



Water-Data Report 2010

01408000 MANASQUAN RIVER AT SQUANKUM, NJ

MANASQUAN RIVER BASIN

LOCATION.--Lat 40°09'41", long 74°09'17" referenced to North American Datum of 1983, Howell Township, Monmouth County, NJ, Hydrologic Unit 02040301, on right bank 50 ft upstream from northbound bridge on County Highway 547 (Lakewood Farmingdale Road) in Squankum, and 0.4 mi downstream from Marsh Bog Brook.

DRAINAGE AREA.--44.0 mi².

SURFACE-WATER RECORDS

PERIOD OF RECORD.--July 1931 to current year. Monthly discharge only for July 1931, published in WSP 1302.

REVISED RECORDS.--WDR NJ-83-1: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 18.82 ft above NGVD of 1929. Prior to Aug 13, 1940, water-stage recorder at site 80 ft upstream at same datum.

REMARKS.--Records good, except for estimated daily discharges, which are fair. Several measurements of water temperature were made during the year. Since 1990, 3.18 mi² controlled by Manasquan Reservoir located on Timber Swamp Brook (see 01407965). Satellite telemetry at station.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 600 ft³/s and (or) maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Dec 9	2115	915	7.25
Dec 27	0530	1,780	8.59
Jan 26	0145	771	6.15
Feb 24	0800	987	6.75
Mar 14	0700	*2,190	*9.36
Mar 23	0945	659	5.77
Mar 29	2015	1,200	7.31
Mar 31	0230	1,800	8.63
Jun 1	0715	640	5.69

01408000 MANASQUAN RIVER AT SQUANKUM, NJ—Continued

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2009 TO SEPTEMBER 2010
DAILY MEAN VALUES

[e, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	46	73	52	129	78	147	335	76	301	26	28	19
2	43	63	46	120	76	158	200	72	88	25	29	19
3	52	59	294	95	75	167	157	78	64	25	27	19
4	67	55	115	85	76	e169	139	78	55	25	26	19
5	46	52	109	81	74	e166	127	65	52	24	26	19
6	41	50	199	80	73	e146	121	62	48	24	25	19
7	40	47	103	79	72	e136	113	59	44	24	24	20
8	38	46	91	77	71	e125	108	58	41	24	23	20
9	36	43	498	75	70	e114	140	56	42	31	23	20
10	35	44	313	68	72	e109	114	52	88	28	23	20
11	33	44	130	66	82	e110	100	52	57	26	23	20
12	33	47	97	65	83	e154	97	83	46	24	23	26
13	32	66	128	65	79	e734	92	67	43	116	23	28
14	33	194	233	65	77	e1,470	92	58	42	252	23	22
15	42	98	119	64	74	e847	88	59	41	206	22	19
16	84	72	97	64	77	420	86	52	38	66	22	36
17	47	63	86	80	83	227	88	51	38	50	22	148
18	55	59	78	207	79	168	83	130	35	41	22	37
19	49	57	76	105	78	142	80	145	34	51	21	27
20	40	92	81	89	95	127	77	77	34	43	21	24
21	38	67	84	80	100	117	78	63	33	36	21	23
22	37	56	81	77	100	124	106	56	32	34	21	22
23	35	53	78	73	e240	418	80	61	32	32	26	22
24	42	54	72	70	e853	193	74	64	30	31	25	21
25	123	52	74	232	e429	133	120	59	29	33	55	21
26	54	51	684	340	284	130	166	54	28	47	34	20
27	75	51	1,360	123	190	111	201	53	28	30	24	40
28	337	49	323	101	156	103	107	54	28	29	22	47
29	180	46	175	91	---	697	87	101	27	35	21	35
30	89	46	121	83	---	1,080	79	69	26	34	20	125
31	76	---	111	81	---	1,160	---	57	---	29	20	---
Total	1,978	1,849	6,108	3,110	3,896	10,102	3,535	2,121	1,524	1,501	765	957
Mean	63.8	61.6	197	100	139	326	118	68.4	50.8	48.4	24.7	31.9
Max	337	194	1,360	340	853	1,470	335	145	301	252	55	148
Min	32	43	46	64	70	103	74	51	26	24	20	19
Cfsm	1.45	1.40	4.48	2.28	3.16	7.41	2.68	1.55	1.15	1.10	0.56	0.72
In.	1.67	1.56	5.16	2.63	3.29	8.54	2.99	1.79	1.29	1.27	0.65	0.81

