

**Watershed Summary Information**

**Accounting Unit Name:** Upper Chesapeake

**State(s):** MD (PA)

**Political Boundaries:** Baltimore, Carroll, Baltimore City, Harford, Howard, Anne Arundel, Kent, York, Chester

**Major Waterways:** Patapsco R  
Gunpowder Falls  
Patapsco R, N Br  
Winters Run  
Little Gunpowder Falls

**Number of Stations in Watershed:** Tier1 - 17  
Tier2 - 7  
Tier3 - 5

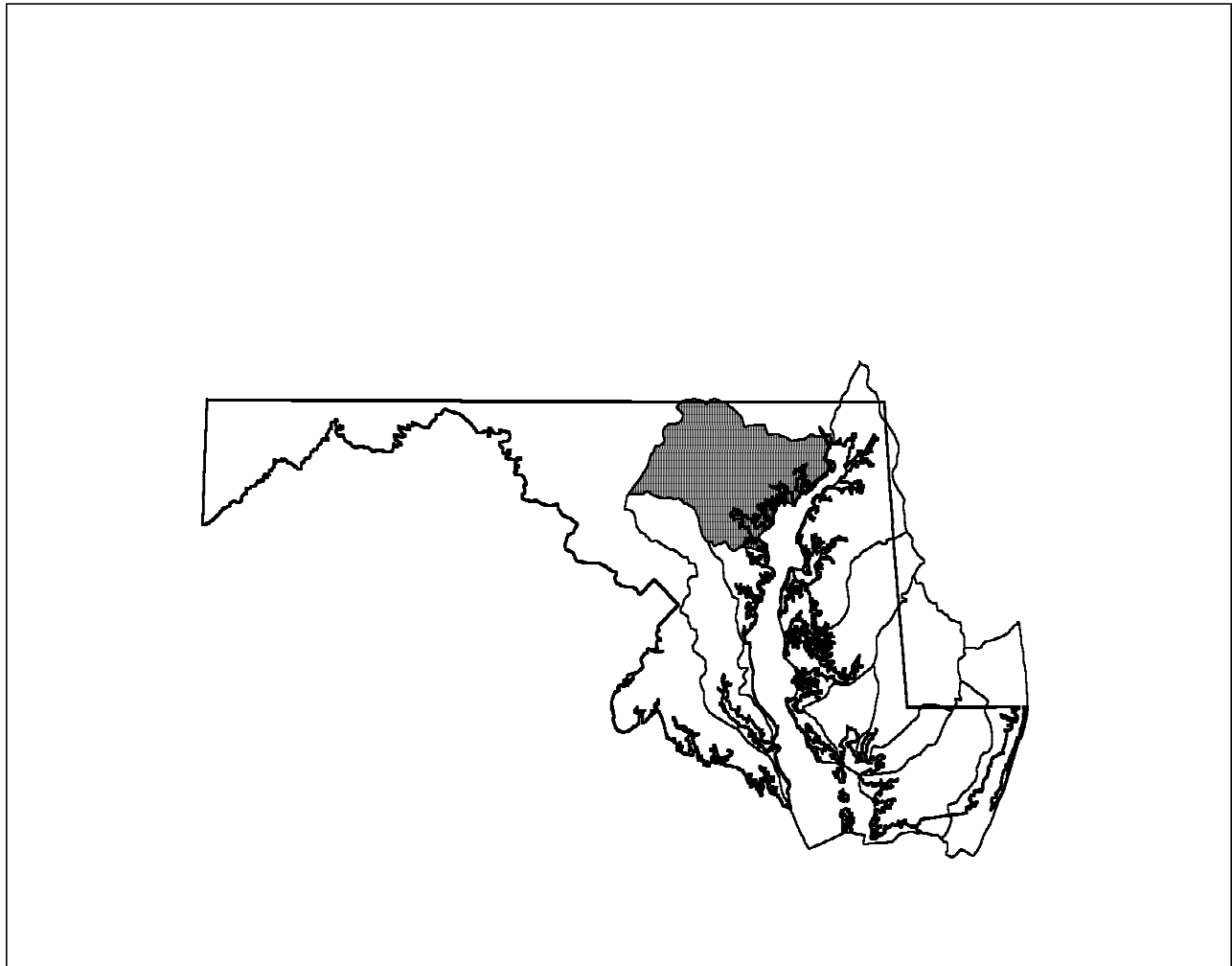


Figure 23. Watershed Location Map

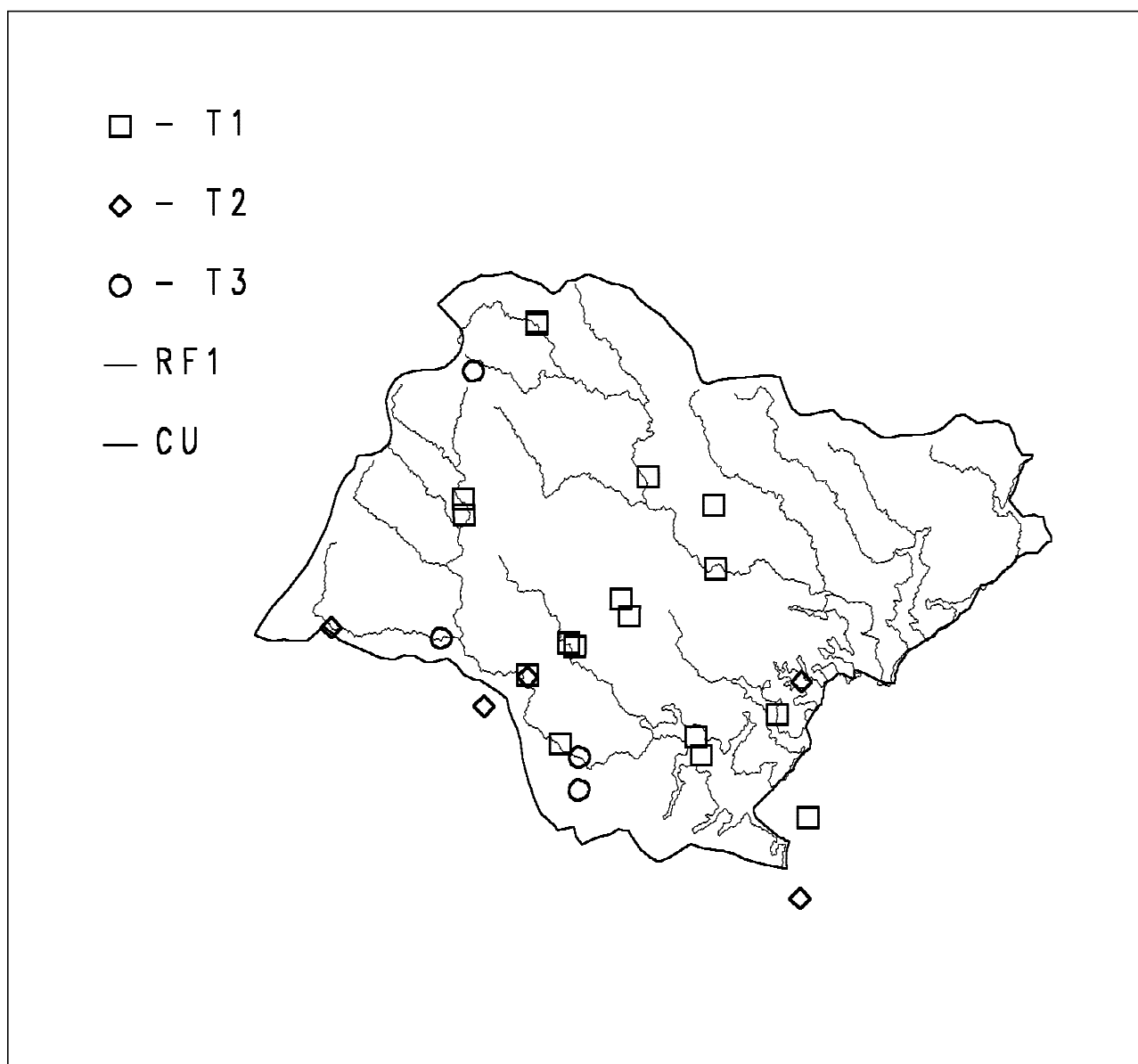


Figure 24. Major Waterways and Location of Sampling Stations

## Data Source(s) Used in Evaluation

Source: **COSED** Agency: **NS&T**  
 Monitoring Program: **NOAA/National Status and Trends**  
 Num. of Stations: 5 Date Range: 1986-89

Source: **EMAP-VA** Agency: **EMAPVA**  
 Monitoring Program: **EMAP-VA Province**  
 Num. of Stations: 3 Date Range: 1990

Source: **STORET** Agency: **112WRD**  
 Monitoring Program: **US Geological Survey Data**  
 Num. of Stations: 8 Date Range: 1987-89

Source: **STORET** Agency: **21MD**

Monitoring Program: **Maryland Dept of Natural Resources Data - Tidewater Administration**

