EVALUATION OF SEDIMENT, WATER AND FISH TISSUE FOR CONTAMINANT LEVELS IN TWO PRIMARY TRIBUTARIES OF THE SALTON SEA, THE ALAMO RIVER AND NEW RIVER AND SELECTED WETLANDS FROM 2013-2018

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EXECUTIVE SUMMARY

The Salton Sea is located along the Pacific flyway and is used as a stopover by migrating birds at various times of the year. The Sea is sustained by drainage primarily from two rivers in the South: the New River and the Alamo River. Both rivers consist of agricultural drainage which has diminished in recent years due to the diversion of water to urban targets and successful water conservation by farmers within the region. Reduction of water input to the Salton Sea coupled with evaporation has led to the rapid increase of salinity which may limit food availability for birds and other forms of wildlife. In order to mitigate this issue, artificial wetlands have been constructed to serve as surrogates and ultimate replacements of the Salton Sea for its stopover function. Historical evidence indicates contamination of surface water, sediments and fish from the waterways by metals, legacy pesticides and other contaminants. In order to characterize temporal and spatial trends in contaminant profiles and relative impacts to biota from these locations, databases vetted through the California Surface Water Ambient Monitoring Program (SWAMP) were mined for contaminant occurrence in water, sediments and fish tissues collected from locations that had multiple monitoring events from 2013-2018 in the Alamo River, New River and wetlands receiving water from these sources. Compounds consistently exceeding media-specific thresholds for potential adverse effects were targeted for temporal and spatial trend analyses. Sediments from the outlet sources for each river from 2013-2018 were also evaluated for toxicity.

In summary, persistent legacy organic (ΣDDE) and inorganic contaminants (selenium) are still prevalent in fish collected from the two main tributaries as well as wetlands. In some cases, contaminant concentrations have diminished (some pyrethroids and organophosphates), but in other cases concentrations have remained unchanged (metals in general) or have increased (i.e. nickel). Barbara Worth Drain of the Alamo River and its outlet continues to have high concentrations of pyrethroid insecticides and sediment toxicity. Concentrations of pyrethroids in the New River were lower than those of the Alamo. Several sites of both rivers had water concentrations of the neonicotinoid insecticide (imidacloprid) exceeding USEPA aquatic life benchmark concentrations. Few contaminants and no sediment toxicity were observed within wetlands, but concentraions of DDTs, mercury and selenium within fish sampled within lakes and wetlands were a cause for concern and should undergo additional monitoring. In general, water and sediment concentrations of selenium and DDTs are trending toward a decrease. However, concentrations of selenium within fish have not changed significantly since 2004 in wetlands and lakes and concentrations of mercury within fish from the same locations exceed threshold for prey fish and Least tern consumption.

FIGURE TITLES

TABLE TITLES

ACRONYMS AND ABBREVIATIONS

ALC	aquatic life criteria
DDE	dichlorodiphenyldichloroethane
DDT	dichlorodiphenyltrichloroethane
DNQ	do not quantify
LEL	lowest effect level
MQO	measurement quality objectives
ng/g dw	nanogram/gram dry weight
ng/g ww	nanogram/gram wet weight
ng/L	nanogram/Liter
OC	organic carbon
o'p DDT	ortho, para DDT
pp DDT	para, para DDT
PAH	polyaromatic hydrocarbon
PCB	polychlorinated biphenyl
PBDE	polybrominated diphenyl ether
QAPrPs	Quality Assurance Program Plan
SPoT	Streams Pollution and Trends Program
SWAMP	California Surface Water Ambient Monitoring Program
TEC	Threshold Effects Concentration
TEL	Threshold Effects Level
USEPA	United States Environmental Protection Agency
ΣDDT	Total DDT isomers
ΣPAHs	Total PAH
ΣPCBs	Total PCB isomers

1.0 INTRODUCTION

The Salton Sea is a shallow, eutrophic, hyper-saline endorheic lake situated more than 200 feet below sea level. The shallow Sea is located in Southern California and covers parts of both Riverside and Imperial Counties, with a maximum length of approximately 50 km, and a maximum width of approximately 23 km. The current volume of Salton Sea in 2021 is approximately 5 MAF, with a surface elevation of -238 MSL. The sea is located along the Pacific Flyway and is used as a stopover by migrating birds at various times of the year.

To the south of Salton Sea, there are more than 500,000 acres of irrigated farmland. This land is irrigated with water that is imported from the Colorado River and conveyed via the Coachella Canal and the All-American Canal. Flood, drip and sprinkler irrigation are common practices in the region. An extensive network of more than 2300 km of surface and sub-surface (tile) drains channels this runoff either directly to the Salton Sea, or to the New and Alamo Rivers at the southern end, before entering the sea. At the north end of the sea, the Coachella Valley Storm Water Channel conveys wastewater effluent, agricultural drainage and occasional storm water directly to the sea. The water that is conveyed by these three primary tributaries contains numerous chemicals and nutrients associated with agriculture, derived from fertilizers and pesticides. The Salton Sea is composed almost entirely of this agricultural wastewater, and without this replenishment, the Salton Sea would inevitably evaporate.

Since its formation, the Salton Sea has consistently increased in salinity just as all terminal lakes do. The Sea has no natural outlet, and so water loss only occurs through infiltration and evaporation, which results in the accumulation of salts and contaminants over time. The Sea has a unique chemistry due to the nature of inflows, and water quality and water quantity dynamics are rapidly changing, accelerated by the recent water transfers to the San Diego region. Over the past century, the habitat value and water quality of the Sea has significantly degraded, resulting in negative ecological and economic impacts. Although more than 400 species of birds have been observed at Salton Sea since its creation, the sea has seen a significant decline of species diversity.

Much of the existing literature tends to use the term '*Salton Sea'* synonymously with the surrounding region as a catch-all way of describing not only the Sea, but also the numerous agricultural drains, rivers, artificial wetlands and other geographical and hydrological features. It is essential to make the clear distinction between the Salton Sea itself, and that of the surrounding watershed, when presenting this information. Therefore, for the purposes of this report, the term *Salton Sea* refers only to the single body of water commonly known as the Salton Sea.

Origin of Salton Sea

Today's Salton Sea was unintendedly created in 1905 after a complex series of human and natural events led to the uncontrolled inundation of the Salton Sink. In the early 1900s when agriculture in the Coachella Valley was still new, a five-mile reach of the gravity-driven water conveyance system had clogged with silt and sediment, and the technology of that time was inadequate for dredging and clearing the obstruction. Engineers opted to bypass the obstruction altogether by making an unauthorized cut in an intake located 6 km south of the Mexico border. But since the engineers were relying on only 27 years of historical weather data, they could not foresee the repeated series of major storms that would follow and eventually overwhelm the cut they had made. The river continued to fill the Salton Basin uncontrollably for almost two years, and in the interim, repeated attempts to stop the flow failed. Finally, in January of 1907, engineers were able to close the breach and regain control.

In 1924 and 1928, President Coolidge executed Public Water Reserve Order Numbers 90 and 114. This action withdrew 123,360 acres of public land lying at an elevation of -220 MSL, in and around the Salton Sea, thereby designating that land as a repository for receiving and storing agricultural, surface, and subsurface drainage waste. The State of California later designated the Sea for this same purpose in 1968. On November 25, 1930 President Hoover issued Executive order 5498 which established the "Salton Sea Wildlife Refuge" on 32,766-acres.

The Sea receives drainage primarily from the New River and the Alamo River in the south. The New River begins in Baja California, running through the city of Mexicali for approximately 25 km, into the United States, traversing the city of Calexico, California through significant agricultural areas for 100 km and eventually terminates in the Salton Sea (Figure 1). The New River's flow is composed of agricultural waste and chemical runoff from the farm industry irrigation in the U.S. (18.4%) and Mexico (51.2%), sewage from Mexicali (29%), and manufacturing plants operating in Mexico (1.4%). The Alamo River flows west and north from the Mexicali Valley (Baja California). It crosses the Imperial Valley (California) and after 84 km drains into the Salton Sea.

Historically receiving significant agrichemical input throughout the past several decades, the rivers that flow into the Sea contain numerous pesticides, fertilizer, and industrial wastes (Setmire et al. 1993). Several studies have demonstrated the occurrence of various inorganic and organic contaminants in the Salton Sea (Riedel et al. 2002; Sapozhnikova et al. 2004; LeBlanc et al. 2006; Xu et al. 2016). The most recent evaluation (Xu et al. 2016) indicated that persistent contaminants such as ΣDDT, ΣPAHs, current use pesticides, such as pyrethroids (cypermethrin) and the organophosphate, chlorpyrifos, were associated with the toxicity of sediments and water collected from the rivers. In water and sediments, metals consistently above sediment and water criteria thresholds included selenium and copper with occasional exceedances by chromium, silver and mercury. At the New River/ Mexico Boundary site, concentrations of nine metals exceeded sediment criteria from 2002-2010. In the Salton Sea, only selenium consistently exceeded sediment criteria from 2002-2011. With respect to organic contaminants in sediments from 2002-2011, several DDT isomers and degradates exceeded sediment toxicity thresholds in both river outlets and the Salton Sea (Xu et al., 2016). Concentrations of DDTs and selenium in sediments were consistent with fish tissue concentrations. Fish tissues exceeded ΣDDT prey item criteria at 25 of 31 sampling events from 2004 to 2012. For selenium 25/32 sites exceeded tissue residue thresholds for piscivorous wildlife (Xu et al. 2016).

Since inflows have been diminishing over the past 10 years and will continue to do so in the near future, evaporation of the Salton Sea is likely to lead to changes that are not conducive to support wildlife. As a remedy, several wetlands have been constructed for avian habitats using the limited water inflows from the Alamo and New Rivers. Several questions have been raised by stakeholders based on the last contaminant report and change of water dynamics.

Charge questions to be answered:

- Since agricultural drain water and New and Alamo River water will be used to create artificial aquatic habitat at Salton Sea, will the water quality of the habitats be capable of safely supporting wildlife, including endangered species?

Drain Wetland and River assessments

- Which contaminant concentrations are significantly or steadily increasing within the Imperial drains? Which drains pose the greatest threat to wildlife?
- Rb7 mercury concentrations have historically been lower in comparison to other regions- Is this still the case? If concentrations are lower, then why?
- Which contaminant concentrations pose the greatest threat to wildlife, and at which locations?

2.0 OBJECTIVES

In an attempt to better understand the temporal and spatial distribution of contaminants in the Salton Sea drainage system, Surface Water Ambient Monitoring Program (SWAMP) databases from the California Water Resources Control Board were evaluated at sites that had the greatest temporal data sets for contaminants from 2013-2019 (Table 1). Focus was placed on drains and outlets of the Alamo and New Rivers, as well as wetlands at Brawley, Imperial County, Shank Road and Wister. Occurrences of metals, pesticides and industrial contaminants (PCBs, PBDEs, PAHs) in water, sediments and fish tissues were condensed and tabulated to evaluate temporal and spatial trends. SWAMP data were selected because of the significant quality control and quality assurance components. All data cited in this report are publicly available and can be found at (http://www.ceden.us/). To evaluate potential ecological risks due to the contaminants, concentrations of contaminants from 2013-2019 were compared to thresholds derived from USEPA Benchmark or Aquatic Life criteria for dissolved contaminants and consensus predicted toxic effect concentrations as utilized in previous Stream Pollution Trends (SPoT) monitoring documents (Phillips et al. 2020). The lowest effect concentrations from all sources were used to select thresholds for hazard quotient analyses and compared to measured concentrations is the media. Quotients exceeding unity were considered significant and listed in Tables 3-9. Concentrations within fish were compared to wildlife protective concentrations either from the literature (selenium, PCBs), or for mercury, from State of California regulatory objectives (SWRCB, 2021) (Table 2G). In addition, sediment toxicity data was compiled from 2013-2019 at river outlet sites, one drain location, and several wetland locations.

3.0 SITE SELECTION

Sites for comparison were based on previous California Surface Water Ambient Monitoring Program (SWAMP) studies conducted through the California Water Resources Control Board (Figure 1 and Table 1). Sites previously evaluated along the Alamo and New Rivers (Xu et al. 2016) were targeted for analyses as were wetlands within Imperial county to compare concentrations of contaminants in sediments and water to those in fish tissue.

4.0 METHODS

4.1 CHEMICAL ANALYSIS

Contaminants Selected for Analysis

For sediments and water samples, a total of 198 organic compounds and 12 trace metals were selected for analysis (Appendix A). The organic compounds included 32 organochlorine pesticides (including Chlordanes (5 isomers), DDTs (7 metabolites); Endosulfans (3 isomers), Endrins (3 isomers), HCHs (3 isomers), Heptaclors (2 isomers), 19 organophosphate/carbamate insecticides, 54 PCB congeners, 44 PAHs, 24 PBDE congeners, 14 triazine herbicides, one neonicotinoid insecticide, and 10 pyrethroids (2 permethrin cis/trans diasteriomers). ΣPAHs, ΣPCBs, and ΣDDTs were summations of measured compounds. Method detection limits (MDLs) and Reporting limits (RLs) are provided in Appendix A. Compounds that were detected but not quantified (DNQs) were not counted as exceedances.

Data were collected through the Regional Water Board 7 Surface Water Ambient Monitoring Program (SWAMP), the State's SWAMP Streams Pollution and Trends Program (SPoT) and California Monitoring and Assessment Program, and the SWAMP Bioaccumulation in Sport fish in Lakes Program.

Sampling of all water, sediment and tissues were conducted by the Surface Water Ambient Monitoring Program coordinated through the State Water Board of California. Chemical analyses were primarily performed at the Department of Fish and Game Water Pollution Control Chemistry Laboratory, the California State University of Long Beach Institute for Integrated Research in Materials, Environments and Society (IIRMES), or the Department of Fish and Game Marine Pollution Studies Laboratory. Caltest Analytical Laboratory and California Laboratory Services were also utilized as laboratories (Appendix B). Analytical chemistry was evaluated primarily using Standard USEPA methods (Appendix A). All sampling and analyses were verified according to the corresponding SWAMP or SPoT Quality Assurance Project Plans (QAPrPs). All sediment and water data contained in this report met or deviated from the MQO contained in the QAPrP; however, these results were deemed usable for the intended purposes of the study. Tissue data were validated under the criteria defined in the Bioaccumulation QAPrP. All tissue data presented were deemed usable for the intended purposes of this study.

5.0 Contaminant Concentrations in Water and Sediments of Drains for Alamo and New Rivers as well as Constructed Wetlands

Charge Questions:

- Will artificial aquatic habitats supplied with New and Alamo River water be capable of supporting wildlife, including endangered species?
- Which contaminant concentrations are significantly or steadily increasing within the Imperial drains? Which drains pose the greatest threat to wildlife?
- Region 7 (Rb7) mercury concentrations have historically been lower in comparison to other regions- Are concentrations still lower, and why?
- Which contaminant concentrations pose the greatest threat to wildlife, and at which locations?
- Based on this evaluation, and the previous 10-year evaluation, what future trends or water quality issues can we anticipate within the Salton Sea watershed in the coming 5-10 years?

5.1 Alamo River and associated drains

5.1.1 Contaminants in water

5.1.1.1 Industrial Organic Compounds

PBDEs, PCBs and PAHs were either detected in concentrations that could not be quantified, or not detected in water samples from the Alamo River and its drains. (Appendix C-E).

5.1.1.2 Pesticides

5.1.1.2.1 Pyrethroids

Bifenthrin concentrations were measured at 2 ng/L in 2013 at the Alamo River outlet, but were not observed in subsequent years until 2016. However, concentrations were observed in 2015 in the Barbara Worth Drain about 20 times above the USEPA Aquatic Life Benchmark for chronic invertebrate toxicity (0.05 ng/L). Concentrations at or above the threshold were also noted in 2016 at the Drop 6 and Drop 8 drains as well. Concentrations of Cyfluthrin and Deltamethrin were not observed in any water samples (Appendix F).

L-Cyhalothrin residues were observed in 2013 at the Alamo River outlet and ranged from 4-5.8 ng/L which was above the USEPA Aquatic Life Benchmark for chronic invertebrate toxicity of 0.22 ng/L. L-Cyhalothrin was also observed in multiple drain locations ranging from 2-7.7 ng/L, but only in 2013. Values in subsequent years were detected but not quantified, or not detected in any location in 2014, 2015, or 2016

(Appendix F). In contrast, Cypermethrin concentrations were also above the USEPA Aquatic Life Benchmark for chronic invertebrate toxicity in 2013, but were essentially unchanged in 2016 for the outlet as well as the drains. The Barbara worth location had Cypermethrin concentrations more than 100 times above the USEPA Aquatic Life Benchmark for chronic invertebrate toxicity in 2015 (Appendix F).

While Deltamethrin was neither detected nor quantified in the Alamo River and drains, Esfenvalerate/fenvalerate was measured in drains at (4-15 ng/L) in 2013, and higher concentrations (11-19 ng/L) were observed in 2016 (Appendix F). Once again, the Barbara Worth drain had the highest concentrations of 28.7 ng/L in 2015. The samples taken from the outlet were below detection in 2013, but were 11.0 ng/L in 2016 and all exceeded the USEPA Aquatic Life Benchmark for chronic invertebrate toxicity (Appendix F).

The highest permethrin concentrations (~200 ng/L for each stereoisomer *cis/trans*) were observed in the Barbara Worth drain in 2015, and were made up exclusively of the *cis* stereoisomers (Appendix F). Together, they were approximately 200 times the USEPA Aquatic Life Benchmark for acute invertebrate toxicity of 3.3 ng/L which was similar to the chronic invertebrate value of 4.2 ng/L. Neither was observed in any other water sample throughout the sampling period (Appendix F).

5.1.1.2.2 Organochlorine pesticides

Of the 32 organochlorine compounds evaluated, only DDT isomers and degradates were quantifiable in water samples of the Alamo River and drains. Concentrations of ΣDDTs were measured in drains and the outlet of the Alamo River, with all concentrations below USEPA Aquatic Life criterion continuous concentrations (CCC) of 1 ng/L (Appendix G).

Dacthal was measured in drains during 2016, and at the outlet in 2013 and 2016 at essentially the same concentration 0.5 ug/L (Appendix G). Since most toxicity values show LC50s in the mg/L concentrations, it is likely this compound is not a source of significant toxicity to aquatic organisms at these concentrations (Appendix G). Since concentrations were evaluated in 2002-2012 (Xu et al. 2016) and threshold values are not available, temporal trends of occurrence are unclear.

Dieldrin was detected in drain water and the outlet in 2016. Concentrations at the outlet were similar to those in 2013 (Appendix G). Concentrations of Dieldrin did not exceeded USEPA National Recommended Aquatic Life Criterion for maximum exposure (24 ng/L).

5.1.1.2.3 Organophosphate insecticides

Chlorpyrifos was the only Organophosphate insecticide detected and quantified in Alamo River drains in 2016 (Appendix H). Concentrations (156-452 ng/L) were all approximately 10 times higher than USEPA Aquatic Life criterion for continuous concentration (CCC) threshold (41 ng/L). The highest concentrations were measured in 2015 at Central drain #3 at 1.1 ug/L (Appendix H). Comparing 2013 to 2016 at the outlet, concentrations were similar with 135 ng/L relative to 162 ng/L, respectively (Appendix H).

5.1.1.2.4 Neonicotinoid insecticides

Imidacloprid was the only neonicotinoid quantified in the Alamo River drains with concentrations ranging from 49-3380 ng/L in 2015 (Appendix I). Barbara Worth drain had the highest concentration (Appendix I). All measured concentrations exceeded the USEPA Aquatic Life Benchmark for chronic invertebrate toxicity of 10 ng/L. Samples were not collected at the outlet nor measured in multiple years for temporal comparisons (Appendix I).

5.1.1.2.5 Triazine herbicides

Triazine herbicides were all below detection or quantification.

5.1.1.3 Metals

Aluminum, arsenic, cadmium chromium, mercury and zinc concentrations were lower than USEPA aquatic life criteria values for all samples (Appendix J).

Copper concentrations in the Alamo River consistently exceeded the USEPA Aquatic Life Benchmark for chronic invertebrate toxicity (1.1 ug/L) in all years and locations. Selenium exceeded the USEPA aquatic life ambient water criteria (5 ug/L) at a number of locations on the Alamo River. The highest concentration was observed in 2015 at the Barbara Worth Drain (23.2 ug/L) (Appendix J). All measurements at all sites exceeded criteria in 2013. Concentrations were similar in drains and the outlet in 2013, but decreased over time at the Alamo Outlet from 9.6 to 4.31 ug/L in 2019 (Appendix J). Concentrations at the Drop 10 Central Drain also were lower in 2018 compared to 2013, but were still above water criteria.

5.1.2 Contaminants within sediments

5.1.2.1 Industrial Compounds

PBDEs were not detected in any sample within the Alamo River (Appendix K). ΣPCB concentrations were only detected at the Alamo River outlet in 2017 (0.014 ng/g dw) (Appendix L), while none were detected in 2013, 2015, or 2016 at this site nor any drain along the Alamo river. None were detected in 2011-2012, although detection limits were 0.245 ng/g dw (Appendix L). While the single detection in 2017 suggests an increase in residues at the outlet, it is unclear whether this represents a trend, as values were near detection limits as well. This concentration was 4 orders of magnitude below consensus threshold values for ΣPCB toxicity (Table 2).

ΣPAHs were only detected at the Drop 10 drain site and were below consensus threshold values (Appendix M). No individual PAH was detected above threshold concentration (Table 2).

5.1.2.2 Pesticides

5.1.2.2.1 Pyrethroids

Extensive monitoring for pyrethroids occurred from 2013-2017 in the Alamo River drainage (Appendix N). Values of bifenthrin ranged from 1.21 to 1.78 ng/g dw in Alamo River outlet sediment samples and were lower than concentrations observed in 2009 (512 ng/g dw), and below LC50 values of 12.9 ng/g dw. However, values in 2015 from Barbara Worth drain (211 ng/g dw) were 10 times higher than LC50 values (Appendix N). Detections were also observed in Central drains ranging from 0.844 to 2.97 along drains (Appendix N).

Cyfluthrin was not sampled for in the Alamo River up to 2012 (Appendix N). Similarly, no residues were detected from 2103-2018. L-Cyhalothrin concentrations have been decreasing since 2013 at the Alamo River outlet (from 1.4 to 0.01 ng/g dw) (Appendix N). However, concentrations in the Barbara Worth drain were 2 times above LC50 thresholds (Appendix N). Other drain concentrations were detected ranging from 1.1 to 1.9 ng/g dw in 2015 (Appendix N).

Cypermethrin concentrations ranged from 2 ng/g in 2013 to 6.7 ng/g in 2016 at the Alamo River outlet (Appendix N). Concentrations in drains were elevated at the Barbara Worth site (63 ng/g dw) and were above LC50 values of 14.9 ng/g. Deltamethrin and Fenopropathrin were not detected at any site (Appendix N).

Similar to other pyrethroid concentrations, with the exception of a peak in 2016, Esfenvalerate/fenvalerate concentrations in the Alamo River outlet were lower over temporal comparisons of 2013 to 2018 (Appendix N). Similarly, concentrations were observed in the Barbara Worth Drain with concentrations (28.1 ng/g dw) approximately 50% of LC50s (41.8 ng/g dw) (Appendix N). Detections were also observed in other drains, but ranged from DNQ to 8.2 ng/g dw in 2015 (Appendix N).

Concentrations of *cis*-Permethrin were detected in 2013 and 2016, but not 2014 or 2015 in the Alamo River outlet (Appendix N). The concentrations were approximately 50 times below LC50s (204 ng/g) (Table 2). Drains again contained samples that in one case exceeded LC50 values; specifically, the Barbara Worth drain (296 ng/g dw) (Appendix N). Other detections were noted at the Oleander and the Central Drain Three at Meloland Rd. and Abatti Rd (Appendix N). *Trans*-Permethrin was not detected nor quantifiable in any sample from the Alamo River nor drains (Appendix N).

5.1.2.2.2 Organochlorine pesticides

Compared to 2002-2012, concentrations of ΣDDEs appear to have been decreasing in sediments at the Alamo River outlet (Appendix O). However, despite the reductions, the concentrations in 2017 (4.23 ng/g dw) were still higher than consensus threshold concentrations (3.16 ng/g dw). Similarly, concentrations of ΣDDTs have declined since the earlier report of 2002-2012 with no concentrations detected in 2015 nor 2017 (Appendix O).

Likewise, concentrations of Dacthal were detected in sediments of the drains in 2013, but were not quantified in 2015 (Appendix O). Dieldrin was observed in sediments of one drain site in 2013, but was not detected in sediments at the outlet up to 2017 (Appendix O).

5.1.2.2.3 Organophosphate insecticides

Chlorpyrifos concentrations have been declining in sediments of the Alamo River outlet, down from maximum concentrations of 14.2 ng/g dw in 2003 to 0.177 ng/g dw in 2017. It was not detected nor quantifiable in drains (Appendix P).

5.1.2.3 Metals

Arsenic was frequently detected in sediments from drains and the Alamo River outlet, but concentrations did not exceed consensus sediment thresholds for toxicity (Appendix Q), nor did they change over time. Cadmium concentrations were frequently detected and all exceeded consensus sediment thresholds (0.99 mg/kg). Temporal changes of cadmium sediment concentrations were not observed at the Alamo outlet (Appendix Q). With the exception of one sample from the Alamo outlet that exceeded thresholds in 2018, all other samples for chromium were below consensus toxicity standards (Table 2D). Temporal trends toward an increase were observed with higher chromium concentrations in 2018 relative to 2016 for most sites (Appendix Q). Similarly, concentrations of copper also tended to increase from 2013-2018 at the outlet (Appendix Q). None of the samples exceeded consensus toxicity thresholds for copper.

Lead was detected in drains and the outlet, but did not exceed consensus thresholds, with no indication of temporal trends of occurrence (Appendix Q). Mercury was measured at two drain locations and the outlet but did not show time-dependent trends in occurrence, nor threshold exceedances (Appendix Q).

Nickel concentrations were higher in 2018 than 2016 for the outlet, and most drains, where concentrations nearly doubled (Appendix Q). Nearly every sample in 2018 exceeded consensus sediment thresholds for toxicity (Table 2D). Concentrations of selenium were below detection in 2016 and 2018 compared to measured values in 2013 at nearly all drains and the outlet (Appendix Q).

Silver and zinc were frequently detected in the drains and outlet, but concentrations were all below consensus thresholds and did not show temporal patterns of occurrence (Appendix Q).

5.1.3 Toxicity of sediments

Toxicity was evaluated at the outlet from 2013 to 2019 (Table 10). With exceptions of 2015, 2017, and 2018, significant toxicity in the form of reduced survival or growth was observed.

5.2. New River and drains

5.2.1 Contaminants in water

5.2.1.1 Industrial Compounds

Concentrations of PBDEs, and PCBs were observed at the New River Boundary, but not in any other locations of the New River or drains (Appendix C-E).

5.2.1.2 Pesticides

5.2.1.2.1 Pyrethroids

With the exception of a measured value of 8 ng/L (which exceeded USEPA Aquatic Life Benchmark acute and chronic invertebrate toxicity threshold) in 2013 at the New River outlet, no water samples had measured values of bifenthrin up to 2016 (Appendix F). Similarly, concentrations of Cyfluthrin nor Deltamethrin were not observed in any water samples (Appendix F).

In a similar trend with bifenthrin, values for l-cyhalothrin exceeding the USEPA Aquatic Life Benchmark for chronic invertebrate toxicity were observed at the outlet and two drain locations in 2013, but were not quantified (DNQ) in any year afterward, indicating a decline in concentrations (Appendix F). With the exception of the New River boundary sample of 2013, which had Cypermethrin concentrations of 36 ng/L and 10 ng/L in 2016, no other sample was quantifiable nor detected in drains or surface water of the New River (Appendix F).

In contrast, concentrations of Esfenvalerate/fenvalerate were measured in 2013 through 2016 and ranged from 2-5 ng/L which exceed the USEPA Aquatic Life Benchmark for chronic invertebrate toxicity (0.031 ng/L) (Appendix F). One sample from the Vail Cutoff drain in 2015 had concentrations of 26.8 ng/L (Appendix F). A similar trend was observed for concentrations of cis-permethrin which also exceeded toxicity thresholds in the Vail drain in 2014 (Appendix F). All other samples were below detection or quantification. Trans-permethrin was not detected nor quantifiable in any sample (Appendix F).

5.2.1.2.2 Organochlorine pesticides

Of the 32 organochlorine compounds evaluated, only DDT isomers and degradates were quantifiable in water samples of the New River and drains (Appendix G). Concentrations of ΣDDTs were measured in drains but not the outlet of the New River, and all were below USEPA National Recommended Aquatic life criteria or Aquatic Life benchmarks (Appendix G).

Dacthal was measured in drains during 2013, and at the outlet in 2016 (Appendix G). Since concentrations were evaluated in 2002-2012 (Xu et al. 2016) and threshold values are not available, temporal trends of occurrence are unclear.

5.2.1.2.3 Organophosphate insecticides

Chlorpyrifos was the only compound detected and quantified in the drains of the New River with concentrations ranging from 73-114 ng/L (all above CCC thresholds of 41 ng/L) in 2013 (Appendix H). Concentrations at the outlet increased from 2013 to 2016 from <MDL to 122 ng/L (Appendix H).

5.2.1.2.4 Neonicotinoid insecticides

Imidacloprid was the only neonicotinoid quantified in the New River drains with concentrations ranging from 30-159 ng/L in 2015 (Appendix I). Measured concentrations in Vail Cutoff drain exceeded the USEPA Aquatic Life Benchmark for chronic invertebrate toxicity of 10 ng/L. Samples were not collected at the outlet nor measured in multiple years for temporal comparisons.

5.2.1.2.5 Triazine Herbicides

Triazine herbicides were not detected nor quantified in the New River.

5.2.1.3 Metals

Aluminum, arsenic, cadmium chromium, mercury, nickel, silver and zinc concentrations were lower than aquatic life criteria values for all samples (Appendix J).

Aqueous concentrations of copper exceeded the USEPA Aquatic Life Benchmark for chronic invertebrate toxicity (1.11 ug/L) and were present throughout the reaches of the New River in all years. Concentrations of selenium were variable from 2013-2018. Exceedances of Aquatic Life ambient water quality criteria were noted in the Boundary site in 2016, but not 2013 nor 2018 (Appendix J). Only one Imperial wetland site (Inlet) exceeded criteria at 5.79 ug/L (Appendix J) in 2017. However, all wetland samples were just below criteria ranging from 3.67 to 4.86 ug/L in 2017 (Appendix J). The highest concentration was noted in 2015 at the Vail Cut Off Drain (17.3 ug/L) (Appendix J). Concentrations of selenium showed time-dependent reductions at the New River outlet from 6.42 ug/L in 2013 to 2.76 ug/L in 2019 (Appendix J).

5.2.2 Contaminants in sediments

5.2.2.1 Industrial Compounds

Only one sample from the New River outlet had detectible concentrations of ΣPBDEs and these concentrations were below threshold values for toxicity (Appendix K). PCB concentrations at the outlet were 10 times higher than concentrations at the Alamo River outlet, but were 3 orders of magnitude lower than consensus sediment toxicity thresholds (Appendix L). PAHs were detected in 2013 at the Rice Drain and the outlet, but were below thresholds (Appendix M).

5.2.2.2 Pesticides

5.2.2.2.1 Pyrethroids

Because of potential causal relationships for toxicity in 2011-2012 (Xu et al. 2016), extensive monitoring was performed in the New River from 2013-2018 (Appendix N). Concentrations of bifenthrin at the New River outlet generally diminished over time with maximum concentrations 4.9 ng/g dw observed in 2013, but only 0.174 ng/g dw in 2018 (Appendix N). Detections were also observed in all drains with concentrations ranging from 0.3-0.7 ng/g dw in 2015 (Appendix N).

Concentrations of cyfluthrin were detected at the international boundary of the New River in 2005, but were not detected in drains nor the outlet from 2013-2018 (Appendix N). L-Cyhalothrin concentrations have decreased since 2009 (8.6 ng/g dw) with detections gradually decreasing from 2013 (4 ng/g dw) to 2018 (0.1 ng/g dw) (Appendix N). In 2015 only one sample in the Vail Drain was observed (Appendix N), but it was ~20% of the LC50 threshold (5.6 ng/g dw).

Cypermethrin concentrations in the New River have been decreasing, as measured values in the New River outlet in 2010 were 8.5 ng/g dw. Concentrations in 2013 were 3 ng/g dw, and either below detection, or 0.2 ng/g dw in 2017 (Appendix N). Cypermethrin was neither detected nor quantified in drains of the New River (Appendix N). Overall, measured values were below LC50s at all locations. Deltamethrin and Fenopropathrin were not detected at any site (Appendix N).

Esfenvalerate/fenvalerate concentrations in sediments were consistently detected in samples from the New River outlet from 2012-2016, with concentrations ranging from 1.9 to 4.3 showing a slight decline over time (Appendix N). Concentrations ranged from 0.6 to 4.8 ng/g dw during 2015 in drains, but were well below LC50 values (Appendix N).

In the New River outlet, concentrations of cis-Permethrin were only detected in 2013. From 2014-2017 either non-quantifiable values were detected or concentrations below detection were noted (Appendix N). No concentrations were detected in drains (Appendix N). *Trans*-Permethrin was not detected nor quantifiable in any sample from the New River nor drain (Appendix N).

5.2.2.2.2 Organochlorine pesticides

Concentrations of ΣDDEs were detected in one drain sample of the New River (Rice Drain) that exceeded consensus thresholds (Appendix O). At the New River outlet, concentrations were of the same order of magnitude from 2013-2017 and also exceeded consensus thresholds (Appendix O). Compared to samples taken from 2002-2012, the 2017 data suggest values have been declining at the outlet, but still exceed consensus thresholds. Dacthal and dieldrin concentrations were either reduced or not detected (Appendix O).

5.2.2.2.3 Organophosphate insecticides

Concentrations of chlorpyrifos have declined from a maximum concentration of 17.1 ng/g dw in 2004 to 0.724 in 2017 (Appendix P). Concentrations were observed at the Rice drain in 2013, but were below LC50 values (Appendix P).

5.2.2.3 Metals

In sediments, arsenic was frequently detected in drains and the outlet of the New River (Appendix Q), but concentrations did not exceed consensus sediment thresholds for toxicity (Table 2D). Concentrations of arsenic did not change over time (Appendix Q). Concentrations of cadmium were measured frequently in drains and the outlet of the New River but only the sample at the Boundary in 2016 exceeded consensus thresholds (0.99 mg/kg). Concentrations of cadmium did not change over time (Appendix Q). Chromium concentrations showed some decline between 2015 and 2017 at the outlet, but returned to those observed in 2013 and were just below consensus thresholds (43.4 mg/kg) (Appendix Q). Concentrations of copper at the New River boundary exceeded consensus thresholds for 2013 and 2016, but were lower in 2018 (Appendix Q).

Lead, Manganese, selenium and zinc were either below detection limits or were all below consensus threshold values in all drain and river sites. Selenium concentrations generally indicated reductions over time (Appendix Q).

Mercury was not detected in drains, but was observed at the outlet where concentrations trended toward a slight reduction from 2013 to 2019. All concentrations were below consensus thresholds, and methylmercury was not detected in any sample (Appendix Q).

Nickel was widely detected and increased at the boundary from 19.4 mg/kg in 2013 to 31.7 mg/kg in 2016 and 22.9 mg/kg in 2018 (Appendix Q). The latter two values exceeded sediment consensus thresholds of 22.7 mg/kg. Concentrations were observed in drains with exceedances at Central Drop 2 and the outlet in 2018 (Appendix Q). Overall, concentrations generally increased temporally in the New River (Appendix Q).

Silver concentrations exceeded consensus thresholds at the boundary in 2013 and 2016, but were lower in 2018 (Appendix Q). Concentrations were observed but did not exceed thresholds in drains and outlet samples. Temporal patterns of occurrence were not observed.

5.2.3 Toxicity of sediments

With the exception of 2017 and 2018, significant toxicity was only observed at the New River outlet location (Table 11).

5.3 Wetland Evaluations

5.3.1 Imperial Wetlands and Brawley Wetlands

5.3.1.1 Contaminants in water

In 2016, detections of dacthal were observed in the Brawley wetland cell #1 and the Imperial Wetland Cell #4, but concentrations were 10-fold lower than those found in the Alamo and New rivers (Appendix G). Imidacloprid in water samples of Brawley wetland cell #1 and Imperial Wetland Cell#4 all exceeded USEPA Aquatic Life Benchmarks for chronic effects in invertebrates (Appendix I).

5.3.1.2 Contaminants in sediments

In 2016, L-Cyhalothrin was detected in the Imperial wetland inlet with concentrations (3.2 ng/g dw) approaching the LC50 of 5.6 ng/g (Appendix N). Similarly, concentrations of cypermethrin (3.9 ng/g dw) and *cis*-permethrin (4.1 ng/g dw) were observed in the wetland inlet as well, but both concentrations were LC50 thresholds (Appendix N).

ΣDDEs were detected in Brawley wetland cell #1 in 2016 (Appendix O). All concentrations exceeded consensus thresholds.

Analyses of metals indicated arsenic concentrations exceeding consensus thresholds in Brawley wetland in 2016 (Appendix Q). While inorganic mercury was not detected in wetlands, methyl mercury was detected, albeit below consensus thresholds for total mercury. Nickel concentrations exceeded consensus thresholds in Brawley Cell #1 in 2016, and Imperial Sediment basin #1 in 2018 (Appendix Q). Selenium concentrations were above the Lemly (2002) threshold in the Imperial Inlet in 2017.

