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The Risk Assessment Information System Compendium of Ecological Screening Benchmarks for Chemicals and Radionuclides (2025) (Volume VIII – Chemicals for Sediment: General)

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November 2025

OAK RIDGE National Laboratory

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ORNL/TM-2025/4313

Environmental Sciences Division

THE RISK ASSESSMENT INFORMATION SYSTEM COMPENDIUM OF ECOLOGICAL SCREENING BENCHMARKS FOR CHEMICALS AND RADIONUCLIDES (2025) (VOLUME VIII – CHEMICALS FOR SEDIMENT: GENERAL)

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Volume VIII presents the chemical benchmarks for sediment: general. The benchmarks here are applicable to both freshwater sediments and marine sediments or where no differentiation was made by the source. These values are not repeated in the freshwater sediment and marine sediment categories. Likewise, values listed in the freshwater sediment and marine sediment categories are not repeated in the generic categories. Consult Volume I for information on the sources.

2. CHEMICAL BENCHMARKS FOR SEDIMENT

Table 1: Benchmark Values for Acenaphthene in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)	Footnotes
83−32−9	EPA ESBs	Effect Concentration of PAH	Not specified	491.00000	
83−32−9	EPA ESBs	Maximum Solubility Limited PAH Concentration	Not specified	33400.00000	
83−32−9	EPA OSWER	Effects Range − Low	Not specified	0.01600	
83−32−9	EPA Region 5	EPA RCRA Sediment	Not specified	0.00671	
83−32−9	LANL ECORISK	Sediment No Effect ESL	Aquatic community organisms	0.07600	
83−32−9	LANL ECORISK	Sediment Low Effect ESL	Aquatic community organisms	0.76000	
83−32−9	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	140.00000	
83−32−9	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	1400.00000	
83−32−9	NOAA	Effects Range−Low	Not specified	0.01600	32
83−32−9	NOAA	Effects Range−Median	Not specified	0.50000	

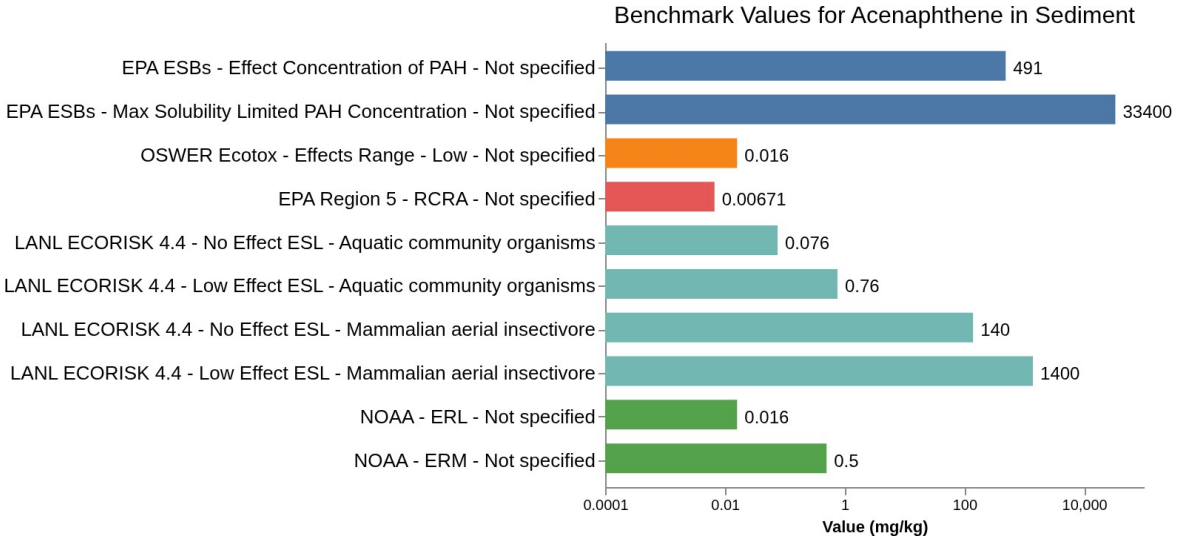


Table 2: Benchmark Values for Acenaphthylene in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)	Footnotes
208−96−8	EPA ESBs	Effect Concentration of PAH	Not specified	452.00000	
208−96−8	EPA ESBs	Maximum Solubility Limited PAH Concentration	Not specified	24000.00000	
208−96−8	EPA Region 5	EPA RCRA Sediment	Not specified	0.00587	
208−96−8	LANL ECORISK	Sediment No Effect ESL	Aquatic community organisms	0.07600	
208−96−8	LANL ECORISK	Sediment Low Effect ESL	Aquatic community organisms	0.76000	
208−96−8	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	140.00000	
208−96−8	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	1400.00000	
208−96−8	NOAA	Effects Range−Low	Not specified	0.04400	
208−96−8	NOAA	Effects Range−Median	Not specified	0.64000	

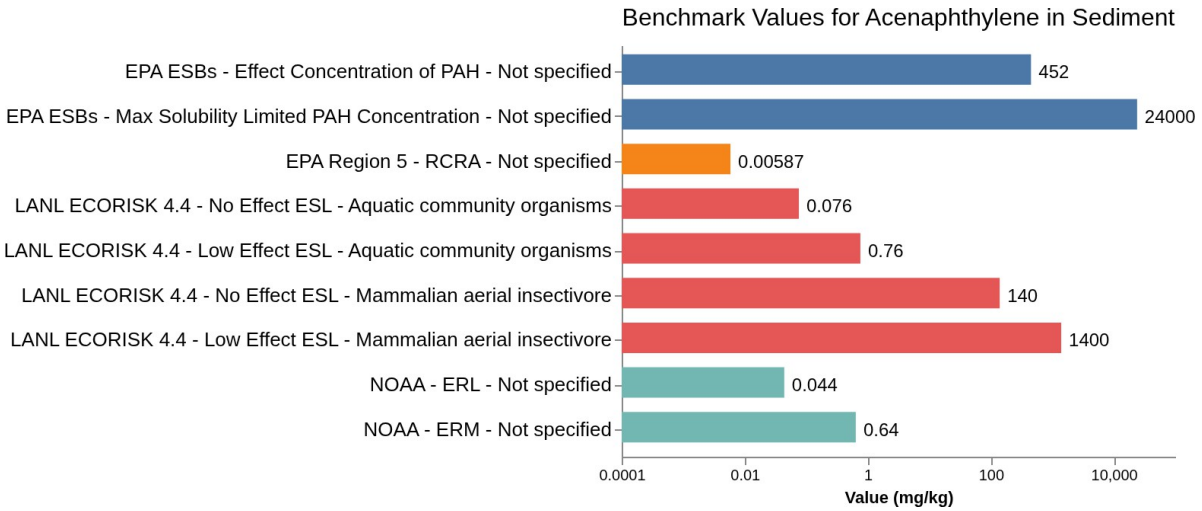


Table 3: Benchmark Values for Acetone in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
67−64−1	EPA Region 5	EPA RCRA Sediment	Not specified	0.0099
67−64−1	LANL ECORISK	Sediment No Effect ESL	Aquatic community organisms	0.0650
67−64−1	LANL ECORISK	Sediment Low Effect ESL	Aquatic community organisms	0.6500
67−64−1	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	17.0000
67−64−1	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	88.0000
67−64−1	LANL ECORISK	Sediment No Effect ESL	Avian aerial insectivore	230.0000
67−64−1	LANL ECORISK	Sediment Low Effect ESL	Avian aerial insectivore	2300.0000

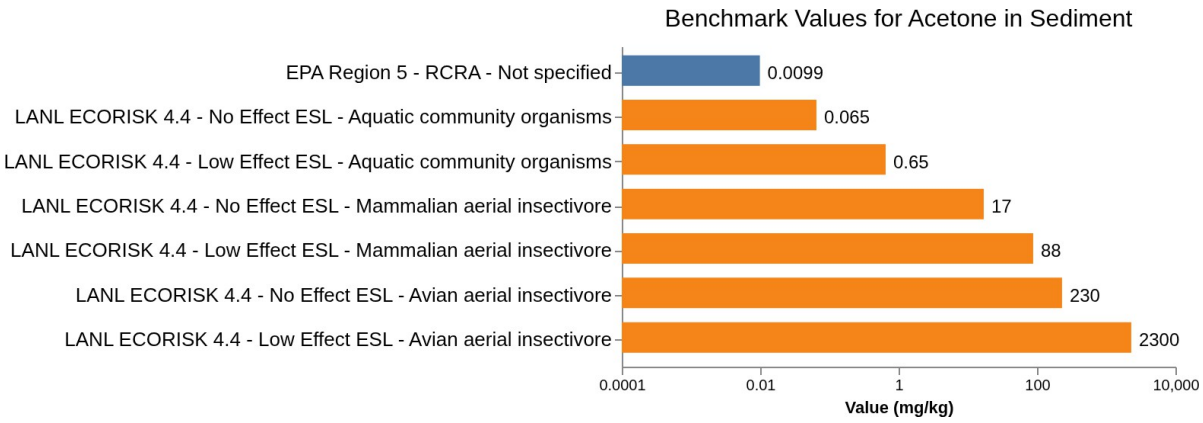


Table 4: Benchmark Values for Acetonitrile in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
75−05−8	EPA Region 5	EPA RCRA Sediment	Not specified	0.056

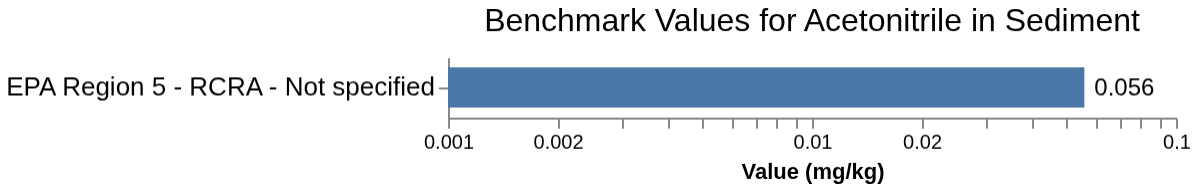


Table 5: Benchmark Values for Acetylaminofluorene, 2− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
53−96−3	EPA Region 5	EPA RCRA Sediment	Not specified	0.01532

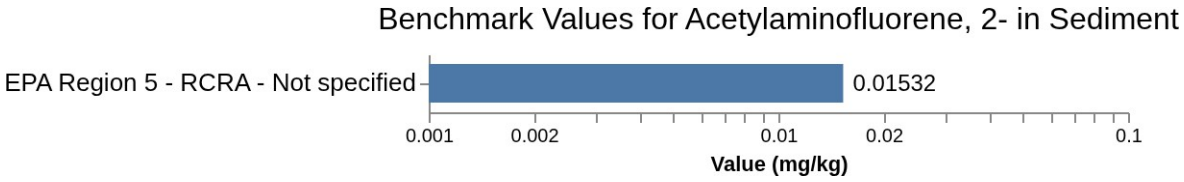


Table 6: Benchmark Values for Acrolein in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
107−02−8	EPA Region 5	EPA RCRA Sediment	Not specified	0.000002

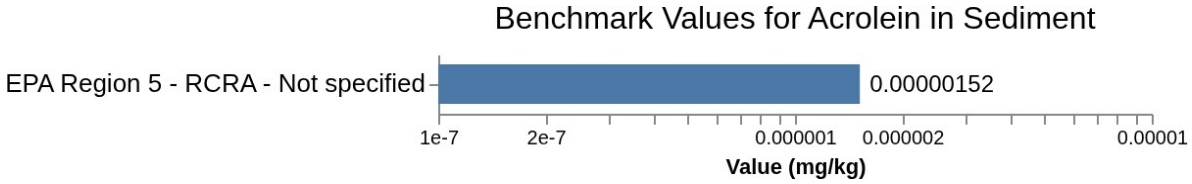


Table 7: Benchmark Values for Acrylonitrile in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
107−13−1	EPA Region 5	EPA RCRA Sediment	Not specified	0.0012

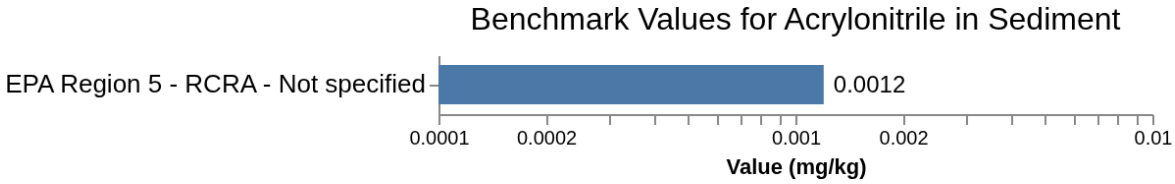


Table 8: Benchmark Values for Aldrin in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)	Footnotes
309−00−2	EPA Region 5	EPA RCRA Sediment	Not specified	0.0020	
309−00−2	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	0.0420	
309−00−2	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	0.2100	
309−00−2	New York DEC	Wildlife Sediment	Not specified	0.0011	153
309−00−2	Ontario	Sediment Lowest Effect Level	Not specified	0.0020	
309−00−2	Ontario	Sediment Severe Effect Level	Not specified	0.8000	33

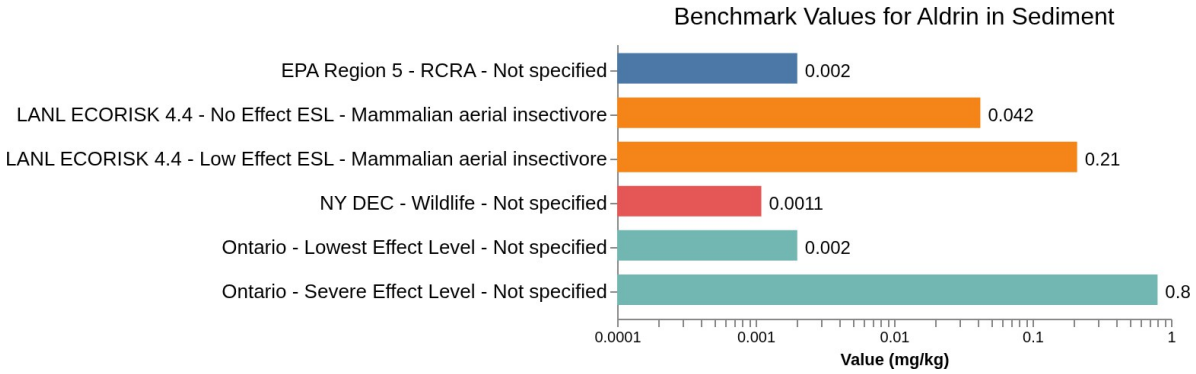


Table 9: Benchmark Values for Aluminum in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)	Footnotes
7429−90−5	EPA − ARCS	Sediment PEC	Not specified	58030	
7429−90−5	EPA − ARCS	Sediment NEC	Not specified	73160	
7429−90−5	LANL ECORISK	Sediment No Effect ESL	Aquatic community organisms	25000	
7429−90−5	LANL ECORISK	Sediment Low Effect ESL	Aquatic community organisms	58000	
7429−90−5	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore		182
7429−90−5	LANL ECORISK	Sediment No Effect ESL	Avian aerial insectivore		182
7429−90−5	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore		182
7429−90−5	LANL ECORISK	Sediment Low Effect ESL	Avian aerial insectivore		182
7429−90−5	Ohio	Interior Plateau	Not specified	28000	
7429−90−5	Ohio	Erie/Ontario Lake Plain	Not specified	29000	
7429−90−5	Ohio	Eastern Corn Belt Plains	Not specified	39000	
7429−90−5	Ohio	Huron Erie Lake Plain	Not specified	42000	
7429−90−5	Ohio	Western Allegheny Plateau	Not specified	53000	

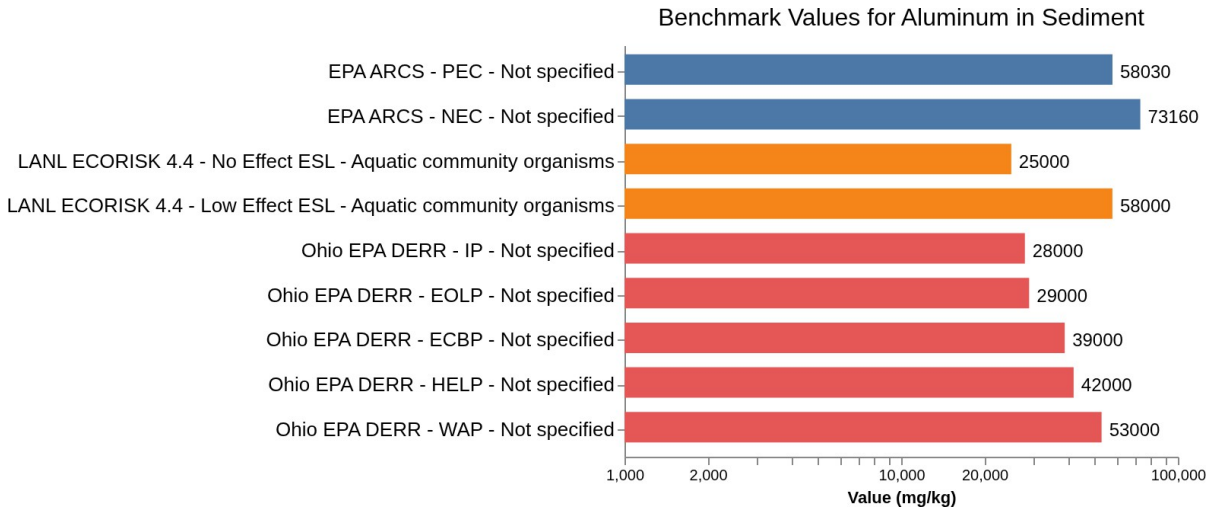


Table 10: Benchmark Values for Aniline in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
62−53−3	EPA Region 5	EPA RCRA Sediment	Not specified	0.00031

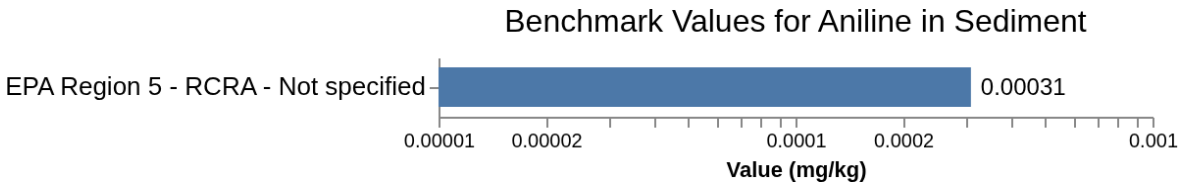


Table 11: Benchmark Values for Anthracene in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)	Footnotes
120−12−7	Consensus−Based	Consensus−Based TEC	Not specified	0.05720	
120−12−7	Consensus−Based	Consensus−Based PEC	Not specified	0.84500	
120−12−7	EPA − ARCS	Sediment TEC	Not specified	0.03162	
120−12−7	EPA − ARCS	Sediment PEC	Not specified	0.54772	
120−12−7	EPA − ARCS	Sediment NEC	Not specified	1.70000	
120−12−7	EPA ESBs	Effect Concentration of PAH	Not specified	594.00000	
120−12−7	EPA ESBs	Maximum Solubility Limited PAH Concentration	Not specified	1300.00000	
120−12−7	EPA Region 5	EPA RCRA Sediment	Not specified	0.05720	
120−12−7	LANL ECORISK	Sediment No Effect ESL	Aquatic community organisms	0.05700	
120−12−7	LANL ECORISK	Sediment Low Effect ESL	Aquatic community organisms	0.57000	
120−12−7	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	240.00000	
120−12−7	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	2400.00000	
120−12−7	NOAA	Effects Range−Low	Not specified	0.08530	32
120−12−7	NOAA	Effects Range−Median	Not specified	1.10000	
120−12−7	Ontario	Sediment Lowest Effect Level	Not specified	0.22000	
120−12−7	Ontario	Sediment Severe Effect Level	Not specified	37.00000	33

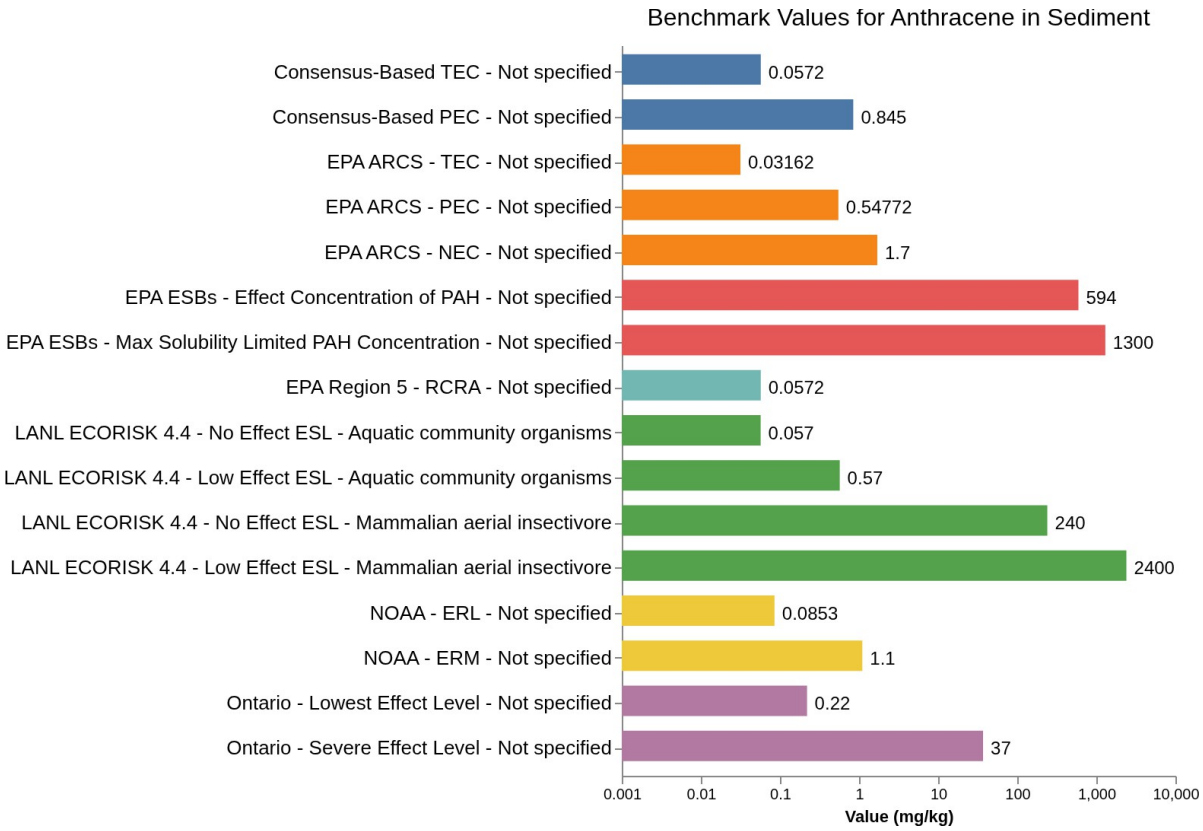


Table 12: Benchmark Values for Antimony (metallic) in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
7440−36−0	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	45.00
7440−36−0	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	450.00
7440−36−0	Ohio	Huron Erie Lake Plain	Not specified	0.84
7440−36−0	Ohio	Eastern Corn Belt Plains	Not specified	0.92
7440−36−0	Ohio	Erie/Ontario Lake Plain	Not specified	1.30

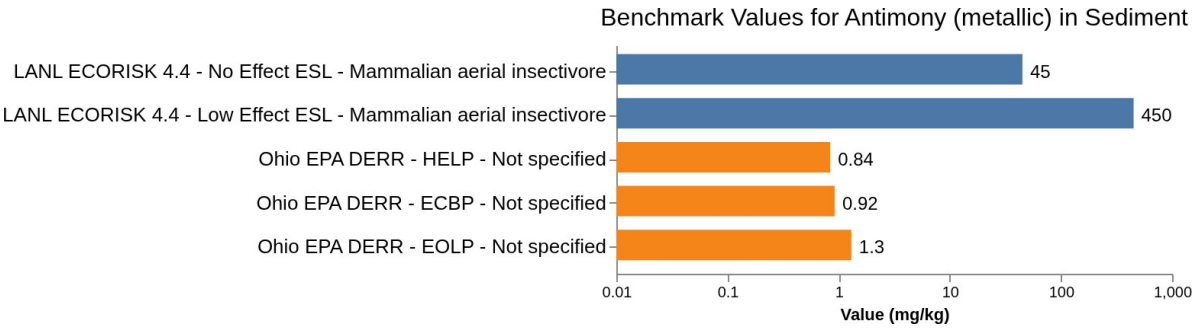


Table 13: Benchmark Values for Aroclor 1016 in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)	Footnotes
12674−11−2	LANL ECORISK	Sediment No Effect ESL	Aquatic community organisms	0.059	
12674−11−2	LANL ECORISK	Sediment Low Effect ESL	Aquatic community organisms	0.590	
12674−11−2	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	1.200	
12674−11−2	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	3.400	
12674−11−2	Ontario	Sediment Lowest Effect Level	Not specified	0.007	160, 162
12674−11−2	Ontario	Sediment Severe Effect Level	Not specified	5.300	33, 161, 162

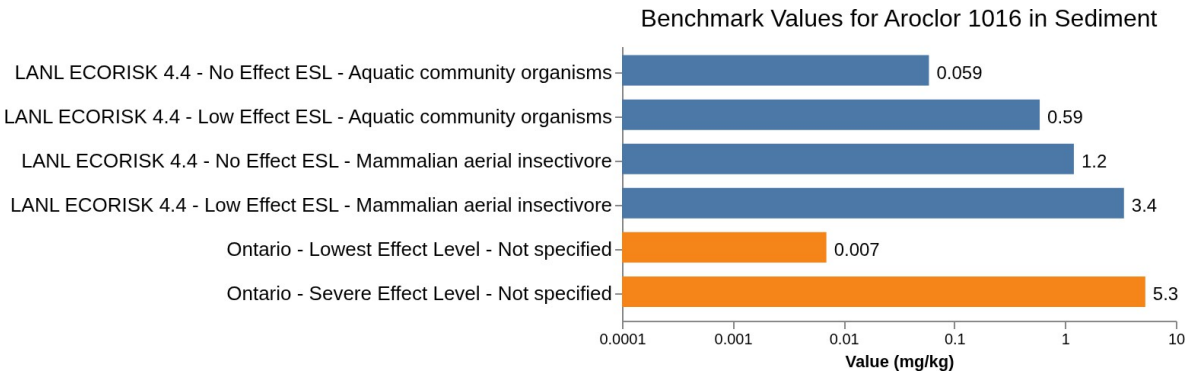


Table 14: Benchmark Values for Aroclor 1242 in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
53469−21−9	LANL ECORISK	Sediment No Effect ESL	Aquatic community organisms	0.059
53469−21−9	LANL ECORISK	Sediment No Effect ESL	Avian aerial insectivore	0.340
53469−21−9	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	0.430
53469−21−9	LANL ECORISK	Sediment Low Effect ESL	Aquatic community organisms	0.590
53469−21−9	LANL ECORISK	Sediment Low Effect ESL	Avian aerial insectivore	1.300
53469−21−9	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	1.700

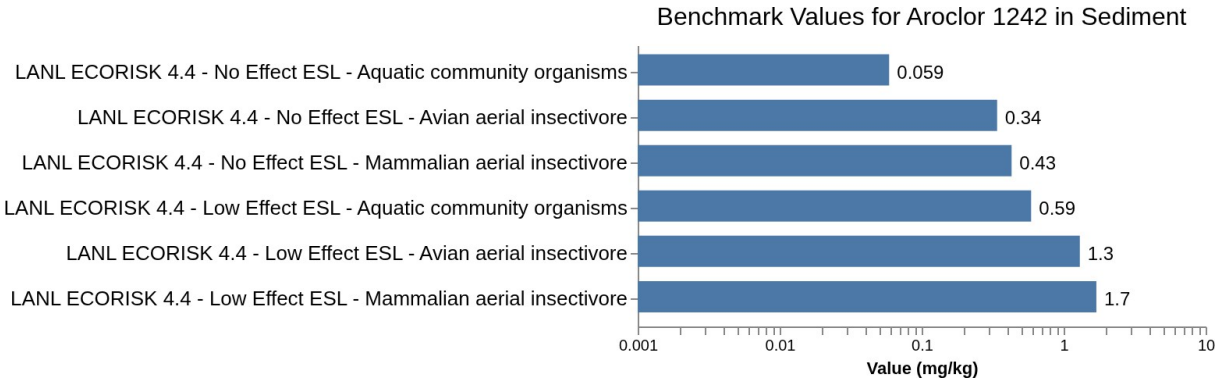


Table 15: Benchmark Values for Aroclor 1248 in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)	Footnotes
12672−29−6	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	0.0081	
12672−29−6	LANL ECORISK	Sediment No Effect ESL	Avian aerial insectivore	0.0530	
12672−29−6	LANL ECORISK	Sediment No Effect ESL	Aquatic community organisms	0.0590	
12672−29−6	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	0.0810	
12672−29−6	LANL ECORISK	Sediment Low Effect ESL	Avian aerial insectivore	0.5300	
12672−29−6	LANL ECORISK	Sediment Low Effect ESL	Aquatic community organisms	0.5900	
12672−29−6	Ontario	Sediment Lowest Effect Level	Not specified	0.0300	160, 162
12672−29−6	Ontario	Sediment Severe Effect Level	Not specified	15.0000	33, 161, 162

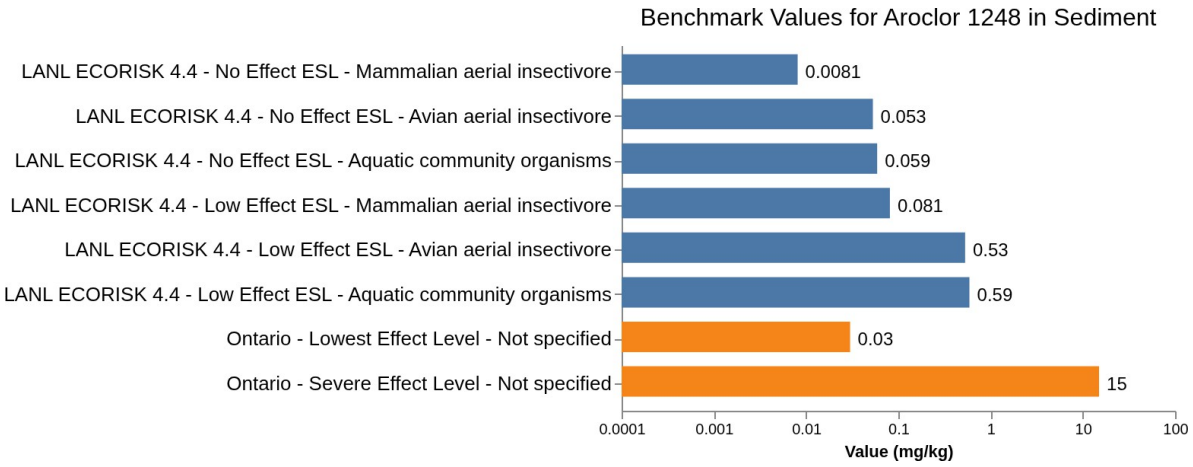


Table 16: Benchmark Values for Aroclor 1254 in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)	Footnotes
11097−69−1	LANL ECORISK	Sediment No Effect ESL	Avian aerial insectivore	0.053	
11097−69−1	LANL ECORISK	Sediment No Effect ESL	Aquatic community organisms	0.060	
11097−69−1	LANL ECORISK	Sediment Low Effect ESL	Aquatic community organisms	0.340	
11097−69−1	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	0.500	
11097−69−1	LANL ECORISK	Sediment Low Effect ESL	Avian aerial insectivore	0.530	
11097−69−1	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	2.700	
11097−69−1	Ontario	Sediment Lowest Effect Level	Not specified	0.060	160, 162
11097−69−1	Ontario	Sediment Severe Effect Level	Not specified	3.400	33, 161, 162

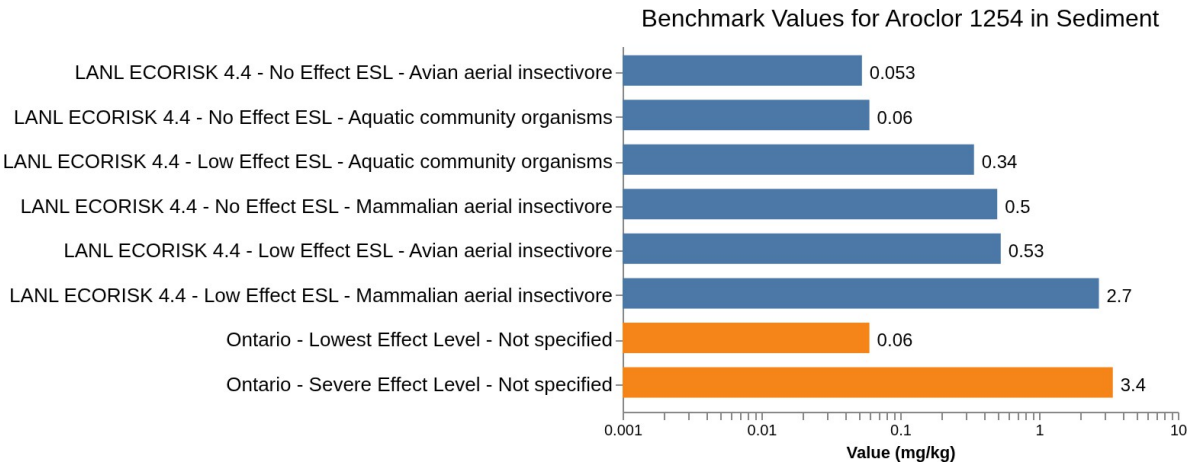


Table 17: Benchmark Values for Aroclor 1260 in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)	Footnotes
11096−82−5	LANL ECORISK	Sediment No Effect ESL	Aquatic community organisms	0.059	
11096−82−5	LANL ECORISK	Sediment Low Effect ESL	Aquatic community organisms	0.590	
11096−82−5	LANL ECORISK	Sediment No Effect ESL	Avian aerial insectivore	1.100	
11096−82−5	LANL ECORISK	Sediment Low Effect ESL	Avian aerial insectivore	1.600	
11096−82−5	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	11.000	
11096−82−5	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	27.000	
11096−82−5	Ontario	Sediment Lowest Effect Level	Not specified	0.005	160, 162
11096−82−5	Ontario	Sediment Severe Effect Level	Not specified	2.400	33, 161, 162

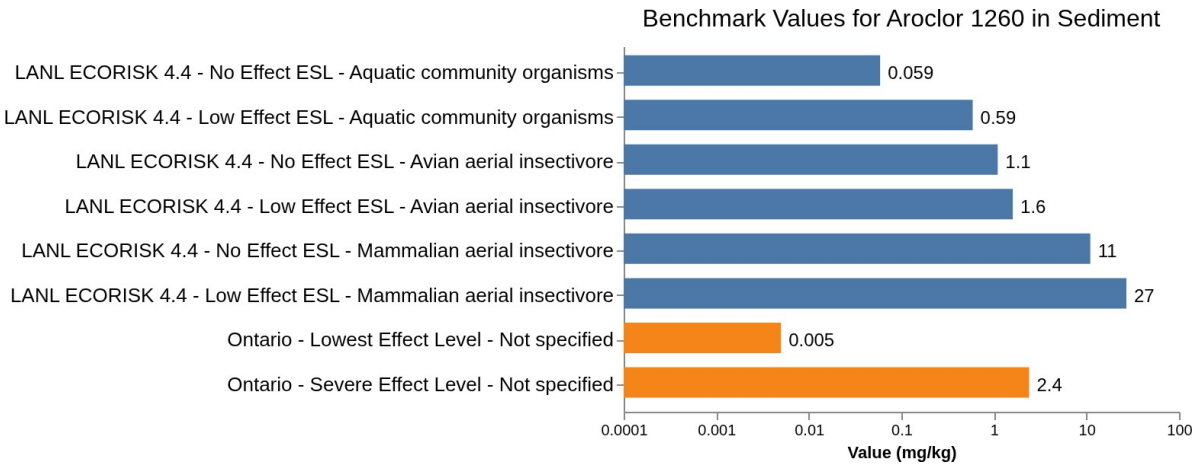


Table 18: Benchmark Values for Arsenic (III) in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
22541−54−4	EPA OSWER	Effects Range − Low	Not specified	8.2

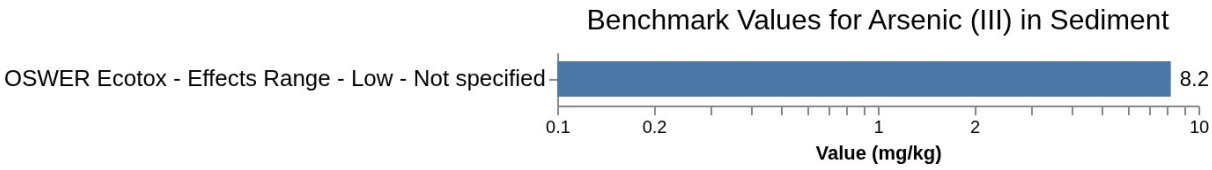


Table 19: Benchmark Values for Arsenic, Inorganic in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)	Footnotes
7440−38−2	Consensus−Based	Consensus−Based TEC	Not specified	9.79	
7440−38−2	Consensus−Based	Consensus−Based PEC	Not specified	33.00	
7440−38−2	EPA − ARCS	Sediment TEC	Not specified	12.10	
7440−38−2	EPA − ARCS	Sediment PEC	Not specified	57.00	
7440−38−2	EPA − ARCS	Sediment NEC	Not specified	92.90	
7440−38−2	EPA Region 5	EPA RCRA Sediment	Not specified	9.79	
7440−38−2	LANL ECORISK	Sediment No Effect ESL	Aquatic community organisms	9.70	
7440−38−2	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	24.00	
7440−38−2	LANL ECORISK	Sediment Low Effect ESL	Aquatic community organisms	33.00	
7440−38−2	LANL ECORISK	Sediment No Effect ESL	Avian aerial insectivore	34.00	
7440−38−2	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	39.00	
7440−38−2	LANL ECORISK	Sediment Low Effect ESL	Avian aerial insectivore	340.00	
7440−38−2	NOAA	Effects Range−Low	Not specified	8.20	32
7440−38−2	NOAA	Effects Range−Median	Not specified	70.00	32
7440−38−2	Ohio	Huron Erie Lake Plain	Not specified	11.00	
7440−38−2	Ohio	Interior Plateau	Not specified	11.00	
7440−38−2	Ohio	Eastern Corn Belt Plains	Not specified	18.00	
7440−38−2	Ohio	Western Allegheny Plateau	Not specified	19.00	
7440−38−2	Ohio	Erie/Ontario Lake Plain	Not specified	25.00	
7440−38−2	Ontario	Sediment Lowest Effect Level	Not specified	6.00	
7440−38−2	Ontario	Sediment Severe Effect Level	Not specified	33.00	

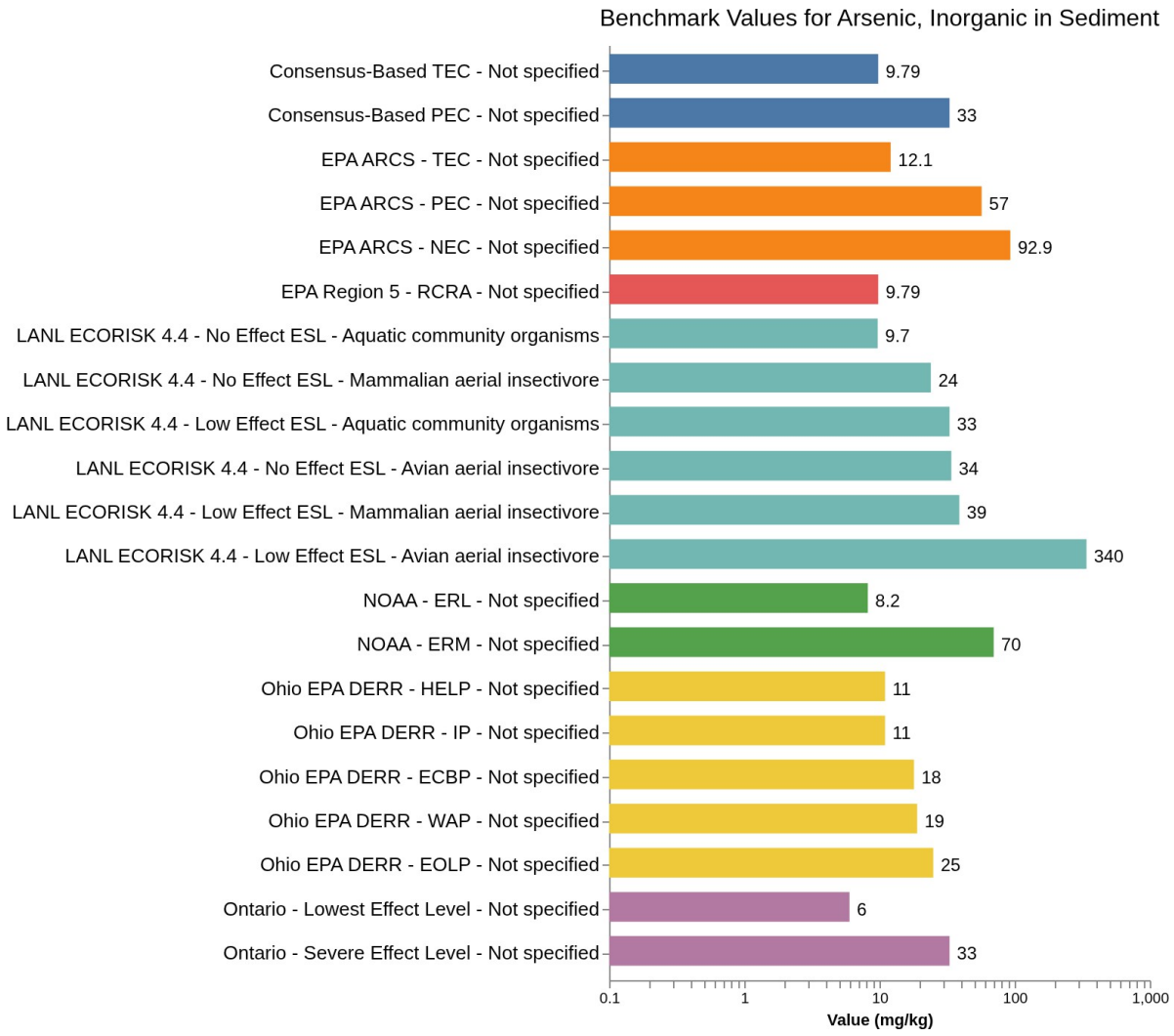

Benchmark Values for Arsenic, Inorganic in Sediment
Consensus-Based TEC - Not specified
9.79
Consensus-Based PEC - Not specified
33
EPA ARCS - TEC - Not specified
12.1
EPA ARCS - PEC - Not specified
57
EPA ARCS - NEC - Not specified
92.9
EPA Region 5 - RCRA - Not specified
9.79
LANL ECORISK 4.4 - No Effect ESL - Aquatic community organisms
9.7
LANL ECORISK 4.4 - No Effect ESL - Mammalian aerial insectivore
24
LANL ECORISK 4.4 - Low Effect ESL - Aquatic community organisms
33
LANL ECORISK 4.4 - No Effect ESL - Avian aerial insectivore
34
LANL ECORISK 4.4 - Low Effect ESL - Mammalian aerial insectivore
39
LANL ECORISK 4.4 - Low Effect ESL - Avian aerial insectivore
340
NOAA - ERL - Not specified
8.2
NOAA - ERM - Not specified
70
Ohio EPA DERR - HELP - Not specified
11
Ohio EPA DERR - IP - Not specified
11
Ohio EPA DERR - ECBP - Not specified
18
Ohio EPA DERR - WAP - Not specified
19
Ohio EPA DERR - EOLP - Not specified
25
Ontario - Lowest Effect Level - Not specified
6
Ontario - Severe Effect Level - Not specified
33
0.1
1
10
100
1,000
Value (mg/kg)

Table 20: Benchmark Values for Barium in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
7440−39−3	LANL ECORISK	Sediment No Effect ESL	Aquatic community organisms	150.0
7440−39−3	LANL ECORISK	Sediment Low Effect ESL	Aquatic community organisms	300.0
7440−39−3	LANL ECORISK	Sediment No Effect ESL	Avian aerial insectivore	2900.0
7440−39−3	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	3100.0
7440−39−3	LANL ECORISK	Sediment Low Effect ESL	Avian aerial insectivore	5200.0
7440−39−3	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	31000.0
7440−39−3	Ohio	Interior Plateau	Not specified	170.0
7440−39−3	Ohio	Erie/Ontario Lake Plain	Not specified	190.0
7440−39−3	Ohio	Huron Erie Lake Plain	Not specified	210.0
7440−39−3	Ohio	Eastern Corn Belt Plains	Not specified	240.0
7440−39−3	Ohio	Western Allegheny Plateau	Not specified	360.0

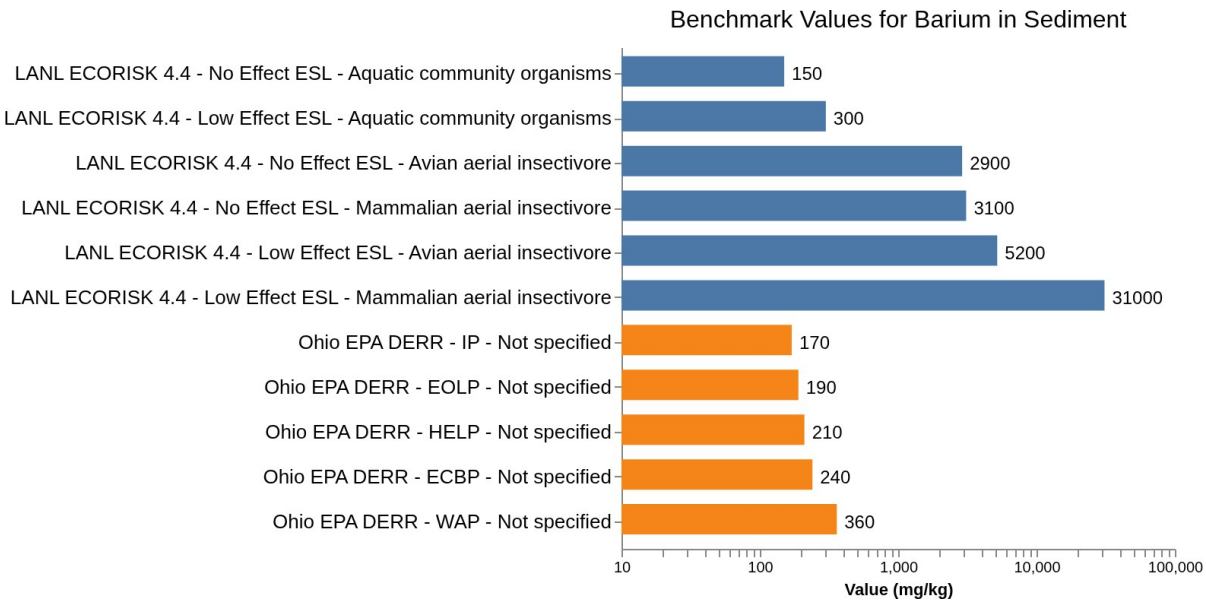


Table 21: Benchmark Values for Benz[a]anthracene in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)	Footnotes
56−55−3	Consensus−Based	Consensus−Based TEC	Not specified	0.108	
56−55−3	Consensus−Based	Consensus−Based PEC	Not specified	1.050	
56−55−3	EPA − ARCS	Sediment TEC	Not specified	0.260	
56−55−3	EPA − ARCS	Sediment NEC	Not specified	3.500	
56−55−3	EPA − ARCS	Sediment PEC	Not specified	4.200	
56−55−3	EPA ESBs	Effect Concentration of PAH	Not specified	841.000	
56−55−3	EPA ESBs	Maximum Solubility Limited PAH Concentration	Not specified	4153.000	
56−55−3	EPA Region 5	EPA RCRA Sediment	Not specified	0.108	
56−55−3	LANL ECORISK	Sediment No Effect ESL	Aquatic community organisms	0.100	
56−55−3	LANL ECORISK	Sediment Low Effect ESL	Aquatic community organisms	1.000	
56−55−3	LANL ECORISK	Sediment No Effect ESL	Avian aerial insectivore	2.100	
56−55−3	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	5.200	
56−55−3	LANL ECORISK	Sediment Low Effect ESL	Avian aerial insectivore	21.000	
56−55−3	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	52.000	
56−55−3	NOAA	Effects Range−Low	Not specified	0.261	
56−55−3	NOAA	Effects Range−Median	Not specified	1.600	32
56−55−3	Ontario	Sediment Lowest Effect Level	Not specified	0.320	
56−55−3	Ontario	Sediment Severe Effect Level	Not specified	148.000	33

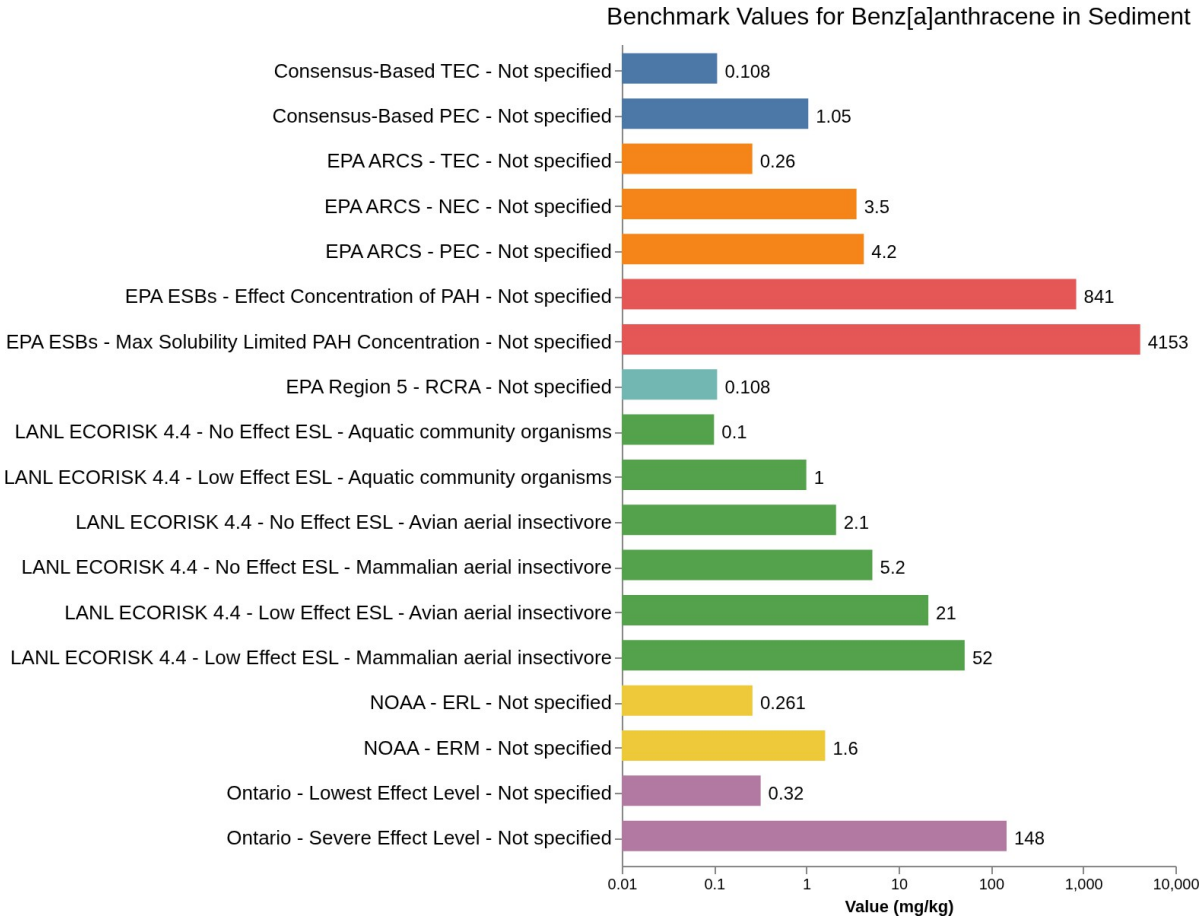


Table 22: Benchmark Values for Benzanthracene/chrysenes, C1－ in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
000000−14−3	EPA ESBs	Effect Concentration of PAH	Not specified	929.00
000000−14−3	EPA Region 4	Sediment RSV for PAHs	Not specified	9.29

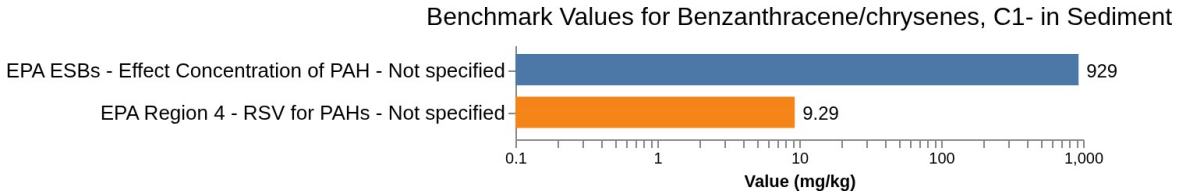


Table 23: Benchmark Values for Benzanthracene/chrysenes, C2− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
000000−14−4	EPA ESBs	Effect Concentration of PAH	Not specified	1008.0
000000−14−4	EPA Region 4	Sediment RSV for PAHs	Not specified	10.1

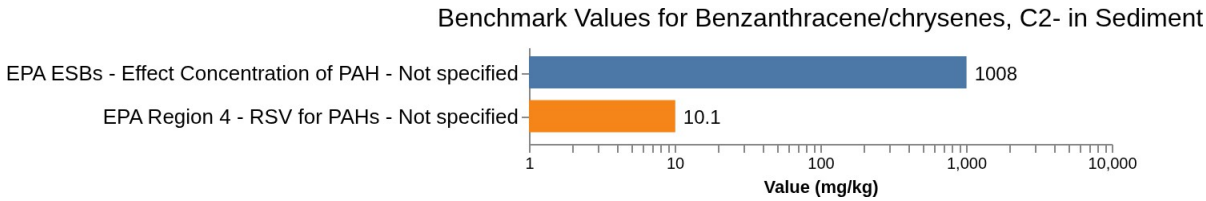


Table 24: Benchmark Values for Benzanthracene/chrysenes, C3− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
000000−14−5	EPA ESBs	Effect Concentration of PAH	Not specified	1112.0
000000−14−5	EPA Region 4	Sediment RSV for PAHs	Not specified	11.1

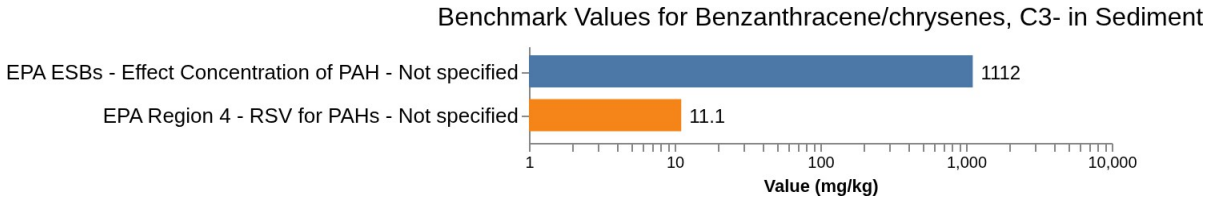


Table 25: Benchmark Values for Benzanthracene/chrysenes, C4− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
000000−14−6	EPA ESBs	Effect Concentration of PAH	Not specified	1214.0
000000−14−6	EPA Region 4	Sediment RSV for PAHs	Not specified	12.1

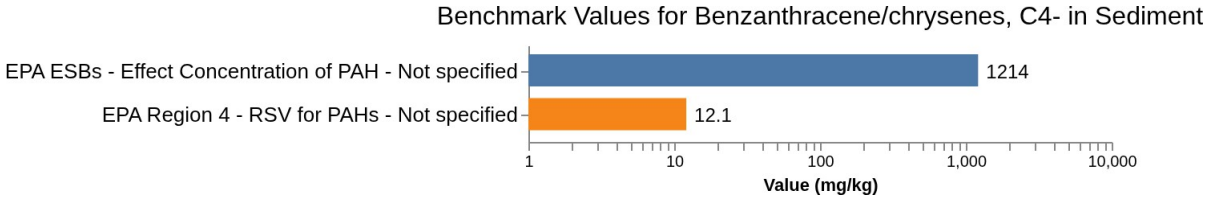


Table 26: Benchmark Values for Benzene in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
71−43−2	EPA OSWER	Sediment quality benchmarks	Not specified	0.05700
71−43−2	EPA Region 5	EPA RCRA Sediment	Not specified	0.14157
71−43−2	LANL ECORISK	Sediment No Effect ESL	Aquatic community organisms	0.01000
71−43−2	LANL ECORISK	Sediment Low Effect ESL	Aquatic community organisms	0.10000
71−43−2	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	54.00000
71−43−2	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	550.00000

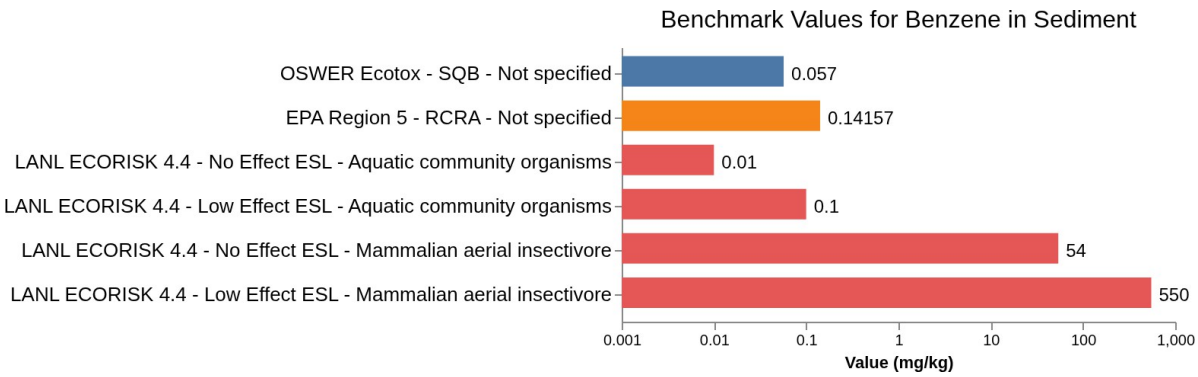


Table 27: Benchmark Values for Benzo[a]fluorene in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
238−84−6	EPA ESBs	Effect Concentration of PAH	Not specified	787.0
238−84−6	EPA ESBs	Maximum Solubility Limited PAH Concentration	Not specified	12500.0

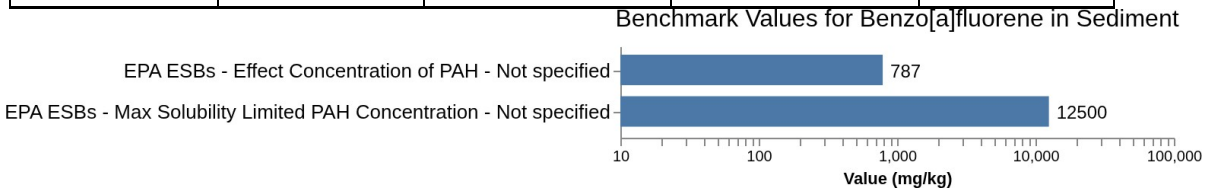


Table 28: Benchmark Values for Benzo[a]pyrene in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)	Footnotes
50−32−8	Consensus−Based	Consensus−Based TEC	Not specified	0.1500	
50−32−8	Consensus−Based	Consensus−Based PEC	Not specified	1.4500	
50−32−8	EPA − ARCS	Sediment TEC	Not specified	0.3500	
50−32−8	EPA − ARCS	Sediment PEC	Not specified	0.3937	
50−32−8	EPA − ARCS	Sediment NEC	Not specified	0.4400	
50−32−8	EPA ESBs	Effect Concentration of PAH	Not specified	965.0000	
50−32−8	EPA ESBs	Maximum Solubility Limited PAH Concentration	Not specified	3840.0000	
50−32−8	EPA OSWER	Effects Range − Low	Not specified	0.4300	
50−32−8	EPA Region 5	EPA RCRA Sediment	Not specified	0.1500	
50−32−8	LANL ECORISK	Sediment No Effect ESL	Aquatic community organisms	0.1500	
50−32−8	LANL ECORISK	Sediment Low Effect ESL	Aquatic community organisms	1.4000	
50−32−8	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	74.0000	
50−32−8	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	230.0000	
50−32−8	NOAA	Effects Range−Low	Not specified	0.4300	
50−32−8	NOAA	Effects Range−Median	Not specified	1.6000	32
50−32−8	Ontario	Sediment Lowest Effect Level	Not specified	0.3700	
50−32−8	Ontario	Sediment Severe Effect Level	Not specified	144.0000	33

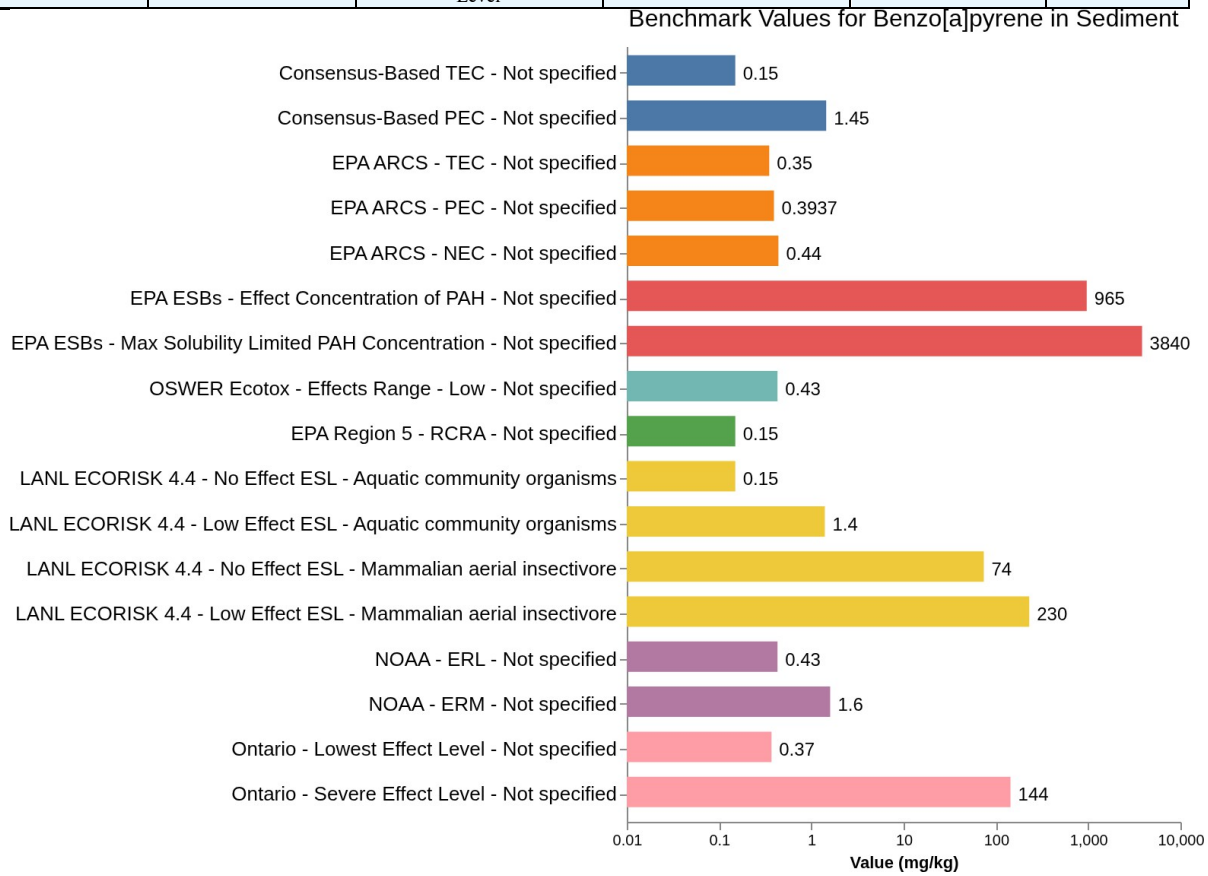


Table 29: Benchmark Values for Benzo[b]fluoranthene in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
205−99−2	EPA − ARCS	Sediment TEC	Not specified	0.0272
205−99−2	EPA − ARCS	Sediment NEC	Not specified	4.0000
205−99−2	EPA ESBs	Effect Concentration of PAH	Not specified	979.0000
205−99−2	EPA ESBs	Maximum Solubility Limited PAH Concentration	Not specified	2169.0000
205−99−2	EPA Region 5	EPA RCRA Sediment	Not specified	10.4000
205−99−2	LANL ECORISK	Sediment No Effect ESL	Aquatic community organisms	0.1900
205−99−2	LANL ECORISK	Sediment Low Effect ESL	Aquatic community organisms	1.9000
205−99−2	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	53.0000
205−99−2	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	530.0000

