

According to our Mixing Zone Policy, 36 “Bioaccumulative Pollutants” were identified according to the following threshold(s), BCF >1000 and/or a BAF >1000

Pollutant	CAS Number	BCF (L/kg)	BAF [†] (L/Kg)
		Current	2014
Aldrin	309-00-2	4670	207732
alpha-BHC	319-84-6	130	1237
Anthracene	120-12-7	30	1181
Benzo(a) pyrene	50-32-8	30	1487
Benzo(b) fluoranthene	205-99-2	30	3282
Benzo(k) fluoranthene	207-08-9	30	1029
beta-BHC	319-85-7	130	1237
Bis(2-ethylhexyl) phthalate	117-81-7	130	9056
Chlordane	57-74-9	14100	1517845
Chrysene	218-01-9	30	5663
Dibenzo(a,h) anthracene	53-70-3	30	14006
Dieldrin	60-57-1	4670	21773
Endrin	72-20-8	3970	21773
Endrin Aldehyde	7421-93-4	3970	6885
Fluoranthene	206-44-0	1150	606
gamma-BHC (lindane)	58-89-9	130	1237
Heptachlor	76-44-8	11200	34305
Heptachlor Epoxide	1024-57-3	11200	24865
Hexachlorobenzene	118-74-1	8690	357268
Hexachlorobutadiene	87-68-3	2.78	11181
Hexachlorocyclohexane-Technical	608-73-1	130	1704
Hexachlorocyclopentadiene	77-47-4	4.34	6971
Ideno (1,2,3-cd) pyrene	193-39-5	30	2624
Methylmercury	22967-92-6	3760-9000	927545
Methoxychlor	72-43-5	214	8930
PCBs	Multiple CAS	31200	
Pentachlorobenzene	608-93-5	2125	32844
Pyrene	129-00-0	30	1092
Toxaphene	8001-35-2	13100	172845
1,2,4,5-Tetrachlorobenzene	95-94-3	1125	5498
2,3,7,8 TCDD (dioxin)	174-60-16	5000	
4,4'-DDD	72-54-8	53600	784127
4,4'-DDE	72-55-9	53600	579114

4,4'-DDT	50-29-3	53600	1489318
4-Bromophenyl phenyl ether	101-55-3	1640	
4-Chlorophenyl phenyl ether	7005-72-3	1200	

† These are weighted average BAF values for trophic levels 2, 3 and 4 where $[(0.008*TL2) + (0.009*TL3) + (0.005*TL4)]/0.022$ (EPA 2014).

Red values indicate values which exceed the BCF and BAF thresholds (>1000 [L/kg]) under Idaho's definition of "Bioaccumulative Pollutants" in IDAPA 58.01.02 (Idaho Water Quality Standards).

Notes on acronyms/terms used:

Bioconcentration Factor (BCF) – A BCF is “the ratio (in liters per kilogram of tissue) of the concentration of a chemical in the tissue of an aquatic organism to its concentration in water” (EPA 2003). BCFs are calculated using laboratory data, thus account only for uptake directly from the water.

Bioaccumulation Factor (BAF) – A BAF is also “the ratio (in liters per kilogram of tissue) of the concentration of a chemical in the tissue of an aquatic organism to its concentration in water” (EPA 2003). However, BAFs are calculated using field measured data or predicted from laboratory BCFs using models that account for trophic level magnification – thus account for dietary uptake as well as uptake directly from the water.

CAS – Chemical Abstract Service Number

Sources used for BCF & BAF values:

All but two chemical BCF values were obtained from the United States Environmental Protection Agency's (EPA) *National Recommended Water Quality Criteria: 2002* (EPA 2002):

The BCF value for methoxychlor (72-43-5) was obtained from IDEM (2000).

The BCF value for technical hexachlorocyclohexane (608-73-1) was obtained from EPA (2014a).

The BCF value reported here for methylmercury (22967-92-6) was reported as the BCF value for mercury in the *National Recommended Water Quality Criteria: 2002* (EPA 2002), but the values were actually the BCF values calculated from inorganic and methylmercury compounds (referred to as Practical Bioconcentration Factors [PBCFs]) reported in EPA (1980).

Except for the methylmercury BAF, the BAF values were calculated using the trophic level weighted BAF equation listed in the table notes, and trophic level specific BAFs in EPA's 2014 proposed human health criteria update (EPA 2014b).

The BAF value for methylmercury was determined from EPA (2001). The specific values used to calculate the BAF in this case were the geometric means of combined data from direct and converted BAFs estimated for both lentic and lotic waters.

Notes on this revision:

A previous version of this table was based on a proposed definition of “Bioaccumulative Pollutants” with a threshold BCF of >300 L/Kg. The definition was revised in November 2014 in response to public comment to a BCF threshold of >1000 L/Kg. This resulted in two deletions from the list:

Butylbenzyl phthalate (85-68-7) and 3,3 dichlorobenzidine (91-94-1) were omitted from this list because BCF and BAF values were less than 1000 (L/kg).

Another deletion resulted from the discovery of an error:

Acenaphthene (83-32-9) was omitted because former reported BAF value was the BCF for anthracene. The actual BAF value is 114 (L/kg) and <1000 (L/kg).

Four chemicals were added to the list based on BCF value exceeding 1000 (L/kg), but have no reported BAF in EPA (2014b):

PCBs (multiple CAS), 2,3,7,8 TCDD (dioxin)(174-60-16), 4-bromophenyl phenyl ether (101-55-3), and 4-chlorophenyl phenyl ether (7005-72-3).

Three additional chemicals were added that were previously not included:

Hexachlorocyclopentadiene (77-47-4), ideno (1,2,3-cd) pyrene (193-39-5), and methylmercury (22967-92-6).

PCBs, dioxin, and methylmercury were previously omitted; these 3 chemicals are not part of EPA’s 2014 Human health criteria update, the main source of the BAFs. The chemicals, 4-bromophenyl phenyl ether (101-55-3), and 4-chlorophenyl phenyl ether (7005-72-3), were not previously listed as Idaho does not currently have criteria for these chemicals in its toxics criteria (IDAPA 58-01-02.210).

The BAF for chlordane was changed from 1032582 to 1517845 according to the output of the BAF “weighted average equation” and the values published in EPA (2014).

Literature Cited

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