Num. of Stations: 8 Date Range: 1980-82

Source: **STORET** Agency: **21MDOEP**

Monitoring Program: **Water Monitoring Data MD Office of Environ Pgms**

Num. of Stations: 5 Date Range: 1980-83

## Chemicals Responsible for Sampling Station Classification as Tier 1 or Tier 2

Classifying Parameter	Number of Stations							
	All Parameters				Aquatic Life		Human Health	
	Total	T.1&2	Tier1	Tier2	Tier1	Tier2	Tier1	Tier2
Lead	23	20	.	20	.	8	.	12
Polychlorinated biphenyls	25	19	15	4	2	3	13	6
Arsenic	23	18	.	18	.	8	.	10
Chlordane	18	11	.	11	.	4	.	8
BHC	23	10	.	10	.	6	.	4
DDT	25	10	.	10	.	7	.	3
Chromium	23	8	3	5	3	5	.	.
Mercury	23	8	2	6	2	6	.	.
Copper	23	8	.	8	.	8	.	.
Dieldrin	24	8	.	8	.	.	.	8
Naphthalene	10	8	.	8	.	8	.	.
Nickel	8	8	.	8	.	8	.	.
Zinc	23	8	.	8	.	8	.	.
Dibenzo(a,h)anthracene	10	6	1	5	1	5	.	2
Anthracene	10	6	.	6	.	6	.	.
Benzo(a)anthracene	8	6	.	6	.	6	.	1
Benzo(a)pyrene	10	6	.	6	.	6	.	6
Cadmium	23	6	.	6	.	6	.	.
Chrysene	8	6	.	6	.	6	.	.
Fluorene	8	6	.	6	.	6	.	.
Pyrene	9	6	.	6	.	6	.	.
Hexachlorobenzene	23	4	.	4	.	.	.	4
Toxaphene	17	4	.	4	.	.	.	4
Silver	8	3	1	2	1	2	.	.
Acenaphthylene	7	3	.	3	.	3	.	.
Heptachlor epoxide	20	2	.	2	.	.	.	2
Benzo(b)fluoranthene	4	1	.	1	.	.	.	1
DCPA/Dacthal	13	1	.	1	.	.	.	1
Heptachlor	23	1	.	1	.	.	.	1
Indeno(1,2,3-cd)pyrene	7	1	.	1	.	.	.	1
Methylnaphthalene, 2-	1	1	.	1	.	1	.	.

## Sediment Chemistry Data: Chemical Summary

Sediment Parameter	Total Observations			Detected Observations		
	Num.	Mean (ppb)	Median (ppb)	Num.	Max (ppb)	Min (ppb)
Acenaphthene	15	50.70	48.00	12	120.00	25.56
Acenaphthylene	11	59.48	64.32	7	140.00	19.30
Aldrin	7	0.09	0.00	1	0.60	0.60
Anthracene	17	177.86	150.00	13	932.46	90.10
Antimony	12	15252.83	4260.00	12	123000.0	984.00
Arsenic	17	20734.12	22000.00	16	37800.00	3000.00
Benzo(a)anthracene	15	289.14	250.00	13	653.25	160.00
Benzo(a)pyrene	17	277.67	220.00	13	670.76	140.00
Benzo(b)fluoranthene	8	341.91	240.00	6	789.68	140.00
Benzo(ghi)perylene	11	189.71	150.00	7	513.46	110.00
Benzo(k)fluoranthene	8	270.90	190.00	6	719.67	79.00
Biphenyl	12	103.30	97.19	12	173.00	56.00
Bis(2-ethylhexyl)phthalate	2	0.00	0.00	0	.	.
Bromophenyl phenyl ether, 4-	2	0.00	0.00	0	.	.
Butyl benzyl phthalate	2	0.00	0.00	0	.	.
BHC	61	0.26	0.08	52	4.40	0.01
Cadmium	17	1408.24	620.00	16	4870.00	400.00
Chlordane	15	3.71	1.80	14	20.00	0.31
Chromium	17	204588.2	120000.0	17	541000.0	6000.00
Chrysene	15	475.59	390.00	13	1671.97	190.00
Copper	17	103741.2	57000.00	17	272000.0	7000.00
Di-n-butyl phthalate	2	0.00	0.00	0	.	.
Di-n-octyl phthalate	2	0.00	0.00	0	.	.
Diazinon/Spectracide	4	0.03	0.00	1	0.10	0.10
Dibenzo(a,h)anthracene	14	55.66	33.45	10	266.06	11.00
Dichlorobenzene, 1,2-	2	0.00	0.00	0	.	.
Dichlorobenzene, 1,3-	2	0.00	0.00	0	.	.
Dichlorobenzene, 1,4-	2	0.00	0.00	0	.	.
Dieldrin	14	1.15	0.49	8	3.89	0.10
Diethyl phthalate	2	0.00	0.00	0	.	.
Dimethyl phthalate	2	0.00	0.00	0	.	.
Dimethylphenol, 2,4-	2	0.00	0.00	0	.	.
DDT	69	3.60	2.20	54	20.00	0.10
Endosulfan mixed isomers	4	0.00	0.00	0	.	.
Endrin	4	0.00	0.00	0	.	.
Ethion/Bladen	4	0.00	0.00	0	.	.
Fluoranthene	16	888.71	915.00	14	2100.00	86.00
Fluorene	15	136.20	130.00	13	435.31	82.90
Heptachlor	10	0.24	0.00	4	0.81	0.30
Heptachlor epoxide	7	0.00	0.00	0	.	.
Hexachlorobenzene	17	1.75	1.30	12	12.40	0.36
Hexachlorobutadiene	2	0.00	0.00	0	.	.