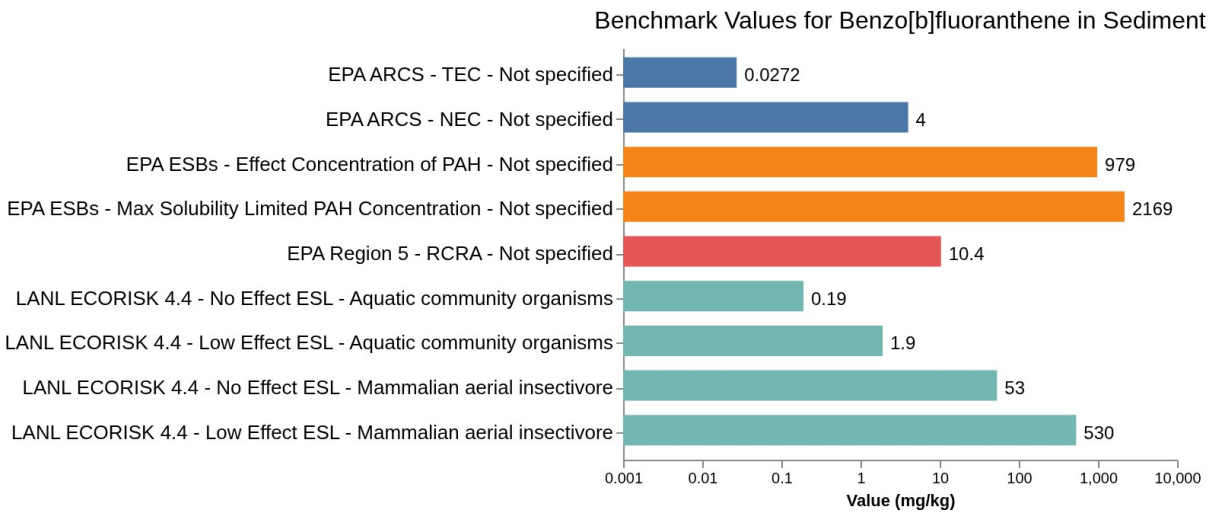


Table 30: Benchmark Values for Benzo[e]pyrene in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)	Footnotes
192−97−2	EPA ESBs	Effect Concentration of PAH	Not specified	967.00	
192−97−2	EPA ESBs	Maximum Solubility Limited PAH Concentration	Not specified	4300.00	
192−97−2	EPA Region 4	Sediment RSV for PAHs	Not specified	9.67	7

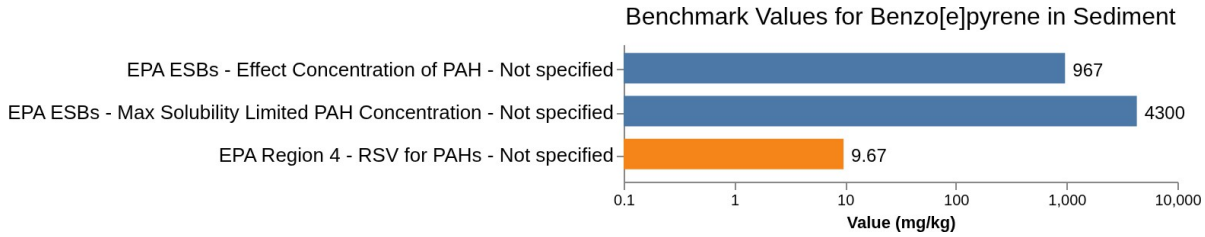


Table 31: Benchmark Values for Benzo[g,h,i]perylene in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)	Footnotes
191−24−2	EPA − ARCS	Sediment TEC	Not specified	0.29	
191−24−2	EPA − ARCS	Sediment NEC	Not specified	3.80	
191−24−2	EPA − ARCS	Sediment PEC	Not specified	6.30	
191−24−2	EPA ESBs	Maximum Solubility Limited PAH Concentration	Not specified	648.00	
191−24−2	EPA ESBs	Effect Concentration of PAH	Not specified	1095.00	
191−24−2	EPA Region 5	EPA RCRA Sediment	Not specified	0.17	
191−24−2	LANL ECORISK	Sediment No Effect ESL	Aquatic community organisms	0.17	
191−24−2	LANL ECORISK	Sediment Low Effect ESL	Aquatic community organisms	1.70	
191−24−2	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	29.00	
191−24−2	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	290.00	
191−24−2	Ontario	Sediment Lowest Effect Level	Not specified	0.17	
191−24−2	Ontario	Sediment Severe Effect Level	Not specified	32.00	33

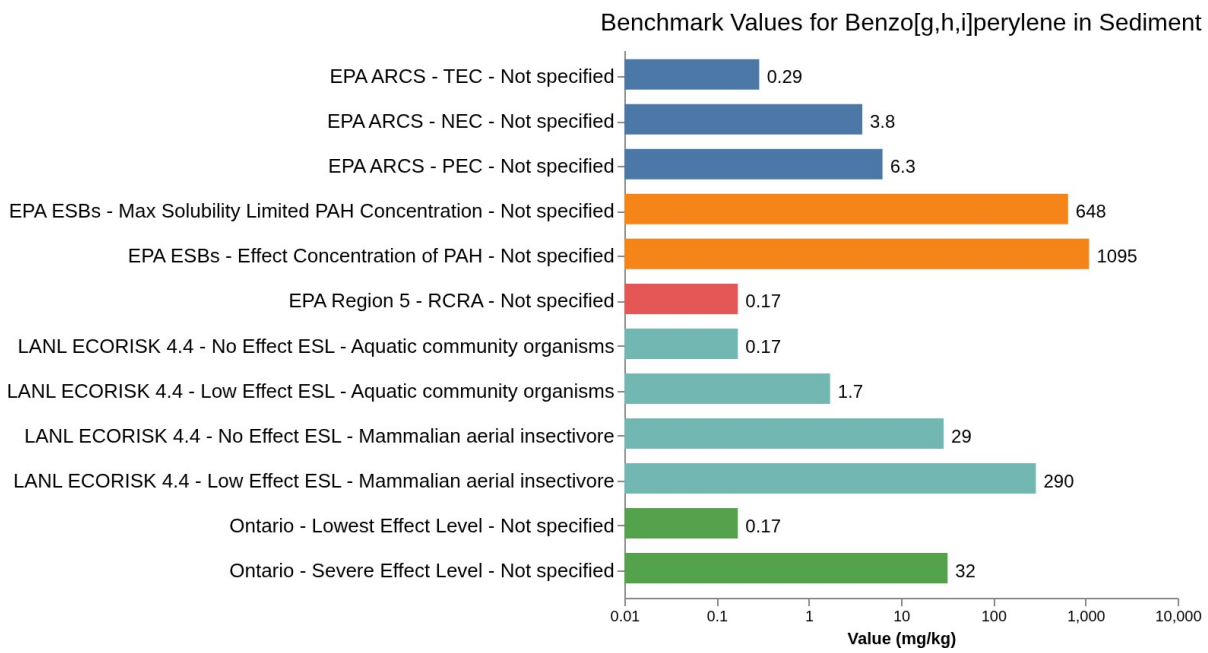


Table 32: Benchmark Values for Benzo[j]fluoranthene in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
205−82−3	EPA ESBs	Effect Concentration of PAH	Not specified	981.0
205−82−3	EPA ESBs	Maximum Solubility Limited PAH Concentration	Not specified	3820.0

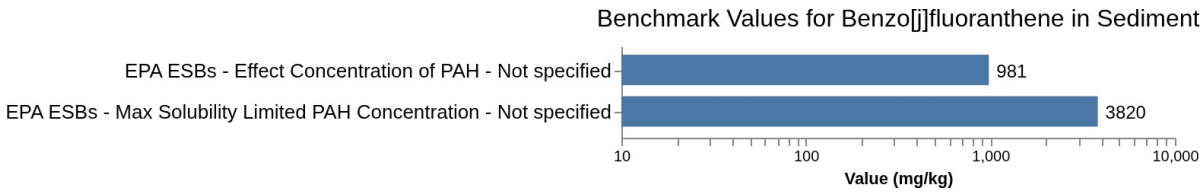


Table 33: Benchmark Values for Benzo[k]fluoranthene in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)	Footnotes
207−08−9	EPA − ARCS	Sediment TEC	Not specified	0.0272	
207−08−9	EPA − ARCS	Sediment NEC	Not specified	4.0000	
207−08−9	EPA ESBs	Effect Concentration of PAH	Not specified	981.0000	
207−08−9	EPA ESBs	Maximum Solubility Limited PAH Concentration	Not specified	1220.0000	
207−08−9	EPA Region 5	EPA RCRA Sediment	Not specified	0.2400	
207−08−9	LANL ECORISK	Sediment No Effect ESL	Aquatic community organisms	0.2400	
207−08−9	LANL ECORISK	Sediment Low Effect ESL	Aquatic community organisms	2.4000	
207−08−9	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	83.0000	
207−08−9	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	830.0000	
207−08−9	Ontario	Sediment Lowest Effect Level	Not specified	0.2400	
207−08−9	Ontario	Sediment Severe Effect Level	Not specified	134.0000	33

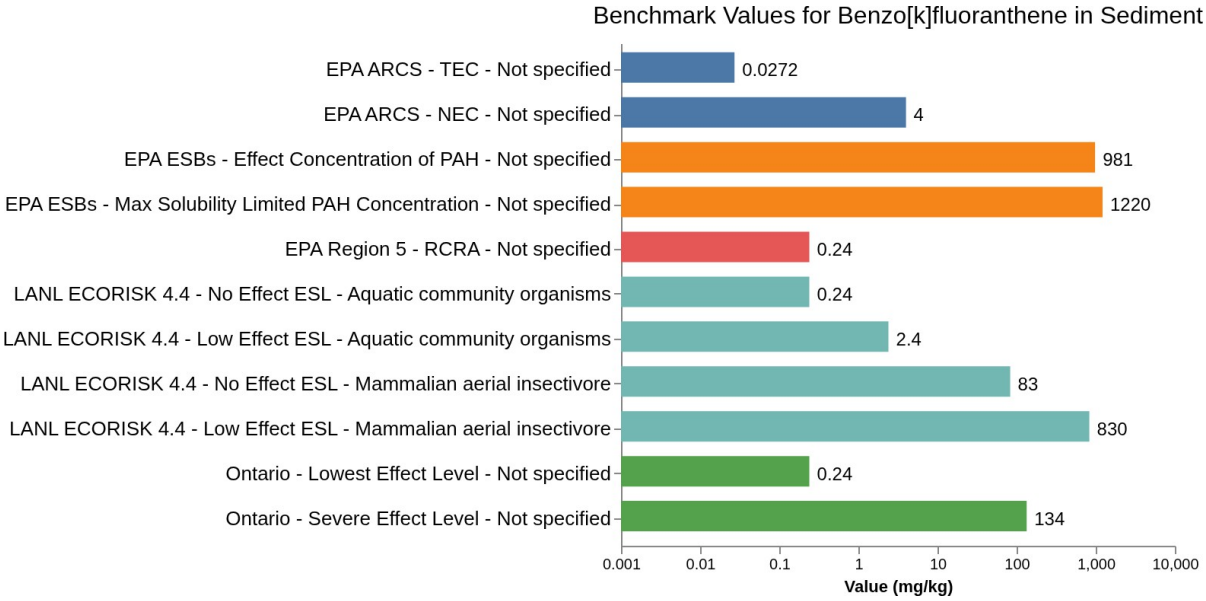


Table 34: Benchmark Values for Benzofluorene, 2,3− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
243−17−4	EPA ESBs	Maximum Solubility Limited PAH Concentration	Not specified	558.0
243−17−4	EPA ESBs	Effect Concentration of PAH	Not specified	787.0

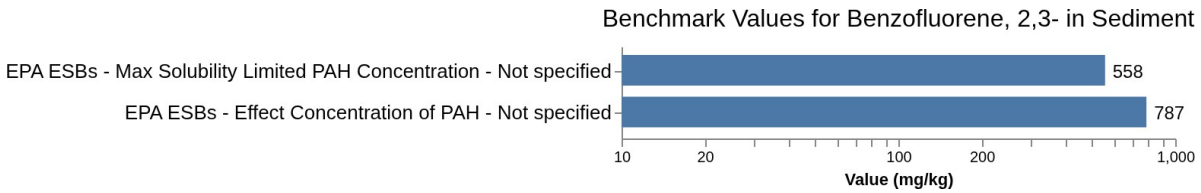


Table 35: Benchmark Values for Benzoic Acid in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
65−85−0	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	1.2
65−85−0	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	12.0

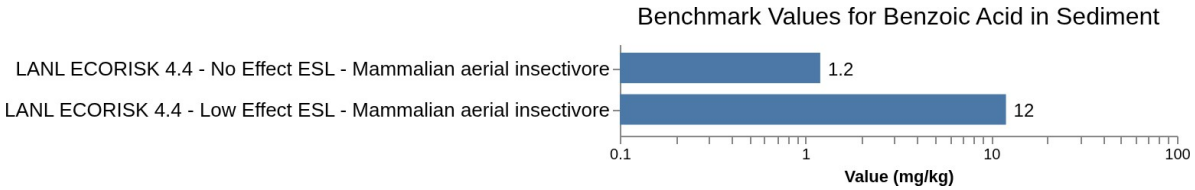


Table 36: Benchmark Values for Benzothiophene in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
11095−43−5	EPA Region 4	Sediment RSV for PAHs	Not specified	3.91

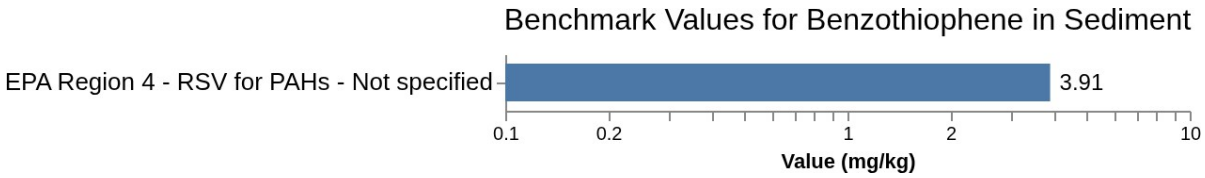


Table 37: Benchmark Values for Benzyl Alcohol in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
100−51−6	EPA Region 5	EPA RCRA Sediment	Not specified	0.00104
100−51−6	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	300.00000
100−51−6	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	3000.00000

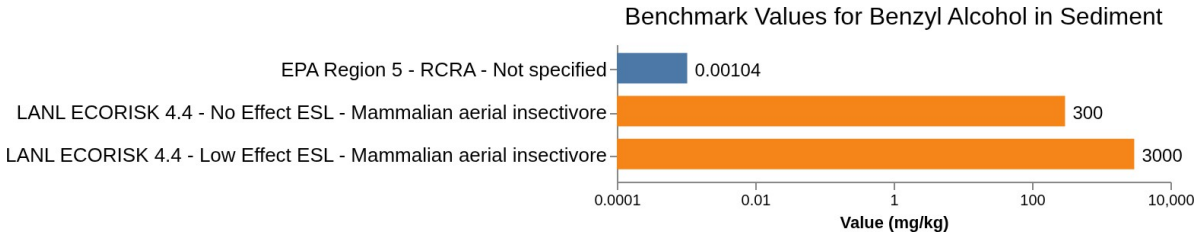


Table 38: Benchmark Values for Beryllium and compounds in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
7440−41−7	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	66.0
7440−41−7	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	660.0
7440−41−7	Ohio	Statewide	Not specified	0.8

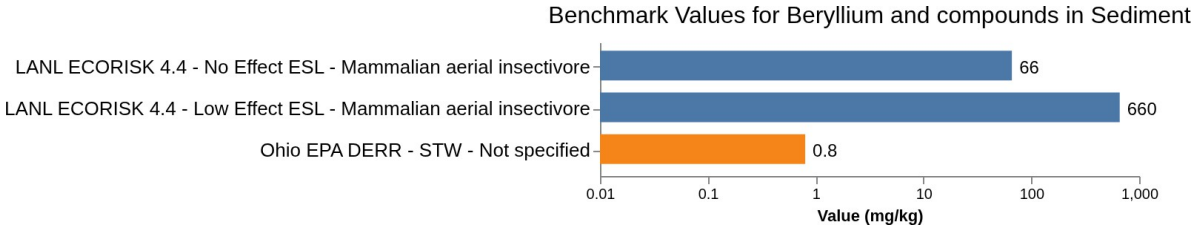


Table 39: Benchmark Values for Biphenyl, 1,1'− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
92−52−4	EPA OSWER	Sediment quality benchmarks	Not specified	1.1

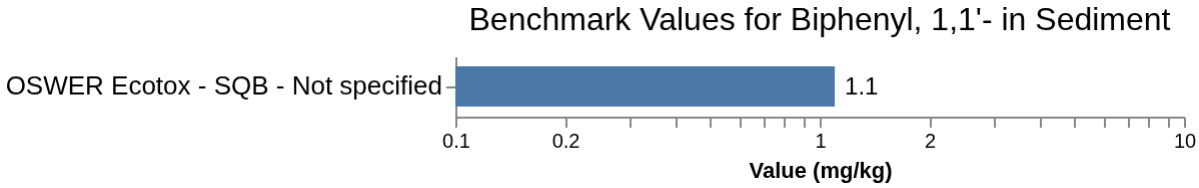


Table 40: Benchmark Values for Bis(2−chloroethyl)ether in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
111−44−4	EPA Region 5	EPA RCRA Sediment	Not specified	3.52

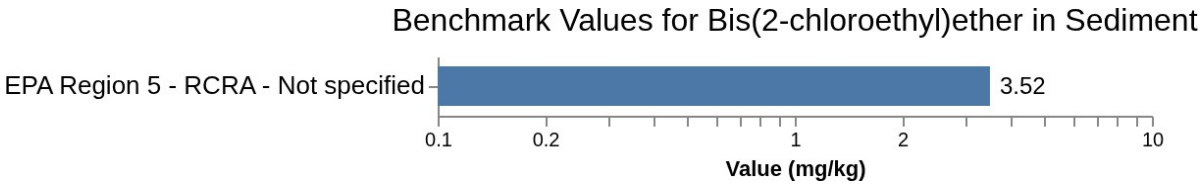


Table 41: Benchmark Values for Bis(2−ethylhexyl)phthalate in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
117−81−7	EPA Region 5	EPA RCRA Sediment	Not specified	0.182
117−81−7	LANL ECORISK	Sediment No Effect ESL	Avian aerial insectivore	0.026
117−81−7	LANL ECORISK	Sediment Low Effect ESL	Avian aerial insectivore	0.260
117−81−7	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	0.660
117−81−7	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	6.600

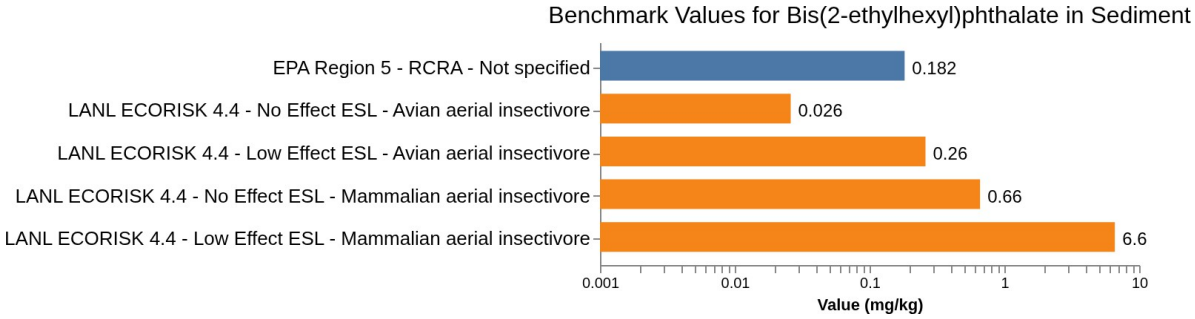


Table 42: Benchmark Values for Boron And Borates Only in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
7440−42−8	LANL ECORISK	Sediment No Effect ESL	Avian aerial insectivore	10.0
7440−42−8	LANL ECORISK	Sediment Low Effect ESL	Avian aerial insectivore	52.0
7440−42−8	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	150.0
7440−42−8	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	1500.0

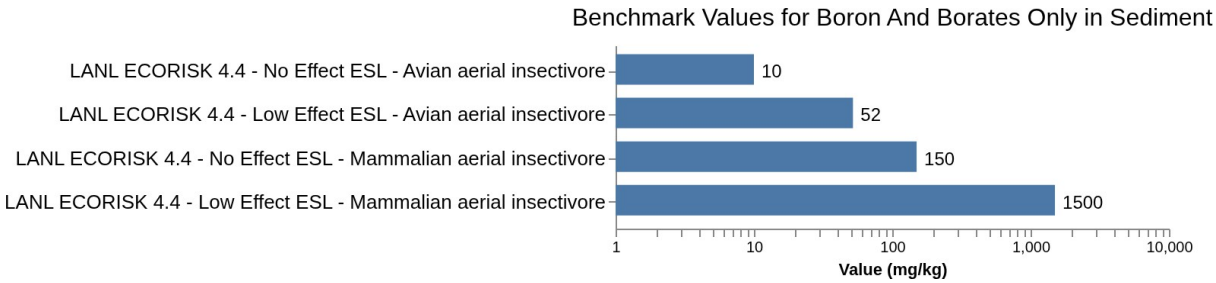


Table 43: Benchmark Values for Bromodiphenyl Ether, p− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
101−55−3	EPA OSWER	Sediment quality benchmarks	Not specified	1.30
101−55−3	EPA Region 5	EPA RCRA Sediment	Not specified	1.55

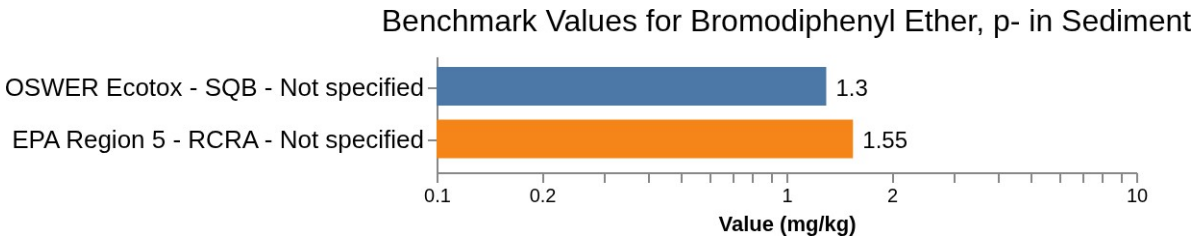


Table 44: Benchmark Values for Bromoform in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
75−25−2	EPA OSWER	Sediment quality benchmarks	Not specified	0.650
75−25−2	EPA Region 5	EPA RCRA Sediment	Not specified	0.492

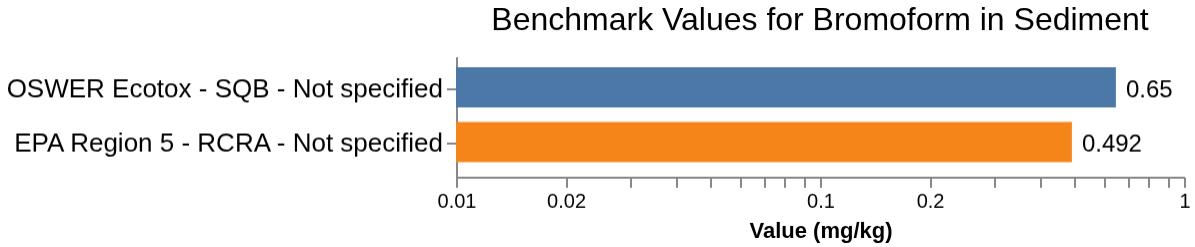


Table 45: Benchmark Values for Bromomethane in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
74−83−9	EPA Region 5	EPA RCRA Sediment	Not specified	0.00137

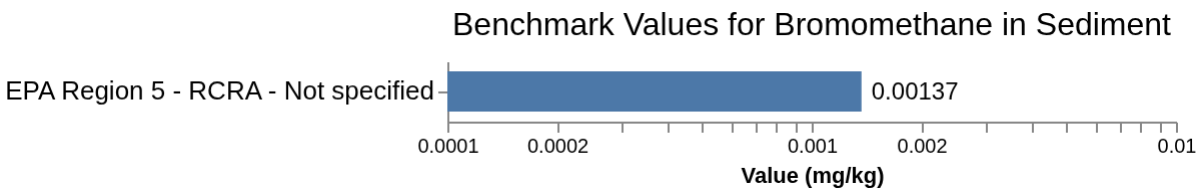


Table 46: Benchmark Values for Butyl Benzyl Phthalate in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
85−68−7	EPA OSWER	Sediment quality benchmarks	Not specified	11.00
85−68−7	EPA Region 5	EPA RCRA Sediment	Not specified	1.97
85−68−7	LANL ECORISK	Sediment No Effect ESL	Aquatic community organisms	0.10
85−68−7	LANL ECORISK	Sediment Low Effect ESL	Aquatic community organisms	1.00
85−68−7	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	100.00
85−68−7	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	1000.00

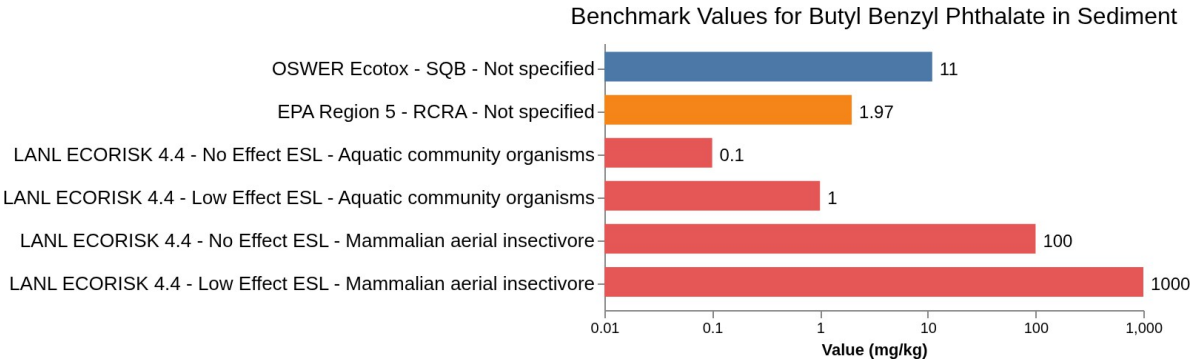


Table 47: Benchmark Values for Cadmium (Diet) in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)	Footnotes
7440−43−9	Consensus−Based	Consensus−Based TEC	Not specified	0.990	
7440−43−9	Consensus−Based	Consensus−Based PEC	Not specified	4.980	
7440−43−9	EPA − ARCS	Sediment TEC	Not specified	0.592	
7440−43−9	EPA − ARCS	Sediment PEC	Not specified	11.700	
7440−43−9	EPA − ARCS	Sediment NEC	Not specified	41.100	
7440−43−9	EPA OSWER	Effects Range − Low	Not specified	1.200	
7440−43−9	EPA Region 5	EPA RCRA Sediment	Not specified	0.990	
7440−43−9	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	0.300	
7440−43−9	LANL ECORISK	Sediment No Effect ESL	Avian aerial insectivore	0.370	
7440−43−9	LANL ECORISK	Sediment No Effect ESL	Aquatic community organisms	0.990	
7440−43−9	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	3.000	
7440−43−9	LANL ECORISK	Sediment Low Effect ESL	Avian aerial insectivore	3.700	
7440−43−9	LANL ECORISK	Sediment Low Effect ESL	Aquatic community organisms	4.900	
7440−43−9	NOAA	Effects Range−Low	Not specified	1.200	32
7440−43−9	NOAA	Effects Range−Median	Not specified	9.600	32
7440−43−9	Ohio	Interior Plateau	Not specified	0.300	
7440−43−9	Ohio	Erie/Ontario Lake Plain	Not specified	0.790	
7440−43−9	Ohio	Western Allegheny Plateau	Not specified	0.800	
7440−43−9	Ohio	Eastern Corn Belt Plains	Not specified	0.900	
7440−43−9	Ohio	Huron Erie Lake Plain	Not specified	0.960	
7440−43−9	Ontario	Sediment Lowest Effect Level	Not specified	0.600	
7440−43−9	Ontario	Sediment Severe Effect Level	Not specified	10.000	

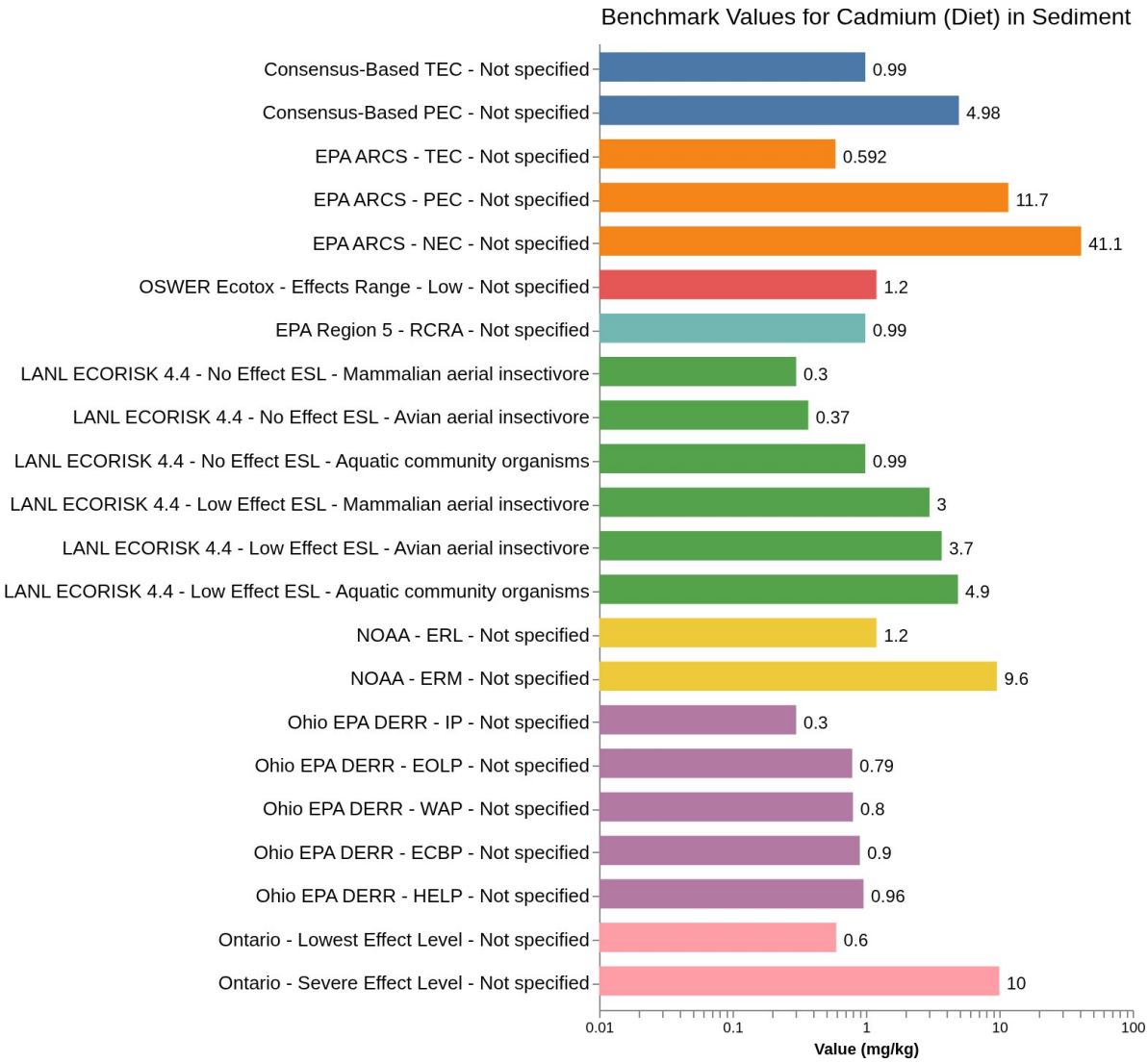

Benchmark Values for Cadmium (Diet) in Sediment
Consensus-Based TEC - Not specified
0.99
Consensus-Based PEC - Not specified
4.98
EPA ARCS - TEC - Not specified
0.592
EPA ARCS - PEC - Not specified
11.7
EPA ARCS - NEC - Not specified
41.1
OSWER Ecotox - Effects Range - Low - Not specified
1.2
EPA Region 5 - RCRA - Not specified
0.99
LANL ECORISK 4.4 - No Effect ESL - Mammalian aerial insectivore
0.3
LANL ECORISK 4.4 - No Effect ESL - Avian aerial insectivore
0.37
LANL ECORISK 4.4 - No Effect ESL - Aquatic community organisms
0.99
LANL ECORISK 4.4 - Low Effect ESL - Mammalian aerial insectivore
3
LANL ECORISK 4.4 - Low Effect ESL - Avian aerial insectivore
3.7
LANL ECORISK 4.4 - Low Effect ESL - Aquatic community organisms
4.9
NOAA - ERL - Not specified
1.2
NOAA - ERM - Not specified
9.6
Ohio EPA DERR - IP - Not specified
0.3
Ohio EPA DERR - EOLP - Not specified
0.79
Ohio EPA DERR - WAP - Not specified
0.8
Ohio EPA DERR - ECBP - Not specified
0.9
Ohio EPA DERR - HELP - Not specified
0.96
Ontario - Lowest Effect Level - Not specified
0.6
Ontario - Severe Effect Level - Not specified
10
0.01
0.1
1
10
100
Value (mg/kg)

Table 48: Benchmark Values for Calcium in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
7440−70−2	Ohio	Erie/Ontario Lake Plain	Not specified	21000.0
7440−70−2	Ohio	Western Allegheny Plateau	Not specified	27000.0
7440−70−2	Ohio	Interior Plateau	Not specified	94000.0
7440−70−2	Ohio	Huron Erie Lake Plain	Not specified	110000.0
7440−70−2	Ohio	Eastern Corn Belt Plains	Not specified	120000.0

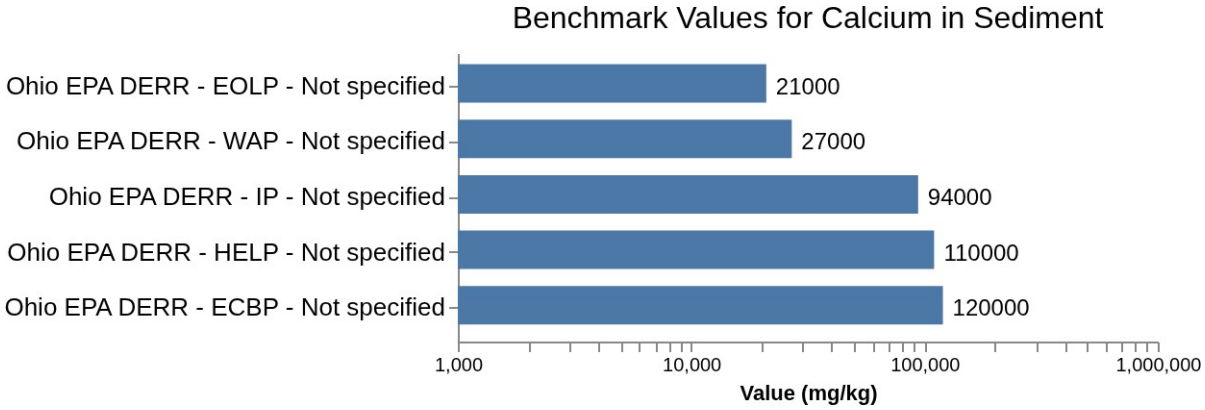


Table 49: Benchmark Values for Carbazole in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
86−74−8	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	130.0
86−74−8	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	1300.0

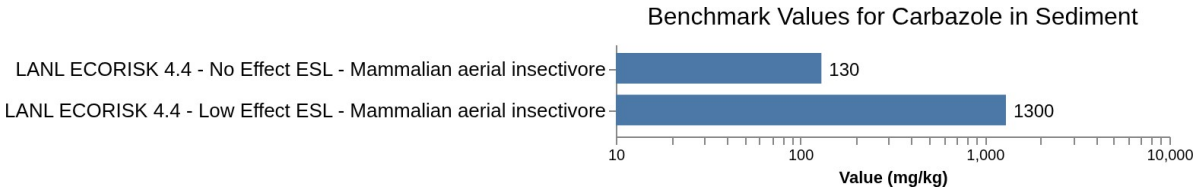


Table 50: Benchmark Values for Carbon Disulfide in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
75−15−0	EPA Region 5	EPA RCRA Sediment	Not specified	0.0239
75−15−0	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	1.3000
75−15−0	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	13.0000

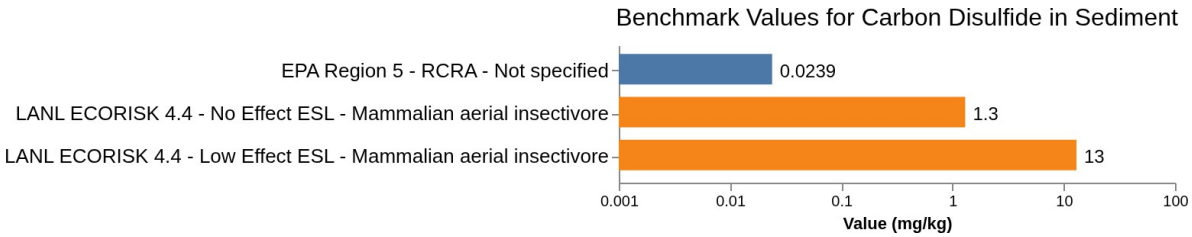


Table 51: Benchmark Values for Carbon Tetrachloride in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
56−23−5	EPA OSWER	Sediment quality benchmarks	Not specified	1.20
56−23−5	EPA Region 5	EPA RCRA Sediment	Not specified	1.45

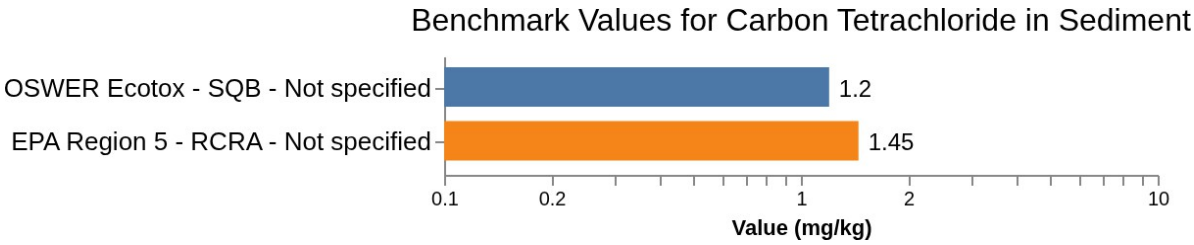


Table 52: Benchmark Values for Chlordane (alpha) in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
5103−71−9	LANL ECORISK	Sediment No Effect ESL	Aquatic community organisms	0.0032
5103−71−9	LANL ECORISK	Sediment Low Effect ESL	Aquatic community organisms	0.0170
5103−71−9	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	0.3000
5103−71−9	LANL ECORISK	Sediment No Effect ESL	Avian aerial insectivore	0.3500
5103−71−9	LANL ECORISK	Sediment Low Effect ESL	Avian aerial insectivore	1.7000
5103−71−9	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	3.0000

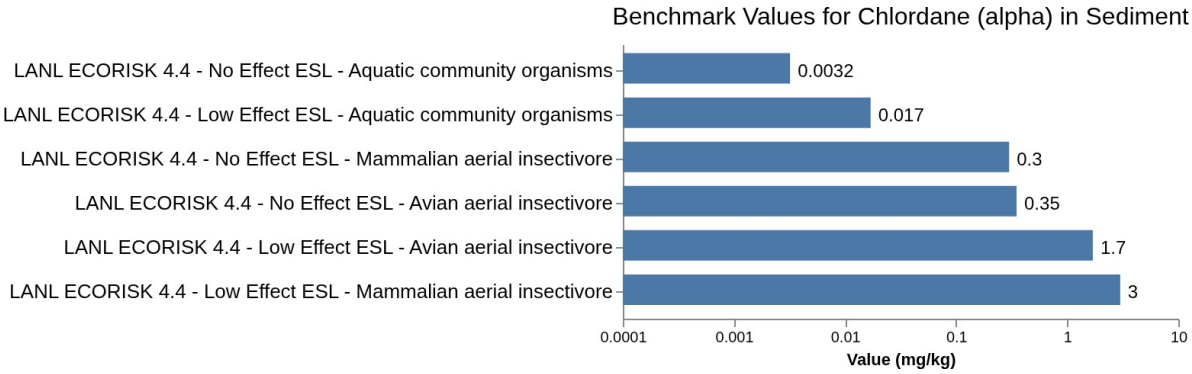


Table 53: Benchmark Values for Chlordane (gamma) in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
5103−74−2	LANL ECORISK	Sediment No Effect ESL	Aquatic community organisms	0.0032
5103−74−2	LANL ECORISK	Sediment Low Effect ESL	Aquatic community organisms	0.0170
5103−74−2	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	2.6000
5103−74−2	LANL ECORISK	Sediment No Effect ESL	Avian aerial insectivore	3.1000
5103−74−2	LANL ECORISK	Sediment Low Effect ESL	Avian aerial insectivore	15.0000
5103−74−2	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	26.0000

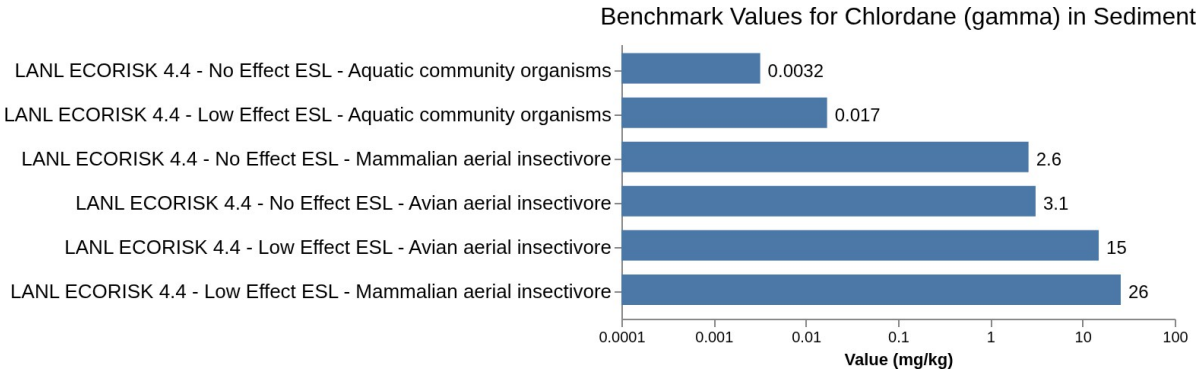


Table 54: Benchmark Values for Chlordane in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)	Footnotes
57−74−9	Consensus−Based	Consensus−Based TEC	Not specified	0.00324	
57−74−9	Consensus−Based	Consensus−Based PEC	Not specified	0.01760	
57−74−9	EPA Region 5	EPA RCRA Sediment	Not specified	0.00324	
57−74−9	NOAA	Effects Range−Low	Not specified	0.00050	
57−74−9	NOAA	Effects Range−Median	Not specified	0.00600	32
57−74−9	New York DEC	Wildlife Sediment	Not specified	0.00760	
57−74−9	Ontario	Provincial Sediment No Effect Level	Not specified	0.00500	
57−74−9	Ontario	Sediment Lowest Effect Level	Not specified	0.00700	
57−74−9	Ontario	Sediment Severe Effect Level	Not specified	0.60000	33

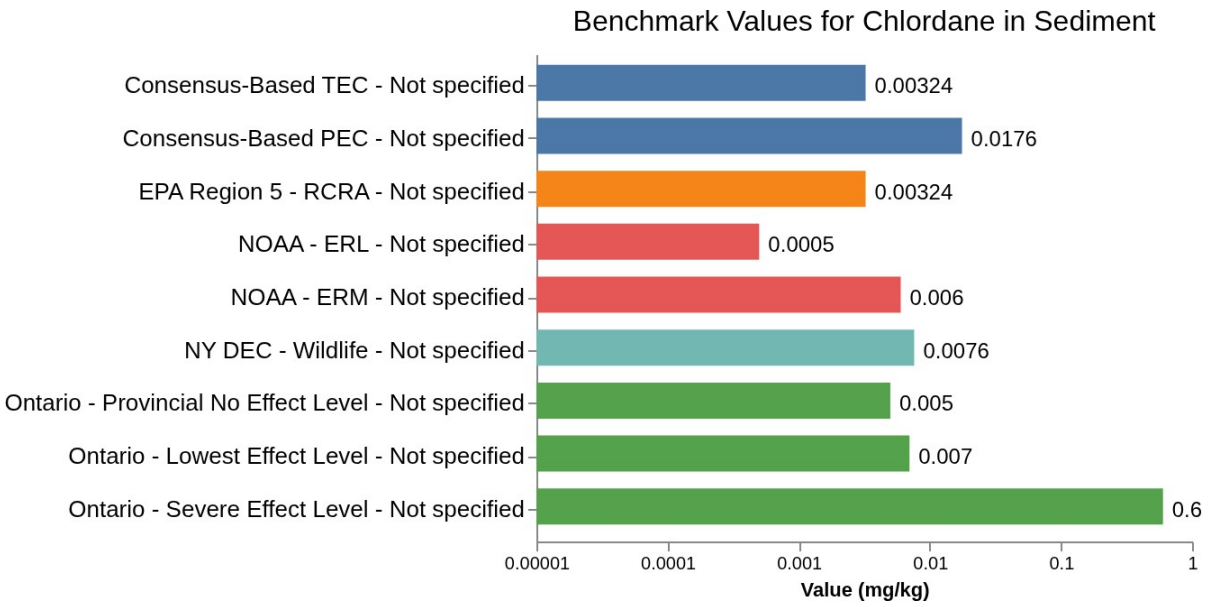


Table 55: Benchmark Values for Chlordecone (Kepone) in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
143−50−0	EPA Region 5	EPA RCRA Sediment	Not specified	0.00331
143−50−0	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	0.02400
143−50−0	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	0.12000
143−50−0	LANL ECORISK	Sediment No Effect ESL	Avian aerial insectivore	1.60000
143−50−0	LANL ECORISK	Sediment Low Effect ESL	Avian aerial insectivore	3.30000

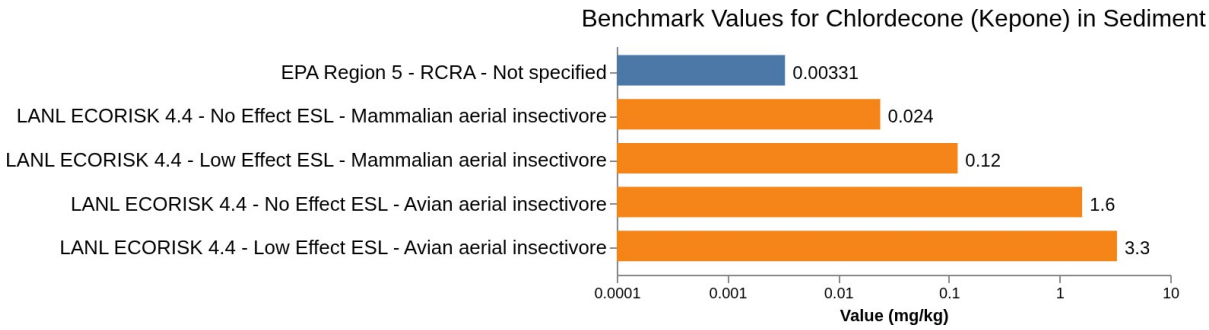


Table 56: Benchmark Values for Chloroaniline, p− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
106−47−8	EPA Region 5	EPA RCRA Sediment	Not specified	0.146

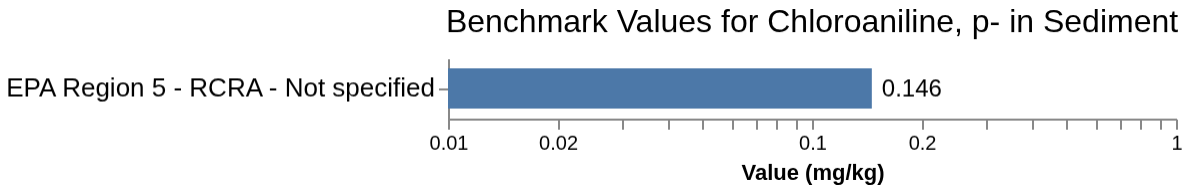


Table 57: Benchmark Values for Chlorobenzene in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
108−90−7	EPA OSWER	Sediment quality benchmarks	Not specified	0.820
108−90−7	EPA Region 5	EPA RCRA Sediment	Not specified	0.291
108−90−7	LANL ECORISK	Sediment No Effect ESL	Aquatic community organisms	0.030
108−90−7	LANL ECORISK	Sediment Low Effect ESL	Aquatic community organisms	0.300
108−90−7	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	48.000
108−90−7	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	480.000

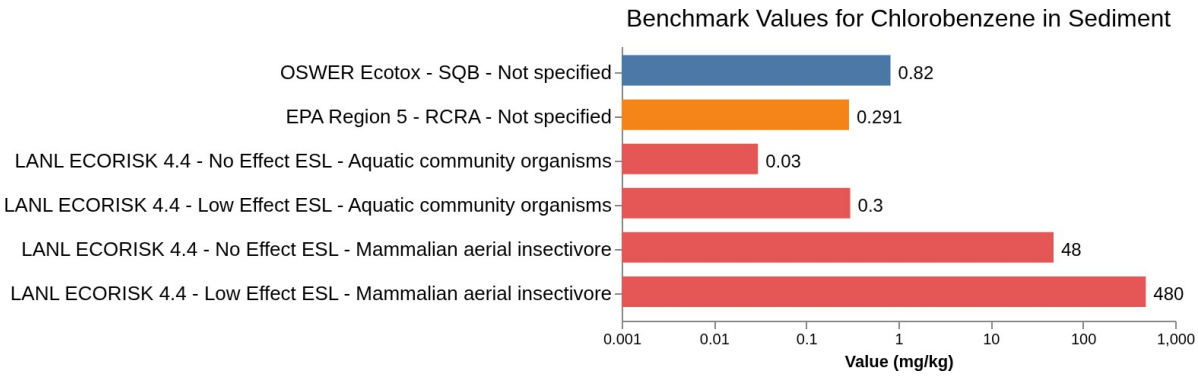


Table 58: Benchmark Values for Chlorobenzilate in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
510−15−6	EPA Region 5	EPA RCRA Sediment	Not specified	0.86029

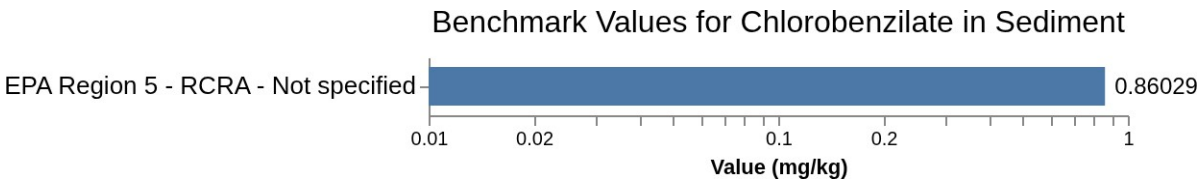


Table 59: Benchmark Values for Chloroform in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
67−66−3	EPA Region 5	EPA RCRA Sediment	Not specified	0.121
67−66−3	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	9.200
67−66−3	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	25.000

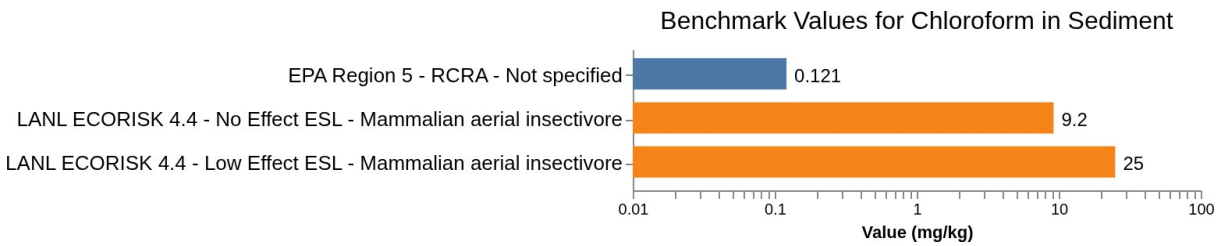


Table 60: Benchmark Values for Chloronaphthalene, Beta− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
91−58−7	EPA Region 5	EPA RCRA Sediment	Not specified	0.417

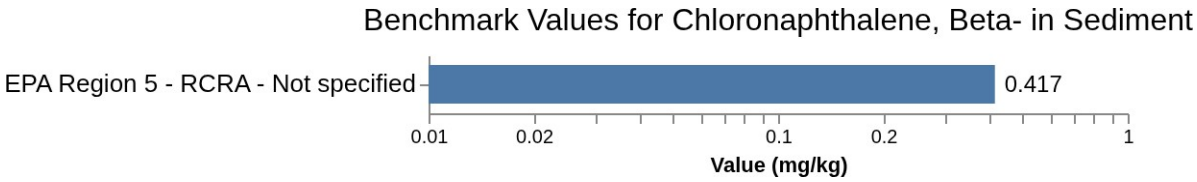


Table 61: Benchmark Values for Chlorophenol, 2− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
95−57−8	EPA Region 5	EPA RCRA Sediment	Not specified	0.0319
95−57−8	LANL ECORISK	Sediment No Effect ESL	Aquatic community organisms	0.0550
95−57−8	LANL ECORISK	Sediment Low Effect ESL	Aquatic community organisms	0.5500
95−57−8	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	2.6000
95−57−8	LANL ECORISK	Sediment No Effect ESL	Avian aerial insectivore	3.9000
95−57−8	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	26.0000
95−57−8	LANL ECORISK	Sediment Low Effect ESL	Avian aerial insectivore	39.0000

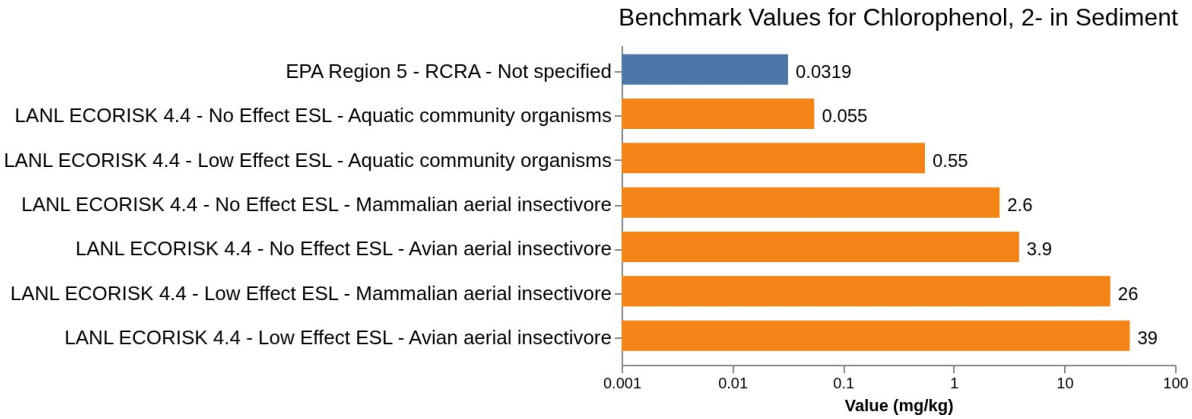


Table 62: Benchmark Values for Chromium(III), (Insoluble Salts) in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)	Footnotes
16065−83−1	EPA OSWER	Effects Range − Low	Not specified	81.0	158

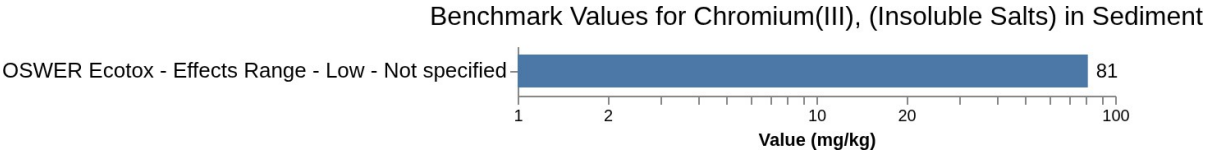


Table 63: Benchmark Values for Chromium(VI) in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
18540−29−9	LANL ECORISK	Sediment No Effect ESL	Avian aerial insectivore	660.0
18540−29−9	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	860.0
18540−29−9	LANL ECORISK	Sediment Low Effect ESL	Avian aerial insectivore	6600.0
18540−29−9	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	8600.0

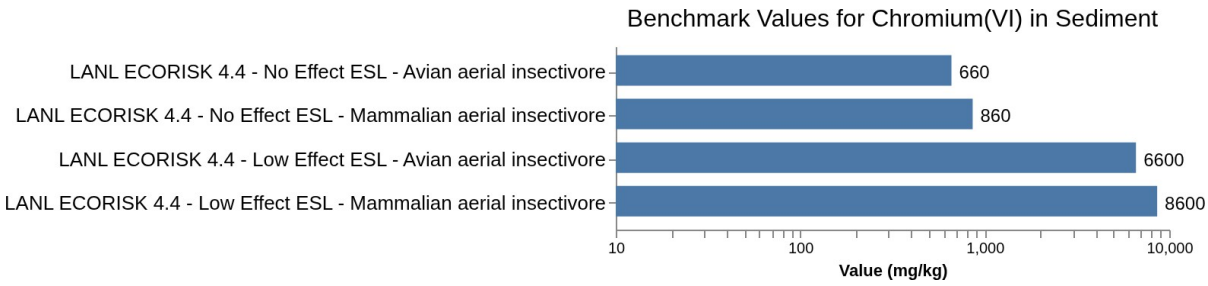


Table 64: Benchmark Values for Chromium, Total in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)	Footnotes
7440−47−3	Consensus−Based	Consensus−Based TEC	Not specified	43.4	
7440−47−3	Consensus−Based	Consensus−Based PEC	Not specified	111.0	
7440−47−3	EPA − ARCS	Sediment TEC	Not specified	56.0	
7440−47−3	EPA − ARCS	Sediment PEC	Not specified	159.0	
7440−47−3	EPA − ARCS	Sediment NEC	Not specified	312.0	
7440−47−3	EPA Region 5	EPA RCRA Sediment	Not specified	43.4	
7440−47−3	LANL ECORISK	Sediment No Effect ESL	Aquatic community organisms	43.0	
7440−47−3	LANL ECORISK	Sediment No Effect ESL	Avian aerial insectivore	60.0	
7440−47−3	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	83.0	
7440−47−3	LANL ECORISK	Sediment Low Effect ESL	Aquatic community organisms	110.0	
7440−47−3	LANL ECORISK	Sediment Low Effect ESL	Avian aerial insectivore	600.0	
7440−47−3	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	830.0	
7440−47−3	NOAA	Effects Range−Low	Not specified	81.0	32
7440−47−3	NOAA	Effects Range−Median	Not specified	370.0	32
7440−47−3	Ohio	Erie/Ontario Lake Plain	Not specified	29.0	
7440−47−3	Ohio	Interior Plateau	Not specified	30.0	
7440−47−3	Ohio	Eastern Corn Belt Plains	Not specified	40.0	
7440−47−3	Ohio	Huron Erie Lake Plain	Not specified	51.0	
7440−47−3	Ohio	Western Allegheny Plateau	Not specified	53.0	
7440−47−3	Ontario	Sediment Lowest Effect Level	Not specified	26.0	
7440−47−3	Ontario	Sediment Severe Effect Level	Not specified	110.0	

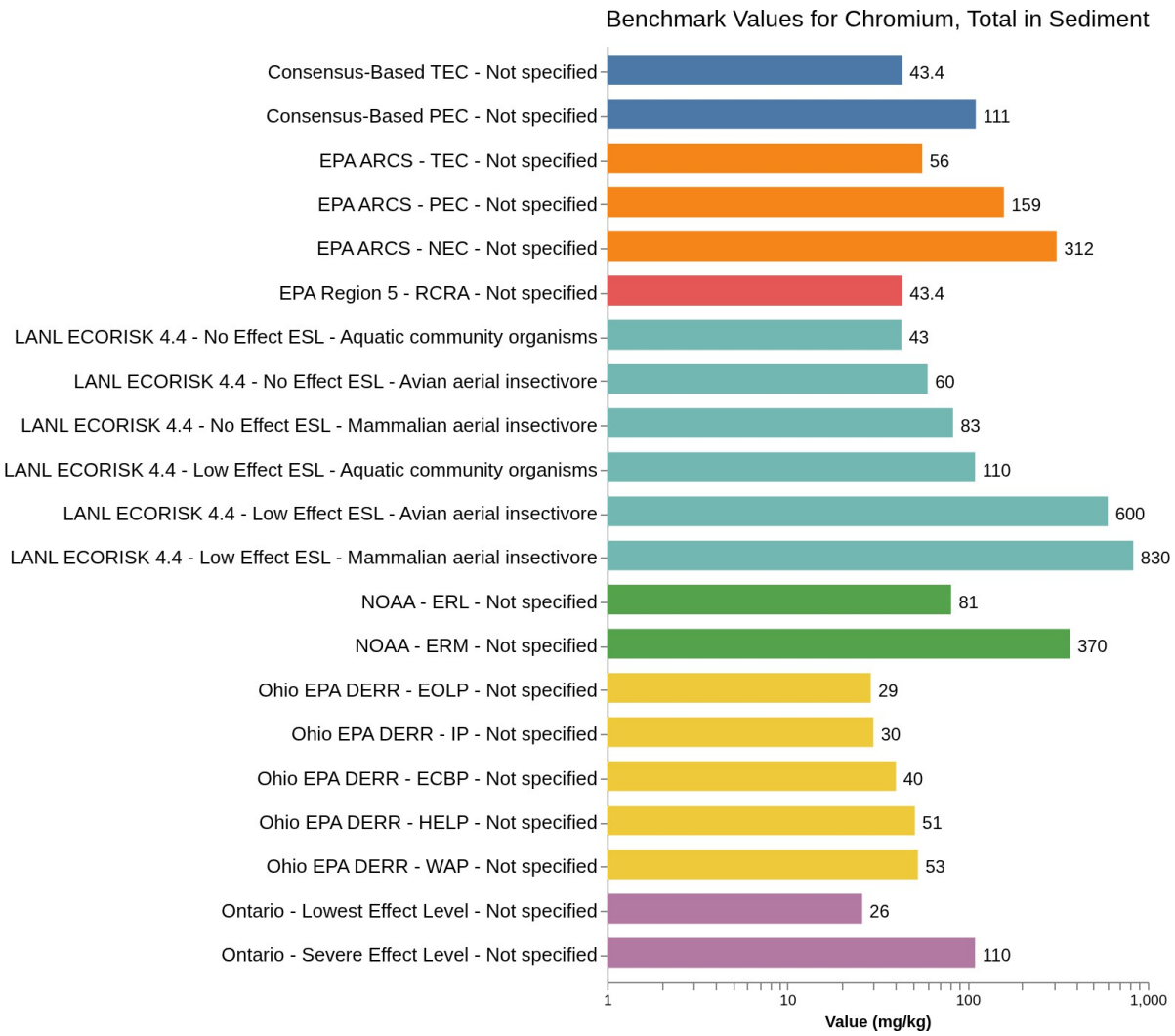

Benchmark Values for Chromium, Total in Sediment
Consensus-Based TEC - Not specified
43.4
Consensus-Based PEC - Not specified
111
EPA ARCS - TEC - Not specified
56
EPA ARCS - PEC - Not specified
159
EPA ARCS - NEC - Not specified
312
EPA Region 5 - RCRA - Not specified
43.4
LANL ECORISK 4.4 - No Effect ESL - Aquatic community organisms
43
LANL ECORISK 4.4 - No Effect ESL - Avian aerial insectivore
60
LANL ECORISK 4.4 - No Effect ESL - Mammalian aerial insectivore
83
LANL ECORISK 4.4 - Low Effect ESL - Aquatic community organisms
110
LANL ECORISK 4.4 - Low Effect ESL - Avian aerial insectivore
600
LANL ECORISK 4.4 - Low Effect ESL - Mammalian aerial insectivore
830
NOAA - ERL - Not specified
81
NOAA - ERM - Not specified
370
Ohio EPA DERR - EOLP - Not specified
29
Ohio EPA DERR - IP - Not specified
30
Ohio EPA DERR - ECBP - Not specified
40
Ohio EPA DERR - HELP - Not specified
51
Ohio EPA DERR - WAP - Not specified
53
Ontario - Lowest Effect Level - Not specified
26
Ontario - Severe Effect Level - Not specified
110
1
10
100
1,000
Value (mg/kg)

Table 65: Benchmark Values for Chrysene in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)	Footnotes
218−01−9	Consensus−Based	Consensus−Based TEC	Not specified	0.166	
218−01−9	Consensus−Based	Consensus−Based PEC	Not specified	1.290	
218−01−9	EPA − ARCS	Sediment TEC	Not specified	0.500	
218−01−9	EPA − ARCS	Sediment NEC	Not specified	4.000	
218−01−9	EPA − ARCS	Sediment PEC	Not specified	5.200	
218−01−9	EPA ESBs	Maximum Solubility Limited PAH Concentration	Not specified	826.000	
218−01−9	EPA ESBs	Effect Concentration of PAH	Not specified	844.000	
218−01−9	EPA Region 5	EPA RCRA Sediment	Not specified	0.166	
218−01−9	LANL ECORISK	Sediment No Effect ESL	Aquatic community organisms	0.160	
218−01−9	LANL ECORISK	Sediment Low Effect ESL	Aquatic community organisms	1.200	
218−01−9	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	3.900	
218−01−9	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	39.000	
218−01−9	NOAA	Effects Range−Low	Not specified	0.384	
218−01−9	NOAA	Effects Range−Median	Not specified	2.800	
218−01−9	Ontario	Sediment Lowest Effect Level	Not specified	0.340	
218−01−9	Ontario	Sediment Severe Effect Level	Not specified	46.000	33

