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Conversion Factors

SI to Inch/Pound

Multiply	By	To obtain
	Length	
millimeter (mm)	0.03937	inch (in.)
micrometer (µm)	0.0000393	inch (in)
	Volume	
liter (L)	33.82	ounce, fluid (fl. oz)
milliliter (mL)	.034	ounce, fluid (fl. oz)
	Mass	
gram (g)	0.03527	ounce, avoirdupois (oz)
milligram (mg)	.000035	ounce (oz)

Temperature in degrees Celsius (°C) may be converted to degrees Fahrenheit (°F) as follows: °F=(1.8×°C)+32

Concentrations of chemical constituents in water are given either in milligrams per liter (mg/L) or micrograms per liter (µg/L).
Concentrations of chemical constituents in solid materials are given in micrograms per gram (µg/g).

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Abstract

This report presents raw data on selenium concentrations in samples of water, sediment, detritus, and selected food-chain matrices collected from selected agricultural drains in the southern portion of the Salton Sea during October 2006 and January 2007. Total selenium and selenium species were determined in water samples, whereas total selenium was determined in sediment, detritus, algae, plankton, midge larvae (Family Chironomidae), and two fish species (western mosquitofish, *Gambusia affinis,* and sailfin molly, *Poecilia latipinna).*

Introduction

Selenium concentrations in water, sediment, detritus, and selected food-chain matrices are being monitored over a 4-year period in 29 agricultural drains that flow into the southern portion of the Salton Sea, California. The monitoring program is funded by the Imperial Irrigation District and conducted by two research centers of the U.S. Geological Survey (USGS). The USGS Western Fisheries Research Center (WFRC) is responsible for collecting field samples, and the USGS Columbia Environmental Research Center (CERC) is responsible for determining selenium concentrations in the samples and making other related measurements. This report tabulates raw data generated by CERC from samples collected in October 2006 and January 2007.

Sampling History

The irrigation drain monitoring samples that are the subject of this report were received in four shipments and were collected by personnel of the USGS-WFRC. Shipments were received by the Environmental Chemistry Branch Inorganic Section (hereafter referred to as "the lab" in this report) of the USGS-CERC shortly after collection to meet the 7-day holding time specified for total suspended solids (TSS) in water and the 14-day holding time for total organic carbon (TOC) in sediments.

The first set of samples was collected October 11–15, 2006, and received by the lab on October 17, 2006. It contained 15 TSS water samples, 22 total selenium water samples, and 10 filtered selenium species water samples. The samples were assigned USGS-CERC batch number 1306 and USGS-CERC sample identification numbers 38073–38119.

The second set of samples was collected October 11–17, 2006, and received by the lab on October 19, 2006. It contained 14 TSS water samples, 24 total selenium water samples, 6 filtered selenium species water samples, 7 particle-size analysis (PSA) and TOC sediment samples, 7 total selenium sediment samples, and 14 total selenium filter media samples. The samples were assigned USGS-CERC batch number 1307 and USGS-CERC sample identification numbers 38120–38191.

The third set of samples was collected October 11–24, 2006, and received by the lab on November 14, 2006. It contained 42 whole-body fish samples, 20 algae samples, 20 midge larvae samples, 21 detritus samples, and 21 plankton samples. The samples were assigned USGS-CERC batch number 1311 and USGS-CERC sample identification numbers 38239–38362.

The fourth set of samples was collected January 4–7, 2007, and received by the lab on January 9, 2007. It contained 30 TSS water samples and 62 total selenium water samples. The samples were assigned USGS-CERC batch number 1330 and USGS-CERC sample identification numbers 38669–38760.

Methods

Field Collection and Preservation

The USGS-WFRC sample collectors used the laboratory at the U. S. Fish and Wildlife Service Sonny Bono Salton Sea National Wildlife Refuge (hereafter referred to as "the Refuge" in this report) for certain aspects of sample processing and for preparing samples for shipment during field trips to irrigation drains. Procedures performed in the field or at the Refuge are described for sampling unfiltered water, filtered water, particulates, sediment, detritus, and biota, which included midge larvae (Family Chironomidae), algae, plankton, and two fish, the western mosquito fish *(Gambusia affinis)* and sailfin molly *(Poecilia latipinna)*.

Unfiltered Water: Each total selenium water sample was poured through a 1-millimeter (mm) polypropylene sieve attached to a 1-liter (L) pre-cleaned borosilicate glass bottle. Upon collection, the water sample was acidified to a pH less than 2 with 6 Normal hydrochloric acid (HCl), chilled at approximately 4 degrees Celsius (~4 ^{o}C), and kept in the dark during transport to the USGS-CERC. Each TSS water sample was poured through a 1-mm polypropylene sieve attached to a pre-cleaned wide-mouth 1-L polypropylene bottle. TSS samples were chilled (~4 ^{o}C) during transport to USGS-CERC.

Filtered Water: Water for selenium speciation was filtered using a Geotech® peristaltic pump which was equipped with a standard pumphead and high capacity 0.45 micrometer (µm) filter capsule certified for trace element background. All tubing was acid-cleaned silicone; a new length was used at each site and for the blank. At each site, 1 L of deionized (DI) water was filtered through the filter capsule followed by site water. The first 200 milliliters (mL) of eluant was discarded, then 1 L of eluant was collected in an acid-cleaned 1-L borosilicate glass bottle, acidified, and stored as described earlier for unfiltered water.

Particulates: A polycarbonate Geotech® 142-mm plate filter apparatus was used with a 142-mm 0.4 µm polycarbonate filter. At each site, 0.5 L of DI water was filtered through the plate filter, followed by up to 1 L of site water; after volume notation, filtered water was discarded. Each filter was placed in a pre-cleaned plastic petri dish (150 mm x 15 mm) with particulate side up and sealed with its corresponding cover for freezer storage and transport to the USGS-CERC. The plate filtration unit was

rinsed with 0.1 percent nitric acid (HNO_3) followed by a DI water rinse after sampling was completed at each site.

Sediment: Within each drain, five sediment sampling points were identified along the drain length. At each sampling point, sediment was collected with a stainless steel dredge. The dredge was cleared of mud and rinsed with site water while used within a drain; at a new site, the dredge was rinsed with DI water followed by site water before the first sample was collected. From each of the five sampling points for a drain, enough sediment to fill a 250-mL container was collected and mixed to form a composite sample. An aliquot of the composite was then placed into a 120- and 500-mL polypropylene container. All containers were placed on ice in the field. Samples were chilled (~4 ^{o}C) during transport to the USGS-CERC.