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1932 - 2010, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	52.1	68.7	83.2	89.4	94.4	113	100	77.7	58.5	51.1	48.9	51.1
Max	183	231	212	218	214	326	218	204	144	200	108	183
(WY)	(2006)	(1978)	(1978)	(1979)	(1979)	(2010)	(1983)	(1998)	(2003)	(1938)	(1948)	(1938)
Min	20.9	19.2	24.3	30.7	27.7	47.2	38.6	38.8	26.6	17.9	16.7	16.7
(WY)	(2002)	(2002)	(2002)	(1981)	(2002)	(1985)	(1995)	(1955)	(1957)	(2002)	(1932)	(1932)

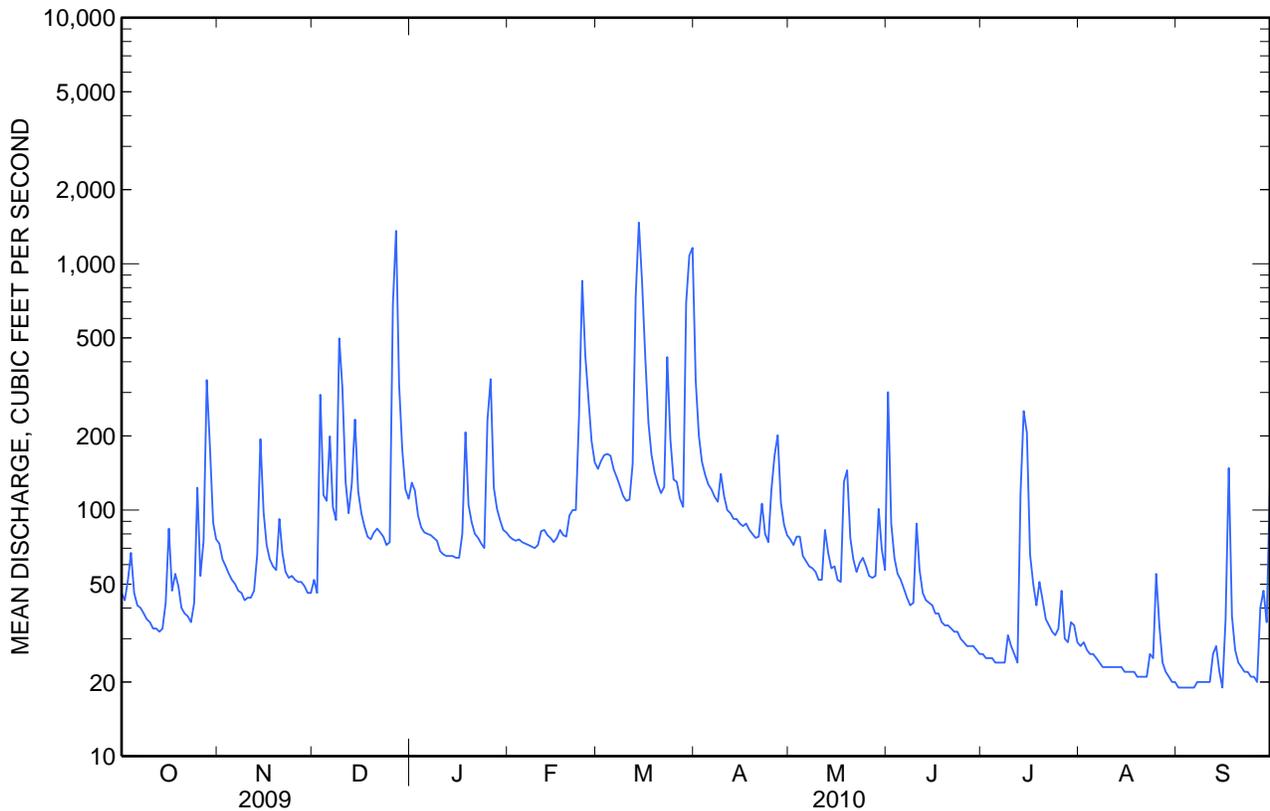
01408000 MANASQUAN RIVER AT SQUANKUM, NJ—Continued