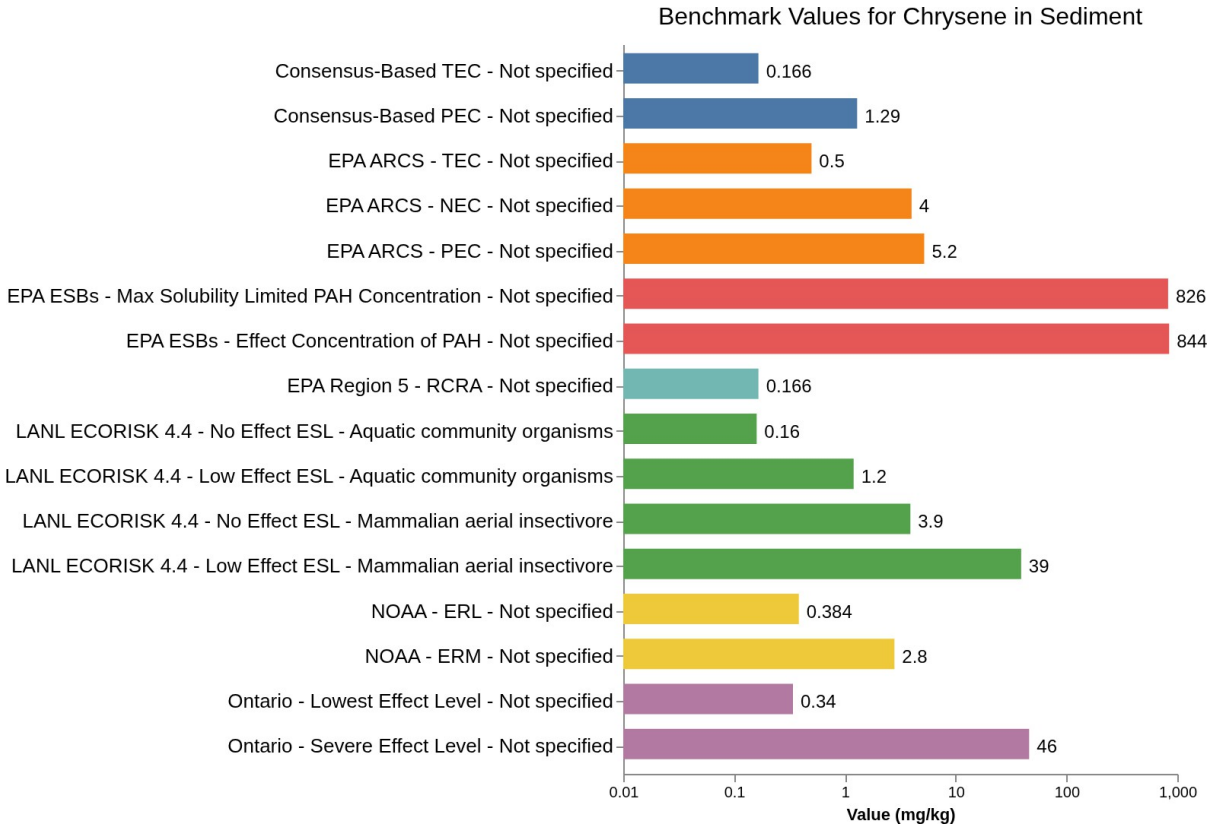


Table 66: Benchmark Values for Cobalt in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
7440−48−4	EPA Region 5	EPA RCRA Sediment	Not specified	50.0
7440−48−4	LANL ECORISK	Sediment No Effect ESL	Avian aerial insectivore	220.0
7440−48−4	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	330.0
7440−48−4	LANL ECORISK	Sediment Low Effect ESL	Avian aerial insectivore	2200.0
7440−48−4	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	3300.0
7440−48−4	Ohio	Statewide	Not specified	12.0

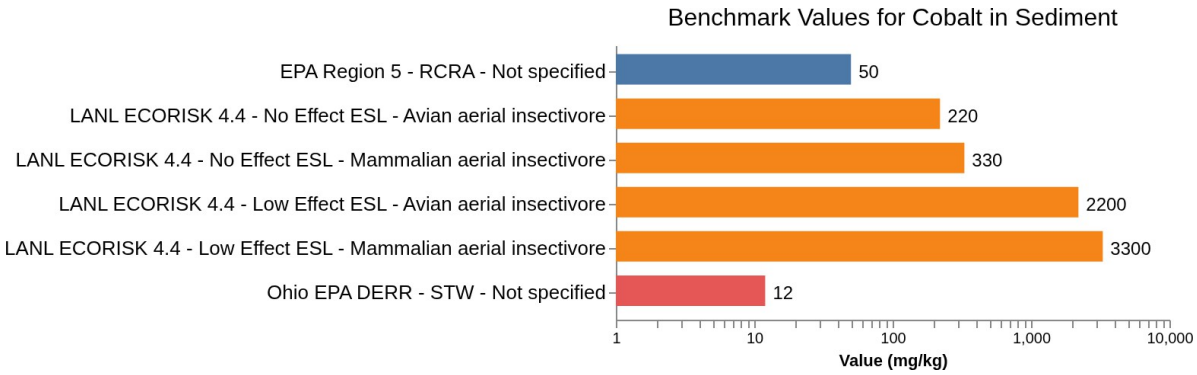


Table 67: Benchmark Values for Copper in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)	Footnotes
7440−50−8	Consensus−Based	Consensus−Based TEC	Not specified	31.6	
7440−50−8	Consensus−Based	Consensus−Based PEC	Not specified	149.0	
7440−50−8	EPA − ARCS	Sediment TEC	Not specified	28.0	
7440−50−8	EPA − ARCS	Sediment NEC	Not specified	54.8	
7440−50−8	EPA − ARCS	Sediment PEC	Not specified	77.7	
7440−50−8	EPA OSWER	Effects Range − Low	Not specified	34.0	
7440−50−8	EPA Region 5	EPA RCRA Sediment	Not specified	31.6	
7440−50−8	LANL ECORISK	Sediment No Effect ESL	Avian aerial insectivore	23.0	
7440−50−8	LANL ECORISK	Sediment No Effect ESL	Aquatic community organisms	31.0	
7440−50−8	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	49.0	
7440−50−8	LANL ECORISK	Sediment Low Effect ESL	Avian aerial insectivore	69.0	
7440−50−8	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	81.0	
7440−50−8	LANL ECORISK	Sediment Low Effect ESL	Aquatic community organisms	140.0	
7440−50−8	NOAA	Effects Range−Low	Not specified	34.0	32
7440−50−8	NOAA	Effects Range−Median	Not specified	270.0	32
7440−50−8	Ohio	Interior Plateau	Not specified	25.0	
7440−50−8	Ohio	Erie/Ontario Lake Plain	Not specified	32.0	
7440−50−8	Ohio	Western Allegheny Plateau	Not specified	33.0	
7440−50−8	Ohio	Eastern Corn Belt Plains	Not specified	34.0	
7440−50−8	Ohio	Huron Erie Lake Plain	Not specified	42.0	
7440−50−8	Ontario	Sediment Lowest Effect Level	Not specified	16.0	
7440−50−8	Ontario	Sediment Severe Effect Level	Not specified	110.0	

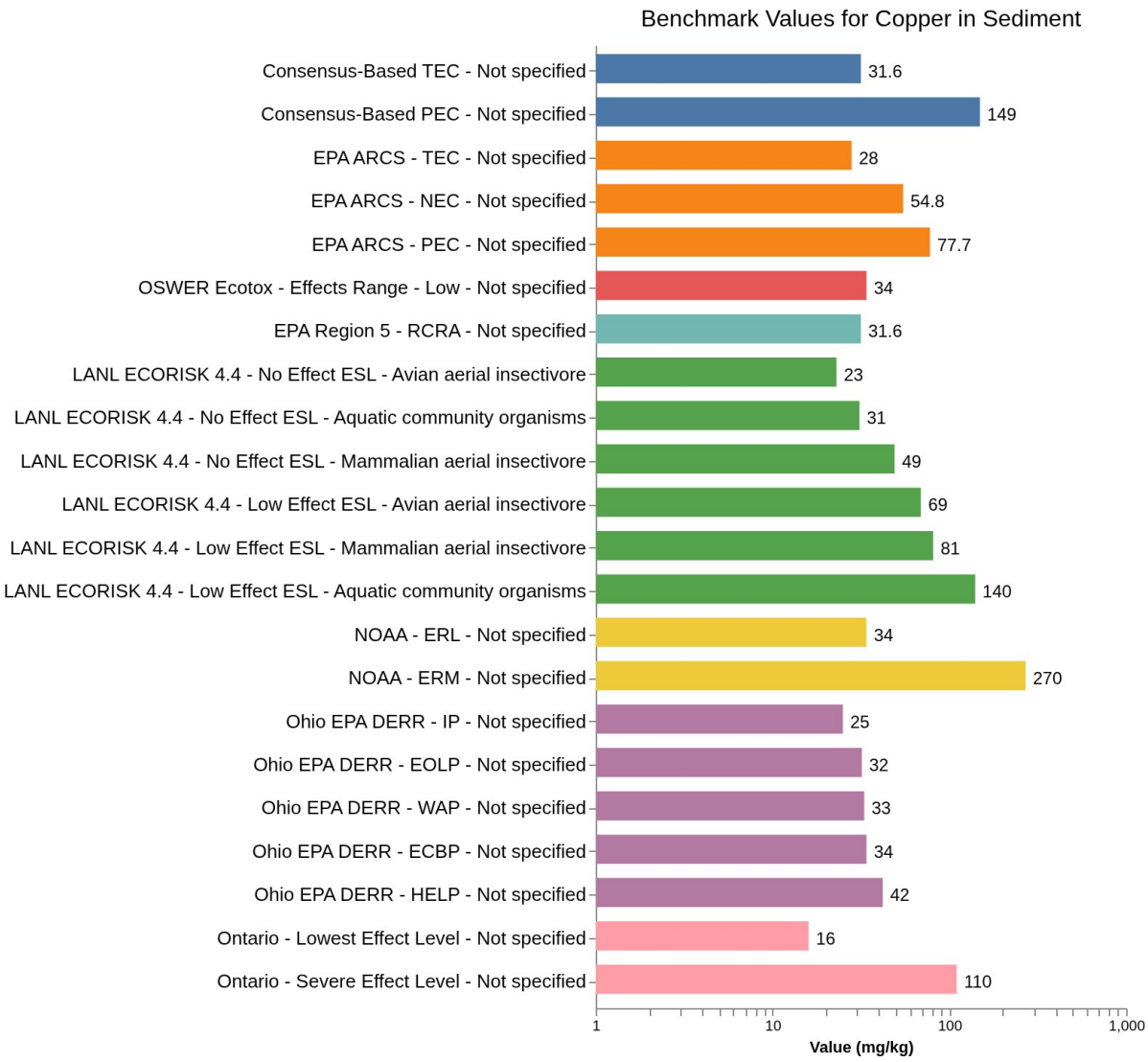

Benchmark Values for Copper in Sediment
Consensus-Based TEC - Not specified
31.6
Consensus-Based PEC - Not specified
149
EPA ARCS - TEC - Not specified
28
EPA ARCS - NEC - Not specified
54.8
EPA ARCS - PEC - Not specified
77.7
OSWER Ecotox - Effects Range - Low - Not specified
34
EPA Region 5 - RCRA - Not specified
31.6
LANL ECORISK 4.4 - No Effect ESL - Avian aerial insectivore
23
LANL ECORISK 4.4 - No Effect ESL - Aquatic community organisms
31
LANL ECORISK 4.4 - No Effect ESL - Mammalian aerial insectivore
49
LANL ECORISK 4.4 - Low Effect ESL - Avian aerial insectivore
69
LANL ECORISK 4.4 - Low Effect ESL - Mammalian aerial insectivore
81
LANL ECORISK 4.4 - Low Effect ESL - Aquatic community organisms
140
NOAA - ERL - Not specified
34
NOAA - ERM - Not specified
270
Ohio EPA DERR - IP - Not specified
25
Ohio EPA DERR - EOLP - Not specified
32
Ohio EPA DERR - WAP - Not specified
33
Ohio EPA DERR - ECBP - Not specified
34
Ohio EPA DERR - HELP - Not specified
42
Ontario - Lowest Effect Level - Not specified
16
Ontario - Severe Effect Level - Not specified
110
1
10
100
1,000
Value (mg/kg)

Table 68: Benchmark Values for Coronene in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
191−07−1	EPA ESBs	Maximum Solubility Limited PAH Concentration	Not specified	821.0
191−07−1	EPA ESBs	Effect Concentration of PAH	Not specified	1230.0

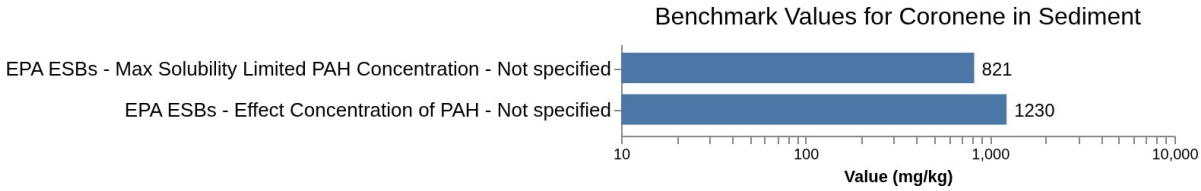


Table 69: Benchmark Values for Cresol, m− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
108−39−4	EPA Region 5	EPA RCRA Sediment	Not specified	0.0524

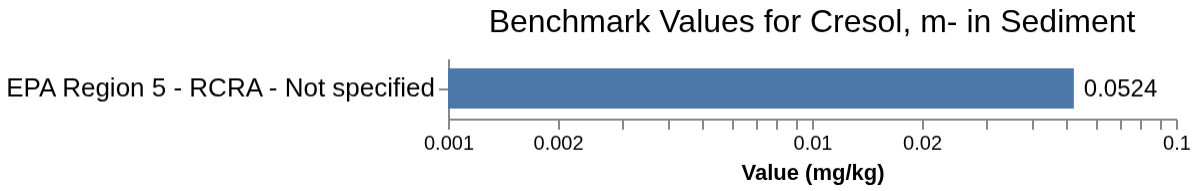


Table 70: Benchmark Values for Cresol, o− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
95−48−7	EPA Region 5	EPA RCRA Sediment	Not specified	0.0554
95−48−7	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	1700.0000
95−48−7	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	17000.0000

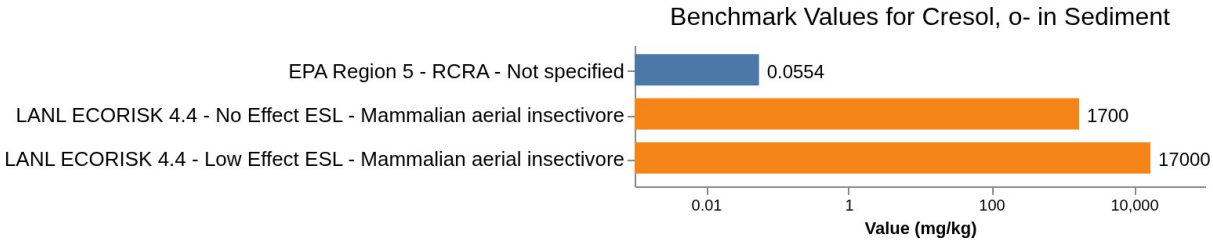


Table 71: Benchmark Values for Cresol, p− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
106−44−5	EPA Region 5	EPA RCRA Sediment	Not specified	0.0202

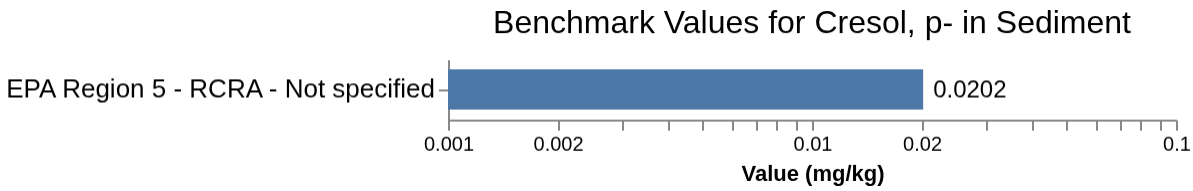


Table 72: Benchmark Values for Cresol, p−chloro−m− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
59−50−7	EPA Region 5	EPA RCRA Sediment	Not specified	0.388

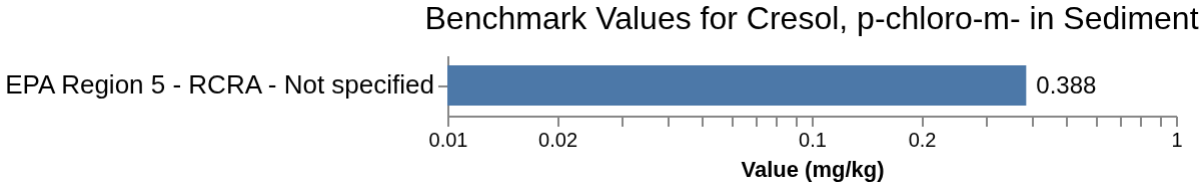


Table 73: Benchmark Values for Cyanide (CN−) in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
57−12−5	EPA Region 5	EPA RCRA Sediment	Not specified	0.0001

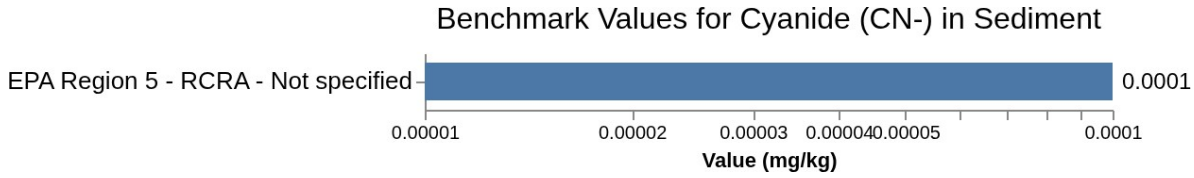


Table 74: Benchmark Values for Cyanide (total complex) in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
000000−05−9	LANL ECORISK	Sediment No Effect ESL	Aquatic community organisms	0.10
000000−05−9	LANL ECORISK	Sediment No Effect ESL	Avian aerial insectivore	0.14
000000−05−9	LANL ECORISK	Sediment Low Effect ESL	Aquatic community organisms	1.00
000000−05−9	LANL ECORISK	Sediment Low Effect ESL	Avian aerial insectivore	1.40
000000−05−9	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	380.00
000000−05−9	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	3800.00

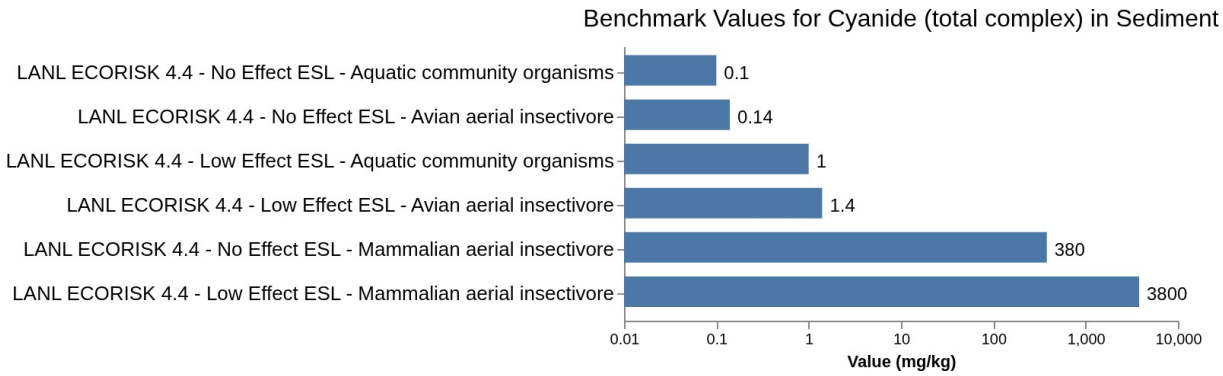


Table 75: Benchmark Values for DDT, Total in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
000000−07−7	New York DEC	Wildlife Sediment	Not specified	0.00048

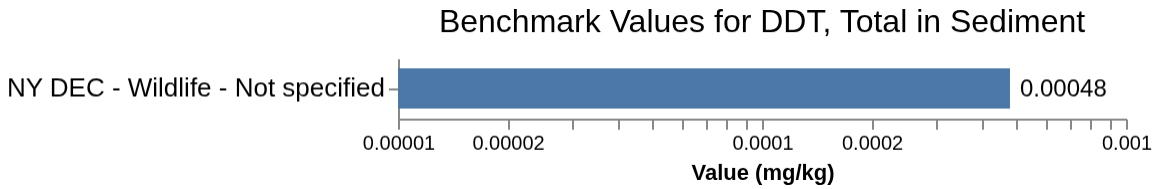


Table 76: Benchmark Values for DDT/DDE/DDD (total) in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)	Footnotes
000000−05−1	Consensus−Based	Consensus−Based TEC	Not specified	0.00528	
000000−05−1	Consensus−Based	Consensus−Based PEC	Not specified	0.57200	
000000−05−1	NOAA	Effects Range−Low	Not specified	0.00158	32
000000−05−1	NOAA	Effects Range−Median	Not specified	0.04610	32
000000−05−1	Ontario	Sediment Lowest Effect Level	Not specified	0.00700	
000000−05−1	Ontario	Sediment Severe Effect Level	Not specified	1.20000	33

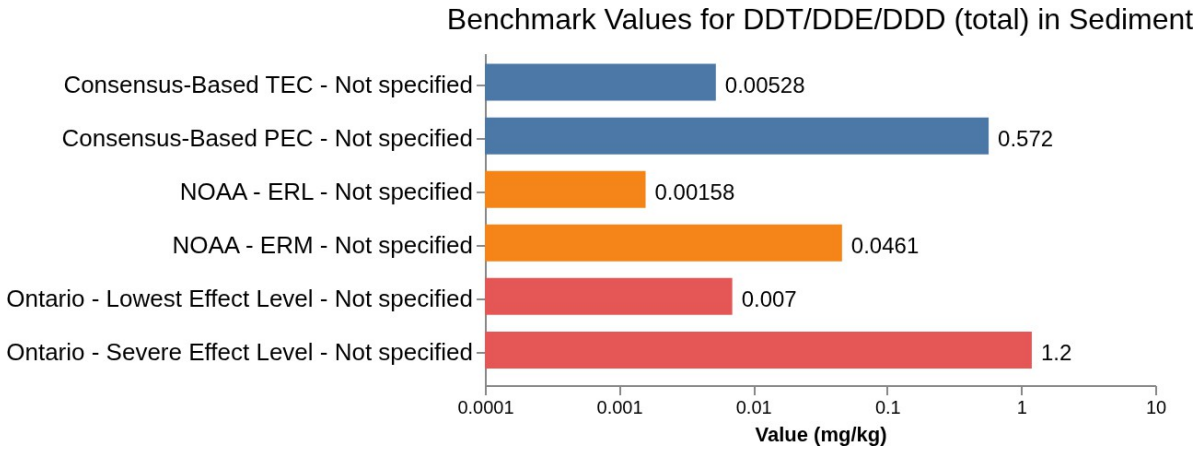


Table 77: Benchmark Values for Diazinon in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
333−41−5	EPA OSWER	Sediment quality benchmarks	Not specified	0.0019

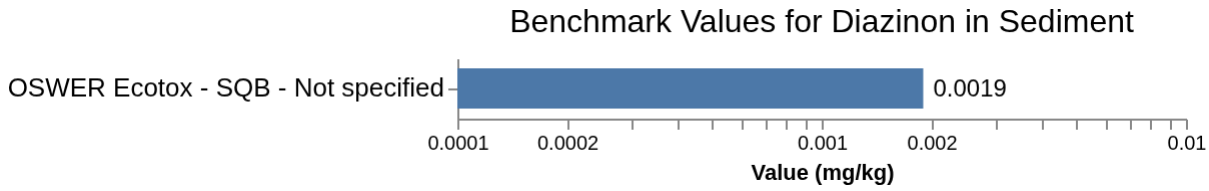


Table 78: Benchmark Values for Dibenz[a,c]anthracene in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
215−58−7	EPA ESBs	Effect Concentration of PAH	Not specified	1129.0
215−58−7	EPA ESBs	Maximum Solubility Limited PAH Concentration	Not specified	7400.0

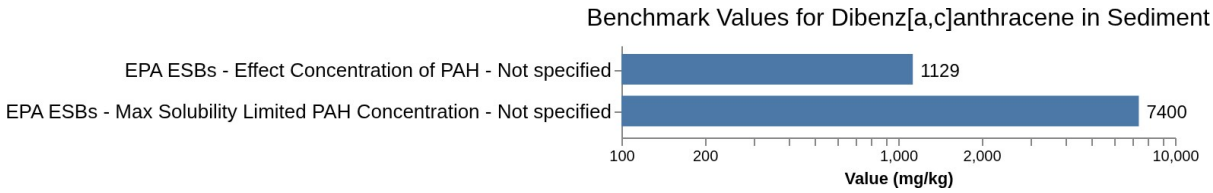


Table 79: Benchmark Values for Dibenz[a,h]anthracene in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)	Footnotes
53−70−3	Consensus−Based	Consensus−Based TEC	Not specified	0.0330	
53−70−3	EPA − ARCS	Sediment PEC	Not specified	0.0282	
53−70−3	EPA − ARCS	Sediment NEC	Not specified	0.8700	
53−70−3	EPA ESBs	Effect Concentration of PAH	Not specified	1123.0000	
53−70−3	EPA ESBs	Maximum Solubility Limited PAH Concentration	Not specified	2389.0000	
53−70−3	EPA Region 5	EPA RCRA Sediment	Not specified	0.0330	
53−70−3	LANL ECORISK	Sediment No Effect ESL	Aquatic community organisms	0.0330	
53−70−3	LANL ECORISK	Sediment Low Effect ESL	Aquatic community organisms	0.3300	
53−70−3	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	17.0000	
53−70−3	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	170.0000	
53−70−3	NOAA	Effects Range−Low	Not specified	0.0634	
53−70−3	NOAA	Effects Range−Median	Not specified	0.2600	32
53−70−3	Ontario	Sediment Lowest Effect Level	Not specified	0.0600	
53−70−3	Ontario	Sediment Severe Effect Level	Not specified	13.0000	33

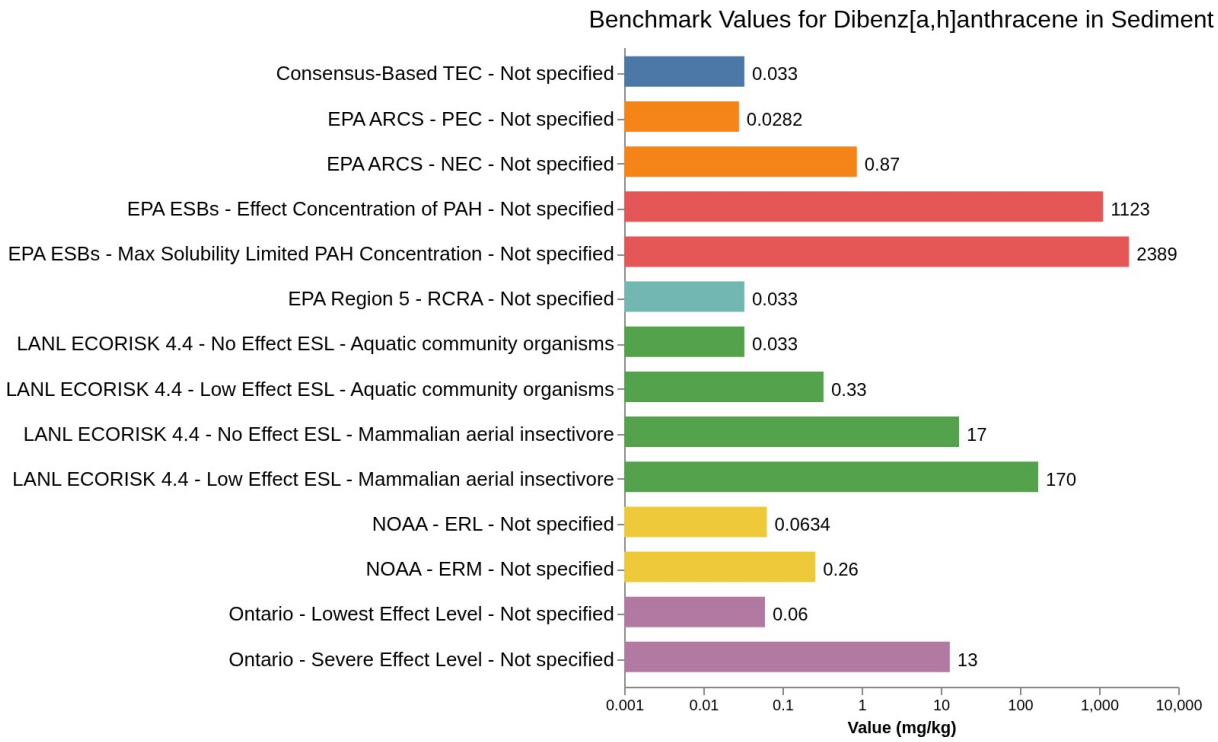


Table 80: Benchmark Values for Dibenz[a,h]anthracenes, C1− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
000000−17−7	EPA ESBs	Effect Concentration of PAH	Not specified	1221.0

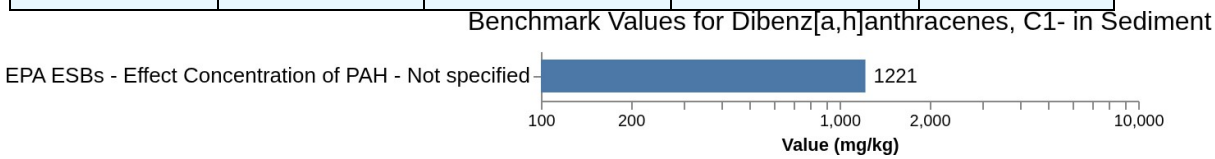


Table 81: Benchmark Values for Dibenz[a,h]anthracenes, C2− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
000000−17−8	EPA ESBs	Effect Concentration of PAH	Not specified	1325.0

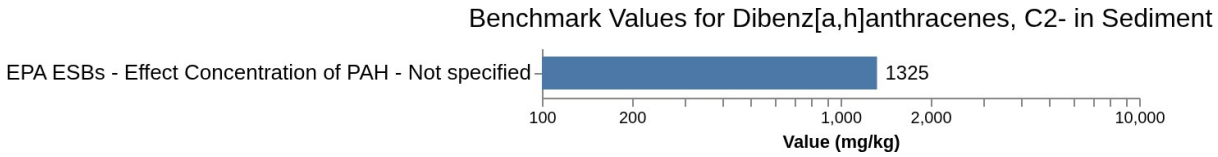


Table 82: Benchmark Values for Dibenz[a,h]anthracenes, C3− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
000000−17−9	EPA ESBs	Effect Concentration of PAH	Not specified	1435.0

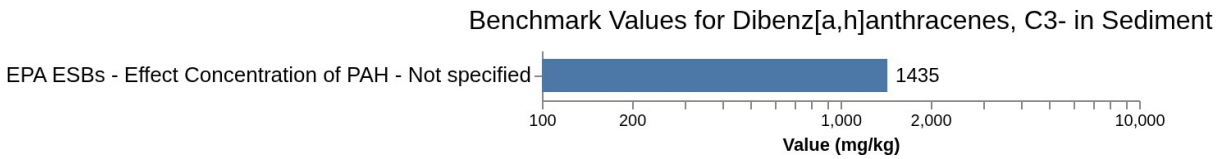


Table 83: Benchmark Values for Dibenz[a,j]anthracene in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
224−41−9	EPA ESBs	Effect Concentration of PAH	Not specified	1123.0
224−41−9	EPA ESBs	Maximum Solubility Limited PAH Concentration	Not specified	47680.0

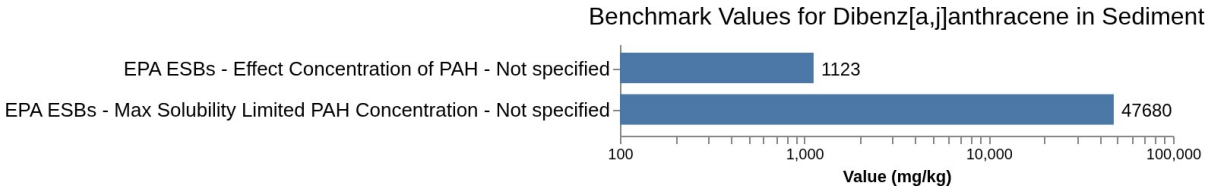


Table 84: Benchmark Values for Dibenzofuran in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
132−64−9	EPA OSWER	Sediment quality benchmarks	Not specified	2.000
132−64−9	EPA Region 5	EPA RCRA Sediment	Not specified	0.449
132−64−9	LANL ECORISK	Sediment No Effect ESL	Aquatic community organisms	0.510
132−64−9	LANL ECORISK	Sediment Low Effect ESL	Aquatic community organisms	5.100

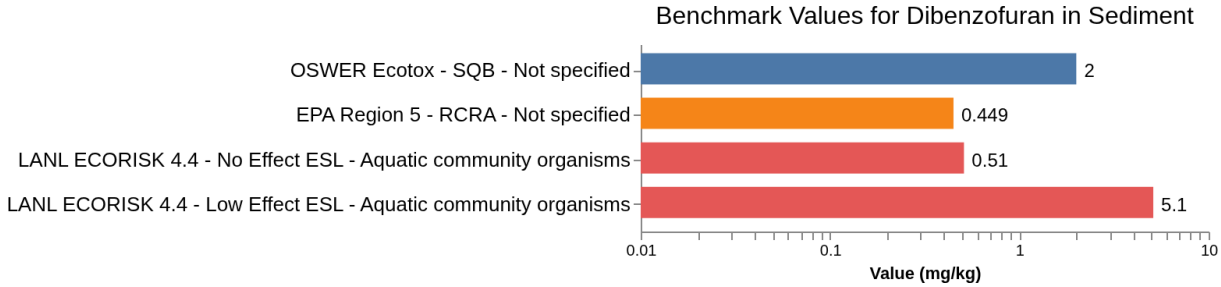


Table 85: Benchmark Values for Dibenzothiophene in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
132−65−0	EPA Region 4	Sediment RSV for PAHs	Not specified	5.95

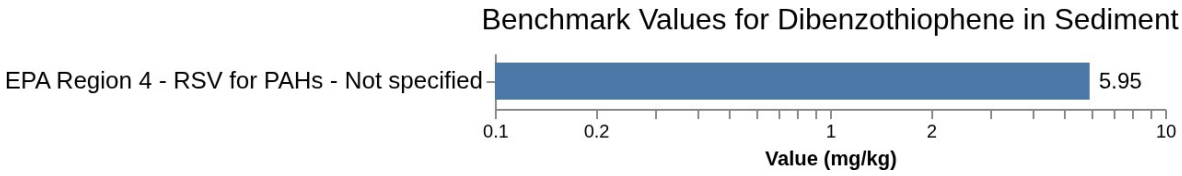


Table 86: Benchmark Values for Dibenzothiophenes, C1− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
000000−13−5	EPA Region 4	Sediment RSV for PAHs	Not specified	6.72

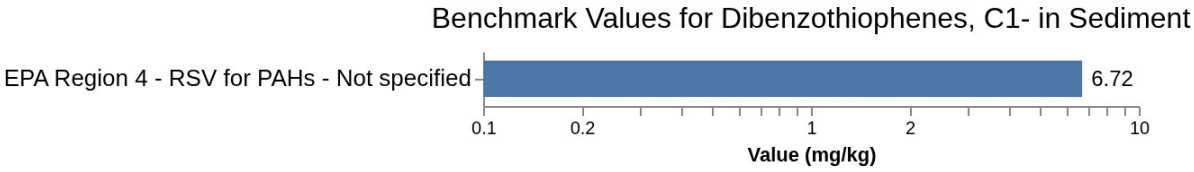


Table 87: Benchmark Values for Dibenzothiophenes, C2− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
000000−13−6	EPA Region 4	Sediment RSV for PAHs	Not specified	7.54

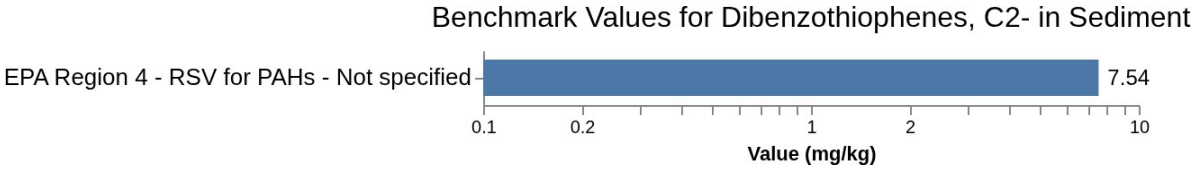


Table 88: Benchmark Values for Dibenzothiophenes, C3− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
000000−13−7	EPA Region 4	Sediment RSV for PAHs	Not specified	8.44

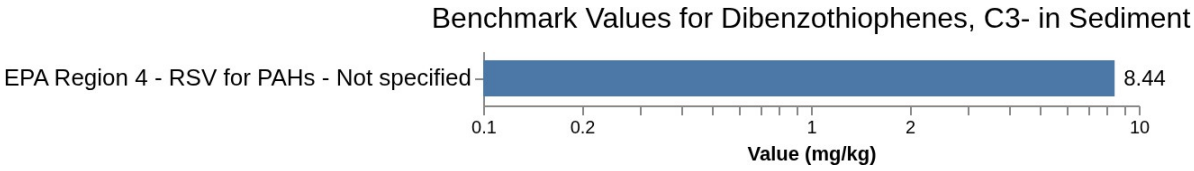


Table 89: Benchmark Values for Dibenzothiophenes, C4− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
000000−13−8	EPA Region 4	Sediment RSV for PAHs	Not specified	9.4

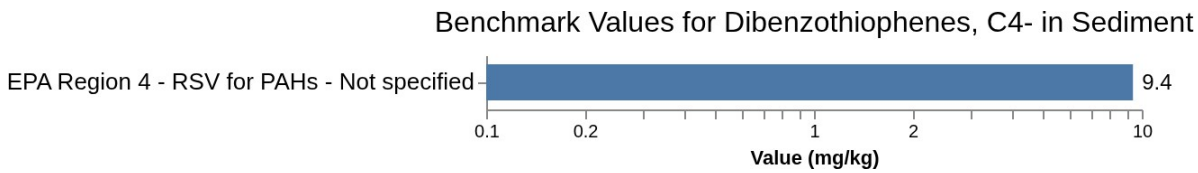


Table 90: Benchmark Values for Dibutyl Phthalate in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
84−74−2	EPA OSWER	Sediment quality benchmarks	Not specified	11.000
84−74−2	EPA Region 5	EPA RCRA Sediment	Not specified	1.114
84−74−2	LANL ECORISK	Sediment No Effect ESL	Aquatic community organisms	0.011
84−74−2	LANL ECORISK	Sediment No Effect ESL	Avian aerial insectivore	0.014
84−74−2	LANL ECORISK	Sediment Low Effect ESL	Aquatic community organisms	0.110
84−74−2	LANL ECORISK	Sediment Low Effect ESL	Avian aerial insectivore	0.140
84−74−2	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	210.000
84−74−2	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	490.000

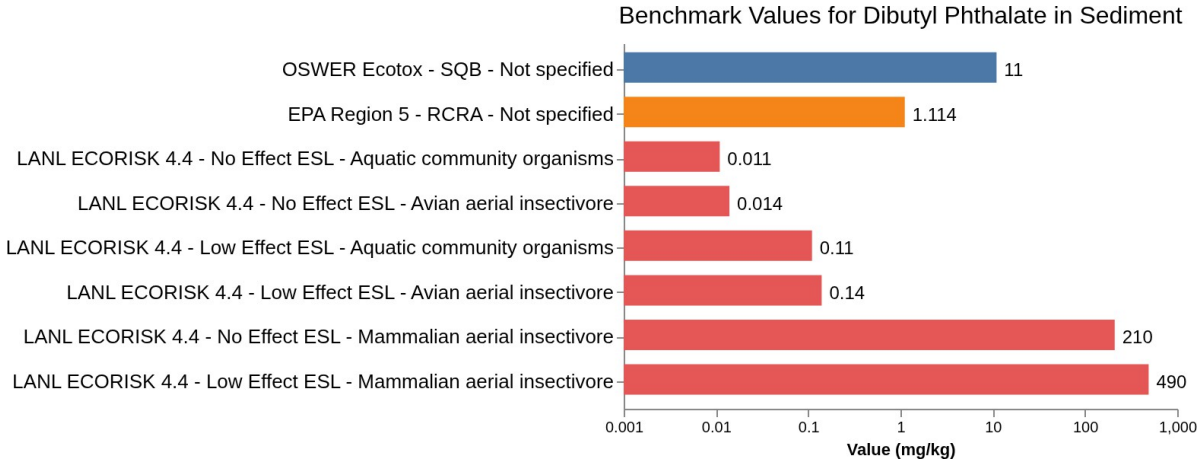


Table 91: Benchmark Values for Dichlorobenzene, 1,2− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
95−50−1	EPA OSWER	Sediment quality benchmarks	Not specified	0.340
95−50−1	EPA Region 5	EPA RCRA Sediment	Not specified	0.294
95−50−1	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	1.000
95−50−1	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	10.000

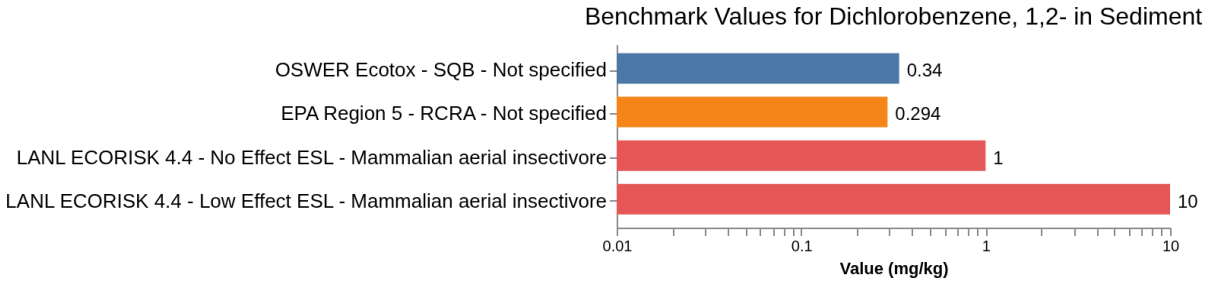


Table 92: Benchmark Values for Dichlorobenzene, 1,3− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
541−73−1	EPA OSWER	Sediment quality benchmarks	Not specified	1.700
541−73−1	EPA Region 5	EPA RCRA Sediment	Not specified	1.315
541−73−1	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	0.820
541−73−1	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	8.200

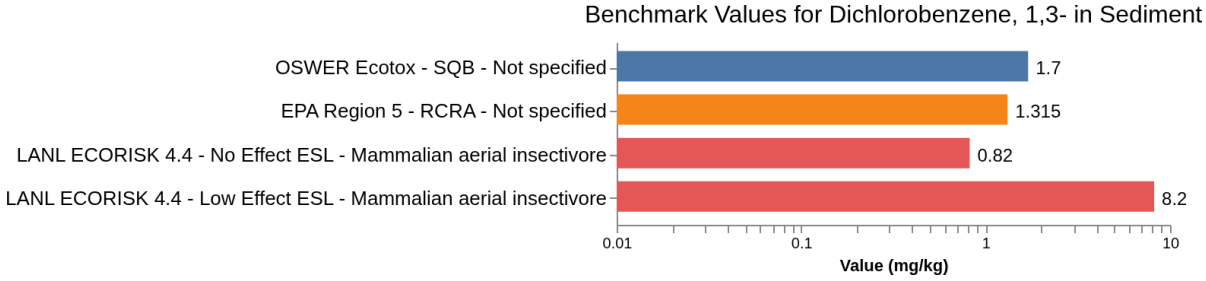


Table 93: Benchmark Values for Dichlorobenzene, 1,4− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
106−46−7	EPA OSWER	Sediment quality benchmarks	Not specified	0.350
106−46−7	EPA Region 5	EPA RCRA Sediment	Not specified	0.318
106−46−7	LANL ECORISK	Sediment No Effect ESL	Aquatic community organisms	0.030
106−46−7	LANL ECORISK	Sediment Low Effect ESL	Aquatic community organisms	0.300
106−46−7	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	0.990
106−46−7	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	3.900

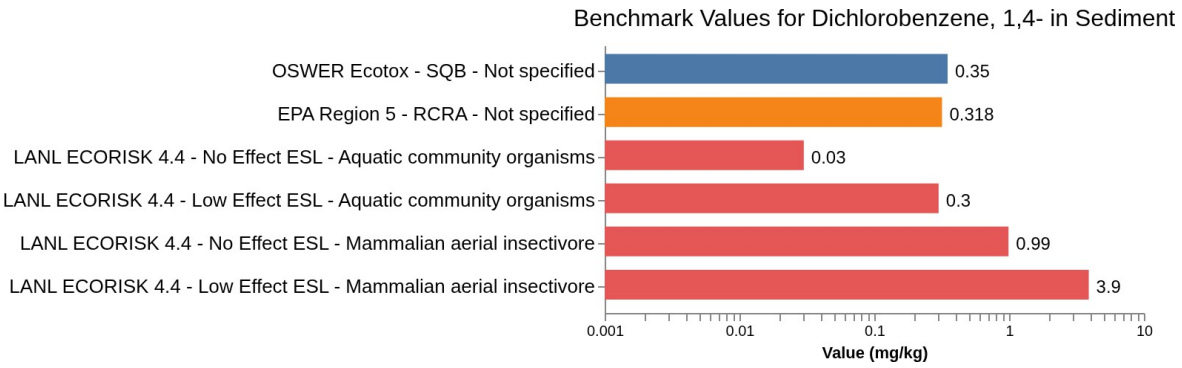


Table 94: Benchmark Values for Dichlorobenzidine, 3,3'− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
91−94−1	EPA Region 5	EPA RCRA Sediment	Not specified	0.127

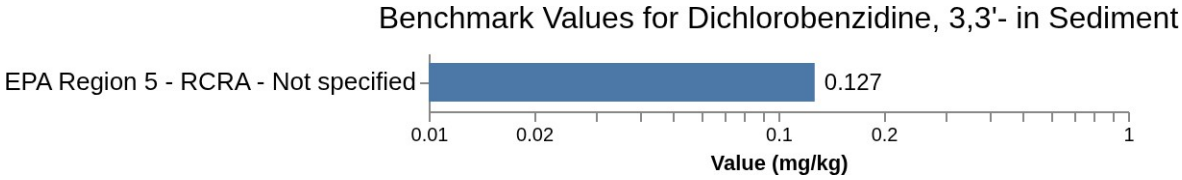


Table 95: Benchmark Values for Dichlorodiphenyldichloroethane, p,p'− (DDD) in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)	Footnotes
72−54−8	Consensus−Based	Consensus−Based TEC	Not specified	0.00488	
72−54−8	Consensus−Based	Consensus−Based PEC	Not specified	0.02800	
72−54−8	EPA Region 5	EPA RCRA Sediment	Not specified	0.00488	
72−54−8	LANL ECORISK	Sediment No Effect ESL	Avian aerial insectivore	0.00820	
72−54−8	LANL ECORISK	Sediment Low Effect ESL	Avian aerial insectivore	0.04200	
72−54−8	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	4.60000	
72−54−8	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	9.20000	
72−54−8	NOAA	Effects Range−Low	Not specified	0.00200	32
72−54−8	NOAA	Effects Range−Median	Not specified	0.02000	32
72−54−8	Ontario	Sediment Lowest Effect Level	Not specified	0.00800	
72−54−8	Ontario	Sediment Severe Effect Level	Not specified	0.60000	33

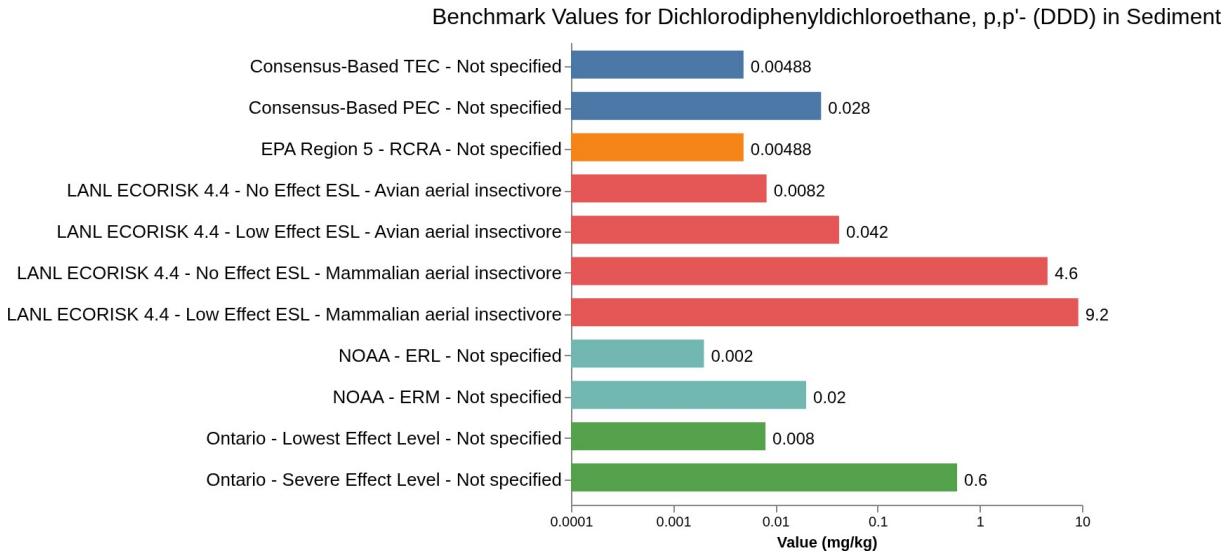


Table 96: Benchmark Values for Dichlorodiphenyldichloroethylene, p,p'− (DDE) in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)	Footnotes
72−55−9	Consensus−Based	Consensus−Based TEC	Not specified	0.00316	
72−55−9	Consensus−Based	Consensus−Based PEC	Not specified	0.03130	
72−55−9	EPA Region 5	EPA RCRA Sediment	Not specified	0.00316	
72−55−9	LANL ECORISK	Sediment No Effect ESL	Aquatic community organisms	0.00310	
72−55−9	LANL ECORISK	Sediment Low Effect ESL	Aquatic community organisms	0.03100	
72−55−9	LANL ECORISK	Sediment No Effect ESL	Avian aerial insectivore	0.14000	
72−55−9	LANL ECORISK	Sediment Low Effect ESL	Avian aerial insectivore	0.71000	
72−55−9	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	4.10000	
72−55−9	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	10.00000	
72−55−9	NOAA	Effects Range−Low	Not specified	0.00220	32
72−55−9	NOAA	Effects Range−Median	Not specified	0.02700	
72−55−9	Ontario	Sediment Lowest Effect Level	Not specified	0.00500	
72−55−9	Ontario	Sediment Severe Effect Level	Not specified	1.90000	33

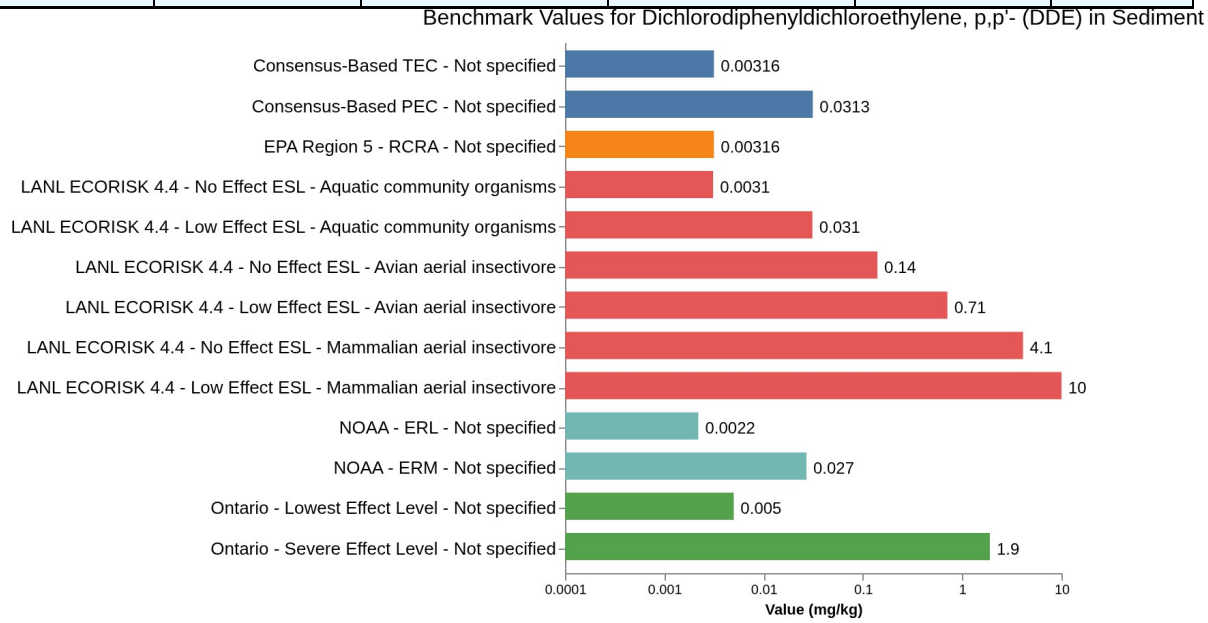


Table 97: Benchmark Values for Dichlorodiphenyltrichloroethane, p,p'− (DDT) in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)	Footnotes
50−29−3	Consensus−Based	Consensus−Based TEC	Not specified	0.00416	
50−29−3	Consensus−Based	Consensus−Based PEC	Not specified	0.06290	
50−29−3	EPA OSWER	Effects Range − Low	Not specified	0.00160	
50−29−3	EPA Region 5	EPA RCRA Sediment	Not specified	0.00416	
50−29−3	LANL ECORISK	Sediment No Effect ESL	Aquatic community organisms	0.00410	
50−29−3	LANL ECORISK	Sediment Low Effect ESL	Aquatic community organisms	0.04100	
50−29−3	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	0.04900	
50−29−3	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	0.24000	
50−29−3	LANL ECORISK	Sediment No Effect ESL	Avian aerial insectivore	0.47000	
50−29−3	LANL ECORISK	Sediment Low Effect ESL	Avian aerial insectivore	1.30000	
50−29−3	NOAA	Effects Range−Low	Not specified	0.00100	32
50−29−3	NOAA	Effects Range−Median	Not specified	0.00700	32
50−29−3	Ontario	Sediment Lowest Effect Level	Not specified	0.00800	
50−29−3	Ontario	Sediment Severe Effect Level	Not specified	7.10000	33

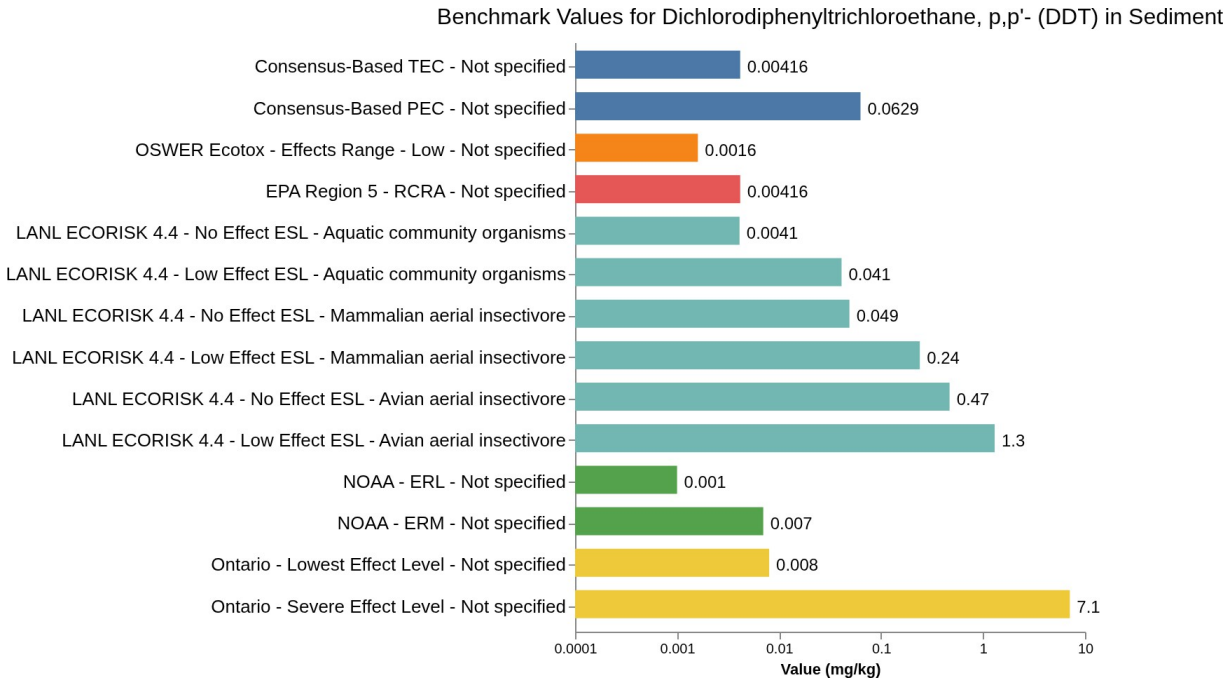


Table 98: Benchmark Values for Dichloroethane, 1,1− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
75−34−3	EPA Region 5	EPA RCRA Sediment	Not specified	0.000575
75−34−3	LANL ECORISK	Sediment No Effect ESL	Aquatic community organisms	0.020000
75−34−3	LANL ECORISK	Sediment Low Effect ESL	Aquatic community organisms	0.200000
75−34−3	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	330.000000
75−34−3	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	3300.000000

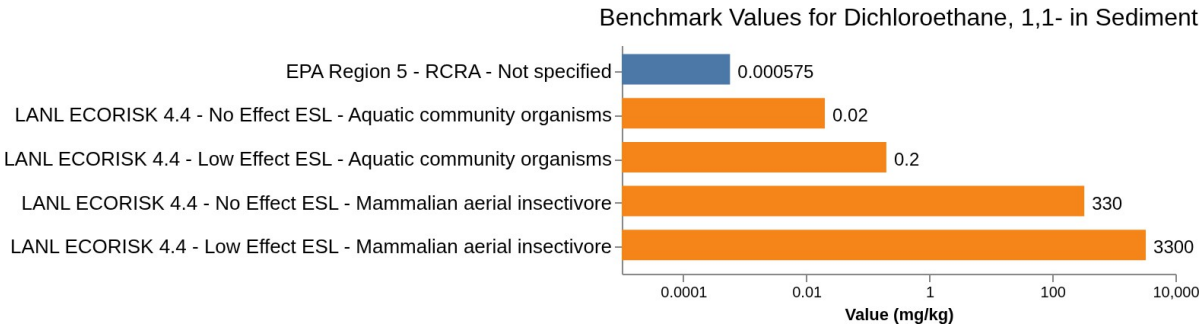


Table 99: Benchmark Values for Dichloroethane, 1,2− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
107−06−2	EPA Region 5	EPA RCRA Sediment	Not specified	0.26
107−06−2	LANL ECORISK	Sediment No Effect ESL	Avian aerial insectivore	6.10
107−06−2	LANL ECORISK	Sediment Low Effect ESL	Avian aerial insectivore	12.00
107−06−2	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	100.00
107−06−2	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	1000.00

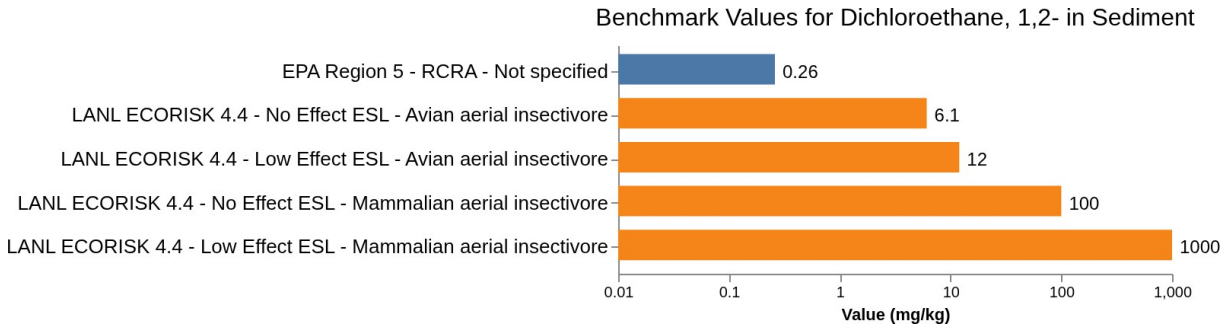


Table 100: Benchmark Values for Dichloroethylene, 1,1− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
75−35−4	EPA Region 5	EPA RCRA Sediment	Not specified	0.0194
75−35−4	LANL ECORISK	Sediment No Effect ESL	Aquatic community organisms	0.1000
75−35−4	LANL ECORISK	Sediment Low Effect ESL	Aquatic community organisms	1.0000
75−35−4	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	13.0000
75−35−4	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	130.0000

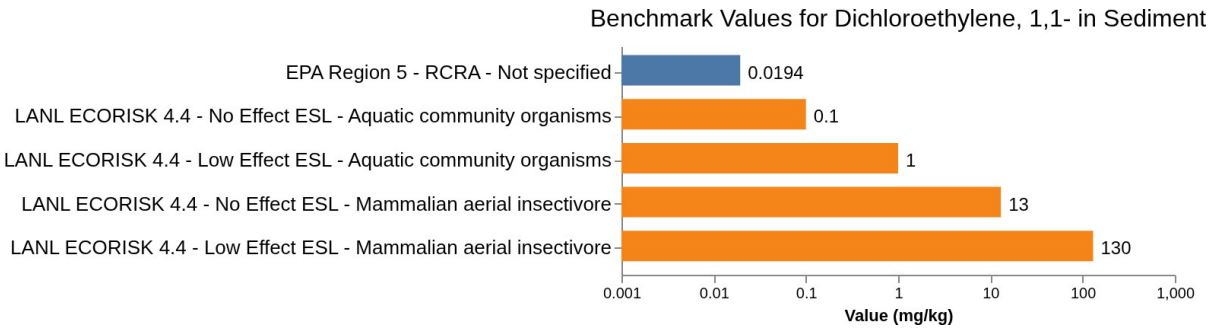


Table 101: Benchmark Values for Dichloroethylene, 1,2− (Mixed Isomers) in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
540−59−0	LANL ECORISK	Sediment No Effect ESL	Aquatic community organisms	0.2
540−59−0	LANL ECORISK	Sediment Low Effect ESL	Aquatic community organisms	2.0
540−59−0	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	26.0
540−59−0	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	260.0

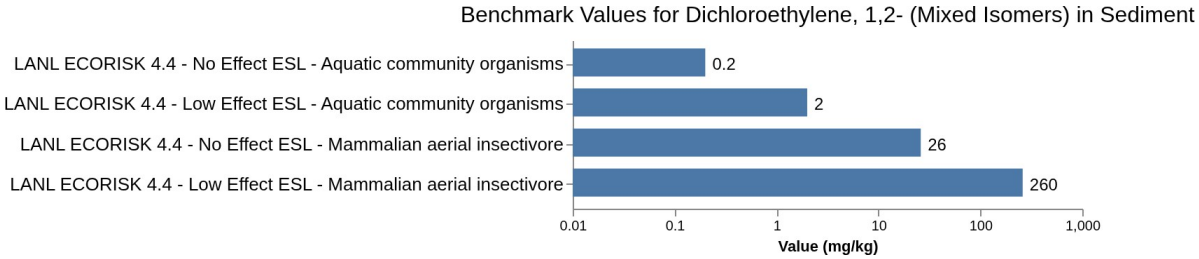


Table 102: Benchmark Values for Dichloroethylene, trans−1,2− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
156−60−5	EPA Region 5	EPA RCRA Sediment	Not specified	0.654

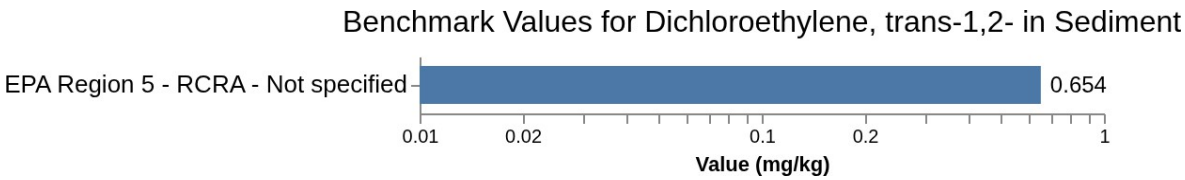


Table 103: Benchmark Values for Dichlorophenol, 2,4− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
120−83−2	EPA Region 5	EPA RCRA Sediment	Not specified	0.0817