Midge Larvae and Detritus: An insect sweep net followed by a polypropylene sieve was used to collect midge larvae and detritus, which were then removed from the sieve using plastic tweezers and stored temporarily in a plastic food-storage container on ice. After rinsing with DI water, samples were wrapped in plastic wrap, stored in separate plastic bags, and kept frozen.

Fish: Western mosquitofish and sailfin molly were collected with seine nets and minnow traps; sampled material from each site was stored temporarily in a plastic food-storage container on ice. Upon return to the Refuge lab**,** the whole-body fish were measured for standard length, weighed, and rinsed with DI water. Twenty whole-body fish were wrapped in plastic wrap and placed into a plastic bag. Once processed, collected samples were kept frozen.

Algae and Plankton: If available, algae were collected from floating masses or scraped from sticks and rocks at each drain site and stored temporarily in a sealable plastic food-storage container on ice. Following collection, the material was rinsed with DI water, wrapped with plastic wrap, stored in a sealable plastic bag, and then frozen. Plankton were collected with a tow net; after draining off site water, each sample was rinsed three times with DI water. The plankton and the DI rinsing water were placed in a 120-mL polypropylene container. Collected samples were stored on ice in the field and frozen immediately upon return to the Refuge.

Homogenization and Lyophilization

Frozen fish samples were minced with a small ceramic knife before freeze drying. Particulates, biota, detritus, and sediment samples were lyophilized in a Virtis Genesis® 35EL freeze dryer and percent moisture was determined as part of the lyophilization process; however, percent moisture was not determined for plankton samples because of collected plankton storage in water. After lyophilization, all midge larvae, detritus, plankton, algae, and fish samples were homogenized by grinding with a glass rod against the container surface. Dried sediment was placed into a plastic bag, sealed, and then further reduced by using a rolling pin on the plastic bag, moving from the top to bottom of the bag to produce a coarse powder product. Dried filters containing particulates did not require any additional homogenization after freeze drying.

Chemical Preparation

Total Selenium in Water: Before analysis, all water samples were stored in the dark and at ~4 ^{o}C. For the subsequent determination of total selenium in filtered and unfiltered samples, a 20-mL aliquot of each acidified water sample was subjected to a HNO_3–magnesium nitrate [$Mg(NO_3)_2$] ashing

procedure followed by treatment with HCl. The ashing procedure consisted of three steps: boiling with HNO_3 for solubilization and partial oxidation, ashing at 500 °C with $Mg(NO_3)_2$ to complete the oxidation and decompose remaining organic matter, and heating with HCl to dissolve the ash and reduce selenium to the selenite (Se^{+4}) oxidation state required for detection by hydride generation atomic absorption spectroscopy. Following reduction, digestates were diluted to ~100 mL with DI water, yielding a final acid matrix of 10 percent HCl.

Selenite + Selenate in Water: Ten mL of filtered water and 5 mL of concentrated HCl were placed in a 25-mL borosilicate test tube and heated to 120–125 °C in a well incubator block for 2–3 hours. After cooling, the liquid was transferred into a 60-mL polyethylene bottle and the final volume was adjusted to 50 mL with DI water; final matrix was 10 percent HCl.

Filtered Particulates: A dried filter containing particulates was rolled up, cut into pieces, and the entire filter was put into a 100-mL glass beaker. The filter was then subjected to the ashing procedure as described earlier for total selenium in water. The same procedure was conducted on clean filters, which served as blanks.

Biota, Detritis, and Sediment: A ~0.25-gram (g) aliquant of each dried sample was subjected to a HNO_3–$Mg(NO_3)_2$ ashing procedure followed by HCl reduction for the determination of selenium. The steps in the procedure are the same as those described above for total selenium in water. Digestates were diluted to ~100 mL with DI water, yielding a final acid matrix of 10 percent HCl.

Instrumental Analysis

Total Selenium: Total selenium was determined in all ashed samples by flow injection hydride generation atomic absorption spectroscopy (FIHGAAS). In this procedure, the digestate is mixed with an HCl-carrier solution, and then reduced by sodium tetrahydridoborate, which has been stabilized with sodium hydroxide. Selenium in the sample is converted to volatile hydrogen selenide and transferred with argon carrier gas into a heated quartz cell mounted on an atomic absorption spectrophotometer for decomposition into atomic vapor and measurement.

Selenite in Water: An aliquot of each filtered water sample was analyzed directly by FIHGAAS after acidification to 10 percent HCl.

Selenate and Selenite in Water: Filtered water samples were subjected to heating for 1 hour with HCl to reduce the selenate species to selenite. Samples prepared in this manner were analyzed directly by FIHGAAS to provide selenate + selenite concentrations. The selenate concentration was calculated by difference using the formula:

$$\text{(selenate + selenite)} - \text{selenite} = \text{selenate} \quad (1)$$

Particulate Selenium in Water: Selenium associated with filtered particulates was determined by analyzing ashed filters by FIHGAAS. The mass of selenium in micrograms for the particulates was divided by the volume of water filtered for each drain site (0.5 or 1.0 L) to produce a microgram per liter concentration.

Dissolved Organic Selenium in Water: Dissolved organic selenium was estimated using the following formula:

$$\text{Total dissolved selenium (Se)} - \text{(selenate + selenite)} = \text{dissolved organic selenium} \quad (2)$$

Total Suspended Solids: Upon arrival at the USGS-CERC, all TSS samples were transferred to the Ecology Branch for TSS analysis. Total suspended solids were analyzed based on methods recommended by the American Public Health Association (1998). Samples were brought to room temperature and mixed with a magnetic stirrer and subsequent manual inversions of the sample container. The sample was measured into a graduated cylinder, poured into a filtration apparatus, and filtered through a ProWeigh® glass fiber filter. The samples were pre-washed three times in DI water, dried at 105 °C, and weighed to 0.1 milligram (mg). Sample volume varied to yield a dried residue between 2.5 and 200 mg. For each volume of sample used, an equal volume of DI water also was filtered for a blank determination. After filtering, large or non-homogeneous materials were removed from the filter, and the filter was rinsed with three 10-mL aliquots of DI water. Filters were then dried for at least 1 hour in a 103–105 °C oven and cooled to room temperature in a dessicator; filter and residue were weighed to at least 0.0001 g on a balance. Drying, cooling, and weighing of the filter were repeated until the weight difference was less than (<) 4 percent or 0.5 mg, whichever was less. The average of these weights was used to determine the constant weight of the filter and residue, which was then corrected for any weight gain or loss of the blank. After subtracting the filter weight, this blank corrected dried residue in milligrams was divided by the sample volume in liters to yield TSS in milligrams per liter.