SUMMARY STATISTICS

	Calendar Year 2009		Water Year 2010		Water Years 1932 - 2010	
Annual total	29,738		37,446			
Annual mean	81.5		103		73.9	
Highest annual mean					131	1978
Lowest annual mean					31.9	2002
Highest daily mean	1,360	Dec 27	^a 1,470	Mar 14	1,720	Nov 8, 1977
Lowest daily mean	28	Sep 6	19	Many days	10	Dec 5, 1998
Annual seven-day minimum	29	Sep 4	19	Aug 31	11	Aug 13, 2002
Maximum peak flow			2,190	Mar 14	2,940	Sep 21, 1938
Maximum peak stage			^b 9.36	Mar 14	12.45	Sep 21, 1938
Instantaneous low flow			18	Sep 5, 15, 16	8.1	Aug 6, 1981
Annual runoff (cfsm)	1.85		2.33		1.68	
Annual runoff (inches)	25.14		31.66		22.82	
10 percent exceeds	137		171		130	
50 percent exceeds	57		65		54	
90 percent exceeds	37		23		26	

^a Estimated.

^b From crest-stage gage.



01408000 MANASQUAN RIVER AT SQUANKUM, NJ—Continued**WATER-QUALITY RECORDS**

PERIOD OF RECORD.--Water years 1959-81, 1991 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: July 1969 to September 1974.

pH: July 1969 to September 1974.

WATER TEMPERATURE: July 1969 to September 1974.

DISSOLVED OXYGEN: August 1969 to September 1974.

REMARKS.--Cooperative Network Site Descriptor: Watershed Integrator, New Jersey Department of Environmental Protection Watershed Management Area 12.

COOPERATION.--Physical measurements and samples for laboratory analyses were provided by personnel of the NJ Department of Environmental Protection. Determinations of dissolved ammonia, dissolved orthophosphate, and suspended residue were performed by the NJ Department of Health and Senior Services, Environmental and Chemical Laboratory.

WATER-QUALITY DATA
WATER YEAR OCTOBER 2009 TO SEPTEMBER 2010

Part 1 of 5

[% , percent; ANC, acid neutralizing capacity; CaCO₃, calcium carbonate; N, nitrogen; NTRU, nephelometric turbidity ratio unit; P, phosphorus; SiO₂, silicon dioxide; cm, centimeter; ft³/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; nm, nanometers; °C, degrees Celsius; μS/cm, microsiemens per centimeter; <, less than; E, estimated]

Date	Sample start time	Barometric pressure, mm Hg (00025)	Temperature, air, °C (00020)	Absorbance, UV, 254 nm, 1 cm path length, water, filtered, units per centimeter		Discharge, instantaneous, ft ³ /s (00061)	Dissolved oxygen, water, unfiltered, mg/L (00300)	Dissolved oxygen, water, unfiltered, % saturation (00301)	pH, water, unfiltered, field, standard units (00400)
				(50624)	(61726)				
12-14-2009	0900	766	3.0	.239	.194	232	10.3	82	6.8
03-08-2010	0900	761	7.0	.072	.057	E 125	11.6	96	6.8
06-29-2010	0800	755	27.0	.065	.051	26	7.5	85	7.3
08-05-2010	0830	753	26.0	.056	.044	26	7.4	84	7.3

01408000 MANASQUAN RIVER AT SQUANKUM, NJ—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2009 TO SEPTEMBER 2010

Part 2 of 5

[%, percent; ANC, acid neutralizing capacity; CaCO₃, calcium carbonate; N, nitrogen; NTRU, nephelometric turbidity ratio unit; P, phosphorus; SiO₂, silicon dioxide; cm, centimeter; ft³/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; nm, nanometers; °C, degrees Celsius; μS/cm, microsiemens per centimeter; <, less than; E, estimated]