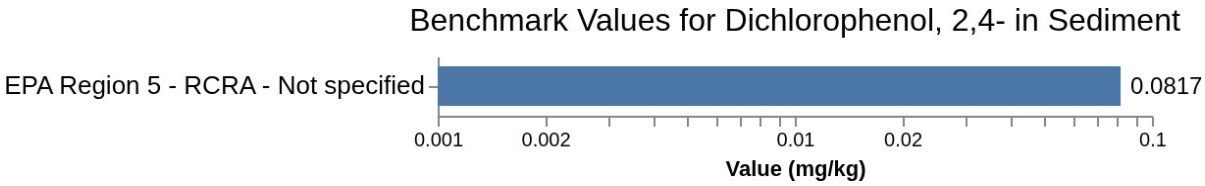


Table 104: Benchmark Values for Dichlorophenoxy Acetic Acid, 2,4− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
94−75−7	EPA Region 5	EPA RCRA Sediment	Not specified	1.273

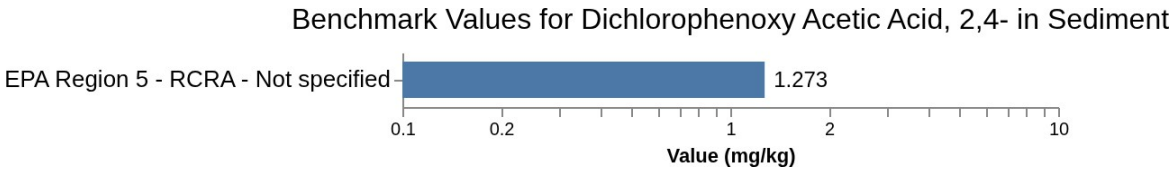


Table 105: Benchmark Values for Dichloropropane, 1,2− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
78−87−5	EPA Region 5	EPA RCRA Sediment	Not specified	0.333

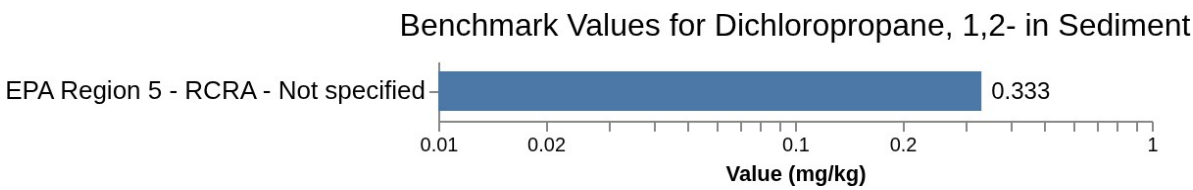


Table 106: Benchmark Values for Dieldrin in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)	Footnotes
60−57−1	Consensus−Based	Consensus−Based TEC	Not specified	0.00190	
60−57−1	Consensus−Based	Consensus−Based PEC	Not specified	0.06180	
60−57−1	EPA Region 5	EPA RCRA Sediment	Not specified	0.00190	
60−57−1	LANL ECORISK	Sediment No Effect ESL	Aquatic community organisms	0.00190	
60−57−1	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	0.00500	
60−57−1	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	0.01000	
60−57−1	LANL ECORISK	Sediment No Effect ESL	Avian aerial insectivore	0.01500	
60−57−1	LANL ECORISK	Sediment Low Effect ESL	Aquatic community organisms	0.01900	
60−57−1	LANL ECORISK	Sediment Low Effect ESL	Avian aerial insectivore	0.82000	
60−57−1	NOAA	Effects Range−Low	Not specified	0.00002	
60−57−1	NOAA	Effects Range−Median	Not specified	0.00800	32
60−57−1	New York DEC	Wildlife Sediment	Not specified	0.00110	153
60−57−1	Ontario	Provincial Sediment No Effect Level	Not specified	0.00060	
60−57−1	Ontario	Sediment Lowest Effect Level	Not specified	0.00200	
60−57−1	Ontario	Sediment Severe Effect Level	Not specified	9.10000	33

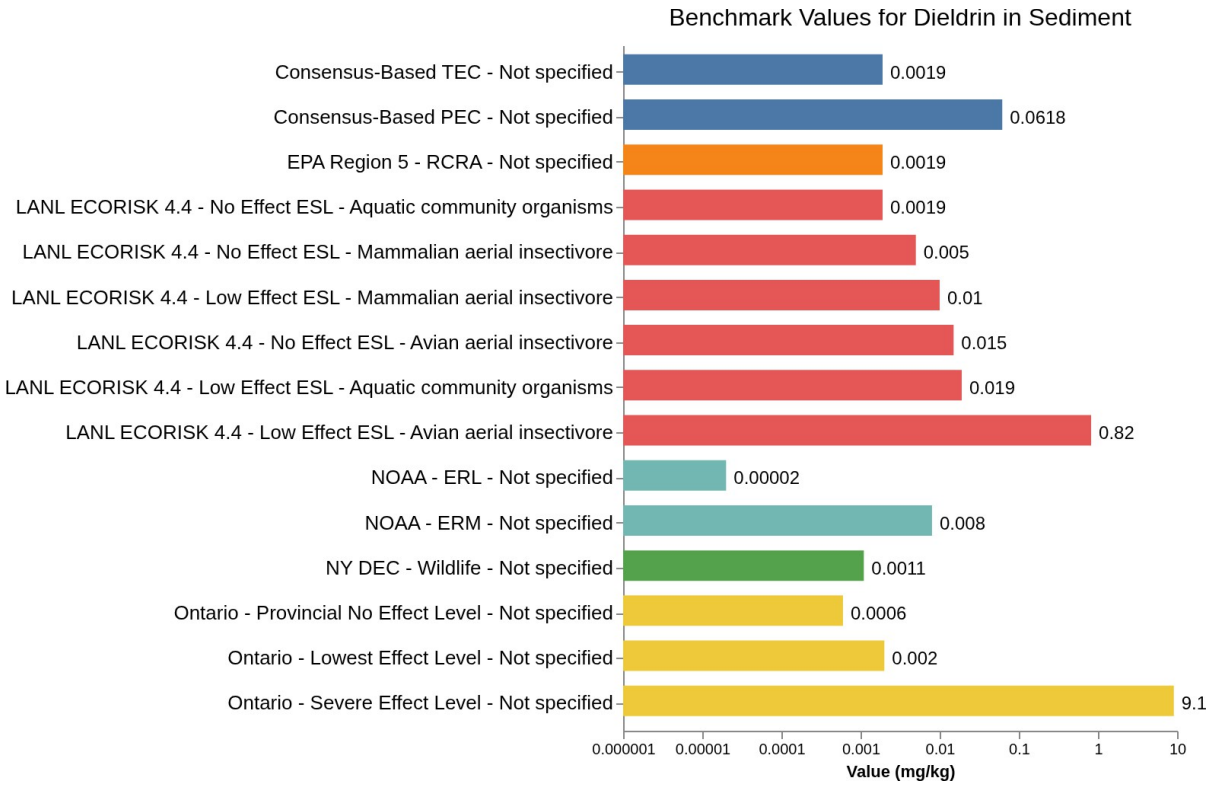


Table 107: Benchmark Values for Diethyl Phthalate in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
84−66−2	EPA OSWER	Sediment quality benchmarks	Not specified	0.630
84−66−2	EPA Region 5	EPA RCRA Sediment	Not specified	0.295
84−66−2	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	4000.000
84−66−2	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	40000.000

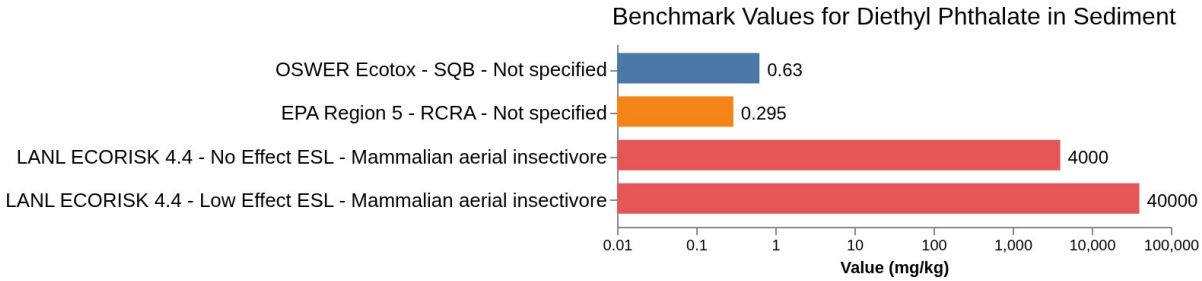


Table 108: Benchmark Values for Dimethylamino azobenzene [p−] in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
60−11−7	EPA Region 5	EPA RCRA Sediment	Not specified	0.318

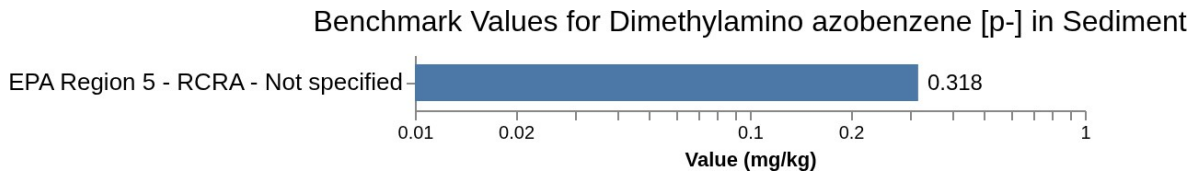


Table 109: Benchmark Values for Dimethylanthracene, 9,10− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
781−43−1	EPA ESBs	Effect Concentration of PAH	Not specified	748.0
781−43−1	EPA ESBs	Maximum Solubility Limited PAH Concentration	Not specified	14071.0

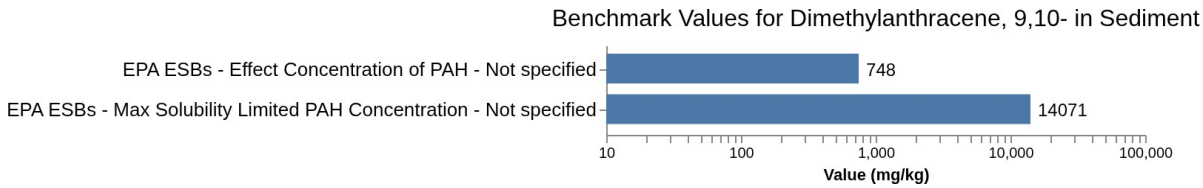


Table 110: Benchmark Values for Dimethylbenz[a]anthracene, 7,12− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
57−97−6	EPA ESBs	Effect Concentration of PAH	Not specified	1021.0
57−97−6	EPA ESBs	Maximum Solubility Limited PAH Concentration	Not specified	145300.0
57−97−6	EPA Region 5	EPA RCRA Sediment	Not specified	66.4

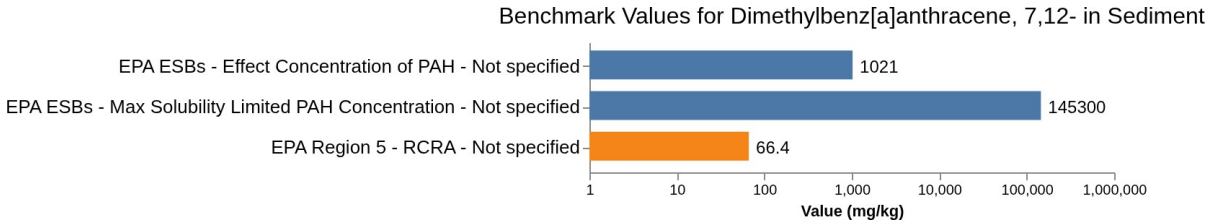


Table 111: Benchmark Values for Dimethylbenz[a]anthracene, 9,10− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
58429−99−5	EPA ESBs	Effect Concentration of PAH	Not specified	1021.0
58429−99−5	EPA ESBs	Maximum Solubility Limited PAH Concentration	Not specified	124200.0

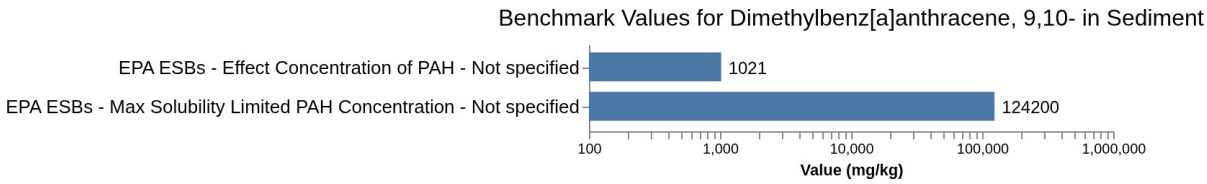


Table 112: Benchmark Values for Dimethylnaphthalene, 1,3− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
575−41−7	EPA ESBs	Effect Concentration of PAH	Not specified	513.0
575−41−7	EPA ESBs	Maximum Solubility Limited PAH Concentration	Not specified	157100.0

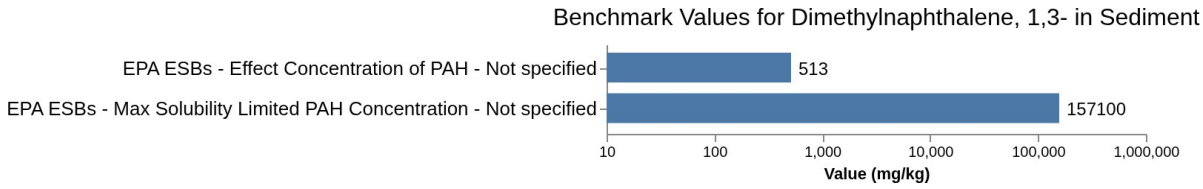


Table 113: Benchmark Values for Dimethylnaphthalene, 1,4− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
571−58−4	EPA ESBs	Effect Concentration of PAH	Not specified	510.0
571−58−4	EPA ESBs	Maximum Solubility Limited PAH Concentration	Not specified	192300.0

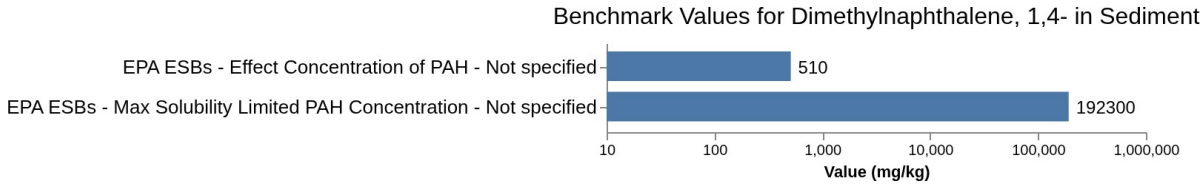


Table 114: Benchmark Values for Dimethylnaphthalene, 1,5− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
571−61−9	EPA ESBs	Effect Concentration of PAH	Not specified	514.0
571−61−9	EPA ESBs	Maximum Solubility Limited PAH Concentration	Not specified	62400.0

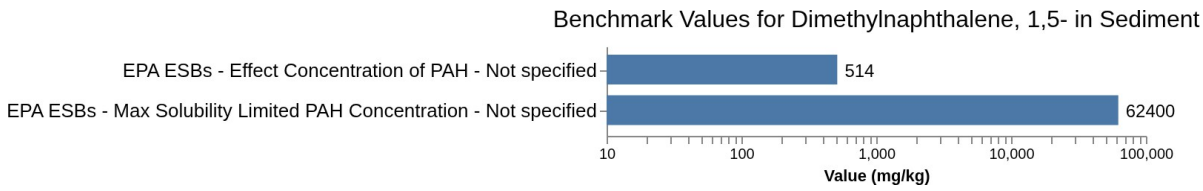


Table 115: Benchmark Values for Dimethylnaphthalene, 2,3− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
581−40−8	EPA ESBs	Effect Concentration of PAH	Not specified	513.0
581−40−8	EPA ESBs	Maximum Solubility Limited PAH Concentration	Not specified	49900.0

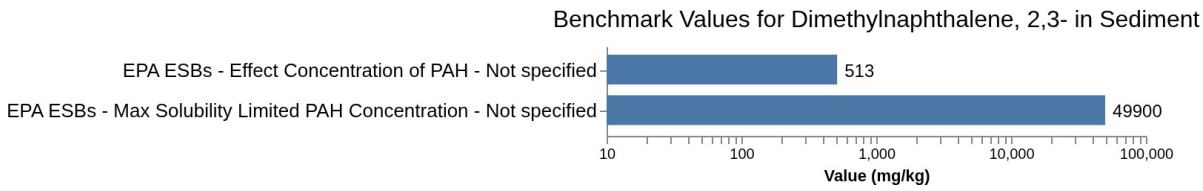


Table 116: Benchmark Values for Dimethylnaphthalene, 2,6− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
581−42−0	EPA ESBs	Effect Concentration of PAH	Not specified	513.00
581−42−0	EPA ESBs	Maximum Solubility Limited PAH Concentration	Not specified	33800.00
581−42−0	EPA Region 4	Sediment RSV for PAHs	Not specified	5.13

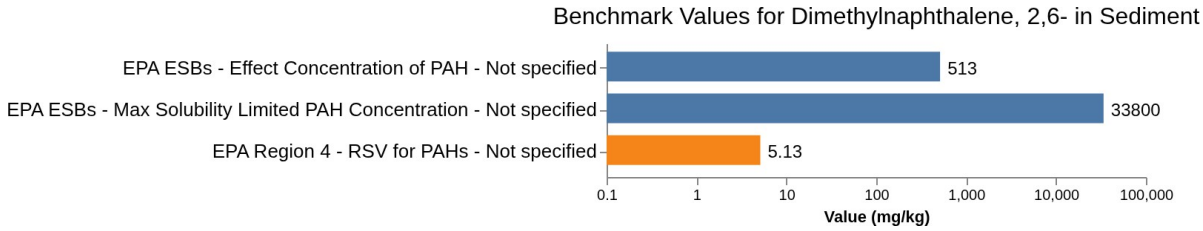


Table 117: Benchmark Values for Dimethylphenanthrene, 3,6− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
1576−67−6	EPA ESBs	Effect Concentration of PAH	Not specified	749.0

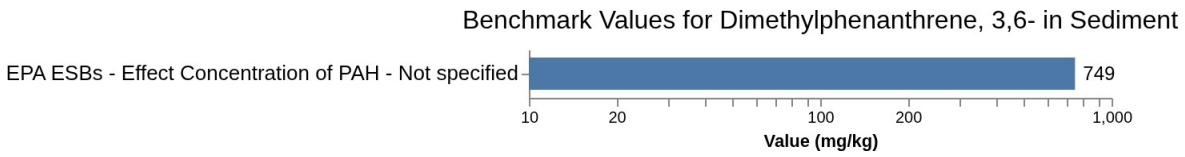


Table 118: Benchmark Values for Dimethylphenol, 2,4− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
105−67−9	EPA Region 5	EPA RCRA Sediment	Not specified	0.304

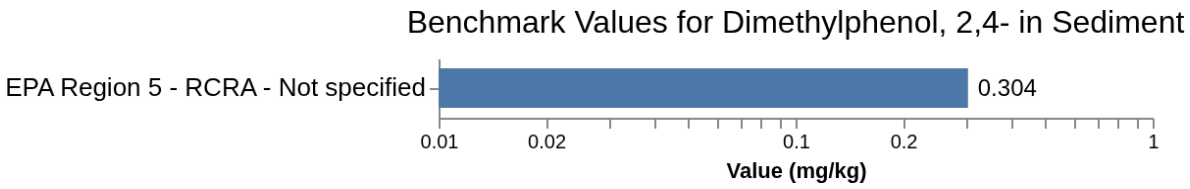


Table 119: Benchmark Values for Dimethylphthalate in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
131−11−3	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	90.0
131−11−3	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	1100.0

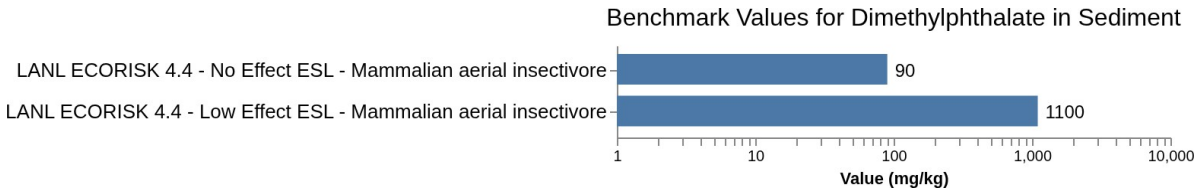


Table 120: Benchmark Values for Dinitrobenzene, 1,3− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
99−65−0	EPA Region 5	EPA RCRA Sediment	Not specified	0.00861
99−65−0	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	1.10000
99−65−0	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	2.50000
99−65−0	LANL ECORISK	Sediment No Effect ESL	Avian aerial insectivore	2.70000
99−65−0	LANL ECORISK	Sediment Low Effect ESL	Avian aerial insectivore	27.00000

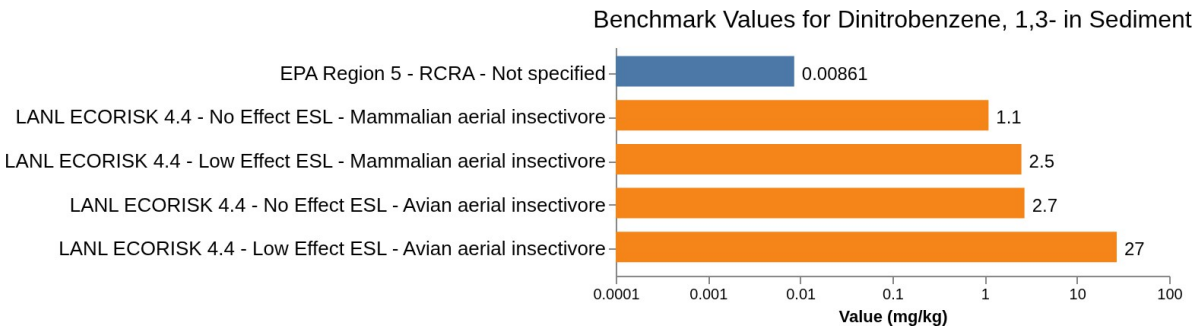


Table 121: Benchmark Values for Dinitro−o−cresol, 4,6− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
534−52−1	EPA Region 5	EPA RCRA Sediment	Not specified	0.104

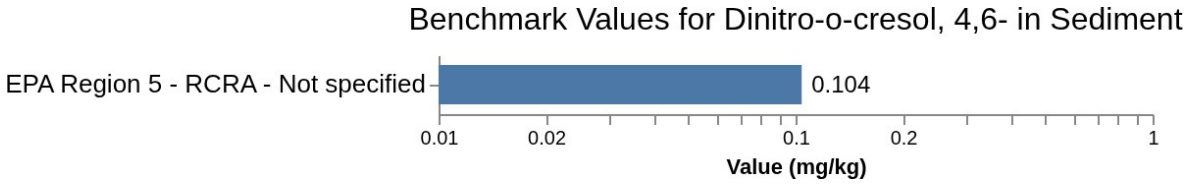


Table 122: Benchmark Values for Dinitrophenol, 2,4− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
51−28−5	EPA Region 5	EPA RCRA Sediment	Not specified	0.00621

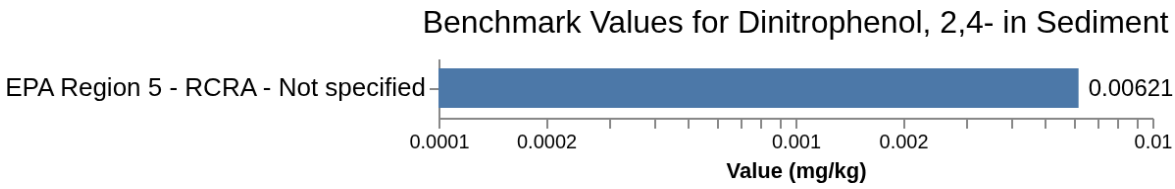


Table 123: Benchmark Values for Dinitrotoluene, 2,4− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
121−14−2	EPA Region 5	EPA RCRA Sediment	Not specified	0.0144
121−14−2	LANL ECORISK	Sediment No Effect ESL	Aquatic community organisms	0.2900
121−14−2	LANL ECORISK	Sediment Low Effect ESL	Aquatic community organisms	2.9000
121−14−2	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	16.0000
121−14−2	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	160.0000

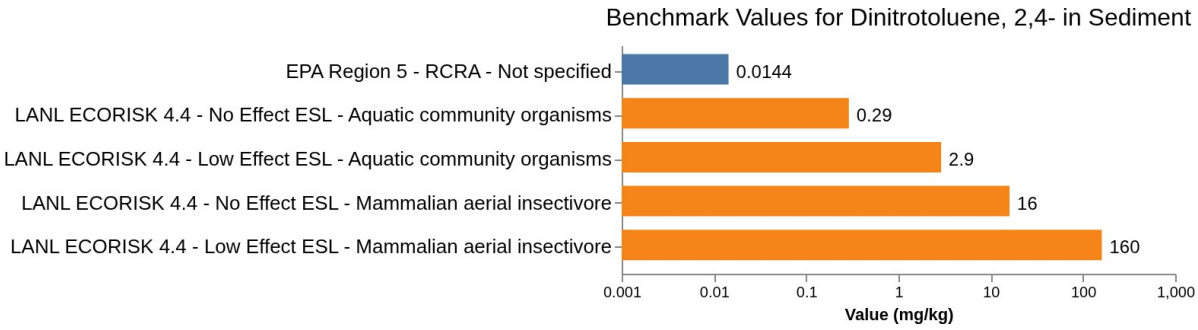


Table 124: Benchmark Values for Dinitrotoluene, 2,6− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
606−20−2	EPA Region 5	EPA RCRA Sediment	Not specified	0.0398
606−20−2	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	8.6000
606−20−2	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	86.0000
606−20−2	LANL ECORISK	Sediment No Effect ESL	Avian aerial insectivore	190.0000
606−20−2	LANL ECORISK	Sediment Low Effect ESL	Avian aerial insectivore	1900.0000

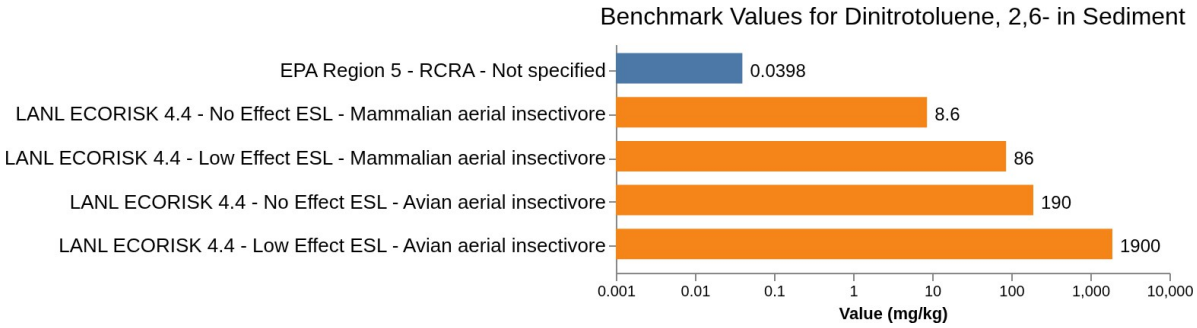


Table 125: Benchmark Values for Dinitrotoluene, 2−Amino−4,6− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
35572−78−2	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	17.0
35572−78−2	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	170.0

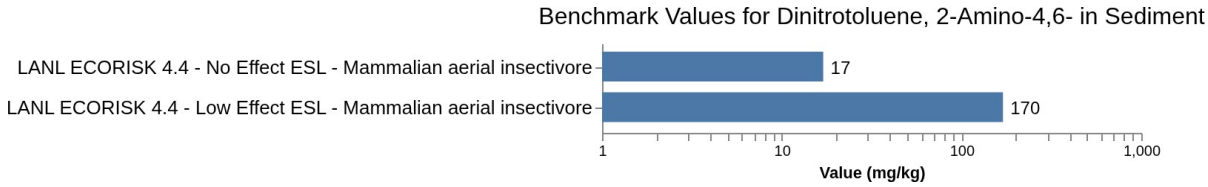


Table 126: Benchmark Values for Dinitrotoluene, 4−Amino−2,6− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
19406−51−0	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	14.0
19406−51−0	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	140.0

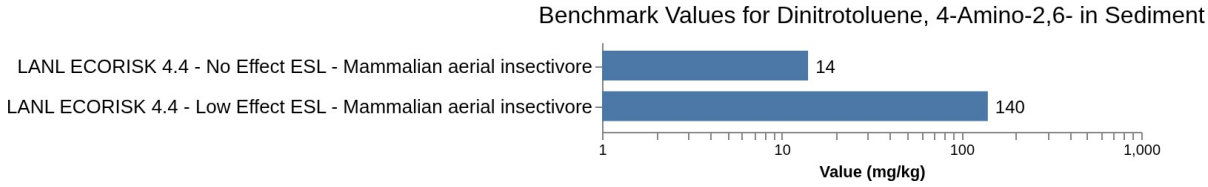


Table 127: Benchmark Values for Dinoseb in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
88−85−7	EPA Region 5	EPA RCRA Sediment	Not specified	0.0145

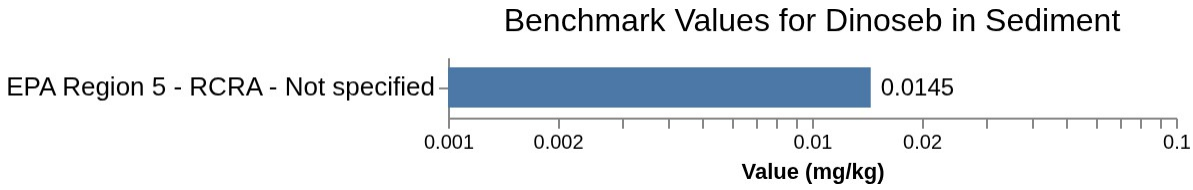


Table 128: Benchmark Values for Dioxane, 1,4− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
123−91−1	EPA Region 5	EPA RCRA Sediment	Not specified	0.119

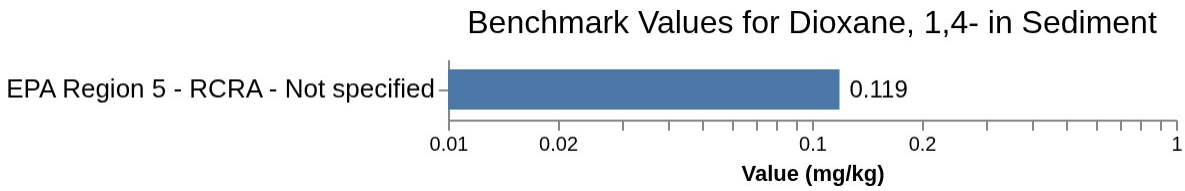


Table 129: Benchmark Values for Dioxin (sum TEQ) in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
000000−16−4	New York DEC	Wildlife Sediment	Not specified	5.000000e-07

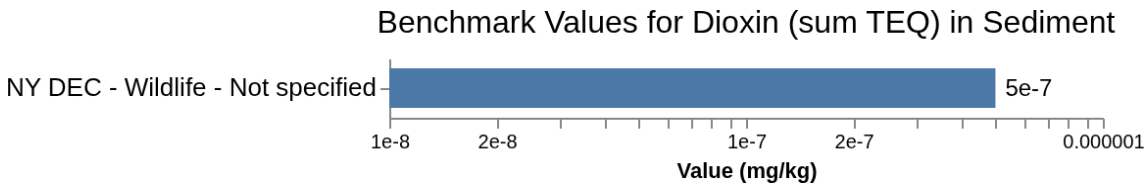


Table 130: Benchmark Values for Diphenylamine in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
122−39−4	EPA Region 5	EPA RCRA Sediment	Not specified	0.0346
122−39−4	LANL ECORISK	Sediment No Effect ESL	Avian aerial insectivore	13.0000
122−39−4	LANL ECORISK	Sediment Low Effect ESL	Avian aerial insectivore	22.0000

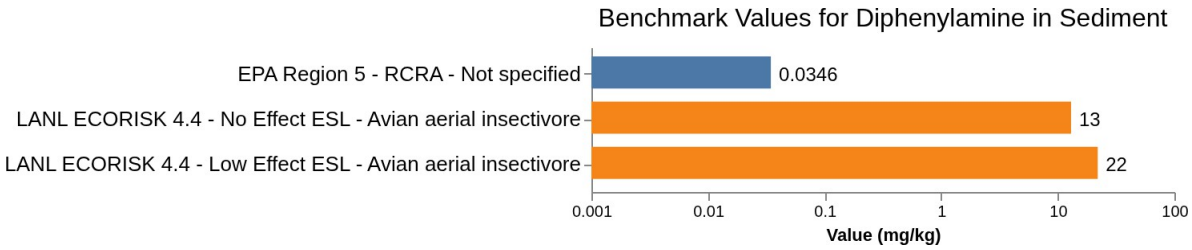


Table 131: Benchmark Values for Disulfoton in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
298−04−4	EPA Region 5	EPA RCRA Sediment	Not specified	0.324

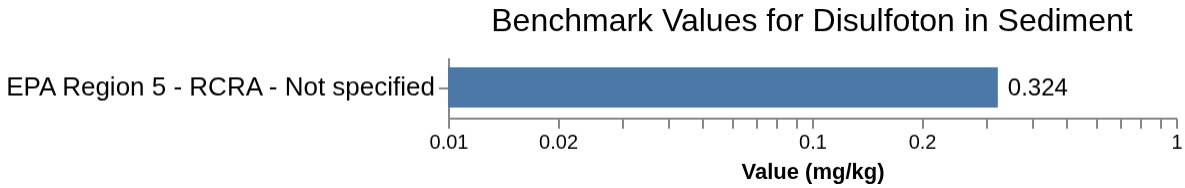


Table 132: Benchmark Values for Endosulfan I in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
959−98−8	EPA OSWER	Sediment quality benchmarks	Not specified	0.00290
959−98−8	EPA Region 5	EPA RCRA Sediment	Not specified	0.00326

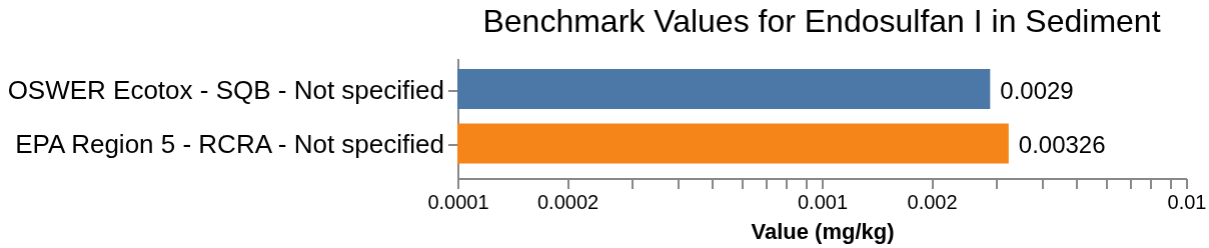


Table 133: Benchmark Values for Endosulfan II in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
33213−65−9	EPA OSWER	Sediment quality benchmarks	Not specified	0.01400
33213−65−9	EPA Region 5	EPA RCRA Sediment	Not specified	0.00194

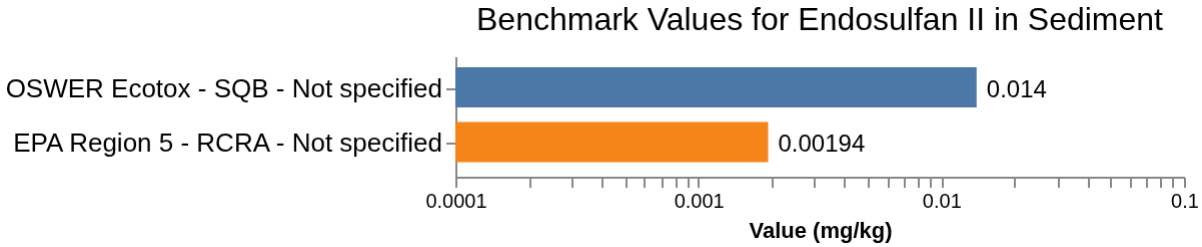


Table 134: Benchmark Values for Endosulfan Sulfate in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
1031−07−8	EPA Region 5	EPA RCRA Sediment	Not specified	0.0346

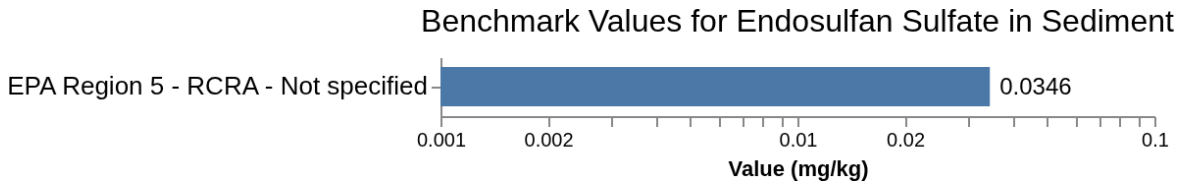


Table 135: Benchmark Values for Endosulfan in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
115−29−7	EPA OSWER	Sediment quality benchmarks	Not specified	0.00540
115−29−7	LANL ECORISK	Sediment No Effect ESL	Aquatic community organisms	0.00001
115−29−7	LANL ECORISK	Sediment Low Effect ESL	Aquatic community organisms	0.00010
115−29−7	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	1.30000
115−29−7	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	13.00000
115−29−7	LANL ECORISK	Sediment No Effect ESL	Avian aerial insectivore	60.00000
115−29−7	LANL ECORISK	Sediment Low Effect ESL	Avian aerial insectivore	600.00000

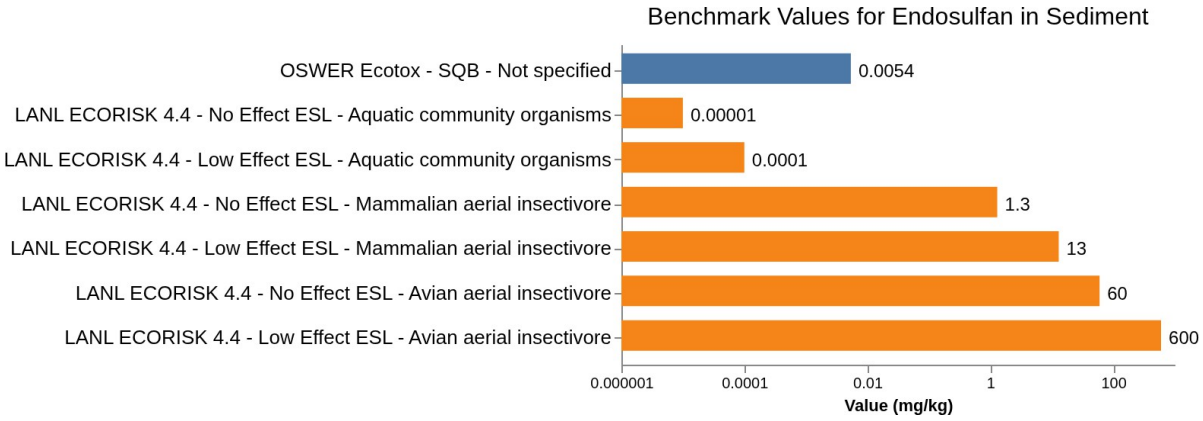


Table 136: Benchmark Values for Endrin aldehyde in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
7421−93−4	EPA Region 5	EPA RCRA Sediment	Not specified	0.48

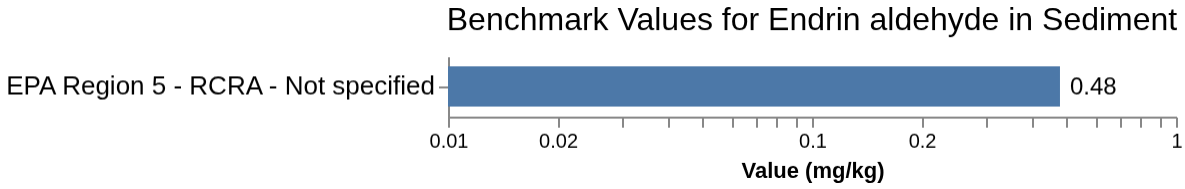


Table 137: Benchmark Values for Endrin in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)	Footnotes
72−20−8	Consensus−Based	Consensus−Based TEC	Not specified	0.00222	
72−20−8	Consensus−Based	Consensus−Based PEC	Not specified	0.20700	
72−20−8	EPA Region 5	EPA RCRA Sediment	Not specified	0.00222	
72−20−8	LANL ECORISK	Sediment No Effect ESL	Avian aerial insectivore	0.00180	
72−20−8	LANL ECORISK	Sediment No Effect ESL	Aquatic community organisms	0.00220	
72−20−8	LANL ECORISK	Sediment Low Effect ESL	Avian aerial insectivore	0.01800	
72−20−8	LANL ECORISK	Sediment Low Effect ESL	Aquatic community organisms	0.02200	
72−20−8	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	0.02600	
72−20−8	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	0.26000	
72−20−8	New York DEC	Wildlife Sediment	Not specified	0.00140	
72−20−8	Ontario	Provincial Sediment No Effect Level	Not specified	0.00050	
72−20−8	Ontario	Sediment Lowest Effect Level	Not specified	0.00300	
72−20−8	Ontario	Sediment Severe Effect Level	Not specified	13.00000	33

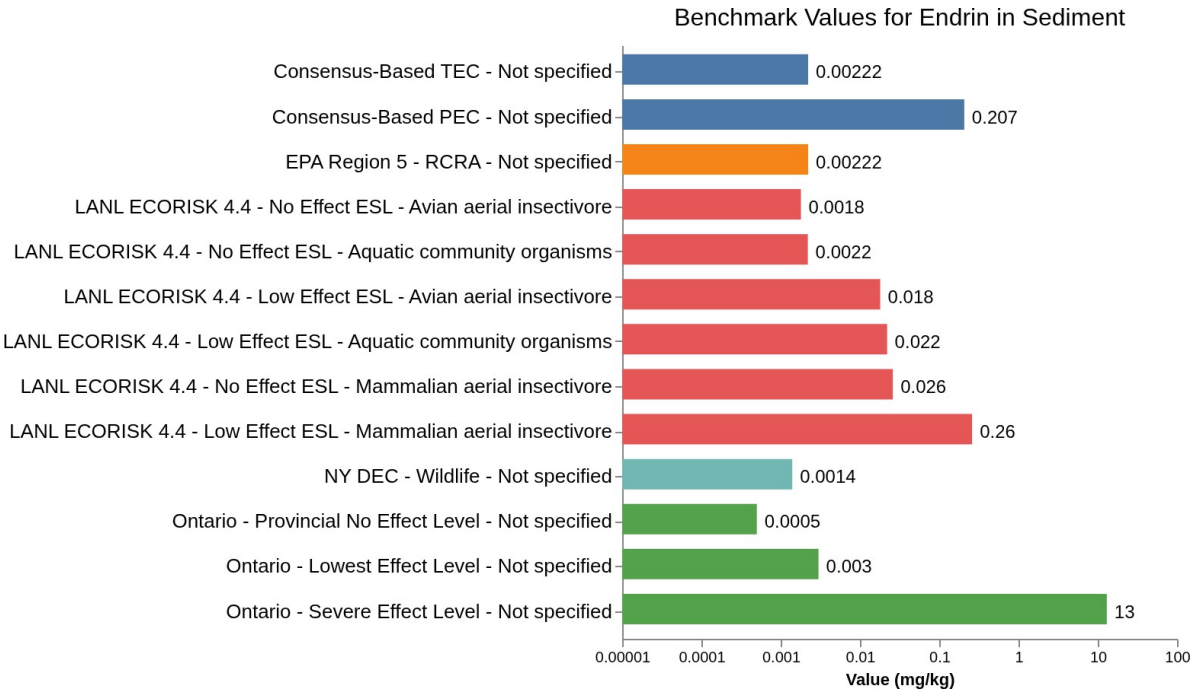


Table 138: Benchmark Values for Ethylanthracene, 2− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
52251−71−5	EPA ESBs	Effect Concentration of PAH	Not specified	739.0

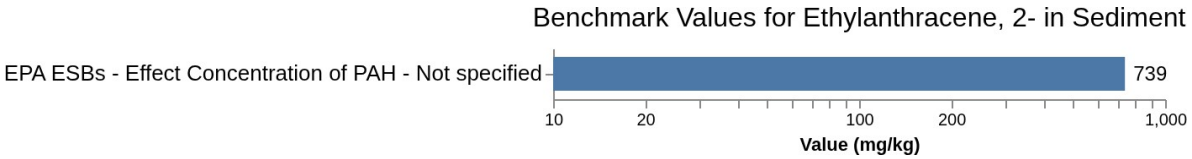


Table 139: Benchmark Values for Ethylbenzene in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
100−41−4	EPA OSWER	Sediment quality benchmarks	Not specified	3.600
100−41−4	EPA Region 5	EPA RCRA Sediment	Not specified	0.175

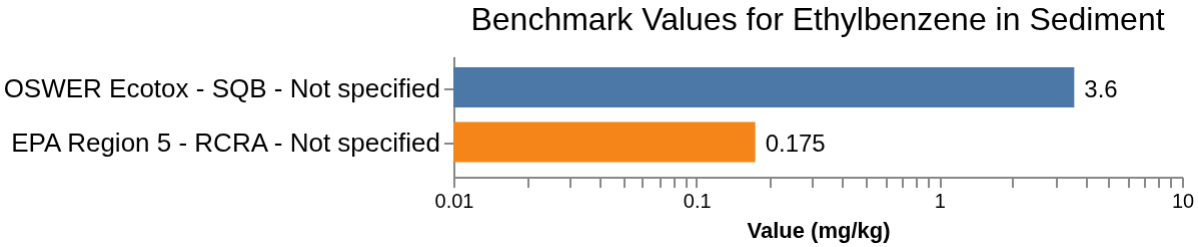


Table 140: Benchmark Values for Ethylfluorene, 9− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
2294−82−8	EPA ESBs	Effect Concentration of PAH	Not specified	673.0

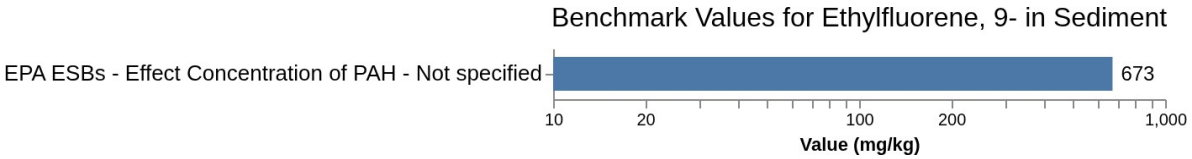


Table 141: Benchmark Values for Ethylnaphthalene, 1− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
1127−76−0	EPA ESBs	Effect Concentration of PAH	Not specified	507.0
1127−76−0	EPA ESBs	Maximum Solubility Limited PAH Concentration	Not specified	142500.0

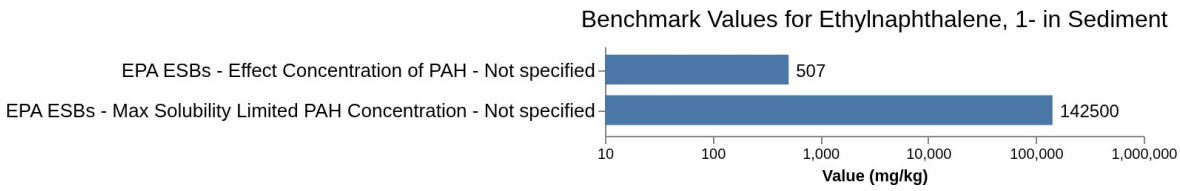


Table 142: Benchmark Values for Ethylnaphthalene, 2− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
939−27−5	EPA ESBs	Effect Concentration of PAH	Not specified	509.0
939−27−5	EPA ESBs	Maximum Solubility Limited PAH Concentration	Not specified	129900.0

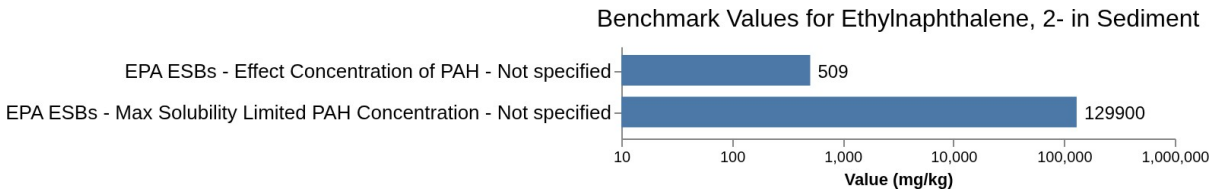


Table 143: Benchmark Values for Fluoranthene in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)	Footnotes
206−44−0	Consensus−Based	Consensus−Based TEC	Not specified	0.42300	
206−44−0	Consensus−Based	Consensus−Based PEC	Not specified	2.23000	
206−44−0	EPA − ARCS	Sediment TEC	Not specified	0.06423	
206−44−0	EPA − ARCS	Sediment PEC	Not specified	0.83427	
206−44−0	EPA − ARCS	Sediment NEC	Not specified	7.50000	
206−44−0	EPA ESBs	Effect Concentration of PAH	Not specified	707.00000	
206−44−0	EPA ESBs	Maximum Solubility Limited PAH Concentration	Not specified	23870.00000	
206−44−0	EPA OSWER	Effects Range − Low	Not specified	0.60000	
206−44−0	EPA Region 5	EPA RCRA Sediment	Not specified	0.42300	
206−44−0	LANL ECORISK	Sediment No Effect ESL	Aquatic community organisms	0.42000	
206−44−0	LANL ECORISK	Sediment Low Effect ESL	Aquatic community organisms	2.20000	
206−44−0	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	25.00000	
206−44−0	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	250.00000	
206−44−0	NOAA	Effects Range−Low	Not specified	0.60000	
206−44−0	NOAA	Effects Range−Median	Not specified	5.10000	
206−44−0	Ontario	Sediment Lowest Effect Level	Not specified	0.75000	
206−44−0	Ontario	Sediment Severe Effect Level	Not specified	102.00000	33

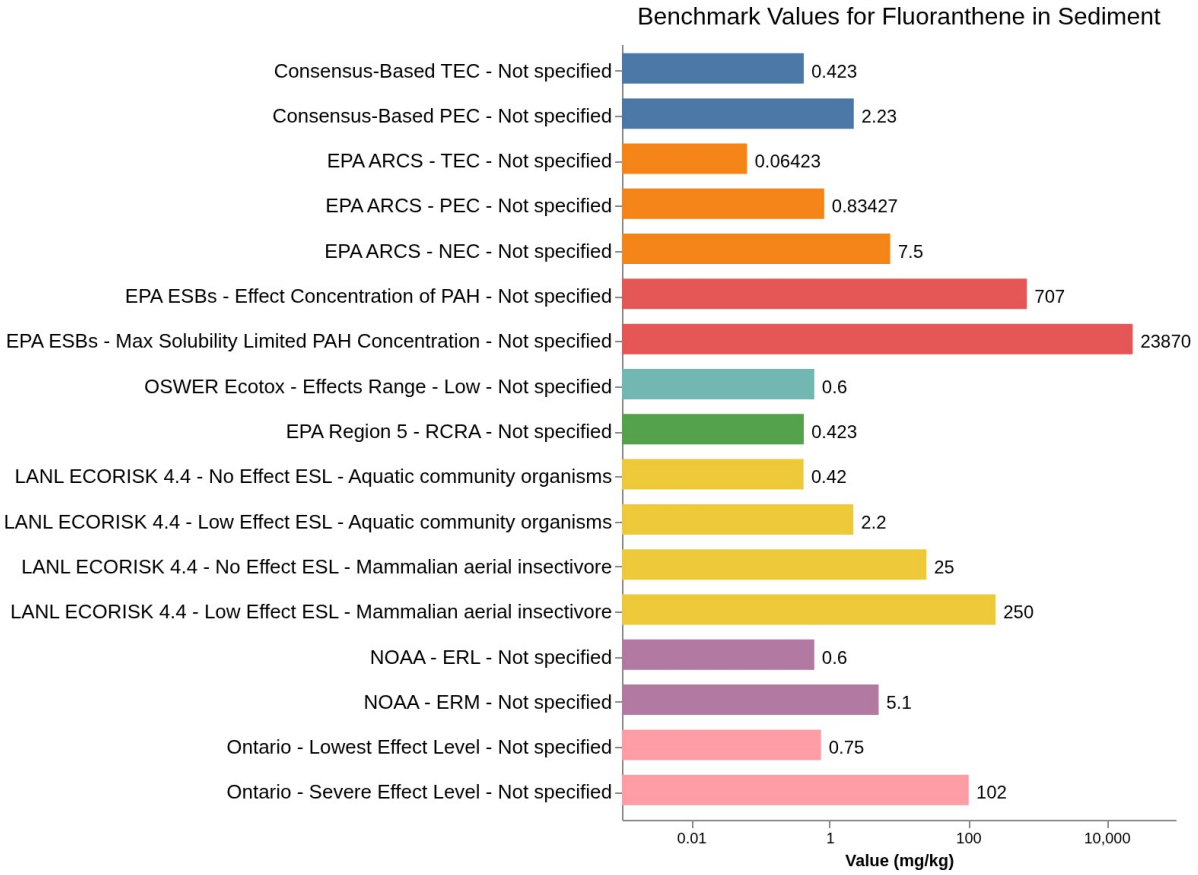


Table 144: Benchmark Values for Fluoranthene/pyrenes, C1− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
000000−13−9	EPA ESBs	Effect Concentration of PAH	Not specified	770.0
000000−13−9	EPA Region 4	Sediment RSV for PAHs	Not specified	7.7

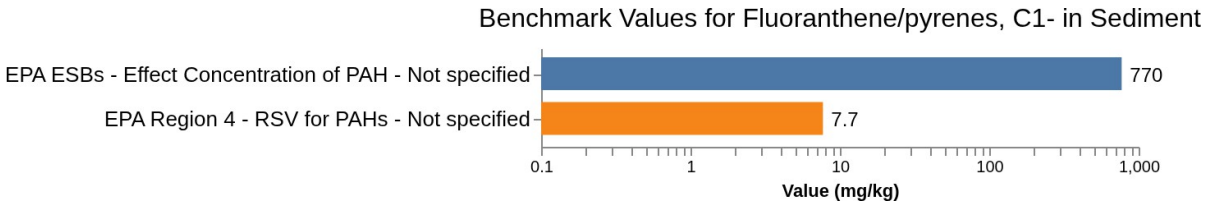


Table 145: Benchmark Values for Fluoranthene/pyrenes, C2− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
000000−14−0	EPA Region 4	Sediment RSV for PAHs	Not specified	8.73

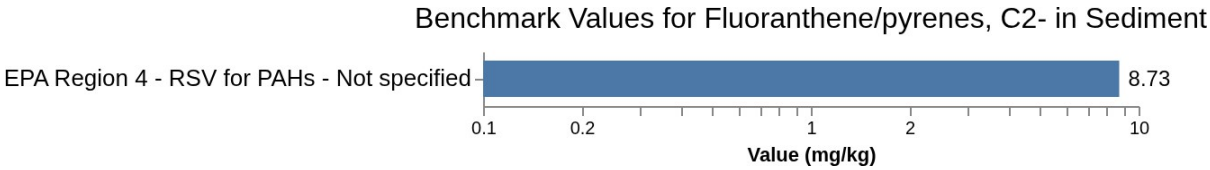


Table 146: Benchmark Values for Fluoranthene/pyrenes, C3− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
000000−14−1	EPA ESBs	Effect Concentration of PAH	Not specified	949.00
000000−14−1	EPA Region 4	Sediment RSV for PAHs	Not specified	9.49

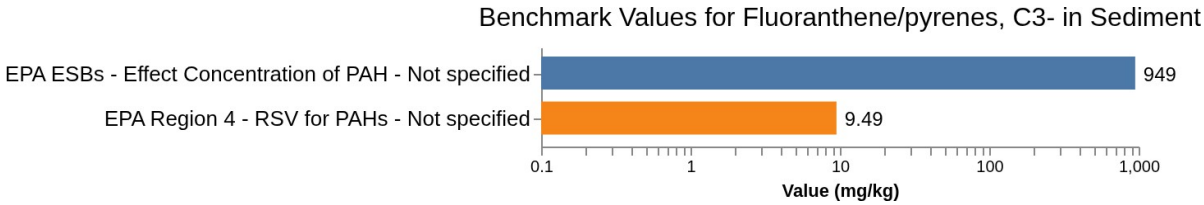


Table 147: Benchmark Values for Fluoranthene/pyrenes, C4− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
000000−14−2	EPA Region 4	Sediment RSV for PAHs	Not specified	10.7

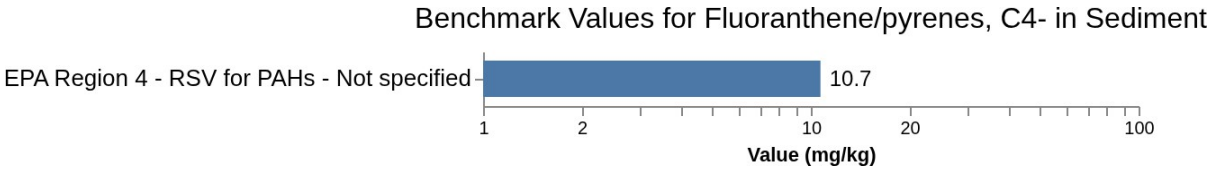


Table 148: Benchmark Values for Fluorene in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)	Footnotes
86−73−7	Consensus−Based	Consensus−Based TEC	Not specified	0.07740	
86−73−7	Consensus−Based	Consensus−Based PEC	Not specified	0.53600	
86−73−7	EPA − ARCS	Sediment TEC	Not specified	0.03460	
86−73−7	EPA − ARCS	Sediment PEC	Not specified	0.65192	
86−73−7	EPA − ARCS	Sediment NEC	Not specified	1.80000	
86−73−7	EPA ESBs	Effect Concentration of PAH	Not specified	538.00000	
86−73−7	EPA ESBs	Maximum Solubility Limited PAH Concentration	Not specified	26000.00000	
86−73−7	EPA OSWER	Sediment quality benchmarks	Not specified	0.54000	
86−73−7	EPA Region 5	EPA RCRA Sediment	Not specified	0.07740	
86−73−7	LANL ECORISK	Sediment No Effect ESL	Aquatic community organisms	0.07700	
86−73−7	LANL ECORISK	Sediment Low Effect ESL	Aquatic community organisms	0.53000	
86−73−7	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	280.00000	
86−73−7	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	570.00000	
86−73−7	NOAA	Effects Range−Low	Not specified	0.01900	32
86−73−7	NOAA	Effects Range−Median	Not specified	0.54000	
86−73−7	Ontario	Sediment Lowest Effect Level	Not specified	0.19000	
86−73−7	Ontario	Sediment Severe Effect Level	Not specified	16.00000	33

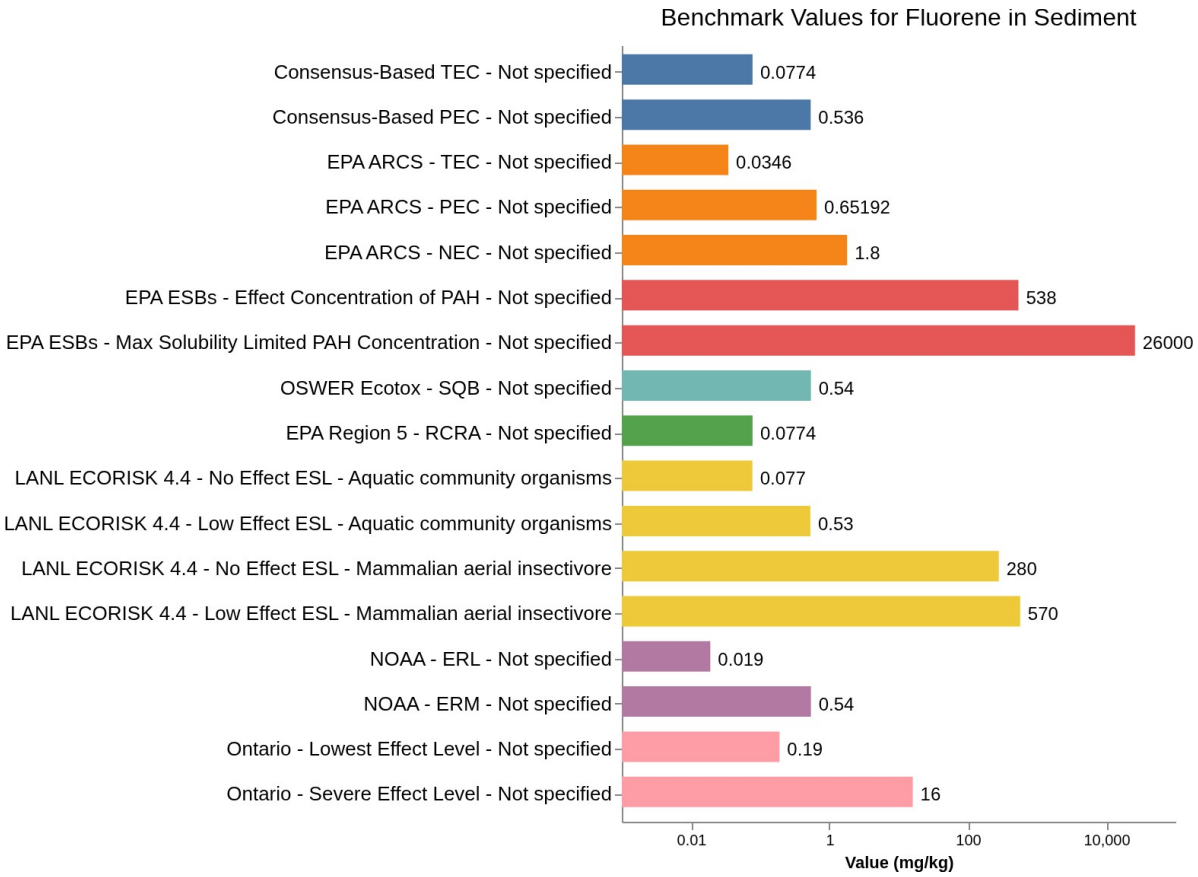


Table 149: Benchmark Values for Fluorenes, C1− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
000000−12−8	EPA ESBs	Effect Concentration of PAH	Not specified	611.00
000000−12−8	EPA Region 4	Sediment RSV for PAHs	Not specified	6.11

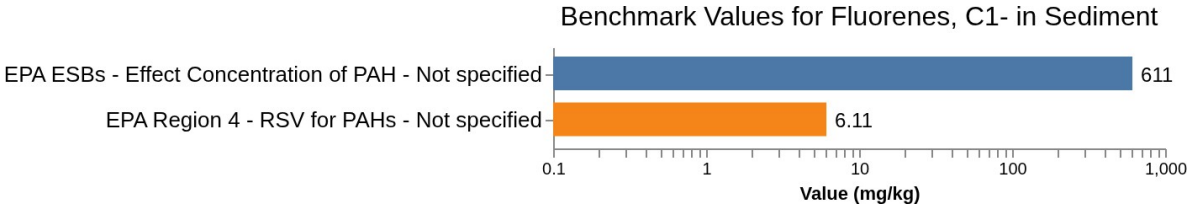


Table 150: Benchmark Values for Fluorenes, C2− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
000000−12−9	EPA ESBs	Effect Concentration of PAH	Not specified	686.00
000000−12−9	EPA Region 4	Sediment RSV for PAHs	Not specified	6.86

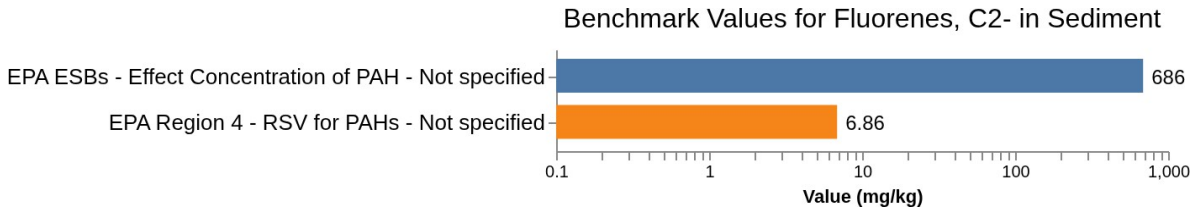


Table 151: Benchmark Values for Fluorenes, C3− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
000000−13−0	EPA ESBs	Effect Concentration of PAH	Not specified	769.00
000000−13−0	EPA Region 4	Sediment RSV for PAHs	Not specified	7.69

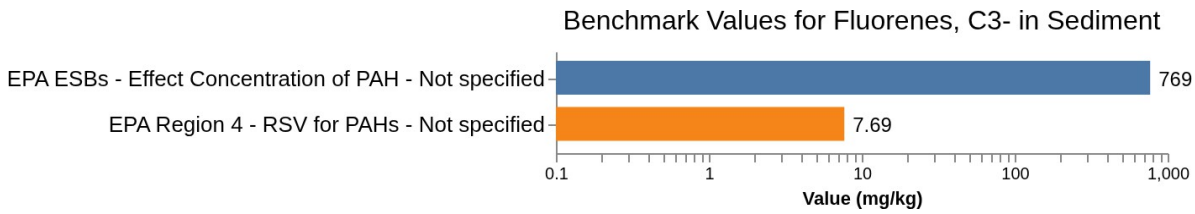


Table 152: Benchmark Values for Fluoride in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
16984−48−8	LANL ECORISK	Sediment No Effect ESL	Avian aerial insectivore	350.0
16984−48−8	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	1100.0
16984−48−8	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	2200.0
16984−48−8	LANL ECORISK	Sediment Low Effect ESL	Avian aerial insectivore	3500.0