5.3.1.3 Sediment Toxicity

In general, no toxicity was noted in Imperial Wetland Cells or in Sediment Basins in 2017 (Table 12). Diminished growth in one sample and diminished survival in another sample was noted in 2018 at the Imperial Sedimentation Basin. At the Brawley Sedimentation Basin, decreased survival with no change in growth was observed in 2018 (Table 12).

5.3.2 Shank Road Wetlands

5.3.2.1 Contaminants in water

Imidacloprid was detected in Shank Road wetland in 2016 with concentrations exceeding USEPA Aquatic Life Benchmark chronic toxicity thresholds for invertebrates (Appendix I). Cadmium concentrations were more than 4 times consensus threshold concentrations (Appendix Q). In 2015, dissolved mercury was detected but below consensus threshold (Appendix Q). Selenium was above the Lemly threshold in 2018.

5.3.2.2 Contaminants in sediments

Sediment concentrations of ΣDDE (6.4 ng/g dw) were more than 2 times consensus threshold concentrations (3.16 ng/g dw) in 2016 (Appendix O).

Arsenic concentrations also exceeded consensus thresholds in 2016 (Appendix Q). Concentrations of chromium and copper were just below consensus threshold concentrations (Appendix Q). Dissolved mercury was detected in wetlands, as was methyl mercury, but each was below consensus thresholds for total mercury (Appendix Q). In Cell #1 nickel concentrations were just below consensus thresholds in 2016 (Appendix Q). However, concentrations of nickel in the Wetland Sediment Basin exceeded thresholds in 2018 (Appendix Q).

5.3.2.3 Sediment Toxicity

No sediment toxicity was observed in 3 replicate samples taken in 2018.

5.3.3 Wister Refuge

5.3.3.1 Contaminants in water

No contaminants were observed in water.

5.3.3.2 Contaminants in sediments

Sediment concentrations of ΣDDE were approximately 8 times consensus threshold concentrations of 2016 in Cell 11A and 12A (Appendix O). Both cells also had elevated arsenic concentrations that exceeded consensus thresholds (Appendix Q). Concentrations of chromium and copper were just below consensus threshold concentrations (Appendix Q). Mercury concentrations were all below total mercury consensus thresholds for sediments (Appendix Q). In 2016, Cell 11A and 12A had concentrations just below consensus thresholds for nickel (Appendix Q), while selenium concentrations in Cell 12A exceeded thresholds (Appendix Q).

5.4 Summary and Conclusions regarding risk, toxicity, and contaminants in water/sediments

With notable exceptions of the Barbara Worth drain and the outlet locations, agricultural drain water and New and Alamo River water had intermittent concentrations of contaminants that exceeded the USEPA Aquatic Life Benchmark for chronic invertebrate toxicity, the USEPA national recommended Aquatic Life Criteria, LC50 values, or consensus toxicity thresholds for toxicity (Tables 3-9). Toxicity at the river outlets was regularly observed (Tables 10-11).

- Which contaminant concentrations are significantly or steadily increasing within the Imperial drains? Which drains pose the greatest threat to wildlife?

The highest concentrations of agricultural contaminants were observed in the Barbara Worth drain on the Alamo River. Of particular concern were pyrethroid insecticides which were consistently observed in the Alamo River, but were not as prevalent in the New River. Concentrations of pyrethroids exceeding the USEPA Aquatic Life Benchmark for chronic invertebrate toxicity were observed in the Vail drains in 2015 (Table 3). Water concentrations of the neonicotinoid insecticide, imidacloprid exceeded the USEPA Aquatic Life Benchmark for chronic invertebrate toxicity in drains of both the Alamo and New Rivers (Table 5). Chlorpyrifos in water continued to be observed, but sediment concentrations were decreasing (Table 4). Of the legacy contaminants evaluated in this study, only ΣDDEs were in concentrations in sediments exceeding consensus toxicity thresholds, but were lower than earlier monitoring results (2002-2012) (Table 8). With the possible exception of selenium at the Alamo River outlet (Table 6), metal concentrations in general did not change over time. Cadmium and nickel concentrations in sediments and water were consistently above consensus thresholds for both Rivers during this time frame (Table 9).

- Rb7 mercury concentrations have historically been lower in comparison to other regions- is this still the case? If lower, then why?

Concentrations of total dissolved mercury and methyl mercury were detected, but concentrations were below total mercury threshold values in all river and drain locations and lower than previous evaluations (2002-2012).

- Which contaminant concentrations pose the greatest threat to wildlife, and at which locations?

Based on hazard quotient analyses, which compare measured concentrations in media divided by a toxicity threshold for that media, current use pesticides (pyrethroids, neonicotinoids and chlorpyrifos) were consistently above threshold concentrations, particularly in the Alamo River (Tables 3-5; Table 7). The Barbara Worth drain had significantly elevated water concentrations. Although not acutely toxic, sediment concentrations of cadmium and nickel were also above consensus based effect thresholds in most locations in both rivers (Table 9). And, even though concentrations appear to be declining, sediment concentrations of ΣDDE were exceeding consensus thresholds and indicated hazards to wildlife (Table 8). Sediment toxicity was observed at both outlets for Alamo and New rivers (Tables 10-11).

- Based on this evaluation, and the previous 10-year evaluation, what future trends or water quality issues can we anticipate within the Salton Sea watershed in the coming 5-10 years?

Current use pesticides, particularly pyrethroids and neonicotinoids will likely continue to be potential sources of toxicity to aquatic invertebrates, particularly in the Alamo River. Since neonicotinoids were not monitored in the previous 10 year evaluation, it is unknown whether concentrations have increased or decreased over time. Additional monitoring is needed to determine these trends. Aqueous concentrations of copper and sediment concentrations of arsenic continue to exceed toxicity thresholds. Nickel was not identified as a contaminant of concern in the 2002-2012 evaluation, but should be a target for monitoring based upon the current evaluation of 2013-2018. In sediments, ΣDDE appear to be declining, but are still regularly exceeding consensus thresholds, particularly at the river outlets into the Salton Sea.

6.0 TISSUE CONCENTRATIONS IN DRAINS AND CONSTRUCTED WETLANDS

- What is the status of bioaccumulation at the three constructed wetlands in Imperial County (i.e. Brawley Wetland, Shank Road Wetland and Imperial Wetland), and how does it correlate with water quality conditions?

Bioaccumulation of ΣDDTs continues in fish and is consistent with elevated sediment concentrations at nearly all wetland locations in 2014 and 2016 (Appendix T). Fish concentrations in 2016 in Imperial wetland Cell4, Shank Road wetland and Finney lake all exceed fish consumption thresholds for birds (Table 2F).

In general, limited accumulation of other organic or inorganic contaminants is apparent with the exceptions of mercury and selenium (Appendix R and S). This is interesting as arsenic, cadmium and nickel continue to be observed in water and sediment samples of wetlands, but sediment toxicity was not observed in any sample.

Given the limited data set, it is difficult to determine whether mercury concentrations are increasing over time. Water and sediment concentrations are relatively low in most locations, but methylation appears to be occurring within some wetlands (Shank Rd) and likely contributes to concentrations of mercury in fish which in some cases exceed toxicity thresholds (Table 2G). Regarding the New River, concentrations in carp from the Calexico Water Treatment Plant in 2014 exceeded California state objectives for prey fish (any species) (0.05 mg/kg) and California Least Tern dietary values (0.03 mg/kg) (Table 2G). Mercury concentrations in bluegill and largemouth bass also exceeded Least Tern dietary objectives in 2016 from the Imperial Wetlands Cell 4 and the largemouth bass exceeded prey fish objectives for any species. In 2017, all three species (bluegill, carp and flathead catfish) from the Imperial Wetlands Sedimentation Basin had concentrations that Least Tern objectives and flathead catfish had exceedences of prey fish for any species. For the Alamo River locations, exceedences for prey fish and Least tern were observed in bluegill in 2014 from the International Boundary. In 2016, channel catfish exceeded prey fish objectives (0.05 mg/kg) as well as Least tern objectives, whereas carp only exceeded Least tern values. Concentrations of mercury in largemouth bass from Wiest Lake were unchanged from 2014-2019 and exceeded Least tern dietary objectives. Although concentrations were not above objectives in Finney Lake, residues in carb, flathead catfish and largemouth bass in 2014 from Drop 3 were all above prey fish and Least tern objectives. Carp from the Alamo River outlet in 2014 were also above Least tern objectives. All species of fish from the All American Canal had mercury concentrations above prey fish and Least tern objectives in 2014. Temporal analyses were not available for these locations. It should be noted that fish were primarily composites. The sizes were not identified such that sportfish vs. prey item could not be differentiated. Consequently, a conservative approach assuming all fish collected were less than 150 mm, and thus considered prey, was used for comparisons.

In addition to ΣDDT (mostly consisting of ΣDDE degradates), selenium continues to exceed thresholds for fish and fish-eating organisms (i.e. birds) (Table 13). Concentrations of selenium exceeded 1 mg/kg in several locations in the New and Alamo drainages in 2014 and were elevated in fish from Imperial Sediment Basin in 2017 and Imperial Cell 4 in 2016. Selenium concentrations were also above threshold in fish from all 3 locations of the American Canal (Table 14).

ΣPCBs were also above thresholds for toxicity in fish collected in the New River at the Calexico water treatment plant (Table 13).

- Is the rate and magnitude of bioaccumulation within the constructed wetlands increasing, decreasing or remaining steady?

Compared to sampling performed in 2004 at the Brawley and Imperial wetlands (Tetratech 2006), nearly all body burdens of most contaminants were less in 2016-2019. Only one sample detected selenium in 2017 in sediments of the Imperial wetlands, and the other two were below detection. None was detected in 2016. Water concentrations of selenium also decreased. Samples in Brawley wetlands in 2017 were more than 20 times lower than those in 2004. Similarly, concentrations of selenium in the Imperial wetland sediments and water were also lower with values in 2017 being 3-5 times less than in those 2004. Regarding mercury, the lower concentrations in water and sediment coupled with accumulation noted within fish indicate monitoring should continue since many samples had concentrations greater than prey fish and Least tern objectives (Table 2G). Although water and sediment concentrations of DDE and selenium are declining, they continue to exceed concentrations of samples taken in 2004, and should likewise be targeted for continued monitoring as well.

- Within the constructed wetlands, which organisms or materials are sequestering the highest concentrations of contaminants such as selenium?

Based on sampling performed in 2004 on multiple trophic levels (Tetratech 2006), selenium was observed within aquatic plants and invertebrates but did not exceed toxicity thresholds. The inverse relationship between plant and water concentrations may indicate plant uptake may occur, but additional studies are needed to confirm this association. Bioconcentration and bioaccumulation into fish was noted with BCFs in the 100s which is less than observed with other compounds such as DDTs (Tetratech 2006). Nearly all fish species had elevated concentrations with Centrarids, Carp, and Tilapia having the highest concentrations. The observation that all fish species regardless of trophic level had elevated concentrations and that water and, in most cases, sediment concentrations were below effects threshold, it is likely that transformation from inorganic to organic forms of selenium occurs in lower trophic food webs allowing bioaccumulation within fish. This occurs whether the fish species is herbivorous (cyprids), omnivorous (tilapia) or predacious (centrarids). Microalgae or periphyton sampling should be included in monitoring programs to determine whether microalgae or food items for herbivorous organisms serves as a source for accumulation.

Overall Salton Sea watershed conclusions

- Based on this evaluation, and the previous 10-year evaluation, what future trends or water quality issues can we anticipate within the Salton Sea watershed in the coming 5-10 years?

As discussed in the 2002-2012 report, ΣDDTs and selenium continue to exceed toxicity threshold concentrations in the Salton Sea Drainage in fish and sediments. With regard to acute toxicity and likely benthic infauna impacts, pyrethroid and neonicotinoids regularly exceeded water quality thresholds suggesting potential biota impacts. Their impacts on fish are likely limited to potential endocrine impacts in areas where exposure occurs during spawning for longer durations. Although water concentrations of mercury are relatively low, the occurrence within fish tissue above prey fish objectives indicates methylation and trophic transfer is occurring and suggests mercury should be monitored in future efforts.

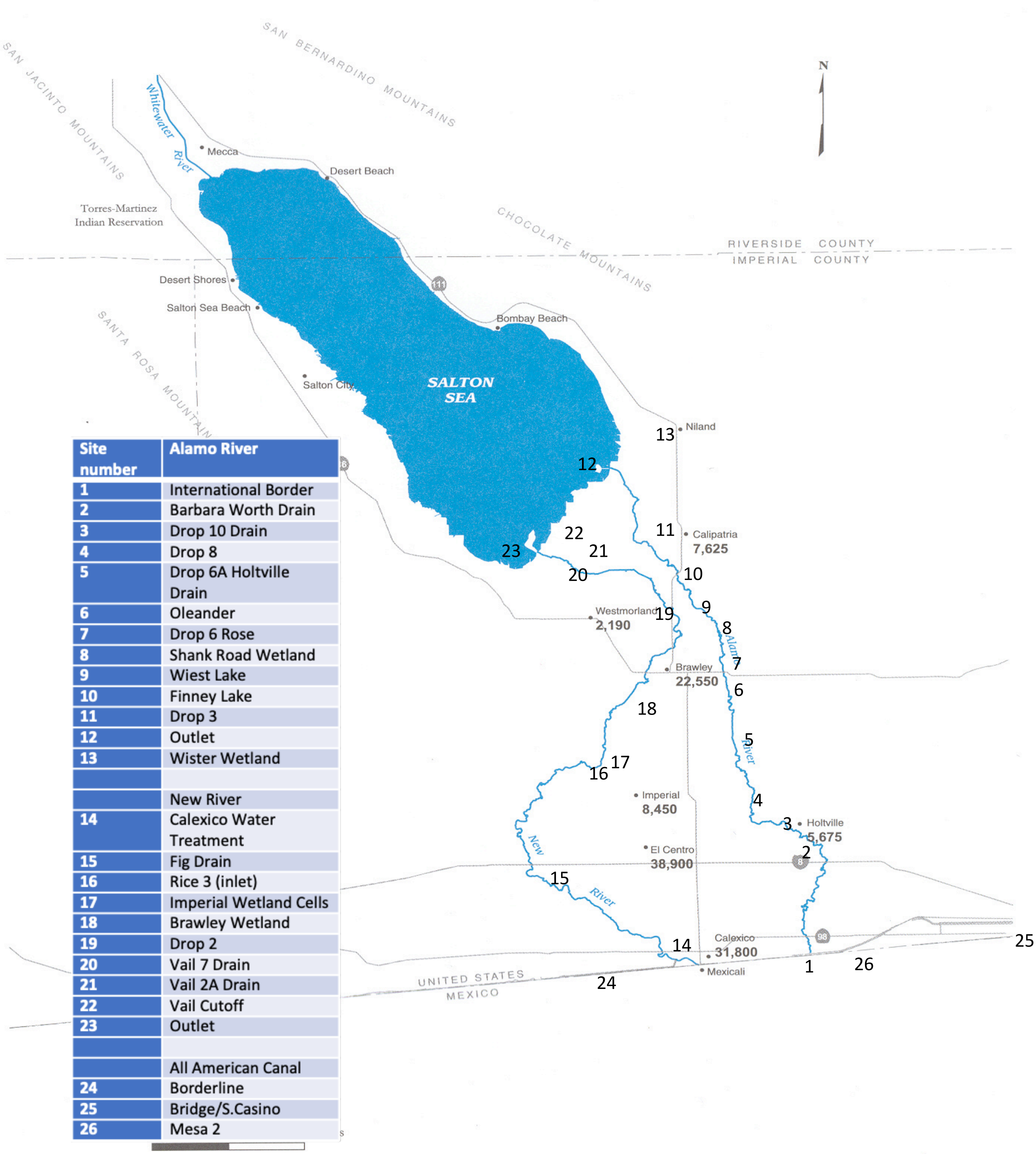
- What are the suspected routes of exposure for bioaccumulation in plants and wildlife?

According to the literature, methylation of mercury within wetlands is a common occurrence. Following methylation, enhanced absorption and trophic transfer occurs. Similarly, transformation of inorganic selenium to amino acid-selenium complexes by microalgae is potentially a route of trophic magnification. The occurrence within nearly all fish species at all trophic levels (cyprinids as well as centrarids) indicates widespread distribution and may be an issue for avian species.

- In the future can we expect bioaccumulation within the constructed wetlands to remain steady/worsen/ improve?

Monitoring is required to answer this question. Given other wetland issues with mercury, it is possible that magnification can occur in wetlands. Clearly concentrations of selenium in fish exceeds thresholds particularly for avian species as does ΣDDTs. However, it is possible that concentrations in fish, water and sediments may be slowly decreasing. In any event, additional monitoring should be continued to confirm this speculation.

Figure 1. Map of Sampling Locations on the Salton Sea, New and Alamo Rivers. See Table 1 for identification.



Site number	Alamo River
1	International Border
2	Barbara Worth Drain
3	Drop 10 Drain
4	Drop 8
5	Drop 6A Holtville Drain
6	Oleander
7	Drop 6 Rose
8	Shank Road Wetland
9	Wiest Lake
10	Finney Lake
11	Drop 3
12	Outlet
13	Wister Wetland
	New River
14	Calexico Water Treatment
15	Fig Drain
16	Rice 3 (inlet)
17	Imperial Wetland Cells
18	Brawley Wetland
19	Drop 2
20	Vail 7 Drain
21	Vail 2A Drain
22	Vail Cutoff
23	Outlet
	All American Canal
24	Borderline
25	Bridge/S.Casino
26	Mesa 2

Table 1. Sites for water quality and tissue measurements.

Site number	Alamo River	Latitude	Longitude	Datum
1	International Border	32.67506	-115.37008	WGS84
2	Barbara Worth Drain	32.80375	-115.41321	NAD83
3	Drop 10 Drain	32.82611	-115.4325	NAD83
4	Drop 8	32.87285	-115.4456	WGS84
5	Drop 6A Holtville Drain	32.93152	-115.45662	WGS84
6	Oleander	32.96725	-115.44877	NAD83
7	Drop 6 Rose	32.98705	-115.46862	WGS84
8	**Shank Road Wetland**	32.992975	-115.470067	NAD83
9	Wiest Lake	33.04176	-115.49021	NAD83
10	Finney Lake	33.06087	-115.50478	NAD83
11	Drop 3	33.14344	-115.56792	WGS84
12	Outlet	33.1992	-115.5971	NAD83
13	**Wister Wetland**	33.26333	-115.57099	Not Recorded
	New River			
14	Calexico Water Treatment	32.67173	-115.51224	NAD83
15	Fig Drain	32.76118	-115.70129	NAD83
16	Rice 3 (inlet)	32.87733	-115.64968	WGS84
17	**Imperial Wetland Cells**	32.878068	-115.645284	NAD83
18	**Brawley Wetland**	32.958083	-115.572105	NAD83
19	Drop 2	33.03967	-115.52194	WGS84
20	Vail 7 Drain	33.1112	-115.66646	NAD83
21	Vail 2A Drain	33.118223	-115.58827	NAD83
22	Vail Cutoff	33.13285	-115.58827	Not Recorded
23	Outlet	33.10472	-115.66361	NAD83
	All American Canal			
24	Borderline	32.65527	-115.63285	NAD83
25	Bridge/S.Casino	32.73538	-114.72572	NAD83
26	Mesa 2	32.67922	-115.32814	NAD83

Table 2A. USEPA water quality criteria used for risk analyses of dissolved metals. CMC= Criteria Maximum Concentration; CCC=Criterion Continuous Concentration.

Values are µg/L.

Constituent	Freshwater CMC	CCC	Reference
Al	750	87	USEPA 2021a*
As	340	150	USEPA 2021a
Cd	1.8	0.72	USEPA 2021a
Cu	2.05#	1.11#	USEPA 2021b
Fe		1000	USEPA 2021a
Pb	65	2.5	USEPA 2021a
Hg	1.4	0.77	USEPA 2021a
Ni	470	52	USEPA 2021a
Se		5	USEPA 2016@
Ag	3.2		USEPA 2021a
Zn	120	120	USEPA 2021a

*pH 6.5-9.0 for all harness and dissolved organic carbon ranges
#Aquatic Life Benchmark values for invertebrates for acute and chronic toxicity
@Aquatic Life Ambient water quality criterion

Table 2B. National recommended USEPA Aquatic Life Criteria for dissolved organic contaminants (µg/L).

Constituent	Freshwater CMC	CCC	Reference
Aldrin	3		USEPA 2021a
Atrazine	1511	10	USEPA 2003a*
Chlordane	2.4	0.0043	USEPA 2021a
Chlorpyrifos	0.083	0.041	USEPA 2021a
ppDDT	1.1	0.001	USEPA 2021a
Demeton		0.1	USEPA 2021a
Diazinon	0.17	0.17	USEPA 2021a
Dieldrin	0.024	0.056	USEPA 2021a
Endosulfan	0.22	0.056	USEPA 2021a
Endrin	0.086	0.036	USEPA 2021a
Heptachlor	0.52	0.0038	USEPA 2021a
Methoxychlor		0.03	USEPA 2021a
Mirex		0.001	USEPA 2021a
Parathion	0.065	0.013	USEPA 2021a
PCBs		0.014	USEPA 2021a
Toxaphene	0.73	0.0002	USEPA 2021a

*Determined from specific FIFRA Science advisory panel

Table 2C. USEPA National Benchmark values for dissolved organic contaminants. Values determine from invertebrate toxicity values (ug/L).

Constituent	Acute	Chronic	Reference
Bifenthrin	0.00025	0.00005	USEPA 2021b
Cyfluthrin	0.0125	0.00012	USEPA 2021b
Lamba-cyhalothrin	0.00004	0.00022	USEPA 2021b
Cypermethrin	0.00028	<0.00005	USEPA 2021b
Deltamethrin	0.0001	0.000026	USEPA 2021b
Esfenvalerate	0.00042	0.000031	USEPA 2021b
Imidacloprid	0.385	0.01	USEPA 2021b
Lindane	0.05	2.9 (fish)	USEPA 2021b
Malathion	0.049	0.06	USEPA 2021b
Permethrin	0.0033	0.0042	USEPA 2021b

Table 2D. Consensus Threshold values for sediment contaminants.

Constituent	Threshold Effect Concentration*	Reference
Metals (mg/kg dw) As	9.79	MacDonald et al. 2000
Cd	0.99	
Cr	43.4	
Cu	31.6	
Pb	35.8	
Mn	1100 (LEL)	WDNR, 2003
Hg	0.18	
Ni	22.7	
Se	2	Lemly 2002
Ag	1	USEPA 1996
Zn	121	
PAHs(ng/g dw) Anthracene	57.2	MacDonald et al. 2000
Fluorene	77.4	
Naphthalene	176	
Phenanthrene	204	
Benzo(a)anthracene	108	
Benzo(a)pyrene	150	
Chrysene	166	
Dibenz(a,h)anthracene	33	
Fluoranthene	423	
Pyrene	195	
ΣPAHs	1610	
ΣPCBs (ng/g dw)	59.8	
ΣPBDEs (ng/g dw)	3	Anderson et al. 2012

Constituent	Threshold Effect Concentration*	Reference
Organochlorine pesticides (ng/g dw)		MacDonald et al. 2000
Chlordane	3.24	
Dieldrin	1.90	
ΣDDD	4.88	
ΣDDE	3.16	
ΣDDT	5.28	
Endrin	2.22	
Heptachlor epoxide	2.47	
Lindane	2.37	

Table 2E. Sediment thresholds for pesticides in sediments.

Contaminant	**Endpoint**	***Hyalella azteca***	***Chironomus dilutus***
Pyrethroids		**ng/g**	**ng/g**
Bifenthrin	Survival	12.9 (Amweg et al. 2005)	634 (Maul et al. 2008) (Xu et al. 2007)
Cyfluthrin	Survival	13.7 (Amweg et al. 2005)	65.9 (Xu et al. 2007)
Cyhalothrin	Survival	5.6 (Amweg et al. 2005)	27.2 (Maul et al. 2008)
Cypermethrin	Survival	14.9 (Maund et al. 2002)	
Deltamethrin	Survival	9.9 (Amweg et al. 2005)	
Esfenvalerate	Survival	41.8 (Amweg et al. 2005)	
Fenpropathrin	Survival	177 (Ding et al. 2011)	65.4 (Xu et al. 2007)
Permethrin	Survival	201 (Amweg et al. 2005)	169 (Maul et al. 2008)
Fipronils			
Fipronil	Survival		0.90 (Maul et al. 2008)
Fipronil sulfide	Survival		1.11 (Maul et al. 2008)
Fipronil sulfone	Survival		0.83 (Maul et al. 2008)
Organophosphates			
Chlorpyrifos	Survival	399 (Brown et al. 1997)	

Table 2F. Tissue residue thresholds for fish collected in Salton Sea drainage.

Constituent	Threshold	Reference
ΣPCBs	15 ng/g ww Pred threshold (fish eating mammal) 48 ng/g ww Pred threshold (fish eating avian 430 ng/g ww Fish health	Environment Canada 2002 Environment Canada 2002 Berninger and Tillitt 2019
ΣDDTs	14 ng/g ww Predator Threshold 600 ng/g ww Fish health	Environment Canada 1997 Beckvar et al. 2005
Mercury	0.2 ng/g ww Predator Threshold 4.5 ng/g ww fish health	Fuchsman et al. 2016 Hinck et al. 2005
Selenium	0.6 ng/g ww Predator Threshold 0.8 ng/g ww fish health	Hinck et al. 2005

Table 2G. Tissue Objectives for Mercury (SWRCB, 2021)

Mercury Objective Category	Fish Length (total length in mm)	Mercury Objective (mg/kg)
Sportfish TL4	200-500	0.2
Sportfish TL3	150-500	0.2
Prey fish (any species)	50-150	0.05
California Least Tern	<50	0.03

Table 3. Locations, years and hazard quotients of pyrethroid insecticides in water that exceeded toxicity thresholds from 2013-2016. Blank spaces represent years where samples were not taken.

	2013	2014	2015	2016
Alamo River				
Bifenthrin				
Barbara Worth Drain			920	
Drop 8			74	
l-Cyhalothrin				
Drop 8	26			
Drop 6A Holtville Drain	26			
Drop 6 Rose Drain	59			
Outlet	26			
Cypermethrin				
Barbara Worth Drain			115	
Drop 10 Central Drain	101			DNQ
Drop 8	179			161
Drop 6A Holtville Drain	179			<MDL
Drop 6 Rose Drain	120			120
Drop 3	138			120
Outlet	120			198
Esfenvalerate/Fenvalerate				
Barbara Worth Drain			2.5	
Drop 6A Holtville Drain	1.2			
Drop 3	1.3			1.7
Outlet	<MDL			1.0
Permethrin (*cis-trans*)				
Barbara Worth Drain				19
New River				
Bifenthrin				
Outlet	3.5			<MDL
l-Cyhalothrin				
Rice Drain	4.2			
Drop 2	3.7			
Vail Two-A Drain			3.2	
Outlet	2.1			DNQ
Cypermethrin				
Boundary	16			4.3
Esfenvalerate/Fenvalerate				
Vail Cut Off Drain			24	

Table 4. Locations, years and hazard quotients of organophosphate insecticides (chlorpyrifos) in water that exceeded toxicity thresholds from 2013-2016.

	2013	2015	2016
Alamo River			
Central Drain Three		26	
Drop 10 Central Drain			7.0
Drop 8			4.5
Drop 6A Holtville Drain			11
Drop 6 Rose Drain			3.8
Drop 3			5.1
Outlet	3.3		4.0
New River			
Rice Drain	5.7		
New River at Drop 2	2.8		
New River Outlet			3.0

Table 5. Locations, years and hazard quotients of neonicotinoid insecticides (Imidacloprid) in water that exceeded thresholds from 2015-2016.

	2015	2016
Alamo River		
Barbara Worth Drain	483	
Central Drain Three	22	
Central Drain Two	42	
Oleander Drain	7	
Shank Rd. Wetland Cell1		16
New River		
New River at Rice Drain		
Imperial Wetlands Cell4		130
Imperial Wetlands Sed Basin		
Brawley Wetland Cell1		20
Vail Two-A Drain	4.3	

Table 6. Locations, years and hazard quotients of metals (selenium) that exceeded toxicity thresholds in water from 2013-2019.

	2013	2015	2016	2017	2018	2019
Alamo River						
Barbara Worth Drain		4.6				
Drop 10 Central Drain	2.1				1.5	
Drop 8	1.5					
Drop 6A Holtsville	1.7					
Drop 6 Rose Drain	1.7					
Drop 3	1.9		1.4			
Outlet	1.9		1.4		1.3	0.81
New River						
Boundary	0.25		1.2		0.56	
Rice Drain	1.4					
Imperial Wetlands Inlet				1.2		
New River at Drop 2	1.5					
Vail Two-A Drain		0.99				
Vail Cut Off Drain		3.5				
New River Outlet	1.3		0.98		1.0	0.55

Table 7. Locations, years and hazard quotients of pyrethroid insecticides that exceeded toxicitythresholds in sediments from 2015. Blank spaces indicate the compound was not analyzed that year.

	2015
Alamo River	
Bifenthrin	
Barbara Worth Drain	16
l-Cyhalothrin	
Barbara Worth Drain	2.2
Cypermethrin	
Barbara Worth Drain	4.2
Permethrin (*cis*)	
Barbara Worth Drain	1.5

Table 8. Locations, years and hazard quotients of organochlorine insecticides that exceeded toxicity thresholds in sediments from 2013-2017. Blank spaces indicate compound was not analyzed that year.

∑DDEs (ng/g dw)

	2013	2015	2016	2017
Alamo River				
Shank Rd. Wetland Cell1			2.0	
Alamo River Outlet	9.6	4.5		1.3
New River				
New River at Rice Drain	13			
Brawley Wetland Cell1			1.2	
New River Outlet	4.2	2.1		1.1
Wister Wildlife Refuge Cell W11A			5.6	
Wister Wildlife Refuge Cell W12A			3.0	

∑ DDT (ng/g dw)

	2013	2015	2016	2017
Alamo River				
Shank Rd. Wetland Cell1			2.0	
Alamo River Outlet	6.0	2.7		0.80
New River				
New River at Rice Drain	7.9			
New River Outlet Wister Wildlife Refuge Cell W11A	2.5	1.2	3.3	0.65
Wister Wildlife Refuge Cell W12A			1.8	

Table 9. Locations, years and hazard quotients of metals that exceeded toxicity thresholds in sediments from 2013-2018.

Arsenic; mg/Kg dw

	2013	2014	2015	2016	2017	2018
Alamo River						
Shank Rd. Wetland Cell1				1.6		
New River						
New River at Boundary	0.81			1.3		0.43
Brawley Wetland Cell1				1.1		
Wister Wildlife Refuge Cell W11A				1.1		
Wister Wildlife Refuge Cell W12A				1.1		
Cadmium; mg/Kg dw						
New River						
New River at Boundary	0.72			1.0		0.29
Copper; mg/Kg dw						
New River						
New River at Boundary	1.5			3.3		0.92
Lead; mg/Kg dw						
New River						
New River at Boundary	1.0			42.1		1.2
Nickel; mg/Kg dw						
Alamo River						
Alamo River at Drop 8				0.41		1.5
Alamo River at Drop 6 Rose Drain				0.59		1.7
Shank Rd. Wetlands Sed Basin 1						1.4, 1.1
Alamo River at Drop 3				0.71		1.2

	2013	2014	2015	2016	2017	2018
Alamo River Outlet	0.69		10.7	0.47		1.3, 0.76, 1.6
New River						
New River at Boundary	0.85			1.4		1.0
Imperial Wetlands Sed Basin						1.0, 1.1
Brawley Wetland Cell1				0.99		
New River at Drop 2						1.5
New River Outlet	0.96		0.64	0.74	0.61	1.4, 0.99, 1.2
Selenium; mg/Kg dw						
Wister Wildlife Refuge Cell W12A				1.5		
Silver; mg/Kg dw						
New River						
New River at Boundary	2.1			5.3		0.40
Zinc; mg/Kg dw						
New River						
New River at Boundary	1.5			4.0		0.76

Table 10. Toxicity of sediment samples obtained from the Alamo River outlet from 2013-2019.

2019	**4/10/19**	**10/10/19**	**10/15/19**
Growth (mg/ind)	0.0499 ± 0.0188*	0.0515 ± 0.0513*	0.0611 ± 0.0231*
% Effect	NE	NE	NE
Survival (%)	81.3 ± 14.6	47.5 ± 018.3*	56.3 ± 14.1*
% Effect	NE	NE	NE
2018	NA	**10/10/18**	NA
Growth (mg/ind)		0.106 ± 0.0201	
% Effect		-14.5	
Survival (%) % Effect		83.8 ± 34.2 NE	
2017	NA	**10/4/17**	NA
Growth (mg/ind)		0.109 ± 0.0206	
% Effect		-54.3	
Survival (%)		98.8 ± 3.54	
% Effect		-3.95	
2016	NA	**10/26/16**	NA
Growth (mg/ind) % Effect		0.145 ± 0.034* NE	
Survival (%) % Effect		28.8 ± 20.3* NE	
2015	NA	**10/21/15**	NA
Growth (mg/ind)		0.166 ± 0.0406	
% Effect		-18.5	
Survival (%)		92.5± 8.86	
% Effect		-4.23	
2014	NA	**10/22/14**	NA
Growth (mg/ind)		0.19 ± 0.0397	
% Effect		-11.1	
Survival (%) % Effect		75.0 ± 17.7* NE	
2013	**4/22/13**	**10/21/13**	NA
Growth (mg/ind) % Effect	0.113 ± 0.059* NE	0.085 ± 0.022* NE	
Survival (%) % Effect	30.0 ± 20.7* NE	14.0 ± 14.1* NE	

Table 11. Toxicity of sediment samples obtained from the New River outlet from 2013-2019.

2019	**4/9/19**	**10/10/19**	**10/16/19**
Growth (mg/ind)	0.0531 ± 0.0432	0.0382 ± 0.0266*	0.06 ± 0.0224*
% Effect	NE	NE	NE
Survival (%)	21.3 ± 13.6*	67.5 ± 18.3*	18.8 ± 15.5*
% Effect	NE	NE	NE
2018	NA	**10/10/18**	NA
Growth (mg/ind)		0.0849 ± 0.0219	
% Effect		NE	
Survival (%)		92.5 ± 10.7	
% Effect		-2.78	
2017	NA	**10/4/17**	NA
Growth (mg/ind)		0.0947 ± 0.0082	
% Effect		-33.7	
Survival (%)		88.8 ± 9.91	
% Effect		NE	
2016	NA	**10/26/16**	NA
Growth (mg/ind)		0.134 ± 0.0269*	
% Effect		NE	
Survival (%)		68.8 ± 11.3*	
% Effect		NE	
2015	NA	**10/21/15**	NA
Growth (mg/ind)		0.117 ± 0.0199	
% Effect		NE	
Survival (%)		82.5 ± 12.8	
% Effect		NE	
2014	NA	**10/22/14**	NA
Growth (mg/ind)		0.149 ± 0.042	

% Effect		-4.58	
Survival (%)		81.3 ± 17.3*	
% Effect		NE	
2013	**4/23/13**	**10/21/13**	NA
Growth (mg/ind)	0.107 ± 0.039*	0.138 ± 0.048	
% Effect	NE	NE	
Survival (%)	71.0 ± 14.1*	25.0 ± 18.5*	
% Effect	NE	NE	

Table 12. Sediment toxicity evaluations of wetlands in 2017-2018.

Shank Rd. Wetlands Sed Basin 1
2018 8/14/18

Collection Replicate	1	2	3
Growth (mg/ind)	0.0831 ± 0.0203	0.043 ± 0.0161*	0.0.141 ± 0.0288
% Effect	-9.66	NE	-85.4
Survival (%)	92.5 ± 7.07	86.3 ± 17.7	98.8 ± 3.54
% Effect	NE	NE	-5.33

2018	Imperial Wetlands Sed Basin 8/13/18		Brawley Wetland Sedimentation Basin 8/13/18	
Collection Replicate	1	2	1	2
Growth (mg/ind)	0.0562 ± 0.0152*	0.0349	0.119 ± 0.0192	0.0658 ± 0.0201
% Effect	NE	-36.8	-57.6	NE
Survival (%)	88.8 ± 15.5	62.5 ± 17.5*	96.3 ± 5.18	41.3 ± 18.9*
% Effect	NE	NE	-2.67	NE

2017	7/10/17
Collection Replicate	1
Growth (mg/ind)	0.201 ± 0.0349
% Effect	-6.85
Survival (%)	97.5 ± 7.07
% Effect	-6.85

2017	Imperial Wetlands Cell1 7/10/17	Imperial Wetlands Cell2 7/13/17	Imperial Wetlands Cell3 7/13/17	Imperial Wetlands Cell4 7/10/17	7/10/17
Collection Replicate	1	1	1	1	2
Growth(mg/ind)	00.142 ± 0.0104	0.219 ± 0.0136	0.130 ± 0.0222	0.209 ± 0.0364	0.288 ± 0.0214
% Effect	-10	-70	-0.646	-62.4	-123
Survival (%)	90.0 ± 13.1	98.8 ± 3.54	93.8 ± 7.44	78.8 ± 13.6*	97.5 ± 7.07
% Effect	NE	-8.22	-2.74	NE	-6.85

Table 13. Tissue concentrations of contaminants in fish that exceed thresholds in 2014.