Particle-size Analysis: Sediment samples designated for PSA were transferred to the USGS-CERC Ecology Branch upon arrival. The method entails PSA with the Bouyoucos hydrometer, adapted from American Society of Testing and Materials (2003a). Wet sediment was sieved through a 2-mm sieve to remove any particles larger than coarse sand, and then dried at 60 ^{o}C using a convectional drying oven. Approximately 100 g of dried sediment was mixed with 250 mL of DI water and 100 mL of a 50 mg/L sodium hexametaphosphate solution. A stir bar was added and the mixture was stirred with a magnetic stirring plate. After calibrating the hydrometer, the suspended sediment mixture was transferred to a sedimentation cylinder and the volume adjusted to 1000 mL with DI water. After allowing for thermal equilibration, the temperature was recorded. Cylinder contents were then thoroughly mixed followed by insertion of the hydrometer into the suspension. The meniscus reading was taken after 30 seconds. The hydrometer was removed and dried. After 120 minutes, the hydrometer was reinserted and the meniscus read again. All hydrometer meniscus readings were corrected by adjusting +0.25 for each degree above 18 ^{o}C and -0.25 for each degree below 18 ^{o}C. Percent fractions were determined as follows:

grams sand = sediment dry weight – (corrected 30 second reading – corrected calibration) (3)

percent sand = grams sand/sediment dry weight x 100 (4)

grams clay = sediment dry weight – (corrected 120 minute reading – corrected calibration) (5)

percent clay = grams clay/sediment dry weight x 100 (6)

percent silt = 100 – (percent sand + percent clay) (7)

Total Organic Carbon: The TOC method was adapted from American Society of Testing and Materials (2003b). Sediment samples designated for TOC analysis were transferred to the USGS-CERC Ecology Branch upon arrival. Approximately 50 g of wet sediment was heated to a constant weight at 105 ^{o}C in a convectional drying oven. After recording the dry sediment weight, the sample was ashed in a muffle furnace overnight at 440 ^{o}C. The ashed sample was weighed, wet with a small amount of DI water, dried overnight again at 105 ^{o}C, and then weighed. This allowed an estimate of grams of ashed sediment minus water of hydration. The organic matter (OM) content was calculated as the difference between the dried sediment weight and this adjusted ashed weight. The percent OM was calculated as:

$$\text{grams OM} \div \text{grams dry sediment} \times 100 \quad (8)$$

The percent TOC was calculated as percent OM x 0.58, following recommendations of Schumacher (2002). The percent TOC of organic matter varies between 40 and 58 percent depending on soil composition.

Quality Assurance

Samples were processed through the preparative and analytical flow scheme in 14 analytical blocks for selenium, 2 blocks for TSS, and 1 block each for PSA and TOC. Each block was assigned a block initiation date (BID) used to identify the samples and quality-control samples prepared and analyzed collectively as a unit. For samples analyzed by atomic absorption for total selenium, pre-digestion quality control included digestion blanks, replicates, spikes, and reference solutions. Analytical quality control for selenium included calibration verification solutions, replicate analyses, and analysis spikes. Quality control for the TSS determination included a reference solution, duplicates, and replicates. Quality control for sediment PSA included duplicates and replicates, and sediment TOC included replicates and spikes.

Results

Total Selenium: Total selenium concentrations in unfiltered water samples (µg/L) for the October 2006 samples are listed in table 1; data for the January 2007 samples are listed in table 2.

Total Dissolved Selenium and Selenium Species: Dissolved selenite, dissolved selenate, dissolved organic selenium, total dissolved selenium, and particulate selenium concentrations (µg/L) from filtered water samples collected during the October 2006 sampling are presented in table 3. The dissolved organic selenium fraction is assumed to include Se(-II+0), consisting of seleno-amino acids and dissolved peptides, Se(0) as a pseudo-dissolved microcolloid, and inorganic Se(-II) species (Cutter, 1984).

Total Suspended Solids: Total suspended solids concentrations in unfiltered water (mg/L) collected during the October 2006 and January 2007 samplings are presented in table 4.

Biota: Percent moisture and concentrations of selenium (µg/g dry weight) in biota (algae, plankton, midge larvae, western mosquitofish and sailfin molly) are presented in table 5.

Detritus and Sediment: Percent moisture and selenium concentrations (µg/g dry weight) in detritus and sediment are presented in table 6. The particle size analyses of sediments, expressed as percent sand, silt, and clay, are presented in table 7. The percent total organic carbon in sediments is given in table 8.

Quality Control Results

Calibration Verification: During the selenium determinations, a calibration verification solution (Spex Claritas PPT®; cat #CLSe2-2Y) was analyzed at the beginning and end of each analytical run. Calibration was considered acceptable if the check solution was within plus or minus 10 percent of the actual concentration (4 µg/L), which was achieved during all analyses.

Reference Materials: Recoveries of selenium from QC Plus $^{+}$ Trace Metals Quality Control Standard [n=7 (7 samples)] and National Institute of Standards and Technology (NIST) Standard Reference Material (SRM) 1640 Trace Elements in Natural Water (n=6) ranged from 101 to 114 percent. Recoveries of selenium from NIST SRM 2704 Buffalo River Sediment (n=1) and National Research Council Canada (NRCC) SRM PACS-1 Marine Sediment (n=1) were 103 and 100 percent. The International Atomic Energy Agency (IAEA) Copepod Reference Material MA-A-1 (n= 4) and the Institute for Reference Materials and Measurements Certified Reference Material (CRM) 414 Trace Elements in Plankton (n=6) exhibited selenium recoveries ranging from 100 to 101 percent. Recoveries of selenium in NRCC CRM DORM-2 Dogfish Muscle (n=2) and IAEA CRM 407 Whole-body Fish (n=2) ranged from 100 to 111 percent. Recoveries of TSS from a TSS reference solution (Environmental Resource Associates Hardness Wastewater Standard 507) (n=2) were 100 percent.