Date	Specific conductivity, water, unfiltered, μS/cm at 25 °C (00095)	Temperature, water, °C (00010)	Turbidity, water, unfiltered, broad band light source (400-680 nm), detectors at multiple angles including 90 +/- 30 degrees, ratiometric correction, NTRU (63676)	Dissolved solids dried at 180 °C, water, filtered, mg/L (70300)	Dissolved solids, water, filtered, sum of constituents, milligrams per liter (70301)	Hardness, water, mg/L as CaCO ₃ (00900)	Suspended solids, water, unfiltered, mg/L (00530)	Calcium, water, filtered, mg/L (00915)	Magnesium, water, filtered, mg/L (00925)
12-14-2009	149	5.8	50	98	E 81	29.8	26	9.00	1.78
03-08-2010	300	6.6	13	198	E 158	53.8	9	16.0	3.34
06-29-2010	300	21.4	14	187	167	96.8	7	32.8	3.64
08-05-2010	293	21.1	15	176	166	95.6	3	32.4	3.57

WATER-QUALITY DATA
WATER YEAR OCTOBER 2009 TO SEPTEMBER 2010

Part 3 of 5

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Date	Potassium, water, filtered, mg/L (00935)	Sodium, water, filtered, mg/L (00930)	ANC, water, unfiltered, fixed endpoint (pH 4.5) titration, laboratory, mg/L as CaCO ₃ (90410)	Carbon (inorganic plus organic), suspended sediment, total, mg/L (00694)	Chloride, water, filtered, mg/L (00940)	Fluoride, water, filtered, mg/L (00950)	Inorganic carbon, suspended sediment, total, mg/L (00688)	Silica, water, filtered, mg/L as SiO ₂ (00955)	Sulfate, water, filtered, mg/L (00945)	Ammonia plus organic nitrogen, water, filtered, mg/L as N (00623)
12-14-2009	2.54	11.6	13	2.31	21.3	E .07	E .03	7.8	17.1	.33
03-08-2010	2.63	28.7	16	1.11	55.7	.09	< .06	12.0	26.5	.31
06-29-2010	3.31	16.5	45	.64	36.0	.17	< .06	15.7	31.0	.13
08-05-2010	3.26	15.6	49	.42	35.5	.18	< .06	14.0	30.6	.14

01408000 MANASQUAN RIVER AT SQUANKUM, NJ—Continued

**WATER-QUALITY DATA
WATER YEAR OCTOBER 2009 TO SEPTEMBER 2010**

Part 4 of 5

[%, percent; ANC, acid neutralizing capacity; CaCO₃, calcium carbonate; N, nitrogen; NTRU, nephelometric turbidity ratio unit; P, phosphorus; SiO₂, silicon dioxide; cm, centimeter; ft³/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; nm, nanometers; °C, degrees Celsius; μS/cm, microsiemens per centimeter; <, less than; E, estimated]

Date	Ammonia, water, filtered, mg/L as N (00608)	Nitrate plus nitrite, water, filtered, mg/L as N (00631)	Orthophosphate, water, filtered, mg/L as P (00671)	Particulate nitrogen, suspended in water, mg/L (49570)	Phosphorus, water, filtered, mg/L as P (00666)	Phosphorus, water, unfiltered, mg/L as P (00665)	Total nitrogen, water, filtered, mg/L (00602)	Total nitrogen, water, unfiltered, mg/L (00600)	Organic carbon, suspended sediment, total, mg/L (00689)
12-14-2009	.057	.52	E .010	.17	.022	.265	.85	1.0	2.28
03-08-2010	.036	.72	E .004	.08	E .004	.065	1.0	1.1	1.11
06-29-2010	.010	.26	--	E .03	E .007	.044	.38	E .41	.64
08-05-2010	< .010	.22	--	.06	E .008	.043	.36	.42	.41

**WATER-QUALITY DATA
WATER YEAR OCTOBER
2009 TO SEPTEMBER
2010**

Part 5 of 5

[%, percent; ANC, acid neutralizing capacity; CaCO₃, calcium carbonate; N, nitrogen; NTRU, nephelometric turbidity ratio unit; P, phosphorus; SiO₂, silicon dioxide; cm, centimeter; ft³/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; nm, nanometers; °C, degrees Celsius; μS/cm, microsiemens per centimeter; <, less than; E, estimated]