Sediment Parameter	Total Observations			Detected Observations		
	Num.	Mean (ppb)	Median (ppb)	Num.	Max (ppb)	Min (ppb)
Hexachloroethane	2	0.00	0.00	0	.	.
Indeno(1,2,3-cd)pyrene	11	196.84	150.00	7	601.26	74.00
Isophorone	2	0.00	0.00	0	.	.
Lead	17	97058.82	82000.00	16	217000.0	20000.00
Malathion	4	0.00	0.00	0	.	.
Mercury	17	340.71	230.00	16	1064.00	10.00
Methoxychlor	4	0.00	0.00	0	.	.
Methylnaphthalene, 2-	1	316.00	316.00	1	316.00	316.00
Mirex/Dechlorane	11	0.64	0.00	4	3.20	1.20
Naphthalene	17	418.03	440.00	15	1060.74	86.60
Nickel	15	72540.00	67600.00	15	136000.0	49000.00
Nitrosodiphenylamine, N-	2	0.00	0.00	0	.	.
Pentachlorophenol	2	0.00	0.00	0	.	.
Phenanthrene	16	506.13	545.00	14	1377.78	47.50
Phenol	2	0.00	0.00	0	.	.
Polychlorinated biphenyls	16	89.58	30.80	13	313.44	1.87
Pyrene	16	756.76	848.54	14	1675.61	82.60
Silver	15	1084.67	660.00	14	3900.00	540.00
Toxaphene	4	0.00	0.00	0	.	.
Trichlorobenzene, 1,2,4-	2	0.00	0.00	0	.	.
Zinc	17	427941.2	420000.0	17	797000.0	26000.00

## Tissue Residue Data: Chemical Summary

Tissue Parameter	Total Observations			Detected Observations		
	Num.	Mean (ppb)	Median (ppb)	Num.	Max (ppb)	Min (ppb)
Aldrin	68	0.00	0.00	0	.	.
Arsenic	68	29.85	0.00	22	170.00	60.00
BHC	136	22060.29	0.00	38	1000000	1.00
Cadmium	67	210.36	180.00	66	500.00	14.00
Chlordane	36	85.50	73.00	34	419.00	8.00
Chromium	68	264.41	110.00	39	900.00	110.00
Copper	68	558.53	655.00	64	1260.00	30.00
Dieldrin	68	102944.0	3.00	54	1000000	1.00
DCPA/Dacthal	68	29412.66	0.00	17	1000000	1.00
DDT	203	34491.65	4.00	129	1000000	1.00
Endosulfan, alpha-	36	0.06	0.00	1	2.00	2.00
Endrin	68	0.00	0.00	0	.	.
Heptachlor	68	14706.01	0.00	6	1000000	1.00
Heptachlor epoxide	68	1.46	0.00	20	33.00	1.00
Hexachlorobenzene	68	102941.4	0.00	15	1000000	1.00
Lead	68	1580.88	1450.00	57	5400.00	500.00
Mercury	68	71.47	63.00	68	160.00	24.00

Tissue Parameter	Total Observations			Detected Observations		
	Num.	Mean (ppb)	Median (ppb)	Num.	Max (ppb)	Min (ppb)
Methoxychlor	68	0.01	0.00	1	1.00	1.00
Mirex/Dechlorane	68	0.00	0.00	0	.	.
Polychlorinated biphenyls	132	81.12	16.50	68	880.00	10.00
Toxaphene	68	44123.78	0.00	5	1000000	145.00
Zinc	68	14163.82	13600.00	68	33200.00	4950.00

## Biotoxicity Data

Lat.	Long.	Date	Species Name	Phase	% Mortality		Sign.
					Test	Control	
Monitoring Program: EMAP-VA Province							
39.2463	76.5570	90-08-15	Ampelisca Abdita	S	33.00	11.00	Yes
39.2700	76.4433	90-07-26	Ampelisca Abdita	S	10.00	14.00	no
39.3050	76.4100	90-08-05	Ampelisca Abdita	S	8.00	14.00	no