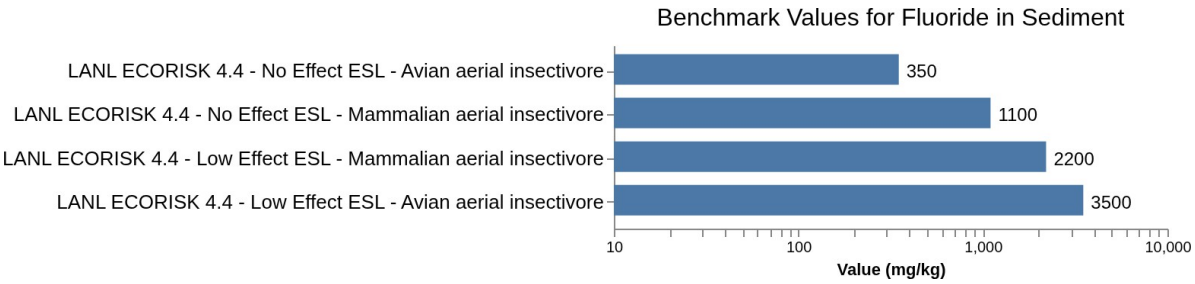


Table 153: Benchmark Values for Heptachlor Epoxide in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)	Footnotes
1024−57−3	Consensus−Based	Consensus−Based TEC	Not specified	0.00247	
1024−57−3	Consensus−Based	Consensus−Based PEC	Not specified	0.01600	
1024−57−3	EPA Region 5	EPA RCRA Sediment	Not specified	0.00247	
1024−57−3	New York DEC	Wildlife Sediment	Not specified	0.00520	154
1024−57−3	Ontario	Sediment Lowest Effect Level	Not specified	0.00500	160
1024−57−3	Ontario	Sediment Severe Effect Level	Not specified	0.50000	33, 161

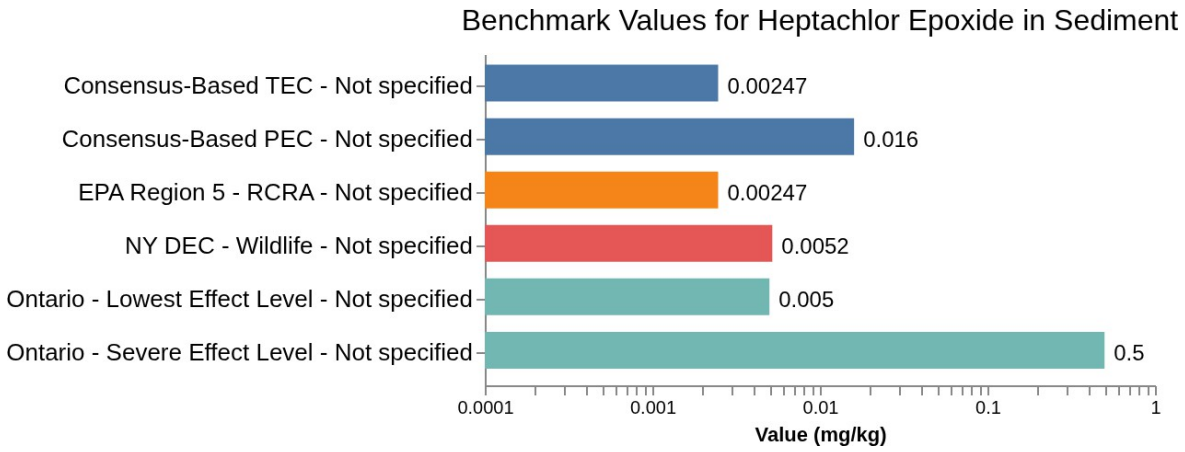


Table 154: Benchmark Values for Heptachlor in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)	Footnotes
76−44−8	EPA Region 5	EPA RCRA Sediment	Not specified	0.0006	
76−44−8	LANL ECORISK	Sediment No Effect ESL	Aquatic community organisms	0.0024	
76−44−8	LANL ECORISK	Sediment Low Effect ESL	Aquatic community organisms	0.0160	
76−44−8	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	0.0660	
76−44−8	LANL ECORISK	Sediment No Effect ESL	Avian aerial insectivore	0.3900	
76−44−8	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	0.6600	
76−44−8	LANL ECORISK	Sediment Low Effect ESL	Avian aerial insectivore	3.9000	
76−44−8	New York DEC	Wildlife Sediment	Not specified	0.0052	154
76−44−8	Ontario	Provincial Sediment No Effect Level	Not specified	0.0003	

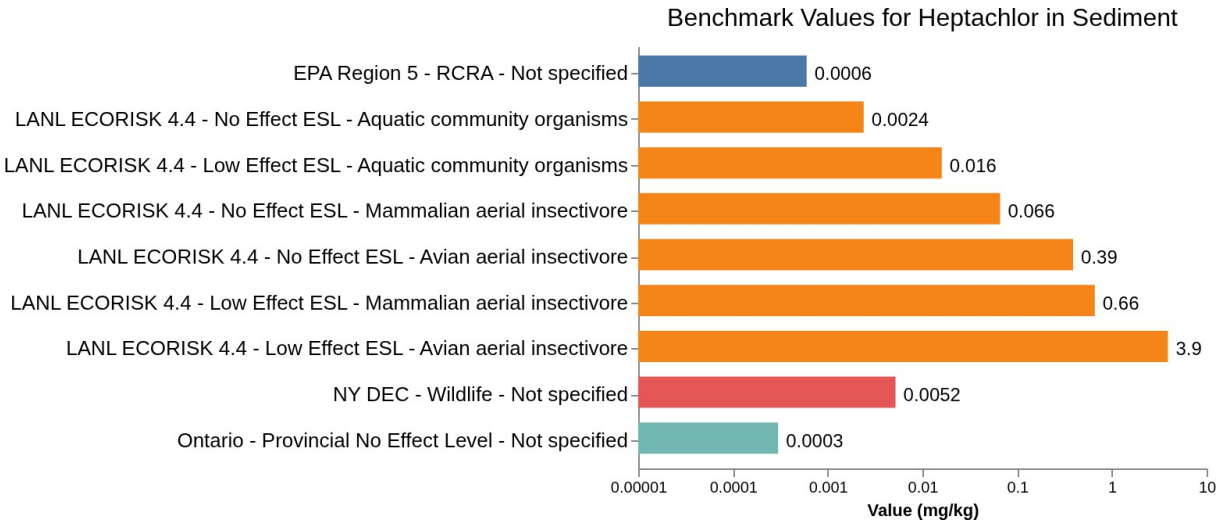


Table 155: Benchmark Values for Hexachlorobenzene in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)	Footnotes
118−74−1	EPA Region 5	EPA RCRA Sediment	Not specified	0.0200	
118−74−1	LANL ECORISK	Sediment No Effect ESL	Avian aerial insectivore	0.1000	
118−74−1	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	0.2200	
118−74−1	LANL ECORISK	Sediment Low Effect ESL	Avian aerial insectivore	1.0000	
118−74−1	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	2.2000	
118−74−1	New York DEC	Wildlife Sediment	Not specified	0.0061	
118−74−1	Ontario	Provincial Sediment No Effect Level	Not specified	0.0100	
118−74−1	Ontario	Sediment Lowest Effect Level	Not specified	0.0200	
118−74−1	Ontario	Sediment Severe Effect Level	Not specified	2.4000	33

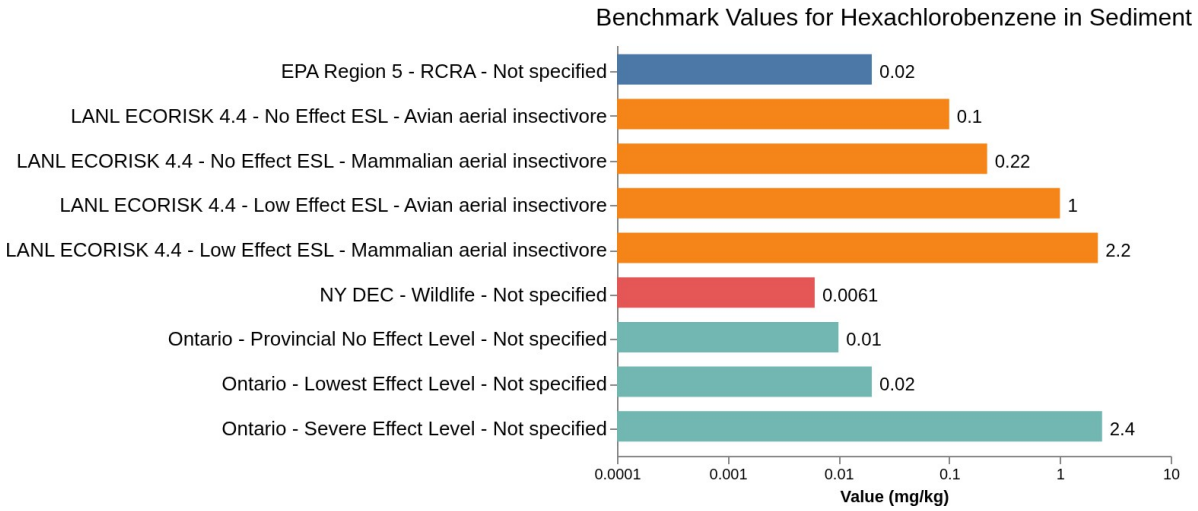


Table 156: Benchmark Values for Hexachlorobutadiene in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
87−68−3	EPA Region 5	EPA RCRA Sediment	Not specified	0.0265
87−68−3	New York DEC	Wildlife Sediment	Not specified	0.1370

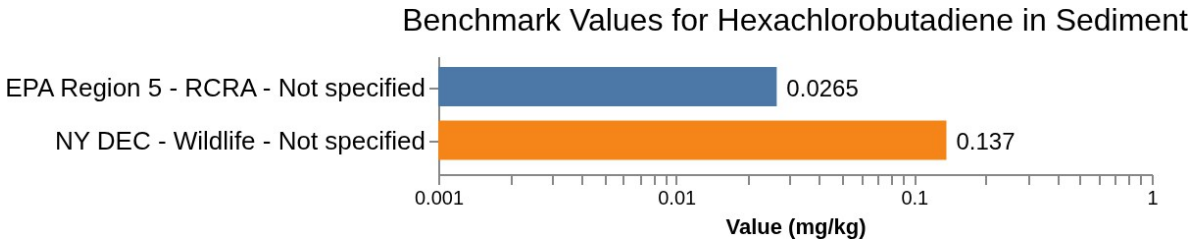


Table 157: Benchmark Values for Hexachlorocyclohexane, Alpha− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)	Footnotes
319−84−6	EPA Region 5	EPA RCRA Sediment	Not specified	0.006	
319−84−6	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	66.000	
319−84−6	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	660.000	
319−84−6	New York DEC	Wildlife Sediment	Not specified	0.021	155
319−84−6	Ontario	Sediment Lowest Effect Level	Not specified	0.006	
319−84−6	Ontario	Sediment Severe Effect Level	Not specified	1.000	33

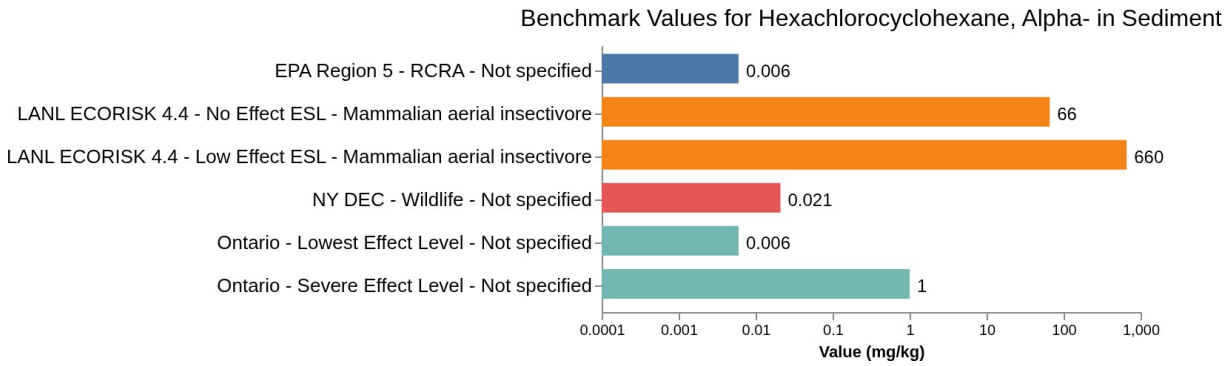


Table 158: Benchmark Values for Hexachlorocyclohexane, Beta− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)	Footnotes
319−85−7	EPA Region 5	EPA RCRA Sediment	Not specified	0.005	
319−85−7	LANL ECORISK	Sediment No Effect ESL	Aquatic community organisms	0.005	
319−85−7	LANL ECORISK	Sediment Low Effect ESL	Aquatic community organisms	0.050	
319−85−7	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	0.300	
319−85−7	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	1.500	
319−85−7	LANL ECORISK	Sediment No Effect ESL	Avian aerial insectivore	18.000	
319−85−7	LANL ECORISK	Sediment Low Effect ESL	Avian aerial insectivore	180.000	
319−85−7	New York DEC	Wildlife Sediment	Not specified	0.021	155
319−85−7	Ontario	Sediment Lowest Effect Level	Not specified	0.005	
319−85−7	Ontario	Sediment Severe Effect Level	Not specified	2.100	33

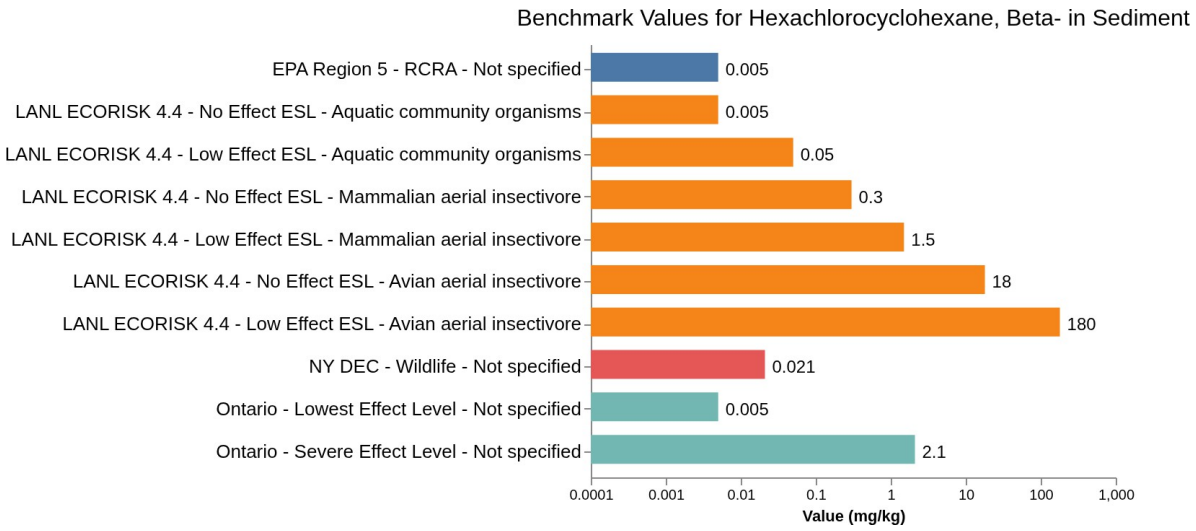


Table 159: Benchmark Values for Hexachlorocyclohexane, Delta− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)	Footnotes
319−86−8	EPA Region 5	EPA RCRA Sediment	Not specified	71.500	
319−86−8	New York DEC	Wildlife Sediment	Not specified	0.021	155

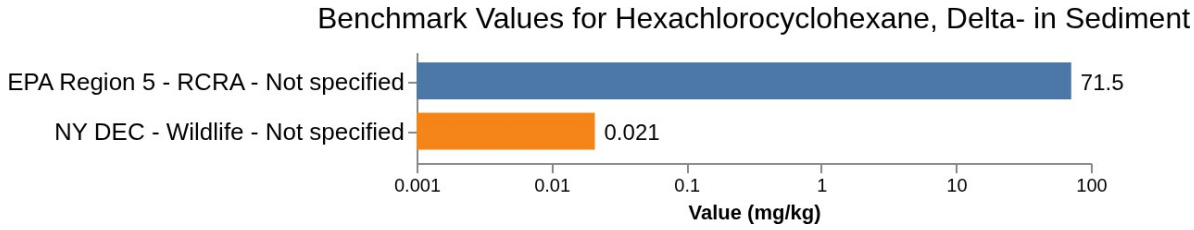


Table 160: Benchmark Values for Hexachlorocyclohexane, Epsilon in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)	Footnotes
6108−10−7	New York DEC	Wildlife Sediment	Not specified	0.021	155

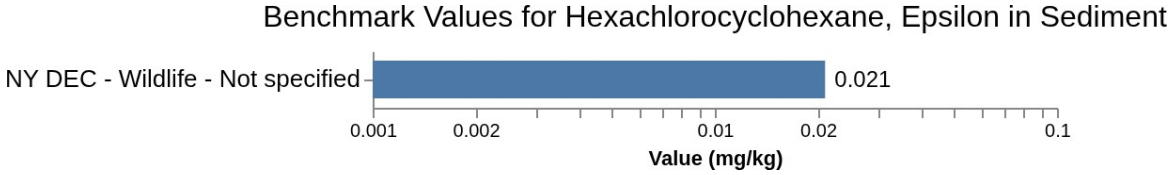


Table 161: Benchmark Values for Hexachlorocyclohexane, Gamma− (Lindane) in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)	Footnotes
58−89−9	Consensus−Based	Consensus−Based TEC	Not specified	0.00237	
58−89−9	Consensus−Based	Consensus−Based PEC	Not specified	0.00499	
58−89−9	EPA OSWER	Sediment quality benchmarks	Not specified	0.00370	
58−89−9	EPA Region 5	EPA RCRA Sediment	Not specified	0.00237	
58−89−9	LANL ECORISK	Sediment No Effect ESL	Aquatic community organisms	0.00230	
58−89−9	LANL ECORISK	Sediment Low Effect ESL	Aquatic community organisms	0.00490	
58−89−9	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	0.01000	
58−89−9	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	0.10000	
58−89−9	LANL ECORISK	Sediment No Effect ESL	Avian aerial insectivore	0.27000	
58−89−9	LANL ECORISK	Sediment Low Effect ESL	Avian aerial insectivore	1.10000	
58−89−9	New York DEC	Wildlife Sediment	Not specified	0.02100	155
58−89−9	Ontario	Provincial Sediment No Effect Level	Not specified	0.00020	
58−89−9	Ontario	Sediment Lowest Effect Level	Not specified	0.00300	160, 162
58−89−9	Ontario	Sediment Severe Effect Level	Not specified	0.10000	33, 161, 162

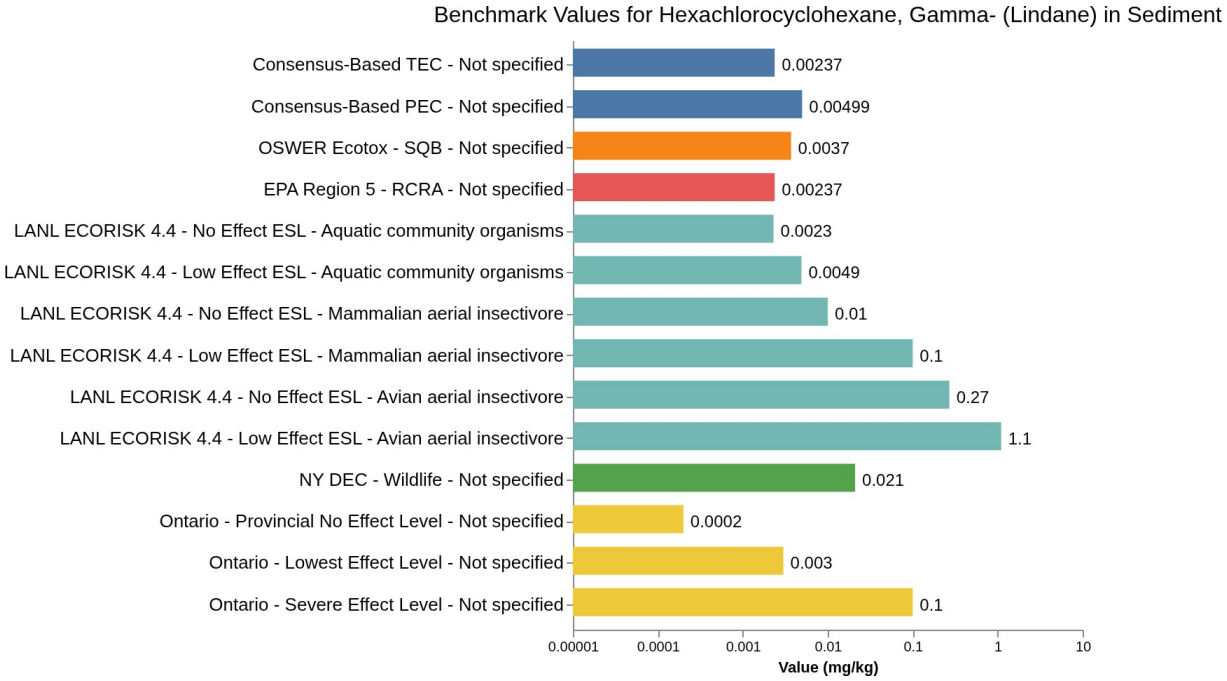


Table 162: Benchmark Values for Hexachlorocyclohexane, Technical in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)	Footnotes
608−73−1	Ontario	Sediment Lowest Effect Level	Not specified	0.003	
608−73−1	Ontario	Sediment Severe Effect Level	Not specified	1.200	33

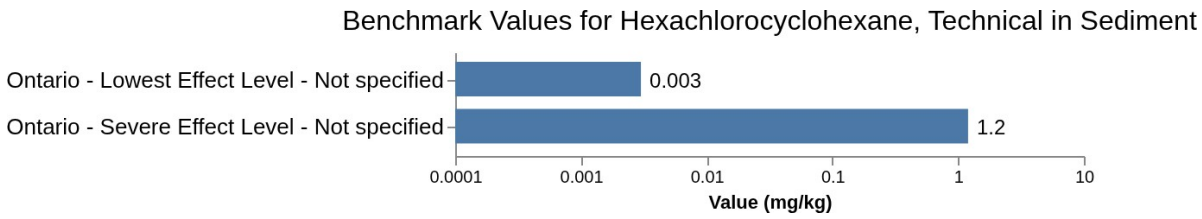


Table 163: Benchmark Values for Hexachlorocyclopentadiene in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
77−47−4	EPA Region 5	EPA RCRA Sediment	Not specified	0.901

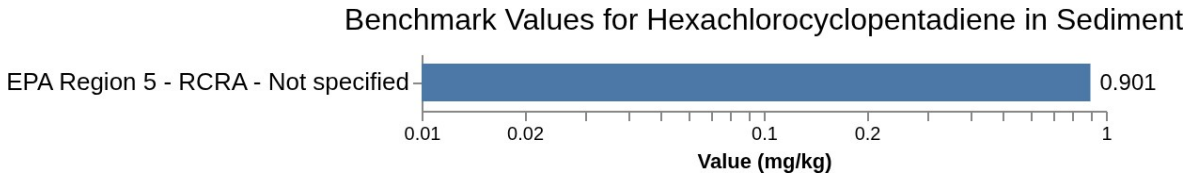


Table 164: Benchmark Values for Hexachloroethane in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
67−72−1	EPA OSWER	Sediment quality benchmarks	Not specified	1.000
67−72−1	EPA Region 5	EPA RCRA Sediment	Not specified	0.584
67−72−1	New York DEC	Wildlife Sediment	Not specified	2.700

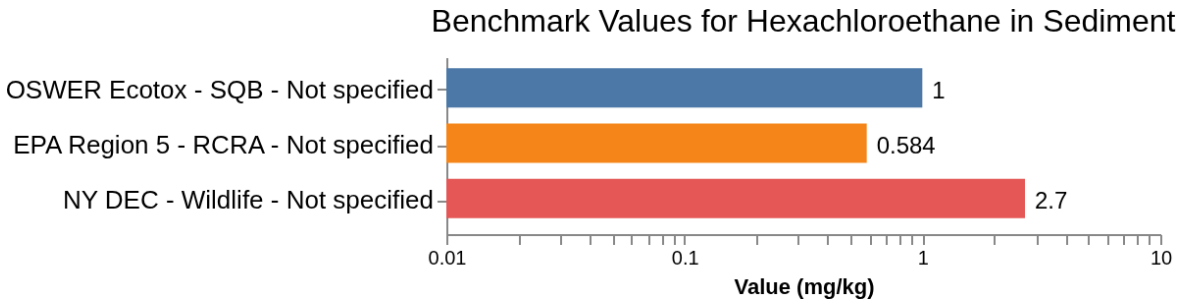


Table 165: Benchmark Values for Hexachlorophene in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
70−30−4	EPA Region 5	EPA RCRA Sediment	Not specified	231.0

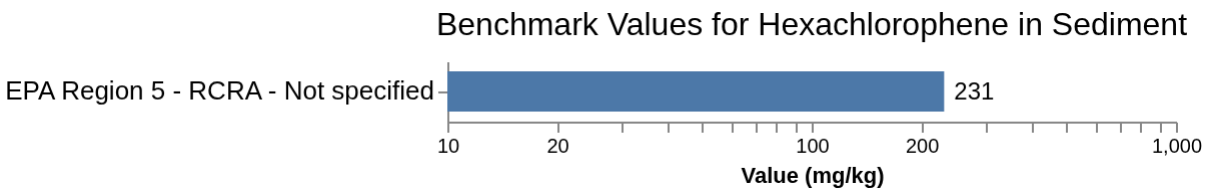


Table 166: Benchmark Values for Hexahydro−1,3,5−trinitro−1,3,5−triazine (RDX) in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
121−82−4	LANL ECORISK	Sediment No Effect ESL	Avian aerial insectivore	3.2
121−82−4	LANL ECORISK	Sediment Low Effect ESL	Avian aerial insectivore	6.2
121−82−4	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	18.0
121−82−4	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	60.0
121−82−4	LANL ECORISK	Sediment No Effect ESL	Aquatic community organisms	260.0
121−82−4	LANL ECORISK	Sediment Low Effect ESL	Aquatic community organisms	350.0

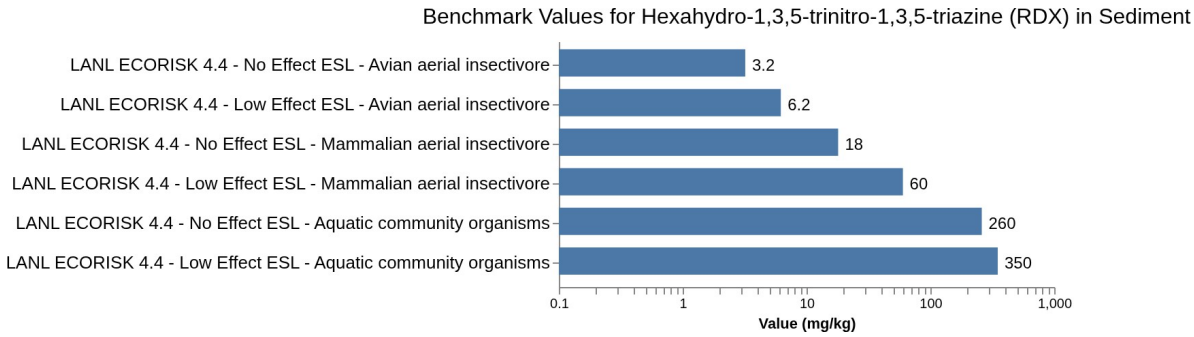


Table 167: Benchmark Values for Hexanone, 2− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
591−78−6	EPA Region 5	EPA RCRA Sediment	Not specified	0.0582
591−78−6	LANL ECORISK	Sediment No Effect ESL	Avian aerial insectivore	0.4700
591−78−6	LANL ECORISK	Sediment Low Effect ESL	Avian aerial insectivore	4.7000
591−78−6	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	6.0000
591−78−6	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	23.0000

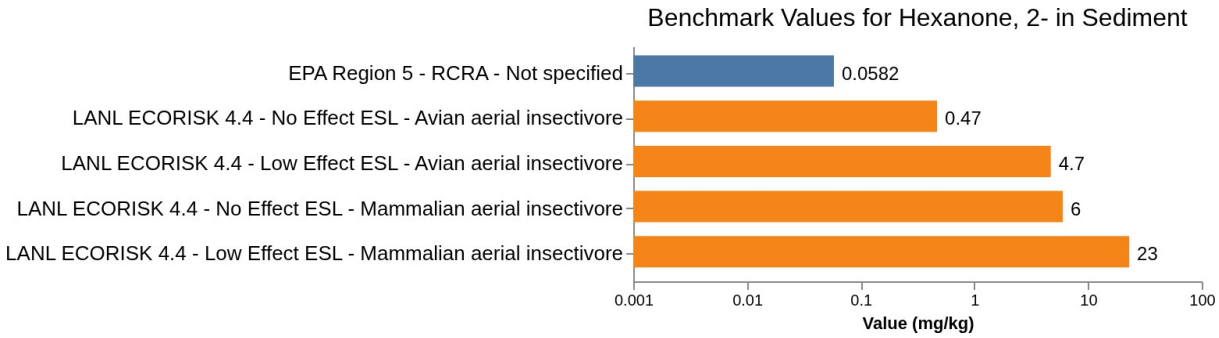


Table 168: Benchmark Values for Indane in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
496−11−7	EPA ESBs	Effect Concentration of PAH	Not specified	349.0
496−11−7	EPA ESBs	Maximum Solubility Limited PAH Concentration	Not specified	127200.0

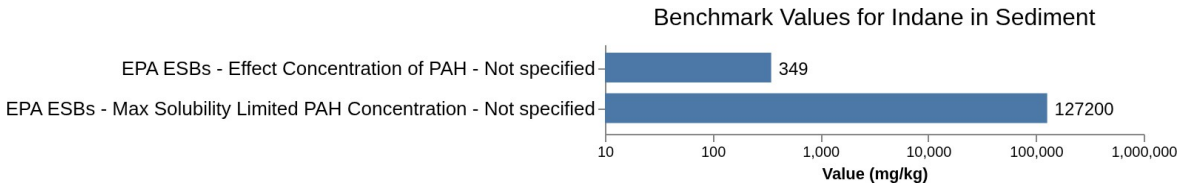


Table 169: Benchmark Values for Indeno[1,2,3−cd]pyrene in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)	Footnotes
193−39−5	EPA − ARCS	Sediment TEC	Not specified	0.07800	
193−39−5	EPA − ARCS	Sediment PEC	Not specified	0.83666	
193−39−5	EPA − ARCS	Sediment NEC	Not specified	3.80000	
193−39−5	EPA ESBs	Effect Concentration of PAH	Not specified	1115.00000	
193−39−5	EPA Region 5	EPA RCRA Sediment	Not specified	0.20000	
193−39−5	LANL ECORISK	Sediment No Effect ESL	Aquatic community organisms	0.20000	
193−39−5	LANL ECORISK	Sediment Low Effect ESL	Aquatic community organisms	2.00000	
193−39−5	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	83.00000	
193−39−5	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	830.00000	
193−39−5	Ontario	Sediment Lowest Effect Level	Not specified	0.20000	
193−39−5	Ontario	Sediment Severe Effect Level	Not specified	32.00000	33

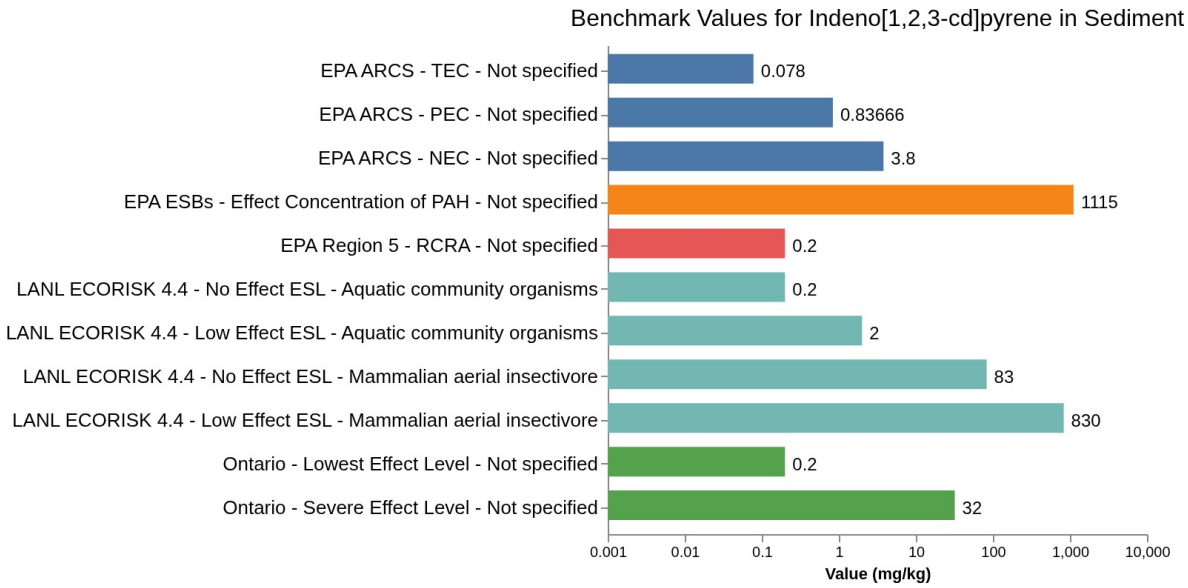


Table 170: Benchmark Values for Iodomethane in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
74−88−4	LANL ECORISK	Sediment No Effect ESL	Avian aerial insectivore	0.081
74−88−4	LANL ECORISK	Sediment Low Effect ESL	Avian aerial insectivore	0.160

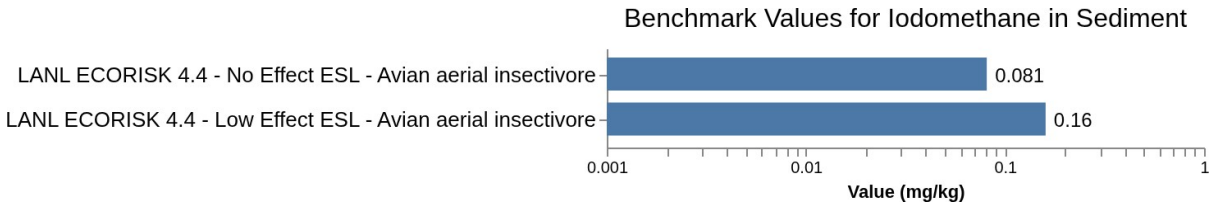


Table 171: Benchmark Values for Iron in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
7439−89−6	LANL ECORISK	Sediment No Effect ESL	Aquatic community organisms	20000.0
7439−89−6	LANL ECORISK	Sediment Low Effect ESL	Aquatic community organisms	40000.0
7439−89−6	Ohio	Interior Plateau	Not specified	31000.0
7439−89−6	Ohio	Eastern Corn Belt Plains	Not specified	33000.0
7439−89−6	Ohio	Erie/Ontario Lake Plain	Not specified	41000.0
7439−89−6	Ohio	Huron Erie Lake Plain	Not specified	44000.0
7439−89−6	Ohio	Western Allegheny Plateau	Not specified	51000.0
7439−89−6	Ontario	Sediment Severe Effect Level	Not specified	4.0
7439−89−6	Ontario	Sediment Lowest Effect Level	Not specified	200000.0

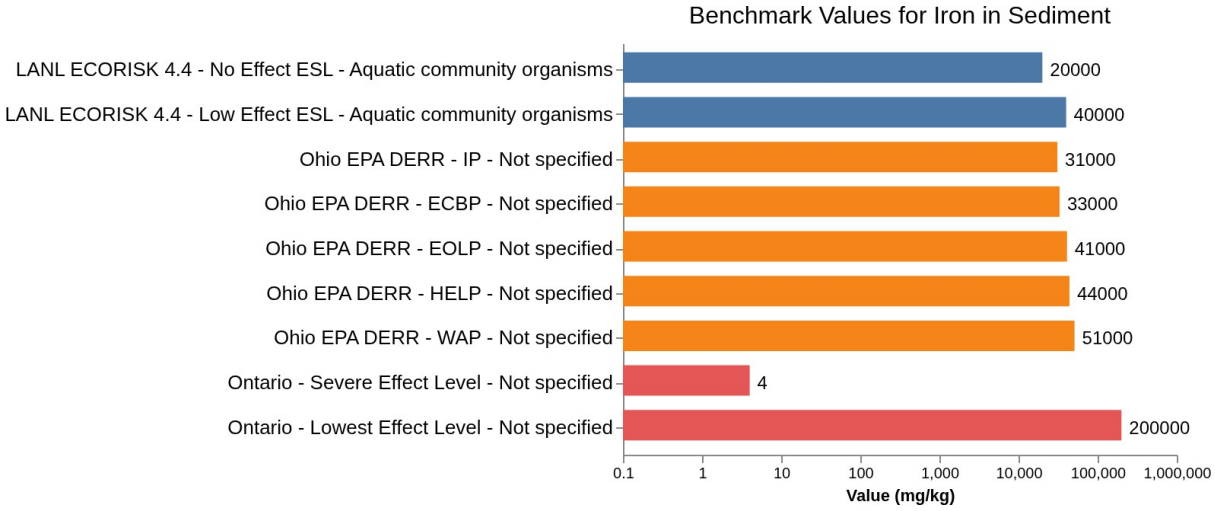


Table 172: Benchmark Values for Isodrin in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
465−73−6	EPA Region 5	EPA RCRA Sediment	Not specified	0.0552

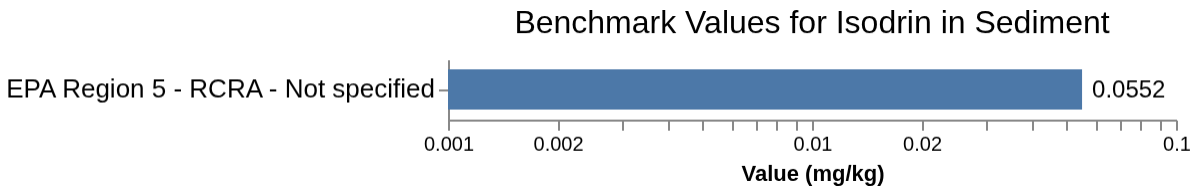


Table 173: Benchmark Values for Isophorone in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
78−59−1	EPA Region 5	EPA RCRA Sediment	Not specified	0.432

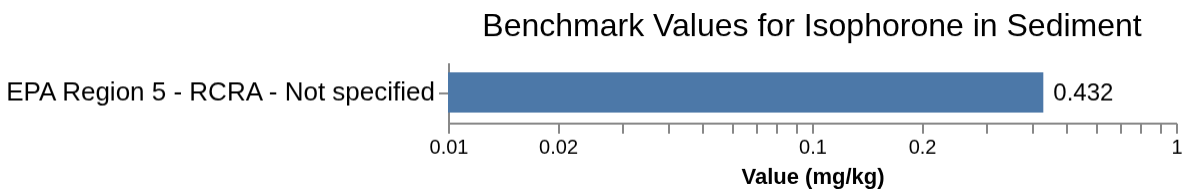


Table 174: Benchmark Values for Lead and Compounds in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)	Footnotes
7439−92−1	Consensus−Based	Consensus−Based TEC	Not specified	35.8	
7439−92−1	Consensus−Based	Consensus−Based PEC	Not specified	128.0	
7439−92−1	EPA − ARCS	Sediment TEC	Not specified	34.2	
7439−92−1	EPA − ARCS	Sediment NEC	Not specified	68.7	
7439−92−1	EPA − ARCS	Sediment PEC	Not specified	396.0	
7439−92−1	EPA OSWER	Effects Range − Low	Not specified	47.0	
7439−92−1	EPA Region 5	EPA RCRA Sediment	Not specified	35.8	
7439−92−1	LANL ECORISK	Sediment No Effect ESL	Avian aerial insectivore	26.0	
7439−92−1	LANL ECORISK	Sediment No Effect ESL	Aquatic community organisms	35.0	
7439−92−1	LANL ECORISK	Sediment Low Effect ESL	Avian aerial insectivore	52.0	
7439−92−1	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	110.0	
7439−92−1	LANL ECORISK	Sediment Low Effect ESL	Aquatic community organisms	120.0	
7439−92−1	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	220.0	
7439−92−1	NOAA	Effects Range−Low	Not specified	46.7	32
7439−92−1	NOAA	Effects Range−Median	Not specified	218.0	32
7439−92−1	Ohio	Statewide	Not specified	47.0	
7439−92−1	Ontario	Sediment Lowest Effect Level	Not specified	31.0	
7439−92−1	Ontario	Sediment Severe Effect Level	Not specified	250.0	

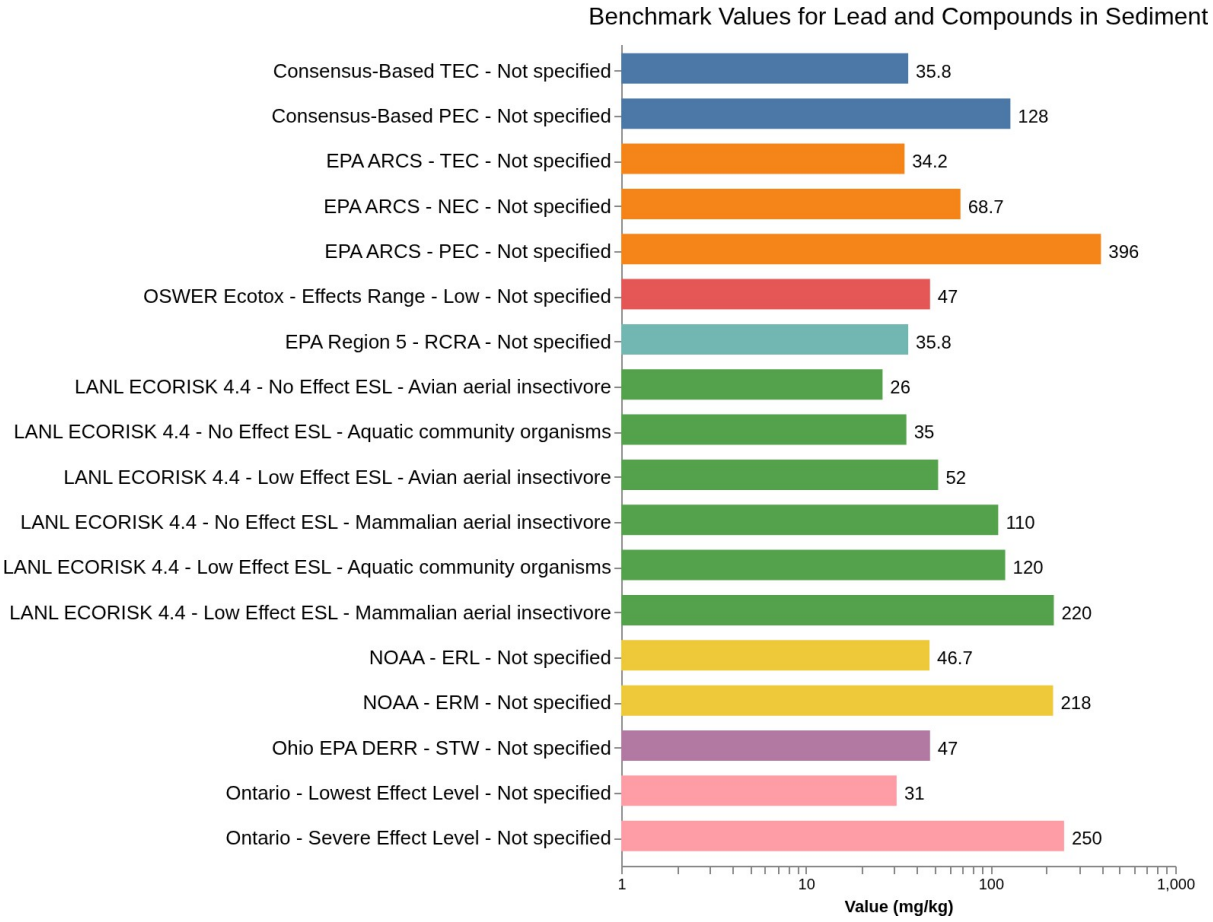


Table 175: Benchmark Values for Lithium in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
7439−93−2	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	130.0
7439−93−2	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	650.0

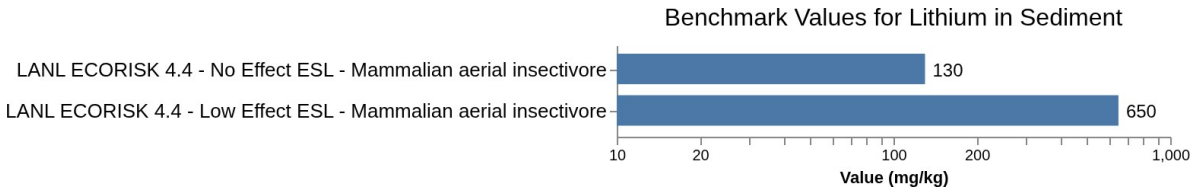


Table 176: Benchmark Values for Magnesium in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
7439−95−4	Ohio	Erie/Ontario Lake Plain	Not specified	7100.0
7439−95−4	Ohio	Western Allegheny Plateau	Not specified	9900.0
7439−95−4	Ohio	Interior Plateau	Not specified	20000.0
7439−95−4	Ohio	Huron Erie Lake Plain	Not specified	29000.0
7439−95−4	Ohio	Eastern Corn Belt Plains	Not specified	35000.0

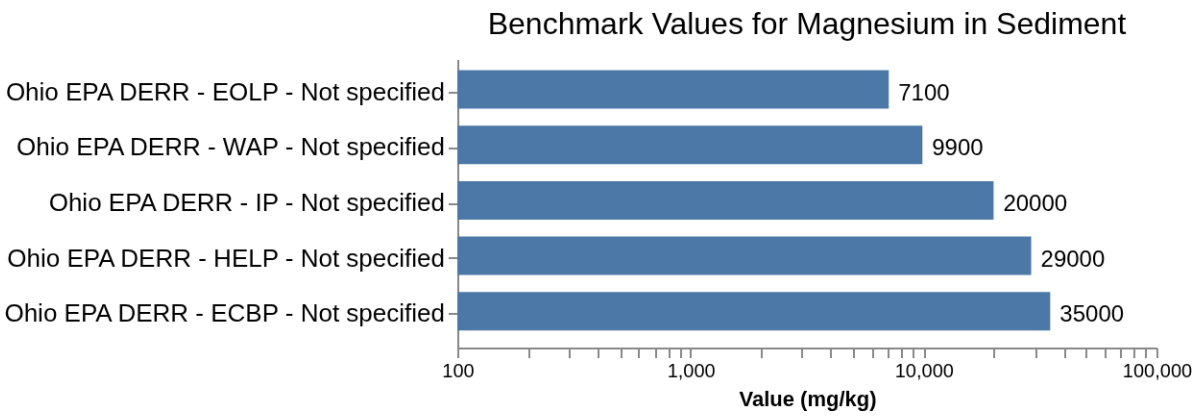


Table 177: Benchmark Values for Malathion in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
121−75−5	EPA OSWER	Sediment quality benchmarks	Not specified	0.00067

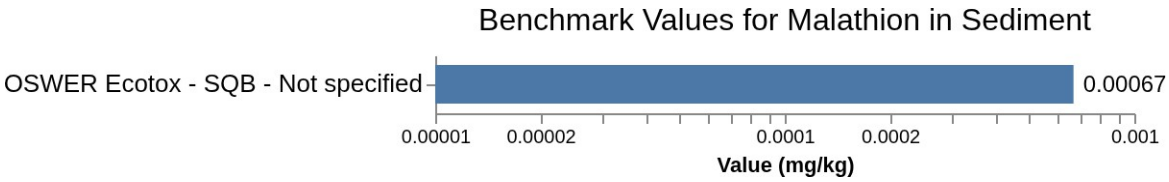


Table 178: Benchmark Values for Manganese (Diet) in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
7439−96−5	EPA − ARCS	Sediment NEC	Not specified	819.0
7439−96−5	EPA − ARCS	Sediment PEC	Not specified	1081.0
7439−96−5	EPA − ARCS	Sediment TEC	Not specified	1673.0
7439−96−5	LANL ECORISK	Sediment No Effect ESL	Aquatic community organisms	460.0
7439−96−5	LANL ECORISK	Sediment Low Effect ESL	Aquatic community organisms	1100.0
7439−96−5	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	4700.0
7439−96−5	LANL ECORISK	Sediment No Effect ESL	Avian aerial insectivore	10000.0
7439−96−5	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	47000.0
7439−96−5	LANL ECORISK	Sediment Low Effect ESL	Avian aerial insectivore	100000.0
7439−96−5	Ohio	Eastern Corn Belt Plains	Not specified	780.0
7439−96−5	Ohio	Huron Erie Lake Plain	Not specified	1000.0
7439−96−5	Ohio	Interior Plateau	Not specified	1400.0
7439−96−5	Ohio	Erie/Ontario Lake Plain	Not specified	1500.0
7439−96−5	Ohio	Western Allegheny Plateau	Not specified	3000.0
7439−96−5	Ontario	Sediment Lowest Effect Level	Not specified	460.0
7439−96−5	Ontario	Sediment Severe Effect Level	Not specified	1100.0

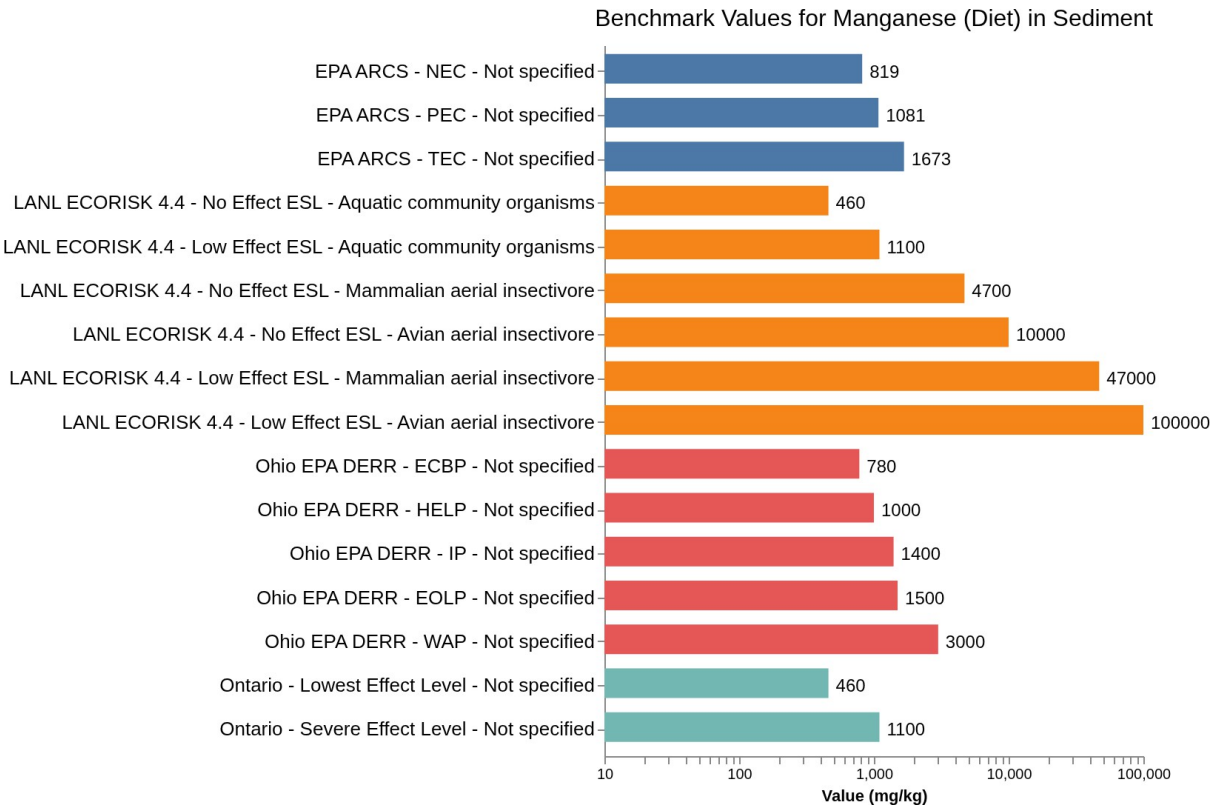

Benchmark Values for Manganese (Diet) in Sediment
EPA ARCS - NEC - Not specified
819
EPA ARCS - PEC - Not specified
1081
EPA ARCS - TEC - Not specified
1673
LANL ECORISK 4.4 - No Effect ESL - Aquatic community organisms
460
LANL ECORISK 4.4 - Low Effect ESL - Aquatic community organisms
1100
LANL ECORISK 4.4 - No Effect ESL - Mammalian aerial insectivore
4700
LANL ECORISK 4.4 - No Effect ESL - Avian aerial insectivore
10000
LANL ECORISK 4.4 - Low Effect ESL - Mammalian aerial insectivore
47000
LANL ECORISK 4.4 - Low Effect ESL - Avian aerial insectivore
100000
Ohio EPA DERR - ECBP - Not specified
780
Ohio EPA DERR - HELP - Not specified
1000
Ohio EPA DERR - IP - Not specified
1400
Ohio EPA DERR - EOLP - Not specified
1500
Ohio EPA DERR - WAP - Not specified
3000
Ontario - Lowest Effect Level - Not specified
460
Ontario - Severe Effect Level - Not specified
1100
10
100
1,000
10,000
100,000
Value (mg/kg)

Table 179: Benchmark Values for Mercury (elemental) in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)	Footnotes
7439−97−6	Consensus−Based	Consensus−Based TEC	Not specified	0.180	
7439−97−6	Consensus−Based	Consensus−Based PEC	Not specified	1.060	
7439−97−6	EPA OSWER	Effects Range − Low	Not specified	0.150	158
7439−97−6	EPA Region 5	EPA RCRA Sediment	Not specified	0.174	
7439−97−6	LANL ECORISK	Sediment No Effect ESL	Avian aerial insectivore	0.017	
7439−97−6	LANL ECORISK	Sediment Low Effect ESL	Avian aerial insectivore	0.170	
7439−97−6	LANL ECORISK	Sediment No Effect ESL	Aquatic community organisms	0.180	
7439−97−6	LANL ECORISK	Sediment Low Effect ESL	Aquatic community organisms	1.000	
7439−97−6	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	2.000	
7439−97−6	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	20.000	
7439−97−6	NOAA	Effects Range−Low	Not specified	0.150	32
7439−97−6	NOAA	Effects Range−Median	Not specified	0.710	32
7439−97−6	Ohio	Statewide	Not specified	0.120	
7439−97−6	Ontario	Sediment Lowest Effect Level	Not specified	0.200	
7439−97−6	Ontario	Sediment Severe Effect Level	Not specified	2.000	

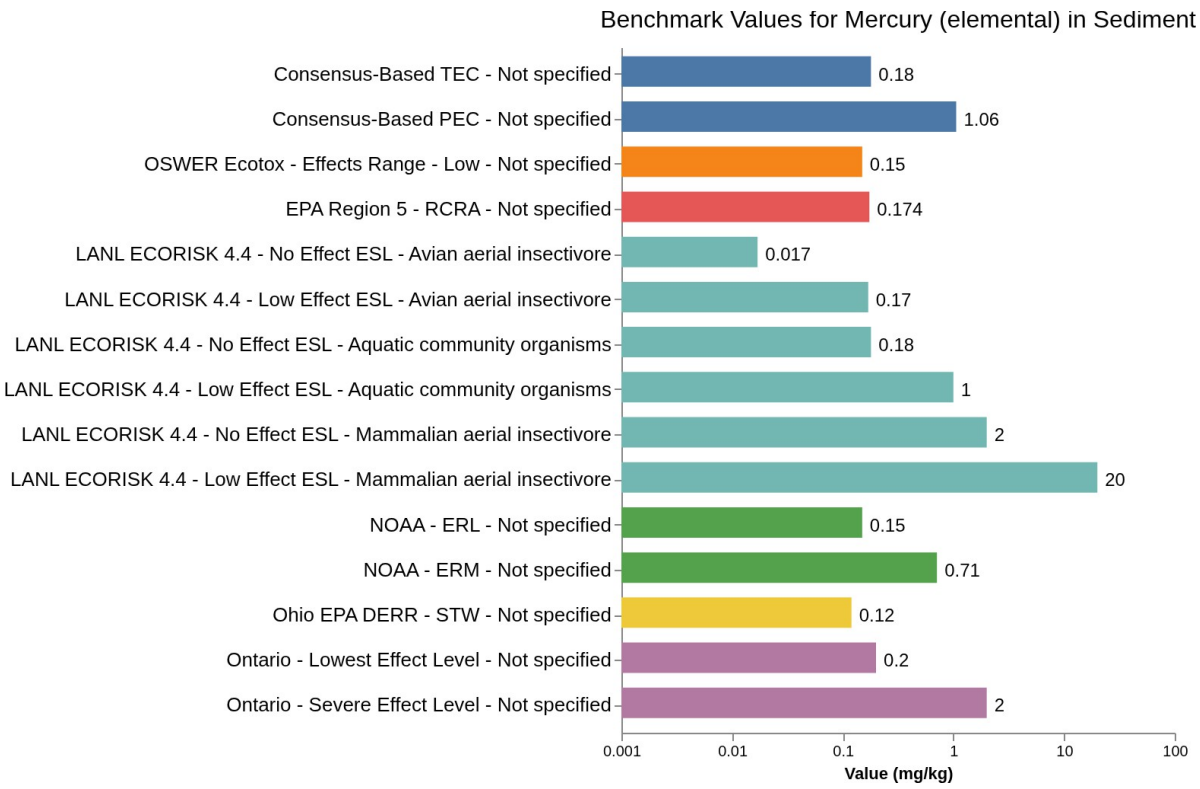

Benchmark Values for Mercury (elemental) in Sediment
Consensus-Based TEC - Not specified
0.18
Consensus-Based PEC - Not specified
1.06
OSWER Ecotox - Effects Range - Low - Not specified
0.15
EPA Region 5 - RCRA - Not specified
0.174
LANL ECORISK 4.4 - No Effect ESL - Avian aerial insectivore
0.017
LANL ECORISK 4.4 - Low Effect ESL - Avian aerial insectivore
0.17
LANL ECORISK 4.4 - No Effect ESL - Aquatic community organisms
0.18
LANL ECORISK 4.4 - Low Effect ESL - Aquatic community organisms
1
LANL ECORISK 4.4 - No Effect ESL - Mammalian aerial insectivore
2
LANL ECORISK 4.4 - Low Effect ESL - Mammalian aerial insectivore
20
NOAA - ERL - Not specified
0.15
NOAA - ERM - Not specified
0.71
Ohio EPA DERR - STW - Not specified
0.12
Ontario - Lowest Effect Level - Not specified
0.2
Ontario - Severe Effect Level - Not specified
2
0.001
0.01
0.1
1
10
100
Value (mg/kg)

Table 180: Benchmark Values for Methoxychlor in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
72−43−5	EPA OSWER	Sediment quality benchmarks	Not specified	0.0190
72−43−5	EPA Region 5	EPA RCRA Sediment	Not specified	0.0136
72−43−5	LANL ECORISK	Sediment No Effect ESL	Aquatic community organisms	0.0300
72−43−5	LANL ECORISK	Sediment Low Effect ESL	Aquatic community organisms	0.3000
72−43−5	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	5.7000
72−43−5	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	11.0000
72−43−5	LANL ECORISK	Sediment No Effect ESL	Avian aerial insectivore	24.0000
72−43−5	LANL ECORISK	Sediment Low Effect ESL	Avian aerial insectivore	240.0000

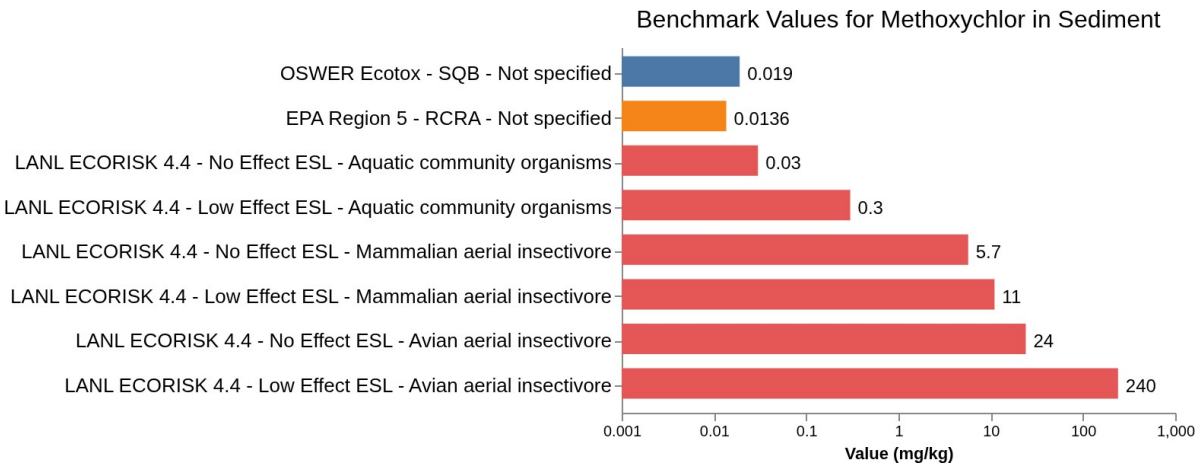


Table 181: Benchmark Values for Methyl Ethyl Ketone (2−Butanone) in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
78−93−3	EPA Region 5	EPA RCRA Sediment	Not specified	0.0424
78−93−3	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	3000.0000
78−93−3	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	7800.0000

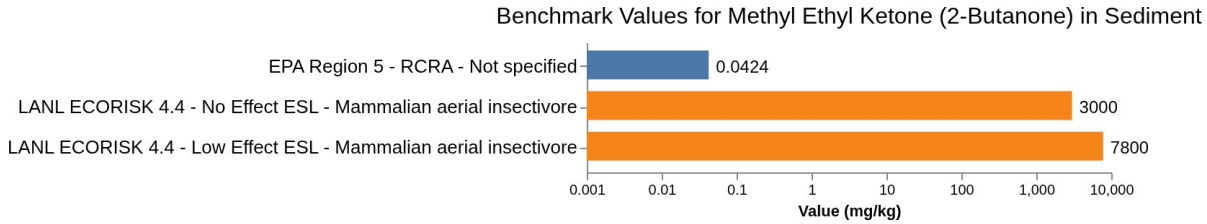


Table 182: Benchmark Values for Methyl Isobutyl Ketone (4−methyl−2−pentanone) in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
108−10−1	EPA Region 5	EPA RCRA Sediment	Not specified	0.0251
108−10−1	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	17.0000
108−10−1	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	170.0000

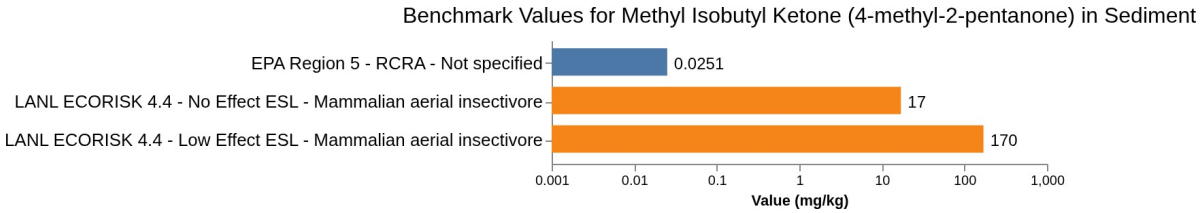


Table 183: Benchmark Values for Methyl Mercury in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
22967−92−6	EPA Region 5	EPA RCRA Sediment	Not specified	0.00001
22967−92−6	LANL ECORISK	Sediment No Effect ESL	Avian aerial insectivore	0.00045
22967−92−6	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	0.00350
22967−92−6	LANL ECORISK	Sediment Low Effect ESL	Avian aerial insectivore	0.00450
22967−92−6	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	0.01700

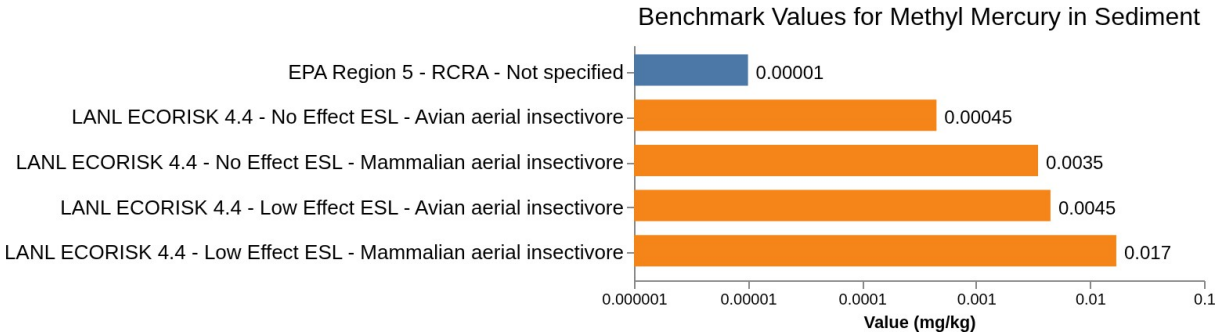


Table 184: Benchmark Values for Methyl Methacrylate in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
80−62−6	EPA Region 5	EPA RCRA Sediment	Not specified	0.168