Analytical and Method Precision: Instrumental precision for selenium determined by repeated analysis of a standard throughout the run for each block (n=14) was less than 4 percent relative standard deviation (RSD). Relative percent differences between field duplicates (n=76) of unfiltered and filtered water samples analyzed for selenium or selenium species ranged from 0.1 to 26. A single field duplicate of a midge larvae sample produced a relative percent difference (RPD) of 0.1 and duplicates of filtered particulates ranged from 8.3 to 114 RPD. Relative percent differences for field duplicates of sediment for PSA were <9 RPD for the three fractions. Relative standard deviations for triplicate field samples of detritus (n=7), algae (n=6), midge larvae (n=6), and whole-body fish (n=6) analyzed for selenium were as follows: algae, 0.8 to 6.2 percent; detritus, 2.8 to 33 percent; midge larvae, 6.4 to 18 percent; whole-body fish, 2.1 to 19 percent; and plankton, 3.5 to 43 percent. Laboratory method precision for triplicate (n=16) preparation and analysis of samples for selenium were less than or equal (≤) 5 percent RSD. Laboratory method precision for TSS determined by duplicate analysis of water samples (n=5) resulted in RPDs <8, whereas triplicate analysis for TSS (n=4) resulted in RSDs <9 percent. Triplicate analyses of a sediment and sediment control material for PSA resulted in RSDs ≤12 percent for the fractions. Triplicate analysis of a sediment sample, control sediment, spiked control sediment, and a control material for TOC resulted in RSDs <8 percent.

Spikes: Recoveries of selenium [Se^{+4}, selenate (Se^{+6}), or selenomethionine] spiked into filter blanks (n=2) and water samples (n=21) ranged from 99 to 114 percent, and averaged 109 percent. Recoveries of selenium spiked into sediment (n=2), detritus (n=2), and biota (n=10) ranged from 91 to 132 percent, and averaged 109 percent. Spikes (n=3) of sucrose on a control sediment analyzed for TOC resulted in recoveries of 107 and 108 percent. Recoveries of selenium spikes added to water during analysis (n=18) ranged from 105 to 116 percent, and averaged 110 percent; analysis spikes of sediment (n=2), filtered particulates (n=2), detritus (n=2), and biota (n=13) ranged from 102 to 113 percent, and averaged 108 percent.

Blank Equivalent Concentrations: Blank equivalent concentrations (BECs) were computed for selenium for each matrix and for TSS blanks analyzed with each set of drain water samples. All BECs were below their respective method detection limits. TSS sample data were corrected for procedural blanks, whereas total selenium sample data were not blank corrected.

Instrument Detection, Method Detection, and Method Quantitation Limits: FIHGAAS instrument detection limits for selenium were 0.054 and 0.056 µg/L and 0.08 mg/L for TSS. Method detection limits (MDL) for each matrix for selenium were computed as:

$$3 \times (SD_b^2 + SD_s^2)^{1/2} \quad (9)$$

where

SD_b = standard deviation of a blank (n=3); and

SD_s = standard deviation of a low level sample or spiked sample (n=3).

The results were water, 0.11 to 0.39 µg/L; filtered particulates, 0.007 µg/L; sediment, 0.024 µg/g dry weight; algae and midge larvae, 0.015 to 0.019 µg/g dry weight; plankton, 0.010 µg/g dry weight; detritus, 0.011 µg/g dry weight; and whole-body fish, 0.014 µg/g dry weight. Method quantitation limits (MQLs) for each matrix were calculated as 3.3 x MDLs. Method detection limits for TSS were 0.73 and 1.54 mg/L and MQLs were 2.42 and 5.07 mg/L. All quality control results for the study were within acceptable limits as specified by USGS-CERC.

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Table 1. Total selenium concentrations in duplicates of unfiltered irrigation drain water samples, Salton Sea, California, October 2006.

[USGS, U.S. Geological Survey; ID, identification; Rep, field replicate; µg/L, microgram per liter; SD, standard deviation; ---, no data; <, less than; nc, not collected]

USGS ID number	Field ID	Drain	Collection date	Total selenium concentration			SD
				Rep 1 (µg/L)	Rep 2 (µg/L)	Mean (µg/L)	
38156	BLANK-1	---	10/19/06	< 0.22	---	---	---
38157	BLANK-2	---	10/19/06	< 0.22	---	---	---
38102, 38103	LKLNWATSE	Lack & Lindsey Pond	10/13/06	2.23	2.12	2.18	0.08
38134, 38135	NLD1WATSE	Niland 1	10/16/06	1.71	1.82	1.76	0.07
38136, 38137	NLD2WATSE	Niland 2	10/16/06	2.85	2.86	2.86	0.01
38138, 38139	NLD3WATSE	Niland 3	10/16/06	2.24	2.32	2.28	0.06
38140, 38141	NLD4WATSE	Niland 4	10/16/06	3.13	3.11	3.12	0.01
nc[1]	OOOOWATSE	O	---	---	---	---	---
38142, 38143	PPPPWATSE	P	10/17/06	2.49	2.51	2.50	0.02
nc[1]	POEDWATSE	Poe Rd	---	---	---	---	---
38108, 38109	PUMCWATSE	Pumice	10/13/06	6.54	6.71	6.62	0.12
38144, 38145	QQQQWATSE	Q	10/17/06	7.93	7.91	7.92	0.02
38146, 38147	RRRRWATSE	R	10/17/06	2.35	1.94	2.14	0.29
38148, 38149	SSSSWATSE	S	10/17/06	1.13	1.11	1.12	0.02
38114, 38115	SFWHWATSE	San Felipe Wash	10/12/06	2.94	2.65	2.80	0.21
nc[1]	TTTTWATSE	T	---	---	---	---	---
38096, 38097	TR01WATSE	Trifolium 1	10/13/06	9.08	8.92	9.00	0.11
38100, 38101	TR12WATSE	Trifolium 12	10/13/06	8.77	9.27	9.02	0.35
38088, 38089	TR13WATSE	Trifolium 13	10/13/06	4.05	4.06	4.06	0.00
nc[1]	TR14WATSE	Trifolium 14	---	---	---	---	---
nc[1]	TR18WATSE	Trifolium 18	---	---	---	---	---
38104, 38105	TR19WATSE	Trifolium 19	10/13/06	1.48	1.49	1.49	0.01
38110, 38111	FT20WATSE	Former Trifolium 20	10/12/06	5.00	5.14	5.07	0.10
nc[1]	TR20WATSE	Trifolium 20	---	---	---	---	---
38112, 38113	TR22WATSE	Trifolium 22	10/12/06	11.4	11.6	11.5	0.16
38116, 38117	TR23WATSE	Trifolium 23	10/12/06	6.59	6.49	6.54	0.07
38098, 38099	TRSTWATSE	Trifolium Storm	10/13/06	3.62	3.81	3.72	0.13
38150, 38151	UUUUWATSE	U	10/17/06	2.16	2.16	2.16	0.00
38154, 38155	VLO5WATSE	Vail 5	10/17/06	6.31	5.43	5.87	0.62
38152, 38153	WWWWWATSE	W	10/17/06	2.79	2.31	2.55	0.34
nc[1]	ZSPLWATSE	Z Spill	---	---	---	---	---

[1]Drain was one of seven selected for intensive sampling (see table 3).