Date	Organic carbon, water, filtered, mg/L (00681)
12-14-2009	4.1
03-08-2010	1.7
06-29-2010	1.8
08-05-2010	1.5

01408000 MANASQUAN RIVER AT SQUANKUM, NJ—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2009 TO SEPTEMBER 2010

Part 1 of 5

[<, less than; E, estimated; M, presence verified but not quantified]

Date	Sample start time	Moisture content, bed sediment smaller than 2 millimeters, wet sieved (native water), field, recoverable, dry weight, percent (49282)	pH, bed sediment, standard units (70310)	Carbon (inorganic plus organic), bed sediment, total, dry weight, grams per kilogram (00693)	Inorganic carbon, bed sediment, total, dry weight, grams per kilogram (00686)	Phosphorus, bed sediment, total, dry weight, milligrams per kilogram as phosphorus (00668)	Cadmium, bed sediment, recoverable, dry weight, milligrams per kilogram (01028)	Chromium, bed sediment, recoverable, dry weight, milligrams per kilogram (01029)	Cobalt, bed sediment, recoverable, dry weight, milligrams per kilogram (01038)	Copper, bed sediment, recoverable, dry weight, milligrams per kilogram (01043)
08-05-2010	0730	24	6.80	3.0	< .2	1,700	2.1	60	19.4	8

WATER-QUALITY DATA
WATER YEAR OCTOBER 2009 TO SEPTEMBER 2010

Part 2 of 5

[<, less than; E, estimated; M, presence verified but not quantified]

Date	Iron, bed sediment, total digestion, dry weight, milligrams per kilogram (01170)	Lead, bed sediment, recoverable, dry weight, milligrams per kilogram (01052)	Manganese, bed sediment, recoverable, dry weight, milligrams per kilogram (01053)	Mercury, bed sediment, recoverable, dry weight, milligrams per kilogram (71921)	Nickel, bed sediment, recoverable, dry weight, milligrams per kilogram (01068)	Zinc, bed sediment, recoverable, dry weight, milligrams per kilogram (01093)	Arsenic, bed sediment, recoverable, dry weight, milligrams per kilogram (64847)	Selenium, bed sediment, recoverable, dry weight, milligrams per kilogram (64848)	p-Cresol, bed sediment smaller than 2 millimeters, wet sieved (native water), field, recoverable, dry weight, micrograms per kilogram (49451)	PCBs, bed sediment, recoverable, dry weight, micrograms per kilogram (39519)
08-05-2010	57,000	34	65	< .007	56.0	120	39.9	.6	< 55	< 5.00

01408000 MANASQUAN RIVER AT SQUANKUM, NJ—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2009 TO SEPTEMBER 2010

Part 3 of 5

[<, less than; E, estimated; M, presence verified but not quantified]

Date	1,2-Dimethylnaphthalene, bed sediment smaller than 2 millimeters, wet sieved (native water), field, recoverable, dry weight, micrograms per kilogram (49403)	1,6-Dimethylnaphthalene, bed sediment smaller than 2 millimeters, wet sieved (native water), field, recoverable, dry weight, micrograms per kilogram (49404)	1-Methyl-9H-fluorene, bed sediment smaller than 2 millimeters, wet sieved (native water), field, recoverable, dry weight, micrograms per kilogram (49398)	1-Methylphenanthrene, bed sediment smaller than 2 millimeters, wet sieved (native water), field, recoverable, dry weight, micrograms per kilogram (49410)	1-Methylpyrene, bed sediment smaller than 2 millimeters, wet sieved (native water), field, recoverable, dry weight, micrograms per kilogram (49388)	2,3,6-Trimethylnaphthalene, bed sediment smaller than 2 millimeters, wet sieved (native water), field, recoverable, dry weight, micrograms per kilogram (49405)	2,6-Dimethylnaphthalene, bed sediment smaller than 2 millimeters, wet sieved (native water), field, recoverable, dry weight, micrograms per kilogram (49406)	2-Ethyl-naphthalene, bed sediment smaller than 2 millimeters, wet sieved (native water), field, recoverable, dry weight, micrograms per kilogram (49948)	2-Methylanthracene, bed sediment smaller than 2 millimeters, wet sieved (native water), field, recoverable, dry weight, micrograms per kilogram (49435)	4H-Cyclopenta[def]phenanthrene, bed sediment smaller than 2 millimeters, wet sieved (native water), field, recoverable, dry weight, micrograms per kilogram (49411)
08-05-2010	< 55	< 55	< 55	< 55	< 55	< 55	< 55	< 55	< 55	M