New River		ΣDDTs		ΣPCBs
New River near Calexico Water Treatment Plant	Common Carp	268.02		83.43
	Tilapia spp.	8.5		
New River at Fig Drain	Common Carp	61.29		
	Tilapia spp.	4.41		
New River Outlet	Common Carp	184.5		
	Tilapia spp.	10.1		
Alamo River				
Alamo River at International Boundary	Tilapia spp.	23.5		
Wiest Lake_BOG	Channel Catfish	47.37		
	Striped Bass	4.76		
Finney Lake	Flathead Catfish	50.45		
Alamo River Above Drop 3	Flathead Catfish	414.81		
	Tilapia spp.	4.57		
Alamo River Outlet	Common Carp	1587.8		
	Tilapia spp.	14.4		
All American Canal				
All American Canal, Borderline	Channel Catfish			
	Common Carp	140.85		
	Flathead Catfish	10.3		
	Largemouth Bass	2.87		
American Canal at Bridge South of Quechan Casino	Common Carp	114.18		51.38
	Flathead Catfish	1.85		

AmericanCanal		ΣDDTs		ΣPCBs
	Tilapia spp.	2.87, +/- 1.1738		
All American Canal at Mesa 2	Channel Catfish	29.9		
	Common Carp	48.75		
	Flathead Catfish	3.17		
	Largemouth Bass	268.02		

Table 14. Concentrations of selenium in fish from the New and Alamo Rivers as well as associated Wetlands from 2014-2017

		2014	2016	2017
New River				
Calexico Water Treatment Plant				
	Common Carp	1.3 +/- 0.16		
	Tilapia spp.	1.8 +/- 0.96		
Fig Drain				
	Common Carp	0.78 +/- 0.14		
	Tilapia spp.	0.95 +/- 0.12		
Imperial Wetlands Cell4				
	Bluegill		1.3	
	Common Carp		1.3 +/- 0.021	
	Largemouth Bass		1.3 +/- 0.12	
Imperial Wetlands Sed Basin				
	American Shad			1.1
	Bluegill			0.91
	Common Carp			0.84 +/- 0.095
	Flathead Catfish			0.4
	Largemouth Bass			0.94 +/- 0.12
	Mosquitofish			0.82
	Threadfin Shad			1.25
New River Outlet				
	Common Carp	1.7 +/- 0.21		
	Tilapia spp.	1.9 +/- 0.16		
Alamo River				
International Boundary				
	Bluegill	0.99		
	Tilapia spp.	1.3 +/- 0.25		

Shank Rd. Wetland Cell1		**2014**	**2016**	**2017**
	Common Carp		1.34 +/- 0.057	
	Channel Catfish		0.48	
Wiest Lake_BOG				
	Black Crappie	1.7 +/- 0.049		
	Channel Catfish	0.48 +/- 0.074		
	Largemouth Bass	1.0 +/- 0.12		
	Redear Sunfish	1.0		
	Striped Bass	1.6 +/- 0.085		
Finney Lake				
	Black Crappie	1.9 +/- 0.014		
	Common Carp	2.0 +/- 0.085	2.7 +/-0.13	
	Flathead Catfish	0.983		
	Largemouth Bass	1.9		
Drop 3				
	Bluegill	0.99		
	Common Carp	2.0 +/-0.48		
	Flathead Catfish	0.77		
	Largemouth Bass	1.5 +/-0.30		
	Tilapia spp.	1.6 +/-0.37		
Alamo River Outlet				
	Tilapia spp.	1.8 +/-0.12		
	Common Carp	1.7		

All American Canal				
Borderline		2014	2016	2017
	Bluegill	1.6 +/- 0.064		
	Channel Catfish	0.54 +/-0.082		
	Common Carp	1.3 +/-0.21		
	Flathead Catfish	0.52 +/-0.091		
	Largemouth Bass	0.99 +/-0.13		
South of Quechan Casino				
	Common Carp	2.06 +/- 0.649		
	Flathead Catfish	1.0367 +/- 0.055		
	Largemouth Bass	1.81 +/- 0.339		
	Redear Sunfish	1.4		
Mesa 2				
	Bluegill	1.5		
	Channel Catfish	0.69 +/- 0.085		
	Common Carp	1.4 +/-0.37		
	Flathead Catfish	1.2 +/- 0.15		
	Largemouth Bass	1.7 +/-0.29		
	Redear Sunfish	1.6		

References

Amweg EL, Weston DP, Ureda NM. 2005. Use and toxicity of pyrethroid pesticides in the Central Valley, CA, U.S. *Environ Toxicol Chem* 24:966-972.

Anderson, PD, Denslow, ND, Drewes, JE, Olivieri, AW, Schlenk D, Scott, GI, Snyder, SA 2012. Monitoring Strategies for Chemicals of Emerging Concern (CeCs) in California's Aquatic Ecosystems. Recommendations of a Science Advisory Panel. Southern California Coastal Water Research Project. Technical Report 692.

Berninger JP Tillitt DE 2019. Polychlorinated Biphenyl Tissue-Concentration Thresholds for Survival, Growth, and Reproduction in Fish. Environmental Toxicology and Chemistry 38: 712–736.

Brown RP, Landre AM, Miller JA, Kirk HD, Hugo JM. 1997. Toxicity of sediment-associated chlorpyrifos with the freshwater invertebrates *Hyalella azteca* (amphipod) and *Chironomus tentans* (midge). Health and Environmental Research Laboratories, Dow Chemical, Midland, MI, USA.

Environment Canada. Canadian tissue residue guidelines for the protection of wildlife consumers of aquatic biota. Ottawa, ON,Canada7Environment Canada; 2002.

Environment Canada, 1997. Canadian tissue residue guidelines for DDT for the protection of wildlife consumers of aquatic biota. Final unpublished draft. Environment Canada, Science Policy and Environmental Quality Branch, Guidelines and Standards Division, Hull, Quebec, CN, 278p.

Hinck, JE, Schmitt, CJ, Bartish, TM, Denslow ND, Blazer, VS, Anderson, PJ, Coyle, JJ, Dethloff, GM, Tillett , DE. 2004. Biomonitoring of Environmental Status and Trends (BEST) Program: Environmental Contaminants and their Effects on Fish in the Columbia River Basin: U.S. Geological Survey, Columbia Environmental Research Center, Columbia, Missouri, Scientific Investigators Report 2004-5154, 125p.

Jarvinen AW, Ankley GT. 1999. Linkage of Effects to Tissue Residues: Development of a Comprehensive Database for Aquatic Organisms Exposed to Inorganic and Organic Chemicals. SETAC, Pensacola, FL, USA.

LeBlanc, LA, Orlando, JL, Kuivila, KM. 2004, Pesticide concentrations in water and in suspended and bottom sediments in the New and Alamo Rivers, Salton Sea watershed, California, April 2003: U.S. Geological Survey Data Series 104, 15 p.

Lemley, A.D. 2002. Selenium assessment in aquatic ecosystems. US Forest Service, Blacksburg, VA

MacDonald, DD, Ingersoll, CG, Berger, TA. 2000. Development and evaluation of consensus-based sediment quality guidelines for freshwater ecosystems. Arch. Environ. Contam. Toxicol. 39:20–31.

Maund SJ, Hamer MJ, Lane MCG, Farrelly E, Rapley JH, Goggin UM, Gentle WE. 2002. Partitioning, bioavailability, and toxicity of the pyrethroid insecticide cypermethrin in sediments. *Environ Toxicol Chem* 21:9-15.

Phillips, B.M., Siegler, K., Voorhees, J.P., McCalla, L., Zamudio, S., Faulkenberry, K. Dunn, A., Fojut, T., Ogg, B. 2020. Spatial and Temporal Trends in Chemical Contamination and Toxicity Relative to Land Use in California Watersheds: Stream Pollution Trends (SPoT) Monitoring Program. Fifth Report. California State Water Resources Control Board, Sacramento, CA.

Riedel, R., Schlenk, D., Frank, D., Costa-Pierce, B., 2002. Analyses of organic and inorganic contaminants in Salton Sea fish. Mar. Pollut. Bull. 44, 403–411.

Sapozhnikova, E. Bawardi, O., Roy, L. Schlenk, D 2004. Pesticides and PCBs in sediments and fish from the Salton Sea, California, USA. Chemosphere 55: 797-809.

Setmire, J.G., Schroeder, R.A., Densmore, J.N., 1993. Detailed study of water quality, bottom sediment, and biota associated with irrigation drainage in the Salton Sea Area, CA, 1988–1990. US Geological Survey, Water-Resources Investigations,
Report 93-4014.

State Water Resources Control Board of California 2021. Final Staff Report Surface Water Quality Assessment. Jan 14, 2021.
https://www.waterboards.ca.gov/water_issues/programs/tmdl/2018state_ir_reports_final/102020_6_final_stffrpt.pdf

U.S. EPA. 2021a. Aquatic Life Benchmarks. Accessed February 2, 2018. Available at: https://www.epa.gov/pesticide-science-and-assessing-pesticide-risks/aquatic-life-benchmarks-and-ecological-risk#aquatic-benchmarks

U.S. EPA. 2021b. National Recommended Water Quality Criteria. U.S. EPA. Washington, D.C. Available at: https://www.epa.gov/wqc/national-recommended-water-quality-criteria
Wade, T.J., N. Pai, J.N.S.

Xu, E.G. Bui, C., Lamerdin, C., Schlenk D. 2016. Spatial and temporal assessment of environmental contaminants in water, sediments and fish of the Salton Sea and its two primary tributaries, California, USA, from 2002-2012. Science of the Total Environment 559:130–140.

Appendix A. MDLs and RLs for Analytes

Analyte, Unit	MethodName	MatrixName	Min MDL	Max MDL	Min RL	Max RL
Acenaphthene; Total; ng/g dw	EPA 8270M	sediment	0.38	0.740	0.689	3.78
Acenaphthene; Total; ng/g ww	EPA 8270D SIM	tissue	0.01	0.01	0.01	0.01
Acenaphthene; Total; ug/L	EPA 8270M	samplewater	0.0025	0.00571	0.00500	0.01
Acenaphthylene; Total; ng/g dw	EPA 8270M	sediment	0.42	0.740	0.689	3.78
Acenaphthylene; Total; ng/g ww	EPA 8270D SIM	tissue	0.01	0.01	0.01	0.01
Acenaphthylene; Total; ug/L	EPA 8270M	samplewater	0.0046	0.00571	0.00500	0.01
Aldrin; Total; ng/g dw	EPA 8081BM	sediment	0.547	0.789	1.32	1.90
Aldrin; Total; ng/g ww	EPA 8081BM	tissue	0.390	0.710	0.950	1.71
Aldrin; Total; ug/L	EPA 8081BM	samplewater	0.001	0.001	0.002	0.002
Aluminum; Dissolved; ug/L	EPA 1638M	samplewater	0.32	1.70	0.32	5.00
Aluminum; Total; ug/g ww	EPA 200.8	tissue	1.50	1.50	4.00	4.00
Ametryn; Total; ug/L	EPA 619M	samplewater	0.002	0.002	0.005	0.005
Anthracene; Total; ng/g dw	EPA 8270M	sediment	0.689	1.53	0.689	3.78
Anthracene; Total; ng/g ww	EPA 8270D SIM	tissue	4.9	5	4.9	5
Anthracene; Total; ug/L	EPA 8270M	samplewater	0.0028	0.00571	0.00500	0.01
Arsenic; Dissolved; ug/L	EPA 1638M	samplewater	0.02	0.20	0.05	0.20
Arsenic; Total; mg/Kg dw	EPA 200.8	sediment	0.09	0.10	0.27	0.30
Arsenic; Total; ug/g ww	EPA 200.8	tissue	0.02	0.02	0.06	0.06
Arsenic; Total; ug/L	EPA 1638M	samplewater	0.04	0.04	0.06	0.06
Atraton; Dissolved; ug/L	EPA 619M	samplewater	0.002	0.002	0.005	0.005
Atraton; Total; ug/L	EPA 619M	samplewater	0.002	0.002	0.005	0.005
Atrazine; Dissolved; ug/L	EPA 619M	samplewater	0.002	0.002	0.005	0.005
Atrazine; Total; ug/L	EPA 619M	samplewater	0.002	0.002	0.005	0.005
Benz(a)anthracene; Total; ng/g dw	EPA 8270C	sediment	3.1	3.1	5	5
Benz(a)anthracene; Total; ng/g dw	EPA 8270M	sediment	0.689	1.15	0.689	3.78
Benz(a)anthracene; Total; ng/g ww	EPA 8270D SIM	tissue	4.9	5	4.9	5
Benz(a)anthracene; Total; ug/L	EPA 625	samplewater	0.02	0.02	0.3	0.3
Benz(a)anthracene; Total; ug/L	EPA 8270M	samplewater	0.0036	0.00571	0.00500	0.01
Benzo(a)pyrene; Total; ng/g dw	EPA 8270C	sediment	3.1	3.1	5	5
Benzo(a)pyrene; Total; ng/g dw	EPA 8270M	sediment	0.689	1.78	0.689	9.45
Benzo(a)pyrene; Total; ng/g ww	EPA 8270D SIM	tissue	4.9	5	4.9	5
Benzo(a)pyrene; Total; ug/L	EPA 625	samplewater	0.02	0.02	0.3	0.3

Analyte, Unit	MethodName	MatrixName	Min MDL	Max MDL	Min RL	Max RL
Benzo(a)pyrene; Total; ug/L	EPA 8270M	samplewater	0.0034	0.00571	0.00500	0.01
Benzo(b)fluoranthene; Total; ng/g dw	EPA 8270C	sediment	3.1	3.1	5	5
Benzo(b)fluoranthene; Total; ng/g dw	EPA 8270M	sediment	0.689	1.09	0.689	3.78
Benzo(b)fluoranthene; Total; ng/g ww	EPA 8270D SIM	tissue	4.9	5	4.9	5
Benzo(b)fluoranthene; Total; ug/L	EPA 625	samplewater	0.02	0.02	0.3	0.3
Benzo(b)fluoranthene; Total; ug/L	EPA 8270M	samplewater	0.0038	0.00571	0.00500	0.01
Benzo(e)pyrene; Total; ng/g dw	EPA 8270C	sediment	3.1	3.1	5	5
Benzo(e)pyrene; Total; ng/g dw	EPA 8270M	sediment	0.689	1.07	0.689	9.45
Benzo(e)pyrene; Total; ug/L	EPA 625	samplewater	0.03	0.03	5	5
Benzo(e)pyrene; Total; ug/L	EPA 8270M	samplewater	0.0029	0.00571	0.00500	0.01
Benzo(g,h,i)perylene; Total; ng/g dw	EPA 8270C	sediment	3.1	3.1	5	5
Benzo(g,h,i)perylene; Total; ng/g dw	EPA 8270M	sediment	0.689	1.79	0.689	9.45
Benzo(g,h,i)perylene; Total; ng/g ww	EPA 8270D SIM	tissue	4.9	5	4.9	5
Benzo(g,h,i)perylene; Total; ug/L	EPA 625	samplewater	0.02	0.02	0.1	0.1
Benzo(g,h,i)perylene; Total; ug/L	EPA 8270M	samplewater	0.0028	0.00571	0.00500	0.01
Benzo(k)fluoranthene; Total; ng/g dw	EPA 8270C	sediment	3.1	3.1	5	5
Benzo(k)fluoranthene; Total; ng/g dw	EPA 8270M	sediment	0.689	2.26	0.689	9.45
Benzo(k)fluoranthene; Total; ng/g ww	EPA 8270D SIM	tissue	4.9	5	4.9	5
Benzo(k)fluoranthene; Total; ug/L	EPA 625	samplewater	0.02	0.02	0.3	0.3
Benzo(k)fluoranthene; Total; ug/L	EPA 8270M	samplewater	0.0038	0.00571	0.00500	0.01
Bifenthrin; Total; ng/g dw	EPA 8270M_NCI	sediment	0.1	0.51	0.33	1.3
Bifenthrin; Total; ng/g dw	SCCWRP SOP SVOC 2019	sediment	-88	-88	0.174	0.174
Bifenthrin; Total; ng/g dw	WPCL SOP 67	sediment	0.076	0.985	0.303	3.91
Bifenthrin; Total; ng/g ww	EPA 8081A	tissue	16	16	50	50
Bifenthrin; Total; ug/L	EPA 8081BM	samplewater	0.0017	0.0019	0.002	0.002
Bifenthrin; Total; ug/L	WPCL SOP 67	samplewater	0.0017	0.0019	0.002	0.002
Cadmium; Dissolved; ug/L	EPA 1638M	samplewater	0.01	0.15	0.02	0.15
Cadmium; Total; mg/Kg dw	EPA 200.8	sediment	0.01	0.03	0.03	0.10
Cadmium; Total; ug/g ww	EPA 200.8	tissue	0.002	0.002	0.100	0.100
Cadmium; Total; ug/L	EPA 1638M	samplewater	0.01	0.01	0.03	0.03
Caffeine; Total; ug/L	EPA 1694M	samplewater	0.200	0.200	0.500	0.500

Analyte, Unit	MethodName	MatrixName	Min MDL	Max MDL	Min RL	Max RL
Carbadox; Total; ug/L	EPA 1694M	samplewater	0.002	0.002	0.005	0.005
Carbamazepine; Total; ug/L	EPA 1694M	samplewater	0.005	0.005	0.010	0.010
Chlordane, cis-; Total; ng/g dw	EPA 8081BM	sediment	0.529	0.762	1.32	1.90
Chlordane, cis-; Total; ng/g dw	SCCWRP SOP SVOC 2019	sediment	-88	-88	0.044	0.044
Chlordane, cis-; Total; ng/g ww	EPA 8081BM	tissue	0.380	0.680	0.950	1.71
Chlordane, cis-; Total; ug/L	EPA 8081BM	samplewater	0.001	0.001	0.002	0.002
Chlordane, trans-; Total; ng/g dw	EPA 8081BM	sediment	0.595	0.857	1.32	1.90
Chlordane, trans-; Total; ng/g dw	SCCWRP SOP SVOC 2019	sediment	-88	-88	0.023	0.023
Chlordane, trans-; Total; ng/g ww	EPA 8081BM	tissue	0.430	0.770	0.950	1.71
Chlordane, trans-; Total; ug/L	EPA 8081BM	samplewater	0.001	0.001	0.002	0.002
Chlordane; Total; ug/L	EPA 608	samplewater	0.02	0.02	0.05	0.05
Chlorpyrifos Methyl; Total; ng/g dw	EPA 8141AM	sediment	16.6	23.8	33.1	47.6
Chlorpyrifos Methyl; Total; ug/L	EPA 8141AM	samplewater	0.003	0.003	0.04	0.044
Chlorpyrifos; Total; ng/g dw	EPA 8141AM	sediment	3.31	4.76	6.62	9.52
Chlorpyrifos; Total; ng/g dw	SCCWRP SOP SVOC 2019	sediment	-88	-88	0.12	0.12
Chlorpyrifos; Total; ug/L	EPA 8141AM	samplewater	0.018	0.020	0.04	0.044
Chlortetracycline; Total; ug/L	EPA 1694M	samplewater	0.010	0.010	0.020	0.020
Chromium; Dissolved; ug/L	EPA 1638M	samplewater	0.07	0.17	0.17	0.30
Chromium; Total; mg/Kg dw	EPA 200.8	sediment	0.25	0.29	0.75	1.00
Chromium; Total; ug/g ww	EPA 200.8	tissue	0.15	0.15	0.04	0.04
Chromium; Total; ug/L	EPA 1638M	samplewater	0.10	0.10	0.30	0.30
Chrysene; Total; ng/g dw	EPA 8270C	sediment	3.1	3.1	5	5
Chrysene; Total; ng/g dw	EPA 8270M	sediment	0.689	1.55	0.689	3.78
Chrysene; Total; ng/g ww	EPA 8270D SIM	tissue	4.9	5	4.9	5
Chrysene; Total; ug/L	EPA 625	samplewater	0.02	0.02	0.3	0.3
Chrysene; Total; ug/L	EPA 8270M	samplewater	0.0026	0.00571	0.00500	0.01
Chrysenes, C1-; Total; ng/g dw	EPA 8270M	sediment	0.689	-88	0.689	-88
Chrysenes, C1-; Total; ug/L	EPA 8270M	samplewater	0.00500	-88	0.00500	-88
Chrysenes, C2-; Total; ng/g dw	EPA 8270M	sediment	0.689	-88	0.689	-88
Chrysenes, C2-; Total; ug/L	EPA 8270M	samplewater	0.00500	-88	0.00500	-88
Chrysenes, C3-; Total; ng/g dw	EPA 8270M	sediment	0.689	-88	0.689	-88
Chrysenes, C3-; Total; ug/L	EPA 8270M	samplewater	0.00500	-88	0.00500	-88
Copper; Dissolved; ug/L	EPA 1638M	samplewater	0.04	0.20	0.10	0.60
Copper; Total; mg/Kg dw	EPA 200.8	sediment	0.54	0.64	1.5	1.92

Analyte, Unit	MethodName	MatrixName	Min MDL	Max MDL	Min RL	Max RL
Copper; Total; ug/g ww	EPA 200.8	tissue	0.06	0.06	0.20	0.20
Copper; Total; ug/L	EPA 1638M	samplewater	0.04	0.04	0.10	0.10
Cyanazine; Dissolved; ug/L	EPA 619M	samplewater	0.002	0.002	0.005	0.005
Cyanazine; Total; ug/L	EPA 619M	samplewater	0.002	0.002	0.005	0.005
Cyfluthrin, Total; Total; ng/g dw	EPA 8270M_NCI	sediment	0.11	0.56	0.33	1.3
Cyfluthrin, Total; Total; ng/g dw	SCCWRP SOP SVOC 2019	sediment	-88	-88	0.06	0.06
Cyfluthrin, Total; Total; ng/g dw	WPCL SOP 67	sediment	0.156	0.270	1.51	2.62
Cyfluthrin, Total; Total; ng/g ww	EPA 8081A	tissue	16	16	50	50
Cyfluthrin, Total; Total; ug/L	EPA 8081BM	samplewater	0.0011	0.0013	0.005	0.006
Cyfluthrin, Total; Total; ug/L	WPCL SOP 67	samplewater	0.0011	0.0012	0.005	0.006
Cyhalothrin, Total lambda-; Total; ng/g dw	EPA 8270M_NCI	sediment	0.061	0.31	0.33	1.3
Cyhalothrin, Total lambda-; Total; ng/g dw	SCCWRP SOP SVOC 2019	sediment	-88	-88	0.039	0.039
Cyhalothrin, Total lambda-; Total; ng/g dw	WPCL SOP 67	sediment	0.064	0.111	0.605	1.05
Cyhalothrin, Total lambda-; Total; ng/g ww	EPA 8081A	tissue	16	16	50	50
Cyhalothrin, Total lambda-; Total; ug/L	EPA 8081BM	samplewater	0.0005	0.0006	0.002	0.002
Cyhalothrin, Total lambda-; Total; ug/L	WPCL SOP 67	samplewater	0.0005	0.0006	0.002	0.002
Cypermethrin, Total; Total; ng/g dw	EPA 8270M_NCI	sediment	0.1	0.51	0.33	1.3
Cypermethrin, Total; Total; ng/g dw	SCCWRP SOP SVOC 2019	sediment	-88	-88	0.051	0.051
Cypermethrin, Total; Total; ng/g dw	WPCL SOP 67	sediment	0.159	0.274	1.51	2.62
Cypermethrin, Total; Total; ng/g ww	EPA 8081A	tissue	83	83	250	250
Cypermethrin, Total; Total; ug/L	EPA 8081BM	samplewater	0.0029	0.0033	0.005	0.006
Cypermethrin, Total; Total; ug/L	WPCL SOP 67	samplewater	0.0029	0.0032	0.005	0.006
Dacthal; Total; ng/g dw	EPA 8081BM	sediment	0.127	0.187	1.32	1.90
Dacthal; Total; ng/g ww	EPA 8081BM	tissue	0.090	9.48	0.950	98.7
Dacthal; Total; ug/L	EPA 8081BM	samplewater	0.001	0.005	0.002	0.010
DDD(o,p'); Total; ng/g dw	EPA 8081BM	sediment	0.127	0.183	1.32	1.90
DDD(o,p'); Total; ng/g dw	SCCWRP SOP SVOC 2019	sediment	-88	-88	0.337	0.337
DDD(o,p'); Total; ng/g ww	EPA 8081BM	tissue	0.090	0.160	0.950	1.71
DDD(o,p'); Total; ug/L	EPA 8081BM	samplewater	0.001	0.001	0.002	0.002
DDD(p,p'); Total; ng/g dw	EPA 8081BM	sediment	0.164	0.236	1.32	1.90
DDD(p,p'); Total; ng/g dw	SCCWRP SOP SVOC 2019	sediment	-88	-88	1.395	1.395
DDD(p,p'); Total; ng/g ww	EPA 8081BM	tissue	0.120	0.210	0.950	1.71

Analyte, Unit	MethodName	MatrixName	Min MDL	Max MDL	Min RL	Max RL
DDD(p,p'); Total; ug/L	EPA 608	samplewater	0.004	0.004	0.005	0.005
DDD(p,p'); Total; ug/L	EPA 8081BM	samplewater	0.001	0.001	0.002	0.002
DDE(o,p'); Total; ng/g dw	EPA 8081BM	sediment	0.235	0.339	1.32	3.81
DDE(o,p'); Total; ng/g dw	SCCWRP SOP SVOC 2019	sediment	-88	-88	0.25	0.25
DDE(o,p'); Total; ng/g ww	EPA 8081BM	tissue	0.170	0.300	0.950	2
DDE(o,p'); Total; ug/L	EPA 8081BM	samplewater	0.001	0.001	0.002	0.002
DDE(p,p'); Total; ng/g dw	EPA 8081BM	sediment	0.635	0.914	1.32	3.81
DDE(p,p'); Total; ng/g dw	SCCWRP SOP SVOC 2019	sediment	-88	-88	0.714	0.714
DDE(p,p'); Total; ng/g ww	EPA 8081BM	tissue	0.450	9.50	0.950	9.95
DDE(p,p'); Total; ug/L	EPA 608	samplewater	0.004	0.004	0.005	0.005
DDE(p,p'); Total; ug/L	EPA 8081BM	samplewater	0.001	0.001	0.002	0.002
DDMU(p,p'); Total; ng/g dw	EPA 8081BM	sediment	0.143	0.206	1.32	5.71
DDMU(p,p'); Total; ng/g dw	SCCWRP SOP SVOC 2019	sediment	-88	-88	0.811	0.811
DDMU(p,p'); Total; ng/g ww	EPA 8081BM	tissue	0.100	0.180	0.950	3
DDMU(p,p'); Total; ug/L	EPA 8081BM	samplewater	0.001	0.001	0.002	0.002
DDT(o,p'); Total; ng/g dw	EPA 8081BM	sediment	0.286	0.411	1.32	5.71
DDT(o,p'); Total; ng/g dw	SCCWRP SOP SVOC 2019	sediment	-88	-88	1.2	1.2
DDT(o,p'); Total; ng/g ww	EPA 8081BM	tissue	0.200	0.370	0.950	3
DDT(o,p'); Total; ug/L	EPA 8081BM	samplewater	0.001	0.001	0.002	0.002
DDT(p,p'); Total; ng/g dw	EPA 8081BM	sediment	0.206	0.297	1.32	9.52
DDT(p,p'); Total; ng/g dw	SCCWRP SOP SVOC 2019	sediment	-88	-88	1.667	1.667
DDT(p,p'); Total; ng/g ww	EPA 8081BM	tissue	0.150	0.270	0.950	5
DDT(p,p'); Total; ug/L	EPA 608	samplewater	0.003	0.003	0.005	0.005
DDT(p,p'); Total; ug/L	EPA 8081BM	samplewater	0.002	0.002	0.005	0.005
Deltamethrin/Tralomethrin; Total; ng/g dw	EPA 8270M_NCI	sediment	0.12	0.61	0.33	1.3
Deltamethrin/Tralomethrin; Total; ng/g dw	WPCL SOP 67	sediment	0.269	0.465	1.21	2.09
Deltamethrin/Tralomethrin; Total; ug/L	EPA 8081BM	samplewater	0.0016	0.0018	0.005	0.006
Deltamethrin/Tralomethrin; Total; ug/L	WPCL SOP 67	samplewater	0.0016	0.0018	0.005	0.006
Deltamethrin; Total; ng/g dw	SCCWRP SOP SVOC 2019	sediment	-88	-88	0.235	0.235
Desethyl-Atrazine; Dissolved; ug/L	EPA 619M	samplewater	0.002	0.002	0.005	0.005
Desethyl-Atrazine; Total; ug/L	EPA 619M	samplewater	0.002	0.002	0.005	0.005
Desisopropyl-Atrazine; Dissolved; ug/L	EPA 619M	samplewater	0.04	0.04	0.1	0.1
Desisopropyl-Atrazine; Total; ug/L	EPA 619M	samplewater	0.002	0.002	0.005	0.005
Desmetryn; Dissolved; ug/L	EPA 619M	samplewater	0.002	0.002	0.005	0.005
Desmetryn; Total; ug/L	EPA 619M	samplewater	0.002	0.002	0.005	0.005

Analyte, Unit	MethodName	MatrixName	Min MDL	Max MDL	Min RL	Max RL
Diazinon; Total; ng/g dw	EPA 8141AM	sediment	3.31	4.76	6.62	9.52
Diazinon; Total; ng/g dw	SCCWRP SOP SVOC 2019	sediment	-88	-88	0.307	0.307
Diazinon; Total; ug/L	EPA 8141AM	samplewater	0.014	0.016	0.04	0.044
Dibenz(a,h)anthracene; Total; ng/g dw	EPA 8270C	sediment	3.1	3.1	5	5
Dibenz(a,h)anthracene; Total; ng/g dw	EPA 8270M	sediment	0.689	1.96	0.689	9.45
Dibenz(a,h)anthracene; Total; ng/g ww	EPA 8270D SIM	tissue	4.9	5	4.9	5
Dibenz(a,h)anthracene; Total; ug/L	EPA 625	samplewater	0.02	0.02	0.1	0.1
Dibenz(a,h)anthracene; Total; ug/L	EPA 8270M	samplewater	0.005	0.00571	0.00500	0.01
Dibenzothiophene; Total; ng/g dw	EPA 8270C	sediment	3.4	3.4	5	5
Dibenzothiophene; Total; ng/g dw	EPA 8270M	sediment	0.55	0.83	0.689	3.78
Dibenzothiophene; Total; ug/L	EPA 8270M	samplewater	0.0019	0.00571	0.00500	0.01
Dibenzothiophenes, C1-; Total; ng/g dw	EPA 8270M	sediment	0.54	0.81	0.689	-88
Dibenzothiophenes, C1-; Total; ug/L	EPA 8270M	samplewater	0.0043	0.00571	0.00500	0.01
Dibenzothiophenes, C2-; Total; ng/g dw	EPA 8270M	sediment	0.689	-88	0.689	-88
Dibenzothiophenes, C2-; Total; ug/L	EPA 8270M	samplewater	0.00500	-88	0.00500	-88
Dibenzothiophenes, C3-; Total; ng/g dw	EPA 8270M	sediment	0.689	-88	0.689	-88
Dibenzothiophenes, C3-; Total; ug/L	EPA 8270M	samplewater	0.00500	-88	0.00500	-88
Dichlofenthion; Total; ng/g dw	EPA 8141AM	sediment	16.6	23.8	33.1	47.6
Dichlofenthion; Total; ug/L	EPA 8141AM	samplewater	0.003	0.003	0.04	0.044
Dieldrin; Total; ng/g dw	EPA 8081BM	sediment	0.571	0.823	0.661	0.952
Dieldrin; Total; ng/g dw	SCCWRP SOP SVOC 2019	sediment	-88	-88	0.121	0.121
Dieldrin; Total; ng/g ww	EPA 8081BM	tissue	0.410	0.740	0.470	0.850
Dieldrin; Total; ug/L	EPA 608	samplewater	0.004	0.004	0.005	0.005
Dieldrin; Total; ug/L	EPA 8081BM	samplewater	0.001	0.001	0.002	0.002
Dimethylnaphthalene, 2,6-; Total; ng/g dw	EPA 8270C	sediment	3.1	3.1	5	5
Dimethylnaphthalene, 2,6-; Total; ng/g dw	EPA 8270M	sediment	0.4	0.740	0.689	3.78
Dimethylnaphthalene, 2,6-; Total; ug/L	EPA 625	samplewater	0.02	0.02	5	5
Dimethylnaphthalene, 2,6-; Total; ug/L	EPA 8270M	samplewater	0.0029	0.00571	0.00500	0.01

Analyte, Unit	MethodName	MatrixName	Min MDL	Max MDL	Min RL	Max RL
Dimethylphenanthrene, 3,6-; Total; ng/g dw	EPA 8270M	sediment	0.689	1.09	0.689	3.78
Dimethylphenanthrene, 3,6-; Total; ug/L	EPA 8270M	samplewater	0.00500	0.00571	0.00500	0.01
Dipropetryn; Dissolved; ug/L	EPA 619M	samplewater	0.002	0.002	0.005	0.005
Dipropetryn; Total; ug/L	EPA 619M	samplewater	0.002	0.002	0.005	0.005
Doxycycline; Total; ug/L	EPA 1694M	samplewater	0.010	0.010	0.020	0.020
Endosulfan I; Total; ng/g dw	EPA 8081BM	sediment	0.74	1.07	2.64	3.81
Endosulfan I; Total; ng/g ww	EPA 8081BM	tissue	0.530	0.960	1.89	3.42
Endosulfan I; Total; ug/L	EPA 608	samplewater	0.003	0.003	0.005	0.005
Endosulfan I; Total; ug/L	EPA 8081BM	samplewater	0.001	0.001	0.002	0.002
Endosulfan II; Total; ug/L	EPA 608	samplewater	0.003	0.003	0.005	0.005
Endosulfan II; Total; ug/L	EPA 8081BM	samplewater	0.001	0.001	0.002	0.002
Endosulfan Sulfate; Total; ug/L	EPA 608	samplewater	0.004	0.004	0.005	0.005
Endosulfan Sulfate; Total; ug/L	EPA 8081BM	samplewater	0.001	0.001	0.002	0.002
Endrin Aldehyde; Total; ug/L	EPA 608	samplewater	0.004	0.004	0.005	0.005
Endrin Aldehyde; Total; ug/L	EPA 8081BM	samplewater	0.002	0.002	0.005	0.005
Endrin Ketone; Total; ug/L	EPA 608	samplewater	0.004	0.004	0.005	0.005
Endrin Ketone; Total; ug/L	EPA 8081BM	samplewater	0.002	0.002	0.005	0.005
Endrin; Total; ng/g dw	EPA 8081BM	sediment	0.238	0.343	2.64	3.81
Endrin; Total; ng/g dw	SCCWRP SOP SVOC 2019	sediment	-88	-88	0.417	0.417
Endrin; Total; ng/g ww	EPA 8081BM	tissue	0.170	0.310	1.89	3.42
Endrin; Total; ug/L	EPA 608	samplewater	0.004	0.004	0.005	0.005
Endrin; Total; ug/L	EPA 8081BM	samplewater	0.001	0.001	0.002	0.002
Erythromycin-H2O; Total; ug/L	EPA 1694M	samplewater	0.005	0.005	0.010	0.010
Esfenvalerate/Fenvalerate, Total; Total; ng/g dw	EPA 8270M_NCI	sediment	0.13	0.66	0.33	1.3
Esfenvalerate/Fenvalerate, Total; Total; ng/g dw	WPCL SOP 67	sediment	0.158	0.273	0.605	1.05
Esfenvalerate/Fenvalerate, Total; Total; ng/g ww	EPA 8081A	tissue	16	16	50	50
Esfenvalerate/Fenvalerate, Total; Total; ug/L	EPA 8081BM	samplewater	0.0007	0.0008	0.002	0.005
Esfenvalerate/Fenvalerate, Total; Total; ug/L	WPCL SOP 67	samplewater	0.0007	0.0035	0.002	0.010
Ethion; Total; ng/g dw	EPA 8141AM	sediment	16.6	23.8	33.1	47.6
Ethion; Total; ug/L	EPA 8141AM	samplewater	0.007	0.008	0.04	0.044
Ethoprop; Total; ng/g dw	EPA 8141AM	sediment	16.6	23.8	33.1	47.6
Ethoprop; Total; ug/L	EPA 8141AM	samplewater	0.012	0.013	0.1	0.111
Fenchlorphos; Total; ng/g dw	EPA 8141AM	sediment	16.6	23.8	33.1	47.6
Fenchlorphos; Total; ug/L	EPA 8141AM	samplewater	0.013	0.014	0.1	0.111