Table 2. Total selenium concentrations in duplicates of unfiltered irrigation drain water samples, Salton Sea, California, January 2007.

[USGS, U.S. Geological Survey; ID, identification; Rep, field replicate; µg/L, micrograms per gram; SD, standard deviation; <, less than; ---, no data; ***bold italicized*** values are greater than method detection limit, but less than method quantitation limit; these values have high uncertainty and are presented for information purposes only]

USGS ID number	Field ID	Drain	Collection date	Total selenium concentration			SD
				Rep 1 (µg/L)	Rep 2 (µg/L)	Mean (µg/L)	
38759, 38760	BLNKWATSE07	Blank	01/09/07	< 0.11	< 0.11	---	---
38757	BLNDWATSE07	Unknown Blind	01/05/07	5.96	---	---	---
38758	BLNDWATSE07	Unknown Blind	01/05/07	9.18	---	---	---
38755, 38756	LKLNWATSE	Lack & Lindsey Pond	01/07/07	4.04	3.69	3.87	0.24
38699, 38700	NLD1WATSE	Niland 1	01/06/07	1.41	1.47	1.44	0.04
38701, 38702	NLD2WATSE	Niland 2	01/06/07	2.58	2.53	2.56	0.04
38703, 38704	NLD3WATSE	Niland 3	01/06/07	1.66	1.97	1.82	0.22
38705, 38706	NLD4WATSE	Niland 4	01/06/07	2.07	1.95	2.01	0.08
38723, 38724	OOOOWATSE	O	01/06/07	6.12	6.44	6.28	0.22
38721, 38722	PPPPWATSE	P	01/06/07	4.34	5.62	4.98	0.91
38739, 38740	POEDWATSE	Poe Rd	01/05/07	9.73	9.20	9.46	0.38
38725, 38726	PUMCWATSE	Pumice	01/06/07	6.98	7.31	7.14	0.24
38719, 38720	QQQQWATSE	Q	01/07/07	11.3	11.6	11.4	0.22
38717, 38718	RRRRWATSE	R	01/07/07	2.31	2.90	2.60	0.42
38715, 38716	SSSSWATSE	S	01/07/07	1.35	1.35	1.35	0.00
38733, 38734	SFWHWATSE	San Felipe Wash	01/04/07	2.63	2.64	2.64	0.00
38713, 38714	TTTTWATSE	T	01/07/07	***1.18***	***0.97***	1.07	0.15
38749, 38750	TR01WATSE	Trifolium 1	01/05/07	4.33	4.38	4.36	0.03
38753, 38754	TR12WATSE	Trifolium 12	01/07/07	7.43	7.29	7.36	0.10
38745, 38746	TR13WATSE	Trifolium 13	01/05/07	5.29	5.35	5.32	0.05
38747, 38748	TR14WATSE	Trifolium 14	01/05/07	2.91	3.01	2.96	0.06
38737, 38738	TR18WATSE	Trifolium 18	01/05/07	42.7	43.3	43.0	0.43
38741, 38742	TR19WATSE	Trifolium 19	01/04/07	1.96	1.72	1.84	0.17
38729, 38730	FT20WATSE	Former Trifolium 20	01/04/07	5.41	4.68	5.05	0.52
38743, 38744	TR20WATSE	Trifolium 20	01/04/07	5.33	5.53	5.43	0.14
38731, 38732	TR22WATSE	Trifolium 22	01/04/07	4.32	4.29	4.30	0.02
38735, 38736	TR23WATSE	Trifolium 23	01/04/07	3.98	4.29	4.13	0.22
38751, 38752	TRSTWATSE	Trifolium Storm	01/05/07	18.0	18.7	18.3	0.51
38711, 38712	UUUUWATSE	U	01/07/07	***1.12***	1.24	1.18	0.09
38727, 38728	VLO5WATSE	Vail 5	01/06/07	5.84	5.93	5.89	0.07
38709, 38710	WWWWWATSE	W	01/07/07	2.33	2.46	2.40	0.09
38707, 38708	ZSPLWATSE	Z Spill	01/06/07	3.50	3.73	3.61	0.17

Table 3. Total dissolved selenium, dissolved selenium species, and particulate selenium concentrations in filtered irrigation drain water samples, Salton Sea, October 2006.

[USGS, U.S. Geological Survey; ID, identification; Rep, replicate; $[Se0_3]^{-2}$, selenite; $[Se0_4]^{-2}$, selenate; Se, selenium; µg/L, micrograms per liter; ---, no data; <, less than; ***bold italicized*** values are greater than method quantification limit, but less than method detection limit; these values have high uncertainty and are presented for information purposes only]

USGS ID number	Field ID	Drain	Rep number	Collection date	Dissolved $[Se0_3]^{-2}$ (µg/L)	[1]Calculated dissolved $[Se0_4]^{-2}$ (µg/L)	[2]Calculated dissolved organic Se (µg/L)	Measured total dissolved Se (µg/L)	[3]Measured particulate Se (µg/L)	[4]Calculated total Se (µg/L)
38118	BLANK-1	---	1	10/15/06	< 0.17	< 0.32	---	< 0.39	< 0.007	---
38119	BLANK-2	---	2	10/15/06	< 0.17	< 0.32	---	< 0.39	< 0.007	---
38160	OOOOWATSE	O	1	10/17/06	1.01	2.40	0.36	3.76	0.34	4.10
38161	OOOOWATSE	O	2	10/17/06	0.78	2.26	0.51	3.55	0.25	3.81
38094	POEDWATSE	Poe Rd	1	10/11/06	1.77	17.8	1.98	21.5	0.046	21.6
38095	POEDWATSE	Poe Rd	2	10/11/06	2.01	17.7	1.50	21.3	0.043	21.3
38162	TTTTWATSE	T	1	10/17/06	< 0.17	***0.44***	0.42	0.91	***0.014***	0.93
38163	TTTTWATSE	T	2	10/17/06	< 0.17	< 0.32	0.72	0.89	***0.019***	0.91
38090	TR14WATSE	Trifolium 14	1	10/13/06	***0.48***	5.49	0.10	6.07	0.055	6.12
38091	TR14WATSE	Trifolium 14	2	10/13/06	***0.50***	5.25	0.50	6.25	0.076	6.32
38092	TR18WATSE	Trifolium 18	1	10/12/06	1.34	16.3	0.99	18.6	0.12	18.7
38093	TR18WATSE	Trifolium 18	2	10/12/06	1.49	16.0	2.17	19.7	0.45	20.1
38106	TR20WATSE	Trifolium 20	1	10/13/06	0.67	4.09	0.28	5.03	0.062	5.10
38107	TR20WATSE	Trifolium 20	2	10/13/06	0.58	3.92	0.51	5.01	0.088	5.09
38158	ZSPLWATSE	Z Spill	1	10/16/06	0.70	3.48	0.68	4.86	0.051	4.91
38159	ZSPLWATSE	Z Spill	2	10/16/06	0.74	3.45	0.57	4.76	0.056	4.81

