

APPENDIX K

USFWS DRAFT TISSUE SCREENING VALUES FOR WILDLIFE IN SAN DIEGO BAY

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DRAFT - JUNE 3, 2016 (CTZ)
Initial Wildlife Risk-Based Screening Levels for Contaminants in Tissue of Aquatic Biota - San Diego Bay Bioaccumulation Study

MERCURY

Receptor category	waterfowl	small piscivore	large piscivore	large piscivore	generalist
Feeding guild	bottom inverts	pelagic/surface	pelagic/demersal	Pelagic/demersal/bottom fish	aquatic/terrestrial
Representative	Surf scoter	CA. least tern	Caspian tern	Double-crested cormorant	Western gull
Generic Screening value (type)	Generic Screening value (concentrations as ugHg/kgdiet ww)				
NOAEC - screening (all species)	12.8	4.9	9.2	13.5	25.2
LOAEC - screening (most sensitive)	32.1	12.3	23.0	33.7	62.9
LOAEC - screening (mid-range)	577	221	415	606	1132

DDTs

Receptor category	waterfowl	small piscivore	large piscivore	large piscivore	generalist
Feeding guild	bottom inverts	pelagic/surface	pelagic/demersal	Pelagic/demersal/bottom fish	aquatic/terrestrial
Representative	Surf scoter	CA. least tern	Caspian tern	Double-crested cormorant	Western gull
Generic Screening value (type)	Generic Screening value (concentrations as ugDDT/kgdiet ww)				
NOAEC - screening (most sensitive)	29	11	21	30	57
LOAEC - screening (most sensitive)	87	33	62	91	170

tPCBs

Receptor category	waterfowl	small piscivore	large piscivore	large piscivore	generalist
Feeding guild	bottom inverts	pelagic/surface	pelagic/demersal	Pelagic/demersal/bottom fish	aquatic/terrestrial
Representative	Surf scoter	CA. least tern	Caspian tern	Double-crested cormorant	Western gull
Generic Screening value (type)	Generic Screening value (concentrations) as ugtPCBs/kgdiet ww				
NOAEC - screening (most sensitive)	288	110	207	303	566
LOAEC - screening (mid-range)	4,071	1,556	2,926	4,276	7,987

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PCB TEQs

Receptor category	waterfowl	small piscivore	large piscivore	large piscivore	generalist
Feeding guild	bottom inverts	pelagic/surface	pelagic/demersal	Pelagic/demersal/bottom fish	aquatic/terrestrial
Representative	Surf scoter	CA. least tern	Caspian tern	Double-crested cormorant	Western gull

Generic Screening value (type)	Generic Screening value (concentrations) as ugTEQ/kgdiet ww				
NOAEC - screening (most sensitive)	0.0035	0.0014	0.0025	0.0037	0.0069
LOAEC - screening (lowest, except most sensitive)	0.1587	0.0607	0.1141	0.1667	0.3113

PBDEs

Receptor category	waterfowl	small piscivore	large piscivore	large piscivore	generalist
Feeding guild	bottom inverts	pelagic/surface	pelagic/demersal	Pelagic/demersal/bottom fish	aquatic/terrestrial
Representative	Surf scoter	CA. least tern	Caspian tern	Double-crested cormorant	Western gull

Generic Screening value (type)	Generic Screening value (concentrations) as ugPBDEs/kgdiet ww				
NOAEC - screening (sensitive)	31	12	22	32	60
LOAEC - screening (sensitive)	308	118	221	323	604

Chlordanes

Receptor category	waterfowl	small piscivore	large piscivore	large piscivore	generalist
Feeding guild	bottom inverts	pelagic/surface	pelagic/demersal	Pelagic/demersal/bottom fish	aquatic/terrestrial
Representative	Surf scoter	CA. least tern	Caspian tern	Double-crested cormorant	Western gull

Generic Screening value (type)	Generic Screening value (concentrations) as ugPBDEs/kgdiet ww				
NOAEC - screening (sensitive)	513	196	369	539	1,006
LOAEC - screening (sensitive)	22,436	8,578	16,129	23,569	44,025

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LPAHs

Receptor category	waterfowl	small piscivore	large piscivore	large piscivore	generalist
Feeding guild	bottom inverts	pelagic/surface	pelagic/demersal	Pelagic/demersal/bottom fish	aquatic/terrestrial
Representative	Surf scoter	CA. least tern	Caspian tern	Double-crested cormorant	Western gull

Generic Screening value (type)	Generic Screening value (concentrations) as ugLPAHs/kgdiet ww				
NOAEC - screening (one species)	946	362	680	993	1,855
LOAEC - screening (one species)	15,160	5,797	10,899	15,926	29,748

HPAHs

Receptor category	waterfowl	small piscivore	large piscivore	large piscivore	generalist
Feeding guild	bottom inverts	pelagic/surface	pelagic/demersal	Pelagic/demersal/bottom fish	aquatic/terrestrial
Representative	Surf scoter	CA. least tern	Caspian tern	Double-crested cormorant	Western gull

Generic Screening value (type)	Generic Screening value (concentrations) as ugHPAHs/kgdiet ww				
NOAEC - screening (one species)	46	18	33	48	90
LOAEC - screening (one species)	4,583	1,752	3,295	4,815	8,994

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Sources of TRVs for calculating NOAECs and LOAECs

Mercury (NOAEC all spp)	Zhang et al 2013
Mercury (NOAEC less sensitive spp, seabirds)	USFWS 2003
Mercury (LOAEC all spp)	Zhang et al 2013
DDTs (NOAEC most sensitive)	DTSC/HERD 2009
DDTs (LOAEC most sensitive)	EPA 1995
tPCBs (NOAEC most sensitive)	DTSC/HERD 2009
tPCBs (LOAEC mid-range)	DTSC/HERD 2009
PCB-TEQ (NOAEC most sensitive)	Su et al 2014
PCB-TEQ (LOAEC all - excl most sensitive)	Su et al 2014
PBDE (NOAEC most sensitive*)	Fernie et al. 2009
PBDE (LOAEC most sensitive*)	Fernie et al. 2009
Chlordanes (NOAEC sensitive species)**	Stickel et al 1983
Chlordanes (NOAEC sensitive species)**	Stickel et al 1983
LPAHs (NOAEC - Japanese quail)	Klasing 2007
LPAHs (LOAEC - Japanese quail)	Klasing 2007
HPAHs (NOAEC - pigeons)	Hough et al 1993
LPAHs (NOAEC - pigeons)	Hough et al 1993

Fernie, K.J., J.L. Schutt, R.J. Lechter, I.J. Ritchie and D.M. Bird. 2009. Environmentally relevant concentrations of DE-71 and HBCD alter eggshell thickness and reproductive success of American kestrels. *Environ. Sci. Technol.* 43(6):2124-2130.

U. S. Environmental Protection Agency (USEPA). 1995. Great Lakes water quality initiative criteria documents for the protection of wildlife - DDT, Mercury, 2,3,7,8-TCDD and PCBs. EPA-820-B-95-008. U.S. Environmental Protection Agency, Office of Water, Washington, D.C. 82 pp.

Stickel, L.F., S.N. Wiemeyer, and L.J. Blus. 1973. Pesticide residues in eggs of wild birds: Adjustments for loss of moisture and lipid. *Bull. Environ. Contam. Toxicol.* 9:193-196.