Analyte, Unit	MethodName	MatrixName	Min MDL	Max MDL	Min RL	Max RL
Fenitrothion; Total; ng/g dw	EPA 8141AM	sediment	16.6	23.8	33.1	47.6
Fenitrothion; Total; ug/L	EPA 8141AM	samplewater	0.005	0.006	0.04	0.044
Fenpropathrin; Total; ng/g dw	SCCWRP SOP SVOC 2019	sediment	-88	-88	0.117	0.117
Fenpropathrin; Total; ng/g dw	WPCL SOP 67	sediment	0.053	0.091	0.303	0.523
Fenpropathrin; Total; ng/g ww	EPA 8081A	tissue	16	16	50	50
Fenpropathrin; Total; ug/L	EPA 8081BM	samplewater	0.0003	0.0003	0.002	0.006
Fenpropathrin; Total; ug/L	WPCL SOP 67	samplewater	0.0003	0.0003	0.002	0.002
Fipronil Desulfinyl; Total; ng/g dw	EPA 8270M_NCI	sediment	0.1	0.1	0.33	0.33
Fipronil Sulfide; Total; ng/g dw	EPA 8270M_NCI	sediment	0.1	0.1	0.33	0.33
Fipronil Sulfone; Total; ng/g dw	EPA 8270M_NCI	sediment	0.1	0.1	0.33	0.33
Fipronil; Total; ng/g dw	EPA 8270M_NCI	sediment	0.1	0.1	0.33	0.33
Fluoranthene/Pyrenes, C1-; Total; ng/g dw	EPA 8270M	sediment	0.46	0.740	0.689	-88
Fluoranthene/Pyrenes, C1-; Total; ug/L	EPA 8270M	samplewater	0.0045	0.00571	0.00500	-88
Fluoranthene; Total; ng/g dw	EPA 8270C	sediment	3.1	3.1	5	5
Fluoranthene; Total; ng/g dw	EPA 8270M	sediment	0.689	1.44	0.689	3.78
Fluoranthene; Total; ng/g ww	EPA 8270D SIM	tissue	4.9	5	4.9	5
Fluoranthene; Total; ug/L	EPA 625	samplewater	0.02	0.02	0.05	0.05
Fluoranthene; Total; ug/L	EPA 8270M	samplewater	0.0034	0.00571	0.00500	0.01
Fluorene; Total; ng/g dw	EPA 8270C	sediment	3.1	3.1	5	5
Fluorene; Total; ng/g dw	EPA 8270M	sediment	0.54	0.82	0.689	3.78
Fluorene; Total; ng/g ww	EPA 8270D SIM	tissue	4.9	5	4.9	5
Fluorene; Total; ug/L	EPA 625	samplewater	0.01	0.01	0.1	0.1
Fluorene; Total; ug/L	EPA 8270M	samplewater	0.0037	0.00571	0.00500	0.01
Fluorenes, C1-; Total; ng/g dw	EPA 8270M	sediment	0.66	1.01	0.689	-88
Fluorenes, C1-; Total; ug/L	EPA 8270M	samplewater	0.00500	0.0084	0.00500	-88
Fluorenes, C2-; Total; ng/g dw	EPA 8270M	sediment	0.689	-88	0.689	-88
Fluorenes, C2-; Total; ug/L	EPA 8270M	samplewater	0.00500	-88	0.00500	-88
Fluorenes, C3-; Total; ng/g dw	EPA 8270M	sediment	0.689	-88	0.689	-88
Fluorenes, C3-; Total; ug/L	EPA 8270M	samplewater	0.00500	-88	0.00500	-88
Fluoxetine; Total; ug/L	EPA 1694M	samplewater	0.005	0.005	0.010	0.010
Fonofos; Total; ng/g dw	EPA 8141AM	sediment	16.6	23.8	33.1	47.6
Fonofos; Total; ug/L	EPA 8141AM	samplewater	0.004	0.004	0.04	0.044
Gemfibrozil; Total; ug/L	EPA 1694M	samplewater	0.002	0.002	0.005	0.005

Analyte, Unit	MethodName	MatrixName	Min MDL	Max MDL	Min RL	Max RL
HCH, alpha-; Total; ng/g dw	EPA 8081BM	sediment	0.346	0.499	0.661	0.952
HCH, alpha-; Total; ng/g ww	EPA 8081BM	tissue	0.250	0.450	0.470	0.850
HCH, alpha-; Total; ug/L	EPA 608	samplewater	0.003	0.003	0.005	0.005
HCH, alpha-; Total; ug/L	EPA 8081BM	samplewater	0.001	0.001	0.002	0.002
HCH, beta-; Total; ng/g dw	EPA 8081BM	sediment	0.278	0.400	1.32	1.90
HCH, beta-; Total; ng/g ww	EPA 8081BM	tissue	0.200	0.360	0.950	1.71
HCH, beta-; Total; ug/L	EPA 608	samplewater	0.003	0.003	0.005	0.005
HCH, beta-; Total; ug/L	EPA 8081BM	samplewater	0.001	0.001	0.002	0.002
HCH, delta-; Total; ug/L	EPA 608	samplewater	0.003	0.003	0.005	0.005
HCH, gamma-; Total; ng/g dw	EPA 8081BM	sediment	0.19	0.274	0.661	0.952
HCH, gamma-; Total; ng/g ww	EPA 8081BM	tissue	0.140	0.250	0.470	0.850
HCH, gamma-; Total; ug/L	EPA 608	samplewater	0.003	0.003	0.005	0.005
HCH, gamma-; Total; ug/L	EPA 8081BM	samplewater	0.001	0.001	0.002	0.002
Heptachlor Epoxide; Total; ng/g dw	EPA 8081BM	sediment	0.325	0.469	1.32	1.90
Heptachlor Epoxide; Total; ng/g dw	SCCWRP SOP SVOC 2019	sediment	-88	-88	0.066	0.066
Heptachlor Epoxide; Total; ng/g ww	EPA 8081BM	tissue	0.230	0.420	0.950	1.71
Heptachlor Epoxide; Total; ug/L	EPA 608	samplewater	0.003	0.003	0.005	0.005
Heptachlor Epoxide; Total; ug/L	EPA 8081BM	samplewater	0.001	0.001	0.002	0.002
Heptachlor; Total; ng/g dw	EPA 8081BM	sediment	0.471	0.678	1.32	1.90
Heptachlor; Total; ng/g ww	EPA 8081BM	tissue	0.340	0.610	0.950	1.71
Heptachlor; Total; ug/L	EPA 608	samplewater	0.003	0.003	0.005	0.005
Heptachlor; Total; ug/L	EPA 8081BM	samplewater	0.001	0.001	0.002	0.002
Hexachlorobenzene; Total; ng/g dw	EPA 8081BM	sediment	0.457	0.659	0.915	1.33
Hexachlorobenzene; Total; ng/g ww	EPA 8081BM	tissue	0.330	0.590	0.650	1.18
Hexachlorobenzene; Total; ug/L	EPA 8081BM	samplewater	0.0005	0.0005	0.001	0.001
Hexanone, 2-; Total; ug/L	EPA 8260B	samplewater	0.9	0.9	10	10
Hydroxyatrazine, 2-; Dissolved; ug/L	EPA 619M	samplewater	0.002	0.002	0.005	0.005
Hydroxyatrazine, 2-; Total; ug/L	EPA 619M	samplewater	0.002	0.002	0.005	0.005
Ibuprofen; Total; ug/L	EPA 1694M	samplewater	0.020	0.020	0.050	0.050
Imidacloprid; Dissolved; ug/L	WPCL SOP LC-010	samplewater	0.008	0.800	0.02	2.00
Indeno(1,2,3-c,d)pyrene; Total; ng/g dw	EPA 8270C	sediment	3.1	3.1	5	5
Indeno(1,2,3-c,d)pyrene; Total; ng/g dw	EPA 8270M	sediment	0.689	2.19	0.689	9.45
Indeno(1,2,3-c,d)pyrene; Total; ng/g ww	EPA 8270D SIM	tissue	4.9	5	4.9	5

Analyte, Unit	MethodName	MatrixName	Min MDL	Max MDL	Min RL	Max RL
Indeno(1,2,3-c,d)pyrene; Total; ug/L	EPA 625	samplewater	0.02	0.02	0.05	0.05
Indeno(1,2,3-c,d)pyrene; Total; ug/L	EPA 8270M	samplewater	0.00500	0.0095	0.00500	0.01
Isopropylbenzene; Total; ug/L	EPA 8260	samplewater	0.350	0.350	2.00	2.00
Isopropylbenzene; Total; ug/L	EPA 8260B	samplewater	0.11	0.11	0.5	0.5
Isopropyltoluene, p-; Total; ug/L	EPA 8260	samplewater	0.170	0.170	2.00	2.00
Isopropyltoluene, p-; Total; ug/L	EPA 8260B	samplewater	0.14	0.14	0.5	0.5
Lead; Dissolved; ug/L	EPA 1638M	samplewater	0.015	0.15	0.03	0.15
Lead; Total; mg/Kg dw	EPA 200.8	sediment	0.21	0.31	0.5	0.93
Lead; Total; ug/g ww	EPA 200.8	tissue	0.002	0.002	0.010	0.010
Lead; Total; ug/L	EPA 1638M	samplewater	0.02	0.02	0.03	0.03
Lincomycin; Total; ug/L	EPA 1694M	samplewater	0.020	0.200	0.050	0.500
Malathion; Total; ng/g dw	EPA 8141AM	sediment	16.6	23.8	33.1	47.6
Malathion; Total; ug/L	EPA 8141AM	samplewater	0.018	0.020	0.1	0.111
Manganese; Dissolved; ug/L	EPA 1638M	samplewater	0.02	0.13	0.05	0.13
Manganese; Total; mg/Kg dw	EPA 200.8	sediment	0.32	1.08	0.96	3.00
Manganese; Total; ug/g ww	EPA 200.8	tissue	0.03	0.03	0.10	0.10
Manganese; Total; ug/L	EPA 1638M	samplewater	0.03	0.03	0.05	0.05
Mercury, Methyl; Dissolved; ng/L	EPA 1630M	samplewater	0.011	0.011	0.031	0.031
Mercury, Methyl; Total; ug/Kg dw	EPA 1630M	sediment	0.004	0.004	0.013	0.013
Mercury; Dissolved; ng/L	EPA 1631EM	samplewater	0.200	0.200	0.200	0.200
Mercury; Total; mg/Kg dw	EPA 7473	sediment	0.002	0.016	0.006	0.047
Mercury; Total; ng/L	EPA 1631EM	samplewater	0.070	0.200	0.200	0.200
Mercury; Total; ug/g ww	EPA 7473	tissue	0.003	0.004	0.009	0.012
Methoxychlor; Total; ng/g dw	EPA 8081BM	sediment	1.32	1.90	3.97	5.71
Methoxychlor; Total; ng/g ww	EPA 8081BM	tissue	0.950	1.71	2.84	5.13
Methoxychlor; Total; ug/L	EPA 608	samplewater	0.004	0.004	0.005	0.005
Methoxychlor; Total; ug/L	EPA 8081BM	samplewater	0.001	0.001	0.002	0.002
Methyldibenzothiophene, 4-; Total; ng/g dw	EPA 8270M	sediment	0.59	0.89	0.689	3.78
Methyldibenzothiophene, 4-; Total; ug/L	EPA 8270M	samplewater	0.0037	0.00571	0.00500	0.01
Methylene Chloride; Total; ug/L	EPA 8260B	samplewater	0.24	0.24	0.5	0.5
Methylfluoranthene, 2-; Total; ng/g dw	EPA 8270M	sediment	0.47	0.740	0.689	3.78
Methylfluoranthene, 2-; Total; ug/L	EPA 8270M	samplewater	0.0041	0.00571	0.00500	0.01
Methylfluorene, 1-; Total; ng/g dw	EPA 8270M	sediment	0.66	1.01	0.689	3.78

Analyte, Unit	MethodName	MatrixName	Min MDL	Max MDL	Min RL	Max RL
Methylfluorene, 1-; Total; ug/L	EPA 8270M	samplewater	0.00500	0.0066	0.00500	0.01
Methylnaphthalene, 1-; Total; ng/g dw	EPA 8270C	sediment	3.1	3.1	5	5
Methylnaphthalene, 1-; Total; ng/g dw	EPA 8270M	sediment	0.28	0.740	0.689	3.78
Methylnaphthalene, 1-; Total; ug/L	EPA 625	samplewater	0.02	0.02	5	5
Methylnaphthalene, 1-; Total; ug/L	EPA 8270M	samplewater	0.0044	0.00571	0.00500	0.01
Methylnaphthalene, 2-; Total; ng/g dw	EPA 8270C	sediment	3.1	3.1	5	5
Methylnaphthalene, 2-; Total; ng/g dw	EPA 8270M	sediment	0.42	0.740	0.689	3.78
Methylnaphthalene, 2-; Total; ng/g ww	EPA 8270D SIM	tissue	0.01	0.01	0.01	0.01
Methylnaphthalene, 2-; Total; ug/L	EPA 625	samplewater	0.02	0.02	5	5
Methylnaphthalene, 2-; Total; ug/L	EPA 8270M	samplewater	0.0046	0.00571	0.00500	0.01
Methylphenanthrene, 1-; Total; ng/g dw	EPA 8270C	sediment	3.1	3.1	5	5
Methylphenanthrene, 1-; Total; ng/g dw	EPA 8270M	sediment	0.57	0.87	0.689	3.78
Methylphenanthrene, 1-; Total; ug/L	EPA 625	samplewater	0.03	0.03	5	5
Methylphenanthrene, 1-; Total; ug/L	EPA 8270M	samplewater	0.00500	0.0076	0.00500	0.01
Mirex; Total; ng/g dw	EPA 8081BM	sediment	0.397	0.571	1.98	2.86
Mirex; Total; ng/g ww	EPA 8081BM	tissue	0.280	0.510	1.42	2.56
Mirex; Total; ug/L	EPA 8081BM	samplewater	0.001	0.001	0.002	0.002
Molinate; Dissolved; ug/L	EPA 619M	samplewater	0.01	0.01	0.02	0.02
Molinate; Total; ug/L	EPA 619M	samplewater	0.002	0.002	0.005	0.005
Naphthalene; Total; ng/g dw	EPA 8270C	sediment	3.1	3.1	5	5
Naphthalene; Total; ng/g dw	EPA 8270M	sediment	0.689	1.96	0.689	9.45
Naphthalene; Total; ng/g ww	EPA 8270D SIM	tissue	0.01	0.01	0.01	0.01
Naphthalene; Total; ug/L	EPA 625	samplewater	0.02	0.02	0.2	0.2
Naphthalene; Total; ug/L	EPA 8260	samplewater	0.230	0.230	2.00	2.00
Naphthalene; Total; ug/L	EPA 8260B	samplewater	0.21	0.21	0.5	0.5
Naphthalene; Total; ug/L	EPA 8270M	samplewater	0.0047	0.00571	0.00500	0.01
Naphthalenes, C1-; Total; ng/g dw	EPA 8270M	sediment	0.689	1.16	0.689	-88
Naphthalenes, C1-; Total; ug/L	EPA 8270M	samplewater	0.00500	0.0098	0.00500	-88
Naphthalenes, C2-; Total; ng/g dw	EPA 8270M	sediment	0.36	0.740	0.689	-88
Analyte, Unit	**MethodName**	**MatrixName**	**Min MDL**	**Max MDL**	**Min RL**	**Max RL**

Analyte, Unit	MethodName	MatrixName	Min MDL	Max MDL	Min RL	Max RL
Naphthalenes, C2-; Total; ug/L	EPA 8270M	samplewater	0.0035	0.00571	0.00500	-88
Naphthalenes, C3-; Total; ng/g dw	EPA 8270M	sediment	0.689	1.12	0.689	-88
Naphthalenes, C3-; Total; ug/L	EPA 8270M	samplewater	0.00500	0.0065	0.00500	-88
Naphthalenes, C4-; Total; ng/g dw	EPA 8270M	sediment	0.689	-88	0.689	-88
Naphthalenes, C4-; Total; ug/L	EPA 8270M	samplewater	0.00500	-88	0.00500	-88
Nickel; Dissolved; ug/L	EPA 1638M	samplewater	0.01	0.09	0.03	0.10
Nickel; Total; mg/Kg dw	EPA 200.8	sediment	0.12	0.40	0.4	1.20
Nickel; Total; ug/g ww	EPA 200.8	tissue	0.003	0.003	0.010	0.010
Nickel; Total; ug/L	EPA 1638M	samplewater	0.01	0.01	0.03	0.03
Nonachlor, cis-; Total; ng/g dw	EPA 8081BM	sediment	0.407	0.587	1.32	1.90
Nonachlor, cis-; Total; ng/g dw	SCCWRP SOP SVOC 2019	sediment	-88	-88	0.02	0.02
Nonachlor, cis-; Total; ng/g ww	EPA 8081BM	tissue	0.290	0.530	0.950	1.71
Nonachlor, cis-; Total; ug/L	EPA 8081BM	samplewater	0.001	0.001	0.002	0.002
Nonachlor, trans-; Total; ng/g dw	EPA 8081BM	sediment	0.257	0.370	1.32	1.90
Nonachlor, trans-; Total; ng/g dw	SCCWRP SOP SVOC 2019	sediment	-88	-88	0.029	0.029
Nonachlor, trans-; Total; ng/g ww	EPA 8081BM	tissue	0.180	0.330	0.950	1.71
Nonachlor, trans-; Total; ug/L	EPA 8081BM	samplewater	0.001	0.001	0.002	0.002
Nonylphenol; Total; ug/L	JACR97_3247-3272	samplewater	0.500	0.500	2.00	2.00
Nonylphenolethoxylate; Total; ug/L	JACR97_3247-3272	samplewater	0.500	0.500	2.00	2.00
Oxadiazon; Total; ng/g dw	EPA 8081BM	sediment	0.719	1.04	1.32	1.90
Oxadiazon; Total; ng/g ww	EPA 8081BM	tissue	0.510	0.930	0.950	1.71
Oxadiazon; Total; ug/L	EPA 8081BM	samplewater	0.001	0.001	0.002	0.002
Oxychlordane; Total; ng/g dw	EPA 8081BM	sediment	0.627	0.903	1.32	1.90
Oxychlordane; Total; ng/g dw	SCCWRP SOP SVOC 2019	sediment	-88	-88	0.093	0.093
Oxychlordane; Total; ng/g ww	EPA 8081BM	tissue	0.450	0.810	0.950	1.71
Oxychlordane; Total; ug/L	EPA 8081BM	samplewater	0.001	0.001	0.002	0.002
Oxytetracycline; Total; ug/L	EPA 1694M	samplewater	0.010	0.010	0.020	0.020
Parathion, Ethyl; Total; ng/g dw	EPA 8141AM	sediment	6.62	9.52	13.2	19.0
Parathion, Ethyl; Total; ug/L	EPA 8141AM	samplewater	0.003	0.003	0.04	0.044
Parathion, Methyl; Total; ng/g dw	EPA 8141AM	sediment	6.62	9.52	13.2	19.0
Analyte, Unit	**MethodName**	**MatrixName**	**Min MDL**	**Max MDL**	**Min RL**	**Max RL**

Analyte, Unit	MethodName	MatrixName	Min MDL	Max MDL	Min RL	Max RL
Parathion, Methyl; Total; ug/L	EPA 8141AM	samplewater	0.014	0.016	0.1	0.111
PBDE 017/25; Total; ng/g dw	EPA 1614AM	sediment	0.192	0.282	0.781	1.90
PBDE 017/25; Total; ng/g dw	EPA 8081BM	sediment	0.0693	0.0756	0.277	0.302
PBDE 017/25; Total; ug/L	EPA 1614AM	samplewater	0.00025	0.00025	0.001	0.001
PBDE 017/25; Total; ug/L	EPA 8081BM	samplewater	0.0003	0.00057	0.0010	0.00229
PBDE 028/33; Total; ng/g dw	EPA 1614AM	sediment	0.152	0.280	0.781	1.90
PBDE 028/33; Total; ng/g dw	EPA 8081BM	sediment	0.0693	0.0756	0.277	0.302
PBDE 028/33; Total; ug/L	EPA 1614AM	samplewater	0.00025	0.00025	0.001	0.001
PBDE 028/33; Total; ug/L	EPA 8081BM	samplewater	0.0003	0.00057	0.0010	0.00229
PBDE 030; Total; ng/g dw	EPA 1614AM	sediment	0.178	0.230	0.736	0.952
PBDE 030; Total; ng/g dw	EPA 8081BM	sediment	0.0693	0.0756	0.277	0.302
PBDE 030; Total; ug/L	EPA 1614AM	samplewater	0.00025	0.00025	0.001	0.001
PBDE 030; Total; ug/L	EPA 8081BM	samplewater	0.0003	0.00057	0.0010	0.00229
PBDE 047; Total; ng/g dw	EPA 1614AM	sediment	0.324	0.419	0.736	0.952
PBDE 047; Total; ng/g dw	EPA 8081BM	sediment	0.0693	0.0756	0.277	0.302
PBDE 047; Total; ug/L	EPA 1614AM	samplewater	0.00025	0.00025	0.001	0.001
PBDE 047; Total; ug/L	EPA 8081BM	samplewater	0.0003	0.00057	0.0010	0.00229
PBDE 049; Total; ng/g dw	EPA 1614AM	sediment	0.197	0.255	0.736	0.952
PBDE 049; Total; ng/g dw	EPA 8081BM	sediment	0.0693	0.0756	0.277	0.302
PBDE 049; Total; ug/L	EPA 1614AM	samplewater	0.00025	0.00025	0.001	0.001
PBDE 049; Total; ug/L	EPA 8081BM	samplewater	0.0003	0.00057	0.0010	0.00229
PBDE 066; Total; ng/g dw	EPA 1614AM	sediment	0.250	0.324	0.736	0.952
PBDE 066; Total; ng/g dw	EPA 8081BM	sediment	0.0693	0.0756	0.277	0.302
PBDE 066; Total; ug/L	EPA 1614AM	samplewater	0.00025	0.00025	0.001	0.001
PBDE 066; Total; ug/L	EPA 8081BM	samplewater	0.0003	0.00057	0.0010	0.00229
PBDE 085; Total; ng/g dw	EPA 1614AM	sediment	0.383	0.495	0.736	0.952
PBDE 085; Total; ng/g dw	EPA 8081BM	sediment	0.139	0.151	0.555	0.605
PBDE 085; Total; ug/L	EPA 1614AM	samplewater	0.0005	0.0005	0.002	0.002
PBDE 085; Total; ug/L	EPA 8081BM	samplewater	0.0005	0.00114	0.0020	0.00457
PBDE 099; Total; ng/g dw	EPA 1614AM	sediment	0.221	0.286	0.736	0.952
PBDE 099; Total; ng/g dw	EPA 8081BM	sediment	0.139	0.151	0.555	0.605
PBDE 099; Total; ug/L	EPA 1614AM	samplewater	0.0005	0.0005	0.002	0.002
PBDE 099; Total; ug/L	EPA 8081BM	samplewater	0.0005	0.00114	0.0020	0.00457
PBDE 100; Total; ng/g dw	EPA 1614AM	sediment	0.181	0.234	0.736	0.952
PBDE 100; Total; ng/g dw	EPA 8081BM	sediment	0.139	0.151	0.555	0.605
PBDE 100; Total; ug/L	EPA 1614AM	samplewater	0.0005	0.0005	0.002	0.002
PBDE 100; Total; ug/L	EPA 8081BM	samplewater	0.0005	0.00114	0.0020	0.00457
PBDE 138; Total; ng/g dw	EPA 1614AM	sediment	0.197	0.255	0.736	0.952
PBDE 138; Total; ng/g dw	EPA 8081BM	sediment	0.139	0.151	0.555	0.605
PBDE 138; Total; ug/L	EPA 1614AM	samplewater	0.0005	0.0005	0.002	0.002
PBDE 138; Total; ug/L	EPA 8081BM	samplewater	0.0005	0.00114	0.0020	0.00457
PBDE 153; Total; ng/g dw	EPA 1614AM	sediment	0.183	0.236	0.736	0.952
PBDE 153; Total; ng/g dw	EPA 8081BM	sediment	0.139	0.151	0.555	0.605
PBDE 153; Total; ug/L	EPA 1614AM	samplewater	0.0005	0.0005	0.002	0.002
PBDE 153; Total; ug/L	EPA 8081BM	samplewater	0.0005	0.00114	0.0020	0.00457

Analyte, Unit	MethodName	MatrixName	Min MDL	Max MDL	Min RL	Max RL
PBDE 154; Total; ng/g dw	EPA 1614AM	sediment	0.222	0.288	0.736	0.952
PBDE 154; Total; ng/g dw	EPA 8081BM	sediment	0.139	0.151	0.555	0.605
PBDE 154; Total; ug/L	EPA 1614AM	samplewater	0.0005	0.0005	0.002	0.002
PBDE 154; Total; ug/L	EPA 8081BM	samplewater	0.0005	0.00114	0.0020	0.00457
PBDE 179; Total; ng/g dw	EPA 1614AM	sediment	0.309	0.400	1.47	1.90
PBDE 179; Total; ng/g dw	EPA 8081BM	sediment	0.277	0.302	1.39	1.51
PBDE 179; Total; ug/L	EPA 1614AM	samplewater	0.001	0.001	0.005	0.005
PBDE 179; Total; ug/L	EPA 8081BM	samplewater	0.0010	0.00229	0.0050	0.0114
PBDE 183; Total; ng/g dw	EPA 1614AM	sediment	0.501	0.648	1.47	1.90
PBDE 183; Total; ng/g dw	EPA 8081BM	sediment	0.277	0.302	1.39	1.51
PBDE 183; Total; ug/L	EPA 1614AM	samplewater	0.001	0.001	0.005	0.005
PBDE 183; Total; ug/L	EPA 8081BM	samplewater	0.0010	0.00229	0.0050	0.0114
PBDE 184; Total; ng/g dw	EPA 1614AM	sediment	0.165	0.213	1.47	1.90
PBDE 184; Total; ng/g dw	EPA 8081BM	sediment	0.277	0.302	1.39	1.51
PBDE 184; Total; ug/L	EPA 1614AM	samplewater	0.001	0.001	0.005	0.005
PBDE 184; Total; ug/L	EPA 8081BM	samplewater	0.0010	0.00229	0.0050	0.0114
PBDE 188; Total; ng/g dw	EPA 1614AM	sediment	0.224	0.290	1.47	1.90
PBDE 188; Total; ng/g dw	EPA 8081BM	sediment	0.277	0.302	1.39	1.51
PBDE 188; Total; ug/L	EPA 1614AM	samplewater	0.001	0.001	0.005	0.005
PBDE 188; Total; ug/L	EPA 8081BM	samplewater	0.0010	0.00229	0.0050	0.0114
PBDE 190; Total; ng/g dw	EPA 1614AM	sediment	0.383	0.495	1.47	1.90
PBDE 190; Total; ng/g dw	EPA 8081BM	sediment	0.277	0.302	1.39	1.51
PBDE 190; Total; ug/L	EPA 1614AM	samplewater	0.001	0.001	0.005	0.005
PBDE 190; Total; ug/L	EPA 8081BM	samplewater	0.0010	0.00229	0.0050	0.0114
PBDE 200/203; Total; ng/g dw	EPA 1614AM	sediment	0.245	0.552	2.94	3.81
PBDE 200/203; Total; ng/g dw	EPA 8081BM	sediment	0.277	0.302	1.11	1.21
PBDE 200/203; Total; ug/L	EPA 1614AM	samplewater	0.001	0.001	0.004	0.004
PBDE 200/203; Total; ug/L	EPA 8081BM	samplewater	0.0010	0.00229	0.0040	0.00914
PBDE 201; Total; ng/g dw	EPA 1614AM	sediment	0.202	0.261	2.94	3.81
PBDE 201; Total; ng/g dw	EPA 8081BM	sediment	0.277	0.302	1.11	1.21
PBDE 201; Total; ug/L	EPA 1614AM	samplewater	0.001	0.001	0.004	0.004
PBDE 201; Total; ug/L	EPA 8081BM	samplewater	0.0010	0.00229	0.0040	0.00914
PBDE 202; Total; ng/g dw	EPA 1614AM	sediment	0.368	0.476	2.94	3.81
PBDE 202; Total; ng/g dw	EPA 8081BM	sediment	0.277	0.302	1.11	1.21
PBDE 202; Total; ug/L	EPA 1614AM	samplewater	0.001	0.001	0.004	0.004
PBDE 202; Total; ug/L	EPA 8081BM	samplewater	0.0010	0.00229	0.0040	0.00914
PBDE 206; Total; ng/g dw	EPA 1614AM	sediment	0.884	1.14	4.42	5.71
PBDE 206; Total; ng/g dw	EPA 8081BM	sediment	0.693	0.756	2.77	3.02
PBDE 206; Total; ug/L	EPA 1614AM	samplewater	0.0025	0.0025	0.01	0.01
PBDE 206; Total; ug/L	EPA 8081BM	samplewater	0.0025	0.00571	0.0100	0.0229
PBDE 207; Total; ng/g dw	EPA 1614AM	sediment	1.58	2.04	4.42	5.71
PBDE 207; Total; ng/g dw	EPA 8081BM	sediment	0.693	0.756	2.77	3.02
PBDE 207; Total; ug/L	EPA 1614AM	samplewater	0.0025	0.0025	0.01	0.01
PBDE 207; Total; ug/L	EPA 8081BM	samplewater	0.0025	0.00571	0.0100	0.0229
PBDE 208; Total; ng/g dw	EPA 1614AM	sediment	1.24	1.60	4.42	5.71
PBDE 208; Total; ng/g dw	EPA 8081BM	sediment	0.693	0.756	2.77	3.02
PBDE 208; Total; ug/L	EPA 1614AM	samplewater	0.0025	0.0025	0.01	0.01
PBDE 208; Total; ug/L	EPA 8081BM	samplewater	0.0025	0.00571	0.0100	0.0229

PBDE 209; Total; ng/g dw	EPA 1614AM	sediment	1.47	1.90	14.7	19.0
PBDE 209; Total; ng/g dw	EPA 8081BM	sediment	2.77	3.02	13.9	15.1
PBDE 209; Total; ug/L	EPA 1614AM	samplewater	0.01	0.01	0.05	0.05
PBDE 209; Total; ug/L	EPA 8081BM	samplewater	0.0100	0.02290	0.0500	0.114
PCB 005; Total; ug/L	EPA 1668CM	samplewater	0.001	0.001	0.002	0.002
PCB 005; Total; ug/L	EPA 8082M	samplewater	0.001	0.001	0.002	0.002
PCB 008; Total; ng/g dw	EPA 1668CM	sediment	0.250	0.381	0.751	1.14
PCB 008; Total; ng/g dw	EPA 8082M	sediment	0.277	0.302	0.832	0.907
PCB 008; Total; ng/g dw	SCCWRP SOP SVOC 2019	sediment	-88	-88	0.408	0.408
PCB 008; Total; ng/g ww	EPA 1668CM	tissue	0.189	0.197	0.566	0.591
PCB 008; Total; ng/g ww	EPA 8082M	tissue	0.190	0.200	0.570	0.600
PCB 008; Total; ug/L	EPA 1668CM	samplewater	0.001	0.001	0.002	0.002
PCB 008; Total; ug/L	EPA 8082M	samplewater	0.001	0.001	0.002	0.002
PCB 015; Total; ug/L	EPA 1668CM	samplewater	0.001	0.001	0.002	0.002
PCB 015; Total; ug/L	EPA 8082M	samplewater	0.001	0.001	0.002	0.002
PCB 018; Total; ng/g dw	EPA 1668CM	sediment	0.250	0.381	0.751	1.14
PCB 018; Total; ng/g dw	EPA 8082M	sediment	0.277	0.302	0.832	0.907
PCB 018; Total; ng/g dw	SCCWRP SOP SVOC 2019	sediment	-88	-88	0.806	0.806
PCB 018; Total; ng/g ww	EPA 1668CM	tissue	0.189	0.197	0.566	0.591
PCB 018; Total; ng/g ww	EPA 8082M	tissue	0.190	0.200	0.570	0.600
PCB 018; Total; ug/L	EPA 1668CM	samplewater	0.001	0.001	0.002	0.002
PCB 018; Total; ug/L	EPA 8082M	samplewater	0.001	0.001	0.002	0.002
PCB 027; Total; ng/g dw	EPA 1668CM	sediment	0.250	0.381	0.751	1.14
PCB 027; Total; ng/g dw	EPA 8082M	sediment	0.277	0.302	0.832	0.907
PCB 027; Total; ng/g ww	EPA 1668CM	tissue	0.189	0.197	0.566	0.591
PCB 027; Total; ng/g ww	EPA 8082M	tissue	0.190	0.200	0.570	0.600
PCB 027; Total; ug/L	EPA 1668CM	samplewater	0.001	0.001	0.002	0.002
PCB 027; Total; ug/L	EPA 8082M	samplewater	0.001	0.001	0.002	0.002
PCB 028/31; Total; ng/g dw	EPA 1668CM	sediment	0.250	0.56	1.50	2.28
PCB 028/31; Total; ng/g dw	EPA 8082M	sediment	0.277	0.302	0.832	0.907
PCB 028/31; Total; ng/g ww	EPA 1668CM	tissue	0.378	0.394	1.13	1.18
PCB 028/31; Total; ng/g ww	EPA 8082M	tissue	0.190	0.400	0.570	1.19
PCB 028; Total; ng/g dw	SCCWRP SOP SVOC 2019	sediment	-88	-88	0.62	0.62
PCB 028; Total; ug/L	EPA 1668CM	samplewater	0.001	0.001	0.002	0.002
PCB 028; Total; ug/L	EPA 8082M	samplewater	0.001	0.001	0.002	0.002
PCB 029; Total; ng/g dw	EPA 1668CM	sediment	0.250	0.381	0.751	1.14
PCB 029; Total; ng/g dw	EPA 8082M	sediment	0.277	0.302	0.832	0.907
PCB 029; Total; ng/g ww	EPA 1668CM	tissue	0.189	0.197	0.566	0.591
PCB 029; Total; ng/g ww	EPA 8082M	tissue	0.190	0.200	0.570	0.600
PCB 029; Total; ug/L	EPA 1668CM	samplewater	0.001	0.001	0.002	0.002
PCB 029; Total; ug/L	EPA 8082M	samplewater	0.001	0.001	0.002	0.002
PCB 031; Total; ug/L	EPA 1668CM	samplewater	0.001	0.001	0.002	0.002
PCB 031; Total; ug/L	EPA 8082M	samplewater	0.001	0.001	0.002	0.002
PCB 033; Total; ng/g dw	EPA 1668CM	sediment	0.250	0.381	0.751	1.14
PCB 033; Total; ng/g dw	EPA 8082M	sediment	0.277	0.302	0.832	0.907
PCB 033; Total; ng/g ww	EPA 1668CM	tissue	0.189	0.197	0.566	0.591
PCB 033; Total; ng/g ww	EPA 8082M	tissue	0.190	0.200	0.570	0.600
PCB 033; Total; ug/L	EPA 1668CM	samplewater	0.001	0.001	0.002	0.002

Analyte, Unit	MethodName	MatrixName	Min MDL	Max MDL	Min RL	Max RL
PCB 033; Total; ug/L	EPA 8082M	samplewater	0.001	0.001	0.002	0.002
PCB 037; Total; ng/g dw	SCCWRP SOP SVOC 2019	sediment	-88	-88	1.056	1.056
PCB 044; Total; ng/g dw	EPA 1668CM	sediment	0.250	0.381	0.751	1.14
PCB 044; Total; ng/g dw	EPA 8082M	sediment	0.277	0.302	0.832	0.907
PCB 044; Total; ng/g dw	SCCWRP SOP SVOC 2019	sediment	-88	-88	0.926	0.926
PCB 044; Total; ng/g ww	EPA 1668CM	tissue	0.189	0.197	0.566	0.591
PCB 044; Total; ng/g ww	EPA 8082M	tissue	0.190	0.200	0.570	0.600
PCB 044; Total; ug/L	EPA 1668CM	samplewater	0.001	0.001	0.002	0.002
PCB 044; Total; ug/L	EPA 8082M	samplewater	0.001	0.001	0.002	0.002
PCB 049; Total; ng/g dw	EPA 1668CM	sediment	0.250	0.381	0.751	1.14
PCB 049; Total; ng/g dw	EPA 8082M	sediment	0.277	0.302	0.832	0.907
PCB 049; Total; ng/g dw	SCCWRP SOP SVOC 2019	sediment	-88	-88	0.893	0.893
PCB 049; Total; ng/g ww	EPA 1668CM	tissue	0.189	0.197	0.566	0.591
PCB 049; Total; ng/g ww	EPA 8082M	tissue	0.190	0.200	0.570	0.600
PCB 049; Total; ug/L	EPA 1668CM	samplewater	0.001	0.001	0.002	0.002
PCB 049; Total; ug/L	EPA 8082M	samplewater	0.001	0.001	0.002	0.002
PCB 052; Total; ng/g dw	EPA 1668CM	sediment	0.250	0.381	0.751	1.14
PCB 052; Total; ng/g dw	EPA 8082M	sediment	0.277	0.302	0.832	0.907
PCB 052; Total; ng/g dw	SCCWRP SOP SVOC 2019	sediment	-88	-88	0.938	0.938
PCB 052; Total; ng/g ww	EPA 1668CM	tissue	0.189	0.197	0.566	0.591
PCB 052; Total; ng/g ww	EPA 8082M	tissue	0.190	0.200	0.570	0.600
PCB 052; Total; ug/L	EPA 1668CM	samplewater	0.001	0.001	0.002	0.002
PCB 052; Total; ug/L	EPA 8082M	samplewater	0.001	0.001	0.002	0.002
PCB 056/60; Total; ng/g dw	EPA 1668CM	sediment	0.250	0.56	1.50	2.28
PCB 056/60; Total; ng/g dw	EPA 8082M	sediment	0.277	0.302	0.832	0.907
PCB 056/60; Total; ng/g ww	EPA 1668CM	tissue	0.378	0.394	1.13	1.18
PCB 056/60; Total; ng/g ww	EPA 8082M	tissue	0.190	0.400	0.570	1.19
PCB 056; Total; ug/L	EPA 1668CM	samplewater	0.001	0.001	0.002	0.002
PCB 056; Total; ug/L	EPA 8082M	samplewater	0.001	0.001	0.002	0.002
PCB 060; Total; ug/L	EPA 1668CM	samplewater	0.001	0.001	0.002	0.002
PCB 060; Total; ug/L	EPA 8082M	samplewater	0.001	0.001	0.002	0.002
PCB 064; Total; ng/g dw	EPA 1668CM	sediment	0.250	0.381	0.751	1.14
PCB 064; Total; ng/g dw	EPA 8082M	sediment	0.277	0.302	0.832	0.907
PCB 064; Total; ng/g ww	EPA 1668CM	tissue	0.189	0.197	0.566	0.591
PCB 064; Total; ng/g ww	EPA 8082M	tissue	0.190	0.200	0.570	0.600
PCB 066; Total; ng/g dw	EPA 1668CM	sediment	0.250	0.381	0.751	1.14
PCB 066; Total; ng/g dw	EPA 8082M	sediment	0.277	0.302	0.832	0.907
PCB 066; Total; ng/g dw	SCCWRP SOP SVOC 2019	sediment	-88	-88	0.968	0.968
PCB 066; Total; ng/g ww	EPA 1668CM	tissue	0.189	0.197	0.566	0.591
PCB 066; Total; ng/g ww	EPA 8082M	tissue	0.190	0.200	0.570	0.600
PCB 066; Total; ug/L	EPA 1668CM	samplewater	0.001	0.001	0.002	0.002
PCB 066; Total; ug/L	EPA 8082M	samplewater	0.001	0.001	0.002	0.002
PCB 070; Total; ng/g dw	EPA 1668CM	sediment	0.375	0.571	1.13	1.71
PCB 070; Total; ng/g dw	EPA 8082M	sediment	0.416	0.453	1.25	1.36
Analyte, Unit	**MethodName**	**MatrixName**	**Min MDL**	**Max MDL**	**Min RL**	**Max RL**