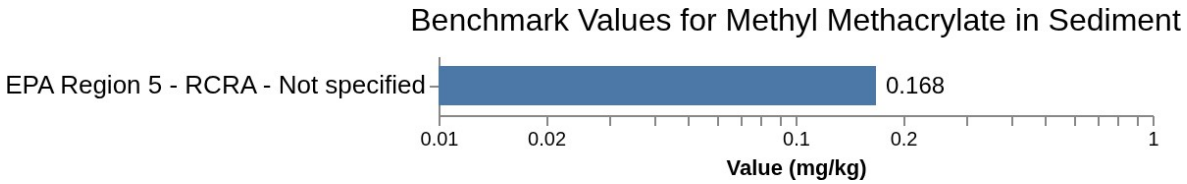


Table 185: Benchmark Values for Methylanthracene, 1− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
610−48−0	EPA ESBs	Effect Concentration of PAH	Not specified	667.0

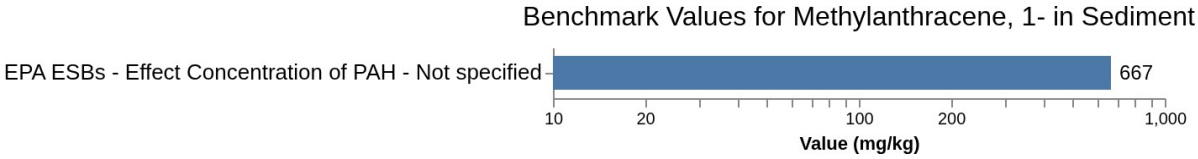


Table 186: Benchmark Values for Methylanthracene, 2− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
613−12−7	EPA ESBs	Effect Concentration of PAH	Not specified	667.0
613−12−7	EPA ESBs	Maximum Solubility Limited PAH Concentration	Not specified	2420.0

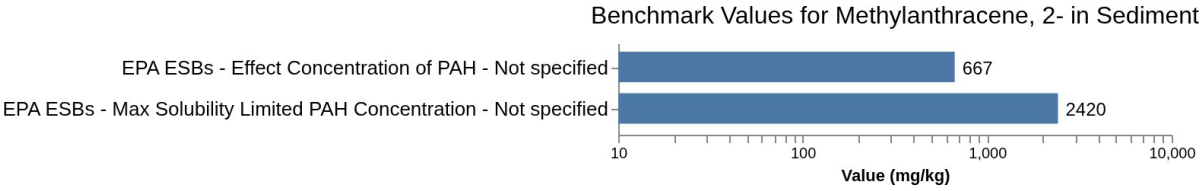


Table 187: Benchmark Values for Methylanthracene, 9− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
779−02−2	EPA ESBs	Effect Concentration of PAH	Not specified	668.0
779−02−2	EPA ESBs	Maximum Solubility Limited PAH Concentration	Not specified	21775.0

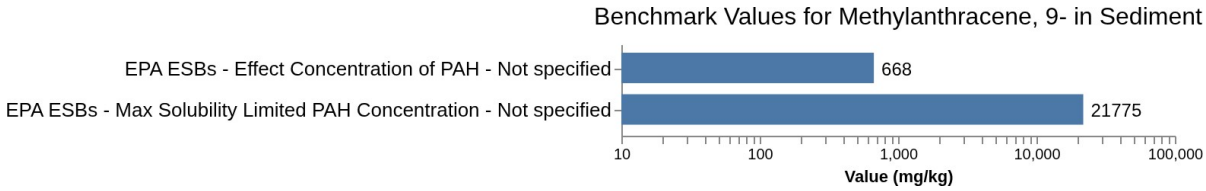


Table 188: Benchmark Values for Methylbenzo[a]pyrene, 7− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
63041−77−0	EPA ESBs	Effect Concentration of PAH	Not specified	1058.0

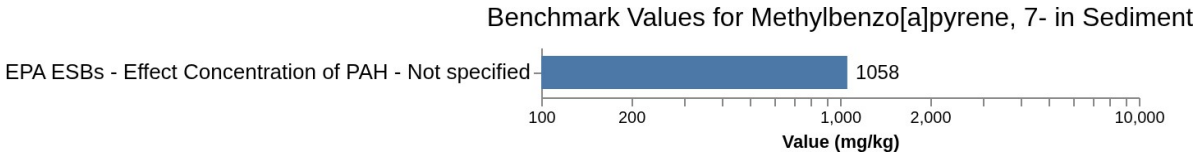


Table 189: Benchmark Values for Methylcholanthrene, 3− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
56−49−5	EPA Region 5	EPA RCRA Sediment	Not specified	8190.0

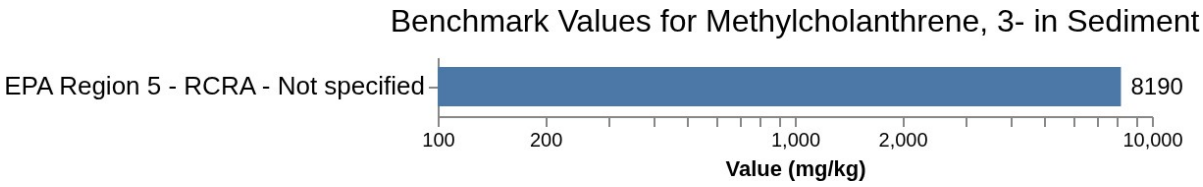


Table 190: Benchmark Values for Methylene Chloride in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
75−09−2	EPA Region 5	EPA RCRA Sediment	Not specified	0.159
75−09−2	LANL ECORISK	Sediment No Effect ESL	Aquatic community organisms	0.018
75−09−2	LANL ECORISK	Sediment Low Effect ESL	Aquatic community organisms	0.180
75−09−2	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	10.000
75−09−2	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	88.000

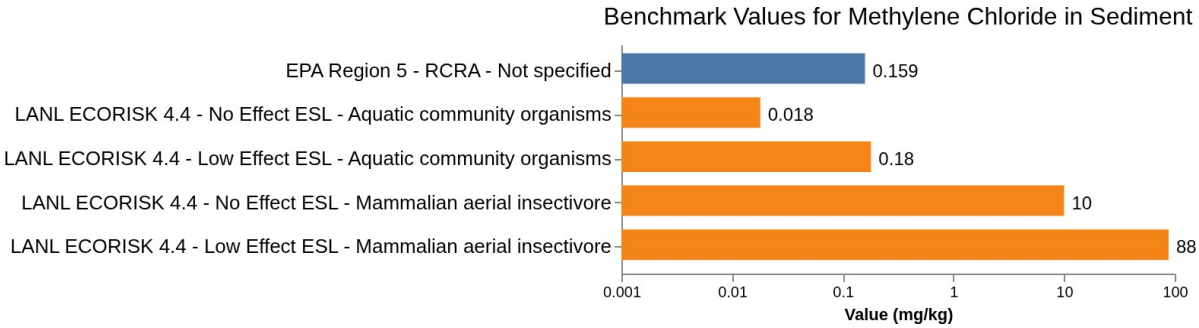


Table 191: Benchmark Values for Methylfluorene, 1− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
1730−37−6	EPA ESBs	Effect Concentration of PAH	Not specified	612.0
1730−37−6	EPA ESBs	Maximum Solubility Limited PAH Concentration	Not specified	49700.0

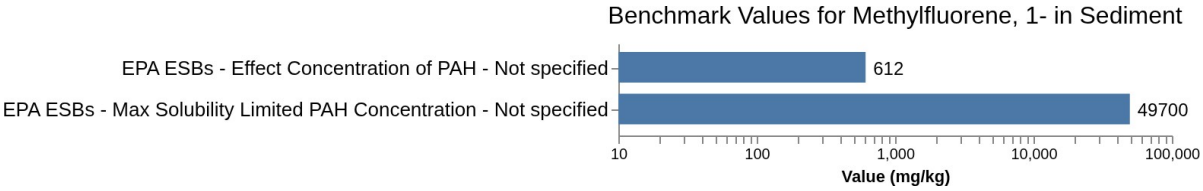


Table 192: Benchmark Values for Methylnaphthalene, 1− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
90−12−0	EPA ESBs	Effect Concentration of PAH	Not specified	446.0
90−12−0	EPA ESBs	Maximum Solubility Limited PAH Concentration	Not specified	165700.0

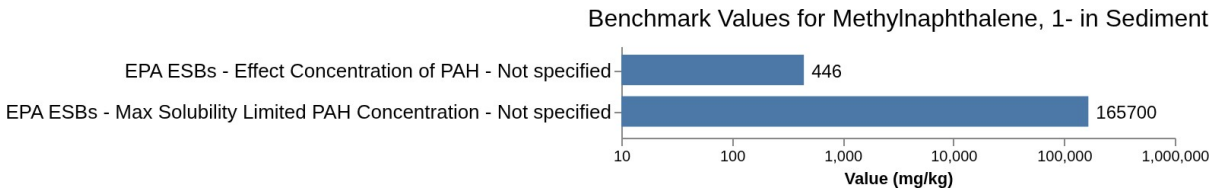


Table 193: Benchmark Values for Methylnaphthalene, 2− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
91−57−6	EPA ESBs	Effect Concentration of PAH	Not specified	447.0000
91−57−6	EPA ESBs	Maximum Solubility Limited PAH Concentration	Not specified	154800.0000
91−57−6	EPA Region 5	EPA RCRA Sediment	Not specified	0.0202
91−57−6	LANL ECORISK	Sediment No Effect ESL	Aquatic community organisms	0.0760
91−57−6	LANL ECORISK	Sediment Low Effect ESL	Aquatic community organisms	0.7600
91−57−6	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	18.0000
91−57−6	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	180.0000
91−57−6	NOAA	Effects Range−Low	Not specified	0.0700
91−57−6	NOAA	Effects Range−Median	Not specified	0.6700

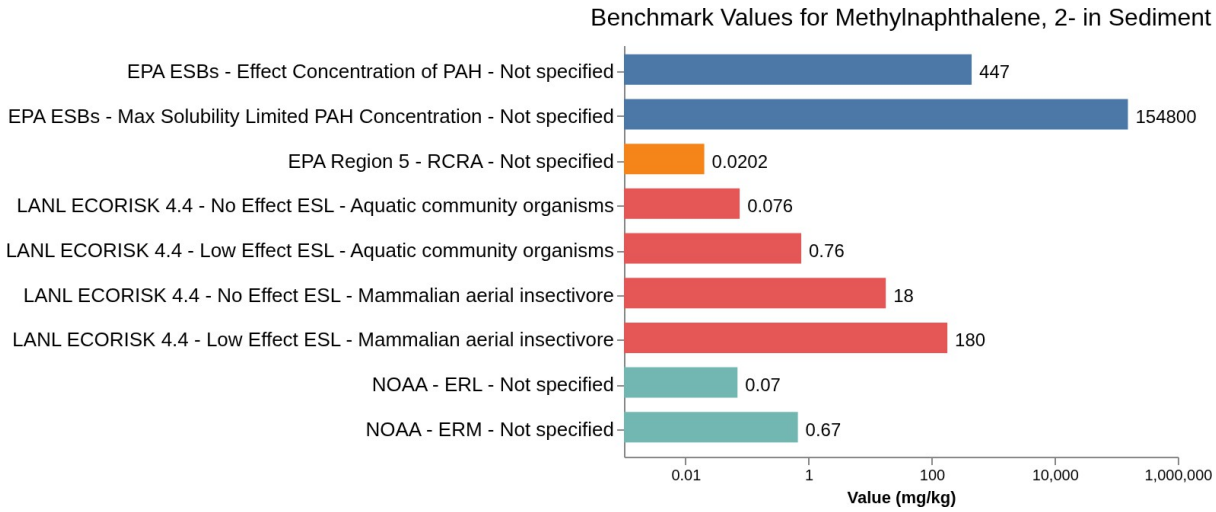


Table 194: Benchmark Values for Methylphenanthrene, 1− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
832−69−9	EPA ESBs	Effect Concentration of PAH	Not specified	670.0
832−69−9	EPA ESBs	Maximum Solubility Limited PAH Concentration	Not specified	24100.0
832−69−9	EPA Region 4	Sediment RSV for PAHs	Not specified	6.7

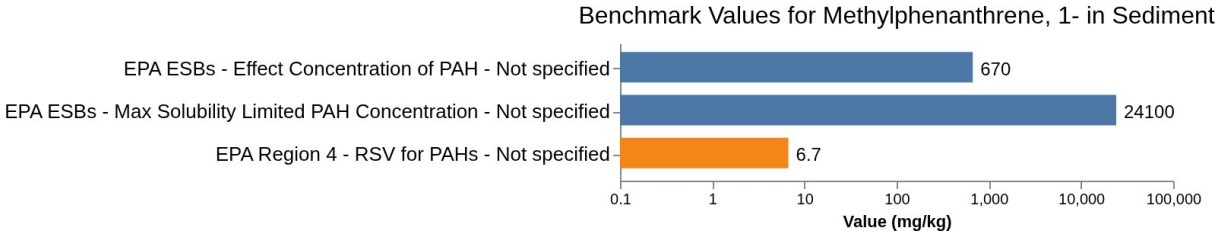


Table 195: Benchmark Values for Methylphenanthrene, 2− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
2531−84−2	EPA ESBs	Effect Concentration of PAH	Not specified	669.0

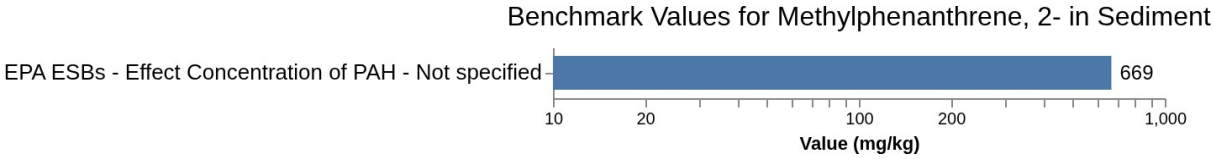


Table 196: Benchmark Values for Mirex in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)	Footnotes
2385−85−5	New York DEC	Wildlife Sediment	Not specified	0.0093	
2385−85−5	Ontario	Sediment Lowest Effect Level	Not specified	0.0070	
2385−85−5	Ontario	Sediment Severe Effect Level	Not specified	13.0000	33

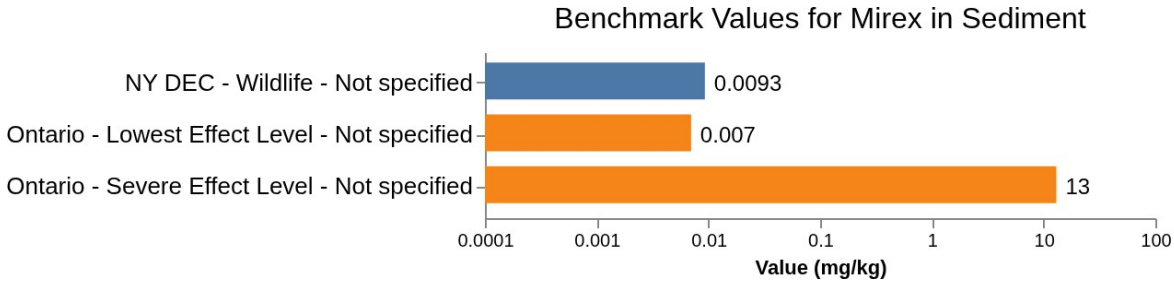


Table 197: Benchmark Values for Molybdenum in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
7439−98−7	LANL ECORISK	Sediment No Effect ESL	Avian aerial insectivore	26.0
7439−98−7	LANL ECORISK	Sediment Low Effect ESL	Avian aerial insectivore	260.0

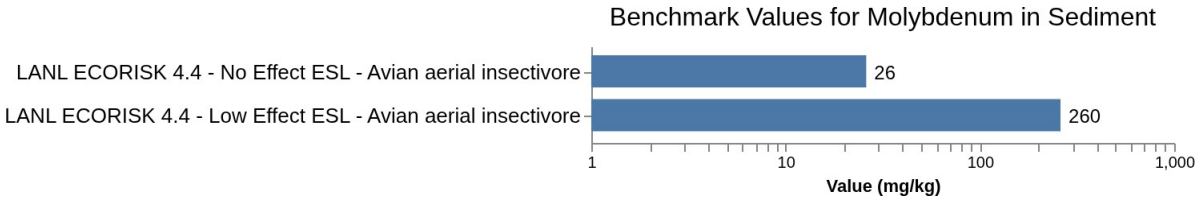


Table 198: Benchmark Values for Naphthacene in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
92−24−0	EPA ESBs	Maximum Solubility Limited PAH Concentration	Not specified	207.0
92−24−0	EPA ESBs	Effect Concentration of PAH	Not specified	838.0

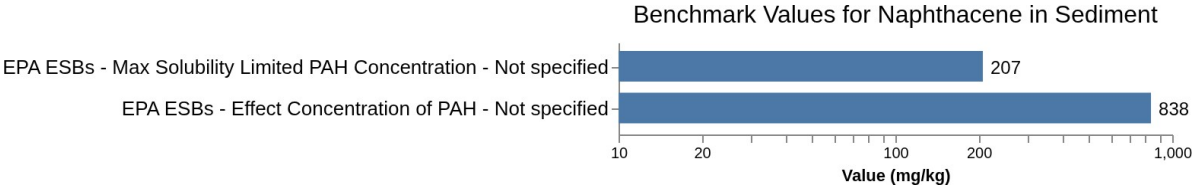


Table 199: Benchmark Values for Naphthalene in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
91−20−3	Consensus−Based	Consensus−Based TEC	Not specified	0.17600
91−20−3	Consensus−Based	Consensus−Based PEC	Not specified	0.56100
91−20−3	EPA − ARCS	Sediment TEC	Not specified	0.03275
91−20−3	EPA − ARCS	Sediment NEC	Not specified	0.29000
91−20−3	EPA − ARCS	Sediment PEC	Not specified	0.68739
91−20−3	EPA ESBs	Effect Concentration of PAH	Not specified	385.00000
91−20−3	EPA ESBs	Maximum Solubility Limited PAH Concentration	Not specified	61700.00000
91−20−3	EPA OSWER	Effects Range − Low	Not specified	0.16000
91−20−3	EPA OSWER	Sediment quality benchmarks	Not specified	0.48000
91−20−3	EPA Region 5	EPA RCRA Sediment	Not specified	0.17600
91−20−3	LANL ECORISK	Sediment No Effect ESL	Aquatic community organisms	0.17000
91−20−3	LANL ECORISK	Sediment Low Effect ESL	Aquatic community organisms	0.56000
91−20−3	LANL ECORISK	Sediment No Effect ESL	Avian aerial insectivore	21.00000
91−20−3	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	31.00000
91−20−3	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	89.00000
91−20−3	LANL ECORISK	Sediment Low Effect ESL	Avian aerial insectivore	210.00000
91−20−3	NOAA	Effects Range−Low	Not specified	0.16000
91−20−3	NOAA	Effects Range−Median	Not specified	2.10000

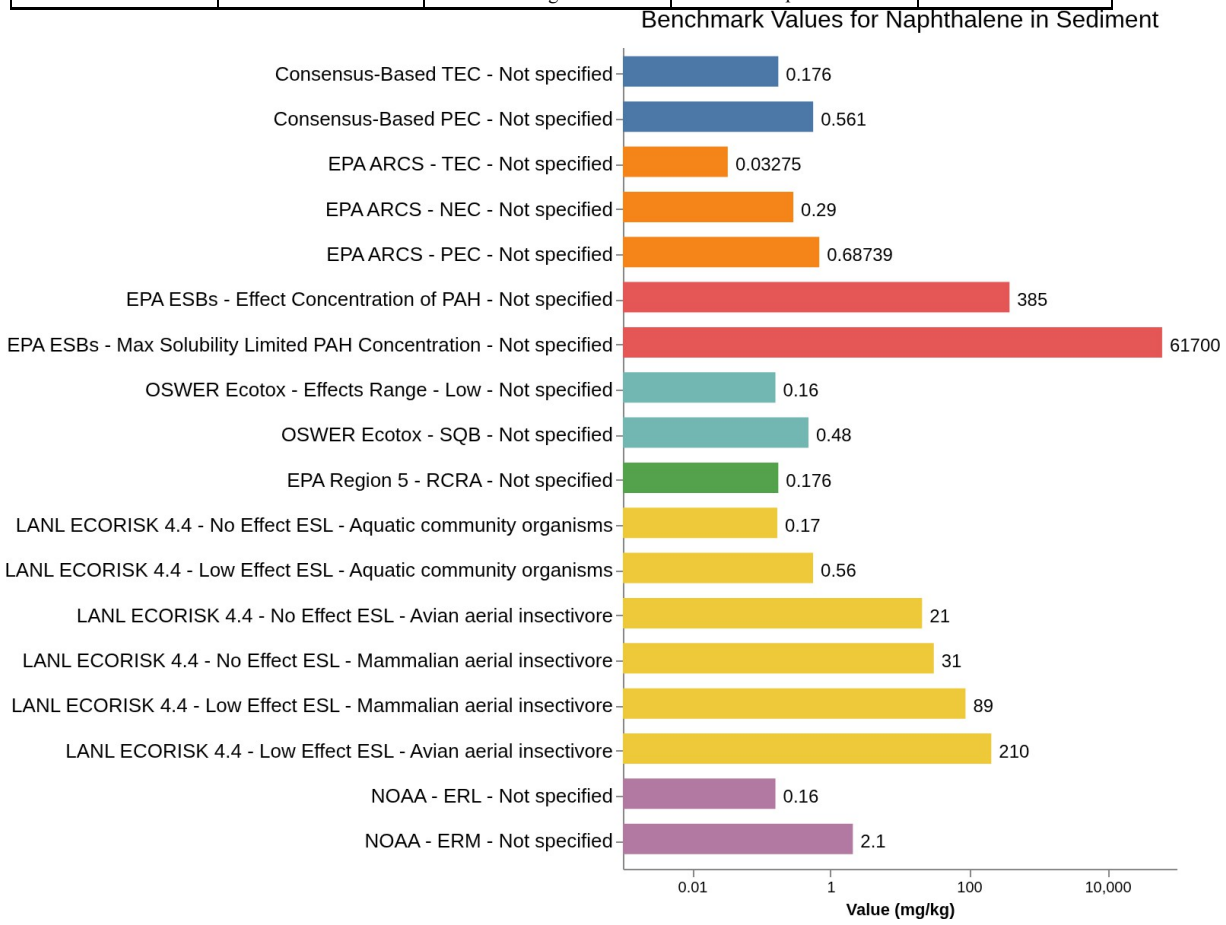


Table 200: Benchmark Values for Naphthalenes, C1− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
000000−12−4	EPA ESBs	Effect Concentration of PAH	Not specified	444.00
000000−12−4	EPA Region 4	Sediment RSV for PAHs	Not specified	4.94

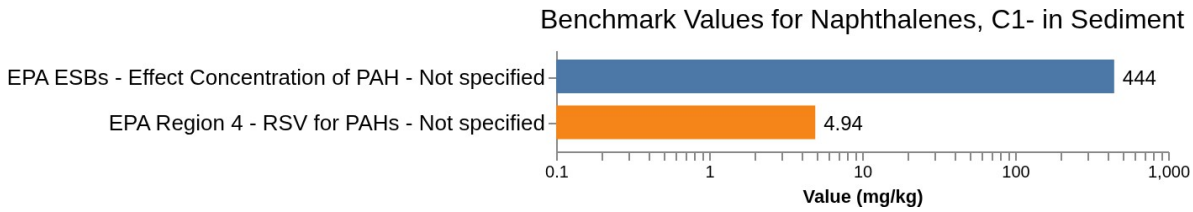


Table 201: Benchmark Values for Naphthalenes, C2− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
000000−12−5	EPA ESBs	Effect Concentration of PAH	Not specified	510.0
000000−12−5	EPA Region 4	Sediment RSV for PAHs	Not specified	5.1

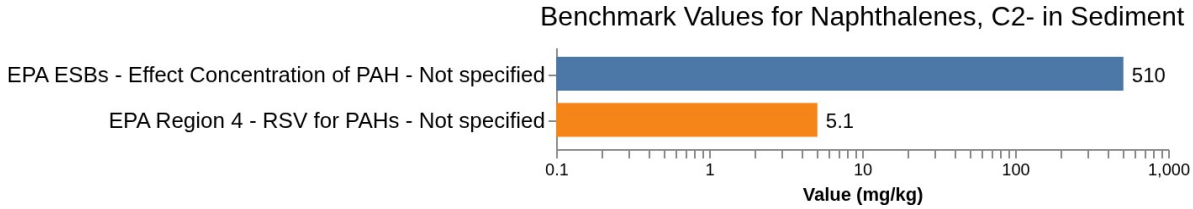


Table 202: Benchmark Values for Naphthalenes, C3− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
000000−12−6	EPA ESBs	Effect Concentration of PAH	Not specified	581.00
000000−12−6	EPA Region 4	Sediment RSV for PAHs	Not specified	5.81

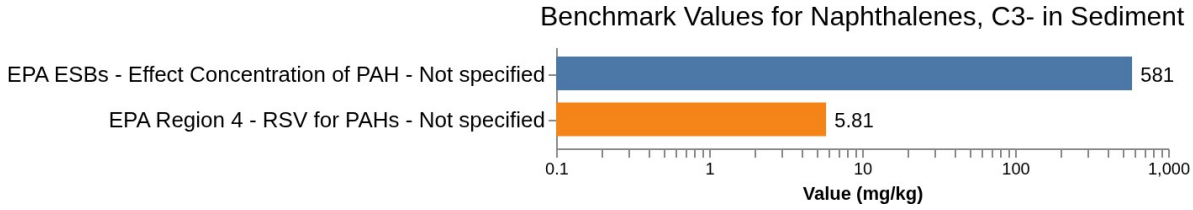


Table 203: Benchmark Values for Naphthalenes, C4− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
000000−12−7	EPA ESBs	Effect Concentration of PAH	Not specified	657.00
000000−12−7	EPA Region 4	Sediment RSV for PAHs	Not specified	6.57

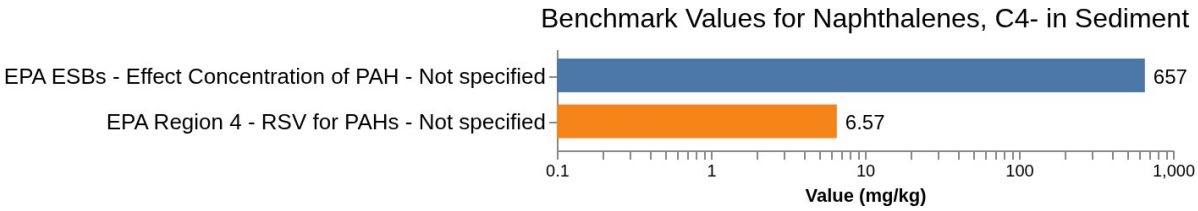


Table 204: Benchmark Values for Naphthothiophene in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
233−02−3	EPA Region 4	Sediment RSV for PAHs	Not specified	5.95

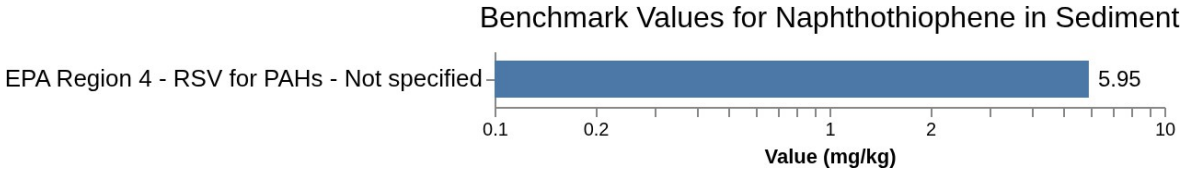


Table 205: Benchmark Values for Nickel Soluble Salts in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)	Footnotes
7440−02−0	Consensus−Based	Consensus−Based TEC	Not specified	22.7	
7440−02−0	Consensus−Based	Consensus−Based PEC	Not specified	48.6	
7440−02−0	EPA − ARCS	Sediment NEC	Not specified	37.9	
7440−02−0	EPA − ARCS	Sediment PEC	Not specified	38.5	
7440−02−0	EPA − ARCS	Sediment TEC	Not specified	39.6	
7440−02−0	EPA OSWER	Effects Range − Low	Not specified	21.0	
7440−02−0	EPA Region 5	EPA RCRA Sediment	Not specified	22.7	
7440−02−0	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	12.0	
7440−02−0	LANL ECORISK	Sediment No Effect ESL	Aquatic community organisms	22.0	
7440−02−0	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	24.0	
7440−02−0	LANL ECORISK	Sediment No Effect ESL	Avian aerial insectivore	31.0	
7440−02−0	LANL ECORISK	Sediment Low Effect ESL	Aquatic community organisms	48.0	
7440−02−0	LANL ECORISK	Sediment Low Effect ESL	Avian aerial insectivore	310.0	
7440−02−0	NOAA	Effects Range−Low	Not specified	20.9	32
7440−02−0	NOAA	Effects Range−Median	Not specified	51.6	32
7440−02−0	Ohio	Erie/Ontario Lake Plain	Not specified	33.0	
7440−02−0	Ohio	Interior Plateau	Not specified	33.0	
7440−02−0	Ohio	Huron Erie Lake Plain	Not specified	36.0	
7440−02−0	Ohio	Eastern Corn Belt Plains	Not specified	42.0	
7440−02−0	Ohio	Western Allegheny Plateau	Not specified	61.0	
7440−02−0	Ontario	Sediment Lowest Effect Level	Not specified	16.0	
7440−02−0	Ontario	Sediment Severe Effect Level	Not specified	75.0	

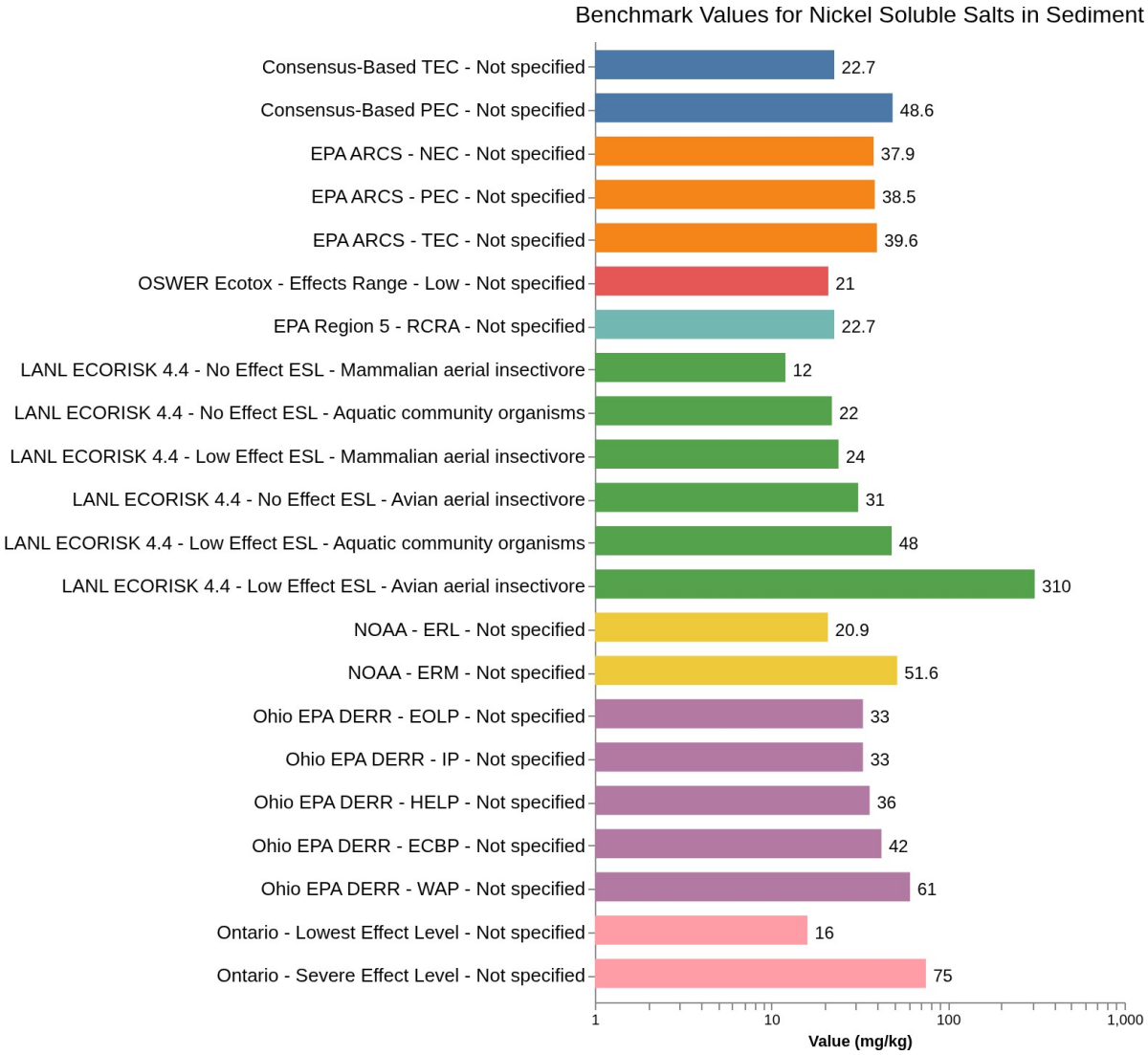


Table 206: Benchmark Values for Nitroaniline, 2− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
88−74−4	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	7.3
88−74−4	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	14.0

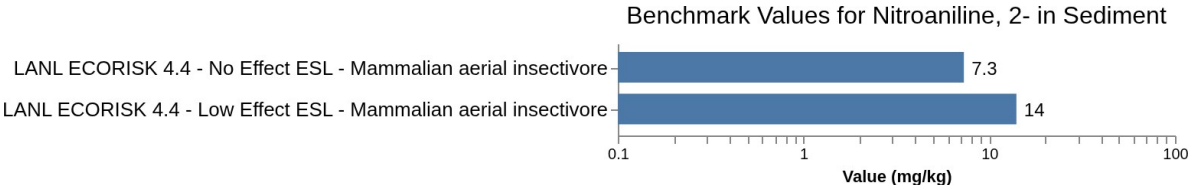


Table 207: Benchmark Values for Nitrobenzene in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
98−95−3	EPA Region 5	EPA RCRA Sediment	Not specified	0.145
98−95−3	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	24.000
98−95−3	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	240.000

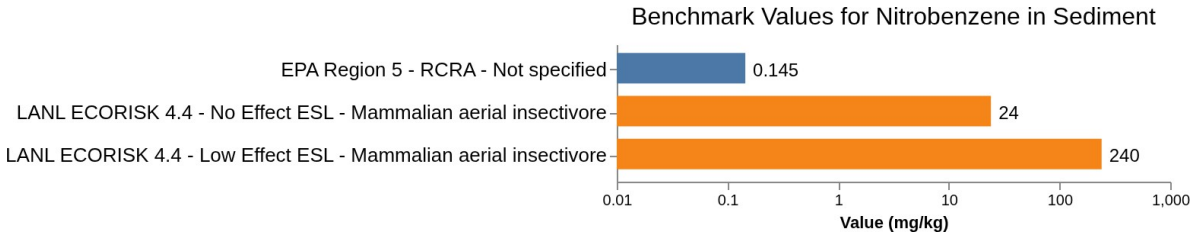


Table 208: Benchmark Values for Nitroglycerin in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
55−63−0	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	1500.0
55−63−0	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	16000.0

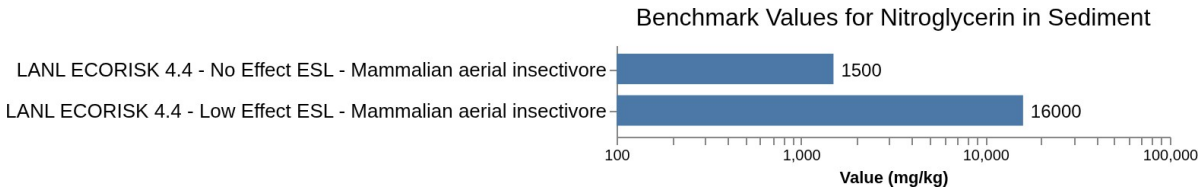


Table 209: Benchmark Values for Nitrophenol, 4− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
100−02−7	EPA Region 5	EPA RCRA Sediment	Not specified	0.0133

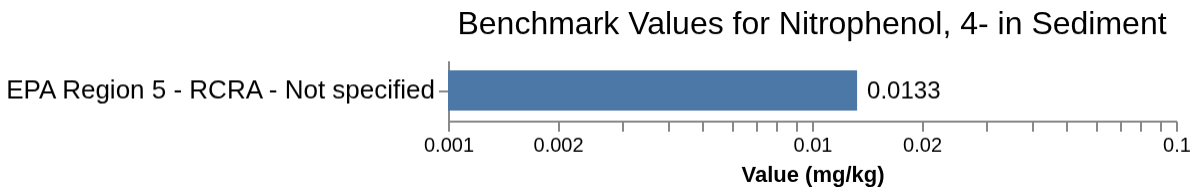


Table 210: Benchmark Values for Nitrosodiethylamine, N− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
55−18−5	EPA Region 5	EPA RCRA Sediment	Not specified	0.0228

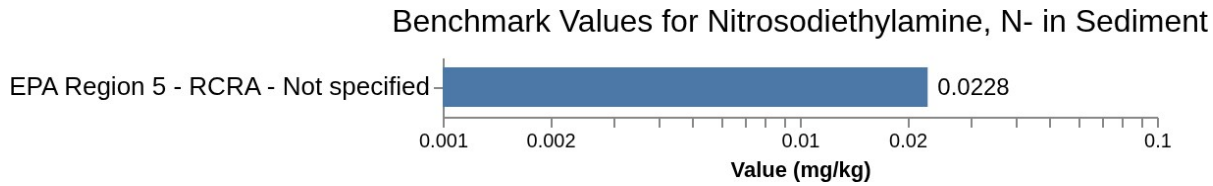


Table 211: Benchmark Values for Nitrotoluene, m− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
99−08−1	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	21.0
99−08−1	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	210.0

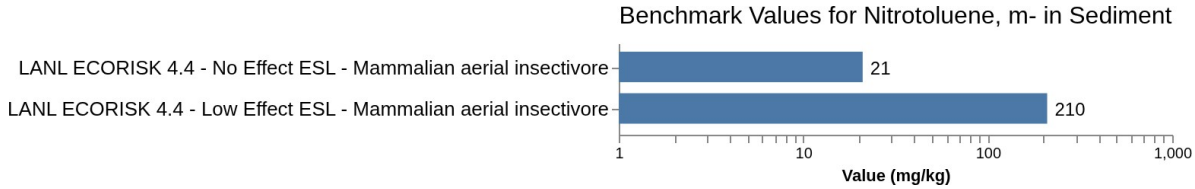


Table 212: Benchmark Values for Nitrotoluene, o− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
88−72−2	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	25.0
88−72−2	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	250.0

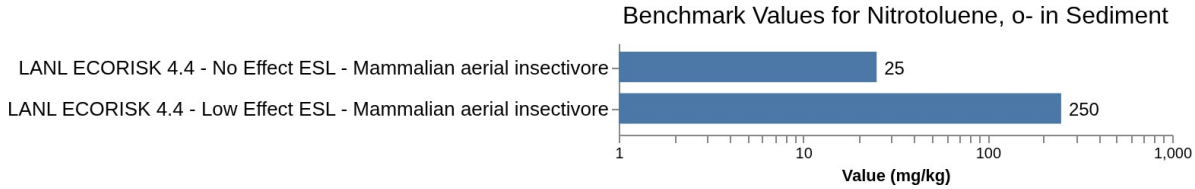


Table 213: Benchmark Values for Nitrotoluene, p− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
99−99−0	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	46.0
99−99−0	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	460.0

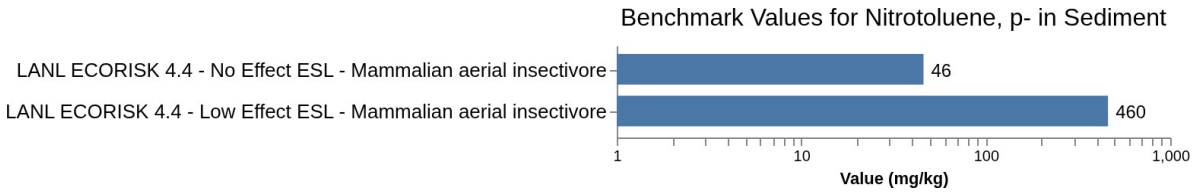


Table 214: Benchmark Values for Octachlorostyrene in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
29082−74−4	New York DEC	Wildlife Sediment	Not specified	0.00037

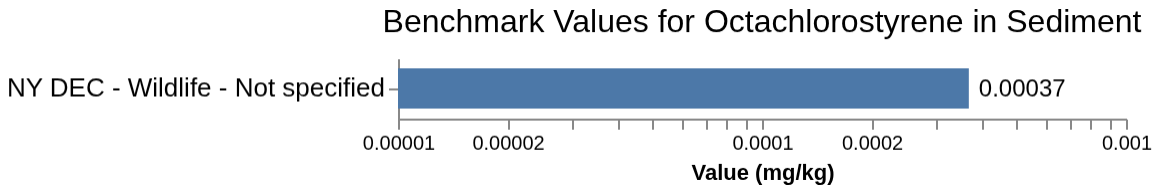


Table 215: Benchmark Values for Octahydro−1,3,5,7−tetranitro−1,3,5,7−tetrazocine (HMX) in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
2691−41−0	LANL ECORISK	Sediment No Effect ESL	Aquatic community organisms	130.0
2691−41−0	LANL ECORISK	Sediment Low Effect ESL	Aquatic community organisms	170.0
2691−41−0	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	1300.0
2691−41−0	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	3500.0

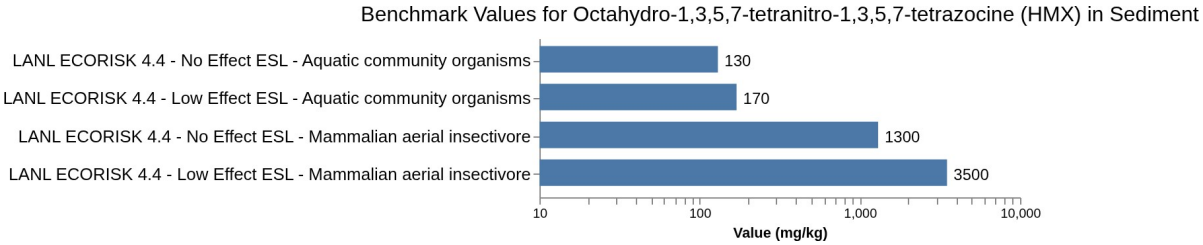


Table 216: Benchmark Values for Octyl Phthalate, di−N− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
117−84−0	EPA Region 5	EPA RCRA Sediment	Not specified	40.6
117−84−0	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	1.0
117−84−0	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	10.0

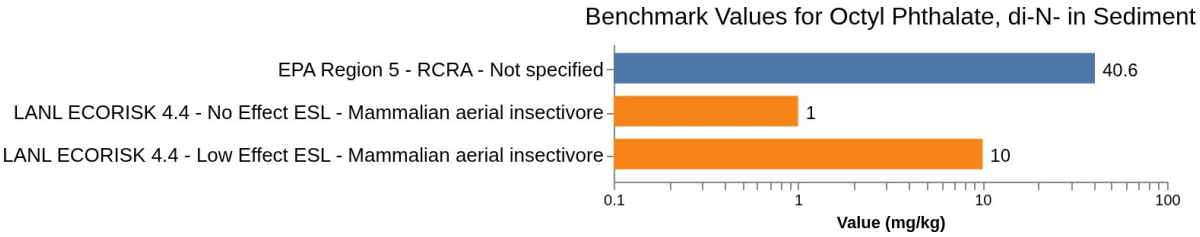


Table 217: Benchmark Values for Parathion in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
56−38−2	EPA Region 5	EPA RCRA Sediment	Not specified	0.000757

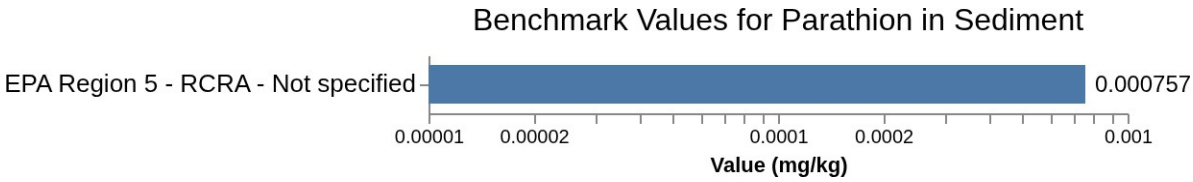


Table 218: Benchmark Values for PeCDD, 2,3,7,8− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
36088−22−9	EPA Region 5	EPA RCRA Sediment	Not specified	0.000011

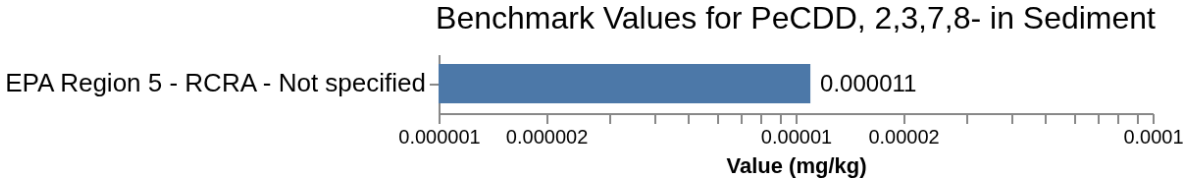


Table 219: Benchmark Values for Pentachlorobenzene in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
608−93−5	EPA OSWER	Sediment quality benchmarks	Not specified	0.690
608−93−5	EPA Region 5	EPA RCRA Sediment	Not specified	0.024

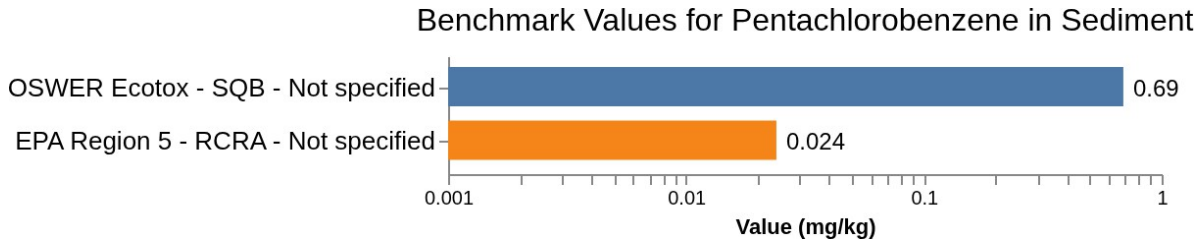


Table 220: Benchmark Values for Pentachloroethane in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
76−01−7	EPA Region 5	EPA RCRA Sediment	Not specified	0.689

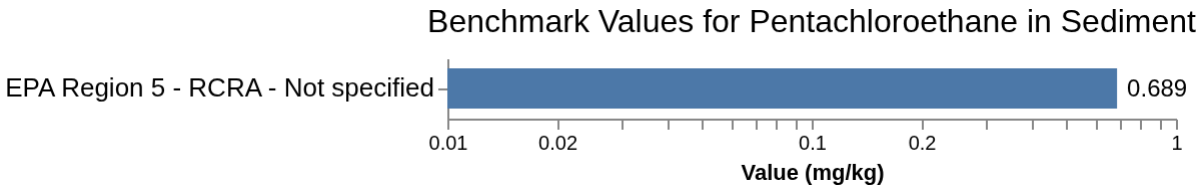


Table 221: Benchmark Values for Pentachloronitrobenzene in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
82−68−8	LANL ECORISK	Sediment No Effect ESL	Avian aerial insectivore	0.9
82−68−8	LANL ECORISK	Sediment No Effect ESL	Aquatic community organisms	3.6
82−68−8	LANL ECORISK	Sediment Low Effect ESL	Avian aerial insectivore	9.0
82−68−8	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	12.0
82−68−8	LANL ECORISK	Sediment Low Effect ESL	Aquatic community organisms	36.0
82−68−8	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	120.0

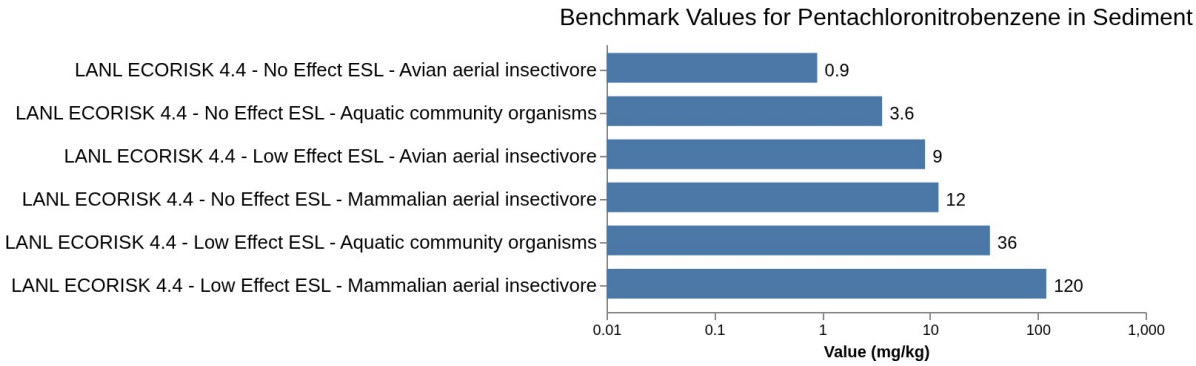


Table 222: Benchmark Values for Pentachlorophenol in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
87−86−5	EPA Region 5	EPA RCRA Sediment	Not specified	23.00
87−86−5	LANL ECORISK	Sediment No Effect ESL	Aquatic community organisms	0.01
87−86−5	LANL ECORISK	Sediment Low Effect ESL	Aquatic community organisms	0.10
87−86−5	LANL ECORISK	Sediment No Effect ESL	Avian aerial insectivore	0.47
87−86−5	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	0.90
87−86−5	LANL ECORISK	Sediment Low Effect ESL	Avian aerial insectivore	4.70
87−86−5	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	9.00
87−86−5	New York DEC	Wildlife Sediment	Not specified	0.13

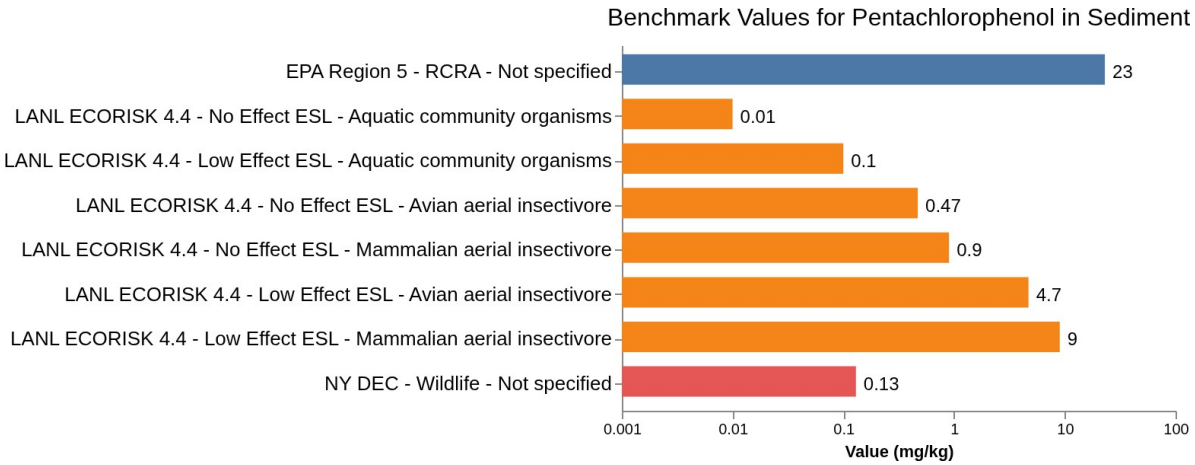


Table 223: Benchmark Values for Pentaerythritol tetranitrate (PETN) in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
78−11−5	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	1300.0
78−11−5	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	13000.0

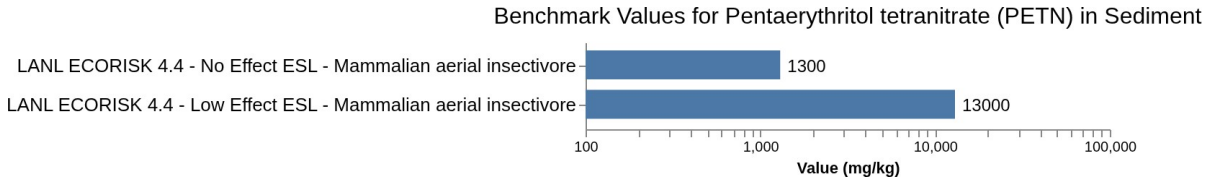


Table 224: Benchmark Values for Perfluorobutanesulfonic acid (PFBS) in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
375−73−5	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	9.0
375−73−5	LANL ECORISK	Sediment No Effect ESL	Avian aerial insectivore	10.0
375−73−5	LANL ECORISK	Sediment Low Effect ESL	Avian aerial insectivore	18.0
375−73−5	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	36.0

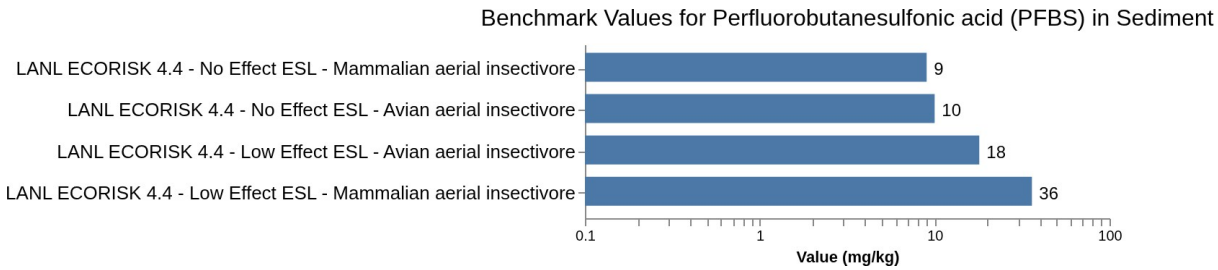


Table 225: Benchmark Values for Perfluorobutanoic acid (PFBA) in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
375−22−4	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	57.0
375−22−4	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	130.0

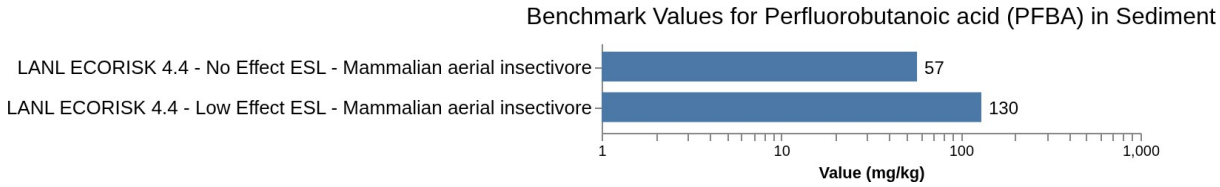


Table 226: Benchmark Values for Perfluorohexanoic acid (PFHxA) in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
307−24−4	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	240.0
307−24−4	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	510.0

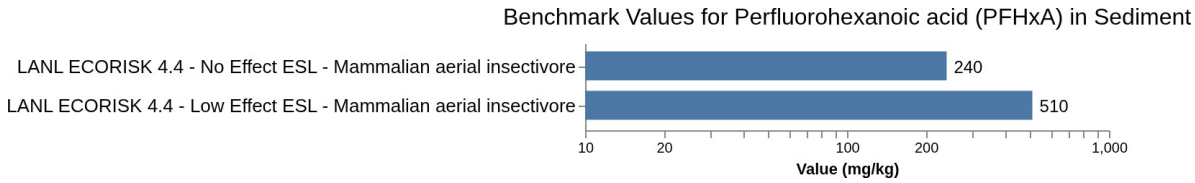


Table 227: Benchmark Values for Perfluorononanoic acid (PFNA) in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
375−95−1	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	1.0
375−95−1	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	1.3

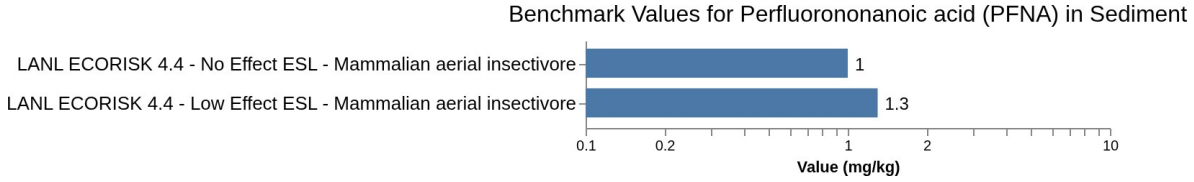


Table 228: Benchmark Values for Perfluorooctanesulfonic acid (PFOS) in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
1763−23−1	LANL ECORISK	Sediment No Effect ESL	Avian aerial insectivore	0.015
1763−23−1	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	0.029
1763−23−1	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	0.048
1763−23−1	LANL ECORISK	Sediment Low Effect ESL	Avian aerial insectivore	0.150

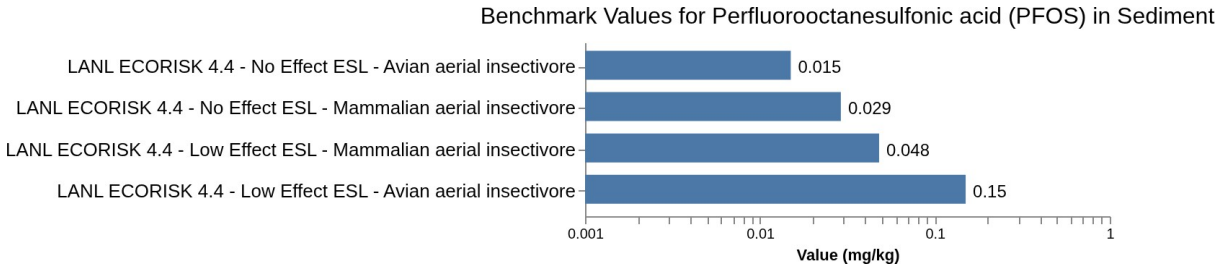


Table 229: Benchmark Values for Perfluorooctanoic acid (PFOA) in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
335−67−1	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	0.83
335−67−1	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	1.60

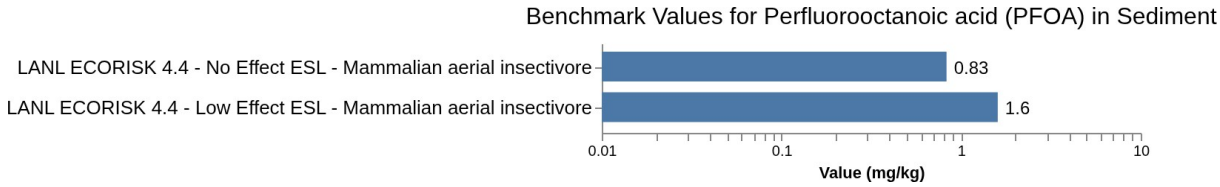


Table 230: Benchmark Values for Perylene in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
198−55−0	EPA ESBs	Maximum Solubility Limited PAH Concentration	Not specified	431.00
198−55−0	EPA ESBs	Effect Concentration of PAH	Not specified	967.00
198−55−0	EPA Region 4	Sediment RSV for PAHs	Not specified	9.68

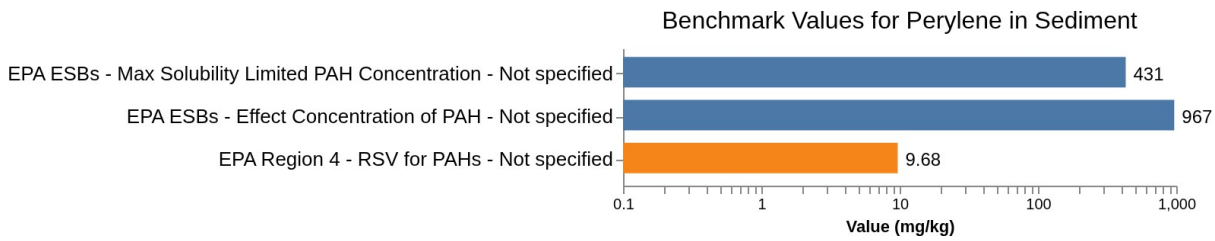


Table 231: Benchmark Values for Phenanthrene in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)	Footnotes
85−01−8	Consensus−Based	Consensus−Based TEC	Not specified	0.204	
85−01−8	Consensus−Based	Consensus−Based PEC	Not specified	1.170	
85−01−8	EPA ESBs	Effect Concentration of PAH	Not specified	596.000	
85−01−8	EPA ESBs	Maximum Solubility Limited PAH Concentration	Not specified	34300.000	
85−01−8	EPA OSWER	Effects Range − Low	Not specified	0.240	
85−01−8	EPA Region 5	EPA RCRA Sediment	Not specified	0.204	
85−01−8	LANL ECORISK	Sediment No Effect ESL	Aquatic community organisms	0.200	
85−01−8	LANL ECORISK	Sediment Low Effect ESL	Aquatic community organisms	1.100	
85−01−8	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	12.000	
85−01−8	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	120.000	
85−01−8	NOAA	Effects Range−Median	Not specified	1.500	32
85−01−8	Ontario	Sediment Lowest Effect Level	Not specified	0.560	
85−01−8	Ontario	Sediment Severe Effect Level	Not specified	95.000	33

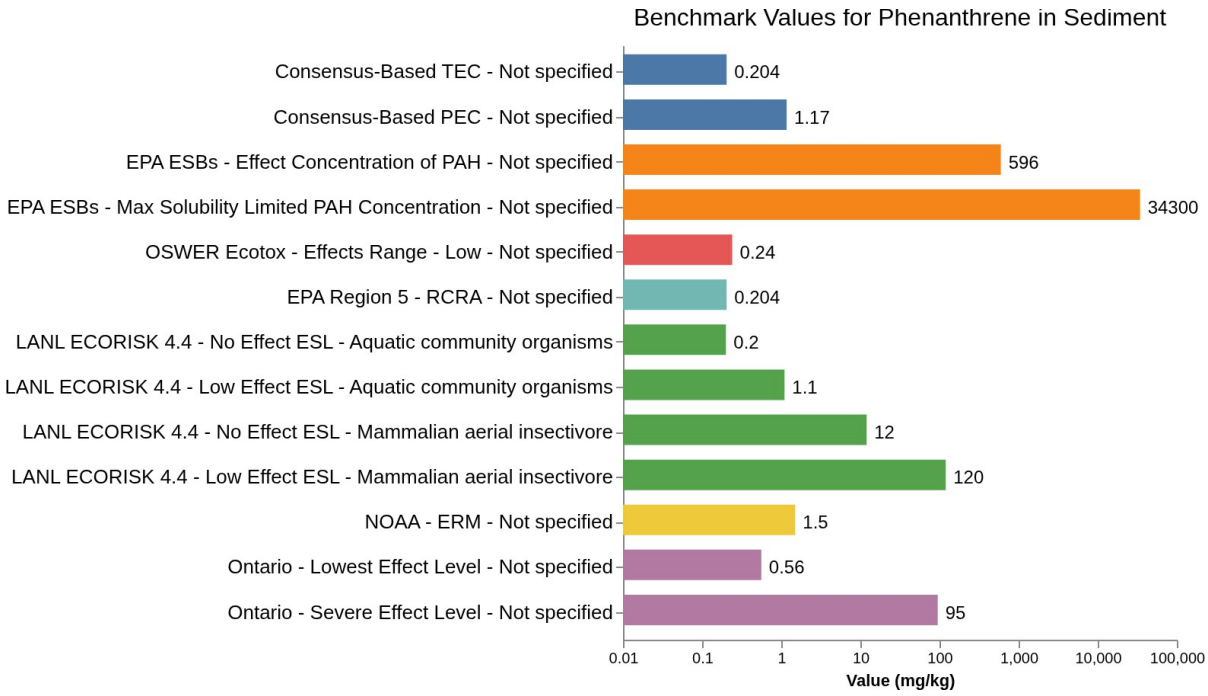


Table 232: Benchmark Values for Phenanthrene/anthracenes, C1− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
000000−13−1	EPA ESBs	Effect Concentration of PAH	Not specified	670.0
000000−13−1	EPA Region 4	Sediment RSV for PAHs	Not specified	6.7

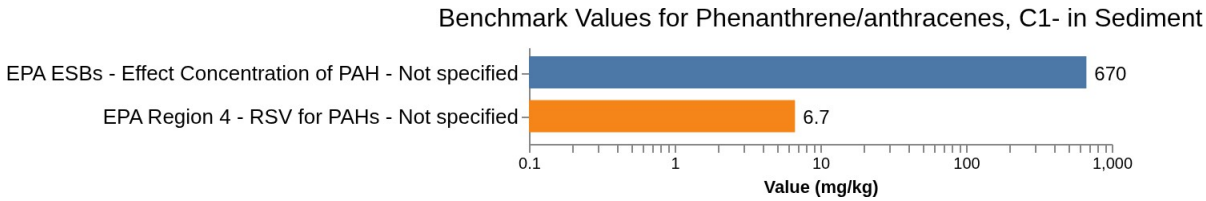


Table 233: Benchmark Values for Phenanthrene/anthracenes, C2− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
000000−13−2	EPA ESBs	Effect Concentration of PAH	Not specified	746.00
000000−13−2	EPA Region 4	Sediment RSV for PAHs	Not specified	7.46