[1]Calculated dissolved $[Se0_4]^{-2}$ = measured ($[Se0_4]^{-2}$ + $[Se0_3]^{-2}$) - measured $[Se0_3]^{-2}$

[2]Calculated dissolved Organic Se = measured total dissolved Se - measured ($[Se0_4]^{-2}$ + $[Se0_3]^{-2}$)

[3]Measured particulate Se = µg of Se in filtered particulates divided by volume of site water filtered

[4]Calculated total Se = measured particulate Se + measured total dissolved Se

Table 4. Total suspended solids concentrations in unfiltered Salton Sea irrigation drain water samples, October 2006 and January 2007.

[ID, identification; USGS, U.S. Geological Survey; TSS, total suspended solids; mg/L, milligram per liter]

Field ID	Drain	October, 2006		January, 2007	
		USGS ID number	TSS (mg/L)	USGS ID number	TSS (mg/L)
LKLNWATSS	Lack & Lindsey Pond	38086	47.9	38697	23.6
NLD1WATSS	Niland 1	38120	62.9	38669	73.0
NLD2WATSS	Niland 2	38121	128.	38670	88.0
NLD3WATSS	Niland 3	38122	98.3	38671	51.5
NLD4WATSS	Niland 4	38123	30.7	38672	37.2
OOOOWATSS	O	38132	933.	38681	40.0
PPPPWATSS	P	38131	93.7	38680	41.8
POEDWATSS	Poe Rd	38078	10.8	38689	5.89
PUMCWATSS	Pumice	38087	156.	38682	167.
QQQQWATSS	Q	38130	52.5	38679	52.8
RRRRWATSS	R	38129	169.	38678	148.
SSSSWATSS	S	38128	96.7	38677	57.5
SFWHWATSS	San Felipe Wash	38075	68.6	38686	14.9
TTTTWATSS	T	38127	40.4	38676	35.3
TR01WATSS	Trifolium 1	38083	107.	38694	27.3
TR12WATSS	Trifolium 12	38085	162.	38696	44.6
TR13WATSS	Trifolium 13	38081	46.8	38692	101.
TR14WATSS	Trifolium 14	38082	57.8	38693	105.
TR18WATSS	Trifolium 18	38077	22.2	38688	14.2
TR19WATSS	Trifolium 19	38079	6.45	38690	27.3
FT20WATSS	Former Trifolium 20	38073	16.0	38684	9.04
TR20WATSS	Trifolium 20	38080	48.1	38691	28.0
TR22WATSS	Trifolium 22	38074	27.9	38685	21.5
TR23WATSS	Trifolium 23	38076	23.8	38687	14.6
TRSTWATSS	Trifolium Storm	38084	82.5	38695	12.5
UUUUWATSS	U	38126	70.3	38675	64.9
VLO5WATSS	Vail 5	38133	161.	38683	338.
WWWWWATSS	W	38125	169.	38674	95.8
ZSPLWATSS	Z Spill	38124	69.5	38673	61.6
BLNDWATSS07	---	---	---	38698	162.

Table 5. Selenium concentrations in biota samples collected from Salton Sea irrigation drains, October 2006.

[USGS, U.S. Geological Survey; ID, identification; µg/g, microgram per gram; ---, no data]

USGS ID Number	Field ID	Collection date	Matrix	Drain	Moisture (percent)	Selenium (µg/g dry weight)
38290	OOOOALGTSE06A	10/18, 10/20, 10/23/06	algae	O	51.0	2.40
38291	OOOOALGTSE06B	10/18, 10/20, 10/23/06	algae	O	50.3	2.30
38292	OOOOALGTSE06C	10/18, 10/20, 10/23/06	algae	O	51.9	2.39
38287	POEDALGTSE06A	10/12/06	algae	Poe	53.3	2.95
38288	POEDALGTSE06B	10/12/06	algae	Poe	54.3	2.99
38289	POEDALGTSE06C	10/12/06	algae	Poe	52.8	2.95
38281	TTTTALGTSE06A	10/19/06	algae	T	62.5	2.15
38282	TTTTALGTSE06B	10/19/06	algae	T	61.8	2.14
38283	TTTTALGTSE06C	10/19/06	algae	T	62.9	2.39
38293	TR14ALGTSE06A	10/14/06	algae	Trifolium 14	58.7	2.41
38294	TR14ALGTSE06B	10/14/06	algae	Trifolium 14	59.0	2.46
38295	TR14ALGTSE06C	10/14/06	algae	Trifolium 14	59.4	2.31
38298	TR18ALGTSE06A	10/13, 10/16/06	algae	Trifolium 18	62.6	7.06
38299	TR18ALGTSE06B	10/13, 10/16/06	algae	Trifolium 18	63.8	7.50
38300	TR18ALGTSE06C	10/13, 10/16/06	algae	Trifolium 18	59.8	7.10
38284	TR20ALGTSE06A	10/11, 10/15/06	algae	Trifolium 20	45.7	3.00
38285	TR20ALGTSE06B	10/11, 10/15/06	algae	Trifolium 20	46.4	3.13
38286	TR20ALGTSE06C	10/11, 10/15/06	algae	Trifolium 20	47.1	3.17
38296	ZSPLALGTSE06A	10/22, 10/24/06	algae	Z Spill	63.6	1.57
38297	ZSPLALGTSE06B	10/22, 10/24/06	algae	Z Spill	60.1	1.72
38351	OOOONPTSE06A	10/20/06	plankton	O	---	1.99
38352	OOOONPTSE06B	10/20/06	plankton	O	---	3.51
38353	OOOONPTSE06C	10/20/06	plankton	O	---	1.99
38348	POEDNPTSE06A	10/12/06	plankton	Poe	---	4.51
38349	POEDNPTSE06B	10/12/06	plankton	Poe	---	2.94
38350	POEDNPTSE06C	10/12/06	plankton	Poe	---	3.21
38342	TTTTNPTSE06A	10/19/06	plankton	T	---	3.70
38343	TTTTNPTSE06B	10/19/06	plankton	T	---	2.92
38344	TTTTNPTSE06C	10/19/06	plankton	T	---	3.51
38354	TR14NPTSE06A	10/14/06	plankton	Trifolium 14	---	2.89
38355	TR14NPTSE06B	10/14/06	plankton	Trifolium 14	---	3.01
38356	TR14NPTSE06C	10/14/06	plankton	Trifolium 14	---	2.81
38360	TR18NPTSE06A	10/13/06	plankton	Trifolium 18	---	3.60
38361	TR18NPTSE06B	10/13/06	plankton	Trifolium 18	---	8.08
38362	TR18NPTSE06C	10/13/06	plankton	Trifolium 18	---	4.61
38345	TR20NPTSE06A	10/15/06	plankton	Trifolium 20	---	3.52
38346	TR20NPTSE06B	10/15/06	plankton	Trifolium 20	---	3.43
38347	TR20NPTSE06C	10/15/06	plankton	Trifolium 20	---	2.90
38357	ZSPLNPTSE06A	10/22/06	plankton	Z Spill	---	1.97
38358	ZSPLNPTSE06B	10/22/06	plankton	Z Spill	---	2.22
38359	ZSPLNPTSE06C	10/22/06	plankton	Z Spill	---	2.45
38310	OOOOCHITSE06A	10/18, 10/20, 10/23/06	midge	O	61.8	3.93
38311	OOOOCHITSE06B	10/18, 10/20, 10/23/06	midge	O	60.1	3.64
38307	POEDCHITSE06A	10/12, 10/21/06	midge	Poe	54.5	6.42
38308	POEDCHITSE06B	10/12, 10/21/06	midge	Poe	52.8	5.40
38309	POEDCHITSE06C	10/12, 10/21/06	midge	Poe	52.8	5.21
38301	TTTTCHITSE06A	10/19/06	midge	T	77.6	6.37
38302	TTTTCHITSE06B	10/19/06	midge	T	77.4	5.79
38303	TTTTCHITSE06C	10/19/06	midge	T	75.9	5.65