Analyte, Unit	MethodName	MatrixName	Min MDL	Max MDL	Min RL	Max RL
PCB 070; Total; ng/g dw	SCCWRP SOP SVOC 2019	sediment	-88	-88	0.811	0.811
PCB 070; Total; ng/g ww	EPA 1668CM	tissue	0.283	0.295	0.850	0.886
PCB 070; Total; ng/g ww	EPA 8082M	tissue	0.280	0.300	0.850	0.900
PCB 070; Total; ug/L	EPA 1668CM	samplewater	0.001	0.001	0.002	0.002
PCB 070; Total; ug/L	EPA 8082M	samplewater	0.001	0.001	0.002	0.002
PCB 074; Total; ng/g dw	EPA 1668CM	sediment	0.250	0.381	0.751	1.14
PCB 074; Total; ng/g dw	EPA 8082M	sediment	0.277	0.302	0.832	0.907
PCB 074; Total; ng/g dw	SCCWRP SOP SVOC 2019	sediment	-88	-88	0.833	0.833
PCB 074; Total; ng/g ww	EPA 1668CM	tissue	0.189	0.197	0.566	0.591
PCB 074; Total; ng/g ww	EPA 8082M	tissue	0.190	0.200	0.570	0.600
PCB 074; Total; ug/L	EPA 1668CM	samplewater	0.001	0.001	0.002	0.002
PCB 074; Total; ug/L	EPA 8082M	samplewater	0.001	0.001	0.002	0.002
PCB 077; Total; ng/g dw	EPA 1668CM	sediment	0.250	0.381	0.751	1.14
PCB 077; Total; ng/g dw	EPA 8082M	sediment	0.277	0.302	0.832	0.907
PCB 077; Total; ng/g dw	SCCWRP SOP SVOC 2019	sediment	-88	-88	0.244	0.244
PCB 077; Total; ng/g ww	EPA 1668CM	tissue	0.189	0.197	0.566	0.591
PCB 077; Total; ng/g ww	EPA 8082M	tissue	0.190	0.200	0.570	0.600
PCB 077; Total; ug/L	EPA 1668CM	samplewater	0.001	0.001	0.002	0.002
PCB 077; Total; ug/L	EPA 8082M	samplewater	0.001	0.001	0.002	0.002
PCB 081; Total; ng/g dw	SCCWRP SOP SVOC 2019	sediment	-88	-88	0.188	0.188
PCB 087; Total; ng/g dw	EPA 1668CM	sediment	0.375	0.571	1.13	1.71
PCB 087; Total; ng/g dw	EPA 8082M	sediment	0.416	0.453	1.25	1.36
PCB 087; Total; ng/g dw	SCCWRP SOP SVOC 2019	sediment	-88	-88	0.33	0.33
PCB 087; Total; ng/g ww	EPA 1668CM	tissue	0.283	0.295	0.850	0.886
PCB 087; Total; ng/g ww	EPA 8082M	tissue	0.280	0.300	0.850	0.900
PCB 087; Total; ug/L	EPA 1668CM	samplewater	0.001	0.001	0.002	0.002
PCB 087; Total; ug/L	EPA 8082M	samplewater	0.001	0.001	0.002	0.002
PCB 095; Total; ng/g dw	EPA 1668CM	sediment	0.375	0.571	1.13	1.71
PCB 095; Total; ng/g dw	EPA 8082M	sediment	0.416	0.453	1.25	1.36
PCB 095; Total; ng/g ww	EPA 1668CM	tissue	0.283	0.295	0.850	0.886
PCB 095; Total; ng/g ww	EPA 8082M	tissue	0.280	0.300	0.850	0.900
PCB 095; Total; ug/L	EPA 1668CM	samplewater	0.001	0.001	0.002	0.002
PCB 095; Total; ug/L	EPA 8082M	samplewater	0.001	0.001	0.002	0.002
PCB 097; Total; ng/g dw	EPA 1668CM	sediment	0.250	0.381	0.751	1.14
PCB 097; Total; ng/g dw	EPA 8082M	sediment	0.277	0.302	0.832	0.907
PCB 097; Total; ng/g ww	EPA 1668CM	tissue	0.189	0.197	0.566	0.591
PCB 097; Total; ng/g ww	EPA 8082M	tissue	0.190	0.200	0.570	0.600
PCB 097; Total; ug/L	EPA 1668CM	samplewater	0.001	0.001	0.002	0.002
PCB 097; Total; ug/L	EPA 8082M	samplewater	0.001	0.001	0.002	0.002
PCB 099; Total; ng/g dw	EPA 1668CM	sediment	0.250	0.381	0.751	1.14
PCB 099; Total; ng/g dw	EPA 8082M	sediment	0.277	0.302	0.832	0.907
PCB 099; Total; ng/g dw	SCCWRP SOP SVOC 2019	sediment	-88	-88	0.536	0.536
PCB 099; Total; ng/g ww	EPA 1668CM	tissue	0.189	0.197	0.566	0.591
PCB 099; Total; ng/g ww	EPA 8082M	tissue	0.190	0.200	0.570	0.600

PCB 099; Total; ug/L	EPA 1668CM	samplewater	0.001	0.001	0.002	0.002
PCB 099; Total; ug/L	EPA 8082M	samplewater	0.001	0.001	0.002	0.002
PCB 101; Total; ng/g dw	EPA 1668CM	sediment	0.375	0.571	1.13	1.71
PCB 101; Total; ng/g dw	EPA 8082M	sediment	0.416	0.453	1.25	1.36
PCB 101; Total; ng/g dw	SCCWRP SOP SVOC 2019	sediment	-88	-88	0.201	0.201
PCB 101; Total; ng/g ww	EPA 1668CM	tissue	0.283	0.295	0.850	0.886
PCB 101; Total; ng/g ww	EPA 8082M	tissue	0.280	0.300	0.850	0.900
PCB 101; Total; ug/L	EPA 1668CM	samplewater	0.001	0.001	0.002	0.002
PCB 101; Total; ug/L	EPA 8082M	samplewater	0.001	0.001	0.002	0.002
PCB 105; Total; ng/g dw	EPA 1668CM	sediment	0.250	0.381	0.751	1.14
PCB 105; Total; ng/g dw	EPA 8082M	sediment	0.277	0.302	0.832	0.907
PCB 105; Total; ng/g dw	SCCWRP SOP SVOC 2019	sediment	-88	-88	0.058	0.058
PCB 105; Total; ng/g ww	EPA 1668CM	tissue	0.189	0.197	0.566	0.591
PCB 105; Total; ng/g ww	EPA 8082M	tissue	0.190	0.200	0.570	0.600
PCB 105; Total; ug/L	EPA 1668CM	samplewater	0.001	0.001	0.002	0.002
PCB 105; Total; ug/L	EPA 8082M	samplewater	0.001	0.001	0.002	0.002
PCB 110/151; Total; ug/L	EPA 8082M	samplewater	0.001	0.001	0.002	0.002
PCB 110; Total; ng/g dw	EPA 1668CM	sediment	0.250	0.42	0.751	1.26
PCB 110; Total; ng/g dw	EPA 8082M	sediment	0.416	0.453	1.25	1.36
PCB 110; Total; ng/g dw	SCCWRP SOP SVOC 2019	sediment	-88	-88	0.3	0.3
PCB 110; Total; ng/g ww	EPA 1668CM	tissue	0.283	0.295	0.850	0.886
PCB 110; Total; ng/g ww	EPA 8082M	tissue	0.280	0.300	0.850	0.900
PCB 110; Total; ug/L	EPA 1668CM	samplewater	0.001	0.001	0.002	0.002
PCB 114; Total; ng/g dw	EPA 1668CM	sediment	0.250	0.381	0.751	1.14
PCB 114; Total; ng/g dw	EPA 8082M	sediment	0.277	0.302	0.832	0.907
PCB 114; Total; ng/g dw	SCCWRP SOP SVOC 2019	sediment	-88	-88	0.035	0.035
PCB 114; Total; ng/g ww	EPA 1668CM	tissue	0.189	0.197	0.566	0.591
PCB 114; Total; ng/g ww	EPA 8082M	tissue	0.190	0.200	0.570	0.600
PCB 114; Total; ug/L	EPA 1668CM	samplewater	0.001	0.001	0.002	0.002
PCB 114; Total; ug/L	EPA 8082M	samplewater	0.001	0.001	0.002	0.002
PCB 118; Total; ng/g dw	EPA 1668CM	sediment	0.375	0.571	1.13	1.71
PCB 118; Total; ng/g dw	EPA 8082M	sediment	0.416	0.453	1.25	1.36
PCB 118; Total; ng/g dw	SCCWRP SOP SVOC 2019	sediment	-88	-88	0.04	0.04
PCB 118; Total; ng/g ww	EPA 1668CM	tissue	0.283	0.295	0.850	0.886
PCB 118; Total; ng/g ww	EPA 8082M	tissue	0.280	0.300	0.850	0.900
PCB 118; Total; ug/L	EPA 1668CM	samplewater	0.001	0.001	0.002	0.002
PCB 118; Total; ug/L	EPA 8082M	samplewater	0.001	0.001	0.002	0.002
PCB 119; Total; ng/g dw	SCCWRP SOP SVOC 2019	sediment	-88	-88	0.169	0.169
PCB 123; Total; ng/g dw	SCCWRP SOP SVOC 2019	sediment	-88	-88	0.049	0.049
PCB 126; Total; ng/g dw	EPA 1668CM	sediment	0.250	0.381	0.751	1.14
PCB 126; Total; ng/g dw	EPA 8082M	sediment	0.277	0.302	0.832	0.907
PCB 126; Total; ng/g dw	SCCWRP SOP SVOC 2019	sediment	-88	-88	0.049	0.049
PCB 126; Total; ng/g ww	EPA 1668CM	tissue	0.189	0.197	0.566	0.591

Analyte, Unit	MethodName	MatrixName	Min MDL	Max MDL	Min RL	Max RL
PCB 126; Total; ng/g ww	EPA 8082M	tissue	0.190	0.200	0.570	0.600
PCB 126; Total; ug/L	EPA 1668CM	samplewater	0.001	0.001	0.002	0.002
PCB 126; Total; ug/L	EPA 8082M	samplewater	0.001	0.001	0.002	0.002
PCB 128; Total; ng/g dw	EPA 1668CM	sediment	0.250	0.381	0.751	1.14
PCB 128; Total; ng/g dw	EPA 8082M	sediment	0.277	0.302	0.832	0.907
PCB 128; Total; ng/g dw	SCCWRP SOP SVOC 2019	sediment	-88	-88	0.031	0.031
PCB 128; Total; ng/g ww	EPA 1668CM	tissue	0.189	0.197	0.566	0.591
PCB 128; Total; ng/g ww	EPA 8082M	tissue	0.190	0.200	0.570	0.600
PCB 128; Total; ug/L	EPA 1668CM	samplewater	0.001	0.001	0.002	0.002
PCB 128; Total; ug/L	EPA 8082M	samplewater	0.001	0.001	0.002	0.002
PCB 137; Total; ng/g dw	EPA 1668CM	sediment	0.250	0.381	0.751	1.14
PCB 137; Total; ng/g dw	EPA 8082M	sediment	0.277	0.302	0.832	0.907
PCB 137; Total; ng/g ww	EPA 1668CM	tissue	0.189	0.197	0.566	0.591
PCB 137; Total; ng/g ww	EPA 8082M	tissue	0.190	0.200	0.570	0.600
PCB 137; Total; ug/L	EPA 1668CM	samplewater	0.001	0.001	0.002	0.002
PCB 137; Total; ug/L	EPA 8082M	samplewater	0.001	0.001	0.002	0.002
PCB 138/158; Total; ng/g dw	EPA 1668CM	sediment	0.250	0.56	1.50	2.28
PCB 138/158; Total; ng/g dw	EPA 8082M	sediment	0.277	0.302	0.832	0.907
PCB 138/158; Total; ng/g ww	EPA 1668CM	tissue	0.378	0.394	1.13	1.18
PCB 138/158; Total; ng/g ww	EPA 8082M	tissue	0.190	0.400	0.570	1.19
PCB 138; Total; ng/g dw	SCCWRP SOP SVOC 2019	sediment	-88	-88	0.03	0.03
PCB 138; Total; ug/L	EPA 1668CM	samplewater	0.001	0.001	0.002	0.002
PCB 138; Total; ug/L	EPA 8082M	samplewater	0.001	0.001	0.002	0.002
PCB 141; Total; ng/g dw	EPA 1668CM	sediment	0.250	0.381	0.751	1.14
PCB 141; Total; ng/g dw	EPA 8082M	sediment	0.277	0.302	0.832	0.907
PCB 141; Total; ng/g ww	EPA 1668CM	tissue	0.189	0.197	0.566	0.591
PCB 141; Total; ng/g ww	EPA 8082M	tissue	0.190	0.200	0.570	0.600
PCB 141; Total; ug/L	EPA 1668CM	samplewater	0.001	0.001	0.002	0.002
PCB 141; Total; ug/L	EPA 8082M	samplewater	0.001	0.001	0.002	0.002
PCB 146; Total; ng/g dw	EPA 1668CM	sediment	0.250	0.381	0.751	1.14
PCB 146; Total; ng/g dw	EPA 8082M	sediment	0.277	0.302	0.832	0.907
PCB 146; Total; ng/g ww	EPA 1668CM	tissue	0.189	0.197	0.566	0.591
PCB 146; Total; ng/g ww	EPA 8082M	tissue	0.190	0.200	0.570	0.600
PCB 149; Total; ng/g dw	EPA 1668CM	sediment	0.250	0.381	0.751	1.14
PCB 149; Total; ng/g dw	EPA 8082M	sediment	0.277	0.302	0.832	0.907
PCB 149; Total; ng/g dw	SCCWRP SOP SVOC 2019	sediment	-88	-88	0.144	0.144
PCB 149; Total; ng/g ww	EPA 1668CM	tissue	0.189	0.197	0.566	0.591
PCB 149; Total; ng/g ww	EPA 8082M	tissue	0.190	0.200	0.570	0.600
PCB 149; Total; ug/L	EPA 1668CM	samplewater	0.001	0.001	0.002	0.002
PCB 149; Total; ug/L	EPA 8082M	samplewater	0.001	0.001	0.002	0.002
PCB 151; Total; ng/g dw	EPA 1668CM	sediment	0.250	0.381	0.751	1.14
PCB 151; Total; ng/g dw	EPA 8082M	sediment	0.277	0.302	0.832	0.907
Analyte, Unit	**MethodName**	**MatrixName**	**Min MDL**	**Max MDL**	**Min RL**	**Max RL**

Analyte, Unit	MethodName	MatrixName	Min MDL	Max MDL	Min RL	Max RL
PCB 151; Total; ng/g dw	SCCWRP SOP SVOC 2019	sediment	-88	-88	0.027	0.027
PCB 151; Total; ng/g ww	EPA 1668CM	tissue	0.189	0.197	0.566	0.591
PCB 151; Total; ng/g ww	EPA 8082M	tissue	0.190	0.200	0.570	0.600
PCB 151; Total; ug/L	EPA 1668CM	samplewater	0.001	0.001	0.002	0.002
PCB 151; Total; ug/L	EPA 8082M	samplewater	0.001	0.001	0.002	0.002
PCB 153; Total; ng/g dw	EPA 1668CM	sediment	0.250	0.381	0.751	1.14
PCB 153; Total; ng/g dw	EPA 8082M	sediment	0.277	0.302	0.832	0.907
PCB 153; Total; ng/g ww	EPA 1668CM	tissue	0.189	0.197	0.566	0.591
PCB 153; Total; ng/g ww	EPA 8082M	tissue	0.190	0.200	0.570	0.600
PCB 153; Total; ug/L	EPA 1668CM	samplewater	0.001	0.001	0.002	0.002
PCB 153; Total; ug/L	EPA 8082M	samplewater	0.001	0.001	0.002	0.002
PCB 156; Total; ng/g dw	EPA 1668CM	sediment	0.250	0.381	0.751	1.14
PCB 156; Total; ng/g dw	EPA 8082M	sediment	0.277	0.302	0.832	0.907
PCB 156; Total; ng/g dw	SCCWRP SOP SVOC 2019	sediment	-88	-88	0.019	0.019
PCB 156; Total; ng/g ww	EPA 1668CM	tissue	0.189	0.197	0.566	0.591
PCB 156; Total; ng/g ww	EPA 8082M	tissue	0.190	0.200	0.570	0.600
PCB 156; Total; ug/L	EPA 1668CM	samplewater	0.001	0.001	0.002	0.002
PCB 156; Total; ug/L	EPA 8082M	samplewater	0.001	0.001	0.002	0.002
PCB 157; Total; ng/g dw	EPA 1668CM	sediment	0.250	0.381	0.751	1.14
PCB 157; Total; ng/g dw	EPA 8082M	sediment	0.277	0.302	0.832	0.907
PCB 157; Total; ng/g dw	SCCWRP SOP SVOC 2019	sediment	-88	-88	0.02	0.02
PCB 157; Total; ng/g ww	EPA 1668CM	tissue	0.189	0.197	0.566	0.591
PCB 157; Total; ng/g ww	EPA 8082M	tissue	0.190	0.200	0.570	0.600
PCB 157; Total; ug/L	EPA 1668CM	samplewater	0.001	0.001	0.002	0.002
PCB 157; Total; ug/L	EPA 8082M	samplewater	0.001	0.001	0.002	0.002
PCB 158; Total; ng/g dw	SCCWRP SOP SVOC 2019	sediment	-88	-88	0.016	0.016
PCB 158; Total; ug/L	EPA 1668CM	samplewater	0.001	0.001	0.002	0.002
PCB 158; Total; ug/L	EPA 8082M	samplewater	0.001	0.001	0.002	0.002
PCB 167; Total; ng/g dw	SCCWRP SOP SVOC 2019	sediment	-88	-88	0.019	0.019
PCB 169; Total; ng/g dw	EPA 1668CM	sediment	0.250	0.381	0.751	1.14
PCB 169; Total; ng/g dw	EPA 8082M	sediment	0.277	0.302	0.832	0.907
PCB 169; Total; ng/g dw	SCCWRP SOP SVOC 2019	sediment	-88	-88	0.026	0.026
PCB 169; Total; ng/g ww	EPA 1668CM	tissue	0.189	0.197	0.566	0.591
PCB 169; Total; ng/g ww	EPA 8082M	tissue	0.190	0.200	0.570	0.600
PCB 170; Total; ng/g dw	EPA 1668CM	sediment	0.250	0.381	0.751	1.14
PCB 170; Total; ng/g dw	EPA 8082M	sediment	0.277	0.302	0.832	0.907
PCB 170; Total; ng/g dw	SCCWRP SOP SVOC 2019	sediment	-88	-88	0.017	0.017
PCB 170; Total; ng/g ww	EPA 1668CM	tissue	0.189	0.197	0.566	0.591
PCB 170; Total; ng/g ww	EPA 8082M	tissue	0.190	0.200	0.570	0.600
PCB 170; Total; ug/L	EPA 1668CM	samplewater	0.001	0.001	0.002	0.002
PCB 170; Total; ug/L	EPA 8082M	samplewater	0.001	0.001	0.002	0.002
PCB 174; Total; ng/g dw	EPA 1668CM	sediment	0.250	0.381	0.751	1.14
PCB 174; Total; ng/g dw	EPA 8082M	sediment	0.277	0.302	0.832	0.907

Analyte, Unit	MethodName	MatrixName	Min MDL	Max MDL	Min RL	Max RL
PCB 174; Total; ng/g ww	EPA 1668CM	tissue	0.189	0.197	0.566	0.591
PCB 174; Total; ng/g ww	EPA 8082M	tissue	0.190	0.200	0.570	0.600
PCB 174; Total; ug/L	EPA 1668CM	samplewater	0.001	0.001	0.002	0.002
PCB 174; Total; ug/L	EPA 8082M	samplewater	0.001	0.001	0.002	0.002
PCB 177; Total; ng/g dw	EPA 1668CM	sediment	0.250	0.381	0.751	1.14
PCB 177; Total; ng/g dw	EPA 8082M	sediment	0.277	0.302	0.832	0.907
PCB 177; Total; ng/g dw	SCCWRP SOP SVOC 2019	sediment	-88	-88	0.037	0.037
PCB 177; Total; ng/g ww	EPA 1668CM	tissue	0.189	0.197	0.566	0.591
PCB 177; Total; ng/g ww	EPA 8082M	tissue	0.190	0.200	0.570	0.600
PCB 177; Total; ug/L	EPA 1668CM	samplewater	0.001	0.001	0.002	0.002
PCB 177; Total; ug/L	EPA 8082M	samplewater	0.001	0.001	0.002	0.002
PCB 180; Total; ng/g dw	EPA 1668CM	sediment	0.250	0.381	0.751	1.14
PCB 180; Total; ng/g dw	EPA 8082M	sediment	0.277	0.302	0.832	0.907
PCB 180; Total; ng/g dw	SCCWRP SOP SVOC 2019	sediment	-88	-88	0.014	0.014
PCB 180; Total; ng/g ww	EPA 1668CM	tissue	0.189	0.197	0.566	0.591
PCB 180; Total; ng/g ww	EPA 8082M	tissue	0.190	0.200	0.570	0.600
PCB 180; Total; ug/L	EPA 1668CM	samplewater	0.001	0.001	0.002	0.002
PCB 180; Total; ug/L	EPA 8082M	samplewater	0.001	0.001	0.002	0.002
PCB 183; Total; ng/g dw	SCCWRP SOP SVOC 2019	sediment	-88	-88	0.014	0.014
PCB 183; Total; ug/L	EPA 1668CM	samplewater	0.001	0.001	0.002	0.002
PCB 183; Total; ug/L	EPA 8082M	samplewater	0.001	0.001	0.002	0.002
PCB 187; Total; ng/g dw	EPA 1668CM	sediment	0.250	0.381	0.751	1.14
PCB 187; Total; ng/g dw	EPA 8082M	sediment	0.277	0.302	0.832	0.907
PCB 187; Total; ng/g dw	SCCWRP SOP SVOC 2019	sediment	-88	-88	0.013	0.013
PCB 187; Total; ng/g ww	EPA 1668CM	tissue	0.189	0.197	0.566	0.591
PCB 187; Total; ng/g ww	EPA 8082M	tissue	0.190	0.200	0.570	0.600
PCB 187; Total; ug/L	EPA 1668CM	samplewater	0.001	0.001	0.002	0.002
PCB 187; Total; ug/L	EPA 8082M	samplewater	0.001	0.001	0.002	0.002
PCB 189; Total; ng/g dw	EPA 1668CM	sediment	0.250	0.381	0.751	1.14
PCB 189; Total; ng/g dw	EPA 8082M	sediment	0.277	0.302	0.832	0.907
PCB 189; Total; ng/g dw	SCCWRP SOP SVOC 2019	sediment	-88	-88	0.016	0.016
PCB 189; Total; ng/g ww	EPA 1668CM	tissue	0.189	0.197	0.566	0.591
PCB 189; Total; ng/g ww	EPA 8082M	tissue	0.190	0.200	0.570	0.600
PCB 189; Total; ug/L	EPA 1668CM	samplewater	0.001	0.001	0.002	0.002
PCB 189; Total; ug/L	EPA 8082M	samplewater	0.001	0.001	0.002	0.002
PCB 194; Total; ng/g dw	EPA 1668CM	sediment	0.250	0.381	0.751	1.14
PCB 194; Total; ng/g dw	EPA 8082M	sediment	0.277	0.302	0.832	0.907
PCB 194; Total; ng/g dw	SCCWRP SOP SVOC 2019	sediment	-88	-88	0.015	0.015
PCB 194; Total; ng/g ww	EPA 1668CM	tissue	0.189	0.197	0.566	0.591
PCB 194; Total; ng/g ww	EPA 8082M	tissue	0.190	0.200	0.570	0.600
PCB 194; Total; ug/L	EPA 1668CM	samplewater	0.001	0.001	0.002	0.002
PCB 194; Total; ug/L	EPA 8082M	samplewater	0.001	0.001	0.002	0.002
PCB 195; Total; ng/g dw	EPA 1668CM	sediment	0.250	0.381	0.751	1.14
PCB 195; Total; ng/g dw	EPA 8082M	sediment	0.277	0.302	0.832	0.907

Analyte, Unit	MethodName	MatrixName	Min MDL	Max MDL	Min RL	Max RL
PCB 195; Total; ng/g ww	EPA 1668CM	tissue	0.189	0.197	0.566	0.591
PCB 195; Total; ng/g ww	EPA 8082M	tissue	0.190	0.200	0.570	0.600
PCB 195; Total; ug/L	EPA 1668CM	samplewater	0.001	0.001	0.002	0.002
PCB 195; Total; ug/L	EPA 8082M	samplewater	0.001	0.001	0.002	0.002
PCB 198; Total; ng/g dw	EPA 1668CM	sediment	0.250	0.381	0.751	1.14
PCB 198; Total; ng/g dw	EPA 8082M	sediment	0.277	0.302	0.832	0.907
PCB 198; Total; ng/g ww	EPA 1668CM	tissue	0.189	0.197	0.566	0.591
PCB 198; Total; ng/g ww	EPA 8082M	tissue	0.190	0.200	0.570	0.600
PCB 199; Total; ng/g dw	EPA 1668CM	sediment	0.250	0.381	0.751	1.14
PCB 199; Total; ng/g dw	EPA 8082M	sediment	0.277	0.302	0.832	0.907
PCB 199; Total; ng/g ww	EPA 1668CM	tissue	0.189	0.197	0.566	0.591
PCB 199; Total; ng/g ww	EPA 8082M	tissue	0.190	0.200	0.570	0.600
PCB 200; Total; ng/g dw	EPA 1668CM	sediment	0.250	0.381	0.751	1.14
PCB 200; Total; ng/g dw	EPA 8082M	sediment	0.277	0.302	0.832	0.907
PCB 200; Total; ng/g dw	SCCWRP SOP SVOC 2019	sediment	-88	-88	0.014	0.014
PCB 200; Total; ng/g ww	EPA 1668CM	tissue	0.189	0.197	0.566	0.591
PCB 200; Total; ng/g ww	EPA 8082M	tissue	0.190	0.200	0.570	0.600
PCB 200; Total; ug/L	EPA 1668CM	samplewater	0.001	0.001	0.002	0.002
PCB 200; Total; ug/L	EPA 8082M	samplewater	0.001	0.001	0.002	0.002
PCB 201; Total; ng/g dw	EPA 1668CM	sediment	0.250	0.381	0.751	1.14
PCB 201; Total; ng/g dw	EPA 8082M	sediment	0.277	0.302	0.832	0.907
PCB 201; Total; ng/g dw	SCCWRP SOP SVOC 2019	sediment	-88	-88	0.013	0.013
PCB 201; Total; ng/g ww	EPA 1668CM	tissue	0.189	0.197	0.566	0.591
PCB 201; Total; ng/g ww	EPA 8082M	tissue	0.190	0.200	0.570	0.600
PCB 201; Total; ug/L	EPA 1668CM	samplewater	0.001	0.001	0.002	0.002
PCB 201; Total; ug/L	EPA 8082M	samplewater	0.001	0.001	0.002	0.002
PCB 203; Total; ng/g dw	EPA 1668CM	sediment	0.250	0.381	0.751	1.14
PCB 203; Total; ng/g dw	EPA 8082M	sediment	0.277	0.302	0.832	0.907
PCB 203; Total; ng/g ww	EPA 1668CM	tissue	0.189	0.197	0.566	0.591
PCB 203; Total; ng/g ww	EPA 8082M	tissue	0.190	0.200	0.570	0.600
PCB 203; Total; ug/L	EPA 1668CM	samplewater	0.001	0.001	0.002	0.002
PCB 203; Total; ug/L	EPA 8082M	samplewater	0.001	0.001	0.002	0.002
PCB 206; Total; ng/g dw	EPA 1668CM	sediment	0.250	0.381	0.751	1.14
PCB 206; Total; ng/g dw	EPA 8082M	sediment	0.277	0.302	0.832	0.907
PCB 206; Total; ng/g dw	SCCWRP SOP SVOC 2019	sediment	-88	-88	0.017	0.017
PCB 206; Total; ng/g ww	EPA 1668CM	tissue	0.189	0.197	0.566	0.591
PCB 206; Total; ng/g ww	EPA 8082M	tissue	0.190	0.200	0.570	0.600
PCB 206; Total; ug/L	EPA 1668CM	samplewater	0.001	0.001	0.002	0.002
PCB 206; Total; ug/L	EPA 8082M	samplewater	0.001	0.001	0.002	0.002
PCB 209; Total; ng/g dw	EPA 1668CM	sediment	0.250	0.381	0.751	1.14
PCB 209; Total; ng/g dw	EPA 8082M	sediment	0.277	0.302	0.832	0.907
PCB 209; Total; ng/g dw	SCCWRP SOP SVOC 2019	sediment	-88	-88	0.011	0.011
PCB 209; Total; ng/g ww	EPA 1668CM	tissue	0.189	0.197	0.566	0.591
PCB 209; Total; ng/g ww	EPA 8082M	tissue	0.190	0.200	0.570	0.600
PCB 209; Total; ug/L	EPA 1668CM	samplewater	0.001	0.001	0.002	0.002
PCB 209; Total; ug/L	EPA 8082M	samplewater	0.001	0.001	0.002	0.002

Analyte, Unit	MethodName	MatrixName	Min MDL	Max MDL	Min RL	Max RL
PCB AROCLOR 1016; Total; ug/L	EPA 608	samplewater	0.05	0.05	0.1	0.1
PCB AROCLOR 1221; Total; ug/L	EPA 608	samplewater	0.05	0.05	0.1	0.1
PCB AROCLOR 1232; Total; ug/L	EPA 608	samplewater	0.05	0.05	0.1	0.1
PCB AROCLOR 1242; Total; ug/L	EPA 608	samplewater	0.04	0.04	0.1	0.1
PCB AROCLOR 1248; Total; ug/L	EPA 608	samplewater	0.05	0.05	0.1	0.1
PCB AROCLOR 1248; Total; ug/L	Newman, et al., 1988	samplewater	1.00	1.00	2.50	2.50
PCB AROCLOR 1254; Total; ug/L	EPA 608	samplewater	0.05	0.05	0.1	0.1
PCB AROCLOR 1254; Total; ug/L	Newman, et al., 1988	samplewater	0.200	0.200	1.00	1.00
PCB AROCLOR 1260; Total; ug/L	EPA 608	samplewater	0.05	0.05	0.1	0.1
PCB AROCLOR 1260; Total; ug/L	Newman, et al., 1988	samplewater	0.200	0.200	1.00	1.00
Permethrin, cis-; Total; ng/g dw	EPA 8270M_NCI	sediment	0.11	0.56	0.33	1.3
Permethrin, cis-; Total; ng/g dw	WPCL SOP 67	sediment	0.585	7.56	1.51	2.62
Permethrin, cis-; Total; ug/L	EPA 8081BM	samplewater	0.0012	0.0014	0.005	0.006
Permethrin, cis-; Total; ug/L	WPCL SOP 67	samplewater	0.0012	0.0013	0.005	0.006
Permethrin, Total; Total; ng/g dw	SCCWRP SOP SVOC 2019	sediment	-88	-88	1.923	1.923
Permethrin, Total; Total; ng/g ww	EPA 8081A	tissue	16	16	50	50
Permethrin, trans-; Total; ng/g dw	EPA 8270M_NCI	sediment	0.11	0.56	0.33	1.3
Permethrin, trans-; Total; ng/g dw	WPCL SOP 67	sediment	0.968	12.5	3.03	5.23
Permethrin, trans-; Total; ug/L	EPA 8081BM	samplewater	0.0023	0.0026	0.010	0.011
Permethrin, trans-; Total; ug/L	WPCL SOP 67	samplewater	0.0023	0.0026	0.01	0.011
Perylene; Total; ng/g dw	EPA 8270C	sediment	3.1	3.1	5	5
Perylene; Total; ng/g dw	EPA 8270M	sediment	0.689	1.39	0.689	9.45
Perylene; Total; ug/L	EPA 625	samplewater	0.01	0.01	5	5
Perylene; Total; ug/L	EPA 8270M	samplewater	0.0031	0.00571	0.00500	0.01
Phenanthrene/Anthracene, C1-; Total; ng/g dw	EPA 8270M	sediment	0.42	0.740	0.689	-88
Phenanthrene/Anthracene, C1-; Total; ug/L	EPA 8270M	samplewater	0.00500	0.00571	0.00500	-88
Phenanthrene/Anthracene, C2-; Total; ng/g dw	EPA 8270M	sediment	0.689	4.87	0.689	-88
Phenanthrene/Anthracene, C2-; Total; ug/L	EPA 8270M	samplewater	0.0046	0.00571	0.00500	-88

Analyte, Unit	MethodName	MatrixName	Min MDL	Max MDL	Min RL	Max RL
Phenanthrene/Anthracene, C3-; Total; ng/g dw	EPA 8270M	sediment	0.689	-88	0.689	-88
Phenanthrene/Anthracene, C3-; Total; ug/L	EPA 8270M	samplewater	0.00500	-88	0.00500	-88
Phenanthrene/Anthracene, C4-; Total; ng/g dw	EPA 8270M	sediment	0.689	-88	0.689	-88
Phenanthrene/Anthracene, C4-; Total; ug/L	EPA 8270M	samplewater	0.00500	-88	0.00500	-88
Phenanthrene; Total; ng/g dw	EPA 8270C	sediment	3.1	3.1	5	5
Phenanthrene; Total; ng/g dw	EPA 8270M	sediment	0.57	0.87	0.689	3.78
Phenanthrene; Total; ng/g ww	EPA 8270D SIM	tissue	0.01	0.01	0.01	0.01
Phenanthrene; Total; ug/L	EPA 625	samplewater	0.02	0.02	0.05	0.05
Phenanthrene; Total; ug/L	EPA 8270M	samplewater	0.0032	0.00571	0.00500	0.01
Prometon; Dissolved; ug/L	EPA 619M	samplewater	0.002	0.002	0.005	0.005
Prometon; Total; ug/L	EPA 619M	samplewater	0.002	0.002	0.005	0.005
Prometryn; Dissolved; ug/L	EPA 619M	samplewater	0.002	0.002	0.005	0.005
Prometryn; Total; ug/L	EPA 619M	samplewater	0.002	0.002	0.005	0.005
Propazine; Dissolved; ug/L	EPA 619M	samplewater	0.002	0.002	0.005	0.005
Propazine; Total; ug/L	EPA 619M	samplewater	0.002	0.002	0.005	0.005
Pyrene; Total; ng/g dw	EPA 8270C	sediment	3.1	3.1	5	5
Pyrene; Total; ng/g dw	EPA 8270M	sediment	0.689	1.43	0.689	3.78
Pyrene; Total; ng/g ww	EPA 8270D SIM	tissue	4.9	5	4.9	5
Pyrene; Total; ug/L	EPA 625	samplewater	0.02	0.02	0.05	0.05
Pyrene; Total; ug/L	EPA 8270M	samplewater	0.0038	0.00571	0.00500	0.01
Roxithromycin; Total; ug/L	EPA 1694M	samplewater	0.050	0.050	0.100	0.100
Secbumeton; Dissolved; ug/L	EPA 619M	samplewater	0.002	0.002	0.005	0.005
Secbumeton; Total; ug/L	EPA 619M	samplewater	0.002	0.002	0.005	0.005
Selenium; Dissolved; ug/L	EPA 1638M	samplewater	0.11	0.60	0.30	1.00
Selenium; Total; mg/Kg dw	EPA 200.8	sediment	0.27	0.40	1	1.20
Selenium; Total; mg/Kg dw	EPA 7742M	sediment	0.063	0.456	0.127	0.911
Selenium; Total; ug/g ww	EPA 200.8	tissue	0.15	0.15	0.40	0.40
Selenium; Total; ug/L	EPA 1638M	samplewater	0.60	0.60	1.00	1.00
Silver; Dissolved; ug/L	EPA 1638M	samplewater	0.01	0.14	0.04	0.14
Silver; Total; mg/Kg dw	EPA 200.8	sediment	0.02	0.08	0.06	0.20
Silver; Total; ug/g ww	EPA 200.8	tissue	0.003	0.003	0.010	0.010
Silver; Total; ug/L	EPA 1638M	samplewater	0.02	0.02	0.04	0.04
Simazine; Dissolved; ug/L	EPA 619M	samplewater	0.002	0.002	0.005	0.005
Simazine; Total; ug/L	EPA 619M	samplewater	0.002	0.002	0.005	0.005
Simetryn; Dissolved; ug/L	EPA 619M	samplewater	0.002	0.002	0.005	0.005
Simetryn; Total; ug/L	EPA 619M	samplewater	0.002	0.002	0.005	0.005
Sulfachloropyridazine; Total; ug/L	EPA 1694M	samplewater	0.005	0.005	0.010	0.010
Sulfadimethoxine; Total; ug/L	EPA 1694M	samplewater	0.002	0.002	0.005	0.005
Sulfamerazine; Total; ug/L	EPA 1694M	samplewater	0.005	0.005	0.010	0.010

Analyte, Unit	MethodName	MatrixName	Min MDL	Max MDL	Min RL	Max RL
Sulfamethazine; Total; ug/L	EPA 1694M	samplewater	0.005	0.005	0.010	0.010
Sulfamethizole; Total; ug/L	EPA 1694M	samplewater	0.005	0.005	0.010	0.010
Sulfamethoxazole; Total; ug/L	EPA 1694M	samplewater	0.005	0.050	0.010	0.100
Sulfathiazole; Total; ug/L	EPA 1694M	samplewater	0.010	0.010	0.020	0.020
Sulfotep; Total; ng/g dw	EPA 8141AM	sediment	16.6	23.8	33.1	47.6
Sulfotep; Total; ug/L	EPA 8141AM	samplewater	0.006	0.007	0.04	0.044
Tedion; Total; ug/L	EPA 8081BM	samplewater	0.001	0.001	0.002	0.002
Terbuthylazine; Dissolved; ug/L	EPA 619M	samplewater	0.002	0.002	0.005	0.005
Terbuthylazine; Total; ug/L	EPA 619M	samplewater	0.002	0.002	0.005	0.005
Terbutryn; Dissolved; ug/L	EPA 619M	samplewater	0.002	0.002	0.005	0.005
Terbutryn; Total; ug/L	EPA 619M	samplewater	0.002	0.002	0.005	0.005
Tetracycline; Total; ug/L	EPA 1694M	samplewater	0.010	0.010	0.020	0.020
Thiobencarb; Dissolved; ug/L	EPA 619M	samplewater	0.002	0.002	0.005	0.005
Thiobencarb; Total; ug/L	EPA 619M	samplewater	0.002	0.002	0.005	0.005
Thionazin; Total; ng/g dw	EPA 8141AM	sediment	16.6	23.8	33.1	47.6
Thionazin; Total; ug/L	EPA 8141AM	samplewater	0.004	0.004	0.04	0.044
Tokuthion; Total; ng/g dw	EPA 8141AM	sediment	16.6	23.8	33.1	47.6
Tokuthion; Total; ug/L	EPA 8141AM	samplewater	0.027	0.030	0.1	0.111
Triclosan; Total; ug/L	EPA 1694M	samplewater	0.020	0.020	0.050	0.050
Trimethoprim; Total; ug/L	EPA 1694M	samplewater	0.002	0.002	0.005	0.005
Trimethylnaphthalene, 2,3,5-; Total; ng/g dw	EPA 8270C	sediment	3.1	3.1	5	5
Trimethylnaphthalene, 2,3,5-; Total; ng/g dw	EPA 8270M	sediment	0.689	1.04	0.689	3.78
Trimethylnaphthalene, 2,3,5-; Total; ug/L	EPA 625	samplewater	0.02	0.02	5	5
Trimethylnaphthalene, 2,3,5-; Total; ug/L	EPA 8270M	samplewater	0.00500	0.0073	0.00500	0.01
Tylosin; Total; ug/L	EPA 1694M	samplewater	0.050	0.050	0.100	0.100
Zinc; Dissolved; ug/L	EPA 1638M	samplewater	0.14	0.50	0.14	1.00
Zinc; Total; mg/Kg dw	EPA 200.8	sediment	1.31	3.20	10	3.93
Zinc; Total; ug/g ww	EPA 200.8	tissue	0.80	0.80	2.00	2.00
Zinc; Total; ug/L	EPA 1638M	samplewater	0.50	0.50	0.70	0.70

Appendix B. Laboratories reporting data in this study.

