (UT, ME, NC)
Zapada (UT)

Table A-9. Additional notes—warm-water taxa

The following genera were excluded from the warm-water lists in the designated states because of variation in thermal preference at the species-level:
Brachycentrus (ME)
Ceratopsyche (ME)
Hydropsyche (ME)
Hydropsyche (NC)
Oecetis (NC)
Polypedilum (NC)

Table A-10. Sources

Study Name	Study Type	Full Citation
Beck, 1977	Literature	Beck, WM Jr. (1977) Environmental requirements and pollution tolerance of common freshwater chironomidae. Environmental Protection Agency, Environmental Monitoring and Support Laboratory, Cincinnati, OH; EPA/600/4-77/024
Harris and Lawrence, 1978	Literature	Harris, TL; Lawrence, TM. (1978) Environmental requirements and pollution tolerance of trichoptera. U.S. Environmental Protection Agency, Office of Research and Development, Washington, DC; EPA/600/4-78/063.
Poff et al., 2006	Literature	Poff, NL; Olden, JD; Vieira, NKM, et al. (2006) Functional trait niches of North American lotic insects: traits-based ecological applications in light of phylogenetic relationships. <i>N Am Benthol Soc</i> 25(4):730–755.
Surdick and Gaufin, 1978	Literature	Surdick, RF; Gaufin, AR. (1978) Environmental Requirements and Pollution Tolerance of Plecoptera. U.S. Environmental Protection Agency, Washington, DC; EPA-600/4-78/062. 423 p.
Vieira et al., 2006	Literature	Vieira, NKM; Poff, NL; Carlisle, DM; et al. (2006). A database of lotic invertebrate traits for North America. U.S. Geological Survey Data Series 187.
U.S. EPA, 2011	Empirical—North Carolina	U.S. EPA. (2011) Implications of climate change for state bioassessment programs and approaches to account for effects. External Review Draft. Global Change Research Program, National Center for Environmental Assessment, Washington, DC: EPA/600/R-11/036A. Maximum likelihood inferences were based on a subset of the NC biomonitoring database comprised of standard qualitative/full-scale collection method samples only. Maximum likelihood calculations were used instead of weighted-average inference because abundance data in the NC biomonitoring database are categorical (1 = rare (1–2 specimens), 3 = common (3–9 species) and 10 = abundant (10 or more species). Calculations were based on instantaneous water-temperature measurements and occurrences of organisms using the guidelines described by Yuan (2006).

Table A-10. continued...

Study Name	Study Type	Full Citation
U.S. EPA, 2011	Empirical—Maine	U.S. EPA. (2011) Implications of climate change for bioassessment programs and approaches to account for effects. Global Change Research Program, National Center for Environmental Assessment, Washington, DC: EPA/600/R-11/036F. Weighted average inferences are based on a subset of the Maine biomonitoring data. Average July, August, and September temperature values from 616 sites were used in this analysis. Calculations were based on instantaneous-water temperature measurements and occurrences of organisms using the guidelines described by Yuan (2006). For more information, contact Lei Zheng (Lei.Zheng@tetrtech.com).
Yuan, 2006	Empirical—Oregon	Yuan, LL. (2006). Estimation and application of macroinvertebrate tolerance values. National Center for Environmental Assessment, Office of Research and Development, U.S. Environmental Protection Agency, Washington, DC.
U.S. EPA, 2011	Empirical—Utah	U.S. EPA. (2011) Implications of climate change for bioassessment programs and approaches to account for effects. Global Change Research Program, National Center for Environmental Assessment, Washington, DC: EPA/600/R-11/036F. Weighted average inferences are based on a subset of the UT biomonitoring data comprised of 572 fall samples. Calculations were based on instantaneous-water temperature measurements and occurrences of organisms using the guidelines described by Yuan (2006). For more information. contact Lei Zheng (Lei.Zheng@tetrtech.com).
Brandt, 2001	Empirical—Idaho	Brandt, D. (2001) Temperature preferences and tolerances for 137 common ID macroinvertebrate taxa. Idaho Department of Environmental Quality. Coeur d'Alene, ID.
2008–2011	BPJ Regional Workgroup	Best professional judgment of regional workgroup.