

Table 4-7 – Comparison of PCBs in Fish
First MNR Report
Palos Verdes Shelf (OU 5 of the Montrose Chemical Corp. Superfund Site)
Los Angeles County, California

	BSB									WC											
Sampling event	NOAA 2002-2004 (ND = 0)			Sanitation Districts 2012 (ND = 0)			EPA 2014-2016 (ND = EDL)			NOAA 2002-2004 (ND = 0)			EPA ICs 2009-2012 (ND = MDL)			Sanitation Districts 2015 (ND = 0)			EPA 2014-2016 (ND = EDL)		
Location	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max
Breakwater Area	24,300	57,400 (6)	111,000				4,240	17,800 (31)	77,300	5,260	44,200 (49)	279,000	23,600	82,500 (15)	164,000				10,600	52,000 (30)	87,400
Huntington Flats	80,300	80,300 (1)	80,300				7,680	43,800 (30)	171,000	5,410	41,100 (10)	72,400									
Redondo Flats	8,170	26,500 (10)	58,700				4,960	27,600 (26)	128,000	18,600	62,100 (25)	209,000							26,500	70,300 (8)	146,000
Ventura Flats										8,860	21,700 (9)	31,000	7,570	15,800 (4)	23,500				1,340	2,820 (30)	5,140
Zone 1	5,470	97,800 (16)	294,000		67,000* (10)		6,460	34,800 (30)	106,000	24,800	348,000 (16)	619,000				267,000 (10)			40,500	82,200 (30)	199,000
Zone 2					31,000* (10)		3,770	22,700 (12)	66,000	15,300	120,000 (29)	356,000				154,000 (10)			24,700	115,000 (30)	256,000
Zone 3	12,100	40,400 (5)	80,400		17,000* (10)		4,190	16,100 (14)	38,500							86,100 (10)			9,980	50,700 (30)	164,000

Abbreviations

Avg - Average
BSB - Barred sand bass
COCs - Chemicals of concern
EDL - Estimated detection limit (sample-specific)
EPA - United States Environmental Protection Agency
ICs - Institutional Controls
IROD - Interim Record of Decision
m - Meters
Max - Maximum
MDL - Method detection limit
Min - Minimum
MNR - Monitored natural recovery
NA - Not applicable
ND - Not detected
NOAA - National Oceanic and Atmospheric Administration
PCBs - Polychlorinated biphenyls
WC - White croaker

Notes

1. Concentrations of PCBs are in units of **picograms per gram (pg/g = parts per trillion)**.
2. Different researchers used different congener lists. Sanitation Districts 2012 BSB results are for total detectable Aroclors*. See reference documents.
3. Numbers in parentheses are the numbers of fish results in each average calculation or composite.
4. NOAA 2002-2004 results are from fish caught at overlapping or adjacent locations: Segment 16 and EPA A (Breakwater Area); Segment 20 (Huntington Flats); Segments 6, 7, and EPA F (Redondo Flats); Segment 1 (Ventura Flats); Segments 12 and 13-14 (Zone 1); EPA E (Zone 2); and Segments 8 and 9 (Zone 3).
5. EPA 2014-2016 results are based on the current sampling program from the locations listed.
6. EPA ICs 2009-2012 results are from WC caught at adjacent pier locations: Long Beach Breakwall and Cabrillo Pier (Breakwater Area); and Santa Monica Pier (Ventura Flats reference area).
7. Sanitation Districts' 2012 results BSB and 2015 results for WC are from fish surveys typically conducted as part of JWPCP NPDES permit compliance. Those results are from analyses of composited samples of 10 fish specimens (one composite each from Zones 1, 2, and 3; Sanitation Districts, 2014, 2016).
8. Shaded cells show Total PCBs greater than the IROD human health goal for ingestion of WC (70 micrograms per kilogram = 70,000 pg/g).
9. EPA Zones 1, 2, and 3 are subareas within the boundaries of the respective Sanitation Districts' three Fish Tissue Bioaccumulation Zones used in the JWPCP NPDES compliance programs for fish. The EPA zones were located along the 60-m isobath, the depth of the outfall diffusers (the former source of release of COCs to the environment).

Sampling Events

NOAA 2002-2004 - Skin-off filet fish tissue results in *2002-2004 Southern California Coastal Marine Fish Contaminants Survey* (NOAA/EPA, 2007)
EPA ICs 2009-2012 - Institutional Controls program, skin-off filet results in *Technical Memorandum - Risk Evaluation of Fish Monitoring Results and Lobster Data* (Gilbane, 2016b), and *Technical Memorandum - Human Health Risk Evaluation of 2011-2012 Fish Collection Data - Palos Verdes Shelf* (Gilbane, 2017).
Sanitation Districts 2012 - Skin-off filet results in *2012-2013 Joint Water Pollution Control Plant, Biennial Receiving Water Monitoring Report*, Table 7.3 2012 Local Seafood Safety Data Summary (Sanitation Districts, 2014).
Sanitation Districts 2015 - Skin-off filet results in *2014-2015 Joint Water Pollution Control Plant, Biennial Receiving Water Monitoring Report*, Appendix 7.17 2014-2015 Local Bioaccumulation Trends (Sanitation Districts, 2016).
EPA 2014-2016 - Skin-off filets for EPA's MNR event