Agency Code	Analyte Group	Agency Name	City
APPL	Organics	Agriculture & Priority Pollutants Laboratories, Inc	Fresno
Babcock	Microbiological	E.S. Babcock & Sons, Inc.	Riverside
BSK	Inorganics	BSK Analytical Laboratory	Sequim
CALTEST	Inorganics, Organics	CalTest Analytical Laboratory	Napa
CLS	Organics	California Laboratories Services	Rancho Cordova
CSULB-IIRMES	Inorganics	California State University Long Beach Institute for Integrated Research in Materials, Environments, and Society	Long Beach
DeltaEnv	Inorganics	Delta Environmental Lab	Benicia
DFW-WPCL	Inorganics, Organics	Water Pollution Control Lab - DFW	Rancho Cordova
MLML-TM	Inorganics	Moss Landing Marine Laboratories-Trace Metals Lab	Moss Landing
MPSL-DFW	Inorganics	Marine Pollution Studies Laboratory-DFW	Moss Landing
SCCWRP	Organics	Southern California Coastal Water Research Project	Costa Mesa

Appendix C. Water concentrations of ΣPBDEs in the New and Alamo Rivers as well as WisterWildlife refuge.

∑ PBDEs; ug/ L

	2013	2016	2017
New River			
New River at Boundary	0.00828	0.0055	
New River at Rice Drain	DNQ, <MDL		
Imperial Wetlands Inlet			DNQ, <MDL
Imperial Wetlands Cell4		DNQ	DNQ, <MDL
Imperial Wetlands Sed Basin			DNQ, <MDL
Brawley Wetland Cell1		DNQ, <MDL	
New River at Drop 2	DNQ, <MDL		
New River Outlet		DNQ, <MDL	
Alamo River			
Alamo River at Drop 10 Central Drain		DNQ, <MDL	
Alamo River at Drop 8		DNQ, <MDL	
Alamo River at Drop 6A Holtville Drain		DNQ, <MDL	
Alamo River at Drop 6 Rose Drain		DNQ, <MDL	
Shank Rd. Wetland Cell1		DNQ, <MDL	
Alamo River at Drop 3		DNQ, <MDL	
Alamo River Outlet	DNQ, <MDL	DNQ, <MDL	
Wister Wildlife Refuge Cell W11A		DNQ, <MDL	
Wister Wildlife Refuge Cell W12A		DNQ, <MDL	

Appendix D. Water concentrations of ΣPCBs in the New and Alamo Rivers as well as WisterWildlife refuge.

∑ PCBs; ug/ L

	2013	2016	2017
New River			
New River at Boundary	0.00828	<MDL	
New River at Rice Drain	0.027		
Imperial Wetlands Inlet			<MDL
Imperial Wetlands Cell4		<MDL	<MDL
Imperial Wetlands Sed Basin			<MDL
Brawley Wetland Cell1		<MDL	
New River at Drop 2	0.00217		
New River Outlet		<MDL	
Alamo River			
Alamo River at Drop 10 Central Drain		<MDL	
Alamo River at Drop 8		<MDL	
Alamo River at Drop 6A Holtville Drain		<MDL	
Alamo River at Drop 6 Rose Drain		<MDL	
Shank Rd. Wetland Cell1		<MDL	
Alamo River at Drop 3		<MDL	
Alamo River Outlet	<MDL	<MDL	
Wister Wildlife Refuge Cell W11A		<MDL	
Wister Wildlife Refuge Cell W12A		<MDL	

Appendix E. Water concentrations of PAHs in the New and Alamo Rivers as well as Wister Wildlife refuge.

Dibenzothiophene; ug/L

	2013	2016	2017
New River			
New River at Boundary	<MDL		
New River at Drop 2	<MDL		
New River at Rice Drain	<MDL		
New River at Rice Drain #3	<MDL		
Imperial Wetlands Cell4		<MDL	
Imperial Wetlands Inlet			
Imperial Wetlands Sed Basin			
Brawley Wetland Cell1		<MDL	
Alamo River			
Alamo River at Drop 10 Central Drain		<MDL	
Alamo River Outlet	<MDL		
Shank Rd. Wetland Cell1		<MDL	

Fluoranthene; ug/L

	2013	2016	2017
New River			
New River at Boundary	<MDL		
New River at Drop 2	<MDL		
New River at Rice Drain	<MDL		
New River at Rice Drain #3	<MDL		
Brawley Wetland Cell1		<MDL	
Imperial Wetlands Cell4		<MDL	<MDL
Imperial Wetlands Inlet			<MDL
Imperial Wetlands Sed Basin			<MDL
Alamo River			
Alamo River at Drop 10 Central Drain		<MDL	
Alamo River Outlet	<MDL		
Shank Rd. Wetland Cell1		<MDL	

Methyldibenzothiophene, 4-; ug/L

	2013	2016	2017
New River			
New River at Boundary	<MDL		
New River at Drop 2	<MDL		
New River at Rice Drain	<MDL		
New River at Rice Drain #3	<MDL		
Imperial Wetlands Cell4		<MDL	
Imperial Wetlands Inlet			
Imperial Wetlands Sed Basin			
Brawley Wetland Cell1		<MDL	
Alamo River			
Alamo River at Drop 10 Central Drain		<MDL	
Alamo River Outlet	<MDL		
Shank Rd. Wetland Cell1		<MDL	

Methylnaphthalene, 1-; ug/L

	2013	2016	2017
New River			
New River at Boundary	0.013		
New River at Drop 2	<MDL		
New River at Rice Drain	<MDL		
New River at Rice Drain #3	<MDL		
Imperial Wetlands Cell4		<MDL	<MDL
Imperial Wetlands Inlet			<MDL
Imperial Wetlands Sed Basin			<MDL
Brawley Wetland Cell1		<MDL	
Alamo River			
Alamo River at Drop 10 Central Drain		<MDL	
Alamo River Outlet	<MDL		
Shank Rd. Wetland Cell1		<MDL	

Naphthalene; ug/L

	2013	2016	2017
New River			
New River at Boundary	0.0236		
New River at Drop 2	<MDL		
New River at Rice Drain	<MDL		
New River at Rice Drain #3	<MDL		
Imperial Wetlands Cell4		<MDL	<MDL
Imperial Wetlands Inlet			<MDL
Imperial Wetlands Sed Basin			<MDL
Brawley Wetland Cell1		<MDL	
Alamo River			
Alamo River at Drop 10 Central Drain		<MDL	
Alamo River Outlet	0.0055		
Shank Rd. Wetland Cell1		<MDL	

Pyrene; ug/L

	2013	2016	2017
New River			
New River at Boundary	0.00545		
New River at Drop 2	<MDL		
New River at Rice Drain	<MDL		
New River at Rice Drain #3	<MDL		
Imperial Wetlands Cell4		<MDL	<MDL
Imperial Wetlands Inlet			<MDL
Imperial Wetlands Sed Basin			<MDL
Brawley Wetland Cell1		<MDL	
Alamo River			
Alamo River at Drop 10 Central Drain		<MDL	
Alamo River Outlet	<MDL		
Shank Rd. Wetland Cell1		<MDL	

Dimethylnaphthalene, 2,6-; ug/L

	2013	2016	2017
New River			
New River at Boundary	0.017/0.03		
New River at Drop 2	0.0068		
New River at Rice Drain	0.005		
New River at Rice Drain #3	0.008		
Imperial Wetlands Cell4		DNQ	<MDL
Imperial Wetlands Inlet			<MDL
Imperial Wetlands Sed Basin			<MDL
Brawley Wetland Cell1		0.03	
Alamo River			
Alamo River at Drop 10 Central Drain		<MDL	
Alamo River Outlet	<MDL		
Shank Rd. Wetland Cell1		DNQ	

Fluorene; ug/L

	2013	2016	2017
New River			
New River at Boundary	<MDL		
New River at Drop 2	<MDL		
New River at Rice Drain	<MDL		
New River at Rice Drain #3	<MDL		
Imperial Wetlands Cell4		<MDL	<MDL
Imperial Wetlands Inlet			<MDL
Imperial Wetlands Sed Basin			<MDL
Brawley Wetland Cell1		<MDL	
Alamo River			
Alamo River at Drop 10 Central Drain		<MDL	
Alamo River Outlet	<MDL		
Shank Rd. Wetland Cell1		<MDL	

Methylfluoranthene, 2-; ug/L

	2013	2016	2017
New River			
New River at Boundary	<MDL		
New River at Drop 2	<MDL		
New River at Rice Drain	<MDL		
New River at Rice Drain #3	<MDL		
Imperial Wetlands Cell4		<MDL	<MDL
Imperial Wetlands Inlet			<MDL
Imperial Wetlands Sed Basin			<MDL
Brawley Wetland Cell1		<MDL	
Alamo River			
Alamo River at Drop 10 Central Drain		<MDL	
Alamo River Outlet	<MDL		
Shank Rd. Wetland Cell1		<MDL	

Perylene; ug/L

	2013	2016	2017
New River			
New River at Boundary	<MDL		
New River at Drop 2	<MDL		
New River at Rice Drain	<MDL		
New River at Rice Drain #3	<MDL		
Imperial Wetlands Cell4		<MDL	
Imperial Wetlands Inlet			
Imperial Wetlands Sed Basin			
Brawley Wetland Cell1		<MDL	
Alamo River			
Alamo River at Drop 10 Central Drain		<MDL	
Alamo River Outlet	<MDL		
Shank Rd. Wetland Cell1		<MDL	

Trimethylnaphthalene, 2,3,5-; ug/L

	2013	2016	2017
New River			
New River at Boundary	0.011		
New River at Drop 2	<MDL		
New River at Rice Drain	<MDL		
New River at Rice Drain #3	<MDL		
Imperial Wetlands Cell4		<MDL	<MDL
Imperial Wetlands Inlet			<MDL
Imperial Wetlands Sed Basin			<MDL
Brawley Wetland Cell1		<MDL	
Alamo River			
Alamo River at Drop 10 Central Drain		<MDL	
Alamo River Outlet	<MDL		
Shank Rd. Wetland Cell1		<MDL	

Dimethylphenanthrene, 3,6-; ug/L

	2013	2016	2017
New River			
New River at Boundary	<MDL		
New River at Drop 2	<MDL		
New River at Rice Drain	<MDL		
New River at Rice Drain #3			
Imperial Wetlands Cell4		<MDL	
Imperial Wetlands Inlet			
Imperial Wetlands Sed Basin			
Brawley Wetland Cell1		<MDL	
Alamo River			
Alamo River at Drop 10 Central Drain	<MDL	<MDL	
Alamo River Outlet			
Shank Rd. Wetland Cell1		<MDL	

Indeno(1,2,3-c,d) pyrene; ug/L

	2013	2016	2017
New River			
New River at Boundary	<MDL		
New River at Drop 2			
New River at Rice Drain	<MDL		
New River at Rice Drain #3			
Imperial Wetlands Cell4		<MDL	<MDL
Imperial Wetlands Inlet			<MDL
Imperial Wetlands Sed Basin			<MDL
Brawley Wetland Cell1		<MDL	
Alamo River			
Alamo River at Drop 10 Central Drain	<MDL	<MDL	
Alamo River Outlet			
Shank Rd. Wetland Cell1		<MDL	

Methylfluorene, 1-; ug/L

	2013	2016	2017
New River			
New River at Boundary	<MDL		
New River at Drop 2	<MDL		
New River at Rice Drain	<MDL		
New River at Rice Drain #3	<MDL		
Imperial Wetlands Cell4		<MDL	
Imperial Wetlands Inlet			
Imperial Wetlands Sed Basin			
Brawley Wetland Cell1		<MDL	
Alamo River			
Alamo River at Drop 10 Central Drain	<MDL	<MDL	
Alamo River Outlet			
Shank Rd. Wetland Cell1		<MDL	

Methylphenanthrene, 1-; ug/L

	2013	2016	2017
New River			
New River at Boundary	<MDL		
New River at Drop 2	<MDL		
New River at Rice Drain	<MDL		
New River at Rice Drain #3	<MDL		
Imperial Wetlands Cell4		<MDL	<MDL
Imperial Wetlands Inlet			<MDL
Imperial Wetlands Sed Basin			<MDL
Brawley Wetland Cell1		<MDL	
Alamo River			
Alamo River at Drop 10 Central Drain	<MDL	<MDL	
Alamo River Outlet			
Shank Rd. Wetland Cell1		<MDL	

Phenanthrene; ug/L

	2013	2016	2017
New River			
New River at Boundary	0.010		
New River at Drop 2	<MDL		
New River at Rice Drain	<MDL		
New River at Rice Drain #3	<MDL		
Imperial Wetlands Cell4			<MDL
Imperial Wetlands Inlet			<MDL
Imperial Wetlands Sed Basin			<MDL
Brawley Wetland Cell1		<MDL	<MDL
Alamo River			
Alamo River at Drop 10 Central Drain		<MDL	
Alamo River Outlet			
Shank Rd. Wetland Cell1		<MDL	

Appendix F. Concentrations of pyrethroid insecticides measured in the New and Alamo Riversas well as the Wister Wildlife Refuge.

Bifenthrin; ug/L

	2013	2014	2015	2016
New River				
New River at Boundary	<MDL			<MDL
New River at Rice Drain	<MDL			
Imperial Wetlands Cell4				<MDL
Brawley Wetland Cell1				<MDL
New River at Drop 2	<MDL			
Vail Seven Drain			<MDL	
Vail Two-A Drain			<MDL	
Vail Cut Off Drain		<MDL	<MDL	
New River Outlet	0.008			<MDL
Alamo River				
Barbara Worth Drain at Barbara Worth Resort and Country Club			0.0452	
Central Drain Three			<MDL	
Central Drain Two			<MDL	
Alamo River at Drop 10 Central Drain	0.002			<MDL
Alamo River at Drop 8	0.002			0.0037
Alamo River at Drop 6A Holtville Drain	<MDL			<MDL
Oleander Drain			<MDL	
Alamo River at Drop 6 Rose Drain	<MDL			0.0021
Shank Rd. Wetland Cell1				<MDL
Alamo River at Drop 3	<MDL			<MDL
Alamo River Outlet	0.002			<MDL
Wister Wildlife Refuge Cell W11A				<MDL
Wister Wildlife Refuge Cell W12A				<MDL

Cyfluthrin, ug/L

	2013	2014	2015	2016
New River				
New River at Boundary	DNQ			<MDL
New River at Rice Drain	DNQ			
Imperial Wetlands Cell4				<MDL
Brawley Wetland Cell1				<MDL
New River at Drop 2	DNQ			
Vail Seven Drain			<MDL	
Vail Two-A Drain			<MDL	
Vail Cut Off Drain		<MDL	<MDL	
New River Outlet	DNQ			<MDL
Alamo River				
Barbara Worth Drain at Barbara Worth Resort and Country Club			DNQ	
Central Drain Three			<MDL	
Central Drain Two			<MDL	
Alamo River at Drop 10 Central Drain	DNQ			<MDL
Alamo River at Drop 8	DNQ			DNQ
Alamo River at Drop 6A Holtville Drain	DNQ			<MDL
Oleander Drain			<MDL	
Alamo River at Drop 6 Rose Drain	<MDL			DNQ
Shank Rd. Wetland Cell1				<MDL
Alamo River at Drop 3	<MDL			<MDL
Alamo River Outlet	DNQ			<MDL
Wister Wildlife Refuge Cell W11A				<MDL
Wister Wildlife Refuge Cell W12A				<MDL

L-Cyhalothrin, ug/L

	2013	2014	2015	2016
New River				
New River at Boundary	DNQ			<MDL
New River at Rice Drain	0.008			
Imperial Wetlands Cell4				<MDL
Brawley Wetland Cell1				<MDL
New River at Drop 2	0.007			
Vail Seven Drain			<MDL	
Vail Two-A Drain			0.006	
Vail Cut Off Drain		<MDL	<MDL	
New River Outlet	0.004			DNQ
Alamo River				
Barbara Worth Drain at Barbara Worth Resort and Country Club			DNQ	
Central Drain Three			DNQ	
Central Drain Two			<MDL	
Alamo River at Drop 10 Central Drain	DNQ			DNQ
Alamo River at Drop 8	0.004			DNQ
Alamo River at Drop 6A Holtville Drain	0.004			<MDL
Oleander Drain			<MDL	
Alamo River at Drop 6 Rose Drain	0.009			DNQ
Shank Rd. Wetland Cell1				<MDL
Alamo River at Drop 3	0.002			DNQ
Alamo River Outlet	0.004			DNQ
Wister Wildlife Refuge Cell W11A				<MDL
Wister Wildlife Refuge Cell W12A				<MDL

Cypermethrin, ug/L

	2013	2014	2015	2016
New River				
New River at Boundary	0.036			0.01
New River at Rice Drain	DNQ			
Imperial Wetlands Cell4				<MDL
Brawley Wetland Cell1				<MDL
New River at Drop 2	DNQ			
Vail Seven Drain			<MDL	
Vail Two-A Drain			<MDL	
Vail Cut Off Drain		<MDL	<MDL	
New River Outlet	DNQ			DNQ
Alamo River				
Barbara Worth Drain at Barbara Worth Resort and Country Club			0.0317	
Central Drain Three			<MDL	
Central Drain Two			<MDL	
Alamo River at Drop 10 Central Drain	0.005			DNQ
Alamo River at Drop 8	0.009			0.008
Alamo River at Drop 6A Holtville Drain	0.009			<MDL
Oleander Drain			<MDL	
Alamo River at Drop 6 Rose Drain	0.006			0.0059
Shank Rd. Wetland Cell1				<MDL
Alamo River at Drop 3	0.007			0.006
Alamo River Outlet	0.006			0.01
Wister Wildlife Refuge Cell W11A				<MDL
Wister Wildlife Refuge Cell W12A				<MDL

Deltamethrin/Tralomethrin; ug/L

	2013	2014	2015	2016
New River				
New River at Boundary	DNQ			<MDL
New River at Rice Drain	DNQ, <MDL			
Imperial Wetlands Cell4				DNQ
Brawley Wetland Cell1				DNQ
New River at Drop 2	<MDL			
Vail Seven Drain			<MDL	
Vail Two-A Drain			<MDL	
Vail Cut Off Drain			<MDL	
New River Outlet	<MDL			<MDL
Alamo River				
Barbara Worth Drain at Barbara Worth Resort and Country Club			<MDL	
Central Drain Three			<MDL	
Central Drain Two			<MDL	
Alamo River at Drop 10 Central Drain	<MDL			DNQ
Alamo River at Drop 8	<MDL			DNQ
Alamo River at Drop 6A Holtville Drain	<MDL			DNQ
Oleander Drain			<MDL	
Alamo River at Drop 6 Rose Drain	<MDL			DNQ
Shank Rd. Wetland Cell1				DNQ
Alamo River at Drop 3	<MDL			<MDL
Alamo River Outlet	<MDL			<MDL
Wister Wildlife Refuge Cell W11A				<MDL
Wister Wildlife Refuge Cell W12A				<MDL

Esfenvalerate/Fenvalerate, ug/L

	2013	2014	2015	2016
New River				
New River at Boundary	DNQ			<MDL
New River at Rice Drain	DNQ			
Imperial Wetlands Cell4				<MDL
Brawley Wetland Cell1				<MDL
New River at Drop 2	0.002			
Vail Seven Drain			DNQ	
Vail Two-A Drain			<MDL	
Vail Cut Off Drain		<MDL	0.268	
New River Outlet	0.002			0.005
Alamo River				
Barbara Worth Drain at Barbara Worth Resort and Country Club			0.0287	
Central Drain Three			0.0022	
Central Drain Two			<MDL	
Alamo River at Drop 10 Central Drain	0.007			0.011
Alamo River at Drop 8	0.006			0.0057
Alamo River at Drop 6A Holtville Drain	0.014			0.0053
Oleander Drain			<MDL	
Alamo River at Drop 6 Rose Drain	0.004			0.0042
Shank Rd. Wetland Cell1				<MDL
Alamo River at Drop 3	0.015			0.019
Alamo River Outlet	<MDL			0.011
Wister Wildlife Refuge Cell W11A				<MDL
Wister Wildlife Refuge Cell W12A				<MDL

Cis-Permethrin,ug/L

	2013	2014	2015	2016
New River				
New River at Boundary	0.006			<MDL
New River at Rice Drain	DNQ, <MDL			
Imperial Wetlands Cell4				<MDL
Brawley Wetland Cell1				<MDL
New River at Drop 2	DNQ			
Vail Seven Drain			<MDL	
Vail Two-A Drain			<MDL	
Vail Cut Off Drain		0.00239	<MDL	
New River Outlet	DNQ			<MDL
Alamo River				
Barbara Worth Drain at Barbara Worth Resort and Country Club			0.2075	
Central Drain Three			<MDL	
Central Drain Two			<MDL	
Alamo River at Drop 10 Central Drain	DNQ			<MDL
Alamo River at Drop 8	DNQ			<MDL
Alamo River at Drop 6A Holtville Drain	DNQ			<MDL
Oleander Drain			0.0054	
Alamo River at Drop 6 Rose Drain	DNQ			<MDL
Shank Rd. Wetland Cell1				<MDL
Alamo River at Drop 3	DNQ			DNQ
Alamo River Outlet	DNQ			DNQ
Wister Wildlife Refuge Cell W11A				<MDL
Wister Wildlife Refuge Cell W12A				<MDL

Trans-Permethrin, ug/L

	2013	2014	2015	2016
New River				
New River at Boundary	DNQ			<MDL
New River at Rice Drain	<MDL			
Imperial Wetlands Cell4				<MDL
Brawley Wetland Cell1				<MDL
New River at Drop 2	<MDL			
Vail Seven Drain			<MDL	
Vail Two-A Drain			<MDL	
Vail Cut Off Drain		<MDL	<MDL	
New River Outlet	<MDL			<MDL
Alamo River				
Barbara Worth Drain at Barbara Worth Resort and Country Club			0.2009	
Central Drain Three			<MDL	
Central Drain Two			<MDL	
Alamo River at Drop 10 Central Drain	<MDL			<MDL
Alamo River at Drop 8	<MDL			<MDL
Alamo River at Drop 6A Holtville Drain	<MDL			<MDL
Oleander Drain			DNQ	
Alamo River at Drop 6 Rose Drain	<MDL			<MDL
Shank Rd. Wetland Cell1				<MDL
Alamo River at Drop 3	<MDL			<MDL
Alamo River Outlet	<MDL			<MDL
Wister Wildlife Refuge Cell W11A				<MDL
Wister Wildlife Refuge Cell W12A				<MDL

Appendix G. Organochlorine insecticides in water from the New and Alamo Rivers as well as Wister Wildlife Refuge.

Dacthal; ug/L

	2013	2016
New River		
New River at Boundary	<MDL	<MDL
New River at Rice Drain	0.014	
Imperial Wetlands Inlet		
Imperial Wetlands Cell4		0.027
Imperial Wetlands Sed Basin		
Brawley Wetland Cell1		0.039
New River at Drop 2	0.145	
New River Outlet		0.274
Alamo River		
Alamo River at Drop 10 Central Drain	0.043	0.039
Alamo River at Drop 8		0.112
Alamo River at Drop 6A Holtville Drain		0.143
Alamo River at Drop 6 Rose Drain		0.193
Shank Rd. Wetland Cell1		0.053
Alamo River at Drop 3		0.362
Alamo River Outlet	0.53	0.588
Wister Wildlife Refuge Cell W11A		0.0028
Wister Wildlife Refuge Cell W12A		DNQ

Dieldrin; ug/L

	2013	2016	2017
New River			
New River at Boundary	<MDL	<MDL	
New River at Rice Drain	<MDL		
Imperial Wetlands Inlet			<MDL
Imperial Wetlands Cell4		<MDL	<MDL
Imperial Wetlands Sed Basin			<MDL
Brawley Wetland Cell1		DNQ	
New River at Drop 2	<MDL		
New River Outlet		DNQ	
Alamo River			
Alamo River at Drop 10 Central Drain	<MDL	0.002	
Alamo River at Drop 8		<MDL	
Alamo River at Drop 6A Holtville Drain		0.0089	
Alamo River at Drop 6 Rose Drain		DNQ	
Shank Rd. Wetland Cell1		<MDL	
Alamo River at Drop 3		0.0025	
Alamo River Outlet	0.002	0.0032	
Wister Wildlife Refuge Cell W11A		<MDL	
Wister Wildlife Refuge Cell W12A		<MDL	

∑ DDT; ug/L

	2013	2016	2017
New River			
New River at Boundary	<MDL	<MDL	
New River at Rice Drain	0.004		
Imperial Wetlands Inlet			<MDL
Imperial Wetlands Cell4		<MDL	<MDL
Imperial Wetlands Sed Basin			<MDL
Brawley Wetland Cell1		DNQ	
New River at Drop 2	0.003		
New River Outlet		DNQ	
Alamo River			
Alamo River at Drop 10 Central Drain	0.024	0.013	
Alamo River at Drop 8		<MDL	
Alamo River at Drop 6A Holtville Drain		<MDL	
Alamo River at Drop 6 Rose Drain		0.0041	
Shank Rd. Wetland Cell1		<MDL	
Alamo River at Drop 3		<MDL	
Alamo River Outlet	0.013	0.0087	
Wister Wildlife Refuge Cell W11A		<MDL	
Wister Wildlife Refuge Cell W12A		<MDL	

Appendix H. Organophosphate insecticides in water from the New and Alamo Rivers as well as Wister Wildlife Refuge.

Chlorpyrifos; ug/L

	2013	2015	2016
New River			
New River at Boundary	<MDL		<MDL
New River at Rice Drain	0.235		
Imperial Wetlands Cell4			<MDL
Brawley Wetland Cell1			DNQ
New River at Drop 2	0.114		
Vail Seven Drain		DNQ	
Vail Two-A Drain		DNQ	
Vail Cut Off Drain		<MDL	
New River Outlet			0.122
Alamo River			
Barbara Worth Drain at Barbara Worth Resort and Country Club		<MDL	
Central Drain Three		1.06	
Central Drain Two		<MDL	
Alamo River at Drop 10 Central Drain			0.286
Alamo River at Drop 8			0.186
Alamo River at Drop 6A Holtville Drain			0.452
Oleander Drain		<MDL	
Alamo River at Drop 6 Rose Drain			0.156
Shank Rd. Wetland Cell1			DNQ
Alamo River at Drop 3			0.209
Alamo River Outlet	0.135		0.162
Wister Wildlife Refuge Cell W11A			<MDL
Wister Wildlife Refuge Cell W12A			<MDL

Malathion; ug/L

	2013	2015	2016
New River			
New River at Boundary	<MDL		<MDL
New River at Rice Drain	0.149		
Imperial Wetlands Cell4			<MDL
Brawley Wetland Cell1			<MDL
New River at Drop 2	DNQ		
Vail Seven Drain		<MDL	
Vail Two-A Drain		<MDL	
Vail Cut Off Drain		<MDL	
New River Outlet			<MDL
Alamo River			
Barbara Worth Drain at Barbara Worth Resort and Country Club		<MDL	
Central Drain Three		<MDL	
Central Drain Two		<MDL	
Alamo River at Drop 10 Central Drain			<MDL
Alamo River at Drop 8			<MDL
Alamo River at Drop 6A Holtville Drain			<MDL
Oleander Drain		<MDL	
Alamo River at Drop 6 Rose Drain			<MDL
Shank Rd. Wetland Cell1			<MDL
Alamo River at Drop 3			<MDL
Alamo River Outlet	DNQ		<MDL
Wister Wildlife Refuge Cell W11A			<MDL
Wister Wildlife Refuge Cell W12A			<MDL

Appendix I. Neonicotinoid concentrations (ug/L) in water from the New and Alamo Rivers aswell as Wister Wildlife Refuge.

Imidacloprid; ug/L

	2015	**2016**	**2017**
New River			
New River at Rice Drain			
Imperial Wetlands Cell4		0.907	
Imperial Wetlands Sed Basin			
Brawley Wetland Cell1		0.137	
Vail Seven Drain	<MDL		
Vail Two-A Drain	0.03		
Vail Cut Off Drain	0.159		
Alamo River			
Barbara Worth Drain at Barbara Worth Resort and Country Club	3.38		
Central Drain Three	0.151		
Central Drain Two	0.295		
Oleander Drain	0.049		
Shank Rd. Wetland Cell1		0.115	
Wister Wildlife Refuge Cell W11A		<MDL	
Wister Wildlife Refuge Cell W12A		DNQ	

Appendix J. Metal concentrations (ug/L) in water from the New and Alamo Rivers as well as Wister Wildlife Refuge.