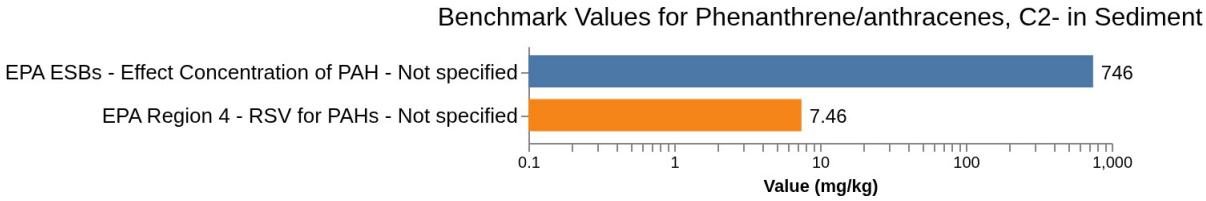


Table 234: Benchmark Values for Phenanthrene/anthracenes, C3− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
000000−13−3	EPA ESBs	Effect Concentration of PAH	Not specified	829.00
000000−13−3	EPA Region 4	Sediment RSV for PAHs	Not specified	8.29

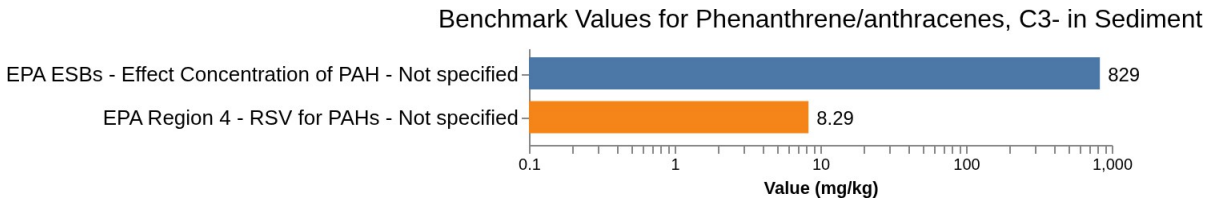


Table 235: Benchmark Values for Phenanthrene/anthracenes, C4− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
000000−13−4	EPA ESBs	Effect Concentration of PAH	Not specified	913.00
000000−13−4	EPA Region 4	Sediment RSV for PAHs	Not specified	9.13

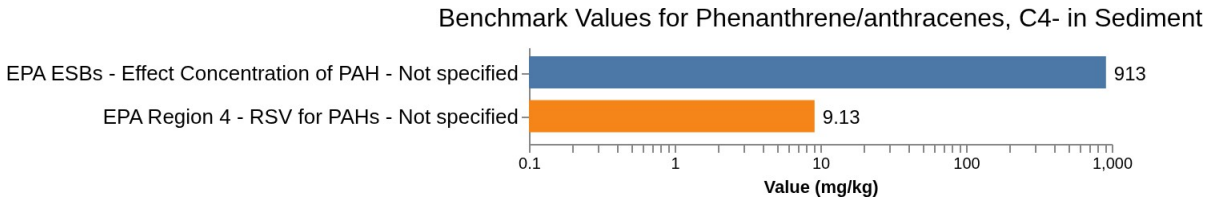


Table 236: Benchmark Values for Phenol in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
108−95−2	EPA Region 5	EPA RCRA Sediment	Not specified	0.0491
108−95−2	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	750.0000
108−95−2	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	7500.0000

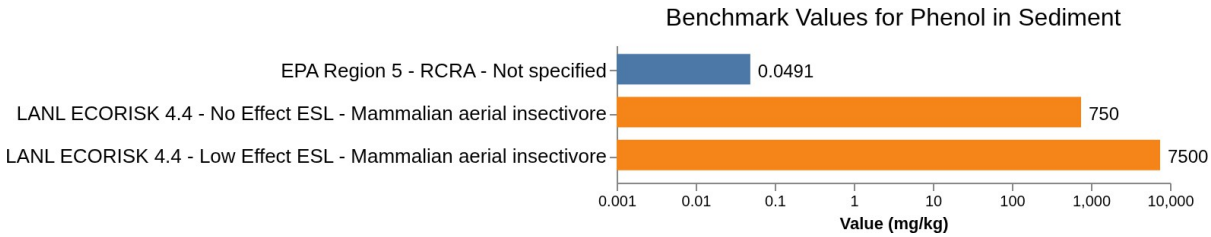


Table 237: Benchmark Values for Phorate in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
298−02−2	EPA Region 5	EPA RCRA Sediment	Not specified	0.000861

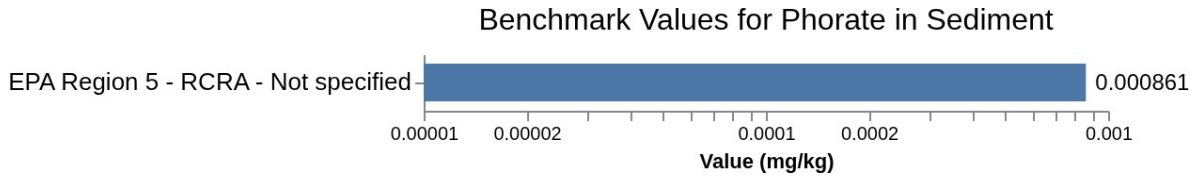


Table 238: Benchmark Values for Polychlorinated Biphenyls (high risk) in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)	Footnotes
1336−36−3	Consensus−Based	Consensus−Based TEC	Not specified	0.05980	
1336−36−3	Consensus−Based	Consensus−Based PEC	Not specified	0.67600	
1336−36−3	EPA − ARCS	Sediment TEC	Not specified	0.03162	
1336−36−3	EPA − ARCS	Sediment NEC	Not specified	0.19400	
1336−36−3	EPA − ARCS	Sediment PEC	Not specified	0.24466	
1336−36−3	EPA OSWER	Effects Range − Low	Not specified	0.02300	
1336−36−3	EPA Region 5	EPA RCRA Sediment	Not specified	0.05980	
1336−36−3	NOAA	Effects Range−Low	Not specified	0.02270	32
1336−36−3	NOAA	Effects Range−Median	Not specified	0.18000	32

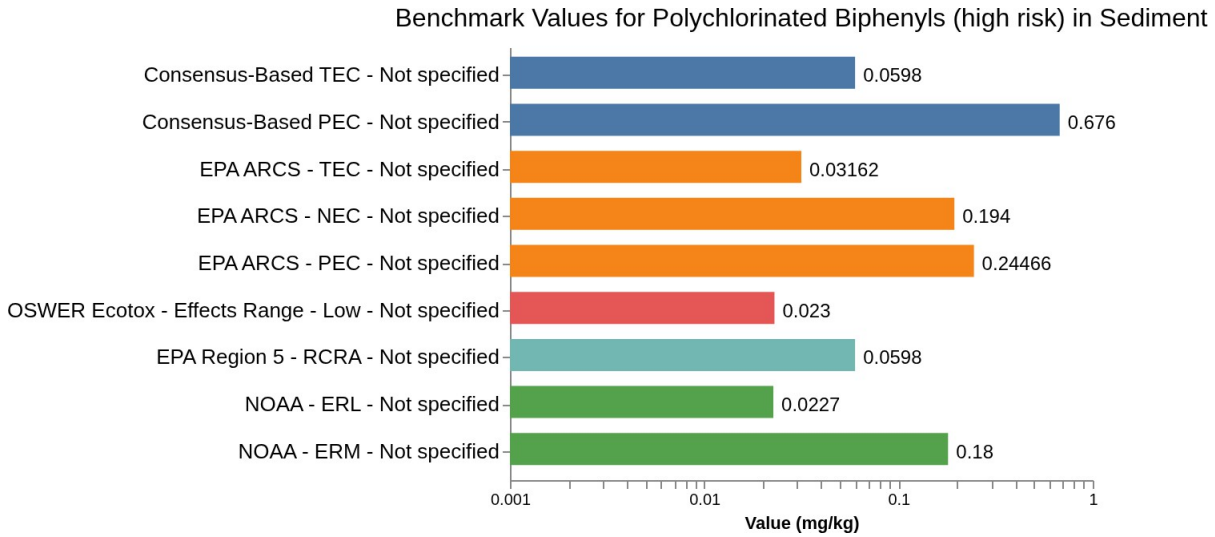


Table 239: Benchmark Values for Polychlorinated Biphenyls (PCBs) in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)	Footnotes
000000−17−0	New York DEC	Wildlife Sediment	Not specified	0.0041	
000000−17−0	Ontario	Sediment Lowest Effect Level	Not specified	0.0700	
000000−17−0	Ontario	Provincial Sediment No Effect Level	Not specified	0.1000	
000000−17−0	Ontario	Sediment Severe Effect Level	Not specified	53.0000	33

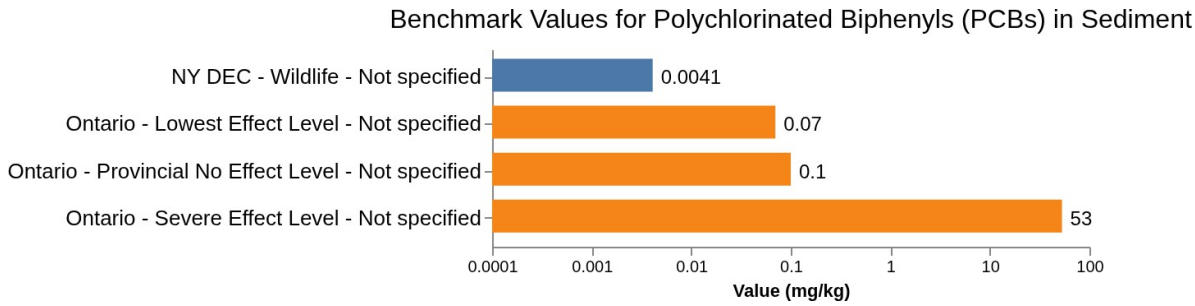


Table 240: Benchmark Values for Polycyclic aromatic hydrocarbons (PAH), Total (high molecular weight) in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)	Footnotes
000000−03−4	EPA − ARCS	Sediment TEC	Not specified	2.90	
000000−03−4	EPA − ARCS	Sediment PEC	Not specified	4.35	
000000−03−4	EPA − ARCS	Sediment NEC	Not specified	51.00	
000000−03−4	NOAA	Effects Range−Low	Not specified	1.70	32
000000−03−4	NOAA	Effects Range−Median	Not specified	9.60	32

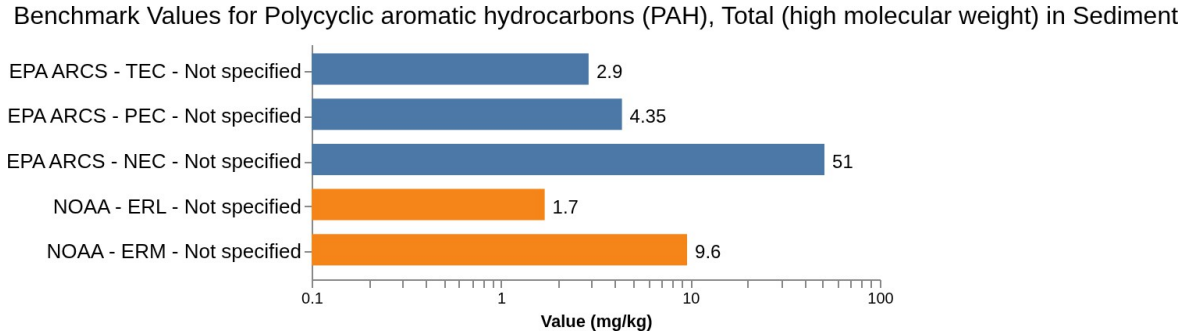


Table 241: Benchmark Values for Polycyclic aromatic hydrocarbons (PAH), Total (low molecular weight) in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)	Footnotes
000000−03−3	EPA − ARCS	Sediment TEC	Not specified	0.786	
000000−03−3	EPA − ARCS	Sediment NEC	Not specified	3.040	
000000−03−3	EPA − ARCS	Sediment PEC	Not specified	3.370	
000000−03−3	NOAA	Effects Range−Low	Not specified	0.552	32
000000−03−3	NOAA	Effects Range−Median	Not specified	3.160	32

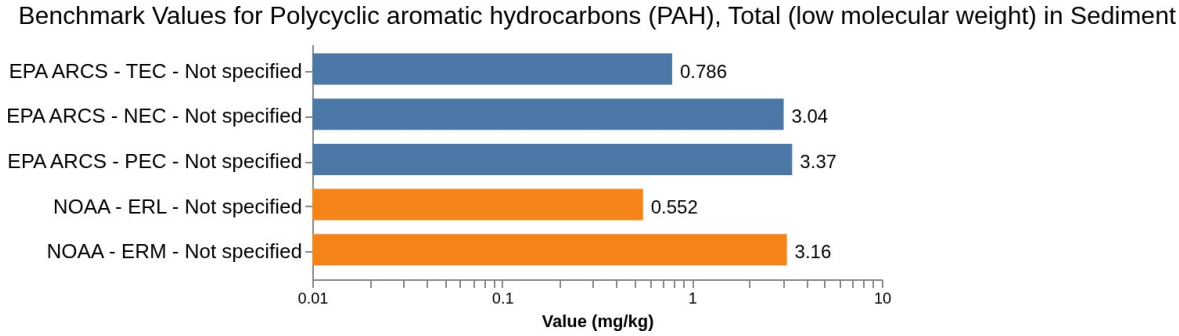


Table 242: Benchmark Values for Polycyclic aromatic hydrocarbons (PAH), Total in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)	Footnotes
000000−04−1	Consensus−Based	Consensus−Based TEC	Not specified	1.610	
000000−04−1	Consensus−Based	Consensus−Based PEC	Not specified	22.800	
000000−04−1	EPA − ARCS	Sediment TEC	Not specified	3.553	
000000−04−1	EPA − ARCS	Sediment PEC	Not specified	13.660	
000000−04−1	EPA − ARCS	Sediment NEC	Not specified	84.600	
000000−04−1	EPA OSWER	Effects Range − Low	Not specified	4.000	
000000−04−1	NOAA	Effects Range−Low	Not specified	4.022	32
000000−04−1	NOAA	Effects Range−Median	Not specified	44.792	32
000000−04−1	Ontario	Sediment Lowest Effect Level	Not specified	4.000	
000000−04−1	Ontario	Sediment Severe Effect Level	Not specified	1000.000	33

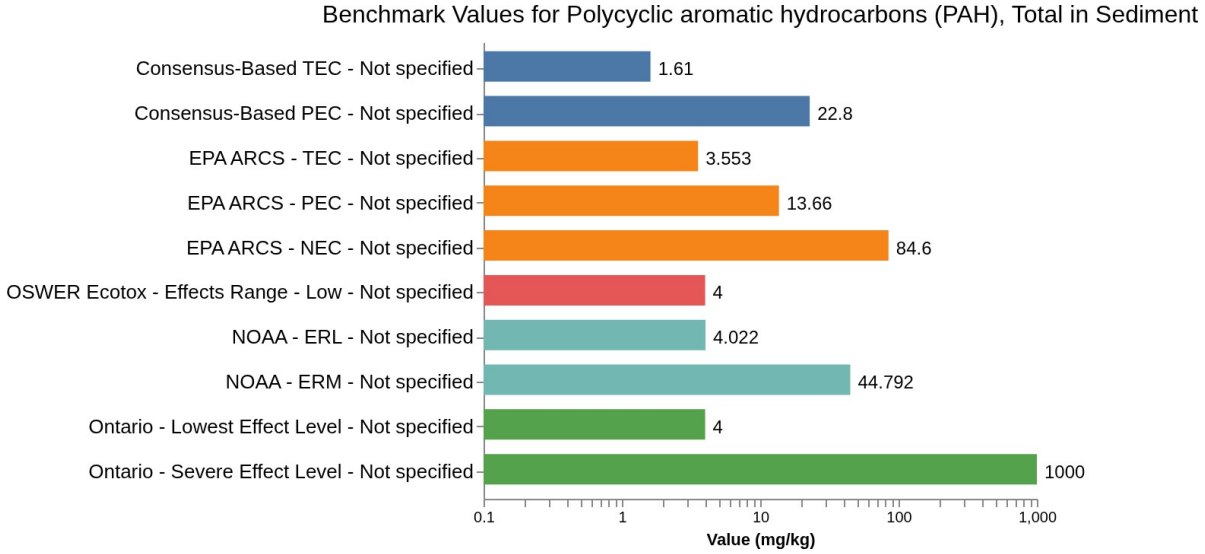


Table 243: Benchmark Values for Potassium in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
7440−09−7	Ohio	Interior Plateau	Not specified	5900.0
7440−09−7	Ohio	Erie/Ontario Lake Plain	Not specified	6800.0
7440−09−7	Ohio	Eastern Corn Belt Plains	Not specified	11000.0
7440−09−7	Ohio	Huron Erie Lake Plain	Not specified	12000.0
7440−09−7	Ohio	Western Allegheny Plateau	Not specified	14000.0

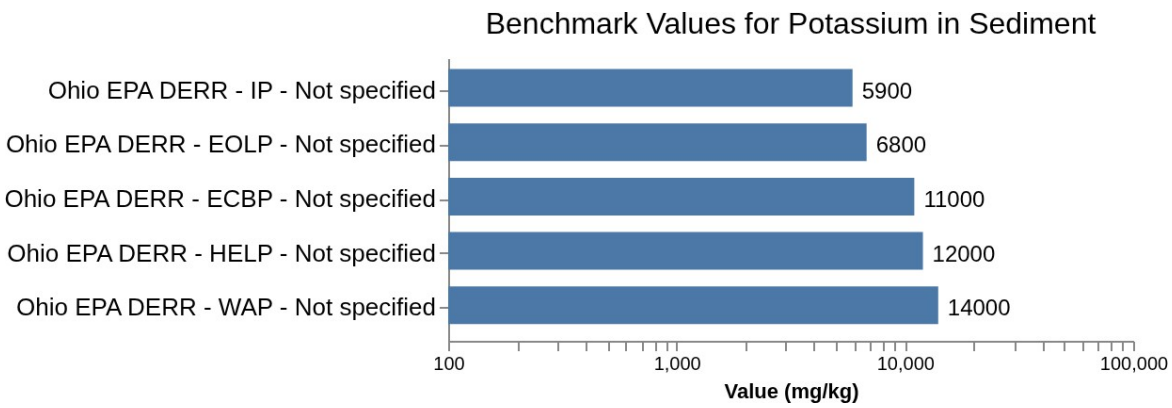


Table 244: Benchmark Values for Pyrene in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)	Footnotes
129−00−0	Consensus−Based	Consensus−Based TEC	Not specified	0.195	
129−00−0	Consensus−Based	Consensus−Based PEC	Not specified	1.520	
129−00−0	EPA − ARCS	Sediment TEC	Not specified	0.570	
129−00−0	EPA − ARCS	Sediment PEC	Not specified	3.225	
129−00−0	EPA − ARCS	Sediment NEC	Not specified	6.100	
129−00−0	EPA ESBs	Effect Concentration of PAH	Not specified	697.000	
129−00−0	EPA ESBs	Maximum Solubility Limited PAH Concentration	Not specified	9090.000	
129−00−0	EPA OSWER	Effects Range − Low	Not specified	0.660	
129−00−0	EPA Region 5	EPA RCRA Sediment	Not specified	0.195	
129−00−0	LANL ECORISK	Sediment No Effect ESL	Aquatic community organisms	0.190	
129−00−0	LANL ECORISK	Sediment Low Effect ESL	Aquatic community organisms	1.500	
129−00−0	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	26.000	
129−00−0	LANL ECORISK	Sediment No Effect ESL	Avian aerial insectivore	46.000	
129−00−0	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	260.000	
129−00−0	LANL ECORISK	Sediment Low Effect ESL	Avian aerial insectivore	460.000	
129−00−0	NOAA	Effects Range−Low	Not specified	0.665	
129−00−0	NOAA	Effects Range−Median	Not specified	2.600	32
129−00−0	Ontario	Sediment Lowest Effect Level	Not specified	0.490	
129−00−0	Ontario	Sediment Severe Effect Level	Not specified	85.000	33

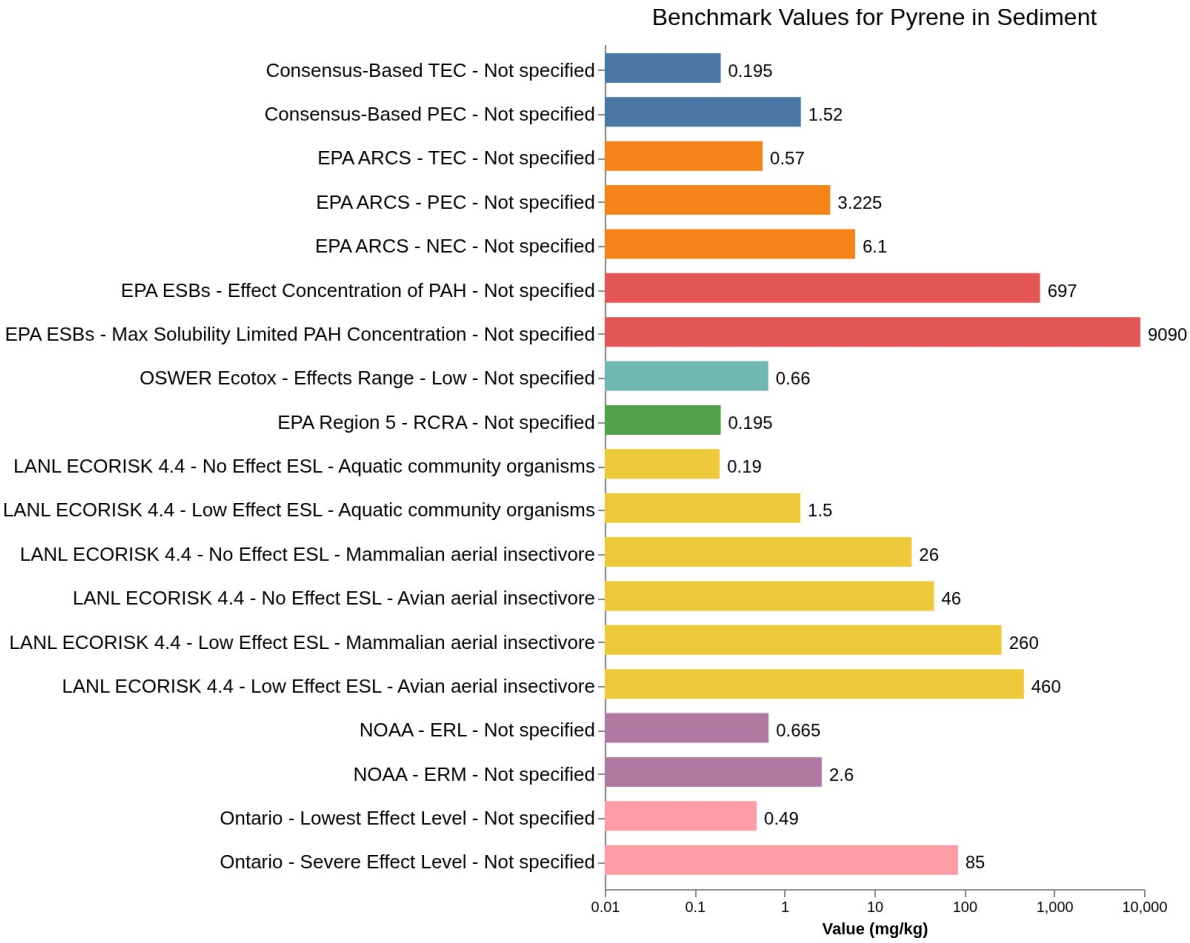


Table 245: Benchmark Values for Pyridine in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
110−86−1	EPA Region 5	EPA RCRA Sediment	Not specified	0.106

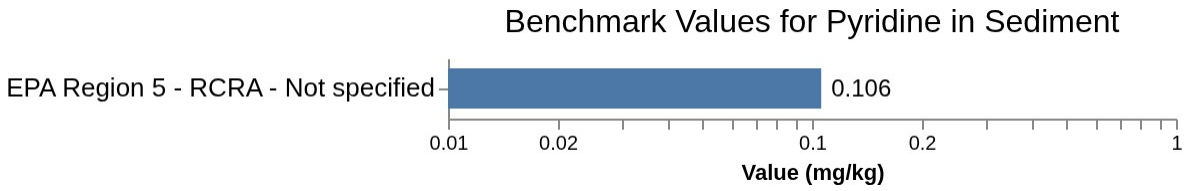


Table 246: Benchmark Values for Selenium in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
7782−49−2	LANL ECORISK	Sediment No Effect ESL	Aquatic community organisms	0.72
7782−49−2	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	0.80
7782−49−2	LANL ECORISK	Sediment No Effect ESL	Avian aerial insectivore	1.00
7782−49−2	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	1.20
7782−49−2	LANL ECORISK	Sediment Low Effect ESL	Avian aerial insectivore	2.10
7782−49−2	LANL ECORISK	Sediment Low Effect ESL	Aquatic community organisms	2.90
7782−49−2	Ohio	Huron Erie Lake Plain	Not specified	1.40
7782−49−2	Ohio	Interior Plateau	Not specified	1.60
7782−49−2	Ohio	Erie/Ontario Lake Plain	Not specified	1.70
7782−49−2	Ohio	Eastern Corn Belt Plains	Not specified	2.30
7782−49−2	Ohio	Western Allegheny Plateau	Not specified	2.60

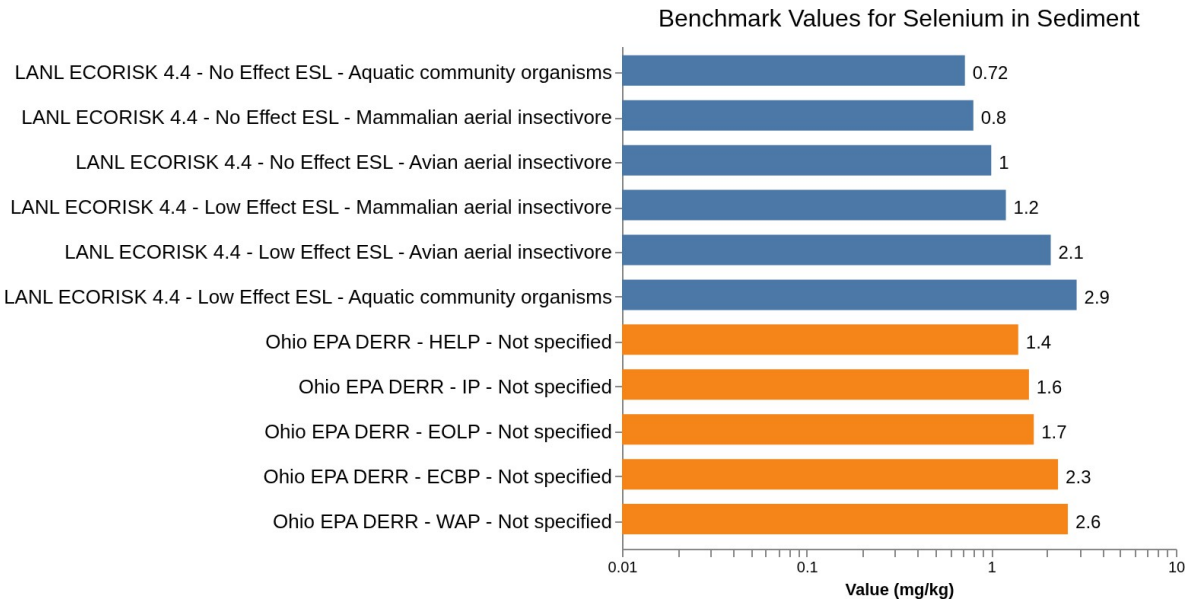


Table 247: Benchmark Values for Silver in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)	Footnotes
7440−22−4	EPA Region 5	EPA RCRA Sediment	Not specified	0.50	
7440−22−4	LANL ECORISK	Sediment No Effect ESL	Aquatic community organisms	0.50	
7440−22−4	LANL ECORISK	Sediment No Effect ESL	Avian aerial insectivore	3.60	
7440−22−4	LANL ECORISK	Sediment Low Effect ESL	Aquatic community organisms	5.00	
7440−22−4	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	16.00	
7440−22−4	LANL ECORISK	Sediment Low Effect ESL	Avian aerial insectivore	36.00	
7440−22−4	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	160.00	
7440−22−4	NOAA	Effects Range−Low	Not specified	1.00	32
7440−22−4	NOAA	Effects Range−Median	Not specified	3.70	32
7440−22−4	Ohio	Statewide	Not specified	0.43	

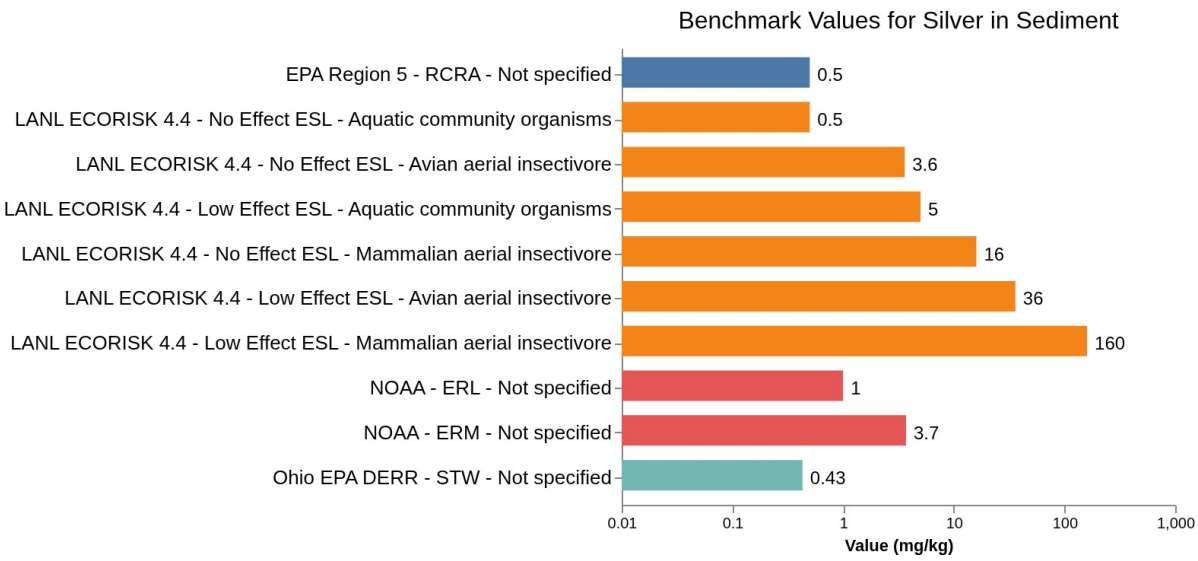


Table 248: Benchmark Values for Strontium, Stable in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
7440−24−6	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	1600.0
7440−24−6	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	16000.0
7440−24−6	Ohio	Erie/Ontario Lake Plain	Not specified	62.0
7440−24−6	Ohio	Western Allegheny Plateau	Not specified	250.0
7440−24−6	Ohio	Huron Erie Lake Plain	Not specified	250.0
7440−24−6	Ohio	Eastern Corn Belt Plains	Not specified	390.0

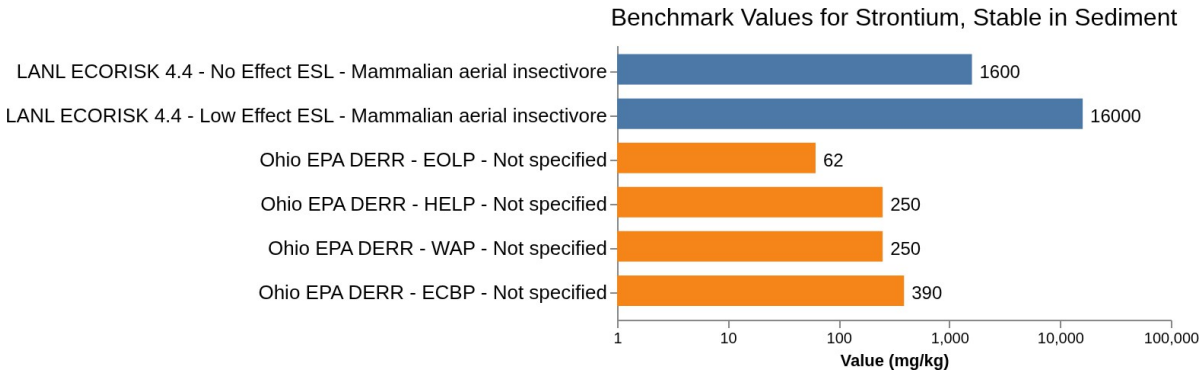


Table 249: Benchmark Values for Styrene in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
100−42−5	EPA Region 5	EPA RCRA Sediment	Not specified	0.254

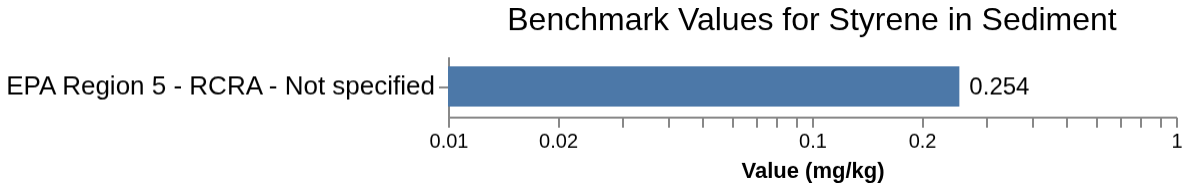


Table 250: Benchmark Values for Sulfurous acid, 2−chloroethyl 2−[4−(1,1−dimethylethyl)phenoxy]−1−methylethyl ester in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
140−57−8	EPA Region 5	EPA RCRA Sediment	Not specified	0.000001

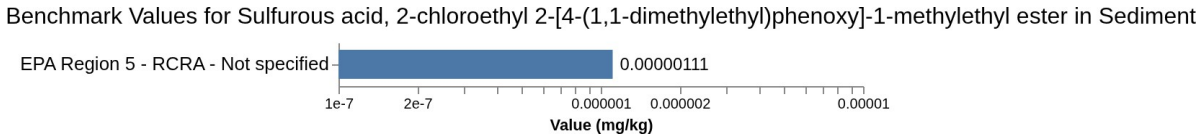


Table 251: Benchmark Values for TCDD, 2,3,7,8− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
1746−01−6	EPA Region 5	EPA RCRA Sediment	Not specified	1.200000e-07
1746−01−6	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	3.300000e-07
1746−01−6	LANL ECORISK	Sediment No Effect ESL	Aquatic community organisms	8.500000e-07
1746−01−6	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	2.200000e-06
1746−01−6	LANL ECORISK	Sediment Low Effect ESL	Aquatic community organisms	8.500000e-06

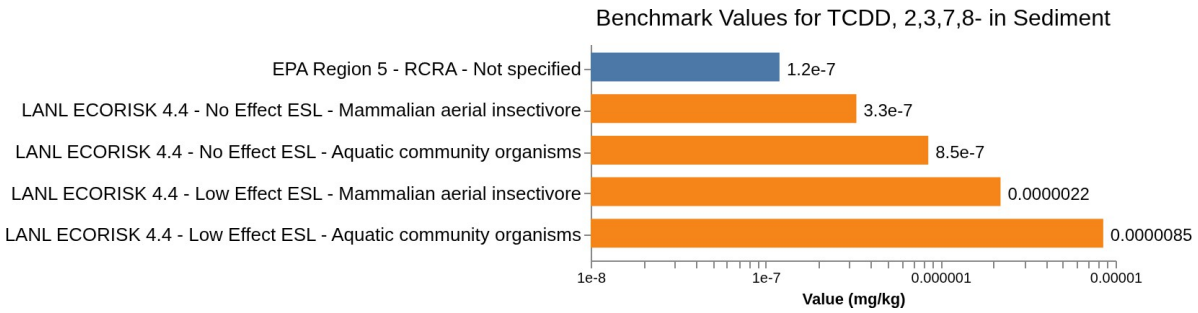


Table 252: Benchmark Values for Tetrachlorobenzene, 1,2,4,5− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
95−94−3	EPA Region 5	EPA RCRA Sediment	Not specified	1.252

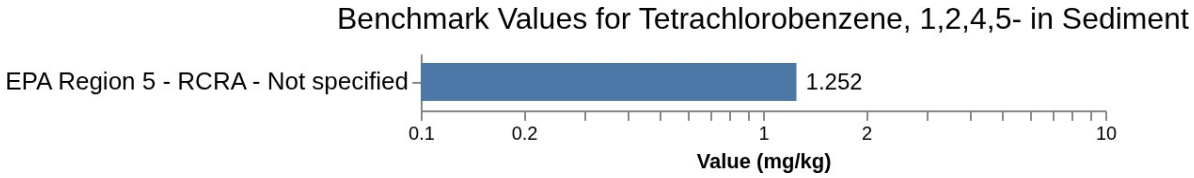


Table 253: Benchmark Values for Tetrachloroethane, 1,1,2,2− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
79−34−5	EPA OSWER	Sediment quality benchmarks	Not specified	0.94
79−34−5	EPA Region 5	EPA RCRA Sediment	Not specified	0.85

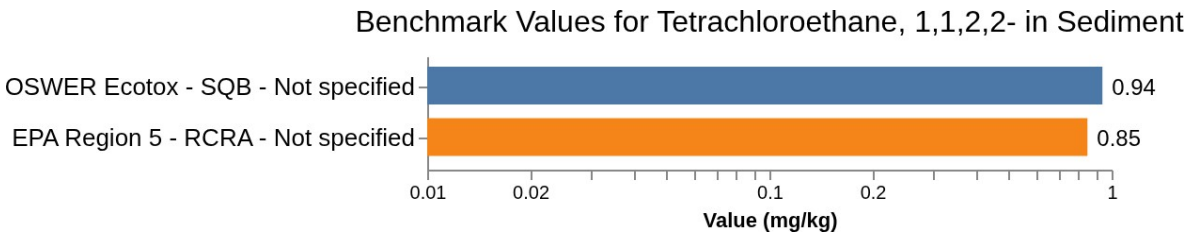


Table 254: Benchmark Values for Tetrachloroethylene in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
127−18−4	EPA OSWER	Sediment quality benchmarks	Not specified	0.530
127−18−4	EPA Region 5	EPA RCRA Sediment	Not specified	0.990
127−18−4	LANL ECORISK	Sediment No Effect ESL	Aquatic community organisms	0.002
127−18−4	LANL ECORISK	Sediment Low Effect ESL	Aquatic community organisms	0.020
127−18−4	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	0.200
127−18−4	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	1.000

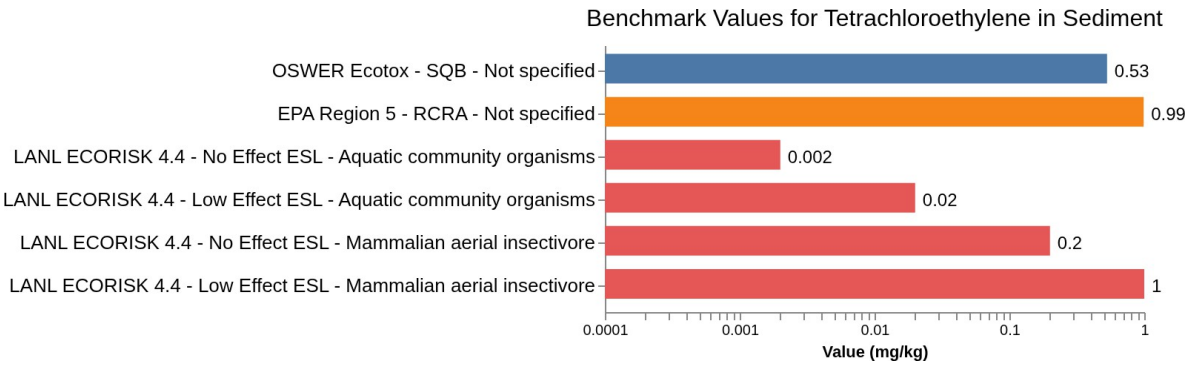


Table 255: Benchmark Values for Tetrachlorophenol, 2,3,4,6− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
58−90−2	EPA Region 5	EPA RCRA Sediment	Not specified	0.129
58−90−2	New York DEC	Wildlife Sediment	Not specified	0.099

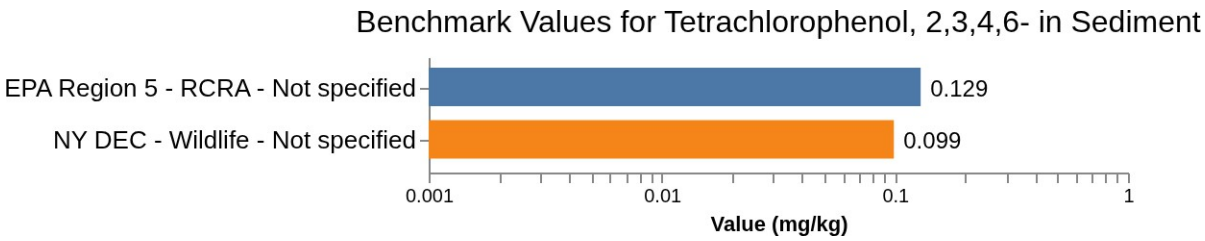


Table 256: Benchmark Values for Tetraethyl Dithiopyrophosphate in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
3689−24−5	EPA Region 5	EPA RCRA Sediment	Not specified	0.56

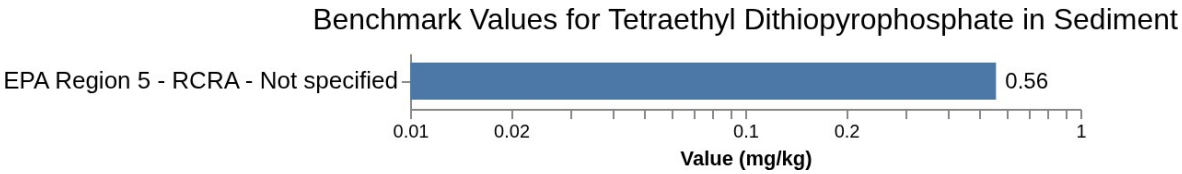


Table 257: Benchmark Values for Tetryl (Trinitrophenylmethylnitramine) in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
479−45−8	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	91.0
479−45−8	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	430.0

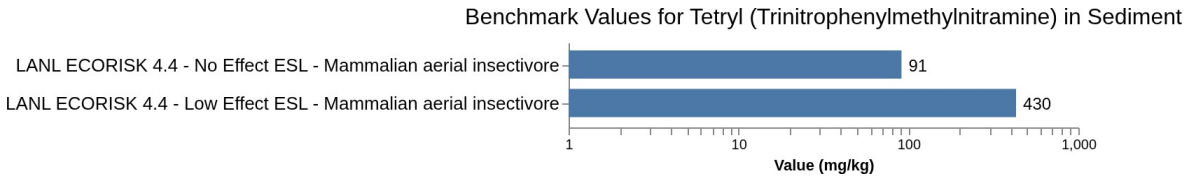


Table 258: Benchmark Values for Thallium (Soluble Salts) in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
7440−28−0	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	0.73
7440−28−0	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	7.30
7440−28−0	LANL ECORISK	Sediment No Effect ESL	Avian aerial insectivore	23.00
7440−28−0	LANL ECORISK	Sediment Low Effect ESL	Avian aerial insectivore	230.00
7440−28−0	Ohio	Statewide	Not specified	4.70

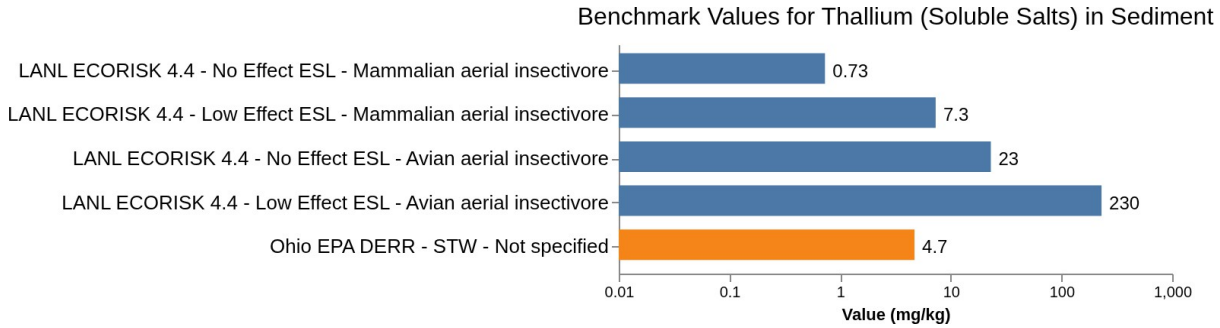


Table 259: Benchmark Values for Titanium in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
7440−32−6	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	88.0
7440−32−6	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	880.0

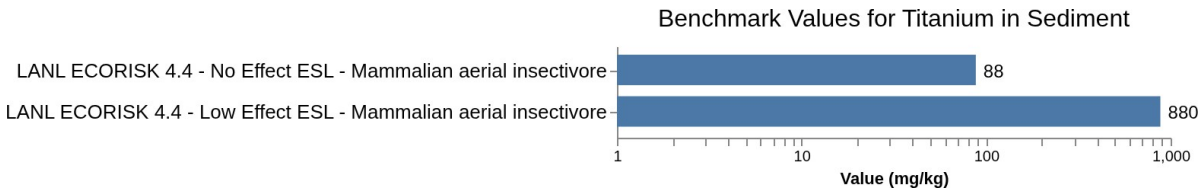


Table 260: Benchmark Values for Toluene in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
108−88−3	EPA OSWER	Sediment quality benchmarks	Not specified	0.67
108−88−3	EPA Region 5	EPA RCRA Sediment	Not specified	1.22
108−88−3	LANL ECORISK	Sediment No Effect ESL	Aquatic community organisms	0.01
108−88−3	LANL ECORISK	Sediment Low Effect ESL	Aquatic community organisms	0.10
108−88−3	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	25.00
108−88−3	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	250.00

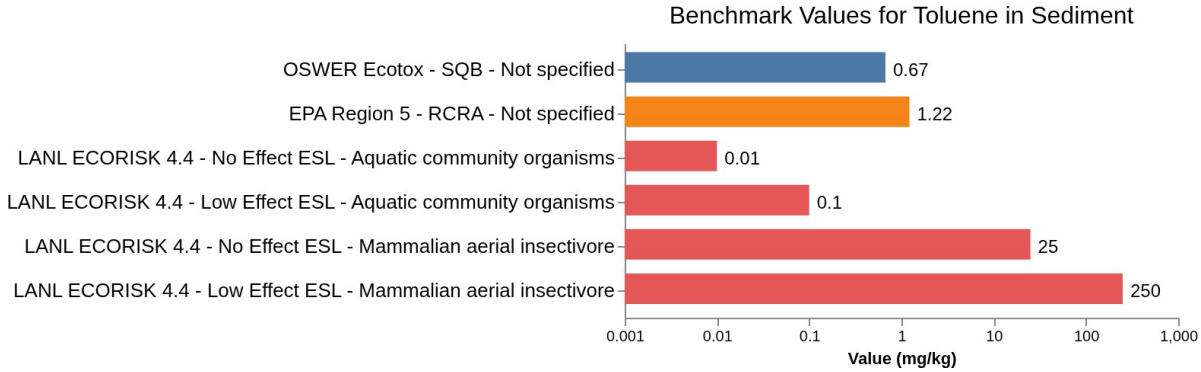


Table 261: Benchmark Values for Total Kjeldahl N (TKN) in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
000000−06−2	Ontario	Sediment Lowest Effect Level	Not specified	550.0
000000−06−2	Ontario	Sediment Severe Effect Level	Not specified	4800.0

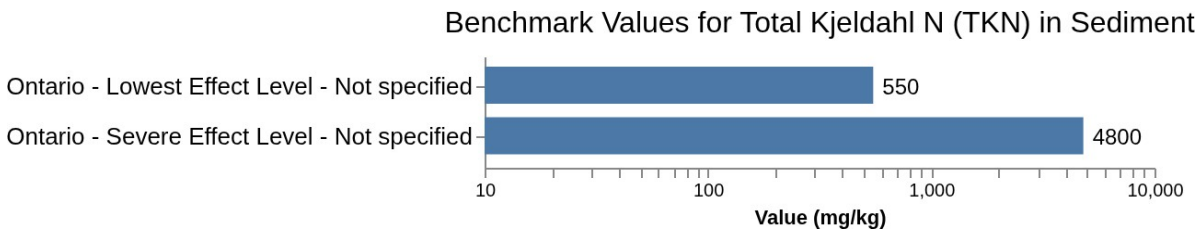


Table 262: Benchmark Values for Total Organic Carbon (%) in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
000000−06−1	Ontario	Sediment Lowest Effect Level	Not specified	1.0
000000−06−1	Ontario	Sediment Severe Effect Level	Not specified	10.0

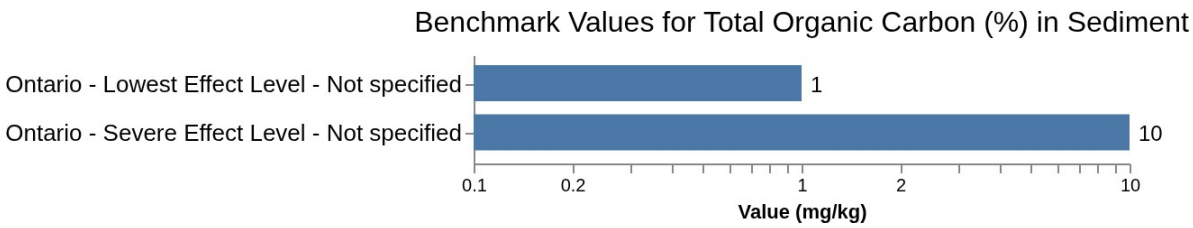


Table 263: Benchmark Values for Total Phosphorus (TP) in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
000000−15−9	Ontario	Sediment Lowest Effect Level	Not specified	600.0
000000−15−9	Ontario	Sediment Severe Effect Level	Not specified	2000.0

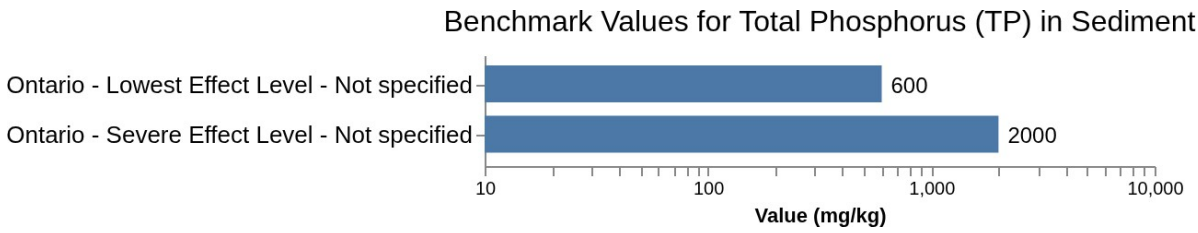


Table 264: Benchmark Values for Toxaphene in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
8001−35−2	EPA OSWER	Sediment quality benchmarks	Not specified	0.028000
8001−35−2	EPA Region 5	EPA RCRA Sediment	Not specified	0.000077
8001−35−2	LANL ECORISK	Sediment No Effect ESL	Aquatic community organisms	0.000100
8001−35−2	LANL ECORISK	Sediment Low Effect ESL	Aquatic community organisms	0.001000
8001−35−2	LANL ECORISK	Sediment No Effect ESL	Avian aerial insectivore	5.400000
8001−35−2	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	6.600000
8001−35−2	LANL ECORISK	Sediment Low Effect ESL	Avian aerial insectivore	54.000000
8001−35−2	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	66.000000

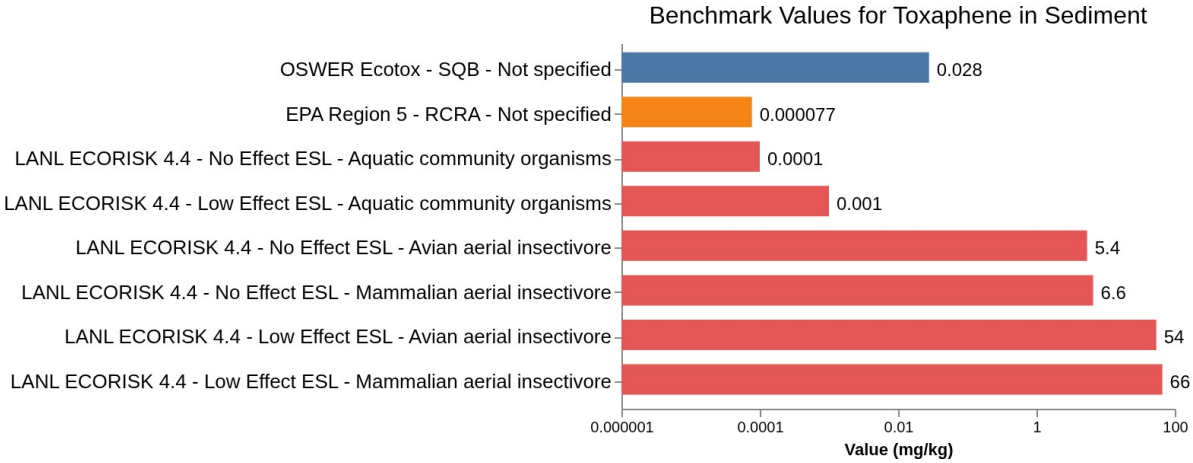


Table 265: Benchmark Values for Trichlorobenzene, 1,2,3− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)	Footnotes
87−61−6	New York DEC	Wildlife Sediment	Not specified	0.25	156

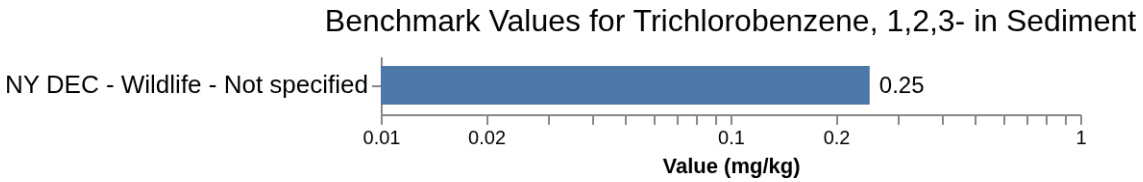


Table 266: Benchmark Values for Trichlorobenzene, 1,2,4− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)	Footnotes
120−82−1	EPA OSWER	Sediment quality benchmarks	Not specified	9.200	
120−82−1	EPA Region 5	EPA RCRA Sediment	Not specified	5.062	
120−82−1	LANL ECORISK	Sediment No Effect ESL	Aquatic community organisms	0.011	
120−82−1	LANL ECORISK	Sediment Low Effect ESL	Aquatic community organisms	0.110	
120−82−1	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	0.300	
120−82−1	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	3.000	
120−82−1	New York DEC	Wildlife Sediment	Not specified	0.250	156

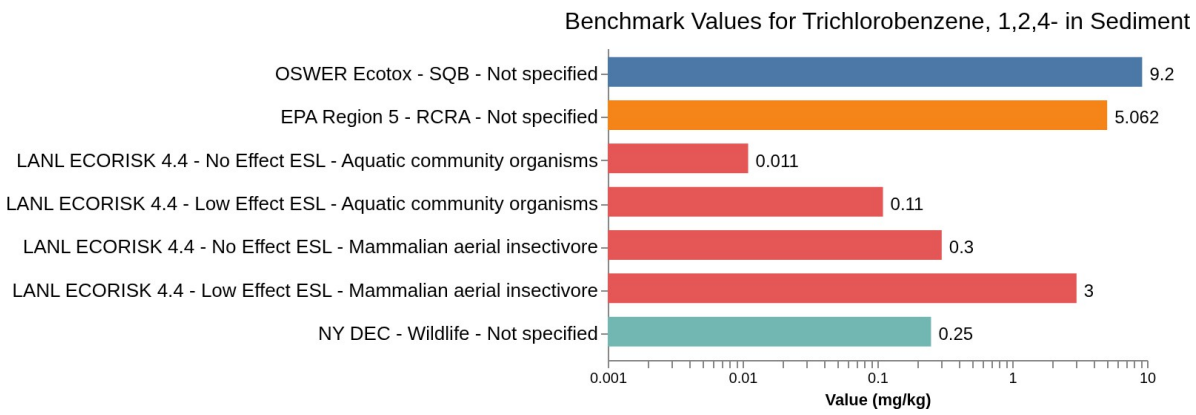


Table 267: Benchmark Values for Trichlorobenzene, 1,3,5− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)	Footnotes
108−70−3	New York DEC	Wildlife Sediment	Not specified	0.25	156

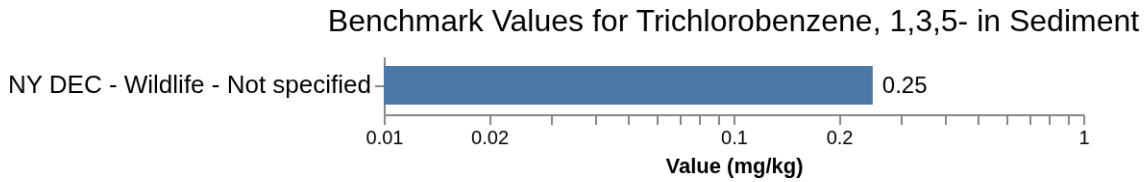


Table 268: Benchmark Values for Trichloroethane, 1,1,1− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
71−55−6	EPA OSWER	Sediment quality benchmarks	Not specified	0.170
71−55−6	EPA Region 5	EPA RCRA Sediment	Not specified	0.213
71−55−6	LANL ECORISK	Sediment No Effect ESL	Aquatic community organisms	0.070
71−55−6	LANL ECORISK	Sediment Low Effect ESL	Aquatic community organisms	0.700
71−55−6	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	290.000
71−55−6	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	2900.000

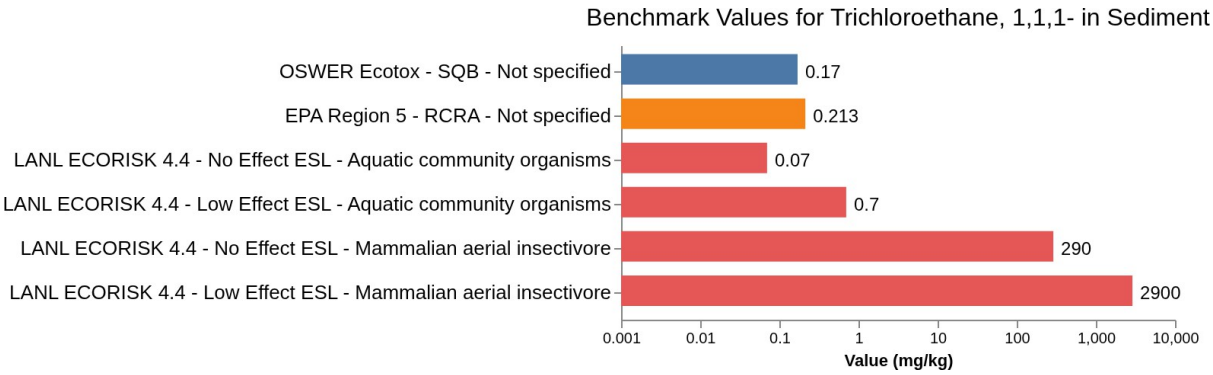


Table 269: Benchmark Values for Trichloroethane, 1,1,2− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
79−00−5	EPA Region 5	EPA RCRA Sediment	Not specified	0.518

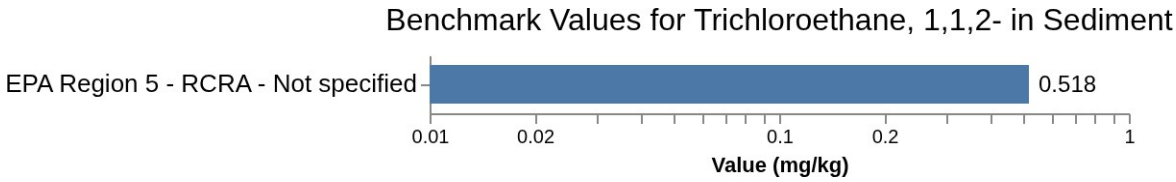


Table 270: Benchmark Values for Trichloroethylene in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
79−01−6	EPA OSWER	Sediment quality benchmarks	Not specified	1.600
79−01−6	EPA Region 5	EPA RCRA Sediment	Not specified	0.112
79−01−6	LANL ECORISK	Sediment No Effect ESL	Aquatic community organisms	0.078
79−01−6	LANL ECORISK	Sediment Low Effect ESL	Aquatic community organisms	0.780
79−01−6	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	46.000
79−01−6	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	460.000

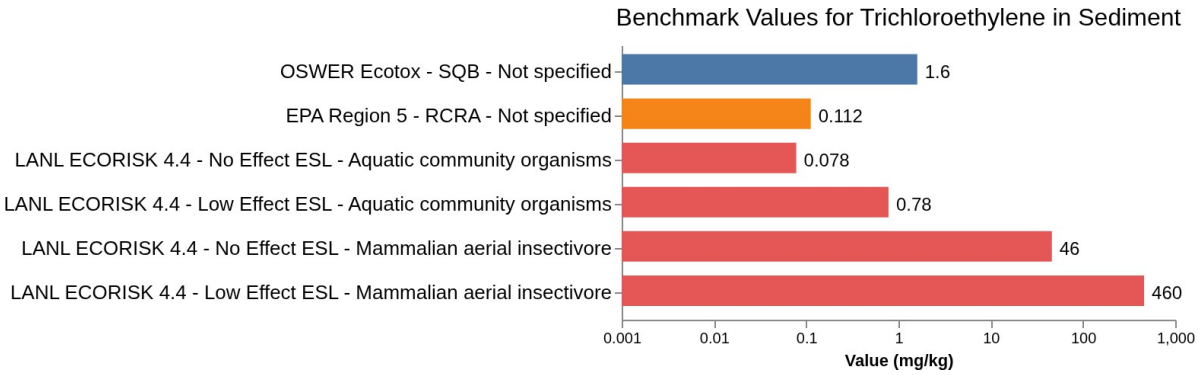


Table 271: Benchmark Values for Trichlorofluoromethane in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
75−69−4	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	58.0
75−69−4	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	390.0

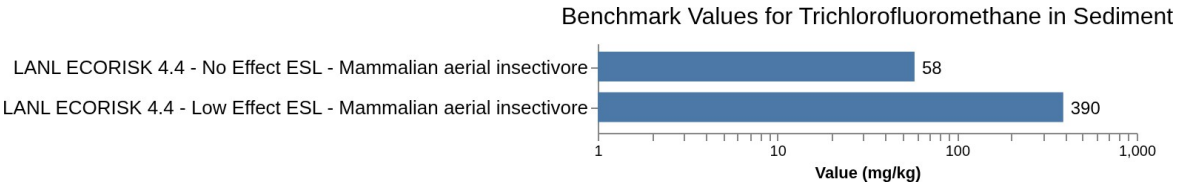


Table 272: Benchmark Values for Trichlorophenol, 2,4,6− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
88−06−2	EPA Region 5	EPA RCRA Sediment	Not specified	0.208

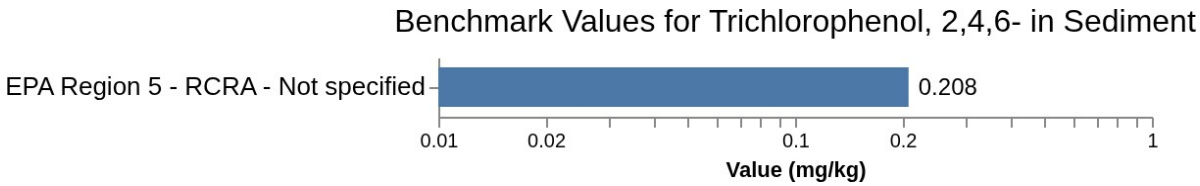


Table 273: Benchmark Values for Trichlorophenoxyacetic Acid, 2,4,5− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
93−76−5	EPA Region 5	EPA RCRA Sediment	Not specified	58.7

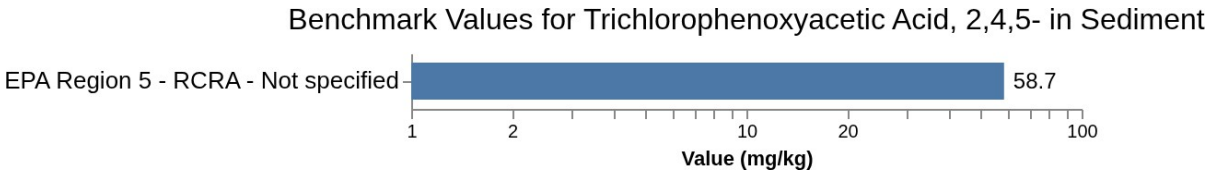


Table 274: Benchmark Values for Trichlorophenoxypropionic acid, −2,4,5 in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
93−72−1	EPA Region 5	EPA RCRA Sediment	Not specified	0.675