WATER-QUALITY DATA
WATER YEAR OCTOBER 2009 TO SEPTEMBER 2010

Part 4 of 5

[<, less than; E, estimated; M, presence verified but not quantified]

Date	9H-Fluorene, bed sediment smaller than 2 millimeters, wet sieved (native water), field, recoverable, dry weight, micrograms per kilogram (49399)	Acenaphthene, bed sediment smaller than 2 millimeters, wet sieved (native water), field, recoverable, dry weight, micrograms per kilogram (49429)	Acenaphthylene, bed sediment smaller than 2 millimeters, wet sieved (native water), field, recoverable, dry weight, micrograms per kilogram (49428)	Anthracene, bed sediment smaller than 2 millimeters, wet sieved (native water), field, recoverable, dry weight, micrograms per kilogram (49434)	Benzo[a]anthracene, bed sediment smaller than 2 millimeters, wet sieved (native water), field, recoverable, dry weight, micrograms per kilogram (49436)	Benzo[a]pyrene, bed sediment smaller than 2 millimeters, wet sieved (native water), field, recoverable, dry weight, micrograms per kilogram (49389)	Benzo[b]fluoranthene, bed sediment smaller than 2 millimeters, wet sieved (native water), field, recoverable, dry weight, micrograms per kilogram (49458)	Benzo[ghi]perylene, bed sediment smaller than 2 millimeters, wet sieved (native water), field, recoverable, dry weight, micrograms per kilogram (49408)	Benzo[k]fluoranthene, bed sediment smaller than 2 millimeters, wet sieved (native water), field, recoverable, dry weight, micrograms per kilogram (49397)	Chrysene, bed sediment smaller than 2 millimeters, wet sieved (native water), field, recoverable, dry weight, micrograms per kilogram (49450)
08-05-2010	< 55	< 55	< 55	M	< 55	E 6	E 9	E 4	E 3	E 3

01408000 MANASQUAN RIVER AT SQUANKUM, NJ—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2009 TO SEPTEMBER 2010

Part 5 of 5

[<, less than; E, estimated; M, presence verified but not quantified]

Date	Dibenzo[a, h]anthracene, bed sediment smaller than 2 millimeter s, wet sieved (native water), field, recoverabl e, dry weight, microgram s per kilogram (49461)	Fluoranthene, bed sediment smaller than 2 millimeter s, wet sieved (native water), field, recoverabl e, dry weight, microgram s per kilogram (49466)	Indeno[1,2, 3- cd]pyrene, bed sediment smaller than 2 millimeter s, wet sieved (native water), field, recoverabl e, dry weight, microgram s per kilogram (49390)	Isophorone, bed sediment smaller than 2 millimeter s, wet sieved (native water), field, recoverabl e, dry weight, microgram s per kilogram (49400)	Naphthalene, bed sediment smaller than 2 millimeter s, wet sieved (native water), field, recoverabl e, dry weight, microgram s per kilogram (49402)	Phenanthrene, bed sediment smaller than 2 millimeter s, wet sieved (native water), field, recoverabl e, dry weight, microgram s per kilogram (49409)	Phenanthridine, bed sediment smaller than 2 millimeter s, wet sieved (native water), field, recoverabl e, dry weight, microgram s per kilogram (49393)	Pyrene, bed sediment smaller than 2 millimeter s, wet sieved (native water), field, recoverabl e, dry weight, microgram s per kilogram (49387)	Bed sediment, dry sieved, sieve diameter, percent smaller than 0.0625 millimeter s (80164)
	08-05-2010	M	E 9	E 3	< 55	< 55	E 2	E 1	E 7