Table 5. Selenium concentrations in biota samples collected from Salton Sea irrigation drains, October 2006. —Continued

[USGS, U.S. Geological Survey; ID, identification; µg/g, microgram per gram] — Continued

USGS ID Number	Field ID	Collection date	Matrix	Drain	Moisture (percent)	Selenium (µg/g dry weight)
38312	TR14CHITSE06A	10/14/06	midge	Trifolium 14	78.9	5.35
38313	TR14CHITSE06B	10/14/06	midge	Trifolium 14	73.0	4.64
38314	TR14CHITSE06C	10/14/06	midge	Trifolium 14	76.8	4.46
38318	TR18CHITSE06A	10/13, 10/16/06	midge	Trifolium 18	78.6	24.0
38319	TR18CHITSE06B	10/13, 10/16/06	midge	Trifolium 18	77.7	22.5
38320	TR18CHITSE06C	10/13, 10/16/06	midge	Trifolium 18	73.0	20.8
38304	TR20CHITSE06A	10/11, 10/15/06	midge	Trifolium 20	73.7	9.42
38305	TR20CHITSE06B	10/11, 10/15/06	midge	Trifolium 20	73.5	8.78
38306	TR20CHITSE06C	10/11, 10/15/06	midge	Trifolium 20	70.8	6.60
38315	ZSPLCHITSE06A	10/17, 10/22, 10/24/06	midge	Z Spill	67.2	3.68
38316	ZSPLCHITSE06B	10/17, 10/22, 10/24/06	midge	Z Spill	67.4	2.95
38317	ZSPLCHITSE06C	10/17, 10/22, 10/24/06	midge	Z Spill	69.6	4.29
38257	OOOOGMBTSE06A	10/18/06	mosquitofish	O	77.4	7.54
38258	OOOOGMBTSE06B	10/18/06	mosquitofish	O	77.6	7.09
38259	OOOOGMBTSE06C	10/18/06	mosquitofish	O	77.8	6.95
38260	OOOOSLMTSE06A	10/18/06	sailfin molly	O	76.0	5.01
38261	OOOOSLMTSE06B	10/18/06	sailfin molly	O	76.5	5.16
38262	OOOOSLMTSE06C	10/20/06	sailfin molly	O	76.8	4.84
38251	POEDGMBTSE06A	10/12/06	mosquitofish	Poe	77.7	10.5
38252	POEDGMBTSE06B	10/12/06	mosquitofish	Poe	79.1	10.3
38253	POEDGMBTSE06C	10/12/06	mosquitofish	Poe	79.0	9.16
38254	POEDSLMTSE06A	10/12/06	sailfin molly	Poe	78.7	19.1
38255	POEDSLMTSE06B	10/12/06	sailfin molly	Poe	78.3	18.1
38256	POEDSLMTSE06C	10/12/06	sailfin molly	Poe	78.7	21.6
38239	TTTTGMBTSE06A	10/19/06	mosquitofish	T	78.1	6.54
38240	TTTTGMBTSE06B	10/19/06	mosquitofish	T	77.4	6.56
38241	TTTTGMBTSE06C	10/19/06	mosquitofish	T	76.7	7.22
38242	TTTTSLMTSE06A	10/19/06	sailfin molly	T	76.5	6.21
38243	TTTTSLMTSE06B	10/19/06	sailfin molly	T	78.2	5.62
38244	TTTTSLMTSE06C	10/19/06	sailfin molly	T	77.9	4.64
38263	TR14GMBTSE06A	10/14/06	mosquitofish	Trifolium 14	79.8	5.81
38264	TR14GMBTSE06B	10/14/06	mosquitofish	Trifolium 14	80.0	5.24
38265	TR14GMBTSE06C	10/14/06	mosquitofish	Trifolium 14	81.2	4.49
38266	TR14SLMTSE06A	10/14/06	sailfin molly	Trifolium 14	78.1	4.51
38267	TR14SLMTSE06B	10/14/06	sailfin molly	Trifolium 14	77.8	4.65
38268	TR14SLMTSE06C	10/14/06	sailfin molly	Trifolium 14	78.7	4.70
38275	TR18GMBTSE06A	10/13/06	mosquitofish	Trifolium 18	78.6	14.3
38276	TR18GMBTSE06B	10/13/06	mosquitofish	Trifolium 18	78.5	13.8
38277	TR18GMBTSE06C	10/13/06	mosquitofish	Trifolium 18	78.1	14.5
38278	TR18SLMTSE06A	10/13/06	sailfin molly	Trifolium 18	79.9	21.2
38279	TR18SLMTSE06B	10/13/06	sailfin molly	Trifolium 18	81.5	28.7
38280	TR18SLMTSE06C	10/13/06	sailfin molly	Trifolium 18	79.3	20.7
38245	TR20GMBTSE06A	10/11/06	mosquitofish	Trifolium 20	78.1	4.69
38246	TR20GMBTSE06B	10/11/06	mosquitofish	Trifolium 20	79.4	5.03
38247	TR20GMBTSE06C	10/11/06	mosquitofish	Trifolium 20	78.8	4.74
38248	TR20SLMTSE06A	10/11/06	sailfin molly	Trifolium 20	79.1	16.0
38249	TR20SLMTSE06B	10/11/06	sailfin molly	Trifolium 20	79.8	15.5
38250	TR20SLMTSE06C	10/11, 10/15/06	sailfin molly	Trifolium 20	79.9	14.6