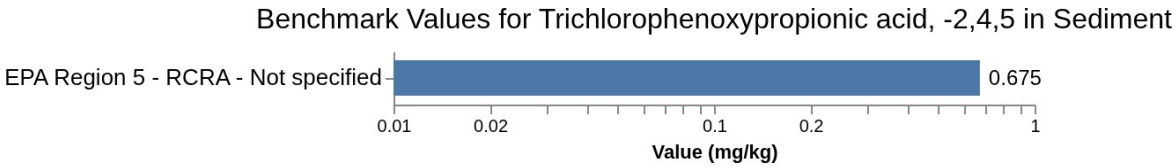


Table 275: Benchmark Values for Triethyl phosphorothioate [O,O,O−] in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
126−68−1	EPA Region 5	EPA RCRA Sediment	Not specified	0.189

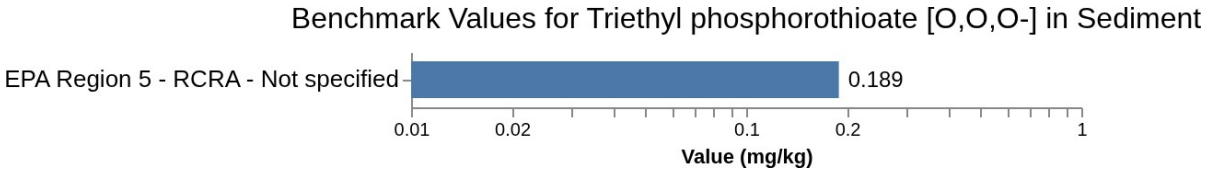


Table 276: Benchmark Values for Trimethylnaphthalene, 1,4,5− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
2131−14−1	EPA ESBs	Effect Concentration of PAH	Not specified	584.0
2131−14−1	EPA ESBs	Maximum Solubility Limited PAH Concentration	Not specified	129300.0

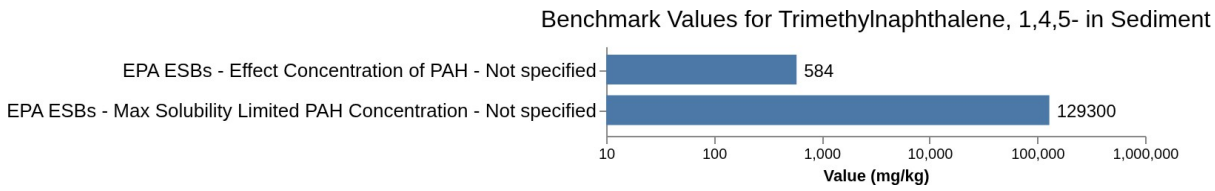


Table 277: Benchmark Values for Trimethylnaphthalene, 2,3,5− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
2245−38−7	EPA ESBs	Effect Concentration of PAH	Not specified	584.00
2245−38−7	EPA Region 4	Sediment RSV for PAHs	Not specified	5.84

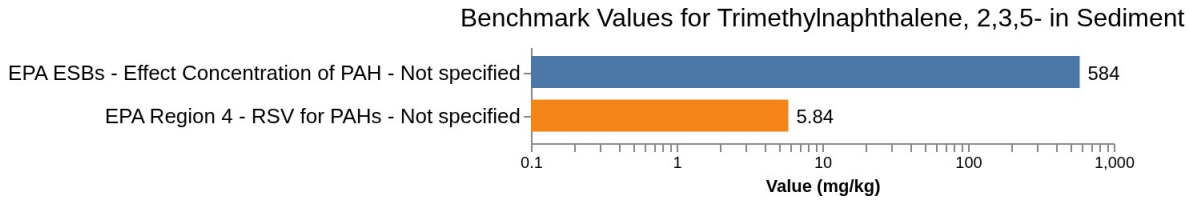


Table 278: Benchmark Values for Trinitrobenzene, 1,3,5− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
99−35−4	LANL ECORISK	Sediment No Effect ESL	Aquatic community organisms	1.1
99−35−4	LANL ECORISK	Sediment Low Effect ESL	Aquatic community organisms	1.5
99−35−4	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	1100.0
99−35−4	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	11000.0

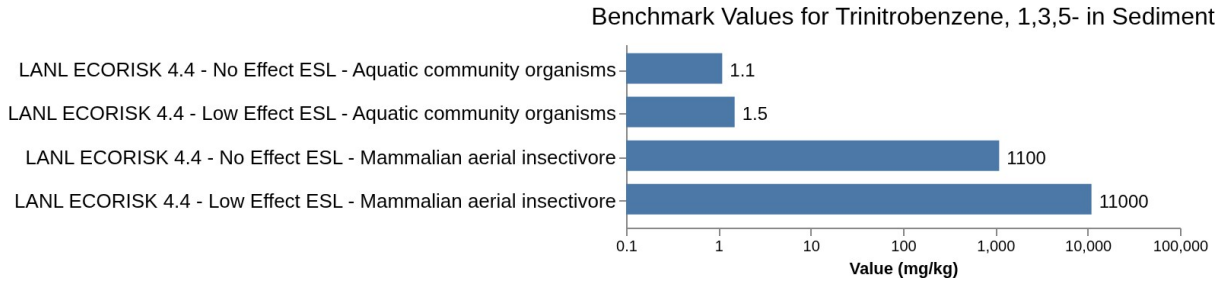


Table 279: Benchmark Values for Trinitrotoluene, 2,4,6− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
118−96−7	LANL ECORISK	Sediment No Effect ESL	Aquatic community organisms	25.0
118−96−7	LANL ECORISK	Sediment Low Effect ESL	Aquatic community organisms	32.0
118−96−7	LANL ECORISK	Sediment No Effect ESL	Avian aerial insectivore	610.0
118−96−7	LANL ECORISK	Sediment Low Effect ESL	Avian aerial insectivore	1100.0
118−96−7	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	3300.0
118−96−7	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	15000.0

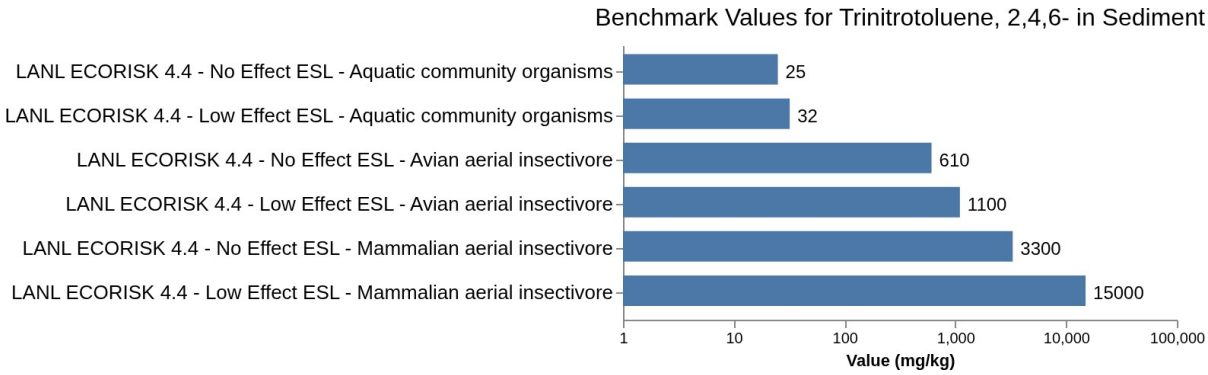


Table 280: Benchmark Values for Triphenylene in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
217−59−4	EPA ESBs	Effect Concentration of PAH	Not specified	846.0
217−59−4	EPA ESBs	Maximum Solubility Limited PAH Concentration	Not specified	19400.0

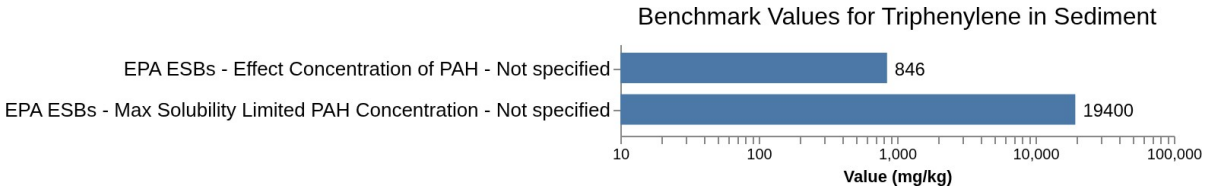


Table 281: Benchmark Values for Uranium (Soluble Salts) in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
7440−61−1	LANL ECORISK	Sediment No Effect ESL	Aquatic community organisms	100.0
7440−61−1	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	1000.0
7440−61−1	LANL ECORISK	Sediment Low Effect ESL	Aquatic community organisms	1000.0
7440−61−1	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	2500.0
7440−61−1	LANL ECORISK	Sediment No Effect ESL	Avian aerial insectivore	8600.0
7440−61−1	LANL ECORISK	Sediment Low Effect ESL	Avian aerial insectivore	86000.0

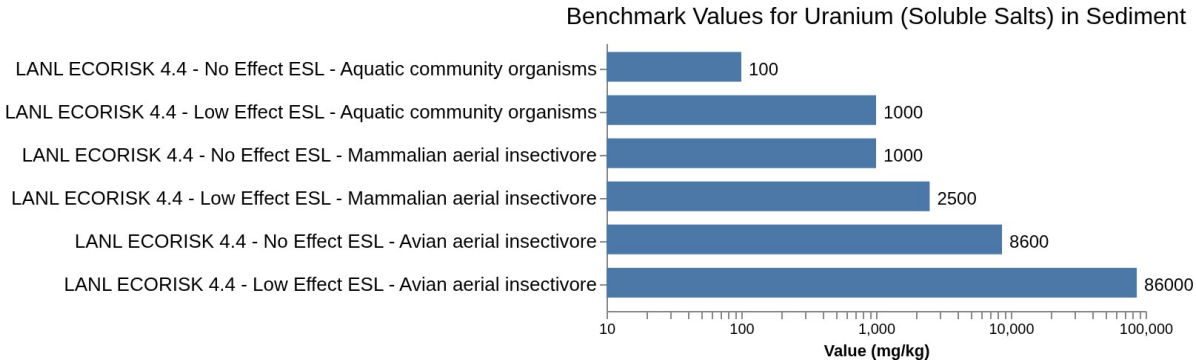


Table 282: Benchmark Values for Vanadium and Compounds in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
7440−62−2	LANL ECORISK	Sediment No Effect ESL	Avian aerial insectivore	29.0
7440−62−2	LANL ECORISK	Sediment Low Effect ESL	Avian aerial insectivore	59.0
7440−62−2	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	550.0
7440−62−2	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	1100.0
7440−62−2	Ohio	Statewide	Not specified	40.0

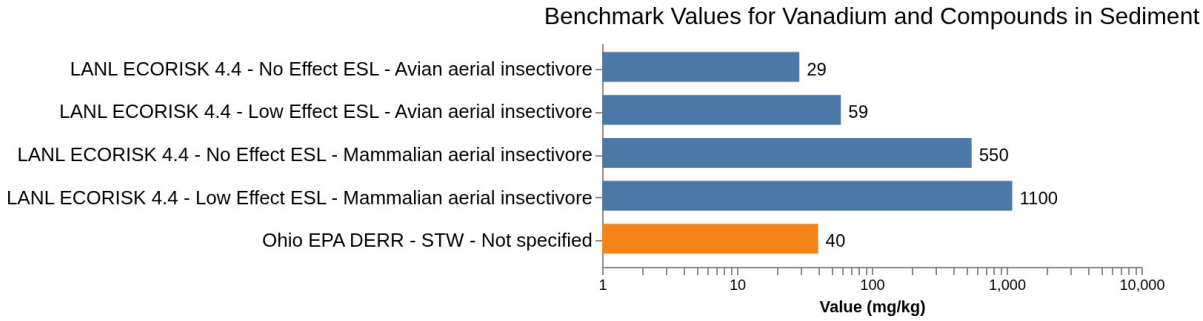


Table 283: Benchmark Values for Vinyl Acetate in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
108−05−4	EPA Region 5	EPA RCRA Sediment	Not specified	0.013

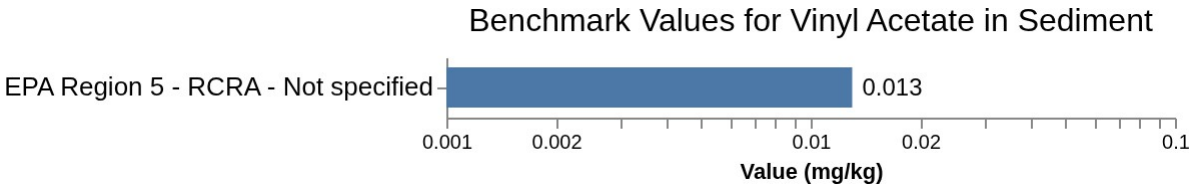


Table 284: Benchmark Values for Vinyl Chloride in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
75−01−4	EPA Region 5	EPA RCRA Sediment	Not specified	0.202
75−01−4	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	0.140
75−01−4	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	1.400

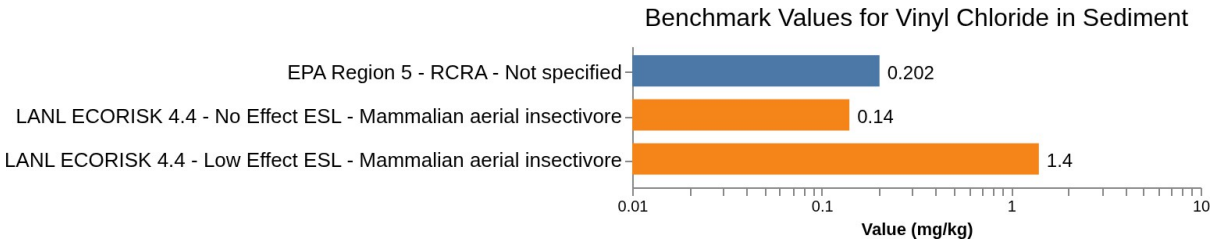


Table 285: Benchmark Values for Xylene, m− in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
108−38−3	EPA OSWER	Sediment quality benchmarks	Not specified	0.025

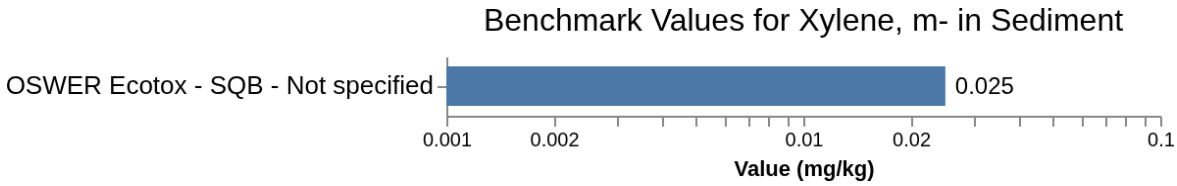


Table 286: Benchmark Values for Xylenes in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)
1330−20−7	EPA Region 5	EPA RCRA Sediment	Not specified	0.433
1330−20−7	LANL ECORISK	Sediment No Effect ESL	Aquatic community organisms	0.130
1330−20−7	LANL ECORISK	Sediment Low Effect ESL	Aquatic community organisms	1.300
1330−20−7	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	1.600
1330−20−7	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	2.000
1330−20−7	LANL ECORISK	Sediment No Effect ESL	Avian aerial insectivore	53.000
1330−20−7	LANL ECORISK	Sediment Low Effect ESL	Avian aerial insectivore	530.000

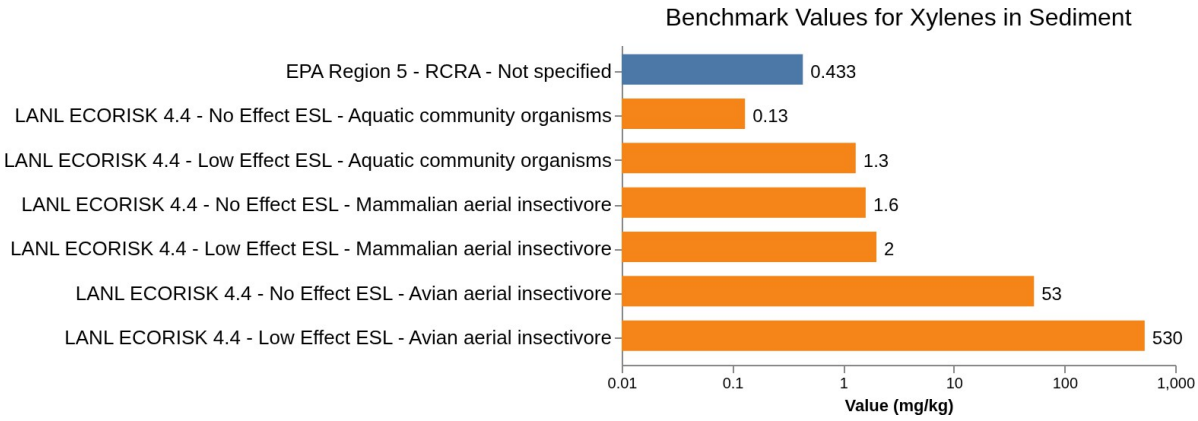
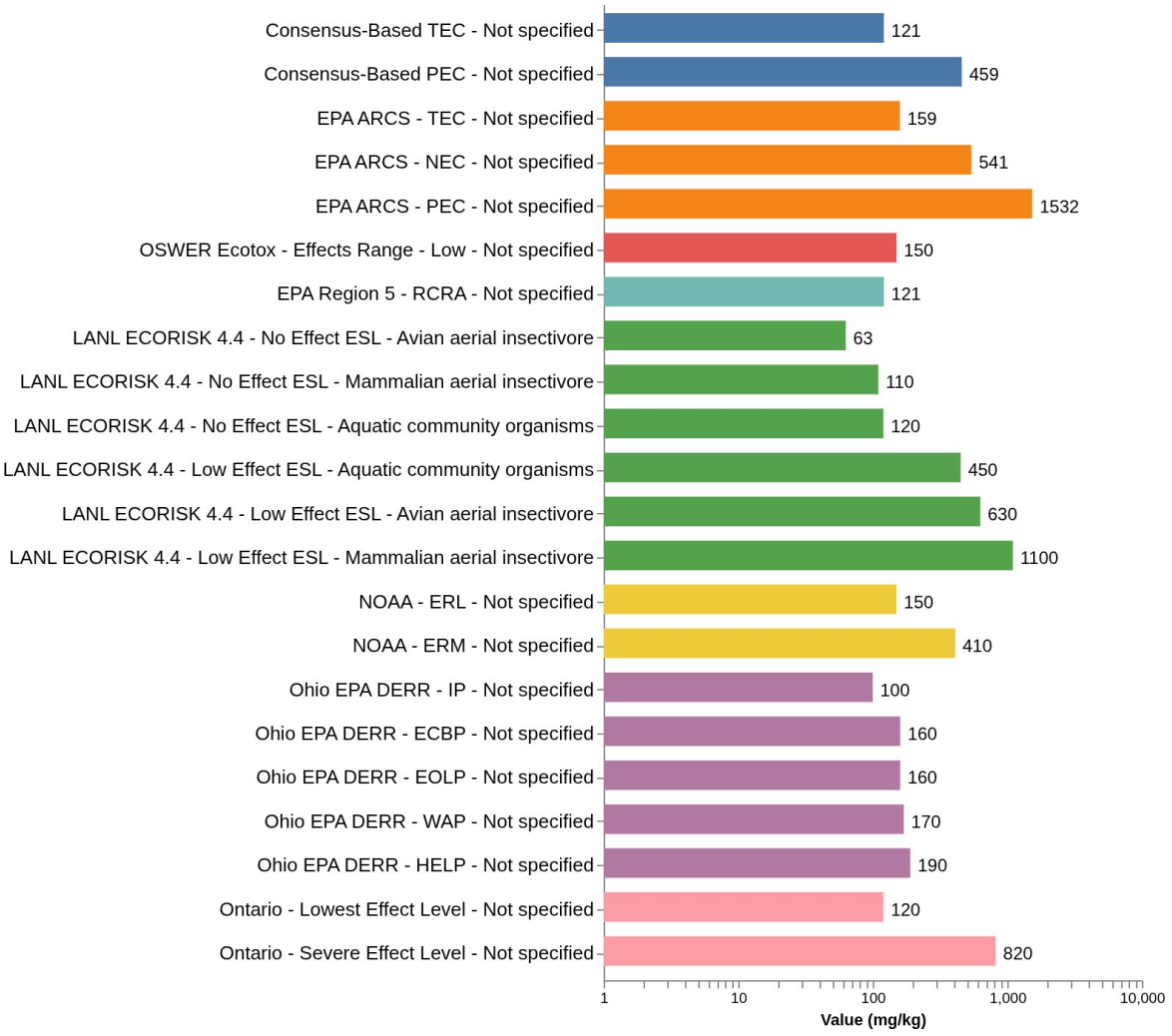


Table 287: Benchmark Values for Zinc and Compounds in Sediment

CAS	Source	Benchmark	Organism	Value (mg/kg)	Footnotes
7440−66−6	Consensus−Based	Consensus−Based TEC	Not specified	121.0	
7440−66−6	Consensus−Based	Consensus−Based PEC	Not specified	459.0	
7440−66−6	EPA − ARCS	Sediment TEC	Not specified	159.0	
7440−66−6	EPA − ARCS	Sediment NEC	Not specified	541.0	
7440−66−6	EPA − ARCS	Sediment PEC	Not specified	1532.0	
7440−66−6	EPA OSWER	Effects Range − Low	Not specified	150.0	
7440−66−6	EPA Region 5	EPA RCRA Sediment	Not specified	121.0	
7440−66−6	LANL ECORISK	Sediment No Effect ESL	Avian aerial insectivore	63.0	
7440−66−6	LANL ECORISK	Sediment No Effect ESL	Mammalian aerial insectivore	110.0	
7440−66−6	LANL ECORISK	Sediment No Effect ESL	Aquatic community organisms	120.0	
7440−66−6	LANL ECORISK	Sediment Low Effect ESL	Aquatic community organisms	450.0	
7440−66−6	LANL ECORISK	Sediment Low Effect ESL	Avian aerial insectivore	630.0	
7440−66−6	LANL ECORISK	Sediment Low Effect ESL	Mammalian aerial insectivore	1100.0	
7440−66−6	NOAA	Effects Range−Low	Not specified	150.0	32
7440−66−6	NOAA	Effects Range−Median	Not specified	410.0	32
7440−66−6	Ohio	Interior Plateau	Not specified	100.0	
7440−66−6	Ohio	Erie/Ontario Lake Plain	Not specified	160.0	
7440−66−6	Ohio	Eastern Corn Belt Plains	Not specified	160.0	
7440−66−6	Ohio	Western Allegheny Plateau	Not specified	170.0	
7440−66−6	Ohio	Huron Erie Lake Plain	Not specified	190.0	
7440−66−6	Ontario	Sediment Lowest Effect Level	Not specified	120.0	
7440−66−6	Ontario	Sediment Severe Effect Level	Not specified	820.0	

Benchmark Values for Zinc and Compounds in Sediment



3. CHEMICAL FOOTNOTES

1. Screening value is for filtered (dissolved) metals. A conversion factor (CF) was used to convert the screening value for total metals in surface water to a screening value for dissolved metals in surface water. CMC (dissolved) = CMC (total) × CF.
2. The freshwater screening value is hardness dependent. The screening value shown is for dissolved metals assuming a hardness of 50 mg/L as CaCO3. See Table 1C for screening values for varying degrees of water hardness.
3. Freshwater criteria for pentachlorophenol are pH Dependent. Values displayed are for a pH of 7.8.
4. Criteria for ammonia are pH, temperature, and lifestage dependent.
5. Selenium concentrations in water do not reflect dietary sources to aquatic life and screening against these numbers may not be adequately protective.
6. pH of 6.5−9.0
7. Bioaccumulative chemical
8. Sum for the Toxic Unit Approach. (See Table 2c at Region 4 Ecological Risk Assessment Supplemental Guidance)
9. Total value for Low Molecular Weight PAHs.
10. Total value for High Molecular Weight PAHs.
11. Subject to a narrative assessment. See Region 4 Ecological Risk Assessment Supplemental Guidance.
12. For hardness−dependent metals, freshwater chronic criteria are based on soft water with a total hardness of 50 mg/L as CaCO3. Soft water is common within Region 5; this water ESL may be recalculated when site specific water hardness is less than 50 mg/L.
13. Freshwater criteria for pentachlorophenol are pH Dependent. Values displayed are for a pH of 6.5.
14. The freshwater BTAG for Hydrazine depends on the hardness level. For hardness < 50, the BTAG is 5 ug/L. For hardness => 50, the BTAG is 10 ug/L.
15. Potential ecological risks associated with aluminum in soils are based on the measured soil pH. Where aluminum is a COC, it should only be retained for those soils with a pH less than 5.5. U.S. EPA. 2003. Ecological soil screening level for aluminum. Interim final. OSWER directive 9285.7−60. Washington.
16. Iron is not expected to be toxic to plants in well−aerated soils between pH 5 and 8. Importance is based less on its direct chemical toxicity than on its effect as a mediator in the geochemistry of other toxic metals and the physical hazard of depositing flocculent. EPA. 2003. Ecological soil screening levels for iron. Interim final. OSWER directive 9285.7−69. Washington.
17. When benchmarks represent the sum of individual compounds, isomers, or groups of congeners, and the chemical analysis indicates an undetected value, the proxy value specified at 30 TAC 350.51(n) shall be used for calculating the sum of the respective compounds, isomers, or congeners. This assumes that the particular COC has not been eliminated in accordance with the criteria at 350.71(k).
18. The low molecular weight PAH benchmark is to be compared to the sum of the concentrations of the following compounds: naphthalene, acenaphthylene, acenaphthene, fluorene, phenanthrene, anthracene, and 2−methyl naphthalene. The PAH benchmark is not the sum of the corresponding benchmarks listed for the individual compounds.
19. The high molecular weight PAH benchmark is to be compared to the sum of the concentrations of the following compounds: fluoranthene, pyrene, benz(a)anthracene, chrysene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluroanthene, indeno(1,2,3−cd)pyrene, benzo(g,h,i)perylene, and dibenzo(a,h)anthracene. The PAH benchmark is not the sum of the corresponding benchmarks listed for the individual compounds.
20. Total PAH refers to the sum of the concentrations of each of low and high molecular weight PAHs listed above and any other PAH compounds that are not eliminated in accordance with 30 TAC 350.71(k). The benchmarks for total PAHs are the most relevant in evaluating risk in an ERA, as PAHs almost always occur as mixtures. Values for individual, low molecular weight, and high molecular weight PAHs are included as guidelines to aid in the determination of disproportionate concentrations within the mixture that may be masked by the total.
21. Indicates that the benchmarks are for the dissolved portion in water.
22. Value was reported as greater than the listed number.

23. Value was reported as less than the listed number.
24. These values are estimates. Methods of estimation are described in Toxicological Benchmarks for Screening Potential Contaminants of Concern for Effects on Aquatic Biota: 1996 Revision.
25. A range of 0.8 to 4.0 ug/L was reported.
26. The chronic NAWQC for mercury (0.012 μg/L) is based on the final residue value. FCVs are used as benchmarks to protect aquatic life.
27. The chronic NAWQC for DDT (0.001 μg/L), total PCBs (0.014 μg/L), and heptachlor (0.0038 μg/l) are based on the final residue values; for benchmarks to protect aquatic life, we use SCVs.
28. Units are in mg/Kg dry weight.
29. These values are estimates. Methods of estimation are described in the reference.
30. Study LC50s were used rather than species mean LC50s, so water hardness would correspond to EC20 values.
31. Benchmarks are based on tests that are not standard but are judged to be of high quality.
32. The value's sediment quality assessment guidelines (SQAGs) are within a factor of three of the probable effects level (PEL).
33. These values have a presumed maximum TOC of 10% (0.1) applied to the values from the source for use in comparing to bulk sediment data. If the TOC in measured data is less than 10%, adjust values accordingly.
34. These values have a presumed TOC of 1% (0.01) applied to the values from the source for use in comparing to bulk sediment data.
35. See Methylmercury.
36. Consult the 2010 Polycyclic Aromatic Hydrocarbons factsheet or the 2010 PAH Scientific Supporting Document for guidance.
37. Surface Coarse 0.082 mg/kg. Surface Fine 0.018 mg/kg. Subsoil Coarse 0.082 mg/kg. Subsoil Fine 0.018 mg/kg.
38. Coarse Soil Guideline 4.6 mg/kg. Fine Soil Guideline 5.6 mg/kg. Coarse Soil Human health soil quality guideline 4.6 mg/kg. Fine Soil Human health soil quality guideline 4.6 mg/kg, Coarse Soil Environmental soil quality guideline 7.7 mg/kg. Fine Soil Environmental soil quality guideline 190 mg/kg.
39. SQGF Coarse 0.49 mg/kg. SQGF Fine 6.5 mg/kg.
40. Surface Coarse 0.37 mg/kg. Surface Fine 0.08 mg/kg. Subsoil Coarse 0.37 mg/kg. Subsoil Fine 0.08 mg/kg.
41. Surface Coarse 11 mg/kg. Surface Fine 2.4 mg/kg. Subsoil Coarse 11 mg/kg. Subsoil Fine 2.4 mg/kg.
42. 10−5 Incremental Risk − Surface Coarse 0.030 mg/kg. 10−5 Incremental Risk − Surface Fine 0.0068 mg/kg. 10−5 Incremental Risk − Subsoil Coarse 0.030 mg/kg. 10−5 Incremental Risk − Subsoil Fine 0.0068 mg/kg. 10−6 Incremental Risk − Surface Coarse 0.030 mg/kg. 10−6 Incremental Risk − Surface Fine 0.0068 mg/kg. 10−6 Incremental Risk − Subsoil Coarse 0.030 mg/kg. 10−6 Incremental Risk − Subsoil Fine 0.0068 mg/kg.
43. SQGF Coarse 6.5 mg/kg. SQGF Fine 21 mg/kg.
44. 10−5 Incremental Risk − Surface Coarse 0.030 mg/kg. 10−5 Incremental Risk − Surface Fine 0.0068 mg/kg. 10−5 Incremental Risk − Subsoil Coarse 0.030 mg/kg. 10−5 Incremental Risk − Subsoil Fine 0.0068 mg/kg. 10−6 Incremental Risk − Surface Coarse 0.0095 mg/kg. 10−6 Incremental Risk − Surface Fine 0.0068 mg/kg. 10−6 Incremental Risk − Subsoil Coarse 0.011 mg/kg. 10−6 Incremental Risk − Subsoil Fine 0.0068 mg/kg.
45. This value was derived using TEFs. See the fact sheet for supporting documentation.
46. 500 μg/L for blackberries; 500−1000 μg/L for peaches, cherries, plums, grapes, cowpeas, onions, garlic, sweet potatoes, wheat barley, sunflowers, mung beans, sesame, lupins, strawberries, Jerusalem arti- chokes, kidney beans, and lima beans; 1000−2000 μg/L for red peppers, peas, carrots, radishes, potatoes, and cucumbers; 2000−4000 μg/L for lettuce, cabbage, celery, turnips, Kentucky bluegrass, oats, corn, artichokes, tobacco, mustard, clover, squash, and muskmelons; 4000−6000 μg/L for sorghum, tomatoes, alfalfa, purple vetch, parsley, red beets, and sugar beets; 6000 μg/L for asparagus.
47. Foliar: 100−178 mg/L for almond apricots and plums; 178−355 mg/L for grapes, peppers, potatoes and tomatoes; 355−710 mg/L for alfalfa, barley, corn, and cucumbers; >710 mg/L for cauliflower, cotton, safflower, sesame, sorghum, sugar beets, and sunflowers. Rootstocks: 180−600 mg/L for stone fruit (peaches, plums, etc.); 710−900 mg/L for grapes. Cultivars: 110−180 mg/L for strawberries, 230−460 mg/L for grapes, 250 mg/L for boysenberries, blackberries, and raspberries.

48. 200 μg/L for cereals, 1000 μg/L for tolerant crops.
49. The concentration should not exceed 10 μg/L for continuous use on all soils or 50 μg/L for short−term use on acidic soils.
50. 20 μg/L for continuous use on all soils, 50 μg/L for intermittent use on all soils.
51. 500 mg/L for strawberries, raspberries, beans, and carrots. 500−800 mg/L for boysenberries, currants, blackberries, gooseberries, plums, grapes, apricots, peaches, pears, cherries, apples, onions, parsnips, radishes, peas, pumpkins, lettuce, peppers, muskmelons, sweet potatoes, sweet corn, potatoes, celery, cabbage, kohlrabi, cauliflower, cowpeas, broad beans, flax, sunflowers, and corn. 800−1500 mg/L for spinach, cantaloupe, cucumbers, tomatoes, squash, brussels, sprouts, broccoli, turnips, smooth brome, alfalfa, big trefoil, beardless wildrye, vetch, timothy, and crested wheat grass. 1500−2500 mg/L for beets, zucchini, rape, sorghum, oat hay, wheat hay, mountain brome, tall fescue, sweet clover, reed canary grass, birdsfoot trefoil, perennial ryegrass. 3500 mg/L for asparagus, soybeans, safflower, oats, rye, wheat, sugar beets, barley, barley hay, and tall wheat grass.
52. 1000 μg/L when soil pH < 6.5. 5000 μg/L when soil pH > 6.5.
53. 500 μg/L for sheep, 1000 μg/L for cattle, 5000 μg/L for swine and poultry.
54. The maximum concentration in livestock drinking water should not exceed 2000 μg/L, or 1000 μg/L in cases where the feed of animals contains fluoride.
55. The short−term benchmark concentration of 1.0 μg·L−1 is for waters of 50 mg CaCO3·L−1 hardness. The short−term benchmark for cadmium is related to water hardness (as CaCO3): When the water hardness is 0 to < 5.3 mg/L, the short−term benchmark is 0.11 μg/L. At hardness ≥ 5.3 to ≤ 360 mg/L, the short−term benchmark is calculated using this equation: Short−term benchmark (μg/L) = 10{1.016(log[hardness]) –1.71 }. At hardness > 360 mg/L, the short−term benchmark is 7.7 μg/L.
56. Benchmark = exp(0.878[ln(hardness)] + 4.76), where the benchmark is expressed in dissolved manganese concentration (μg/L), and hardness is measured as CaCO3 equivalents in mg/L.
57. 5 μg/L if pH < 6.5. 100 μg/L if pH ≥6.5.
58. The CWQG for cadmium (i.e., long−term guideline) of 0.09 μg·L−1 is for waters of 50 mg CaCO3·L−1 hardness. The CWQG for cadmium is related to water hardness (as CaCO3): When the water hardness is > 0 to < 17 mg/L, the CWQG is 0.04 μg/L. At hardness ≥ 17 to ≤ 280 mg/L, the CWQG is calculated using this equation: CWQG (μg/L) = 10{0.83(log[hardness]) – 2.46 }. At hardness > 280 mg/L, the CWQG is 0.37 μg/L.
59. The CWQG for copper is related to water hardness (as CaCO3): When the water hardness is 0 to < 82 mg/L, the CWQG is 2 μg/L. At hardness ≥82 to ≤180 mg/L the CWQG is calculated using this equation: CWQG (μg/L) = 0.2 * e{0.8545[ln(hardness)]−1.465}. At hardness >180 mg/L, the CWQG is 4 μg/L. If the hardness is unknown, the CWQG is 2 μg/L.
60. The CWQG for lead is related to water hardness (as CaCO3): When the hardness is 0 to ≤ 60 mg/L, the CWQG is 1 μg/L. At hardness >60 to ≤ 180 mg/L the CWQG is calculated using this equation: CWQG (μg/L)= e{1.273[ln(hardness)]−4.705}. At hardness >180 mg/L, the CWQG is 7 μg/L. If the hardness is unknown, the CWQG is 1 μg/L.
61. The CWQG for manganese (i.e., long−term guideline) is found using the CWQG calculator in Appendix B of the Scientific Criteria Document for the Development of the Canadian Water Quality Guidelines for the Protection of Aquatic Life: Manganese.
62. The CWQG for nickel is related to water hardness (as CaCO3): When the water hardness is 0 to ≤ 60 mg/L, the CWQG is 25 μg/L. At hardness > 60 to ≤ 180 mg/L the CWQG is calculated using this equation: CWQG (μg/L) = e{0.76[ln(hardness)]+1.06}. At hardness >180 mg/L, the CWQG is 150 μg/L. If the hardness is unknown, the CWQG is 25 μg/L.
63. Canadian Guidance Framework for Phosphorus is for developing phosphorus guidelines (does not provide guidance on other freshwater nutrients). It provides Trigger Ranges for Total Phosphorus (μg/L) (see Guidance Framework for Phosphorus factsheet): ultra−oligotrophic <4, oligotrophic 4−10, mesotrophic 10−20, meso−eutrophic 20−35, eutrophic 35−100, hyper−eutrophic >100.
64. The long−term CWQG is for dissolved zinc and is calculated using the following equation: CWQG = exp(0.947[ln(hardness mg·L−1)] − 0.815[pH] + 0.398[ln(DOC mg·L−1)] + 4.625). The short−term benchmark is for dissolved zinc and is calculated using the following equation: Benchmark = exp(0.833[ln(hardness mg·L−1)] + 0.240[ln(DOC mg·L−1)] + 0.526).
65. Supporting documents are available from the Canadian Council of Ministers of the Environment.
66. The listed values are dry weight.

67. This is a reactive species.
68. Guideline is crop−specific: Cereals and hay value is 46 ug/L and Legumes value is 93 ug/L, per the British Columbia data catalog.
69. Active ingredient WQG is 490 ug/L per the British Columbia data catalog.
70. Guideline is crop−specific. The value listed of 0.071 ug/L applies to crops other than cereals, hay, and pastures (e.g., tomato). The value of 3.3 ug/L applies to cereals, hay, and pastures per the British Columbia data catalog.
71. The contents of the measured substances are lower than the Intervention Value for soil, not being the bed or bank of a surface water body, and for organic substances: msPAF < 20%
72. The contents of the measured substances are lower than the Intervention Value for soil, not being the bed or bank of a surface water body, and for metals: msPAF < 50%, with a maximum content for cadmium.
73. This values is a so−called 'Indicative Level'. No reliable Intervention Value could be derived. Indicative Levels are based on the same principles as Intervention Values but have a lower status.
74. This is organic mercury.
75. The three types of dihydroxybenzenes are catechol, resorcinol, and hydroquinone.
76. This chemical was given a value 50 mg/kg for falling under the monochloroanilines category.
77. This chemical was given a value of 50 mg/kg for falling under the dichloroanilines category.
78. This chemical was given a value of 10 mg/kg for falling under the trichloroanilines category.
79. This chemical was given a value of 30 mg/kg for falling under the tetrachloroanilines category.
80. This chemical was given a value of 10 mg/kg for falling under the pentachloroanilines category.
81. The listed value is valid when Aluminum's pH is greater than 6.5. If the pH is less than 6.5, then it has an unknown LOSP value of 0.0008 mg/kg.
82. The Marine Water value was blank from the source, but the Freshwater value is presented as a reference. For other chemical benchmarks from this source, the Freshwater value is often recommended as a cautionary substitute for Marine Waters.
83. The toxicant reliability of these values is unknown.
84. The toxicant reliability of these values is very low.
85. The toxicant reliability of these values is very high.
86. The toxicant reliability of these values is high.
87. The toxicant reliability of these values is low.
88. The toxicant reliability of these values is moderate.
89. Recommended for application for slightly to moderately disturbed ecosystems. If the LOSP 99 is recommended, it is due to the bioaccumulating nature of the toxicant. This application protects key species from acute and chronic toxicity.
90. Recommended for application for slightly to moderately disturbed ecosystems (to protect key species from chronic toxicity). However, this DGV may still not protect key test species from chronic toxicity (this refers to experimental chronic values or geometric mean for species).
91. DGV may be below routine limits of reporting for most commercial laboratories, although some laboratories may be able to achieve lower limits of reporting.
92. DGV may not protect key test species from acute (and chronic) toxicity.
93. Recommended for application for slightly to moderately disturbed ecosystems. Although bioaccumulation may be an issue, rapid depuration of this chemical represents a mitigating factor, and the 95% species protection DGV should provide sufficient protection for slightly−moderately disturbed systems. If local data suggest that bioaccumulation is an issue at the specific site, the 99% protection level may be more appropriate.
94. DGV may not protect key test species from chronic toxicity (this refers to experimental chronic values or geometric mean for species).
95. This value was derived from an acute toxicity dataset comprising 23 species from three taxonomic groups (but which did not include plants). As diuron is a herbicide, the value should be treated with additional caution.
96. This DGV is derived from mesocosm NOEC data. This is the only DGV available for this toxicant.

97. Bioaccumulation and secondary poisoning effects should be considered for this toxicant. To account for the bioaccumulating nature of this toxicant, it is recommended to apply the species protection level DGV that is one level above that which would normally be applied (e.g., if 95% level of species protection would normally be applied, then the 99% DGV should be used).
98. Bioaccumulation and secondary poisoning effects should be considered for this toxicant. Tainting or flavour impairment of fish flesh might occur at concentrations below the DGV. To account for the bioaccumulating nature of this toxicant, it is recommended to apply the species protection level DGV one level above that which would normally be applied (e.g., if 95% level of species protection would normally be applied, then the 99% DGV should be used). Tainting or flavour impairment of fish flesh might occur at concentrations below the DGV.
99. Bioaccumulation and secondary poisoning effects should be considered for this toxicant. Tainting or flavour impairment of fish flesh might occur at concentrations below the DGV.
100. Bioaccumulation and secondary poisoning effects should be considered for this toxicant. Tainting or flavour impairment of fish flesh might occur at concentrations below the DGV. These DGVs and the information in the corresponding DGVs technical brief for this toxicant should be used in accordance with the detailed guidance provided on the Australian and New Zealand Guidelines for Fresh and Marine Water Quality website.
101. Bioaccumulation and secondary poisoning effects should be considered for this toxicant.
102. Ammonia as total ammonia nitrogen, measured as [NH3−N] at pH 8.
103. The DGVs apply to dissolved boron and are based on data from toxicity tests conducted for a pH range of 6.8–10 and hardness range of 9.3–250 mg CaCO3/L. They supersede the ANZECC/ARMCANZ (2000) trigger values for boron in freshwater.
104. Adjust DGVs for site−specific hardness using the hardness−dependent algorithm in Warne et al. (2018).
105. Chlorine as total chlorine, measured as [Cl].
106. The copper DGVs should not be adjusted for water hardness (see Warne et al. 2018).
107. Cyanide as un−ionized HCN, measured as [CN].
108. The DGVs are expressed in terms of the active ingredient (glyphosate) and do not relate to any of the breakdown products of glyphosate. They supersede the ANZECC/ARMCANZ (2000) trigger values for glyphosate in freshwater. Commercial formulations containing glyphosate can be more toxic than glyphosate alone. The Guidelines provide guidance on how to account for formulations (Also see Warne et al. 2018).
109. Sulfide as un−ionized H2S, measured as [S].
110. The DGVs relate to metolachlor only and not any of its breakdown products.
111. The DGVs are expressed in terms of the active ingredient (metsulfuron−methyl) and do not relate to any of the breakdown products of metsulfuron−methyl. They supersede the ANZECC/ARMCANZ (2000) trigger values for metsulfuron in freshwater. These DGVs and the information in the corresponding DGVs technical brief for this toxicant should be used in accordance with the detailed guidance provided on the Australian and New Zealand Guidelines for Fresh and Marine Water Quality website, including guidance on what to do if DGVs are below analytical detection limits.
112. The value listed as the saltwater CMC represents a benchmark value, not a criterion. Data limitations precluded the development of a CCC in saltwater.
113. The listed value of 0.752 mg/L is at a pH level of 6.5 with a temperature of 20˚C. For information on other temperatures and pH levels, refer to Table 3 here.
114. The listed value of 0.000038 mg/L is a lower−bound short−term maximum for varying water hardness and an upperbound maximum of 2.80 ug/L.
115. This value is a result of a pH level of 6.7 and 10˚C. For information on other temperatures and pH levels, refer to Table 3 here.
116. The listed value of 0.4 mg/L is a maximum, where the water hardness is 10 mg/L; otherwise, use the equation: LC50 fluoride = −51.73 + 92.57 log10 (Hardness) and multiply by 0.01.
117. Dissolved Pb WQG = exp(0.514 [ln(DOC)] + 0.214[ln(hardness)] + 0. 4354)
118. The listed value of 0.06 mg/L is for a chloride concentration of less than 2; 0.12 mg/L with a chloride concentration of 2−4; 0.18 mg/L with a chloride concentration of 4−6; 0.24 mg/L of a chloride concentration of

6−8; 0.3 mg/L with a chloride concentration of 8−10; and 0.6 mg/L with a chloride concentration greater than 10.

119. Instantaneous maximum calculated from: less than or equal to 0.01102 hardness + 0.54.
120. The listed value of 0.003 mg/L is for use under non−phototoxic conditions. For use under phototoxic conditions, the value 0.00005 mg/L should be used.
121. WQG=[e⁅[0.645·ln(*DOC*)]+[2.255·ln(*hardness*)]+[1.995·*pH*]+[−0.284 ·(ln(*hardness*)·*pH*)]−9.898⁆]/3 (e.g., for a water with the following chemistry (pH = 7.5, DOC = 0.5 mg/L, hardness = 50 mg/L) the AWQG is 55 μg Al/L (total Al).
122. The listed value of 1.22 mg/L is at a pH level of 6.5 with a temperature of 20°C. For information on other temperatures and pH levels, refer to Table 27C here.
123. The listed value of 0.004 mg/L is for use under non−phototoxic conditions. For use under phototoxic conditions, the value 0.0001 mg/L should be used.
124. The listed value of 0.0001 mg/L should be used under both non−phototoxic and phototoxic conditions.
125. The listed value of 0.0000176 mg/L is a lower−bound long−term average for varying water hardness and an upperbound average of 0.457 ug/L.
126. Average of five weekly measurements taken over a 30−day period. Calculated from: less than or equal to 0.0044 hardness + 0.605.
127. When MeHg = 0.5% of THg, the listed value of 0.00002 mg/L should be used. When MeHg = 1.0% of THg, the value of 0.01 ug/L should be used. When MeHg 8.0% of THg, the value of 0.00125 ug/L should be used.
128. The listed value of 0.02 mg/L is for a chloride concentration of less than 2; 0.04 mg/L for a chloride concentration of 2−4; 0.06 mg/L for a chloride concentration of 4−6; 0.08 mg/L for a chloride concentration of 6−8; 0.10 mg/L for a chloride concentration of 8−10; and 0.20 mg/L for a chloride concentration of more than 10.
129. Guideline is for lakes where salmonids are the predominant fish species. Total phosphorus in lakes is either the spring overturn concentration, if the residence time of the epilimnetic water exceeds 6 months, or the mean epilimnetic growing season concentration, if residence time of epilimnetic water is below 6 months.
130. The listed value of 0.00002 mg/L is for use under phototoxic conditions.
131. The listed value of 0.00005 mg/L is for use when hardness is less than or equal to 100 mg/L. If hardness is greater than 100 mg/L, then use the value of 1.5 ug/L.
132. Sulfate is dependent on water hardness (mg/L). The listed value of 128 is for a water hardness of very soft (0−30). 218 is for soft to moderately soft water hardness (31−75). 309 is for moderately soft/hard to hard water hardness (76−180). 429 is for very hard water hardness (181−250). For anything greater than 250, it needs to be determined based on site water.
133. The long−term chronic WQC = [exp(0.947[ln(hardness)] − 0.815[pH] + 0.398[ln(DOC)] + 4.625)] / 2. The short−term acute WQC = [exp(0.833[ln(hardness)] + 0.240[ln(DOC)] + 0.526)] / 2.
134. Sediment containing 1% organic carbon.
135. The listed value of 11 mg/kg applies to fish egg/ovary. A value of 4 mg/kg applies to fish muscle/muscle plug, fish, whole−body, and invertebrate tissue (dietary). This is Aquatic Life− Freshwater Long−term Chronic.
136. Duration < 2 hours within 24 hour period.
137. Human activities should not cause the chloride of marine and estuarine waters to fluctuate by more than 10% of the natural chloride expected at that time and depth.
138. Applies to all soil types.
139. The listed value of 0.2 mg/L is for all soil types except neutral and alkaline. 400 ug/L should be used for neutral and alkaline fine textured soils.
140. The listed value is only for forage crops.
141. The listed value of 2 mg/L is for moderately sensitive crops (red pepper, pea, carrot, radish, potato, cucumber). 4 mg/L is for moderately tolerant crops (lettuce, cabbage, celery, turnip, Kentucky bluegrass, oat, corn, artichoke, tobacco, mustard, clover, squash, muskmelon). 1 mg/L is for sensitive crops (peach, cherry, plum, grape, cowpea, onion, garlic, sweet potato, wheat, barley, sunflower, mung bean, sesame, lupin, strawberry, Jerusalem artichoke, kidney bean, lima bean). 6 mg/L is for tolerant crops (sorghum, tomato,

alfalfa, purple vetch, parsley, red beet, sugar beet). 0.5 mg/L is for very sensitive crops (black- berry). 15 mg/L is for very tolerant crops (asparagus).

142. This value is for non−forage crops. A value of 0.01 mg/L is for forage crops grown in poorly drained soils, and a value of 0.02 mg/L is for forage crops grown in well drained soil.
143. The guideline for Zinc is dependent upon the pH of the soil, not the irrigation water. For Soil pH<6, the WQC is 1 mg/L. For soil pH greater than or equal to 6 and < 7, the WQC is 2. For soil pH greater then or equal to 7, the WQC is 5.
144. The listed value of 4 mg/L is for all livestock except long lived animals, such as dairy cows and breeding stock fed normal diets. A value of 2 mg/L is for all livestock fed high fluoride diets including mineral or bone meal and feed additives. A value of 1.5 mg/L is for dairy cows, breeding stock, and long−lived animals.
145. For livestock consuming forages not irrigated or if no molybdenum containing fertilizers are applied to grow the feed consumed by livestock, a value of 0.08 mg/L should be used.
146. When nitrate and nitrite are present, total nitrate plus nitrite−nitrogen should not exceed the nitrate WQG.
147. The listed value of 1 mg/L is for dairy cows, breeding stock, and long−lived animals and all animals fed high fluoride diets including mineral or bone meal and feed additives. 2 mg/L is for all livestock except for long lived animals, such as dairy cows and breeding stock fed normal diets.
148. Guideline applies to fish or shellfish consumed by wildlife.
149. The listed value of 6 mg/kg applies to bird eggs.
150. Resin acids are pH dependent. The listed value of 0.009 mg/L is valid between pH > 6.0 and <= 6.5. A value of 1 ug/L is valid at a pH of 5.0. A value of 3 ug/L is valid between a pH > 5.0 and <= 5.5. A value of 4 ug/L is valid between a pH > 5.5 and <=6.0. A value of 25 ug/L is valid between a pH > 6.5 and <= 7.0. A value of 45 ug/L is valid between a pH > 7.0 and <= 7.5. A value of 52 ug/L is valid between a pH > 7.5 and <= 8.0. A value of 60 ug/L is valid between a pH > 8.0 and <= 8.5. A value of 62 ug/L is valid between a pH > 8.5 and <= 9.0. Any pH less an 5.0 a site assessment may be necessary.
151. Dehydroabietic acid (DHA) is pH dependent. The listed value of 0.004 mg/L is valid between pH > 6.0 and <= 6.5. A value of 1 ug/L is valid at a pH of 5.0. A value of 2 ug/L is valid between a pH > 5.0 and <= 5.5. A value of 2 ug/L is valid between a pH > 5.5 and <=6.0. A value of 8 ug/L is valid between a pH > 6.5 and <= 7.0. A value of 12 ug/L is valid between a pH > 7.0 and <= 7.5. A value of 13 ug/L is valid between a pH > 7.5 and <= 8.0. A value of 14 ug/L is valid between a pH > 8.0 and <= 8.5. A value of 14 ug/L is valid between a pH > 8.5 and <= 9.0. Any pH less an 5.0 a site assessment may be necessary.
152. The benchmark can be greater than or equal to this value.
153. The value listed of 0.0011 mg/kg is the sum of compounds Aldrin and Dieldrin.
154. The value listed of 0.0052 mg/kg is the sum of compounds Heptachlor and Heptachlor epoxide.
155. The value listed of 0.021 mg/kg is the sum of Hexachlorocyclohexanes isomers.
156. The value listed of 0.25 mg/kg is the sum of Trichlorobenzenes isomers.
157. Hardness−dependent ambient water quality criterion (100 mg/L as CaCO3 used).
158. Value is for total of all chemical forms.
159. pH−dependent ambient water quality criterion (7.8 pH used).
160. These lowest effect levels are based on 10% of the screening level concentration instead of the default value of 5%.
161. These severe effect levels are based on 90% of the screening level concentration instead of the default value of the 95%.
162. Values are tentative guidelines.
163. Aluminum is pH dependent.
164. There is a duplicate row with higher values in the source.
165. Values are the same for Arsenic dissolved and Arsenic total recoverable.
166. Mercury dissolved value is listed. Total Recoverable value is 0.0034 mg/L.
167. The value listed is for Warm Water Habitat (WWH), Exceptional Warm Water Habitat (EWH), Modified Warm Water Habitat (MWH), Cold Water Habitat (CWH), and Limited Resource Water (LRW). For Seasonal Salmonid Habitat (SSH), no chlorine is to be discharged.
168. Mercury dissolved value is listed. Total Recoverable value is 0.0017 mg/L.

169. The value listed is for Warm Water Habitat (WWH), Exceptional Warm Water Habitat (EWH), Modified Warm Water Habitat (MWH), and Cold Water Habitat (CWH). For Seasonal Salmonid Habitat (SSH), no chlorine is to be discharged.
170. Mercury dissolved value is listed. Total Recoverable value is 0.00091 mg/L. Lake Erie Basin Total Recoverable value is 0.0000013 mg/L.
171. Selenium dissolved value is listed. Total Recoverable value is 0.005 mg/L.
172. The listed value is for Warm Water Habitat (WWH), Exceptional Warm Water Habitat (EWH), and Modified Warm Water Habitat (MWH).
173. The listed value is for Seasonal Salmonid Habitat (SSH) and Cold Water Habitat (CWH).
174. Ammonia's value is pH dependent. For Warm Water Habitat (WWH), Modified Warm Water Habitat (MWH), and Limited Resource Habitat (LRW), pH ranges between 6.5 − 7.7 with a temperature between 0C and 26C the value of 13 mg/L should be used. All other pH levels and temperatures should be referenced in Table 35−2. Link to the tables is here.
175. For Exceptional Warm Water Habitats (EWH) with a pH range of 6.5 − 7.4 and a temperature between 0C and 25C, the value of 13 mg/L should be used. All other pH levels and temperatures should be referenced in Table 35−3. Link to the tables is here.
176. For Cold Water Habitat (CWH) and Seasonal Salmonid Habitat (SSH) with a pH range of 6.5 − 7.4 and a temperature between 0C and 20C, the value of 13 mg/L should be used. All other pH levels and temperatures should be referenced in Table 35−4. Link to the tables is here.
177. Pentachlorophenol is pH dependent. The listed value of 0.011 mg/L is for a pH level of 7.5. For other pH levels, refer to Table 35−10. Link to the tables is here.
178. Cadmium is water hardness dependent. The listed value is for a water hardness of 100. For other hardness levels and forms, see Table 35−9. Link to the tables is here.
179. Chromium is water hardness dependent. The listed value is for a water hardness of 100. For other hardness levels and forms, see Table 35−9 here.
180. In addition, any whole sample of any representative aquatic organisms shall not exceed 0.64 mg/kg (wet weight).
181. Ammonia's value is pH dependent. For Warm Water Habitat (WWH) with pH ranges between 6.5 − 7.7 with a temperature between 10C and 14C, and during the months of March to November the value of 2.3 mg/L should be used. All other pH levels, temperatures, and months should be referenced in Table 35−5. Link to the tables is here.
182. Ammonia's value is pH dependent. For Exceptional Warm Water Habitats (EWM) with pH ranges between 6.5 − 7.7, a temperature between 10C and 13C, and during the months of March to November, the value of 2.2 mg/L should be used. All other pH levels, temperatures, and months should be referenced in Table 35−6. Link to the tables is here.
183. Ammonia's value is pH dependent. For Modified Warm Water Habitat (MWH) with pH ranges between 6.5 - 7.7, a temperature between 10C and 13C, and during the months of March to November, the value of 3.4 mg/L should be used. All other pH levels, temperatures, and months should be referenced in Table 35−7. Link to the tables is here.
184. Ammonia's value is pH dependent. For Cold Water Habitat (CWH) with pH ranges between 6.5 − 7.7 with a temperature between 8C and 13C, a value of 2.2 mg/L should be used. All other pH levels and temperatures should be referenced in Table 35−8. Link to the tables is here.
185. Copper is water hardness dependent. The listed value is for a water hardness of 100. For other hardness levels and forms, see Table 35−9 here.
186. Lead is water hardness dependent. The listed value is for a water hardness of 100. For other hardness levels and forms, see Table 35−9 here.
187. Nickel is water hardness dependent. The listed value is for a water hardness of 100. For other hardness levels and forms, see Table 35−9 here.
188. Zinc is water hardness dependent. The listed value is for a water hardness of 100. For other hardness levels and forms, see Table 35−9 here.
189. This criterion applies to the sum of DDT and metabolites.
190. The form of the chemical is dissolved.
191. The form of the chemical is total recoverable.
192. The form of the chemical is total.

193. The form of the chemical is total residual.
194. The form of the Cyanide is free.
195. Values enclosed by ”( )” were not calculated according to the regulations, due to limited data. These values should only be used for advisory purposes, such as establishing ”reasonable potential”.
196. Values enclosed by ”[ ]” are national criteria and should be used for advisory purposes only.
197. Values are estimates.
198. Values are pH based.
199. Criterion is expressed as a function of the Water Effect Ratio (WER). For criterion in the table, WER equates to the default value of 1.0.
200. Dissolved criterion.
201. Criteria expressed as free cyanide (as CN)/L.
202. The value listed is calculated with an assumed hardness level of 100. To calculate additional hardness values, use the formulas provided in the document on page 34.
203. Westhollow Technical Center Levels were developed by Shell Oil for surface water and were approved for use by NJDEP with the following conditions: 1) the source area is removed, 2) these levels are on the fringe of the contamination area, and 3) active remediation is occurring. These levels are applicable to surface water and wetland areas.
204. The value listed is calculated with an assumed pH of 6.8 and temperature of 20C. For other values regarding various temperatures and pH levels, use the formulas provided in the document on page 33.
205. This value is for the total of Heptachlor/Heptachlor epoxide.
206. The benzene hexachloride (BHC) value applies to all stereoisomers of 1,2,3,4,5,6−hexachlorcyclohexane.
207. This value applies to all chlorinated dibenzofurans.
208. This value applies to all chlorinated dibenzo−p−dioxins.
209. Criteria for these metals are measured as total recoverable metal. However, they may be applied as dissolved metals when, as part of a permit application, a dissolved metals translator has been established according to the procedures described in the document, ”Guidance for Establishing a Metal Translator”, Florida Department of Environmental Protection, December 17, 2001.
210. In the absence of concentration data specific for the III and VI valence states of chromium, total chromium concentrations in surface water should be compared to the criteria for Chromium (hexavalent).
211. These values were derived assuming soil pH 6.8. These leachability values are dependent upon both the metal concentration in soil and soil characteristics. Thus, if site−specific soil characteristics are different than the defaults, these leachability values may not apply. If this is the case, site−specific leachability values should be derived using methods such as TCLP or SPLP.
212. Phytotoxicity must be considered.
213. Unless concentrations for both chromium III and VI are known, total chromium concentrations should be compared with direct exposure SCTLs for chromium VI.
214. Expressed as dissolved.
215. Expressed as total recoverable.
216. Criteria do not apply to waters subject to water quality objectives in Tables III−2A and III−2B of the San Francisco Bay Regional Water Quality Control Board’s 1986 Basin Plan.
217. Criterion most appropriately applied to the sum of alpha−Endosulfan and beta−Endosulfan.
218. For nonchlorinated phenolic compounds.
219. For chlorinated phenolic compounds.
220. For benzene hexachloride isomers.
221. Value developed for chromium (VI); may be applied to total chromium if valence is unknown.
222. For the sum of alpha−Endosulfan, beta−Endosulfan, and Endosulfan sulfate.
223. Expressed as nitrogen.
224. For total chlorine residual.
225. For dissolved chloride associated with sodium; criterion probably will not be adequately protective when chloride is associated with potassium, calcium, or magnesium rather than sodium.
226. Expressed as free cyanide (as CN).

227. For pH between 6.5 and 9.0. Use of Water−Effects Ratios might be appropriate because: (1) aluminum is less toxic at higher pH and hardness but relationship not well quantified; (2) aluminum associated with clay particles may be less toxic than that associated with aluminum hydroxide particles; and (3) many high quality waters in U.S. exceed 87 ug/L as total or dissolved.
228. Applies to DDT and its metabolites (i.e., the total concentration of DDT and its metabolites should not exceed this value).
229. Interim.
230. This value is for ruminant livestock. For non−ruminants, use 0.284
231. See the Ecological Soil Screening Level for Aluminum, Interim Final, OSWER Directive 9285.7−60, available here
232. See the Ecological Soil Screening Level for Iron, Interim Final, OSWER Directive 9285.7−69, available here
233. The chronic freshwater−based and chronic tissue−based criteria are independently applicable and no one criterion takes primacy. The value here is for water. Other values are as follows: 0.000028 mg/kg wet weight for invertebrate whole−body tissue; 0.000201 mg/kg wet weight for fish whole−body tissue; and 0.000087 mg/kg wet weight for fish muscle tissue.
234. The chronic freshwater−based and chronic tissue−based criteria are independently applicable and no one criterion takes primacy. The value here is for water. Other values are as follows: 0.00108 mg/kg wet weight for invertebrate whole−body tissue; 0.00649 mg/kg wet weight for fish whole−body tissue; and 0.000133 mg/kg wet weight for fish muscle tissue.
235. pH 6.5−9.0
236. Criteria is for total dissolved form.
237. Freshwater criteria calculated using the EPA Biotic Ligand Model.
238. Cyanide measured as free cyanide at the lowest pH occurring in the receiving water or cyanide amenable to chlorination.
239. The one−hour average concentration of total ammonia nitrogen (in mg TAN/L) is not to exceed, more than once every three years on the average, the CMC (acute criterion magnitude) calculated using the following equation: CMC = MIN((0.275/(1+10ˆ(7.204−pH)))+(39/(1+10ˆ(pH−7.204)))), (0.7249*((0.0114/(1+10ˆ(7.204−pH)) +(1.6181/(1+10ˆ(pH−7.204)))*(23.12*10ˆ(0.036*(20−t))), where pH = pH of interest, t = temperature degrees Celsius.
240. The thirty−day rolling average concentration of total ammonia nitrogen (in mg TAN/L) is not to exceed, more than once every three years on the average, the chronic criterion magnitude (CCC) calculated using the following equation: CCC = 0.8876*((0.0278/(1+10ˆ(7.688−pH)))+(1.1994/(1+10ˆ(pH−7.688))))* (2.126*10ˆ(0.028*(20−MAX(T where pH = pH of interest, t = temperature degrees Celsius. In addition, the highest 4−day average withinthe 30−day averaging period should not be more than 2.5 times the CCC more than once in 3 years on average.
241. Value = EXPˆ(0.9789*LN(hardness)−3.866)*(1.136672−((LN(hardness)*(0.041838)))), where EXP = e =2.71828, LN = natural log base e, and hardness is expressed as mg/L as CaCO3.
242. Value = EXPˆ(0.7977*LN(hardness)−3.909)*(1.101672−((LN(hardness)*(0.041838)))), where EXP = e=2.71828, LN = natural log base e, and hardness is expressed as mg/L as CaCO3.
243. Value = 0.316*EXP(0.819*LN(hardness)+3.7256), where EXP = e =2.71828, LN = natural log base e, and hardness is expressed as mg/L as CaCO3.
244. Value = 0.86*EXP(0.819*LN(hardness)+0.6848), where EXP = e =2.71828, LN = natural log base e, and hardness is expressed as mg/L as CaCO3.
245. Value = (1.46203−LN(hardness)*0.145712)* EXP(1.273*LN(hardness)−1.460), where EXP = e =2.71828, LN = natural log base e, and hardness is expressed as mg/L as CaCO3.
246. Value = (1.46203−LN(hardness)*0.145712)* EXP(1.273*LN(hardness)−4.705), where EXP = e =2.71828, LN = natural log base e, and hardness is expressed as mg/L as CaCO3.
247. Value = 0.998*EXP(0.8460*LN(hardness)+2.255), where EXP = e =2.71828, LN = natural log base e, and hardness is expressed as mg/L as CaCO3.
248. Value = 0.997*EXP(0.8460*LN(hardness)+0.0584), where EXP = e =2.71828, LN = natural log base e, and hardness is expressed as mg/L as CaCO3.
249. Value = EXP(1.005*pH−4.869), where EXP = e =2.71828, LN = natural log base e, and hardness is expressed as mg/L as CaCO3.

250. Value = EXP(1.005*pH−5.134), where EXP = e =2.71828, LN = natural log base e, and hardness is expressed as mg/L as CaCO3.
251. Value = 0.85*EXP(1.72*LN(hardness)−6.59), where EXP = e =2.71828, LN = natural log base e, and hardness is expressed as mg/L as CaCO3.