Aluminum; ug/L

	2013	2015	2016	2017	2018	2019
New River						
New River at Boundary	DNQ		DNQ		14.6	
New River at Rice Drain	DNQ					
Imperial Wetlands Inlet						
Imperial Wetlands Cell1						
Imperial Wetlands Cell2						
Imperial Wetlands Cell3						
Imperial Wetlands Cell4						
Imperial Wetlands Sed Basin					DNQ	
Imperial Wetlands Sed Basin 2						
Brawley Wetland Sedimentation Basin					2.43	
Brawley Wetland Cell1						
Brawley Wetland Cell2						
New River at Drop 2	10.6					
Vail Seven Drain		DNQ				
Vail Two-A Drain		DNQ				
Vail Cut Off Drain		<MDL				5.68
New River Outlet	DNQ		DNQ		DNQ	DNQ
Alamo River						
Barbara Worth Drain at Barbara Worth Resort and Country Club		27.3				
Central Drain Three						
Central Drain Two		15				

Aluminium; ug/L

	2013	2015	2016	2017	2018	2019
Alamo River at Drop 10 Central Drain	6.82				DNQ	
Alamo River at Drop 8	7.26					
Alamo River at Drop 6A Holtville Drain	5.04					
Oleander Drain		42.8				
Alamo River at Drop 6 Rose Drain	6.32					
Shank Rd. Wetland Cell1						
Shank Rd. Wetland Cell2						
Shank Rd. Wetlands Sed Basin 1					DNQ	
Alamo River at Drop 3	6.26		5.87			
Alamo River Outlet	DNQ		5.24		DNQ	3.45
Wister Wildlife Refuge Cell W11A			6.86			
Wister Wildlife Refuge Cell W12A			DNQ			

Arsenic; ug/L

	2013	2015	2016	2017	2018	2019
New River						
New River at Boundary	24.8					
New River at Rice Drain	44.6		9.77		10.1	10.9
Imperial Wetlands Inlet					7.05	
Imperial Wetlands Cell1						
Imperial Wetlands Cell2						
Imperial Wetlands Cell3						

Arsenic; ug/L

	2013	2015	2016	2017	2018	2019
Imperial Wetlands Cell4						
Imperial Wetlands Sed Basin						
Imperial Wetlands Sed Basin 2	4.17		17.5		10.4	
Brawley Wetland Sedimentation Basin						
Brawley Wetland Cell1						
Brawley Wetland Cell2						
New River at Drop 2	13.1					
Vail Seven Drain		7.95				
Vail Two-A Drain			5.68			
Vail Cut Off Drain		4.46				7.59
New River Outlet		7.9				
Alamo River						
Barbara Worth Drain at Barbara Worth Resort and Country Club					13.8	
Central Drain Three		16.5				
Central Drain Two						
Alamo River at Drop 10 Central Drain	19.4		9.88			
Alamo River at Drop 8	20.3		10.4		7.35	8.49
Alamo River at Drop 6A Holtville Drain	14.7					
Oleander Drain						
Alamo River at Drop 6 Rose Drain	21					
Shank Rd. Wetland Cell1						
Shank Rd. Wetland Cell2					8.2	

Arsenic; ug/L

	2013	2015	2016	2017	2018	2019
Shank Rd. Wetlands Sed Basin 1		21.4				
Alamo River at Drop 3	19.7					
Alamo River Outlet						
Wister Wildlife Refuge Cell W11A			8.63			
Wister Wildlife Refuge Cell W12A			DNQ			

Cadmium; ug/L

	2013	2015	2016	2017	2018	2019
New River						
New River at Boundary	0.07					
New River at Rice Drain	0.15		0.03		DNQ	0.03
Imperial Wetlands Inlet					<MDL	
Imperial Wetlands Cell1						
Imperial Wetlands Cell2						
Imperial Wetlands Cell3						
Imperial Wetlands Cell4						
Imperial Wetlands Sed Basin						
Imperial Wetlands Sed Basin 2	0.03		0.04		DNQ	
Brawley Wetland Sedimentation Basin						
Brawley Wetland Cell1						
Brawley Wetland Cell2						
New River at Drop 2	0.12					
Vail Seven Drain		0.12				

Cadmium; ug/L

	2013	2015	2016	2017	2018	2019
Vail Two-A Drain			DNQ			
Vail Cut Off Drain		0.03				0.06
New River Outlet		0.04				
Alamo River						
Barbara Worth Drain at Barbara Worth Resort and Country Club					DNQ	
Central Drain Three		0.16				
Central Drain Two						
Alamo River at Drop 10 Central Drain	0.07		0.06			
Alamo River at Drop 8	0.09		0.06		0.03	0.04
Alamo River at Drop 6A Holtville Drain	0.08					
Oleander Drain						
Alamo River at Drop 6 Rose Drain	0.1					
Shank Rd. Wetland Cell1						
Shank Rd. Wetland Cell2					0.03	
Shank Rd. Wetlands Sed Basin 1		1.1				
Alamo River at Drop 3	0.1					
Alamo River Outlet						
Wister Wildlife Refuge Cell W11A			DNQ			
Wister Wildlife Refuge Cell W12A			DNQ			

Chromium; ug/L

	2013	2015	2016	2017	2018	2019
New River						
New River at Boundary	1.73					
New River at Rice Drain	3.4		0.43		0.6	0.08
Imperial Wetlands Inlet					0.31	
Imperial Wetlands Cell1						
Imperial Wetlands Cell2						
Imperial Wetlands Cell3						
Imperial Wetlands Cell4						
Imperial Wetlands Sed Basin						
Imperial Wetlands Sed Basin 2	2.49		0.78		0.66	
Brawley Wetland Sedimentation Basin						
Brawley Wetland Cell1						
Brawley Wetland Cell2						
New River at Drop 2	0.91					
Vail Seven Drain		0.65				
Vail Two-A Drain			0.31			
Vail Cut Off Drain		0.26				<MDL
New River Outlet		0.47				
Alamo River						
Barbara Worth Drain at Barbara Worth Resort and Country Club					0.47	
Central Drain Three		0.99				
Central Drain Two						

Chromium; ug/L

	2013	2015	2016	2017	2018	2019
Alamo River at Drop 10 Central Drain	1.45		0.5			
Alamo River at Drop 8	1.62		0.52		0.43	<MDL
Alamo River at Drop 6A Holtville Drain	1.07					
Oleander Drain						
Alamo River at Drop 6 Rose Drain	1.74					
Shank Rd. Wetland Cell1						
Shank Rd. Wetland Cell2					0.36	
Shank Rd. Wetlands Sed Basin 1		1.32				
Alamo River at Drop 3	1.65					
Alamo River Outlet						
Wister Wildlife Refuge Cell W11A			0.31			
Wister Wildlife Refuge Cell W12A			DNQ			

Copper; ug/L

	2013	2015	2016	2017	2018	2019
New River						
New River at Boundary	2.51					
New River at Rice Drain	2.77		1.89		2.66	2.63
Imperial Wetlands Inlet					2.2	
Imperial Wetlands Cell1						
Imperial Wetlands Cell2						
Imperial Wetlands Cell3						

Copper ug/L

	2013	2015	2016	2017	2018	2019
Imperial Wetlands Cell4						
Imperial Wetlands Sed Basin						
Imperial Wetlands Sed Basin 2	0.45		2.04		1.62	
Brawley Wetland Sedimentation Basin						
Brawley Wetland Cell1						
Brawley Wetland Cell2						
New River at Drop 2	5.13					
Vail Seven Drain		4.78				
Vail Two-A Drain			0.51			
Vail Cut Off Drain		1.33				7.43
New River Outlet		2.62				
Alamo River						
Barbara Worth Drain at Barbara Worth Resort and Country Club					1.77	
Central Drain Three		2.94				
Central Drain Two						
Alamo River at Drop 10 Central Drain	2.73		2.26			
Alamo River at Drop 8	3.57		2.56		2.4	2.99
Alamo River at Drop 6A Holtville Drain	2.47					
Oleander Drain						
Alamo River at Drop 6 Rose Drain	3.39					
Shank Rd. Wetland Cell1						

Copper; ug/L

	2013	2015	2016	2017	2018	2019
Shank Rd. Wetland Cell2					2.64	
Shank Rd. Wetlands Sed Basin 1		4.34				
Alamo River at Drop 3	3.44					
Alamo River Outlet						
Wister Wildlife Refuge Cell W11A			0.73			
Wister Wildlife Refuge Cell W12A			DNQ			

Manganese; ug/L

	2013	2015	2016	2017	2018	2019
New River						
New River at Boundary	31.7					
New River at Rice Drain	46.7		11.2		52.3	65.9
Imperial Wetlands Inlet					57.7	
Imperial Wetlands Cell1						
Imperial Wetlands Cell2						
Imperial Wetlands Cell3						
Imperial Wetlands Cell4						
Imperial Wetlands Sed Basin						
Imperial Wetlands Sed Basin 2	119		134		88.2	
Brawley Wetland Sedimentation Basin						
Brawley Wetland Cell1						
Brawley Wetland Cell2						

Manganese; ug/L

	2013	2015	2016	2017	2018	2019
New River at Drop 2	12.5					
Vail Seven Drain		68.5				
Vail Two-A Drain			128			
Vail Cut Off Drain		1.26				124
New River Outlet		2.84				
Alamo River						
Barbara Worth Drain at Barbara Worth Resort and Country Club					6.71	
Central Drain Three		9.91				
Central Drain Two						
Alamo River at Drop 10 Central Drain	6.81		9.97			
Alamo River at Drop 8	8.21		6.43		7.32	18.8
Alamo River at Drop 6A Holtville Drain	18.2					
Oleander Drain						
Alamo River at Drop 6 Rose Drain	19.6					
Shank Rd. Wetland Cell1						
Shank Rd. Wetland Cell2					34.4	
Shank Rd. Wetlands Sed Basin 1		42.4				
Alamo River at Drop 3	23.4					
Alamo River Outlet						
Wister Wildlife Refuge Cell W11A			54.3			
Wister Wildlife Refuge Cell W12A			DNQ			

Methyl Mercury; ug/L

	2013	2015	2016	2017	2018	2019
New River						
New River at Boundary						
New River at Rice Drain						
Imperial Wetlands Inlet						
Imperial Wetlands Cell1						
Imperial Wetlands Cell2						
Imperial Wetlands Cell3			<MDL			
Imperial Wetlands Cell4						
Imperial Wetlands Sed Basin						
Imperial Wetlands Sed Basin 2						
Brawley Wetland Sedimentation Basin			<MDL			
Brawley Wetland Cell1						
Brawley Wetland Cell2						
New River at Drop 2						
Vail Seven Drain						
Vail Two-A Drain			1.27			
Vail Cut Off Drain						
New River Outlet						
Alamo River						
Barbara Worth Drain at Barbara Worth Resort and Country Club						
Central Drain Three						
Central Drain Two						
Alamo River at Drop 10 Central Drain						

Methyl Mercury; ug/L

	2013	2015	2016	2017	2018	2019
Alamo River at Drop 8						
Alamo River at Drop 6A Holtville Drain						
Oleander Drain						
Alamo River at Drop 6 Rose Drain						
Shank Rd. Wetland Cell1						
Shank Rd. Wetland Cell2						
Shank Rd. Wetlands Sed Basin 1						
Alamo River at Drop 3						
Alamo River Outlet						
Wister Wildlife Refuge Cell W11A			0.172			
Wister Wildlife Refuge Cell W12A			2.78			

Total Mercury; ug/L

	2013	2015	2016	2017	2018	2019
New River						
New River at Drop 2						
New River at Rice Drain #3						
Imperial Wetlands Sed Basin				1.34		
Imperial Wetlands Cell2				0.97		
Imperial Wetlands Cell3				0.978		
Imperial Wetlands Cell4			0.69			
Imperial Wetlands Inlet				2.4		

Total Mercury; ug/L

	2013	2015	2016	2017	2018	2019
Imperial Wetlands Sed Basin 2				1.76		
New River at Boundary						
Brawley Wetland Cell1			3.09			
Brawley Wetland Cell2						
Central Drain Three						
New River at Rice Drain						
Vail Two-A Drain						
Wister Wildlife Refuge Cell W11A			3.32			
Vail Drain Near Young						
Oleander Drain						
Alamo River						
Brawley Wetland Sedimentation Basin						
Central Drain Three at Meloland Rd. and Abatti Rd.						
Imperial Wetlands Cell1				2.09		
Alamo River at Drop 3						
Alamo River Outlet						
Alamo River at Drop 8						
Salton Sea Drain S1 (W Drain)						
Alamo River at Drop 6A Holtville Drain						
Shank Rd. Wetland Cell2						
Shank Rd. Wetlands Sed Basin 1						

Total Mercury; ug/L

	2013	2015	2016	2017	2018	2019
Vail Cut Off Drain						
Alamo River at Drop 6 Rose Drain						
American Canal at Bridge South of Quechan Casino						
Wister Wildlife Refuge Cell W12A			0.823			
Wister Wildlife Refuge Cell W12A			DNQ			

Nickel; ug/L

	2013	2015	2016	2017	2018	2019
New River						
New River at Boundary	1.54		5.57		5.26	
New River at Rice Drain	8.02					
Imperial Wetlands Inlet						
Imperial Wetlands Cell1						
Imperial Wetlands Cell2						
Imperial Wetlands Cell3						
Imperial Wetlands Cell4						
Imperial Wetlands Sed Basin					4.23	
Imperial Wetlands Sed Basin 2						
Brawley Wetland Sedimentation Basin					4.57	
Brawley Wetland Cell1						
Brawley Wetland Cell2						
New River at Drop 2	7.39					
Vail Seven Drain		2.85				

Nickel; ug/L

	2013	2015	2016	2017	2018	2019
Vail Two-A Drain		6.9				
Vail Cut Off Drain		13.8				
New River Outlet	7.13		3.63		5.17	6.96
Alamo River						
Barbara Worth Drain at Barbara Worth Resort and Country Club		9.26				
Central Drain Three						
Central Drain Two		5.07				
Alamo River at Drop 10 Central Drain	9.3				4.69	
Alamo River at Drop 8	7.52					
Alamo River at Drop 6A Holtville Drain	8.91					
Oleander Drain		3.23				
Alamo River at Drop 6 Rose Drain	9.16					
Shank Rd. Wetland Cell1						
Shank Rd. Wetland Cell2						
Shank Rd. Wetlands Sed Basin 1					4.5	
Alamo River at Drop 3	8		3.99			
Alamo River Outlet	8.63		4.15		4.81	5.48
Wister Wildlife Refuge Cell W11A			2.71			
Wister Wildlife Refuge Cell W12A			2.79			

Selenium ug/L

	2013	2015	2016	2017	2018	2019
New River						
New River at Boundary	1.02		5.98		2.81	
New River at Rice Drain	6.75					
Imperial Wetlands Inlet				5.79		
Imperial Wetlands Cell1				3.67		
Imperial Wetlands Cell2				3.79		
Imperial Wetlands Cell3				3.86		
Imperial Wetlands Cell4				3.71		
Imperial Wetlands Sed Basin				4.86	3.92	
Imperial Wetlands Sed Basin 2				3.72		
Brawley Wetland Sedimentation Basin					3.98	
Brawley Wetland Cell1						
Brawley Wetland Cell2						
New River at Drop 2	7.56					
Vail Seven Drain		2.29				
Vail Two-A Drain		4.94				
Vail Cut Off Drain		17.3				
New River Outlet	6.42		4.88		4.99	2.76
Alamo River						
Barbara Worth Drain at Barbara Worth Resort and Country Club		23.2				
Central Drain Three						
Central Drain Two		<MDL				
Alamo River at Drop 10 Central Drain	10.3				7.26	

Selenium; ug/L

	2013	2015	2016	2017	2018	2019
Alamo River at Drop 8	7.65					
Alamo River at Drop 6A Holtville Drain	8.41					
Oleander Drain		2.17				
Alamo River at Drop 6 Rose Drain	8.29					
Shank Rd. Wetland Cell1						
Shank Rd. Wetland Cell2						
Shank Rd. Wetlands Sed Basin 1					5.62	
Alamo River at Drop 3	9.6		6.76			
Alamo River Outlet	9.39		7.08		6.51	4.31
Wister Wildlife Refuge Cell W11A			1.19			
Wister Wildlife Refuge Cell W12A			2.02			

Silver; ug/L

	2013	2015	2016	2017	2018	2019
New River						
New River at Boundary	<MDL		<MDL		<MDL	
New River at Rice Drain	0.31					
Imperial Wetlands Inlet						
Imperial Wetlands Cell1						
Imperial Wetlands Cell2						
Imperial Wetlands Cell3						
Imperial Wetlands Cell4						

Silver; ug/L

	2013	2015	2016	2017	2018	2019
Imperial Wetlands Sed Basin					<MDL	
Imperial Wetlands Sed Basin 2						
Brawley Wetland Sedimentation Basin					<MDL	
Brawley Wetland Cell1						
Brawley Wetland Cell2						
New River at Drop 2	0.1					
Vail Seven Drain		<MDL				
Vail Two-A Drain		<MDL				
Vail Cut Off Drain		<MDL				
New River Outlet	<MDL		<MDL		<MDL	<MDL
Alamo River						
Barbara Worth Drain at Barbara Worth Resort and Country Club		<MDL				
Central Drain Three						
Central Drain Two		DNQ, 0.03				
Alamo River at Drop 10 Central Drain	DNQ				<MDL	
Alamo River at Drop 8	0.06					
Alamo River at Drop 6A Holtville Drain	DNQ					
Oleander Drain		<MDL				
Alamo River at Drop 6 Rose Drain	0.29					
Shank Rd. Wetland Cell1						
Shank Rd. Wetland Cell2						
Shank Rd. Wetlands Sed Basin 1					<MDL	

Silver; ug/L

	2013	2015	2016	2017	2018	2019
Alamo River at Drop 3	<MDL		<MDL			
Alamo River Outlet	0.04		<MDL		<MDL	<MDL
Wister Wildlife Refuge Cell W11A			<MDL			
Wister Wildlife Refuge Cell W12A			<MDL			

Zinc; ug/L

	2013	2015	2016	2017	2018	2019
New River						
New River at Boundary	2.98		5.86		3.49	
New River at Rice Drain	1.18					
Imperial Wetlands Inlet						
Imperial Wetlands Cell1						
Imperial Wetlands Cell2						
Imperial Wetlands Cell3						
Imperial Wetlands Cell4						
Imperial Wetlands Sed Basin					1.46	
Imperial Wetlands Sed Basin 2						
Brawley Wetland Sedimentation Basin					1.58	
Brawley Wetland Cell1						
Brawley Wetland Cell2						
New River at Drop 2	1.4					
Vail Seven Drain		1.07				
Vail Two-A Drain		5.37				
Vail Cut Off Drain		5.48				
New River Outlet	1.04		2.35		2.17	2.5

Zinc; ug/L

	2013	2015	2016	2017	2018	2019
Alamo River						
Barbara Worth Drain at Barbara Worth Resort and Country Club		3.89				
Central Drain Three						
Central Drain Two		<MDL				
Alamo River at Drop 10 Central Drain	1.48				1.83	
Alamo River at Drop 8	<MDL					
Alamo River at Drop 6A Holtville Drain	1.61					
Oleander Drain		1.01				
Alamo River at Drop 6 Rose Drain	<MDL					
Shank Rd. Wetland Cell1						
Shank Rd. Wetland Cell2						
Shank Rd. Wetlands Sed Basin 1					1.53	
Alamo River at Drop 3	<MDL		2.75			
Alamo River Outlet	<MDL		3.09		1.76	1.87
Wister Wildlife Refuge Cell W11A			1.88			
Wister Wildlife Refuge Cell W12A			1.81			

Appendix K. Sediment concentrations (ng/g dw) of PBDEs detected and/or measured in the New and Alamo River and Wister Wildlife Refuge.

∑ PBDEs; ng/g dw

	2013	2015	2016	2017
New River				
New River at Rice Drain	DNQ, <MDL			
Imperial Wetlands Cell4			DNQ, <MDL	
Brawley Wetland Cell1			DNQ, <MDL	
New River Outlet	1.918, DNQ	DNQ, <MDL		DNQ, <MDL
Alamo River				
Alamo River at Drop 10 Central Drain	DNQ, <MDL		DNQ, <MDL	
Shank Rd. Wetland Cell1			DNQ, <MDL	
Alamo River Outlet	DNQ, <MDL	DNQ, <MDL	DNQ, <MDL	DNQ, <MDL
Wister Wildlife Refuge Cell W11A			DNQ, <MDL	
Wister Wildlife Refuge Cell W12A			DNQ, <MDL	

Appendix L. Sediment concentrations (ng/g dw) of PCBs detected and/or measured in the New and Alamo River and Wister Wildlife Refuge.

∑ PCBs; ng/g dw

	2013	**2015**	**2016**	**2017**
New River				
New River at Rice Drain	DNQ, <MDL			
Imperial Wetlands Cell4			DNQ, <MDL	
Brawley Wetland Cell1			DNQ, <MDL	
New River Outlet	DNQ, <MDL	DNQ, <MDL		0.123, DNQ
Alamo River				
Alamo River at Drop 10 Central Drain	DNQ, <MDL		DNQ, <MDL	
Shank Rd. Wetland Cell1			DNQ, <MDL	
Alamo River Outlet	DNQ, <MDL	DNQ, <MDL	DNQ, <MDL	0.014, DNQ
Wister Wildlife Refuge Cell W11A			DNQ, <MDL	
Wister Wildlife Refuge Cell W12A			DNQ, <MDL	

Appendix M. Sediment concentrations (ng/g dw) of PAHs detected and/or measured in the New and Alamo River and Wister Wildlife Refuge.

Benz(a)anthracene; ng/g dw

	2013	2016	2017
New River			
New River at Rice Drain	1.56		
Imperial Wetlands Inlet			<MDL
Imperial Wetlands Cell4		<MDL	<MDL
Imperial Wetlands Sed Basin			<MDL
Brawley Wetland Cell1		DNQ	
New River Outlet	<MDL		
Alamo River			
Alamo River at Drop 10 Central Drain	<MDL	<MDL	
Shank Rd. Wetland Cell1		<MDL	
Alamo River Outlet	DNQ	DNQ	
Wister Wildlife Refuge Cell W11A		<MDL	
Wister Wildlife Refuge Cell W12A		<MDL	

Benzo(a)pyrene; ng/g dw

	2013	2016	2017
New River			
New River at Rice Drain	1.35		
Imperial Wetlands Inlet			<MDL
Imperial Wetlands Cell4		<MDL	<MDL
Imperial Wetlands Sed Basin			<MDL
Brawley Wetland Cell1		<MDL	
New River Outlet	<MDL		
Alamo River			
Alamo River at Drop 10 Central Drain	<MDL	<MDL	
Shank Rd. Wetland Cell1		<MDL	
Alamo River Outlet	<MDL	<MDL	
Wister Wildlife Refuge Cell W11A		<MDL	
Wister Wildlife Refuge Cell W12A		<MDL	

Chrysene; ng/g dw

	2013	2016	2017
New River			
New River at Rice Drain	2.9/0.78		
Imperial Wetlands Inlet			<MDL
Imperial Wetlands Cell4		<MDL	<MDL
Imperial Wetlands Sed Basin			<MDL
Brawley Wetland Cell1		DNQ	
New River Outlet	DNQ		
Alamo River			
Alamo River at Drop 10 Central Drain	0.99	<MDL	
Shank Rd. Wetland Cell1		DNQ	
Alamo River Outlet	DNQ	DNQ	
Wister Wildlife Refuge Cell W11A		<MDL	
Wister Wildlife Refuge Cell W12A		<MDL	

Fluoranthene; ng/g dw

	2013	2016	2017
New River			
New River at Rice Drain	4.0/0.84		
Imperial Wetlands Inlet			<MDL
Imperial Wetlands Cell4		<MDL	<MDL
Imperial Wetlands Sed Basin			<MDL
Brawley Wetland Cell1		DNQ	
New River Outlet	DNQ		
Alamo River			
Alamo River at Drop 10 Central Drain	1.3	2.6	
Shank Rd. Wetland Cell1		DNQ	
Alamo River Outlet	DNQ	DNQ	
Wister Wildlife Refuge Cell W11A		<MDL	
Wister Wildlife Refuge Cell W12A		<MDL	

Phenanthrene; ng/g dw

	2013	2016	2017
New River			
New River at Rice Drain	2.4 /2.3		
Imperial Wetlands Inlet			<MDL
Imperial Wetlands Cell4		<MDL	<MDL
Imperial Wetlands Sed Basin			<MDL
Brawley Wetland Cell1		DNQ	
New River Outlet	DNQ		
Alamo River			
Alamo River at Drop 10 Central Drain	1.7	DNQ	
Shank Rd. Wetland Cell1		DNQ	
Alamo River Outlet	DNQ	DNQ	
Wister Wildlife Refuge Cell W11A		<MDL	
Wister Wildlife Refuge Cell W12A		<MDL	

Pyrene; ng/g dw

	2013	2016	2017
New River			
New River at Rice Drain	2.4/2.1		
Imperial Wetlands Inlet		<MDL	DNQ
Imperial Wetlands Cell4			<MDL
Imperial Wetlands Sed Basin		DNQ	<MDL
Brawley Wetland Cell1	DNQ		
New River Outlet			
Alamo River			
Alamo River at Drop 10 Central Drain	1.3	8.0	
Shank Rd. Wetland Cell1		DNQ	
Alamo River Outlet	DNQ	DNQ	
Wister Wildlife Refuge Cell W11A		<MDL	
Wister Wildlife Refuge Cell W12A		<MDL	

ΣPAHs; ng/g dw

	2013	2016	2017
New River			
New River at Rice Drain	25.9/14.1		
Imperial Wetlands Inlet			<MDL
Imperial Wetlands Cell4		<MDL	31
Imperial Wetlands Sed Basin			5.1
Brawley Wetland Cell1		<MDL	
New River Outlet	3.14		
Alamo River			
Alamo River at Drop 10 Central Drain	21.7	10.70	
Shank Rd. Wetland Cell1		<MDL	
Alamo River Outlet	<MDL	<MDL	
Wister Wildlife Refuge Cell W11A		<MDL	
Wister Wildlife Refuge Cell W12A		<MDL	

Appendix N. Sediment concentrations (ng/g dw) of Pyrethroid insecticides detected and/or measured in the New and Alamo River and Wister Wildlife Refuge.

Bifenthrin; ng/g dw

	2013	2014	2015	2016	2017
New River					
Imperial Wetlands Inlet					<MDL
Imperial Wetlands Cell4				<MDL	<MDL
Imperial Wetlands Sed Basin					<MDL
Brawley Wetland Cell1				<MDL	
Vail Seven Drain			0.344		
Vail Two-A Drain			0.337		
Vail Cut Off Drain			0.784		
New River Outlet	4.9	2.15	1.08	DNQ	0.174
Alamo River					
Barbara Worth Drain at Barbara Worth Resort and Country Club			211		
Central Drain Three			0.844		
Central Drain Two			2.97		
Oleander Drain			0.673		
Shank Rd. Wetland Cell1				<MDL	
Alamo River Outlet	1.45	1.21	DNQ	1.68	DNQ
Wister Wildlife Refuge Cell W11A				<MDL	
Wister Wildlife Refuge Cell W12A				<MDL	

Cyfluthrin; ng/g dw

	2013	2014	2015	2016	2017
New River					
Imperial Wetlands Inlet					<MDL
Imperial Wetlands Cell4				<MDL	<MDL
Imperial Wetlands Sed Basin					<MDL
Brawley Wetland Cell1				<MDL	
Vail Seven Drain			<MDL		
Vail Two-A Drain			<MDL		
Vail Cut Off Drain			DNQ		
New River Outlet	<MDL	<MDL	<MDL	<MDL	<MDL
Alamo River					
Barbara Worth Drain at Barbara Worth Resort and Country Club			4.54		
Central Drain Three			<MDL		
Central Drain Two			DNQ		
Oleander Drain			DNQ		
Shank Rd. Wetland Cell1				<MDL	
Alamo River Outlet	<MDL	<MDL	<MDL	DNQ	<MDL
Wister Wildlife Refuge Cell W11A				<MDL	
Wister Wildlife Refuge Cell W12A				<MDL	

L-Cyhalothrin;
ng/g dw

	2013	2014	2015	2016	2017
New River					
Imperial Wetlands Inlet					3.2
Imperial Wetlands Cell4				<MDL	<MDL
Imperial Wetlands Sed Basin					DNQ
Brawley Wetland Cell1				DNQ	
Vail Seven Drain			DNQ		
Vail Two-A Drain			DNQ		
Vail Cut Off Drain			1.02		
New River Outlet	4.02	1.22	DNQ	1.65	0.121
Alamo River					
Barbara Worth Drain at Barbara Worth Resort and Country Club			12.4		
Central Drain Three			1.89		
Central Drain Two			1.19		
Oleander Drain			1.11		
Shank Rd. Wetland Cell1				DNQ	
Alamo River Outlet	1.36	0.986	DNQ	1.39 +/- 0.021	0.097
Wister Wildlife Refuge Cell W11A				<MDL	
Wister Wildlife Refuge Cell W12A				<MDL	

Cypermethrin, ng/g dw

	2013	2014	2015	2016	2017
New River					
Imperial Wetlands Inlet					3.9
Imperial Wetlands Cell4				<MDL	<MDL
Imperial Wetlands Sed Basin					<MDL
Brawley Wetland Cell1				<MDL	
Vail Seven Drain			<MDL		
Vail Two-A Drain			DNQ		
Vail Cut Off Drain			DNQ		
New River Outlet	3	DNQ	DNQ	DNQ	0.157
Alamo River					
Barbara Worth Drain at Barbara Worth Resort and Country Club			63		
Central Drain Three			DNQ		
Central Drain Two			DNQ		
Oleander Drain			DNQ		
Shank Rd. Wetland Cell1				DNQ	
Alamo River Outlet	2	2.83	DNQ	4.9 +/-2.5	<MDL
Wister Wildlife Refuge Cell W11A				<MDL	
Wister Wildlife Refuge Cell W12A				<MDL	

Deltamethrin/
Tralomethrin;
ng/g dw

	2013	2014	2015	2016		2017
New River						
Imperial Wetlands Inlet						<MDL
Imperial Wetlands Cell4				<MDL		<MDL
Imperial Wetlands Sed Basin						<MDL
Brawley Wetland Cell1				<MDL		
Vail Seven Drain			<MDL			
Vail Two-A Drain			<MDL			
Vail Cut Off Drain			<MDL			
New River Outlet	<MDL	<MDL	<MDL	<MDL		
Alamo River						
Barbara Worth Drain at Barbara Worth Resort and Country Club			<MDL			
Central Drain Three			<MDL			
Central Drain Two			<MDL			
Oleander Drain			<MDL			
Shank Rd. Wetland Cell1				<MDL		
Alamo River Outlet	<MDL	<MDL	<MDL	<MDL		
Wister Wildlife Refuge Cell W11A				<MDL		
Wister Wildlife Refuge Cell W12A				<MDL		

Esfenvalerate/
Fenvalerate,
ng/g dw

	2013	2014	2015	2016	2017
New River					
Imperial Wetlands Inlet					<MDL
Imperial Wetlands Cell4				DNQ	<MDL
Imperial Wetlands Sed Basin					<MDL
Brawley Wetland Cell1				<MDL	
Vail Seven Drain			0.633		
Vail Two-A Drain			4.79		
Vail Cut Off Drain			8.52		
New River Outlet	4.27	1.88	3.67	2.58	
Alamo River					
Barbara Worth Drain at Barbara Worth Resort and Country Club			28.1		
Central Drain Three			2.47		
Central Drain Two			3.73		
Oleander Drain			8.21		
Shank Rd. Wetland Cell1				DNQ	
Alamo River Outlet	6.08	3.81	DNQ	4.73	
Wister Wildlife Refuge Cell W11A				<MDL	
Wister Wildlife Refuge Cell W12A				<MDL	

Fenpropathrin; ng/g dw

	2013	2014	2015	2016	2017
New River					
Imperial Wetlands Inlet					
Imperial Wetlands Cell4				<MDL	
Imperial Wetlands Sed Basin					
Brawley Wetland Cell1				<MDL	
Vail Seven Drain			<MDL		
Vail Two-A Drain			<MDL		
Vail Cut Off Drain			<MDL		
New River Outlet	<MDL	<MDL	<MDL	<MDL	<MDL
Alamo River					
Barbara Worth Drain at Barbara Worth Resort and Country Club			<MDL		
Central Drain Three			<MDL		
Central Drain Two			<MDL		
Oleander Drain			<MDL		
Shank Rd. Wetland Cell1				<MDL	
Alamo River Outlet	<MDL	<MDL	<MDL	<MDL	<MDL
Wister Wildlife Refuge Cell W11A				<MDL	
Wister Wildlife Refuge Cell W12A				<MDL	

CisPermethrin;
ng/g dw

	2013	2014	2015	2016	2017
New River					
Imperial Wetlands Inlet					4.1
Imperial Wetlands Cell4				<MDL	<MDL
Imperial Wetlands Sed Basin					<MDL
Brawley Wetland Cell1				<MDL	
Vail Seven Drain			<MDL		
Vail Two-A Drain			<MDL		
Vail Cut Off Drain			DNQ		
New River Outlet	4.19	<MDL	DNQ	<MDL	
Alamo River					
Barbara Worth Drain at Barbara Worth Resort and Country Club			296		
Central Drain Three			<MDL		
Central Drain Two			<MDL		
Oleander Drain			16.6		
Shank Rd. Wetland Cell1				<MDL	
Alamo River Outlet	3.46	DNQ	<MDL	4.53*	
Wister Wildlife Refuge Cell W11A				<MDL	
Wister Wildlife Refuge Cell W12A				<MDL	

Permethrin, trans-;
ng/g dw

	2013	2014	2015	2016	2017
New River					
Imperial Wetlands Inlet					DNQ
Imperial Wetlands Cell4				<MDL	<MDL
Imperial Wetlands Sed Basin					<MDL
Brawley Wetland Cell1				<MDL	
Vail Seven Drain			<MDL		
Vail Two-A Drain			<MDL		
Vail Cut Off Drain			<MDL		
New River Outlet	DNQ	<MDL	<MDL	<MDL	
Alamo River					
Barbara Worth Drain at Barbara Worth Resort and Country Club			148		
Central Drain Three			<MDL		
Central Drain Two			<MDL		
Oleander Drain			12.2		
Shank Rd. Wetland Cell1				<MDL	
Alamo River Outlet	DNQ	<MDL	<MDL	DNQ	
Wister Wildlife Refuge Cell W11A				<MDL	
Wister Wildlife Refuge Cell W12A				<MDL	

Appendix O. Sediment concentrations (ng/g dw) of Organochlorine insecticides detected and/or measured in the New and Alamo River and Wister Wildlife Refuge.

Aldrin; ng/g dw

	2013	**2015**	**2016**	**2017**
New River				
New River at Rice Drain	<MDL			
Imperial Wetlands Cell4			<MDL	
Brawley Wetland Cell1			<MDL	
New River Outlet	<MDL	<MDL		<MDL
Alamo River				
Alamo River at Drop 10 Central Drain	<MDL			
Shank Rd. Wetland Cell1			<MDL	
Alamo River Outlet	<MDL	<MDL		<MDL
Wister Wildlife Refuge Cell W11A			<MDL	
Wister Wildlife Refuge Cell W12A			<MDL	

Cis-Chlordane; ng/g dw

	2013	**2015**	**2016**	**2017**
New River				
New River at Rice Drain	<MDL			
Imperial Wetlands Cell4			<MDL	
Brawley Wetland Cell1			<MDL	
New River Outlet	<MDL	<MDL		DNQ
Alamo River				
Alamo River at Drop 10 Central Drain	<MDL			
Shank Rd. Wetland Cell1			<MDL	
Alamo River Outlet	<MDL	<MDL		<MDL
Wister Wildlife Refuge Cell W11A			<MDL	
Wister Wildlife Refuge Cell W12A			<MDL	

Trans Chlordane; ng/g dw

	2013	2015	2016	2017
New River				
New River at Rice Drain	<MDL			
Imperial Wetlands Cell4			<MDL	
Brawley Wetland Cell1			DNQ	
New River Outlet	<MDL	<MDL		DNQ
Alamo River				
Alamo River at Drop 10 Central Drain	<MDL			
Shank Rd. Wetland Cell1			<MDL	
Alamo River Outlet	<MDL	<MDL		DNQ
Wister Wildlife Refuge Cell W11A			<MDL	
Wister Wildlife Refuge Cell W12A			<MDL	

Dacthal; Total; ng/g dw

	2013	2015	2016	2017
New River				
New River at Rice Drain	DNQ			
Imperial Wetlands Cell4			<MDL	
Brawley Wetland Cell1			DNQ	
New River Outlet	5.3	2.64		
Alamo River				
Alamo River at Drop 10 Central Drain	5.35			
Shank Rd. Wetland Cell1			2.29	
Alamo River Outlet	5.69	DNQ		
Wister Wildlife Refuge Cell W11A			DNQ	
Wister Wildlife Refuge Cell W12A			DNQ	

Dieldrin; ng/g dw

	2013	2015	2016	2017
New River				
New River at Rice Drain	DNQ			
Imperial Wetlands Cell4			DNQ	
Brawley Wetland Cell1			1.54	
New River Outlet	<MDL	<MDL		DNQ
Alamo River				
Alamo River at Drop 10 Central Drain	2.25			
Shank Rd. Wetland Cell1			1.43	
Alamo River Outlet	DNQ	<MDL		DNQ
Wister Wildlife Refuge Cell W11A			<MDL	
Wister Wildlife Refuge Cell W12A			<MDL	

Endosulfan I; ng/g dw

	2013	2015	2016	2017
New River				
New River at Rice Drain			<MDL	
Imperial Wetlands Cell4			<MDL	
Brawley Wetland Cell1	<MDL	<MDL		
New River Outlet				
Alamo River	<MDL			
Alamo River at Drop 10 Central Drain			<MDL	
Shank Rd. Wetland Cell1	<MDL	<MDL		
Alamo River Outlet			<MDL	
Wister Wildlife Refuge Cell W11A			<MDL	
Wister Wildlife Refuge Cell W12A				

Endrin; ng/g dw

	2013	2015	2016	2017
New River				
New River at Rice Drain	<MDL			
Imperial Wetlands Cell4			<MDL	
Brawley Wetland Cell1			<MDL	
New River Outlet	<MDL	<MDL		<MDL
Alamo River				
Alamo River at Drop 10 Central Drain	DNQ			
Shank Rd. Wetland Cell1			<MDL	
Alamo River Outlet	<MDL	<MDL		<MDL
Wister Wildlife Refuge Cell W11A			<MDL	
Wister Wildlife Refuge Cell W12A			<MDL	

Hexachlorobenzene; ng/g dw

	2013	2015	2016	2017
New River				
New River at Rice Drain	<MDL			
Imperial Wetlands Cell4			<MDL	
Brawley Wetland Cell1			<MDL	
New River Outlet	<MDL	<MDL		
Alamo River				
Alamo River at Drop 10 Central Drain	<MDL			
Shank Rd. Wetland Cell1			<MDL	
Alamo River Outlet	<MDL	<MDL		
Wister Wildlife Refuge Cell W11A			<MDL	
Wister Wildlife Refuge Cell W12A			<MDL	

Methoxychlor; ng/g dw

	2013	2015	2016	2017
New River				
New River at Rice Drain	<MDL			
Imperial Wetlands Cell4			<MDL	
Brawley Wetland Cell1			<MDL	
New River Outlet	<MDL	<MDL		
Alamo River				
Alamo River at Drop 10 Central Drain	<MDL			
Shank Rd. Wetland Cell1			<MDL	
Alamo River Outlet	<MDL	<MDL		
Wister Wildlife Refuge Cell W11A			<MDL	
Wister Wildlife Refuge Cell W12A			<MDL	

Mirex; ng/g dw

	2013	2015	2016	2017
New River				
New River at Rice Drain	<MDL			
Imperial Wetlands Cell4			<MDL	
Brawley Wetland Cell1			<MDL	
New River Outlet	<MDL	<MDL		
Alamo River				
Alamo River at Drop 10 Central Drain	<MDL			
Shank Rd. Wetland Cell1			<MDL	
Alamo River Outlet	<MDL	<MDL		
Wister Wildlife Refuge Cell W11A			<MDL	
Wister Wildlife Refuge Cell W12A			<MDL	

Cis Nonachlor; ng/g dw

	2013	2015	2016	2017
New River				
New River at Rice Drain	<MDL			
Imperial Wetlands Cell4			<MDL	
Brawley Wetland Cell1			<MDL	
New River Outlet	<MDL	<MDL		DNQ
Alamo River				
Alamo River at Drop 10 Central Drain	<MDL			
Shank Rd. Wetland Cell1			<MDL	
Alamo River Outlet	<MDL	<MDL		DNQ
Wister Wildlife Refuge Cell W11A			<MDL	
Wister Wildlife Refuge Cell W12A			<MDL	

Trans Nonachlor; ng/g dw

	2013	2015	2016	2017
New River				
New River at Rice Drain	DNQ			
Imperial Wetlands Cell4			<MDL	
Brawley Wetland Cell1			DNQ	
New River Outlet	<MDL	<MDL		DNQ
Alamo River				
Alamo River at Drop 10 Central Drain	<MDL			
Shank Rd. Wetland Cell1			<MDL	
Alamo River Outlet	<MDL	<MDL		DNQ
Wister Wildlife Refuge Cell W11A			<MDL	
Wister Wildlife Refuge Cell W12A			<MDL	

Oxadiazon; ng/g dw

	2013	2015	2016	2017
New River				
New River at Rice Drain	<MDL			
Imperial Wetlands Cell4			<MDL	
Brawley Wetland Cell1			<MDL	
New River Outlet	<MDL	<MDL		
Alamo River				
Alamo River at Drop 10 Central Drain	<MDL			
Shank Rd. Wetland Cell1			<MDL	
Alamo River Outlet	<MDL	<MDL		
Wister Wildlife Refuge Cell W11A			<MDL	
Wister Wildlife Refuge Cell W12A			<MDL	

Oxychlordane; ng/g dw

	2013	2015	2016	2017
New River				
New River at Rice Drain	<MDL			
Imperial Wetlands Cell4			<MDL	
Brawley Wetland Cell1			<MDL	
New River Outlet	<MDL	<MDL		<MDL
Alamo River				
Alamo River at Drop 10 Central Drain	<MDL			
Shank Rd. Wetland Cell1			<MDL	
Alamo River Outlet	<MDL	<MDL		<MDL
Wister Wildlife Refuge Cell W11A			<MDL	
Wister Wildlife Refuge Cell W12A			<MDL	

∑ Heptachlors; (ng/g dw

	2013	2015	2016	2017
New River				
New River at Rice Drain	<MDL			
Imperial Wetlands Cell4			<MDL	
Brawley Wetland Cell1			<MDL	
New River Outlet	<MDL	<MDL		<MDL
Alamo River				
Alamo River at Drop 10 Central Drain	<MDL			
Shank Rd. Wetland Cell1			<MDL	
Alamo River Outlet	<MDL	<MDL		<MDL
Wister Wildlife Refuge Cell W11A			<MDL	
Wister Wildlife Refuge Cell W12A			<MDL	

∑HCHs; (ng/g dw)

	2013	2015	2016	2017
New River				
New River at Rice Drain	<MDL			
Imperial Wetlands Cell4			<MDL	
Brawley Wetland Cell1			<MDL	
New River Outlet	<MDL	<MDL		<MDL
Alamo River				
Alamo River at Drop 10 Central Drain	<MDL			
Shank Rd. Wetland Cell1			<MDL	
Alamo River Outlet	<MDL	<MDL		<MDL
Wister Wildlife Refuge Cell W11A			DNQ	
Wister Wildlife Refuge Cell W12A			<MDL	

∑DDDs; (ng/g dw)

	2013	2015	2016	2017
New River				
New River at Rice Drain	DNQ			
Imperial Wetlands Cell4			<MDL	
Brawley Wetland Cell1			DNQ, <MDL	
New River Outlet	DNQ	DNQ		<MDL
Alamo River				
Alamo River at Drop 10 Central Drain				
Shank Rd. Wetland Cell1			DNQ	
Alamo River Outlet	DNQ	DNQ		<MDL
Wister Wildlife Refuge Cell W11A			DNQ	
Wister Wildlife Refuge Cell W12A			DNQ	

∑DDEs; (ng/g dw)

	2013	2015	2016	2017
New River				
New River at Rice Drain	41.9			
Imperial Wetlands Cell4			DNQ, <MDL	
Brawley Wetland Cell1			3.91	
New River Outlet	13.2	6.58		3.47
Alamo River				
Alamo River at Drop 10 Central Drain				
Shank Rd. Wetland Cell1			6.4	
Alamo River Outlet	30.3	14.2		4.23
Wister Wildlife Refuge Cell W11A			17.6	
Wister Wildlife Refuge Cell W12A			9.45	

∑ DDT (DDTs, DDEs, DDDs); (ng/g dw)

	2013	2015	2016	2017
New River				
New River at Rice Drain	41.9			
Imperial Wetlands Cell4			DNQ, <MDL	
Brawley Wetland Cell1			3.91	
New River Outlet	13.2	6.58		3.47
Alamo River				
Alamo River at Drop 10 Central Drain				
Shank Rd. Wetland Cell1			6.4	
Alamo River Outlet	31.8	14.2		4.23
Wister Wildlife Refuge Cell W11A			17.6	
Wister Wildlife Refuge Cell W12A			9.45	

Appendix P. Sediment concentrations (ng/g dw) of Organophosphate insecticides detected and/or measured in the New and Alamo River and Wister Wildlife Refuge.