Table 5. Selenium concentrations in biota samples collected from Salton Sea irrigation drains, October 2006.—Continued

[USGS, U.S. Geological Survey; ID, identification; µg/g, microgram per gram] —Continued

USGS ID Number	Field ID	Collection date	Matrix	Drain	Moisture (percent)	Selenium (µg/g dry weight)
38269	ZSPLGMBTSE06A	10/17/06	mosquitofish	Z Spill	78.7	6.43
38270	ZSPLGMBTSE06B	10/17, 10/22/06	mosquitofish	Z Spill	78.3	6.23
38271	ZSPLGMBTSE06C	10/22/06	mosquitofish	Z Spill	79.9	7.48
38272	ZSPLSLMTSE06A	10/17, 10/22/06	sailfin molly	Z Spill	77.4	4.27
38273	ZSPLSLMTSE06B	10/22/06	sailfin molly	Z Spill	75.0	4.72
38274	ZSPLSLMTSE06C	10/22/06	sailfin molly	Z Spill	77.3	5.01

Table 6. Selenium concentrations in detritus and sediment samples collected from Salton Sea irrigation drains, October 2006.

[USGS, U.S. Geological Survey; ID, identification; µg/g, micrograms per gram]

USGS ID Number	Field ID	Collection date	Matrix	Drain	Moisture (percent)	Selenium (µg/g dry weight)
38330	OOOODETTSE06A	10/18/06	detritus	O	70.0	6.65
38331	OOOODETTSE06B	10/18/06	detritus	O	70.7	7.40
38332	OOOODETTSE06C	10/18/06	detritus	O	72.5	9.91
38327	POEDDETTSE06A	10/21/06	detritus	Poe	75.9	9.77
38328	POEDDETTSE06B	10/21/06	detritus	Poe	80.1	10.1
38329	POEDDETTSE06C	10/21/06	detritus	Poe	80.5	10.3
38321	TTTTDETTSE06A	10/19/06	detritus	T	75.6	2.07
38322	TTTTDETTSE06B	10/19/06	detritus	T	80.9	1.89
38323	TTTTDETTSE06C	10/19/06	detritus	T	79.6	1.74
38333	TR14DETTSE06A	10/14/06	detritus	Trifolium 14	73.7	3.88
38334	TR14DETTSE06B	10/14/06	detritus	Trifolium 14	73.0	2.63
38335	TR14DETTSE06C	10/14/06	detritus	Trifolium 14	71.9	5.24
38339	TR18DETTSE06A	10/13, 10/16/06	detritus	Trifolium 18	80.6	14.9
38340	TR18DETTSE06B	10/13, 10/16/06	detritus	Trifolium 18	77.3	17.0
38341	TR18DETTSE06C	10/13, 10/16/06	detritus	Trifolium 18	79.0	15.2
38324	TR20DETTSE06A	10/15/06	detritus	Trifolium 20	80.3	4.59
38325	TR20DETTSE06B	10/15/06	detritus	Trifolium 20	85.5	5.94
38326	TR20DETTSE06C	10/15/06	detritus	Trifolium 20	79.7	4.97
38336	ZSPLDETTSE06A	10/17, 10/22/06	detritus	Z Spill	75.9	3.95
38337	ZSPLDETTSE06B	10/17, 10/22/06	detritus	Z Spill	77.7	2.52
38338	ZSPLDETTSE06C	10/17, 10/22/06	detritus	Z Spill	76.9	3.54
38182	OOOOSDTSE06	10/17/06	sediment	O	49.5	1.02
38179	POEDSDTSE06	10/11/06	sediment	Poe Rd	24.6	0.62
38183	TTTTSDTSE06	10/17/06	sediment	T	56.8	1.11
38181	TR14SDTSE06	10/13/06	sediment	Trifolium 14	43.1	1.91
38180	TR18SDTSE06	10/12/06	sediment	Trifolium 18	63.5	4.67
38178	TR20SDTSE06	10/11/06	sediment	Trifolium 20	50.2	1.64
38184	ZSPLSDTSE06	10/16/06	sediment	Z Spill	69.9	2.23

Table 7. Particle size distributions in sediment samples collected from Salton Sea irrigation drains, October 2006.

[USGS, U.S. Geological Survey; ID, identification; >, greater than; mm, millimeter]

USGS ID number	Field ID	Drain	Particle size category			
			> 2 mm (percent)	Sand (percent)	Silt (percent)	Clay (percent)
38189	OOOOSDTOC06	O	1.43	33.6	27.5	37.5
38186	POEDSDTOC06	Poe Rd	2.29	65.8	23.2	8.74
38190	TTTTTSDTOC06	T	0.16	14.3	33.9	51.6
38188	TR14SDTOC06	Trifolium 14	10.2	23.4	35.0	31.4
38187	TR18SDTOC06	Trifolium 18	0.04	50.4	34.5	15.1
38185	TR20SDTOC06	Trifolium 20	8.69	28.0	53.5	9.86
38191	ZSPLSDTOC06	Z Spill	0.40	26.1	48.6	24.8

Table 8. Total organic carbon in sediment samples collected from Salton Sea irrigation drains, October 2006.

[USGS, U.S. Geological Survey; ID, identification; estimated total organic carbon based on 58 percent organic matter loss on ignition]

USGS ID number	Field ID	Drain	Total organic carbon (percent)
38189	OOOOSDTOC06	O	2.17
38186	POEDSDTOC06	Poe Rd	1.12
38190	TTTTTSDTOC06	T	2.34
38188	TR14SDTOC06	Trifolium 14	2.46
38187	TR18SDTOC06	Trifolium 18	3.98
38185	TR20SDTOC06	Trifolium 20	2.54
38191	ZSPLSDTOC06	Z Spill	5.47

For more information concerning the research described in this report, contact:

U.S. Geological Survey
Columbia Environmental Research Center
4200 New Haven Road
Columbia, MO 65201
(573) 875-5399
http://www.cerc.usgs.gov