Chlorpyrifos; ng/g dw

	2013	2015	2016	2017
New River				
New River at Rice Drain	23.4			
Imperial Wetlands Cell4			<MDL	
Brawley Wetland Cell1			<MDL	
New River Outlet	13.6	DNQ		0.724
Alamo River				
Shank Rd. Wetland Cell1			<MDL	
Alamo River Outlet	12.3	<MDL		0.177
Wister Wildlife Refuge Cell W11A			<MDL	
Wister Wildlife Refuge Cell W12A			<MDL	

Appendix Q. Sediment concentrations (ng/g dw) of metals detected and/or measured in the New and Alamo River and Wister Wildlife Refuge.

Arsenic; mg/Kg dw

	2013	2014	2015	2016	2017	2018
New River						
New River at Boundary	7.89			12.3		4.19
New River at Fig Drain						3.14
New River at Rice Drain						4.49
Imperial Wetlands Inlet						
Imperial Wetlands Cell1						
Imperial Wetlands Cell2						
Imperial Wetlands Cell3						
Imperial Wetlands Cell4				3.01		
Imperial Wetlands Sed Basin						3.62, 7.28
Imperial Wetlands Sed Basin 2						
Brawley Wetland Sedimentation Basin						2.35, 6.26
Brawley Wetland Cell1				10.9		
New River at Drop 2						6.98
Vail Seven Drain						
Vail Two-A Drain						

Arsenic; mg/Kg dw

	2013	2014	2015	2016	2017	2018
Vail Cut Off Drain						
New River Outlet	7.21		4.91	7.45,	5.15	7.13, 5.17, 5.3
Alamo River						
Barbara Worth Drain at Barbara Worth Resort and Country Club						
Central Drain Three						
Central Drain Two						
Alamo River at Drop 10 Central Drain				3.38		3.7
Alamo River at Drop 8				3.69		6.35
Alamo River at Drop 6A Holtville Drain						
Oleander Drain						
Alamo River at Drop 6 Rose Drain				5.11		5.66
Shank Rd. Wetland Cell1				15.3		
Shank Rd. Wetlands Sed Basin 1						6.25, 6.47
Alamo River at Drop 3				6.79		4.01
Alamo River Outlet	4.75		3.83			5.83, 3.07, 6.82
Wister Wildlife Refuge Cell W11A				10.7		
Wister Wildlife Refuge Cell W12A				10.2		

Cadmium;
mg/Kg dw

	2013	2014	2015	2016	2017	2018
New River						
New River at Boundary	0.72			1.01		0.29
New River at Fig Drain						0.22
New River at Rice Drain						0.19
Imperial Wetlands Inlet						
Imperial Wetlands Cell1						
Imperial Wetlands Cell2						
Imperial Wetlands Cell3						
Imperial Wetlands Cell4				0.16		
Imperial Wetlands Sed Basin						0.32, 0.33
Imperial Wetlands Sed Basin 2						
Brawley Wetlan Sedimentation Basin						0.1, 0.23
Brawley Wetland Cell1				0.36		
New River at Drop 2						0.3
Vail Seven Drain						
Vail Two-A Drain						
Vail Cut Off Drain						
New River Outlet	0.38		<MDL	0.31	0.26	0.31, 0.24, 0.26

Cadmium; mg/Kg dw

	2013	2014	2015	2016	2017	2018
Alamo River						
Barbara Worth Drain at Barbara Worth Resort and Country Club						
Central Drain Three						
Central Drain Two						
Alamo River at Drop 10 Central Drain				0.28		0.23
Alamo River at Drop 8				0.27		0.36
Alamo River at Drop 6A Holtville Drain						
Oleander Drain						
Alamo River at Drop 6 Rose Drain				0.37		0.33
Shank Rd. Wetland Cell1				0.34		
Shank Rd. Wetlands Sed Basin 1						0.4, 0.38
Alamo River at Drop 3				0.4		0.25
Alamo River Outlet	0.29		0.19	0.36		0.33, 0.2, 0.37
Wister Wildlife Refuge Cell W11A				0.42		
Wister Wildlife Refuge Cell W12A				0.31		

Chromium;
mg/Kg dw

	2013	2014	2015	2016	2017	2018
New River						
New River at Boundary	32			36.6		21.4
New River at Fig Drain						22.9
New River at Rice Drain						24.5
Imperial Wetlands Inlet						
Imperial Wetlands Cell1						
Imperial Wetlands Cell2						
Imperial Wetlands Cell3						
Imperial Wetlands Cell4				25		
Imperial Wetlands Sed Basin						23.9, 40.9
Imperial Wetlands Sed Basin 2						
Brawley Wetlan Sedimentation Basin						18, 29.2
Brawley Wetland Cell1				36.6		
New River at Drop 2						39.8
Vail Seven Drain						
Vail Two-A Drain						
Vail Cut Off Drain						
New River Outlet	43.2		27.3	26.2	25.6	41.3, 24.9, 33.5

Chromium; mg/Kg dw

	2013	2014	2015	2016	2017	2018
Alamo River						
Barbara Worth Drain at Barbara Worth Resort and Country Club						
Central Drain Three						
Central Drain Two						
Alamo River at Drop 10 Central Drain				16.8		25.1
Alamo River at Drop 8				16.2		36.8
Alamo River at Drop 6A Holtville Drain						
Oleander Drain						
Alamo River at Drop 6 Rose Drain				22.9		34.8
Shank Rd. Wetland Cell1				35.4		
Shank Rd. Wetlands Sed Basin 1						34.6, 38.8
Alamo River at Drop 3				26.4		31.3
Alamo River Outlet	28.2		20.8	26.5		35.8, 18.9, 45.1
Wister Wildlife Refuge Cell W11A				30.6		
Wister Wildlife Refuge Cell W12A				34.7		

Copper;
mg/Kg dw

	2013	2014	2015	2016	2017	2018
New River						
New River at Boundary	47.7			103		29.3
New River at Fig Drain						12
New River at Rice Drain						14.3
Imperial Wetlands Inlet						
Imperial Wetlands Cell1						
Imperial Wetlands Cell2						
Imperial Wetlands Cell3						
Imperial Wetlands Cell4				9.55		
Imperial Wetlands Sed Basin						16.2, 20.6
Imperial Wetlands Sed Basin 2						
Brawley Wetlan Sedimentation Basin						7.73, 13.7
Brawley Wetland Cell1				25.3		
New River at Drop 2						20.4
Vail Seven Drain						
Vail Two-A Drain						
Vail Cut Off Drain						
New River Outlet	22		14.9	19.5	13.6	21, 14.6, 16.8

Copper; mg/Kg dw

	2013	2014	2015	2016	2017	2018
Alamo River						
Barbara Worth Drain at Barbara Worth Resort and Country Club						
Central Drain Three						
Central Drain Two						
Alamo River at Drop 10 Central Drain				9.46		12.7
Alamo River at Drop 8				18.4		24.7
Alamo River at Drop 6A Holtville Drain						
Oleander Drain						
Alamo River at Drop 6 Rose Drain				19.8		23.8
Shank Rd. Wetland Cell1				24.1		
Shank Rd. Wetlands Sed Basin 1						28.9, 22
Alamo River at Drop 3				19.9		16.7
Alamo River Outlet	15.8		11.2	23.5		23, 10.2, 27.3
Wister Wildlife Refuge Cell W11A				22.6		
Wister Wildlife Refuge Cell W12A				21.9		

Lead;
mg/Kg dw

	2013	2014	2015	2016	2017	2018
New River						
New River at Boundary	36.6			42.1		18.7
New River at Fig Drain						12.2
New River at Rice Drain						12.5
Imperial Wetlands Inlet						
Imperial Wetlands Cell1						
Imperial Wetlands Cell2						
Imperial Wetlands Cell3						
Imperial Wetlands Cell4				9.57		
Imperial Wetlands Sed Basin						12.7, 25.8
Imperial Wetlands Sed Basin 2						
Brawley Wetlan Sedimentation Basin						10.3, 16.2
Brawley Wetland Cell1				19.8		
New River at Drop 2						15
Vail Seven Drain						
Vail Two-A Drain						
Vail Cut Off Drain						
New River Outlet	16.1		13.5	13.6	12.2	16, 13.1, 13.9

Lead; mg/Kg dw

	2013	2014	2015	2016	2017	2018
Alamo River						
Barbara Worth Drain at Barbara Worth Resort and Country Club						
Central Drain Three						
Central Drain Two						
Alamo River at Drop 10 Central Drain				9.97		12.4
Alamo River at Drop 8				10.8		15.6
Alamo River at Drop 6A Holtville Drain						
Oleander Drain						
Alamo River at Drop 6 Rose Drain				12.5		14.3
Shank Rd. Wetland Cell1				21.6		
Shank Rd. Wetlands Sed Basin 1						16.4, 16.3
Alamo River at Drop 3				13.8		14
Alamo River Outlet	13.1		11.6	14.1		15.4, 10.8, 17.8
Wister Wildlife Refuge Cell W11A				19.4		
Wister Wildlife Refuge Cell W12A				15.5		

Manganese;
mg/Kg dw

	2013	2014	2015	2016	2017	2018
New River						
New River at Boundary	297			319		333
New River at Fig Drain						367
New River at Rice Drain						291
Imperial Wetlands Inlet						
Imperial Wetlands Cell1						
Imperial Wetlands Cell2						
Imperial Wetlands Cell3						
Imperial Wetlands Cell4				237		
Imperial Wetlands Sed Basin						265, 401
Imperial Wetlands Sed Basin 2						
Brawley Wetlan Sedimentation Basin						248, 366
Brawley Wetland Cell1				530		
New River at Drop 2						589
Vail Seven Drain						
Vail Two-A Drain						
Vail Cut Off Drain						
New River Outlet	602		340	386	373	728, 365, 504

Manganese; mg/Kg dw

	2013	2014	2015	2016	2017	2018
Alamo River						
Barbara Worth Drain at Barbara Worth Resort and Country Club						
Central Drain Three						
Central Drain Two						
Alamo River at Drop 10 Central Drain				266		327
Alamo River at Drop 8				225		420
Alamo River at Drop 6A Holtville Drain						
Oleander Drain						
Alamo River at Drop 6 Rose Drain				310		408
Shank Rd. Wetland Cell1				290		
Shank Rd. Wetlands Sed Basin 1						374, 483
Alamo River at Drop 3				361		395
Alamo River Outlet	383		270	422		504, 267, 553
Wister Wildlife Refuge Cell W11A				311		
Wister Wildlife Refuge Cell W12A				316		

MethylMercury,
ug/Kg dw

	2013	2014	2015	2016	2017	2018
New River						
New River at Boundary						
New River at Fig Drain						
New River at Rice Drain						
Imperial Wetlands Inlet						
Imperial Wetlands Cell1						
Imperial Wetlands Cell2						
Imperial Wetlands Cell3						
Imperial Wetlands Cell4				DNQ		
Imperial Wetlands Sed Basin						
Imperial Wetlands Sed Basin 2						
Brawley Wetlan Sedimentation Basin						
Brawley Wetland Cell1				0.037		
New River at Drop 2						
Vail Seven Drain						
Vail Two-A Drain						
Vail Cut Off Drain						
New River Outlet						

Methyl-Mercury; mg/Kg dw

	2013	2014	2015	2016	2017	2018
Alamo River						
Barbara Worth Drain at Barbara Worth Resort and Country Club						
Central Drain Three						
Central Drain Two						
Alamo River at Drop 10 Central Drain						
Alamo River at Drop 8						
Alamo River at Drop 6A Holtville Drain						
Oleander Drain						
Alamo River at Drop 6 Rose Drain						
Shank Rd. Wetland Cell1				0.088		
Shank Rd. Wetlands Sed Basin 1						
Alamo River at Drop 3						
Alamo River Outlet						
Wister Wildlife Refuge Cell W11A				1.11		
Wister Wildlife Refuge Cell W12A				0.06		

Mercury;
mg/Kg dw

	2013	2014	2015	2016	2017	2018
New River						
New River at Boundary						
New River at Fig Drain						
New River at Rice Drain						
Imperial Wetlands Inlet						
Imperial Wetlands Cell1						
Imperial Wetlands Cell2						
Imperial Wetlands Cell3						
Imperial Wetlands Cell4				<MDL		
Imperial Wetlands Sed Basin						
Imperial Wetlands Sed Basin 2						
Brawley Wetlan Sedimentation Basin						
Brawley Wetland Cell1				DNQ		
New River at Drop 2						
Vail Seven Drain						
Vail Two-A Drain						
Vail Cut Off Drain						
New River Outlet	0.022		0.014		0.011	0.013,

Mercury; mg/Kg dw

	2013	2014	2015	2016	2017	2018
Alamo River						
Barbara Worth Drain at Barbara Worth Resort and Country Club			DNQ			
Central Drain Three						
Central Drain Two			0.021			
Alamo River at Drop 10 Central Drain						
Alamo River at Drop 8						
Alamo River at Drop 6A Holtville Drain						
Oleander Drain			DNQ			
Alamo River at Drop 6 Rose Drain						
Shank Rd. Wetland Cell1				DNQ		
Shank Rd. Wetlands Sed Basin 1						
Alamo River at Drop 3						
Alamo River Outlet	0.009, 0.009		DNQ			, 0.008,
Wister Wildlife Refuge Cell W11A				DNQ		
Wister Wildlife Refuge Cell W12A				<MDL		

Nickel;
mg/Kg dw

	2013	2014	2015	2016	2017	2018
New River						
New River at Boundary	19.4			31.7		22.9
New River at Fig Drain						19
New River at Rice Drain						
Imperial Wetlands Inlet						
Imperial Wetlands Cell1						
Imperial Wetlands Cell2						
Imperial Wetlands Cell3						
Imperial Wetlands Cell4				13		
Imperial Wetlands Sed Basin						23.7, 25
Imperial Wetlands Sed Basin 2						
Brawley Wetlan Sedimentation Basin						14.6, 18.6
Brawley Wetland Cell1				22.2		
New River at Drop 2						33.1
Vail Seven Drain						
Vail Two-A Drain						
Vail Cut Off Drain						
New River Outlet	21.9		14.6	16.9,	13.9	31.9, 22.1, 26.8

Nickel; mg/Kg dw

	2013	2014	2015	2016	2017	2018
Alamo River						
Barbara Worth Drain at Barbara Worth Resort and Country Club						
Central Drain Three						
Central Drain Two						
Alamo River at Drop 10 Central Drain				8.07		20.8
Alamo River at Drop 8				9.29		33.2
Alamo River at Drop 6A Holtville Drain						
Oleander Drain						
Alamo River at Drop 6 Rose Drain				13.3		37.5
Shank Rd. Wetland Cell1				21.2		
Shank Rd. Wetlands Sed Basin 1						30.7, 24.1
Alamo River at Drop 3				15.7		26.2
Alamo River Outlet	15.8		10.7	17.5		30.6, 17.3, 36.9
Wister Wildlife Refuge Cell W11A				20.4		
Wister Wildlife Refuge Cell W12A				22.3		

Selenium;
mg/Kg dw

	2013	2014	2015	2016	2017	2018
New River						
New River at Boundary	0.378 1.27			<MDL		<MDL
New River at Fig Drain						<MDL
New River at Rice Drain	0.455 0.643					
Imperial Wetlands Inlet					<MDL	
Imperial Wetlands Cell1					<MDL	
Imperial Wetlands Cell2					<MDL	
Imperial Wetlands Cell3					<MDL	
Imperial Wetlands Cell4				<MDL	<MDL	
Imperial Wetlands Sed Basin					1.17, <MDL, <MDL	<MDL
Imperial Wetlands Sed Basin 2					<MDL	
Brawley Wetland Sedimentation Basin						<MDL
Brawley Wetland Cell1				<MDL		
New River at Drop 2	0.359 0.344					<MDL
Vail Seven Drain						
Vail Two-A Drain						
Vail Cut Off Drain						
New River Outlet	0.418 0.49			<MDL		<MDL

Selenium; mg/Kg dw

	2013	2014	2015	2016	2017	2018
Alamo River						
Barbara Worth Drain at Barbara Worth Resort and Country Club						
Central Drain Three						
Central Drain Two						
Alamo River at Drop 10 Central Drain	0.504 0.351			<MDL		<MDL
Alamo River at Drop 8	0.573 0.395			<MDL		<MDL
Alamo River at Drop 6A Holtville Drain	0.253 0.649					
Oleander Drain						
Alamo River at Drop 6 Rose Drain	0.657 0.643			<MDL		<MDL
Shank Rd. Wetland Cell1				<MDL		
Shank Rd. Wetlands Sed Basin 1						<MDL
Alamo River at Drop 3	0.747 0.887			<MDL		DNQ
Alamo River Outlet	0.303 0.412			<MDL		<MDL
Wister Wildlife Refuge Cell W11A				<MDL		
Wister Wildlife Refuge Cell W12A				2.94		

Silver;
mg/Kg dw

	2013	2014	2015	2016	2017	2018
New River						
New River at Boundary	2.1			5.25		0.4
New River at Fig Drain						0.25
New River at Rice Drain						0.25
Imperial Wetlands Inlet						
Imperial Wetlands Cell1						
Imperial Wetlands Cell2						
Imperial Wetlands Cell3						
Imperial Wetlands Cell4				0.17		
Imperial Wetlands Sed Basin						0.25, 0.36
Imperial Wetlands Sed Basin 2						
Brawley Wetlan Sedimentation Basin						0.27, 0.36
Brawley Wetland Cell1				0.27		
New River at Drop 2						0.4
Vail Seven Drain						
Vail Two-A Drain						
Vail Cut Off Drain						
New River Outlet	0.5		0.45	0.26,	0.28	0.35, 0.29, 0.36

Silver; mg/Kg dw

	2013	2014	2015	2016	2017	2018
Alamo River						
Barbara Worth Drain at Barbara Worth Resort and Country Club						
Central Drain Three						
Central Drain Two						
Alamo River at Drop 10 Central Drain				0.32		0.23
Alamo River at Drop 8				0.23		0.35
Alamo River at Drop 6A Holtville Drain						
Oleander Drain						
Alamo River at Drop 6 Rose Drain				0.21		0.28
Shank Rd. Wetland Cell1				0.24		
Shank Rd. Wetlands Sed Basin 1						0.36, 0.37
Alamo River at Drop 3				0.48		0.42
Alamo River Outlet	0.27		<MDL	0.12,		0.29, 0.29, 0.36
Wister Wildlife Refuge Cell W11A				0.25		
Wister Wildlife Refuge Cell W12A				DNQ		

Zinc;
mg/Kg dw

	2013	2014	2015	2016	2017	2018
New River						
New River at Boundary	183			489		92.7
New River at Fig Drain						39.5
New River at Rice Drain						44.2
Imperial Wetlands Inlet						
Imperial Wetlands Cell1						
Imperial Wetlands Cell2						
Imperial Wetlands Cell3						
Imperial Wetlands Cell4				29.6		
Imperial Wetlands Sed Basin						43.4 62
Imperial Wetlands Sed Basin 2						
Brawley Wetlan Sedimentation Basin						23.6, 43.3
Brawley Wetland Cell1				82.2		
New River at Drop 2						67.6
Vail Seven Drain						
Vail Two-A Drain						
Vail Cut Off Drain						
New River Outlet	74.5		44	65	47.6	69.4, 43.3, 53.9

Zinc; mg/Kg dw

	2013	2014	2015	2016	2017	2018
Alamo River						
Barbara Worth Drain at Barbara Worth Resort and Country Club						
Central Drain Three						
Central Drain Two						
Alamo River at Drop 10 Central Drain				34.8		37.6
Alamo River at Drop 8				40.4		58.7
Alamo River at Drop 6A Holtville Drain						
Oleander Drain						
Alamo River at Drop 6 Rose Drain				55.6		60.1
Shank Rd. Wetland Cell1				85.9		
Shank Rd. Wetlands Sed Basin 1						62.4 69
Alamo River at Drop 3				65		86.5
Alamo River Outlet	54.3		38.1	70.4		62, 30.7, 73.8
Wister Wildlife Refuge Cell W11A				77.3		
Wister Wildlife Refuge Cell W12A				62.3		

Appendix R. Concentrations of Total Mercury (mg/kg) in fish from the Salton Sea Drainage from 2014-2019.

		2014	2016	2017	2019
New River					
Calexico Water Treatment Plant					
	Common Carp	0.10			
	Tilapia spp.	DNQ			
Fig Drain					
	Common Carp	0.021			
	Tilapia spp.	DNQ			
Imperial Wetlands Cell4					
	Bluegill		0.027		
	Common Carp		0.013		
	Largemouth Bass		0.061 +/- 0.018		
Imperial Wetlands Sed Basin					
	American Shad			DNQ	
	Bluegill			0.042	
	Common Carp			0.041 +/- 0.022	
	Flathead Catfish			0.10 +/- 0.043	
Alamo River					
International Boundary					
	Bluegill	0.056			
	Tilapia spp.	<MDL			
Shank Rd. Wetland Cell1					
	Channel Catfish		0.048 +/- 0.020		
	Common Carp		0.042 +/-0.014		

		2014	2016	2017	2019
Wiest Lake_BOG					
	Black Crappie	DNQ			
	Channel Catfish	DNQ, <MDL			
	Largemouth Bass	0.031 +/-0.018			0.033 +/-0.018
	Redear Sunfish	DNQ			
	Striped Bass	DNQ			
Finney Lake					
	Black Crappie	0.012			
	Common Carp	<MDL	DNQ		
	Flathead Catfish	DNQ			
	Largemouth Bass	DNQ			
Drop 3					
	Common Carp	0.073 +/- 0.011			
	Flathead Catfish	0.046			
	Largemouth Bass	0.063 +/-0.002			
	Tilapia spp.	<MDL			
Alamo River Outlet					
	Tilapia spp.	DNQ			
	Common Carp	0.037			
All American Canal					
Borderline					
	Bluegill	0.034 +/-0.001			
	Channel Catfish	0.055 +/-0.009			
	Common Carp	0.114 +/-0.016			
	Largemouth Bass	0.065 +/-0.022			

		2014	**2016**	**2017**	**2019**
South of Quechan Casino					
	Common Carp	0.046			
	Flathead Catfish	0.064			
	Largemouth Bass	0.10 +/- 0.057			
	Redear Sunfish	0.044			
Mesa 2					
	Bluegill	0.027			
	Channel Catfish	0.041			
	Common Carp	0.05			
	Flathead Catfish	0.147			
	Largemouth Bass	0.095 +/-0.071			

Appendix S. Concentrations of selenium (mg/kg) in fish from the Salton Sea Drainage from 2014-2017.

		2014	**2016**	**2017**
New River				
Calexico Water Treatment Plant				
	Common Carp	1.3 +/- 0.16		
	Tilapia spp.	1.8 +/- 0.96		
Fig Drain				
	Common Carp	0.78 +/- 0.14		
	Tilapia spp.	0.95 +/- 0.12		
Imperial Wetlands Cell4				
	Bluegill		1.3	
	Common Carp		1.3 +/- 0.021	
	Largemouth Bass		1.3 +/- 0.12	
Imperial Wetlands Sed Basin				
	American Shad			1.1
	Bluegill			0.91
	Common Carp			0.84 +/- 0.095
	Flathead Catfish			0.4
	Largemouth Bass			0.94 +/- 0.12
	Mosquitofish			0.82
	Threadfin Shad			1.25
New River Outlet				
	Common Carp	1.7 +/- 0.21		
	Tilapia spp.	1.9 +/- 0.16		
Alamo River				
International Boundary				
	Bluegill	0.99		
	Tilapia spp.	1.3 +/- 0.25		
Shank Rd. Wetland Cell1				

		2014	2016	2017
	Common Carp		1.34 +/- 0.057	
	Channel Catfish		0.48	
Wiest Lake_BOG				
	Black Crappie	1.7 +/- 0.049		
	Channel Catfish	0.48 +/- 0.074		
	Largemouth Bass	1.0 +/- 0.12		
	Redear Sunfish	1.0		
	Striped Bass	1.6 +/- 0.085		
Finney Lake				
	Black Crappie	1.9 +/- 0.014		
	Common Carp	2.0 +/- 0.085	2.7 +/-0.13	
	Flathead Catfish	0.983		
	Largemouth Bass	1.9		
Drop 3				
	Bluegill	0.99		
	Common Carp	2.0 +/-0.48		
	Flathead Catfish	0.77		
	Largemouth Bass	1.5 +/-0.30		
	Tilapia spp.	1.6 +/-0.37		
Alamo River Outlet				
	Tilapia spp.	1.8 +/-0.12		
	Common Carp	1.7		
All American Canal				
Borderline				
	Bluegill	1.6 +/- 0.064		
	Channel Catfish	0.54 +/-0.082		

		2014	2016	2017
	Common Carp	1.3 +/-0.21		
	Flathead Catfish	0.52 +/-0.091		
	Largemouth Bass	0.99 +/-0.13		
South of Quechan Casino				
	Common Carp	2.06 +/- 0.649		
	Flathead Catfish	1.0367 +/- 0.055		
	Largemouth Bass	1.81 +/- 0.339		
	Redear Sunfish	1.4		
Mesa 2				
	Bluegill	1.5		
	Channel Catfish	0.69 +/- 0.085		
	Common Carp	1.4 +/-0.37		
	Flathead Catfish	1.2 +/- 0.15		
	Largemouth Bass	1.7 +/-0.29		
	Redear Sunfish	1.6		

Appendix T. Concentrations of organochlorine insecticides, ΣPCBs, and ΣPAHs in fish from the Salton Sea Drainage in 2016 (ng/g ww).

		Aldrin	T-Chlordane	C-Chlordane	Dacthal	ΣDDTs	Dieldrin	Endosulfan I	Endrin	HCH a	HCH b	HCH g	Heptachlor Epoxide	Heptachlor	Methoxychlor	Mirex	C-Nonachlor	T-Nonachlor	Oxadiazon	Oxychlordane	Permethrin
New River																					
Imperial Wetlands Cell4	Common Carp	<MDL	<MDL	<MDL	1.465, +/- 0.148	5.545, +/- 0.332	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
	Large mouth Bass	<MDL	<MDL	<MDL	1.88	13	0.553	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	0.305	<MDL	<MDL	<MDL	<MDL
Alamo River																					
Shank Rd. Wetland Cell1	Channel Catfish	<MDL		<MDL	28.1	80.01	3.66	<MDL	<MDL	<MDL	DNQ, <MDL	<MDL	<MDL	<MDL	<MDL	<MDL	DNQ	DNQ	<MDL	<MDL	<MDL
	Common Carp	<MDL	<MDL	<MDL	9.94	8.25	0.653	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
Finney Lake	Common Carp	<MDL	<MDL	<MDL		19.3	0.834	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL		<MDL	<MDL	<MDL

ΣPCBs; ng/g ww

New River		
Imperial Wetlands Cell4	Common Carp	<MDL
	Largemouth Bass	<MDL
Alamo River		
Shank Rd. Wetland Cell1	Channel Catfish	DNQ, <MDL
	Common Carp	<MDL
Finney Lake	Common Carp	

ΣPAHs; ng/g ww

New River		
Imperial Wetlands Cell4	Common Carp	<MDL
	Largemouth Bass	<MDL
Alamo River		
Shank Rd. Wetland Cell1	Channel Catfish	<MDL
	Common Carp	<MDL
Finney Lake	Common Carp	DNQ, <MDL

Appendix U. Concentrations of Organochlorine insecticides, ΣPCBs and ΣPAHs in fish of the Salton Sea Drainage in 2014 (ng/g ww).

		Aldrin	C-Chlordane	T-Chlordane	Dacthal	ΣDDTs	Dieldrin	Endosulfan I	Endrin	HCH,a	HCH, b	HCH g	Heptachlor Epoxide	Heptachlor	Methoxychlor	Mirex	C-Nonachlor	T-Nonachlor	Oxadiazon	Oxychlordane
New River																				
Calexico Water Treatment Plant	Common Carp	<MDL	3.88	2.05	8.73	268.02	3.78	<MDL	<MDL	<MDL	DNQ	<MDL	<MDL	<MDL	<MDL	<MDL	1.71	2.68	<MDL	<MDL
	Tilapia spp.	<MDL	<MDL	<MDL	DNQ	8.5	0.64	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL		<MDL	<MDL
New River at Fig Drain	Common Carp	<MDL	DNQ	<MDL	12.9	61.29	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	DNQ	<MDL	<MDL
	Tilapia spp.	<MDL	<MDL	<MDL	3.05	4.41	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
New River Outlet	Common Carp	<MDL	1.23	<MDL	384	184.5	5.01	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	DNQ	1.49	<MDL	<MDL
	Tilapia spp.	<MDL	<MDL	<MDL	38.3	10.1	DNQ	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
Alamo River																				
Alamo River at International Boundary	Tilapia spp.	<MDL	<MDL	<MDL	DNQ	23.5	DNQ	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
Wiest Lake_BOG	Channel Catfish	<MDL	<MDL	<MDL	DNQ	47.37	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	DNQ	<MDL	<MDL
	Striped Bass	<MDL	<MDL	<MDL	DNQ	4.76	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
Finney Lake	Flathead Catfish	<MDL	<MDL	<MDL	10.2	50.45	1.09	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
Alamo River Above Drop 3	Flathead Catfish	<MDL	1.67		182	414.81	4.63	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	1.06	2.21	<MDL	<MDL
	Tilapia spp.	<MDL	<MDL	<MDL	3.07	4.57	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
Alamo River Outlet	Common Carp	<MDL	4.92	1.87	173	1587.8	7.65	DNQ	DNQ	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	3.35	5.65	<MDL	<MDL

		Aldrin	C-Chlordane	T-Chlordane	Dacthal	ΣDDTs	Dieldrin	Endosulfan I	Endrin	HCH,a	HCH, b	HCH g	Heptachlor Epoxide	Heptachlor	Methoxychlor	Mirex	C-Nonachlor	T-Nonachlor	Oxadiazon	Oxychlordane
	Tilapia spp.	<MDL	<MDL	<MDL	46.9	14.4	0.84	2.45	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
All American Canal																				
All American Canal, Borderline	Channel Catfish			DNQ													DNQ	DNQ		
	Common Carp	<MDL	10.4	6.29	10.8	140.85	3.34	DNQ	0.17	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	3.07	6.51	<MDL	<MDL
	Flathead Catfish	<MDL	<MDL	<MDL	DNQ	10.3	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	DNQ, <MDL	<MDL	<MDL
	Largemouth Bass	<MDL	<MDL	<MDL	DNQ	2.87	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
American Canal at Bridge South of Quechan Casino	Common Carp	<MDL	1.45		5.85	114.18	0.6	<MDL	<MDL	<MDL	DNQ	<MDL	<MDL	<MDL	<MDL	<MDL	1.67	2.53	<MDL	<MDL
	Flathead Catfish	<MDL	DNQ, <MDL	<MDL		1.85	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
	Largemouth Bass	<MDL	<MDL	<MDL	DNQ	2.87, +/- 1.174	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
All American Canal at Mesa 2	Channel Catfish	<MDL		<MDL	2.23	29.9	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL			<MDL	<MDL
	Common Carp	<MDL	1.15	<MDL	7.22	48.75		<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL		<MDL	<MDL	<MDL
	Flathead Catfish	<MDL	<MDL	<MDL	DNQ	3.17	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL

ΣPCBs; ng/g ww

New River		
New River near Calexico Water Treatment Plant	Common Carp	83.43
	Tilapia spp.	<MDL
New River at Fig Drain	Common Carp	2.27
	Tilapia spp.	<MDL
New River Outlet	Common Carp	2.68
	Tilapia spp.	<MDL
Alamo River		
Alamo River at International Boundary	Tilapia spp.	
Wiest Lake_BOG	Channel Catfish	DNQ, <MDL
	Striped Bass	<MDL
Finney Lake	Flathead Catfish	<MDL
Alamo River Above Drop 3	Flathead Catfish	<MDL
	Tilapia spp.	<MDL
Alamo River Outlet	Common Carp	1.66
	Tilapia spp.	<MDL
All American Canal		
All American Canal, Borderline	Channel Catfish	
	Common Carp	9.56
	Flathead Catfish	1.51
	Largemouth Bass	0
American Canal at Bridge South of Quechan Casino	Common Carp	51.38
	Flathead Catfish	<MDL
	Largemouth Bass	<MDL
All American Canal at Mesa 2	Channel Catfish	6.41
	Common Carp	10.96
	Flathead Catfish	<MDL
	Largemouth Bass	

ΣPAHs; ng/g ww

New River		
New River near Calexico Water Treatment Plant	Common Carp	1.19
	Tilapia spp.	<MDL
New River at Fig Drain	Common Carp	<MDL
	Tilapia spp.	<MDL
New River Outlet	Common Carp	<MDL
	Tilapia spp.	<MDL
Alamo River		
Alamo River at International Boundary	Tilapia spp.	<MDL
Wiest Lake_BOG	Channel Catfish	<MDL
	Striped Bass	<MDL
Finney Lake	Flathead Catfish	<MDL
Alamo River Above Drop 3	Flathead Catfish	<MDL
	Tilapia spp.	<MDL
Alamo River Outlet	Common Carp	<MDL
	Tilapia spp.	<MDL
All American Canal		
All American Canal, Borderline	Channel Catfish	
	Common Carp	DNQ, <MDL
	Flathead Catfish	<MDL
	Largemouth Bass	<MDL
American Canal at Bridge South of Quechan Casino	Common Carp	<MDL
	Flathead Catfish	<MDL
	Largemouth Bass	<MDL
All American Canal at Mesa 2	Channel Catfish	<MDL
	Common Carp	<MDL
	Flathead Catfish	<MDL
	Largemouth Bass	<MDL